CHAPTER

27

FLIGHT CONTROLS

CHAPTER 27
FLIGHT CONTROLS

Subject/Page	Date	COC
27-EFFECTIVE PAGES		
1 thru 31	SEP 05/2018	
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27-CONTENTS		
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Subject/Page	Date	COC
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508	Jan 05/2015	
509	May 05/2015	

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27-31-00 (cont)		
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408	Sep 05/2017	

Subject/Page	Date	COC
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404	Jan 05/2015	
27-31-08		
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406	Jul 25/2018	

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406	May 05/2017	

Subject/Page	Date	COC
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27-32-05		
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504	Jan 05/2018	

Subject/Page	Date	COC
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540	Sep 05/2017	

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513	Sep 05/2017	

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Subject/Page	Date	COC
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433	Jul 25/2018	

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Subject/Page	Date	COC
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423	Jan 05/2017	

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27-51-16		
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442	Sep 05/2017	
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604	Jan 05/2015	
27-51-21		
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27-51-22 (cont)		
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Subject/Page	Date	COC
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27-51-25		
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O 411	Sep 05/2018	
O 412	Sep 05/2018	
O 413	Sep 05/2018	
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27-51-28		
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27-51-36		
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404	Jan 05/2015	

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426	Sep 05/2017	

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420	Sep 05/2017	

Subject/Page	Date	COC
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607	Sep 05/2017	

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Subject/Page	Date	COC
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Subject/Page	Date	COC
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402	Sep 05/2017	

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209	May 05/2018	

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216	Sep 05/2017							

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CHAPTER 27
FLIGHT CONTROLS

SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
FLIGHT CONTROLS - MAINTENANCE PRACTICES	27-00-00		201	ARO ALL
Primary and High Lift Flight Control System - Deactivation TASK 27-00-00-040-839			201	ARO ALL
Primary and High Lift Flight Control System - Activation TASK 27-00-00-440-839			220	ARO ALL
FLIGHT CONTROLS - INSPECTION/CHECKS	27-00-00		601	ARO ALL
Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks TASK 27-00-00-700-801			601	ARO ALL
Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks TASK 27-00-00-700-802			609	ARO ALL
FLIGHT CONTROLS - DDG MAINTENANCE PROCEDURES	27-00-00		901	ARO ALL
MMEL 27-02-3 (DDG) Preparation - Primary Flight Computer (PFC) Channel Inoperative TASK 27-00-00-040-808			902	ARO ALL
MMEL 27-02-3 (DDG) Restoration - Primary Flight Computer (PFC) Channel Inoperative TASK 27-00-00-440-808			904	ARO ALL
MMEL 27-02-4 (DDG) Preparation - Primary Flight Computer (PFC) Interface Signals Inoperative TASK 27-00-00-040-810			906	ARO ALL
MMEL 27-02-4 (DDG) Restoration - Primary Flight Computer Interface Signals Inoperative TASK 27-00-00-440-810			906	ARO ALL
MMEL 27-02-6 (DDG) Preparation - Flight Control Hydraulic Shutoff Valve Systems Inoperative TASK 27-00-00-040-801			907	ARO ALL
MMEL 27-02-6 (DDG) Restoration - Flight Control Hydraulic Shutoff Valve Systems Inoperative TASK 27-00-00-440-801			914	ARO ALL

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MMEL 27-03-1 (DDG) Preparation - Flap/Slat Control Lanes Inoperative TASK 27-00-00-040-803			917	ARO ALL
MMEL 27-03-1 (DDG) Restoration - Flap/Slat Control Lanes Inoperative TASK 27-00-00-440-803			918	ARO ALL
MMEL 27-03-02 (DDG) Preparation - Flap Secondary Control Inoperative TASK 27-00-00-040-822			919	ARO ALL
MMEL 27-03-02 (DDG) Restoraration - Flap Secondary Control Inoperative TASK 27-00-00-440-822			920	ARO ALL
MMEL 27-03-03 (DDG) Preparation - Slat Secondary Control Inoperative TASK 27-00-00-040-823			920	ARO ALL
MMEL 27-03-03 (DDG) Restoration - Slat Secondary Control Inoperative TASK 27-00-00-440-823			921	ARO ALL
MMEL 27-11-1 (DDG) Preparation - Aileron Trim System Inoperative TASK 27-00-00-040-806			922	ARO ALL
MMEL 27-11-1 (DDG) Restoration - Aileron Trim System Inoperative TASK 27-00-00-440-806			923	ARO ALL
MMEL 27-11-03 (DDG) Preparation - Single Aileron PCU Inoperative TASK 27-00-00-040-815			924	ARO ALL
MMEL 27-11-03 (DDG) Restoration - Single Aileron PCU Inoperative TASK 27-00-00-440-815			928	ARO ALL
MMEL 27-11-04 (DDG) Preparation - Flaperon Power Control Units (PCUs) Inoperative TASK 27-00-00-040-836			929	ARO ALL
MMEL 27-11-04 (DDG) Restoration - Flaperon Power Control Units (PCUs) Inoperative TASK 27-00-00-440-836			932	ARO ALL

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MMEL 27-48-3 (DDG) Preparation - Nose Gear Pressure Switch Inoperative TASK 27-00-00-040-837			933	ARO ALL
MMEL 27-48-3 (DDG) Restoration - Nose Gear Pressure Switch Inoperative TASK 27-00-00-440-837			934	ARO ALL
MMEL 27-48-4 (DDG) Preparation - Nose Gear Pressure Transducer Inoperative TASK 27-00-00-040-838			935	ARO ALL
MMEL 27-48-4 (DDG) Restoration - Nose Gear Pressure Transducer Inoperative TASK 27-00-00-440-838			936	ARO ALL
MMEL 27-51-1 (DDG) Preparation - Inboard Flap Support Fairing Spring Removed TASK 27-00-00-040-811			937	ARO ALL
MMEL 27-51-1 (DDG) Restoration - Inboard Flap Support Fairing Spring Removed TASK 27-00-00-440-811			942	ARO ALL
MMEL 27-61-03 (DDG) Preparation - Spoiler PCU Inoperative TASK 27-00-00-040-816			942	ARO ALL
MMEL 27-61-03 (DDG) Restoration - Spoiler PCU Inoperative TASK 27-00-00-440-816			949	ARO ALL
MMEL 27-62-1 (DDG) Preparation - Automatic Speed Brake Function Inoperative TASK 27-00-00-040-807			953	ARO ALL
MMEL 27-62-1 (DDG) Restoration - Automatic Speed Brake Function Inoperative TASK 27-00-00-440-807			954	ARO ALL
PRIMARY FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST	27-02-00		501	ARO ALL
Actuation Confidence Test TASK 27-02-00-400-801			501	ARO ALL
Radio Altimeter to PFC Connection Test TASK 27-02-00-400-802			503	ARO ALL

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Primary Flight Computer Software Installation TASK 27-02-01-400-803			202	ARO ALL
PRIMARY FLIGHT COMPUTER - REMOVAL/INSTALLATION	27-02-01		401	ARO ALL
Primary Flight Computer (PFC) Removal TASK 27-02-01-000-801			401	ARO ALL
Primary Flight Computer (PFC) Installation TASK 27-02-01-400-802			405	ARO ALL
Primary Flight Computer (PFC) Lane Reset TASK 27-02-01-740-801			413	ARO ALL
PRIMARY FLIGHT COMPUTER - ADJUSTMENT/TEST	27-02-01		501	ARO ALL
Primary Flight Computer (PFC) Reset Test TASK 27-02-01-400-801			501	ARO ALL
Primary Flight Computer Disconnect Switch Test TASK 27-02-01-700-801			502	ARO ALL
ACTUATOR CONTROL ELECTRONICS (ACE) - REMOVAL/INSTALLATION	27-02-02		401	ARO ALL
Actuator Control Electronics (ACE) Removal TASK 27-02-02-000-801			401	ARO ALL
Actuator Control Electronics (ACE) Installation TASK 27-02-02-400-803			405	ARO ALL
ACTUATOR CONTROL ELECTRONICS (ACE) - ADJUSTMENT/TEST	27-02-02		501	ARO ALL
Actuator Control Electronics (ACE) Monitor Test TASK 27-02-02-400-801			501	ARO ALL
ACE to FSEU Connection Test TASK 27-02-02-400-802			503	ARO ALL
Actuator Control Electronics (ACE) Monitor Test - using A629 bus analyzer TASK 27-02-02-400-804			504	ARO ALL

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Primary Flight Computers/ADIRU Module Removal TASK 27-02-03-000-801			401	ARO ALL
Primary Flight Computers/ADIRU Module Installation TASK 27-02-03-400-801			404	ARO ALL
Primary Flight Computers/ADIRU Module Operational Test TASK 27-02-03-700-801			404	ARO ALL
PRIMARY FLIGHT CONTROL CABLES - MAINTENANCE PRACTICES	27-02-20	2	201	ARO ALL
Primary Flight Control Cables - Location and Part Data TASK 27-02-20-610-802-002		2	201	ARO ALL
HYDRAULIC SHUTOFF VALVES (TAIL AND WING) - REMOVAL/INSTALLATION	27-02-32		401	ARO ALL
Hydraulic Shutoff Valve Removal TASK 27-02-32-000-801			401	ARO ALL
Hydraulic Shutoff Valve Installation TASK 27-02-32-400-801			412	ARO ALL
HYDRAULIC FUSES - REMOVAL/INSTALLATION	27-02-35		401	ARO ALL
Hydraulic Fuse Removal TASK 27-02-35-000-801			401	ARO ALL
Hydraulic Fuse Installation TASK 27-02-35-400-801			415	ARO ALL
HYDRAULIC CHECK VALVE - REMOVAL/INSTALLATION	27-02-36		401	ARO ALL
Wing Hydraulic Check Valve Removal TASK 27-02-36-000-801			401	ARO ALL
Wing Hydraulic Check Valve Installation TASK 27-02-36-400-801			411	ARO ALL
Tail Hydraulic Check Valve Removal TASK 27-02-36-000-802			413	ARO ALL

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HYDRAULIC CHECK VALVE - INSPECTION/CHECK	27-02-36		601	ARO ALL
Hydraulic Check Valve Inspection TASK 27-02-36-210-801			601	ARO ALL
AILERON AND FLAPERON CONTROL SYSTEM - ADJUSTMENT/TEST	27-11-00		501	ARO ALL
Aileron and Flaperon - Operational Test TASK 27-11-00-700-801			501	ARO ALL
Control Wheel and Cable Adjustment (Rigging) TASK 27-11-00-700-802			507	ARO ALL
Wheel Position Transducer (LVDT) Adjustment TASK 27-11-00-820-801			523	ARO ALL
Aileron Adjustment (Rigging) TASK 27-11-00-820-802			529	ARO ALL
Flaperon Adjustment (Rigging) TASK 27-11-00-820-803			533	ARO ALL
Cove Lip Door Adjustment (Rigging) TASK 27-11-00-820-804			545	ARO ALL
Aileron or Flaperon Power Control Unit (PCU) Test TASK 27-11-00-740-801			550	ARO ALL
Aileron or Flaperon Position Test TASK 27-11-00-700-803			551	ARO ALL
Aileron Trim Test TASK 27-11-00-700-804			553	ARO ALL
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Control Wheel Damper Test TASK 27-11-00-700-806			558	ARO ALL
Control Wheel Flight Data Recorder (FDR) Force Transducer Test TASK 27-11-00-700-808			560	ARO ALL
Control Wheel Force Versus Travel Test TASK 27-11-00-720-801			561	ARO ALL

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Force Limiter Operational Test TASK 27-11-00-700-807			566	ARO ALL
Aileron Trim Inhibit Functional Test TASK 27-11-00-710-801			567	ARO ALL
Control Wheel Force Transducer Test TASK 27-11-00-710-802			568	ARO ALL
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Lateral Control Mechanism Wire Bundle Inspection TASK 27-11-00-210-801			601	ARO ALL
CONTROL WHEEL - REMOVAL/INSTALLATION	27-11-01		401	ARO ALL
Control Wheel Removal TASK 27-11-01-000-801			401	ARO ALL
Control Wheel Installation TASK 27-11-01-400-801			408	ARO ALL
Control Wheel Marker Removal TASK 27-11-01-000-802			413	ARO ALL
Control Wheel Marker Installation TASK 27-11-01-400-802			416	ARO ALL
WHEEL POSITION TRANSDUCERS - REMOVAL/INSTALLATION	27-11-02		401	ARO ALL
Wheel Position Tranducers Removal TASK 27-11-02-000-801			401	ARO ALL
Wheel Position Tranducers Installation TASK 27-11-02-400-801			406	ARO ALL
WHEEL DAMPER - MAINTENANCE PRACTICES	27-11-03		201	ARO ALL
Wheel Damper Fluid Level Inspection TASK 27-11-03-210-801			201	ARO ALL
Wheel Damper Removal TASK 27-11-03-000-801			201	ARO ALL
Wheel Damper Installation TASK 27-11-03-400-801			205	ARO ALL

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LATERAL CONTROL MECHANISM - REMOVAL/INSTALLATION	27-11-05		401	ARO ALL
Lateral Control Mechanism Removal TASK 27-11-05-000-801			401	ARO ALL
Lateral Control Mechanism Installation TASK 27-11-05-400-801			411	ARO ALL
FORCE LIMITER - REMOVAL/INSTALLATION	27-11-07		401	ARO ALL
Force Limiter Removal TASK 27-11-07-000-801			401	ARO ALL
Force Limiter Installation TASK 27-11-07-400-801			408	ARO ALL
WHEEL FORCE TRANSDUCER - REMOVAL/INSTALLATION	27-11-08		401	ARO ALL
Wheel Force Transducer - Removal TASK 27-11-08-000-801			401	ARO ALL
Wheel Force Transducer - Installation TASK 27-11-08-400-801			408	ARO ALL
AILERON TRIM ACTUATOR - REMOVAL/INSTALLATION	27-11-09		401	ARO ALL
Aileron Trim Actuator - Removal TASK 27-11-09-000-801			401	ARO ALL
Aileron Trim Actuator - Installation TASK 27-11-09-400-801			404	ARO ALL
AILERON POWER CONTROL UNITS (PCU) - REMOVAL/INSTALLATION	27-11-11		401	ARO ALL
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Aileron Power Control Unit (PCU) Installation TASK 27-11-11-400-801			407	ARO ALL
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Aileron PCU - Inspection and Wear Limits TASK 27-11-11-200-801			601	ARO ALL
Aileron Power Control Unit Freeplay Inspection TASK 27-11-11-200-802			605	ARO ALL

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Flaperon Power Control Unit - Installation TASK 27-11-12-400-801			410	ARO ALL
Flaperon Yoke Assembly - Removal TASK 27-11-12-000-802			414	ARO ALL
Flaperon Yoke Assembly - Installation TASK 27-11-12-000-803			418	ARO ALL
Flaperon Tube Assembly - Removal TASK 27-11-12-000-804			419	ARO ALL
Flaperon Tube Assembly - Installation TASK 27-11-12-400-802			422	ARO ALL
AILERON - REMOVAL/INSTALLATION	27-11-13		401	ARO ALL
Aileron - Removal TASK 27-11-13-000-801			401	ARO ALL
Aileron - Installation TASK 27-11-13-400-801			411	ARO ALL
FLAPERON - REMOVAL/INSTALLATION	27-11-14		401	ARO ALL
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Flaperon - Installation TASK 27-11-14-400-801			409	ARO ALL
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Cove Lip Door - Installation TASK 27-11-14-400-802			419	ARO ALL
Flaperon Seals - Removal TASK 27-11-14-000-803			422	ARO ALL
Flaperon Seals - Installation TASK 27-11-14-000-804			432	ARO ALL

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FLAPERON FAIRINGS - REMOVAL/INSTALLATION	27-11-15		401	ARO ALL
Outboard Flaperon Fairing Removal TASK 27-11-15-000-801			401	ARO ALL
Outboard Flaperon Fairing Installation TASK 27-11-15-400-801			404	ARO ALL
Inboard Flaperon Fairing Removal TASK 27-11-15-000-802			405	ARO ALL
Inboard Flaperon Fairing Installation TASK 27-11-15-400-802			410	ARO ALL
RUDDER CONTROL SYSTEM - ADJUSTMENT/TEST	27-21-00		501	ARO ALL
Rudder Adjustment (Rigging) TASK 27-21-00-800-801			501	ARO ALL
Rudder Adjustment (Rigging) Without the MAT TASK 27-21-00-820-802			509	ARO ALL
Rudder Pedal Adjustment TASK 27-21-00-800-802			512	ARO ALL
Left and Right Rudder Control Mechanisms Adjustment (Rigging) TASK 27-21-00-800-803			518	ARO ALL
Pedal Position Transducer Adjustment (Rigging) TASK 27-21-00-800-804			524	ARO ALL
Rudder Trim Adjustment (Rigging) TASK 27-21-00-820-801			525	ARO ALL
Rudder Power Control Unit Test TASK 27-21-00-700-801			526	ARO ALL
Rudder Position Test TASK 27-21-00-700-802			528	ARO ALL
Direct Mode Test TASK 27-21-00-720-801			529	ARO ALL
Pressure Reducer Test TASK 27-21-00-720-802			530	ARO ALL
Rudder Trim Test TASK 27-21-00-700-803			532	ARO ALL
Pedal Damper Test TASK 27-21-00-700-804			535	ARO ALL

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Rudder Trim Position Transducer Test TASK 27-21-00-700-806			539	ARO ALL
Rudder Pedal Force Transducer Test TASK 27-21-00-700-807			540	ARO ALL
Rudder Pedal Breakout Test TASK 27-21-00-200-802			541	ARO ALL
RUDDER PEDALS - REMOVAL/INSTALLATION	27-21-01		401	ARO ALL
Rudder Pedal Bellcrank Assembly Removal TASK 27-21-01-020-801			401	ARO ALL
Rudder Pedal Bellcrank Assembly Installation TASK 27-21-01-420-801			402	ARO ALL
Rudder Pedal Assembly Removal TASK 27-21-01-000-801			403	ARO ALL
Rudder Pedal Assembly Installation TASK 27-21-01-400-801			411	ARO ALL
CRANK AND FLEX SHAFT FOR RUDDER PEDAL ADJUSTMENT - REMOVAL/INSTALLATION	27-21-02		401	ARO ALL
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Rudder Pedal Adjustment Crank Assembly Installation TASK 27-21-02-400-801			408	ARO ALL
Rudder Pedal Adjustment Flex Shaft Removal TASK 27-21-02-000-802			409	ARO ALL
Rudder Pedal Adjustment Flex Shaft Installation TASK 27-21-02-400-802			411	ARO ALL
RUDDER TRIM POSITION TRANSDUCER - REMOVAL/INSTALLATION	27-21-03		401	ARO ALL
Rudder Trim Position Transducer Removal TASK 27-21-03-000-801			401	ARO ALL
Rudder Trim Position Transducer Installation TASK 27-21-03-400-801			404	ARO ALL

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Rudder Pedal Position Tranducers Removal TASK 27-21-04-000-801			401	ARO ALL
Rudder Pedal Flight Data Recorder (FDR) Force Transducer Removal TASK 27-21-04-000-802			407	ARO ALL
Rudder Pedal Position Transducer Installation TASK 27-21-04-400-801			411	ARO ALL
Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation TASK 27-21-04-400-802			412	ARO ALL
PEDAL DAMPER - REMOVAL/INSTALLATION	27-21-05		401	ARO ALL
Pedal Damper Removal TASK 27-21-05-000-801			401	ARO ALL
Pedal Damper Installation TASK 27-21-05-400-801			404	ARO ALL
PEDAL DAMPER - INSPECTION/CHECK	27-21-05		601	ARO ALL
Pedal Damper Fluid Level Inspection TASK 27-21-05-210-801			601	ARO ALL
RUDDER CONTROL MECHANISM - REMOVAL/INSTALLATION	27-21-06		401	ARO ALL
Rudder Control Mechanism Removal TASK 27-21-06-000-801			401	ARO ALL
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RUDDER TRIM ACTUATOR - REMOVAL/INSTALLATION	27-21-07		401	ARO ALL
Rudder Trim Actuator Removal TASK 27-21-07-000-801			401	ARO ALL
Rudder Trim Actuator Installation TASK 27-21-07-400-801			404	ARO ALL

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Rudder and Aileron Trim Module - Removal TASK 27-21-08-000-801			201	ARO ALL
Rudder and Aileron Trim Module - Installation TASK 27-21-08-400-801			204	ARO ALL
Rudder Trim Knob - Cleaning TASK 27-21-08-100-801			205	ARO ALL
RUDDER TRIM INDICATOR - REMOVAL/INSTALLATION	27-21-09		401	ARO ALL
Rudder Trim Indicator Removal TASK 27-21-09-000-801			401	ARO ALL
Rudder Trim Indicator Installation TASK 27-21-09-400-801			403	ARO ALL
GUST SUPPRESSION PRESSURE TRANSDUCER - REMOVAL/INSTALLATION	27-21-10		401	ARO ALL
Gust Suppression Pressure Transducer Removal TASK 27-21-10-000-801			401	ARO ALL
Gust Suppression Pressure Transducer Installation TASK 27-21-10-400-801			404	ARO ALL
Gust Suppression Transducer Pneumatic Tubes - Leak Test TASK 27-21-10-700-801			406	ARO ALL
RUDDER POWER CONTROL UNITS (PCU) - REMOVAL/INSTALLATION	27-21-11		401	ARO ALL
Rudder Power Control Units (PCU) Removal TASK 27-21-11-000-801			401	ARO ALL
Rudder Power Control Units (PCU) Installation TASK 27-21-11-400-801			411	ARO ALL
RUDDER POWER CONTROL UNIT - INSPECTION/CHECK	27-21-11		601	ARO ALL
Rudder PCU Inspection and Wear Limits TASK 27-21-11-200-801			601	ARO ALL
Rudder Power Control Unit Freeplay - Inspection TASK 27-21-11-200-802			607	ARO ALL

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Rudder Tab Bearings Freeplay - Inspection TASK 27-21-11-200-804			624	ARO ALL
RUDDER - REMOVAL/INSTALLATION	27-21-12		401	ARO ALL
Rudder Removal TASK 27-21-12-000-801			401	ARO ALL
Rudder Installation TASK 27-21-12-400-801			412	ARO ALL
Rudder Tab Removal TASK 27-21-12-000-802			416	ARO ALL
Rudder Tab Installation TASK 27-21-12-400-802			424	ARO ALL
MODAL SUPPRESSION ACCELEROMETERS - REMOVAL/INSTALLATION	27-21-13		401	ARO ALL
Accelerometer Removal TASK 27-21-13-000-801			401	ARO ALL
Accelerometer Installation TASK 27-21-13-400-801			404	ARO ALL
RUDDER JACKSHAFT - REMOVAL/INSTALLATION	27-21-14		401	ARO ALL
Rudder Jackshaft Removal TASK 27-21-14-000-803			401	ARO ALL
Rudder Jackshaft Installation TASK 27-21-14-400-802			410	ARO ALL
ELEVATOR CONTROL SYSTEM - ADJUSTMENT/TEST	27-31-00		501	ARO ALL
Elevator Adjustment (Rigging) TASK 27-31-00-800-801			501	ARO ALL
Control Column Adjustment (Rigging) TASK 27-31-00-800-802			509	ARO ALL
Elevator Power Control Unit Test TASK 27-31-00-700-801			516	ARO ALL
Elevator Position Test TASK 27-31-00-700-802			517	ARO ALL

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Compensator Test for the Elevator PCUs TASK 27-31-00-700-805			521	ARO ALL
Column Breakout Mechanism Test TASK 27-31-00-700-806			526	ARO ALL
Control Column Damper Test TASK 27-31-00-700-807			527	ARO ALL
Control Column Travel Test TASK 27-31-00-700-808			528	ARO ALL
Column Force Transducer Test TASK 27-31-00-720-801			529	ARO ALL
Column Flight Data Recorder (FDR) Force Transducer Test TASK 27-31-00-700-810			530	ARO ALL
Column Force Test TASK 27-31-00-700-809			531	ARO ALL
Elevator Feel System Test TASK 27-31-00-700-811			535	ARO ALL
CONTROL COLUMN - REMOVAL/INSTALLATION	27-31-01		401	ARO ALL
Control Column Removal TASK 27-31-01-000-801			401	ARO ALL
Control Column Installation TASK 27-31-01-400-801			408	ARO ALL
COLUMN TORQUE TUBE - REMOVAL/INSTALLATION	27-31-02		401	ARO ALL
Column Torque Tube Removal TASK 27-31-02-000-801			401	ARO ALL
Column Torque Tube Installation TASK 27-31-02-400-801			407	ARO ALL

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COLUMNS BREAKOUT MECHANISM - REMOVAL/INSTALLATION	27-31-03		401	ARO ALL
Column Breakout Mechanism Removal TASK 27-31-03-000-801			401	ARO ALL
Column Breakout Mechanism Installation TASK 27-31-03-400-801			409	ARO ALL
COLUMN POSITION TRANSDUCERS - REMOVAL/INSTALLATION	27-31-04		401	ARO ALL
Column Position Transducers Removal TASK 27-31-04-000-801			401	ARO ALL
Column Position Transducers Installation TASK 27-31-04-400-801			405	ARO ALL
COLUMN DAMPER - REMOVAL/INSTALLATION	27-31-05		401	ARO ALL
Column Damper Removal TASK 27-31-05-000-801			401	ARO ALL
Column Damper Installation TASK 27-31-05-400-801			404	ARO ALL
COLUMN DAMPER - INSPECTION	27-31-05		601	ARO ALL
Column Damper Fluid Level Inspection TASK 27-31-05-210-801			601	ARO ALL
ELEVATOR FEEL AND CENTERING MECHANISM - REMOVAL/INSTALLATION	27-31-06		401	ARO ALL
Elevator Feel and Centering Mechanism Removal TASK 27-31-06-000-801			401	ARO ALL
Elevator Feel and Center Mechanism Installation TASK 27-31-06-400-801			407	ARO ALL
ELEVATOR FEEL ACTUATORS - REMOVAL/INSTALLATION	27-31-07		401	ARO ALL
Elevator Feel Actuators Removal TASK 27-31-07-000-801			401	ARO ALL
Elevator Feel Actuators - Installation TASK 27-31-07-400-801			404	ARO ALL

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COLUMN FORCE TRANSDUCER - REMOVAL/INSTALLATION	27-31-08		401	ARO ALL
Column Force Transducer Removal TASK 27-31-08-000-801			401	ARO ALL
Column Force Transducer Installation TASK 27-31-08-400-801			408	ARO ALL
ELEVATOR POWER CONTROL UNITS - REMOVAL/INSTALLATION	27-31-09		401	ARO ALL
Elevator Power Control Units (PCU) - Removal TASK 27-31-09-000-801			401	ARO ALL
Elevator Power Control Units (PCU) - Installation TASK 27-31-09-400-801			417	ARO ALL
ELEVATOR POWER CONTROL UNIT - INSPECTION/CHECK	27-31-09		601	ARO ALL
Elevator Power Control Unit Freeplay - Inspection TASK 27-31-09-200-801			601	ARO ALL
ELEVATOR - REMOVAL/INSTALLATION	27-31-10		401	ARO ALL
Elevator - Removal TASK 27-31-10-000-801			401	ARO ALL
Elevator - Installation TASK 27-31-10-400-801			413	ARO ALL
PITCH RATE SENSOR - REMOVAL/INSTALLATION	27-31-11		401	ARO ALL
Pitch Rate Sensor - Removal TASK 27-31-11-000-801			401	ARO ALL
Pitch Rate Sensor - Installation TASK 27-31-11-400-801			405	ARO ALL
ALTERNATE GEAR DOWN DISPATCH SWITCH GUARD - REMOVAL/INSTALLATION	27-32-01		401	ARO ALL
Alternate Gear Down Dispatch Switch - Removal TASK 27-32-01-000-801			401	ARO ALL
Alternate Gear Down Dispatch Switch - Installation TASK 27-32-01-400-801			404	ARO ALL

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STICK SHAKER ACTUATOR - REMOVAL/INSTALLATION	27-32-05		401	ARO ALL
Stick Shaker Actuator Removal TASK 27-32-05-000-801			401	ARO ALL
Stick Shaker Actuator Installation TASK 27-32-05-400-801			404	ARO ALL
HORIZONTAL STABILIZER CONTROL SYSTEM - ADJUSTMENT/TEST	27-41-00		501	ARO ALL
Stabilizer Control Cable Adjustment TASK 27-41-00-800-801			502	ARO ALL
Stabilizer Trim Control Module Adjustment (Rigging) (Fig. 501) TASK 27-41-00-800-802			514	ARO ALL
Alternate Pitch Trim Lever Adjustment TASK 27-41-00-800-803			515	ARO ALL
Stabilizer System Test TASK 27-41-00-700-801			519	ARO ALL
Alternate Pitch Trim Lever Position Switch Test TASK 27-41-00-700-802			520	ARO ALL
Pitch Trim Switch Test TASK 27-41-00-700-803			523	ARO ALL
Alternate Pitch Trim Operational Test TASK 27-41-00-700-804			526	ARO ALL
Alternate Pitch Trim Lever Force Test TASK 27-41-00-700-805			528	ARO ALL
Stabilizer Limit Switch Test TASK 27-41-00-700-806			529	ARO ALL
Stabilizer Mechanical Limit Test TASK 27-41-00-700-807			532	ARO ALL
Stabilizer Mechanical Trim Rate Test (Right Hydraulic System) TASK 27-41-00-700-808			535	ARO ALL
Stabilizer Mechanical Trim Rate Test (Center Hydraulic System) TASK 27-41-00-700-813			537	ARO ALL

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Stabilizer Mechanical Override Test TASK 27-41-00-700-809			539	ARO ALL
Stabilizer Secondary Brake Test TASK 27-41-00-700-810			541	ARO ALL
Stabilizer Cutout Test TASK 27-41-00-700-811			545	ARO ALL
Horizontal Stabilizer Trim Actuator Freeplay - Test TASK 27-41-00-700-812			547	ARO ALL
PITCH TRIM SWITCHES - REMOVAL/INSTALLATION	27-41-01		401	ARO ALL
Pitch Trim Switches Removal TASK 27-41-01-000-801			401	ARO ALL
Pitch Trim Switches Installation TASK 27-41-01-400-801			406	ARO ALL
ALTERNATE PITCH TRIM LEVERS - REMOVAL/INSTALLATION	27-41-02		401	ARO ALL
Alternate Pitch Trim Levers Removal TASK 27-41-02-000-801			401	ARO ALL
Alternate Pitch Trim Levers Installation TASK 27-41-02-400-801			405	ARO ALL
STABILIZER CUTOUT SWITCHES - REMOVAL/INSTALLATION	27-41-04		401	ARO ALL
Stabilizer Cutout Switches Removal TASK 27-41-04-000-801			401	ARO ALL
Stabilizer Cutout Switches Installation TASK 27-41-04-400-801			405	ARO ALL
STABILIZER QUADRANT AND ALTERNATE PITCH TRIM LEVER SWITCHES - REMOVAL/INSTALLATION	27-41-06		401	ARO ALL
Alternate Pitch Trim Lever Switches Removal TASK 27-41-06-000-801			401	ARO ALL
Alternate Pitch Trim Lever Switches Installation TASK 27-41-06-400-802			406	ARO ALL
Forward Pitch Trim Quadrant Removal TASK 27-41-06-000-803			408	ARO ALL

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Forward Pitch Trim Quadrant Installation TASK 27-41-06-400-803			411	ARO ALL
Aft Stabilizer Trim Linkage Removal TASK 27-41-06-000-802			412	ARO ALL
Aft Stabilizer Trim Linkage Installation TASK 27-41-06-400-801			419	ARO ALL
STABILIZER TRIM CONTROL MODULE (STCM) - REMOVAL/INSTALLATION	27-41-07		401	ARO ALL
Stabilizer Trim Control Modules (STCM) Removal TASK 27-41-07-000-801			401	ARO ALL
Stabilizer Trim Control Modules (STCM) Installation TASK 27-41-07-400-801			409	ARO ALL
STCM SOLENOID VALVE - REMOVAL/INSTALLATION	27-41-08		401	ARO ALL
STCM Solenoid Valve Removal TASK 27-41-08-000-801			401	ARO ALL
STCM Solenoid Valve Installation TASK 27-41-08-400-801			406	ARO ALL
STCM BRAKE PRESSURE SWITCH - REMOVAL/INSTALLATION	27-41-09		401	ARO ALL
STCM Brake Pressure Switch Removal TASK 27-41-09-000-801			401	ARO ALL
STCM Brake Pressure Switch Installation TASK 27-41-09-400-801			405	ARO ALL
STCM SHUTOFF VALVE - REMOVAL/INSTALLATION	27-41-10		401	ARO ALL
STCM Shutoff Valve Removal TASK 27-41-10-000-801			401	ARO ALL
STCM Shutoff Valve Installation TASK 27-41-10-400-801			406	ARO ALL
STABILIZER HYDRAULIC MOTORS - REMOVAL/INSTALLATION	27-41-11		401	ARO ALL
Stabilizer Hydraulic Motor Removal TASK 27-41-11-000-801			401	ARO ALL

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Stabilizer Hydraulic Motor Installation TASK 27-41-11-400-801			406	ARO ALL
STABILIZER SECONDARY BRAKE - REMOVAL/INSTALLATION	27-41-12		401	ARO ALL
Stabilizer Secondary Brake - Removal TASK 27-41-12-000-801			401	ARO ALL
Stabilizer Secondary Brake - Installation TASK 27-41-12-400-801			406	ARO ALL
STABILIZER TRIM ACTUATOR - MAINTENANCE PRACTICES	27-41-13		201	ARO ALL
Stabilizer Trim Actuator Removal for Jackscrew Fitting Inspection TASK 27-41-13-020-802			201	ARO ALL
Stabilizer Trim Actuator Installation after Jackscrew Fitting Inspection TASK 27-41-13-420-802			217	ARO ALL
Stabilizer Trim Actuator - Manual Operation TASK 27-41-13-710-801			221	ARO ALL
STABILIZER TRIM ACTUATOR - REMOVAL/INSTALLATION	27-41-13		401	ARO ALL
Stabilizer Trim Actuator - Removal TASK 27-41-13-010-801			401	ARO ALL
Stabilizer Trim Actuator - Installation TASK 27-41-13-420-801			418	ARO ALL
Stabilizer Trim Safety Rod - Removal TASK 27-41-13-020-803			425	ARO ALL
Stabilizer Trim Safety Rod - Installation TASK 27-41-13-420-803			430	ARO ALL
STABILIZER BALLSCREW - INSPECTION/CHECK	27-41-13		601	ARO ALL
Horizontal Stabilizer Flutter Freeplay Test TASK 27-41-13-220-801			601	ARO ALL
Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test TASK 27-41-13-220-802			608	ARO ALL

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Stabilizer Trim Actuator - Safety Rod Visual Inspection TASK 27-41-13-200-801			613	ARO ALL
Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection TASK 27-41-13-211-801			614	ARO ALL
Horizontal Stabilizer Trim Actuator - Gimbal Fitting Detailed Visual Inspection TASK 27-41-13-211-802			619	ARO ALL
HORIZONTAL STABILIZER POSITION INDICATION - ADJUSTMENT/TEST	27-48-00		501	ARO ALL
Horizontal Stabilizer Position Module and Travel Limiter Adjustment TASK 27-48-00-820-801			501	ARO ALL
Horizontal Stabilizer Position Indicator Test TASK 27-48-00-700-801			513	ARO ALL
Horizontal Stabilizer Position Module Test TASK 27-48-00-700-802			517	ARO ALL
STABILIZER POSITION MODULE - REMOVAL/INSTALLATION	27-48-01		401	ARO ALL
Stabilizer Position Module - Removal TASK 27-48-01-000-801			401	ARO ALL
Stabilizer Position Module - Installation TASK 27-48-01-400-801			407	ARO ALL
STABILIZER POSITION INDICATOR - REMOVAL/INSTALLATION	27-48-02		401	ARO ALL
Stabilizer Position Indicator Removal TASK 27-48-02-000-801			401	ARO ALL
Stabilizer Position Indicator Installation TASK 27-48-02-400-801			404	ARO ALL
NOSE GEAR PRESSURE TRANSDUCER - REMOVAL/INSTALLATION	27-48-07		401	ARO ALL
Nose Gear Pressure Transducer Removal TASK 27-48-07-000-803			401	ARO ALL
Nose Gear Pressure Transducer Installation TASK 27-48-07-400-801			406	ARO ALL

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Nose Gear Pressure Transducer Manifold Assembly Installation TASK 27-48-07-400-802			409	ARO ALL
NOSE GEAR PRESSURE TRANSDUCER - ADJUSTMENT/TEST	27-48-07		501	ARO ALL
Nose Gear Pressure Transducer - Functional Test TASK 27-48-07-000-801			501	ARO ALL
Nose Gear Pressure Transducer Manifold Pressure Proof - Test TASK 27-48-07-000-802			508	ARO ALL
NOSE GEAR PRESSURE TRANSDUCER SHUTOFF VALVE - REMOVAL/INSTALLATION	27-48-08		401	ARO ALL
Nose Gear Pressure Transducer Shutoff Valve Removal TASK 27-48-08-000-801			401	ARO ALL
Nose Gear Pressure Transducer Shutoff Valve Installation TASK 27-48-08-400-801			402	ARO ALL
TRAILING EDGE FLAP SYSTEM - MAINTENANCE PRACTICES	27-51-00		201	ARO ALL
Trailing Edge Flap Deactivation TASK 27-51-00-040-801			201	ARO ALL
Trailing Edge Flap Reactivation TASK 27-51-00-440-801			206	ARO ALL
Trailing Edge Flap System Operation With Primary Control TASK 27-51-00-860-801			208	ARO ALL
Trailing Edge Flap System Operation With Secondary Control TASK 27-51-00-860-803			211	ARO ALL
Trailing Edge Flap System Operation With Alternate Control TASK 27-51-00-860-802			212	ARO ALL

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Trailing Edge Flap System Extension With Leading Edge Slats Retracted and Disabled TASK 27-51-00-980-802			220	ARO ALL
Extend the Trailing Edge Flaps TASK 27-51-00-860-804			223	ARO ALL
Retract the Trailing Edge Flaps TASK 27-51-00-860-805			226	ARO ALL
TRAILING EDGE FLAP SYSTEM - ADJUSTMENT/TEST	27-51-00		501	ARO ALL
Trailing Edge Flap Drive System Adjustment TASK 27-51-00-820-801			501	ARO ALL
Flap Control Lever Test TASK 27-51-00-720-801			514	ARO ALL
Flap/Slat Electronics Unit (FSEU) Self Test TASK 27-51-00-740-801			519	ARO ALL
Flap System Primary Control Test TASK 27-51-00-740-802			520	ARO ALL
Flap System Secondary Control Test TASK 27-51-00-740-803			522	ARO ALL
Flap System Alternate Control Test TASK 27-51-00-720-802			524	ARO ALL
Alternate Control Switches Operational Test TASK 27-51-00-710-801			526	ARO ALL
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Flap Transmission No-Back Brake - Operational Test TASK 27-51-00-710-802			529	ARO ALL
FLAP/SLAT ELECTRONICS UNIT (FSEU) - MAINTENANCE PRACTICES	27-51-01		201	ARO ALL
Flap/Slat Electronics Unit (FSEU) Software Installation TASK 27-51-01-400-802			201	ARO ALL

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FLAP/SLAT ELECTRONICS UNIT (FSEU) - REMOVAL/INSTALLATION	27-51-01		401	ARO ALL
Flap/Slat Electronics Unit (FSEU) Removal TASK 27-51-01-000-801			401	ARO ALL
Flap/Slat Electronics Unit (FSEU) Installation TASK 27-51-01-400-801			405	ARO ALL
FLAP CONTROL LEVER - REMOVAL/INSTALLATION	27-51-02		401	ARO ALL
Flap Control Lever Removal TASK 27-51-02-000-801			401	ARO ALL
Flap Control Lever Installation TASK 27-51-02-400-801			406	ARO ALL
FLAP LEVER POSITION SENSOR - REMOVAL/INSTALLATION	27-51-03		401	ARO ALL
Flap Lever Position Sensor Removal TASK 27-51-03-000-801			401	ARO ALL
Flap Lever Position Sensor Installation TASK 27-51-03-400-801			405	ARO ALL
FLAP PRIMARY CONTROL VALVE - REMOVAL/INSTALLATION	27-51-05		401	ARO ALL
Flap Primary Control Valve Removal TASK 27-51-05-000-801			401	ARO ALL
Flap Primary Control Valve Installation TASK 27-51-05-400-801			406	ARO ALL
Primary Control Valve Solenoid Removal TASK 27-51-05-000-802			408	ARO ALL
Primary Control Valve Solenoid Installation TASK 27-51-05-400-802			409	ARO ALL
FLAP PRIMARY CONTROL VALVE - ADJUSTMENT/TEST	27-51-05		501	ARO ALL
Flap Primary Control Valve Test TASK 27-51-05-740-801			501	ARO ALL
FLAP/SLAT PRIORITY VALVE - REMOVAL/INSTALLATION	27-51-06		401	ARO ALL
Flap/Slat Priority Valve Removal TASK 27-51-06-000-801			401	ARO ALL

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INBOARD TRAILING EDGE FLAP - REMOVAL/INSTALLATION	27-51-11		401	ARO ALL
Inboard Trailing Edge Flap Removal TASK 27-51-11-000-801			401	ARO ALL
Inboard Trailing Edge Flap Installation TASK 27-51-11-400-801			417	ARO ALL
Inboard Trailing Edge Flap - Removal (Alternate Method) TASK 27-51-11-000-802			424	ARO ALL
Inboard Trailing Edge Flap - Installation (Alternate Method) TASK 27-51-11-400-802			428	ARO ALL
INBOARD TRAILING EDGE FLAP - ADJUSTMENT/TEST	27-51-11		501	ARO ALL
Inboard Trailing Edge Flap Adjustment TASK 27-51-11-820-801			501	ARO ALL
INBOARD TRAILING EDGE FLAP - INSPECTION/CHECK	27-51-11		601	ARO ALL
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INBOARD TRAILING EDGE AFT FLAP - REMOVAL/INSTALLATION	27-51-12		401	ARO ALL
Inboard Trailing Edge Aft Flap Removal TASK 27-51-12-000-801			401	ARO ALL
Inboard Trailing Edge Aft Flap Installation TASK 27-51-12-400-801			409	ARO ALL
INBOARD TRAILING EDGE AFT FLAP - ADJUSTMENT/TEST	27-51-12		501	ARO ALL
Inboard Trailing Edge Aft Flap Adjustment TASK 27-51-12-820-801			501	ARO ALL

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Carrier Beam and Track Removal TASK 27-51-13-000-802			409	ARO ALL
Track Support Assembly Removal TASK 27-51-13-000-803			419	ARO ALL
Actuator Support and Drive Arm Removal TASK 27-51-13-000-804			420	ARO ALL
Support Torque Tube Removal TASK 27-51-13-000-805			426	ARO ALL
Support Torque Tube Installation TASK 27-51-13-400-805			432	ARO ALL
Actuator Support and Drive Arm Installation TASK 27-51-13-400-801			435	ARO ALL
Track Support Assembly Installation TASK 27-51-13-400-802			438	ARO ALL
Carrier Beam and Track Installation TASK 27-51-13-400-803			440	ARO ALL
Bellcrank and Drive Links Installation TASK 27-51-13-400-804			443	ARO ALL
Put the Airplane Back to Its Usual Condition TASK 27-51-13-860-802			444	ARO ALL
INBOARD FLAP, INBOARD SUPPORT MECHANISM - INSPECTION/CHECK	27-51-13		601	ARO ALL
Inboard Flap Inboard Support Inspection TASK 27-51-13-200-801			601	ARO ALL
INBOARD FLAP, OUTBOARD SUPPORT MECHANISM - REMOVAL/INSTALLATION	27-51-14		401	ARO ALL
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Pivot Link, Fairing Links and Spring Removal TASK 27-51-14-020-801			404	ARO ALL
Carrier Beam Removal TASK 27-51-14-020-802			412	ARO ALL
Compression Strut Removal TASK 27-51-14-020-803			419	ARO ALL
Fuse Pin Removal TASK 27-51-14-020-806			423	ARO ALL
Aft Tension Beam, Forward Tension Link and Actuator Support Removal TASK 27-51-14-020-804			423	ARO ALL
Actuator Support Removal without the Removal of the Trailing Edge Flap TASK 27-51-14-020-808			429	ARO ALL
Drive Arm Removal TASK 27-51-14-020-805			431	ARO ALL
Drive Arm Installation TASK 27-51-14-420-801			431	ARO ALL
Aft Tension Beam, Forward Tension Link and Actuator Support Installation TASK 27-51-14-420-802			433	ARO ALL
Actuator Support Installation without the Removal of the Trailing Edge Flap TASK 27-51-14-420-808			435	ARO ALL
Fuse Pin Installation TASK 27-51-14-420-806			437	ARO ALL
Compression Strut Installation TASK 27-51-14-420-803			438	ARO ALL
Carrier Beam Installation TASK 27-51-14-420-804			440	ARO ALL
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Put the Airplane Back to Its Usual Condition TASK 27-51-14-860-802			445	ARO ALL

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INBOARD FLAP TRANSMISSION - MAINTENANCE PRACTICES	27-51-15		401	ARO ALL
Inboard Flap Inboard Transmission Removal TASK 27-51-15-000-801			401	ARO ALL
Inboard Flap Inboard Transmission Installation TASK 27-51-15-400-801			410	ARO ALL
Inboard Flap Outboard Transmission Removal TASK 27-51-15-000-802			414	ARO ALL
Inboard Flap Outboard Transmission Installation TASK 27-51-15-400-802			424	ARO ALL
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Inboard Flap Outboard Ballscrew Detailed Lubrication Inspection TASK 27-51-16-200-804			602	ARO ALL

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Inboard Flap Support Fairing Removal TASK 27-51-18-000-801			401	ARO ALL
Inboard Flap Support Fairing Installation TASK 27-51-18-400-801			407	ARO ALL
Outboard Flap Support Forward Fairing Removal TASK 27-51-18-000-804			409	ARO ALL
Outboard Flap Support Forward Fairing Installation TASK 27-51-18-400-804			417	ARO ALL
Outboard Flap Support Aft Fairing Removal TASK 27-51-18-000-802			425	ARO ALL
Outboard Flap Support Aft Fairing Installation TASK 27-51-18-400-802			427	ARO ALL
Center Track Fairing Removal TASK 27-51-18-000-803			437	ARO ALL
Center Track Fairing Installation TASK 27-51-18-400-803			441	ARO ALL
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Outboard Trailing Edge Flap Removal TASK 27-51-21-000-801			401	ARO ALL
Outboard Trailing Edge Flap Installation TASK 27-51-21-400-801			414	ARO ALL
OUTBOARD TRAILING EDGE FLAP - ADJUSTMENT/TEST	27-51-21		501	ARO ALL
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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
OUTBOARD TRAILING EDGE FLAP - INSPECTION/CHECK	27-51-21		601	ARO ALL
Outboard Trailing Edge Flap Attach Fastener Inspection TASK 27-51-21-200-801			601	ARO ALL
Outboard Flap Support Bearing Freeplay Inspection TASK 27-51-21-211-801			611	ARO ALL
OUTBOARD FLAP SUPPORT MECHANISM - REMOVAL/INSTALLATION	27-51-22		401	ARO ALL
Outboard Flap Outboard Support Mechanism Removal TASK 27-51-22-000-801			401	ARO ALL
Outboard Flap Outboard Support Mechanism - Installation TASK 27-51-22-400-801			417	ARO ALL
Outboard Flap Inboard Support Mechanism Removal TASK 27-51-22-000-802			425	ARO ALL
Outboard Flap Inboard Support Mechanism - Installation TASK 27-51-22-400-802			440	ARO ALL
OUTBOARD FLAP SUPPORT MECHANISM - INSPECTION/CHECK	27-51-22		601	ARO ALL
Outboard Flap Outboard Support Inspection TASK 27-51-22-200-801			601	ARO ALL
Outboard Flap Inboard Support Inspection TASK 27-51-22-200-802			610	ARO ALL
OUTBOARD FLAP AUXILIARY SUPPORT TRACK - REMOVAL/INSTALLATION	27-51-23		401	ARO ALL
Inboard Auxiliary Support Track Removal TASK 27-51-23-000-801			401	ARO ALL
Inboard Auxiliary Support Track Installation TASK 27-51-23-400-801			409	ARO ALL

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OUTBOARD FLAP AUXILIARY SUPPORT CARRIAGE - REMOVAL/INSTALLATION	27-51-24		401	ARO ALL
Inboard Auxiliary Support Carriage Removal TASK 27-51-24-000-801			401	ARO ALL
Inboard Auxiliary Support Carriage Installation TASK 27-51-24-400-801			407	ARO ALL
Outboard Auxiliary Support Carriage and Track Removal TASK 27-51-24-000-802			409	ARO ALL
Outboard Auxiliary Support Carriage and Track Installation TASK 27-51-24-400-802			415	ARO ALL
OUTBOARD FLAP TRANSMISSION - REMOVAL/INSTALLATION	27-51-25		401	ARO ALL
Outboard Flap Inboard Transmission Removal TASK 27-51-25-000-801			401	ARO ALL
Outboard Flap Inboard Transmission Installation TASK 27-51-25-400-801			409	ARO ALL
Outboard Flap Outboard Transmission Removal TASK 27-51-25-000-802			413	ARO ALL
Outboard Flap Outboard Transmission Installation TASK 27-51-25-400-802			424	ARO ALL
OUTBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION	27-51-26		401	ARO ALL
Outboard Flap Outboard Ballscrew and Gimbal Removal TASK 27-51-26-000-801			401	ARO ALL
Outboard Flap Outboard Ballscrew and Gimbal Installation TASK 27-51-26-400-801			409	ARO ALL
Outboard Flap Inboard Ballscrew and Gimbal Removal TASK 27-51-26-000-802			412	ARO ALL
Outboard Flap Inboard Ballscrew and Gimbal Installation TASK 27-51-26-400-802			421	ARO ALL

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
OUTBOARD FLAP FAIRINGS - REMOVAL/INSTALLATION	27-51-28		401	ARO ALL
Outboard Flap Support Fairing Removal TASK 27-51-28-000-801			401	ARO ALL
Outboard Flap Support Fairing Installation TASK 27-51-28-400-801			415	ARO ALL
Outboard Auxiliary Support Fairing Removal TASK 27-51-28-000-802			420	ARO ALL
Outboard Auxiliary Support Fairing Installation TASK 27-51-28-400-802			425	ARO ALL
OUTBOARD FLAP FAIRINGS - ADJUSTMENT/TEST	27-51-28		501	ARO ALL
Outboard Flap Outboard Support Fairing Adjustment TASK 27-51-28-820-801			501	ARO ALL
Outboard Flap Inboard Support Fairing Adjustment TASK 27-51-28-820-802			513	ARO ALL
FLAP POWER DRIVE UNIT (PDU) - REMOVAL/INSTALLATION	27-51-31		401	ARO ALL
Flap Power Drive Unit (PDU) Removal TASK 27-51-31-000-801			401	ARO ALL
Flap Power Drive Unit (PDU) Installation TASK 27-51-31-400-801			408	ARO ALL
Flap Power Drive Unit Seal Removal TASK 27-51-31-000-802			413	ARO ALL
Flap Power Drive Unit Seal Installation TASK 27-51-31-400-802			419	ARO ALL
FLAP LIMIT SWITCH - REMOVAL/INSTALLATION	27-51-32		401	ARO ALL
Flap Limit Switch Removal TASK 27-51-32-000-801			401	ARO ALL
Flap Limit Switch Installation TASK 27-51-32-400-801			405	ARO ALL

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FLAP HYDRAULIC MOTOR - REMOVAL/INSTALLATION	27-51-33		401	ARO ALL
Flap Hydraulic Motor Removal TASK 27-51-33-000-801			401	ARO ALL
Flap Hydraulic Motor Installation TASK 27-51-33-400-801			405	ARO ALL
FLAP ELECTRIC MOTOR - REMOVAL/INSTALLATION	27-51-34		401	ARO ALL
Flap Electric Motor Removal TASK 27-51-34-000-801			401	ARO ALL
Flap Electric Motor Installation TASK 27-51-34-400-801			405	ARO ALL
TE FLAP SIDE OF BODY ANGLE GEARBOX - REMOVAL/INSTALLATION	27-51-35		401	ARO ALL
TE Flap Side of Body Angle Gearbox Removal TASK 27-51-35-000-801			401	ARO ALL
TE Flap Side of Body Angle Gearbox Installation TASK 27-51-35-400-801			404	ARO ALL
TE FLAP REAR SPAR ANGLE GEARBOX - REMOVAL/INSTALLATION	27-51-36		401	ARO ALL
TE Flap Rear Spar Angle Gearbox Removal TASK 27-51-36-000-801			401	ARO ALL
TE Flap Rear Spar Angle Gearbox Installation TASK 27-51-36-400-801			404	ARO ALL
TRAILING EDGE TORQUE TUBE - REMOVAL/INSTALLATION	27-51-38		401	ARO ALL
Outboard Wing Flap Torque Tube Removal TASK 27-51-38-000-801			401	ARO ALL
Outboard Wing Flap Torque Tube Installation TASK 27-51-38-400-801			413	ARO ALL
Inboard Wing Flap Torque Tube Removal TASK 27-51-38-000-802			416	ARO ALL
Inboard Wing Flap Torque Tube Installation TASK 27-51-38-400-802			422	ARO ALL

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Wheel Well Flap Torque Tube Removal TASK 27-51-38-000-803			425	ARO ALL
Wheel Well Flap Torque Tube Installation TASK 27-51-38-400-803			431	ARO ALL
TRAILING EDGE TORQUE TUBE SUPPORTS - REMOVAL/INSTALLATION	27-51-39		401	ARO ALL
Inboard Wing Torque Tube Support Removal TASK 27-51-39-000-801			401	ARO ALL
Inboard Wing Torque Tube Support Installation TASK 27-51-39-400-801			405	ARO ALL
Outboard Wing Torque Tube Support Removal TASK 27-51-39-000-802			408	ARO ALL
Outboard Wing Torque Tube Support Installation TASK 27-51-39-400-802			414	ARO ALL
TRAILING EDGE FLAP POSITION INDICATION SYSTEM - ADJUSTMENT/TEST	27-58-00		501	ARO ALL
Flap Position Indication System - Operational Test TASK 27-58-00-710-801			501	ARO ALL
FLAP POSITION SENSOR GEARBOX - REMOVAL/INSTALLATION	27-58-01		401	ARO ALL
Flap Position Sensor Gearbox Removal TASK 27-58-01-000-801			401	ARO ALL
Flap Position Sensor Gearbox Installation TASK 27-58-01-400-801			408	ARO ALL
Flap Position Sensor Gearbox Manual Drive Input Replacement TASK 27-58-01-960-801			411	ARO ALL
FLAP POSITION SENSOR - REMOVAL/INSTALLATION	27-58-03		401	ARO ALL
Flap Position Sensor Removal TASK 27-58-03-000-801			401	ARO ALL
Flap Position Sensor Installation TASK 27-58-03-400-801			406	ARO ALL

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FLAP SKEW DETECTION SYSTEM - ADJUSTMENT/TEST	27-59-00		501	ARO ALL
Flap Skew Detection System Test TASK 27-59-00-740-801			501	ARO ALL
Flap Skew Sensor - Rigging Check TASK 27-59-00-720-801			504	ARO ALL
FLAP SKEW SENSORS - REMOVAL/INSTALLATION	27-59-01	2	401	ARO ALL
Outboard Flap Skew Sensor - Removal TASK 27-59-01-000-807-002		2	401	ARO ALL
Outboard Flap Skew Sensor - Installation TASK 27-59-01-400-807-002		2	407	ARO ALL
Inboard Flap Outboard Skew Sensor - Removal TASK 27-59-01-000-808-002		2	409	ARO ALL
Inboard Flap Outboard Skew Sensor - Installation TASK 27-59-01-400-808-002		2	415	ARO ALL
Inboard Flap Inboard Skew Sensor - Removal TASK 27-59-01-000-809-002		2	417	ARO ALL
Inboard Flap Inboard Skew Sensor - Installation TASK 27-59-01-400-809-002		2	422	ARO ALL
Outboard Flap Skew Sensor Control Rod - Removal TASK 27-59-01-000-810-002		2	424	ARO ALL
Outboard Flap Skew Sensor Control Rod - Installation TASK 27-59-01-400-810-002		2	426	ARO ALL
Inboard Flap Outboard Skew Sensor Control Rod - Removal TASK 27-59-01-000-811-002		2	428	ARO ALL
Inboard Flap Outboard Skew Sensor Control Rod - Installation TASK 27-59-01-400-811-002		2	430	ARO ALL
Inboard Flap Inboard Skew Sensor Control Rod - Removal TASK 27-59-01-000-812-002		2	432	ARO ALL

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Inboard Flap Inboard Skew Sensor Control Rod - Installation TASK 27-59-01-400-812-002		2	434	ARO ALL
SPOILER AND SPEEDBRAKE CONTROL SYSTEM - MAINTENANCE PRACTICES	27-61-00		201	ARO ALL
Spoiler Deactivation TASK 27-61-00-040-801			201	ARO ALL
Spoiler Deactivation (With the Spoilers Up) TASK 27-61-00-040-802			201	ARO ALL
Spoiler Deactivation (With the Spoilers Down) TASK 27-61-00-040-803			210	ARO ALL
Spoiler Activation TASK 27-61-00-440-801			214	ARO ALL
SPOILER AND SPEEDBRAKE CONTROL SYSTEM - ADJUSTMENT/TEST	27-61-00		501	ARO ALL
Spoiler Operational Test TASK 27-61-00-700-801			501	ARO ALL
Control Cable Adjustment (Rigging) for Spoilers 4 and 11 TASK 27-61-00-820-801			505	ARO ALL
Spoiler PCU Adjustment TASK 27-61-00-820-802			517	ARO ALL
Spoilers System Test TASK 27-61-00-740-801			529	ARO ALL
Speedbrake Lever Position Transducer Test TASK 27-61-00-740-802			530	ARO ALL
Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11) TASK 27-61-00-700-802			531	ARO ALL
Spoiler Control Direct Mode Test TASK 27-61-00-700-803			536	ARO ALL
SPEEDBRAKE LEVER - REMOVAL/INSTALLATION	27-61-01		401	ARO ALL
Speedbrake Lever Removal TASK 27-61-01-000-801			401	ARO ALL

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Speedbrake Lever Installation TASK 27-61-01-400-801			405	ARO ALL
SPEEDBRAKE LEVER TRANSDUCERS - REMOVAL/INSTALLATION	27-61-02		401	ARO ALL
Speedbrake Lever Transducer Removal TASK 27-61-02-000-801			401	ARO ALL
Speedbrake Lever Transducer Installation TASK 27-61-02-400-801			407	ARO ALL
SPOILER CONTROL MECHANISM FOR THE MECHANICAL SPOILERS - REMOVAL/INSTALLATION	27-61-05		401	ARO ALL
Spoiler Control Mechanism for the Mechanical Spoilers Removal TASK 27-61-05-000-801			401	ARO ALL
Spoiler Control Mechanism for the Mechanical Spoilers Installation TASK 27-61-05-400-801			407	ARO ALL
SPOILER PCU QUADRANT - REMOVAL/INSTALLATION	27-61-06		401	ARO ALL
Spoiler PCU Quadrant Removal TASK 27-61-06-000-801			401	ARO ALL
Spoiler PCU Quadrant Installation TASK 27-61-06-400-801			407	ARO ALL
INBOARD SPOILER POWER CONTROL UNIT (PCU) - REMOVAL/INSTALLATION	27-61-07		401	ARO ALL
Inboard Spoiler Power Control Units (PCUs) - Removal TASK 27-61-07-000-801			401	ARO ALL
Inboard Spoiler Power Control Units (PCU) - Installation TASK 27-61-07-400-801			408	ARO ALL
OUTBOARD SPOILER POWER CONTROL UNIT (PCU) - REMOVAL/INSTALLATION	27-61-08		401	ARO ALL
Outboard Spoiler Power Control Unit (PCU) - Removal TASK 27-61-08-000-801			401	ARO ALL

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Outboard Spoiler Power Control Unit (PCU) - Installation TASK 27-61-08-400-801			408	ARO ALL
CABLE-CONTROLLED SPOILER POWER CONTROL UNITS (PCUs) - REMOVAL/INSTALLATION	27-61-09		401	ARO ALL
Cable-Controlled Spoiler Power Control Unit (PCU) - Removal TASK 27-61-09-000-801			401	ARO ALL
Cable-Controlled Spoiler Power Control Unit - Installation TASK 27-61-09-400-801			408	ARO ALL
INBOARD SPOILERS - REMOVAL/INSTALLATION	27-61-10		401	ARO ALL
Inboard Spoiler Removal TASK 27-61-10-000-801			401	ARO ALL
Inboard Spoiler Installation TASK 27-61-10-400-801			407	ARO ALL
INBOARD SPOILERS - INSPECTION/CHECK	27-61-10		601	ARO ALL
Inboard Spoiler Inspection TASK 27-61-10-210-801			601	ARO ALL
OUTBOARD SPOILERS - REMOVAL/INSTALLATION	27-61-11		401	ARO ALL
Outboard Spoiler Removal TASK 27-61-11-000-801			401	ARO ALL
Outboard Spoilers Installation TASK 27-61-11-400-801			409	ARO ALL
OUTBOARD SPOILERS - INSPECTION/CHECK	27-61-11		601	ARO ALL
Outboard Spoiler Inspection TASK 27-61-11-210-801			601	ARO ALL
SPOILER AUXILIARY RETRACT DEVICE (SARD) PORT PLUG - REMOVAL/INSTALLATION	27-61-12		201	ARO ALL
SARD Port Plug Removal TASK 27-61-12-000-802			201	ARO ALL
SARD Port Plug Installation TASK 27-61-12-400-802			205	ARO ALL

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SPOILER AUXILIARY RETRACT DEVICE (SARD) - REMOVAL/INSTALLATION	27-61-13		401	ARO ALL
SARD Cylinder Removal TASK 27-61-13-000-801			401	ARO ALL
SARD Cylinder Installation TASK 27-61-13-400-801			406	ARO ALL
SARD Cartridge Removal TASK 27-61-13-000-802			408	ARO ALL
SARD Cartridge Installation TASK 27-61-13-400-802			412	ARO ALL
SPOILER AUXILIARY RETRACT DEVICE (SARD) - ADJUSTMENT/TEST	27-61-13		501	ARO ALL
Spoiler Auxiliary Retract Device (SARD) - Functional Test TASK 27-61-13-820-801			501	ARO ALL
SPOILER AUXILIARY RETRACT DEVICE (SARD) - CLEANING/PAINTING	27-61-13		701	ARO ALL
SARD Cleaning TASK 27-61-13-000-803			701	ARO ALL
SPOILER PCU ELECTRO-HYDRAULIC SERVO VALVE (EHSV) AND SOLENOID VALVE - REMOVAL/INSTALLATION	27-61-14		401	ARO ALL
Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal TASK 27-61-14-000-801			401	ARO ALL
Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation TASK 27-61-14-400-801			409	ARO ALL
AUTO SPEEDBRAKE CONTROL SYSTEM - ADJUSTMENT/TEST	27-62-00		501	ARO ALL
Auto Speedbrake Control System - Operational Test TASK 27-62-00-710-801			501	ARO ALL
Speedbrake Control System - Adjustment TASK 27-62-00-820-801			506	ARO ALL

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Auto Speedbrake Control - System Test TASK 27-62-00-700-801			515	ARO ALL
AUTO SPEEDBRAKE ACTUATOR - REMOVAL/INSTALLATION	27-62-01		401	ARO ALL
Auto Speedbrake Actuator - Removal TASK 27-62-01-000-801			401	ARO ALL
Auto Speedbrake Actuator - Installation TASK 27-62-01-400-801			405	ARO ALL
AUTO SPEEDBRAKE CLUTCH - REMOVAL/INSTALLATION	27-62-02		401	ARO ALL
Auto Speedbrake Clutch Removal TASK 27-62-02-000-802			401	ARO ALL
Auto Speedbrake Clutch Installation TASK 27-62-02-400-802			408	ARO ALL
RTO SPEEDBRAKE MECHANISM - REMOVAL/INSTALLATION	27-62-03		401	ARO ALL
RTO Speedbrake Mechanism Removal TASK 27-62-03-000-801			401	ARO ALL
RTO Speedbrake Mechanism Installation TASK 27-62-03-400-801			406	ARO ALL
RTO Speedbrake Switch Removal TASK 27-62-03-000-802			407	ARO ALL
RTO Speedbrake Switch Installation TASK 27-62-03-400-802			408	ARO ALL
LEADING EDGE SLAT SYSTEM - MAINTENANCE PRACTICES	27-81-00		201	ARO ALL
Leading Edge Slat - Deactivation TASK 27-81-00-040-801			201	ARO ALL
Leading Edge Slat Reactivation TASK 27-81-00-440-801			207	ARO ALL
Leading Edge Slat System Operation With Primary Control TASK 27-81-00-860-803			210	ARO ALL
Leading Edge Slat System Operation With Secondary Control TASK 27-81-00-860-801			213	ARO ALL

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Leading Edge Slat System Operation With Alternate Control TASK 27-81-00-860-802			215	ARO ALL
Leading Edge Slat System Manual Operation TASK 27-81-00-980-801			217	ARO ALL
Leading Edge Slat Retraction with the Trailing Edge Flaps Extended and Disabled TASK 27-81-00-980-802			223	ARO ALL
Extend the Leading Edge Slats TASK 27-81-00-860-804			229	ARO ALL
Retract the Leading Edge Slats TASK 27-81-00-860-805			230	ARO ALL
LEADING EDGE SLAT SYSTEM - ADJUSTMENT/TEST	27-81-00		501	ARO ALL
Leading Edge Slat Drive System Adjustment TASK 27-81-00-820-801			501	ARO ALL
Slat System Primary Control Test TASK 27-81-00-740-801			526	ARO ALL
Slat System Secondary Control Test TASK 27-81-00-740-802			530	ARO ALL
Slat System Alternate Control Test TASK 27-81-00-720-801			532	ARO ALL
Autoslat Priority Valve Test - Main Landing Gear TASK 27-81-00-720-802			534	ARO ALL
Leading Edge Slat No-Back Brake Test TASK 27-81-00-720-803			539	ARO ALL
Leading Edge Slat System Adjustment Verification TASK 27-81-00-220-801			550	ARO ALL
SLAT PRIMARY CONTROL VALVE - REMOVAL/INSTALLATION	27-81-05		401	ARO ALL
Slat Primary Control Valve Removal TASK 27-81-05-000-801			401	ARO ALL
Slat Primary Control Valve Installation TASK 27-81-05-400-801			406	ARO ALL

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Primary Control Valve Solenoid Removal TASK 27-81-05-000-802			407	ARO ALL
Primary Control Valve Solenoid Installation TASK 27-81-05-400-802			409	ARO ALL
SLAT PRIMARY CONTROL VALVE - ADJUSTMENT/TEST	27-81-05		501	ARO ALL
Slat Primary Control Valve Test TASK 27-81-05-740-801			501	ARO ALL
AUTOSLAT PRIORITY VALVE - MAIN LANDING GEAR - REMOVAL/INSTALLATION	27-81-06		401	ARO ALL
Autoslat Priority Valve - Main Landing Gear - Removal TASK 27-81-06-000-801			401	ARO ALL
Autoslat Priority Valve - Main Landing Gear - Installation TASK 27-81-06-400-801			404	ARO ALL
INBOARD LEADING EDGE SLAT - REMOVAL/INSTALLATION	27-81-10		401	ARO ALL
Inboard Leading Edge Slat Removal TASK 27-81-10-000-801			401	ARO ALL
Inboard Leading Edge Slat Installation TASK 27-81-10-400-801			419	ARO ALL
INBOARD LEADING EDGE ROTARY ACTUATOR - REMOVAL/INSTALLATION	27-81-11		401	ARO ALL
Inboard Leading Edge Rotary Actuator Removal TASK 27-81-11-000-801			401	ARO ALL
Inboard Leading Edge Rotary Actuator Installation TASK 27-81-11-400-801			407	ARO ALL
INBOARD LEADING EDGE NO-BACK BRAKE, OFFSET GEARBOX - REMOVAL/INSTALLATION	27-81-12		401	ARO ALL
Inboard Leading Edge No-Back Brake, Offset Gearbox Removal TASK 27-81-12-000-801			401	ARO ALL
Inboard Leading Edge No-Back Brake, Offset Gearbox Installation TASK 27-81-12-400-801			407	ARO ALL

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Inboard No-Back Brake, Offset Gearbox Shearout Replacement TASK 27-81-12-960-801			410	ARO ALL
INBOARD LEADING EDGE PINION GEAR - REMOVAL/INSTALLATION	27-81-13		401	ARO ALL
Inboard Leading Edge Pinion Gear Removal TASK 27-81-13-000-801			401	ARO ALL
Inboard Leading Edge Pinion Gear Installation TASK 27-81-13-400-801			407	ARO ALL
OUTBOARD LEADING EDGE SLAT - REMOVAL/INSTALLATION	27-81-15		401	ARO ALL
Outboard Leading Edge Slat Removal TASK 27-81-15-000-801			401	ARO ALL
Outboard Leading Edge Slat Installation TASK 27-81-15-400-801			417	ARO ALL
OUTBOARD LEADING EDGE SLAT - INSPECTION/CHECK	27-81-15		601	ARO ALL
Outboard Leading Edge Slat Cove Skin Inspection TASK 27-81-15-200-801			601	ARO ALL
Outboard Leading Edge Slat Internal Inspection TASK 27-81-15-200-802			605	ARO ALL
OUTBOARD LEADING EDGE ROTARY ACTUATOR - REMOVAL/INSTALLATION	27-81-16		401	ARO ALL
Outboard Leading Edge Rotary Actuator Removal TASK 27-81-16-000-801			401	ARO ALL
Outboard Leading Edge Rotary Actuator Installation TASK 27-81-16-400-801			409	ARO ALL
OUTBOARD LEADING EDGE NO-BACK BRAKE, OFFSET GEARBOX - REMOVAL/INSTALLATION	27-81-17		401	ARO ALL
Outboard Leading Edge No-Back Brake, Offset Gearbox Removal TASK 27-81-17-000-801			401	ARO ALL

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Outboard Leading Edge No-Back Brake, Offset Gearbox Installation TASK 27-81-17-400-801			410	ARO ALL
Outboard No-Back Brake, Offset Gearbox Shearout Replacement TASK 27-81-17-960-801			415	ARO ALL
OUTBOARD LEADING EDGE PINION GEAR - REMOVAL/INSTALLATION	27-81-18		401	ARO ALL
Outboard Leading Edge Pinion Gear Removal TASK 27-81-18-000-801			401	ARO ALL
Outboard Leading Edge Pinion Gear Installation TASK 27-81-18-400-801			408	ARO ALL
KRUEGER FLAP - REMOVAL/INSTALLATION	27-81-21		401	ARO ALL
Krueger Flap Removal TASK 27-81-21-000-801			401	ARO ALL
Krueger Flap Installation TASK 27-81-21-400-801			409	ARO ALL
KRUEGER FLAP ROTARY ACTUATOR - REMOVAL/INSTALLATION	27-81-22		401	ARO ALL
Krueger Flap Rotary Actuator Removal TASK 27-81-22-000-801			401	ARO ALL
Krueger Flap Rotary Actuator Installation TASK 27-81-22-400-801			406	ARO ALL
KRUEGER FLAP OFFSET GEARBOX - REMOVAL/INSTALLATION	27-81-23		401	ARO ALL
Krueger Flap Offset Gearbox Removal TASK 27-81-23-000-801			401	ARO ALL
Krueger Flap Offset Gearbox Installation TASK 27-81-23-400-801			406	ARO ALL
SLAT POWER DRIVE UNIT (PDU) - REMOVAL/INSTALLATION	27-81-31		401	ARO ALL
Slat Power Drive Unit (PDU) Removal TASK 27-81-31-000-801			401	ARO ALL
Slat Power Drive Unit (PDU) Installation TASK 27-81-31-400-801			410	ARO ALL

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
SLAT LIMIT SWITCH - REMOVAL/INSTALLATION	27-81-32		401	ARO ALL
Slat Limit Switch Removal TASK 27-81-32-000-801			401	ARO ALL
Slat Limit Switch Installation TASK 27-81-32-400-801			405	ARO ALL
SLAT HYDRAULIC MOTOR - REMOVAL/INSTALLATION	27-81-33		401	ARO ALL
Slat Hydraulic Motor Removal TASK 27-81-33-000-801			401	ARO ALL
Slat Hydraulic Motor Installation TASK 27-81-33-400-801			404	ARO ALL
SLAT ELECTRIC MOTOR - REMOVAL/INSTALLATION	27-81-34		401	ARO ALL
Slat Electric Motor Removal TASK 27-81-34-000-801			401	ARO ALL
Slat Electric Motor Installation TASK 27-81-34-400-801			404	ARO ALL
FLOOR ANGLE GEARBOX - REMOVAL/INSTALLATION	27-81-35		401	ARO ALL
Floor Angle Gearbox Removal TASK 27-81-35-000-801			401	ARO ALL
Floor Angle Gearbox Installation TASK 27-81-35-400-801			405	ARO ALL
STRAKELET ANGLE GEARBOX - REMOVAL/INSTALLATION	27-81-36		401	ARO ALL
Strakelet Angle Gearbox Removal TASK 27-81-36-000-801			401	ARO ALL
Strakelet Angle Gearbox Installation TASK 27-81-36-400-801			404	ARO ALL
DRIVELINE OFFSET GEARBOX - REMOVAL/INSTALLATION	27-81-37		401	ARO ALL
Driveline Offset Gearbox Removal TASK 27-81-37-000-801			401	ARO ALL
Driveline Offset Gearbox Installation TASK 27-81-37-400-801			404	ARO ALL

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
LEADING EDGE TORQUE TUBE - REMOVAL/INSTALLATION	27-81-38		401	ARO ALL
Inboard Wing Slat Torque Tube Removal TASK 27-81-38-000-801			401	ARO ALL
Inboard Wing Slat Torque Tube Installation TASK 27-81-38-400-801			412	ARO ALL
Outboard Wing Slat Torque Tube Removal TASK 27-81-38-000-802			416	ARO ALL
Outboard Wing Slat Torque Tube Installation TASK 27-81-38-400-802			429	ARO ALL
Cargo Compartment Slat Torque Tube Removal TASK 27-81-38-000-803			436	ARO ALL
Cargo Compartment Slat Torque Tube Installation TASK 27-81-38-400-803			441	ARO ALL
LEADING EDGE TORQUE TUBE SUPPORTS - REMOVAL/INSTALLATION	27-81-39		401	ARO ALL
Inboard Wing Slat Torque Tube Support Removal TASK 27-81-39-000-801			401	ARO ALL
Inboard Wing Slat Torque Tube Support Installation TASK 27-81-39-400-801			405	ARO ALL
Outboard Wing Slat Torque Tube Support Removal TASK 27-81-39-000-802			407	ARO ALL
Outboard Wing Slat Torque Tube Support Installation TASK 27-81-39-400-802			415	ARO ALL
Cargo Compartment Slat Torque Tube Support Removal TASK 27-81-39-000-803			419	ARO ALL
Cargo Compartment Torque Tube Support Installation TASK 27-81-39-400-803			423	ARO ALL
Leading Edge Pressure Seal Removal TASK 27-81-39-000-804			425	ARO ALL

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
Leading Edge Pressure Seal Installation TASK 27-81-39-400-804			429	ARO ALL
INBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION	27-81-42		401	ARO ALL
Inboard Slat Main Track Removal TASK 27-81-42-000-801			401	ARO ALL
Inboard Slat Main Track Installation TASK 27-81-42-400-801			412	ARO ALL
OUTBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION	27-81-43		401	ARO ALL
Outboard Slat Main Track Removal TASK 27-81-43-000-801			401	ARO ALL
Outboard Slat Main Track Installation TASK 27-81-43-400-801			412	ARO ALL
Slat Main Track - Inspection/Check	27-81-43		601	ARO ALL
Slat Main Track Inspection TASK 27-81-43-200-801			601	ARO ALL
INBOARD LEADING EDGE SLAT AUXILIARY TRACK - REMOVAL/INSTALLATION	27-81-46		401	ARO ALL
Inboard Leading Edge Slat Auxiliary Track Removal TASK 27-81-46-000-801			401	ARO ALL
Inboard Leading Edge Slat Auxiliary Track Installation TASK 27-81-46-400-801			409	ARO ALL
INBOARD LEADING EDGE SLAT AUXILIARY ARM - REMOVAL/INSTALLATION	27-81-47		401	ARO ALL
Inboard Leading Edge Slat Auxiliary Arm Removal TASK 27-81-47-000-801			401	ARO ALL
Inboard Leading Edge Slat Auxiliary Arm Installation TASK 27-81-47-400-801			408	ARO ALL
LEADING EDGE SLAT POSITION INDICATION SYSTEM - ADJUSTMENT/TEST	27-88-00		501	ARO ALL
Slat Position Indication System - Operational Test TASK 27-88-00-710-801			501	ARO ALL

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
SLAT POSITION SENSOR - REMOVAL/INSTALLATION	27-88-03		401	ARO ALL
Slat Position Sensor Removal TASK 27-88-03-000-801			401	ARO ALL
Slat Position Sensor Installation TASK 27-88-03-400-801			408	ARO ALL
SLAT SKEW DETECTION SYSTEM - ADJUSTMENT/TEST	27-89-00		501	ARO ALL
Inboard Slat Skew Detection System Test TASK 27-89-00-740-801			501	ARO ALL
Outboard Slat Skew Detection System Test TASK 27-89-00-730-801			505	ARO ALL
INBOARD SLAT SKEW SENSOR - REMOVAL/INSTALLATION	27-89-01		401	ARO ALL
Inboard Slat Skew Sensor Removal TASK 27-89-01-000-801			401	ARO ALL
Inboard Slat Skew Sensor Installation TASK 27-89-01-400-801			404	ARO ALL
OUTBOARD SLAT SKEW SENSOR - REMOVAL/INSTALLATION	27-89-11		401	ARO ALL
Outboard Slat Skew Sensor Removal TASK 27-89-11-000-801			401	ARO ALL
Outboard Slat Skew Sensor Installation TASK 27-89-11-400-801			404	ARO ALL
OUTBOARD SLAT SKEW MECHANISM - REMOVAL/INSTALLATION	27-89-12		401	ARO ALL
Outboard Slat Skew Mechanism Removal TASK 27-89-12-000-801			401	ARO ALL
Outboard Slat Skew Mechanism Installation TASK 27-89-12-400-801			404	ARO ALL
OUTBOARD SLAT SKEW CABLE - MAINTENANCE PRACTICES	27-89-13		201	ARO ALL
Outboard Slat Skew Cable Removal TASK 27-89-13-000-801			201	ARO ALL

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
Outboard Slat Skew Cable Installation TASK 27-89-13-400-801			208	ARO ALL
Outboard Slat Skew Cable Adjustment TASK 27-89-13-820-801			210	ARO ALL
Outboard Slat Skew Cable Test TASK 27-89-13-710-801			212	ARO ALL

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FLIGHT CONTROLS - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Primary flight control system deactivation

(2) Primary flight control system activation.

TASK 27-00-00-040-839

2. Primary and High Lift Flight Control System - Deactivation

A. General

(1) This task will deactivate these components of the primary flight control system:

(a) Aileron Control System

(b) Flaperon Control System

(c) Rudder Control System

(d) Elevator Control System

(e) Horizontal Stabilizer Control System

(f) Trailing Edge Flap System

(g) Spoiler Control System

(h) Leading Edge Slat System.

B. References

Reference	Title
24-00-00-440-805-001	Electrical Power/Power Panels - Activation (P/B 201)
27-02-32-000-801	Hydraulic Shutoff Valve Removal (P/B 401)
27-02-32-400-801	Hydraulic Shutoff Valve Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
143	Main Landing Gear Wheel Well, Left

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(Continued)

Zone	Area
144	Main Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
320	Subzone 320 - Vertical Stabilizer and Rudder
330	Subzone 330 - Left Horizontal Stabilizer and Elevator
340	Subzone 340 - Right Horizontal Stabilizer and Elevator
510	Subzone 510 - Wing Leading Edge - Forward of Front Spar
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
530	Subzone 530 - Wing Inspar Area (Fuel Tanks) - Inboard of Wing Rib 17
540	Subzone 540 - Wing Inspar Area (Fuel Tanks) - Rib 17 to Wing Tip
550	Subzone 550 - Wing Trailing Edge - Aft of Rear Spar
560	Subzone 560 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon
570	Subzone 570 - Wing Trailing Edge Flap Fairings
610	Subzone 610 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar
630	Subzone 630 - Wing Inspar Area (Fuel Tanks) - Inboard of Wing Rib 17
640	Subzone 640 - Wing Inspar Area (Fuel Tanks) - Rib 17 to Wing Tip
650	Subzone 650 - Wing Trailing Edge - Aft of Rear Spar
660	Subzone 660 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon
670	Subzone 670 - Wing Trailing Edge Flap Fairing

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door
511AB	Leading Edge PDU Panel
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel
821	Forward Large Cargo Door

F. Prepare for the procedure

SUBTASK 27-00-00-210-019

(1) Make sure that there are clearance zones established at these areas of the flight control surfaces:

(a) Ailerons

(b) Rudders

(c) Elevators

(d) Flaps

(e) Slats

(f) Spoilers

(g) Landing gear

(h) Thrust Reversers

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(i) Drive Mechanisms.

(2) Make sure that electrical power is available. Do this task: Electrical Power/Power Panels - Activation, TASK 24-00-00-440-805-001.

(3) Make sure that hydraulic power is available. Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(4) Open these access panels:

Number	Name/Location
117AL	Main Equipment Center Access Door
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

(5) Open this door:

Number	Name/Location
821	Forward Large Cargo Door



WARNING

MAKE SURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES BEFORE YOU REMOVE HYDRAULIC PRESSURE TO THE PCUS. WITHOUT HYDRAULIC PRESSURE, THE SURFACE WILL MOVE SLOWLY. THE MOVEMENT OF ALL FLIGHT CONTROL SURFACES CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) Depressurize the L, C and R hydraulic system. Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

(a) Make sure that the EICAS Hydraulic Maintenance Page shows L, C and R hydraulic system pressures are all below 100 PSI.

NOTE: If connected to the hydraulics bench, hydraulic pressure in the L, C and R hydraulic systems will quickly drop to less than 100 PSI. If using the overhead P5 hydraulics panel switches, the system may take 30 minutes or so to depressurize.

(7) On the P61 Maintenance Panel, put the L, C and R FLT CONTROL HYD POWER - TAIL switches to the SHUT OFF position.

NOTE: L, C and R Hydraulic systems must be depressurized before FLT CONTROL HYD POWER switches are SHUT OFF.

(a) Attach DO NOT OPERATE tags, STD-858 on the switches.

(8) On the P61 Maintenance Panel, put the L, C and R FLT CONTROL HYD POWER - WING switches to the SHUT OFF position.

NOTE: Hydraulic systems must be depressurized before FLT CONTROL HYD POWER switches are SHUT OFF.

(a) Attach DO NOT OPERATE tags, STD-858 on the switches.

G. Flight Control Hydraulic Shutoff Valves - Tryout

SUBTASK 27-00-00-210-018

NOTE: This tryout is to make sure the flight control hydraulic shutoff valves are working correctly.

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WARNING KEEP ALL PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES AND THE FLIGHT CONTROL DRIVE MECHANISMS. THESE COMPONENTS WILL MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that there are clearance zones established at these areas of the flight control surfaces:

(a) Ailerons

(b) Rudders

(c) Elevators

(d) Flaps

(e) Slats

(f) Spoilers

(g) Landing gear

(h) Thrust Reversers

(i) Drive Mechanisms.

NOTE: A ground observer must be in voice contact with an operator in the flight deck at all times to complete this step.

SUBTASK 27-00-00-780-001

(2) Pressurize the hydraulic system one at a time, refer to AMM TASK 29-11-00-860-801. Keep the hydraulic system pressurized for at least two minutes to make sure the flight control surfaces do not move.

(a) Rotate the Captain's or First Officer's control wheel fully to the left and then fully to the right.

1) Make sure that the primary flight control surfaces do not move.

2) Return the control wheel to the neutral position.

(b) Push the Captain's or First Officer's rudder pedals, left and right, to their stops.

1) Make sure that the rudder control surface does not move.

2) Return the rudder pedals to the neutral position.

(c) Push the Captain's or First Officer's control wheel until it stops and then pull the control wheel until it stops.

1) Make sure that the elevator control surface does not move.

2) Return the control wheel to the neutral position.

SUBTASK 27-00-00-710-010

(3) If any of the primary flight control surfaces moved, replace the applicable fight control hydraulic shutoff valve, refer to AMM TASK 27-02-32-000-801 and TASK 27-02-32-400-801.

SUBTASK 27-00-00-780-002

(4) Depressurize the hydraulic system, refer to AMM TASK 29-11-00-860-808.

SUBTASK 27-00-00-910-001

(5) Repeat the Flight Control Hydraulic Shutoff Valves - Tryout until all three hydraulic systems have been checked.

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SUBTASK 27-00-00-860-124

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	19	C27622	C FC SOV TAIL
K	20	C27621	L FC SOV TAIL
K	21	C27619	C FC SOV WG
K	22	C27618	L FC SOV WG
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
A	24	C22604	AFDC-C
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	6	C27620	R FC SOV WG
K	7	C27623	R FC SOV TAIL
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

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ARO 001-010 (Continued)

Standby Power Management Panel, P310

Row	Col	Number	Name
ARO ALL			
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-00-00-860-125

(7) Deactivate the Power Supply Assemblies:

NOTE: There are three Power Supply Assemblies (PSAs). The left and center PSAs are located in the Main Equipment Center, on the E1-6 and E2–6 Equipment Shelves, respectively. The right PSA (PSA-R) is located on the E5-1 Equipment Shelf in the FWD Cargo Compartment.

Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	8	CBD8-R	PFC BAT INTLK

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SUBTASK 27-00-00-860-135

(8) If you will do work on the leading edge slat system, do these steps:

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

(c) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors for the slat primary control valve:

1) Disconnect the electrical connectors from the slat primary control valve, Figure 203.

NOTE: The slat primary control valve is installed in the left main wheel well.

2) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors on the primary control valve and the connector plugs.

NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

(d) Open this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

on the lower surface of the strakelet on the left wing.

(e) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electric motor for the slat Power Drive Unit (PDU):

1) Disconnect the electrical connector from the slat electric motor, Figure 203.

2) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connector on the electric motor and the connector plug.

NOTE: The cover for the electric motor is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

SUBTASK 27-00-00-860-136

(9) If you will do work on the trailing edge flap system, do these steps:

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

(c) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors for the trailing edge flaps:

1) Disconnect the electrical connectors from the flap primary control valve (Figure 202).

NOTE: The flap primary control valve is installed in the right main wheel well.

2) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors on the primary control valve and the connector plugs.

NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

3) Disconnect the electrical connector from the flap electric motor (Figure 202).

4) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connector on the electric motor and the connector plug.

NOTE: The cover for the electric motor is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

H. Primary Flight Control System - Tryout

NOTE: This tryout is to make sure that the Primary Flight Control System is in a zero energy state.

SUBTASK 27-00-00-210-015

WARNING KEEP ALL PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES AND THE FLIGHT CONTROL DRIVE MECHANISMS. THESE COMPONENTS WILL MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that there are clearance zones established at these areas of the flight control surfaces:

(a) Ailerons
(b) Rudders
(c) Elevators
(d) Flaps
(e) Slats
(f) Spoilers
(g) Landing gear
(h) Thrust Reversers
(i) Drive Mechanisms.

SUBTASK 27-00-00-860-126

(2) Do these steps to make sure that the Primary Flight Control System is in a zero energy state:

NOTE: A ground observer must be in voice contact with an operator in the flight deck at all times to complete this step.

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(a) Rotate the Captain's or First Officers control wheel fully to the left and then fully to the right.
   1) Make sure that primary flight control surfaces do not move.
   2) Return the control wheel to the neutral position.

(b) Push the Captain's or First Officer's rudder pedals to their stops, left and right.
   1) Make sure that the rudder control surface does not move.
   2) Return the rudder pedals to the neutral position and attach a DO NOT OPERATE tag, STD-858 to the Captain's and First Officer's rudder pedals.

(c) Push the Captain's or First Officer's control wheel until stop and then pull the control wheel until stop.
   1) Make sure that the elevator control surface does not move.
   2) Return the control wheel to the neutral position.

(d) At the Captain's or First Officer's control wheel do these steps:
   1) Move the Pitch Trim Switches to the NOSE UP position and hold the switches in this position.
      a) Make sure the Horizontal Stabilizer does not move.
   2) Move the Pitch Trim Switches to the NOSE DOWN position and hold the switches in this position.
      a) Make sure the Horizontal Stabilizer does not move.
      b) Attach a DO NOT OPERATE tag, STD-858 on the Captain's and First Officer's Pitch Trim Switches.
   3) Attach a DO NOT OPERATE tag, STD-858 on the Captain's and First Officer's Control Wheel.

(e) At the Control Stand, P10 panel, do these steps:
   1) Move the Alternate (ALTN) Pitch Trim Levers to the NOSE UP position and hold the switches in this position.
      a) Make sure the Horizontal Stabilizer does not move.
      b) Release the Pitch Trim Levers and allow the levers to return to the neutral position.
   2) Move the Alternate (ALTN) Pitch Trim Levers to the NOSE DOWN position and hold the switches in this position.
      a) Make sure the Horizontal Stabilizer does not move.
      b) Release the Pitch Trim Levers and allow the levers to return to the neutral position.
      c) Attach a DO NOT OPERATE tag, STD-858 on the Pitch Trim Levers.

(f) At the Control Stand, P10 panel, do these steps:
   1) Move the Flap Handle to the 5 detent.
      a) Make sure that the flap surfaces do not move.
      b) Return Flap Handle to the original detent position and attach a DO NOT OPERATE tag, STD-858.
      c) Attach a DO NOT OPERATE tag, STD-858 to the Flap Handle.

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2) Put the Mode Arming Switch to ARMED and turn the ALTN FLAPS knob to the EXT position.
   a) Make sure that the flap surfaces do not move.
   b) Return the knob to the OFF position and attach a Attach a DO NOT OPERATE tag, STD-858.

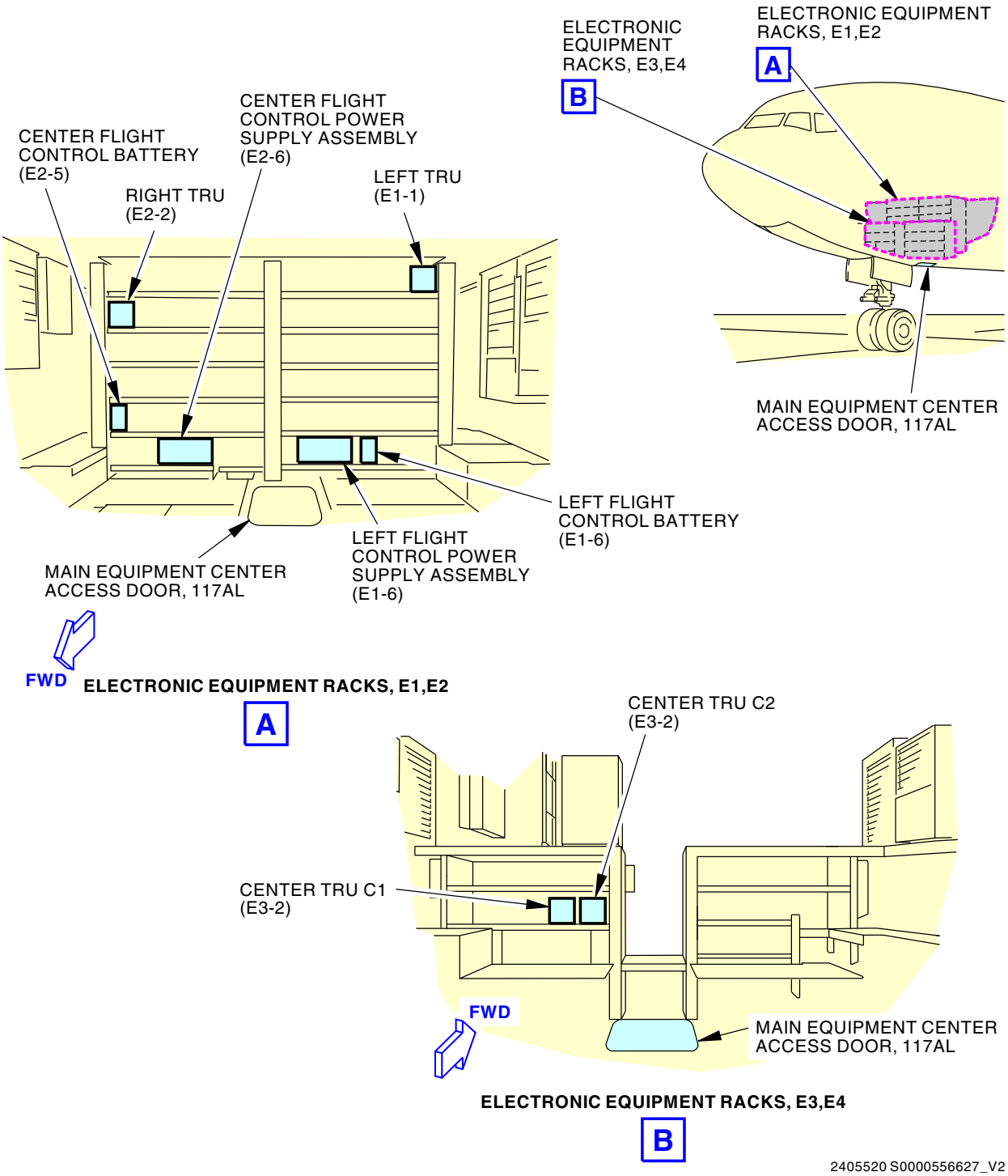
(g) At the Control Stand, P10 panel, Move the Speedbrake Lever from the DOWN detent position to the UP position.
   1) Make sure that the Spoiler Panles do not move.
   2) Return the Speedbrake Lever to the DOWN detent position and attach a DO NOT OPERATE tag, STD-858.

SUBTASK 27-00-00-210-016

(3) On the EICAS hydraulic screen, make sure that the hydraulic systems have been depressurized to less than 100 PSI.

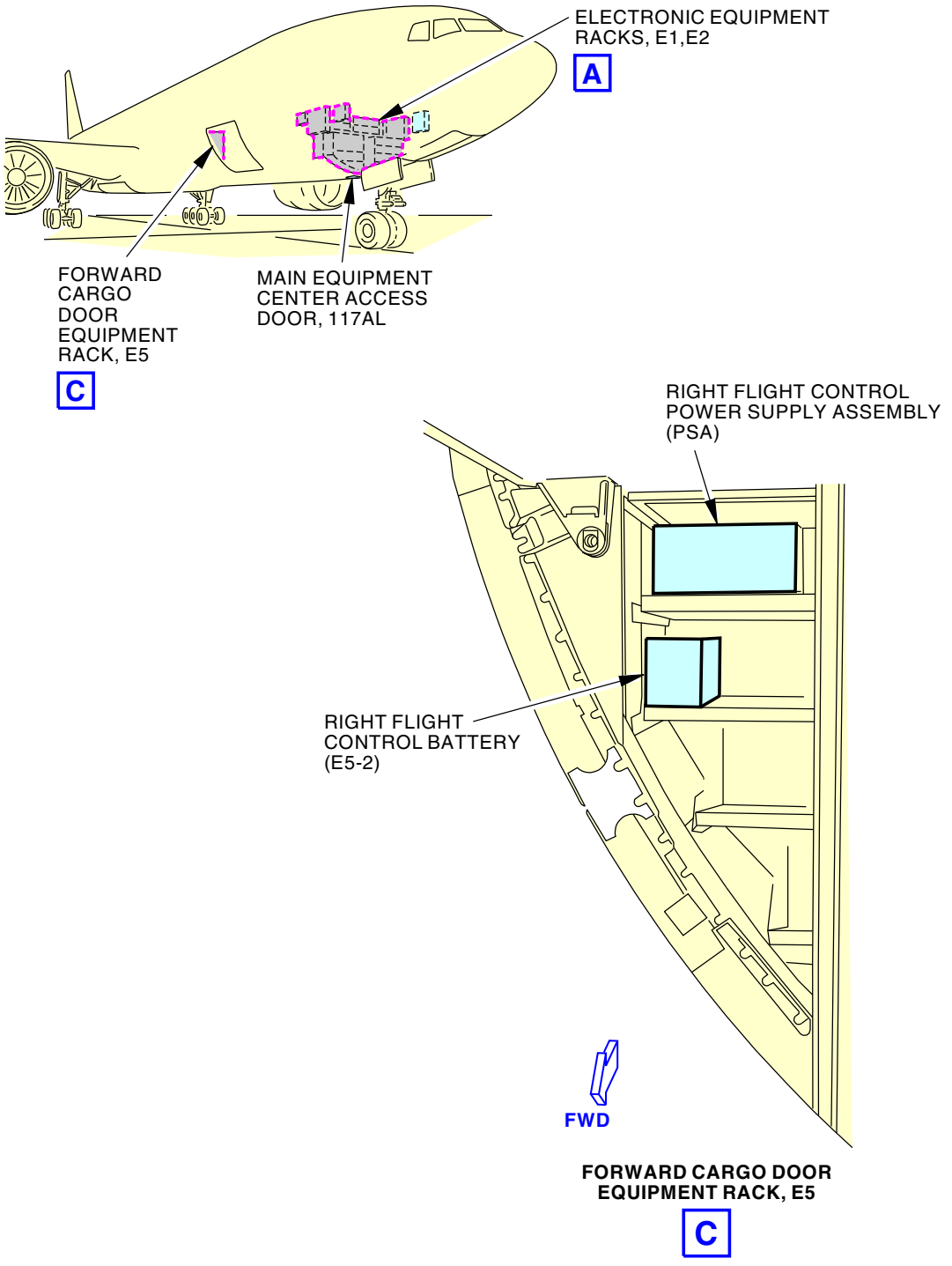
——— END OF TASK ———

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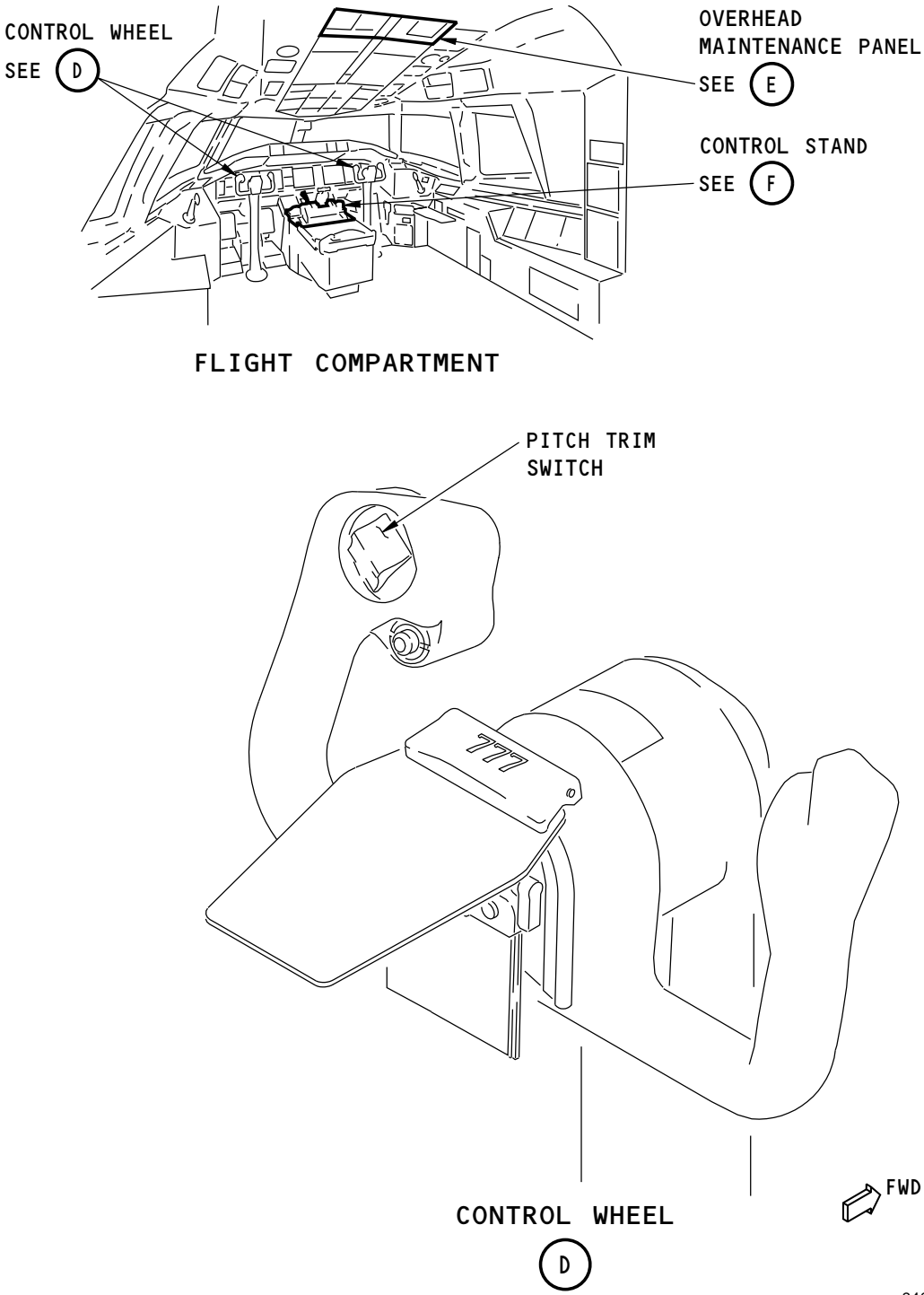
Primary Flight Control System - Component Location
Figure 201/27-00-00-990-805 (Sheet 1 of 4)

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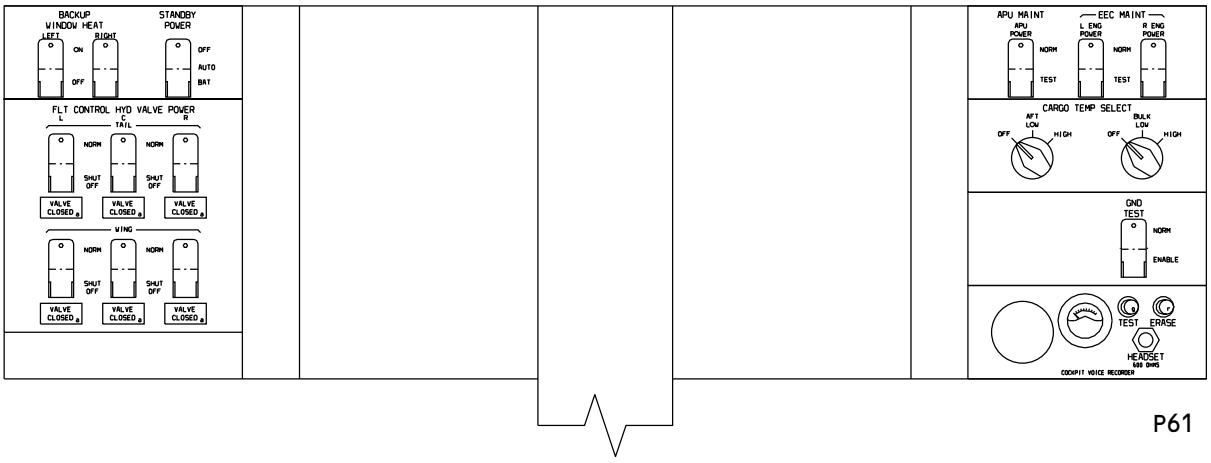
Primary Flight Control System - Component Location
Figure 201/27-00-00-990-805 (Sheet 2 of 4)

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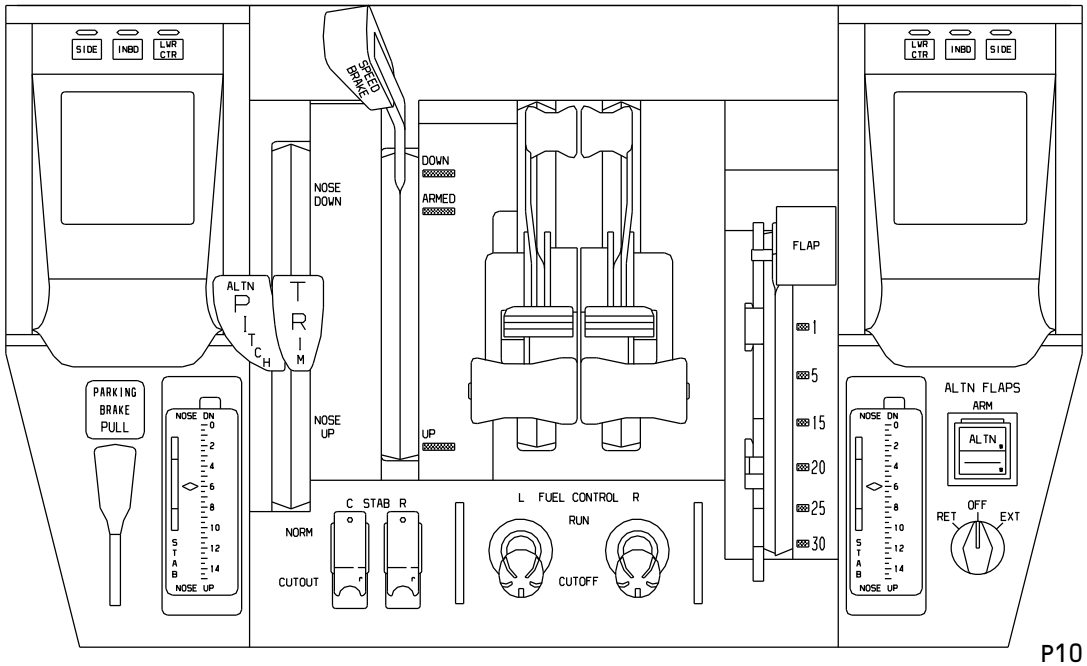
Primary Flight Control System - Component Location
Figure 201/27-00-00-990-805 (Sheet 3 of 4)

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OVERHEAD MAINTENANCE PANEL

E



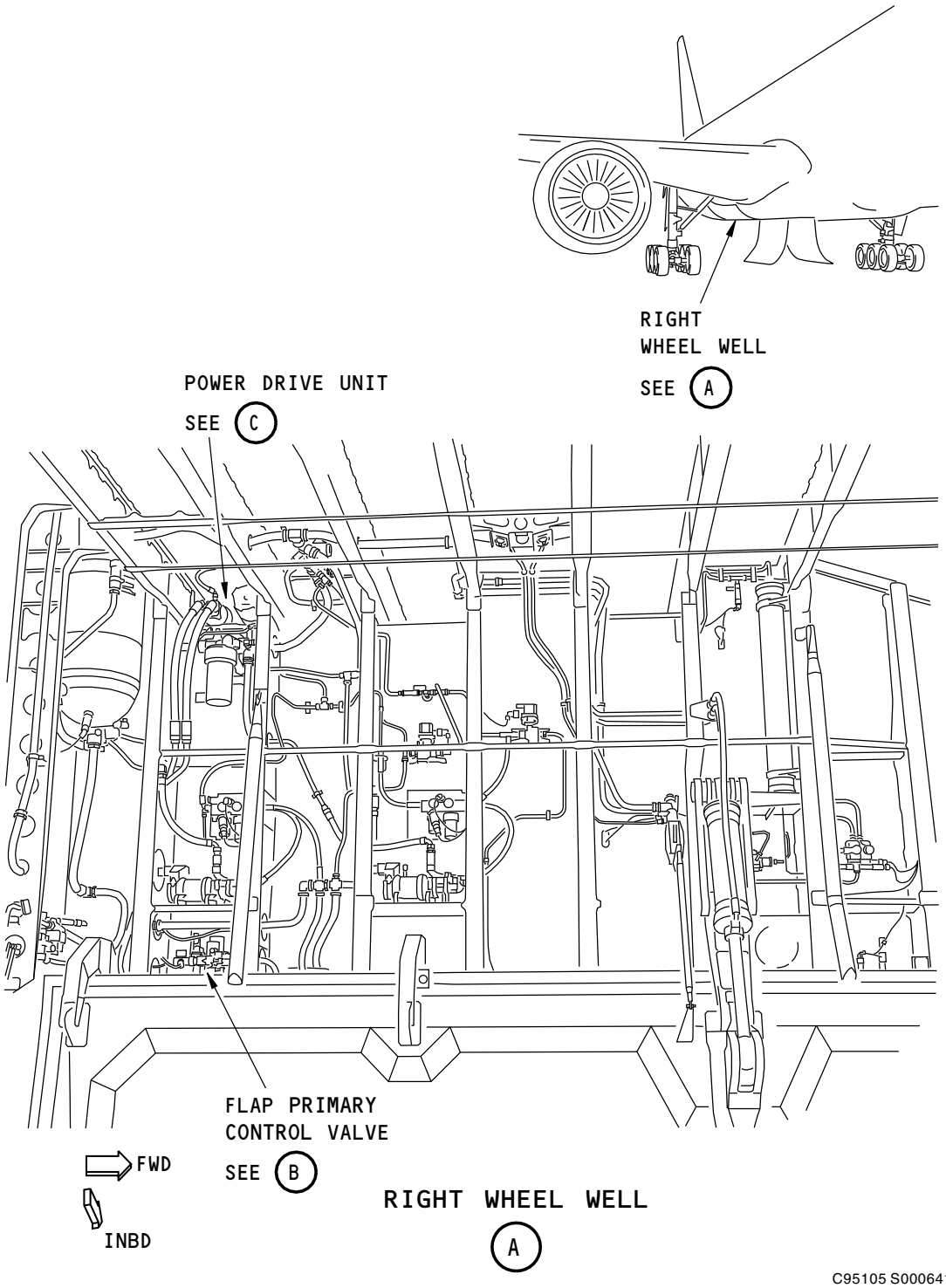
CONTROL STAND

F

2465360 S0000575469_V1

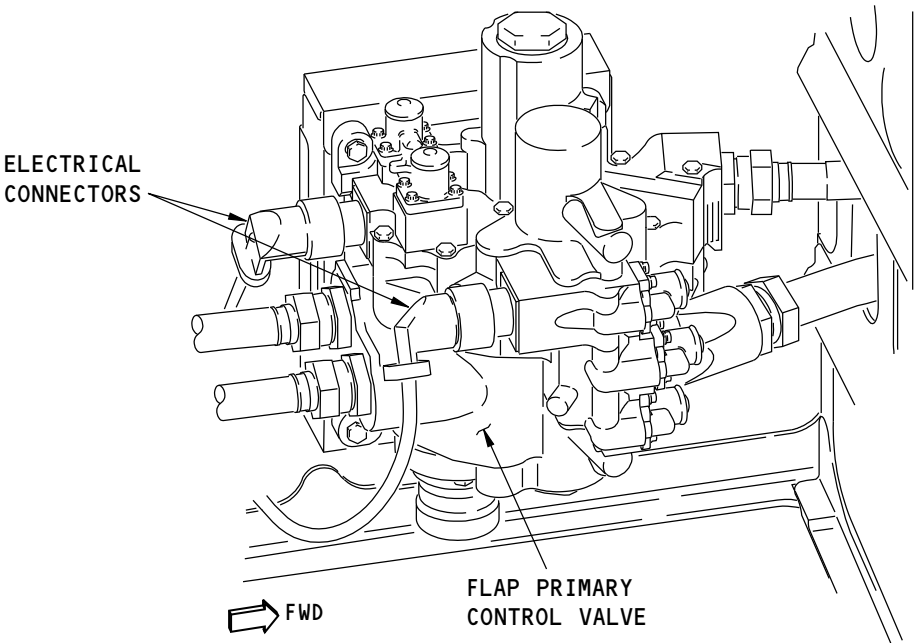
Primary Flight Control System - Component Location
Figure 201/27-00-00-990-805 (Sheet 4 of 4)

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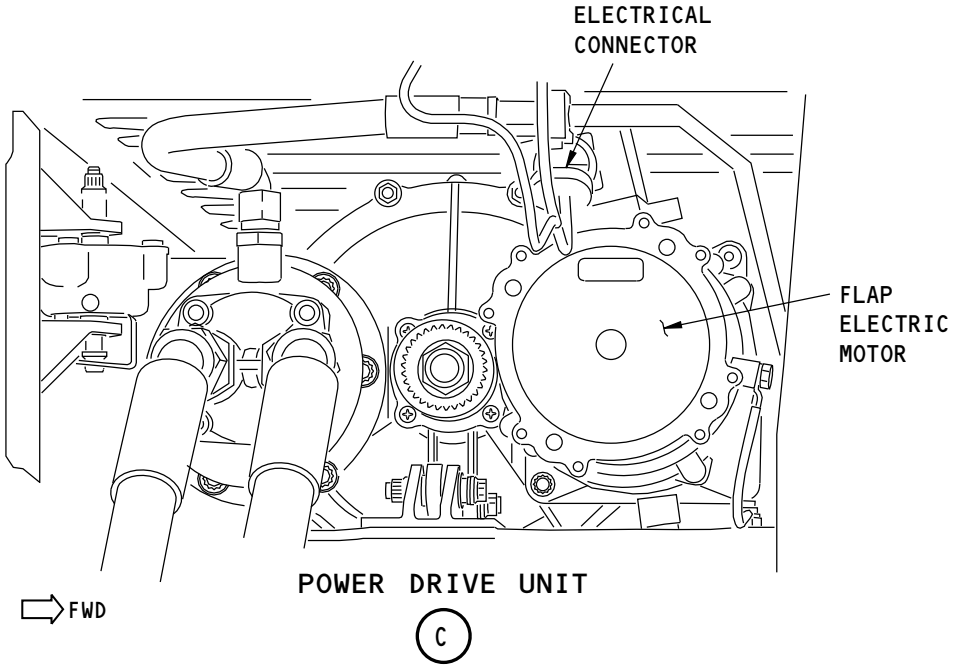
Trailing Edge Flap Deactivation
Figure 202/27-00-00-990-809 (Sheet 1 of 2)

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FLAP PRIMARY CONTROL VALVE

B



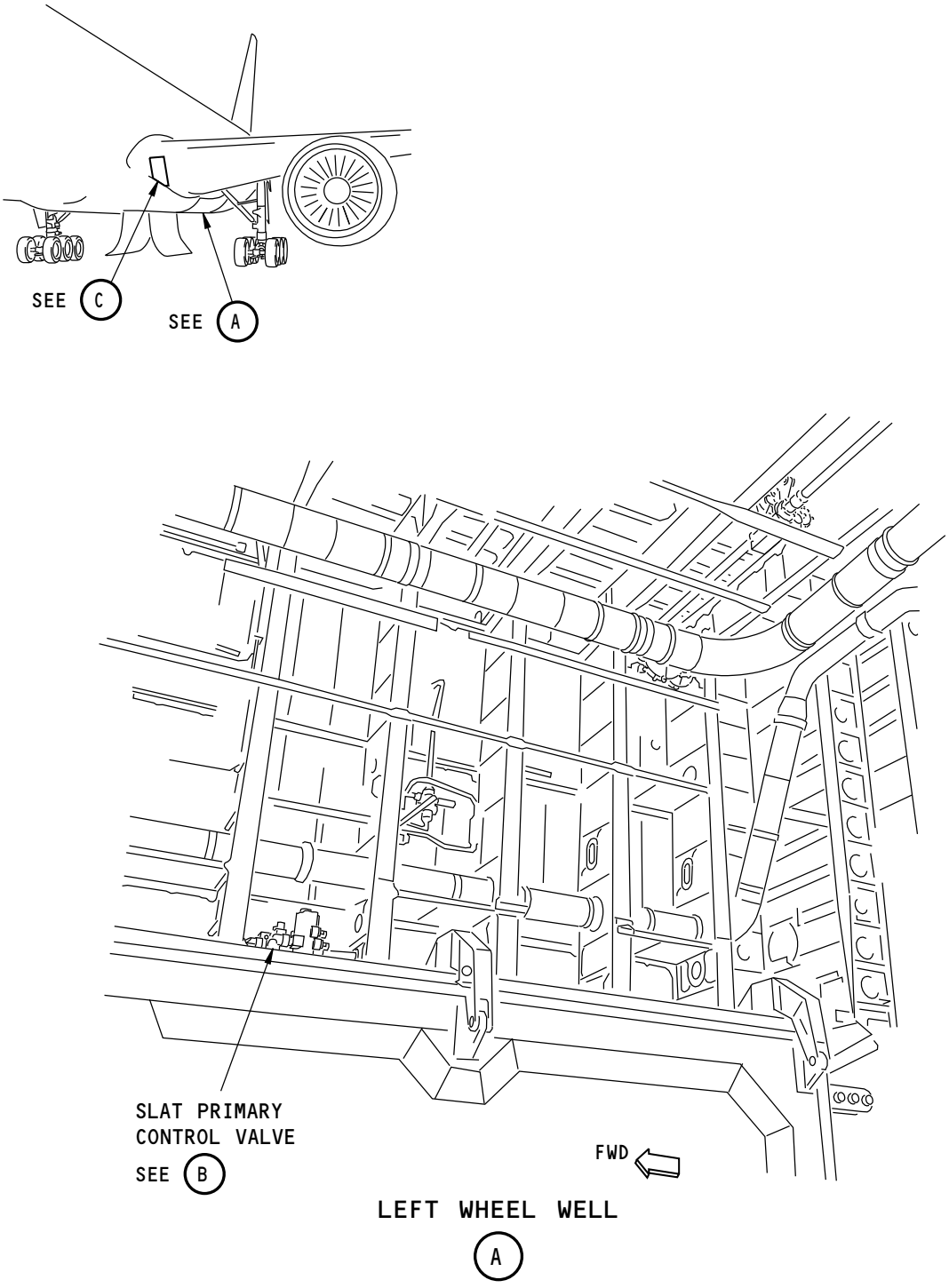
POWER DRIVE UNIT

C

C95416 S0006413439_V1

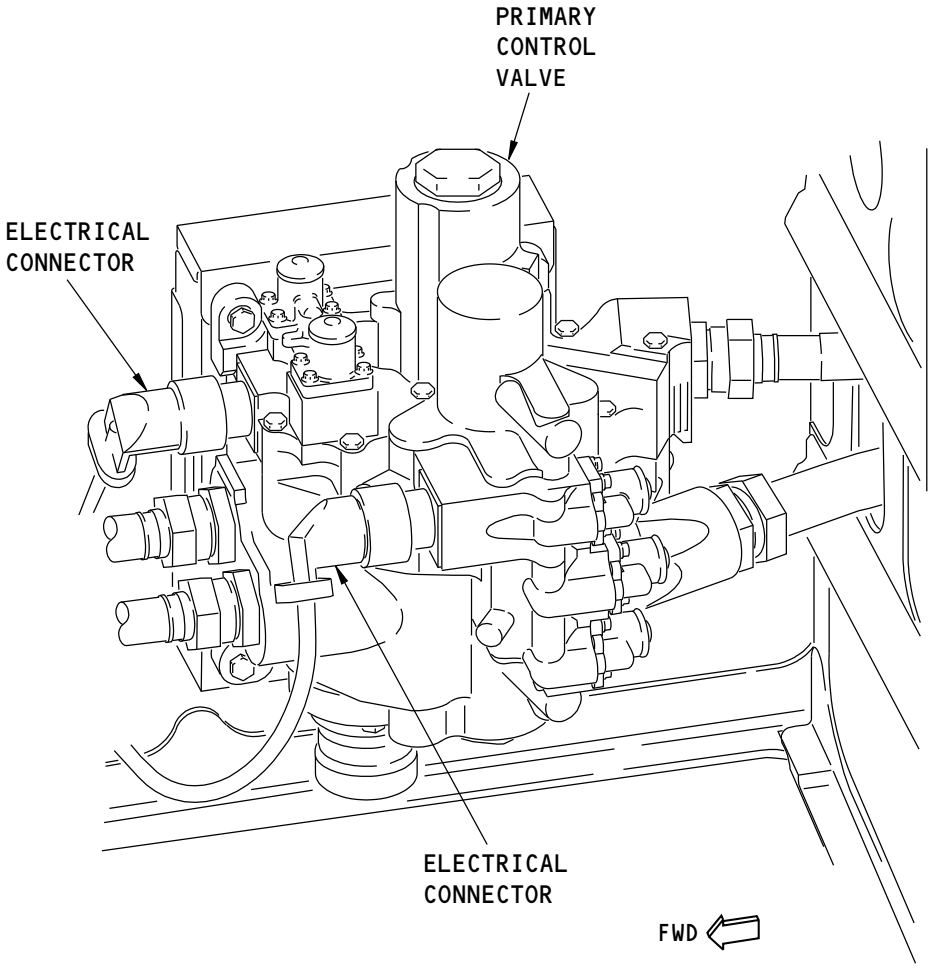
Trailing Edge Flap Deactivation
Figure 202/27-00-00-990-809 (Sheet 2 of 2)

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Leading Edge Slat Deactivation
Figure 203/27-00-00-990-810 (Sheet 1 of 3)

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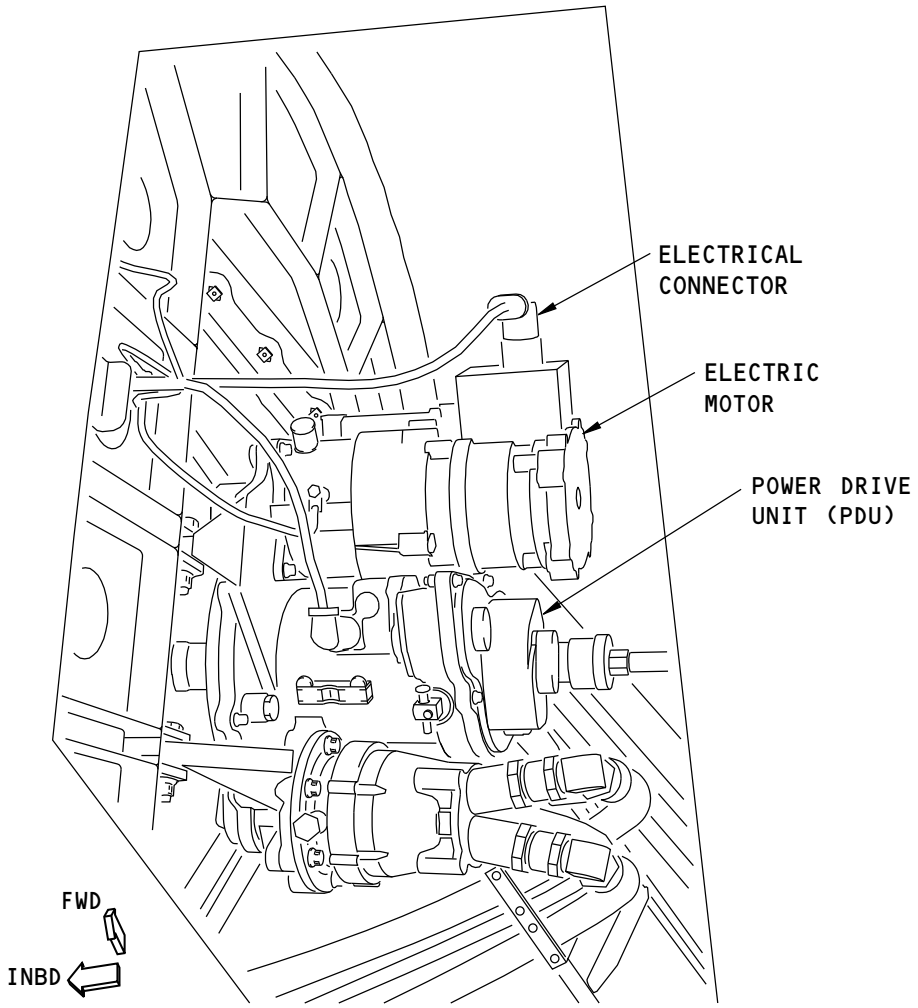
SLAT PRIMARY CONTROL VALVE

B

D19991 S0006414234_V1

Leading Edge Slat Deactivation
Figure 203/27-00-00-990-810 (Sheet 2 of 3)

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SLAT PDU

C

D19974 S0006414235_V1

Leading Edge Slat Deactivation
Figure 203/27-00-00-990-810 (Sheet 3 of 3)

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TASK 27-00-00-440-839

3. Primary and High Lift Flight Control System - Activation

A. General

(1) This task will activate these components of the primary flight control system:

(a) Aileron Control System

(b) Flaperon Control System

(c) Rudder Control System

(d) Elevator Control System

(e) Horizontal Stabilizer Control System

(f) Trailing Edge Flap System

(g) Spoiler Control System

(h) Leading Edge Slat System.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-05-740-801	Flap Primary Control Valve Test (P/B 501)
27-81-05-740-801	Slat Primary Control Valve Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
320	Subzone 320 - Vertical Stabilizer and Rudder
330	Subzone 330 - Left Horizontal Stabilizer and Elevator
340	Subzone 340 - Right Horizontal Stabilizer and Elevator
510	Subzone 510 - Wing Leading Edge - Forward of Front Spar
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar

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(Continued)

Zone	Area
530	Subzone 530 - Wing Inspar Area (Fuel Tanks) - Inboard of Wing Rib 17
540	Subzone 540 - Wing Inspar Area (Fuel Tanks) - Rib 17 to Wing Tip
550	Subzone 550 - Wing Trailing Edge - Aft of Rear Spar
560	Subzone 560 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon
570	Subzone 570 - Wing Trailing Edge Flap Fairings
610	Subzone 610 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar
630	Subzone 630 - Wing Inspar Area (Fuel Tanks) - Inboard of Wing Rib 17
640	Subzone 640 - Wing Inspar Area (Fuel Tanks) - Rib 17 to Wing Tip
650	Subzone 650 - Wing Trailing Edge - Aft of Rear Spar
660	Subzone 660 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon
670	Subzone 670 - Wing Trailing Edge Flap Fairing

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door
511AB	Leading Edge PDU Panel
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel
821	Forward Large Cargo Door

F. Procedure

SUBTASK 27-00-00-210-017

(1) Make sure that there are clearance zones established at these areas of the flight control surfaces:

(a) Ailerons

(b) Rudders

(c) Elevators

(d) Flaps

(e) Slats

(f) Spoilers

(g) Landing gear

(h) Thrust Reversers

(i) Drive Mechanisms.

SUBTASK 27-00-00-860-137

(2) If work was done on the leading edge slat system, do these steps:

(a) At the control stand, P10, do these steps:

1) Make sure that the flap control handle is positioned to match the actual position of the flaps.

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2) Make sure that the alternate flap arm switch is in the Blank (NOT ARMED) position.

NOTE: The alternate flap arm switch position and flap control handle position above should be maintained at all times, unless the flap system is being operated.

3) Make sure the Control Switch is OFF.

(b) If the electrical connectors for the slat primary control valve and the electric motor were disconnected, do these steps:

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

3) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electric motor on the slat Power Drive Unit (PDU):

NOTE: The cover for the PDU is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

a) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connector on the electric motor.

b) Connect the electrical connector to the slat electric motor.

4) Close this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

5) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the slat primary control valve:

NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

a) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connectors for the primary control valve.

b) Connect the electrical connectors to the slat primary control valve.

SUBTASK 27-00-00-860-138

(3) If work was done on the trailing edge slat system, do these steps:

(a) At the control stand, P10, do these steps:

1) Make sure that the flap control handle is positioned to match the actual position of the flaps.

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2) Make sure that the alternate flap arm switch is in the Blank (NOT ARMED) position.

NOTE: The alternate flap arm switch position and flap control handle position above should be maintained at all times, unless the flap system is being operated.

3) Make sure the Control Switch is OFF.

(b) If the electrical connectors for the flap primary control valve and the electric motor were disconnected, do these steps:

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

3) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connectors for the trailing edge flaps:

a) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connector for the flap electric motor.

NOTE: The cover for the electric motor is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

b) Connect the electrical connector to the electric motor.

c) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connectors for the flap primary control valve.

NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

d) Connect the two electrical connectors to the flap primary control valve.

SUBTASK 27-00-00-860-127

(4) Activate the Power Supply Assemblies:

NOTE: There are three Power Supply Assemblies (PSAs). The left and center PSAs are located in the Main Equipment Center, on the E1-6 and E2–6 Equipment Shelves, respectively. The right PSA (PSA-R) is located on the E5-1 Equipment Shelf in the FWD Cargo Compartment.

Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU

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(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-00-00-860-128

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	19	C27622	C FC SOV TAIL
K	20	C27621	L FC SOV TAIL
K	21	C27619	C FC SOV WG
K	22	C27618	L FC SOV WG
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

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Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
A	24	C22604	AFDC-C
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	6	C27620	R FC SOV WG
K	7	C27623	R FC SOV TAIL
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
ARO ALL			
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-00-00-860-129

(6) On the P61 maintenance panel, remove the DO NOT OPERATE tags, STD-858 from the L, C, and R FLT CONTROL HYD VALVE POWER - WING and TAIL switches and put the switches into the NORM position.

SUBTASK 27-00-00-860-130

(7) Remove the DO NOT OPERATE tags, STD-858 from the Captain's and First Officer's Control Wheel.

SUBTASK 27-00-00-860-131

(8) Remove the DO NOT OPERATE tags, STD-858 from the Captain's and First Officer's rudder pedals.

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SUBTASK 27-00-00-860-132

(9) On the Captain's or First Officer's control wheel, remove the DO NOT OPERATE tag, STD-858 from the Pitch Trim Switches.

SUBTASK 27-00-00-860-133

(10) At the Control Stand, P10 panel, remove the DO NOT OPERATE tags, STD-858 from these items:

(a) ALTN Pitch Trim Levers

(b) Flap Handle

(c) ALTN FLAPS knob

(d) Speedbrake Lever

SUBTASK 27-00-00-860-134

(11) Make sure that hydraulic power is available. Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-00-00-860-139

(12) If work was done on the leading edge slats, do these steps to test the flap drive system:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(b) Make sure the thrust reverser cowls are closed.

1) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

2) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

CAUTION DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(c) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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(d) Do this task: Slat Primary Control Valve Test, TASK 27-81-05-740-801.

(e) Make sure the slat electric motor operates:

1) Use the alternate control system to electrically extend the slats for a minimum of two seconds.

2) Use the alternate control system to electrically retract the slats.

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(f) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-00-00-860-140

(13) If work was done on the trailing edge slats, do these steps to test the flap drive system:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(b) Make sure the thrust reverser cowls are closed.

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(c) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(d) Do this task: Flap Primary Control Valve Test, TASK 27-51-05-740-801.

(e) Make sure the flap electric motor operates:

1) Use the alternate control system to electrically extend the flaps for a minimum of two seconds.

2) Use the alternate control system to electrically retract the flaps.

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(f) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-00-00-410-010

(14) Close this door panel:

Number	Name/Location
821	Forward Large Cargo Door

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SUBTASK 27-00-00-410-011

(15) Close these access panels:

Number	Name/Location
117AL	Main Equipment Center Access Door
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

——— END OF TASK ———

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FLIGHT CONTROLS - INSPECTION/CHECKS

1. General

A. This procedure has these tasks:

(1) Check the resistance ranges for in-service Power Control Unit (PCU) wiring.

(2) Check the low-voltage insulation resistance (LVIR) for in-service Power Control Unit (PCU) wiring.

(3) Check the resistance ranges for in-service Power Control Unit (PCU) airplane wiring.

(4) Check the low-voltage insulation resistance (LVIR) for in-service Power Control Unit (PCU) airplane wiring.

TASK 27-00-00-700-801

2. Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks

A. General

(1) This task provides resistance ranges for troubleshooting in-service PCU electrical faults.

NOTE: If the operator has reasonable doubt that the PCU problem will not be fixed by replacing the PCU, this may save time troubleshooting the airplane wiring. With the addition of the PCU resistance ranges, the operator has more data to make some type of technical decision.

NOTE: The resistance ranges in the tables are the approximate values expected for the listed circuit. The ranges are not functional limits, but guidelines for evaluating the general condition of the circuit.

NOTE: The resistance measurements are intended to be taken at the PCU electrical connectors. It is acceptable to perform the measurements at any electrical connector which contains the wiring connected to the PCU circuit to be tested. Be aware that the solenoid power circuits are not part of the ACE connectors, so they cannot be checked at the ACE connectors. If a resistance is noticeably out of range, the resistance should be checked at the PCU to verify the fault is in the PCU and not the airplane wiring.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 260 Supplier: 55026 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536

C. Location Zones

Zone	Area
323	Vertical Stabilizer - Front Spar to Rear Spar
324	Vertical Stabilizer - Rear Spar to Trailing Edge
325	Rudder
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator
553	Spoiler No. 7
554	Spoiler No. 6
557	Left Wing Flaperon
562	Spoiler No. 5
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
568	Left Wing Aileron
653	Spoiler No. 8
654	Spoiler No. 9
657	Right Wing Flaperon
662	Spoiler No. 10
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14
668	Right Wing Aileron
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

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D. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
651CB	Inboard Fixed Trailing Edge Panel
651EB	Inboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

E. Prepare for the PCU Wiring Resistance and LVIR Checks

SUBTASK 27-00-00-860-065

(1) Open the applicable access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
651CB	Inboard Fixed Trailing Edge Panel
651EB	Inboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-00-00-860-115

(2) Open the applicable circuit breakers and install safety tags for the PCU that you will check.

NOTE: For example, if you will check the Left Outboard (LOB) Aileron PCU, open circuit breakers at locations K-25, A-3 and K-28.

CIRCUIT BREAKERS

PCU POSITION	LOCATION	ROW	COLUMN	CB NAME
Aileron LOB	P110	K	25	AIL PCU LIB (BLK) LOB (BYP)
	PSA-C	A	3	AIL PCU
	P110	K	28	ACE-L2 PWR
Aileron LIB	PSA-C	A	3	AIL PCU
	P110	K	25	AIL PCU LIB (BLK) LOB (BYP)
	PSA-C	A	1	ACE PWR

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CIRCUIT BREAKERS (Continued)

PCU POSITION	LOCATION	ROW	COLUMN	CB NAME
Aileron RIB	PSA-R PSA-L PSA-R	A A A	3 3 1	AIL PCU AIL PCU ACE PWR
Aileron ROB	PSA-L PSA-R PSA-L	A A A	3 3 1	AIL PCU AIL PCU ACE PWR
Flaperon LOB	PSA-L PSA-L	A A	5 1	FLPRN PCU ACE PWR
Flaperon LIB	PSA-R PSA-R	A A	5 1	FLPRN PCU ACE PWR
Flaperon RIB	P110 P110	K K	26 28	FLPRN PCU RIB (BYP) SPLRS 4 & 11 ACE-L2 PWR
Flaperon ROB	PSA-C PSA-C	A A	5 1	FLPRN PCU ACE PWR
Elevator LOB	PSA-L PSA-C PSA-L	A A A	7 7 1	ELEV PCU ELE PCU ACE PWR
Elevator LIB	PSA-C PSA-L PSA-C	A A A	7 7 1	ELEV PCE ELEV PCU ACE PWR
Elevator RIB	PSA-R P110 PSA-R	A K A	7 27 1	ELEV PCU ELEV PCU RIB (BLK) ROB (BYP) ACE PWR
Elevator ROB	P110 PSA-R P110	K A K	27 7 28	ELEV PCU RIB (BLK) ROB (BYP) ELEV PCU ACE-L2 PWR
Rudder Upper	PSA-C PSA-R PSA-C	A A A	9 9 1	RUD PCU RUD PCU ACE PWR
Rudder Middle	PSA-L PSA-C PSA-L	A A A	9 9 1	RUD PCU RUD PCU ACE PWR
Rudder Lower	PSA-R PSA-L PSA-R	A A A	9 9 1	RUD PCU RUD PCU ACE PWR
Spoiler 1	PSA-C	A	1	ACE PWR
Spoiler 2	PSA-L	A	1	ACE PWR
Spoiler 3	PSA-R	A	1	ACE PWR
Spoiler 4	P110 P110	K K	26 28	FLPRN PCU RIB (BYP) SPLRS 4 & 11 ACE-L2 PWR
Spoiler 5	P110	K	28	ACE-L2 PWR

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CIRCUIT BREAKERS (Continued)

PCU POSITION	LOCATION	ROW	COLUMN	CB NAME
Spoiler 6	PSA-R	A	1	ACE PWR
Spoiler 7	PSA-C	A	1	ACE PWR
Spoiler 8	PSA-C	A	1	ACE PWR
Spoiler 9	PSA-R	A	1	ACE PWR
Spoiler 10	P110	K	28	ACE-L2 PWR
Spoiler 11	P110 P110	K K	26 28	FLPRN PCU RIB (BYP) SPLRS 4 & 11 ACE-L2 PWR
Spoiler 12	PSA-R	A	1	ACE PWR
Spoiler 13	PSA-L	A	1	ACE PWR
Spoiler 14	PSA-C	A	1	ACE PWR

F. Power Control Unit (PCU) Wiring Resistance Check

SUBTASK 27-00-00-760-004

(1) Check the PCU wiring resistance ranges using the following tables: (Table 601) and (Table 602)

NOTE: The resistance for the PCU circuits may be measured from the applicable ACE connector pins with no significant change to the resistance ranges. However, please note that the power supply circuits for the solenoid-operated valves do not originate at the ACE.

Table 601/27-00-00-993-801 Spoiler Power Control Unit (PCU) In Service Resistance Ranges

	Mechanical Spoiler		Inboard Spoiler		Outboard Spoiler	
Pin Pair	Conn.	PCU Position	Conn.	PCU Position	Conn.	PCU Position
					DM27116	Sp. No. 1
					DM27117	Sp. No. 2
					DM27118	Sp. No. 3
					DM27120	Sp. No. 5
			DM27114	Sp. No. 6	DM27220	Sp. No. 10
			DM27115	Sp. No. 7	DM27218	Sp. No. 12
	DM27119	Sp. No. 4	DM27215	Sp. No. 8	DM27217	Sp. No. 13
	DM27219	Sp. No. 11	DM27214	Sp. No. 9	DM27216	Sp. No. 14
	From	To	From	To	From	To
3/10	60	140	420	640	420	640
5/6	410	940	330	780	410	940
1/5	200	470	160	390	200	470
1/6	200	470	160	390	200	470
7/8	90	230	70	230	90	230

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Table 602/27-00-00-993-804 Flap/Ail/Ele/Rud Power Control Unit (PCU) in Service Resistance Ranges

	Flaperon		Aileron		Elevator		Rudder	
Pin Pair	Conn.	PCU Position	Conn.	PCU Position	Conn.	PCU Position	Conn.	PCU Position
	DM27109	FLPRN LOB	DM27107A	AIL LOB	DM27111A	ELEV LOB		
	DM27110	FLPRN LIB	DM27108A	AIL LIB	DM27112A	ELEV LIB	DM27007A	RUD UPR
	DM27210	FLPRN RIB	DM27208A	AIL RIB	DM27212A	ELEV RIB	DM27008A	RUD MID
	DM27209	FLPRN ROB	DM27207A	AIL ROB	DM27211A	ELEV ROB	DM27009A	RUD LWR
	FROM	TO	FROM	TO	FROM	TO	FROM	TO
8/9	420	640	420	660	420	640	420	640
3/11	390	800	420	780	390	780	390	780
18/3	190	400	210	390	190	390	190	390
18/11	190	400	210	390	190	390	190	390
7/19	140	290	90	340	90	340	90	340
18/7	70	150	40	170	40	170	40	170
18/19	70	150	40	170	40	170	40	170
12/13	11	21	20	34	13	24	13	24
5/15	290	600			390	720	390	720
18/5	140	300			190	360	190	360
18/15	140	300			190	360	190	360
16/17	60	140	60	140	60	110	60	90
1/2					50	90		
			DM27107B	AIL LOB	DM27111B	ELEV LOB		
			DM27108B	AIL LIB	DM27112B	ELEV LIB	DM27007B	RUD UPR
			DM27208B	AIL RIB	DM27212B	ELEV RIB	DM27008B	RUD MID
			DM27207B	AIL ROB	DM27211B	ELEV ROB	DM27009B	RUD LWR
			FROM	TO	FROM	TO	FROM	TO
2/3					50	90	60	90
5/6					60	110	60	90
1/2			60	140				

G. Power Control Unit (PCU) Wiring Low Voltage Insulation Resistance (LVIR) Check

SUBTASK 27-00-00-760-005

(1) This task provides a pin-to-pin matrix for troubleshooting in-service PCU cross-wire electrical faults.

(a) If no faults are found from the Power Control Unit (PCU) Wiring Resistance Check, measure the resistance between each pin pair in the applicable table with the digital/analog multimeter, COM-1793 to make sure the resistance is greater than 50,000 Ohms.

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1) A resistance of 50,000 Ohms or less, indicates a possible short between isolated circuits.

NOTE: The low-voltage insulation resistance measurements are intended to be taken at the PCU electrical connectors. It is acceptable to perform the measurements at any electrical connector which contains the wiring connected to the PCU circuits to be tested. Be aware that the solenoid power circuits and the PCU case are not part of the ACE connectors, so they cannot be checked at the ACE connectors. If a low-voltage insulation resistance is noticeably out of range, the low-voltage insulation resistance should be checked at the PCU to verify the fault is in the PCU and not the airplane wiring.

NOTE: In the following tables “A” and “B” are connectors A and B at the related PCU. For example, at the left outboard aileron PCU, A = DM27107A and B = DM27107B. No preceding pin letter indicates a single connector for the PCU.

NOTE: NR means "not required".

Aileron PCU

	A-8	A-12	A-16	B-1	CASE
A-3	>50K	>50K	>50K	>50K	>50K
A-8	NR	>50K	>50K	>50K	>50K
A-12	NR	NR	>50K	>50K	>50K
A-16	NR	NR	NR	>50K	>50K
B-1	NR	NR	NR	NR	>50K

Flaperon PCU

	8	12	16	CASE
3	>50K	>50K	>50K	>50K
8	NR	>50K	>50K	>50K
12	NR	NR	>50K	>50K
16	NR	NR	NR	>50K

Spoiler PCU

	3	7	CASE
1	>50K	>50K	>50K
3	NR	>50K	>50K
7	NR	NR	>50K

Elevator PCU

	A-3	A-8	A-12	A-16	B-2	B-5	CASE
A-1	>50K	>50K	>50K	>50K	>50K	>50K	>50K
A-3	NR	>50K	>50K	>50K	>50K	>50K	>50K
A-8	NR	NR	>50K	>50K	>50K	>50K	>50K

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Elevator PCU (Continued)

	A-3	A-8	A-12	A-16	B-2	B-5	CASE
A-12	NR	NR	NR	>50K	>50K	>50K	>50K
A-16	NR	NR	NR	NR	>50K	>50K	>50K
B-1	NR	NR	NR	NR	NR	>50K	>50K
B-2	NR	NR	NR	NR	NR	>50K	>50K
B-5	NR	NR	NR	NR	NR	NR	>50K

Rudder PCU

	A-8	A-12	A-16	B-2	B-5	CASE
A-3	>50K	>50K	>50K	>50K	>50K	>50K
A-8	NR	>50K	>50K	>50K	>50K	>50K
A-12	NR	NR	>50K	>50K	>50K	>50K
A-16	NR	NR	NR	>50K	>50K	>50K
B-2	NR	NR	NR	NR	>50K	>50K
B-5	NR	NR	NR	NR	NR	>50K

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-00-00-860-116

(1) Close the circuit breakers that you opened.

SUBTASK 27-00-00-410-009

(2) Close these access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
651CB	Inboard Fixed Trailing Edge Panel
651EB	Inboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

END OF TASK

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TASK 27-00-00-700-802

3. Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks

Figure 601

A. General

(1) This procedure provides a contact-to-contact matrix for troubleshooting in-service PCU airplane wiring.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 260 Supplier: 55026 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536

C. Location Zones

Zone	Area
323	Vertical Stabilizer - Front Spar to Rear Spar
324	Vertical Stabilizer - Rear Spar to Trailing Edge
325	Rudder
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator
553	Spoiler No. 7
554	Spoiler No. 6
557	Left Wing Flaperon
562	Spoiler No. 5
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
568	Left Wing Aileron
653	Spoiler No. 8

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(Continued)

Zone	Area
654	Spoiler No. 9
657	Right Wing Flaperon
662	Spoiler No. 10
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14
668	Right Wing Aileron
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

D. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
651CB	Inboard Fixed Trailing Edge Panel
651EB	Inboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

E. Prepare for the PCU Airplane Wiring Resistance and LVIR Checks

SUBTASK 27-00-00-860-112

(1) Open the applicable circuit breakers and install safety tags for the PCU that you will check.

NOTE: For example, if you will check the Left Outboard (LOB) Aileron PCU, open circuit breakers K17 and K18 on the P110 panel. Opening of other circuit breakers may be required when removing equipment to complete the check of the LOB aileron PCU airplane wiring.

CIRCUIT BREAKERS

PCU POSITION	LOCATION	ROW	COLUMN	CB NAME
Aileron LOB	P110 P110 See NOTE	K K	17 18	FLAPS ELECTRIC CTRL RLY POWER AIL TRIM ACTR
Aileron LIB	P110 P110 See NOTE	K K	17 18	FLAPS ELECTRIC CTRL RLY POWER AIL TRIM ACTR
Aileron RIB	See NOTE	-	-	
Aileron ROB	See NOTE	-	-	
Flaperon LOB	See NOTE	-	-	

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CIRCUIT BREAKERS (Continued)

PCU POSITION	LOCATION	ROW	COLUMN	CB NAME
Flaperon LIB	See NOTE	-	-	
Flaperon RIB	See NOTE	-	-	
Flaperon ROB	See NOTE	-	-	
Elevator LOB	See NOTE	-	-	
Elevator LIB	See NOTE	-	-	
Elevator RIB	P110 P110 See NOTE	K K	17 18	FLAPS ELECTRIC CTRL RLY POWER AIL TRIM ACTR
Elevator ROB	P110 P110 See NOTE	K K	17 18	FLAPS ELECTRIC CTRL RLY POWER AIL TRIM ACTR
Rudder Upper	See NOTE	-	-	
Rudder Middle	See NOTE	-	-	
Rudder Lower	See NOTE	-	-	
Spoiler 1	See NOTE	-	-	
Spoiler 2	See NOTE	-	-	
Spoiler 3	See NOTE	-	-	
Spoiler 4	P110 P110 See NOTE	K K	17 18	FLAPS ELECTRIC CTRL RLY POWER AIL TRIM ACTR
Spoiler 5	See NOTE	-	-	
Spoiler 6	See NOTE	-	-	
Spoiler 7	See NOTE	-	-	
Spoiler 8	See NOTE	-	-	
Spoiler 9	See NOTE	-	-	
Spoiler 10	See NOTE	-	-	
Spoiler 11	P110 P110 See NOTE	K K	17 18	FLAPS ELECTRIC CTRL RLY POWER AIL TRIM ACTR
Spoiler 12	See NOTE	-	-	
Spoiler 13	See NOTE	-	-	
Spoiler 14	See NOTE	-	-	

NOTE: Removal of components to complete a PCU airplane wiring resistance or LVIR check may require other circuit breakers be opened. These circuit breakers are identified in the AMM task for removal of the related component.

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F. Power Control Unit (PCU) Airplane Wiring Resistance Check

SUBTASK 27-00-00-760-010

(1) This procedure provides a contact-to-contact matrix for the troubleshooting in-service PCU airplane wiring electrical faults.

(a) If no faults are found from the Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, TASK 27-00-00-700-801, do these steps:

1) Measure the resistance between each contact pair in the applicable table in Figure 601 (sheets1–5) with the digital/analog multimeter, COM-1793.

2) Make sure the resistance is less than 6 Ohms.

NOTE: A resistance of 6 Ohms or greater indicates a possible circuit problem.

(b) Do the PCU airplane wiring resistance check.

1) Using Table 603 and the PCU position determine what components need to be removed, and what the applicable electrical connectors are.

NOTE: This table is used for the PCU Airplane wiring resistance checks.

LOB = left outboard,

LIB = left inboard,

RIB = right inboard,

ROB = right outboard

2) Verify the resistance measurements between each of the contacts specified in Figure 601 (sheets 1–5) meet the requirements.

Table 603/27-00-00-993-805 Power Control Unit (PCU) Airplane Wiring - Resistance

PCU Position	Remove these Components in the Order Listed per the Related AMM Task	Disconnect these Electrical Connectors	Connector A (J1)	Connector B (J2)	WDM Ref.
Aileron LOB	PSA-C ACE-C ACE-L2	D11013P DM27107A DM27107B	DM27107A	DM27107B	27-11-11 27-11-12
Aileron LIB	PSA-C ACE-C ACE-L2	D11013P DM27108A DM27108B	DM27108A	DM27108B	27-11-12 27-11-11
Aileron RIB	PSA-L PSA-R ACE-L1 ACE-R	DM27208A DM27208B	DM27208A	DM27208B	27-11-14 27-11-13
Aileron ROB	PSA-L PSA-R ACE-L1 ACE-R	DM27207A DM27207B	DM27207A	DM27207B	27-11-13 27-11-14
Flaperon LOB	PSA-L ACE-L1	DM27109	DM27109	~	27-11-15

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Table 603/27-00-00-993-805 Power Control Unit (PCU) Airplane Wiring - Resistance (Continued)

PCU Position	Remove these Components in the Order Listed per the Related AMM Task	Disconnect these Electrical Connectors	Connector A (J1)	Connector B (J2)	WDM Ref.
Flaperon LIB	PSA-R ACE-R	DM27110	DM27110	~	27-11-16
Flaperon RIB	ACE-L2	DM27210	DM27210	~	27-11-18
Flaperon ROB	PSA-C ACE-C	DM27209	DM27209	~	27-11-17
Elevator LOB	PSA-L PSA-C ACE-L1 ACE-C	DM27111A DM27111B	DM27111A	DM27111B	27-31-11 27-31-12
Elevator LIB	PSA-L PSA-C ACE-L1 ACE-C	DM27112A DM27112B	DM27112A	DM27112B	27-31-12 27-31-11
Elevator RIB	PSA-R ACE-R ACE-L2	DM11013P DM27212A DM27212B	DM27212A	DM27212B	27-31-14 27-31-13
Elevator ROB	PSA-R ACE-R ACE-L2	DM11013P DM27211A DM27211B	DM27211A	DM27211B	27-31-13 27-31-14
Rudder Upper	PSA-C PSA-R ACE-C ACE-R	DM27007A DM27007B	DM27007A	DM27007B	27-21-11 27-21-13
Rudder Middle	PSA-L PSA-C ACE-L1 ACE-C	DM27008A DM27008B	DM27008A	DM27008B	27-21-12 27-21-11
Rudder Lower	PSA-L PSA-R ACE-L1 ACE-R	DM27009A DM27009B	DM27009A	DM27009B	27-21-13 27-21-12
Spoiler 1	ACE-C	DM27116	DM27116	~	27-61-15
Spoiler 2	ACE-L1	DM27117	DM27117	~	27-61-11
Spoiler 3	ACE-R	DM27118	DM27118	~	27-61-17
Spoiler 4	ACE-L2	DM27119 DM11013P	DM27119	~	27-61-13 27-11-18
Spoiler 5	ACE-L2	DM27120	DM27120	~	27-61-13
Spoiler 6	ACE-R	DM27114	DM27114	~	27-61-17

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Table 603/27-00-00-993-805 Power Control Unit (PCU) Airplane Wiring - Resistance (Continued)

PCU Position	Remove these Components in the Order Listed per the Related AMM Task	Disconnect these Electrical Connectors	Connector A (J1)	Connector B (J2)	WDM Ref.
Spoiler 7	ACE-C	DM27115	DM27115	~	27-61-15
Spoiler 8	ACE-C	DM27215	DM27215	~	27-61-15
Spoiler 9	ACE-R	DM27214	DM27214	~	27-61-17
Spoiler 10	ACE-L2	DM27220	DM27220	~	27-61-13
Spoiler 11	ACE-L2	DM27219 DM11013P	DM27219	~	27-61-13 27-11-18
Spoiler 12	ACE-R	DM27218	DM27218	~	27-61-17
Spoiler 13	ACE-L1	DM27217	DM27217	~	27-61-11
Spoiler 14	ACE-C	DM27216	DM27216	~	27-61-15

G. Power Control Unit (PCU) Airplane Wiring Low-Voltage Insulation Resistance (LVIR) Check

SUBTASK 27-00-00-760-008

(1) This procedure provides a contact-to-contact matrix for troubleshooting in-service PCU airplane wiring cross-wire electrical faults.

(a) If no faults are found from Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, TASK 27-00-00-700-801, or the Power Control Unit (PCU) Airplane Wiring Resistance Check above, do this step:

NOTE: The low-voltage insulation resistance measurements are taken at the PCU shipside electrical connectors.

1) Measure the resistance between each contact pair in the applicable table with the digital/analog multimeter, COM-1793 to make sure the resistance is greater than 50,000 Ohms.

NOTE: A resistance of 50,000 Ohms or less indicates a possible short between isolated circuits.

(b) Do the PCU airplane wiring low-voltage insulation resistance (LVIR) check.

1) Using Table 604 and the PCU position determine what components need to be removed and what the applicable electrical connectors are.

NOTE: This table is used for the PCU Airplane wiring low voltage insulation resistance (LVIR) checks.

LOB = left outboard,

LIB = left inboard,

RIB = right inboard,

ROB = right outboard

NOTE: The LVIR checks for the aileron, elevator, and rudder PCUs are divided into two parts and use different electrical connectors. Make sure measurements are taken at the correct connectors.

2) Verify the LVIR measurements between each of the contacts specified in Figure 601 (sheets 6–12) at the PCU shipside electrical connector meet the requirements.

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Table 604/27-00-00-993-806 Power Control Unit (PCU) Airplane Wiring - LVIR

PCU Position	Remove these Components in the Order Listed per the Related AMM Task	Disconnect these Electrical Connectors	Part 1 Connector A (J1) (position)	Part 1 Connector B (J2) (position)	Part 2 Connector B (J2) (position)	Part 2 Connector A (J1) (position)	WDM Ref.
Aileron LOB	PSA-C ACE-C ACE-L2	D11013P DM27107A DM27107B DM27108A DM27108B	DM27107A (LOB)	DM27108B (LIB)	DM27107B (LOB)	DM27108A (LIB)	27-11-11 27-11-12
Aileron LIB	PSA-C ACE-C ACE-L2	D11013P DM27107A DM27107B DM27108A DM27108B	DM27108A (LIB)	DM27107B (LOB)	DM27108B (LIB)	DM27107A (LOB)	27-11-12 27-11-11
Aileron RIB	PSA-L PSA-R ACE-L1 ACE-R	DM27207A DM27207B DM27208A DM27208B	DM27208A (RIB)	DM27207B (ROB)	DM27208B (RIB)	DM27207A (ROB)	27-11-14 27-11-13
Aileron ROB	PSA-L PSA-R ACE-L1 ACE-R	DM27207A DM27207B DM27208A DM27208B	DM27207A (ROB)	DM27208B (RIB)	DM27207B (ROB)	DM27208A (RIB)	27-11-13 27-11-14
Flaperon LOB	PSA-L ACE-L1	DM27109	DM27109	~	-	-	27-11-15
Flaperon LIB	PSA-R ACE-R	DM27110	DM27110	~	-	-	27-11-16
Flaperon RIB	ACE-L2	DM27210	DM27210	~	-	-	27-11-18
Flaperon ROB	PSA-C ACE-C	DM27209	DM27209	~	-	-	27-11-17
Elevator LOB	PSA-L PSA-C ACE-L1 ACE-C	DM27111A DM27111B DM27112A DM27112B	DM27111A (LOB)	DM27112B (LIB)	DM27111B (LOB)	DM27112A (LIB)	27-31-11 27-31-12
Elevator LIB	PSA-L PSA-C ACE-L1 ACE-C	DM27111A DM27111B DM27112A DM27112B	DM27112A (LIB)	DM27111B (LOB)	DM27112B (LIB)	DM27111A (LOB)	27-31-12 27-31-11
Elevator RIB	PSA-R ACE-R ACE-L2	DM11013P DM27212A DM27212B DM27211A DM27211B	DM27212A (RIB)	DM27211B (ROB)	DM27212B (RIB)	DM27211A (ROB)	27-31-14 27-31-13

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Table 604/27-00-00-993-806 Power Control Unit (PCU) Airplane Wiring - LVIR (Continued)

PCU Position	Remove these Components in the Order Listed per the Related AMM Task	Disconnect these Electrical Connectors	Part 1 Connector A (J1) (position)	Part 1 Connector B (J2) (position)	Part 2 Connector B (J2) (position)	Part 2 Connector A (J1) (position)	WDM Ref.
Elevator ROB	PSA-R ACE-R ACE-L2	DM11013P DM27212A DM27212B DM27211A DM27211B	DM27211A (ROB)	DM27212B (RIB)	DM27211B (ROB)	DM27212A (RIB)	27-31-13 27-31-14
Rudder Upper	PSA-L PSA-C PSA-R ACE-L1 ACE-C ACE-R	DM27007A DM27007B DM27008B DM27009A	DM27007A (Upper)	DM27008B (Middle)	DM27007B (Upper)	DM27009A (Lower)	27-21-11 27-21-13
Rudder Middle	PSA-L PSA-C PSA-R ACE-L1 ACE-C ACE-R	DM27007A DM27008A DM27008B DM27009B	DM27008A (Middle)	DM27009B (Lower)	DM27008B (Middle)	DM27007A (Upper)	27-21-12 27-21-11
Rudder Lower	PSA-L PSA-C PSA-R ACE-L1 ACE-C ACE-R	DM27007B DM27008A DM27009A DM27009B	DM27009A (Lower)	DM27007B (Upper)	DM27009B (Lower)	DM27008A (Middle)	27-21-13 27-21-12
Spoiler 1	ACE-C	DM27116	DM27116	~	-	-	27-61-15
Spoiler 2	ACE-L1	DM27117	DM27117	~	-	-	27-61-11
Spoiler 3	ACE-R	DM27118	DM27118	~	-	-	27-61-17
Spoiler 4	ACE-L2	DM27119 DM11013P	DM27119	~	-	-	27-61-13 27-11-18
Spoiler 5	ACE-L2	DM27120	DM27120	~	-	-	27-61-13
Spoiler 6	ACE-R	DM27114	DM27114	~	-	-	27-61-17
Spoiler 7	ACE-C	DM27115	DM27115	~	-	-	27-61-15
Spoiler 8	ACE-C	DM27215	DM27215	~	-	-	27-61-15
Spoiler 9	ACE-R	DM27214	DM27214	~	-	-	27-61-17
Spoiler 10	ACE-L2	DM27220	DM27220	~	-	-	27-61-13
Spoiler 11	ACE-L2	DM27219 DM11013P	DM27219	~	-	-	27-61-13 27-11-18

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Table 604/27-00-00-993-806 Power Control Unit (PCU) Airplane Wiring - LVIR (Continued)

PCU Position	Remove these Components in the Order Listed per the Related AMM Task	Disconnect these Electrical Connectors	Part 1 Connector A (J1) (position)	Part 1 Connector B (J2) (position)	Part 2 Connector B (J2) (position)	Part 2 Connector A (J1) (position)	WDM Ref.
Spoiler 12	ACE-R	DM27218	DM27218	~	-	-	27-61-17
Spoiler 13	ACE-L1	DM27217	DM27217	~	-	-	27-61-11
Spoiler 14	ACE-C	DM27216	DM27216	~	-	-	27-61-15

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-00-00-860-114

(1) Close the circuit breakers that you opened.

SUBTASK 27-00-00-410-008

(2) Close these access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
651CB	Inboard Fixed Trailing Edge Panel
651EB	Inboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

END OF TASK

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AIRPLANE WIRING RESISTANCE - AILERON PCU

	LOB		LIB		RIB		ROB		
CONNECTOR	ACE-L2	P110	ACE-C	PSA-C	ACE-R	PSA-R	ACE-L1	PSA-L	REQ
A(J1)	DM27122AA	D11013P	DM27321AA	DM24301AD	DM27221AA	DM24101AD	DM27121AA	DM24101AD	
3	D14	NR	D14	NR	D14	NR	D14	NR	<6 Ω
7	E13	NR	E13	NR	E13	NR	E13	NR	<6 Ω
8	B14	NR	B14	NR	B14	NR	B14	NR	<6 Ω
9	A14	NR	A14	NR	A14	NR	A14	NR	<6 Ω
11	D15	NR	D15	NR	D15	NR	D15	NR	<6 Ω
12	E14	NR	E14	NR	E14	NR	E14	NR	<6 Ω
13	E15	NR	E15	NR	E15	NR	E15	NR	<6 Ω
16	NR	1	NR	10	NR	10	NR	10	<6 Ω
17	A13	NR	A13	NR	A13	NR	A13	NR	<6 Ω
18	D12	NR	D12	NR	D12	NR	D12	NR	<6 Ω
19	E12	NR	E12	NR	E12	NR	E12	NR	<6 Ω
CONNECTOR	ACE-C	PSA-C	ACE-L2	P110	ACE-L1	PSA-L	ACE-R	PSA-R	REQ
B(J2)	DM27321AA	DM24301AD	DM27122AA	D11013P	DM27121AA	DM24101AD	DM27221AA	DM24201AD	
1	NR	10	NR	1	NR	10	NR	10	<6 Ω
2	A15	NR	A15	NR	A15	NR	A15	NR	<6 Ω

AIRPLANE WIRING RESISTANCE - AILERON POWER CONTROL UNIT

LEGEND:

NR = NOT REQUIRED

2120013 S0000455903_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 1 of 12)

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	AIRPLANE WIRING RESISTANCE - FLAPERON PCU				
	LOB	LIB	RIB	ROB	
CONNECTOR	ACE-L1	ACE-R	ACE-L2	ACE-C	REQ
(J1)	DM27121AA	DM27221AA	DM27122AA	DM27321AA	
3	J3	J3	J3	J3	<6 Ω
5	F1	F1	F1	F1	<6 Ω
7	K2	K2	K2	K2	<6 Ω
8	G3	G3	G3	G3	<6 Ω
9	F3	F3	F3	F3	<6 Ω
11	J4	J4	J4	J4	<6 Ω
12	K3	K3	K3	K3	<6 Ω
13	K4	K4	K4	K4	<6 Ω
15	G1	G1	G1	G1	<6 Ω
17	F2	F2	F2	F2	<6 Ω
18	J1	J1	J1	J1	<6 Ω
19	K1	K1	K1	K1	<6 Ω
CONNECTOR	PSA-L	PSA-R	P110	PSA-C	REQ
(J1)	DM24101AD	DM24201AD	D11013P	DM24301AD	
16	22	22	9	22	<6 Ω

AIRPLANE WIRING RESISTANCE - FLAPERON POWER CONTROL UNIT

2120093 S0000455905_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 2 of 12)

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AIRPLANE WIRING RESISTANCE - ELEVATOR PCU

	LOB		LIB		RIB		ROB		
CONNECTOR	ACE-L1	PSA-L	ACE-C	PSA-C	ACE-R	PSA-R	ACE-L2	P110	REQ
A(J1)	DM27121AC	DM24101AD	DM27321AC	DM24301AD	DM27221AC	DM24101AD	DM27122AC	D11013P	
1	B13	NR	B13	NR	B13	NR	B13	NR	<6 Ω
2	NR	34	NR	34	NR	34	NR	7	<6 Ω
3	D14	NR	D14	NR	D14	NR	D14	NR	<6 Ω
5	A12	NR	A12	NR	A12	NR	A12	NR	<6 Ω
7	E13	NR	E13	NR	E13	NR	E13	NR	<6 Ω
8	B14	NR	B14	NR	B14	NR	B14	NR	<6 Ω
9	A14	NR	A14	NR	A14	NR	A14	NR	<6 Ω
11	D15	NR	D15	NR	D15	NR	D15	NR	<6 Ω
12	E14	NR	E14	NR	E14	NR	E14	NR	<6 Ω
13	E15	NR	E15	NR	E15	NR	E15	NR	<6 Ω
15	B12	NR	B12	NR	B12	NR	B12	NR	<6 Ω
16	NR	34	NR	34	NR	34	NR	7	<6 Ω
17	A13	NR	A13	NR	A13	NR	A13	NR	<6 Ω
18	D12	NR	D12	NR	D12	NR	D12	NR	<6 Ω
19	E12	NR	E12	NR	E12	NR	E12	NR	<6 Ω
CONNECTOR	ACE-C	PSA-C	ACE-L1	PSA-L	ACE-L2	P110	ACE-R	PSA-R	REQ
B(J2)	DM27321AC	DM24301AD	DM27121AC	DM24101AD	DM27122AC	D11013P	DM27221AC	DM24201AD	
2	A15	NR	A15	NR	A15	NR	A15	NR	<6 Ω
3	NR	34	NR	34	NR	7	NR	34	<6 Ω
5	NR	34	NC	NC	NC	NC	NR	34	<6 Ω
6	B15	NR	NC	NC	NC	NC	B15	NR	<6 Ω

LEGEND:

NR = NOT REQUIRED

NC = NOT CONNECTED

AIRPLANE WIRING RESISTANCE - ELEVATOR POWER CONTROL UNIT

2120118 S0000456354_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 3 of 12)

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AIRPLANE WIRING RESISTANCE - RUDDER PCU

	UPPER		MIDDLE		LOWER		
CONNECTOR	ACE-C	PSA-C	ACE-L1	PSA-L	ACE-R	PSA-R	REQ
A(J1)	DM27321AC	DM24301AD	DM27121AC	DM24101AD	DM27221AC	DM24101AD	
3	J4	NR	J4	NR	J4	NR	<6 Ω
5	F1	NR	F1	NR	F1	NR	<6 Ω
7	K2	NR	K2	NR	K2	NR	<6 Ω
8	G3	NR	G3	NR	G3	NR	<6 Ω
9	F3	NR	F3	NR	F3	NR	<6 Ω
11	J3	NR	J3	NR	J3	NR	<6 Ω
12	K3	NR	K3	NR	K3	NR	<6 Ω
13	K4	NR	K4	NR	K4	NR	<6 Ω
15	G1	NR	G1	NR	G1	NR	<6 Ω
16	NR	29	NR	29	NR	29	<6 Ω
17	F2	NR	F2	NR	F2	NR	<6 Ω
18	J1	NR	J1	NR	J1	NR	<6 Ω
19	K1	NR	K1	NR	K1	NR	<6 Ω
CONNECTOR	ACE-R	PSA-R	ACE-C	PSA-C	ACE-L1	PSA-L	REQ
B(J2)	DM27221AC	DM24201AD	DM27321AC	DM24301AD	DM27121AC	DM24101AD	
2	H3	NR	H3	NR	H3	NR	<6 Ω
3	NR	29	NR	29	NR	29	<6 Ω
5	NR	29	NC	29	NR	29	<6 Ω
6	G4	NR	G4	NR	G4	NR	<6 Ω

LEGEND: AIRPLANE WIRING RESISTANCE - RUDDER POWER CONTROL UNIT

NR = NOT REQUIRED

2120287 S0000456355_V2

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 4 of 12)

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AIRPLANE WIRING RESISTANCE - SPOILER PCU

	1	2	3	4			5	6	7	
PCU	ACE-C	ACE-L1	ACE-R	ACE-L2	ACE-L2	P110	ACE-L2	ACE-R	ACE-C	REQ
CONN.	DM27321AA	DM27121AC	DM27221AC	DM27122AA	DM27122AC	DM11013P	DM27122AA	DM27221AC	DM27321AA	
1	C9	C9	C9	H7	NR	NR	C9	C9	C9	<6 Ω
3	C7	C7	C7	NR	F4	NR	C7	C7	C7	<6 Ω
5	A9	A9	A9	K7	NR	NR	A9	A9	A9	<6 Ω
6	B9	B9	B9	J7	NR	NR	B9	B9	B9	<6 Ω
7	A7	A7	A7	K5	NR	NR	A7	A7	A7	<6 Ω
8	A8	A8	A8	K6	NR	NR	A8	A8	A8	<6 Ω
10	C8	C8	C8	NR	NR	9	C8	C8	C8	<6 Ω

	8	9	10	11			12	13	14	
PCU	ACE-C	ACE-R	ACE-L2	ACE-L2		P110	ACE-R	ACE-L1	ACE-C	REQ.
CONN.	DM27321AC	DM27221AA	DM27122AC	DM27122AC		D11013P	DM27321AA	DM27321AA	DM27321AC	
1	C9	C9	C9	H7		NR	C9	C9	C9	<6 Ω
3	C7	C7	C7	H3		NR	C7	C7	C7	<6 Ω
5	A9	A9	A9	K7		NR	A9	A9	A9	<6 Ω
6	B9	B9	B9	J7		NR	B9	B9	B9	<6 Ω
7	A7	A7	A7	K5		NR	A7	A7	A7	<6 Ω
8	A8	A8	A8	K6		NR	A8	A8	A8	<6 Ω
10	C8	C8	C8	NR		9	C8	C8	C8	<6 Ω

AIRPLANE WIRING RESISTANCE - SPOILER POWER CONTROL UNIT

LEGEND:

NR = NOT REQUIRED

2120309 S0000456356_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 5 of 12)

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		AIRPLANE WIRING LVIR - AILERON PCU - PART 1 *>50K Ω												
		CONNECTOR A(J1) SUSPECT PCU										CONN. B(J2) SHARED-BUNDLE PCU		CONN. SHELL
		7	8	9	11	12	13	16	17	18	19	1	2	
CONNECTOR A(J1) SUSPECT PCU	3	*	*	*	*	*	*	*	*	*	*	*	*	*
	7	NR	*	*	*	*	*	*	*	*	*	*	*	*
	8	NR	NR	*	*	*	*	*	*	*	*	*	*	*
	9	NR	NR	NR	*	*	*	*	*	*	*	*	*	*
	11	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*
	12	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*
	13	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*
	16	NR	NR	NR	NR	NR	NR	NR	*	*	*	<12 Ω	*	*
	17	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*
	18	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*
	19	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*

PART 1	
SUSPECT PCU CONN. A(J1)	SHARED-BUNDLE PCU CONN. B(J2)
LOB	LIB
LIB	LOB
RIB	ROB
ROB	RIB

PART 2	
SUSPECT PCU CONN. B(J2)	SHARED-BUNDLE PCU CONN. A(J1)
LOB	LIB
LIB	LOB
RIB	ROB
ROB	RIB

		AIRPLANE WIRING LVIR - AILERON PCU - PART 2 *>50K Ω												
		CONN. B(J2) SHARED-BUNDLE PCU	CONNECTOR A(J1) SHARED-BUNDLE PCU											CONN. SHELL
		2	3	7	8	9	11	12	13	16	17	18	19	
CONN. B(J2) SUSPECT PCU	1	*	*	*	*	*	*	*	*	<12 Ω	*	*	*	*
	2	NR	*	*	*	*	*	*	*	*	*	*	*	*

LEGEND:

* = >50K Ω

NR = NOT REQUIRED

AIRPLANE WIRING LVIR -
AILERON POWER CONTROL UNIT

2119432 S0000455899_V2

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 6 of 12)

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		AIRPLANE WIRING LVIR - FLAPERON PCU												
		CONNECTOR (J1)												CONN. SHELL
		5	7	8	9	11	12	13	15	16	17	18	19	
CONNECTOR (J1)	3	*	*	*	*	*	*	*	*	*	*	*	*	*
	5	NR	*	*	*	*	*	*	*	*	*	*	*	*
	7	NR	NR	*	*	*	*	*	*	*	*	*	*	*
	8	NR	NR	NR	*	*	*	*	*	*	*	*	*	*
	9	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*
	11	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*
	12	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*
	13	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*
	15	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*
	16	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*
	17	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*
	18	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*
	19	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*

AIRPLANE WIRING LVIR - FLAPERON POWER CONTROL UNIT

LEGEND:

* = >50K Ω

NR = NOT REQUIRED

2119826 S0000455900_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 7 of 12)

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PART 1	
SUSPECT PCU CONN. A(J1)	SHARED-BUNDLE PCU CONN. B(J2)
LOB	LIB
LIB	LOB
RIB	ROB
ROB	RIB

LEGEND:
* = >50KΩ
NR = NOT REQUIRED

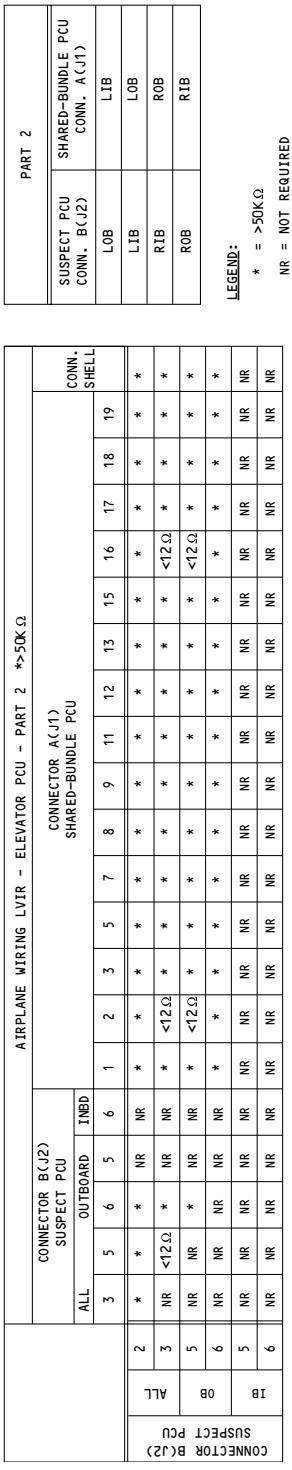
AIRPLANE WIRING LVIR - ELEVATOR POWER CONTROL UNIT

CONNECTOR A(J1) SUSPECT PCU	AIRPLANE WIRING LVIR - ELEVATOR PCU - PART 1 *>50KΩ																			CONNECTOR B(J2) SHARED-BUNDLE PCU							CONN. SHELL
																				ALL		OUTBOARD		INBOARD			
	2	3	5	7	8	9	11	12	13	15	16	17	18	19	2	3	5	6	5	6							
1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	*
2	NR	*	*	*	*	*	*	*	*	*	<12Ω	*	*	*	*	<12Ω	<12Ω	*	NR	NR	NR	NR	NR	NR	NR	NR	*
3	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
5	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
7	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
8	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
9	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
11	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
12	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
13	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
15	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
16	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	<12Ω	<12Ω	*	NR	NR	NR	NR	NR	NR	NR	NR	*
17	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
18	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*
19	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	NR	NR	NR	NR	NR	NR	NR	NR	*

2119904 S0000455901_V2

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 8 of 12)

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2331154 S0000529923_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 9 of 12)

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AIRPLANE WIRING LVIR - RUDDER PCU - PART 1 *>50K Ω

	CONNECTOR A(J1) SUSPECT PCU															CONN. B(J2) SUSPECT-BUNDLE PCU				CONN. SHELL
	5	7	8	9	11	12	13	15	16	17	18	19	2	3	5	6	
3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5	NR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
9	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*	*
11	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*	*
12	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*	*
13	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*	*
15	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*	*	*
16	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	<12 Ω	<12 Ω	*	*
17	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*	*
18	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*	*
19	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	*	*	*	*	*

CONNECTOR A(J1)
SUSPECT PCU

PART 1	
SUSPECT PCU CONN. A(J1)	SHARED-BUNDLE PCU CONN. B(J2)
UPPER	MIDDLE
MIDDLE	LOWER
LOWER	UPPER

AIRPLANE WIRING LVIR - RUDDER POWER CONTROL UNIT

LEGEND:

* = >50K Ω

NR = NOT REQUIRED

2119996 S0000455902_V2

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 10 of 12)

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AIRPLANE WIRING LVIR - RUDDER PCU - PART 2 *>50K Ω

CONN. B(J2) SUSPECT PCU				CONNECTOR A(J1) SHARED-BUNDLE PCU														CONN. SHELL
3	5	6		3	5	7	8	9	11	12	13	15	16	17	18	19		
*	*	*	2	*	*	*	*	*	*	*	*	*	*	*	*	*		*
NR	<12 Ω	*	3	*	*	*	*	*	*	*	*	*	<12 Ω	*	*	*		*
NR	NR	*	5	*	*	*	*	*	*	*	*	*	<12 Ω	*	*	*		*
NR	NR	NR	6	*	*	*	*	*	*	*	*	*	*	*	*	*		*

PART 2	
SUSPECT PCU CONN. B(J2)	CONNECTOR A(J1) SHARED-BUNDLE PCU
UPPER	LOWER
MIDDLE	UPPER
LOWER	MIDDLE

AIRPLANE WIRING LVIR - RUDDER POWER CONTROL UNIT

LEGEND:

* = >50K Ω

NR = NOT REQUIRED

2330927 S0000529936_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 11 of 12)

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		AIRPLANE WIRING LVIR - SPOILER PCU						
		CONNECTOR						CONN. SHELL
		3	5	6	7	8	10	
CONNECTOR	1	*	*	*	*	*	*	*
	3	NR	*	*	*	*	*	*
	5	NR	NR	*	*	*	*	*
	6	NR	NR	NR	*	*	*	*
	7	NR	NR	NR	NR	*	*	*
	8	NR	NR	NR	NR	NR	*	*
	10	NR	NR	NR	NR	NR	NR	*

AIRPLANE WIRING LVIR - SPOILER POWER CONTROL UNIT

LEGEND:

* = >50K Ω

NR = NOT REQUIRED

2121110 S0000457023_V1

Power Control Unit and Airplane Wiring
Figure 601/27-00-00-990-804 (Sheet 12 of 12)

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FLIGHT CONTROLS - DDG MAINTENANCE PROCEDURES

1. General

A. This procedure has the maintenance tasks for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Guide (DDG). These tasks prepare the airplane for flight with certain systems/components inoperative.

B. This procedure also has the tasks that put the airplane back to its usual condition.

C. These are the tasks for the components in the flight controls system:

(1) MMEL 27-02-3 (DDG) Preparation - Primary Flight Computer (PFC) Channel Inoperative

(2) MMEL 27-02-3 (DDG) Restoration - Primary Flight Computer (PFC) Channel Inoperative

(3) MMEL 27-02-4 (DDG) Preparation - Primary Flight Computer (PFC) Interface Signals Inoperative

(4) MMEL 27-02-4 (DDG) Restoration - Primary Flight Computer (PFC) Interface Signals Inoperative

(5) MMEL 27-02-6 (DDG) Preparation - Flight Control Hydraulic Shutoff Valve Systems Inoperative

(6) MMEL 27-02-6 (DDG) Restoration - Flight Control Hydraulic Shutoff Valve Systems Inoperative

(7) MMEL 27-03-1 (DDG) Preparation - Flap/Slat Control Lanes Inoperative

(8) MMEL 27-03-1 (DDG) Restoration - Flap/Slat Control Lanes Inoperative

(9) MMEL 27-03-02 (DDG) Preparation - Flap Secondary Control Inoperative

(10) MMEL 27-03-02 (DDG) Restoration - Flap Secondary Control Inoperative

(11) MMEL 27-03-03 (DDG) Preparation - Slat Secondary Control Inoperative

(12) MMEL 27-03-03 (DDG) Restoration - Slat Secondary Control Inoperative

(13) MMEL 27-11-1 (DDG) Preparation - Aileron Trim System Inoperative

(14) MMEL 27-11-1 (DDG) Restoration - Aileron Trim System Inoperative

(15) MMEL 27-11-03 (DDG) Preparation - Single Aileron PCU Inoperative

(16) MMEL 27-11-03 (DDG) Restoration - Single Aileron PCU Inoperative

(17) MMEL 27-11-04 (DDG) Preparation - Flaperon Power Control Units (PCUs) Inoperative

(18) MMEL 27-11-04 (DDG) Restoration - Flaperon Power Control Units (PCUs) Inoperative

(19) MMEL 27-48-3 (DDG) Preparation - Nose Gear Pressure Switch Inoperative

(20) MMEL 27-48-3 (DDG) Restoration - Nose Gear Pressure Switch Inoperative

(21) MMEL 27-48-4 (DDG) Preparation - Nose Gear Pressure Transducer Inoperative

(22) MMEL 27-48-4 (DDG) Restoration - Nose Gear Pressure Transducer Inoperative

(23) MMEL 27-51-1 (DDG) Preparation - Inboard Flap Support Fairing Spring Removed

(24) MMEL 27-51-1 (DDG) Restoration - Inboard Flap Support Fairing Spring Removed

(25) MMEL 27-61-03 (DDG) Preparation - Spoiler PCU Inoperative

(26) MMEL 27-61-03 (DDG) Restoration - Spoiler PCU Inoperative

(27) MMEL 27-62-1 (DDG) Preparation - Automatic Speed Brake Function Inoperative

(28) MMEL 27-62-1 (DDG) Restoration - Automatic Speed Brake Function Inoperative

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TASK 27-00-00-040-808

2. MMEL 27-02-3 (DDG) Preparation - Primary Flight Computer (PFC) Channel Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with a Primary Flight Computer inoperative.

NOTE: Each primary flight computer is a "PFC channel". Each primary flight computer has three "lanes" in it.

B. References

Reference	Title
31-61-00-800-813	Showing Status Messages (P/B 201)
45-10-00-740-801	How to Find a Maintenance Message Correlated to an Existing (Active or Latched) Flight Deck Effect (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1062	Lock - Circuit breaker, Open Position, Approved for Flight

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
122	Forward Cargo Compartment, Right

E. Find Which Primary Flight Computer (PFC) is Inoperative

SUBTASK 27-00-00-970-001

(1) For the PFC CHANNEL status message, do this task: How to Find a Maintenance Message Correlated to an Existing (Active or Latched) Flight Deck Effect, TASK 45-10-00-740-801.

(a) If you find one or more of these maintenance massages, then the PFC-L is inoperative:

1) 23-81001 Flight Controls ARINC 629 Bus (left) is failed.
2) 27-14018 Primary Flight Computer (left) is inoperative.
3) 2715000 Primary Flight Computer (left) lane 1 circuit breaker is open.
4) 2715001 Primary Flight Computer (left) lane 2 circuit breaker is open.
5) 2715002 Primary Flight Computer (left) lane 3 circuit breaker is open.
6) 27-15100 Flight Controls Power (left) is not available.
7) 27-19101 Primary Flight Computer (left) has no input from any LRU on Flight Controls ARINC 629 Bus (left).
8) 27-19201 Primary Flight Computer (left) has no input from any LRU on Flight Controls ARINC 629 Bus (center).
9) 27-19301 Primary Flight Computer (left) has no input from any LRU on Flight Controls ARINC 629 Bus (right).

(b) If you find one or more of these maintenance massages, then the PFC-C is inoperative:

1) 23-81002 Flight Controls ARINC 629 Bus (center) is failed.
2) 27-14019 Primary Flight Computer (center) is inoperative.
3) 2715003 Primary Flight Computer (center) lane 1 circuit breaker is open.
4) 2715004 Primary Flight Computer (center) lane 2 circuit breaker is open.

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5) 2715005 Primary Flight Computer (center) lane 3 circuit breaker is open.

6) 27-15101 Flight Controls Power (center) is not available.

7) 27-19102 Primary Flight Computer (center) has no input from any LRU on Flight Controls ARINC 629 Bus (left).

8) 27-19202 Primary Flight Computer (center) has no input from any LRU on Flight Controls ARINC 629 Bus (center).

9) 27-19302 Primary Flight Computer (center) has no input from any LRU on Flight Controls ARINC 629 Bus (right).

(c) If you find one or more of these maintenance massages, then the PFC-R is inoperative:

1) 23-81003 Flight Controls ARINC 629 Bus (right) is failed.

2) 27-14020 Primary Flight Computer (right) is inoperative.

3) 2715006 Primary Flight Computer (right) lane 1 circuit breaker is open.

4) 2715007 Primary Flight Computer (right) lane 2 circuit breaker is open.

5) 2715008 Primary Flight Computer (right) lane 3 circuit breaker is open.

6) 27-15102 Flight Controls Power (right) is not available.

7) 27-19103 Primary Flight Computer (right) has no input from any LRU on Flight Controls ARINC 629 Bus (left).

8) 27-19203 Primary Flight Computer (right) has no input from any LRU on Flight Controls ARINC 629 Bus (center).

9) 27-19303 Primary Flight Computer (right) has no input from any LRU on Flight Controls ARINC 629 Bus (right).

F. Deactivate the Applicable PFC

SUBTASK 27-00-00-860-018

CAUTION

DO NOT REMOVE ELECTRICAL POWER FROM THE AIRPLANE WHEN A PFC IS DEACTIVATED, UNLESS YOU OPEN THE APPLICABLE "BATT INTLK" CIRCUIT BREAKER. IF YOU DO NOT OPEN THE "BATT INTLK" CIRCUIT BREAKER (ON THE PSA FOR THE DEACTIVATED PFC), THEN THE PSA WILL CONTINUE TO SUPPLY ELECTRICAL POWER FROM A BATTERY. THE PSA CAN USE ITS BACKUP BATTERY TO SUPPLY THE POWER. THE BACKUP BATTERY CAN ONLY SUPPLY POWER FOR APPROXIMATELY ONE MINUTE. IF THE BACKUP BATTERY GOES DEAD IT MUST BE REPLACED; IT CANNOT BE RECHARGED. BECAUSE THE "BATT INTLK" CIRCUIT BREAKER MUST BE CLOSED FOR FLIGHT (THE "FLIGHT CONTROLS SYS" STATUS MESSAGE WILL SHOW IF THE CIRCUIT BREAKER IS OPEN), YOU MUST MAKE SURE THAT: 1) THE CIRCUIT BREAKER IS OPENED IF ELECTRICAL POWER WILL BE REMOVED FROM THE AIRPLANE WHEN IT IS ON THE GROUND; AND 2) THE CIRCUIT BREAKER IS CLOSED BEFORE THE NEXT FLIGHT.

(1) Open the circuit breakers for the applicable PFC:

(a) For the PFC-L, open these circuit breakers and install a approved for flight, open position circuit breaker lock, STD-1062 on each circuit breaker:

1) On the PSA-L in the E1-6 rack:

a) D2, PFC LANE 1

b) D4, PFC LANE 2

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c) D6, PFC LANE 3

(b) For the PFC-C, open these circuit breakers and install a approved for flight, open position circuit breaker lock, STD-1062 on each circuit breaker:

1) On the PSA-C in the E2-6 rack:

a) D2, PFC LANE 1

b) D4, PFC LANE 2

c) D6, PFC LANE 3

(c) For the PFC-R, open these circuit breakers and install a approved for flight, open position circuit breaker lock, STD-1062 on each circuit breaker:

1) On the PSA-R in the E5-1 rack:

a) D2, PFC LANE 1

b) D4, PFC LANE 2

c) D6, PFC LANE 3

G. Make Sure that All of the Lanes in the Two Remaining PFCs Operate

SUBTASK 27-00-00-710-003

(1) Look for the FLIGHT CONTROL SYS status message (EICAS message) on the MFD. To look for the message, do this task: Showing Status Messages, TASK 31-61-00-800-813.

(a) If the FLIGHT CONTROL SYS message does not show on the MFD, then all of the lanes in the remaining two PFCs are operational.

——— END OF TASK ———

TASK 27-00-00-440-808

3. MMEL 27-02-3 (DDG) Restoration - Primary Flight Computer (PFC) Channel Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with a Primary Flight Computer inoperative.

NOTE: Each primary flight computer is a "PFC channel".

B. References

Reference	Title
45-10-00-740-801	How to Find a Maintenance Message Correlated to an Existing (Active or Latched) Flight Deck Effect (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1062	Lock - Circuit breaker, Open Position, Approved for Flight

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
122	Forward Cargo Compartment, Right

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E. Reactivate the Applicable PFC

SUBTASK 27-00-00-860-019

(1) Remove the approved for flight, open position circuit breaker lock, STD-1062 and close the circuit breakers for the applicable PFC:

(a) For the PFC-L: Close these circuit breakers:

1) On the PSA-L in the E1-6 rack:

a) D2, PFC LANE 1

b) D4, PFC LANE 2

c) D6, PFC LANE 3

d) D8, BATT INTLK

(b) For the PFC-C: close these circuit breakers:

1) On the PSA-C in the E2-6 rack:

a) D2, PFC LANE 1

b) D4, PFC LANE 2

c) D6, PFC LANE 3

d) D8, BATT INTLK

(c) For the PFC-R: close these circuit breakers:

1) On the PSA-R in the E5-1 rack:

a) D2, PFC LANE 1

b) D4, PFC LANE 2

c) D6, PFC LANE 3

d) D8, BATT INTLK

F. Repair the Applicable PFC Problem

SUBTASK 27-00-00-300-001

(1) For the PFC CHANNEL status message, do this task: How to Find a Maintenance Message Correlated to an Existing (Active or Latched) Flight Deck Effect, TASK 45-10-00-740-801.

NOTE: If the PFC CHANNEL status message is not in the existing faults then the original problem is gone, and you are finished with this procedure.

SUBTASK 27-00-00-740-010

(2) Go to the Maintenance Message Index in the FIM. Look for the maintenance messages you found above.

(a) For each maintenance message, find the task number shown in the index.

SUBTASK 27-00-00-810-016

(3) Go to the tasks in the FIM and Do the steps in the tasks.

——— END OF TASK ———

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TASK 27-00-00-040-810

4. MMEL 27-02-4 (DDG) Preparation - Primary Flight Computer (PFC) Interface Signals Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with one or more Primary Flight Computer Interface Signals inoperative.

(2) EICAS Status Message

(a) PFCS INTERFACE

B. References

Reference	Title
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Make sure the truck tilt pressure is normal

SUBTASK 27-00-00-740-006

(1) Look on the LANDING GEAR ACTN/INDN maintenance page for the L TRUCK TILT and R TRUCK TILT displays. For information on how to find this maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(a) Make sure the landing gear lever is in the DOWN position.

(b) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(c) After 2 minutes, make sure that L TRUCK TILT and R TRUCK TILT hydraulic lines show 2700 to 3200 psi on the LANDING GEAR ACTN/INDN maintenance page.

NOTE: You can dispatch the airplane if the landing gear tilt pressure is low provided dispatch is also made under item 32-30-1, Landing Gear Actuation System.

(d) Remove pressure from the center hydraulic system. To remove it, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-00-00-440-810

5. MMEL 27-02-4 (DDG) Restoration - Primary Flight Computer Interface Signals Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with one or more Primary Flight Computer Interface Signals inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

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C. Make Sure the Primary Flight Computer Interface Signals Operate Correctly

SUBTASK 27-00-00-740-007

(1) Go to the MAT and find the EICAS status message.

(a) Find the fault code and the correlated maintenance message numbers on the MAT.

SUBTASK 27-00-00-810-014

(2) Go to the Fault Code Index in the FIM and find the fault code (the first two digits of the fault code are the FIM chapter).

(a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.

(b) Find the task number on the same line as the maintenance message number.

SUBTASK 27-00-00-810-015

(3) Go to the task in the FIM and do the steps in the task.

——— END OF TASK ———

TASK 27-00-00-040-801

6. MMEL 27-02-6 (DDG) Preparation - Flight Control Hydraulic Shutoff Valve Systems Inoperative

(Figure 901)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Flight Control Hydraulic Shutoff Valve systems inoperative.

(2) The flight control hydraulic shutoff valve system includes the SOV and associated VALVE CLOSED light and FLT CONTROL VALVE advisory message.

B. References

Reference	Title
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)
54-52-07-000-801	Strut Trailing Edge Removal (P/B 401)
54-52-07-400-801	Strut Trailing Edge Installation (P/B 401)

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

D. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel

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E. Deactivate the applicable flight control hydraulic shutoff valve in the open position.

SUBTASK 27-00-00-860-001

(1) Put the applicable FLT CONTROL HYD VALVE POWER switch in the NORM position.

SUBTASK 27-00-00-860-002

(2) Open the circuit breaker for the applicable flight control hydraulic shutoff valve:

(a) For the L TAIL valve, Open this Breaker and install safety lock:

Left Power Management Panel, P110

Row	Col	Number	Name
K	20	C27621	L FC SOV TAIL

(b) For the L WING valve, Open this circuit breaker and install safety lock:

Left Power Management Panel, P110

Row	Col	Number	Name
K	22	C27618	L FC SOV WG

(c) For the C TAIL valve, Open this circuit breaker and install safety lock:

Left Power Management Panel, P110

Row	Col	Number	Name
K	19	C27622	C FC SOV TAIL

(d) For the C WING valve, Open this circuit breaker and install safety lock:

Left Power Management Panel, P110

Row	Col	Number	Name
K	21	C27619	C FC SOV WG

(e) For the R TAIL valve, Open this circuit breaker and install safety lock:

Right Power Management Panel, P210

Row	Col	Number	Name
K	7	C27623	R FC SOV TAIL

(f) For the R WING valve, Open this circuit breaker and install safety lock:

Right Power Management Panel, P210

Row	Col	Number	Name
K	6	C27620	R FC SOV WG

SUBTASK 27-00-00-010-001

(3) Do these steps to get access to the applicable shutoff valve:

(a) For the wing shutoff valve for the left hydraulic system, do these steps:

1) For the left engine strut, do these tasks: Strut Trailing Edge Removal, TASK 54-52-07-000-801.

2) Remove these access panels:

Number	Name/Location
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel

(Figure 901).

NOTE: You only need to remove one panel to get access to the shutoff valve for the wing.

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(b) For the tail shutoff valve for the left hydraulic system, do these steps:

1) Remove this access panel:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel

NOTE: This is the panel forward of the inboard end of the flaperon on the left wing.

(c) For the wing shutoff valve for the right hydraulic system, do these steps:

1) For the right engine strut, do these tasks: Strut Trailing Edge Removal, TASK 54-52-07-000-801.

2) Remove this access panel:

Number	Name/Location
652JB	Fixed Trailing Edge Panel

NOTE: This is the panel forward of the center of the flaperon on the right wing.

(d) For the two shutoff valves (tail and wing) for the center hydraulic system, and the tail shutoff valve for the right hydraulic system, do these steps:

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

3) The two shutoff valves (tail and wing) for the center hydraulic system are on the aft bulkhead of the left main landing gear wheel well.

4) The tail shutoff valve for the right hydraulic system is in the right main landing gear wheel well. It is in the aft outboard corner on the top panel.

SUBTASK 27-00-00-040-001

(4) Put the lever on the shutoff valve in the open position.

(a) Install lockwire to hold the shutoff valve in the open position.

NOTE: There is a hole in the end of the lever and one on the side of the valve to put the lockwire through.

SUBTASK 27-00-00-040-004

(5) If the FLT CONTROL VALVE advisory message remains displayed or the associated shutoff valve VALVE CLOSED light on the overhead Maintenance Panel (P61) remains illuminated after the valve is deactivated open, electrically disconnect the deactivated valve.

(a) For the left tail shutoff valve, disconnect, cap and stow the electrical cable and connector DV27101.

(b) For the left wing shutoff valve, disconnect, cap and stow the electrical cable and connector DV27100.

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(c) For the right tail shutoff valve, disconnect, cap and stow the electrical cable and connector DV27102.

(d) For the right wing shutoff valve, disconnect, cap and stow the electrical cable and connector DV27098.

(e) For the center tail shutoff valve, disconnect, cap and stow the electrical cable and connector DV27103.

(f) For the center wing shutoff valve, disconnect, cap and stow the electrical cable and connector DV27099.

SUBTASK 27-00-00-410-001

(6) For valves in the wing, install the applicable panels and fairings:

(a) Close this access panel:

Number	Name/Location
552JB	Fixed Trailing Edge Panel

(b) Close this access panel:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel

(c) Close this access panel:

Number	Name/Location
652JB	Fixed Trailing Edge Panel

(d) The trailing edge of the engine strut, do these tasks: (TASK 54-52-07-400-801).

SUBTASK 27-00-00-080-001

(7) For the valves in the wheel wells, do these steps:

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

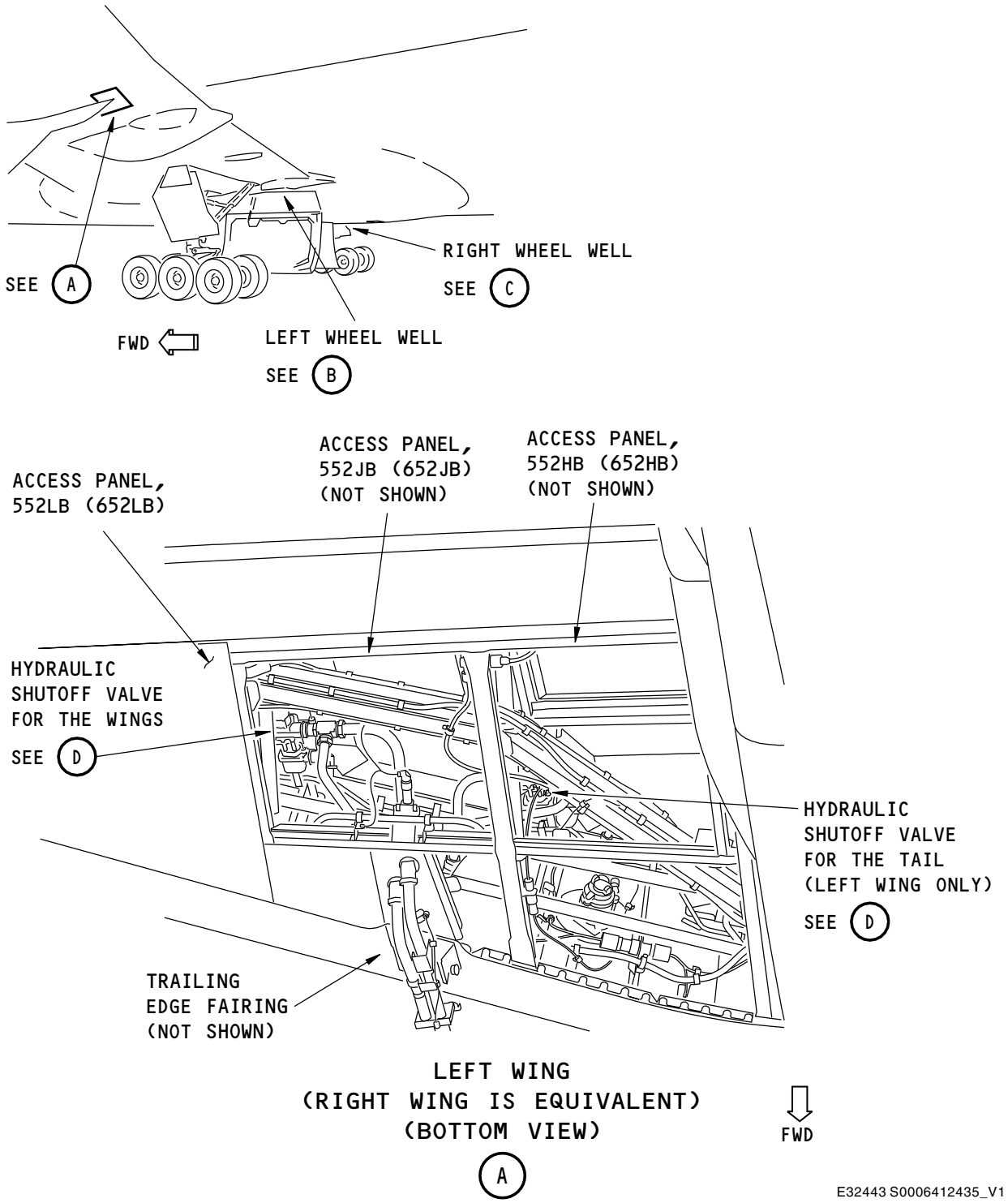
(a) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

WARNING DO NOT REMOVE THE DOWNLOCK PINS UNLESS ALL MAINTENANCE AND SERVICING OF THE AIRPLANE IS COMPLETE. THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT IF THE DOWNLOCK PINS ARE NOT INSTALLED.

(b) If all maintenance on the airplane is finished, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

END OF TASK

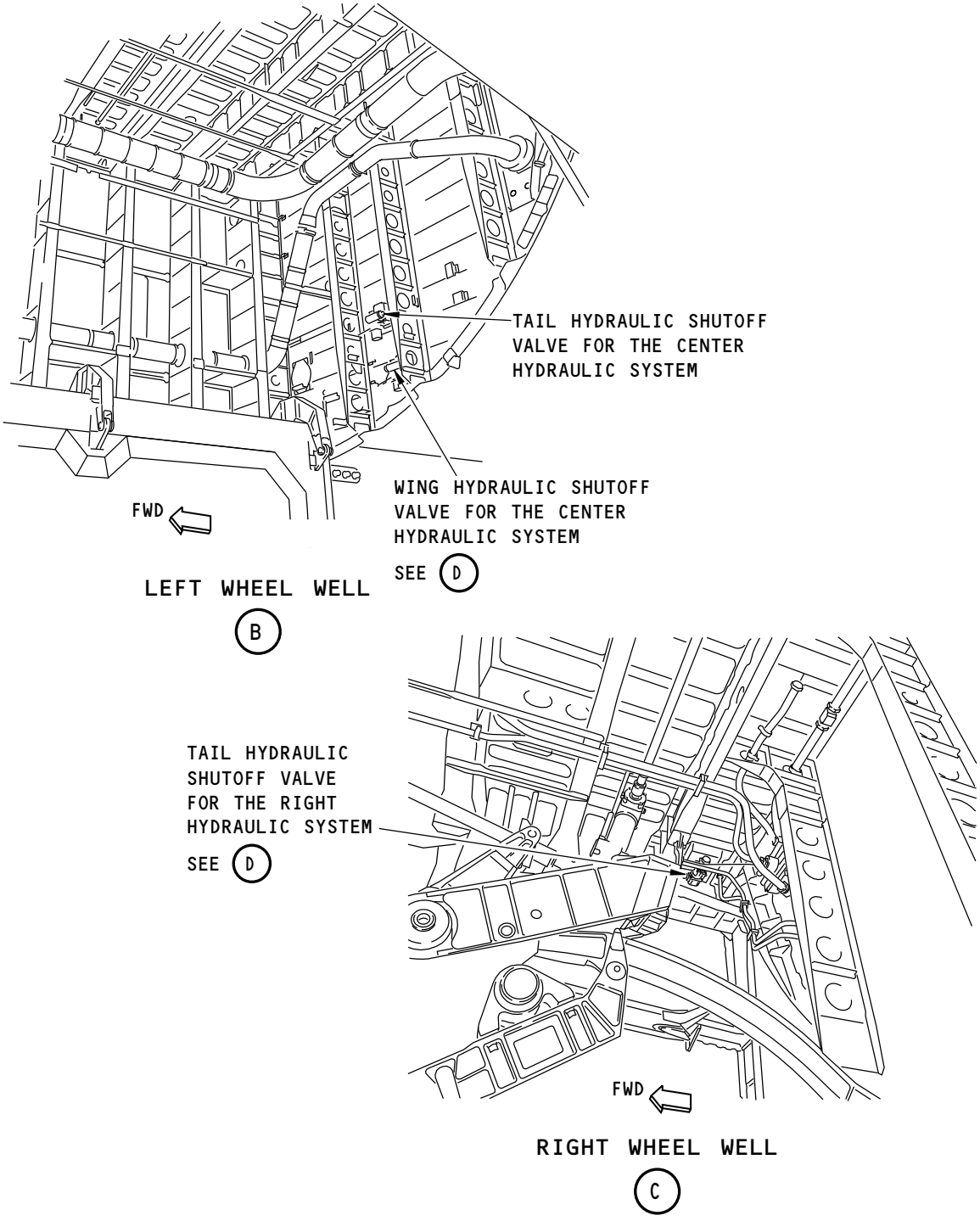
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E32443 S0006412435_V1

Hydraulic Shutoff Valves (Tail and Wing) Deactivation
Figure 901/27-00-00-990-801 (Sheet 1 of 3)

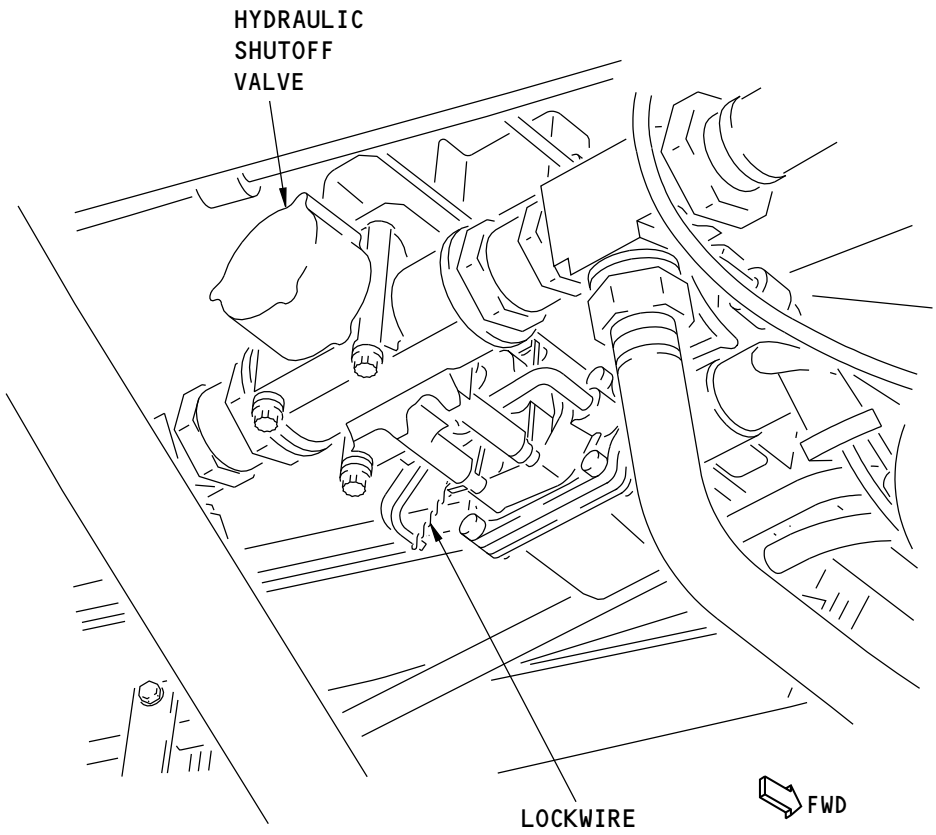
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E32463 S0006412436_V1

Hydraulic Shutoff Valves (Tail and Wing) Deactivation
Figure 901/27-00-00-990-801 (Sheet 2 of 3)

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HYDRAULIC SHUTOFF VALVE
(THE LEFT WING SHUTOFF VALVE IS SHOWN,
THE OTHER SHUTOFF VALVES ARE EQUIVALENT)
(VALVE IS SHOWN IN OPEN POSITION)

D

E32476 S0006412437_V1

Hydraulic Shutoff Valves (Tail and Wing) Deactivation
Figure 901/27-00-00-990-801 (Sheet 3 of 3)

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TASK 27-00-00-440-801

7. MMEL 27-02-6 (DDG) Restoration - Flight Control Hydraulic Shutoff Valve Systems Inoperative

(Figure 901)

A. General

(1) This task puts the airplane back to its usual condition after operation with Flight Control Hydraulic Shutoff Valve Systems Inoperative.

(2) The flight control hydraulic shutoff valve system includes the SOV and associated VALVE CLOSED light and FLT CONTROL VALVE advisory message.

B. References

Reference	Title
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)
54-52-07-000-801	Strut Trailing Edge Removal (P/B 401)
54-52-07-400-801	Strut Trailing Edge Installation (P/B 401)

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

D. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel

E. Reactivate the applicable flight control hydraulic shutoff valve.

SUBTASK 27-00-00-010-002

(1) Do these steps to get access to the applicable shutoff valve:

(a) For the wing shutoff valve for the left hydraulic system, do these steps:

1) For the left engine strut, do thess tasks: Strut Trailing Edge Removal, TASK 54-52-07-000-801.

2) Remove this access panel:

Number	Name/Location
552JB	Fixed Trailing Edge Panel

NOTE: This is the panel forward of the center of the flaperon on the left wing.

(b) For the tail shutoff valve for the left hydraulic system, do these steps:

1) Remove this access panel:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel

NOTE: This is the panel forward of the inboard end of the flaperon on the left wing.

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(c) For the wing shutoff valve for the right hydraulic system, do these steps:

1) For the right engine strut, do this tasks: Strut Trailing Edge Removal, TASK 54-52-07-000-801.

2) Remove this access panel:

Number	Name/Location
652JB	Fixed Trailing Edge Panel

NOTE: This is the panel forward of the center of the flaperon on the right wing.

(d) For the two shutoff valves (tail and wing) for the center hydraulic system, and the tail shutoff valve for the right hydraulic system, do these steps:

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

3) The two shutoff valves (tail and wing) for the center hydraulic system are on the aft bulkhead of the left main landing gear wheel well.

4) The tail shutoff valve for the right hydraulic system is in the right main landing gear wheel well. It is in the aft outboard corner on the top panel.

SUBTASK 27-00-00-760-003

(2) If the shutoff valve was electrically disconnected, remove the cap and connect the electrical connector.

SUBTASK 27-00-00-440-001

(3) Remove the lockwire that holds the lever on the shutoff valve in the open position.

SUBTASK 27-00-00-860-003

(4) Close the circuit breaker for the applicable flight control hydraulic shutoff valve:

(a) For the L TAIL valve, Remove the safety lock and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	20	C27621	L FC SOV TAIL

(b) For the L WING valve, Remove the safety lock and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	22	C27618	L FC SOV WG

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(c) For the C TAIL valve, Remove the safety lock and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	19	C27622	C FC SOV TAIL

(d) For the C WING valve, Remove the safety lock and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	21	C27619	C FC SOV WG

(e) For the R TAIL valve, Remove the safety lock and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
K	7	C27623	R FC SOV TAIL

(f) For the R WING valve, Remove the safety lock and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
K	6	C27620	R FC SOV WG

SUBTASK 27-00-00-860-004

(5) Put the applicable FLT CONTROL HYD VALVE POWER switch in the NORM position.

F. Repair the Bad VALVE CLOSED Light.

SUBTASK 27-00-00-960-001

(1) Replace the light.

SUBTASK 27-00-00-810-001

(2) If the light was not the problem, then do these steps to use the Fault Isolation Manual (FIM) to repair the problem.

(a) Go to the observed fault list at the front of the FIM.

1) Find the fault description for problems with a flight control shutoff valve.

2) Find the task number on the same line as the fault description.

(b) Do the task in the FIM.

G. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-00-00-410-002

(1) For valves in the wing, install the applicable panels and fairings:

(a) Close this access panel:

Number	Name/Location
552JB	Fixed Trailing Edge Panel

(b) Close this access panel:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel

(c) Close this access panel:

Number	Name/Location
652JB	Fixed Trailing Edge Panel

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(d) The trailing edge of the engine strut (TASK 54-52-07-400-801).

SUBTASK 27-00-00-080-002

(2) For the valves in the wheel wells, do these steps:

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

WARNING DO NOT REMOVE THE DOWNLOCK PINS UNLESS ALL MAINTENANCE AND SERVICING OF THE AIRPLANE IS COMPLETE. THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT IF THE DOWNLOCK PINS ARE NOT INSTALLED.

(b) If all maintenance on the airplane is finished, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

——— END OF TASK ———

TASK 27-00-00-040-803

8. MMEL 27-03-1 (DDG) Preparation - Flap/Slat Control Lanes Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with a Flap/Slat Control Lane Inoperative.

(2) EICAS Status Messages

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-860-802	Trailing Edge Flap System Operation With Alternate Control (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Make Sure the flap lever control position sensor operates normally and before each departure, verify the alternate control for the flaps and slats operates normally.

SUBTASK 27-00-00-210-013

(1) Verify the flap lever control position sensor operates normally.

Do the following steps:

(a) Supply electrical power (Supply Electrical Power, TASK 24-22-00-860-805).

(b) Position flap control lever to UP.

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(c) On the FLAP/SLAT Maintenance page, confirm all four FLAP LEVER position indications are greater than 9.44.

SUBTASK 27-00-00-210-012

(2) Verify the alternate control for the flaps and slats operates normally before each departure.

Do the following steps:.

(a) Use the alternate system to extend the flaps and slats, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802

(b) Push the ALTN FLAPS ARM switch on the P10 control stand to the ALTN position.

(c) Position the ALTN FLAPS selector on the P10 control stand to the EXT position.

(d) Verify that the flaps extend to position 20.

(e) Verify on the EICAS display that the slats are in the midrange position .

(f) Use the alternate system to retract the flaps and slats, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802

(g) Push the ALTN FLAPS ARM switch on the P10 control stand to the ALTN position.

(h) Position the ALTN FLAPS selector on the P10 control stand to the RET position.

(i) Verify that the flaps retract.

(j) Verify on the EICAS display that the slats are in the retracted position.

(k) Push the ALTN FLAPS ARM switch on the P10 control stand to the OFF position.

——— END OF TASK ———

TASK 27-00-00-440-803

9. MMEL 27-03-1 (DDG) Restoration - Flap/Slat Control Lanes Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with a Flap/Slat Control Lane Inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Make Sure the Flap/Slat Control Lanes Operate Correctly

SUBTASK 27-00-00-740-001

(1) Go to the MAT and find the EICAS status message.

(a) Find the fault code and the correlated maintenance message numbers on the MAT.

SUBTASK 27-00-00-810-003

(2) Go to the Fault Code Index in the FIM and find the fault code (the first two digits of the fault code are the FIM chapter).

(a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.

(b) Find the task number on the same line as the maintenance message number.

SUBTASK 27-00-00-810-004

(3) Go to the task in the FIM and do the steps in the task.

——— END OF TASK ———

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TASK 27-00-00-040-822

10. MMEL 27-03-02 (DDG) Preparation - Flap Secondary Control Inoperative

A. General

(1) This task gives the maintenance steps to verify the airplane for flight when the flap secondary control is inoperative.

(2) The secondary flap control may be inoperative provided that the slat secondary control is verified to operate normally.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Slat Secondary Control Verification

SUBTASK 27-00-00-760-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-860-045

(2) Use a maintenance access terminal (MAT) to override the secondary mode inhibit:

(a) Make these selections on the MAT:

1) OTHER FUNCTIONS
2) SPECIAL FUNCTIONS
3) 27 HIGH LIFT SYSTEMS
4) SECONDARY INHIBIT OVERRIDE-FSEU 1 OR SECONDARY INHIBIT OVERRIDE-FSEU 2

NOTE: Selection of either SECONDARY INHIBIT OVERRIDE-FSEU1 or SECONDARY INHIBIT OVERRIDE-FSEU2 overrides the secondary mode inhibit in both FSEU1 and FSEU2.

5) CONTINUE
6) CONTINUE
7) START FUNCTION
8) CONTINUE

SUBTASK 27-00-00-860-046

WARNING

MOVE ALL PERSONNEL AND EQUIPMENT AWAY FROM THE LE SLATS, TE FLAPS, AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, ELECTRICAL POWER WILL CAUSE THE FLAPS TO MOVE AUTOMATICALLY WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Move the flap control lever to a detent position and verify that the slats move accordingly.

NOTE: After you override the secondary mode inhibit, you have 15 seconds to move the flap control lever. It will be necessary to override the secondary mode inhibit again before you can move the slats to a different position.

SUBTASK 27-00-00-860-047

(4) Use the MAT to override the flap secondary control mode inhibit.

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SUBTASK 27-00-00-860-048

(5) Move the flap control lever to UP to retract the slats.

——— END OF TASK ———

TASK 27-00-00-440-822

11. MMEL 27-03-02 (DDG) Restoraration - Flap Secondary Control Inoperative

A. General

(1) This task gives the maintenance steps to restore the airplane for flight when the flap secondary control is inoperative.

(2) The secondary flap control may be inoperative provided that the slat secondary control is verified to operate normally.

B. References

Reference	Title
27-51-00-740-803	Flap System Secondary Control Test (P/B 501)

C. Flap Secondary Control Restoration

SUBTASK 27-00-00-710-007

(1) Do this tak to restore flap secondary control operation: Flap System Secondary Control Test, TASK 27-51-00-740-803.

——— END OF TASK ———

TASK 27-00-00-040-823

12. MMEL 27-03-03 (DDG) Preparation - Slat Secondary Control Inoperative

A. General

(1) This task gives the maintenance steps to verify the airplane for flight when the slat secondary control is inoperative.

(2) The secondary slat control may be inoperative provided that the flap secondary control is verified to operate normally.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Flap Secondary Control Verification

SUBTASK 27-00-00-760-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-860-049

(2) Use a maintenance access terminal (MAT) to override the secondary mode inhibit:

(a) Make these selections on the MAT:

1) OTHER FUNCTIONS

2) SPECIAL FUNCTIONS

3) 27 HIGH LIFT SYSTEMS

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4) SECONDARY INHIBIT OVERRIDE-FSEU 1 OR SECONDARY INHIBIT OVERRIDE-FSEU 2

NOTE: Selection of either SECONDARY INHIBIT OVERRIDE-FSEU1 or SECONDARY INHIBIT OVERRIDE-FSEU2 overrides the secondary mode inhibit in both FSEU1 and FSEU2.

5) CONTINUE

6) CONTINUE

7) START FUNCTION

8) CONTINUE

SUBTASK 27-00-00-210-007

WARNING MOVE ALL PERSONNEL AND EQUIPMENT AWAY FROM THE LE SLATS, TE FLAPS, AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, ELECTRICAL POWER WILL CAUSE THE FLAPS TO MOVE AUTOMATICALLY WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Move the flap control lever to a detent position and verify that the flaps move accordingly.

NOTE: After you override the secondary mode inhibit, you have 15 seconds to move the flap control lever. It will be necessary to override the secondary mode inhibit again before you can move the flaps to a different position.

SUBTASK 27-00-00-860-050

(4) Use the MAT to override the secondary control mode inhibit.

SUBTASK 27-00-00-860-051

(5) Move the flap control lever to UP to retract the flaps.

——— END OF TASK ———

TASK 27-00-00-440-823

13. MMEL 27-03-03 (DDG) Restoration - Slat Secondary Control Inoperative

A. General

(1) This task gives the maintenance steps to restore the airplane for flight when the slat secondary control is inoperative.

(2) The secondary slat control may be inoperative provided that the flap secondary control is verified to operate normally.

B. References

Reference	Title
27-81-00-740-802	Slat System Secondary Control Test (P/B 501)

C. Slat Secondary Control Restoration

SUBTASK 27-00-00-710-008

(1) Do this tak to restore slat secondary control operation: Slat System Secondary Control Test, TASK 27-81-00-740-802.

——— END OF TASK ———

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TASK 27-00-00-040-806

14. MMEL 27-11-1 (DDG) Preparation - Aileron Trim System Inoperative

A. General

(1) This task has two ways to prepare the airplane for flight with the Aileron Trim System Inoperative.

(a) If the control wheels are at zero trim (centered), then do this step:

1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR

(b) If the control wheels are not at zero trim (centered), then do the maintenance steps below.

NOTE: The maintenance steps below replace the aileron trim actuator with a tool that holds the control wheels in the zero trim position.

B. References

Reference	Title
27-11-09-000-801	Aileron Trim Actuator - Removal (P/B 401)
27-11-09-400-801	Aileron Trim Actuator - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1687	Link - Dummy, Aileron Trim Actuator (***DISPATCH***) Part #: A27088-18 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

E. Remove the Aileron Trim Actuator

SUBTASK 27-00-00-000-001

(1) Do this task: Aileron Trim Actuator - Removal, TASK 27-11-09-000-801.

F. Install the Aileron Trim Actuator Dummy Link, SPL-1687

SUBTASK 27-00-00-820-001

(1) Adjust the aileron trim actuator dummy link, SPL-1687, to a length of6 15/16 in. (176 mm) to7 1/16 in. (179 mm) from center to center on the bolt holes.

SUBTASK 27-00-00-400-001

(2) Install the aileron trim actuator dummy link, SPL-1687, in the position of the aileron trim actuator. Use the same bolts, washers, nuts, and bushings that the aileron trim actuator uses (TASK 27-11-09-400-801).

(a) Attach the electrical connector to the aileron trim actuator dummy link, SPL-1687, with tape or a wire tie.

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SUBTASK 27-00-00-210-002

(3) Make sure the control wheels are at zero (±0.5) units of trim.

——— END OF TASK ———

TASK 27-00-00-440-806

15. MMEL 27-11-1 (DDG) Restoration - Aileron Trim System Inoperative

A. General

(1) If it is necessary,

Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR

(2) This task puts the airplane back to its usual condition after operation with the aileron trim actuator dummy link, SPL-1687 tool installed. This tool is used to replace the aileron trim actuator when the aileron trim system is inoperative.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-09-000-801	Aileron Trim Actuator - Removal (P/B 401)
27-11-09-400-801	Aileron Trim Actuator - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1687	Link - Dummy, Aileron Trim Actuator (***DISPATCH***) Part #: A27088-18 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

E. Remove the Aileron Trim Actuator Dummy Link, SPL-1687

(TASK 27-11-09-000-801)

NOTE: This tool, is installed as a alternative to the aileron trim actuator. Use the referenced procedure to help you remove this tool.

SUBTASK 27-00-00-020-001

(1) Disconnect the electrical connector from the aileron trim actuator dummy link, SPL-1687.

SUBTASK 27-00-00-020-002

(2) Remove the nut, washer, and bolt from both ends of the aileron trim actuator dummy link, SPL-1687.

NOTE: If they are in good condition, use these bolts, washers, and nuts to install the new aileron trim actuator.

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F. Install a New Aileron Trim Actuator

SUBTASK 27-00-00-400-002

(1) Do this task: Aileron Trim Actuator - Installation, TASK 27-11-09-400-801.

G. Do a Test of the Aileron Trim Actuator

SUBTASK 27-00-00-860-015

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-710-001

(2) Push the two aileron trim switches (on the aisle stand panel, P8) to the right.

(a) Make sure the control wheels turn clockwise.

SUBTASK 27-00-00-710-002

(3) Push the two aileron trim switches to the left.

(a) Make sure the control wheels turn counterclockwise.

SUBTASK 27-00-00-810-009

(4) If the aileron trim does not operate correctly, then do these steps to use the Fault Isolation Manual (FIM) to repair the problem.

(a) Go to the observed fault list at the front of the FIM.

1) Find the fault description for problems with the aileron trim.

2) Find the task number on the same line as the fault description.

(b) Do the task in the FIM.

——— END OF TASK ———

TASK 27-00-00-040-815

16. MMEL 27-11-03 (DDG) Preparation - Single Aileron PCU Inoperative

A. General

(1) This task gives the maintenance steps to prepare the airplane for flight with one aileron PCU inoperative.

(2) The affected actuator must be verified to operate normally in blocked mode, and must be secured in bypass mode. All other flight control actuators must operate normally.

(3) EICAS Status Messages

(a) AILERON ACTUATOR (EICAS STATUS)

NOTE: The FLIGHT CONTROL SYS (EICAS STATUS) message must NOT show.

Do NOT perform the following tasks:

- Actuation Confidence Test, TASK 27-02-00-400-801, or
- Actuator Control Electronics (ACE) Monitor Test, TASK 27-02-02-400-801, or
- Left or Right Aileron Actuator Confidence Tests (Actuation Confidence Test, TASK 27-02-00-400-801).

If you perform these tests, the FLIGHT CONTROL SYS (EICAS STATUS) message will show, and you will not be able to dispatch the airplane.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

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(Continued)

Reference	Title
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-02-00-400-801	Actuation Confidence Test (P/B 501)
27-02-02-400-801	Actuator Control Electronics (ACE) Monitor Test (P/B 501)
27-11-11-990-801	Figure: Aileron PCU Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

Reference	Description
STD-6761	Wrench - Allen, 5/32 inch

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
568	Left Wing Aileron
668	Right Wing Aileron

E. Access Panels

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

F. Check Blocked Mode Operation

SUBTASK 27-00-00-861-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-863-002

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-00-00-860-092

(3) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUTOFF position.

SUBTASK 27-00-00-865-009

(4) If the inoperative PCU is on the left wing, open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	3	CBA3-C	AIL PCU

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SUBTASK 27-00-00-865-010

(5) If the inoperative PCU is on the right wing, open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	3	CBA3-L	AIL PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	3	CBA3-R	AIL PCU

SUBTASK 27-00-00-490-003

(6) Attach DO-NOT-OPERATE tags to the captain's and first officer's control wheels.

SUBTASK 27-00-00-010-006

(7) If the inoperative PCU is on the left wing, open these access panels:

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-00-00-010-007

(8) If the inoperative PCU is on the right wing, open these access panels:

Number	Name/Location
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-00-00-866-001

(9) Pull the aileron trailing edge down 2-3 inches (50-100 mm) to verify that the surface can move down.

NOTE: Approximately 75 lbf (334 N) will be needed to pull the aileron trailing edge down. You do not need to move the aileron to the stop.

SUBTASK 27-00-00-866-002

(10) On the operative PCU, use a 5/32 inch allen wrench, STD-6761 to rotate the manual bypass cam counter-clockwise to move the valve to the bypass position (Figure 27-11-11-990-801).

SUBTASK 27-00-00-866-003

(11) Push up on the trailing edge of the aileron. Make sure the aileron does not move.

NOTE: Apply approximately 75 lbf (334 N) in the up direction to the trailing edge of the aileron.

SUBTASK 27-00-00-866-004

(12) Release the manual bypass valve on the operative PCU.

SUBTASK 27-00-00-090-004

(13) Remove the 5/32 inch allen wrench, STD-6761.

SUBTASK 27-00-00-410-005

(14) If the inoperative PCU is on the left wing, close these access panels:

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel

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SUBTASK 27-00-00-410-006

(15) If the inoperative PCU is on the right wing, close these access panels:

Number	Name/Location
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

G. Put the Inoperative PCU in Bypass Mode

SUBTASK 27-00-00-865-011

(1) If the inoperative PCU is the inboard PCU on the left aileron, do these steps:

(a) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

(b) Make sure that this circuit breaker is open and has safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	3	CBA3-C	AIL PCU

SUBTASK 27-00-00-865-012

(2) If the inoperative PCU is the outboard PCU on the left aileron, do these steps:

(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	3	CBA3-C	AIL PCU

(b) Make sure that this circuit breaker is open and has safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

SUBTASK 27-00-00-865-013

(3) If the inoperative PCU is the inboard PCU on the right aileron, do these steps:

(a) Close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	3	CBA3-L	AIL PCU

(b) Make sure that this circuit breaker is open and has safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	3	CBA3-R	AIL PCU

SUBTASK 27-00-00-865-014

(4) If the inoperative PCU is the outboard PCU on the right aileron, do these steps:

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(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	3	CBA3-R	AIL PCU

(b) Make sure that this circuit breaker is open and has safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	3	CBA3-L	AIL PCU

H. Check the Preparation

SUBTASK 27-00-00-212-001

(1) Check the operation of the ailerons.

NOTE: Do not do an Actuator Confidence Test, or an ACE Monitor Test, or L or R Aileron Actuator Confidence Tests.

(a) Remove the DO-NOT-OPERATE tags from the captain's and first officer's control wheels.

(b) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the NORM position.

(c) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

(d) Turn the captain's control wheel fully left.

1) Make sure the left aileron is trailing edge up and the right aileron is trailing edge down.

(e) Turn the captain's control wheel fully right.

1) Make sure the right aileron is trailing edge up and the left aileron is trailing edge down.

SUBTASK 27-00-00-210-009

(2) Make sure the FLIGHT CONTROL SYS status message does not show.

SUBTASK 27-00-00-864-002

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-00-00-860-093

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-00-00-440-815

17. MMEL 27-11-03 (DDG) Restoration - Single Aileron PCU Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with one aileron PCU inoperative.

B. References

Reference	Title
27-11-00-700-801	Aileron and Flaperon - Operational Test (P/B 501)

C. Location Zones

Zone	Area
211	Flight Compartment, Left

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(Continued)

Zone	Area
212	Flight Compartment, Right

D. Restoration

SUBTASK 27-00-00-865-015

(1) If the inboard PCU on the left aileron was inoperative, do this step:

(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	3	CBA3-L	AIL PCU

SUBTASK 27-00-00-865-016

(2) If the outboard PCU on the left aileron was inoperative, do this step:

(a) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

SUBTASK 27-00-00-865-017

(3) If the inboard PCU on the right aileron was inoperative, do this step:

(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	3	CBA3-R	AIL PCU

SUBTASK 27-00-00-865-018

(4) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	3	CBA3-L	AIL PCU

SUBTASK 27-00-00-710-005

(5) Do this task: Aileron and Flaperon - Operational Test, TASK 27-11-00-700-801.

——— END OF TASK ———

TASK 27-00-00-040-836

18. MMEL 27-11-04 (DDG) Preparation - Flaperon Power Control Units (PCUs) Inoperative

A. General

(1) This task gives the maintenance steps to prepare the airplane for flight with one flaperon PCU inoperative.

(2) The affected PCU must be secured in bypass mode. All other flight control actuators must operate normally.

(3) EICAS Status Messages

(a) FLAPERON ACTUATOR (EICAS STATUS)

NOTE: The FLIGHT CONTROL SYS (EICAS STATUS) message must NOT show.

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Do NOT perform the following tasks:

- Actuation Confidence Test, TASK 27-02-00-400-801, or

- Actuator Control Electronics (ACE) Monitor Test, TASK 27-02-02-400-801, or

- Left or Right Flaperon Actuator Confidence Tests (Actuation Confidence Test, TASK 27-02-00-400-801).

If you perform these tests, the FLIGHT CONTROL SYS (EICAS STATUS) message will show, and you will not be able to dispatch the airplane.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-02-00-400-801	Actuation Confidence Test (P/B 501)
27-02-02-400-801	Actuator Control Electronics (ACE) Monitor Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
657	Right Wing Flaperon

D. Preparation

SUBTASK 27-00-00-860-056

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-860-058

(2) If the inoperative PCU is the outboard PCU on the left flaperon, do this step:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	5	CBA5-L	FLPRN PCU

SUBTASK 27-00-00-860-059

(3) If the inoperative PCU is the inboard PCU on the left flaperon, do this step:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	5	CBA5-R	FLPRN PCU

SUBTASK 27-00-00-860-118

(4) If the inoperative PCU is the outboard PCU on the right flaperon, do this step:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	5	CBA5-C	FLPRN PCU

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SUBTASK 27-00-00-860-060

(5) If the inoperative PCU is the inboard PCU on the right flaperon, do these steps:

(a) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(b) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUTOFF position.

(c) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(d) Disconnect electrical connector DM27210 from the PCU.

(e) Cap and stow the electrical connector.

NOTE: The ACTUATOR PRESS SNSR status message will be displayed until further maintenance accomplished. Notify the flight crew prior to dispatching the airplane

(f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(g) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the NORM position.

E. Check the Preparation

SUBTASK 27-00-00-210-008

(1) Check the operation of the flaperons.

NOTE: Do not do an Actuator Confidence Test, or an ACE Monitor Test, or L or R Flaperon Actuator Confidence Tests.

(a) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(b) Turn the captain's control wheel fully left.

1) Make sure the left flaperon is trailing edge up and the right flaperon is trailing edge down.

(c) Turn the captain's control wheel fully right.

1) Make sure the right flaperon is trailing edge up and the left flaperon is trailing edge down.

SUBTASK 27-00-00-210-011

(2) Make sure the FLIGHT CONTROL SYS status message does not show.

SUBTASK 27-00-00-860-063

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-00-00-860-062

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

END OF TASK

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TASK 27-00-00-440-836

19. MMEL 27-11-04 (DDG) Restoration - Flaperon Power Control Units (PCUs) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with one flaperon PCU inoperative.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-00-700-801	Aileron and Flaperon - Operational Test (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
657	Right Wing Flaperon

D. Restoration

SUBTASK 27-00-00-860-054

(1) If the outboard PCU on the left flaperon was inoperative, do this step:

(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	5	CBA5-L	FLPRN PCU

SUBTASK 27-00-00-860-053

(2) If the inboard PCU on the left flaperon was inoperative, do this step:

(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	5	CBA5-R	FLPRN PCU

SUBTASK 27-00-00-860-052

(3) If the outboard PCU on the right flaperon was inoperative, do this step:

(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	5	CBA5-C	FLPRN PCU

SUBTASK 27-00-00-860-055

(4) If the inboard PCU on the right flaperon was inoperative, do these steps:

(a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

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(b) Connect electrical connector DM27210 to the PCU.

(c) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

(d) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(e) On the P61 panel, move the FLT CONTROL HYD VALVE POWER-WING switches to the SHUT OFF position.

(f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(g) On the P61 panel, move the FLT CONTROL HYD VALVE POWER-WING switches to the NORM position.

SUBTASK 27-00-00-710-009

(5) Do this task: Aileron and Flaperon - Operational Test, TASK 27-11-00-700-801.

——— END OF TASK ———

TASK 27-00-00-040-837

20. MMEL 27-48-3 (DDG) Preparation - Nose Gear Pressure Switch Inoperative

A. General

(1) If inoperative condition is due to a switch leaking pneumatically, the following procedure may be accomplished.

(2) EICAS Status Messages

(a) None

B. References

Reference	Title
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
122	Forward Cargo Compartment, Right

D. Isolate the Nose Gear Pressure Switch Pneumatically.

SUBTASK 27-00-00-860-068

(1) Install the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-00-00-860-069

(2) Install the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-00-00-860-070

(3) Set the nose gear pressure shutoff valve to the fully closed position.

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SUBTASK 27-00-00-860-071

(4) Install a rig pin in the shutoff valve.

(a) Remove the attached flag from rig pin, J20003-6.

(b) Install the rig pin in the rig pin hole to hold the shutoff valve in the closed position. Use lockwire in the rig pin flag attachment hole to secure the rig pin to the valve body.

SUBTASK 27-00-00-860-072

(5) Remove the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801

SUBTASK 27-00-00-860-073

(6) Remove the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801

——— END OF TASK ———

TASK 27-00-00-440-837

21. MMEL 27-48-3 (DDG) Restoration - Nose Gear Pressure Switch Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Nose Gear Pressure Switch Inoperative.

B. References

Reference	Title
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
122	Forward Cargo Compartment, Right

D. Reactivate the Nose Gear Pressure Switch Function.

SUBTASK 27-00-00-860-074

(1) Install the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-00-00-860-075

(2) Install the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-00-00-860-076

(3) Remove the rig pin from the shutoff valve.

(a) Remove the rig pin from the rig pin hole of the shutoff valve.

(b) Install the flag to the rig pin, J20003-6.

SUBTASK 27-00-00-860-077

(4) Set the nose gear pressure shutoff valve to the fully open position.

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SUBTASK 27-00-00-860-078

(5) Remove the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-00-00-860-079

(6) Remove the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

——— END OF TASK ———

TASK 27-00-00-040-838

22. MMEL 27-48-4 (DDG) Preparation - Nose Gear Pressure Transducer Inoperative

A. General

(1) If inoperative condition is due to a switch leaking pneumatically, the following procedure may be accomplished.

(2) EICAS Status Messages

(a) None

B. References

Reference	Title
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
122	Forward Cargo Compartment, Right

D. Isolate the Nose Gear Pressure Transducer Pneumatically.

SUBTASK 27-00-00-860-080

(1) Install the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-00-00-860-081

(2) Install the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-00-00-860-082

(3) Set the nose gear pressure shutoff valve to the fully closed position.

SUBTASK 27-00-00-860-083

(4) Install a rig pin in the shutoff valve.

(a) Remove the attached flag from a rig pin, J20003-6.

(b) Install the rig pin in the rig pin hole to hold the shutoff valve in the closed position. Use lockwire in the rig pin flag attachment hole to secure the rig pin to the valve body.

SUBTASK 27-00-00-860-084

(5) Remove the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

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SUBTASK 27-00-00-860-085

(6) Remove the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

——— END OF TASK ———

TASK 27-00-00-440-838

23. MMEL 27-48-4 (DDG) Restoration - Nose Gear Pressure Transducer Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Nose Gear Pressure Transducer Inoperative.

B. References

Reference	Title
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
122	Forward Cargo Compartment, Right

D. Reactivate the Nose Gear Pressure Transducer Function

SUBTASK 27-00-00-860-086

(1) Install the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-00-00-860-087

(2) Install the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-00-00-860-088

(3) Remove the rig pin from the shutoff valve.

(a) Remove the rig pin from the rig pin hole of the shutoff valve.

(b) Install the flag to the rig pin, J20003-6.

SUBTASK 27-00-00-860-089

(4) Set the nose gear pressure shutoff valve to the fully open position.

SUBTASK 27-00-00-860-090

(5) Remove the Landing Gear Door Safety Pins, do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-00-00-860-091

(6) Remove the Landing Gear Downlock Pins, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

——— END OF TASK ———

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TASK 27-00-00-040-811

24. MMEL 27-51-1 (DDG) Preparation - Inboard Flap Support Fairing Spring Removed

(Figure 902)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with a spring removed from the inboard flap support fairing.

NOTE: The remaining spring on each support is verified to be in place and not broken before each departure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-14-020-801	Pivot Link, Fairing Links and Spring Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
573	Flap Support Fairing No. 3
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-00-00-860-022

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-210-004

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Make sure the thrust reverser cowls are closed.

SUBTASK 27-00-00-210-005

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-00-00-860-023

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-00-00-860-024

(5) Extend the trailing edge flaps to the 30-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-00-00-860-025

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-00-00-040-003

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-00-00-020-003

(8) Remove the broken spring. To remove the spring, do this task: Pivot Link, Fairing Links and Spring Removal, TASK 27-51-14-020-801.

NOTE: Remove only the broken spring and leave the good spring installed.

SUBTASK 27-00-00-200-003

(9) Make sure that the remaining spring on the related flap support is in its position and not broken before each departure.

SUBTASK 27-00-00-440-003

(10) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-00-00-860-026

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-00-00-860-027

(12) Retract the trailing edge flaps to the UP position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

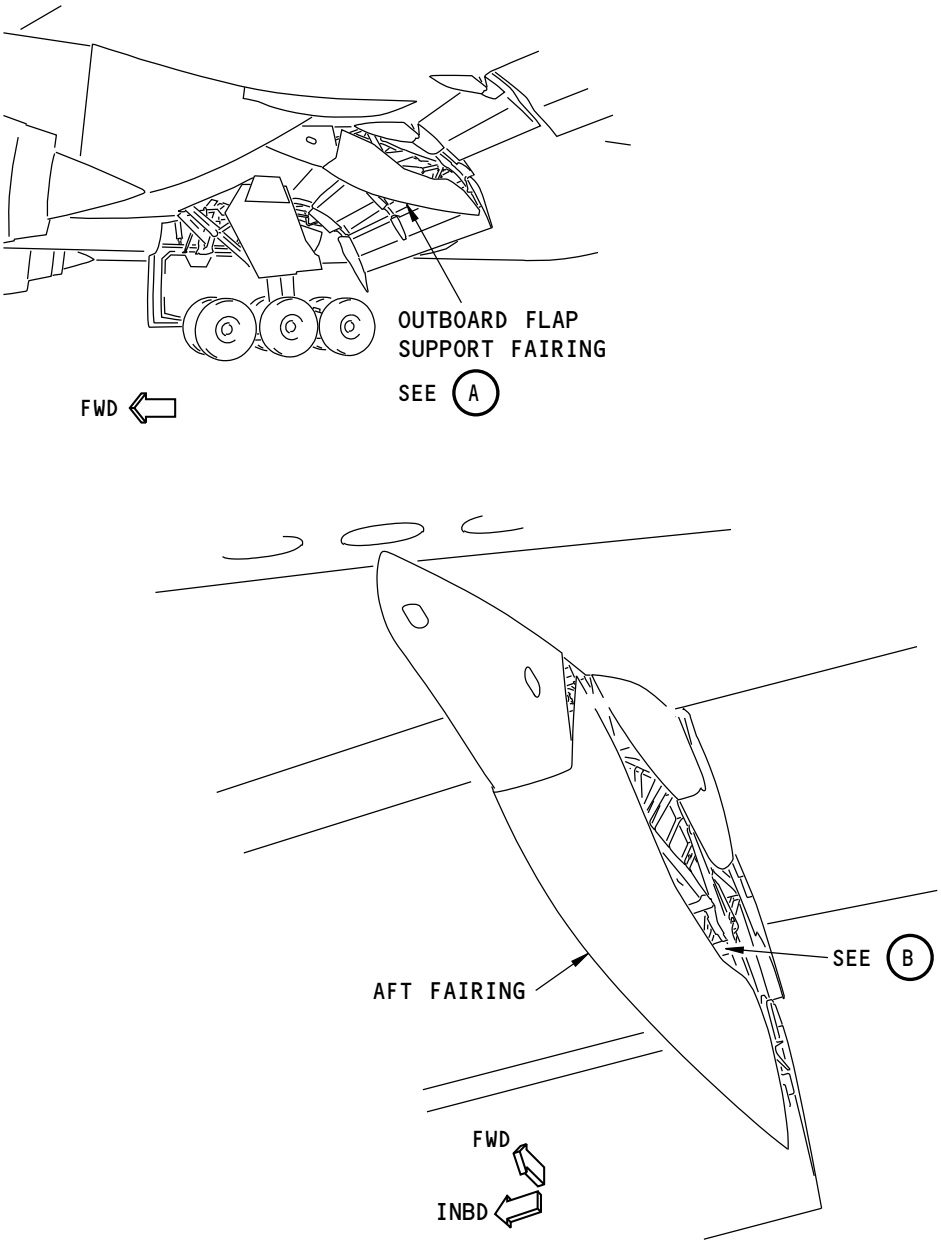
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SUBTASK 27-00-00-860-028

(13) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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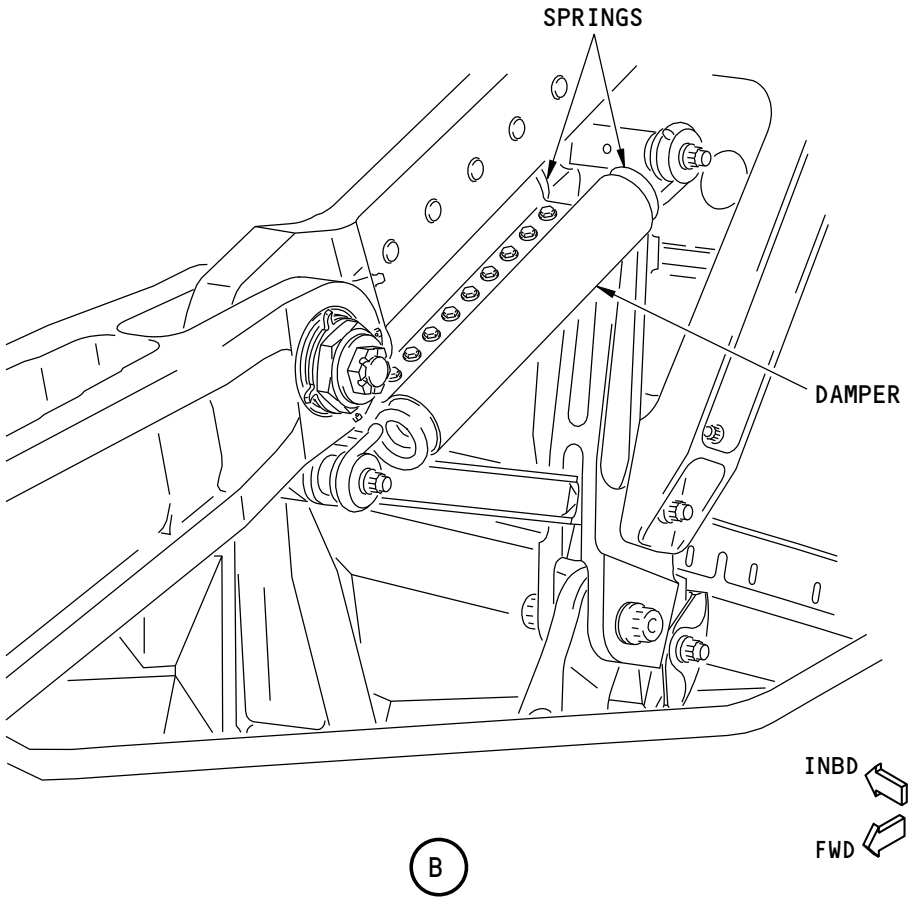
OUTBOARD FLAP SUPPORT FAIRING
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

G17740 S0006412448_V1

Outboard Flap Support Fairing Springs
Figure 902/27-00-00-990-802 (Sheet 1 of 2)

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G78430 S0006412449_V1

Outboard Flap Support Fairing Springs
Figure 902/27-00-00-990-802 (Sheet 2 of 2)

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TASK 27-00-00-440-811

25. MMEL 27-51-1 (DDG) Restoration - Inboard Flap Support Fairing Spring Removed

(Figure 902)

A. General

(1) This task puts the airplane back to its usual condition after flight with a spring removed from the inboard flap support fairing.

B. References

Reference	Title
27-51-14-420-805	Pivot Link, Fairing Links and Spring Installation (P/B 401)

C. Location Zones

Zone	Area
573	Flap Support Fairing No. 3
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-00-00-420-001

(1) Install the spring. To install the spring, do this task: Pivot Link, Fairing Links and Spring Installation, TASK 27-51-14-420-805.

SUBTASK 27-00-00-020-006

(2) Install the damper on the springs.

——— END OF TASK ———

TASK 27-00-00-040-816

26. MMEL 27-61-03 (DDG) Preparation - Spoiler PCU Inoperative

A. General

(1) This task gives the maintenance steps to prepare the airplane for flight with one opposite symmetrical spoiler pair inoperative.

NOTE: The airplane can not be dispatched if spoiler 4 and spoiler 11 are inoperative.

(2) The affected actuator and the opposite symmetrical spoiler actuator must be secured in the down position. All other flight control actuators must operate normally.

(3) EICAS Status Messages

(a) SPOILER ACTUATOR (EICAS STATUS)

NOTE: The FLIGHT CONTROL SYS (EICAS STATUS) message must NOT show.

Do NOT perform this task: Actuator Control Electronics (ACE) Monitor Test, TASK 27-02-02-400-801.

If you perform this test, the FLIGHT CONTROL SYS (EICAS STATUS) message will show, and you will not be able to dispatch the airplane.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-02-02-400-801	Actuator Control Electronics (ACE) Monitor Test (P/B 501)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)

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(Continued)

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

D. Preparation

SUBTASK 27-00-00-860-094

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-860-095

(2) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-00-00-860-096

(3) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-00-00-200-001

(4) Make sure the speedbrake handle is in the DOWN position.

SUBTASK 27-00-00-030-001

(5) If the inoperative spoiler PCU is on spoiler 1, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

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(d) Disconnect electrical connector DM27116 from the PCU for spoiler 1.

(e) Cap and stow the electrical connector.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-040-007

(6) If the inoperative spoiler PCU is on spoiler 14, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27216 from the PCU for spoiler 14.

(e) Cap and stow the electrical connector.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-040-008

(7) If the inoperative spoiler PCU is on spoiler 7, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27115 from the PCU for spoiler 7.

(e) Cap and stow the electrical connector.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-040-009

(8) If the inoperative spoiler PCU is on spoiler 8, do these steps:

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Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(a) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(b) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(c) Disconnect electrical connector DM 27215 from the PCU for spoiler 8.

(d) Cap and stow the electrical connector.

(e) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-030-002

(9) If the inoperative spoiler PCU is on spoiler 2, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27117 from the PCU for spoiler 2.

(e) Cap and stow the electrical connectors.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

SUBTASK 27-00-00-040-010

(10) If the inoperative spoiler PCU is on spoiler 13, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27217 from the PCU for spoiler 13.

(e) Cap and stow the electrical connector.

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(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

SUBTASK 27-00-00-030-003

(11) If the inoperative spoiler PCU is on spoiler 3, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27118 from the PCU for spoiler 3.

(e) Cap and stow the electrical connectors.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-040-011

(12) If the inoperative spoiler PCU is on spoiler 12, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d)) Disconnect electrical connector DM27218 from the PCU for spoiler 12.

(e) Cap and stow the electrical connector.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-040-012

(13) If the inoperative spoiler PCU is on spoiler 6, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27114 from the PCU for spoiler 6.

(e) Cap and stow the electrical connector.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-040-013

(14) If the inoperative spoiler PCU is on spoiler 9, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27214 from the PCU for spoiler 9.

(e) Cap and stow the electrical connector.

(f) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-030-004

(15) If the inoperative spoiler PCU is on spoiler 5, do these steps:

(a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM27120 from the PCU for spoiler 5.

(e) Cap and stow the electrical connectors.

(f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

SUBTASK 27-00-00-040-014

(16) If the inoperative spoiler PCU is on spoiler 10, do these steps:

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(a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(b) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

(d) Disconnect electrical connector DM 27220 from the PCU for spoiler 10.

(e) Cap and stow the electrical connectors.

(f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

SUBTASK 27-00-00-860-117

(17) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the NORM position.

E. Check the Preparation

SUBTASK 27-00-00-861-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-863-003

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-00-00-860-100

(3) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-00-00-860-101

(4) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-00-00-866-005

(5) Move the speedbrake handle to the full UP position.

NOTE: Do not do the ACE Monitor Test.

(a) Make sure the inoperative spoiler pair does not move.

(b) Make sure all other spoilers move to the full up position.

SUBTASK 27-00-00-210-010

(6) Confirm the FLIGHT CONTROL SYS status message does not show.

SUBTASK 27-00-00-866-006

(7) Move the speedbrake handle to the DOWN position.

SUBTASK 27-00-00-864-003

(8) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-00-00-860-102

(9) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

END OF TASK

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TASK 27-00-00-440-816

27. MMEL 27-61-03 (DDG) Restoration - Spoiler PCU Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with one opposite symmetrical spoiler pair inoperative.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-700-801	Spoiler Operational Test (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

D. Restoration

SUBTASK 27-00-00-860-103

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 27-00-00-860-104

(2) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task:Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-00-00-860-105

(3) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task:Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-00-00-200-002

(4) Make sure the speedbrake handle is in the DOWN position.

SUBTASK 27-00-00-860-106

(5) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-00-00-860-107

(6) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

SUBTASK 27-00-00-430-001

(7) If the inoperative actuator was on spoiler 1, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(b) Connect electrical connector DM27116 to the PCU for spoiler 1.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-440-004

(8) If the inoperative actuator was on spoiler 14, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(b) Connect electrical connector DM27216 to the PCU for spoiler 14.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-430-002

(9) If the inoperative actuator was on spoiler 2, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

(b) Connect electrical connector DM27117 to the PCU for spoiler 2.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

SUBTASK 27-00-00-440-005

(10) If the inoperative actuator was on spoiler 13, do these steps:

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(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

(b) Connect electrical connector DM27217 to the PCU for spoiler 13.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

SUBTASK 27-00-00-430-003

(11) If the inoperative actuator was on spoiler 3, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Connect electrical connector DM27118 to the PCU for spoiler 3.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-440-006

(12) If the inoperative actuator was on spoiler 12, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Connect electrical connector DM27218 to the PCU for spoiler 12.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-430-004

(13) If the inoperative actuator was on spoiler 5, do these steps:

(a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(b) Connect electrical connector DM27120 to the PCU for spoiler 5.

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(c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

SUBTASK 27-00-00-440-008

(14) If the inoperative actuator was on spoiler 10, do these steps:

(a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(b) Connect electrical connector DM27220 to the PCU for spoiler 10.

(c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

SUBTASK 27-00-00-430-005

(15) If the inoperative actuator was on spoiler 6, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Connect electrical connector DM27114 to the PCU for spoiler 6.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-440-007

(16) If the inoperative actuator was on spoiler 9, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(b) Connect electrical connector DM27214 to the PCU for spoiler 9.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-00-00-440-010

(17) If the inoperative actuator was on spoiler 7, do these steps:

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(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(b) Connect electrical connector DM27115 to the PCU for spoiler 7.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-440-009

(18) If the inoperative actuator was on spoiler 8, do these steps:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

(b) Connect electrical connector DM27215 to the PCU for spoiler 8.

(c) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-00-00-860-108

(19) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-00-00-860-109

(20) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the NORM position.

SUBTASK 27-00-00-860-110

(21) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task:Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-00-00-860-111

(22) If the related spoiler PCU is on spoiler 1, 2, 3, 5, 10, 12, 13, or 14, do this task:Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-00-00-710-006

(23) Do this task: Spoiler Operational Test, TASK 27-61-00-700-801

——— END OF TASK ———

TASK 27-00-00-040-807

28. MMEL 27-62-1 (DDG) Preparation - Automatic Speed Brake Function Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Automatic Speed Brake Function Inoperative.

(2) EICAS Status Messages

(a) AUTO SPEEDBRAKE

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B. References

Reference	Title
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1062	Lock - Circuit breaker, Open Position, Approved for Flight

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
122	Forward Cargo Compartment, Right

E. Deactivate the auto speedbrake function.

SUBTASK 27-00-00-860-016

(1) Open these circuit breakers and install a circuit breaker approved for flight, open position circuit breaker lock, STD-1062 on each circuit breaker:

(a) On the left power supply assembly (PSA-L), in the E1-6 rack:

1) B4, AUTO SPDBRK (L, R)

(b) On the right power supply assembly (PSA-R), in the E5-1 rack:

1) B4, AUTO SPDBRK (L, R)

F. Make sure the truck tilt pressure is normal

SUBTASK 27-00-00-740-008

(1) Look on the LANDING GEAR ACTN/INDN maintenance page for the TRUCK TILT and R TRUCK TILT displays. For information on how to find this maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(a) Make sure the landing gear lever is in the DOWN position.

(b) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(c) After 2 minutes, make sure that L TRUCK TILT and R TRUCK TILT hydraulic lines show 2700 to 3200 psi on the LANDING GEAR ACTN/INDN maintenance page.

NOTE: You can dispatch the airplane if the landing gear tilt pressure is low provided dispatch is also made under item 32-30-1, Landing Gear Actuation System.

(d) Remove pressure from the center hydraulic system. To remove it, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-00-00-440-807

29. MMEL 27-62-1 (DDG) Restoration - Automatic Speed Brake Function Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Automatic Speed Brake Function Inoperative.

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B. Tools/Equipment

Reference	Description
STD-1062	Lock - Circuit breaker, Open Position, Approved for Flight

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
122	Forward Cargo Compartment, Right

D. Reactivate the Auto Speedbrake Function.

SUBTASK 27-00-00-860-017

(1) Remove the circuit breaker approved for flight, open position circuit breaker lock, STD-1062 from each circuit breaker and close these circuit breakers:

(a) On the left power supply assembly (PSA-L), in the E1-6 rack:

1) B4, AUTO SPDBRK (L, R)

(b) On the right power supply assembly (PSA-R), in the E5-1 rack:

1) B4, AUTO SPDBRK (L, R)

E. Repair the Auto Speedbrake Function

SUBTASK 27-00-00-740-009

(1) Go to the MAT and find the EICAS status message.

(a) Find the fault code and the correlated maintenance message numbers on the MAT.

SUBTASK 27-00-00-810-010

(2) Go to the Fault Code Index in the FIM and find the fault code (the first two digits of the fault code are the FIM chapter).

(a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.

(b) Find the task number on the same line as the maintenance message number.

SUBTASK 27-00-00-810-011

(3) Go to the task in the FIM and do the steps in the task.

——— END OF TASK ———

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PRIMARY FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Actuation Confidence Test

(a) Use this test to make sure the power control units (PCUs) for the primary flight control surfaces (Ailerons, Flaperons, Elevator, Rudder, and Stabilizer) are operational.

NOTE: This test does not do a test of the spoiler PCUs.

(2) Radio Altimeter to PFC Connection Test

(a) Use this test to make sure the primary flight computers (PFCs) get the correct signals from the Radio Altimeters.

27-CMR-01

TASK 27-02-00-400-801

2. Actuation Confidence Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the power control units (PCUs) for the primary flight control surfaces (Ailerons, Flaperons, Elevator, Rudder, and Stabilizer) are operational and that the auto-shutdown control of the horizontal stabilizer is operational..

NOTE: If you perform this test, the AILERON ACTUATOR, FLAPERON ACTUATOR, SPOILER ACTUATOR status messages will be changed to No Dispatch “FLT CONTROL SYS” status message. If you want to dispatch the airplane per the MMEL/DDG per AILERON ACTUATOR, FLAPERON ACTUATOR, SPOILER ACTUATOR status messages, do not perform this test.

NOTE: This procedure does not do a test of the spoiler PCUs.

(2) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

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D. Procedure

SUBTASK 27-02-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it (the instruction to supply hydraulic power is on the bottom of the screen that shows the hydraulic power warning, you must scroll down the screen to see the instruction). Refer to (TASK 29-11-00-860-801) for the procedure to supply hydraulic power.

SUBTASK 27-02-00-740-001

(2) Use the MAT to do the system test of the power control units (PCUs) (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Actuator Confidence

NOTE: You can also choose the following: Aileron, Elevator, Flaperon, and Rudder Actuator Confidence.

7) CONTINUE

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE AILERONS, FLAPERONS, ELEVATOR, RUDDER, AND HORIZONTAL STABILIZER. THESE SURFACES WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

NOTE: To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

EICAS messages will occur during the test. This is OK.

(c) The MAT will tell you to look at the maintenance page to find the results of the test. This will occur after 5 to 10 minutes. If you need instructions on how to show the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

NOTE: Do not show the maintenance page until the MAT tells you to. If you show the maintenance page too early, it will show the data from the previous time the test ran. The data will not change (update) while the maintenance page is open.

The passed or failed indication on the maintenance page is the correct way to tell if this test passed. If the passed or failed indication that shows on the MAT does not agree with the indication on the maintenance page, ignore the indication on the MAT.

(d) If TEST PASSED shows on the maintenance page, then the test passed. Do these steps on the MAT:

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1) Select YES
2) Select CONTINUE
3) After about two minutes the MAT will complete the test. If the MAT shows TEST: FAILED ignore it, and ignore the maintenance messages that show.

(e) If TEST FAILED shows on the maintenance page, then do these steps on the MAT:

1) Select NO
2) Select CONTINUE
3) After about two minutes the MAT will complete the test. Select the maintenance message and select MAINTENANCE MESSAGE DATA, or refer to the applicable Maintenance Message Index in the FIM.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-02-00-860-002

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-02-00-400-802

3. Radio Altimeter to PFC Connection Test

A. General

(1) Use this test to make sure the primary flight computers (PFCs) get the correct signals from the Radio Altimeters.

(2) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-02-00-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-00-740-002

(2) Use a MAT to do the system test of the radio altimeter to PFC connection (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Radio Altimeter Test Inhibit to PFC Interface

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7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

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PRIMARY FLIGHT COMPUTER - MAINTENANCE PRACTICES

1. General

A. This procedure tells you how to install software in the primary flight computer (PFC).

B. The Configuration check will show a failure if the OPS is not installed or if OPS is incompatible across channels.

C. A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

D. The airplane must be on the ground with the engines off before you can install software.

E. To read about the time that is necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

F. The PFC configuration check for the PFCs does not work unless all PFCs are in the same software configuration. No configuration information can be obtained from a PFC which has an inoperable lane. Before you start to load new PFC software, check to determine if any PFC lanes are inoperable by one of the following method:

(1) If all three PFCs are to be loaded, run the PFC Self-test

(2) If only a single newly installed PFC is to be loaded, run the LRU replacement test for that PFC after electrical power to the other two PFCs are removed.

(3) If the test fails, use the lane reset test to restore operation of the lane before you can start to load the software. If the lane cannot be restored, you cannot load software to that PFC.

(4) If the test pass, you can start to load software.

G. While the software is being loaded to the PFC, the operation may sometimes stop.

H. When installing a new PFC that contains software that is incompatible with the software in the other two PFCs, lane faults or channel faults can be created if all three PFCs are powered up and talking to each other. This can prevent software loading in the new PFC. To avoid this situation, power down all three PFCs before installing the new PFC, power up the new PFC only, load the correct software into the new PFC, power down the new PFC, then power up all three PFCs.

I. If loading new software into all three PFCs, power down all three PFCs first, power up one PFC and load it, power that PFC down, power up the next PFC and load it, power that PFC down, power up the last PFC and load it, power that PFC down, then power up all three PFCs.

J. While you are in the process of PFC software installation, make sure that you do not remove electrical power from the airplane until you finish installing softwares on all three PFCs. If you have to remove electrical power during PFC software installation, open the D8, BAT INTLK circuit breaker for the applicable power supply assembly (PSA) to prevent battery discharge. Close the BAT INTLK circuit breakers when you restore the electrical power.

K. Do not interchange the PFCs if any of them contains a lane fault. The state machine in the PFC that keeps track of lane faults can become confused and generate more lane faults or go into an unrecoverable condition.

L. If an intermittent lane fault occurs continuously, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This gives the operator 10 attempts to find the cause of the lane fault. When a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to clear the fault.

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TASK 27-02-01-400-803

2. Primary Flight Computer Software Installation

A. General

(1) This procedure tells you how to install software in the Primary Flight Computer (PFC).

(2) The PFC must contain this piece of software:

(a) Operational Program Software (OPS).

(3) If you do not know if the PFC needs new software, you can first do the system configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the system configuration check in this task: Primary Flight Computer (PFC) Installation, TASK 27-02-01-400-802.

(4) The system configuration check will show a failure if the OPS is not installed or if OPS is incompatible across channels.

(5) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

(6) You can install the software from disks, the MAT hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the PFC, the load process first erases the old software and then installs the new software. If you install software directly to the PFC from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the PFC.

(a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.

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(7) You can also install the software from the Onboard Network System (ONS) Mass Storage Device (MSD). To install new software on the ONS MSD, do this task: Mass Storage Device Software Part Installation, TASK 46-13-00-470-802.

(a) It is recommended that you remove old software part numbers from the ONS MSD after new software is installed. To remove software from the ONS MSD, do this task: Mass Storage Device Software Removal, TASK 46-13-00-070-801.

ARO ALL

(8) The airplane must be on the ground with the engines off before you can install software.

(9) The system configuration check for the PFCs will not show information from all three PFCs unless all three PFCs have compatible software.

(10) Before you start to load new PFC software, check to determine if any PFC lanes are inoperable using the following method:

(a) If all three PFCs are to be loaded, run the PFC Self-test.

(b) If the test passes, you can start to load software.

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(c) Take the PFC with incompatible software and a lane fault to an airplane with PFCs with compatible software installed and run the PFC Lane Reset ground test on this airplane. Install the PFC in the same location on this airplane (Left, Right, or Center) as it was in the original airplane.

(11) While the software is being loaded to the PFC, the operation may sometimes stop.

(12) When installing a new PFC that contains software that is incompatible with the software in the other two PFCs, lane faults or channel faults can be created if all three PFCs are powered up and talking to each other. This can prevent software loading in the new PFC. To avoid this situation, power down all three PFCs before installing the new PFC, power up the new PFC only, load the correct software into the new PFC, power down the new PFC, then power up all three PFCs.

(13) If loading new software into all three PFCs, power down all three PFCs first, power up one PFC and load it, power that PFC down, power up the next PFC and load it, power that PFC down, power up the last PFC and load it, power that PFC down, then power up all three PFCs.

(14) While you are in the process of PFC software installation, make sure that you do not remove electrical power from the airplane until you finish installing softwares on all three PFCs. If you have to remove electrical power during PFC software installation, open the D8, BAT INTLK circuit breaker for the applicable power supply assembly (PSA) to prevent battery discharge. Close the BAT INTLK circuit breakers when you restore the electrical power.

(15) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-02-01-400-802	Primary Flight Computer (PFC) Installation (P/B 401)
45-10-00-740-819	How to Do a Ground Test (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (P/B 201)
46-13-00-070-801	Mass Storage Device Software Removal (P/B 201)
46-13-00-470-802	Mass Storage Device Software Part Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

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E. Procedure

SUBTASK 27-02-01-860-016

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805 p201.

SUBTASK 27-02-01-420-004

(2) If you install a new software for all three PFCs, do these steps to do the self test of the PFCs:

NOTE: The following PFC self test will not pass unless all three PFCs are powered and have compatible software.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Primary Flight Computer Self Test
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure that these messages do not show on the MAT:

1) 27-14000, 27-14001, 27-14002, Primary Flight Computer (left) lane 1, 2, and 3 has a fault
2) 27-14006, 27-14007, 27-14008, Primary Flight Computer (center) lane 1, 2, and 3 has a fault
3) 27-14012, 27-14013, 27-14014, Primary Flight Computer (right) lane 1, 2, and 3 has a fault

(e) If one of these maintenance messages shows on the MAT, do these steps to reset the PFC lanes (TASK 45-10-00-740-819 p201):

1) Make these selections on the MAT:

a) ONBOARD MAINTENANCE
b) GROUND TESTS
c) 27 Primary Flight Control System
d) SYSTEM TEST
e) Primary Flight Computer (L, R, or C) Lane Reset
f) CONTINUE

2) Do the instructions that show on the MAT and then make these selections:

a) CONTINUE
b) START TEST

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3) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

4) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

SUBTASK 27-02-01-420-002

(3) Do the following steps to install software in the PFCs:

(a) Remove electrical power to all three PFCs then restore electrical power to the PFC that you are loading the software. Do the following steps:

1) Open these circuit breakers and attach DO-NOT-CLOSE tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

2) You can then remove the DO-NOT-CLOSE tag and close the appropriate circuit breaker for the PFC that you are installing the software on.

(b) Make sure you know the correct software part number for the PFC before you select the software part number on the display.

NOTE: For the PFC to be an approved installation, the correct software must be installed all three of the PFCs.

(c) Use a maintenance access terminal (MAT) to install software in the PFC.

(d) If the software is on a diskette set, put the disk No. 1 in the disk drive.

(e) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) EXTENDED MAINTENANCE

3) DATA LOAD

(f) Make these selections to select the component that will receive the software:

1) SELECT DESTINATION

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2) 27 PRIMARY FLIGHT CONTROL SYSTEM

3) Primary Flight Computer (left, center, or right)

4) CONTINUE

(g) Make these selections to select the source of the software:

1) SELECT SOURCE

2) Select the source of the software (if Disk Drive is the only selection, it is automatically selected).

3) Select the software part number from the display.

NOTE: PFC has only one software part number.

4) CONTINUE

(h) Select START to start the software installation.

(i) When the software installation is completed, make sure the correct software part number shows on the display.

1) Observe the MAT display for any messages which indicate that the load is stopped.

2) Also observe that the indicator bar (which displays load percentage completed) on the MAT increases approximately once every two minutes.

3) If the data load is stopped before it is completed, then you must install the PFC software again with the first diskette.

NOTE: You should exit the MAT and then re-enter to start the data load.

(j) Select CONTINUE to remove the system configuration display.

(k) If software was installed on the center PFC, do the following steps:

1) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

(l) If software was installed on the left PFC, do the following steps:

1) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

(m) If software was installed on the right PFC, do the following steps:

1) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2

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(Continued)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-02-01-860-017

(4) To install software in the other PFCs, repeat SUBTASK 27-02-01-420-002 until all three PFCs have compatible software.

SUBTASK 27-02-01-840-001

(5) When all software loading is done, restore the electrical power to all three PFCs. Do the following steps:

(a) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-02-01-470-001

(6) To verify all three PFCs are loaded with the correct software, do the software configuration check of the PFC (TASK 27-02-01-400-802).

——— END OF TASK ———

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PRIMARY FLIGHT COMPUTER - REMOVAL/INSTALLATION

1. General

A. There are three primary flight computers (PFCs) on each airplane.

B. This procedure has these two tasks, they are applicable for all three computers:

(1) A removal of the primary flight computer

(2) An installation of the primary flight computer.

(3) A lane reset of the primary flight computer.

C. When installing a new PFC that contains software that is incompatible with the software in the other two PFCs, lane faults or channel faults can be created if all three PFCs are powered up and talking to each other. This can prevent software loading in the new PFC. To avoid this situation, power down all three PFCs before installing the new PFC, power up the new PFC only, load the correct software into the new PFC, power down the new PFC, then power up all three PFCs.

D. Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

TASK 27-02-01-000-801

2. Primary Flight Computer (PFC) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-41-01-000-803	ESDS Handling for Metal Encased Unit Removal (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-818	How to Find Active or Latched Maintenance Messages in One ATA System (P/B 201)
52-34-00-860-801	Open the Door Electrically with the External Cargo Door Control Switch (P/B 201)

B. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
122	Forward Cargo Compartment, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Primary Flight Computer Removal

SUBTASK 27-02-01-810-001

(1) We recommend you do these steps before you replace a computer [1].

NOTE: If you replace a computer [1] when there are latched maintenance messages, the new computer [1] can cause new maintenance messages to show on the MAT.

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(a) Look on the EXTENDED MAINTENANCE, EXISTING FAULTS display (on the MAT) for the 27 Primary Flight Control System faults. For information on how to find this display, do this task: How to Find Active or Latched Maintenance Messages in One ATA System, TASK 45-10-00-740-818.

(b) Do the fault isolation procedure for each fault in the 27 Primary Flight Controls section that is latched.

SUBTASK 27-02-01-860-006

WARNING MAKE SURE THAT THERE IS NO PRESSURE IN THE HYDRAULIC SYSTEM. PRESSURE IN THE HYDRAULIC SYSTEM CAN MOVE THE CONTROL SURFACES AND THE THRUST REVERSER. THEIR MOVEMENT CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(2) Make sure hydraulic power is removed from the hydraulic systems. If hydraulic power is supplied, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-02-01-010-001

(3) To get access to the center and left circuit breakers and computers [1], do this step:

Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-02-01-010-002

(4) To get access to the right circuit breakers and computer [1], do this task: Open the Door Electrically with the External Cargo Door Control Switch, TASK 52-34-00-860-801.

SUBTASK 27-02-01-860-007

(5) Remove power for the left computer [1]:

NOTE: The left power supply assembly (PSA-L) is in the E1-6 rack:

NOTE: The left computer [1] is the one in the E1-6 rack.

(a)

Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

NOTE: If these circuit breakers are closed and the primary flight computer is removed, the power supply assembly (PSA) will continue to supply power to the flight control system. If other sources of power are not available, the PSA will use its backup battery. The backup battery can only supply power for approximately one minute. This battery cannot be charged and must be replaced if it is fully discharged.

SUBTASK 27-02-01-860-008

(6) Remove power for the center computer [1]:

NOTE: The center computer [1] is the one in the E2-6 rack.

NOTE: The center power supply assembly (PSA-C) is in the E2-6 rack

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(a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

NOTE: If these circuit breakers are closed and the primary flight computer is removed, the power supply assembly (PSA) will continue to supply power to the flight control system. If other sources of power are not available, the PSA will use its backup battery. The backup battery can only supply power for approximately one minute. This battery cannot be charged and must be replaced if it is fully discharged.

SUBTASK 27-02-01-860-009

(7) Remove power for the right computer [1]:

NOTE: The right computer [1] is the one in the E16-1 rack. The E16-1 rack is immediately forward of the forward cargo door.

NOTE: The right power supply assembly (PSA-R) in the E5-1 rack:

(a) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

NOTE: If these circuit breakers are closed and the primary flight computer is removed, the power supply assembly (PSA) will continue to supply power to the flight control system. If other sources of power are not available, the PSA will use its backup battery. The backup battery can only supply power for approximately one minute. This battery cannot be charged and must be replaced if it is fully discharged.

SUBTASK 27-02-01-910-001

CAUTION

DO NOT TOUCH THE PRIMARY FLIGHT COMPUTER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRIMARY FLIGHT COMPUTER.

(8) Before you touch the computer [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-41-01-000-803.

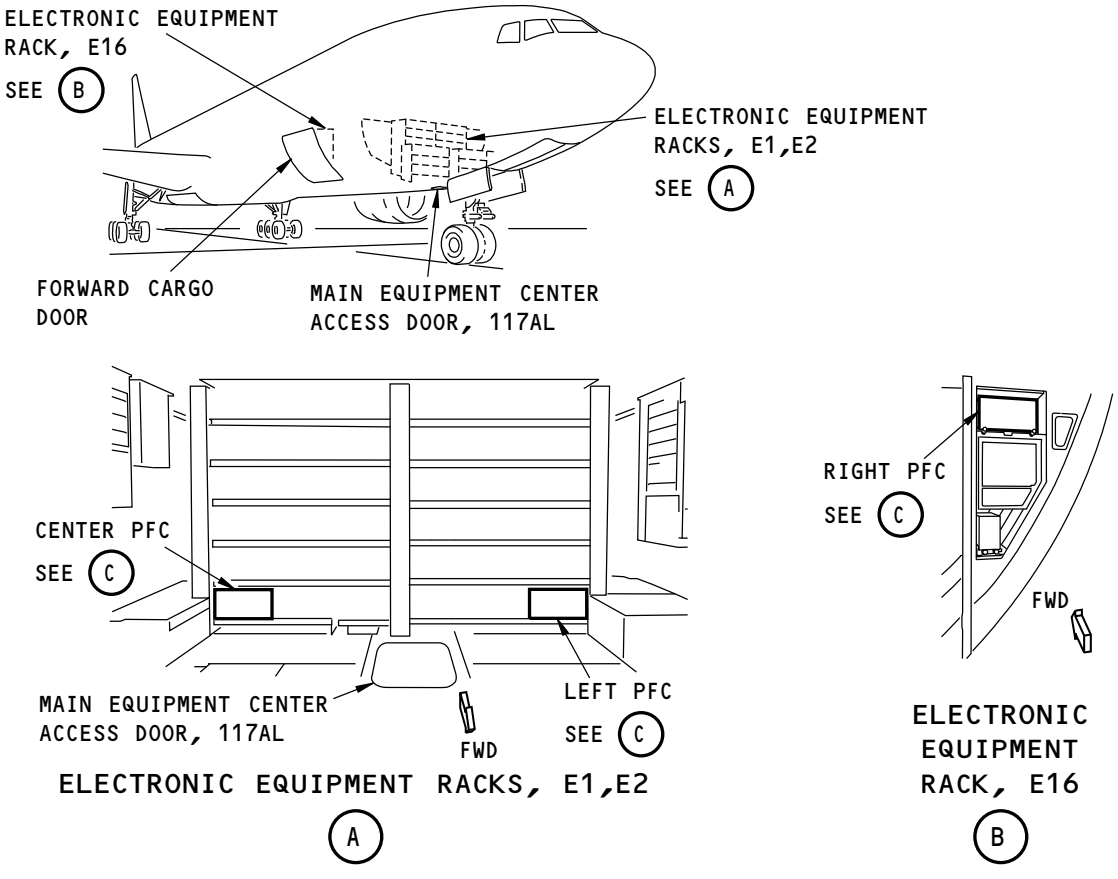
SUBTASK 27-02-01-020-002

(9) Remove the computer [1].

NOTE: The computer [1] weighs approximately 37 pounds.

END OF TASK

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Primary Flight Computers (PFC) Installation
Figure 401/27-02-01-990-801

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TASK 27-02-01-400-802

3. Primary Flight Computer (PFC) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-41-01-400-803	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-02-01-400-803	Primary Flight Computer Software Installation (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
52-34-00-860-803	Close the Door Electrically with the External Cargo Door Control Switch (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Computer	25-17-01-32-070	ARO ALL
		27-02-01-01-004	ARO 001-010
		27-02-01-01-005	ARO 011-999

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
122	Forward Cargo Compartment, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Primary Flight Computer Installation

SUBTASK 27-02-01-860-010

WARNING MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACES CAN MOVE DURING THIS PROCEDURE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure hydraulic power is removed from the hydraulic systems. If hydraulic power is supplied, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

NOTE: When installing a new PFC that contains software that is incompatible with the software in the other two PFCs, lane faults or channel faults can be created if all three PFCs are powered up and talking to each other. This can prevent software loading in the new PFC. To avoid this situation, power down all three PFCs before installing the new PFC, power up the new PFC only, load the correct software into the new PFC, power down the new PFC, then power up all three PFCs.

SUBTASK 27-02-01-860-021

(2) Remove power for the left computer [1]:

NOTE: The left power supply assembly (PSA-L) is in the E1-6 rack.

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(a) Open these circuit breakers and attach DO-NOT-CLOSE tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

NOTE: If these circuit breakers are closed and the primary flight computer is removed, the power supply assembly (PSA) will continue to supply power to the flight control system. If other sources of power are not available, the PSA will use its backup battery. The backup battery can only supply power for approximately one minute. This battery cannot be charged and must be replaced if it is fully discharged.

SUBTASK 27-02-01-860-022

(3) Remove power for the center computer [1]:

NOTE: The center power supply assembly (PSA-C) is in the E2-6 rack.

(a) Open these circuit breakers and attach DO-NOT-CLOSE tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

NOTE: If these circuit breakers are closed and the primary flight computer is removed, the power supply assembly (PSA) will continue to supply power to the flight control system. If other sources of power are not available, the PSA will use its backup battery. The backup battery can only supply power for approximately one minute. This battery cannot be charged and must be replaced if it is fully discharged.

SUBTASK 27-02-01-860-020

(4) Remove power for the right computer [1], do these steps:

NOTE: The right power supply assembly (PSA-R) is in the E5-1 rack.

(a) Open these circuit breakers and attach DO-NOT-CLOSE tags:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

NOTE: If these circuit breakers are closed and the primary flight computer is removed, the power supply assembly (PSA) will continue to supply power to the flight control system. If other sources of power are not available, the PSA will use its backup battery. The backup battery can only supply power for approximately one minute. This battery cannot be charged and must be replaced if it is fully discharged.

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SUBTASK 27-02-01-910-002

CAUTION

DO NOT TOUCH THE PRIMARY FLIGHT COMPUTER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRIMARY FLIGHT COMPUTER.

(5) Before you touch the computer [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-41-01-400-803.

SUBTASK 27-02-01-420-003

(6) Install the computer [1] in the rack.

SUBTASK 27-02-01-860-011

(7) If the left computer [1] was installed, do this step:

NOTE: The left computer [1] is the one in the E1-6 rack.

NOTE: Do not power up the other two PFCs at this time.

(a) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

SUBTASK 27-02-01-860-012

(8) If the center computer [1] was installed, do this step:

NOTE: The center computer [1] is the one in the E2-6 rack.

NOTE: Do not power up the other two PFCs at this time.

(a) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

SUBTASK 27-02-01-860-013

(9) If the right computer [1] was installed, do this step:

NOTE: The right computer [1] is the one in the E16-1 rack. The E16-1 rack is immediately forward of the forward cargo door.

NOTE: The right power supply assembly (PSA-R) in the E5-1 rack

NOTE: Do not power up the other two PFCs at this time.

(a) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2

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(Continued)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

F. Primary Flight Computer System Configuration Check

NOTE: A maintenance access terminal (MAT) is necessary for this procedure. For instructions on how to use a maintenance access terminal, refer to TASK 45-10-00-740-808.

SUBTASK 27-02-01-860-023

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-01-470-003

(2) Use a maintenance access terminal (MAT) to do the system configuration check of the new PFC:

NOTE: This system configuration check makes sure that the PFC has the correct software. This system configuration check will show a failure if the operational program software (OPS) is not installed.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) SYSTEM CONFIGURATION
4) 27 Primary Flight Control System
5) CONTINUE

(b) Find Primary Flight Computer (left, center, or right) on the display and make sure that the software part number (OPS) for the new PFC is correct.

NOTE: An example of the display looks like:

Primary Flight Computer (Left) Hardware Part Number:

xx-xxx-xx

Serial Number:

xxxxxxxx

Options:

777 -x00 LEFT##01FALSE

PFC OPS:

xxxx-PFC-xxx-xx

Primary Flight Computer (Center)

Hardware Part Number:

xx-xxx-xx

Serial Number:

xxxxxxxx

Options:

777 -x00 CENTER01TRUE#

PFC OPS:

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xxxx-PFC-xxx-xx

Primary Flight Computer (Right)

Hardware Part Number:

xx-xxx-xx

Serial Number:

xxxxxxxx

Options:

777 -x00 RIGHT#01TRUE#

PFC OPS:

xxxx-PFC-xxx-xx

For this example, the parity pins for the center and right PFC are set (TRUE) while the parity pins on the left PFC are not set (FALSE). Each model of 777 airplane may have different parity pin requirements.

1) Select GO BACK to remove the system configuration display.

(c) If the OPS part number is incorrect, then perform the primary flight computer software installation in the subsequent steps.

(d) If the OPS part number is correct, continue on to the primary flight computer installation closeout.

G. Primary Flight Computer Software Installation (Newly Installed PFC)

SUBTASK 27-02-01-470-002

(1) Use a maintenance access terminal (MAT) go install software in the PFC.

(2) If the software is on a diskette set, put the disk No.1 in the disk drive.

(3) Make these selections on the MAT:

(a) ONBOARD MAINTENANCE

(b) EXTENDED MAINTENANCE

(c) DATA LOAD

(4) Make these selections to select the component that will receive the software:

(a) SELECT DESTINATION

(b) 27 PRIMARY FLIGHT CONTROL SYSTEM

(c) Primary Flight Computer (left, center, or right)

(d) CONTINUE

(5) Make these selections to select the source of the software:

(a) SELECT SOURCE

(b) Select the source of the software (if Disk Drive is the only selection, it is automatically selected).

(c) Select the software part number from the display.

NOTE: PFC has only one software part number.

(d) CONTINUE

(6) Select START to start the software installation.

(7) When the software installation is completed, make sure the correct software part number shows on the display.

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(a) Observe the MAT display for any messages which indicate that the load is stopped.

(b) Observe that the indicator bar on the MAT increases approximately once every two minutes.

NOTE: The indicator bar displays the load percentage completed.

(c) If the data load is stopped before it is completed, then you must install the PFC software again with the first diskette.

NOTE: You should exit the MAT and then re-enter to start the data load.

(8) Select CONTINUE to remove the system configuration display.

H. Primary Flight Computer Installation Closeout

SUBTASK 27-02-01-840-002

(1) Provide power to the other two PFCs. As applicable, do these steps:

(a) For the left computer [1], do this step:

NOTE: The left power supply assembly (PSA-L) is in the E1-6 rack.

1) Remove the DO-NOT-CLOSE tags and close the circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

(b) For the center computer [1], do this step:

NOTE: The center power supply assembly (PSA-C) is in the E2-6 rack.

1) Remove the DO-NOT-CLOSE tags and close the circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

(c) For the right computer [1], do this step:

NOTE: The right power supply assembly (PSA-R) is in the E5-1 rack. The E5-1 rack is immediately aft of the forward cargo door.

1) Remove the DO-NOT-CLOSE tags and close the circuit breakers:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-02-01-410-001

(2) If the left or center computer [1] were replaced, do this step:

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Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-02-01-410-002

(3) If the right computer [1] was replaced, do this task: Close the Door Electrically with the External Cargo Door Control Switch, TASK 52-34-00-860-803.

I. Primary Flight Computer Installation Test

NOTE: A maintenance access terminal (MAT) is necessary for this procedure. For instructions on how to use a maintenance access terminal refer to (TASK 45-10-00-740-808).

SUBTASK 27-02-01-860-014

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-01-740-004

(2) Use a maintenance access terminal (MAT) to do the system configuration check of the PFCs:

NOTE: This system configuration check makes sure that the PFCs have the correct software. This system configuration check will show a failure if the operational program software (OPS) is not installed.

NOTE: Make sure you know the correct software part number for the PFCs. For the PFCs to be an approved installation, the correct software part number must be installed in each PFC.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) SYSTEM CONFIGURATION
4) 27 Primary Flight Control System
5) CONTINUE

(b) Find Primary Flight Computer (left, center, and right) on the display and make sure that the software part number (OPS) is correct.

NOTE: Do this system configuration check for all three PFCs. The system configuration check will show a failure if the operational program software (OPS) is not installed.

NOTE: An example of the display looks like:

Primary Flight Computer (Left) Hardware Part Number:

xx-xxx-xx

Serial Number:

xxxxxxxx

Options:

777 -x00 LEFT##01FALSE

PFC OPS:

xxxx-PFC-xxx-xx

Primary Flight Computer (Center)

Hardware Part Number:

xx-xxx-xx

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Serial Number:

xxxxxxxx

Options:

777 -x00 CENTER01TRUE#

PFC OPS:

xxxx-PFC-xxx-xx

Primary Flight Computer (Right)

Hardware Part Number:

xx-xxx-xx

Serial Number:

xxxxxxxx

Options:

777 -x00 RIGHT#01TRUE#

PFC OPS:

xxxx-PFC-xxx-xx

For this example, the parity pins for the center and right PFC are set (TRUE) while the parity pins on the left PFC are not set (FALSE). Each model of 777 airplane may have different parity pin requirements.

1) Select GO BACK to remove the system configuration display.

(c) If the part numbers are incorrect, then, do this task: Primary Flight Computer Software Installation, TASK 27-02-01-400-803.

SUBTASK 27-02-01-740-002

(3) Use a maintenance access terminal (MAT) to do the LRU replacement test of the left (center, right) PFC:

NOTE: This test makes sure that the primary flight computer (PFC) and all of its ARINC 629 couplers are installed correctly. The same sequence of steps is used for the left, center, or right PFC.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) LRU REPLACEMENT TEST
6) (Left, Center, Right) Primary Flight Computer and Couplers
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

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(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-02-01-740-003

(4) Use a maintenance access terminal (MAT) to do the self test of the PFCs:

NOTE: This test makes sure the flight computers operate correctly, and that the three PFCs can communicate with each other.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Primary Flight Computer Self Test
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

——— END OF TASK ———

TASK 27-02-01-740-801

4. Primary Flight Computer (PFC) Lane Reset

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

B. Primary Flight Computer Lane Reset

SUBTASK 27-02-01-860-019

NOTE: A maintenance access terminal (MAT) is necessary for this procedure. For instructions on how to use a maintenance access terminal refer to (TASK 45-10-00-740-808).

NOTE: The PFC Lane Reset ground system test can be used to manually clear a latched fault if the condition is no longer active, but the test does not correct the root cause of the lane fault. If a PFC has a chronic issue that is not corrected, continuously resetting the fault by running the PFC lane reset test will eventually lead to the fault permanently latching in the PFC. The PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This gives the operator 10 attempts to find the cause of the lane fault. Once the lane fault is latched permanently, the PFC can only be reset by a repair shop.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

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(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: In order for the test to run, all three PFCs must be operating and communicating with each other. Otherwise message 27-16003 (Selected ground test does not have sufficient resources) will appear. All three PFCs must have compatible software with each other in order to be able to communicate with each other.

SUBTASK 27-02-01-740-005

(2) Use a maintenance access terminal (MAT) to do the PFC Lane Reset of the left (center, right) PFC:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) GROUND TESTS
3) 27 Primary Flight Control System
4) SYSTEM TEST
5) Primary Flight Computer (L, R, or C) Lane Reset
6) CONTINUE.

SUBTASK 27-02-01-740-006

(3) Do the instructions that show on the MAT and then make these selections:

(a) CONTINUE

(b) START TEST.

SUBTASK 27-02-01-740-007

(4) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

NOTE: Under certain conditions, the PFC lane reset test will not reset the lane until the lane reset test is run a second time.

SUBTASK 27-02-01-740-008

(5) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

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PRIMARY FLIGHT COMPUTER - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure gives you the instructions to do these tasks:

(1) Primary Flight Computer (PFC) Reset Test - Use this test to make sure the PFCs are operational.

(2) Primary Flight Computers Disconnect Switch Test - Use this procedure to make sure the PRIMARY FLIGHT COMPUTERS DISC switch operates correctly.

TASK 27-02-01-400-801

2. Primary Flight Computer (PFC) Reset Test

A. General

(1) Use this test to make sure the primary flight computers (PFCs) are operational. In this test, the PFC makes sure its internal circuits operate correctly.

(2) This test will let a PFC operate again if it has no problems.

(3) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-02-01-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

(a) Make sure to power up only the new PFC being installed and check the software configuration before the other two PFCs are powered up.

1) This test requires that all three PFCs have the same software installed.

SUBTASK 27-02-01-740-001

(2) Use a MAT to do the system test of the Primary Flight Computer (TASK 45-10-00-740-819):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Primary Flight Computer Reset
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

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1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

SUBTASK 27-02-01-860-002

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-02-01-700-801

3. Primary Flight Computer Disconnect Switch Test

NOTE: This procedure is a scheduled maintenance task.

A. General

WARNING	MAKE SURE THAT THERE IS NO PRESSURE IN THE HYDRAULIC SYSTEM. PRESSURE IN THE HYDRAULIC SYSTEM CAN MOVE THE CONTROL SURFACES AND THE THRUST REVERSER. THEIR MOVEMENT CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Use this procedure to make sure the PRIMARY FLIGHT COMPUTERS DISC switch operates correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-02-01-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-01-860-004

(2) Set the PRIMARY FLIGHT COMPUTERS DISC switch located on the overhead panel, P5, to the AUTO position.

E. Procedure

SUBTASK 27-02-01-710-001

(1) Monitor page 3 of the maintenance pages for the flight controls, on the multi-functional display (MFD) (TASK 31-61-00-800-804).

(a) Make sure the four PFC DISCONNECT SWITCH indications (one for each ACE) show AUTO.

(b) Set the PRIMARY FLIGHT COMPUTERS DISC switch located on the overhead panel, P5, to the DISC position.

(c) Make sure the DISC light adjacent to the switch comes on.

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(d) Make sure the four PFC DISCONNECT SWITCH indications show DISC.

NOTE: The message PRIMARY FLIGHT COMPUTERS will show on the EICAS display. This message will go away when you put the PRIMARY FLIGHT COMPUTERS DISC switch back in the AUTO position.

(e) Set the PRIMARY FLIGHT COMPUTERS DISC switch located on the overhead panel, P5, to the AUTO position.

(f) Make sure the DISC light adjacent to the switch goes out.

(g) Make sure the four ACE MODE indications show NORM.

——— END OF TASK ———

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ACTUATOR CONTROL ELECTRONICS (ACE) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the actuator control electronics (ACE)

(2) An installation of the actuator control electronics (ACE).

TASK 27-02-02-000-801

2. Actuator Control Electronics (ACE) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-41-01-000-803	ESDS Handling for Metal Encased Unit Removal (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
52-34-00-860-801	Open the Door Electrically with the External Cargo Door Control Switch (P/B 201)

B. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
122	Forward Cargo Compartment, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Actuator Control Electronics (ACE) Removal

SUBTASK 27-02-02-010-001

(1) To remove the ACE-L1, ACE-L2, or ACE-C:

Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-02-02-010-002

(2) To remove the ACE-R, open the forward cargo door (TASK 52-34-00-860-801).

SUBTASK 27-02-02-860-015

WARNING

MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACES CAN MOVE DURING THIS PROCEDURE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure hydraulic power is removed from the hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-02-02-860-016

(4) To remove the ACE-L1:

NOTE: The ACE-L1 is found in the E1-5 rack.

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Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

SUBTASK 27-02-02-860-017

(5) To remove the ACE-L2:

NOTE: The ACE-L2 is found in the E1-1 rack.

Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

SUBTASK 27-02-02-860-018

(6) To remove the ACE-C:

NOTE: The ACE-C is found in the E2-5 rack.

Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

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SUBTASK 27-02-02-860-019

(7) To remove the ACE-R:

NOTE: The ACE-R is found in the E5-2 rack. The E5 rack is immediately aft of the forward cargo door.

Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-02-02-480-002

CAUTION

DO NOT TOUCH THE ACE BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ACE.

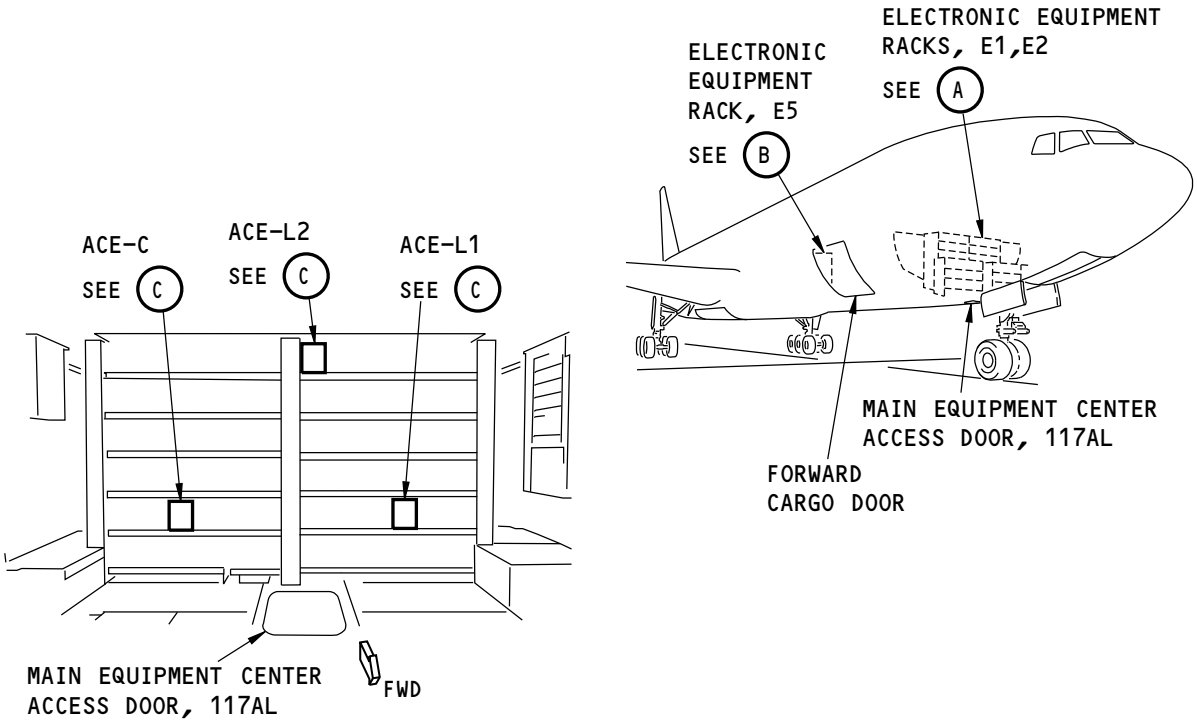
(8) Before you touch the ACE [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-41-01-000-803.

SUBTASK 27-02-02-020-001

(9) Remove the ACE [1] from the rack.

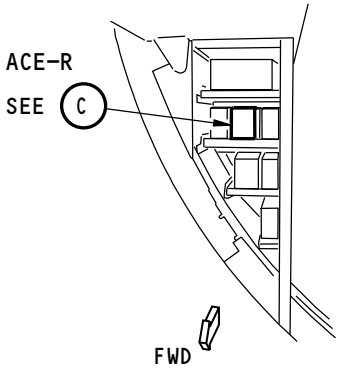
END OF TASK

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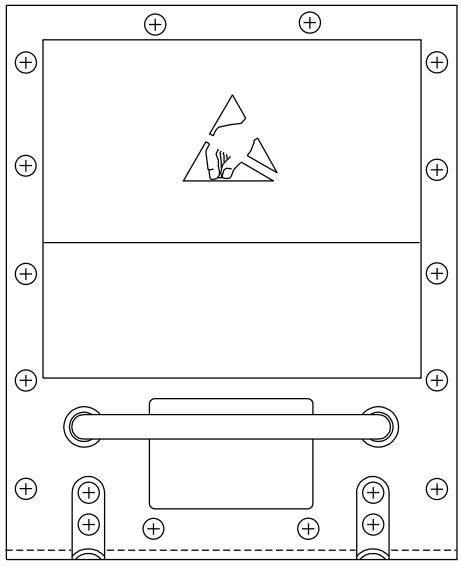
ELECTRONIC EQUIPMENT RACKS, E1,E2

A



ELECTRONIC EQUIPMENT RACK, E5
(VIEW IN THE AFT DIRECTION)

B



[1] ACTUATOR CONTROL ELECTRONICS
(4 LOCATIONS)

C

E25645 S0006412472_V1

Actuator Control Electronics (ACE) Installation
Figure 401/27-02-02-990-801

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TASK 27-02-02-400-803

3. Actuator Control Electronics (ACE) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-41-01-400-803	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ACE	27-02-02-01-005	ARO ALL
		27-02-02-05-009	ARO 001-010

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
122	Forward Cargo Compartment, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Actuator Control Electronics (ACE) Installation

SUBTASK 27-02-02-480-003

CAUTION

DO NOT TOUCH THE ACE BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ACE.

(1) Before you touch the ACE [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-41-01-400-803.

SUBTASK 27-02-02-420-002

(2) Install the ACE [1] in the rack.

NOTE: All four ACEs must have the same part number (S251W620-103).

SUBTASK 27-02-02-860-020

WARNING

MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACES CAN MOVE DURING THIS PROCEDURE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure hydraulic power is removed from the hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-02-02-860-021

(4) If the ACE-L1 was installed:

NOTE: The ACE-L1 is found in the E1-5 rack.

NOTE: Close the PFC circuit breakers last.

Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

SUBTASK 27-02-02-860-022

(5) If the ACE-L2 was installed:

NOTE: The ACE-L2 is found in the E1-1 rack.

Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

SUBTASK 27-02-02-860-023

(6) If the ACE-C was installed:

NOTE: The ACE-C is found in the E2-5 rack.

NOTE: Close the PFC circuit breakers last.

Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU

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(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

SUBTASK 27-02-02-860-024

(7) If the ACE-R was installed:

NOTE: The ACE-R is found in the E5-2 rack. The E5 rack is immediately aft of the forward cargo door.

NOTE: Close the PFC circuit breakers last.

Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

F. Actuator Control Electronics (ACE) Installation Test

NOTE: This test makes sure the ACE operates correctly. This test will also unlatch any faults in the primary flight computer caused by the ACE.

A maintenance access terminal is necessary for this procedure.

SUBTASK 27-02-02-860-025

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-02-710-001

(2) Use a maintenance access terminal (MAT) to do the LRU replacement test of the applicable ACE (left 1, left 2, center, or right). For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System

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5) LRU REPLACEMENT TEST

6) Actuator Control Electronics (L1, L2, C, R) Replacement

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-02-02-410-001

(3) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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ACTUATOR CONTROL ELECTRONICS (ACE) - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Actuator Control Electronics (ACE) Monitor Test

(a) Use this test to make sure the fault detection functions (safety monitors) of the ACEs operate correctly.

(2) Actuator Control Electronic (ACE) Monitor Test - using A629 bus analyzer, COM-12058.

(a) Use this test concurrently with ACE Monitor Test to produce a data file that can be analyzed for the root cause of a test failure.

(3) ACE to FSEU Connection Test

(a) Use this test to make sure the actuator control electronics (ACEs) are connected to the flap/slat electronic units (FSEUs) correctly. The FSEUs transmit a flaps retracted or a flaps extended signal directly to the ACEs.

27-CMR-02

TASK 27-02-02-400-801

2. Actuator Control Electronics (ACE) Monitor Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the fault detection functions (safety monitors) of the ACEs operate correctly.

NOTE: If you perform this test, the AILERON ACTUATOR, FLAPERON ACTUATOR, SPOILER ACTUATOR status messages will be changed to No Dispatch “FLT CONTROL SYS” status message. If you want to dispatch the airplane per the MMEL/DDG per AILERON ACTUATOR, FLAPERON ACTUATOR, SPOILER ACTUATOR status messages, do not perform this test.

(2) Do this procedure only when specified by a Fault Isolation procedure or scheduled maintenance task.

(3) If the ACE monitor test fails, a FLIGHT CONTROL SYS EICAS status message will show. You must clear this message in order to dispatch the aircraft.

(4) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

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D. Prepare for the Test

SUBTASK 27-02-02-860-026

(1) Make sure that hydraulic systems are not pressurized. Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-02-02-860-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-02-860-012

(3) If the speedbrake lever is not in the DOWN position, then set it to the DOWN position.

SUBTASK 27-02-02-860-027

(4) Make sure that Aileron Trim is in the neutral position.

SUBTASK 27-02-02-860-013

(5) Push the RUDDER MANUAL TRIM CANCEL switch, on the aisle stand.

E. Procedure

SUBTASK 27-02-02-740-001

(1) Use a MAT to do the system test of the actuation control electronics (ACEs) (TASK 45-10-00-740-819):

NOTE: All hydraulic power must be off for this test.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Actuator Control Electronics Monitors
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

NOTE: EICAS messages will occur during the test. This is OK.

(c) The MAT will tell you to look at the maintenance page to find the results of the test. This will occur after approximately four minutes. If you need instructions on how to show the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

NOTE: Do not show the maintenance page until the MAT tells you to. If you show the maintenance page too early, it will show the data from the previous time the test ran. The data will not change (update) while the maintenance page is open.

The passed or failed indication on the maintenance page is the correct way to tell if this test passed. If the passed or failed indication that shows on the MAT does not agree with the indication on the maintenance page, ignore the indication on the MAT.

(d) If TEST PASSED shows on the maintenance page, then the test passed. Do these steps on the MAT:

1) Select YES

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2) Select CONTINUE

3) After about two minutes the MAT will complete the test. If the MAT shows TEST: FAILED ignore it, and ignore the maintenance messages that show.

(e) If TEST FAILED shows on the maintenance page, then do these steps on the MAT:

1) Select NO

2) Select CONTINUE

3) After about two minutes the MAT will complete the test. Select the maintenance message and select MAINTENANCE MESSAGE DATA, or refer to the applicable Maintenance Message Index in the FIM.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-02-02-860-002

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-02-02-400-802

3. ACE to FSEU Connection Test

A. General

(1) Use this test to make sure the actuator control electronics (ACEs) are connected to the flap/slat electronic units (FSEUs) correctly. The FSEUs transmit a flaps retracted or a flaps extended signal directly to the ACEs.

(2) In this test the PFCs make the FSEUs transmit a flap retracted signal and a flap extended signal to the ACEs. The PFCs then make sure the ACEs receive the signals from the FSEUs.

(3) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-02-02-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-02-740-002

(2) Use a MAT to do the system test of the ACE to FSEU connection (TASK 45-10-00-740-819):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

4) SYSTEM TEST

5) 27 Primary Flight Control System

6) Flap/Slat Electronics Unit Interface to ACE

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7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

NOTE: To stop the test, select STOP TEST.

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

27-CMR-02

TASK 27-02-02-400-804

4. Actuator Control Electronics (ACE) Monitor Test - using A629 bus analyzer

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The ACE Monitor Test can be performed with or without using A629 bus analyzer, COM-12058.

(2) Use the A629 bus analyzer, COM-12058 to record Flight Controls LRU transmissions during the ACE Monitor Test and produce a data file that can be analyzed for the root cause of the test failure.

(3) Do this procedure only when specified by a Fault Isolation procedure or scheduled maintenance task.

(4) If the ACE monitor test fails, a FLIGHT CONTROL SYS EICAS status message will show. You must clear this message in order to dispatch the aircraft.

(5) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-12058	Bus Analyzer - ARINC 629 Part #: MAX-629-2-BA Supplier: L0835 Opt Part #: MAX-MAXBOX-2629 Supplier: L0835

D. Location Zones

Zone	Area
212	Flight Compartment, Right

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E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Prepare for the Test

SUBTASK 27-02-02-860-028

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 27-02-02-860-029

(2) Make sure the speedbrake lever is in the DOWN position.

(a) If necessary, set the speedbrake lever to the DOWN position.

SUBTASK 27-02-02-860-030

(3) Make sure the Aileron Trim is in the neutral position.

SUBTASK 27-02-02-860-031

(4) Push the RUDDER MANUAL TRIM CANCEL switch, on the aisle stand.

SUBTASK 27-02-02-860-036

(5) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

G. Procedure

SUBTASK 27-02-02-740-004

(1) Do these steps to connect A629 bus analyzer, COM-12058:

(a) If you will test the Left Flight Control Bus, do these steps:

1) Remove the cover to the P112 panel.

2) Disconnect the stub cable from coupler B22101, FC-L, location C-6 (AFDC-L BUS-L)

(b) If you will test the Right Flight Control Bus, do these steps:

1) Remove the cover to the P212 panel.

2) Disconnect the stub cable from coupler B22102, FC-R, location B-5 (AFDC-L BUS-R)

(c) If you will test the Center Flight Control Bus, do these steps:

1) Remove the cover to the P312 panel.

2) Disconnect the stub cable from coupler B22103, FC-C, location B-2 (AFDC-L BUS-C)

(d) Connect the A629 bus analyzer, COM-12058 to the applicable coupler: B22101 (Left), B22102 (Right), or B22103 (Center).

SUBTASK 27-02-02-740-003

(2) Use the MAT to do the system test of the actuation control electronics (ACEs) How to Do a Ground Test, TASK 45-10-00-740-819

NOTE: All hydraulic power must be off for this test.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

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4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Actuator Control Electronics Monitors
7) CONTINUE

(b) Press “Start” on the MAXIM Monitor session to begin recording data.
1) Record the following ARINC 629 labels:
500 PFC 5 MS CONTINUOUS CMDS
503 PFC-ACE CONTROL CMDS
504 10 MS DISCRETE CMDS
506 PFC ACE TEST WORDS
5D1 5D1 CROSS CHANNEL DATA
E4A PFC FAULT REPORT MESSAGE 8
600 PILOT CONTROLLER POSITIONS
605 DELTA-P/FEEL/RUD TRIM
620 MISC 10 MS WORDS
625 PILOT CONTROLLER STATUS
630 SURFACE PCU STATUS
635 SPOILER PCU STATUS
650 STATUS
660 POWER AND DIGITAL MON

(c) Do the instructions that show on the MAT and then make these selections:
1) CONTINUE
2) START TEST

(d) After the test complete, press “Stop” on the MAXIM Monitor Session to stop recording data.

(e) The MAXIM software will prompt, you can save the data.
1) Use “Manual naming” under the “ONE FILE PER CHANNEL” to save the data.

(f) Use the MAXIM software to export the saved data to a text file.
1) Use the “Merged” and “Delimited (Tab)” options.
2) The text file can now be analyzed for the root cause of a test failure.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-02-02-020-006

(1) Disconnect A629 bus analyzer, COM-12058 from the applicable coupler.

SUBTASK 27-02-02-860-037

(2) Re-connect the stub cable to the same connector that you disconnected it from.

SUBTASK 27-02-02-840-001

(3) Install the cover on the applicable panels: P112, P212, or P312.

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SUBTASK 27-02-02-840-002

(4) Close this access panel:

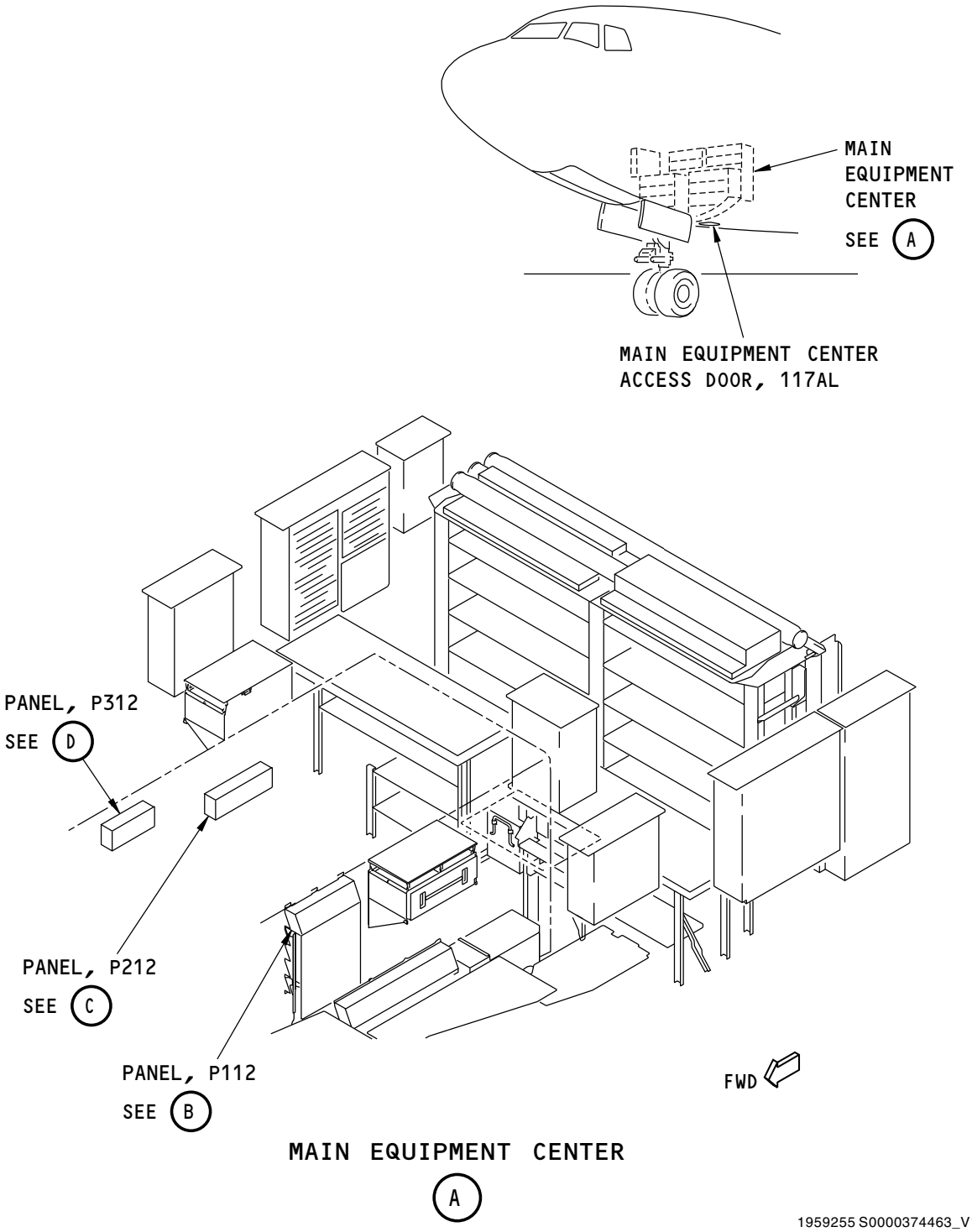
Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-02-02-840-003

(5) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-806

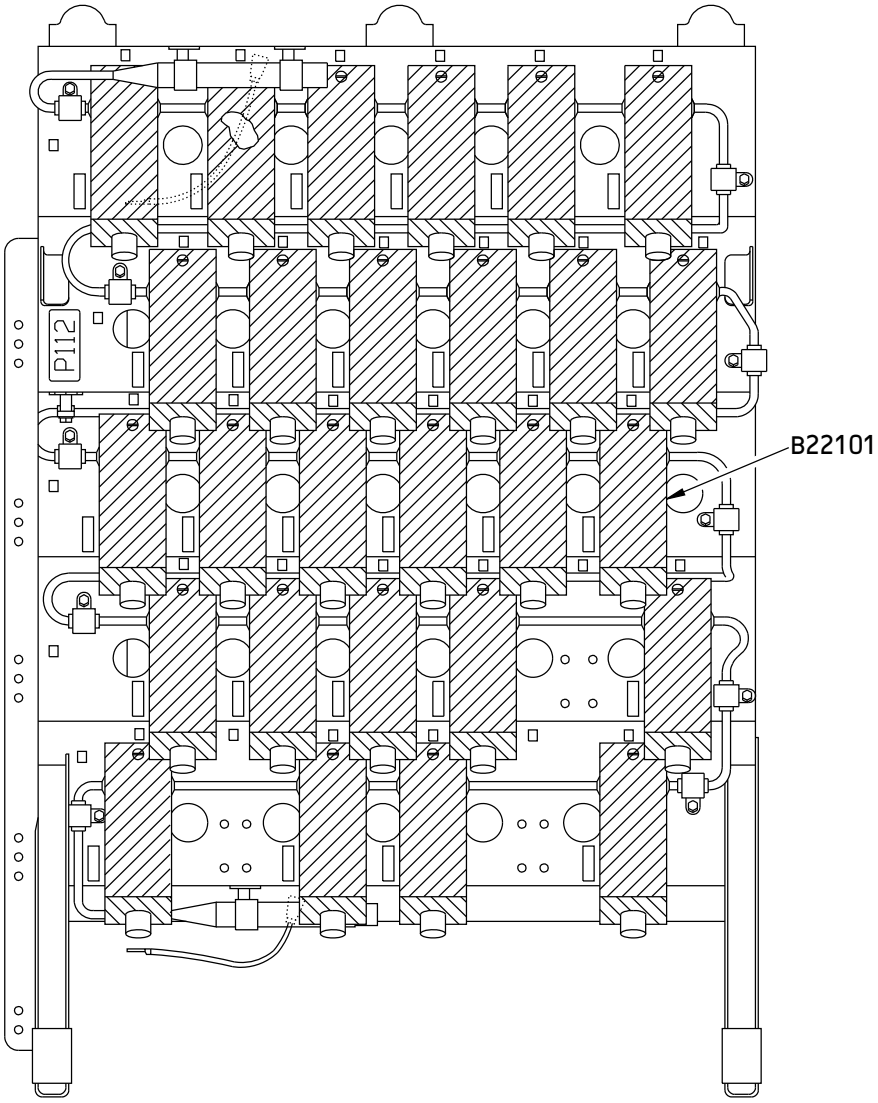
——— END OF TASK ———

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Actuator Control Electronics (ACE) Monitor Test - using A629 bus analyzer
Figure 501/27-02-02-990-802 (Sheet 1 of 4)

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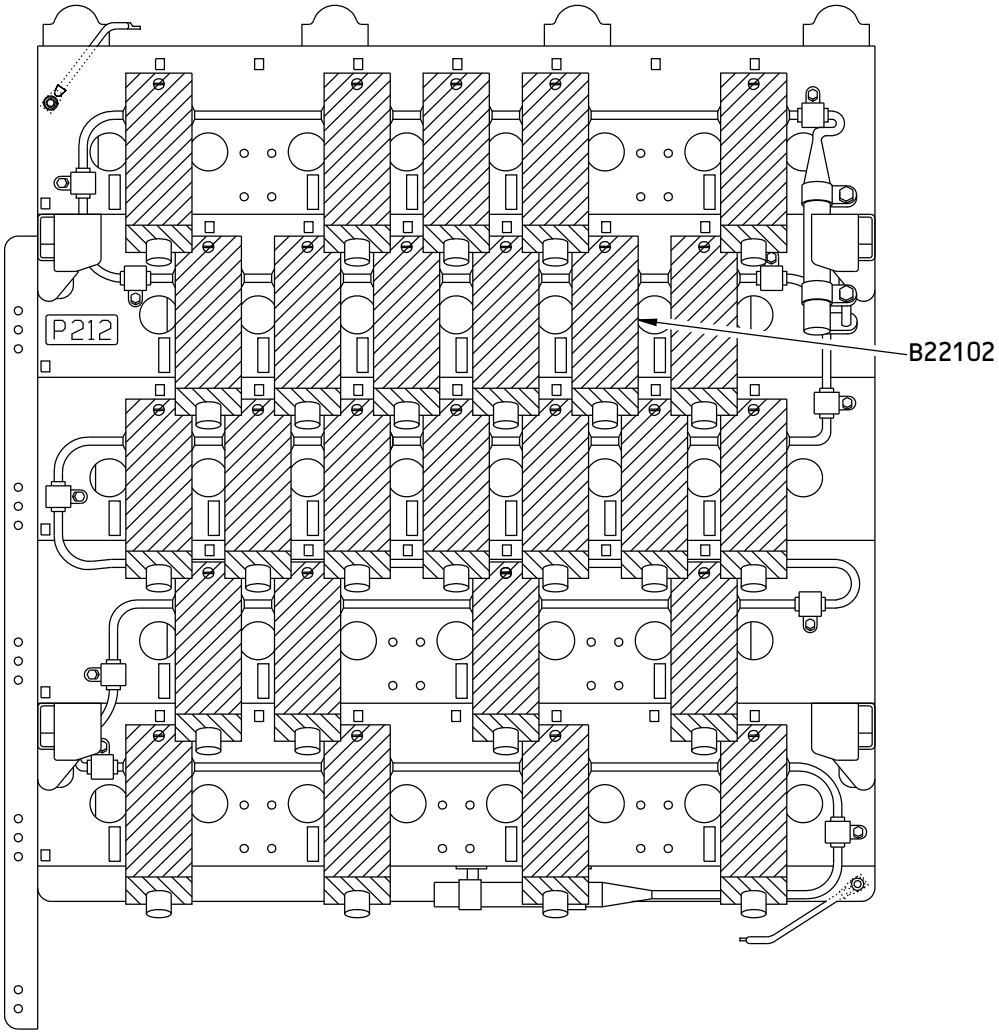
PANEL, P112

B

1959279 S0000374469_V1

Actuator Control Electronics (ACE) Monitor Test - using A629 bus analyzer
Figure 501/27-02-02-990-802 (Sheet 2 of 4)

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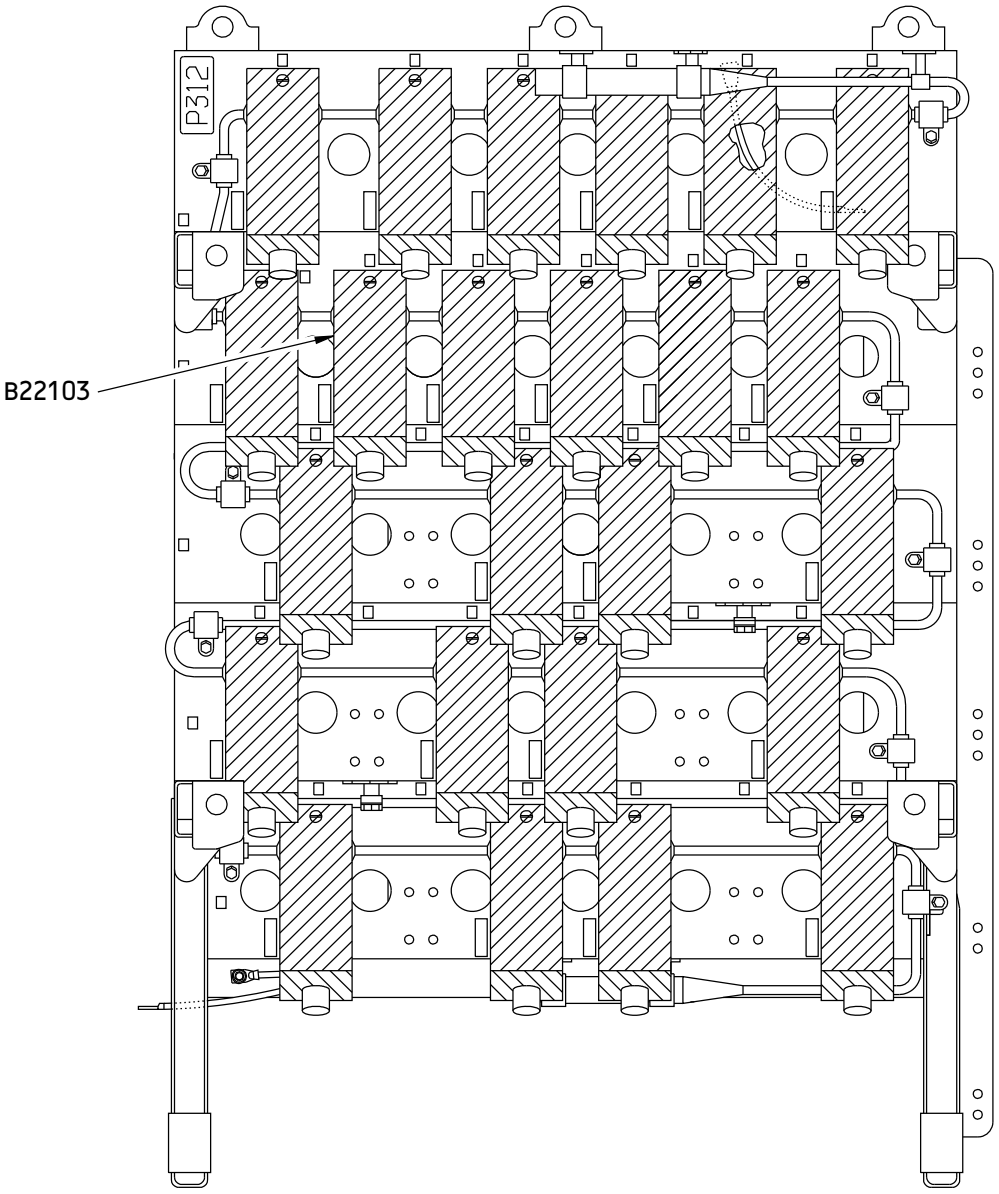
PANEL, P212

C

1959288 S0000375564_V1

Actuator Control Electronics (ACE) Monitor Test - using A629 bus analyzer
Figure 501/27-02-02-990-802 (Sheet 3 of 4)

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PANEL, P312

D

1959307 S0000375569_V1

Actuator Control Electronics (ACE) Monitor Test - using A629 bus analyzer
Figure 501/27-02-02-990-802 (Sheet 4 of 4)

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PRIMARY FLIGHT COMPUTERS/ADIRU MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the primary flight computers/ADIRU module

(2) An installation of the primary flight computers/ADIRU module

(3) An operational test of the primary flight computers/ADIRU module.

B. The primary flight computers/ADIRU module is referred to as the "module" in this procedure.

C. The module is installed in the P5 overhead panel.

TASK 27-02-03-000-801

2. Primary Flight Computers/ADIRU Module Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Procedure

SUBTASK 27-02-03-860-001

(1) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

Row	Col	Number	Name
L	5	C34453	GND SVCE RLY CTRL

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR
N	25	C33605	MD & T CHANNEL 1

Standby Power Management Panel, P310

Row	Col	Number	Name
F	4	C33611	MD & T CHANNEL 4
J	3	C23626	GND CREW HORN

(a) On the left power supply assembly (PSA-L) on the E1-6 shelf:

1) A1, ACE-L1 PWR

(b) On the center power supply assembly (PSA-C) on the E2-6 shelf:

1) A1, ACE-C PWR

(c) On the right power supply assembly (PSA-R) on the E5-1 shelf:

1) A1, ACE-R PWR

SUBTASK 27-02-03-020-001

(2) Remove the module [1]:

(a) Loosen the quarter-turn fasteners [2] on the module [1].

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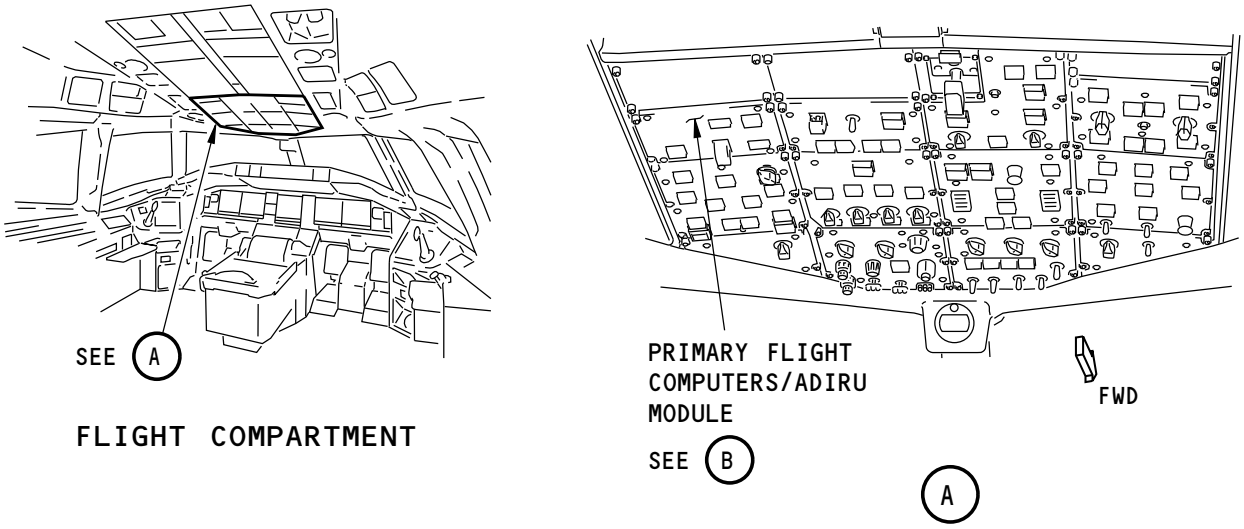
(b) Pull the module [1] from the P5 overhead panel.

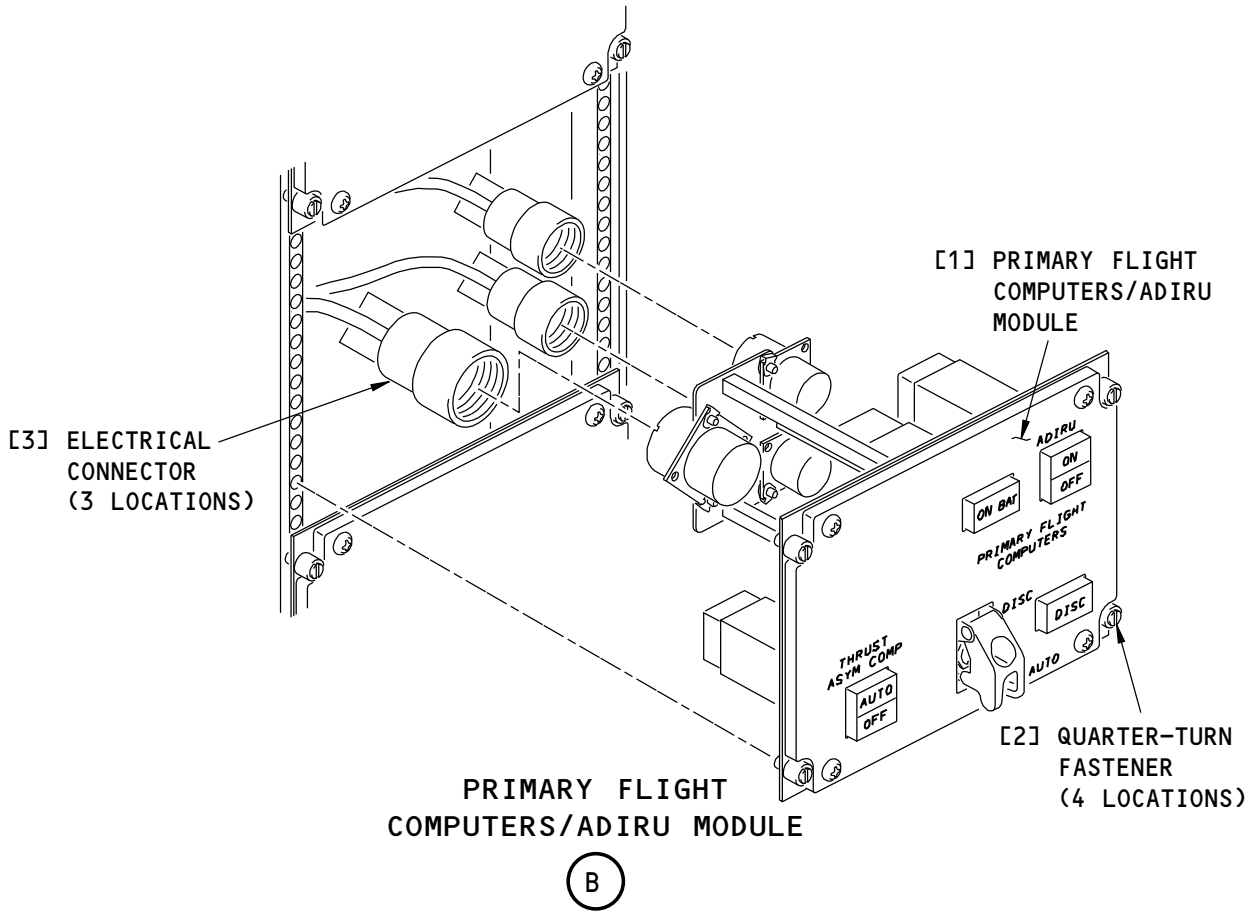
(c) Disconnect the three electrical connectors [3] from the module [1].

(d) Remove the module [1] from the airplane.

——— END OF TASK ———

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Primary Flight Computers/ADIRU Module Installation
Figure 401/27-02-03-990-801

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TASK 27-02-03-400-801

3. Primary Flight Computers/ADIRU Module Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Procedure

SUBTASK 27-02-03-020-002

(1) Install the module [1]:

(a) Connect the three electrical connectors [3] to the module [1].

(b) Put the module [1] in its position.

(c) Tighten the quarter-turn fasteners [2] on the module [1].

SUBTASK 27-02-03-860-002

(2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

Row	Col	Number	Name
L	5	C34453	GND SVCE RLY CTRL

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR
N	25	C33605	MD & T CHANNEL 1

Standby Power Management Panel, P310

Row	Col	Number	Name
F	4	C33611	MD & T CHANNEL 4
J	3	C23626	GND CREW HORN

(a) On the left power supply assembly (PSA-L) on the E1-6 shelf:

1) A1, ACE-L1 PWR

(b) On the center power supply assembly (PSA-C) on the E2-6 shelf:

1) A1, ACE-C PWR

(c) On the right power supply assembly (PSA-R) on the E5-1 shelf:

1) A1, ACE-R PWR

——— END OF TASK ———

TASK 27-02-03-700-801

4. Primary Flight Computers/ADIRU Module Operational Test

A. General

(1) Use this procedure to make sure the PRIMARY FLIGHT COMPUTERS DISC, THRUST ASYM COMP, and ADIRU switches operate correctly.

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B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
34-21-00-820-801	Air Data Inertial Reference Unit - Alignment (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-02-03-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-03-710-001

(2) Do a test of the module:

(a) Set the PRIMARY FLIGHT COMPUTERS DISC switch located on the overhead panel, P5, to the AUTO position.

(b) Monitor page 3 of the maintenance pages for the flight controls, on the multi-functional display (MFD) (TASK 31-61-00-800-804).

1) Make sure the four PFC DISCONNECT SWITCH indications (one for each ACE) show AUTO.

2) Set the PRIMARY FLIGHT COMPUTERS DISC switch located on the overhead panel, P5, to the DISC position.

3) Make sure the DISC light adjacent to the switch comes on.

4) Make sure the four PFC DISCONNECT SWITCH indications show DISC.

NOTE: The message PRIMARY FLIGHT COMPUTERS will show on the EICAS display. This message will go away when you put the PRIMARY FLIGHT COMPUTERS DISC switch back in the AUTO position.

5) Set the PRIMARY FLIGHT COMPUTERS DISC switch located on the overhead panel, P5, to the AUTO position.

6) Make sure the DISC light adjacent to the switch goes out.

7) Make sure the four ACE MODE indications show NORM.

(c) Make sure the THRUST ASYM COMP switch located on the overhead, P5, is not illuminated and shows AUTO.

1) If the THRUST ASYM COMP switch is not in the AUTO position, push and release the THRUST ASYM COMP switch.

(d) Push and release the THRUST ASYM COMP switch one time.

(e) Make sure the THRUST ASYM COMP switch indicator shows OFF.

(f) Push and release the THRUST ASYM COMP switch one time.

(g) Make sure the THRUST ASYM COMP switch indicator is not illuminated and shows AUTO.

(h) To test the ADIRU switch, do this task: Air Data Inertial Reference Unit - Alignment, TASK 34-21-00-820-801.

END OF TASK

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PRIMARY FLIGHT CONTROL CABLES - MAINTENANCE PRACTICES

1. General

A. The flight controls have two primary groups of control cables:

(1) Control cables for the spoilers

(2) Control cables for the horizontal stabilizers.

B. This procedure does not tell you how to remove or install the control cables for the flight controls. Refer to (TASK 20-10-03-000-801) which supplies the instructions to remove and install the control cables.

C. This procedure does not tell you how to adjust the control cables for the flight controls. Aileron and Flaperon Control, (TASK 27-11-00-700-802), gives the instructions to adjust the control cables that go from the control wheels to the aileron feel and centering mechanism (in the area outboard and above the nose landing gear wheel well). Spoiler and Speedbrake Control, (TASK 27-61-00-820-801), gives the instructions to adjust the control cables that go from here to spoilers 4 and 11. Horizontal Stabilizer Control, (TASK 27-41-00-800-801), gives the instructions to adjust the control cables that go from the ALTN PITCH TRIM levers (on the control stand) to the stabilizer trim control modules (STCMs)(the STCMs are in the tail of the airplane). Horizontal Stabilizer Position Indication, (TASK 27-48-00-820-801), gives the instructions to adjust the control cables that go from the stabilizer position modules to the horizontal stabilizer.

TASK 27-02-20-610-802-002

2. Primary Flight Control Cables - Location and Part Data

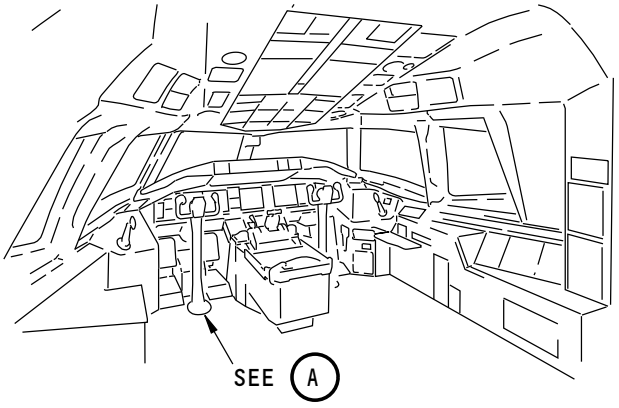
(Figure 201, Figure 202, Figure 203, Figure 204)

A. General

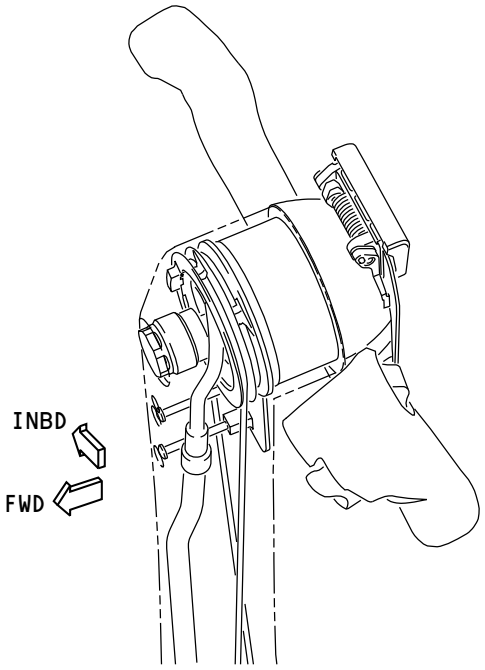
(1) This procedure shows the location of the control cables for the flight controls. This procedure also gives you the data necessary to make the control cables for the flight controls.

——— END OF TASK ———

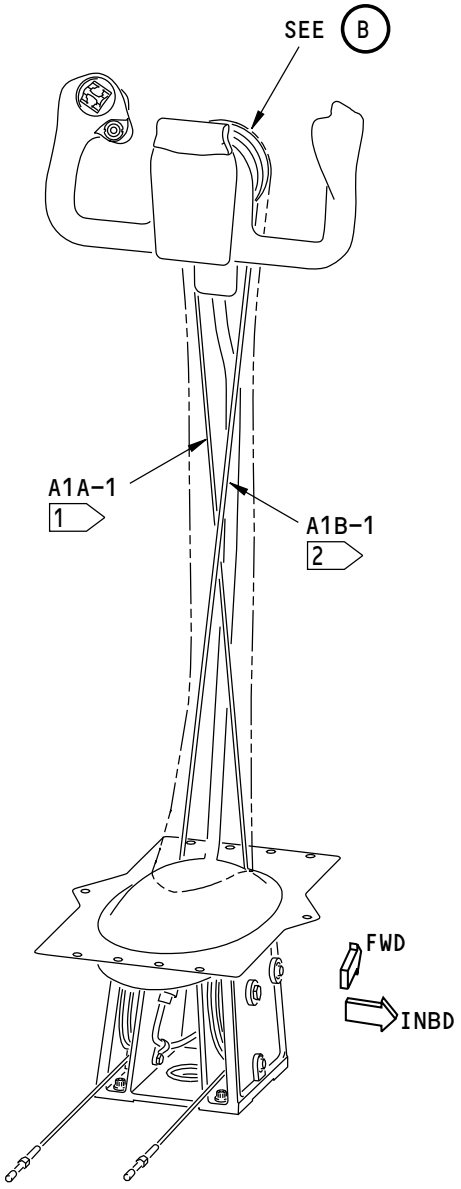
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FLIGHT COMPARTMENT



B



CAPTAIN'S CONTROL COLUMN

A

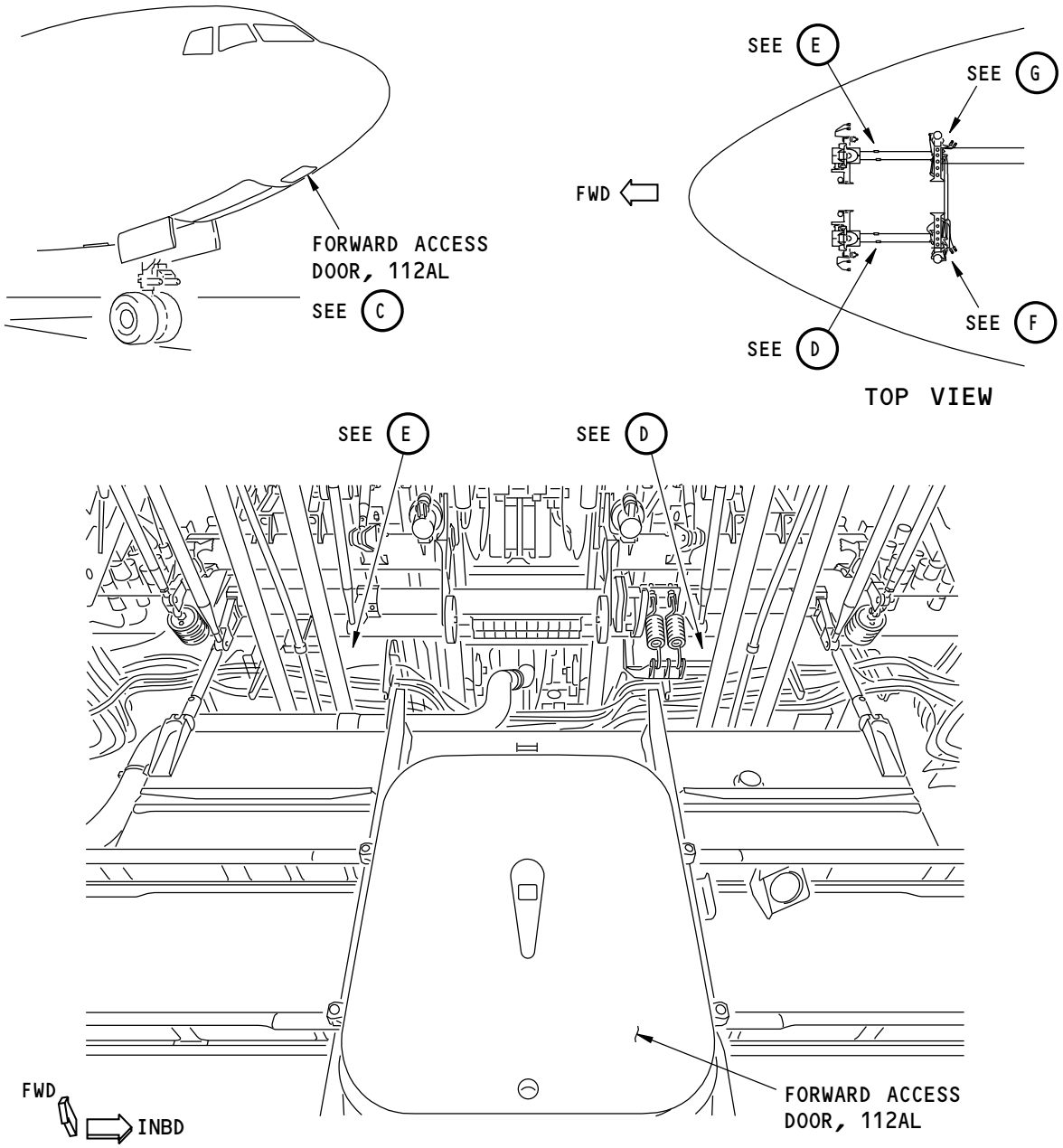
1 A2A-1 ON FIRST OFFICER'S CONTROL COLUMN

2 A2B-1 ON FIRST OFFICER'S CONTROL COLUMN

G57999 S0006412534_V1

Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 1 of 8)

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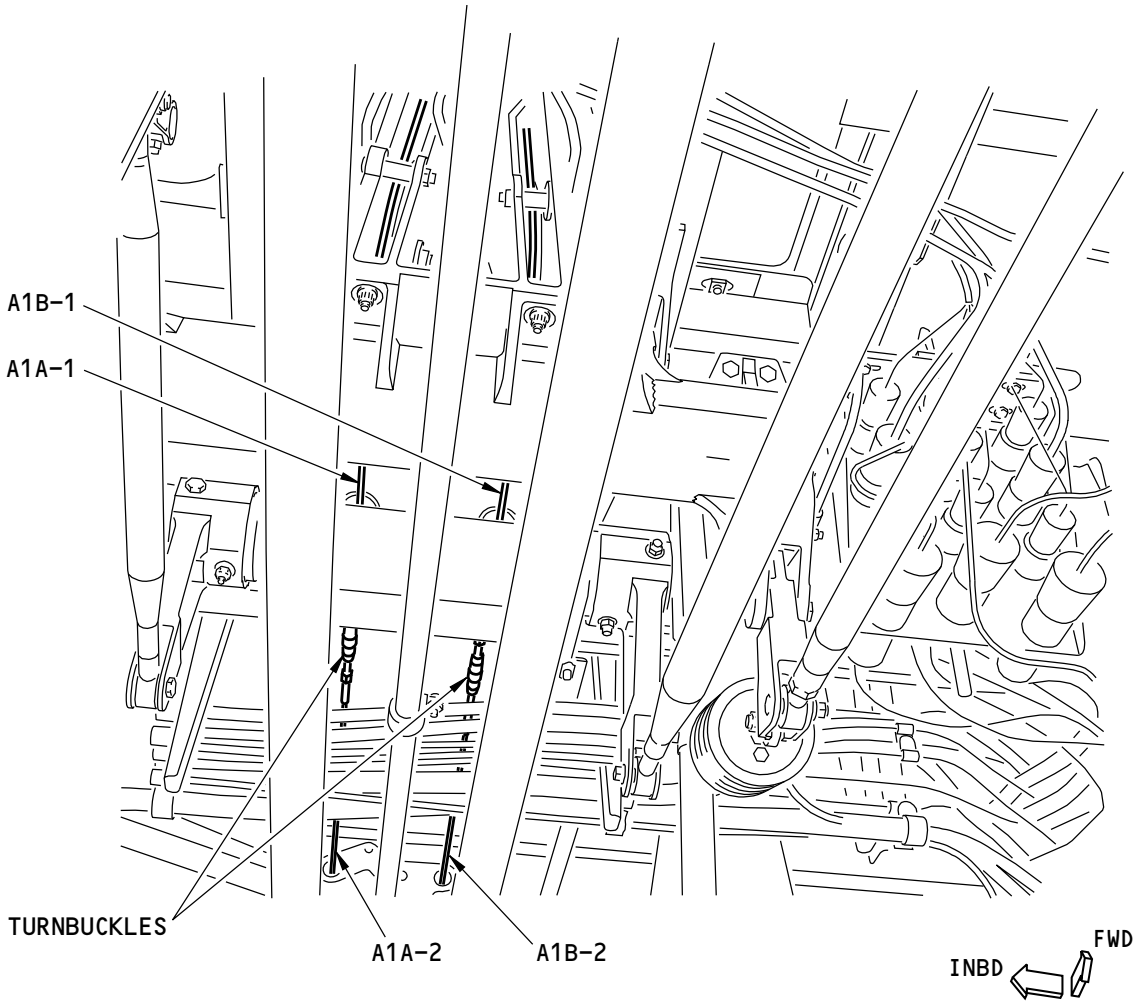
VIEW WHEN YOU LOOK UP AND AFT THROUGH
THE FORWARD BULKHEAD ACCESS DOOR

C

G58000 S0006412535_V1

Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 2 of 8)

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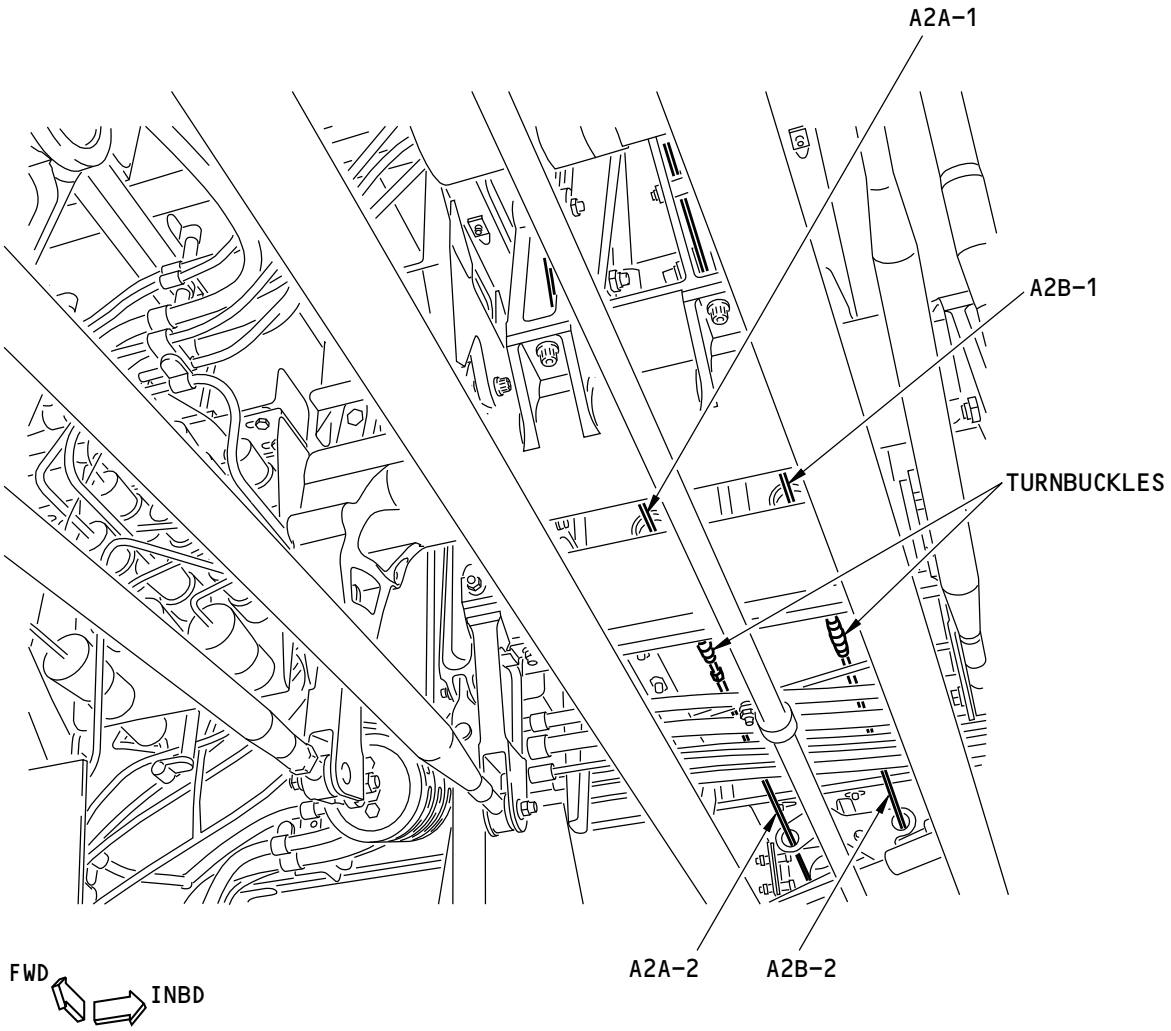
CAPTAIN'S CONTROL COLUMN CABLES

D

G58002 S0006412536_V1

Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 3 of 8)

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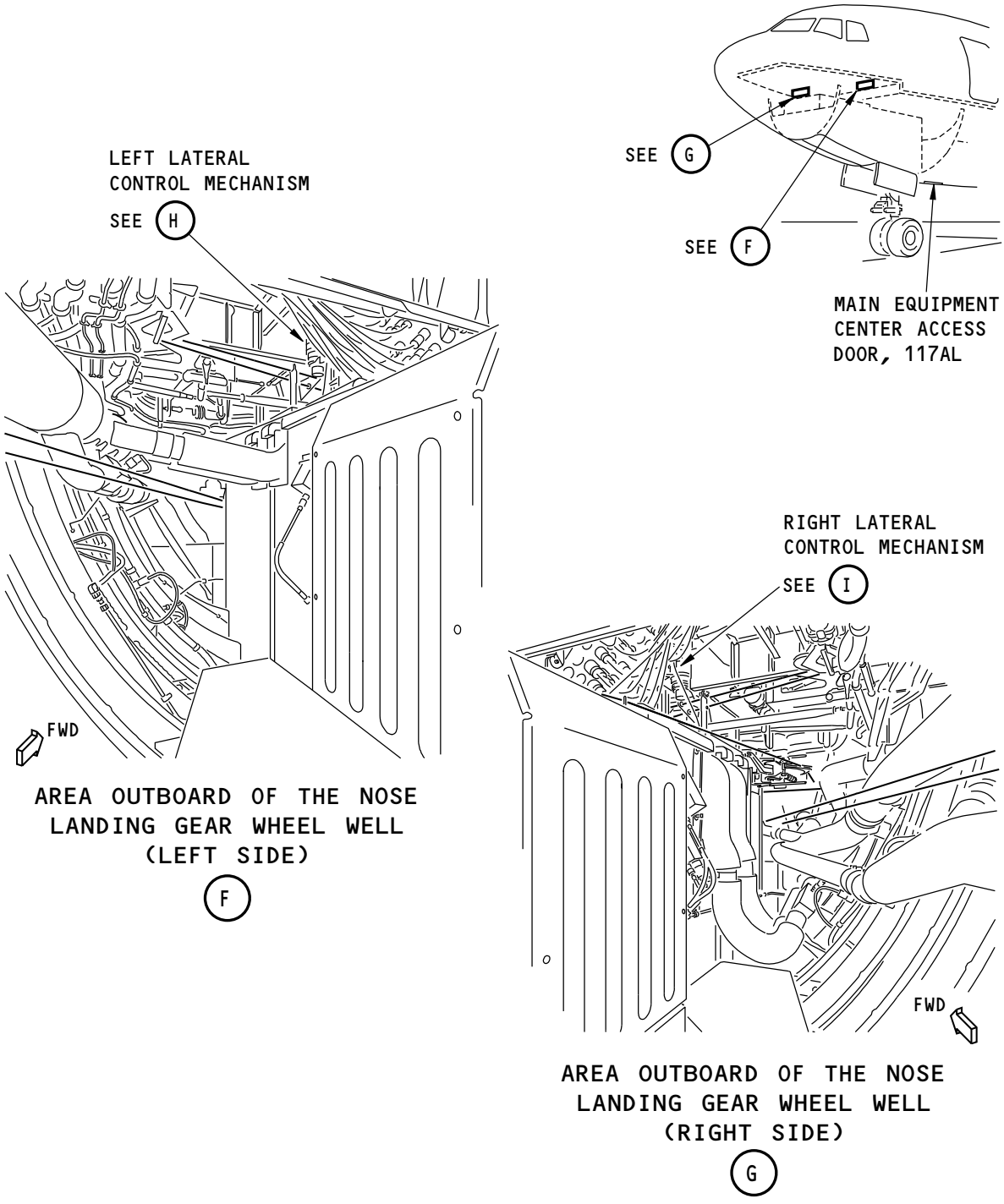
FIRST OFFICER'S CONTROL COLUMN CABLES

E

G58003 S0006412537_V1

Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 4 of 8)

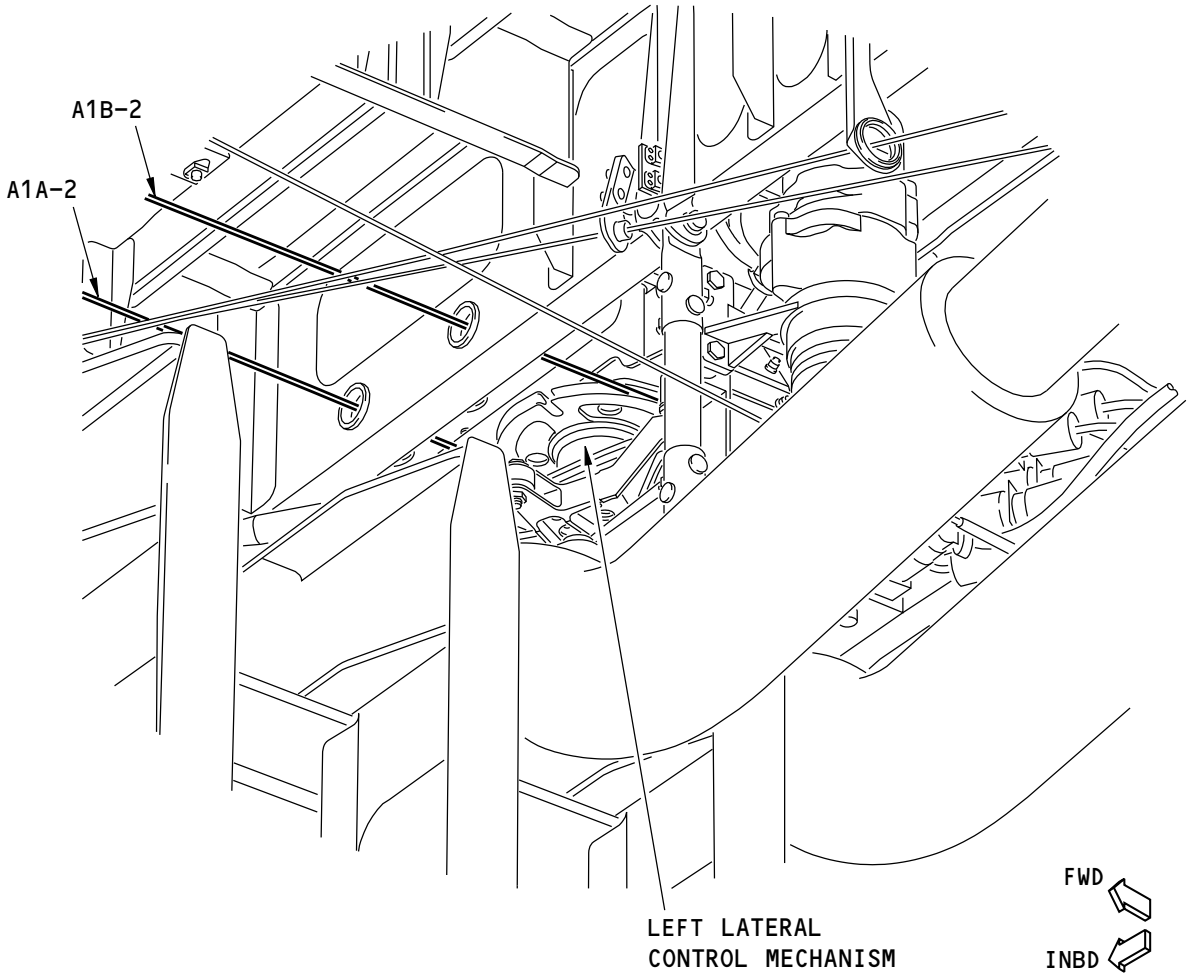
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G58005 S0006412538_V1

Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 5 of 8)

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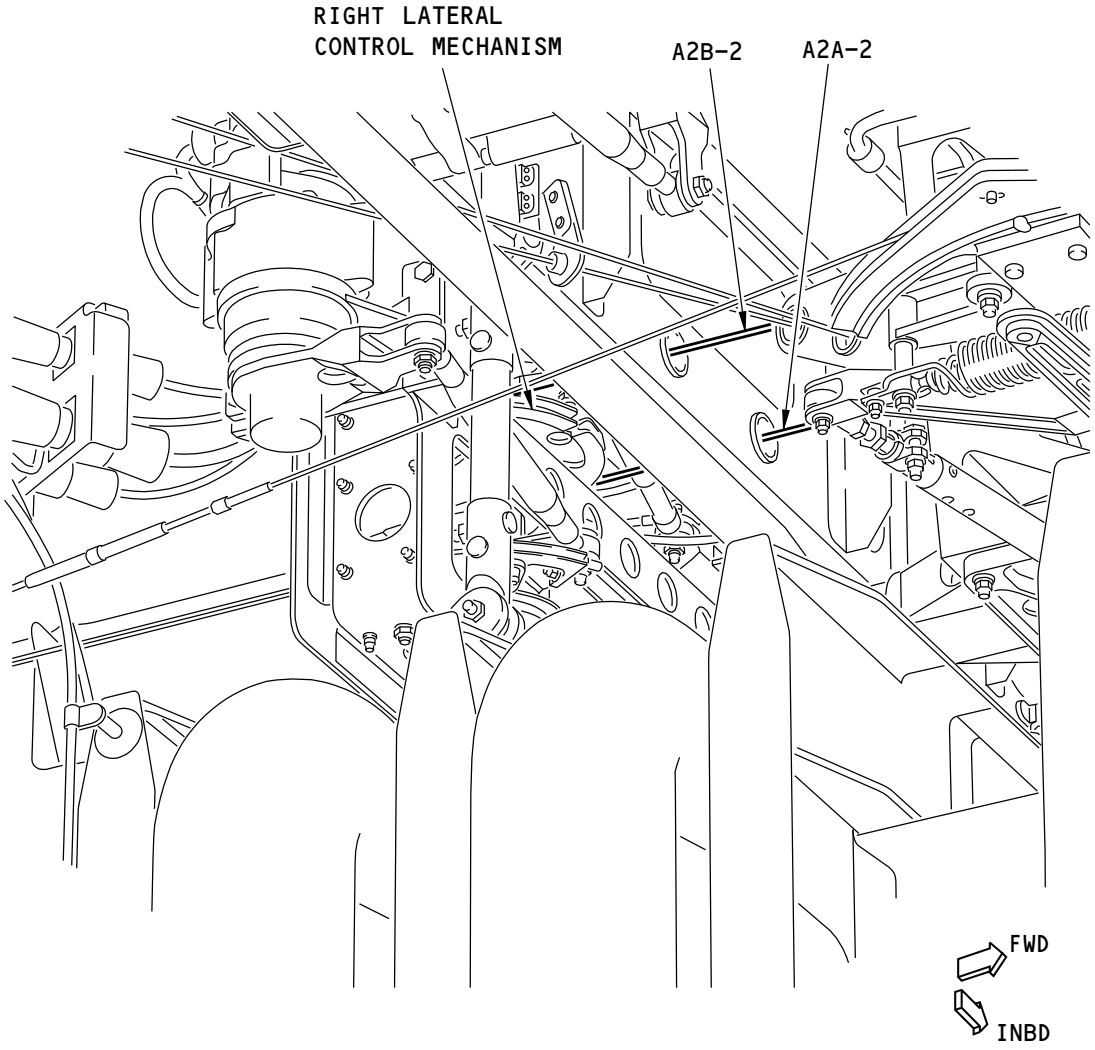
LEFT LATERAL CONTROL MECHANISM

H

G58006 S0006412539_V1

Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 6 of 8)

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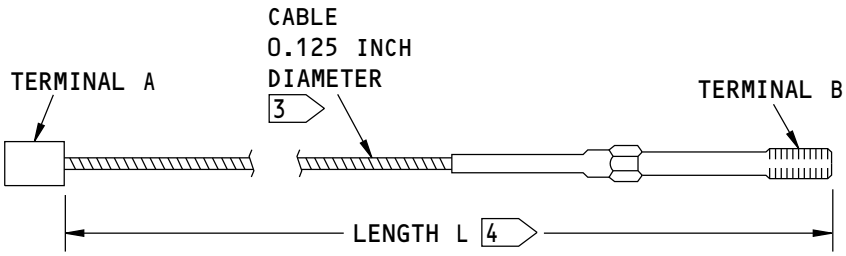
RIGHT LATERAL CONTROL MECHANISM

I

G58007 S0006412540_V1

Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 7 of 8)

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A1A-1, A1A-2, A1B-1, A1B-2, A2A-1, A2A-2, A2B-1, A2B-2

CABLE NAME	LENGTH L* 4	TERMINAL A	TERMINAL B
A1A-1	53.6 ±0.12 (136.14 ±0.3)	BACT14A4	MS21260S4LH
A1A-2	33.6 ±0.12 (85.34 ±0.3)	BACT14A4	MS21260S4RH
A1B-1	55.1 ±0.12 (139.95 ±0.3)	BACT14A4	MS21260S4RH
A1B-2	31.9 ±0.12 (81.03 ±0.3)	BACT14A4	MS21260S4LH
A2A-1	53.6 ±0.12 (136.14 ±0.3)	BACT14A4	MS21260S4LH
A2A-2	33.6 ±0.12 (85.34 ±0.3)	BACT14A4	MS21260S4RH
A2B-1	55.1 ±0.12 (139.95 ±0.3)	BACT14A4	MS21260S4RH
A2B-2	31.9 ±0.12 (81.03 ±0.3)	BACT14A4	MS21260S4LH

TABLE A

* LENGTHS ARE IN INCHES (CENTIMETERS)

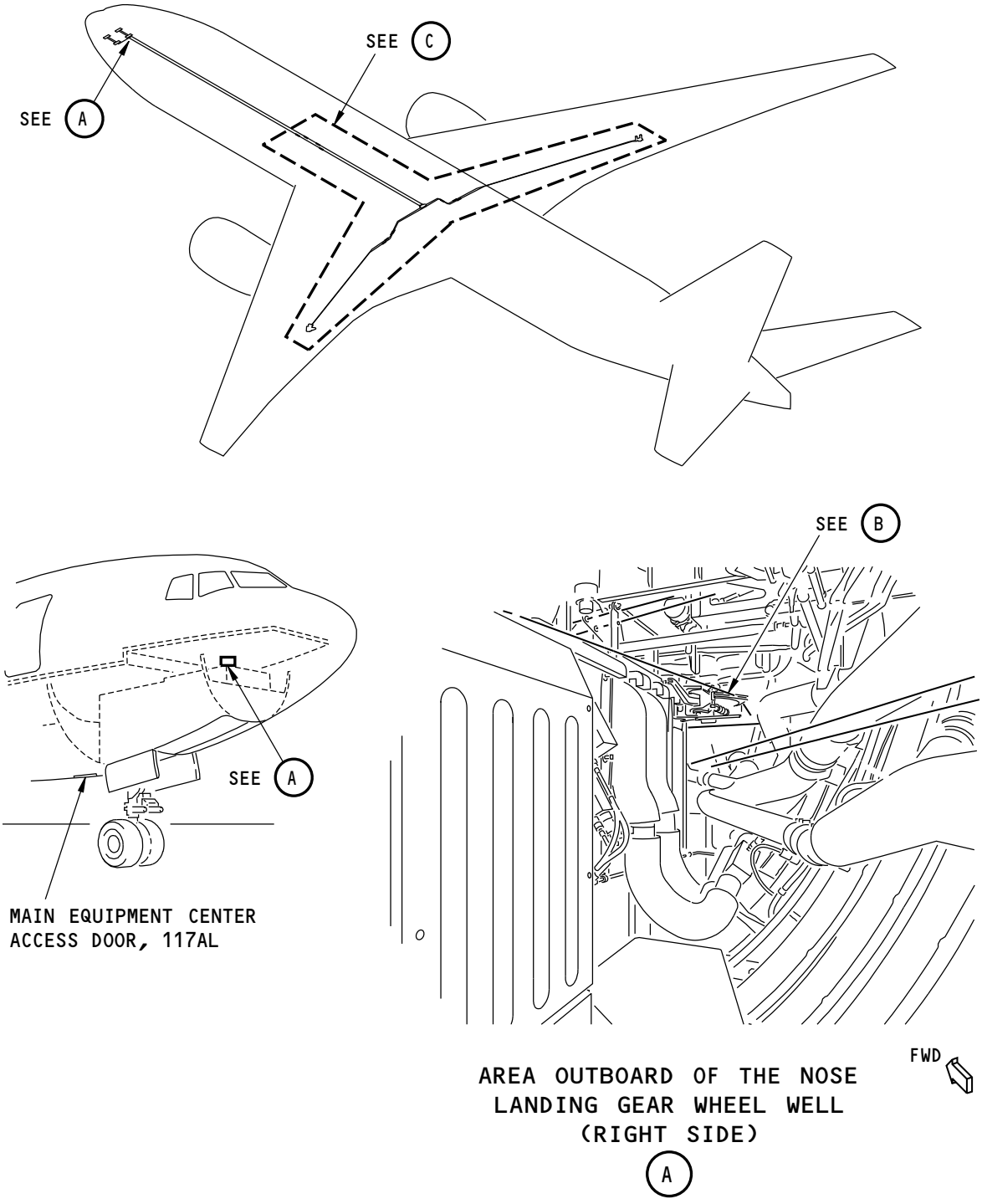
3 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19.

4 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS.

G58008 S0006412541_V1

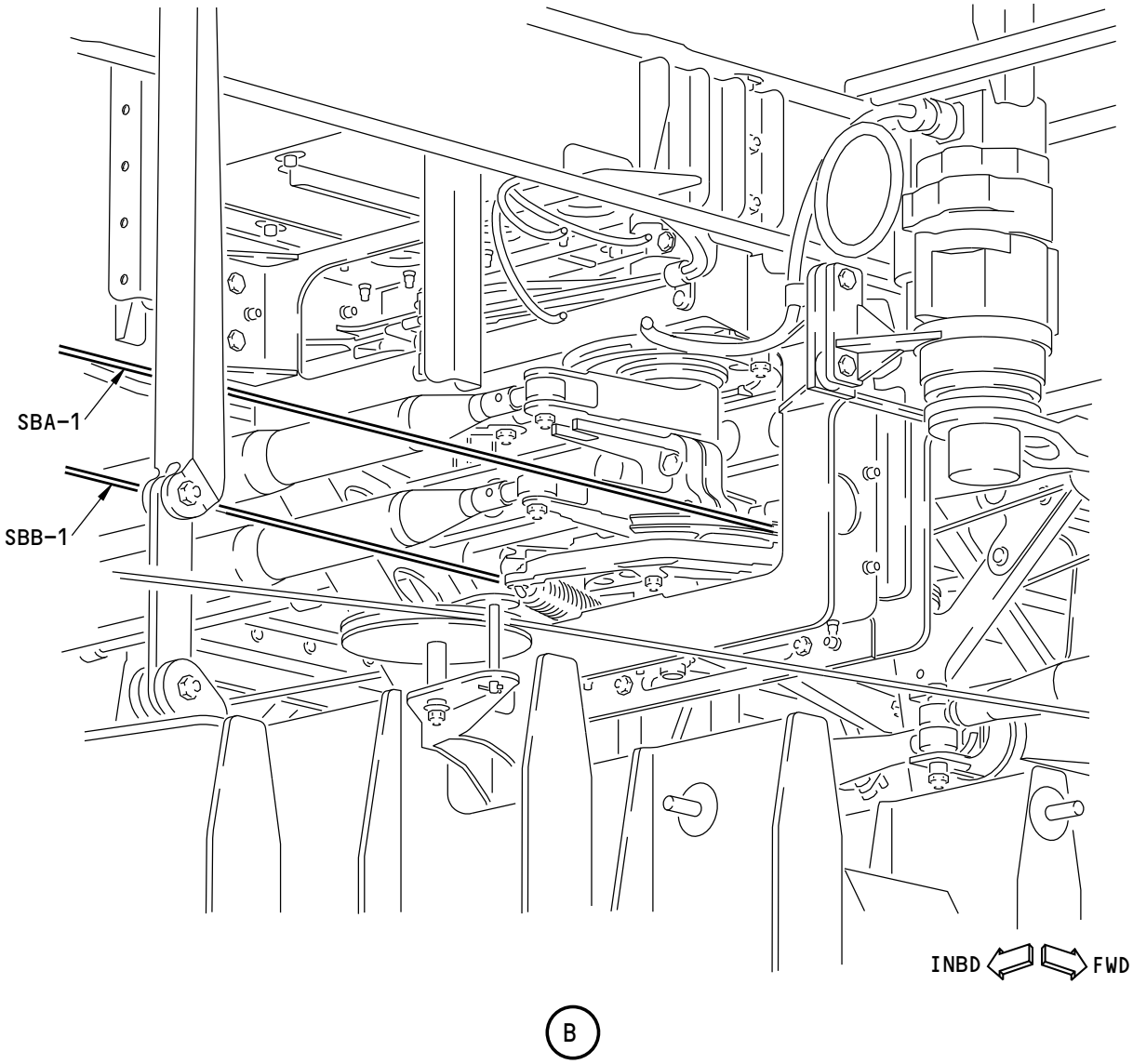
Lateral Flight Control Cables
Figure 201/27-02-20-990-805-002 (Sheet 8 of 8)

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Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 1 of 13)

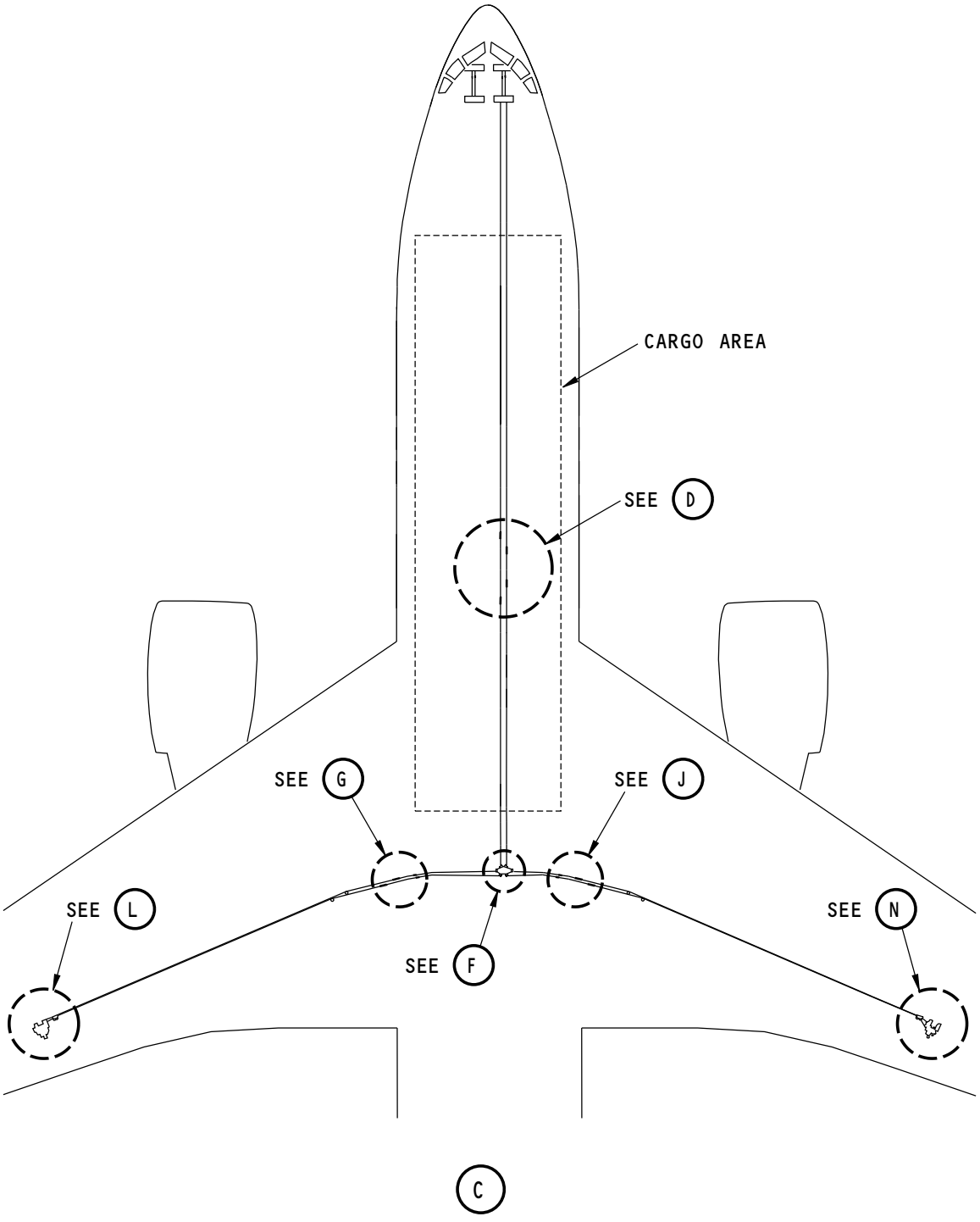
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G58011 S0006412543_V1

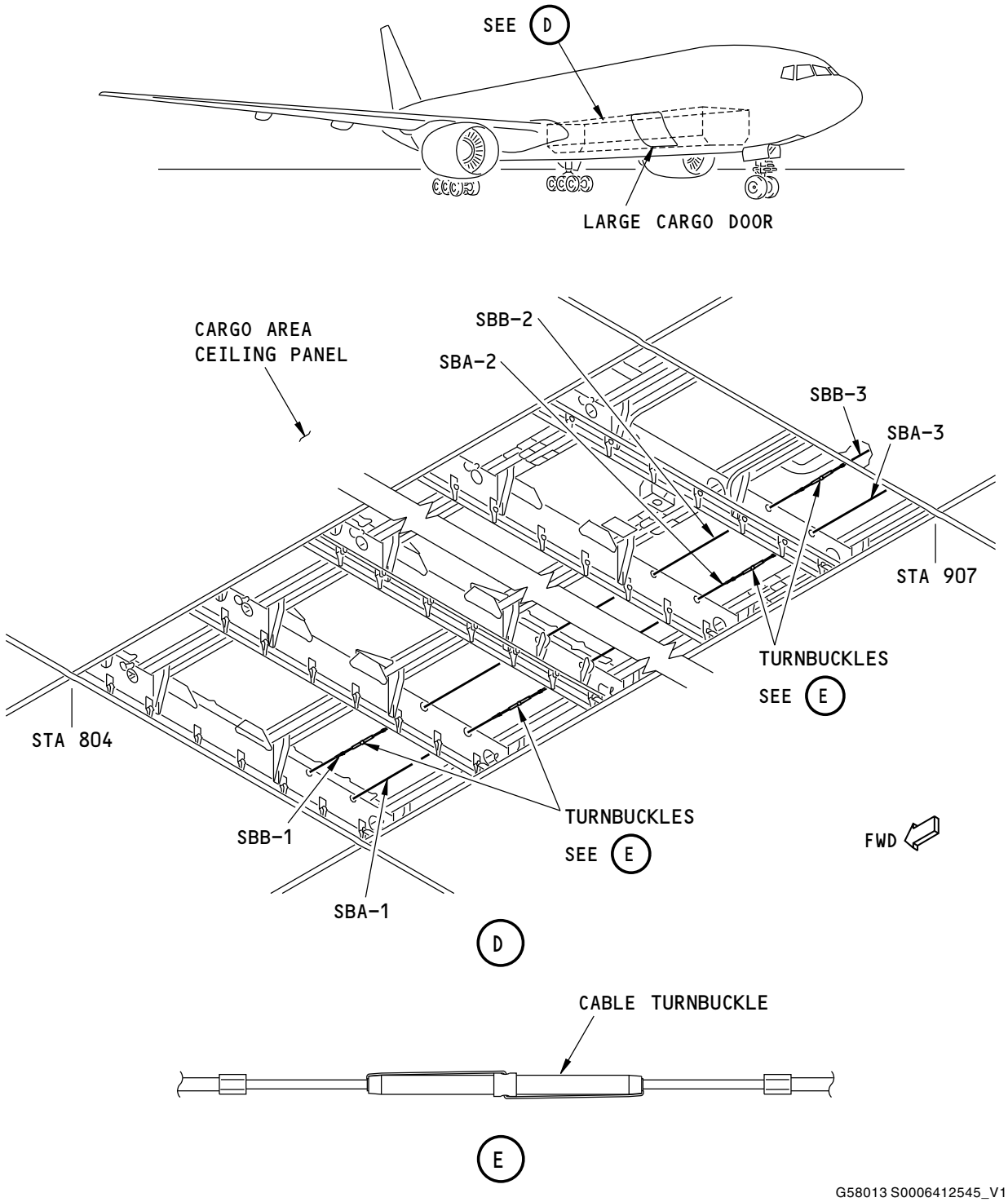
Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 2 of 13)

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Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 3 of 13)

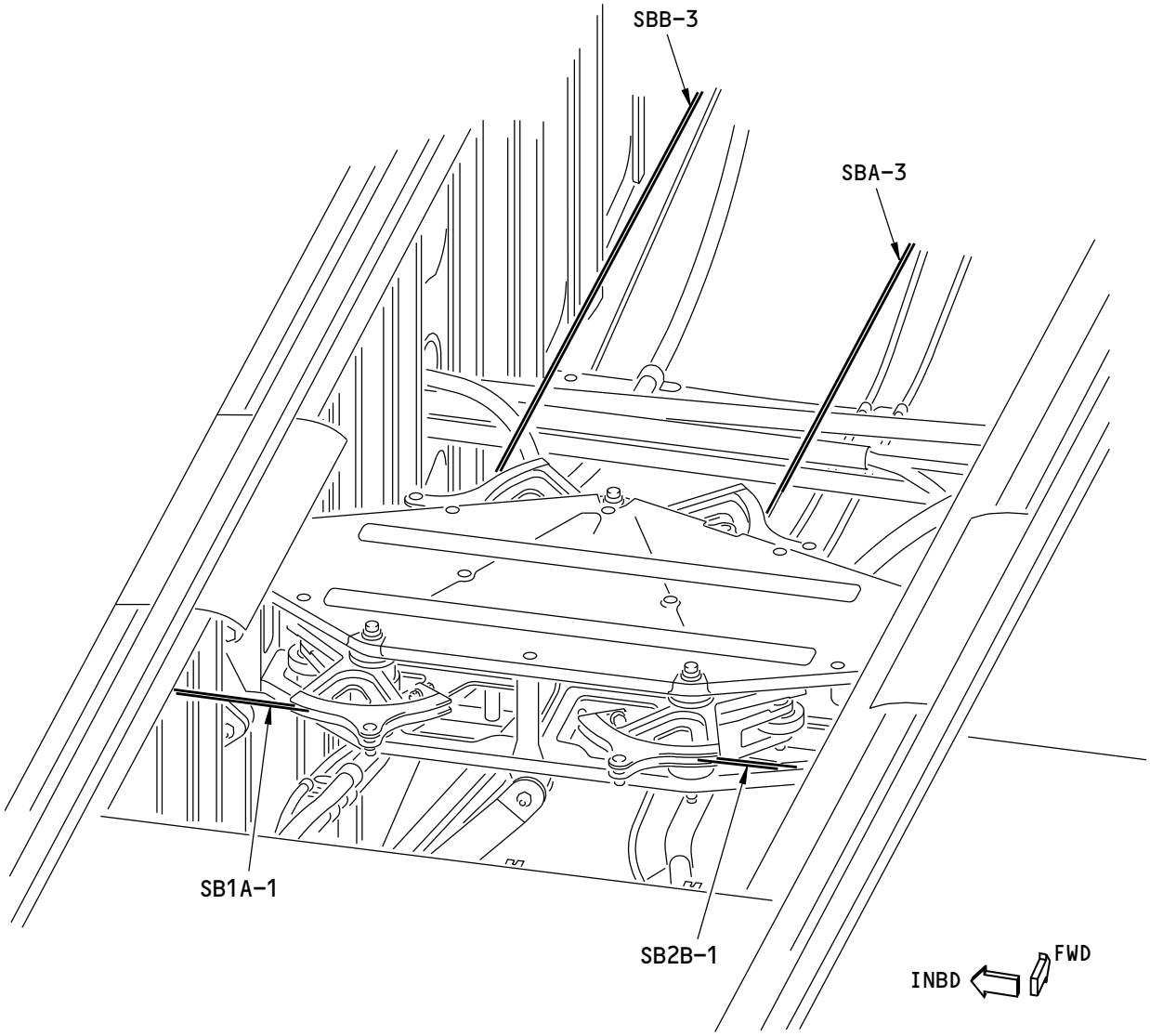
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G58013 S0006412545_V1

Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 4 of 13)

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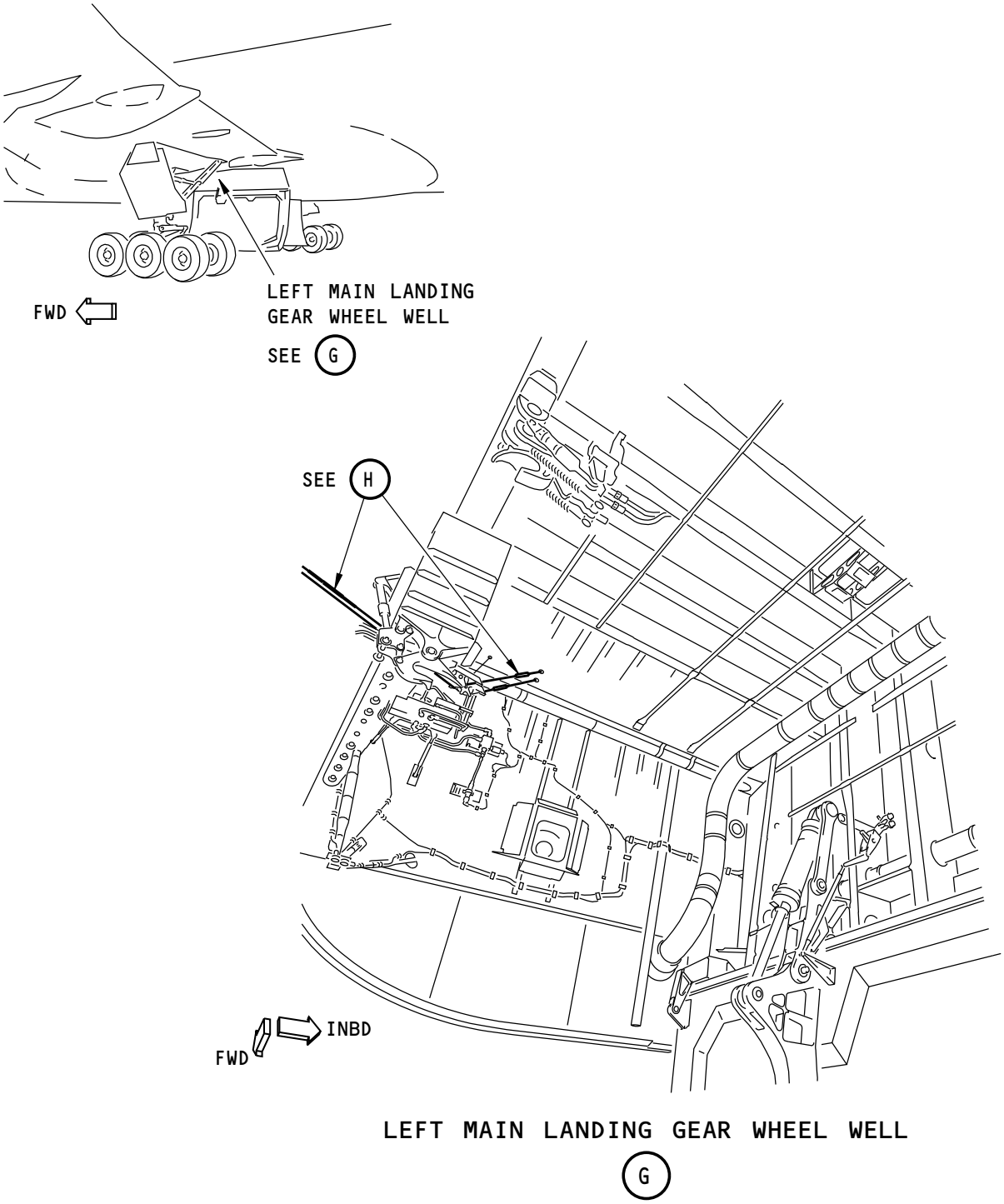
SPOILER CONTROL MECHANISM
(FLOOR PANEL NOT SHOWN)

F

G58014 S0006412546_V1

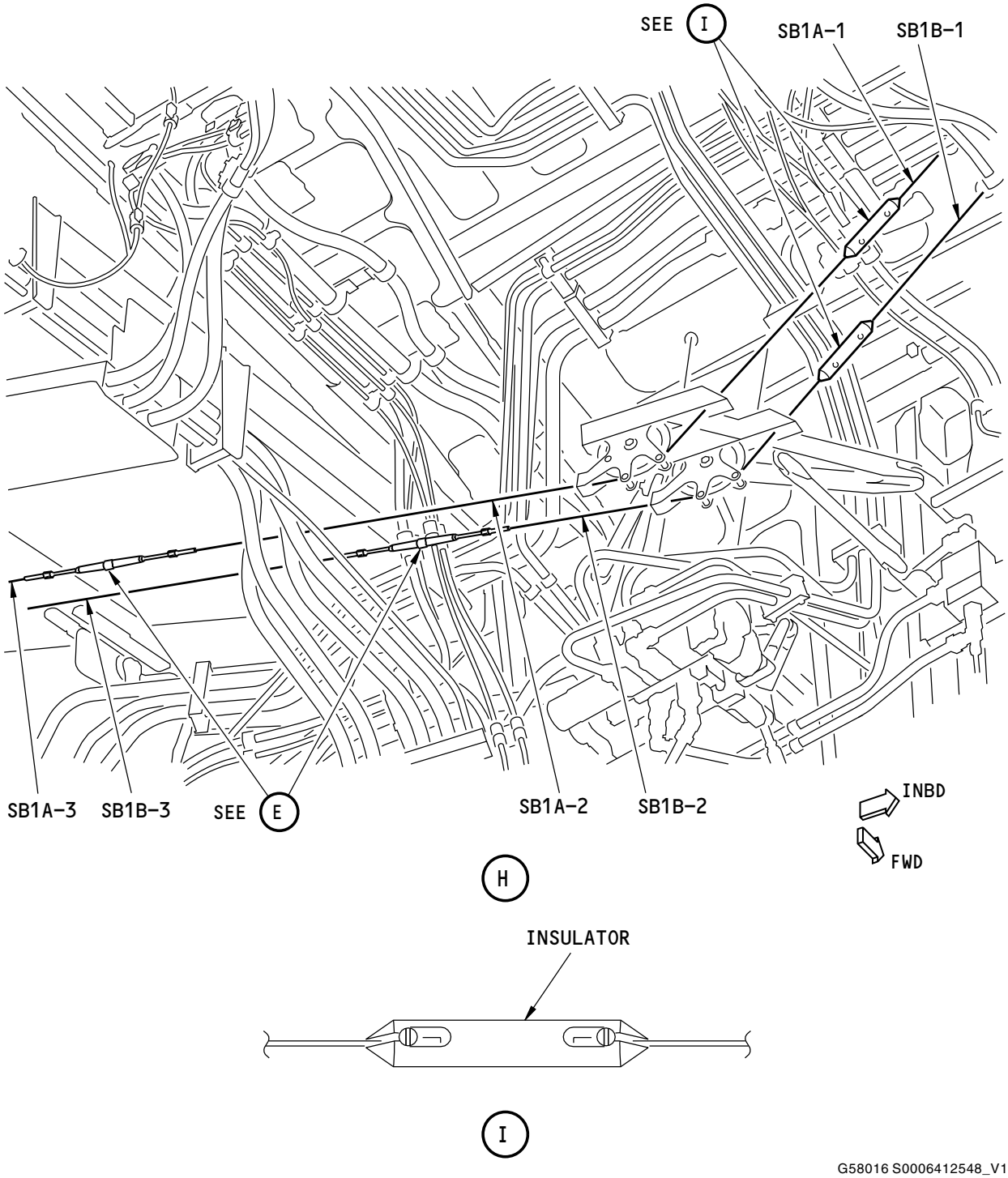
Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 5 of 13)

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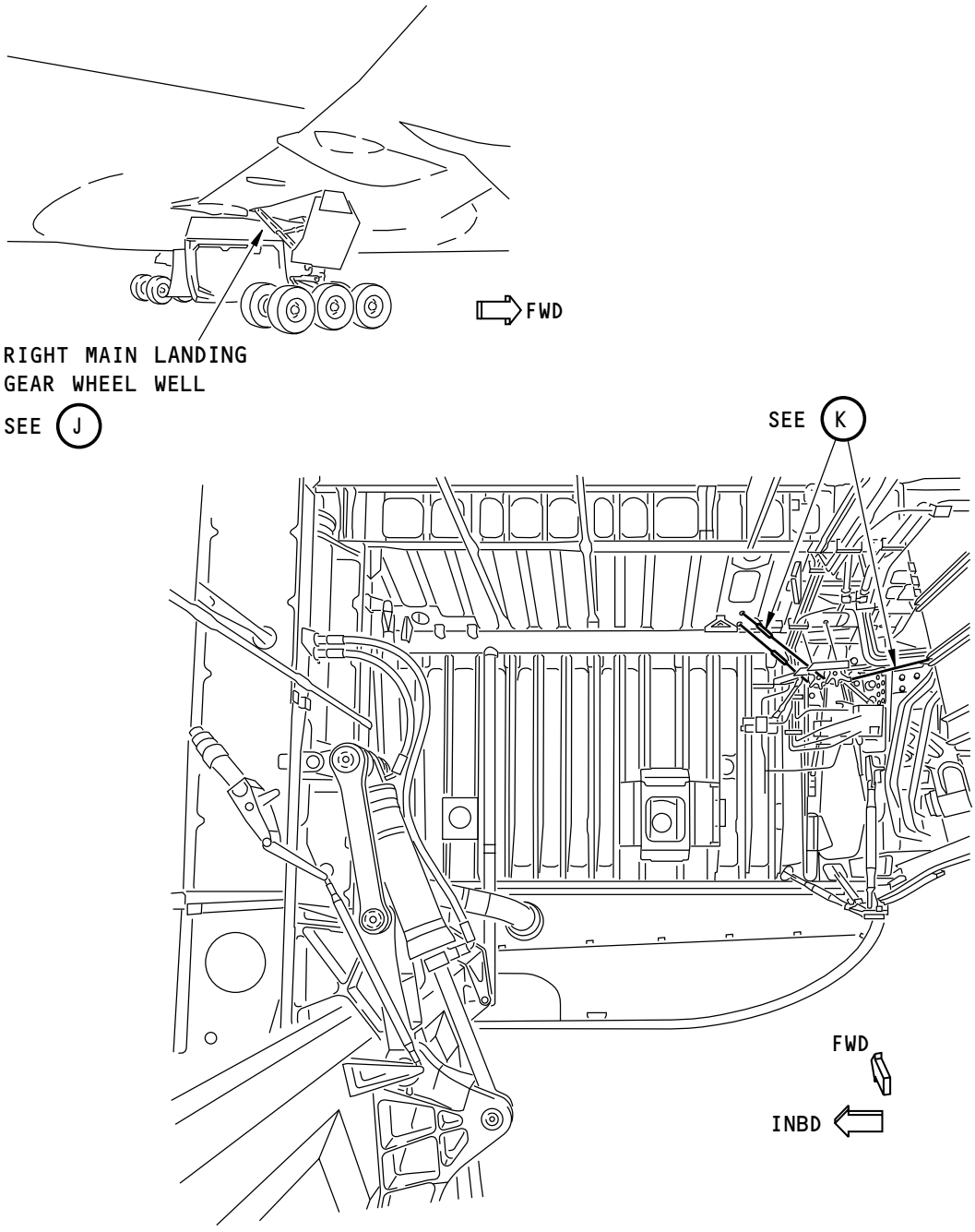
Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 6 of 13)

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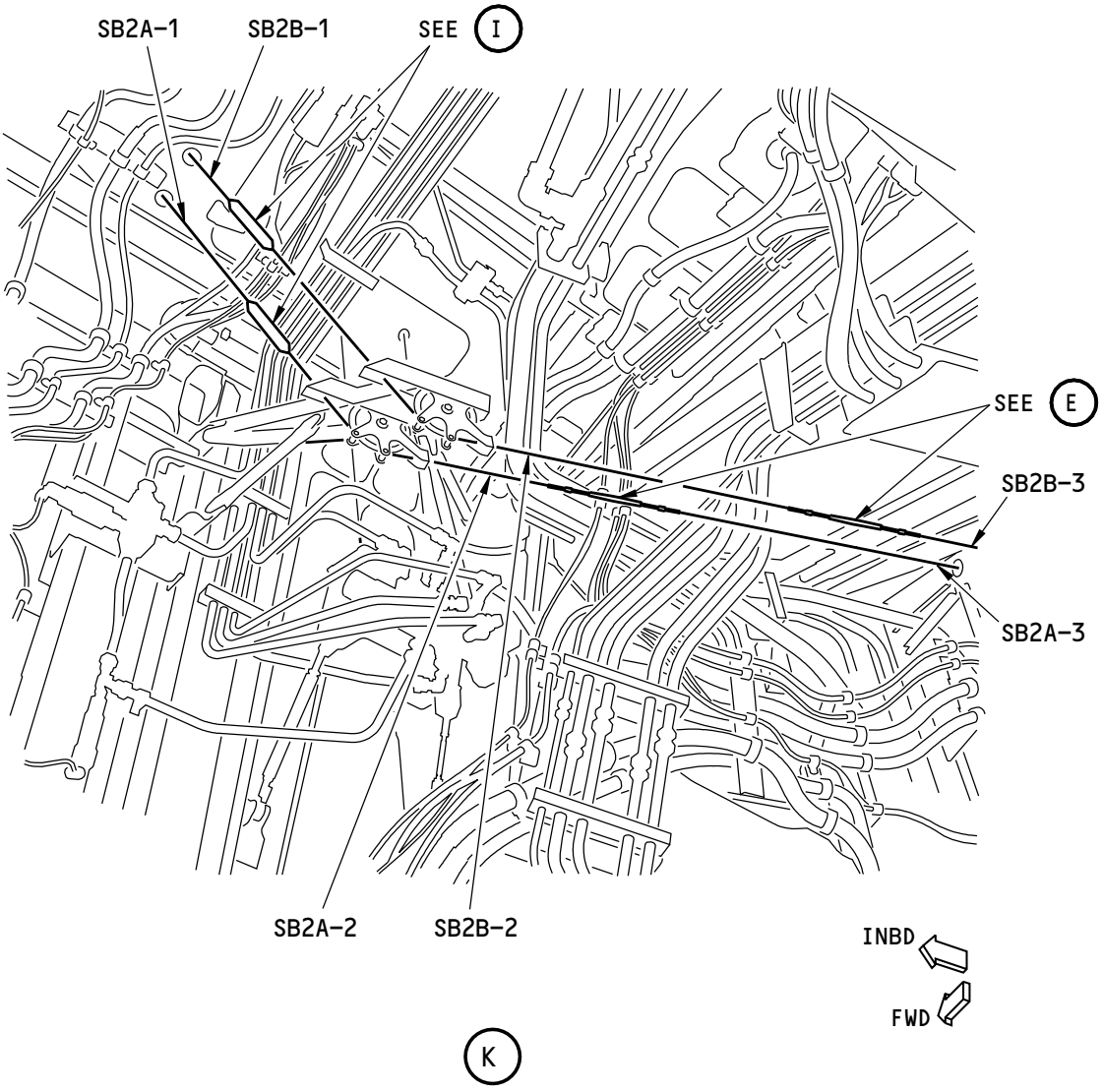
Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 7 of 13)

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Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 8 of 13)

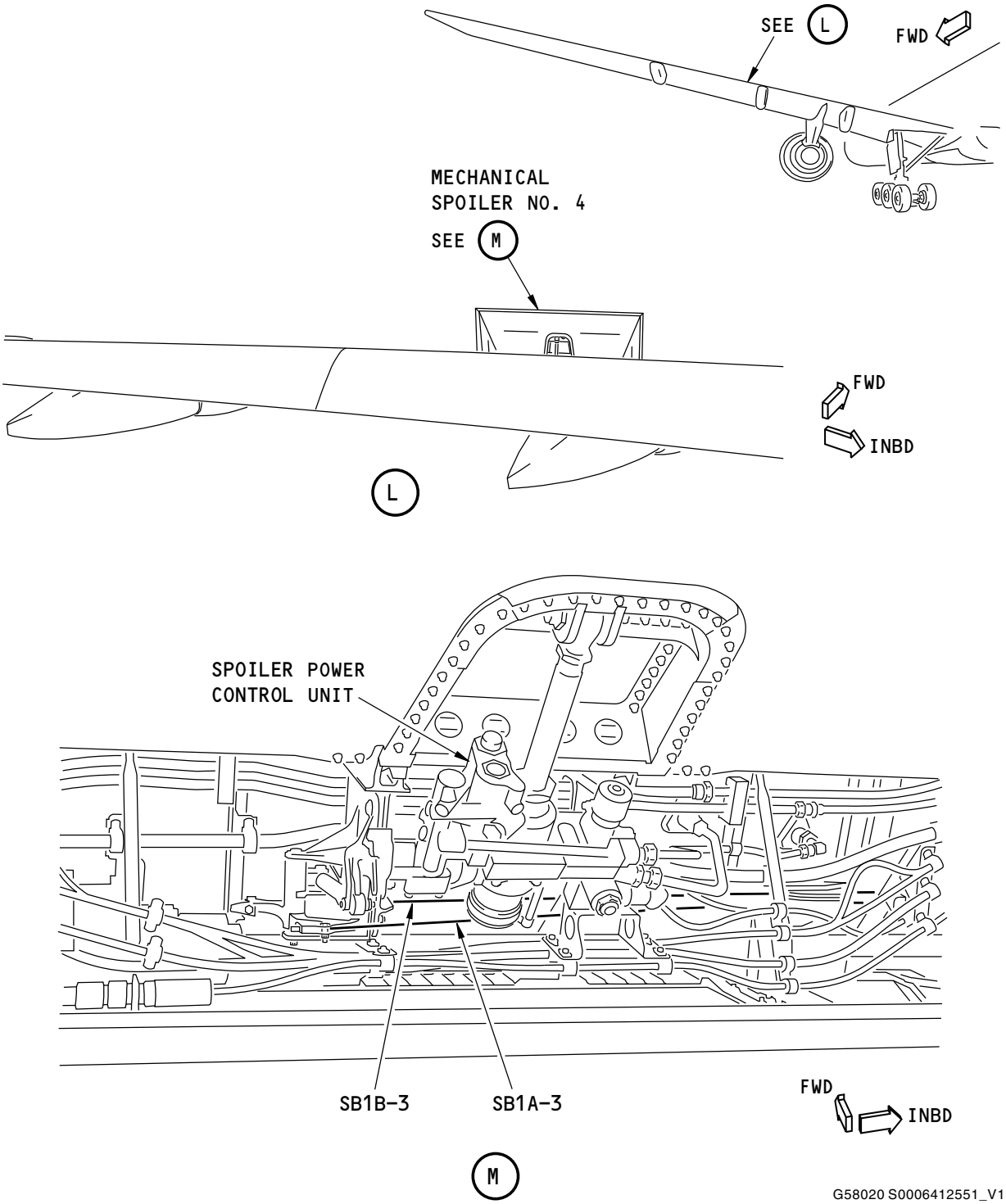
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G58019 S0006412550_V1

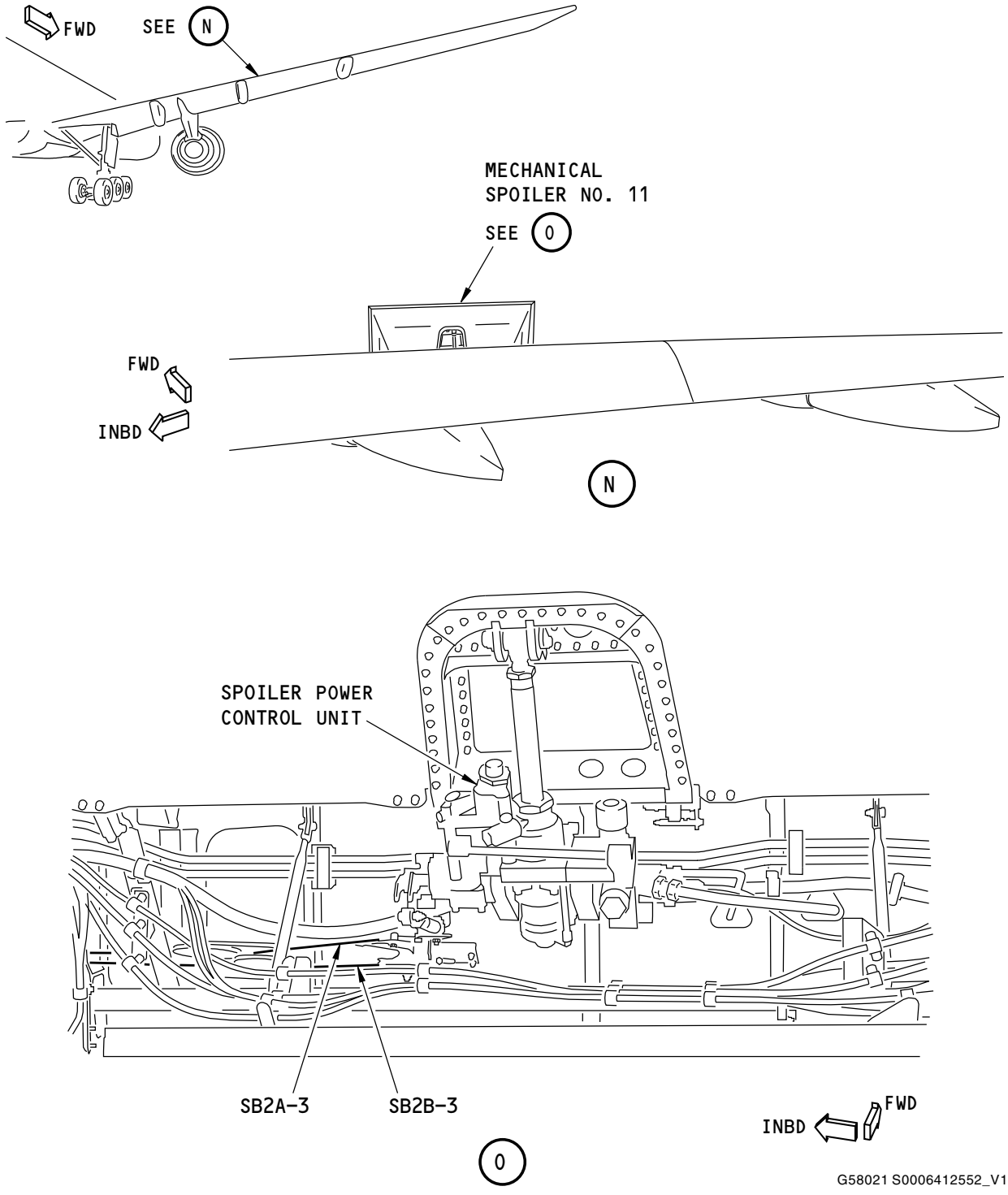
Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 9 of 13)

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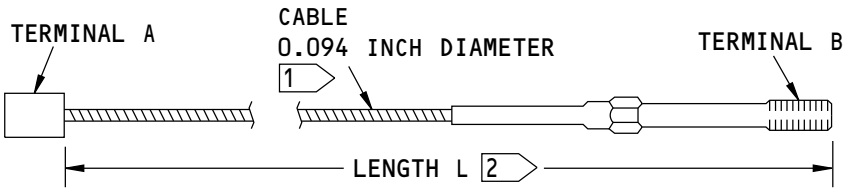
Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 10 of 13)

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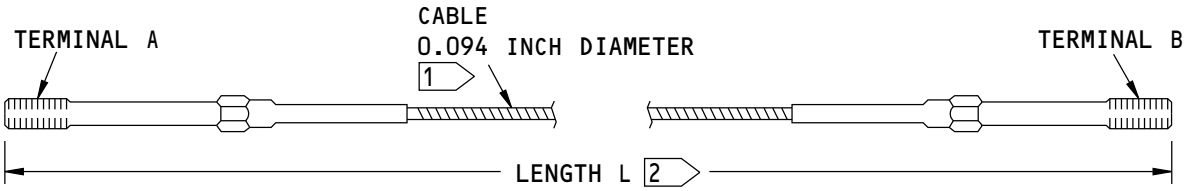


Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 11 of 13)

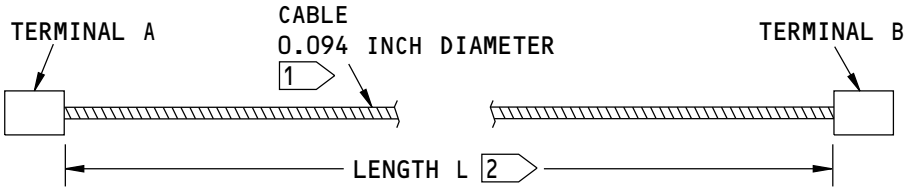
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SBA-1, SBA-3, SBB-1, SBB-3, SB1A-2, SB1A-3, SB1B-2, SB1B-3, SB2A-2, SB2A-3, SB2B-2, SB2B-3



SBA-2, SBB-2



SB1A-1, SB1B-1, SB2A-1, SB2B-1

CABLE NAME	LENGTH L* 2	TERMINAL A	TERMINAL B
SBA-1	620.0 ±0.25 (1574.8 ±0.6)	BACT14A3	MS21260L3LH
SBA-2	249.4 ±0.20 (633.5 ±0.5)	MS21260L3RH	MS21260L3RH
SBA-3	369.5 ±0.20 (938.5 ±0.5)	BACT14A3	MS21260L3LH
SBB-1	599.0 ±0.25 (1521.5 ±0.6)	BACT14A3	MS21260L3RH
SBB-2	291.44 ±0.20 (740.3 ±0.5)	MS21260L3LH	MS21260L3LH
SBB-3	348.5 ±0.20 (885.2 ±0.5)	BACT14A3	MS21260L3RH

TABLE A

* LENGTHS ARE IN INCHES (CENTIMETERS)

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 7.

NOTE: REFER TO THE IPC FOR AIRPLANE CURRENT APPLICABLE ASSEMBLY NOMENCLATURE (MATERIAL, DIMENSIONS, AND TERMINALS).
CODE 3E CABLE ASSEMBLY TO BE SPECIFIED ONLY WHERE THERE IS A SPECIFIC REQUIREMENT FOR REDUCE TOLERANCE (RT) PERCENT ELONGATION WIRE ROPE, 7 X 7 (RT), PER BMS 7-265.

2 MEASURE CABLE WITH A LOAD OF 20 ±3 POUNDS.

G58023 S0006412553_V2

Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 12 of 13)

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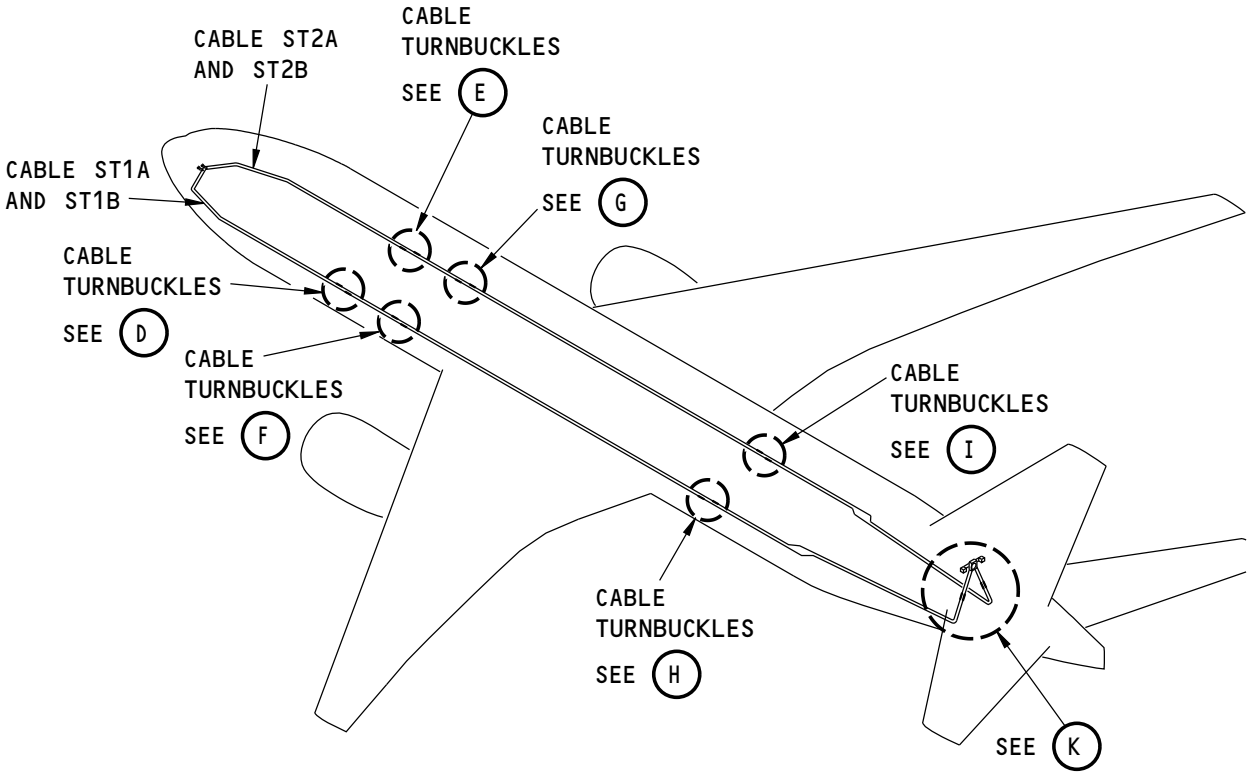
CABLE NAME	LENGTH L* 2	TERMINAL A	TERMINAL B
SB1A-1	115.8 ±0.12 (294.1 ±0.3)	BACT14A3	BACT14A3
SB1A-2	48.0 ±0.12 (121.9 ±0.3)	BACT14A3	MS21260L3LH
SB1A-3	494.6 ±0.25 (1256.3 ±0.6)	BACT14A3	MS21260L3RH
SB1B-1	120.2 ±0.12 (305.3 ±0.3)	BACT14A3	BACT14A3
SB1B-2	25.8 ±0.12 (65.5 ±0.3)	BACT14A3	MS21260L3RH
SB1B-3	514.0 ±0.25 (1305.6 ±0.6)	BACT14A3	MS21260L3LH
SB2A-1	78.2 ±0.12 (196.6 ±0.3)	BACT14A3	BACT14A3
SB2A-2	25.8 ±0.12 (65.5 ±0.3)	BACT14A3	MS21260L3RH
SB2A-3	494.9 ±0.25 (1256.3 ±0.6)	BACT14A3	MS21260L3LH
SB2B-1	73.8 ±0.12 (187.5 ±0.3)	BACT14A3	BACT14A3
SB2B-2	48.0 ±0.12 (121.9 ±0.3)	BACT14A3	MS21260L3LH
SB2B-3	476.4 ±0.20 (1210.1 ±0.5)	BACT14A3	MS21260L3RH

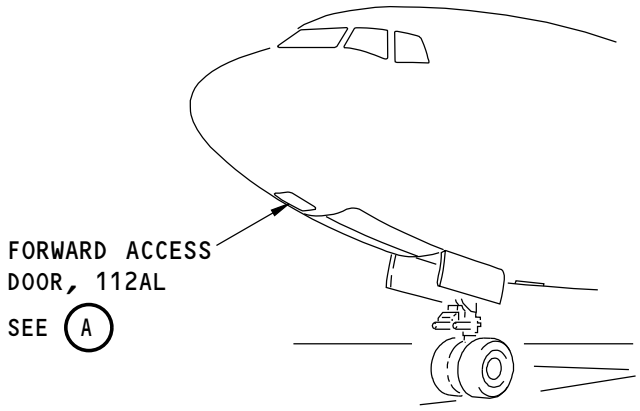
TABLE A

G58024 S0006412554_V1

Mechanical Spoiler Cables
Figure 202/27-02-20-990-806-002 (Sheet 13 of 13)

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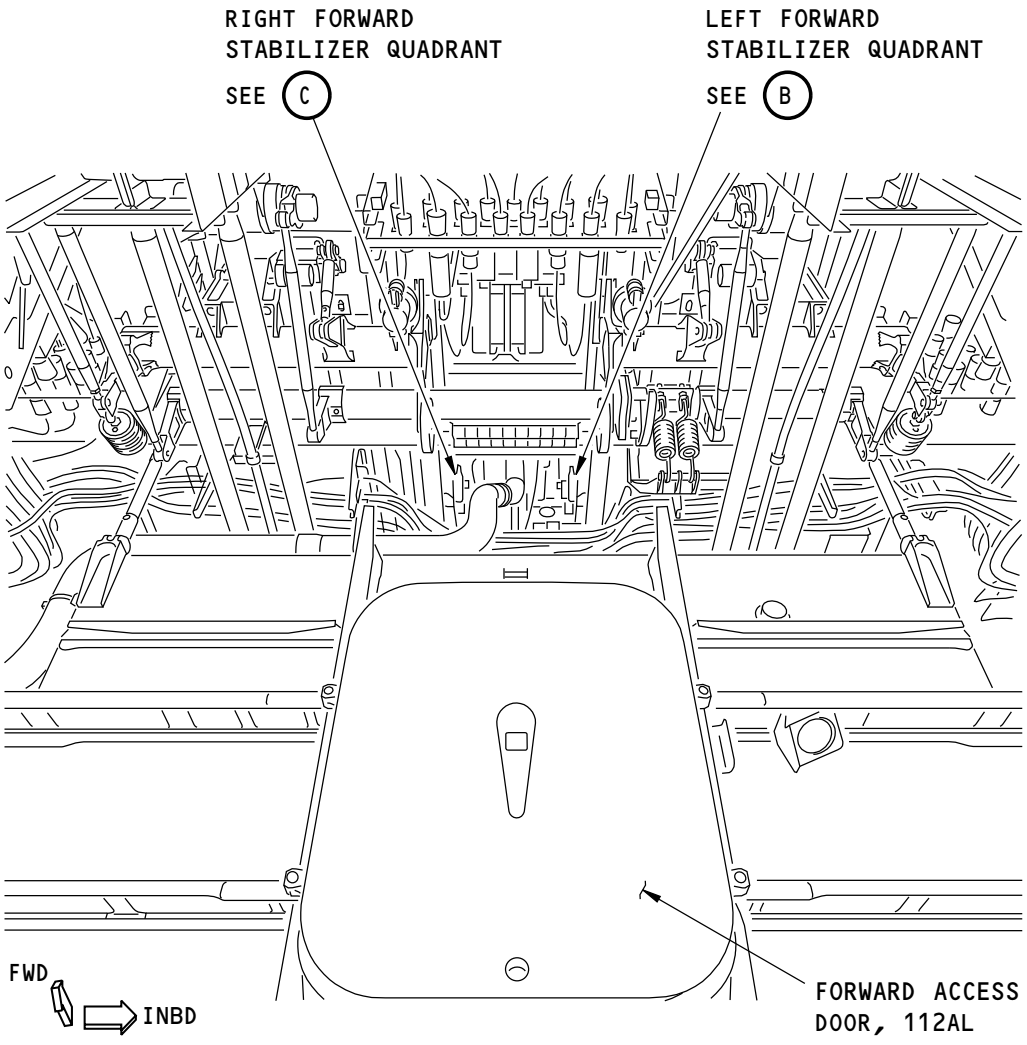




G58171 S0006412555_V1

Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 1 of 13)

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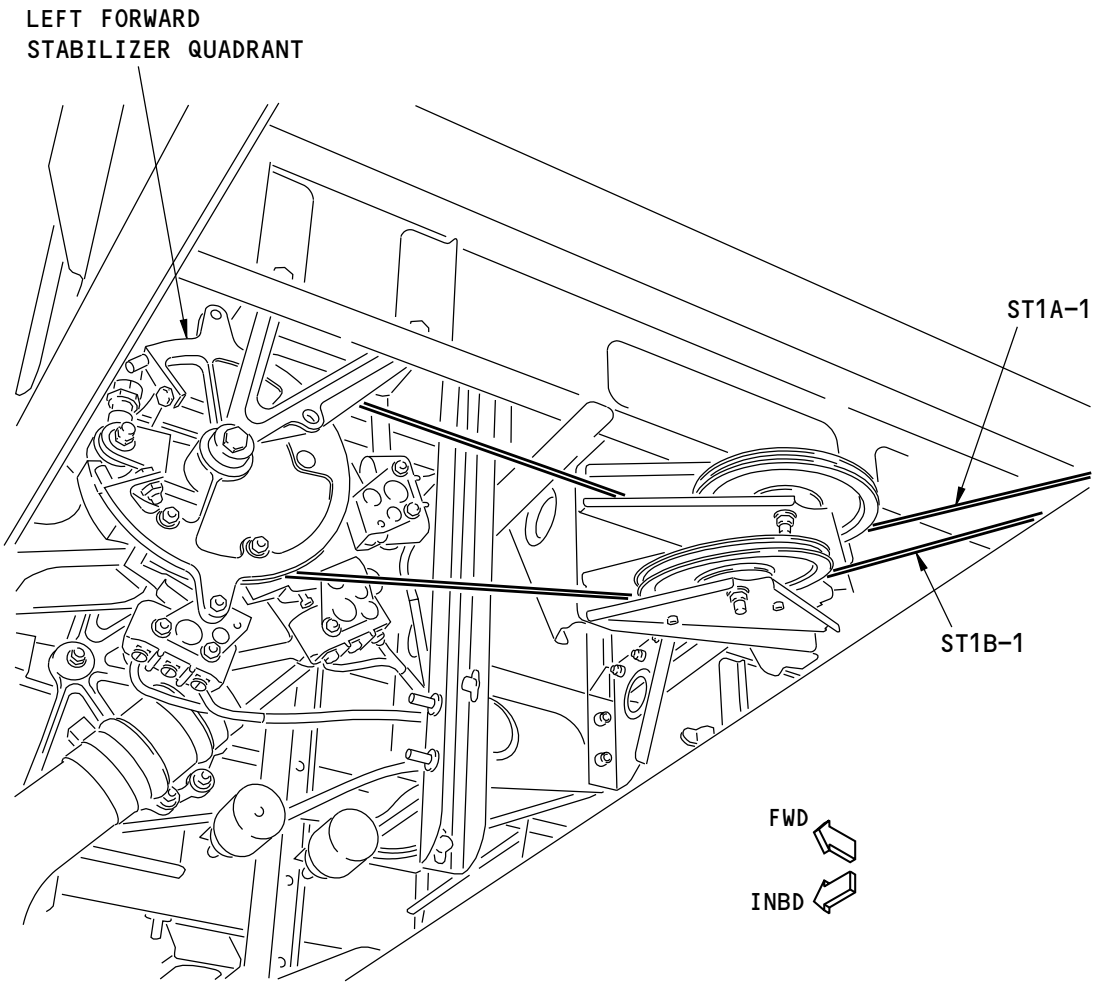


VIEW WHEN YOU LOOK UP AND AFT THRU
THE FORWARD BULKHEAD ACCESS DOOR
A

G58177 S0006412556_V1

Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 2 of 13)

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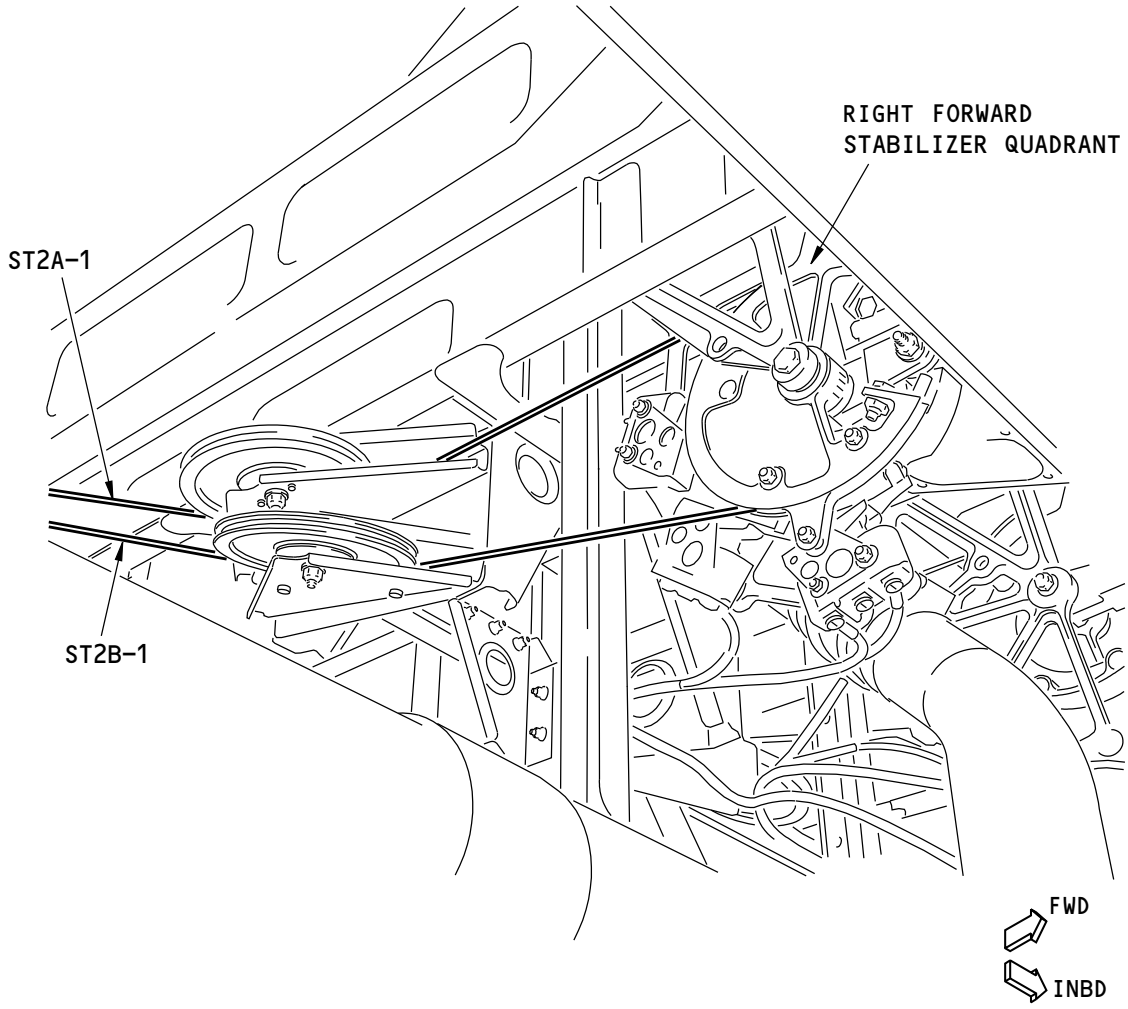
LEFT FORWARD STABILIZER QUADRANT

B

G58178 S0006412557_V1

Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 3 of 13)

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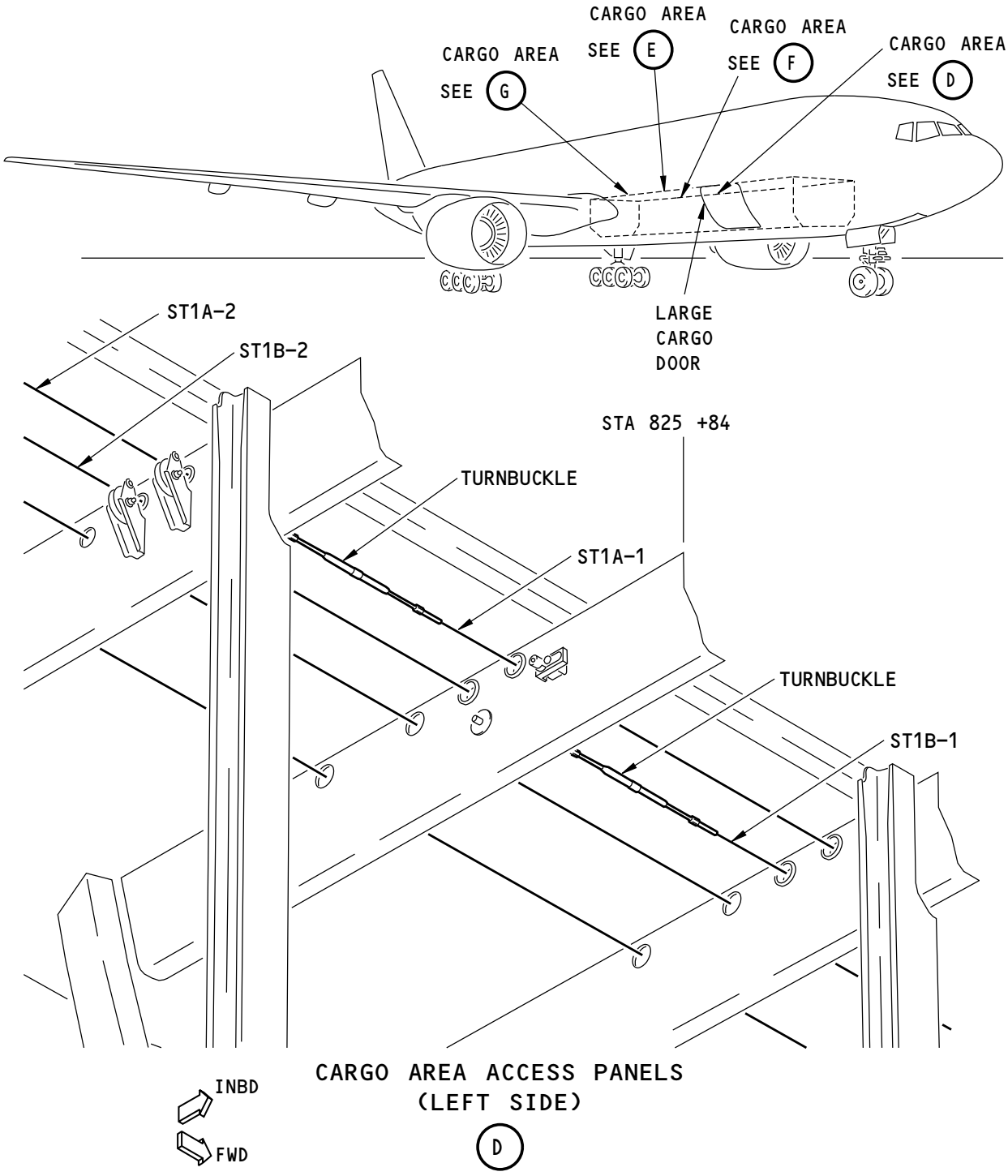
RIGHT FORWARD STABILIZER QUADRANT

C

G58179 S0006412558_V1

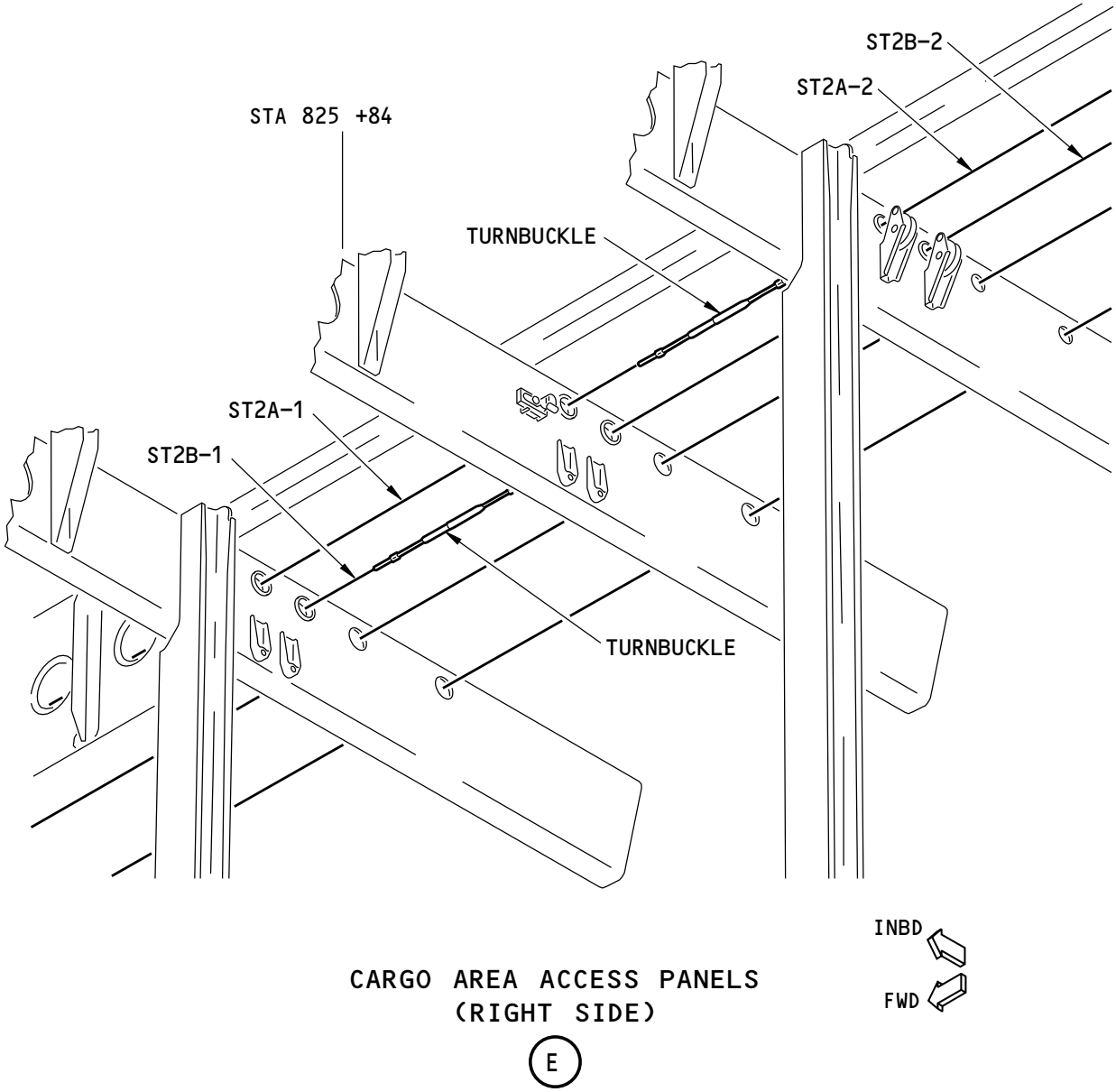
Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 4 of 13)

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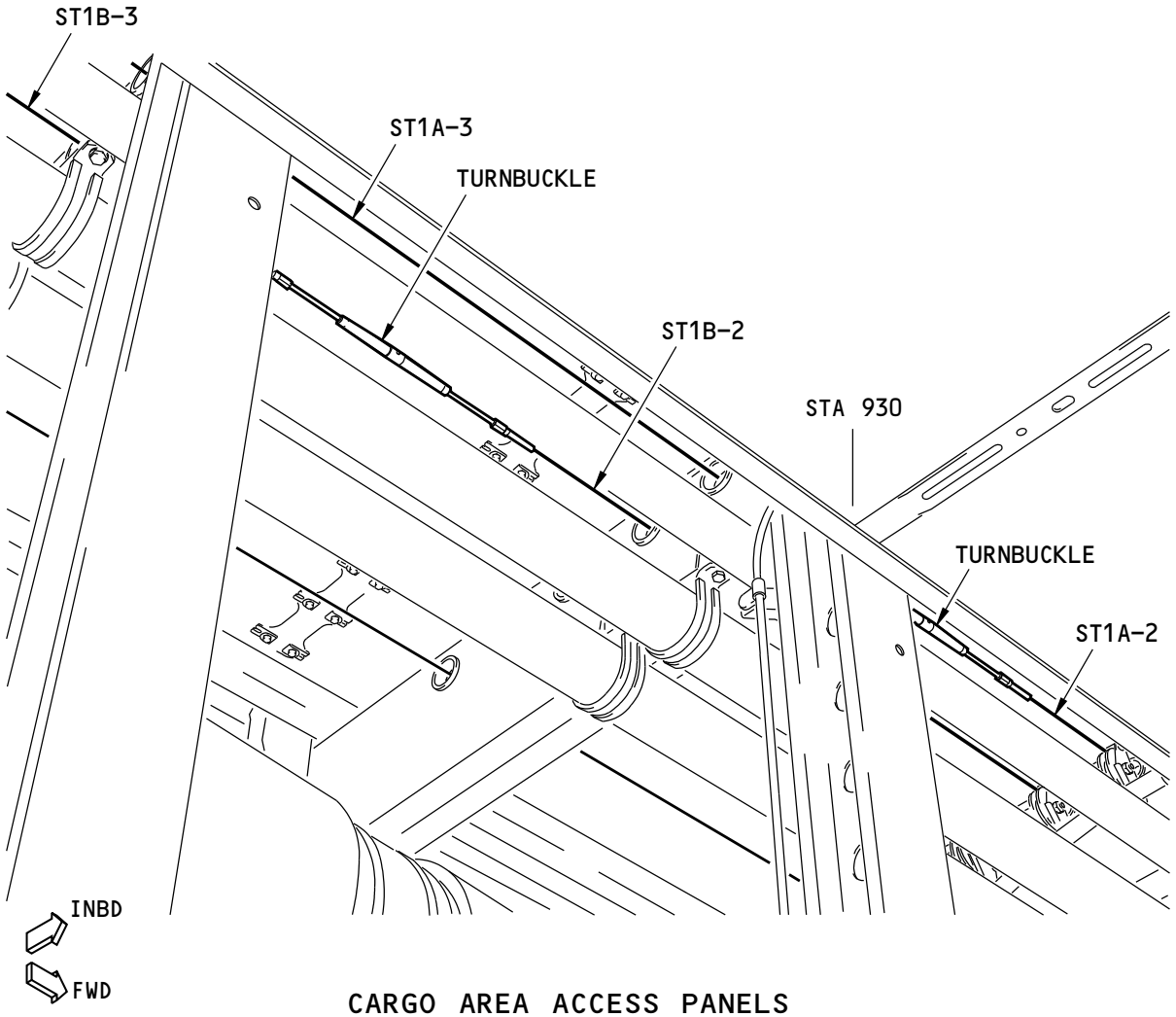
Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 5 of 13)

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Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 6 of 13)

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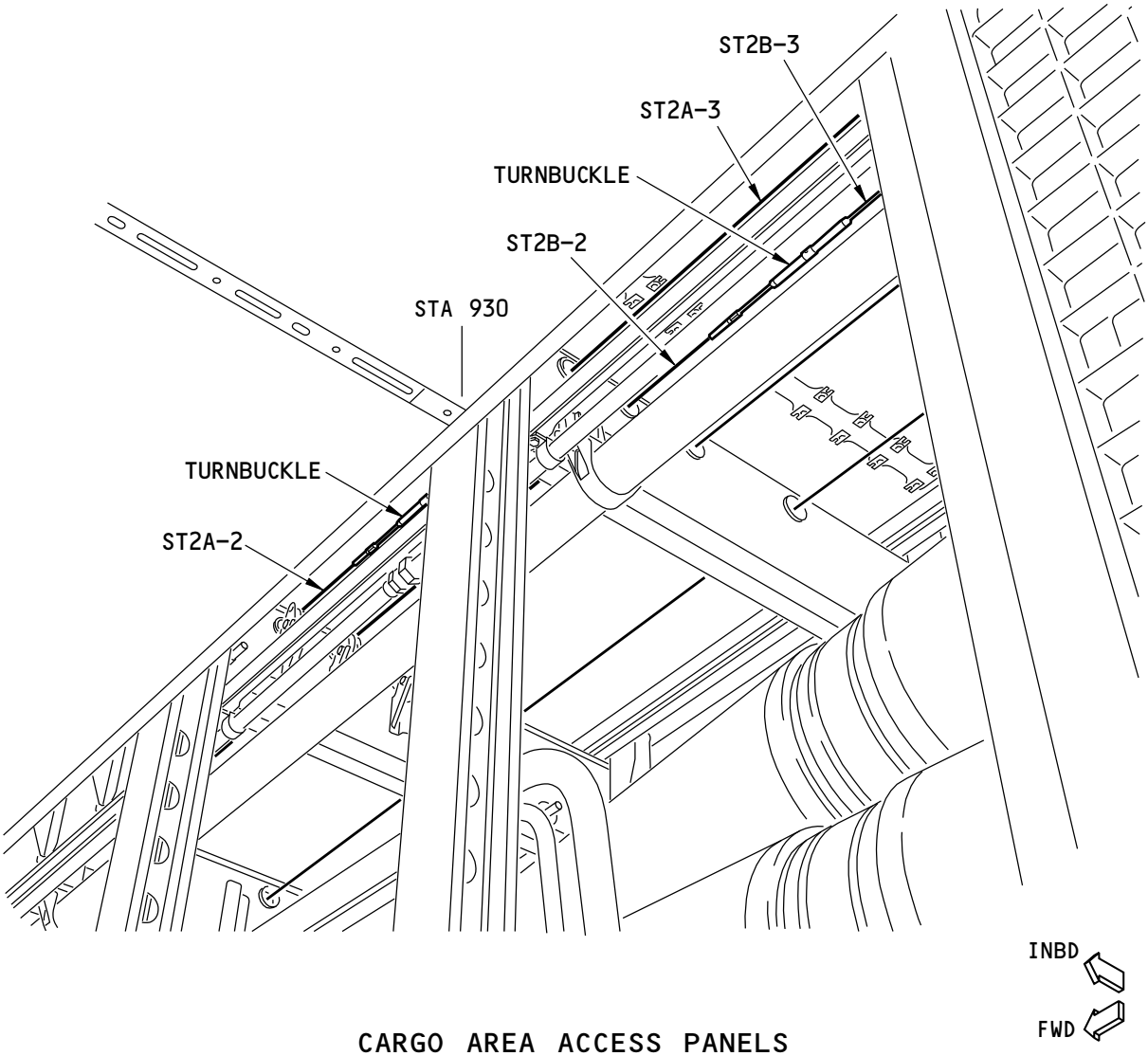
CARGO AREA ACCESS PANELS
(LEFT SIDE)

F

G58181 S0006412561_V1

Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 7 of 13)

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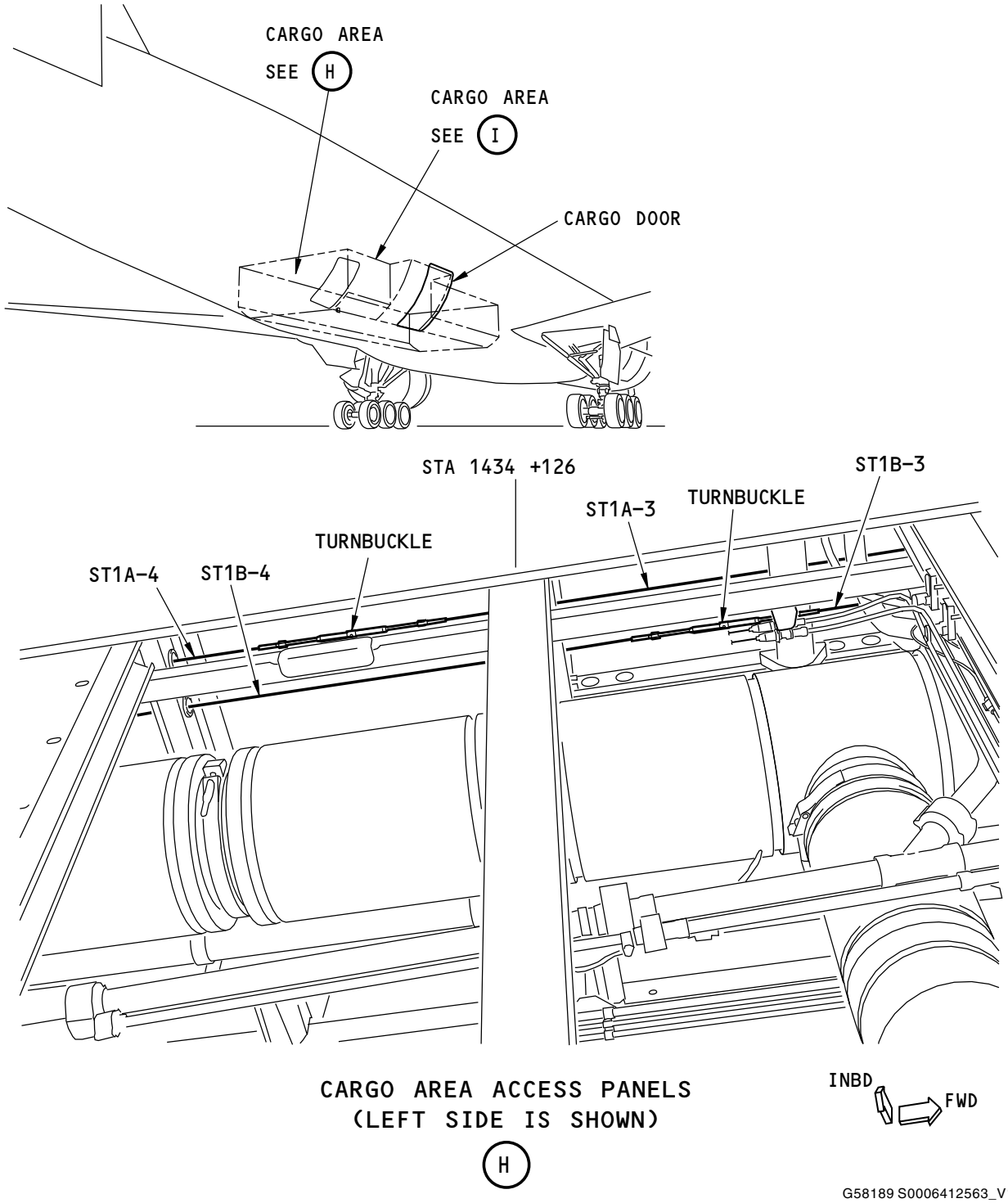
CARGO AREA ACCESS PANELS
(RIGHT SIDE IS SHOWN)

G

G58183 S0006412562_V1

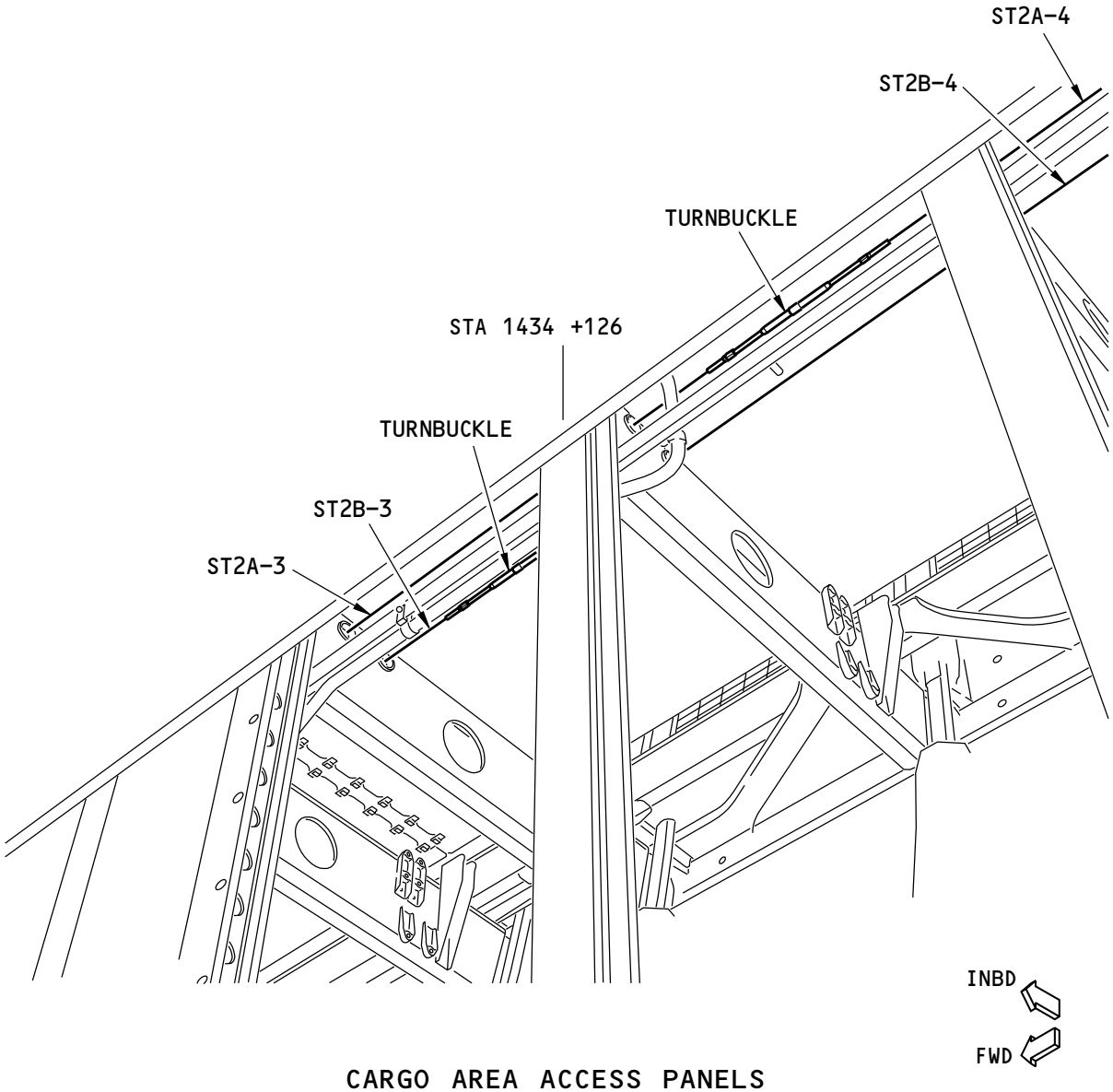
Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 8 of 13)

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Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 9 of 13)

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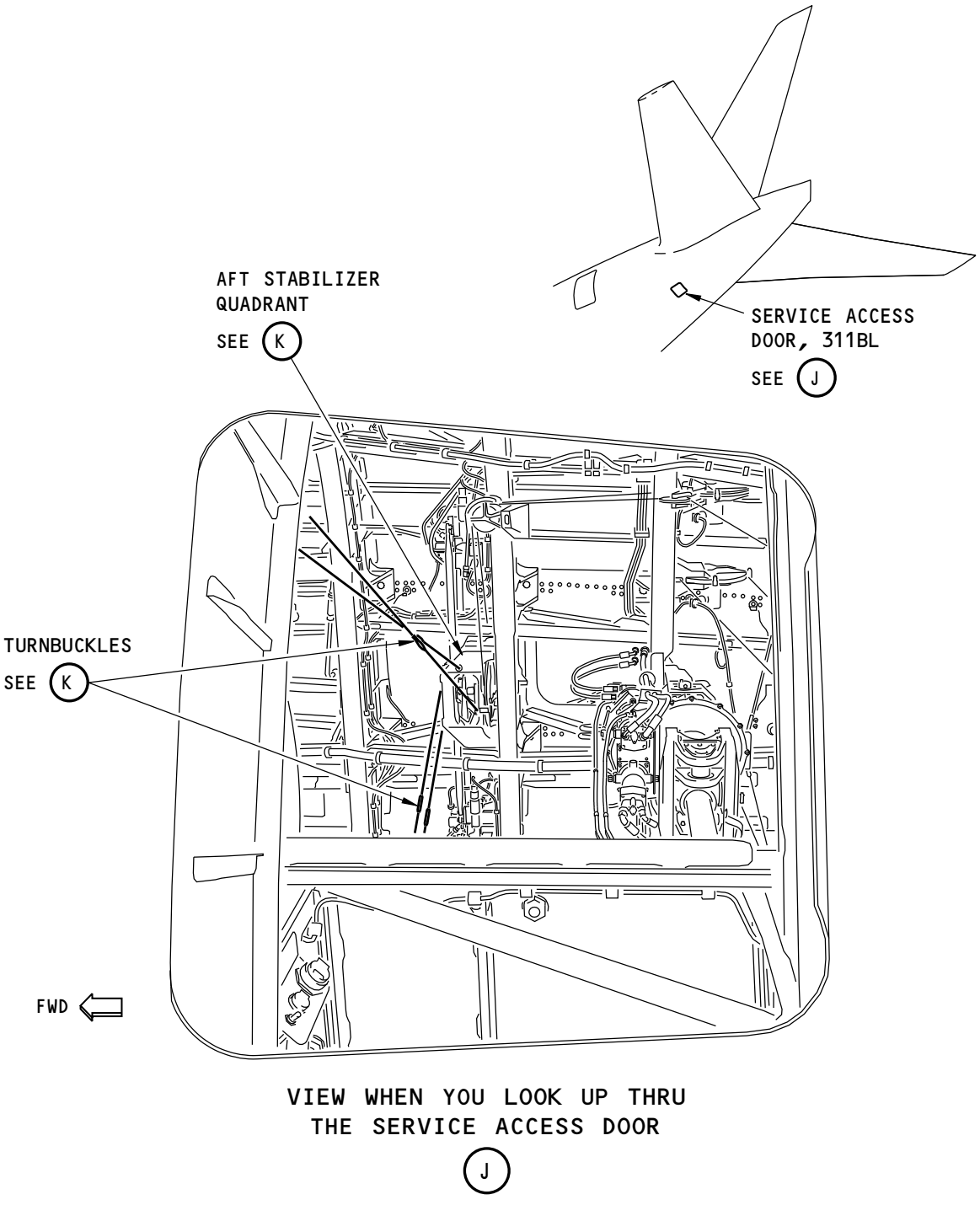
CARGO AREA ACCESS PANELS
(RIGHT SIDE IS SHOWN)

I

G58214 S0006412564_V1

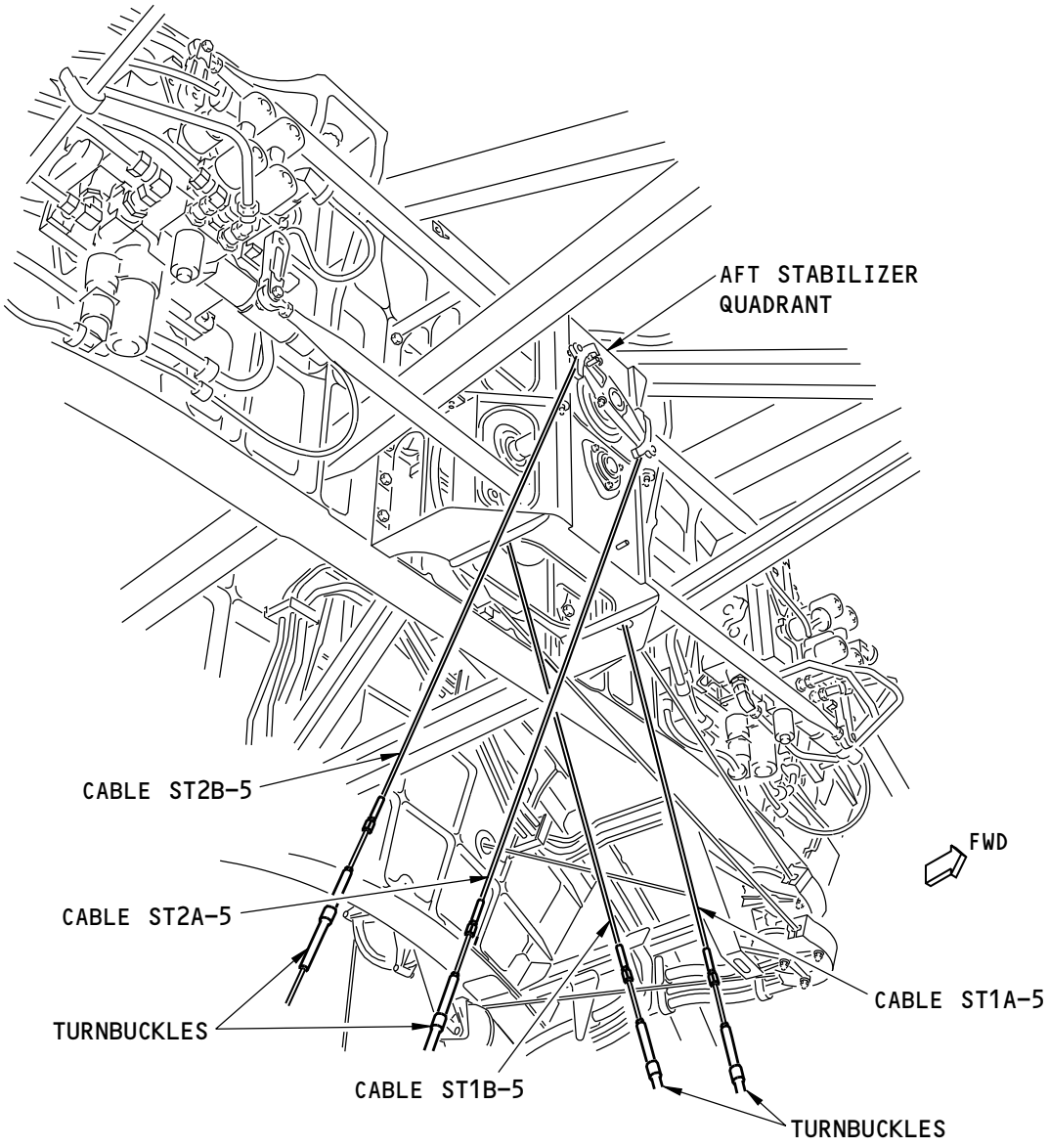
Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 10 of 13)

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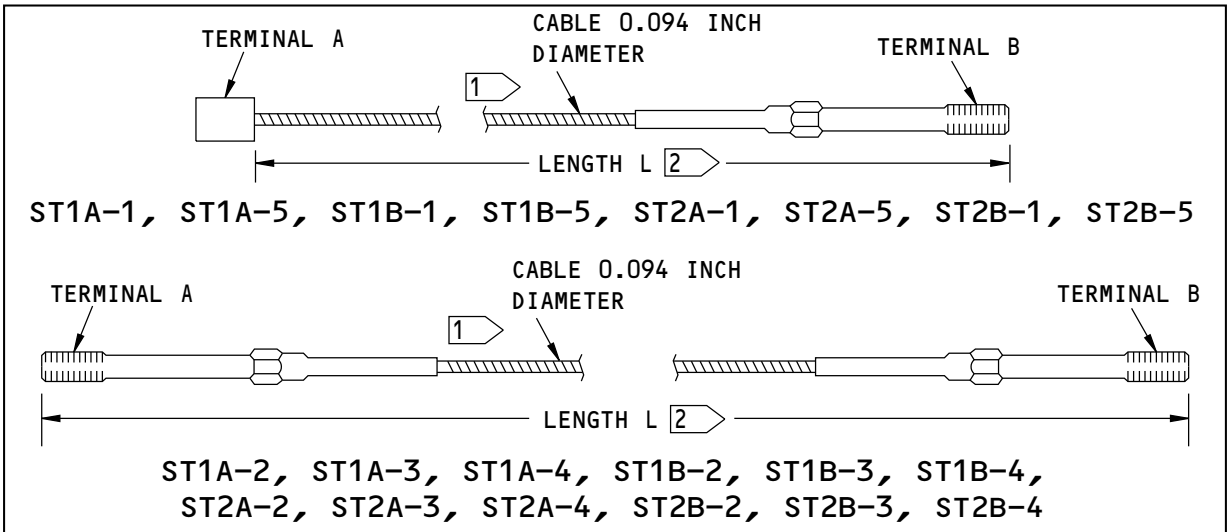
Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 11 of 13)

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Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 12 of 13)

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CABLE NAME	LENGTH L* 2	TERMINAL A	TERMINAL B
ST1A-1	770.7 ±0.38 (1957.6 ±1.0)	BACT14A	MS21260L3RH
ST1A-2	228.8 ±0.12 (581.2 ±0.3)	MS21260L3LH	MS21260L3LH
ST1A-3	626.9 ±0.25 (1592.3 ±0.6)	MS21260L3RH	MS21260L3RH
ST1A-4	908.1 ±0.38 (2306.6 ±1.0)	MS21260L3LH	MS21260L3LH
ST1A-5	44.7 ±0.12 (113.5 ±0.3)	BACT14A	MS21260L3RH
ST1B-1	754.2 ±0.38 (1915.7 +1.0)	BACT14A	MS21260L3RH
ST1B-2	228.8 ±0.12 (581.2 ±0.3)	MS21260L3LH	MS21260L3LH
ST1B-3	626.9 ±0.25 (1592.3 ±0.6)	MS21260L3RH	MS21260L3RH
ST1B-4	924.3 ±0.38 (2347.7 ±1.0)	MS21260L3LH	MS21260L3LH
ST1B-5	54.4 ±0.12 (138.2 ±0.3)	BACT14A	MS21260L3RH
ST2A-1	770.7 ±0.38 (1957.6 ±1.0)	BACT14A	MS21260L3RH
ST2A-2	228.8 ±0.12 (581.2 ±0.3)	MS21260L3LH	MS21260L3LH
ST2A-3	626.9 ±0.25 (1592.3 ±0.6)	MS21260L3RH	MS21260L3RH
ST2A-4	901.9 ±0.38 (2290.8 ±1.0)	MS21260L3LH	MS21260L3LH
ST2A-5	51.5 ±0.12 (130.8 ±0.3)	BACT14A	MS21260L3RH
ST2B-1	754.2 ±0.38 (1915.7 ±1.0)	BACT14A	MS21260L3RH
ST2B-2	228.8 ±0.12 (581.2 ±0.3)	MS21260L3LH	MS21260L3LH
ST2B-3	626.9 ±0.25 (1592.3 ±0.6)	MS21260L3RH	MS21260L3RH
ST2B-4	939.2 ±0.38 (2385.6 ±1.0)	MS21260L3LH	MS21260L3LH
ST2B-5	38.6 ±0.12 (98.0 ±0.3)	BACT14A	MS21260L3RH

TABLE A

* LENGTHS ARE IN INCHES (CENTIMETERS)

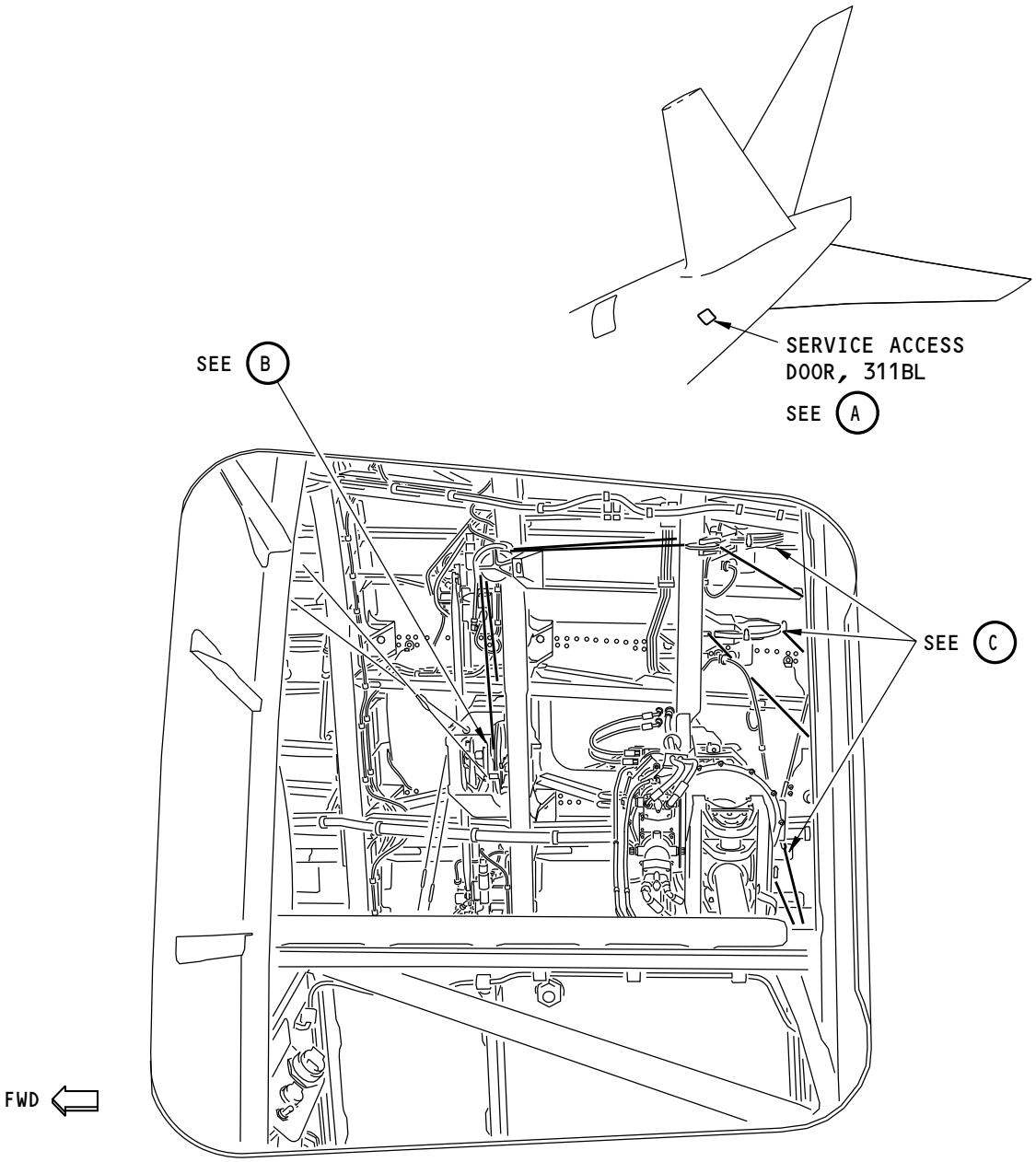
1 CABLE CONSTRUCTION IS CARBON STEEL: BMS 7-265, BMS 7-265, TYPE 1, COMPOSITION A

2 MEASURE CABLE WITH A LOAD 20 ±3 POUNDS.

G58221 S0006412567_V1

Stabilizer Trim Control Cables
Figure 203/27-02-20-990-807-002 (Sheet 13 of 13)

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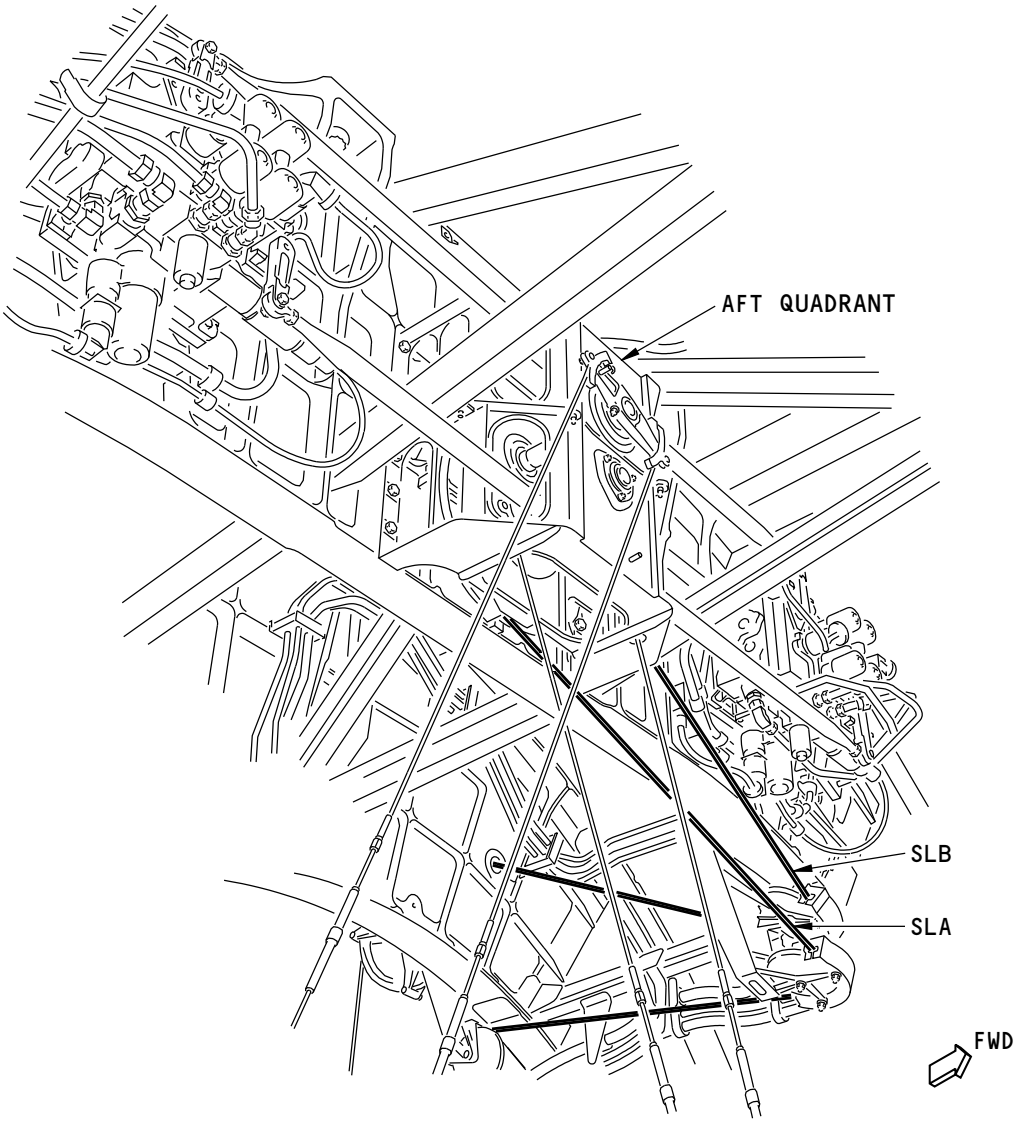
VIEW WHEN YOU LOOK UP THRU
THE SERVICE ACCESS DOOR

A

G58229 S0006412568_V1

Stabilizer Position Sensor Cables
Figure 204/27-02-20-990-808-002 (Sheet 1 of 4)

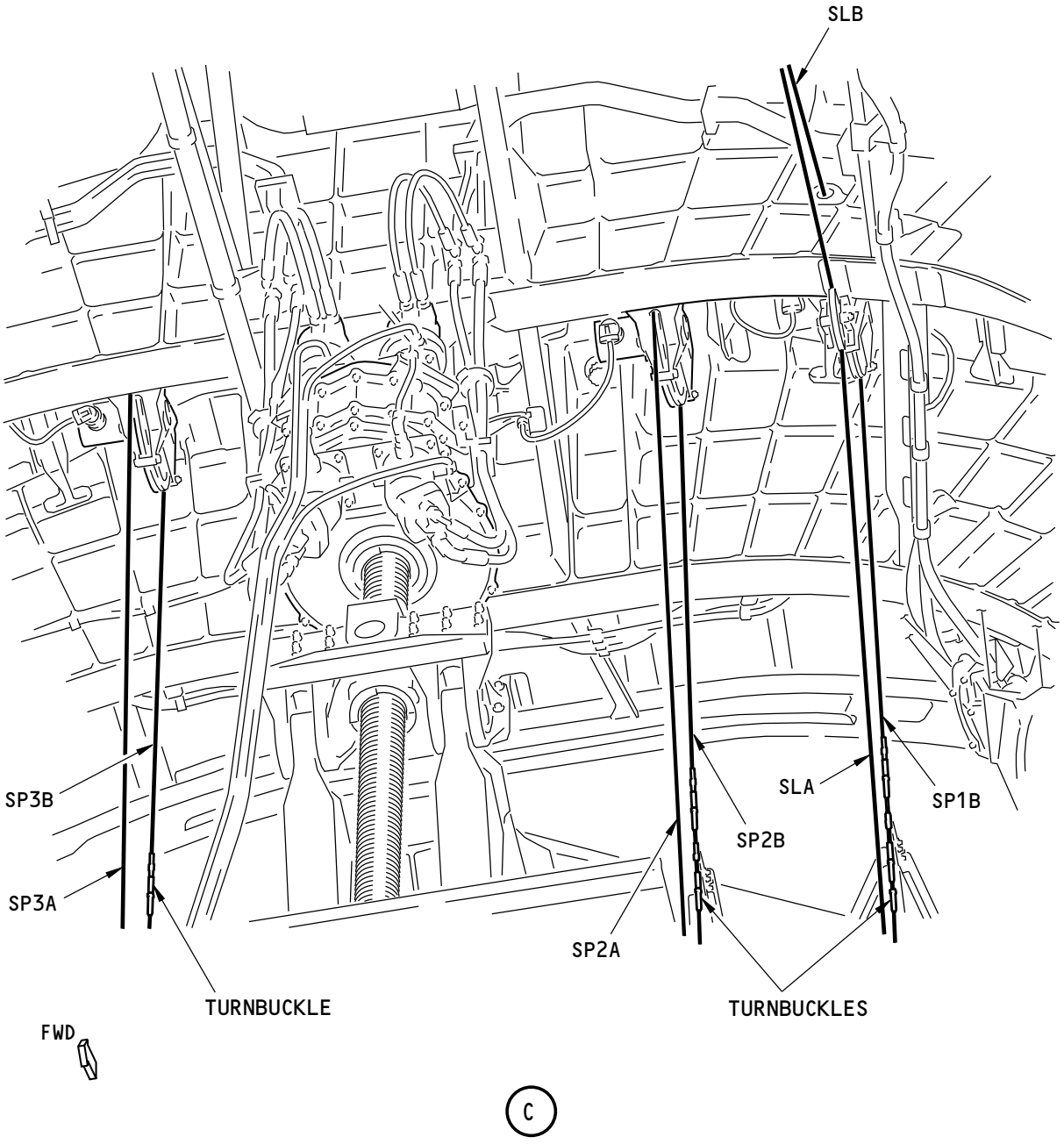
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G58230 S0006412569_V1

Stabilizer Position Sensor Cables
Figure 204/27-02-20-990-808-002 (Sheet 2 of 4)

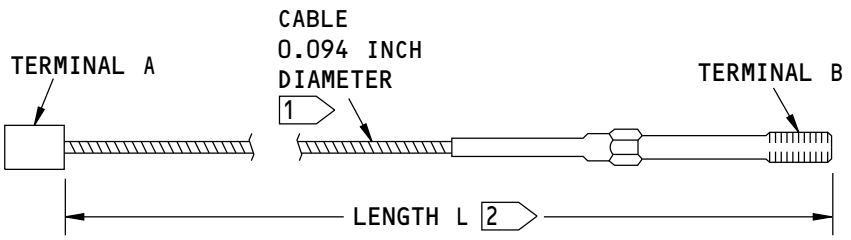
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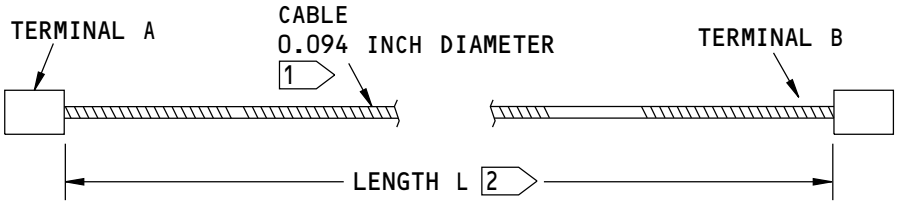
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Stabilizer Position Sensor Cables
Figure 204/27-02-20-990-808-002 (Sheet 3 of 4)

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SLA, SP2A, SP3A, SP1B, SP2B, SP3B



SLB

CABLE NAME	LENGTH L* 2	TERMINAL A	TERMINAL B
SLA	257.6 ±0.20 (654.3 ±0.6)	BACT14A3	MS21260L3RH
SLB	99.6 ±0.12 (253.0 ±0.3)	BACT14A3	BACT14A3
SP2A	209.9 ±0.12 (533.1 ±0.3)	BACT14A3	MS21260L3RH
SP3A	209.9 ±0.12 (533.1 ±0.3)	BACT14A3	MS21260L3RH
SP1B	67.9 ±0.12 (172.5 ±0.3)	BACT14A3	MS21260L3RH
SP2B	67.9 ±0.12 (172.5 ±0.3)	BACT14A3	MS21260L3RH
SP3B	67.9 ±0.12 (172.5 ±0.3)	BACT14A3	MS21260L3RH

TABLE A

* LENGTHS ARE IN INCHES (CENTIMETERS)

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 7.

2 MEASURE CABLE WITH A LOAD OF 20 ±3 POUNDS.

G58233 S0006412571_V1

Stabilizer Position Sensor Cables
Figure 204/27-02-20-990-808-002 (Sheet 4 of 4)

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HYDRAULIC SHUTOFF VALVES (TAIL AND WING) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the hydraulic shutoff valves

(2) An installation of the hydraulic shutoff valves.

B. In this procedure the hydraulic shutoff valves are referred to as the hydraulic shutoff valves [1].

TASK 27-02-32-000-801

2. Hydraulic Shutoff Valve Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure is applicable for the left, center and right (tail and wing) hydraulic shutoff valves [1].

(2) The locations of the hydraulic shutoff valves [1] are as follows:

(a) The wing and tail hydraulic shutoff valves [1] for the left hydraulic system are in the left wing.

(b) The wing hydraulic shutoff valve [1] for the right hydraulic system is in the right wing.

(c) The tail and wing hydraulic shutoff valves [1] for the center hydraulic system are on the aft bulkhead of the left main landing gear wheel well.

(d) The tail hydraulic shutoff valve [1] for the right hydraulic system is on the aft ceiling of the right main landing gear wheel well.

B. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)
54-52-07-000-801	Strut Trailing Edge Removal (P/B 401)

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

D. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
652LB	Outboard Fixed Trailing Edge Panel

E. Prepare for the Removal

SUBTASK 27-02-32-040-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	19	C27622	C FC SOV TAIL
K	20	C27621	L FC SOV TAIL
K	21	C27619	C FC SOV WG
K	22	C27618	L FC SOV WG

Right Power Management Panel, P210

Row	Col	Number	Name
K	6	C27620	R FC SOV WG
K	7	C27623	R FC SOV TAIL

SUBTASK 27-02-32-840-001

(2) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-02-32-010-001

(3) Do these steps for the applicable hydraulic shutoff valve [1]:

(a) For these hydraulic shutoff valves [1]: tail for the left hydraulic system, wing for the left hydraulic system, do these steps:

1) Remove the left trailing edge (the aft end of the engine nacelle fairing from the left wing), do this task: Strut Trailing Edge Removal, TASK 54-52-07-000-801.

2) Remove these access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel

(b) For this hydraulic shutoff valve [1]: wing for the right hydraulic system, do these steps:

1) Remove the hydraulic fairing (the aft end of the engine nacelle fairing from the right wing), do this task: Strut Trailing Edge Removal, TASK 54-52-07-000-801.

2) Remove these access panels:

Number	Name/Location
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

(c) For these hydraulic shutoff valves [1]:Tail for the center hydraulic system, wing for the center hydraulic system, tail for the right hydraulic system, do these steps:

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WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

F. Hydraulic Shutoff Valves Removal

SUBTASK 27-02-32-020-001

(1) Remove the hydraulic shutoff valve [1]:

(a) Disconnect the electrical connector.

(b) Disconnect the hydraulic lines from the hydraulic shutoff valve [1].

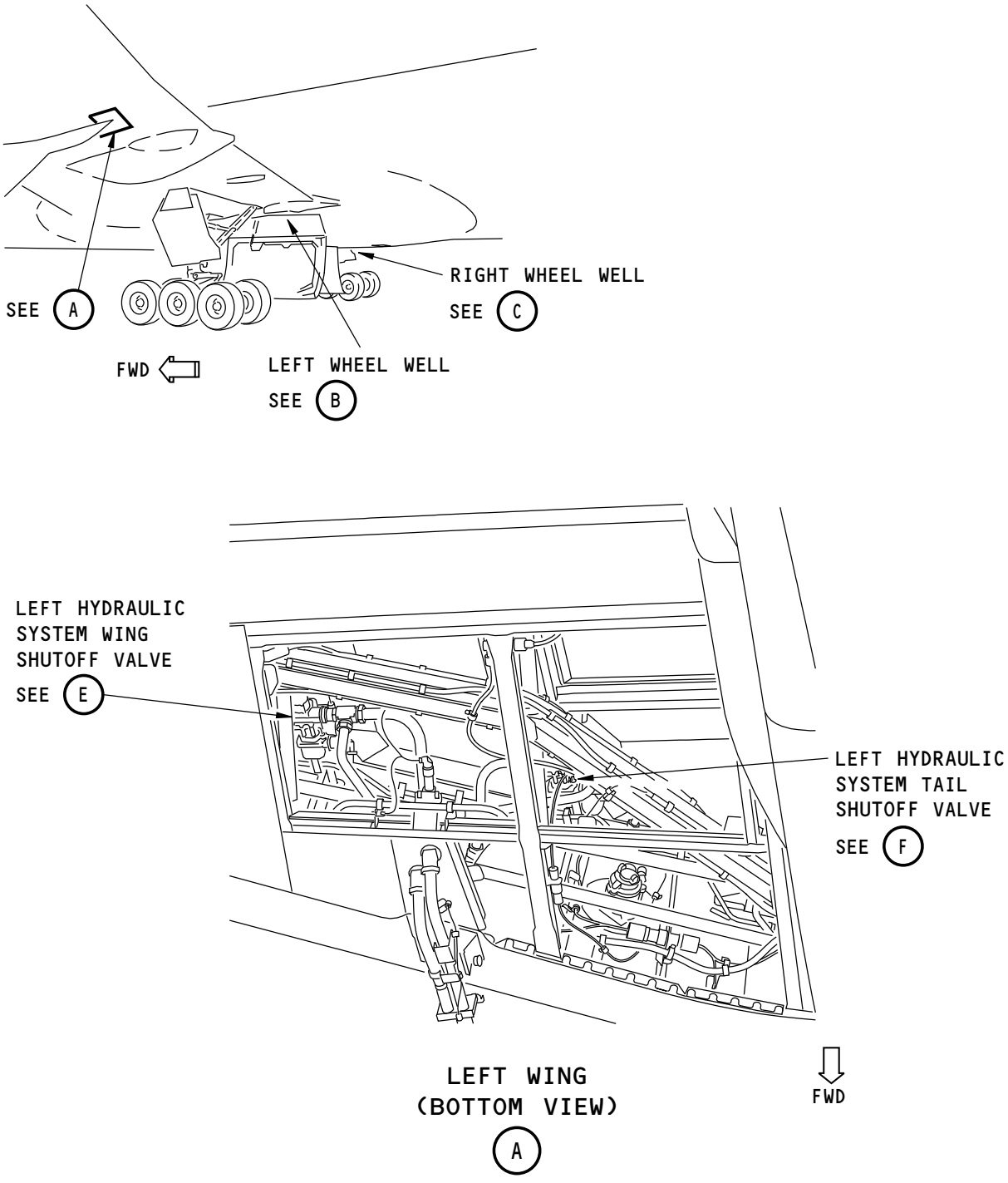
1) Install caps on the hydraulic lines.

2) Remove the bolts [2] and washers [3].

3) Remove the hydraulic shutoff valve [1].

END OF TASK

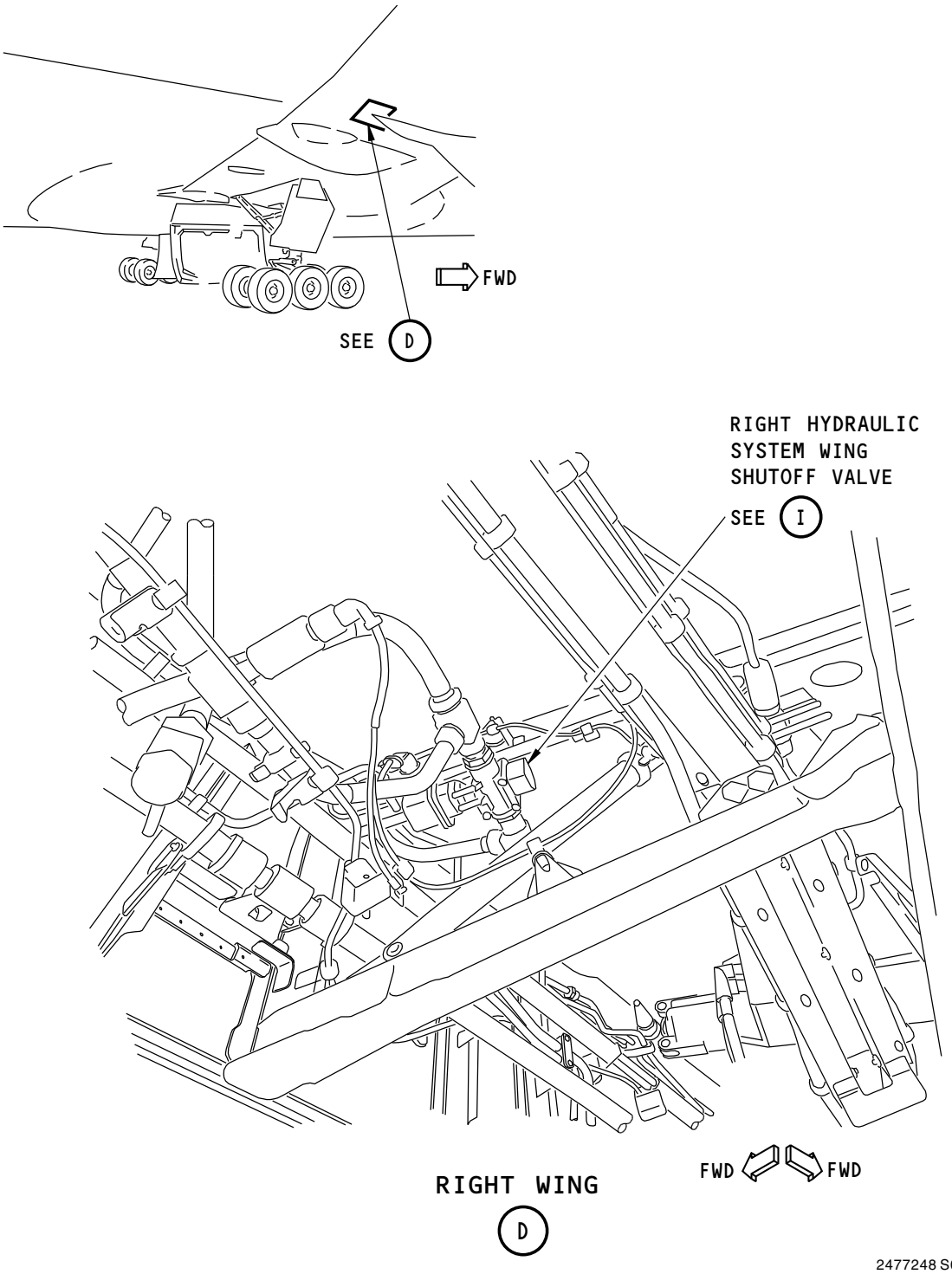
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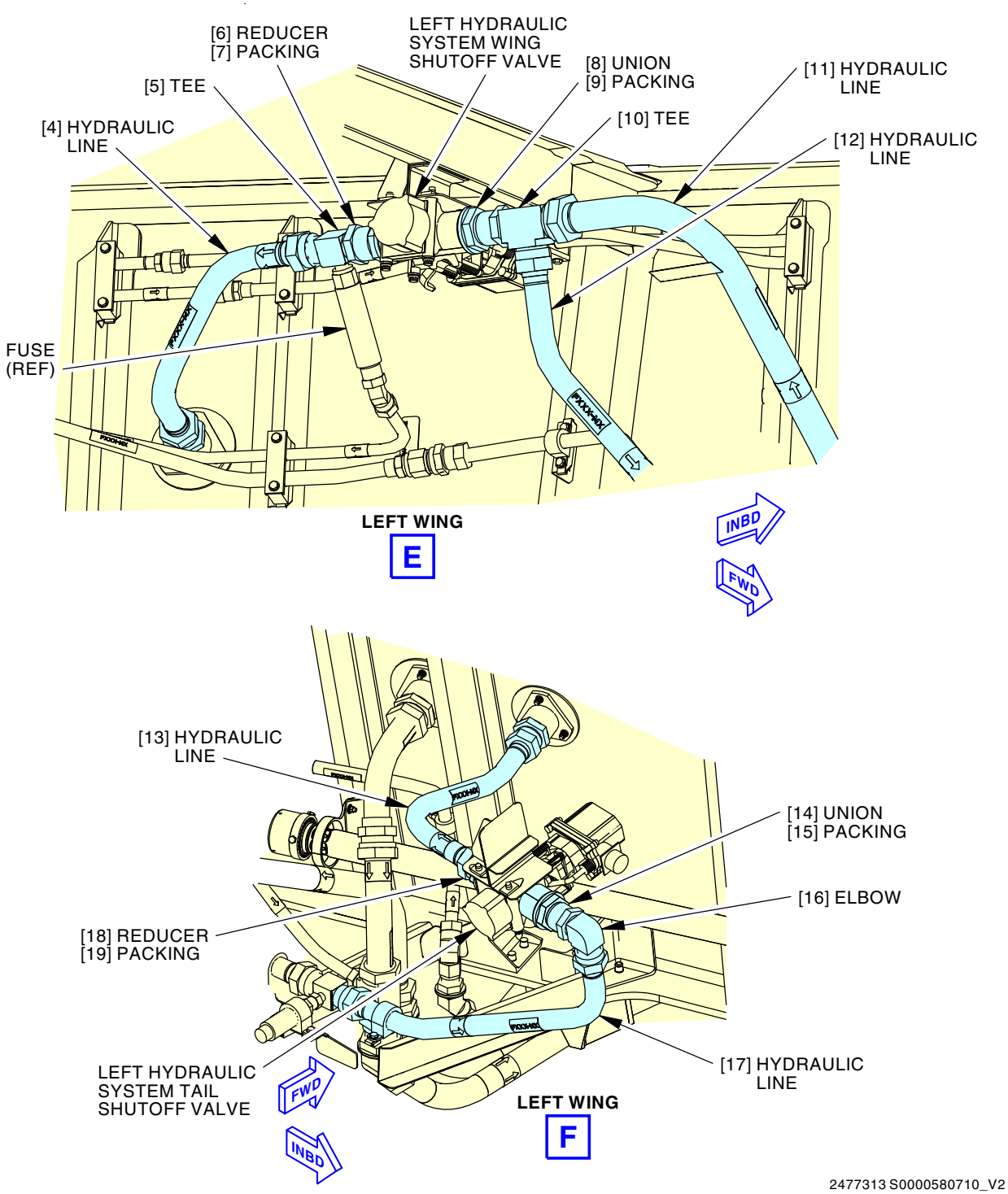
Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 1 of 8)

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Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 2 of 8)

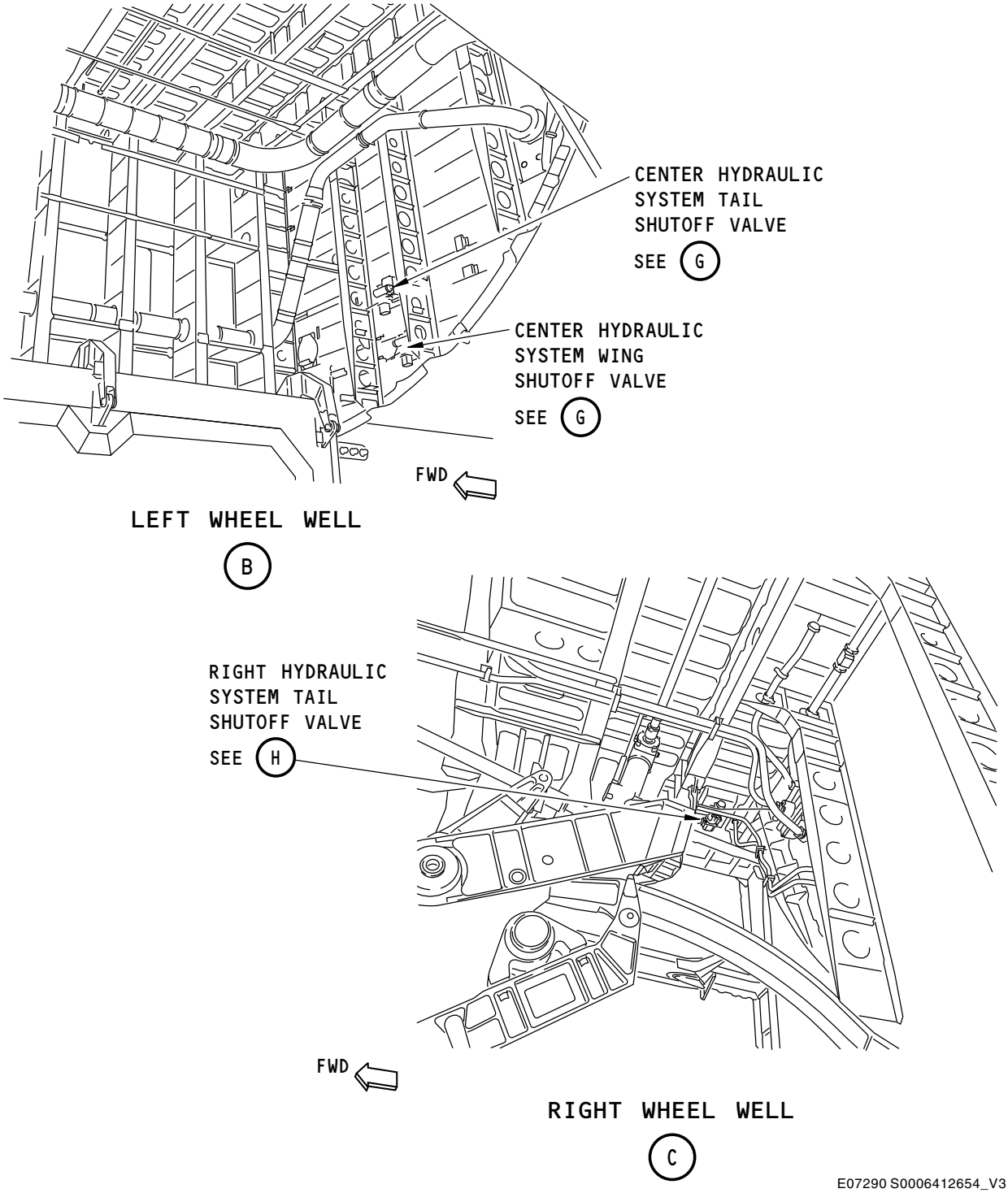
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2477313 S0000580710_V2

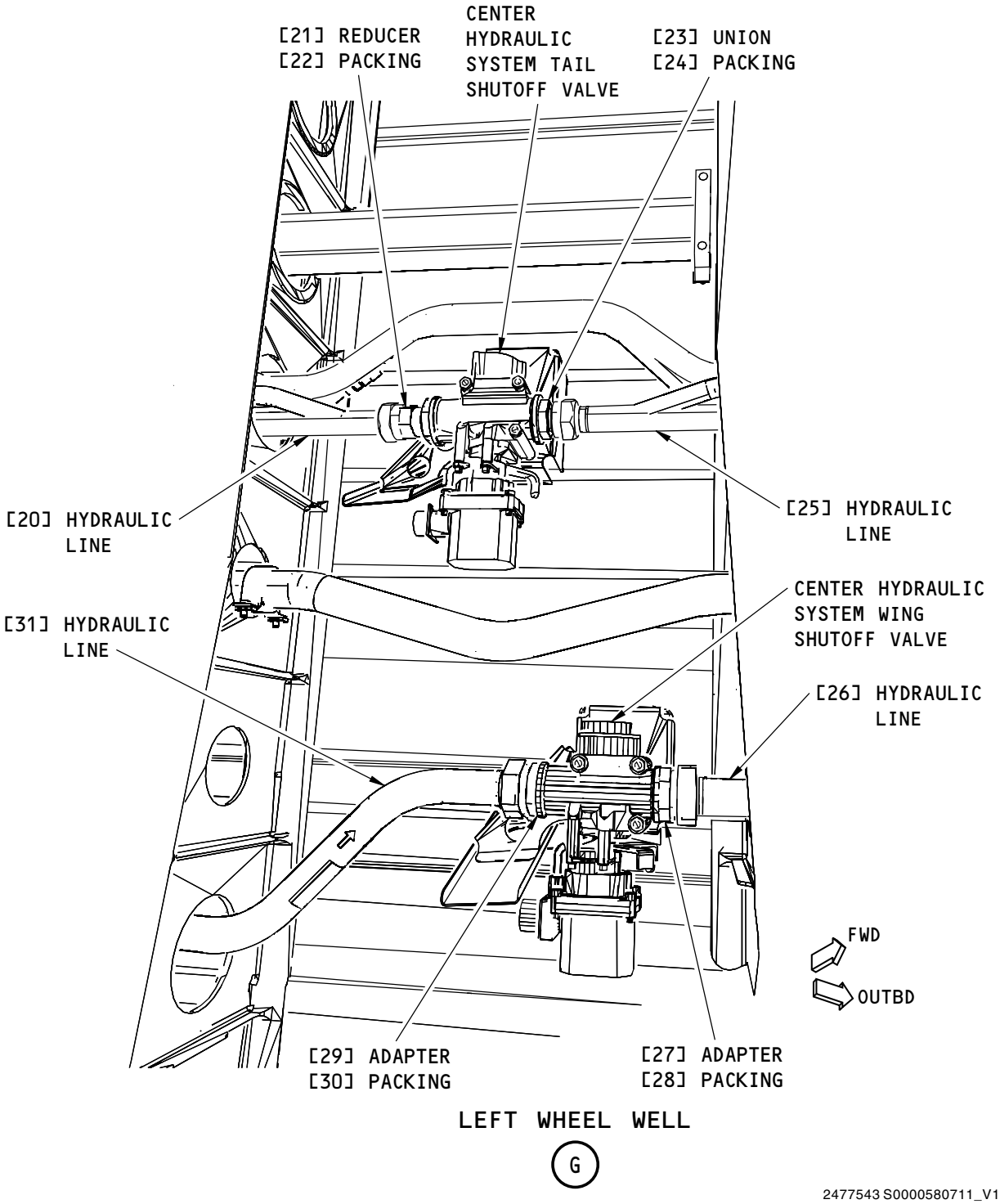
Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 3 of 8)

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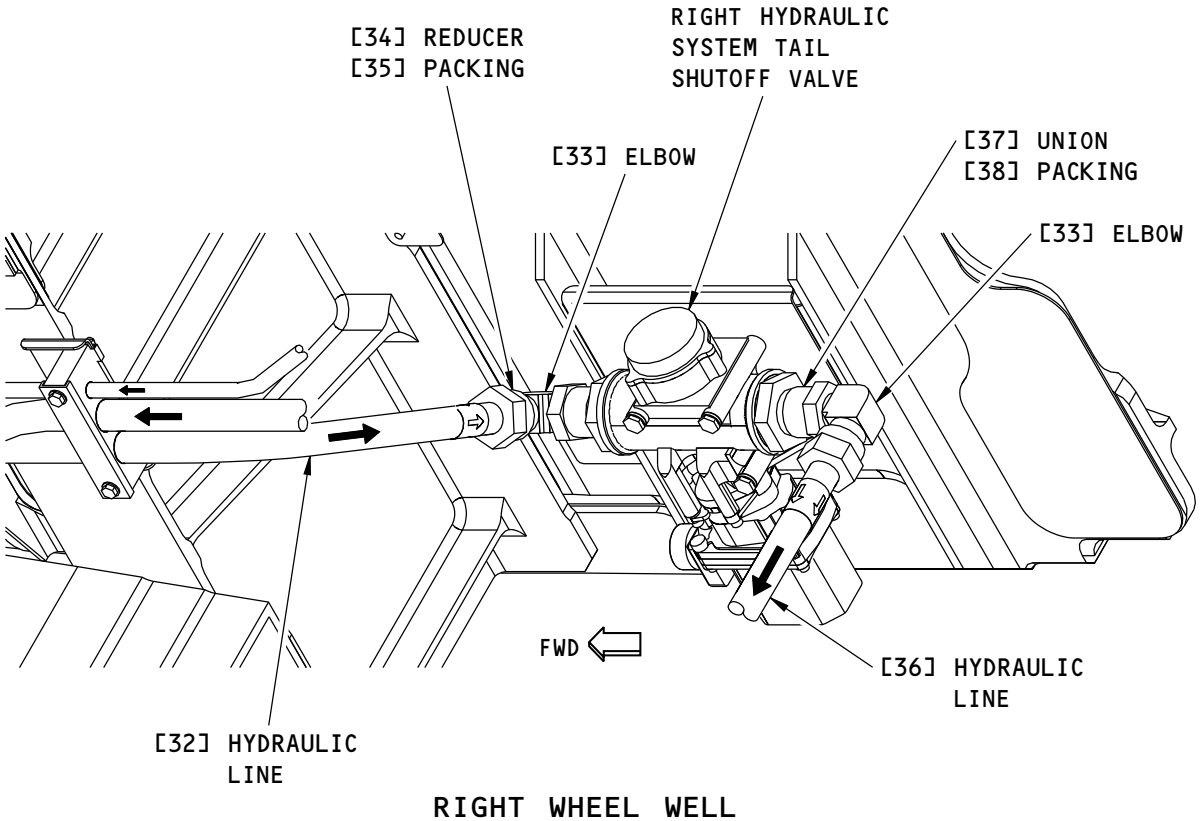
Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 4 of 8)

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Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 5 of 8)

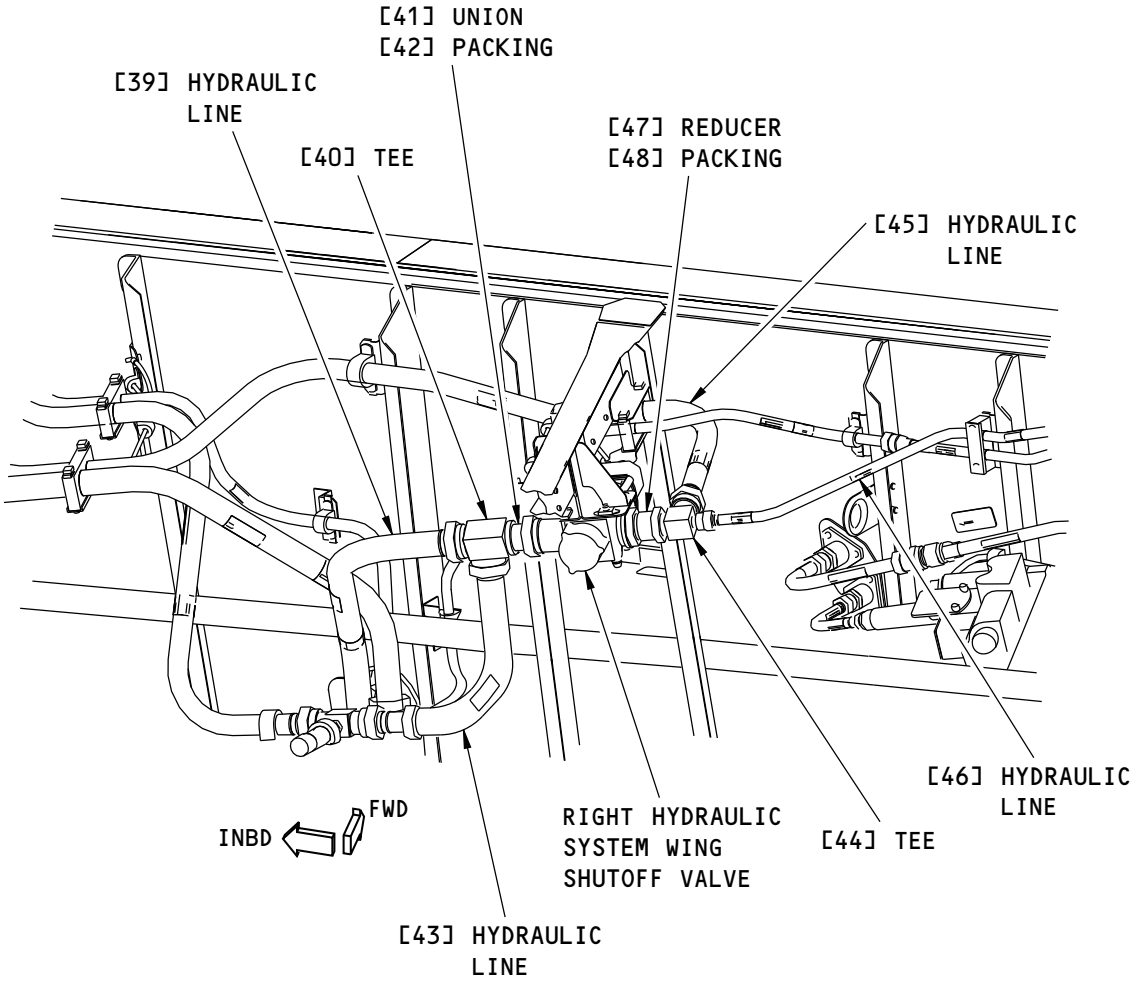
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2477325 S0000580713_V1

Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 6 of 8)

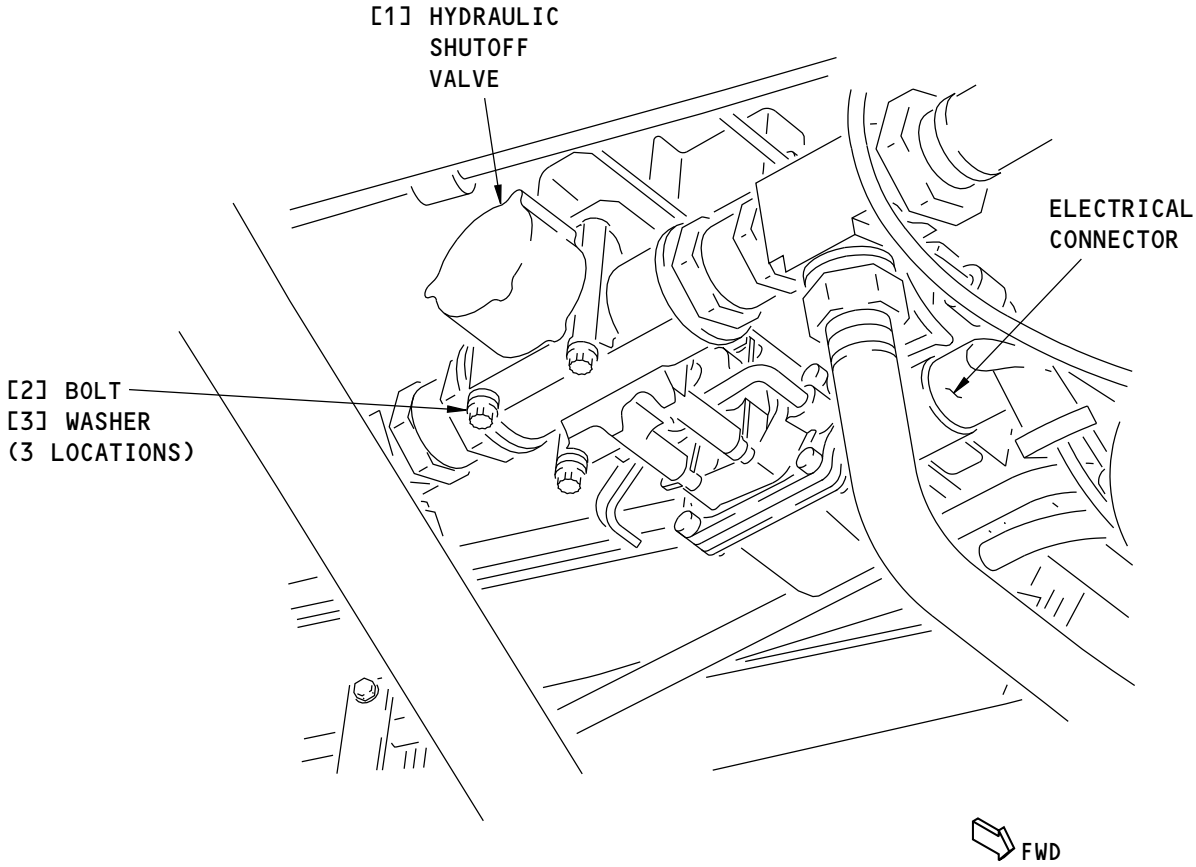
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2477330 S0000580715_V1

Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 7 of 8)

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HYDRAULIC SHUTOFF VALVE
(THE LEFT WING SHUTOFF VALVE IS SHOWN,
THE OTHER SHUTOFF VALVES ARE EQUIVALENT)

E07292 S0006412655_V2

Hydraulic Shutoff Valves (Tail and Wing) Installation
Figure 401/27-02-32-990-801 (Sheet 8 of 8)

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TASK 27-02-32-400-801

3. Hydraulic Shutoff Valve Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure is applicable for the left, center and right (tail and wing) hydraulic shutoff valves [1].

(2) The locations of the hydraulic shutoff valves [1] are as follows:

(a) The wing and tail hydraulic shutoff valves [1] for the left hydraulic system are in the left wing.

(b) The wing hydraulic shutoff valve [1] for the right hydraulic system is in the right wing.

(c) The tail and wing hydraulic shutoff valves [1] for the center hydraulic system are on the aft bulkhead of the left main landing gear wheel well.

(d) The tail hydraulic shutoff valve [1] for the right hydraulic system is on the aft ceiling of the right main landing gear wheel well.

B. References

Reference	Title
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
54-52-07-400-801	Strut Trailing Edge Installation (P/B 401)
SWPM 20-20-00	Standard Wiring Practices Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
D50269	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type IV)	BMS3-11 Type V

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E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Hydraulic shutoff valve	27-02-32-02-010	ARO ALL
		27-02-32-02-035	ARO ALL
		27-02-32-10-020	ARO ALL
		27-02-32-10-067	ARO ALL
		27-02-32-10-070	ARO ALL
		27-02-32-10-105	ARO ALL
		27-02-33-02-010	ARO ALL
		27-02-33-02-050	ARO ALL
		27-02-33-03-020	ARO ALL
		27-02-33-03-060	ARO ALL

F. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

G. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

H. Prepare for the Installation

SUBTASK 27-02-32-100-001

(1) Clean the mating surfaces between the bracket and the hydraulic shutoff valve [1].

SUBTASK 27-02-32-390-001

(2) Apply sealant, A00247, to the mating surfaces between the bracket and the hydraulic shutoff valve [1].

I. Hydraulic Shutoff Valve Installation

SUBTASK 27-02-32-420-001

(1) Put the hydraulic shutoff valve [1] in its position.

SUBTASK 27-02-32-390-002

(2) Apply sealant, A00247 to the bolts [2].

SUBTASK 27-02-32-420-002

(3) Install the bolts [2] and the washers [3].

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SUBTASK 27-02-32-760-001

(4) Measure resistance between the mating surfaces between the bracket and the hydraulic shutoff valve [1] with a intrinsically safe approved bonding meter, COM-1550. (SWPM 20-20-00)

NOTE: The maximum bond resistance that is permitted across these surfaces is 0.008 ohm.

SUBTASK 27-02-32-080-001

(5) Remove the caps on the hydraulic lines.

SUBTASK 27-02-32-420-003

(6) Connect the electrical connector.

SUBTASK 27-02-32-420-004

(7) Connect the hydraulic lines.

(a) Lubricate the components which follow with hydraulic fluid, D50269 or hydraulic fluid, D00153:

1) packing [7], packing [9], packing [15], packing [19], packing [22], packing [24], packing [28], packing [30], packing [35], packing [38], packing [42], packing [48].

2) The threads on the reducer [6], union [8], union [14], reducer [18], reducer [21], union [23], adapter [27], adapter [29], reducer [34], union [37], union [41], reducer [47].

(b) Connect hydraulic lines to the left hydraulic system wing shutoff valve (Figure 401 (Sheet 3)):

1) Install the packing [7] on the reducer [6].

2) Install the reducer [6] in the outlet port of the shutoff valve.

a) Tighten the reducer [6] to 900 ±45 in-lb (102 ±5 N·m).

3) Install the tee [5] on the reducer [6].

a) Tighten the B-nut on the tee [5] to 1200 ±60 in-lb (136 ±7 N·m).

4) Connect the hydraulic line [4] to the tee [5].

a) Tighten the B-nut on the hydraulic line [4] to 1200 ±60 in-lb (136 ±7 N·m).

5) Install the packing [9] on the union [8].

6) Install the union [8] in the inlet port of the shutoff valve.

a) Tighten the union [8] to 1200 ±60 in-lb (136 ±7 N·m).

7) Install the tee [10] on the union [8].

a) Tighten the B-nut on the tee [10] to 1200 ±60 in-lb (136 ±7 N·m).

8) Connect the hydraulic line [11] to the tee [10].

a) Tighten the B-nut on the hydraulic line [11] to 1600 ±80 in-lb (181 ±9 N·m).

9) Connect the hydraulic line [12] to the tee [10].

a) Tighten the B-nut on the hydraulic line [12] to 1200 ±60 in-lb (136 ±7 N·m).

(c) Connect hydraulic lines to the left hydraulic system tail shutoff valve (Figure 401 (Sheet 3)):

1) Install the packing [19] on the reducer [18].

2) Install the reducer [18] in the outlet port of the shutoff valve.

a) Tighten the reducer [18] to 900 ±45 in-lb (102 ±5 N·m).

3) Connect the hydraulic line [13] to the reducer [18].

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a) Tighten the B-nut on the hydraulic line [13] to 1200 ±60 in-lb (136 ±7 N·m).

4) Install the packing [15] on the union [14].

5) Install the union [14] in the inlet port of the shutoff valve.

a) Tighten the union [14] to 1200 ±60 in-lb (136 ±7 N·m).

6) Install the elbow [16] on the union [14].

a) Tighten the B-nut on the elbow [16] to 1200 ±60 in-lb (136 ±7 N·m).

7) Connect the hydraulic line [17] to the elbow [16].

a) Tighten the B-nut on the hydraulic line [17] to 1200 ±60 in-lb (136 ±7 N·m).

(d) Connect hydraulic lines to the center hydraulic system tail shutoff valve (Figure 401 (Sheet 5)):

1) Install the packing [24] on the union [23].

2) Install the union [23] in the outlet port of the shutoff valve.

a) Tighten the union [23] to 900 ±45 in-lb (102 ±5 N·m).

3) Connect the hydraulic line [25] to the union [23].

a) Tighten the B-nut on the hydraulic line [25] to 900 ±45 in-lb (102 ±5 N·m).

4) Install the packing [22] on the reducer [21].

5) Install the reducer [21] in the inlet port of the shutoff valve.

a) Tighten the reducer [21] to 1200 ±60 in-lb (136 ±7 N·m).

6) Connect the hydraulic line [20] to the reducer [21].

a) Tighten the B-nut on the hydraulic line [20] to 900 ±45 in-lb (102 ±5 N·m).

(e) Connect hydraulic lines to the center hydraulic system wing shutoff valve (Figure 401 (Sheet 5)):

1) Install the packing [28] on the adapter [27].

2) Install the adapter [27] in the outlet port of the shutoff valve.

a) Tighten the adapter [27] to 900 ±45 in-lb (102 ±5 N·m).

3) Connect the hydraulic line [26] to the adapter [27].

a) Tighten the B-nut on the hydraulic line [26] to 1600 ±80 in-lb (181 ±9 N·m).

4) Install the packing [30] on the adapter [29].

5) Install the adapter [29] in the inlet port of the shutoff valve.

a) Tighten the adapter [29] to 1200 ±60 in-lb (136 ±7 N·m).

6) Connect the hydraulic line [31] to the adapter [29].

a) Tighten the B-nut on the hydraulic line [31] to 1600 ±80 in-lb (181 ±9 N·m).

(f) Connect hydraulic lines to the right hydraulic system tail shutoff valve (Figure 401 (Sheet 6)):

1) Install the packing [38] on the union [37].

2) Install the union [37] in the outlet port of the shutoff valve.

a) Tighten the union [37] to 900 ±45 in-lb (102 ±5 N·m).

3) Install the elbow [33] on the union [37].

a) Tighten the B-nut on the elbow [33] to 900 ±45 in-lb (102 ±5 N·m).

4) Connect the hydraulic line [36] to the elbow [33].

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a) Tighten the B-nut on the hydraulic line [36] to 900 ±45 in-lb (102 ±5 N·m).

5) Install the packing [35] on the reducer [34].

6) Install the reducer [34] in the inlet port of the shutoff valve.

a) Tighten the reducer [34] to 1200 ±60 in-lb (136 ±7 N·m).

7) Install the elbow [33] on the reducer [34].

a) Tighten the B-nut on the elbow [33] to 900 ±45 in-lb (102 ±5 N·m).

8) Connect the hydraulic line [32] to the elbow [33].

a) Tighten the B-nut on the hydraulic line [32] to 900 ±45 in-lb (102 ±5 N·m).

(g) Connect hydraulic lines to the right hydraulic system wing shutoff valve (Figure 401 (Sheet 7)):

1) Install the packing [48] on the reducer [47].

2) Install the reducer [47] in the outlet port of the shutoff valve.

a) Tighten the reducer [47] to 900 ±45 in-lb (102 ±5 N·m).

3) Install the tee [44] on the reducer [47].

a) Tighten the B-nut on the tee [44] to 1200 ±60 in-lb (136 ±7 N·m).

4) Connect the hydraulic line [46] to the tee [44].

a) Tighten the B-nut on the hydraulic line [46] to 500 ±25 in-lb (56 ±3 N·m).

5) Connect the hydraulic line [45] to the tee [44].

a) Tighten the B-nut on the hydraulic line [45] to 1200 ±60 in-lb (136 ±7 N·m).

6) Install the packing [42] on the union [41].

7) Install the union [41] in the inlet port of the shutoff valve.

a) Tighten the union [41] to 1200 ±60 in-lb (136 ±7 N·m).

8) Install the tee [40] on the union [41].

a) Tighten the B-nut on the tee [40] to 1200 ±60 in-lb (136 ±7 N·m).

9) Connect the hydraulic line [39] to the tee [40].

a) Tighten the B-nut on the hydraulic line [39] to 1600 ±80 in-lb (181 ±9 N·m).

10) Connect the hydraulic line [43] to the tee [40].

a) Tighten the B-nut on the hydraulic line [43] to 1200 ±60 in-lb (136 ±7 N·m).

J. Hydraulic Shutoff Valves Test

SUBTASK 27-02-32-440-001

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	19	C27622	C FC SOV TAIL
K	20	C27621	L FC SOV TAIL
K	21	C27619	C FC SOV WG
K	22	C27618	L FC SOV WG

Right Power Management Panel, P210

Row	Col	Number	Name
K	6	C27620	R FC SOV WG

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(Continued)

Right Power Management Panel, P210

Row	Col	Number	Name
K	7	C27623	R FC SOV TAIL

SUBTASK 27-02-32-840-002

(2) Supply power to the applicable hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-02-32-200-001

(3) Do these steps to check the valves for leak:

(a) Operate the rudder pedals through approximately 4 full cycles.

(b) Operate the control wheel through approximately 4 full cycles.

(c) Make sure the hydraulic shutoff valves do not have a leaks.

SUBTASK 27-02-32-710-001

(4) Do the steps that follow for the hydraulic shutoff valve [1] you will test:

(a) Make sure the manual lever of the hydraulic shutoff valve [1] is in the OPEN position.

(b) Make sure the hydraulic maintenance page on the EICAS shows NORM for the applicable hydraulic shutoff valve [1].

(c) Set the flight control hydraulic power switch on the P61 panel to the SHUT OFF position.

1) Make sure the VALVE CLOSED light on the P61 panel comes on.

2) Make sure the hydraulic maintenance page on the EICAS shows CLOSED for the applicable hydraulic shutoff valve [1].

3) Make sure the manual lever on the hydraulic shutoff valve [1] moves to the CLOSED position.

(d) Set the flight control hydraulic power switch on the P61 panel to the NORM position.

1) Make sure the VALVE CLOSED light goes off.

2) Make sure the hydraulic maintenance page on the EICAS shows NORM for the applicable hydraulic shutoff valve [1].

3) Make sure the manual lever on the hydraulic shutoff valve [1] moves to the OPEN position.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 27-02-32-410-001

(1) Do these steps if you got access to a hydraulic shutoff valve [1] in the wing:

(a) For these hydraulic shutoff valves [1]: tail for the left hydraulic system, wing for the left hydraulic system, do these steps:

1) Install these access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel

2) Install the trailing edge (the aft end of the engine nacelle fairing from the left wing), do this task: Strut Trailing Edge Installation, TASK 54-52-07-400-801.

(b) For this hydraulic shutoff valve [1]: wing for the right hydraulic system, do these steps:

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1) Install these access panels:

Number	Name/Location
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

2) Install the fairing (the aft end of the engine nacelle fairing from the right wing).

SUBTASK 27-02-32-080-002

(2) Do these steps if you got access to a hydraulic shutoff valve [1] in the wheel wells:

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Remove the door safety pins and close the doors for the landing gear, do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-02-32-860-001

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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HYDRAULIC FUSES - REMOVAL/INSTALLATION

1. General

A. This procedure contains scheduled maintenance task data.

B. There are eight hydraulic fuses for the primary flight control system, four for the ailerons, three for the flaperons, and one for the rudder.

(1) The ailerons have one fuse for each power control unit (PCU). The fuses for the ailerons are in the left and center hydraulic systems. They are installed in the wings, inboard of the ailerons ((Figure 401) and (Figure 403)).

(2) The flaperon on the left wing has one fuse for each PCU. These fuses are in the left and right hydraulic systems. They are installed in the wing forward of the flaperon ((Figure 403)).

(3) The flaperon on the right wing has a fuse for its outboard PCU. This fuse is in the center hydraulic system, and is installed in the wing forward of the flaperon ((Figure 404)).

(4) The rudder has a fuse for its upper PCU. This fuse is in the center hydraulic system, and is installed in the tail (Figure 405).

TASK 27-02-35-000-801

2. Hydraulic Fuse Removal

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The installation of the fuse [1] and fuse [2] for the left aileron is shown in (Figure 401).

(2) The installation of the fuse [21] and fuse [22] for the right aileron is shown in (Figure 402).

(3) The installation of the fuse [41] and fuse [42] for the left flaperon is shown in (Figure 403).

(4) The installation of the fuse [61] for the right flaperon is shown in (Figure 404).

(5) The installation of the fuse [81] for the rudder is shown in (Figure 405).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-15-000-801	Outboard Flaperon Fairing Removal (P/B 401)
27-11-15-000-802	Inboard Flaperon Fairing Removal (P/B 401)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-61-00-040-802	Spoiler Deactivation (With the Spoilers Up) (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

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D. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
561	Rear Spar to Trailing Edge - Outboard of Flaperon - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing
661	Rear Spar to Trailing Edge - Outboard of Flaperon - Right Wing

E. Access Panels

Number	Name/Location
311BL	Service Access Door
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

F. Prepare for the Removal

SUBTASK 27-02-35-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-35-040-001

(2) Before you remove a fuse for the aileron or flaperon (fuse [1], fuse [2], fuse [21], fuse [22], fuse [41], fuse [42] or fuse [61]), put the three FLT CONTROL HYD VALVE POWER switches for the WING in the SHUT OFF position.

NOTE: These valves only close the pressure hydraulic line, not the return hydraulic line. Thus, they will not prevent leaks of hydraulic fluid when hydraulic lines are opened. If the hydraulic reservoirs are pressurized, hydraulic fluid will come out when the fuse is removed. Close these valves to give some protection if hydraulic power is accidentally supplied.

SUBTASK 27-02-35-040-003

(3) Before you remove one of the four fuses for the ailerons (fuse [1], fuse [2], fuse [21] or fuse [22]), do these steps:

NOTE: You can get better access to some of the fuses if you deactivate the applicable spoiler in the up position (TASK 27-61-00-040-802).

(a) To extend the trailing edge flaps to the 30-unit position, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(b) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(c) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-02-35-040-004

(4) Before you remove one of the three fuses for the flaperons (fuse [41], fuse [42] or fuse [61]), do these steps:

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

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WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) To do the deactivation procedure for the thrust reverser (forward thrust position), do these tasks: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00

(c) For the fuse [41] for the outboard PCU of the left flaperon (View B, (Figure 403)), do these steps:

1) To remove the outboard fairing for the left flaperon, do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

2) Remove this access panel:

Number	Name/Location
552LB	Outboard Fixed Trailing Edge Panel

(d) For the fuse [42] for the inboard PCU of the left flaperon (View C, (Figure 403)), do these steps:

1) To remove the inboard fairing for the left flaperon, do this task: Inboard Flaperon Fairing Removal, TASK 27-11-15-000-802.

2) Remove this access panel:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel

(e) For the fuse [61] for the right flaperon (View B, (Figure 404)), do these steps:

NOTE: The right flaperon has only one fuse. It is for the outboard PCU.

1) To remove the outboard fairing for the right flaperon, do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

2) Remove this access panel:

Number	Name/Location
652LB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-02-35-010-001

(5) Before you remove the fuse [81] for the rudder (View B, (Figure 405)), do these steps:

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

(b) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position.

NOTE: These valves only close the pressure hydraulic line, not the return hydraulic line. Thus, they will not prevent leaks of hydraulic fluid when hydraulic lines are opened. If the hydraulic reservoirs are pressurized, hydraulic fluid will come out when the fuse is removed. Close these valves to give some protection if hydraulic power is accidentally supplied.

(c) Get access through this access panel:

Number	Name/Location
311BL	Service Access Door

(Figure 405).

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(d) Install the ladder equipment, SPL-2011, for access to the fuse [81].

G. Hydraulic Fuse Removal

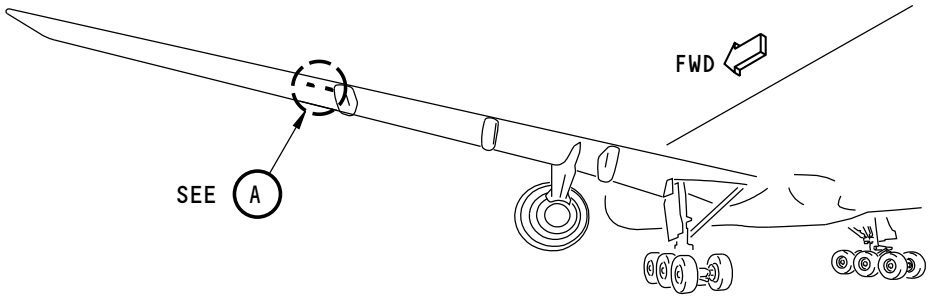
SUBTASK 27-02-35-020-001

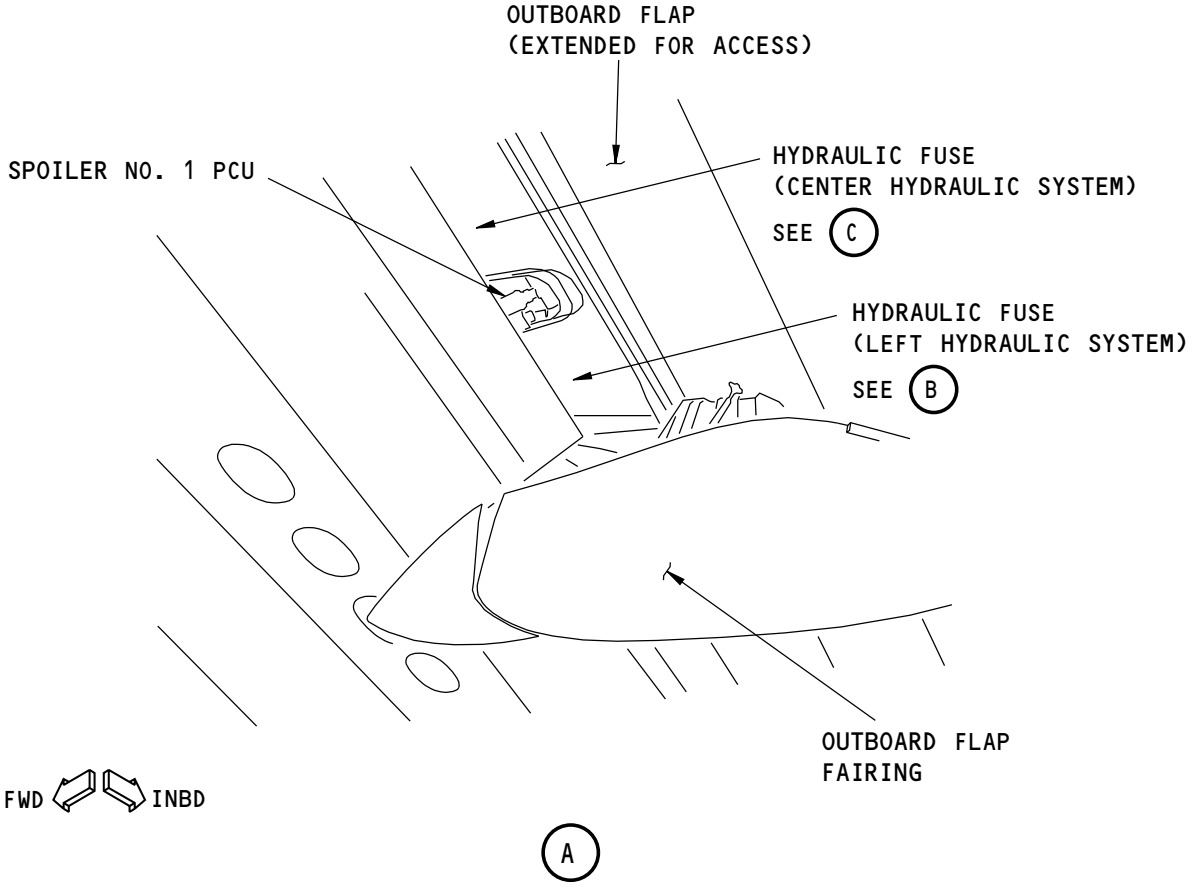
(1) Disconnect the hydraulic lines from the fuse [1], fuse [2], fuse [21], fuse [22], fuse [41], fuse [42], fuse [61], or fuse [81] (Figure 401, Figure 402, Figure 403, Figure 404, Figure 405) and remove it from the airplane.

(a) Put caps on the hydraulic lines and the fuses.

——— END OF TASK ———

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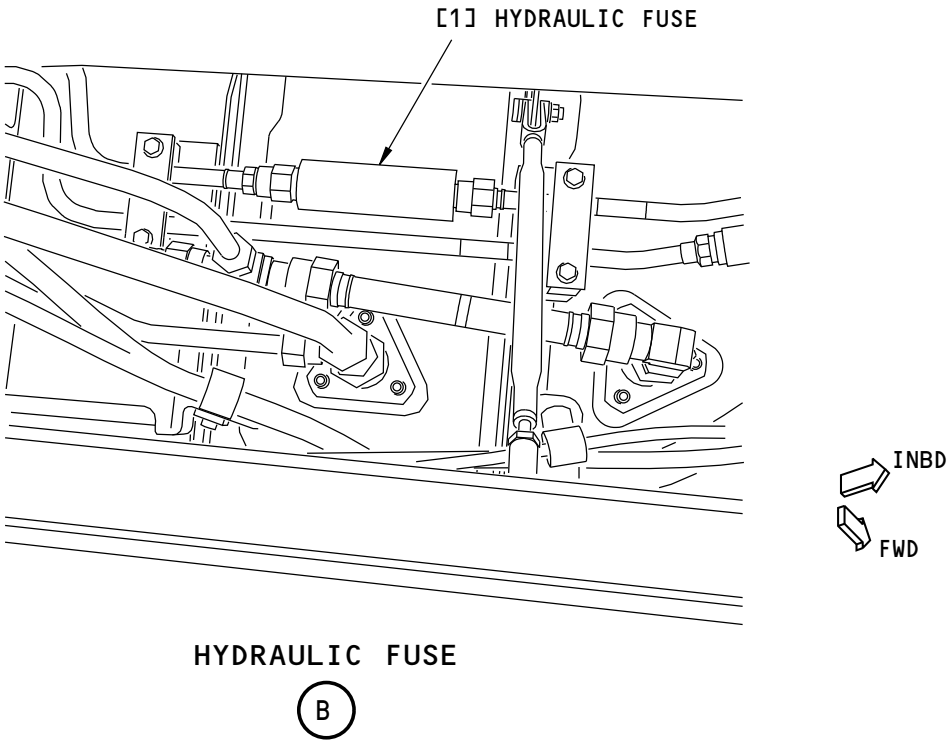


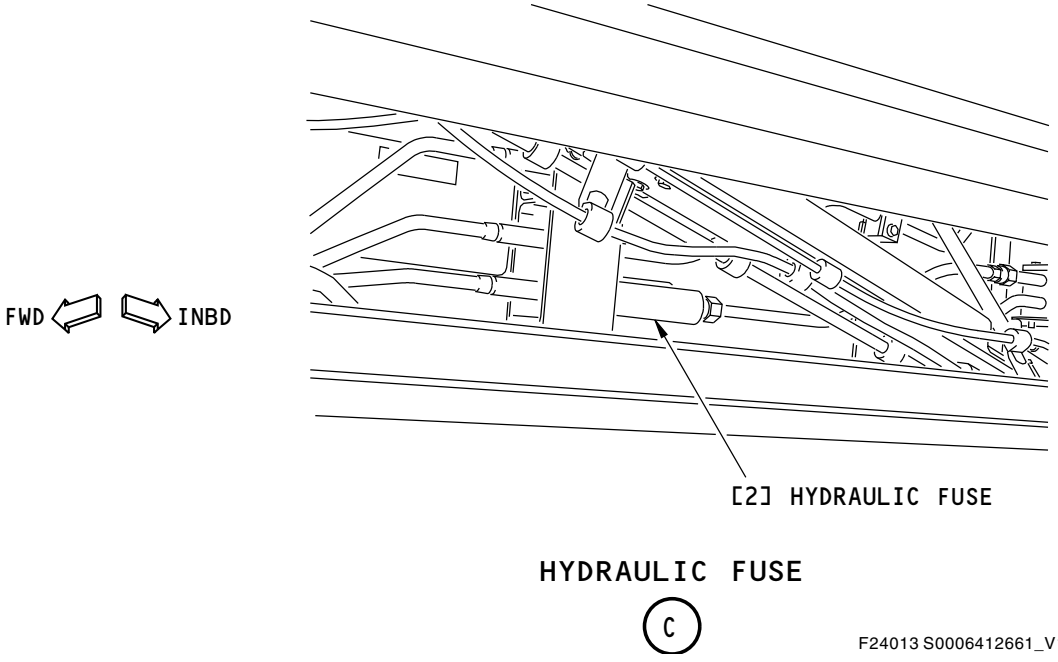


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Left Aileron Hydraulic Fuses Installation
Figure 401/27-02-35-990-801 (Sheet 1 of 2)

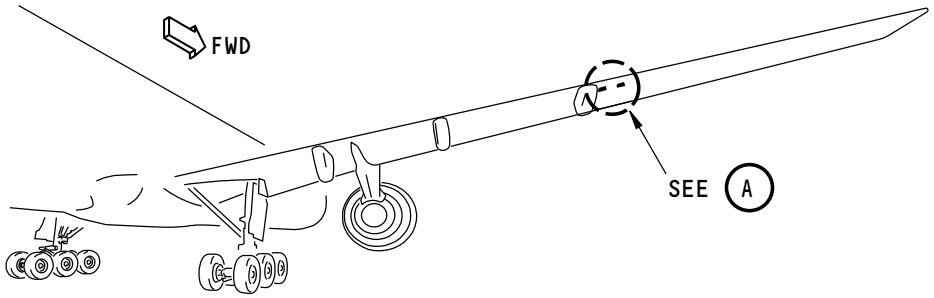
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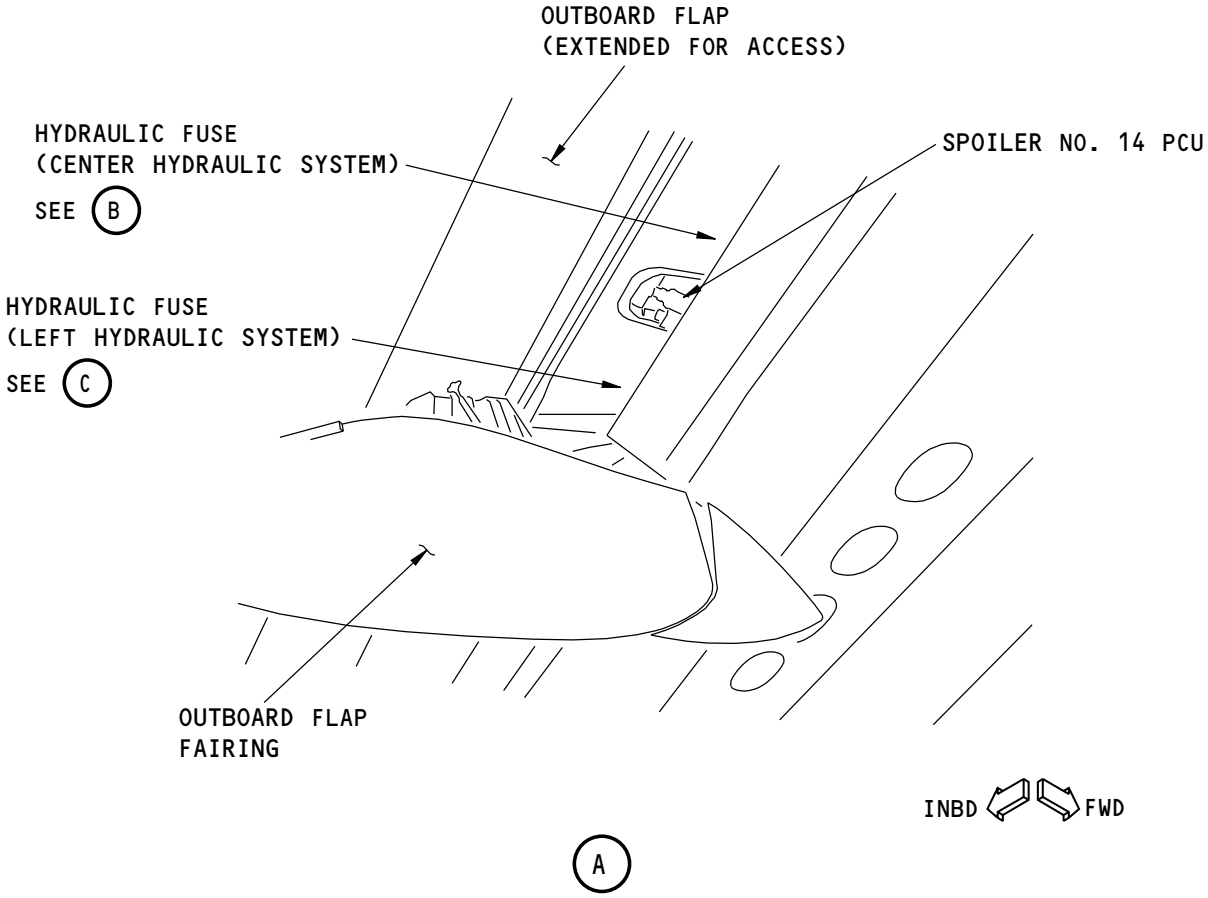




Left Aileron Hydraulic Fuses Installation
Figure 401/27-02-35-990-801 (Sheet 2 of 2)

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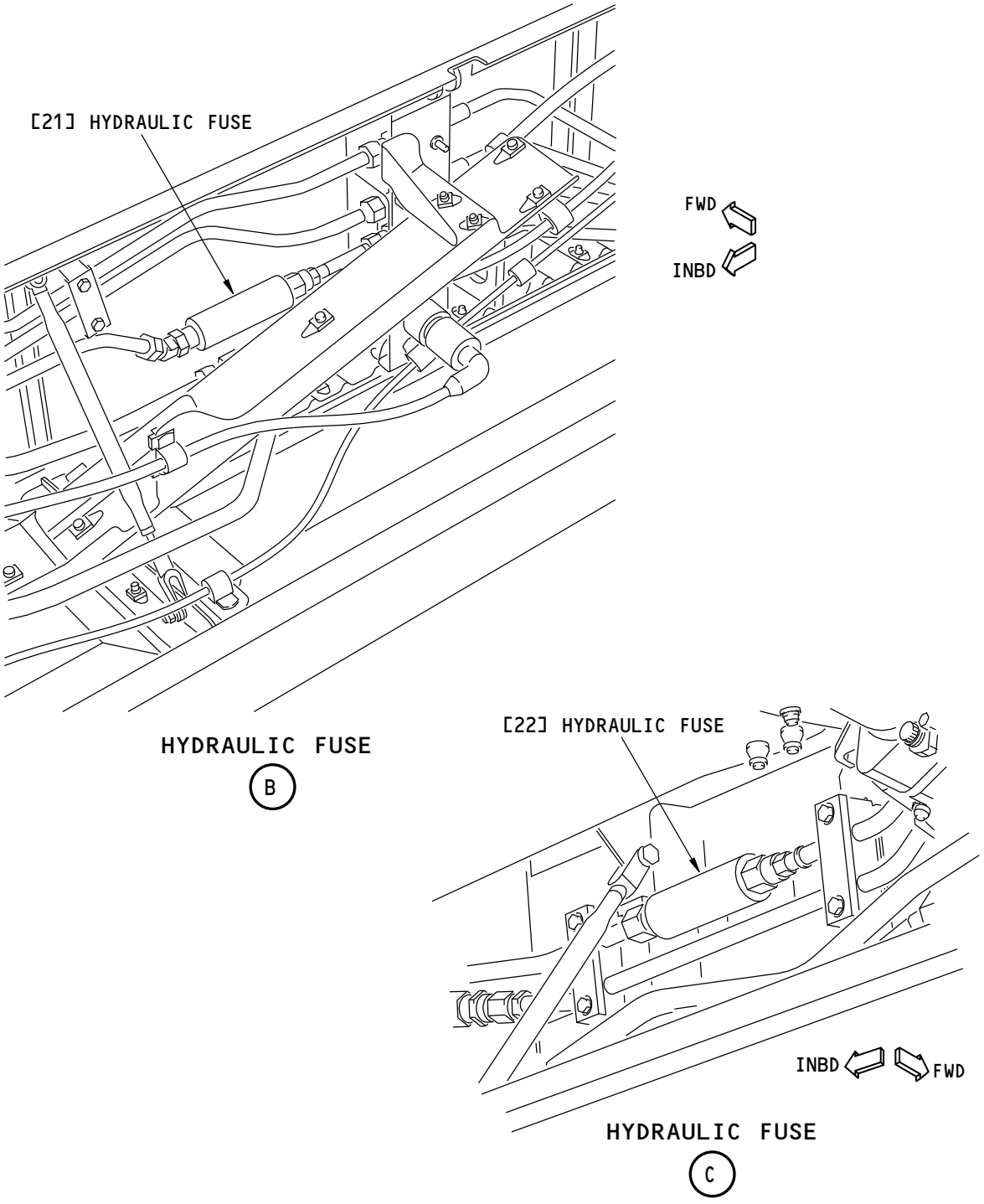




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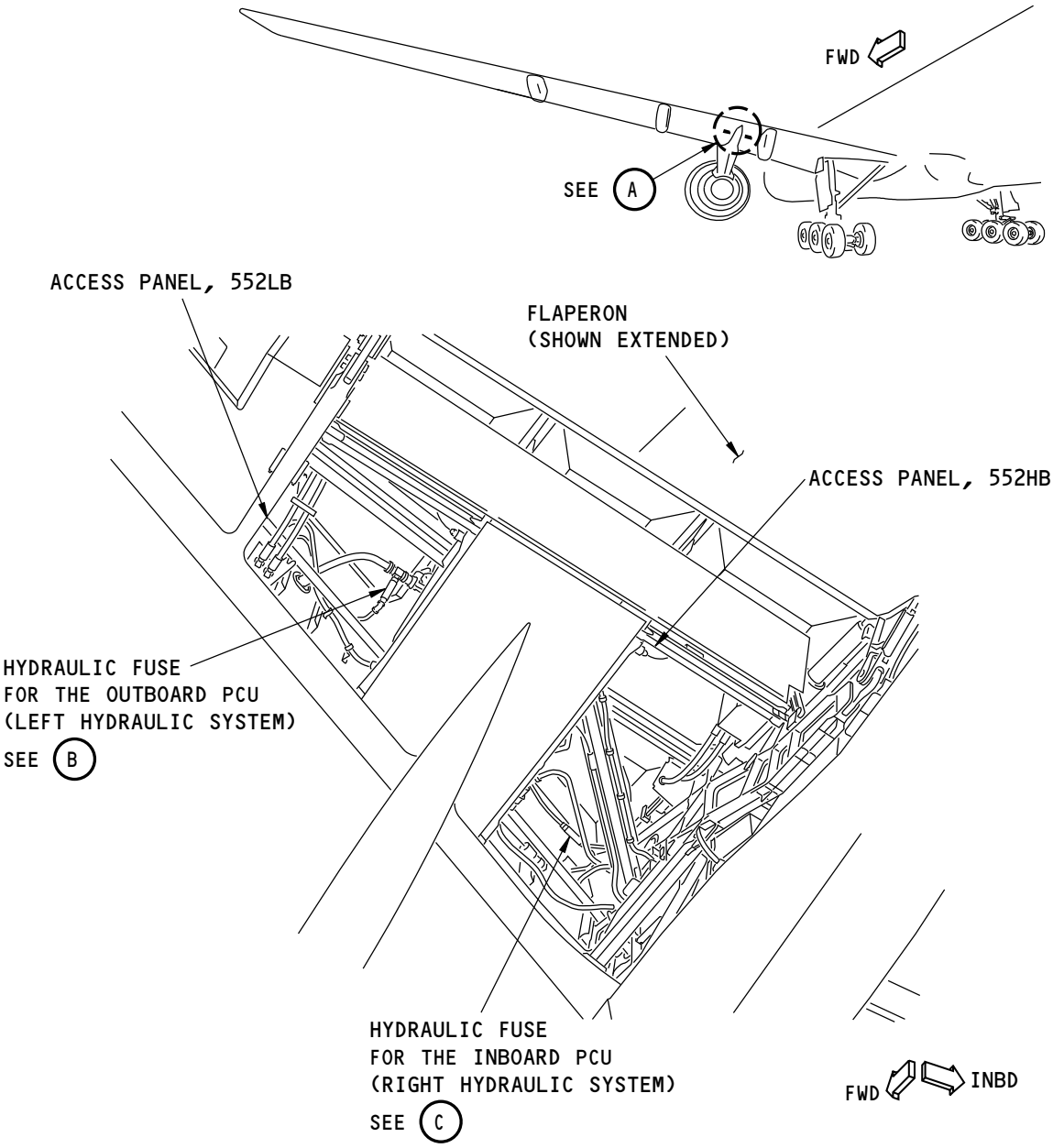
Right Aileron Hydraulic Fuses Installation
Figure 402/27-02-35-990-802 (Sheet 1 of 2)

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Right Aileron Hydraulic Fuses Installation
Figure 402/27-02-35-990-802 (Sheet 2 of 2)

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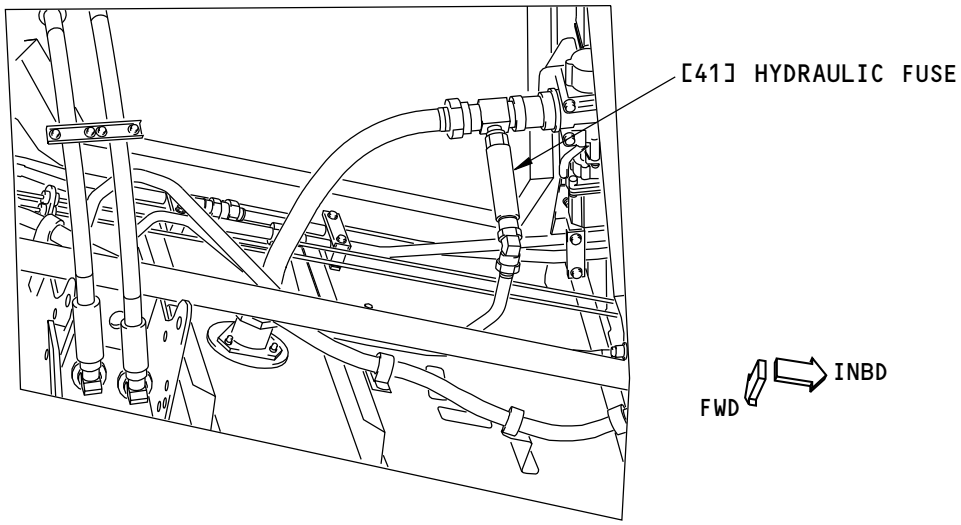


LEFT FLAPERON HYDRAULIC FUSES
(BOTTOM VIEW)
A

D12396 S0006412664_V1

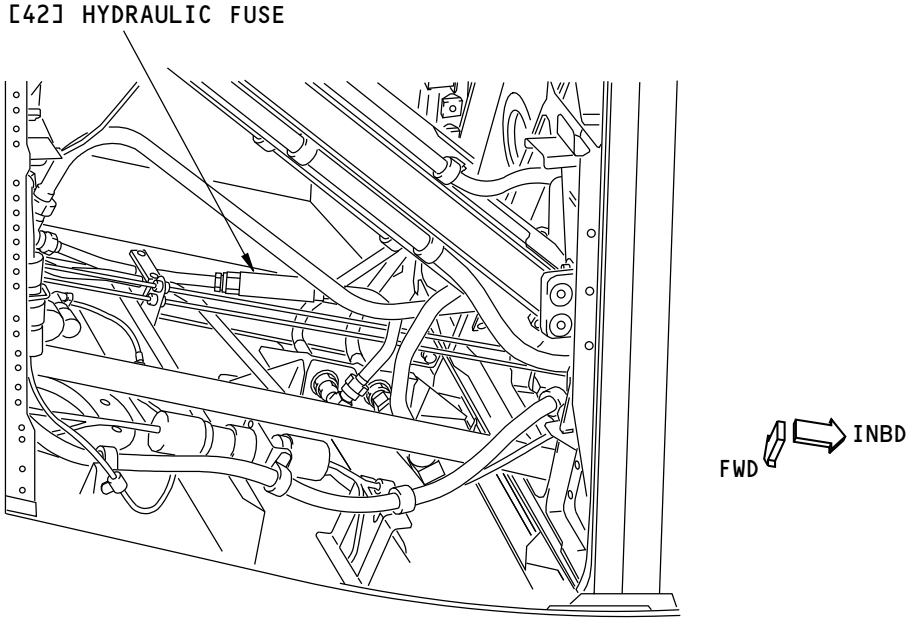
Left Flaperon Hydraulic Fuses Installation
Figure 403/27-02-35-990-803 (Sheet 1 of 2)

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HYDRAULIC FUSE FOR THE OUTBOARD PCU

B



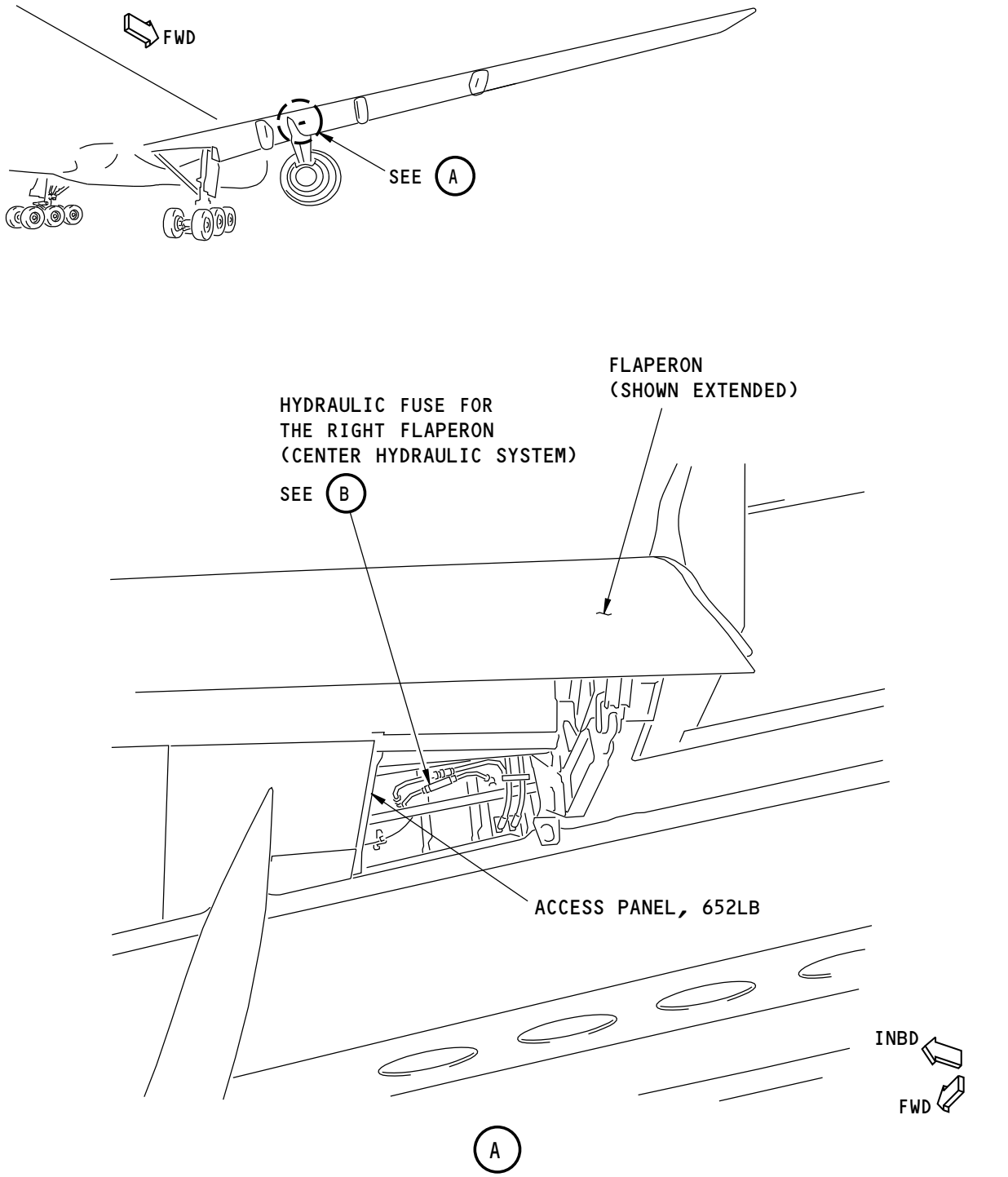
HYDRAULIC FUSE FOR THE INBOARD PCU

C

D12398 S0006412665_V1

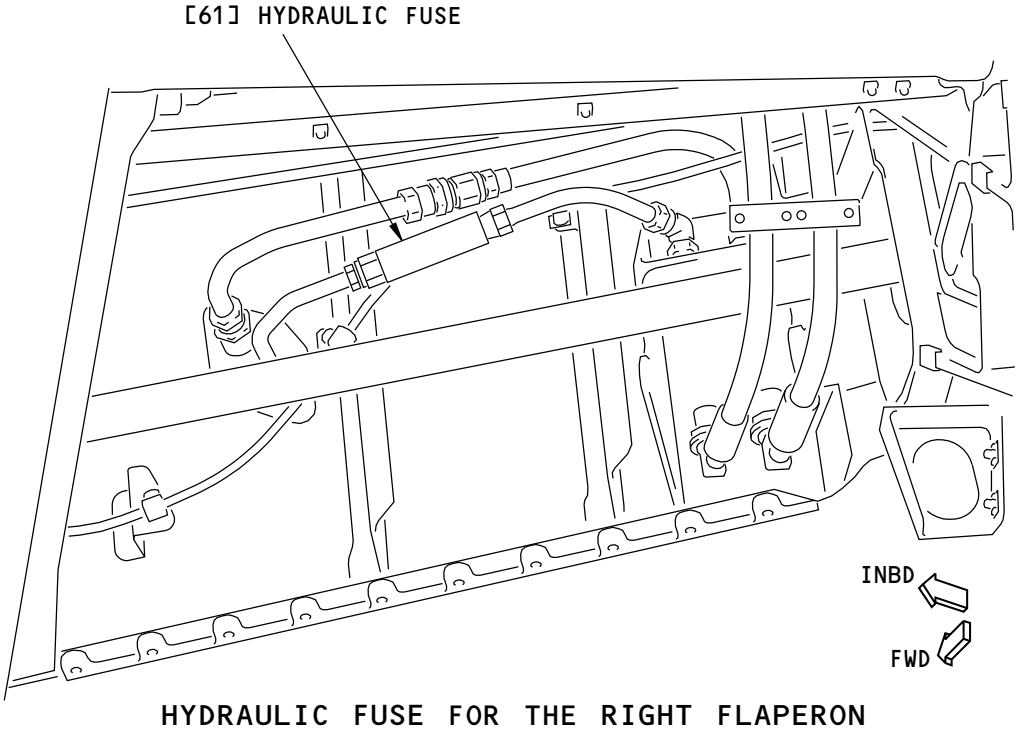
Left Flaperon Hydraulic Fuses Installation
Figure 403/27-02-35-990-803 (Sheet 2 of 2)

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Right Flaperon Hydraulic Fuse Installation
Figure 404/27-02-35-990-804 (Sheet 1 of 2)

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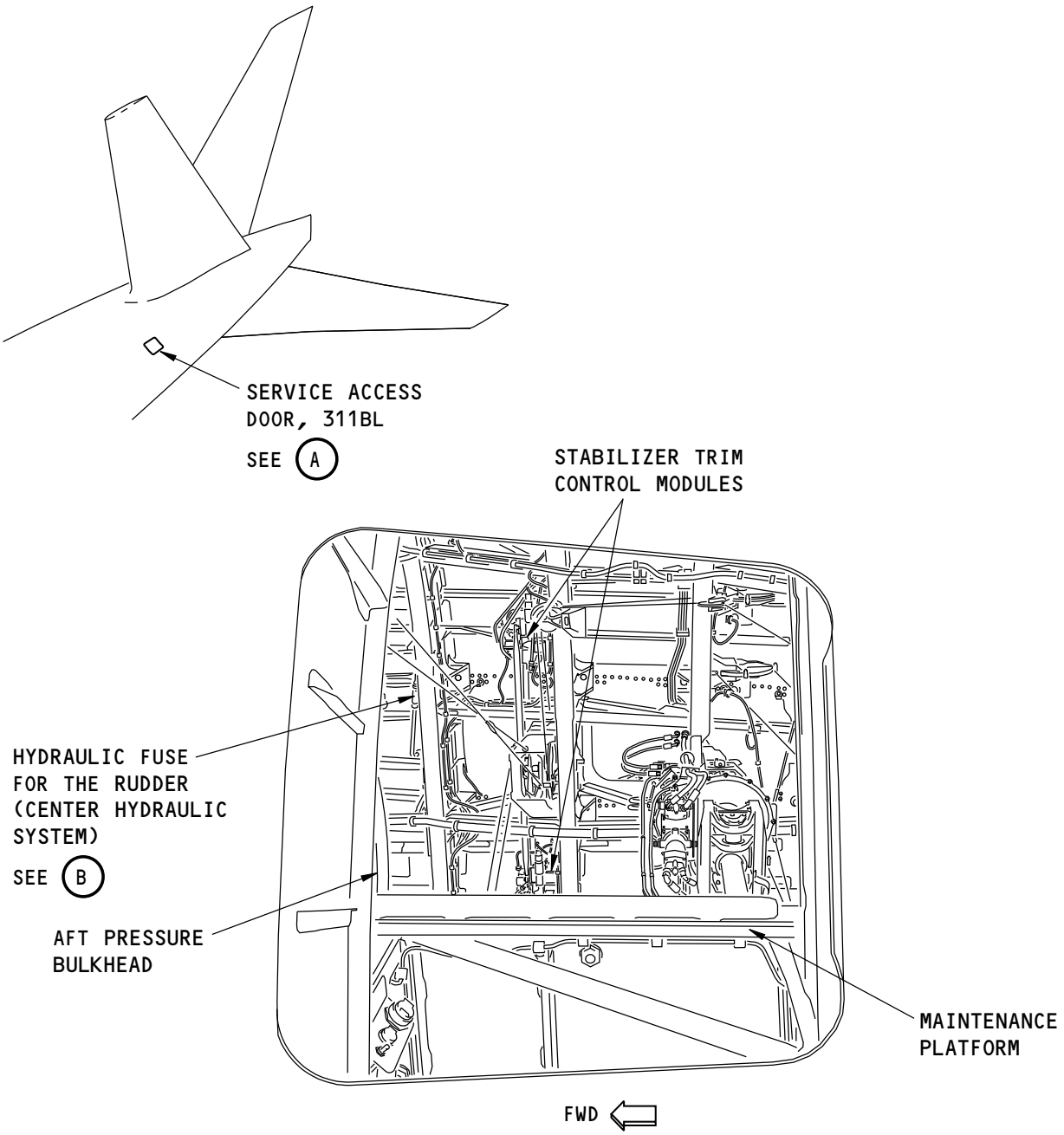
HYDRAULIC FUSE FOR THE RIGHT FLAPERON

B

D13015 S0006412667_V1

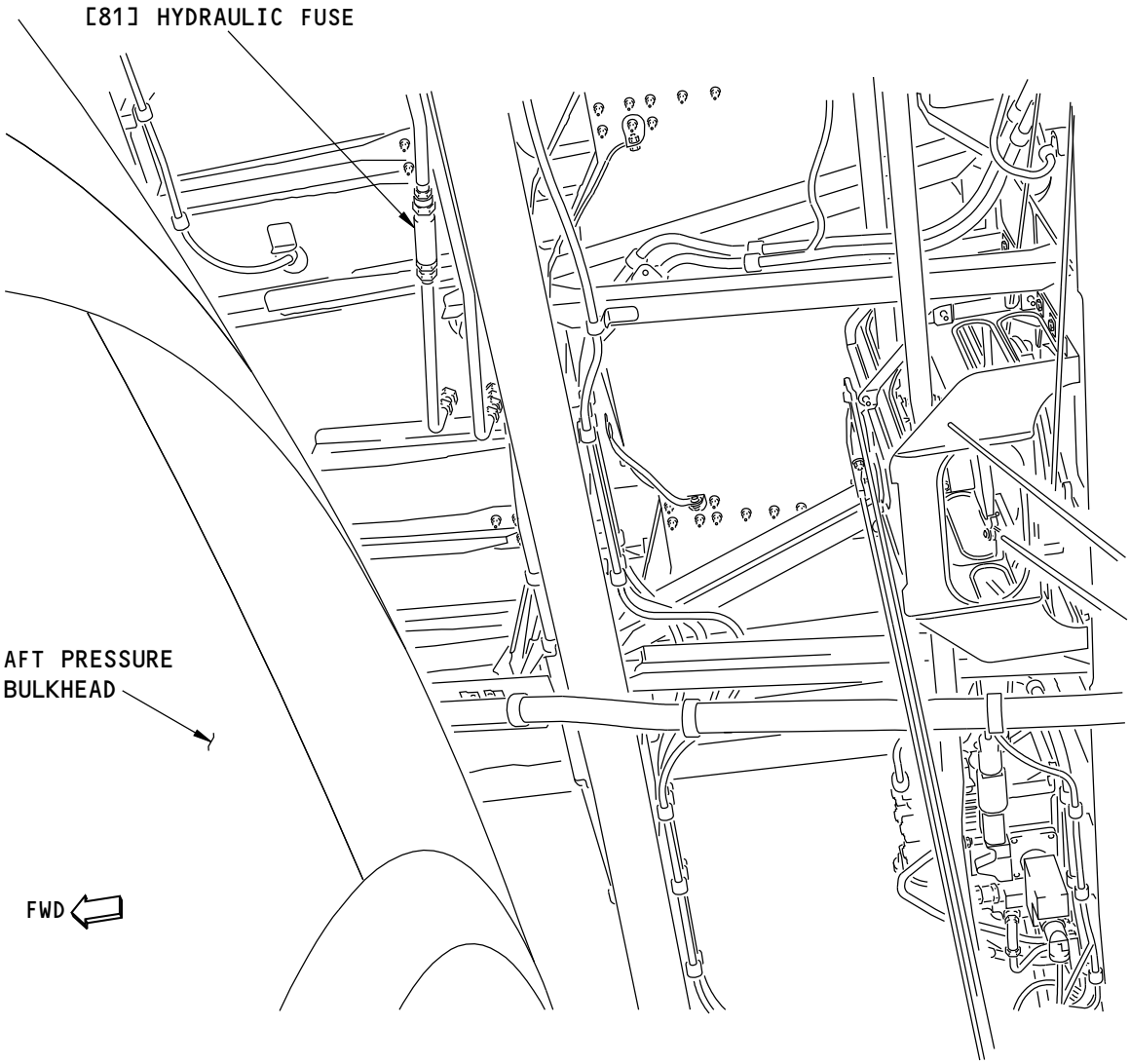
Right Flaperon Hydraulic Fuse Installation
Figure 404/27-02-35-990-804 (Sheet 2 of 2)

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Rudder Hydraulic Fuse Installation
Figure 405/27-02-35-990-805 (Sheet 1 of 2)

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Rudder Hydraulic Fuse Installation
Figure 405/27-02-35-990-805 (Sheet 2 of 2)

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TASK 27-02-35-400-801

3. Hydraulic Fuse Installation

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The installation of the fuse [1] and fuse [2] for the left aileron is shown in (Figure 401).

(2) The installation of the fuse [21] and fuse [22] for the right aileron is shown in (Figure 402).

(3) The installation of the fuse [41] and fuse [42] for the left flaperon is shown in (Figure 403).

(4) The installation of the fuse [61] for the right flaperon is shown in (Figure 404).

(5) The installation of the fuse [81] for the rudder is shown in (Figure 405).

B. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)
20-10-09-400-801	Flareless Tubing Assembly Installation (P/B 401)
27-11-15-400-801	Outboard Flaperon Fairing Installation (P/B 401)
27-11-15-400-802	Inboard Flaperon Fairing Installation (P/B 401)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-61-00-440-801	Spoiler Activation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Fuse	27-02-35-06-080	ARO ALL
2	Fuse	27-02-35-06-080	ARO ALL
21	Fuse	27-02-35-01B-005	ARO ALL
22	Fuse	27-02-35-01B-005	ARO ALL
41	Fuse	27-02-35-06-070	ARO ALL
42	Fuse	27-02-35-06-070	ARO ALL
61	Fuse	27-02-35-01B-005	ARO ALL
		27-02-35-30B-050	ARO ALL
81	Fuse	27-02-35-05-050	ARO 001-004
		27-02-35-05A-025	ARO 005-999

E. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left

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(Continued)

Zone	Area
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
561	Rear Spar to Trailing Edge - Outboard of Flaperon - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing
661	Rear Spar to Trailing Edge - Outboard of Flaperon - Right Wing

F. Access Panels

Number	Name/Location
311BL	Service Access Door
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

G. Hydraulic Fuse Installation

SUBTASK 27-02-35-420-001

(1) Remove the caps from the hydraulic lines and the fuse.

SUBTASK 27-02-35-420-002

(2) Install the fuse [1], fuse [2], fuse [21], fuse [22], fuse [41], fuse [42], fuse [61], or fuse [81] on the hydraulic line (Figure 401, Figure 402, Figure 403, Figure 404, Figure 405).

NOTE: To prevent the leakage of fluids, the fuses should be tighten to the appropriate CRES torque value (Flareless Tubing Assembly Installation, TASK 20-10-09-400-801).

SUBTASK 27-02-35-440-001

(3) Put the six FLT CONTROL HYD VALVE POWER switches in the NORM position.

H. Hydraulic Fuse Leak Check

SUBTASK 27-02-35-790-001

(1) If you replaced a fuse in one of the wings (fuse [1], fuse [2], fuse [21], fuse [22], fuse [41], fuse [42] or fuse [61]), do these steps:

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Supply left, right, and center hydraulic pressure, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(b) Turn one of the control wheels fully left and fully right approximately 4 times.

(c) Make sure the fuse does not have a leak.

SUBTASK 27-02-35-790-002

(2) If you replaced the fuse [81] in the tail, do these steps:

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(b) Put the towing lever (on the nose landing gear) in the tow position (Maintenance Towing, TASK 09-11-00-580-801).

NOTE: This will prevent the nose landing gear from moving when you move the rudder pedals.

(c) Operate the rudder pedals through approximately 4 full cycles.

(d) Make sure the fuse does not have a leak.

SUBTASK 27-02-35-790-003

(3) Make sure that there are no flight control fault messages related to the fuse location at the Maintenance Access Terminal (MAT).

NOTE: A power control unit (PCU) fault may indicate a set fuse.

NOTE: If the fuse is set, it will not reset until the pressure is fully removed from the system and reservoir.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-02-35-860-002

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-02-35-410-001

(2) If you replaced one of the fuses for the flaperons (fuse [41], fuse [42] or fuse [61]), then do these steps:

(a) Install the applicable access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

(b) Install the applicable flaperon fairing:

1) Do this task: Outboard Flaperon Fairing Installation, TASK 27-11-15-400-801.

2) Do this task: Inboard Flaperon Fairing Installation, TASK 27-11-15-400-802.

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

SUBTASK 27-02-35-440-002

(3) If you replaced one of the fuses for the ailerons, do these steps:

(a) If you deactivated a spoiler, do the activation procedure for the spoilers (TASK 27-61-00-440-801).

(b) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-02-35-410-002

(4) If you replaced the fuse for the rudder, do these steps:

(a) Remove the ladder equipment, SPL-2011.

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(b) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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HYDRAULIC CHECK VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the check valves on the wing.

(2) An installation of the check valves on the wing.

(3) A removal of the check valve in the tail.

(4) An installation of the check valve in the tail.

TASK 27-02-36-000-801

2. Wing Hydraulic Check Valve Removal

A. General

(1) There are seven hydraulic check valves on the wings, four for the ailerons and three for the flaperons.

(a) Each aileron has two check valves, one for each PCU. The check valves for the ailerons are in the left and center hydraulic systems. They are installed in the wings, inboard of the ailerons (Figure 401, Figure 402).

(b) The flaperon on the left wing has two check valves, one for each PCU. These check valves are in the left and right hydraulic systems. They are installed in the wing forward of the flaperon (Figure 403).

(c) The flaperon on the right wing has one check valve, for its outboard PCU. This check valve is in the center hydraulic system, and is installed in the wing forward of the flaperon (Figure 404)

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-15-000-801	Outboard Flaperon Fairing Removal (P/B 401)
27-11-15-000-802	Inboard Flaperon Fairing Removal (P/B 401)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
561	Rear Spar to Trailing Edge - Outboard of Flaperon - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing
661	Rear Spar to Trailing Edge - Outboard of Flaperon - Right Wing

D. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
652LB	Outboard Fixed Trailing Edge Panel

E. Prepare for the Removal

SUBTASK 27-02-36-040-001

(1) If you will remove one of the four check valves for the ailerons, do these steps for access (Figure 401, Figure 402):

(a) Extend the trailing edge flaps to the 30 unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(b) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-02-36-860-005

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-36-860-006

(3) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-02-36-040-004

(4) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the SHUT OFF position.

NOTE: These valves only close the pressure hydraulic line, not the return hydraulic line. Thus, they will not prevent leaks of hydraulic fluid when hydraulic lines are opened. If the hydraulic reservoirs are pressurized, hydraulic fluid will come out when the check valve is removed. Close these valves to give some protection if hydraulic power is accidentally supplied.

SUBTASK 27-02-36-040-002

(5) If you will remove one of the three check valves for the flaperons, do these steps for access (Figure 403, Figure 404):

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) To do the deactivation procedure for the thrust reverser (forward thrust position), do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(b) For the check valve for the outboard PCU of the left flaperon, do these steps:

1) For the left flaperon, do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

2) Remove this access panel:

Number	Name/Location
552LB	Outboard Fixed Trailing Edge Panel

(c) For the check valve for the inboard PCU of the left flaperon, do these steps:

1) For the left flaperon, do this task: Inboard Flaperon Fairing Removal, TASK 27-11-15-000-802.

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2) Remove this access panel:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel

(d) For the check valve for the right flaperon, do these steps:

NOTE: The right flaperon has only one check valve. It is for the outboard PCU.

1) For the right flaperon, do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

2) Remove this access panel:

Number	Name/Location
652LB	Outboard Fixed Trailing Edge Panel

F. Hydraulic Check Valve Removal

SUBTASK 27-02-36-020-001

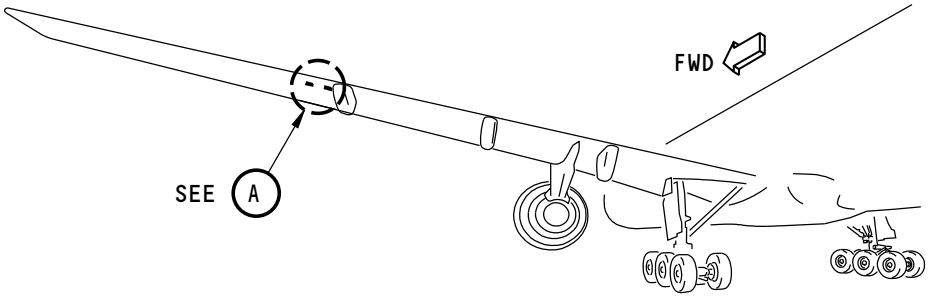
(1) Disconnect the hydraulic lines from the applicable check valve and remove it: valve [1], valve [2], valve [21], valve [22], valve [41], valve [42], or valve [61].

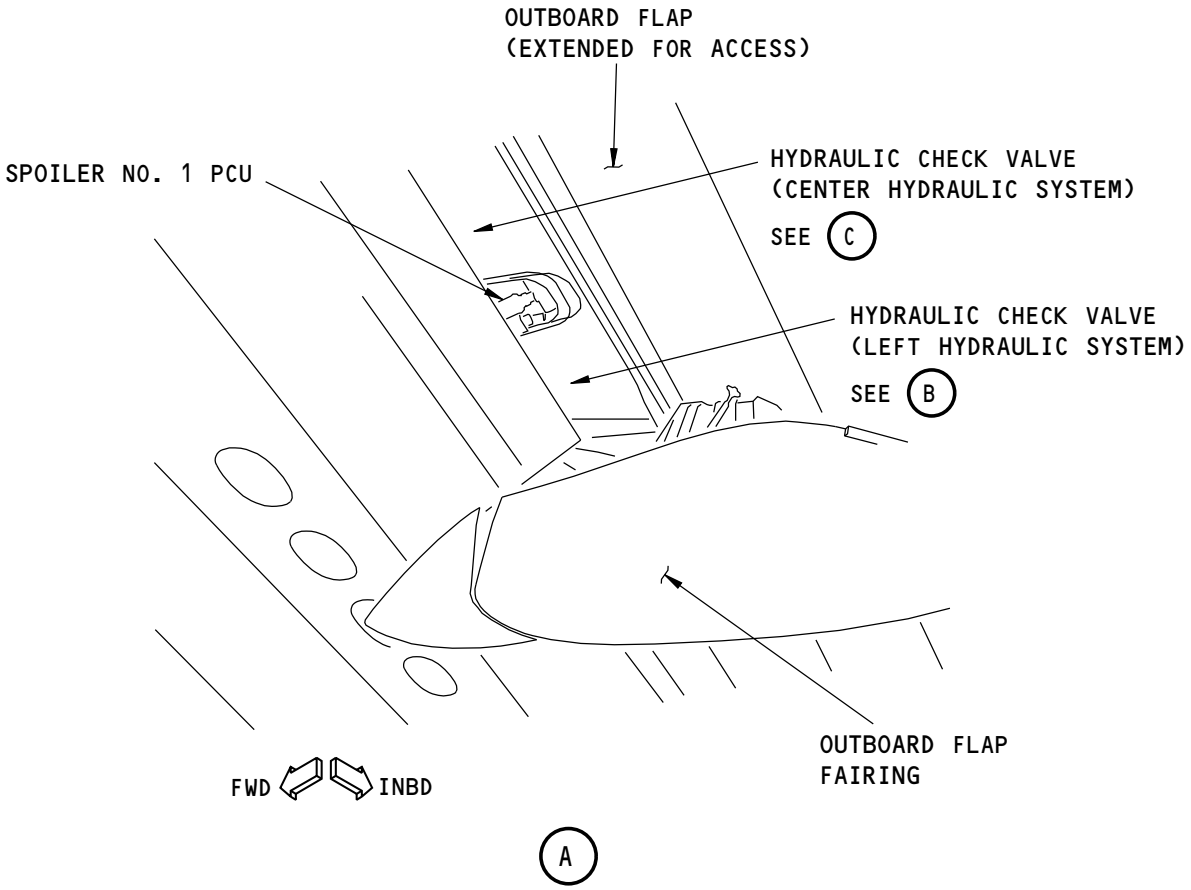
SUBTASK 27-02-36-480-001

(2) Put caps on the hydraulic lines and the check valve.

——— END OF TASK ———

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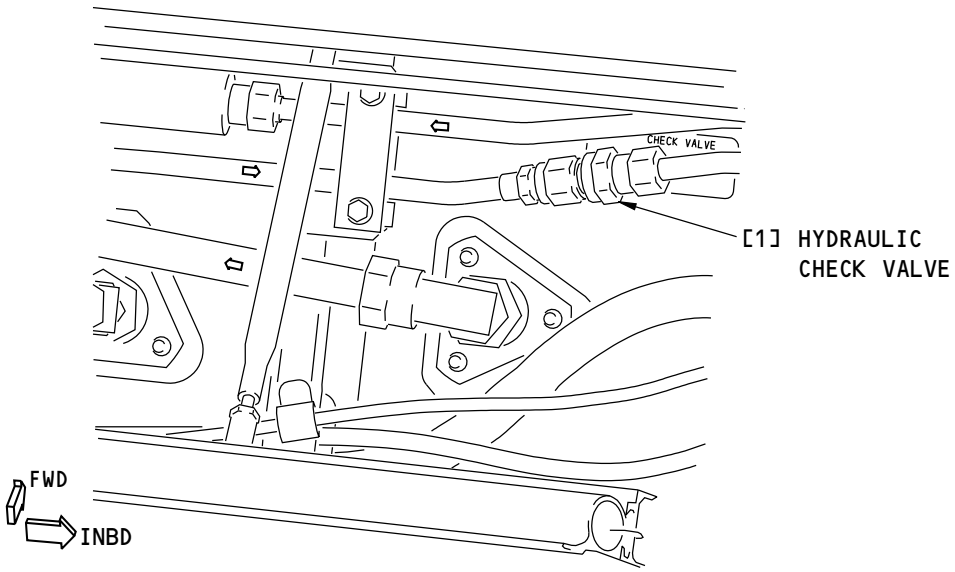




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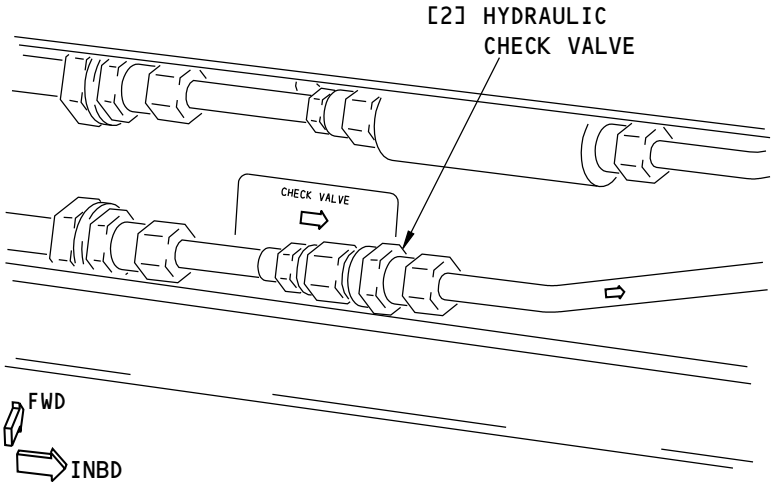
Left Aileron Hydraulic Check Valve Installation
Figure 401/27-02-36-990-801 (Sheet 1 of 2)

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HYDRAULIC CHECK VALVE
(LEFT HYDRAULIC SYSTEM)

B



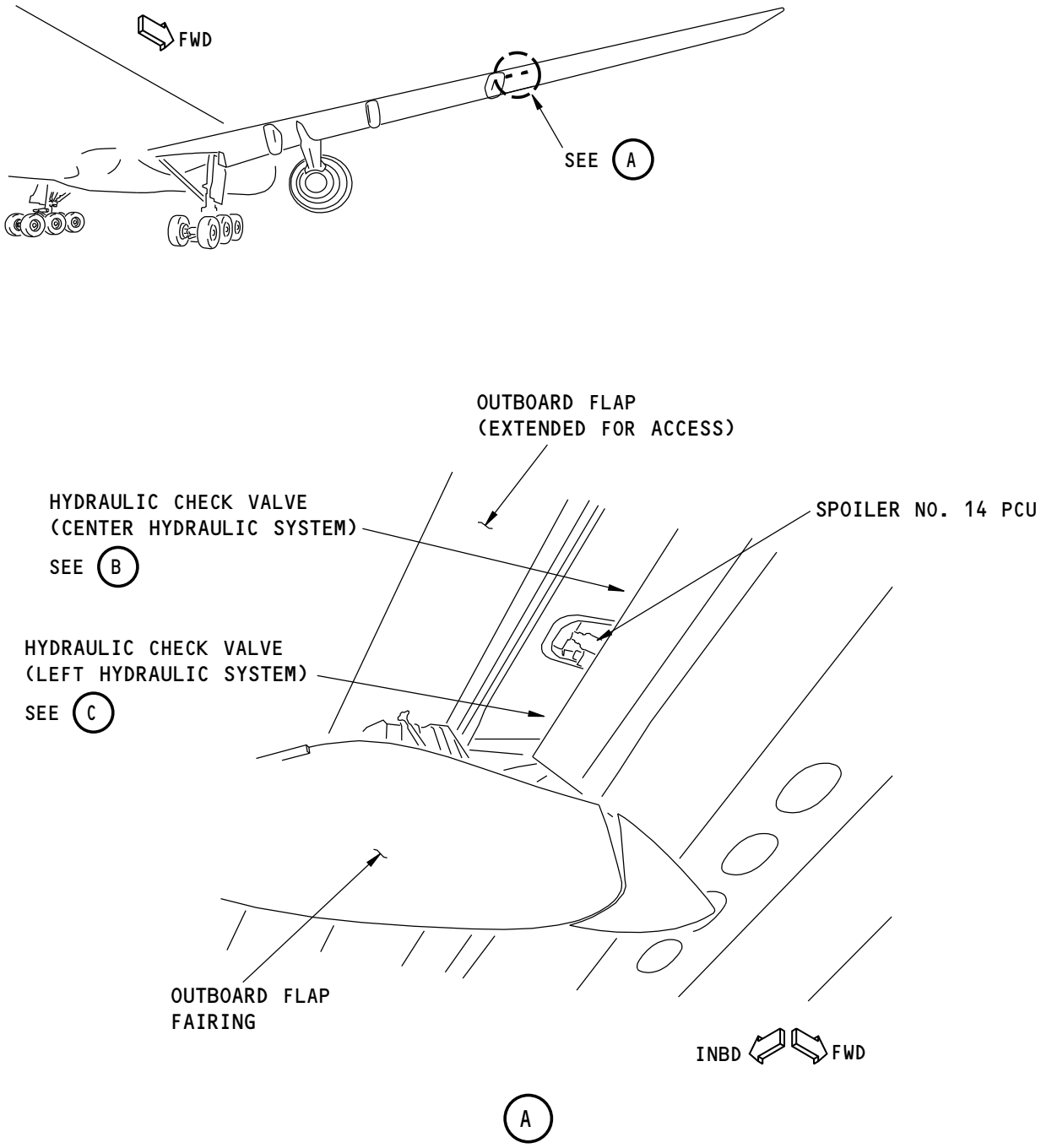
HYDRAULIC CHECK VALVE
(CENTER HYDRAULIC SYSTEM)

C

C68813 S0006412675_V1

Left Aileron Hydraulic Check Valve Installation
Figure 401/27-02-36-990-801 (Sheet 2 of 2)

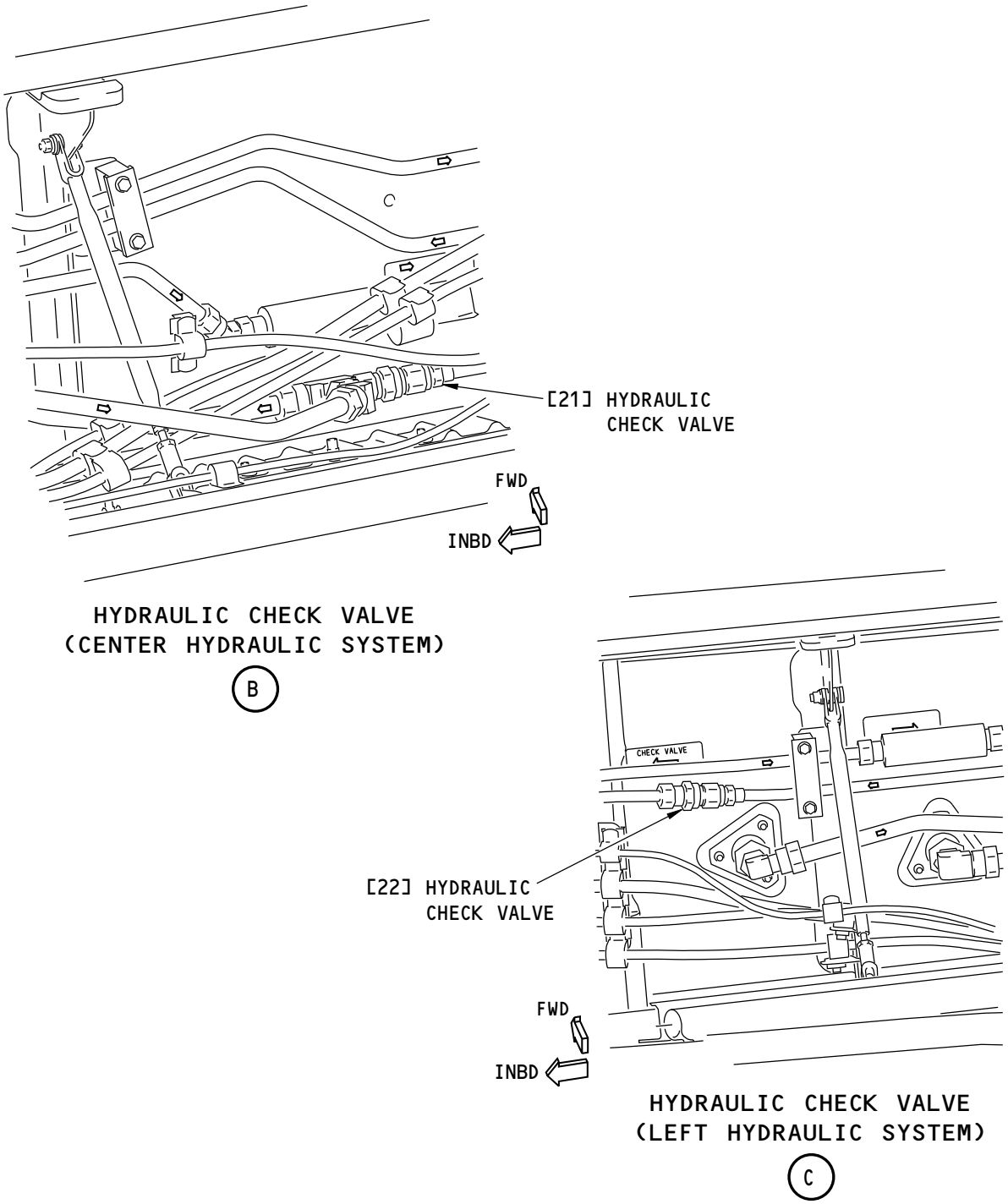
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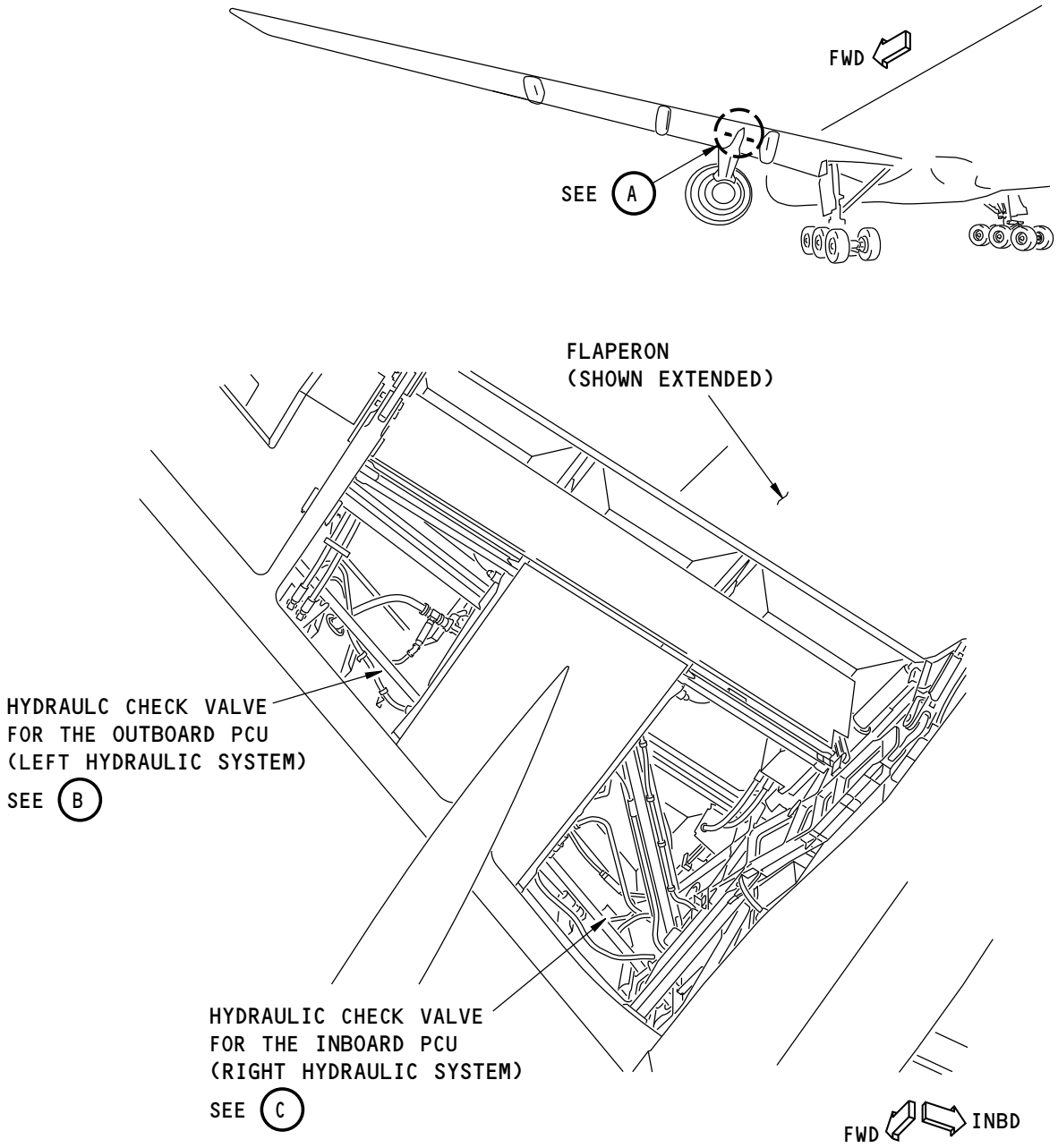
Right Aileron Hydraulic Check Valve Installation
Figure 402/27-02-36-990-802 (Sheet 1 of 2)

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Right Aileron Hydraulic Check Valve Installation
Figure 402/27-02-36-990-802 (Sheet 2 of 2)

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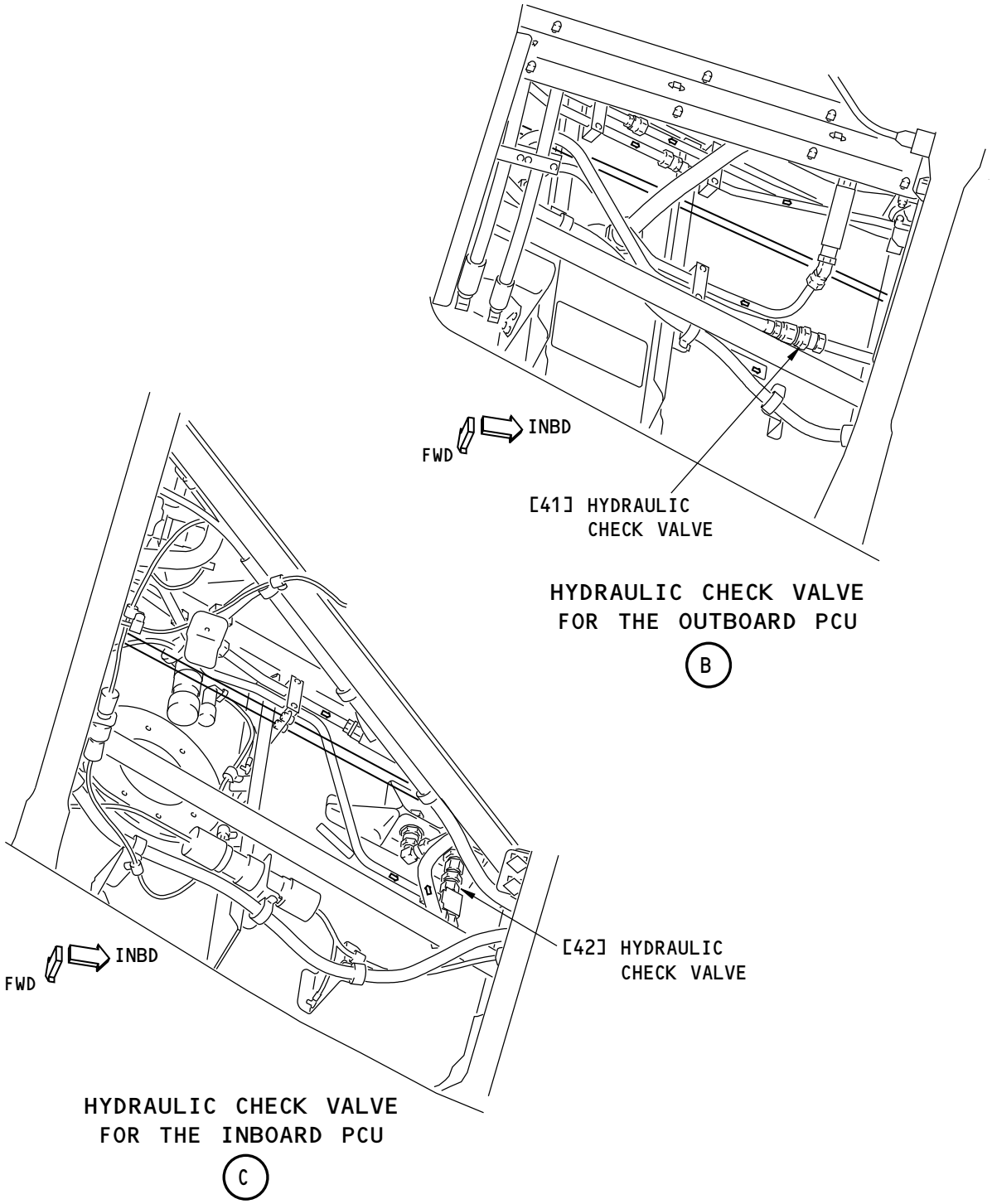
LEFT FLAPERON HYDRAULIC CHECK VALVE
(BOTTOM VIEW)

A

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Left Flaperon Hydraulic Check Valves Installation
Figure 403/27-02-36-990-803 (Sheet 1 of 2)

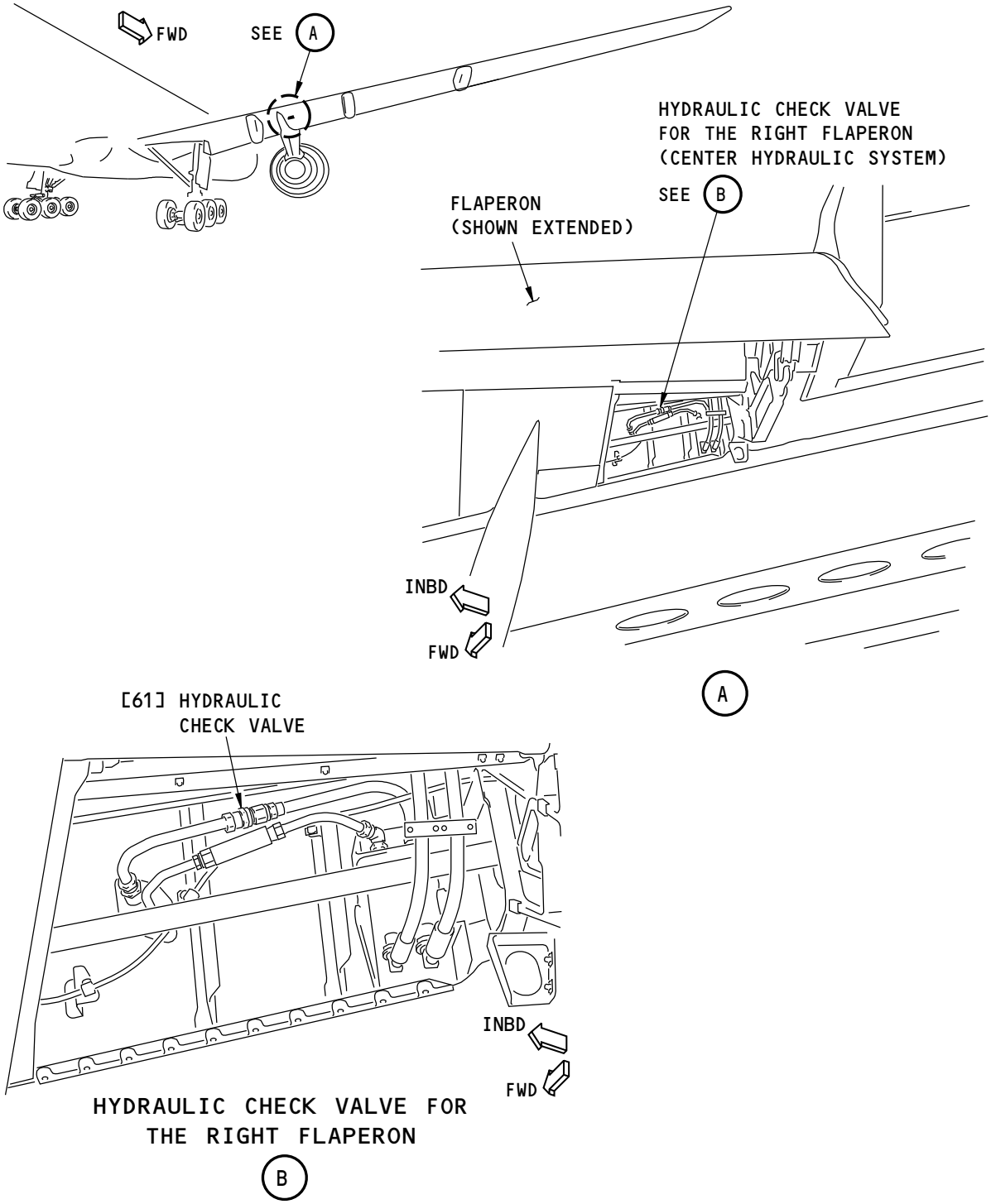
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Left Flaperon Hydraulic Check Valves Installation
Figure 403/27-02-36-990-803 (Sheet 2 of 2)

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Right Flaperon Hydraulic Check Valve Installation
Figure 404/27-02-36-990-804

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TASK 27-02-36-400-801

3. Wing Hydraulic Check Valve Installation

A. General

(1) There are seven hydraulic check valves on the wings, four for the ailerons and three for the flaperons.

(a) Each aileron has two check valves, one for each PCU. The check valves for the ailerons are in the left and center hydraulic systems. They are installed in the wings, inboard of the ailerons (Figure 401, Figure 402).

(b) The flaperon on the left wing has two check valves, for each PCU. These check valves are in the left and right hydraulic systems. They are installed in the wing forward of the flaperon (Figure 403)

(c) The flaperon on the right wing has one check valve, for its outboard PCU. This check valve is in the center hydraulic system, and is installed in the wing forward of the flaperon (Figure 404).

B. References

Reference	Title
27-11-15-400-801	Outboard Flaperon Fairing Installation (P/B 401)
27-11-15-400-802	Inboard Flaperon Fairing Installation (P/B 401)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Valve	29-11-81-03-270	ARO ALL
2	Valve	29-11-81-01A-180	ARO ALL
21	Valve	29-11-81-02C-475	ARO ALL
		29-11-90-01A-775	ARO 005-999
22	Valve	29-11-81-02C-475	ARO ALL
41	Valve	29-11-81-03-265	ARO ALL
42	Valve	29-11-81-03-265	ARO ALL
61	Valve	29-11-81-04B-205	ARO ALL

D. Location Zones

Zone	Area
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
561	Rear Spar to Trailing Edge - Outboard of Flaperon - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing
661	Rear Spar to Trailing Edge - Outboard of Flaperon - Right Wing

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E. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

F. Hydraulic Check Valve Installation

SUBTASK 27-02-36-860-007

(1) Make sure hydraulic pressure is removed from the hydraulic systems and reservoirs, if hydraulic pressure is not removed, then do these steps, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807

SUBTASK 27-02-36-420-001

(2) Remove the caps from the hydraulic lines and the check valve.

SUBTASK 27-02-36-420-002

(3) Install the valve [1], valve [2], valve [21], valve [22], valve [41], valve [42], or valve [61] on the applicable hydraulic line.

SUBTASK 27-02-36-440-001

(4) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the NORM position.

G. Hydraulic Check Valve Installation Test

SUBTASK 27-02-36-790-001

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For the left, right, and center hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(a) Turn one of the control wheels fully left and fully right approximately 4 times.

(b) Make sure the check valve does not have a leak.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-02-36-410-001

(1) If you replaced one of the check valves for the flaperons, do these steps:

(a) Install the applicable access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

(b) Install the applicable flaperon fairing:

1) Do this task: Outboard Flaperon Fairing Installation, TASK 27-11-15-400-801.

2) Do this task: Inboard Flaperon Fairing Installation, TASK 27-11-15-400-802.

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

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SUBTASK 27-02-36-440-002

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-02-36-860-008

(3) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-02-36-860-001

(4) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-02-36-000-802

4. Tail Hydraulic Check Valve Removal

A. General

(1) The rudder has a check valve for its upper PCU. This check valve is in the center hydraulic system, and is installed in the tail (Figure 405).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Removal

SUBTASK 27-02-36-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-36-860-003

(2) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

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SUBTASK 27-02-36-040-003

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position.

NOTE: These valves only close the pressure hydraulic line, not the return hydraulic line. Thus, they will not prevent leaks of hydraulic fluid when hydraulic lines are opened. If the hydraulic reservoirs are pressurized, hydraulic fluid will come out when the check valve is removed. Close these valves to give some protection if hydraulic power is accidentally supplied.

SUBTASK 27-02-36-010-001

(4) Get access for the tail check valve through this access panel:

Number	Name/Location
311BL	Service Access Door

(Figure 405).

(a) Install the ladder equipment, SPL-2011, for access to the tail check valve.

G. Hydraulic Check Valve Removal

SUBTASK 27-02-36-020-002

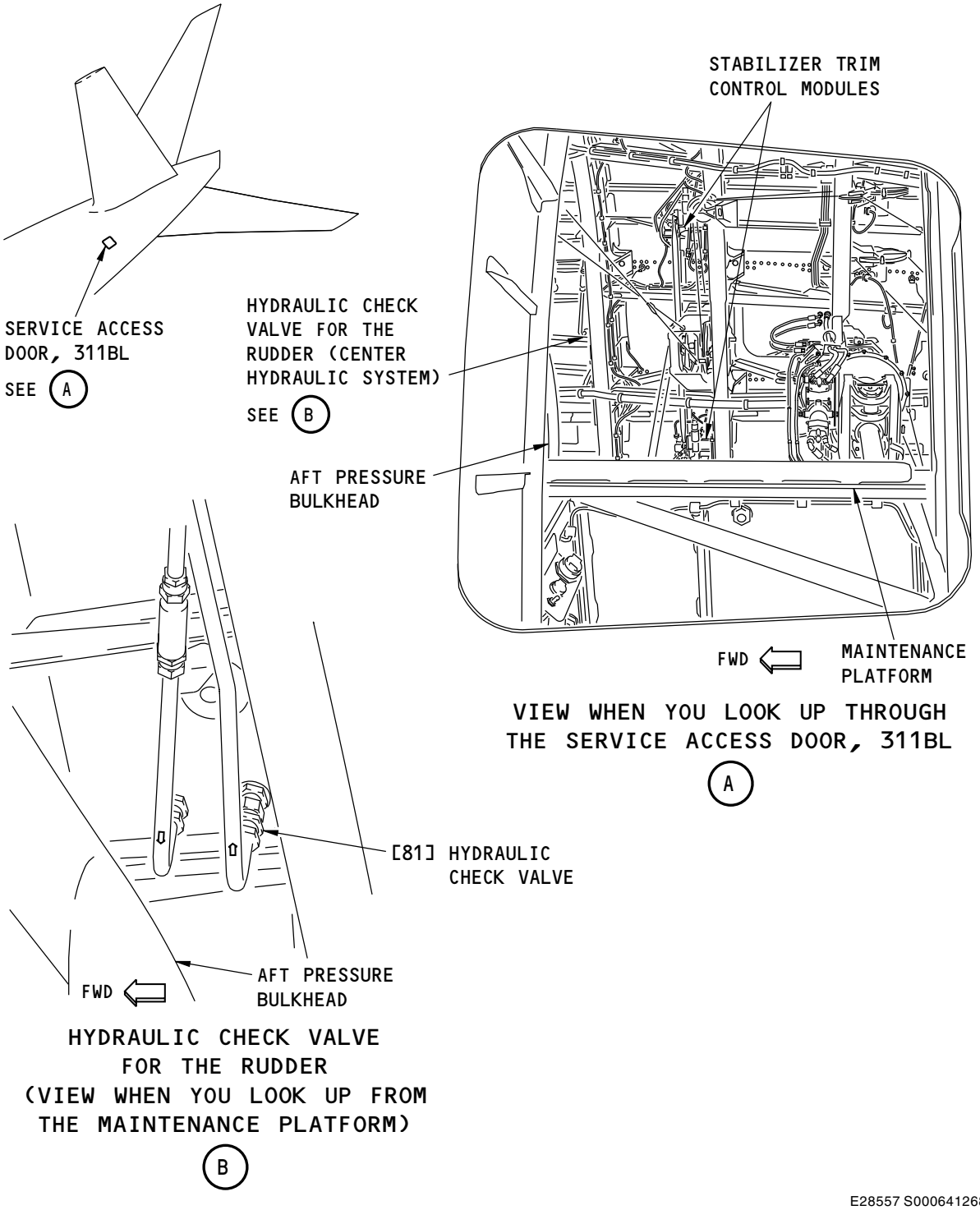
(1) Disconnect the hydraulic lines from the valve [81] and remove the valve [81].

SUBTASK 27-02-36-480-002

(2) Put caps on the hydraulic lines and the check valve.

——— END OF TASK ———

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Rudder Hydraulic Check Valve Installation
Figure 405/27-02-36-990-805

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TASK 27-02-36-400-802

5. Tail Hydraulic Check Valve Installation

A. General

(1) The rudder has a check valve for its upper PCU. This check valve is in the center hydraulic system, and is installed in the tail (Figure 405)

B. References

Reference	Title
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
81	Valve	29-11-90-01-908	ARO 001-004

E. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left

F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Hydraulic Check Valve Installation

SUBTASK 27-02-36-860-009

(1) Make sure hydraulic pressure is removed from the hydraulic systems and reservoirs, if hydraulic pressure is not removed, then do these steps, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807

SUBTASK 27-02-36-420-003

(2) Remove the caps from the hydraulic lines and the valve [81].

SUBTASK 27-02-36-420-004

(3) Install the valve [81] on the hydraulic line.

SUBTASK 27-02-36-440-003

(4) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

H. Hydraulic Check Valve Installation Test

SUBTASK 27-02-36-790-002

(1) Do these steps for the check valve in the tail:

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(b) Operate the rudder pedals through approximately 4 full cycles.

(c) Make sure the check valve does not have a leak.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-02-36-010-002

(1) Close this access panel:

Number	Name/Location
311BL	Service Access Door

(a) Remove the ladder equipment, SPL-2011.

SUBTASK 27-02-36-860-004

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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HYDRAULIC CHECK VALVE - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. The rudder has a check valve for its upper PCU. This check valve is in the center hydraulic system, and is installed in the tail (Figure 601).

C. This procedure has this task:

(1) An inspection for excessive leakage of the check valve.

TASK 27-02-36-210-801

2. Hydraulic Check Valve Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-02-36-000-802	Tail Hydraulic Check Valve Removal (P/B 401)
27-02-36-400-802	Tail Hydraulic Check Valve Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-806	Main Hydraulic System Reservoirs Pressurization with an External Air Source (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

B. Access Panels

Number	Name/Location
311BL	Service Access Door
322ABL	Vertical Stabilizer Seal Panel
322BL	Vertical Stabilizer Forward Box Panel

C. Prepare for the Inspection

SUBTASK 27-02-36-860-010

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-02-36-860-011

(2) Depressurize the center system reservoir, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-02-36-860-012

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position.

NOTE: These valves only close the pressure hydraulic line, not the return hydraulic line. Thus, they will not prevent leaks of hydraulic fluid when hydraulic lines are opened. If the hydraulic reservoirs are pressurized, hydraulic fluid will come out when the check valve is removed. Close these valves to give some protection if hydraulic power is accidentally supplied.

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D. Procedure

SUBTASK 27-02-36-010-003

(1) Get access to the tail check valve through these access panels:

Number	Name/Location
311BL	Service Access Door
322ABL	Vertical Stabilizer Seal Panel
322BL	Vertical Stabilizer Forward Box Panel

(Figure 601).

SUBTASK 27-02-36-020-003

(2) Disconnect the tubing from the inlet port of the check valve (Figure 601).

(a) Put cap on the tube.

SUBTASK 27-02-36-860-013

(3) Pressurize the center system reservoir, do this task: Main Hydraulic System Reservoirs Pressurization with an External Air Source, TASK 29-11-00-860-806.

(a) Make sure that the reservoir pressure is 40 to 75 psi.

SUBTASK 27-02-36-860-014

(4) Make sure that this EICAS message does not show: HYD RSVR PRESS C for the next 20 minutes while you do the following steps, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

NOTE: This step makes sure that the entire system of return lines, upstream of the reservoir, are pressurized to minimum of 25 psi.

SUBTASK 27-02-36-970-001

(5) Observe the inlet port of the check valve for leakage.

(a) Record the number of drops for 3 minutes.

(b) Make sure that the leakage rate is not more than 10 drops per minute.

1) If the leakage rate is more than 10 drops per minute, replace the check valve,

These are the tasks:

Tail Hydraulic Check Valve Removal, TASK 27-02-36-000-802,

Tail Hydraulic Check Valve Installation, TASK 27-02-36-400-802.

SUBTASK 27-02-36-860-015

(6) Depressurize the center system reservoir, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-02-36-420-005

(7) Connect the tubing to the inlet port of the check valve.

SUBTASK 27-02-36-860-016

(8) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

SUBTASK 27-02-36-790-003

(9) Do these steps for the check valve in the tail:

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(a) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(b) Operate the rudder pedals through approximately 4 full cycles.

(c) Make sure the check valve does not have a leak.

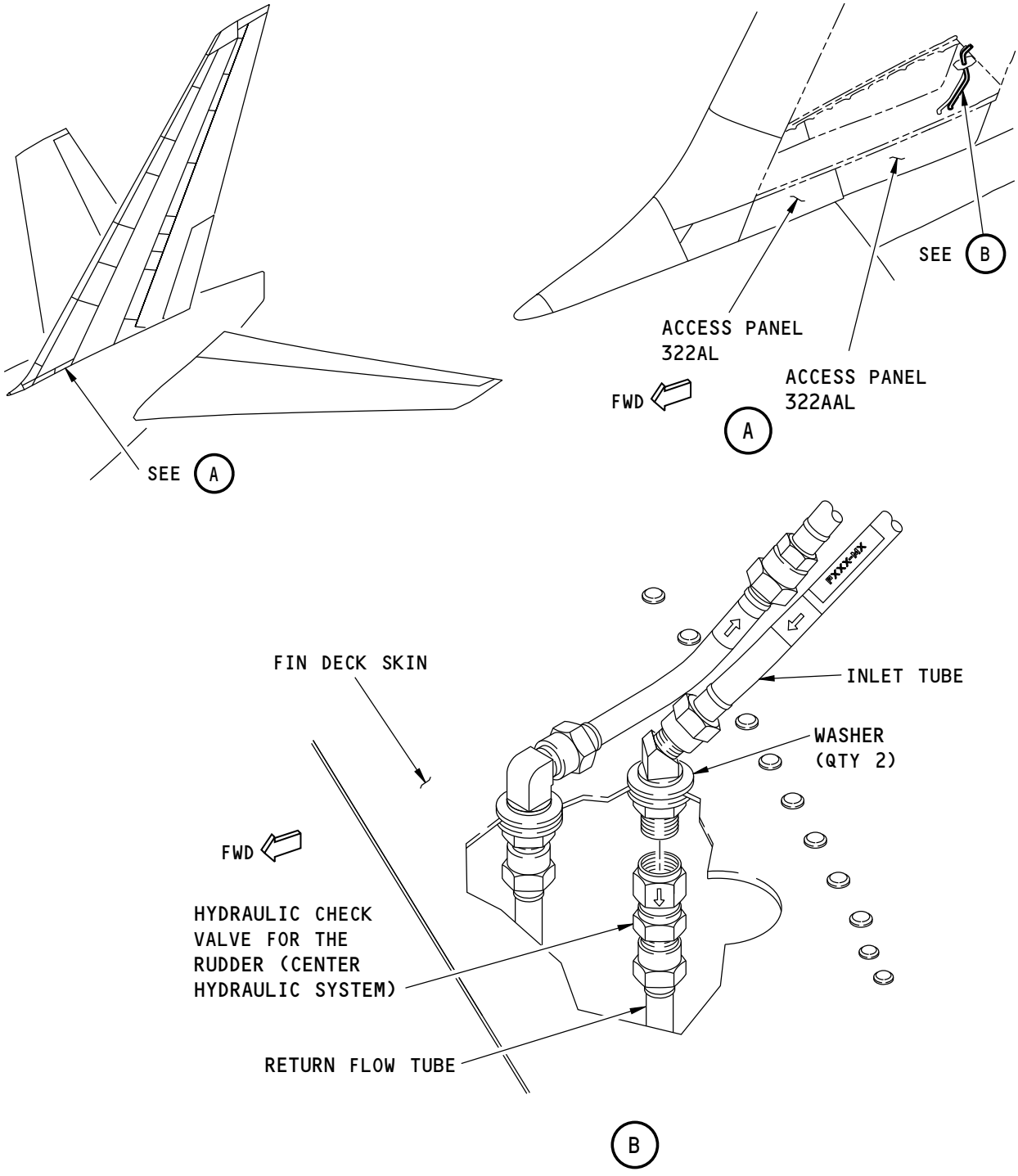
SUBTASK 27-02-36-410-002

(10) Close these access panels:

Number	Name/Location
311BL	Service Access Door
322ABL	Vertical Stabilizer Seal Panel
322BL	Vertical Stabilizer Forward Box Panel

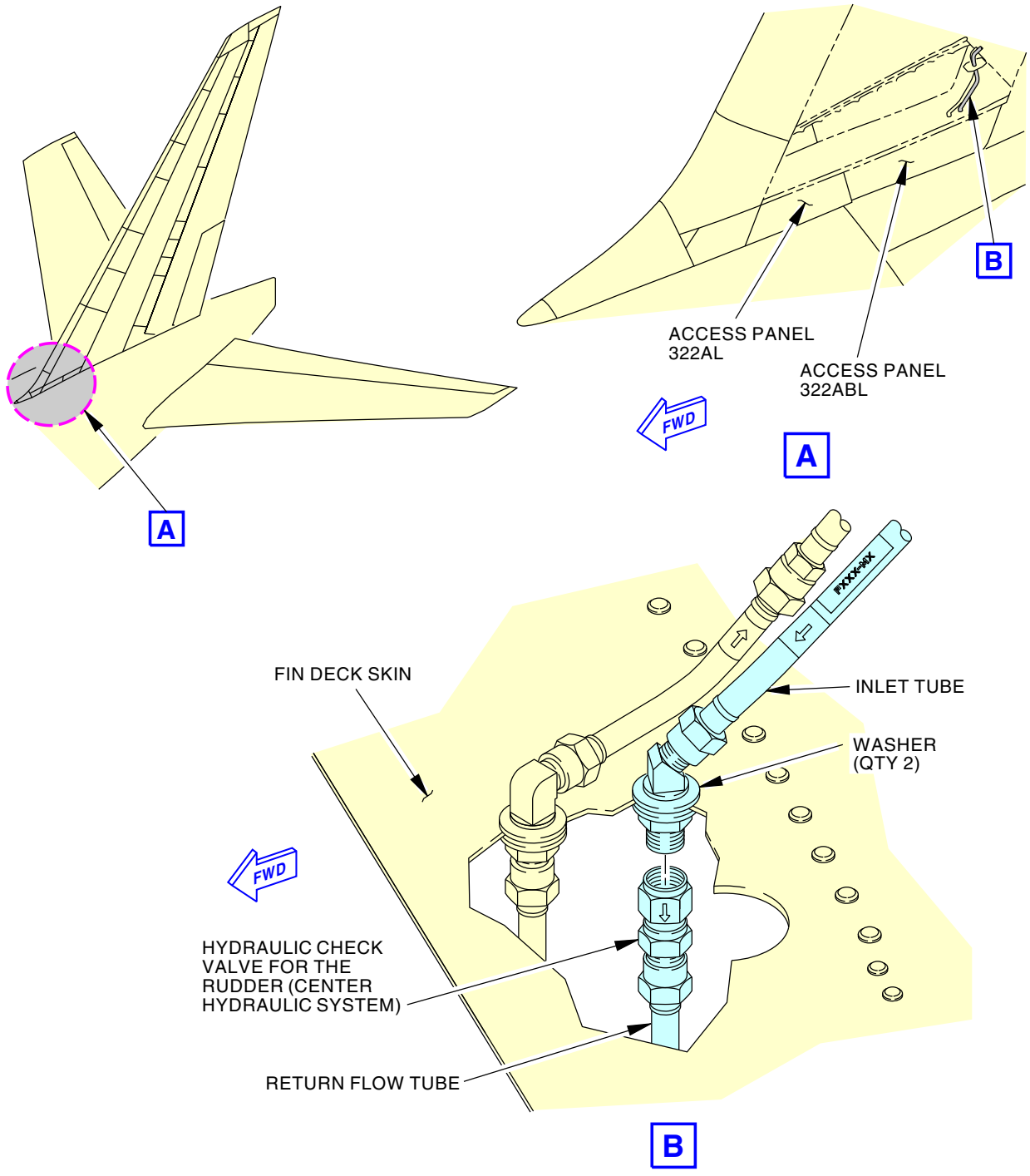
END OF TASK

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Hydraulic Check Valve Inspection
Figure 601/27-02-36-990-807 (Sheet 1 of 3)

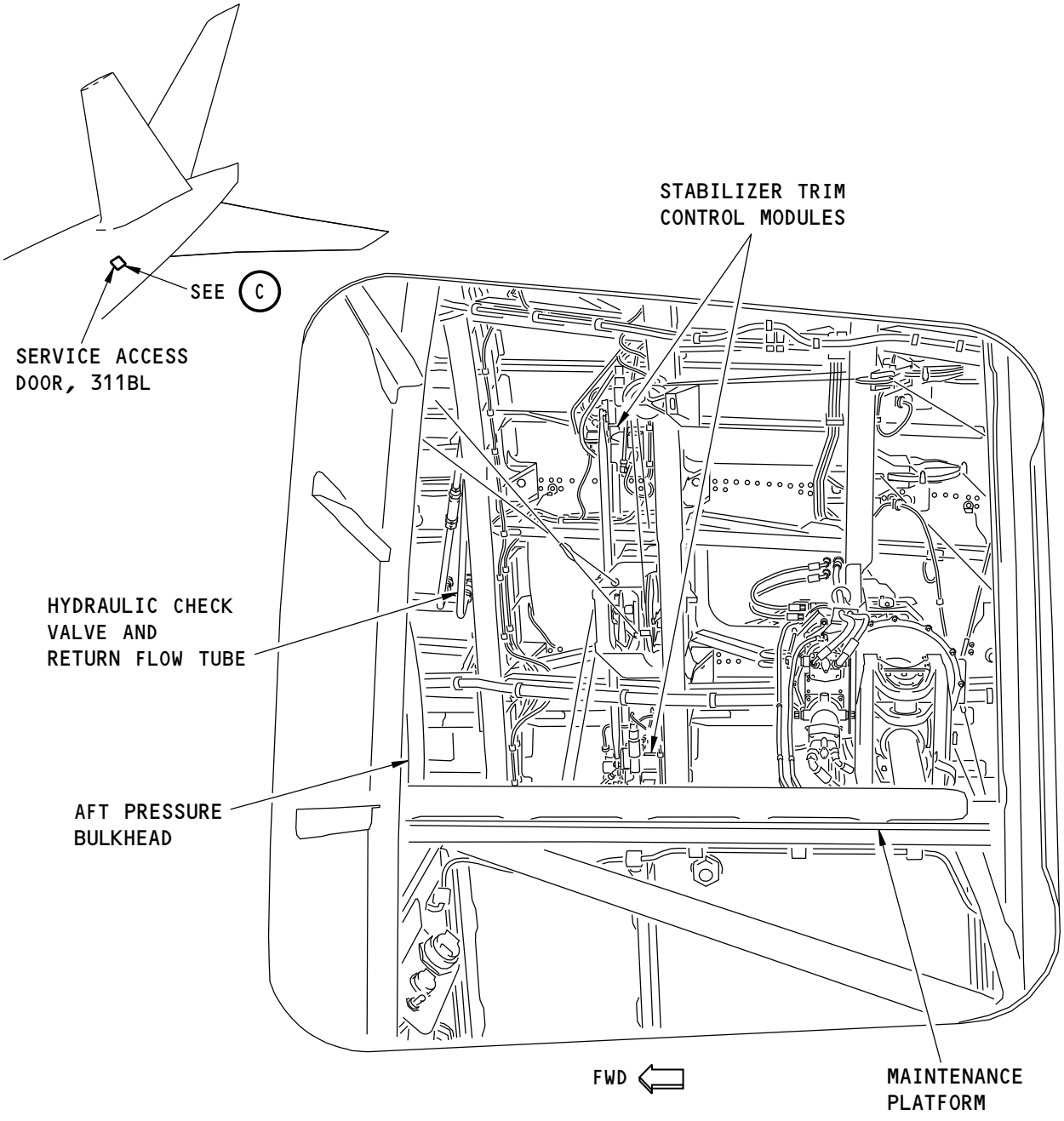
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2788884 S0000633035_V1

Hydraulic Check Valve Inspection
Figure 601/27-02-36-990-807 (Sheet 2 of 3)

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M15662 S0006412687_V2

Hydraulic Check Valve Inspection
Figure 601/27-02-36-990-807 (Sheet 3 of 3)

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AILERON AND FLAPERON CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Aileron and Flaperon Operational Test - Use this procedure to make sure the aileron and flaperon systems operate correctly.

(2) Control Wheel and Cable Adjustment - Use this procedure to adjust the control wheels, the tension in the cables and the force limiter,

(3) Wheel Position Transducer (LVDT) Adjustment - Use this test to adjust the wheel position transducers.

(4) Aileron Adjustment (Rigging) - Use this procedure to adjust (rig) the ailerons to their neutral position. The two ailerons are adjusted independently.

(5) Flaperon Adjustment (Rigging) - Use this procedure to adjust (rig) the flaperons to their neutral position. The two flaperons are adjusted independently.

(6) Cove Lip Door Adjustment (Rigging) - Use this procedure to adjust (rig) the cove lip doors for the flaperons to their neutral position. The two cove lip doors are adjusted independently.

(7) Aileron or Flaperon Power Control Unit (PCU) Test - Use this procedure to automatically do a test of the operation of the power control units (PCUs) on the ailerons and flaperons.

(8) Direct Mode Test - Use this test to make sure the ailerons and flaperons move the correct distance when the flight control system is in the direct mode.

(9) Aileron or Flaperon Position Test - Use this procedure to automatically do a test of the operation of the position transducers (LVDTs) for the aileron or flaperon. The position transducers are part of the PCUs.

(10) Aileron Trim Test - Use this test to make sure the aileron trim system operates correctly.

(11) Control Wheel Damper Test - Use this test to make sure the control wheel damper operates correctly. The damper slows the movement of the control wheels to stop them from oscillating.

(12) Control Wheel Flight Data Recorder (FDR) Force Transducer Test - Use this test to make sure that the control wheel Flight Data Recorder (FDR) force transducer operates correctly.

(13) Control Wheel Force Versus Travel Test - Use this procedure to make sure the control wheels can move through their full travel.

(14) Force Limiter Functional Test - Use this test to make sure the force limiters operate correctly. The force limiters let one control wheel move even if the other wheel is caught (jammed) and cannot move.

(15) Force Limiter Operational Test - Use this test to make sure the force limiters operate correctly.

(16) Aileron Trim Inhibit Functional Test - Use this test to make sure the aileron trim inhibit operate correctly.

(17) Control Wheel Force Transducer Test - Use this procedure to make sure the control wheels force transducer operate correctly.

TASK 27-11-00-700-801

2. Aileron and Flaperon - Operational Test

(Figure 501)

A. General

(1) Use this procedure to make sure the aileron and flaperon systems operate correctly.

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B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Prepare for the Operational Test

SUBTASK 27-11-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-860-002

(2) Make sure the fuel control switches, on the P10 control stand, are in the CUTOFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-11-00-860-070

(3) Make sure the flap lever is in the up position.

SUBTASK 27-11-00-010-007

(4) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-00-860-064

(5) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

SUBTASK 27-11-00-860-003

(6) Make sure these circuit breakers on the PSA-L (M24101), PSA-R (M24201) and PSA-C (M24301) are closed:

(a) On the E1-6 panel:

1) CBA1, ACE PWR
2) CBA3, AIL PCU
3) CBA5, FLPRN PCU
4) CBD2, PFC LANE 1
5) CBD4, PFC LANE 2

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6) CBD6, PFC LANE 3

(b) On the E2-6 panel:

1) CBA1, ACE PWR
2) CBA3, AIL PCU
3) CBA5, FLPRN PCU
4) CBD2, PFC LANE 1
5) CBD4, PFC LANE 2
6) CBD6, PFC LANE 3

(c) On the E5-1 panel:

1) CBA1, ACE PWR
2) CBA3, AIL PCU
3) CBA5, FLPRN PCU
4) CBD2, PFC LANE 1
5) CBD4, PFC LANE 2
6) CBD6, PFC LANE 3

SUBTASK 27-11-00-860-072

(7) Make sure the FLT CONTROL HYD POWER - WING and TAIL switches are in the NORM position on the P61 panel.

SUBTASK 27-11-00-860-004

WARNING

KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES WHEN HYDRAULIC POWER IS SUPPLIED. AILERONS, FLAPERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND STABILIZER ARE FULLY POWERED SURFACES. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(8) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: This task will pressurize the left, right and center hydraulic systems.

F. Operational Test for the Aileron and Flaperon Control System

SUBTASK 27-11-00-860-073

(1) Make sure the FLT CTRL MODE indicates NORMAL on the flight control synoptic page.

SUBTASK 27-11-00-860-071

(2) Make sure the Captain's control wheel is at its neutral position, do these steps:

(a) Turn the Captain's control wheel fully left then fully right and release.

(b) Make sure that the control wheels return to the center position.

SUBTASK 27-11-00-710-001

(3) Use the AILERON trim switches, on the P8 Aft Aisle Stand panel, to put the ailerons to the neutral position.

(a) Move the ailerons until these values are shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS.

To get more information on how to look at the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

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Table 501/27-11-00-993-813

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	+3.82 to +4.08	-0.12 to -0.07
LEFT INBOARD	+3.82 to +4.08	-0.12 to -0.07
RIGHT INBOARD	+3.82 to +4.08	-0.12 to -0.07
RIGHT OUTBOARD	+3.82 to +4.08	-0.12 to -0.07

SUBTASK 27-11-00-710-002

(4) Turn and hold the Captain's control wheel to the full left (counterclockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS.

Table 502/27-11-00-993-814

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	+5.99 to +6.62	+1.51 to +1.67
LEFT INBOARD	+5.99 to +6.62	+1.51 to +1.67
RIGHT INBOARD	-6.62 to -5.21	-0.97 to -0.87
RIGHT OUTBOARD	-6.62 to -5.21	-0.97 to -0.87

(b) Make sure the left aileron is trailing edge up and the right aileron is trailing edge down.

(c) Make sure the left flaperon is trailing edge up and the right flaperon is trailing edge down.

SUBTASK 27-11-00-710-003

(5) Turn and hold the Captain's control wheel to the full right (clockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS.

Table 503/27-11-00-993-815

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	-6.62 to -5.21	-0.97 to -0.87
LEFT INBOARD	-6.62 to -5.21	-0.97 to -0.87
RIGHT INBOARD	+5.99 to +6.62	+1.51 to +1.67
RIGHT OUTBOARD	+5.99 to +6.62	+1.51 to +1.67

(b) Make sure the left aileron is trailing edge down and the right aileron is trailing edge up.

(c) Make sure the left flaperon is trailing edge down and the right flaperon is trailing edge up.

SUBTASK 27-11-00-710-004

(6) Slowly release the Captain's control wheel.

(a) Make sure the Captain's control wheel returns to its neutral position.

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS.

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Table 504/27-11-00-993-816

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	+3.82 to +4.08	-0.12 to -0.07
LEFT INBOARD	+3.82 to +4.08	-0.12 to -0.07
RIGHT INBOARD	+3.82 to +4.08	-0.12 to -0.07
RIGHT OUTBOARD	+3.82 to +4.08	-0.12 to -0.07

(c) Make sure the control surfaces are at their neutral positions.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-005

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-00-860-006

(2) Remove DO-NOT-OPERATE tags from the fuel control switches, on the P10 control stand.

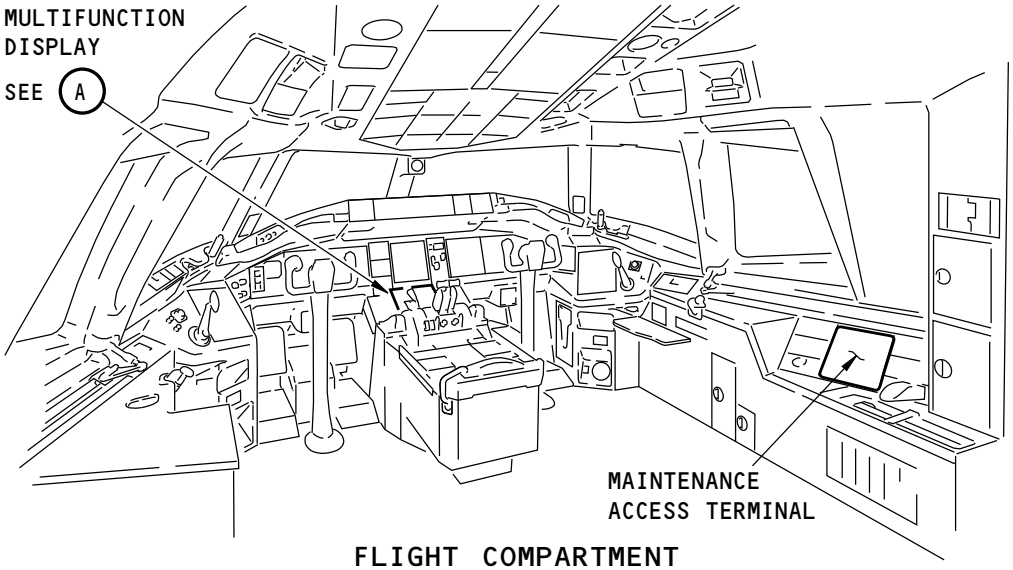
SUBTASK 27-11-00-410-008

(3) Close this access panel:

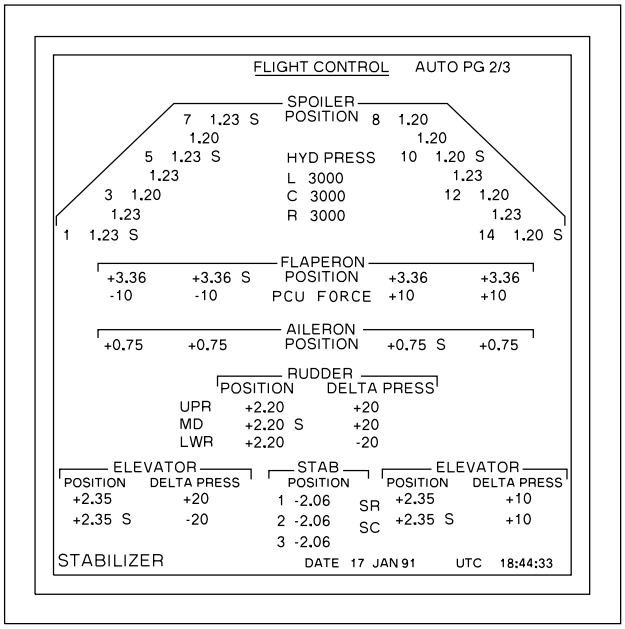
Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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FLIGHT COMPARTMENT



NOTE: THE VALUES DISPLAYED ARE FOR EXAMPLE ONLY.
DO NOT USE THESE VALUES FOR RIGGING REFERENCE.

MULTIFUNCTION DISPLAY PANEL

(A)

E59748 S0006412702_V1

Flight Control Maintenance Page
Figure 501/27-11-00-990-801

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TASK 27-11-00-700-802

3. Control Wheel and Cable Adjustment (Rigging)

(Figure 502, Figure 503, Figure 504)

A. References

Reference	Title
20-10-05-400-801	Turnbuckle Locking Clips Installation (P/B 401)
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1553	Tensiometer - Cable, Low Tension (200 lbs and below) Part #: 102-03108 Supplier: 21844 Part #: 102-03120 Supplier: 21844 Part #: ACX-250 Supplier: 13331 Part #: T60-1001-C8-1A Supplier: 0N8U4 Opt Part #: 102-03110 Supplier: 21844 Opt Part #: ACM-200 Supplier: 13331
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
112AL	Forward Access Door
117AL	Main Equipment Center Access Door

E. Prepare for the Adjustment

SUBTASK 27-11-00-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-860-009

(2) Make sure hydraulic power is not supplied. If it is necessary, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

F. Procedure

NOTE: The rigging pin set, SPL-2532, contains all of the rigging pins necessary to do the Control Wheel and Cable Adjustment.

SUBTASK 27-11-00-860-010

(1) Slowly turn the Captain's control wheel 5 times through its full range of travel.

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SUBTASK 27-11-00-860-011

(2) Make sure the control wheels are at their neutral (zero) position.

SUBTASK 27-11-00-010-001

(3) Open this access panel, to get access to the left and right lateral control mechanisms;

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-00-020-001

(4) Do the steps that follow to disconnect the force limiter at the left lateral mechanism (2 locations):

(a) Remove the nut [5], the washer [6], and the bolt [4] from the bottom control rod of the force limiter.

(b) Remove the nut [3], the washer [7], the bolt [1], and the bushing [2] from the top control rod of the force limiter.

SUBTASK 27-11-00-480-001

(5) Use the AILERON trim switches on the P8, Aft Aisle Stand Panel, to put the left lateral mechanism in the correct position:

(a) Move the left lateral mechanism until you can install rigging pin SP3.

SUBTASK 27-11-00-480-002

(6) Manually move the right lateral mechanism until you can install the rigging pin SP4.

SUBTASK 27-11-00-010-002

(7) Open this access panel, to get access to cables A1A, A1B, A2A, and A2B:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-11-00-820-001

(8) Do the steps that follow to adjust the cables A1A, A1B, A2A and A2B:

(a) Adjust the turnbuckles on the cables A1A, A1B, A2A and A2B until the tension is 140 pounds (623 newtons) in the cables.

NOTE: Use a low tension cable tensiometer, COM-1553, to get the tension measurement.

(b) Make sure you can easily install the rigging pin SP1 in the Captain's control wheel.

(c) Make sure you can easily install the rigging pin SP2 in the First Officer's control wheel.

(d) Connect the force limiter at the left lateral mechanism (2 locations):

1) If it is necessary, adjust the rod ends on the control rods for the force limiter:

NOTE: Do not tighten the locknuts at the rod ends.

2) Install the bushing [2], the bolt [1], the washer [7], and the nut [3] for the top control rod of the force limiter.

3) Install the bolt [4], the washer [6], and the nut [5] for the bottom control rod of the force limiter.

SUBTASK 27-11-00-820-005

(9) If you installed new cables, do these steps:

(a) Remove the rigging pins SP1 and SP2 from the Captain's and First Officer's control wheels.

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(b) Remove the rigging pins SP3 and SP4 from the left and right lateral mechanism assemblies respectively.

(c) Turn the control wheel through its full travel 25 times.

SUBTASK 27-11-00-480-003

(10) Reduce the tension in the cables to get the correct tension (Table 505):

NOTE: The applicable cable tension is affected by temperature. Before you do the cable adjustment, make sure that the airplane temperature has been stable (±5 °F) along the cable length for a minimum of one hour.

Table 505/27-11-00-993-812 Aileron Cable Rigging Load

Temperature °Fahrenheit (°Celsius)	Rigging Load pounds (kilograms)	
	Low	High
110 (43.3)	78 (35.4)	98 (44.4)
109 (42.8)	78 (35.4)	98 (44.4)
108 (42.2)	77 (34.9)	97 (43.9)
107 (41.6)	77 (34.9)	97 (43.9)
106 (41.1)	76 (34.5)	96 (43.5)
105 (40.6)	76 (34.5)	96 (43.5)
104 (40.0)	75 (34.0)	95 (43.0)
103 (39.4)	75 (34.0)	95 (43.0)
102 (38.9)	74 (33.6)	94 (42.6)
101 (38.3)	74 (33.6)	94 (42.6)
100 (37.8)	74 (33.6)	94 (42.6)
99 (37.2)	73 (33.1)	93 (42.1)
98 (36.7)	73 (33.1)	93 (42.1)
97 (36.1)	72 (32.7)	92 (41.7)
96 (35.6)	72 (32.7)	92 (41.7)
95 (35.0)	71 (32.2)	92 (41.7)
94 (34.4)	71 (32.2)	91 (41.2)
93 (33.9)	70 (31.8)	90 (40.8)
92 (33.3)	70 (31.8)	90 (40.8)
91 (32.8)	69 (31.3)	89 (40.3)
90 (32.2)	69 (31.3)	89 (40.3)
89 (31.7)	69 (31.3)	89 (40.3)
88 (31.1)	68 (30.8)	88 (39.9)
87 (30.6)	68 (30.8)	88 (39.9)
86 (30.0)	67 (30.4)	87 (39.4)
85 (29.4)	67 (30.4)	87 (39.4)

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Table 505/27-11-00-993-812 Aileron Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Rigging Load pounds (kilograms)	
	Low	High
84 (28.9)	66 (29.9)	86 (39.0)
83 (28.3)	66 (29.9)	86 (39.0)
82 (27.8)	65 (29.5)	86 (39.0)
81 (27.2)	65 (29.5)	85 (38.6)
80 (26.7)	65 (29.5)	85 (38.6)
79 (26.1)	64 (29.0)	84 (38.1)
78 (25.6)	64 (29.0)	84 (38.1)
77 (25.0)	63 (28.6)	83 (37.6)
76 (24.4)	63 (28.6)	83 (37.6)
75 (23.9)	62 (28.1)	82 (37.1)
74 (23.3)	62 (28.1)	82 (37.1)
73 (22.8)	61 (27.7)	81 (36.7)
72 (22.2)	61 (27.7)	81 (36.7)
71 (21.7)	61 (27.7)	81 (36.7)
70 (21.1)	60 (27.2)	80 (36.2)
69 (20.6)	60 (27.2)	80 (36.2)
68 (20.0)	59 (26.8)	79 (35.8)
67 (19.4)	59 (26.8)	79 (35.8)
66 (18.9)	58 (26.3)	78 (35.3)
65 (18.3)	58 (26.3)	78 (35.3)
64 (17.8)	58 (26.3)	78 (35.3)
63 (17.2)	57 (25.9)	77 (34.9)
62 (16.7)	57 (25.9)	77 (34.9)
61 (16.1)	56 (25.4)	76 (34.4)
60 (15.6)	56 (25.4)	76 (34.4)
59 (15.0)	56 (25.4)	76 (34.4)
58 (14.4)	55 (24.9)	75 (34.0)
57 (13.9)	55 (24.9)	75 (34.0)
56 (13.3)	54 (24.5)	74 (33.6)
55 (12.8)	54 (24.5)	74 (33.6)
54 (12.2)	54 (24.5)	74 (33.6)
53 (11.7)	53 (24.0)	73 (33.1)
52 (11.1)	53 (24.0)	73 (33.1)

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Table 505/27-11-00-993-812 Aileron Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Rigging Load pounds (kilograms)	
	Low	High
51 (10.6)	52 (23.6)	72 (32.7)
50 (10.0)	52 (23.6)	72 (32.7)
49 (9.4)	52 (23.6)	72 (32.7)
48 (8.9)	51 (23.1)	71 (32.1)
47 (8.3)	51 (23.1)	71 (32.1)
46 (7.8)	50 (22.7)	70 (31.8)
45 (7.2)	50 (22.7)	70 (31.8)
44 (6.7)	50 (22.7)	70 (31.8)
43 (6.1)	49 (22.2)	69 (31.3)
42 (5.6)	49 (22.2)	69 (31.3)
41 (5.0)	48 (21.8)	68 (30.8)
40 (4.4)	48 (21.8)	68 (30.8)
39 (3.9)	48 (21.8)	68 (30.8)
38 (3.3)	47 (21.3)	67 (30.4)
37 (2.8)	47 (21.3)	67 (30.4)
36 (2.2)	46 (20.9)	66 (29.9)
35 (1.7)	46 (20.9)	66 (29.9)
34 (1.1)	46 (20.9)	66 (29.9)
33 (0.6)	45 (20.4)	65 (29.5)
32 (0)	45 (20.4)	65 (29.5)
31 (-0.6)	44 (20.0)	64 (29.0)
30 (-1.1)	44 (20.0)	64 (29.0)
29 (-1.7)	44 (20.0)	64 (29.0)
28 (-2.2)	43 (19.5)	63 (28.6)
27 (-2.8)	43 (19.5)	63 (28.6)
26 (-3.3)	42 (19.1)	62 (28.1)
25 (-3.9)	42 (19.1)	62 (28.1)
24 (-4.4)	41 (18.6)	61 (27.7)
23 (-5.0)	41 (18.6)	61 (27.7)
22 (-5.6)	40 (18.1)	60 (27.0)
21 (-6.1)	40 (18.1)	60 (27.0)
20 (-6.7)	40 (18.1)	60 (27.0)
19 (-7.2)	39 (17.7)	59 (26.8)

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Table 505/27-11-00-993-812 Aileron Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Rigging Load pounds (kilograms)	
	Low	High
18 (-7.8)	39 (17.7)	59 (26.8)
17 (-8.3)	38 (17.2)	58 (26.3)
16 (-8.9)	38 (17.2)	58 (26.3)
15 (-9.4)	37 (16.8)	57 (25.9)
14 (-10.0)	37 (16.8)	57 (25.9)
13 (-10.6)	36 (16.3)	56 (25.4)
12 (-11.1)	36 (16.3)	56 (25.4)
11 (-11.7)	36 (16.3)	56 (25.4)
10 (-12.2)	35 (15.9)	55 (24.9)
9 (-12.8)	35 (15.9)	55 (24.9)
8 (-13.3)	34 (15.4)	54 (24.5)
7 (-13.9)	34 (15.4)	54 (24.5)
6 (-14.4)	33 (15.0)	53 (24.0)
5 (-15.0)	33 (15.0)	53 (24.0)
4 (-15.6)	33 (15.0)	53 (24.0)
3 (-16.1)	32 (14.5)	52 (23.6)
2 (-16.7)	32 (14.5)	52 (23.6)
1 (-17.2)	31 (14.1)	51 (23.1)
0 (-17.8)	31 (14.1)	51 (23.1)
-1 (-18.3)	31 (14.1)	51 (23.1)
-2 (-18.9)	30 (13.6)	50 (22.7)
-3 (-19.4)	30 (13.6)	50 (22.7)
-4 (-20.0)	29 (13.2)	49 (22.2)
-5 (-20.6)	29 (13.2)	49 (22.2)
-6 (-21.1)	29 (13.2)	49 (22.2)
-7 (-21.7)	28 (12.7)	48 (21.8)
-8 (-22.2)	28 (12.7)	48 (21.8)
-9 (-22.8)	27 (12.2)	47 (21.3)
-10 (-23.3)	27 (12.2)	47 (21.3)
-11 (-23.9)	27 (12.2)	47 (21.3)
-12 (-24.4)	26 (11.8)	46 (20.9)
-13 (-25.0)	26 (11.8)	46 (20.9)
-14 (-25.6)	25 (11.3)	45 (20.4)

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Table 505/27-11-00-993-812 Aileron Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Rigging Load pounds (kilograms)	
	Low	High
-15 (-26.1)	25 (11.3)	45 (20.4)
-16 (-26.7)	25 (11.3)	45 (20.4)
-17 (-27.2)	24 (10.9)	44 (20.0)
-18 (-27.8)	24 (10.9)	44 (20.0)
-19 (-28.3)	23 (10.4)	43 (19.5)
-20 (-28.9)	23 (10.4)	43 (19.5)
-21 (-29.4)	23 (10.4)	43 (19.5)
-22 (-30.0)	22 (10.0)	42 (19.1)
-23 (-30.6)	22 (10.0)	42 (19.1)
-24 (-31.1)	21 (9.5)	41 (18.6)
-25 (-31.7)	21 (9.5)	41 (18.6)
-26 (-32.2)	21 (9.5)	41 (18.6)
-27 (-32.8)	20 (9.0)	40 (18.1)
-28 (-33.3)	20 (9.0)	40 (18.1)
-29 (-33.9)	19 (8.6)	39 (17.7)
-30 (-34.4)	19 (8.6)	39 (17.7)
-31 (-35.0)	18 (8.1)	38 (17.2)
-32 (-35.6)	18 (8.1)	38 (17.2)
-33 (-36.1)	17 (7.7)	37 (16.8)
-34 (-36.7)	17 (7.7)	37 (16.8)
-35 (-37.2)	16 (7.3)	36 (16.3)
-36 (-37.8)	15 (6.8)	35 (15.9)
-37 (-38.3)	15 (6.8)	35 (15.9)
-38 (-38.9)	14 (6.4)	34 (15.4)
-39 (-39.4)	14 (6.4)	34 (15.4)
-40 (-40.0)	13 (5.9)	33 (15.0)

(a) Make sure you can easily install the rigging pin SP1 in the Captain's control wheel.

(b) Make sure you can easily install the rigging pin SP2 in the First Officer's control wheel.

(c) Make sure the rigging pins SP3 and SP4 (in the left and right lateral control mechanisms respectively) can be easily removed and installed.

SUBTASK 27-11-00-820-002

(11) Use the PFCS Maintenance Page 1 to make sure the 3 CAPT WHEEL and the 3 F/O WHEEL POSITIONs show 0.00 ±0.01, (TASK 31-61-00-800-804).

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(a) If the 3 CAPT WHEEL and the 3 F/O WHEEL positions are not in the tolerance, remove the rigging pins SP3 and SP4 from the left and right lateral mechanisms respectively and do the steps that follow:

1) Adjust the rod end of the bottom control rod of the force limiter until the PFCS Maintenance Page 1 shows the 3 CAPT WHEEL and the 3 F/O WHEEL POSITIONs at 0.00 ±0.01.

2) Make sure you can easily remove and install the SP3 and the SP4 rigging pins in the left and right lateral mechanisms respectively.

SUBTASK 27-11-00-420-002

(12) If it was necessary to adjust the rod ends of the control rods of the force limiter, tighten the locknuts on the rod ends to 75-100 pound inches (8.5-11.3 newton-meters).

(a) Make sure you can see the rod end threads in at least one-half of the inspection hole.

(b) Install lockwire on the rod ends.

SUBTASK 27-11-00-080-001

(13) Remove the rigging pins SP1 and SP2 from the Captain's and First Officer's control wheels respectively.

SUBTASK 27-11-00-080-002

(14) Remove the rigging pins SP3 and SP4 from the left and right lateral mechanism assemblies respectively.

SUBTASK 27-11-00-420-003

(15) Install the safety clips on the turnbuckles (TASK 20-10-05-400-801).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-003

(1) Remove these rigging pins:

(a) SP1 from the left control wheel.

(b) SP2 from the right control wheel.

(c) SP3 from the left lateral mechanism.

(d) SP4 from the right lateral mechanism.

SUBTASK 27-11-00-410-001

(2) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-11-00-410-002

(3) Close this access panel:

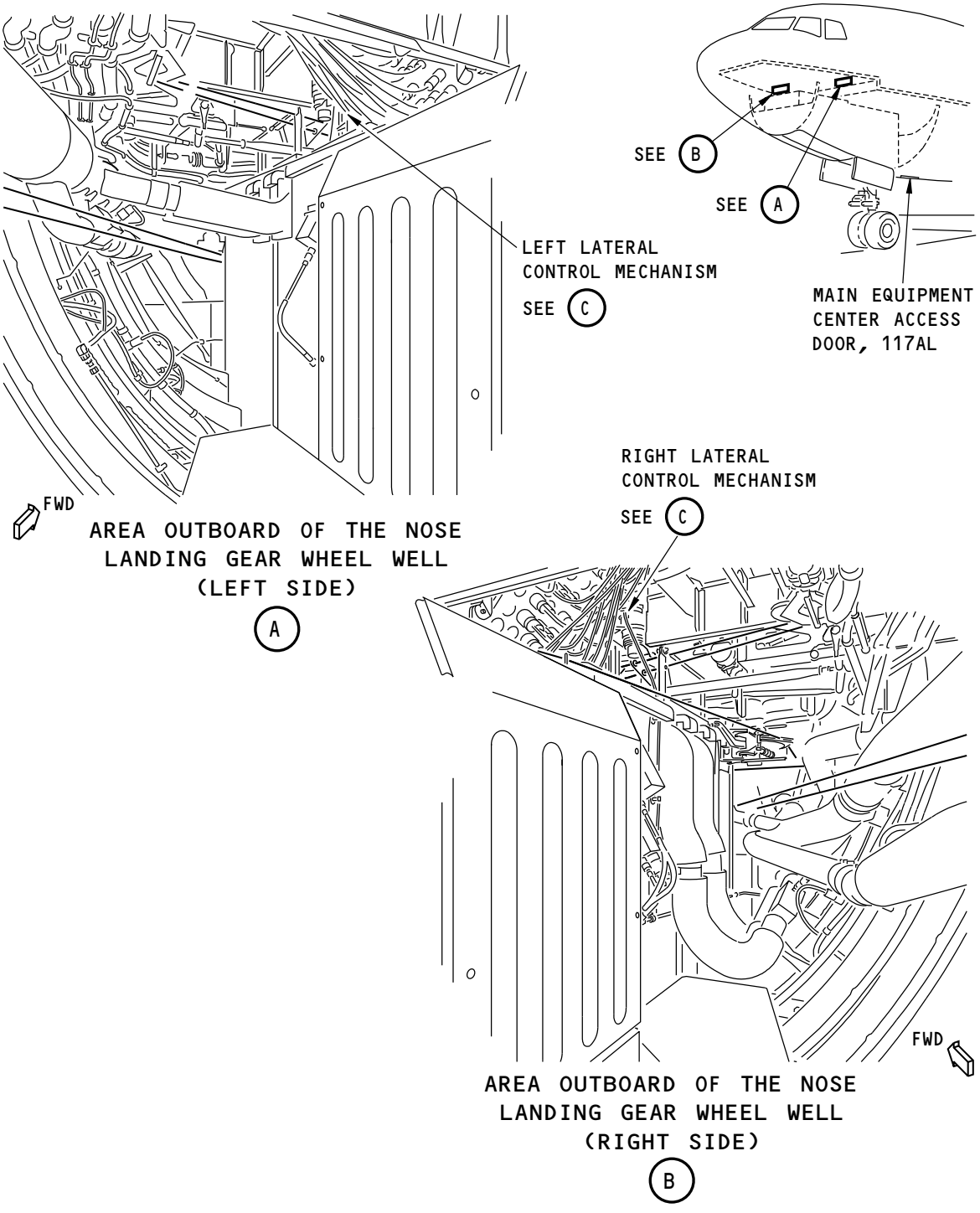
Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-00-410-011

(4) Prior to releasing the airplane for flight, do this task: Aileron and Flaperon - Operational Test, TASK 27-11-00-700-801.

——— END OF TASK ———

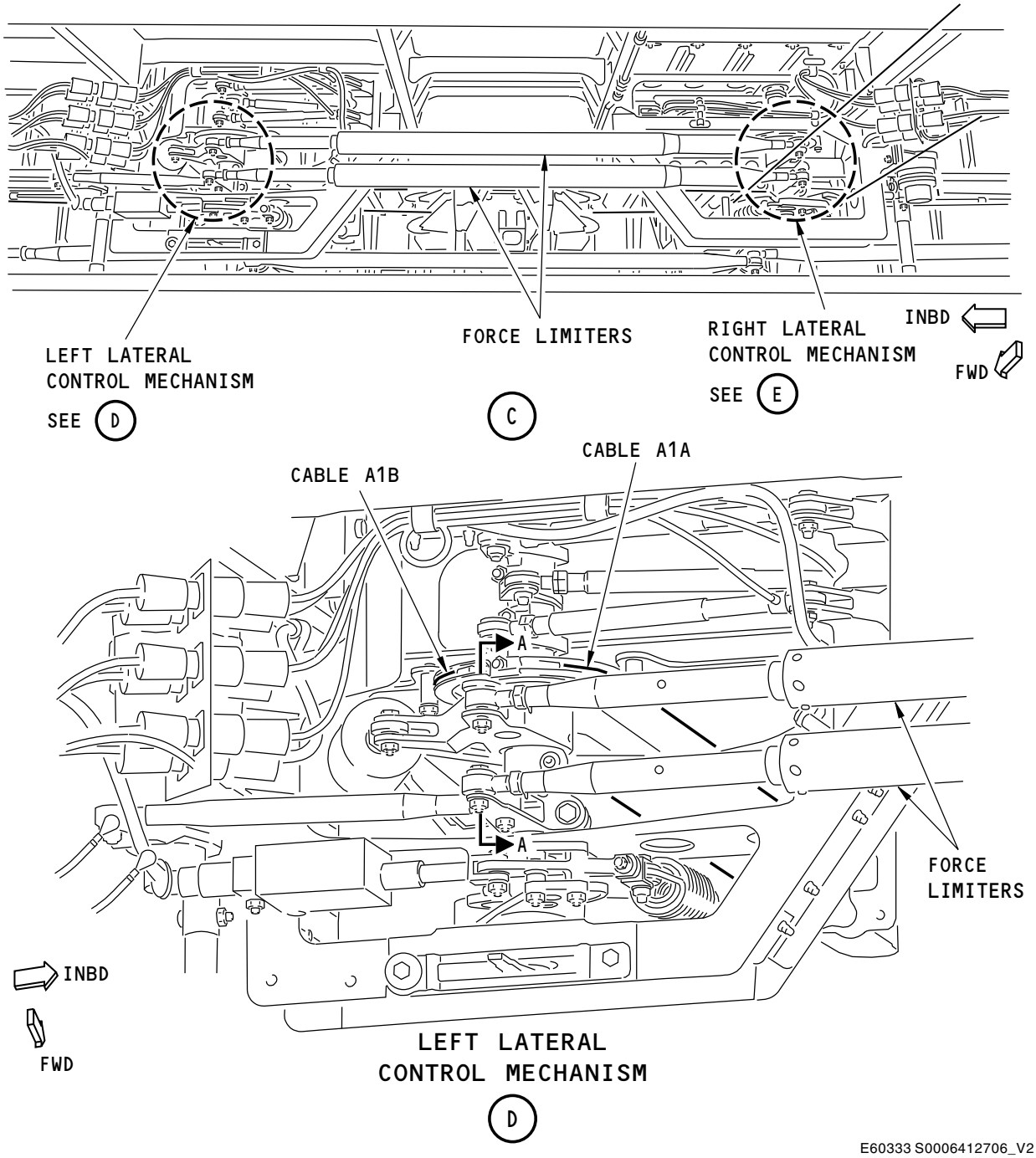
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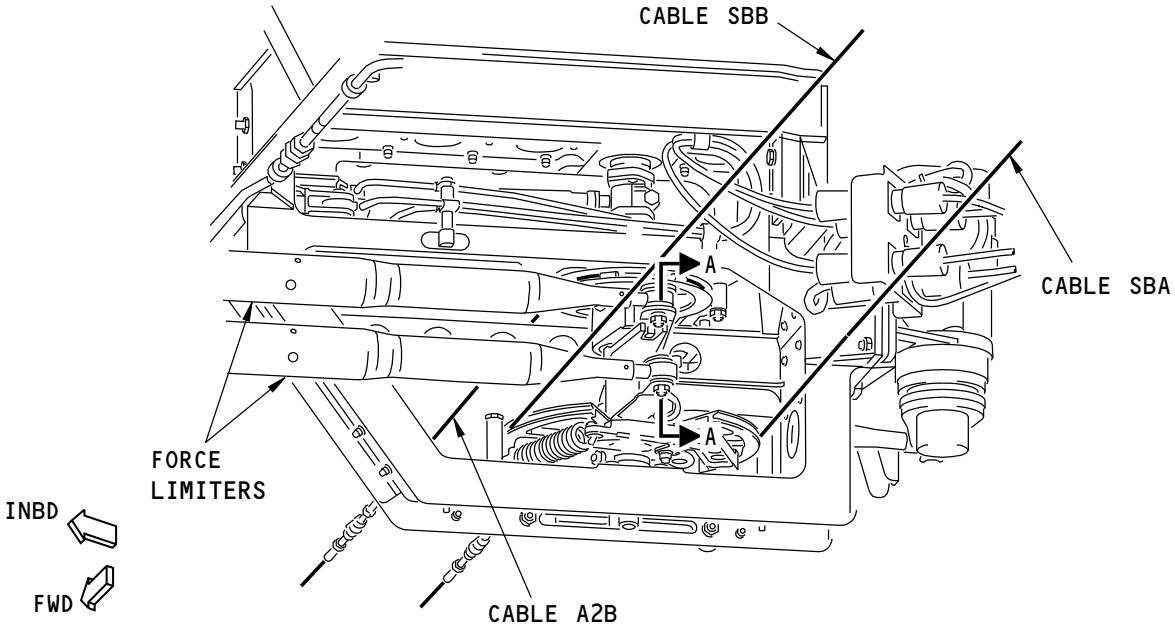
Force Limiter
Figure 502/27-11-00-990-802 (Sheet 1 of 3)

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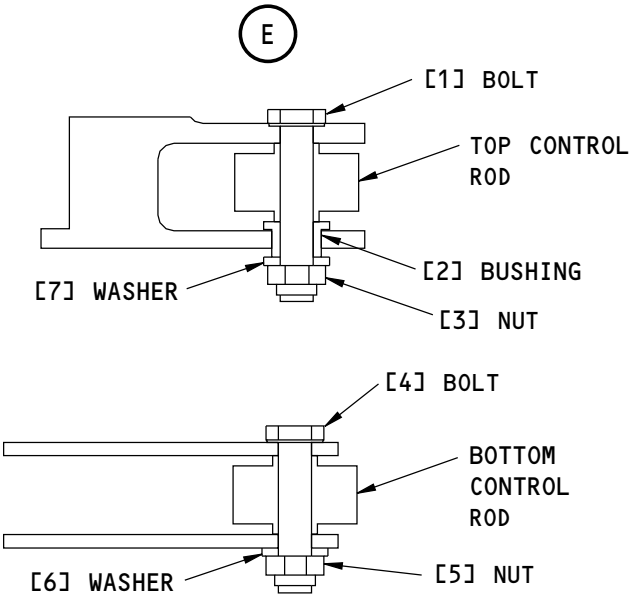


Force Limiter
Figure 502/27-11-00-990-802 (Sheet 2 of 3)

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RIGHT LATERAL
CONTROL MECHANISM

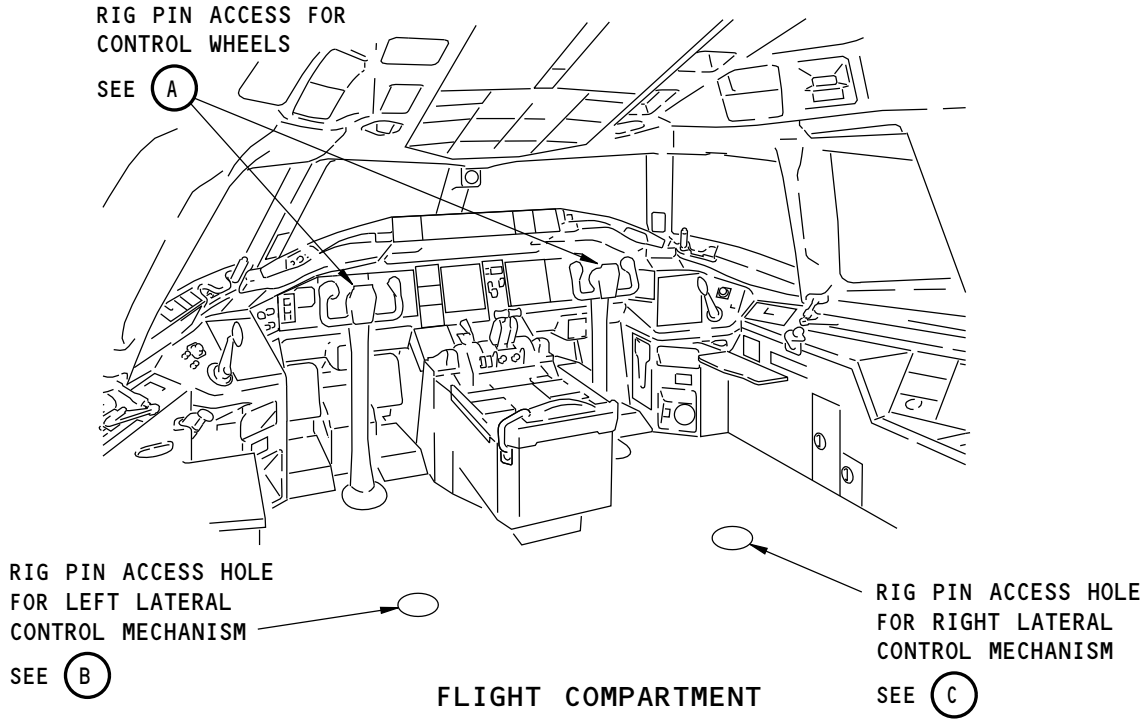


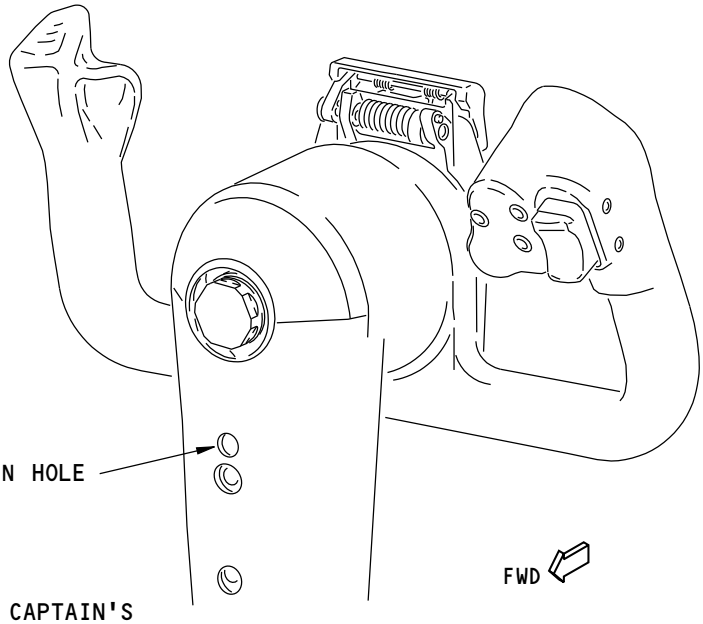
LEFT SIDE IS SHOWN
(RIGHT SIDE IS EQUIVALENT)
A–A

E60386 S0006412707_V2

Force Limiter
Figure 502/27-11-00-990-802 (Sheet 3 of 3)

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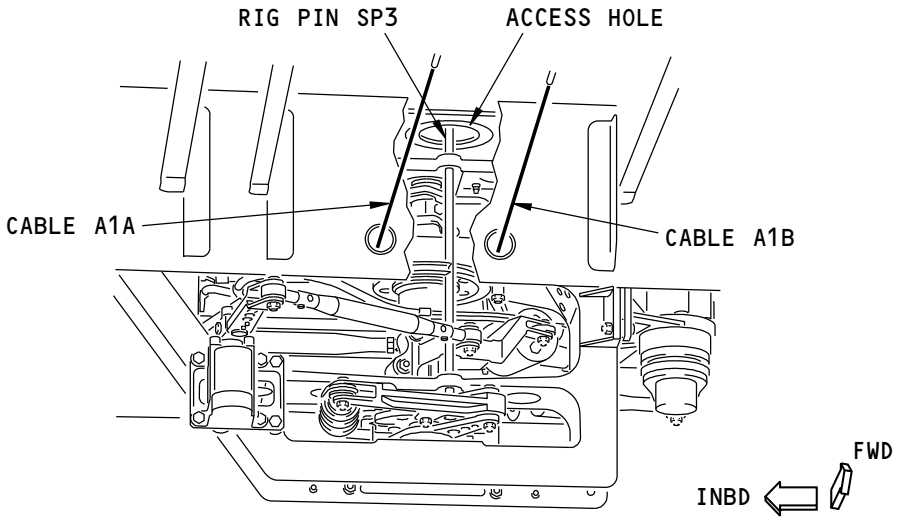
1 RIG PIN SP1 ON THE CAPTAIN'S CONTROL COLUMN.
RIG PIN SP2 ON THE FIRST OFFICER'S CONTROL COLUMN.

A

E59849 S0006412708_V1

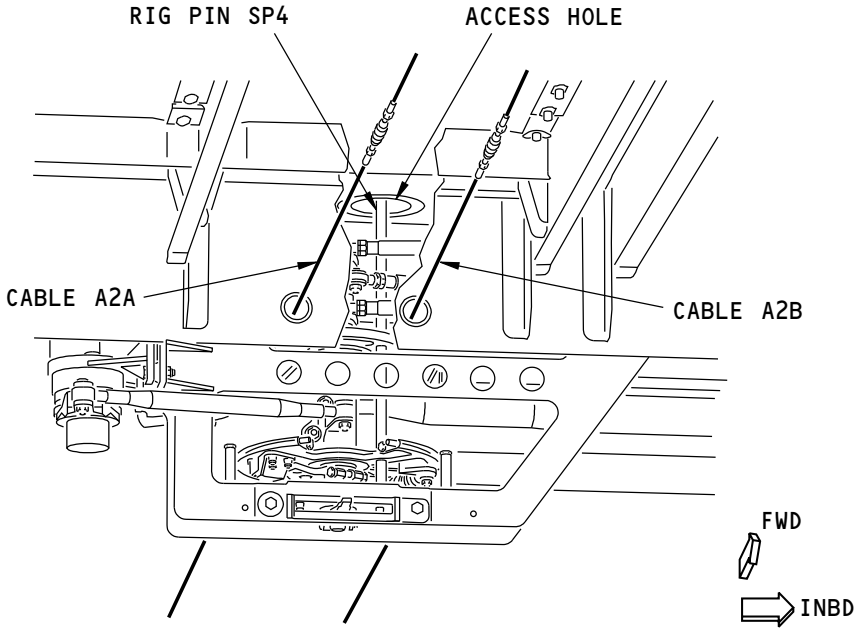
Rig Pin Installation
Figure 503/27-11-00-990-803 (Sheet 1 of 2)

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LEFT LATERAL CONTROL MECHANISM

B



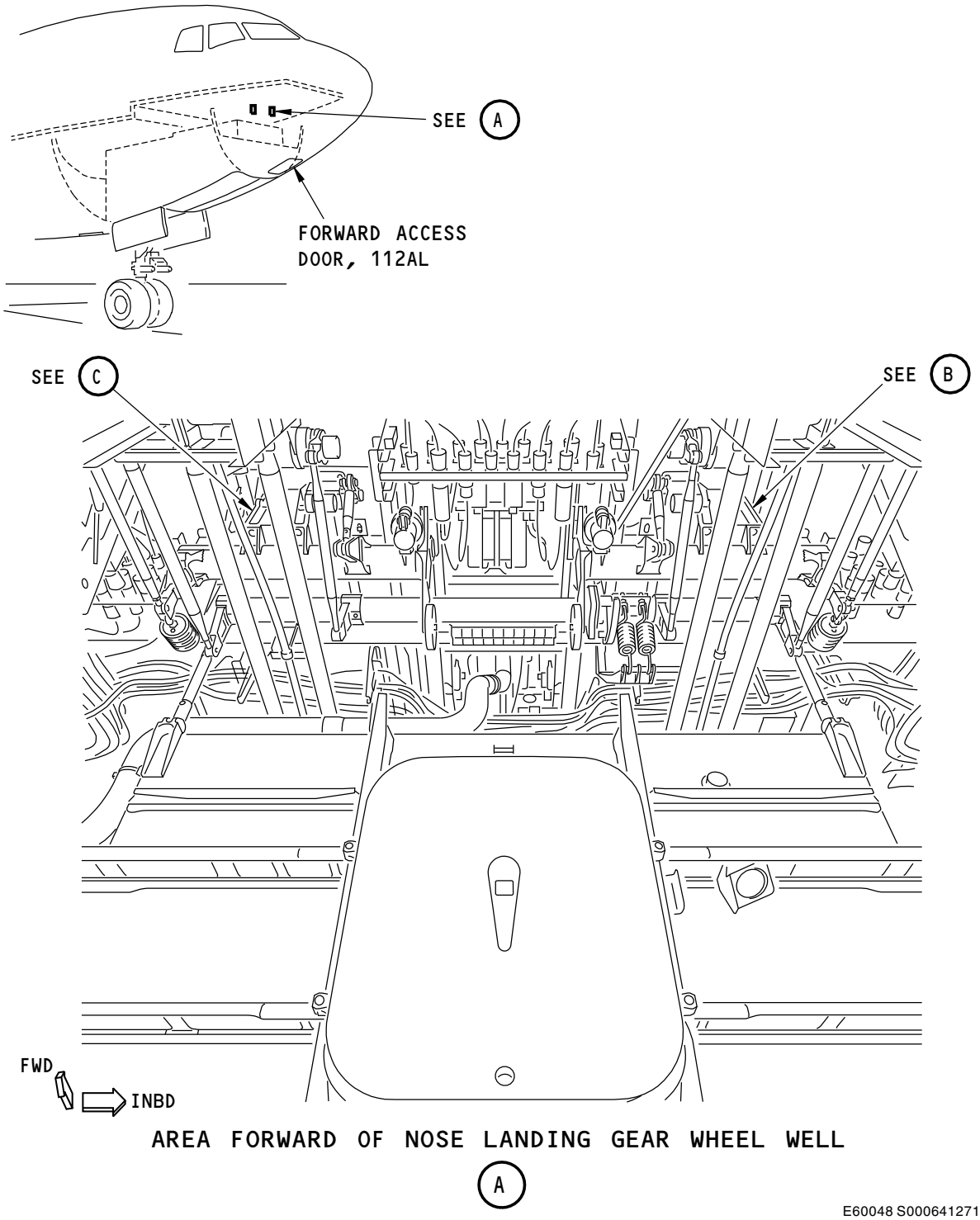
RIGHT LATERAL CONTROL MECHANISM

C

E60003 S0006412709_V1

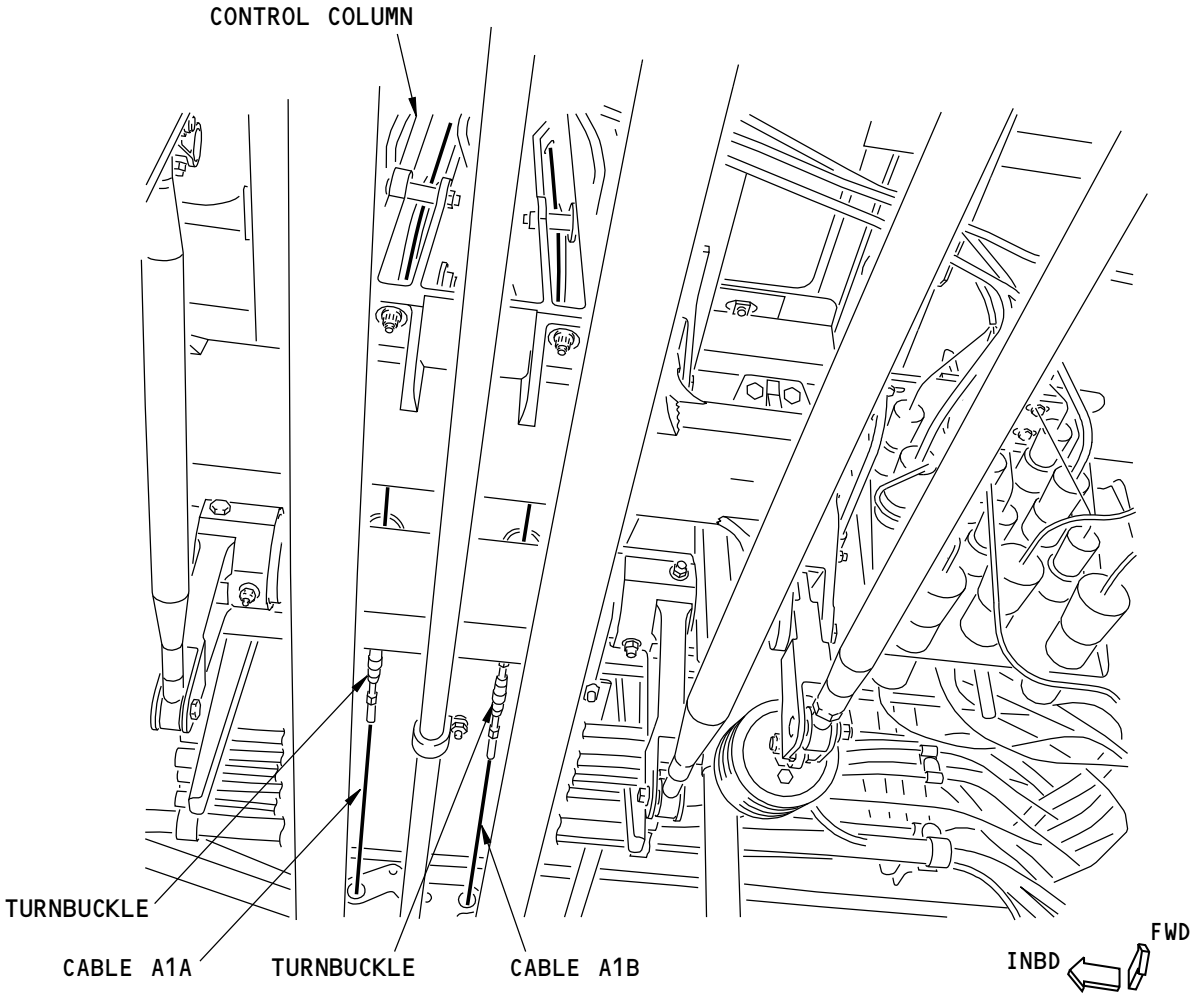
Rig Pin Installation
Figure 503/27-11-00-990-803 (Sheet 2 of 2)

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Aileron Cables
Figure 504/27-11-00-990-804 (Sheet 1 of 3)

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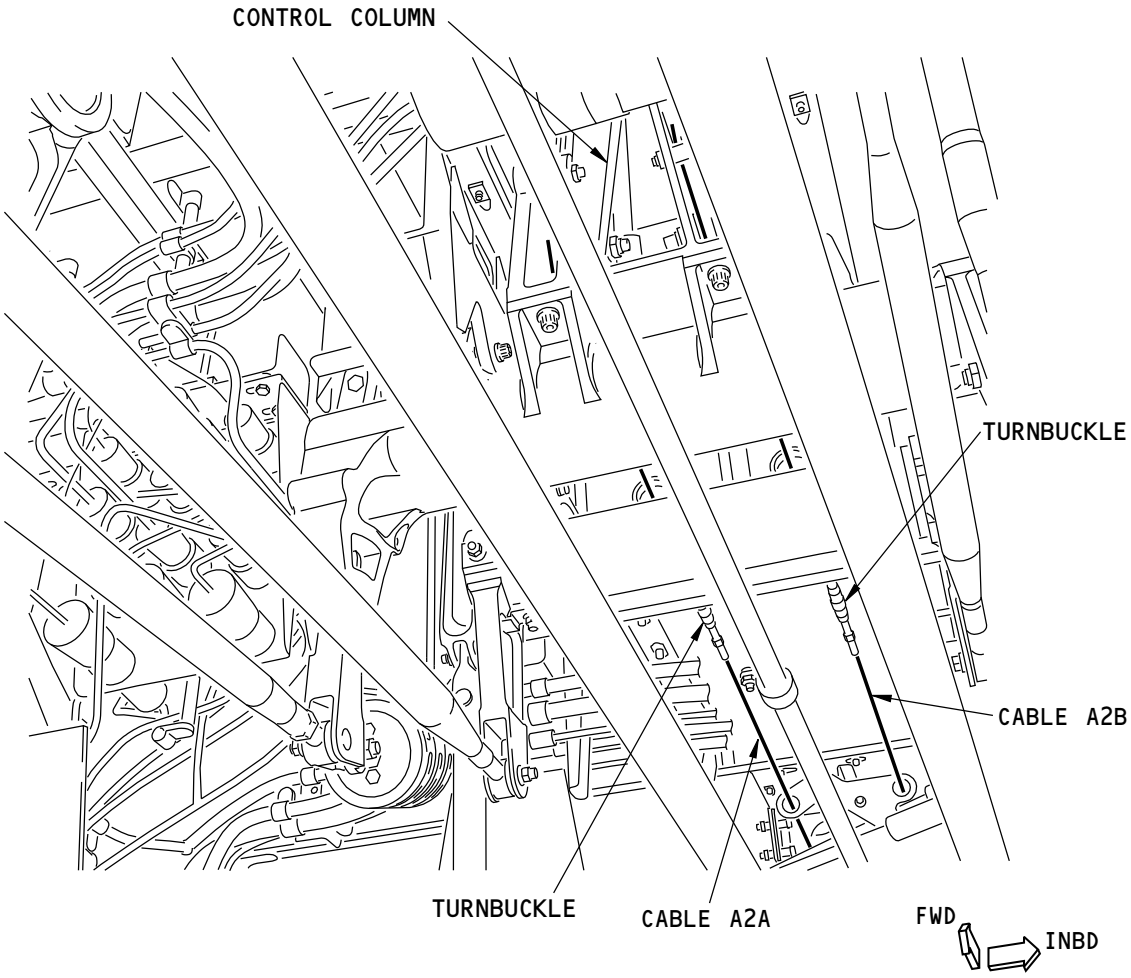
LEFT SIDE CONTROL COLUMN LOWER END

B

E60060 S0006412711_V1

Aileron Cables
Figure 504/27-11-00-990-804 (Sheet 2 of 3)

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RIGHT SIDE CONTROL COLUMN LOWER END

C

E60136 S0006412712_V1

Aileron Cables
Figure 504/27-11-00-990-804 (Sheet 3 of 3)

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TASK 27-11-00-820-801

4. Wheel Position Transducer (LVDT) Adjustment

(Figure 501, Figure 503, Figure 505)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Prepare for the Adjustment

SUBTASK 27-11-00-860-014

(1) Make sure hydraulic power is not supplied. If it is necessary, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-00-860-015

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

F. Procedure

NOTE: The rigging pin set, SPL-2532 contains all of the rigging pins necessary to do the Wheel Position Transducer (LVDT) Adjustment.

SUBTASK 27-11-00-480-005

(1) Install these rigging pins:

(a) Rigging pin SP3 in the left lateral mechanism.

(b) Rigging pin SP4 in the right lateral mechanism.

SUBTASK 27-11-00-860-016

(2) Use the PFCS Maintenance Page 1 to make sure the 3 CAPT WHEEL and the 3 F/O WHEEL POSITIONS show 0.00 ±0.01 (TASK 31-61-00-800-804).

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SUBTASK 27-11-00-820-004

(3) If the PFCS Maintenance Page 1 does not show 0.00 ±0.01, do the steps that follow to adjust the applicable control wheel position transducer:

NOTE: The left and the right lateral control mechanism each have 3 control wheel position transducers (LVDTs).

Table 506/27-11-00-993-825

Control Wheel Position Transducer (LVDT) Connected to:	CAPT WHEEL POSITION	F/O WHEEL POSITION
DM27133/DM27233	3	3
DM27132/DM27232	2	2
DM27131/DM27231	1	1

(a) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

to get access to the applicable control wheel position transducer.

1) Remove the lockwire from the end of the control wheel position transducer.

CAUTION

PUT A WRENCH ON THE ANTI-TORQUE HEX WHEN YOU LOOSEN OR TIGHTEN THE LOCKNUT ON THE CONTROL WHEEL POSITION TRANSDUCER. IF YOU DO NOT USE A WRENCH ON THE ANTI-TORQUE HEX, YOU CAN CAUSE DAMAGE TO THE ROD END OF THE CONTROL WHEEL POSITION TRANSDUCER.

2) Loosen the locknut on the control wheel position transducer.

3) Turn the anti-torque hex until the PFCS Maintenance Page 1 shows 0.00 ±0.01 for the applicable CAPT (F/O) WHEEL POSITION.

CAUTION

PUT A WRENCH ON THE ANTI-TORQUE HEX WHEN YOU LOOSEN OR TIGHTEN THE LOCKNUT ON THE CONTROL WHEEL POSITION TRANSDUCER. IF YOU DO NOT USE A WRENCH ON THE ANTI-TORQUE HEX, YOU CAN CAUSE DAMAGE TO THE ROD END OF THE CONTROL WHEEL POSITION TRANSDUCER.

4) Tighten the locknut on the control wheel position transducer.

5) Use the PFCS Maintenance Page 1 to make sure the 3 CAPT WHEEL and the 3 F/O WHEEL POSITIONS show 0.00 ±0.01.

6) Make sure the rig pins (SP3 for the left lateral control mechanism and SP4 for the right lateral control mechanism) can be removed and installed easily.

NOTE: The rig pin will stay installed after you check if it can be easily removed and installed.

7) Make sure the rod end threads cover at least 1/2 of the inspection hole.

8) Install a lockwire on the locknut and lockwasher.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-004

(1) Remove these rigging pins:

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(a) Rigging pin SP3 from the left lateral mechanism.

(b) Rigging pin SP4 from the right lateral mechanism.

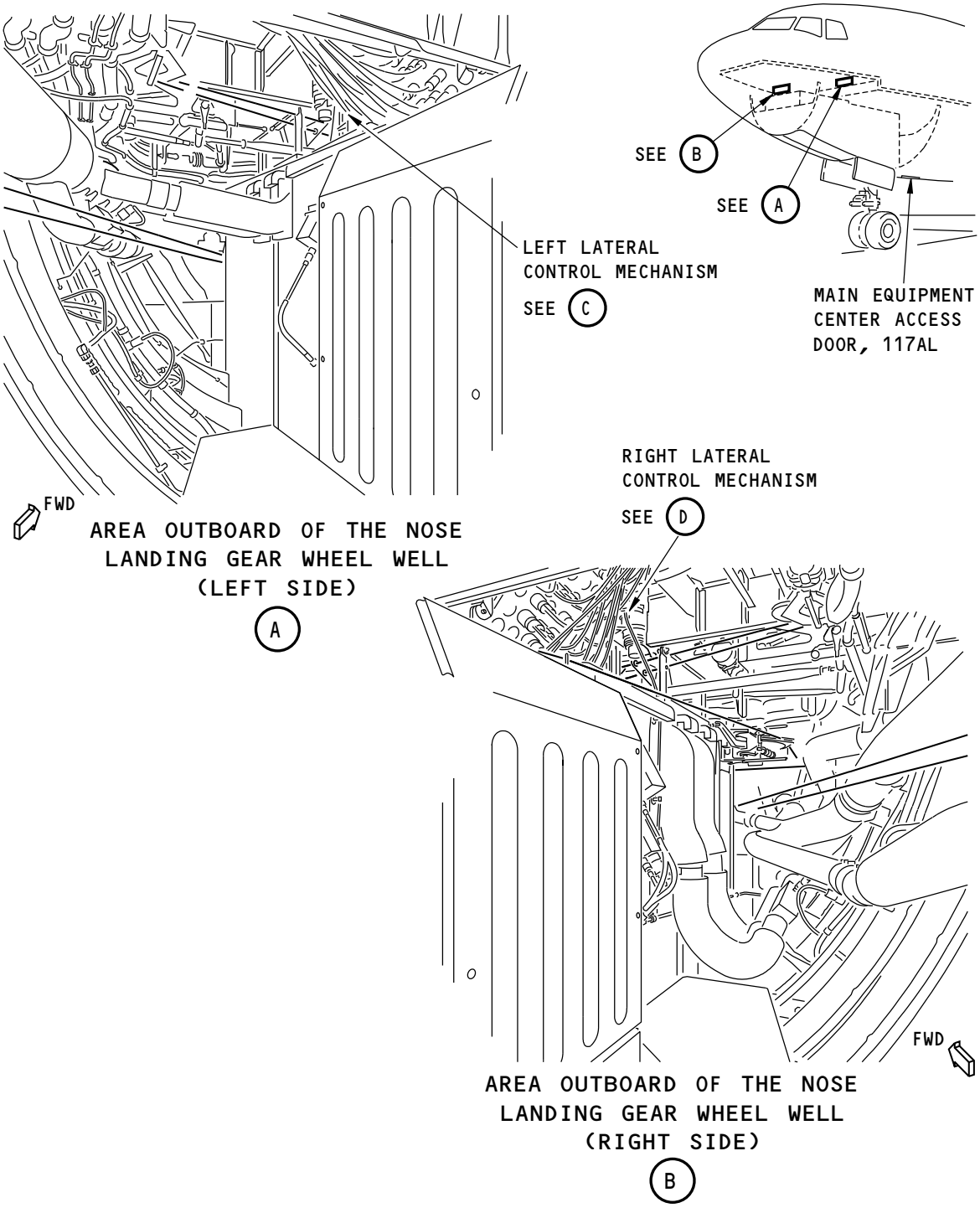
SUBTASK 27-11-00-410-003

(2) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

END OF TASK

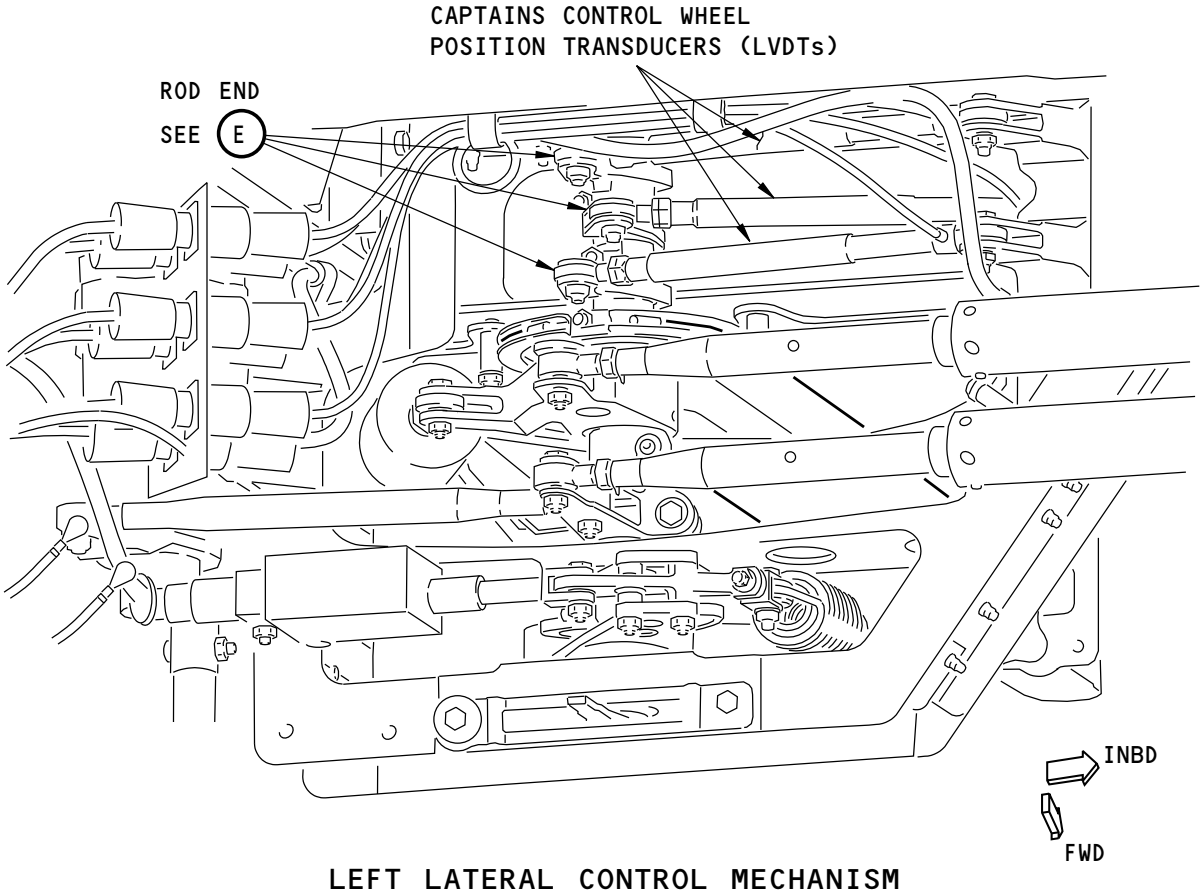
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Control Wheel Position Transducers (LVDTs)
Figure 505/27-11-00-990-805 (Sheet 1 of 3)

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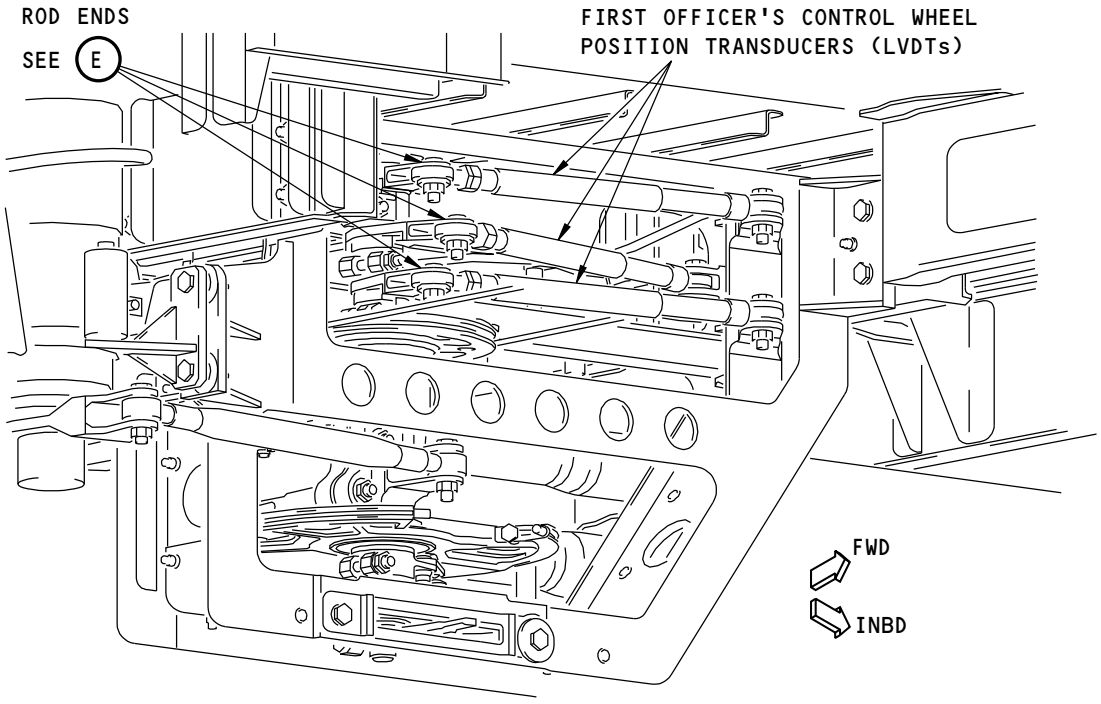


LEFT LATERAL CONTROL MECHANISM
C

E65097 S0006412716_V1

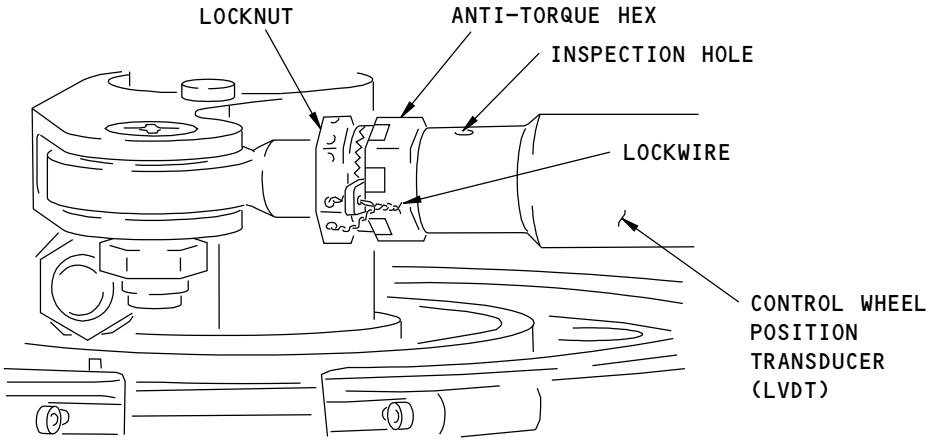
Control Wheel Position Transducers (LVDTs)
Figure 505/27-11-00-990-805 (Sheet 2 of 3)

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RIGHT LATERAL CONTROL MECHANISM

D



ROD END (3 LOCATIONS)
(LEFT SIDE IS SHOWN,
RIGHT SIDE IS EQUIVALENT)

E

E67721 S0006412717_V1

Control Wheel Position Transducers (LVDTs)
Figure 505/27-11-00-990-805 (Sheet 3 of 3)

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TASK 27-11-00-820-802

5. Aileron Adjustment (Rigging)

(Figure 501, Figure 506)

A. General

(1) You must use the maintenance access terminal (MAT) to do this procedure.

(2) Use this procedure to adjust (rig) the ailerons to their neutral position. The two ailerons are adjusted independently.

(3) The load condition of the airplane (fuel quantity, on or off jacks, engines installed or not installed) has no effect on the adjustment dimensions in this procedure.

(4) The control wheels can be in any position when you do this test. The primary flight computers (PFCs) ignore the position of the control wheels when it does this test.

NOTE: The flight control surfaces will move to the position of the pilot's controls when the test is complete (if you keep hydraulic power on).

(5) The trailing edge flaps must be retracted to do this procedure. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-14855	Rigging Tool - Aileron Wing Trailing Edge Section 13 Part #: J27126-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
G01505	Lockwire - Safety And Lock	NASM20995

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
568	Left Wing Aileron
668	Right Wing Aileron

F. Access Panels

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

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G. Prepare for the Adjustment

SUBTASK 27-11-00-010-003

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE AILERONS. PUT THE EQUIPMENT YOU USE FOR ACCESS TO THE AILERON PCUS FORWARD OF THE AILERON. THE AILERON YOU ADJUST WILL MOVE AUTOMATICALLY DURING THIS TEST.

(1) Open the applicable panels that follow for the aileron power control units (PCUs).

NOTE: You must remove these access panels only if you will adjust the position of the aileron. It is not necessary to remove them to do a test of the neutral position.

The two ailerons are adjusted independently, thus you must remove the access panels only for the aileron you will adjust.

Open these access panels:

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

H. Procedure

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it (the instruction to supply hydraulic power is on the bottom of the screen that shows the hydraulic power warning, you must scroll down the screen to see the instruction). Refer to (TASK 29-11-00-860-801) for the procedure to supply hydraulic power.

SUBTASK 27-11-00-860-018

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-740-001

(2) Use a maintenance access terminal (MAT) to do the aileron adjustment:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Left Aileron Alignment (Right Aileron Alignment)
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

NOTE: Make sure the aileron moves when you adjust a null LVDT. If the aileron does not move, make sure you have the correct null LVDT.

To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop immediately (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

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If the test stopped before it was completed (the MAT will show TEST ABORTED), do the steps to put the airplane back to its usual condition.

(c) Do these steps to adjust the PCUs when instructed by the MAT:

1) Remove the lockwire from the null LVDT cap [11].
2) Remove the cap [11] from the PCU.
3) Use a 1/8-inch allen type tool to adjust the PCU.
4) Turn the null LVDT on the PCU until the top surface of the aileron is within 0.82 to 0.86 inch (20.8 to 21.8 millimeters) below the top surface of the fixed trailing edge of the wing.

NOTE: A rigging tool, SPL-14855, can be used as an optional tool to adjust the PCU.

NOTE: This measurement is to be taken on the inboard end of the aileron.

5) Install the cap [11] and tighten it to 30-40 pound inches (3.4-4.5 newton-meters).
6) Install lockwire, G01505 on the cap [11].

(d) Complete the test on the MAT.

NOTE: If you select NO you cannot align the aileron, then the MAT will show TEST CONDITION: FAILED.

(e) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(f) If FAILED shows, repair the necessary parts and do this test again.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-063

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-00-410-004

(2) Close the applicable access panels for the aileron power control units (PCUs):

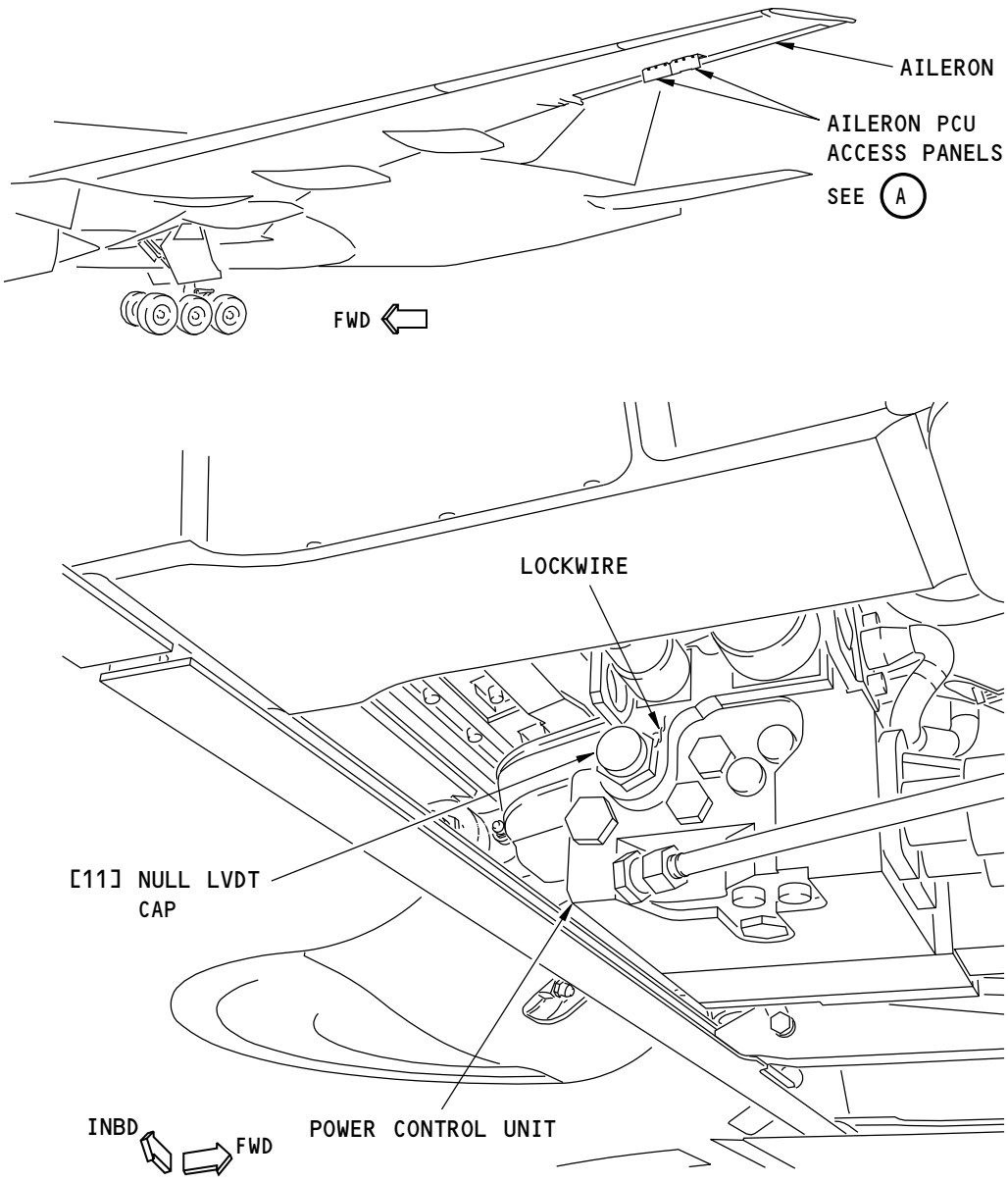
Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-11-00-410-012

(3) Prior to releasing the airplane for flight, do this task: Aileron and Flaperon - Operational Test, TASK 27-11-00-700-801.

——— END OF TASK ———

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LEFT PCUs AND AILERON
(RIGHT PCUs AND AILERON ARE EQUIVALENT)

A

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Aileron Power Control Unit Adjustment
Figure 506/27-11-00-990-806

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TASK 27-11-00-820-803

6. Flaperon Adjustment (Rigging)

(Figure 501, Figure 507, Figure 508)

A. General

(1) You must use the maintenance access terminal (MAT) to do this procedure.

(2) Use this procedure to adjust (rig) the flaperons to their neutral position. The two flaperons are adjusted independently.

(3) The load condition of the airplane (fuel quantity, on or off jacks, engines installed or not installed) has no effect on the adjustment dimensions in this procedure.

(4) The control wheels can be in any position when you do this test. The primary flight computers (PFCs) ignore the position of the control wheels when it does this test.

NOTE: The flight control surfaces will move to the position of the pilot's controls when the test is complete (if you keep hydraulic power on).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1703	Equipment - Rigging, Flaperon Part #: J27017-19 Supplier: 81205 Opt Part #: J27017-1 Supplier: 81205
SPL-14874	Flaperon Rigging Tool, Section 13 Part #: J27096-1 Supplier: $0208

D. Consumable Materials

Reference	Description	Specification
G01505	Lockwire - Safety And Lock	NASM20995

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
557	Left Wing Flaperon
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
675	Outboard Flaperon Support Fairing - Right Wing

F. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
652HB	Inboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

G. Prepare for the Adjustment

SUBTASK 27-11-00-010-004

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLAPERONS. PUT THE EQUIPMENT YOU USE FOR ACCESS TO THE FLAPERON PCUS FORWARD OF THE FLAPERON. THE FLAPERON YOU ARE ADJUSTING WILL MOVE AUTOMATICALLY DURING THIS TEST.

(1) Remove the applicable panels that follow for the flaperon power control units (PCUs).

NOTE: You must remove these access panels only if you will adjust the position of the flaperon. It is not necessary to remove them to do a test of the neutral position.

The two flaperons are adjusted independently, thus you must remove the access panels only for the flaperon you will adjust.

(a) For the left wing:

Open these access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel

(b) For the Right wing:

Open these access panels:

Number	Name/Location
652HB	Inboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

H. Procedure

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it (the instruction to supply hydraulic power is on the bottom of the screen that shows the hydraulic power warning, you must scroll down the screen to see the instruction). Refer to (TASK 29-11-00-860-801) for the procedure to supply hydraulic power.

SUBTASK 27-11-00-860-022

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-740-002

(2) Use a maintenance access terminal (MAT) to do the flaperon adjustment:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Left Flaperon Alignment (Right Flaperon Alignment)
7) CONTINUE

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(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

NOTE: Make sure the flaperon moves when you adjust a null LVDT. If the flaperon does not move, make sure you have the correct null LVDT.

To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

If the test stopped before it was completed (the MAT will show TEST ABORTED), do the steps to put the airplane back to its usual condition.

(c) If you replaced only one of the flaperon PCUs (and did not adjust the other flaperon PCU), then you can use these steps to adjust the replaced PCU:

NOTE: These instructions tell you how to adjust one flaperon PCU so it is adjusted the same as the other flaperon PCU. If both of the PCUs need adjustment, you must use the procedure after this procedure.

1) On the MAT, select the procedure for the PCU that was NOT adjusted or replaced.

NOTE: The flaperon will move.

You will not adjust this PCU, but you must select this PCU to find the "rig" position of the flaperon.

2) When the MAT shows that the PCU is commanded to the rig position, then do this step:

a) Measure the distance from one the corners at the trailing edge of the flaperon to the surface of the flap.

NOTE: You can do this at the inboard or outboard edge of the flaperon. Measure accurately and record the number. To adjust the other flaperon PCU correctly you will need to put the flaperon back to this same position ±0.06 inches.

3) On the MAT, select YES that you aligned the flaperon.

4) On the MAT, select the procedure for the PCU that you want to adjust.

NOTE: The flaperon will move.

5) When the MAT shows that the PCU is commanded to the rig position, then do these steps:

a) Remove the lockwire from the null LVDT cap [16] (Figure 507).

b) Remove the cap [16] from the PCU.

c) Use a 1/8-inch allen type tool to adjust the null LVDT.

d) Turn the null LVDT on the PCU until the flaperon surface is in the same position you measured above. Measure to make sure the flaperon is not more than 0.06 inches (1/16 inch, 1.5mm) from the position you measured above.

e) Install the cap [16] and tighten it to 30-40 pound inches (3.4-4.5 newton-meters).

f) Install lockwire, G01505 on the cap [16].

(d) To adjust both PCUs (or if you do not know if either PCU is adjusted correctly) do these steps:

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WARNING MOVE ALL PERSONNEL AND EQUIPMENT AWAY FROM THE FLAPERONS. THE FLAPERONS CAN MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

1) On the MAT, select the procedure for one of the PCUs.
2) When the MAT shows that the PCU is commanded to the rig position, then continue.
3) To adjust the flaperon using flaperon rigging equipment, SPL-1703, do the following steps:
   a) Hold the rigging flaperon rigging equipment, SPL-1703 against the flaperon in two places.
      NOTE: If a flaperon was originally rigged incorrectly trailing edge down (TED), the flaperon rigging equipment, SPL-1703 will probably contact the flaperon aft rig point and the wing skin with a gap at the flaperon forward rig point. The null adjust LVDT of the PCU being rigged needs to be adjusted to raise the flaperon trailing edge until the rigging flaperon rigging equipment, SPL-1703 contacts both flaperon rig marks and a gap of approximately 0.30 inch exists between the forward end of the tool and the lower wing skin. The following steps then can be followed. This would need to be repeated for the second PCU. There are paint marks on the flaperon to show the location where the tool touches the flaperon (Figure 508).
      NOTE: If there are no paint marks on the flaperon. The location Point E and Point F are the bolt heads where the tool touches the flaperon Figure 508.
   b) Make sure the step gauge shows a distance of 0.0, +/- 0.01, +/- 0.02, or +/- 0.03 between the forward end of the rigging assembly and the wing.
4) To adjust the flaperon using the flaperon rigging tool, SPL-14874, do these steps:
   a) Align to the aft and side of the flaperon adjacent to the flap.
   b) Check that the flaps are at 0°arc (0 rad) detent.
   c) Adjust the null position LVDT until the flaperon is a distance of 1.00 in. (25.40 mm) above the inboard aft flap upper surface.
      NOTE: The measurements are 3.25 in. (82.55 mm) inboard of the flaperon inboard edge, and on a line 0.352 in. (8.941 mm) forward and parallel to the trailing edge. The tool index pins aligned to the surface are set to this dimension.
      NOTE: Put the long pins in the gap between the flap and flaperon surface, and along the aft edge of the flaperon
      NOTE: The gauge attached to the tool is used to calibrate the indicator to zero.
5) If the step gauge does not show the correct distance, then do these steps:
   a) Remove the lockwire from the null LVDT cap [16] (Figure 507).
   b) Remove the cap [16] from the PCU.
   c) Use a 1/8-inch allen type tool to adjust the null LVDT.
   d) Turn the null LVDT on the PCU until following:

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<1> If you used the flaperon rigging equipment, SPL-1703, the step gauge must show a distance of 0.0, +/- 0.01, +/- 0.02, or +/- 0.03 between the forward end of the rigging assembly and the wing.

<2> If you used the flaperon rigging tool, SPL-14874, the dial indicator must show a reading of 1.00 in. (25.40 mm).

WARNING MOVE ALL PERSONNEL AND EQUIPMENT AWAY FROM THE FLAPERONS. THE FLAPERONS CAN MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

6) Follow the instructions on the MAT until the other flaperon PCU is commanded to the rig position, then continue.

7) If you use the flaperon rigging equipment, SPL-1703:

a) Make sure the step gauge shows a distance of 0.0, +/- 0.01, +/- 0.02, or +/- 0.03 between the forward end of the rigging assembly and the wing.

8) If you use the flaperon rigging tool, SPL-14874:

a) Make sure the dial indicator reads a distance of 1.00 in. (25.40 mm)

9) If the gauge does not show the correct distance, then do these steps:

a) Remove the lockwire from the cap [16] (Figure 507).

b) Remove the cap [16] from the PCU.

c) Use a 1/8-inch allen type tool to adjust the null LVDT.

d) Turn the null LVDT on the PCU until following:

<1> If you used the flaperon rigging equipment, SPL-1703, the step gauge must show a distance of 0.0, +/- 0.01, +/- 0.02, or +/- 0.03 between the forward end of the rigging assembly and the wing.

<2> If you used the flaperon rigging tool, SPL-14874, the dial indicator must show a reading of 1.00 in. (25.40 mm).

10) Install the caps [16] on the PCUs and tighten them to 30-40 pound inches (3.4-4.5 newton-meters).

11) Install lockwire, G01505 on each cap [16].

(e) Complete the test on the MAT.

NOTE: If you select NO you cannot align the flaperon, then the MAT will show TEST CONDITION: FAILED.

(f) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(g) If FAILED shows, repair the necessary parts and do this test again.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-410-005

(1) Close the applicable panels that follow for the flaperon power control units (PCUs).

(a) For the left wing:

Close these access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
552LB	Outboard Fixed Trailing Edge Panel

(b) For the right wing:

Close these access panels:

Number	Name/Location
652HB	Inboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-11-00-860-023

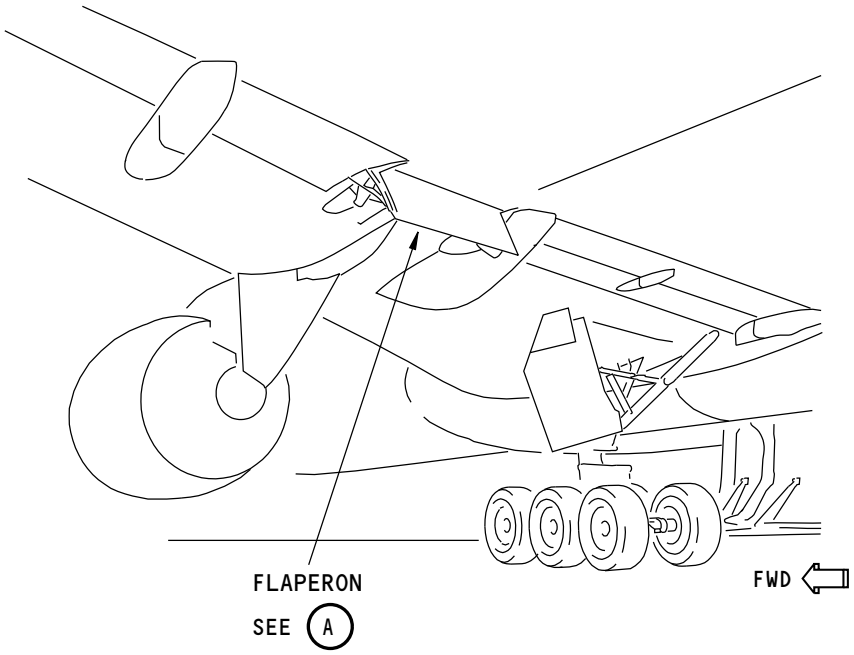
(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-00-410-013

(3) Prior to releasing the airplane for flight, do this task: Aileron and Flaperon - Operational Test, TASK 27-11-00-700-801.

——— END OF TASK ———

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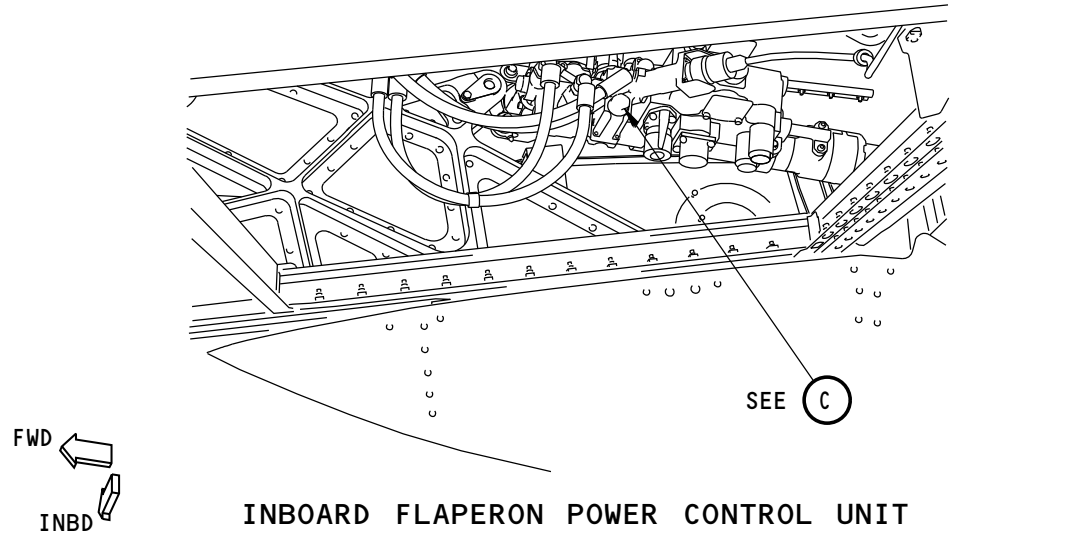


FLAPERON
(ACCESS PANELS SHOWN INSTALLED)
A

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Flaperon Power Control Unit Adjustment
Figure 507/27-11-00-990-807 (Sheet 1 of 3)

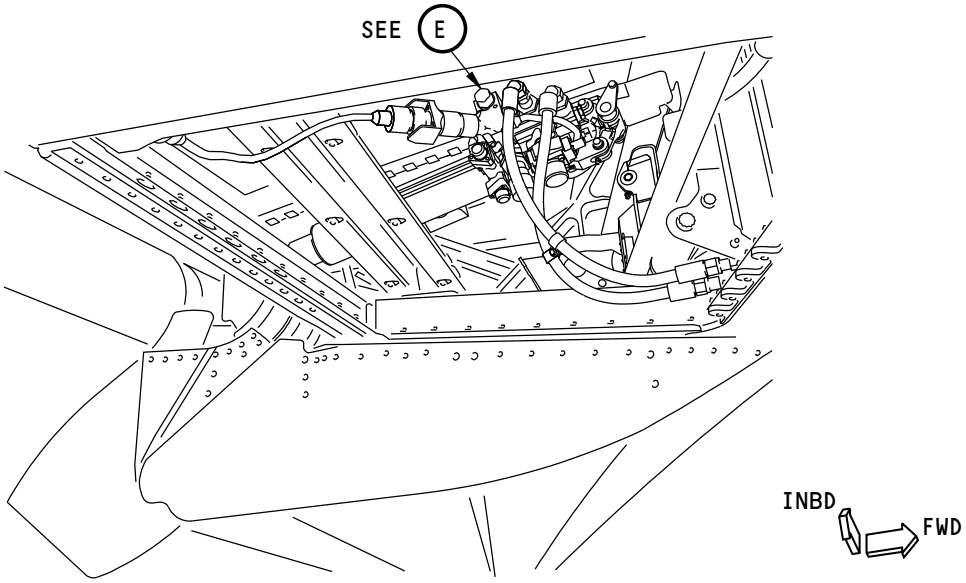
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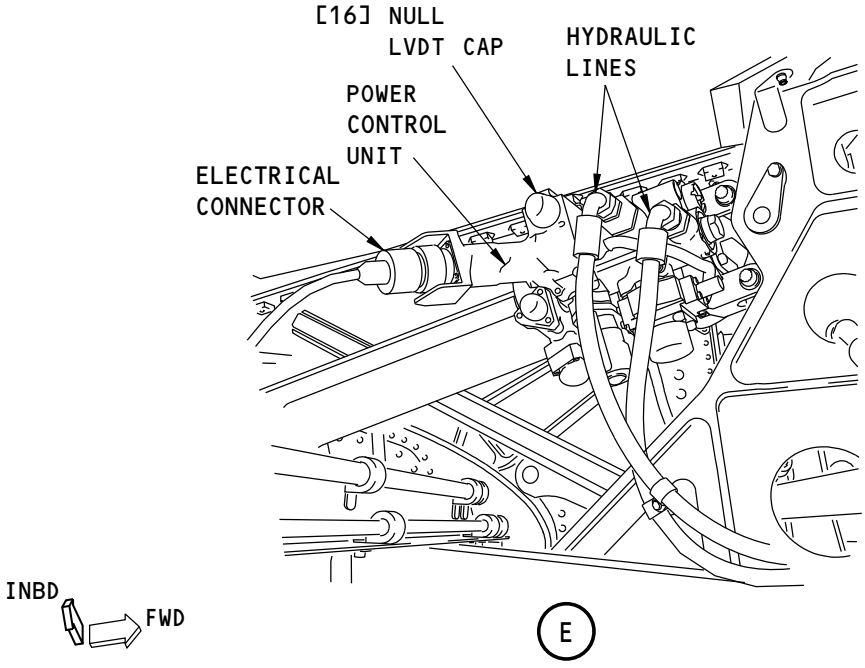
Flaperon Power Control Unit Adjustment
Figure 507/27-11-00-990-807 (Sheet 2 of 3)

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OUTBOARD FLAPERON POWER CONTROL UNIT
(FORWARD FITTING)

D

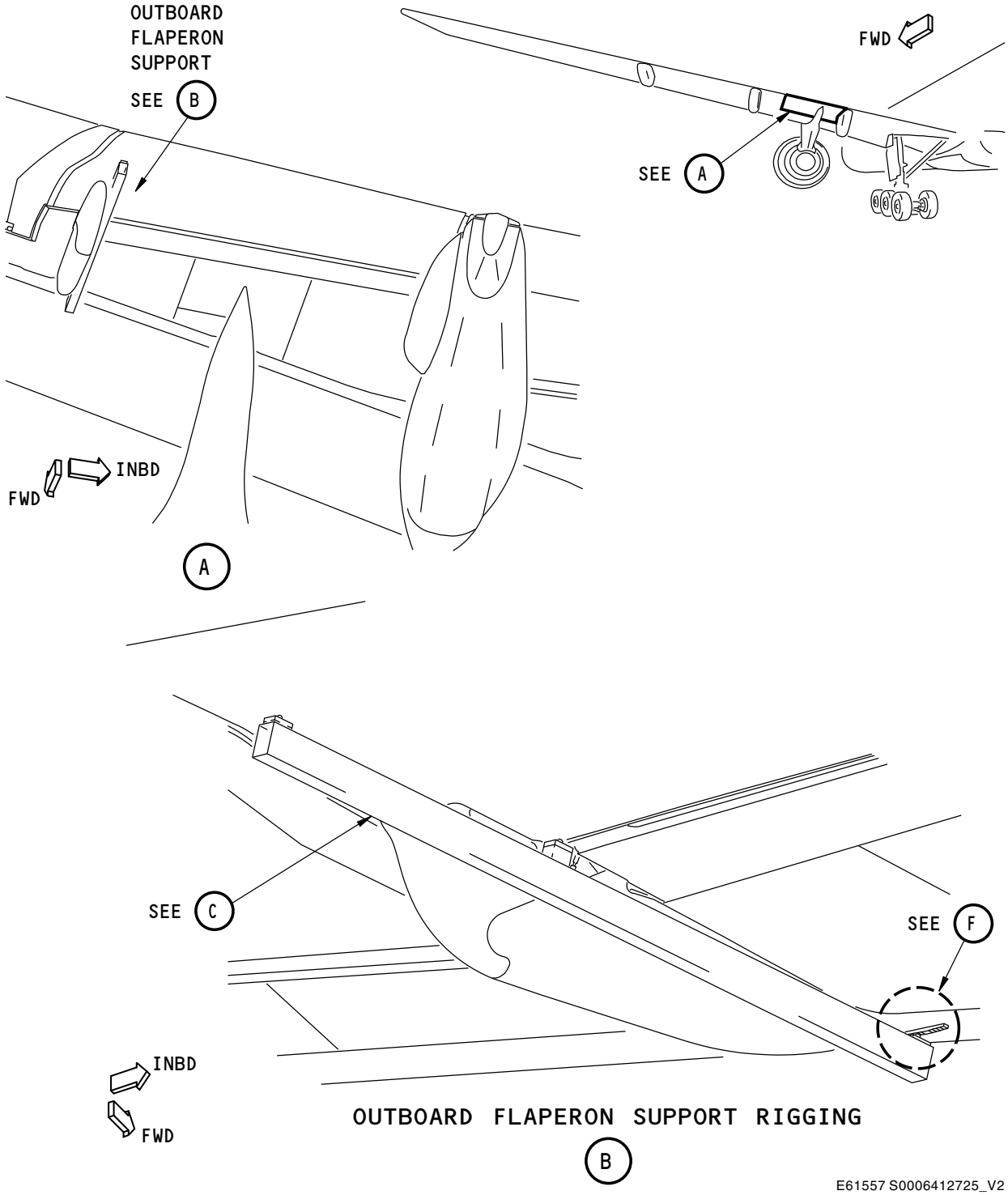


E

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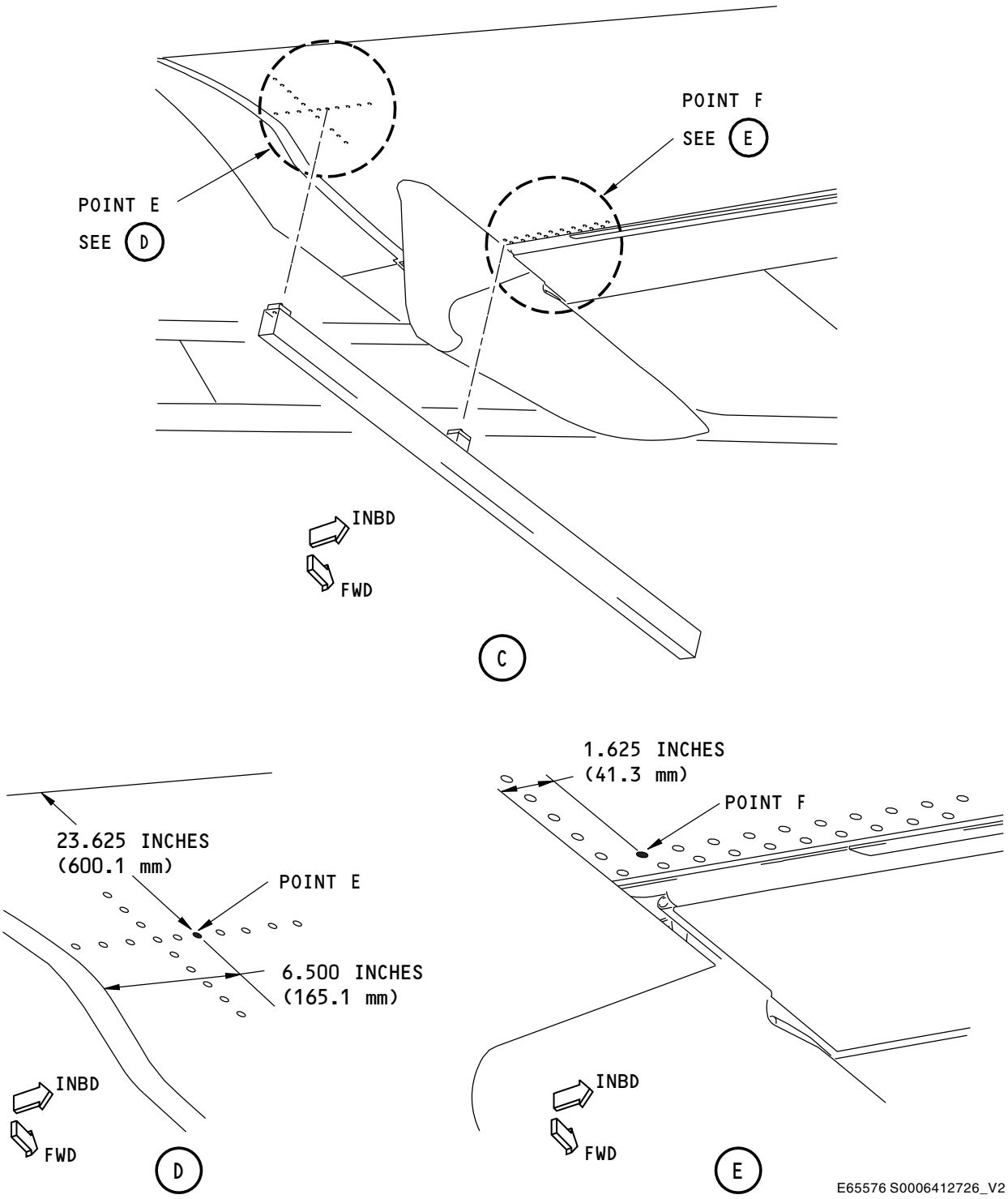
Flaperon Power Control Unit Adjustment
Figure 507/27-11-00-990-807 (Sheet 3 of 3)

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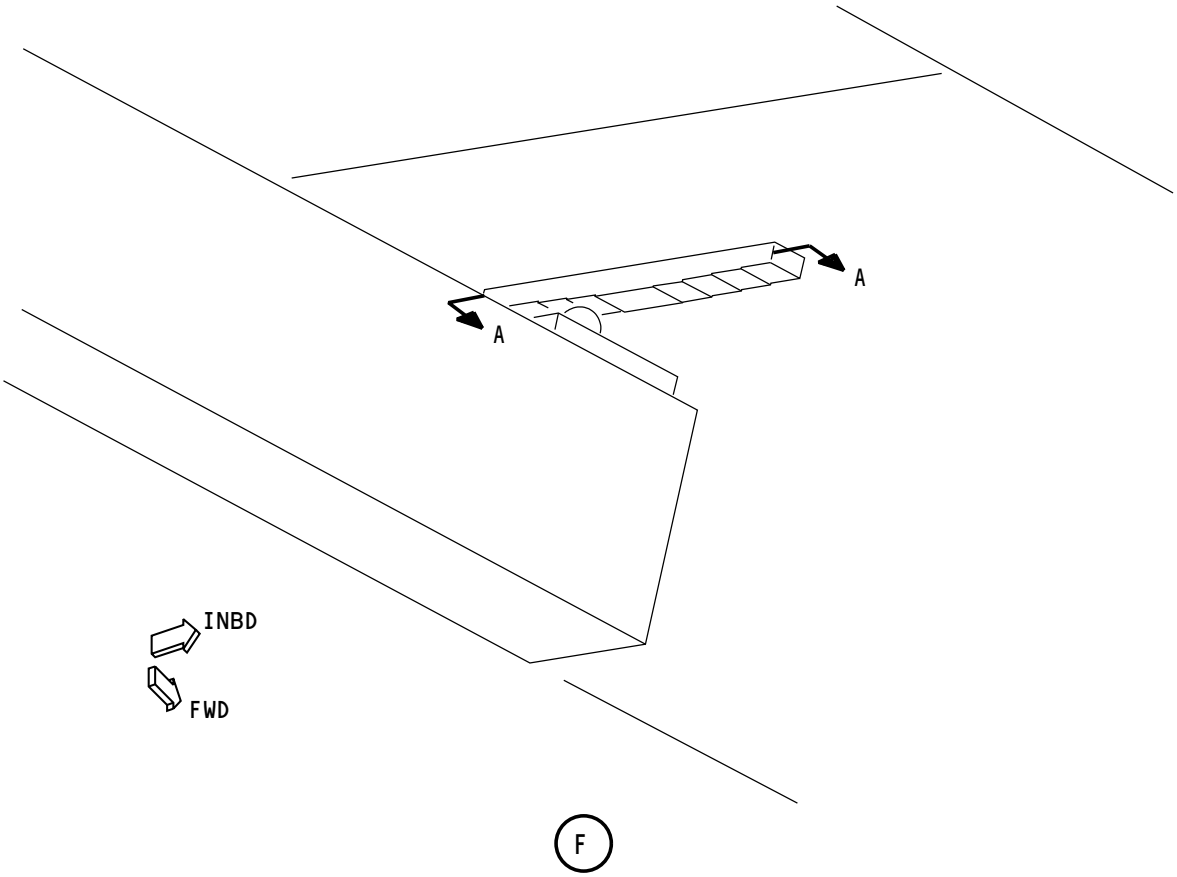
Flaperon Rigging Equipment
Figure 508/27-11-00-990-808 (Sheet 1 of 3)

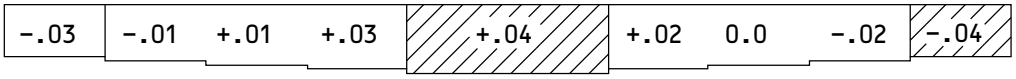
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Flaperon Rigging Equipment
Figure 508/27-11-00-990-808 (Sheet 2 of 3)

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STEP GAUGE
A-A

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Flaperon Rigging Equipment
Figure 508/27-11-00-990-808 (Sheet 3 of 3)

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TASK 27-11-00-820-804

7. Cove Lip Door Adjustment (Rigging)

(Figure 509)

A. General

(1) Use this procedure to adjust (rig) the cove lip doors to their neutral position. The two cove lip doors are adjusted independently.

(2) The flaperon must be adjusted correctly before you do the adjustment of the cove lip door.

(3) The load condition of the airplane (fuel quantity, on or off jacks, engines installed or not installed) has no effect on the adjustment dimensions in this procedure.

B. References

Reference	Title
27-11-15-000-801	Outboard Flaperon Fairing Removal (P/B 401)
27-11-15-000-802	Inboard Flaperon Fairing Removal (P/B 401)
27-11-15-400-801	Outboard Flaperon Fairing Installation (P/B 401)
27-11-15-400-802	Inboard Flaperon Fairing Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
G01505	Lockwire - Safety And Lock	NASM20995

D. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

E. Prepare for the Adjustment

SUBTASK 27-11-00-860-065

(1) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the SHUT OFF position.

SUBTASK 27-11-00-860-066

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

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(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

SUBTASK 27-11-00-820-006

(3) Make sure the flaperon is adjusted correctly, do this task: Flaperon Adjustment (Rigging), TASK 27-11-00-820-803.

F. Cove Lip Door Adjustment

SUBTASK 27-11-00-220-001

(1) Measure the mismatch between the cove lip door and the flaperon.

NOTE: Measure the mismatch near the main hinges.

SUBTASK 27-11-00-820-007

(2) If the mismatch is not in the limit of 0.00 ±0.03 inch (0.00 ±0.76 millimeter), adjust the position of the cove lip door:

(a) Do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

(b) Do this task: Inboard Flaperon Fairing Removal, TASK 27-11-15-000-802.

WARNING MAKE SURE THE COVE LIP DOOR IS SUFFICIENTLY SUPPORTED BEFORE YOU DISCONNECT THE DRIVE LINKS. THE COVE LIP DOOR CAN FALL AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) Remove the nut [47], the washer [46], the bolt [43], the washer [44], and the bushing [45] that connect the outboard drive link [42] to the cove lip door [41].

(d) Remove the nut [53], the washer [52], the bolt [49], the washer [50], and the bushing [51] that connect the inboard drive link [48] to the cove lip door [41].

(e) Adjust the length of the outboard drive link [42] and the inboard drive link [48]:

1) Loosen the jam nuts on the outboard drive link [42] and the inboard drive link [48].

2) Turn the rod ends on the outboard drive link [42] and the inboard drive link [48].

3) Tighten the jam nuts on the outboard drive link [42] and the inboard drive link [48].

4) Install lockwire, G01505 on the jam nuts.

(f) Connect the inboard drive link [48]:

1) Install the bushing [51], the washer [50] (under the bolt head), the bolt [49],the washer [52] (under the nut), and the nut [53].

NOTE: Make sure the head of the bolt [49] is located on the outboard side of the link.

2) Tighten the nut [53] to 50-75 pound-inches (5.6-8.5 newton-meters).

(g) Connect the outboard drive link [42]:

1) Install the bushing [45], the washer [44] (under the bolt head), the bolt [43], the washer [46] (under the nut), and the nut [47].

NOTE: Make sure the head of the bolt [43] is located on the inboard side of the link.

2) Tighten the nut [47] to 50-75 pound-inches (5.6-8.5 newton-meters).

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G. Put the Airplane Back to its Usual Condition

SUBTASK 27-11-00-410-009

(1) Do this task: Outboard Flaperon Fairing Installation, TASK 27-11-15-400-801.

SUBTASK 27-11-00-410-010

(2) Do this task: Inboard Flaperon Fairing Installation, TASK 27-11-15-400-802.

SUBTASK 27-11-00-860-067

(3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

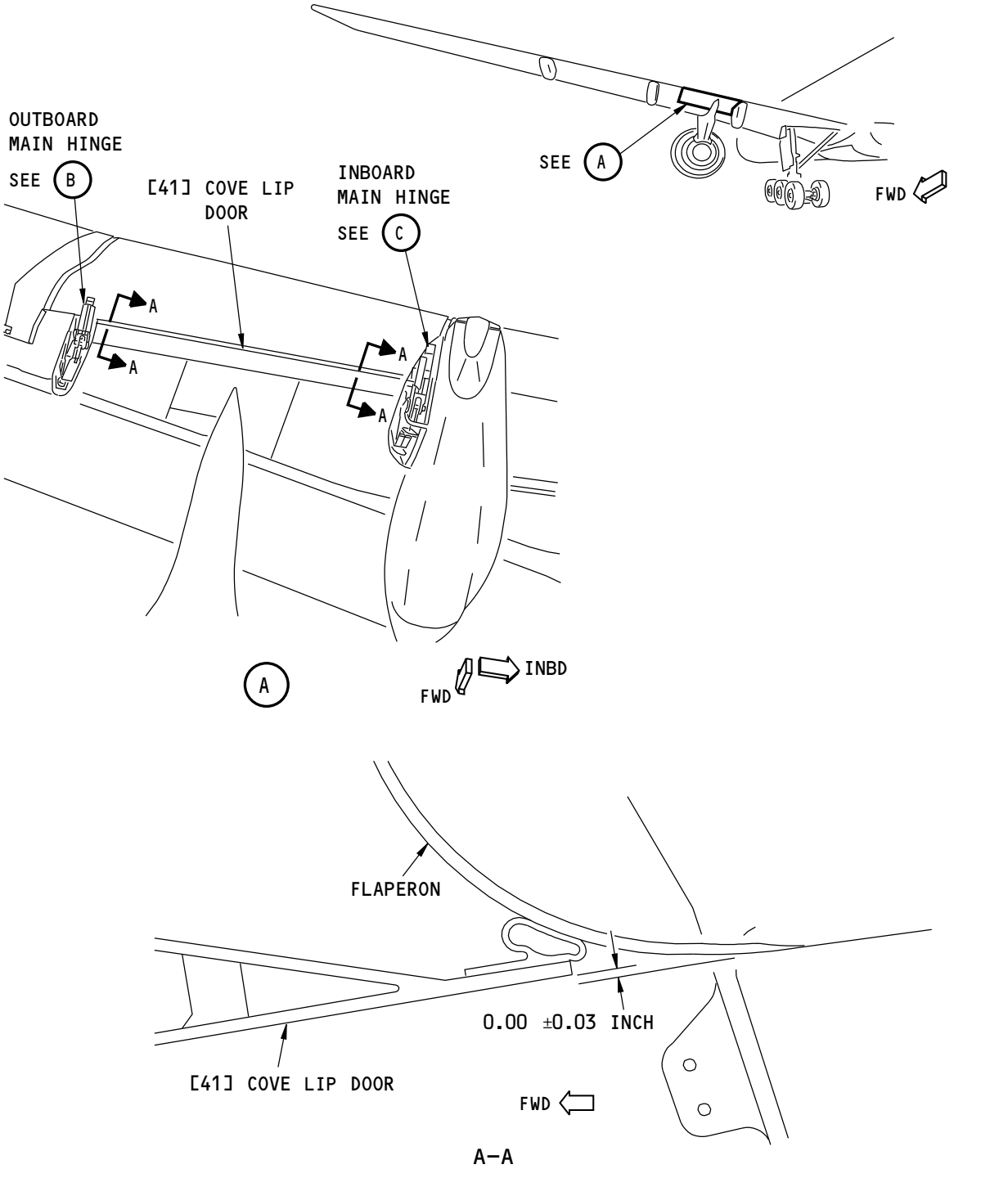
2) A5 FLPRN PCU

SUBTASK 27-11-00-860-068

(4) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the NORM position.

——— END OF TASK ———

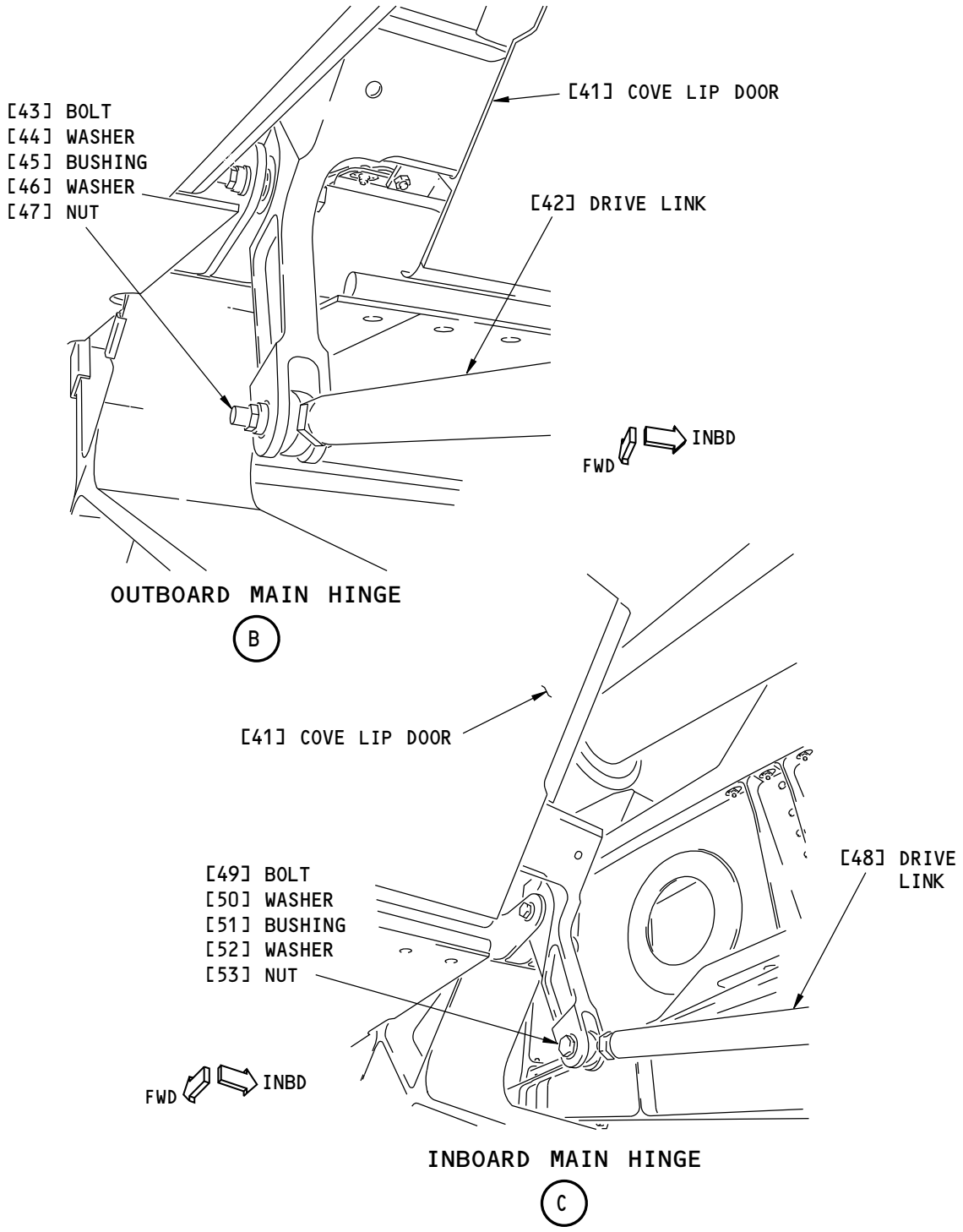
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F38716 S0006412729_V1

Cove Lip Door Adjustment
Figure 509/27-11-00-990-809 (Sheet 1 of 2)

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F38792 S0006412730_V1

Cove Lip Door Adjustment
Figure 509/27-11-00-990-809 (Sheet 2 of 2)

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TASK 27-11-00-740-801

8. Aileron or Flaperon Power Control Unit (PCU) Test

(Figure 501)

A. General

(1) Use this procedure to automatically do a test of the operation of the power control units (PCUs) on the ailerons and flaperons.

(2) The control wheels can be in any position when you do this test. The primary flight computer (PFC) ignores the position of the control wheels when it does this test.

NOTE: The flight controls will move to agree with the pilot's controls when the test is done (if you keep hydraulic power on).

(3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-11-00-860-025

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it (the instruction to supply hydraulic power is on the bottom of the screen that shows the hydraulic power warning, you must scroll down the screen to see the instruction). Refer to (TASK 29-11-00-860-801) for the procedure to supply hydraulic power.

SUBTASK 27-11-00-740-003

(2) Use a maintenance access terminal (MAT) to do the operational test of the aileron or flaperon power control unit:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 PRIMARY FLIGHT CONTROL SYSTEM
5) SYSTEM TEST
6) Left Aileron Actuator Confidence (Right Aileron Actuator Confidence), (Left Flaperon Actuator Confidence), (Right Flaperon Actuator Confidence)
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE AILERONS AND FLAPERONS. THE AILERONS OR FLAPERONS WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST. DAMAGE TO EQUIPMENT AND INJURY TO PERSONS CAN OCCUR.

2) START TEST

NOTE: To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT get the airplane out of this condition.

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

——— END OF TASK ———

TASK 27-11-00-700-803

9. Aileron or Flaperon Position Test

(Figure 501)

A. General

(1) Use this procedure to do a test of the operation of the position transducers (LVDTs) for the aileron or flaperon. The position transducers are part of the PCUs.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-11-00-860-027

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-860-028

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

E. Procedure

SUBTASK 27-11-00-860-029

(1) Use the AILERON trim switches, on the P8 Aft Aisle Stand panel, to position the ailerons.

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(a) Move the ailerons until the PFCS Maintenance page 2 shows the four AILERON POSITIONS at -0.12 to -0.07 (TASK 31-61-00-800-804).

SUBTASK 27-11-00-860-030

(2) Turn and hold the Captain's control wheel to the full left (counterclockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 507/27-11-00-993-817

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	5.99 to 6.62	1.51 to 1.67
LEFT INBOARD	5.99 to 6.62	1.51 to 1.67
RIGHT INBOARD	-6.62 to -5.21	-0.97 to -0.87
RIGHT OUTBOARD	-6.62 to -5.21	-0.97 to -0.87

SUBTASK 27-11-00-860-031

(3) Turn and hold the Captain's control wheel to the full right (clockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 508/27-11-00-993-818

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	-6.62 to -5.21	-0.97 to -0.87
LEFT INBOARD	-6.62 to -5.21	-0.97 to -0.87
RIGHT INBOARD	5.99 to 6.62	1.51 to 1.67
RIGHT OUTBOARD	5.99 to 6.62	1.51 to 1.67

SUBTASK 27-11-00-860-032

(4) Release the Captain's control wheel.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 509/27-11-00-993-819

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	+3.82 to +4.08	-0.12 to -0.07
LEFT INBOARD	+3.82 to +4.08	-0.12 to -0.07
RIGHT INBOARD	+3.82 to +4.08	-0.12 to -0.07
RIGHT OUTBOARD	+3.82 to +4.08	-0.12 to -0.07

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-033

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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TASK 27-11-00-700-804

10. Aileron Trim Test

(Figure 501)

A. General

(1) Use this test to make sure the aileron trim system operates correctly.

(2) Hydraulic power is not necessary to do this test

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-11-00-860-035

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-860-036

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-00-860-037

(3) Use the AILERON trim switches, on the P8 Aft Aisle Stand panel, to put the Captain's control wheel to the center position.

(a) Make sure the PFCS maintenance page 1 shows the Captain's wheel position between -0.01 to +0.01 (TASK 31-61-00-800-804).

(b) Make sure the index mark on the Captain's control wheel shows the AILERON TRIM at 0 ±1 line width.

(c) Make sure the index mark on the First Officer's control wheel shows AILERON TRIM at 0 ±1 line width.

E. Procedure

SUBTASK 27-11-00-710-005

(1) Move and hold the forward AILERON trim switch, on the P8 Aft Aisle Stand panel, to the LEFT WING DOWN position.

NOTE: Hold the AILERON trim switch for approximately 3 seconds.

(a) Make sure the control wheels did not move.

NOTE: The Captain's wheel position 1, on the PFCS maintenance page 1, will show 0.00 ±0.02.

SUBTASK 27-11-00-710-006

(2) Move and hold the forward AILERON trim switch, on the P8 Aft Aisle Stand panel, to the RIGHT WING DOWN position.

NOTE: Hold the AILERON trim switch for approximately 3 seconds.

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(a) Make sure the control wheels did not move.

NOTE: The Captain's wheel position 1, on the PFCS maintenance page 1, will show 0.00 ±0.02.

SUBTASK 27-11-00-710-007

(3) Move and hold the aft AILERON trim switch, on the P8 Aft Aisle Stand panel, to the LEFT WING DOWN position.

NOTE: Hold the AILERON trim switch for approximately 3 seconds.

(a) Make sure the control wheels did not move.

NOTE: The Captain's wheel position 1, on the PFCS maintenance page 1, will show 0.00 ±0.02.

SUBTASK 27-11-00-710-008

(4) Move and hold the aft AILERON trim switch, on the P8 Aft Aisle Stand panel, to the RIGHT WING DOWN position.

NOTE: Hold the AILERON trim switch for approximately 3 seconds.

(a) Make sure the control wheels did not move.

NOTE: The Captain's wheel position 1, on the PFCS maintenance page 1, will show 0.00 ±0.02.

SUBTASK 27-11-00-710-009

(5) Move and hold the two AILERON trim switches, on the P8 Aft Aisle Stand panel, to the LEFT WING DOWN position.

(a) Hold the two switches until the index mark on the Captain's control wheel shows the AILERON TRIM at approximately 2 units.

1) Make sure the Captain's control wheel turned in the counterclockwise direction.

(b) Make sure that the index mark on the First Officer's control wheel shows the AILERON TRIM at approximately 2 units.

1) Make sure that the First Officer's control wheel turned in the counterclockwise direction.

(c) Turn the Captain's control wheel in the full counterclockwise direction then in the full clockwise direction.

1) Let the Captain's control wheel return to its detent.

2) Make sure the index mark for on the Captain's control wheel shows the AILERON TRIM at approximately 2 units.

3) Make sure the index mark for the First Officer's control wheel shows the AILERON TRIM at approximately 2 units.

SUBTASK 27-11-00-710-010

(6) Move and hold the two AILERON trim switches, on the P8 Aft Aisle Stand panel, to the LEFT WING DOWN position.

(a) Hold the two switches until the Captain's control wheel stops, then release the switches.

1) Make sure the Captain's control wheel turned in the counterclockwise direction.

2) Make sure that the First Officer's control wheel turned in the counterclockwise direction.

(b) Turn the Captain's control wheel in the full counterclockwise direction then in the full clockwise direction.

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1) Let the Captain's control wheel return to its detent.
2) Make sure the index mark for on the Captain's control wheel shows the AILERON TRIM between 5.1 and 6.1 units.
3) Make sure the index mark for the First Officer's control wheel shows the AILERON TRIM between 5.1 to 6.1 units.

NOTE: The Captain's wheel position 1, on the PFCS maintenance page 1, will show between -0.68 and -0.80.

SUBTASK 27-11-00-710-011

(7) Move and hold the two AILERON trim switches, on the P8 Aft Aisle Stand panel, to the RIGHT WING DOWN position.

(a) Hold the two switches until the index mark on the Captain's control wheel shows the AILERON TRIM at approximately 2 units.

1) Make sure the Captain's control wheel turned in the clockwise direction.

(b) Make sure that the index mark on the First Officer's control wheel shows the AILERON TRIM at approximately 2 units.

1) Make sure that the First Officer's control wheel turned in the clockwise direction.

(c) Turn the Captain's control wheel in the full counterclockwise direction then in the full clockwise direction.

1) Let the Captain's control wheel return to its detent.
2) Make sure the index mark for on the Captain's control wheel shows the AILERON TRIM at approximately 2 units.
3) Make sure the index mark for the First Officer's control wheel shows the AILERON TRIM at approximately 2 units.

SUBTASK 27-11-00-710-012

(8) Move and hold the two AILERON trim switches, on the P8 Aft Aisle Stand panel, to the RIGHT WING DOWN position.

(a) Hold the two switches until the Captain's control wheel stops, then release the switches.

1) Make sure the Captain's control wheel turned in the clockwise direction.
2) Make sure that the First Officer's control wheel turned in the clockwise direction.

(b) Turn the Captain's control wheel in the full clockwise direction then in the full counterclockwise direction.

1) Let the Captain's control wheel return to its detent.
2) Make sure the index mark for on the Captain's control wheel shows the AILERON TRIM between 5.1 and 6.1 units.
3) Make sure the index mark for the First Officer's control wheel shows the AILERON TRIM between 5.1 and 6.1 units.

NOTE: The Captain's wheel position 1, on the PFCS maintenance page 1, will show between +0.80 and +0.68.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-038

(1) Use the AILERON trim switches, on the P8 Aft Aisle Stand panel, to put the Captain's control wheel to the center position.

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(a) Make sure the PFCS maintenance page 1 shows the Captain's wheel position between -0.01 to +0.01

——— END OF TASK ———

TASK 27-11-00-700-805

11. Direct Mode Test

(Figure 501)

A. General

(1) Use this procedure to make sure the ailerons and flaperons move the correct distance when the flight control system is in direct mode.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-11-00-860-040

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-860-041

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-00-860-042

(3) Make sure the speedbrake lever, on the P10 Control Panel, is in the DOWN position.

E. Procedure

SUBTASK 27-11-00-860-043

(1) Put the PRIMARY FLIGHT COMPUTERS switch, on the P5 Overhead Panel, to the DISC position.

(a) Make sure the DISC light comes on.

(b) Make sure the PFCS maintenance page 3 shows the L1, L2, C and R ACEs in the DIRECT mode (TASK 31-61-00-800-804).

SUBTASK 27-11-00-860-044

(2) Make sure the flaps and the slats are not retracted, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-11-00-860-045

(3) Make sure the Captain's control wheel is at its neutral position.

(a) The Captain's Wheel Position 1, on the Maintenance Page 1, will show 0.00 ±0.03.

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 510/27-11-00-993-820

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	-2.16 to -0.90	-0.16 to + 0.16
LEFT INBOARD	-2.16 to -0.90	-0.16 to +0.16
RIGHT INBOARD	-2.16 to -0.90	-0.16 to +0.16
RIGHT OUTBOARD	-2.16 to -0.90	-0.16 to +0.16

SUBTASK 27-11-00-860-046

(4) Turn and hold the Captain's control wheel to the full left (counterclockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 511/27-11-00-993-821

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	5.30 to 6.01	1.27 to 1.45
LEFT INBOARD	5.30 to 6.01	1.27 to 1.45
RIGHT INBOARD	-5.51 to -4.86	-0.78 to -0.68
RIGHT OUTBOARD	-5.51 to -4.86	-0.78 to -0.68

(b) Make sure the left aileron is trailing edge up and the right aileron is trailing edge down.

(c) Make sure the left flaperon is trailing edge up and the right flaperon is trailing edge down.

SUBTASK 27-11-00-860-047

(5) Turn and hold the Captain's control wheel to the full right (clockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 512/27-11-00-993-822

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	-5.51 to -4.86	-0.78 to -0.68
LEFT INBOARD	-5.51 to -4.86	-0.78 to -0.68
RIGHT INBOARD	+5.30 to +6.01	+1.27 to +1.45
RIGHT OUTBOARD	+5.30 to +6.01	+1.27 to +1.45

(b) Make sure the left aileron is trailing edge down and the right aileron is trailing edge up.

(c) Make sure the left flaperon is trailing edge down and the right flaperon is trailing edge up.

SUBTASK 27-11-00-860-048

(6) Put the Captain's Control wheel to its neutral position.

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SUBTASK 27-11-00-860-049

(7) Turn and hold the First Officer's control wheel to the full left (counterclockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 513/27-11-00-993-823

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	+5.30 to +6.01	+1.27 to +1.45
LEFT INBOARD	+5.30 to +6.01	+1.27 to +1.45
RIGHT INBOARD	-5.51 to -4.86	-0.78 to -0.68
RIGHT OUTBOARD	-5.51 to -4.86	-0.78 to -0.68

(b) Make sure the left aileron is trailing edge up and the right aileron is trailing edge down.

(c) Make sure the left flaperon is trailing edge up and the right flaperon is trailing edge down.

SUBTASK 27-11-00-860-050

(8) Turn and hold the First Officer's control wheel to the full right (clockwise) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the AILERON and FLAPERON POSITIONS:

Table 514/27-11-00-993-824

POSITION	FLAPERON	AILERON
LEFT OUTBOARD	-5.51 to -4.86	-0.78 to -0.68
LEFT INBOARD	-5.51 to -4.86	-0.78 to -0.68
RIGHT INBOARD	+5.30 to +6.01	+1.27 to +1.45
RIGHT OUTBOARD	+5.30 to +6.01	+1.27 to +1.45

(b) Make sure the left aileron is trailing edge down and the right aileron is trailing edge up.

(c) Make sure the left flaperon is trailing edge down and the right flaperon is trailing edge up.

SUBTASK 27-11-00-860-051

(9) Put the First Officer's control wheel to its neutral position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-052

(1) Put the PRIMARY FLIGHT COMPUTERS switch, on the P5 Overhead Panel, to the AUTO position.

(a) Make sure the DISC light goes off.

SUBTASK 27-11-00-860-053

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-11-00-700-806

12. Control Wheel Damper Test

A. General

(1) Use this test to make sure the control wheel damper operates correctly. The damper slows the movement of the control wheels to stop them from oscillating.

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B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-11-00-860-055

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-860-056

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-00-860-057

(3) Use the AILERON trim switches, on the P8 Aft Aisle Stand Panel, to put the Control Wheels to their neutral position.

(a) The Captain's Wheel Position 1, on the Maintenance Page 1, will show 0.00 ±0.03 (TASK 31-61-00-800-804).

E. Procedure

SUBTASK 27-11-00-710-013

(1) Turn the Captain's control wheel to the full left (counterclockwise) position.

(a) Hold the Captain's control wheel in this position for 1 to 2 seconds.

(b) Release the Captain's control wheel and make sure the control wheel returns to its neutral position in 1.5 seconds or less.

NOTE: Keep your hands clear of the Captain's and the First Officer's control wheel until the control wheels stop their movement.

SUBTASK 27-11-00-710-014

(2) Turn the Captain's control wheel to the full right (clockwise) position.

(a) Hold the Captain's control wheel in this position for 1 to 2 seconds.

(b) Release the Captain's control wheel and make sure the control wheel returns to its neutral position in 1.5 seconds or less.

NOTE: Keep your hands clear of the Captain's and the First Officer's control wheel until the control wheels stop their movement.

SUBTASK 27-11-00-710-015

(3) Turn the First Officer's control wheel to the full left (counterclockwise) position.

(a) Hold the First Officer's control wheel in this position for 1 to 2 seconds.

(b) Release the First Officer's control wheel and make sure the control wheel returns to its neutral position in 1.5 seconds or less.

NOTE: Keep your hands clear of the Captain's and the First Officer's control wheel until the control wheels stop their movement.

SUBTASK 27-11-00-710-016

(4) Turn the First Officer's control wheel to the full right (clockwise) position.

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(a) Hold the First Officer's control wheel in this position for 1 to 2 seconds.

(b) Release the First Officer's control wheel and make sure the control wheel returns to its neutral position in 1.5 seconds or less.

NOTE: Keep your hands clear of the Captain's and the First Officer's control wheel until the control wheels stop their movement.

——— END OF TASK ———

TASK 27-11-00-700-808

13. Control Wheel Flight Data Recorder (FDR) Force Transducer Test

A. General

(1) Use this procedure to make sure the control wheel force Flight Data Recorder (FDR) transducer operates correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-11-00-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 27-11-00-720-005

(2) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(a) Move the aileron trim switches until:

1) CAPT WHEEL POSITION reads from -0.01 to +0.01.

2) F/O WHEEL POSITION reads from -0.01 to +0.01.

SUBTASK 27-11-00-740-004

(3) Ensure that no force is being applied to either control wheel.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the CAPT WHEEL FORCE FDR reads from -3.00 to +3.00.

SUBTASK 27-11-00-720-006

(4) Rotate the Captain's control wheel counterclockwise to at least the first stop.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the CAPT WHEEL FORCE FDR reads from -20.0 to -200.0.

SUBTASK 27-11-00-720-007

(5) Rotate the Captain's control wheel clockwise to at least the first stop.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

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1) Make sure that the CAPT WHEEL FORCE FDR reads from +20.0 to +200.0.

SUBTASK 27-11-00-720-008

(6) Return the Captain's control wheel to the detent.

——— END OF TASK ———

TASK 27-11-00-720-801

14. Control Wheel Force Versus Travel Test

(Figure 501, Figure 510)

A. General

(1) Use this procedure to make sure the control wheels turn the correct distance when given forces are applied.

(2) You can use this test for the Captain's or the First Officer's control wheel.

(3) In this procedure, clockwise and counterclockwise movement of the control wheels are as you see them from the Pilots' seats.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1680	Protractor - Assembly, Control Column Part #: 4MIT65B80307-1 Supplier: 81205 Part #: A27021-29 Supplier: 81205 Part #: G76002-19 Supplier: 81205
SPL-1705	Adapter - Control Wheel Part #: J27010-56 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Prepare for the Procedure

SUBTASK 27-11-00-010-005

(1) To get access to the control columns, do this step:

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Open this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-11-00-480-006

(2) Install the control wheel adapter, SPL-1705 and control column assembly protractor, SPL-1680 on the applicable control wheel.

SUBTASK 27-11-00-860-059

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-860-060

(4) Use page 1 of the PFCS Maintenance Page to monitor the WHEEL positions indications (TASK 31-61-00-800-804).

(a) Use the AILERON trim switches, on the P8 Aft Aisle Stand Panel, to put the Control Wheels to their center position.

1) The six WHEEL POSITION indications (3 CAPT indicators and 3 F/O indicators) on the maintenance page will show 0.00 ±0.01.

2) If you cannot get all six of the indications to show the correct value then, do this task: Control Wheel and Cable Adjustment (Rigging), TASK 27-11-00-700-802.

G. Procedure

SUBTASK 27-11-00-860-061

(1) Do the steps that follow to apply a force to the control wheels and at the same time monitor the values for the WHEEL POSITION on the PFCS Maintenance Page 1.

(a) Use a torque wrench to turn the control wheel counterclockwise until all six of the WHEEL POSITION indications show -0.03 to -0.06.

NOTE: This WHEEL POSITION is approximately 1 to 2 degrees of control wheel rotation.

1) Make sure that the torque wrench shows between 24.5 to 33.7 pound inches (2.8 to 3.8 Newton-meters).

(b) Use the torque wrench to turn the control wheel counterclockwise until all six of the WHEEL POSITION indications show between -1.37 to -1.54.

NOTE: This is full travel (approximately 64 °) of control wheel rotation.

1) Make sure that the torque wrench shows between 55.0 in-lb (6.2 N·m) to 100.0 in-lb (11.3 N·m).

(c) Use the torque wrench to turn the control wheel clockwise until all six of the WHEEL POSITION indications show between 0.01 to 0.04.

NOTE: This WHEEL POSITION is approximately 1 to 2 degrees of control wheel rotation.

1) Make sure that the torque wrench shows between 24.5 to 33.7 pound inches (2.8 to 3.8 Newton-meters).

(d) Use the torque wrench to turn the control wheel clockwise until all six of the WHEEL POSITION indications show between 1.37 to 1.54.

NOTE: This is full travel (approximately 64 °) of control wheel rotation.

1) Make sure that the torque wrench shows between 55.0 in-lb (6.2 N·m) to 100.0 in-lb (11.3 N·m).

(e) Release the control wheels.

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-005

(1) Remove the control wheel adapter, SPL-1705 and control column assembly protractor, SPL-1680 from the applicable control wheel.

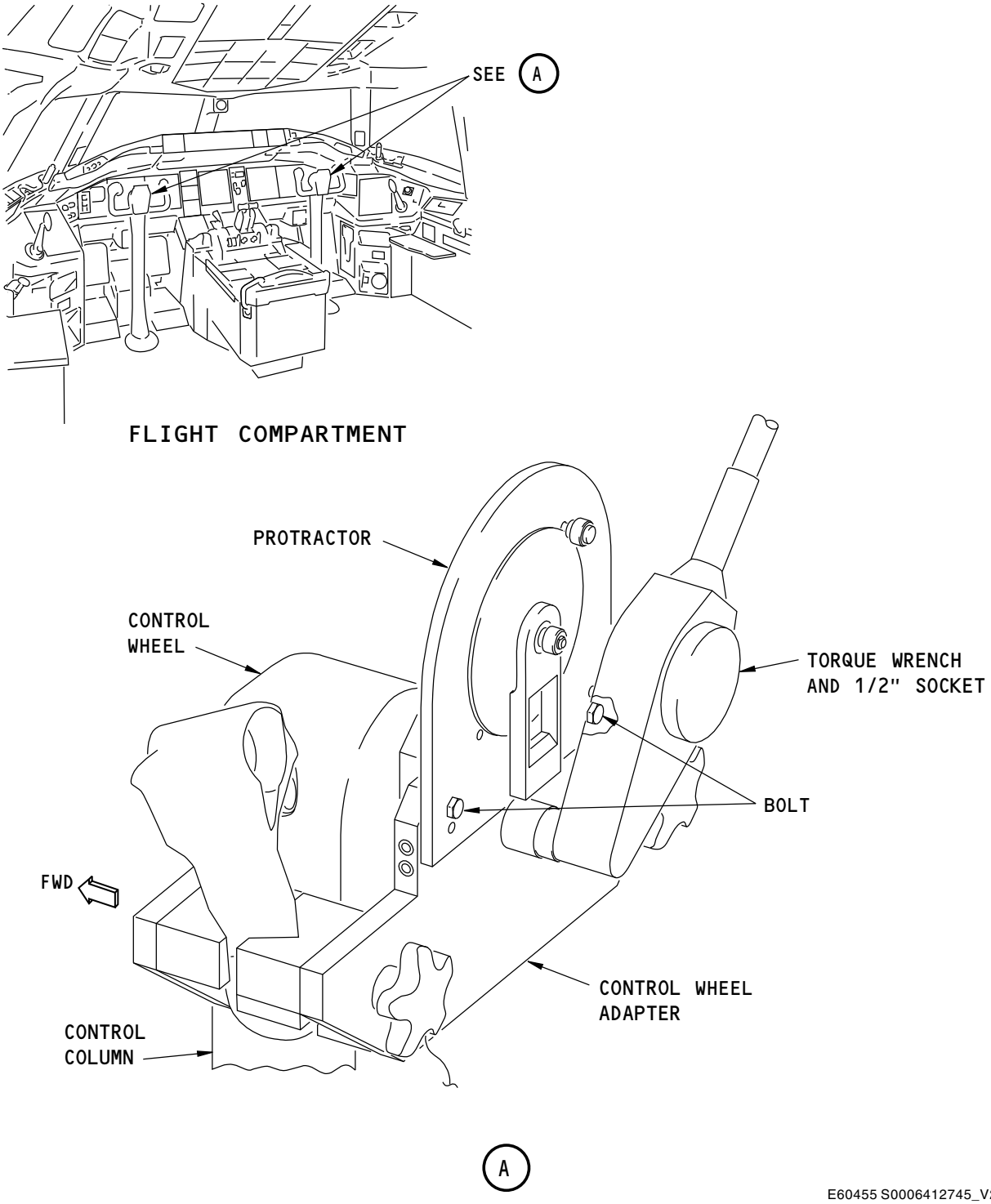
SUBTASK 27-11-00-410-006

(2) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

——— END OF TASK ———

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Control Wheel
Figure 510/27-11-00-990-810

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TASK 27-11-00-720-802

15. Force Limiter Functional Test

(Figure 510)

A. General

(1) Use this test to make sure the force limiters for the control wheels operate with the correct forces. The force limiters let one control wheel move even if the other wheel is caught (jammed) and cannot move.

(2) In this procedure, clockwise and counterclockwise movement of the control wheels are as you see them from the pilots' seats.

(3) Two people are necessary to do this test. There must be a person at the Captain's control wheel and a person at the First Officer's Control Wheel.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1705	Adapter - Control Wheel Part #: J27010-56 Supplier: 81205

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-11-00-480-007

(1) Install the control wheel adapter, SPL-1705 on the control wheels.

E. Procedure

CAUTION DO NOT USE THE RIGGING PINS TO HOLD THE CONTROL WHEELS. YOU CAN CAUSE DAMAGE TO THE RIGGING PIN HOLES WHEN YOU APPLY TORQUE DURING THIS TEST.

SUBTASK 27-11-00-710-017

(1) Do these steps to make sure the force limiters start to release at the correct force.

(a) Hold the Captain's control wheel near its zero trim position.

1) Use a torque wrench to turn the First Officer's control wheel counterclockwise.

a) Adjust the First Officer's control wheel until you show a difference of 1.5 to 2.5 units of trim between the two control wheels.

b) Make sure the torque wrench shows 280 to 360 pound inches (31.6-40.7 newton-meters).

SUBTASK 27-11-00-710-018

(2) Do these steps make sure the force limiters have the correct force at full travel.

(a) Turn the First Officer's control wheel fully counterclockwise.

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1) Use a torque wrench to hold the First Officer's control wheel in the fully counterclockwise position.

(b) Turn the Captain's control wheel fully clockwise.

1) Make sure the torque wrench shows between 306 to 429 pound inches (34.6-48.5 newton-meters).

NOTE: The torque wrench can show more than 429 (48.5) when the Captain's control wheel is not fully clockwise.

(c) Slowly release the control wheels.

(d) Turn the Captain's control wheel fully counterclockwise.

1) Use a torque wrench to hold the Captain's control wheel in the fully counterclockwise position.

(e) Turn the First Officer's control wheel fully clockwise.

1) Make sure the torque wrench shows between 370 to 612 pound inches (41.8-69.2 newton-meters).

NOTE: The force measured at the Captains control wheel is larger than the force measured at the First Officer's control wheel. This is because the feel and centering mechanism is connected to the Captain's control wheel and its force is added to the force you measure for the Captain's control wheel.

(f) Slowly release the control wheels.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-006

(1) Remove the control wheel adapter, SPL-1705 from the control columns.

——— END OF TASK ———

TASK 27-11-00-700-807

16. Force Limiter Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the force limiters operate correctly. The force limiters let one control wheel move even if the other wheel is caught (jammed) and cannot move.

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Procedure

SUBTASK 27-11-00-720-001

(1) Hold the Captain's control wheel in its center position.

(a) Make sure you can turn the First Officer's control wheel fully left and fully right.

NOTE: You must turn the control wheel hard to move it to its full travel positions. Do not let the Captain's control wheel move in the same direction as the First Officer's control wheel. It is permitted to move the Captain's control wheel in the opposite direction of the First Officer's control wheel.

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(b) Release the control wheels.

——— END OF TASK ———

TASK 27-11-00-710-801

17. Aileron Trim Inhibit Functional Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the aileron trim inhibit functions correctly. The aileron trim inhibit prevents aileron adjustments while auto flight is engaged. This reduces possible unexpected roll when auto flight is disengaged.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-11-00-860-069

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-00-980-001

(2) Do this step to engage the autopilot:

NOTE: Flaps must be UP to engage autopilot.

(a) Push the autopilot (A/P) engage switch on the mode control panel (MCP) to engage the autopilot.

1) Make sure the autopilot (A/P) indication in the top center area of the Primary Flight Display comes on.

SUBTASK 27-11-00-720-002

(3) Do these steps to test the function of the aileron trim inhibit:

(a) Move the two aileron trim switches to the LEFT WING DOWN position and hold for approximately 5 seconds.

(b) Observe the control wheels while holding the switches:

1) Make sure the control wheels do not move.

SUBTASK 27-11-00-720-003

(4) Do this step to disengage the autopilot:

(a) Put the autopilot (A/P) disengage bar on the mode control panel (MCP) in the down position to disengage the autopilot.

1) Make sure the control wheels do not move.

2) Make sure the autopilot (A/P) indication in the top center area of the Primary Flight Display goes off.

SUBTASK 27-11-00-720-004

(5) Move the two aileron trim switches to the LEFT WING DOWN position and hold for approximately 2 seconds.

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(a) Observe the control wheels while holding the switches:

1) Make sure the control wheels move.

——— END OF TASK ———

TASK 27-11-00-710-802

18. Control Wheel Force Transducer Test

(Figure 501)

A. General

(1) Use this procedure to make sure the control wheels force transducer operate correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-08-000-801	Wheel Force Transducer - Removal (P/B 401)
27-11-08-400-801	Wheel Force Transducer - Installation (P/B 401)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Operational Test

SUBTASK 27-11-00-840-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 27-11-00-720-009

(2) Use page 1 of the PFCS Maintenance Page to monitor the WHEEL FORCE positions indications (TASK 31-61-00-800-804).

(a) Move the aileron trim switches until:

1) CAPT WHEEL POSITION reads from -0.01 to +0.01.

2) F/O WHEEL POSITION reads from -0.01 to +0.01.

E. Procedure

SUBTASK 27-11-00-720-013

(1) Ensure that no force is being applied to either control wheel.

(a) Make sure that the CAPT WHEEL FORCE reads from -1.00 to +1.00.

SUBTASK 27-11-00-720-010

(2) Do the steps that follow to apply a force to the control wheels and at the same time monitor the values for the WHEEL FORCE on the PFCS Maintenance Page 1.

(a) Rotate the Captain's control wheel counterclockwise to at least the first stop.

1) Make sure that the CAPT WHEEL FORCE reads from -12.7 to -24.0.

a) If the WHEEL FORCE value is not satisfactory, do this task: Control Wheel and Cable Adjustment (Rigging), TASK 27-11-00-700-802.

<1> Rotate the Captain's control wheel counterclockwise to at least the first stop and make sure that the CAPT WHEEL FORCE reads from -12.7 to -24.0.

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<a> If the WHEEL FORCE value is still not satisfactory, replace the wheel force transducer. Do this tasks: Wheel Force Transducer - Removal, TASK 27-11-08-000-801Wheel Force Transducer - Installation, TASK 27-11-08-400-801

SUBTASK 27-11-00-720-011

(3) Do the steps that follow to apply a force to the control wheels and at the same time monitor the values for the WHEEL FORCE on the PFCS Maintenance Page 1.

(a) Rotate the Captain's control wheel clockwise to at least the first stop.

1) Make sure that the CAPT WHEEL FORCE reads from +12.7 to +24.0.

a) If the WHEEL FORCE value is not satisfactory, do this task: Control Wheel and Cable Adjustment (Rigging), TASK 27-11-00-700-802.

<1> Rotate the Captain's control wheel clockwise to at least the first stop and make sure that the CAPT WHEEL FORCE reads from -12.7 to -24.0.

<a> If the WHEEL FORCE value is still not satisfactory, replace the wheel force transducer. Do this tasks: Wheel Force Transducer - Removal, TASK 27-11-08-000-801Wheel Force Transducer - Installation, TASK 27-11-08-400-801

SUBTASK 27-11-00-720-012

(4) Return the Captain's control wheel to the detent.

——— END OF TASK ———

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Aileron And Flaperon Control System - Inspection/Check

1. General

A. This procedure inspects the lateral control mechanism components.

TASK 27-11-00-210-801

2. Lateral Control Mechanism Wire Bundle Inspection

A. References

Reference	Title
27-11-02	WHEEL POSITION TRANSDUCERS

B. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

C. Procedure

SUBTASK 27-11-00-010-008

(1) Gain access to the main equipment center:

Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

NOTE: You can also get access to the lateral control mechanisms if you remove the access panels in the flight compartment floor. There is an access panel above each lateral control mechanism. The access panels are behind the two pilots' seats. To find the access panel, look for the 3 in. (7.6 cm) circular cover (for rig pin access) that is attached to the larger access panel.

SUBTASK 27-11-00-212-001

(2) Check the Wheel Position Transducer wire bundles as specified in the SUBTASK 27-11-05-210-001.

(a) Check the wire bundles for abrasion or damage even if the interference with moving parts is not evident.

1) If damage or evidence of rubbing is seen but limited to minor abrasion of a wire bundle's outer sleeve, then repair the affected wire bundle.

2) If evidence of rubbing is seen and has affected the shielding of a wire bundle, remove and replace the affected transducer as specified in the WHEEL POSITION TRANSDUCERS, SUBJECT 27-11-02.

3) If there is no rubbing or damage is seen then no further action is required.

(3) After repair of the transducer wire bundles or replacement of the transducers:

(a) Make sure that there is no more rubbing on the wire bundle by turning the control wheel completely to the left and the right.

(b) If necessary, reposition the wire bundles as required within their clamps to prevent rubbing.

SUBTASK 27-11-00-210-001

(4) Close access to the main equipment center, by:

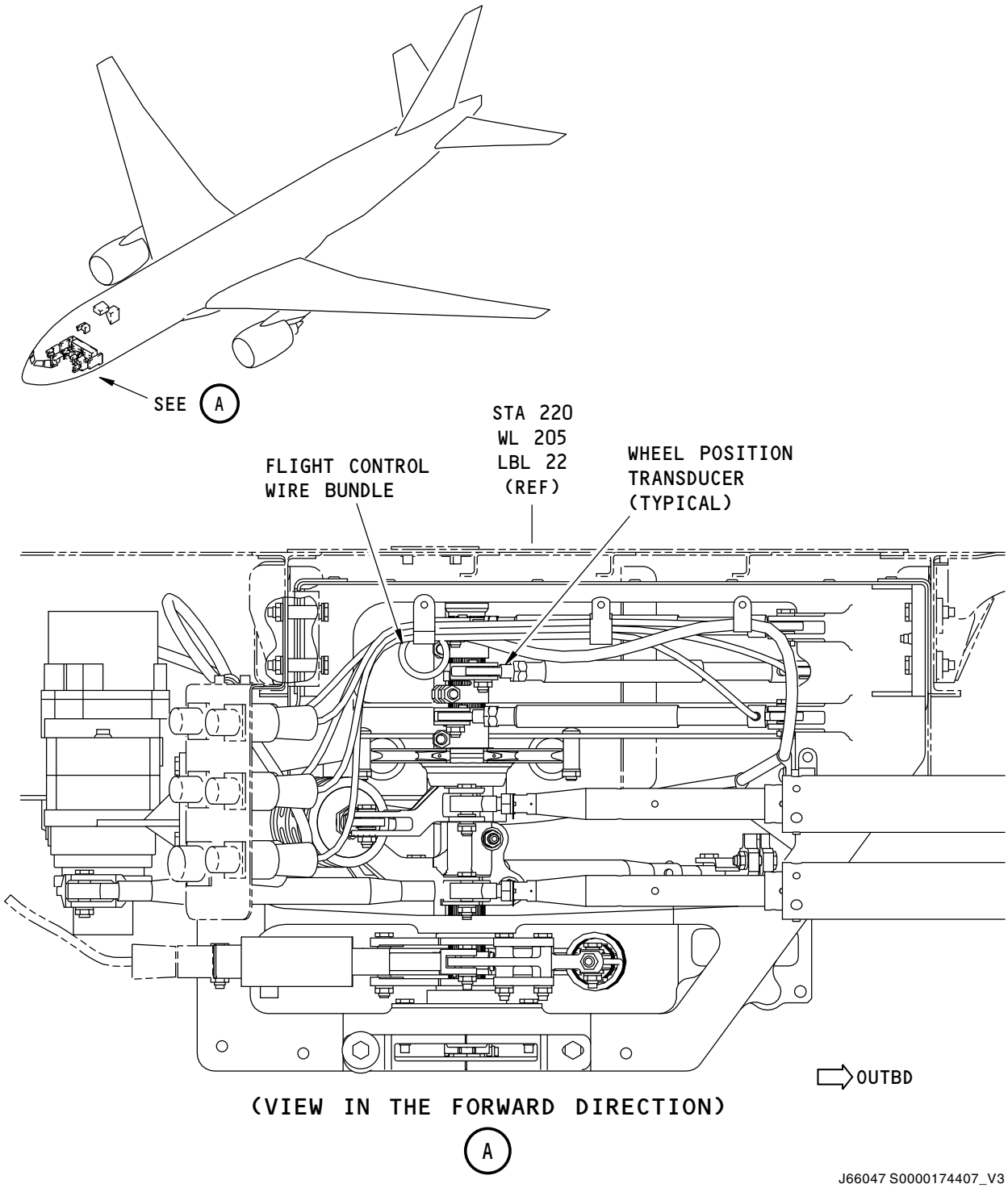
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Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

END OF TASK

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Inspection of Flight Control Wire to the Lateral Control Mechanism
Figure 601/27-11-00-990-811

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CONTROL WHEEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the control wheel.

(2) An installation of the control wheel.

(3) A removal of the control wheel marker.

(4) An installation of the control wheel marker.

TASK 27-11-01-000-801

2. Control Wheel Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1113	Tool - Wire Insertion and Extraction Part #: M15570-20 Supplier: 00779

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Removal

SUBTASK 27-11-01-860-001

(1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

SUBTASK 27-11-01-860-002

(2) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the left power supply assembly (PSA-L) in the E1-6 shelf:

1) A1 ACE PWR

(b) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

(c) On the right power supply assembly (PSA-R) in the E5-1 shelf:

1) A1 ACE PWR

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SUBTASK 27-11-01-860-003

(3) Make sure hydraulic power is not supplied. If hydraulic power is supplied, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

E. Control Wheel Removal

(Figure 401)

SUBTASK 27-11-01-020-006

(1) Disconnect cables A1A and A1B (if you are removing the captain's control wheel) or disconnect cables A2A or A2B (if you are removing the first officer's control wheel (Figure 402).

SUBTASK 27-11-01-020-002

(2) Remove the screw [10] and the screw [11].

(a) Remove the chart assembly [1].

NOTE: Move (slide) the chart assembly [1] up to remove it.

(b) Remove the guard assembly [9].

SUBTASK 27-11-01-020-003

(3) Remove the adapter assembly [2].

SUBTASK 27-11-01-020-004

(4) Do these steps to disconnect all the electrical connectors in the wheel assembly [4]:

(a) Put the white end of the wire insertion and extraction tool, COM-1113, in the electrical connector.

(b) Hold the wire against the tool and pull the connector apart.

SUBTASK 27-11-01-010-002

(5) Remove the two bolt [22] from the forward side of the control column.

(a) Remove the cover assembly [21].

SUBTASK 27-11-01-020-007

(6) Remove the nut (cap) [13] from the forward side of the control column.

SUBTASK 27-11-01-020-008

(7) Remove the nut [14] and the washer [12] from the forward end of the axle assembly [19].

SUBTASK 27-11-01-020-009

(8) Pull the control wheel away from the control column until you can get to the cables [23] on the drum assembly [20].

(a) Bend the retainers [24] flat, and remove the cables from the drum assembly [20].

(b) Push the electrical cable [18] through the wheel assembly [4] as you remove the wheel assembly.

SUBTASK 27-11-01-020-010

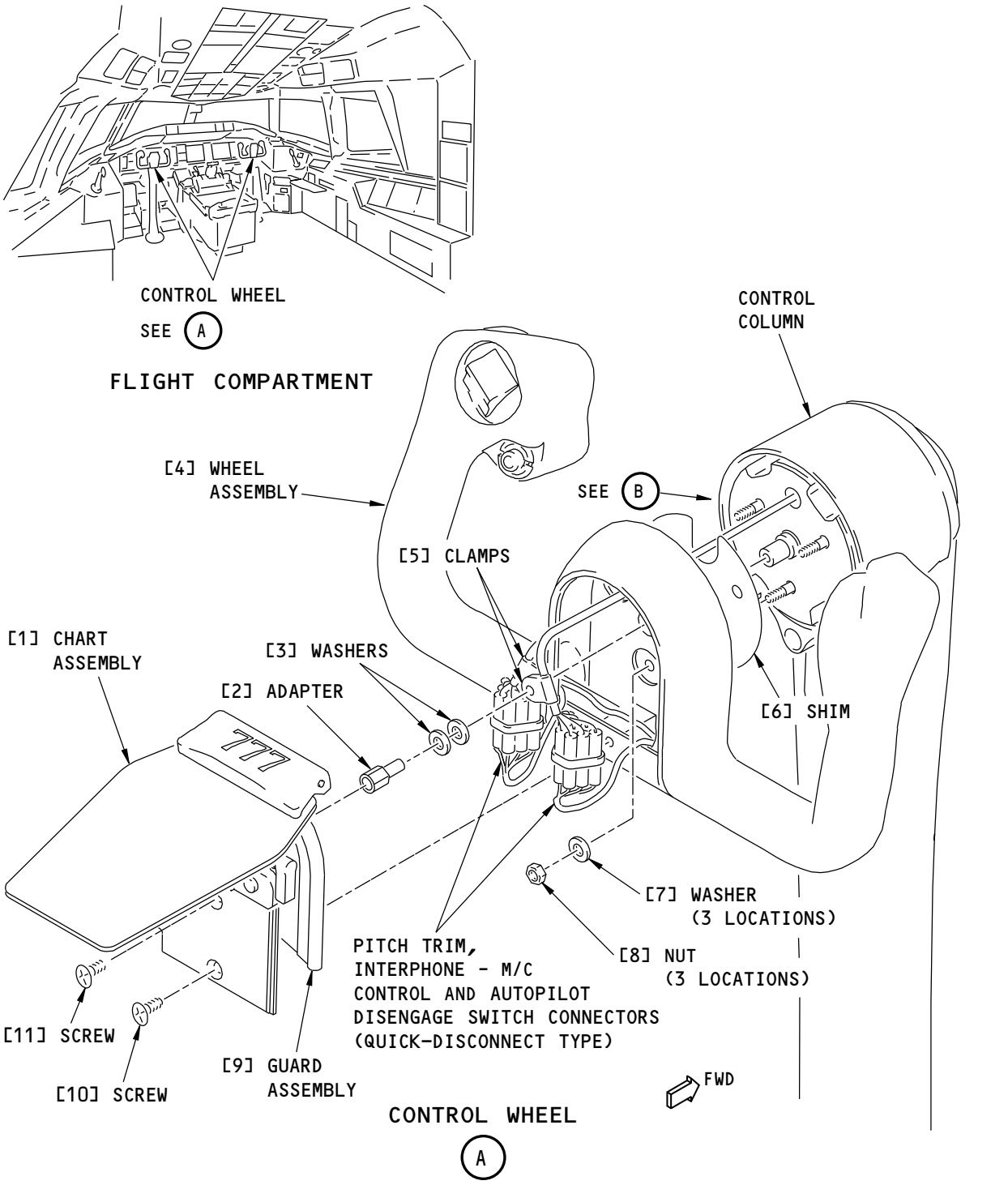
(9) Remove these parts if you want to:

(a) The bearing [17], the spacer [16], and the bearing [15].

NOTE: The bearing [17] is not a press fit, thus it should be easy to remove. The bearing [15] is a press fit in the control column, thus you may need to use a punch to remove it.

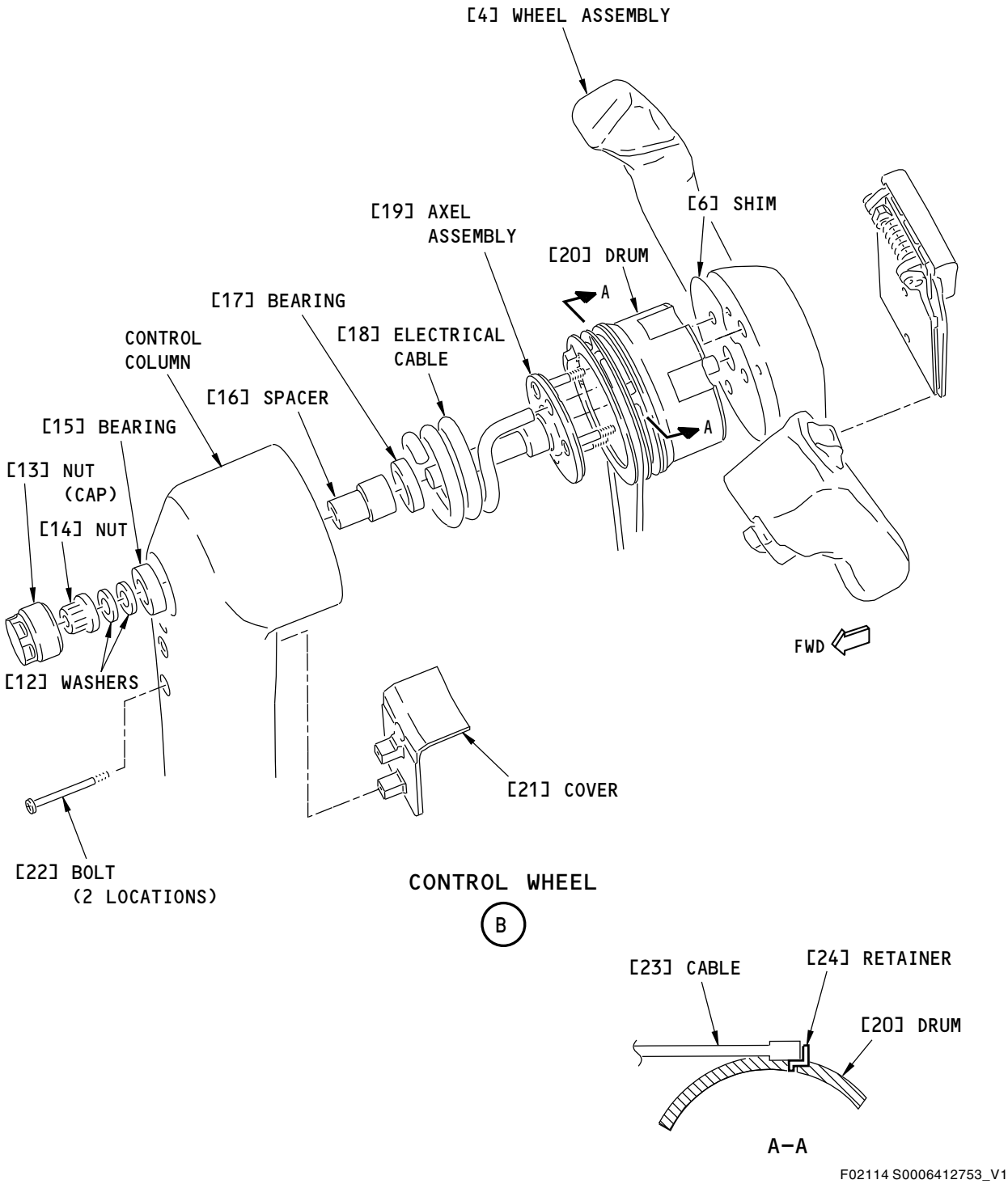
END OF TASK

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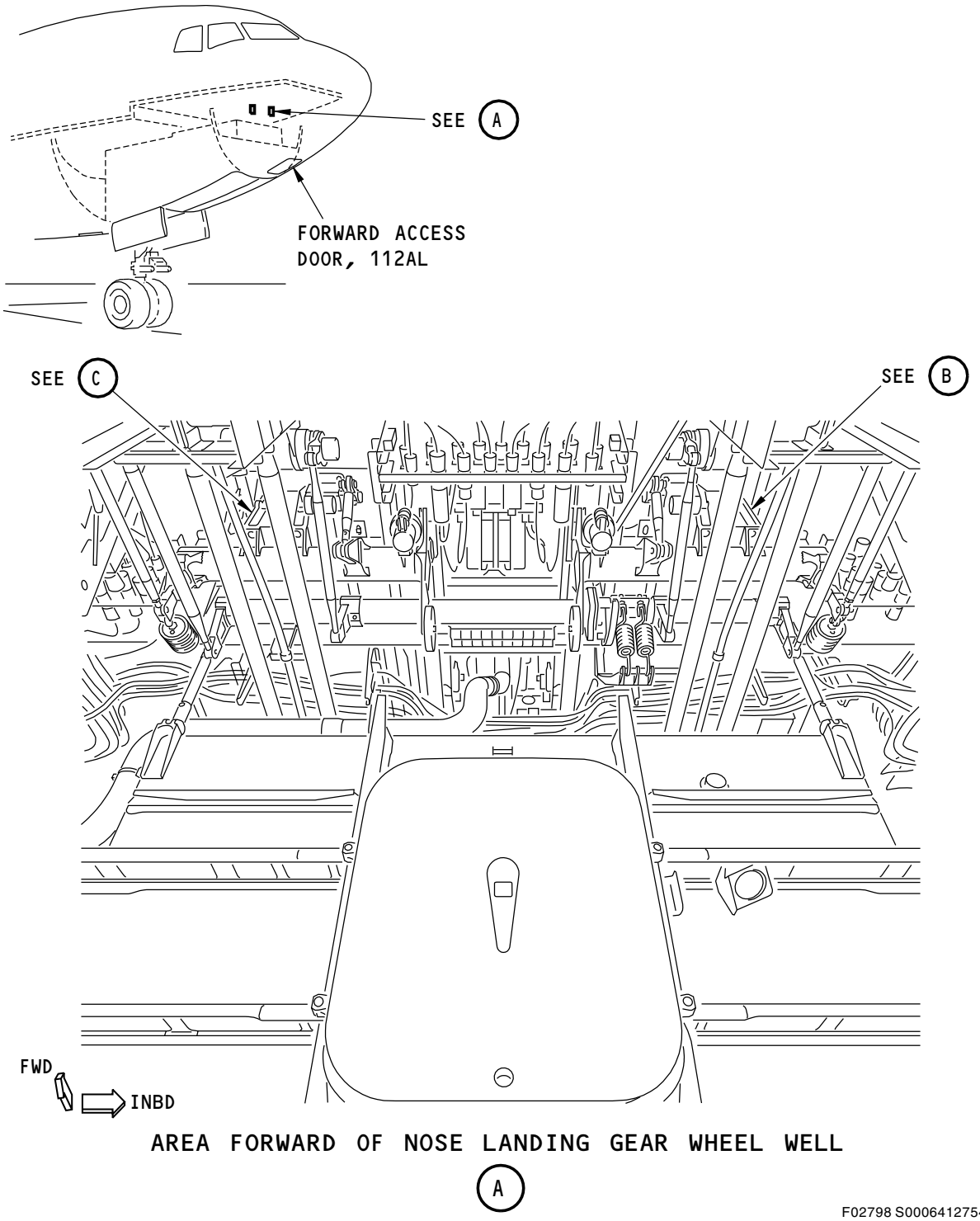
Control Wheel Installation
Figure 401/27-11-01-990-801 (Sheet 1 of 2)

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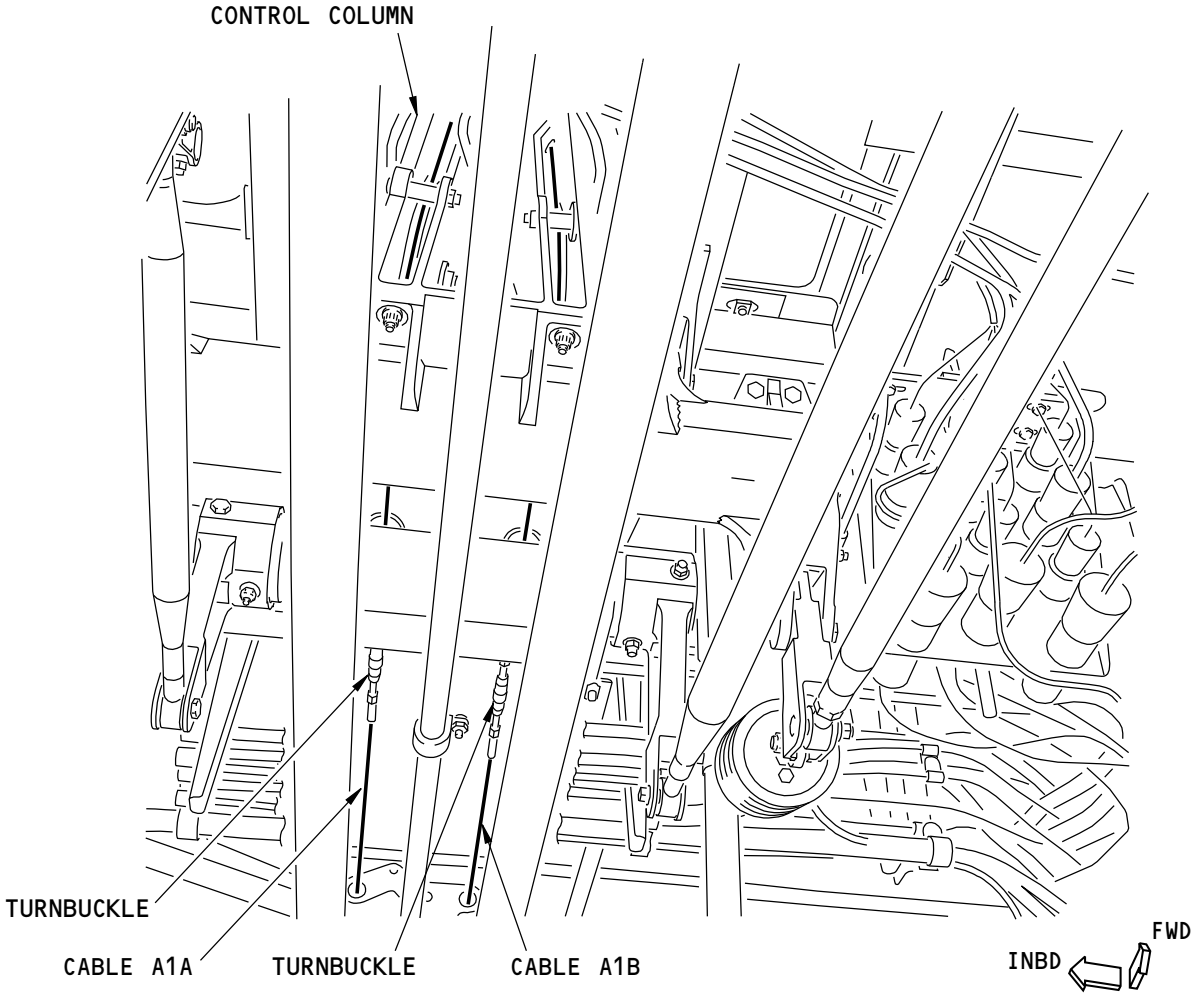
Control Wheel Installation
Figure 401/27-11-01-990-801 (Sheet 2 of 2)

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Control Wheel Cables
Figure 402/27-11-01-990-802 (Sheet 1 of 3)

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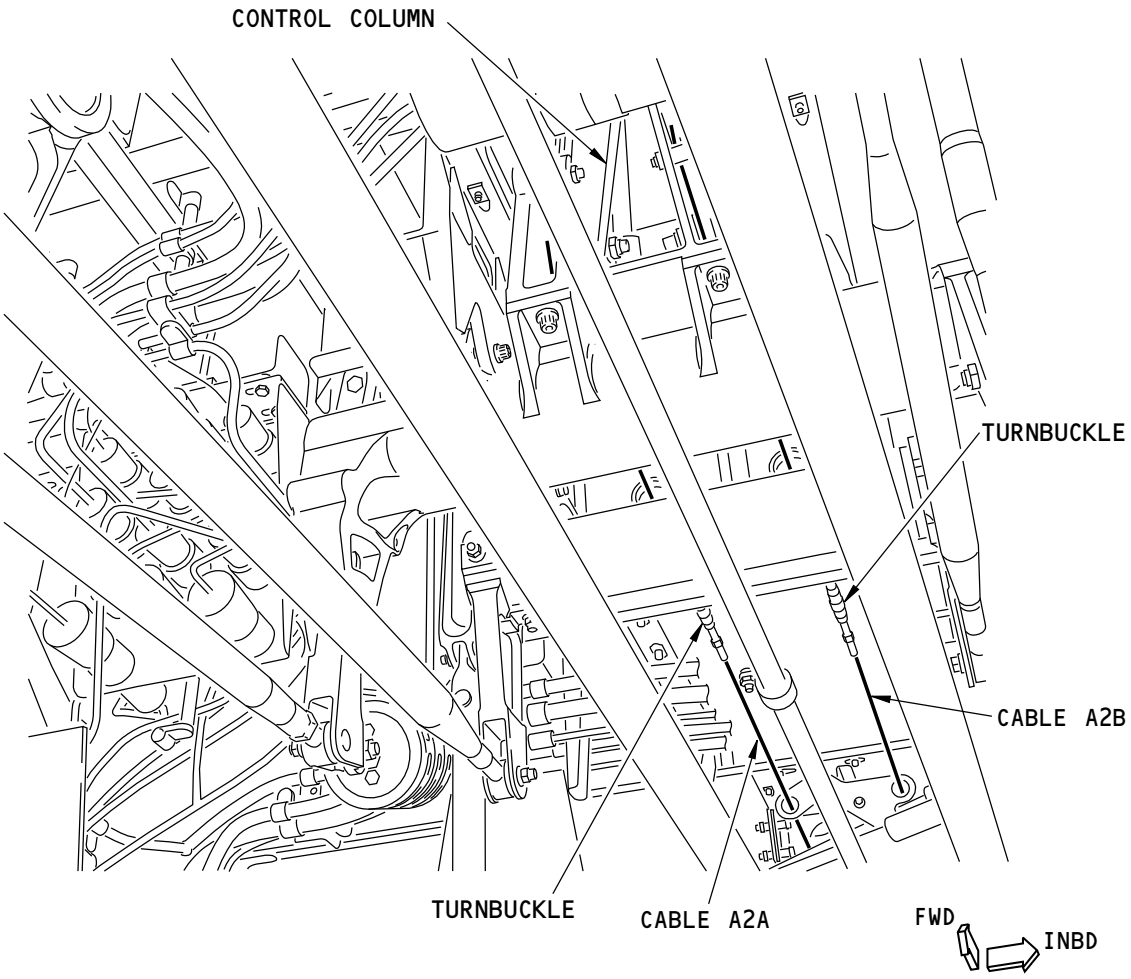
LEFT SIDE CONTROL COLUMN LOWER END

B

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Control Wheel Cables
Figure 402/27-11-01-990-802 (Sheet 2 of 3)

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RIGHT SIDE CONTROL COLUMN LOWER END

C

F02802 S0006412756_V1

Control Wheel Cables
Figure 402/27-11-01-990-802 (Sheet 3 of 3)

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TASK 27-11-01-400-801

3. Control Wheel Installation

A. References

Reference	Title
27-11-00-700-802	Control Wheel and Cable Adjustment (Rigging) (P/B 501)

B. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Wheel assembly	27-31-01-15-180	ARO ALL
		27-31-01-15-185	ARO ALL
24	Retainer	27-31-01-15-120	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Drum and Shaft Installation

(Figure 401)

SUBTASK 27-11-01-020-011

(1) If the wheel assembly [4] is attached to the drum assembly [20] and axle assembly [19], then do these step to disconnect them:

(a) Remove the three nuts [8] and washers [7].

(b) Pull the axle assembly [19] and drum assembly [20] away from the wheel assembly [4].

SUBTASK 27-11-01-020-012

(2) If the bearing [17] is not installed, then do these steps:

(a) Apply grease, D00013 or grease, D00633to the bearing.

(b) Put the bearing [17] on the axle assembly [19].

SUBTASK 27-11-01-420-008

(3) If it is not installed, then put the spacer [16] on the axle assembly [19].

SUBTASK 27-11-01-420-009

(4) Temporarily attach the drum assembly [20] to the axle assembly [19] with the washers [7] and nuts [8].

SUBTASK 27-11-01-420-010

(5) Install new retainers [24] in the drum assembly [20].

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SUBTASK 27-11-01-420-011

(6) Put the electrical cable [18] through the hole in the axle assembly [19] and drum assembly [20].

NOTE: The electrical cable must make 3 full turns around the axle assembly [19] when it is installed.

SUBTASK 27-11-01-420-012

(7) Connect the cables [23] to the drum assembly [20].

NOTE: The cables must cross in the middle of the control column. But, make sure the cables are not twisted in the column.

(a) Pull on the cables and bend the retainers [24] up, to hold the cables in the drum.

NOTE: You must get a clearance of 0.02 inches or less between the retainer and the end of the cable when you bend the retainer.

SUBTASK 27-11-01-420-013

(8) Move the drum and axle assembly in to the control column. As you move them in, make sure the electrical cable [18] and cables [23] do not get out of position. Make sure the electrical cable does not cross its self.

SUBTASK 27-11-01-420-014

(9) If the bearing [15] is not installed, then do these steps:

(a) Apply grease, D00013 or grease, D00633 to the bearing.

(b) Put the bearing [15] on the front of the axle assembly [19].

SUBTASK 27-11-01-420-015

(10) Put the two washers [12] and the nut [14] on the axle assembly [19].

(a) Tighten the nut [14] to 400-600 pound-inches (45.2-67.8 newton-meters).

NOTE: Hold the drum assembly [20] forward as you tighten the nut. If the drum is too far out of the control column, then the stop on the drum will not hit the stop in the column when you tighten the nut.

SUBTASK 27-11-01-210-001

(11) Turn the axle and drum fully clockwise and fully counterclockwise.

(a) Make sure the electrical cable [18] moves freely.

SUBTASK 27-11-01-420-016

(12) Install the nut (cap) [13].

(a) Tighten the nut (cap) [13] to 200-400 pound-inches (22.6-45.2 newton-meters).

(b) Install MS20995C32 lockwire, G01048 on the nut (cap) [13].

F. Control Wheel Installation

(Figure 401)

SUBTASK 27-11-01-020-013

(1) Remove the three nuts [8] and the three washers [7].

SUBTASK 27-11-01-420-017

(2) Put the shim [6] on the drum assembly [20].

SUBTASK 27-11-01-420-001

(3) Put the electrical cable [18] through the hole in the wheel assembly [4].

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SUBTASK 27-11-01-420-002

(4) Put the wheel assembly [4] on the drum assembly [20] and install the three washers [7] and nuts [8].

(a) Measure the clearance between the wheel assembly [4] and the control column.

(b) If the clearance is not 0.005 to 0.065 inch (0.13 to 1.65 millimeters), then add or remove shims [6] until you get this clearance.

NOTE: Measure the clearance as you move the wheel through its full travel.

SUBTASK 27-11-01-420-003

(5) Reconnect all of the electrical connectors (Figure 403).

SUBTASK 27-11-01-420-004

(6) Install the washers [3] and adapter assembly [2] to attach the clamps [5].

(a) Hold a straight edge vertically on the wheel assembly [4] to find if the adapter assembly [2] is flat with the face of the wheel.

1) Remove or add washers [3] under the adapter assembly [2] until the adapter assembly [2] is 0.000 to 0.010 inch (0.0 to 0.25 millimeter) lower than the face of the wheel assembly [4].

SUBTASK 27-11-01-420-005

(7) Install the guard assembly [9].

SUBTASK 27-11-01-420-007

(8) Install the chart assembly [1] with the screw [10] and screw [11].

G. Control Wheel Adjustment

SUBTASK 27-11-01-420-018

(1) Connect the two cables at the turnbuckles (Figure 402).

SUBTASK 27-11-01-820-001

(2) Do this task: Control Wheel and Cable Adjustment (Rigging), TASK 27-11-00-700-802.

H. Control Wheel Installation Test

SUBTASK 27-11-01-710-002

(1) Make sure the control wheel turns smoothly through its full travel.

SUBTASK 27-11-01-210-002

(2) Look through the hole left by the cover assembly [21], and make sure the electrical cable [18] moves freely when you turn the control wheel.

SUBTASK 27-11-01-710-003

(3) Make sure that when you turn one control wheel the other control wheel turns in the same direction.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-01-410-002

(1) Install the cover assembly [21] with the two bolts [22].

SUBTASK 27-11-01-860-004

(2) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

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SUBTASK 27-11-01-860-005

(3) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1 ACE PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

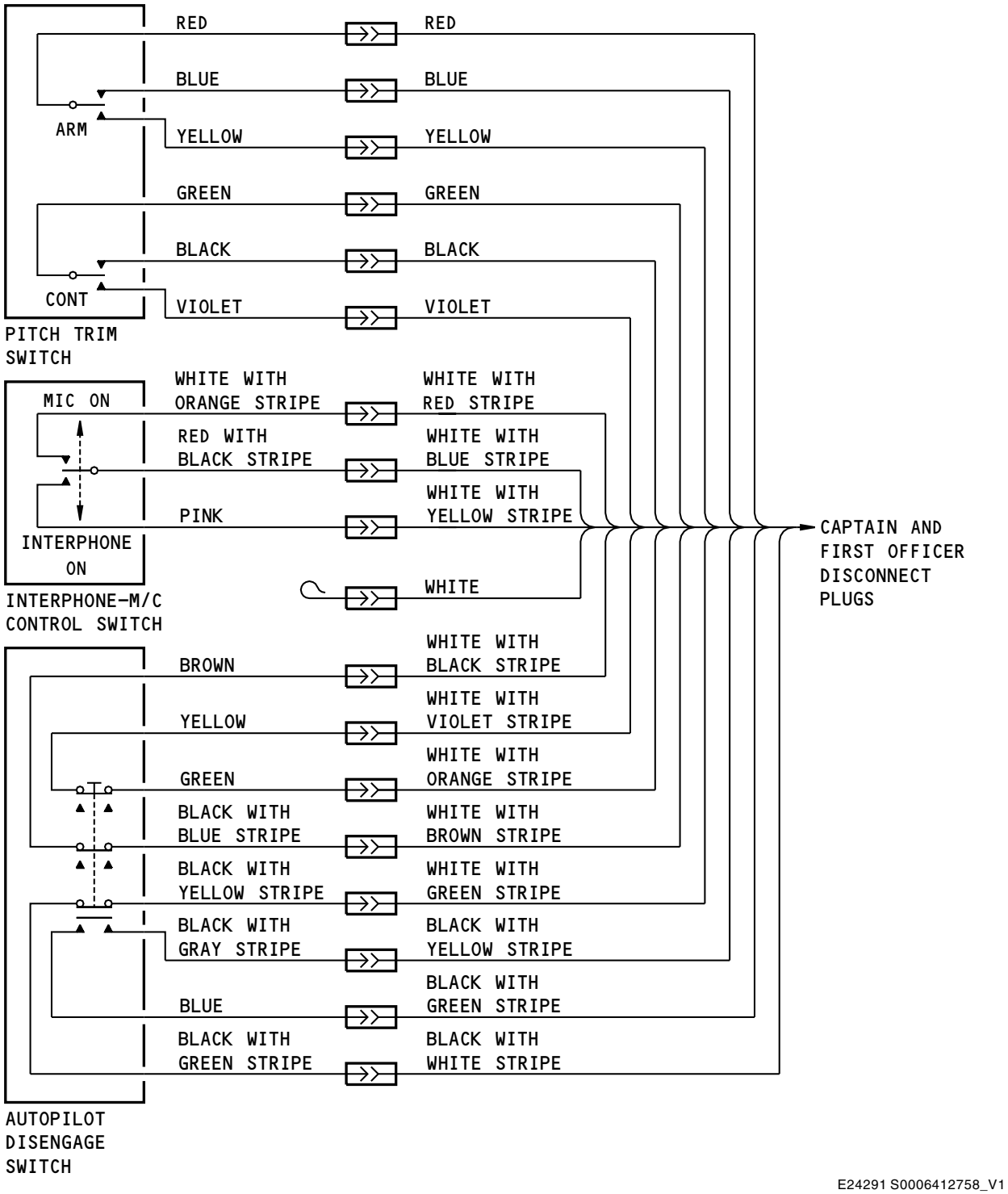
1) A1 ACE PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1 ACE PWR

——— END OF TASK ———

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Control Wheel Schematic
Figure 403/27-11-01-990-803

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TASK 27-11-01-000-802

4. Control Wheel Marker Removal

(Figure 404)

A. General

(1) This task includes the steps to remove the control wheel marker.

B. Tools/Equipment

Reference	Description
STD-765	Scraper - Plastic

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Control Wheel Marker Removal

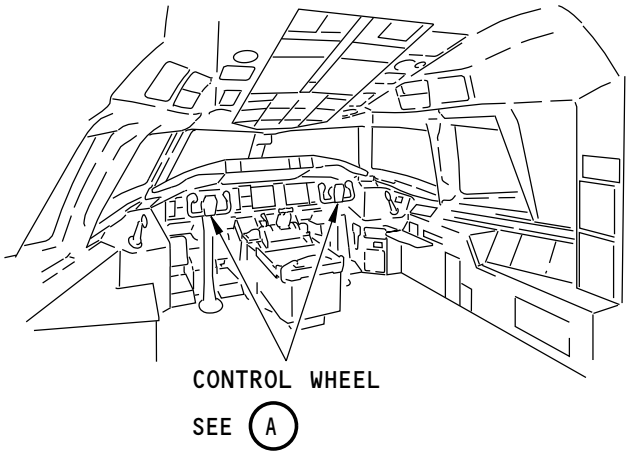
SUBTASK 27-11-01-020-014

(1) Use a plastic scraper, STD-765 or equivalent to remove the control wheel marker.

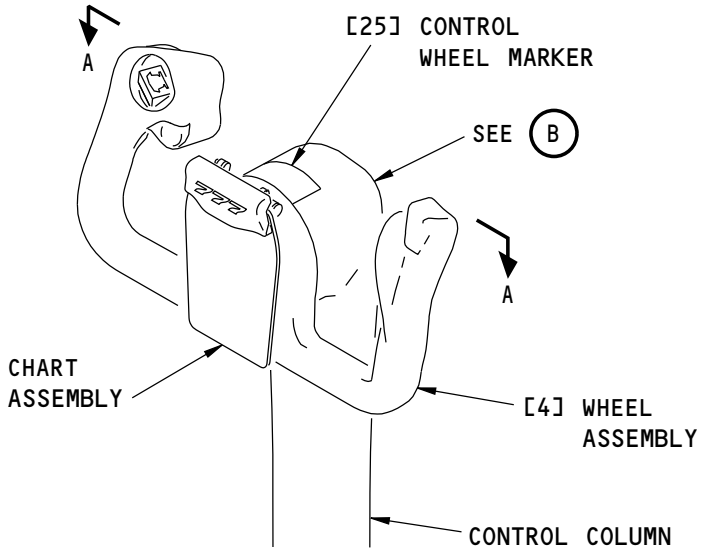
NOTE: A plastic scraper will prevent the control wheel or control column from being scratched or damaged.

——— END OF TASK ———

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FLIGHT COMPARTMENT

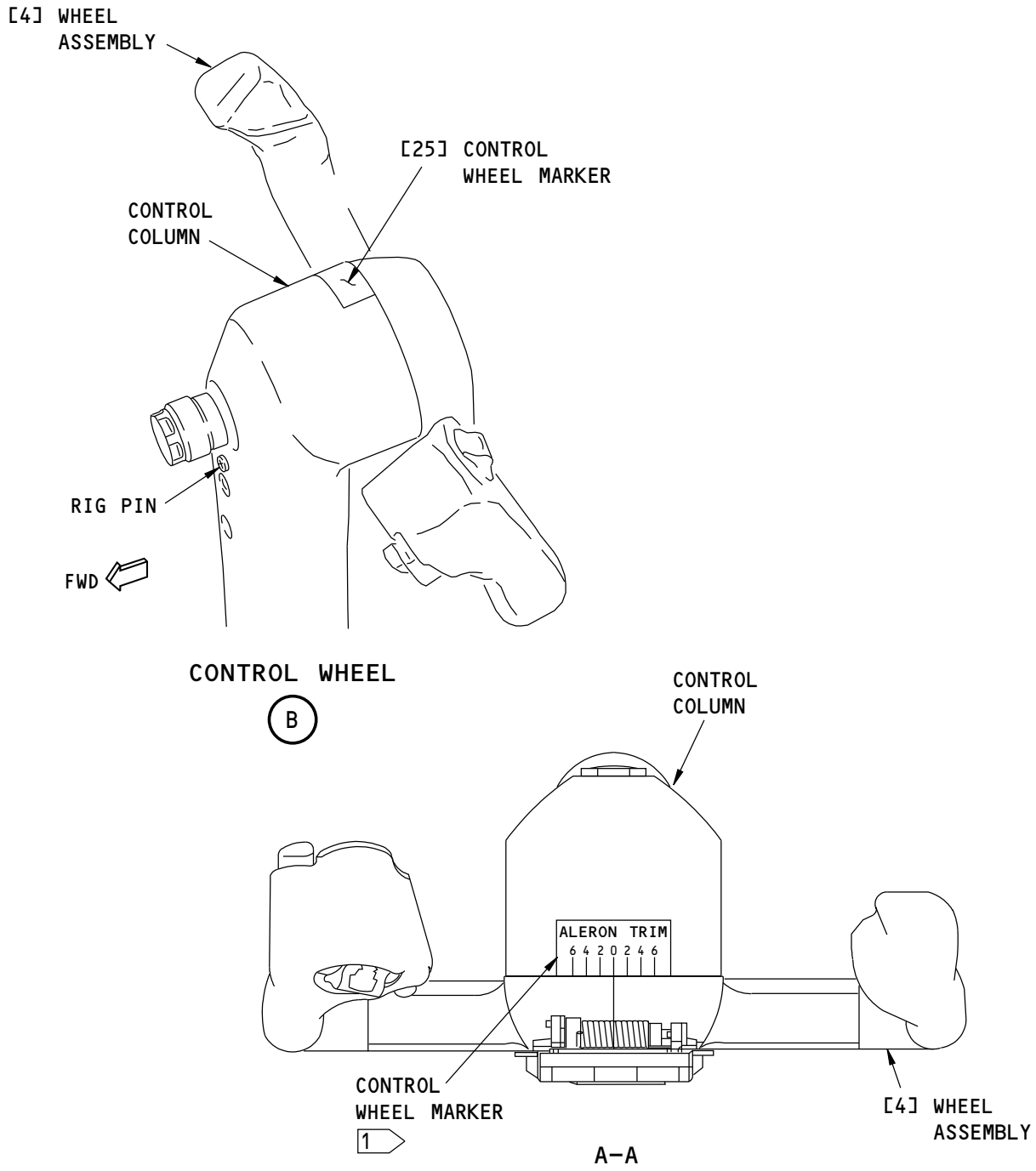


CONTROL WHEEL
A

2178304 S0000480808_V1

Control Wheel Marker - Installation
Figure 404/27-11-01-990-804 (Sheet 1 of 2)

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1 ALIGN 0 ON MARKER WITH INDICATOR LINE ON WHEEL AFTER THE RIG PIN IS INSTALLED.

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Control Wheel Marker - Installation
Figure 404/27-11-01-990-804 (Sheet 2 of 2)

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TASK 27-11-01-400-802

5. Control Wheel Marker Installation

(Figure 404)

A. General

(1) This task includes the steps to install the control wheel marker.

B. Tools/Equipment

Reference	Description
STD-4589	Rig pin - 0.309-0.311 inch diameter

C. Consumable Materials

Reference	Description	Specification
B00157	Cleaner - Detergent - Spraywhite E	
B50079	Solvent - Aliphatic Naphtha (For Acrylic Plastics)	TT-N-95 Type II (Supersedes BMS3-2 Type II)
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Control Wheel Marker Installation

(Figure 404)

SUBTASK 27-11-01-160-001

(1) Do these steps to clean the area for the control wheel marker [25]:

(a) Use a cotton wiper, G00034 with Spraywhite E cleaner, B00157 or aliphatic naphtha, B50079 or equivalent to clean the area.

(b) Rub the area dry with a cotton wiper, G00034.

SUBTASK 27-11-01-480-001

(2) Install the rig pin, STD-4589 through the control column and wheel assembly [4].

SUBTASK 27-11-01-420-019

(3) Do these steps to install the control wheel marker [25]:

(a) Remove the protective cover to expose the adhesive on the back of the control wheel marker [25].

(b) Install the control wheel marker [25].

1) Make sure to align the 0 on the control wheel marker [25] with the indicator on the wheel assembly [4] after the rig pin is installed.

SUBTASK 27-11-01-080-001

(4) Remove the rig pin, STD-4589.

——— END OF TASK ———

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WHEEL POSITION TRANSDUCERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the wheel position transducers

NOTE: The wheel position transducers are often referred to as the LVTDs.

(2) An installation of the wheel position transducers.

TASK 27-11-02-000-801

2. Wheel Position Tranducers Removal

(Figure 401)

A. General

(1) There are three transducers [4] on each side of the airplane. Each transducer [4] is connected to an electrical connector. Each electrical connector has a label adjacent to it on the airplane structure. To find a transducer [4], find at the appropriate label and follow that wire to the transducer [4]. Table 401 shows the name of the transducer [4], used in the MAT, that is connected to each electrical connector. It is not important which of the three transducers [4] (on one side of the airplane) is connected to which electrical connector. For example, when a transducer [4] is connected to DM27231 it becomes transducer R1.

Table 401/27-11-02-993-803

Wheel Position Transducer (LVDT) Connected to Connector Number (shown on the label)	Position (Names) of the Transducer
DM27231	R1, or RIGHT 1, or F/O WHEEL POSITION 1
DM27232	R2, or RIGHT 2, or F/O WHEEL POSITION 2
DM27233	R3, or RIGHT 3, or F/O WHEEL POSITION 3
DM27131	L1, or LEFT 1, or CAPT WHEEL POSITION 1
DM27132	L2, or LEFT 2, or CAPT WHEEL POSITION 2
DM27133	L3, or LEFT 3, or CAPT WHEEL POSITION 3

B. References

Reference	Title
27-11-00-210-801	Lateral Control Mechanism Wire Bundle Inspection (P/B 601)

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Prepare for the Removal

SUBTASK 27-11-02-010-001

(1) To gain access to the main equipment center, do this step:

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Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

NOTE: You can also get access if you remove the access panels in the flight compartment floor. There is and acess panel above each lateral control mechanism. The access panels are behind the two pilot's seats. To find the acces panels, look for the 3.00 in. (7.62 cm) diameter cover (used for access to the rig pin) that is attached to the larger access panel.

SUBTASK 27-11-02-860-001

(2) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE PWR

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE PWR

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE PWR

F. Wheel Position Transducers Removal

SUBTASK 27-11-02-020-001

(1) Disconnect the electrical connector for the transducer [4].

(a) Disconnect the clamp [10] and clamp [21] (on the left side), or clamps [15] and clamp [19] (on the right side) that hold the wires to the airplane.

SUBTASK 27-11-02-020-002

(2) Remove the nut [3], washer [2], and bolt [1] from the end of the applicable transducer [4].

NOTE: For the center transducer [4] on the left and right sides, it can be necessary to turn the shaft to which they are connected approximately 35 degrees in the transducer [4] retract direction. This will help you get sufficient clearance to remove the bolt [1].

SUBTASK 27-11-02-020-004

(3) Remove the nut [8], washer [7], bushing [6], and bolt [5] for the applicable transducer [4].

SUBTASK 27-11-02-020-003

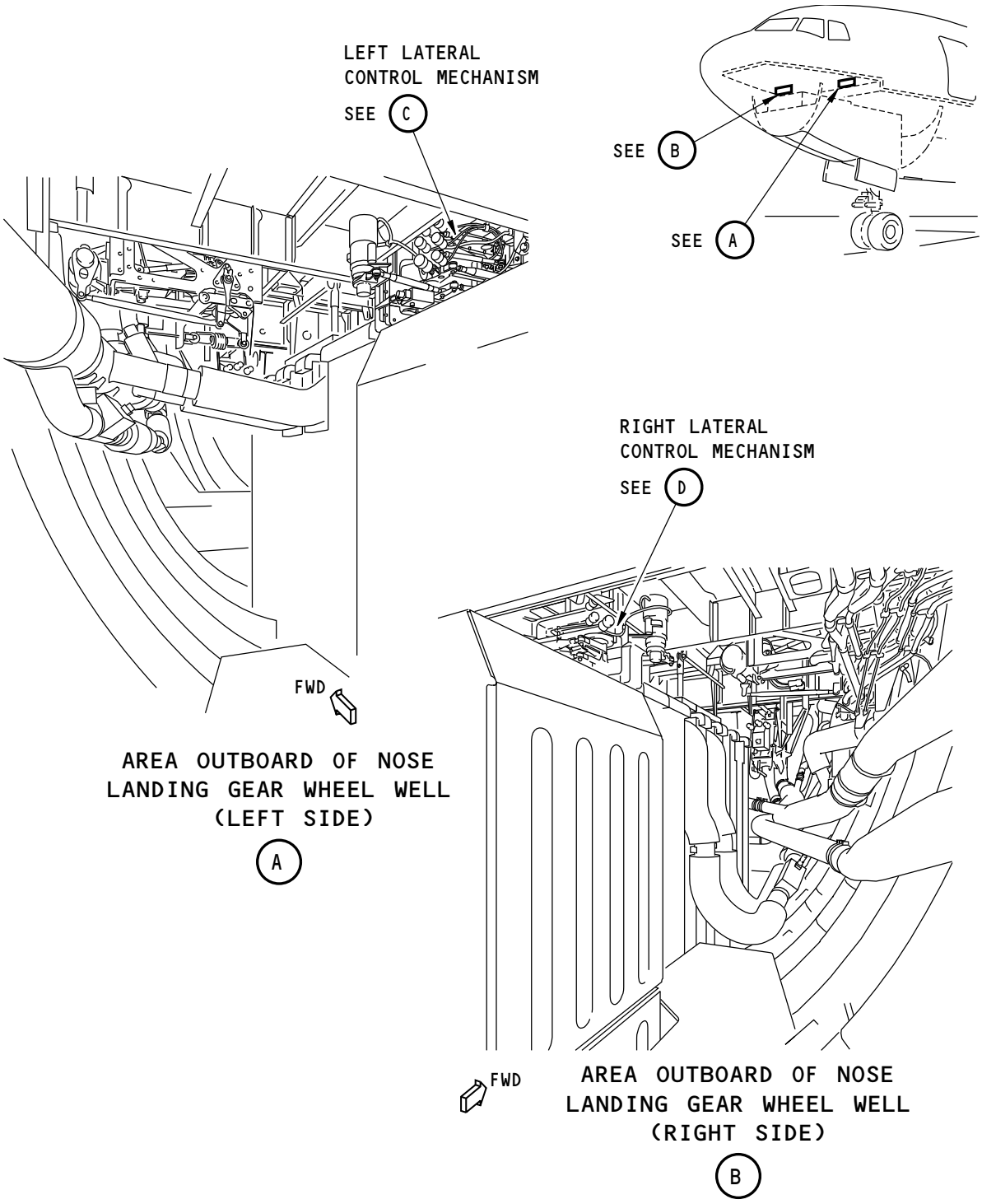
(4) Remove the transducer [4].

SUBTASK 27-11-02-210-001

(5) Inspect the transducer wire bundles Lateral Control Mechanism Wire Bundle Inspection, TASK 27-11-00-210-801.

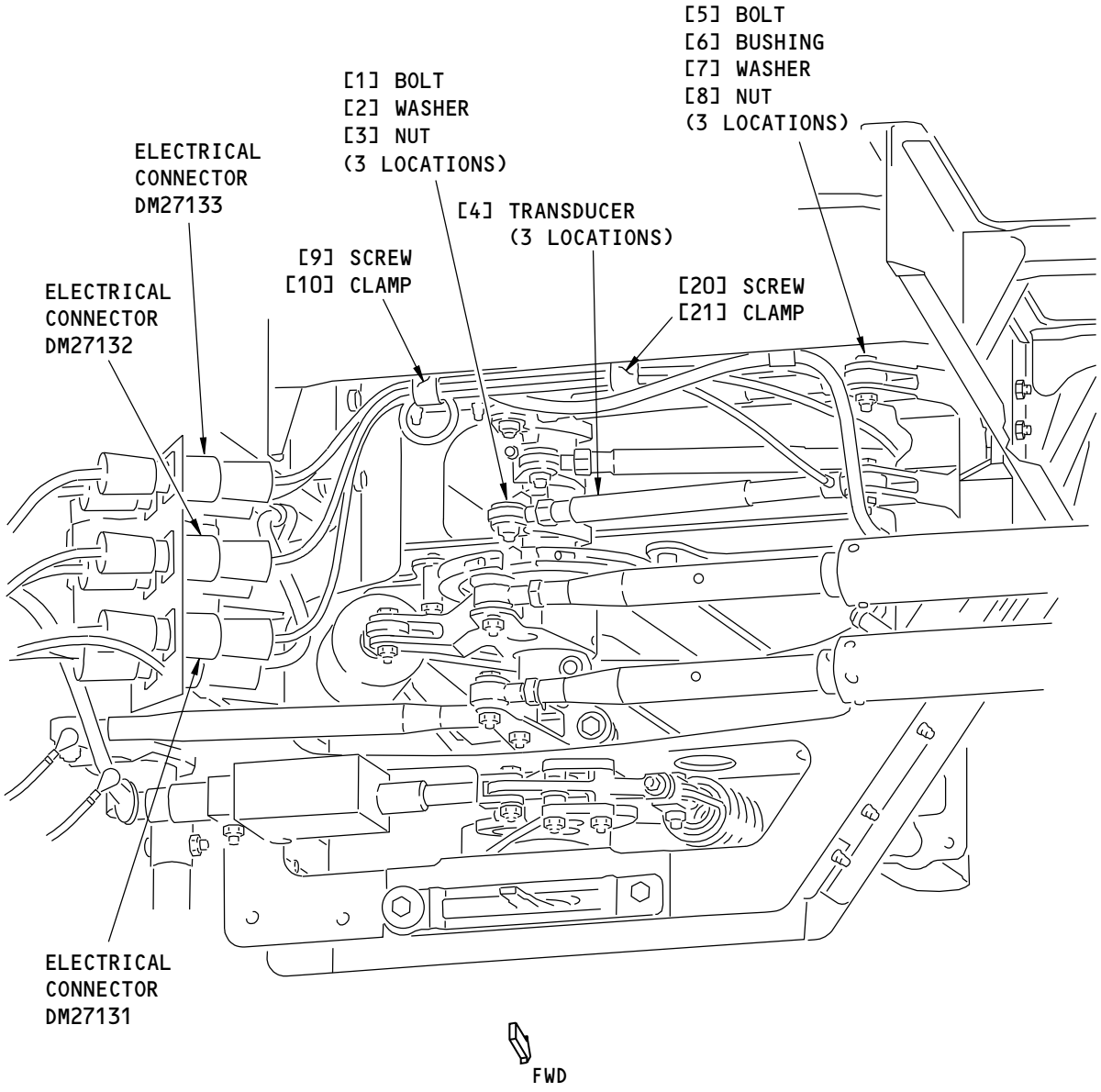
END OF TASK

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Wheel Position Transducers Installation
Figure 401/27-11-02-990-801 (Sheet 1 of 3)

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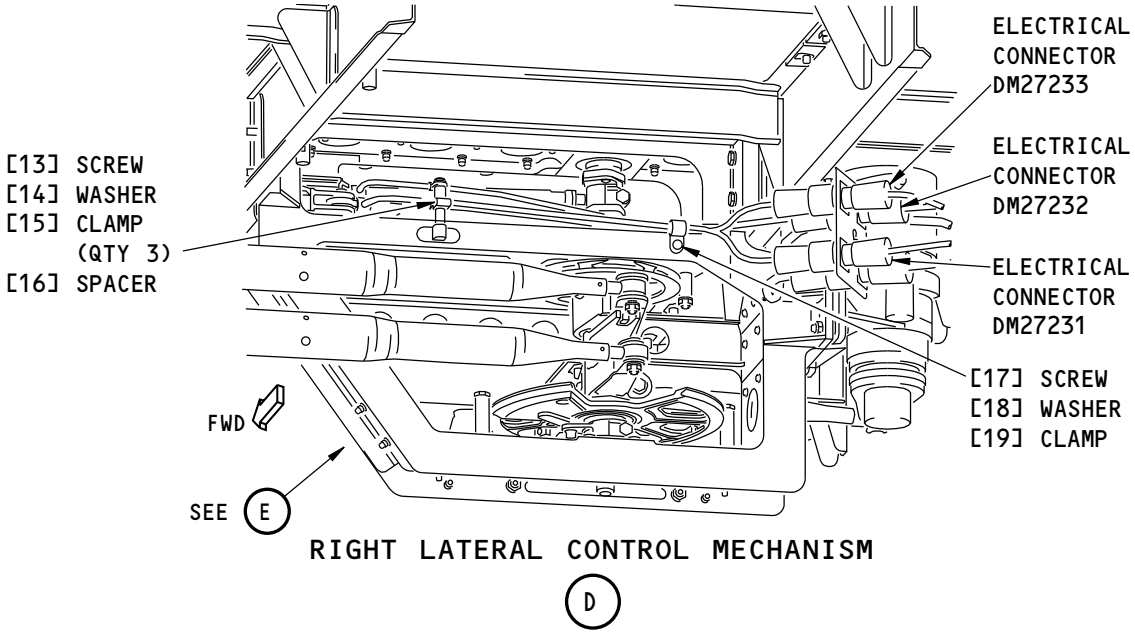
LEFT LATERAL CONTROL MECHANISM

C

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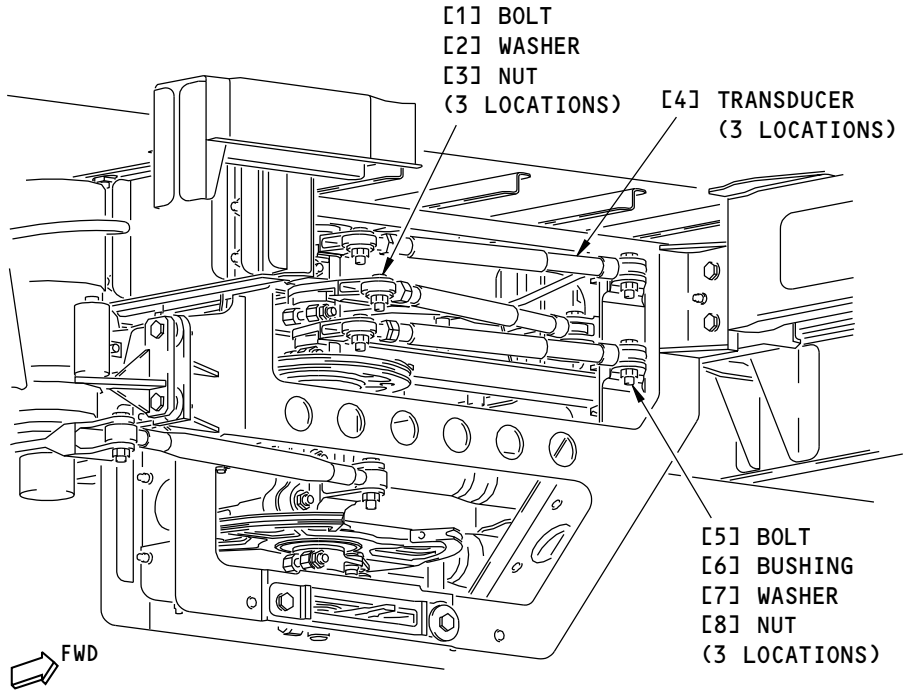
Wheel Position Transducers Installation
Figure 401/27-11-02-990-801 (Sheet 2 of 3)

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RIGHT LATERAL CONTROL MECHANISM

D



RIGHT LATERAL CONTROL MECHANISM

E

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Wheel Position Transducers Installation
Figure 401/27-11-02-990-801 (Sheet 3 of 3)

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TASK 27-11-02-400-801

3. Wheel Position Tranducers Installation

(Figure 401)

A. General

(1) There are three transducers [4] on each side of the airplane. Each transducer [4] is connected to an electrical connector. Each electrical connector has a label adjacent to it on the airplane structure. To find a transducer [4] find at the appropriate label and follow that wire to the transducer [4]. Table 402 shows the name of the transducer [4], used in the MAT, that is connected to each electrical connector. It is not important which of the three transducers [4] (on one side of the airplane) is connected to which electrical connector. For example, when a transducer [4] is connected to DM27231 it becomes transducer R1.

Table 402/27-11-02-993-802

Wheel Position Transducer (LVDT) Connected to Connector Number (shown on the label)	Position (Names) of the Transducer
DM27231	R1, or RIGHT 1, or F/O WHEEL POSITION 1
DM27232	R2, or RIGHT 2, or F/O WHEEL POSITION 2
DM27233	R3, or RIGHT 3, or F/O WHEEL POSITION 3
DM27131	L1, or LEFT 1, or CAPT WHEEL POSITION 1
DM27132	L2, or LEFT 2, or CAPT WHEEL POSITION 2
DM27133	L3, or LEFT 3, or CAPT WHEEL POSITION 3

B. References

Reference	Title
27-11-00-820-801	Wheel Position Transducer (LVDT) Adjustment (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Transducer	27-11-02-01-080	ARO ALL
		27-11-02-05-045	ARO ALL

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Wheel Position Transducers Installation

SUBTASK 27-11-02-420-001

(1) Put the transducer [4] in its position and then do the steps that follow.

(a) Install the bushing [6], bolt [5], washer [7], and nut [8] in the end of the transducer [4] that has the wire attached to it.

NOTE: The flange of the bushing [6] goes against the transducer.

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(b) Install the bolt [1], washer [2], and nut [3] in the other end of the transducer [4].

NOTE: For the center transducer [4] on the left and right sides, it can be necessary to turn the shaft to which they are connected approximately 35 degrees in the transducer [4] retract direction. This will help you get sufficient clearance to install the bolt [1].

SUBTASK 27-11-02-420-002

(2) Connect the electrical connector for the transducer [4].

NOTE: It is not important for safety which of the three transducers [4] is connected to which electrical connector. To make maintenance easier, Boeing recommends that you connect them in the order shown in Table 402.

(a) For the left transducers [4] (L1, L2, and L3):

1) Install the clamp [10] and the screw [9].

NOTE: Three wires go in clamp [10], one from each transducer [4].

2) Install the clamp [21] and the screw [20].

(b) For the right transducers [4] (R1, R2, and R3):

1) Install the clamp [19], the screw [17], and the washer [18].

NOTE: Three wires go in this clamp, one from each transducer.

2) Install the clamps [15], the spacer [16], the washer [14], and the screw [13].

NOTE: One transducer wire goes in each clamp. The parts go on the screw in this sequence: washer [14], clamp [15], spacer [16], clamp [15], clamp [15], and then the nutplate.

SUBTASK 27-11-02-860-002

(3) Close the following circuit breakers:

Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE PWR

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE PWR

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE PWR

Table 403/27-11-02-993-801

Table 402	
Wheel Position Transducer (LVDT) Location	**Recommended Connector**
Top	DM27133 (Left) DM27233 (Right)
Middle	DM27132 (Left) DM27232 (Right)

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Table 403/27-11-02-993-801 (Continued)

Table 402	
Wheel Position Transducer (LVDT) Location	**Recommended Connector**
Bottom	DM27131 (Left) DM27231 (Right)

SUBTASK 27-11-02-820-001

(4) Do this task: Wheel Position Transducer (LVDT) Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-11-02-410-001

(5) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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WHEEL DAMPER - MAINTENANCE PRACTICES

1. General

A. There is one wheel damper. It is on the left side of the airplane, but it is operated by both the captain's and the first officer's control wheels.

B. This procedure has these tasks:

(1) An inspection of the fluid level in the wheel damper

(2) A removal of the wheel damper.

(3) An installation of the wheel damper.

TASK 27-11-03-210-801

2. Wheel Damper Fluid Level Inspection

(Figure 201)

A. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

B. Procedure

SUBTASK 27-11-03-010-001

(1) Gain access to the main equipment center, by doing this step:

Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-03-210-001

(2) Look through one of the windows on the damper [1].

(a) If the width of the green band that shows through the window is 1/16 of an inch or more, then there is sufficient fluid in the damper [1].

NOTE: The damper must be at room temperature (50 to 90 degrees F, 10 to 32 degrees C) to get the correct indication.

(b) If the width of the green band that shows through the window is less than 1/16 of an inch, then replace the damper [1].

NOTE: If the window shows only red or no color (no green) then replace the damper [1]

SUBTASK 27-11-03-410-001

(3) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

TASK 27-11-03-000-801

3. Wheel Damper Removal

(Figure 201)

A. Location Zones

Zone	Area
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

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B. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

C. Prepare for the Removal

SUBTASK 27-11-03-010-002

(1) Gain access to the main equipment center, by:

Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Wheel Damper Removal

SUBTASK 27-11-03-020-001

(1) Remove the nut [4], washer [3], and bolt [2] that attach the crank to the damper [1].

SUBTASK 27-11-03-020-002

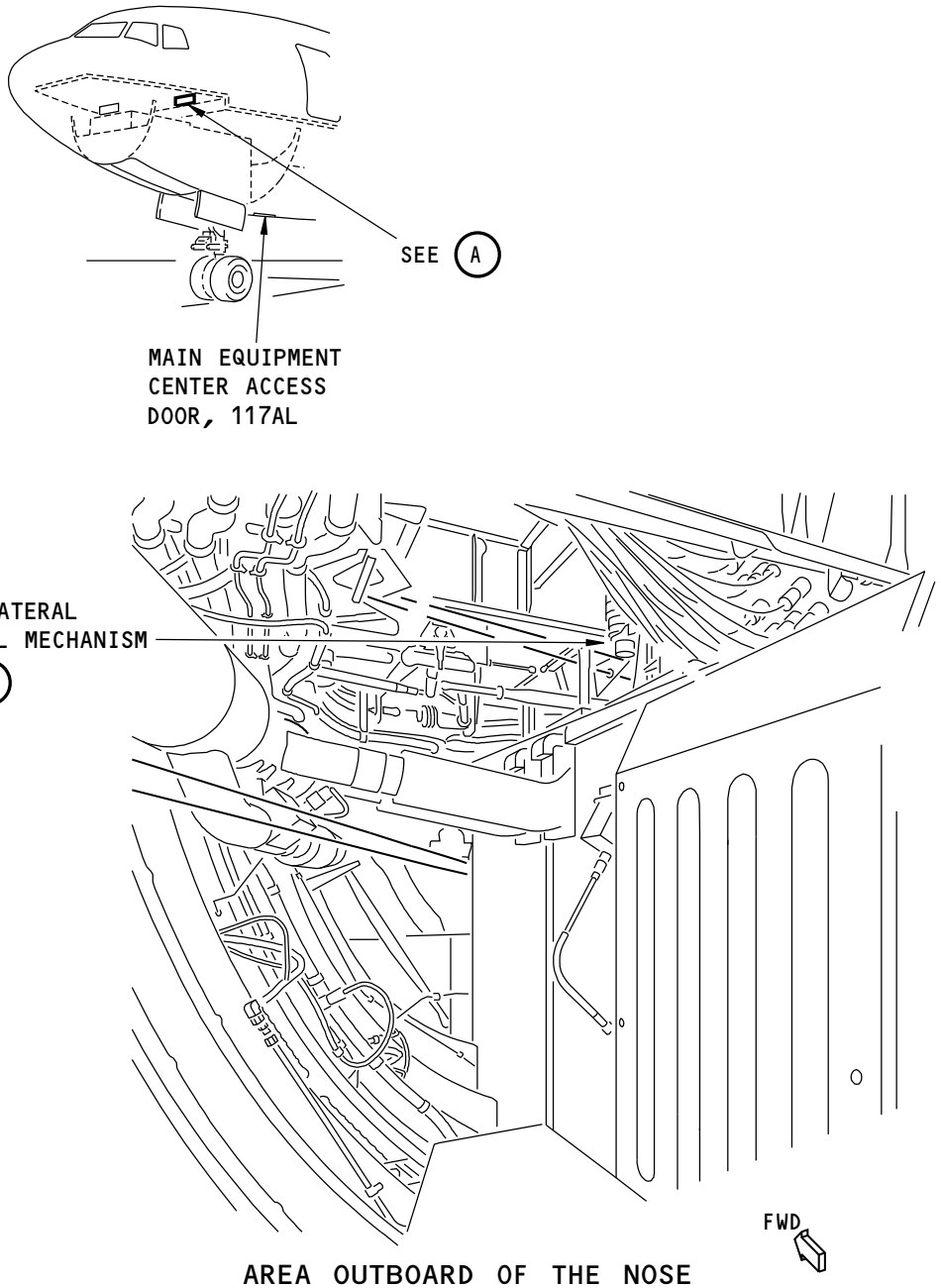
(2) Disconnect the crank from the damper [1].

SUBTASK 27-11-03-020-003

(3) Remove the bolts [5] and the washers [6] and remove the damper [1].

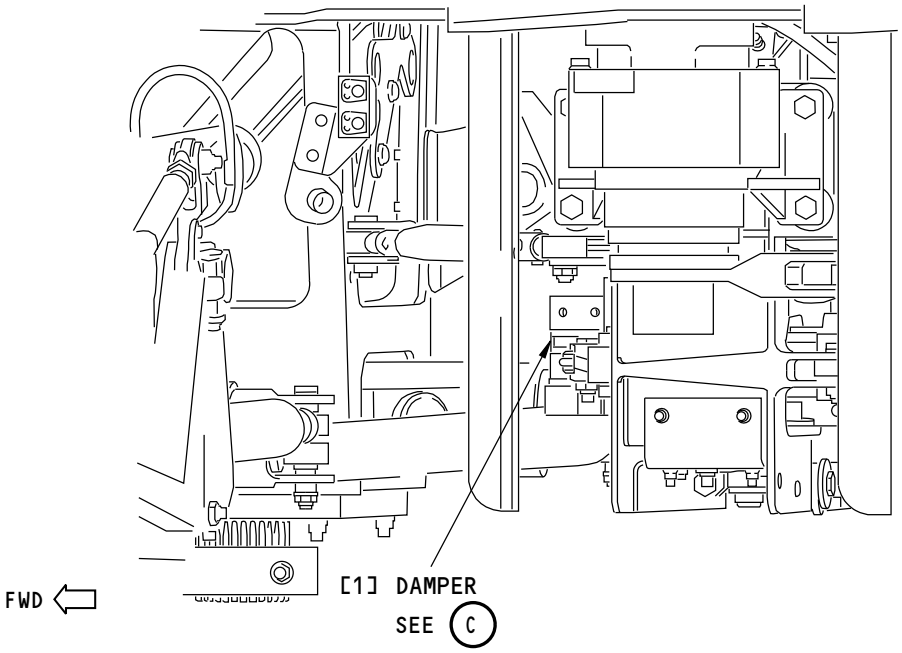
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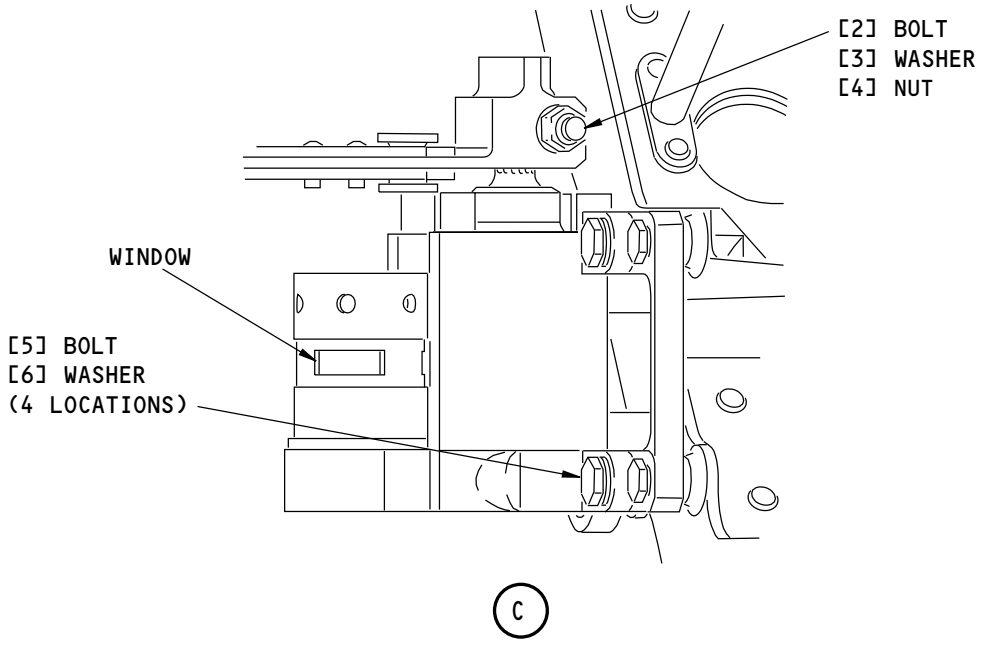
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Wheel Damper Installation
Figure 201/27-11-03-990-801 (Sheet 1 of 2)

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Wheel Damper Installation
Figure 201/27-11-03-990-801 (Sheet 2 of 2)

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TASK 27-11-03-400-801

4. Wheel Damper Installation

(Figure 201)

A. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Damper	27-11-03-01-035	ARO ALL

B. Location Zones

Zone	Area
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Wheel Damper Installation

SUBTASK 27-11-03-420-001

(1) Install the crank on the damper [1].

NOTE: Make sure you align the missing tooth in the crank correctly on the shaft of the damper.

(a) Install the bolt [2], the washer [3] and nut [4], and tighten the nut.

SUBTASK 27-11-03-420-002

(2) Put the damper [1] in its position.

SUBTASK 27-11-03-420-003

(3) Install the nuts [4], and washers [6].

SUBTASK 27-11-03-720-001

(4) Move the captain's control wheel through its full travel. Make sure the damper [1] moves and that the crank does not break.

NOTE: The crank is designed to break if the damper does not move freely.

SUBTASK 27-11-03-410-002

(5) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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LATERAL CONTROL MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the lateral control mechanism

(2) An installation of the lateral control mechanism.

B. There are two lateral control mechanisms (left and right). In this procedure they are called the mechanism assembly [1] and mechanism assembly [2]. One is connected to each control wheel. The lateral control mechanisms include these parts:

(1) Wheel position transducers (TASK 27-11-02-400-801)

(2) Control wheel backdrive actuators (TASK 22-11-06-400-801)

(3) Aileron trim actuator (TASK 27-11-09-400-801)

(4) Wheel force transducer (TASK 27-11-08-400-801)

(5) Feel and centering mechanism.

NOTE: The feel and centering mechanism is part of the left lateral control mechanism. It can not be removed independently of the lateral control mechanism.

TASK 27-11-05-000-801

2. Lateral Control Mechanism Removal

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
25-52-09-000-801	Ceiling Liner Removal (P/B 401)
53-01-01-000-801	Floor Panel Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
122	Forward Cargo Compartment, Right
242	Passenger Compartment, Right - Section 44

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

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E. Prepare for the Removal

SUBTASK 27-11-05-010-001

(1) Gain access to the main equipment center, by:

Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

(Figure 401).

NOTE: You can also get access to the lateral control mechanisms if you remove the access panels in the flight compartment floor. There is an access panel above each lateral control mechanism. The access panels are behind the two pilots seats. To find the access panel, look for the 3-inch (7.6 centimeter) circular cover (for rig pin access) that is attached to the larger access panel.

SUBTASK 27-11-05-860-001

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	28	C27608	ACE-L2 PWR

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-11-05-480-001

(3) Install rig pins SP1 and SP2 from the rigging pin set, SPL-2532, in the captain's and first officer's control wheels (Figure 402).

NOTE: The rigging pin set, SPL-2532 go in the hole on the forward side of the control columns.

F. Left Lateral Control Mechanism Removal

SUBTASK 27-11-05-030-001

(1) Disconnect these eight electrical connectors (View E) (Figure 401):

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(a) The electrical connector for the backdrive actuator.

(b) The electrical connector for the aileron trim actuator.

(c) The three electrical connectors for the wheel force transducer.

NOTE: It is not necessary to identify the location of these three connectors. It is permitted to connect them in any order.

(d) The three electrical connectors for the wheel position transducers.

NOTE: It is not necessary to identify the location of these three connectors. It is permitted to connect them in any order.

SUBTASK 27-11-05-020-014

(2) Remove the screws [44] and clamps [46] from the wires.

SUBTASK 27-11-05-480-002

(3) Do these steps to disconnect cables A1A and A1B (Figure 402):

(a) Install a control cable clamp, SPL-1569, on cables A1A and A1B.

(b) Loosen cables A1A and A1B at the turnbuckles forward of the lateral control mechanism.

(c) Put labels on the cables to show which side they connect to.

(d) Remove the jam nuts [41], nuts [42], washers [43], and cable guards [40] from the mechanism assembly [1].

(e) Remove the pins [13] and disconnect the two cables from the mechanism assembly [1] (Figure 401).

SUBTASK 27-11-05-020-003

(4) Disconnect the two control rods [4] from the mechanism assembly [1].

SUBTASK 27-11-05-020-004

(5) Hold the mechanism assembly [1] and remove the nuts [17], washers [15], bolts [14], bushings [16], and the bolts [11], and washers [12].

NOTE: The mechanism assembly [1] weighs approximately 30 pounds (13.6 kilograms).

(a) Remove the mechanism assembly [1] from the airplane.

G. Right Lateral Control Mechanism Removal

SUBTASK 27-11-05-010-002

(1) For the floor panel that is above the spoiler control mechanism (Figure 402), do this task: Floor Panel Removal, TASK 53-01-01-000-801.

SUBTASK 27-11-05-480-003

(2) Install the rig pin SP7 from the rigging pin set, SPL-2532, in the spoiler control mechanism.

SUBTASK 27-11-05-020-005

(3) Disconnect these four electrical connectors at the lateral control mechanism (View C) (Figure 401):

(a) The electrical connector for the backdrive actuator.

(b) The three electrical connectors for the wheel position transducers.

NOTE: It is not necessary to identify the location of these three connectors. It is permitted to connect them in any order.

SUBTASK 27-11-05-020-016

(4) Remove the screw [44] and clamp [46] from the wires.

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SUBTASK 27-11-05-010-003

(5) Remove the applicable ceiling lining from the forward cargo compartment for access to the turnbuckles of cables SBA and SBB (Figure 402):

(a) To remove the ceiling lining, do this task: Ceiling Liner Removal, TASK 25-52-09-000-801.

SUBTASK 27-11-05-020-007

(6) Do these steps to disconnect cables SBA and SBB:

(a) Install a control cable clamp, SPL-1569, on cables SBA and SBB, near the lateral control mechanism.

(b) Loosen cables SBA and SBB at the turnbuckles in the forward cargo compartment (Figure 402).

(c) Put labels on the cables to show which side they connect to.

(d) Remove the nuts [32], washers [31], bolts [30] and spacers [29] from the mechanism assembly [2] (View C) (Figure 401).

(e) Disconnect cables cables SBA and SBB from the mechanism assembly [2] (View D):

1) Remove nuts [10], plates [8], washers [9] and bolts [7].

SUBTASK 27-11-05-020-009

(7) Do these steps to disconnect cables A2A and A2B:

(a) Install a control cable clamp, SPL-1569, on cables A2A and A2B.

(b) Loosen cables A2A and A2B at the turnbuckles forward of the lateral control mechanism (Figure 402).

(c) Put labels on the cables to show which side connect to.

(d) Remove the nuts [28], washers [27], screws [26] and spacers [25] from the mechanism assembly [2] (View C) (Figure 401).

(e) Disconnect the cables A2A and A2B from the mechanism assembly [2]:

1) Remove the pins [3]

SUBTASK 27-11-05-020-010

(8) Disconnect the two control rods [4] of the wheel jam breakout mechanism from the mechanism assembly [2].

SUBTASK 27-11-05-020-011

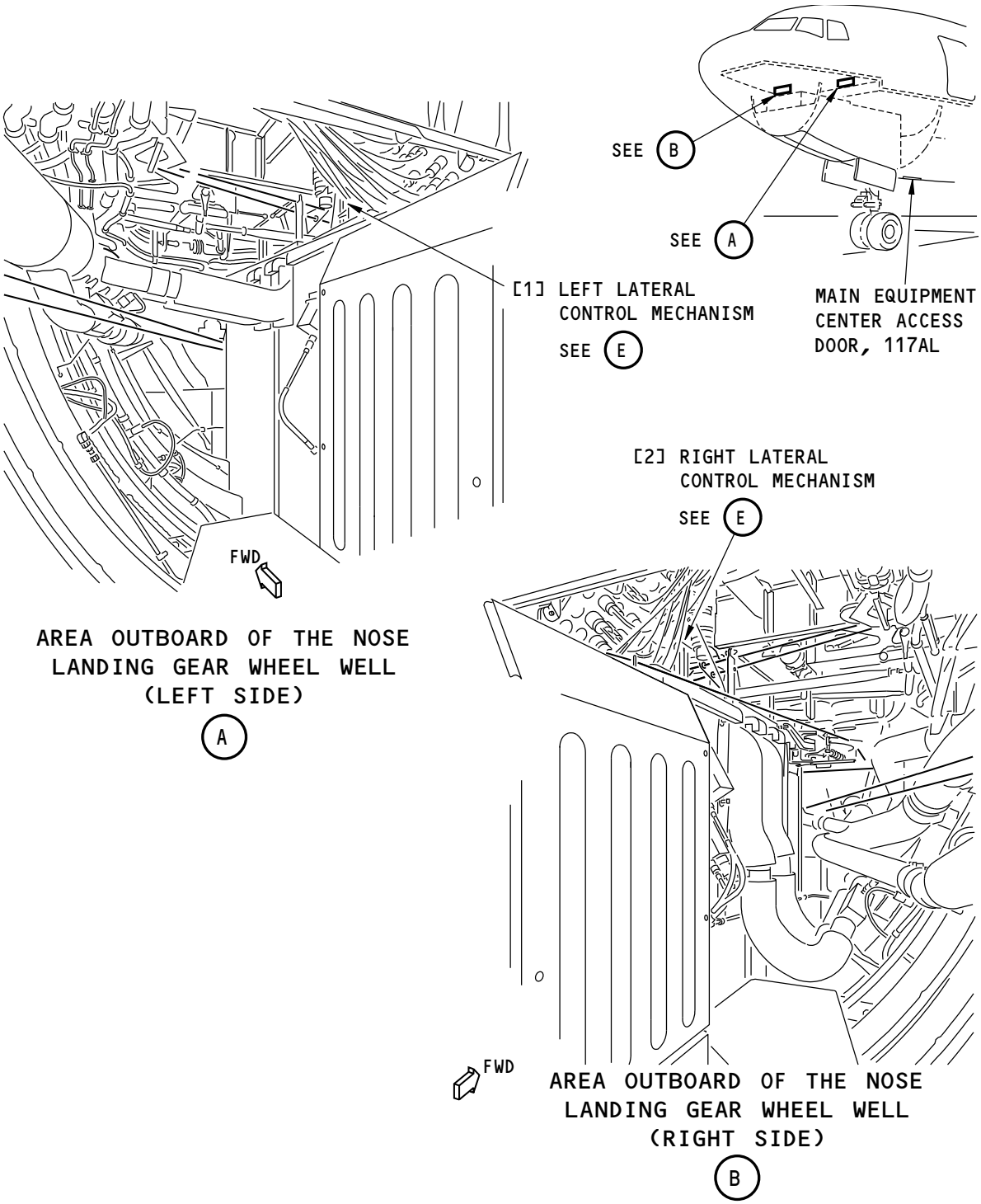
(9) Hold the mechanism assembly [2] and remove the nuts [17], washers [15], bolts [14], bushings [16], bolts [5], washers [6].

NOTE: The mechanism assembly [2] weighs approximately 25 pounds (11.2 kilograms).

(a) Remove the mechanism assembly [2] from the airplane.

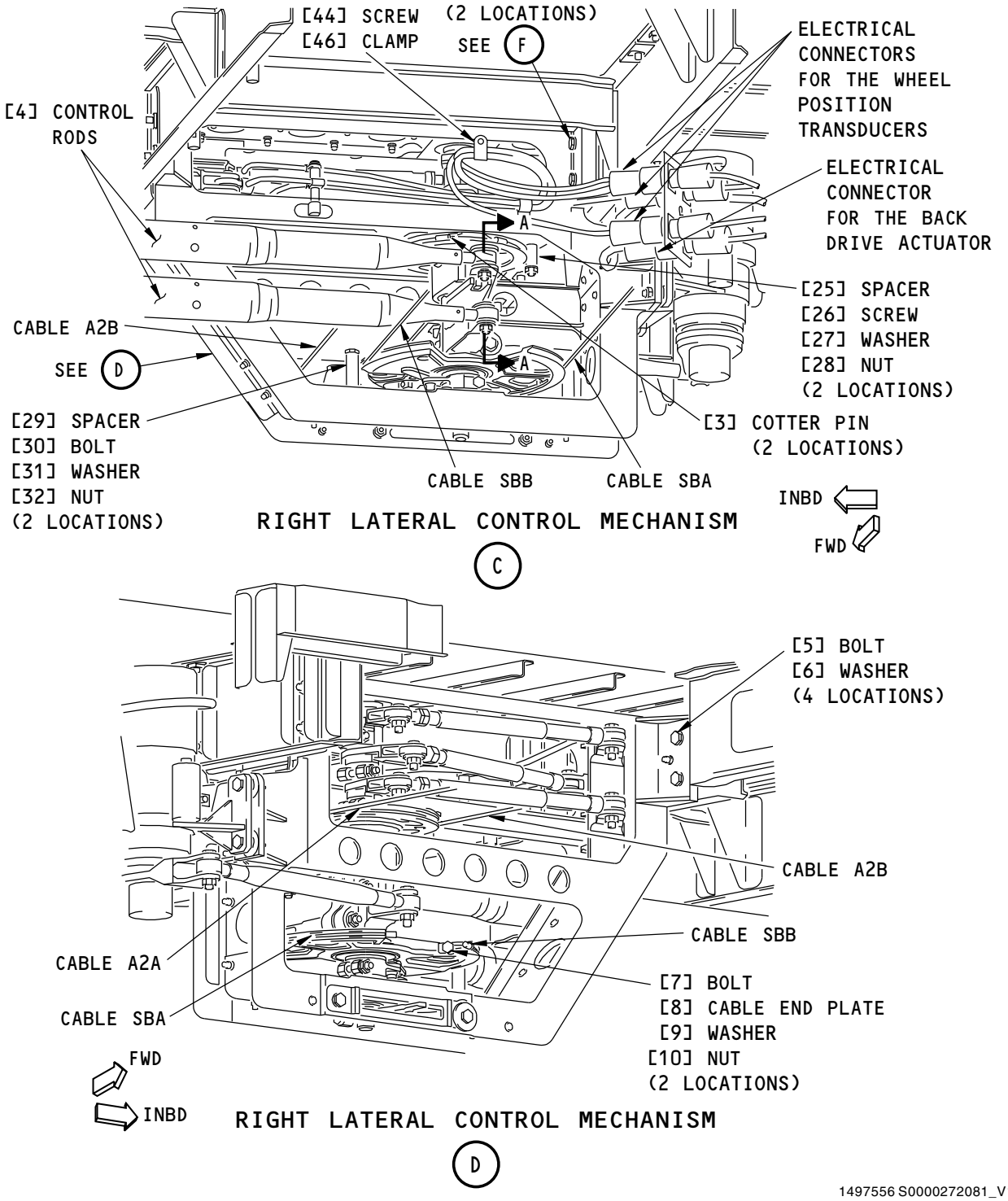
——— END OF TASK ———

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Lateral Control Mechanism Installation
Figure 401/27-11-05-990-801 (Sheet 1 of 4)

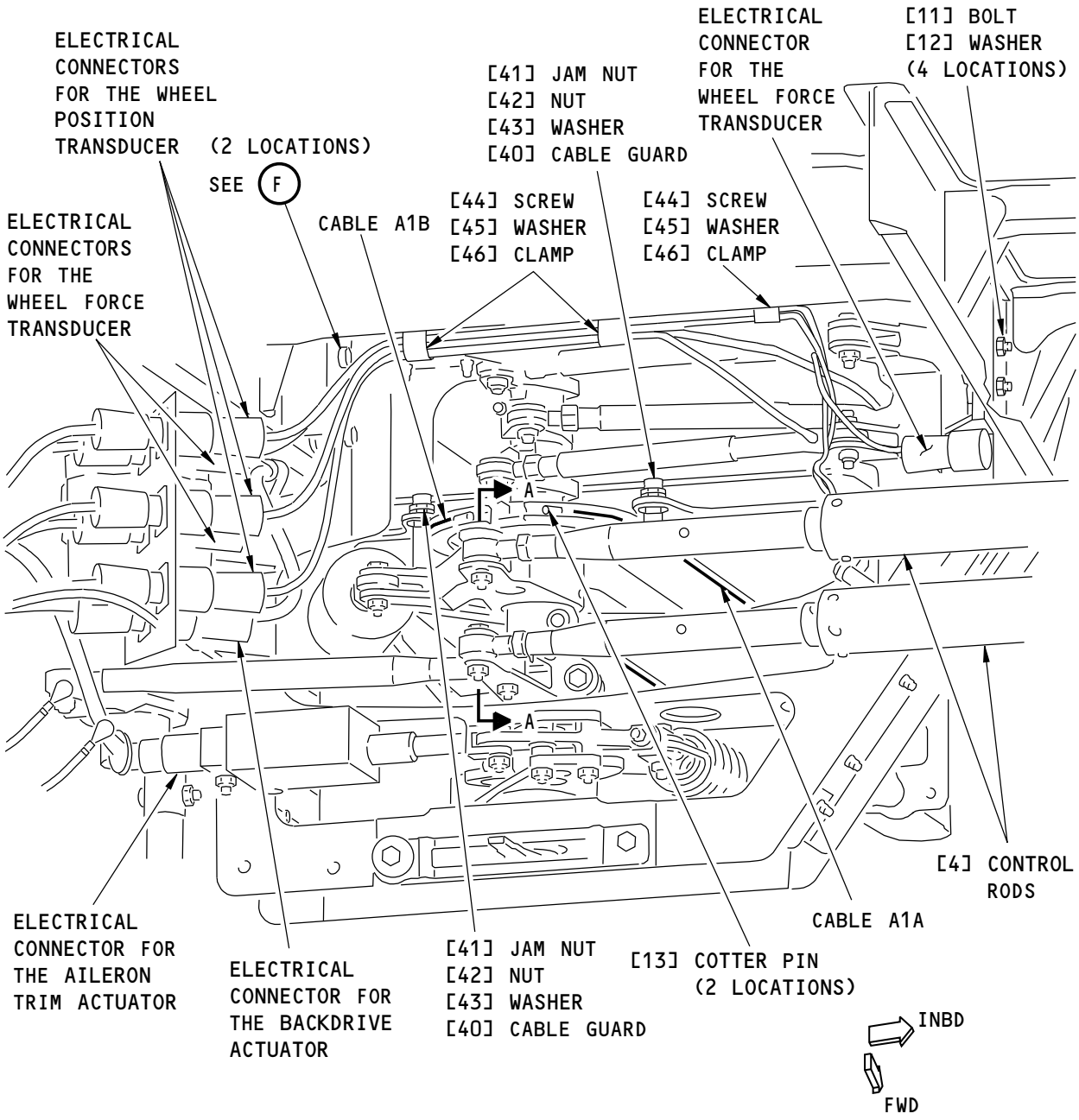
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Lateral Control Mechanism Installation
Figure 401/27-11-05-990-801 (Sheet 2 of 4)

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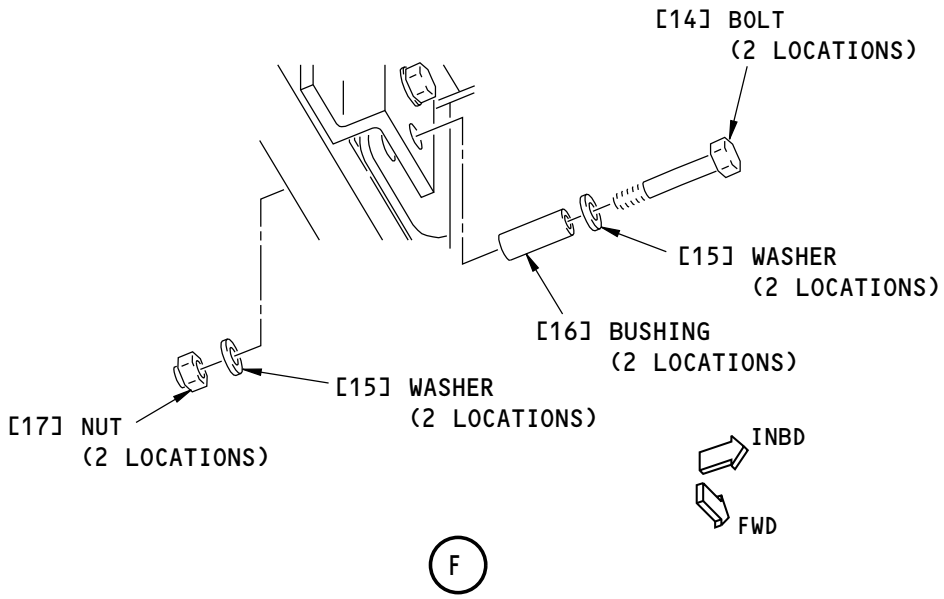
LEFT LATERAL CONTROL MECHANISM

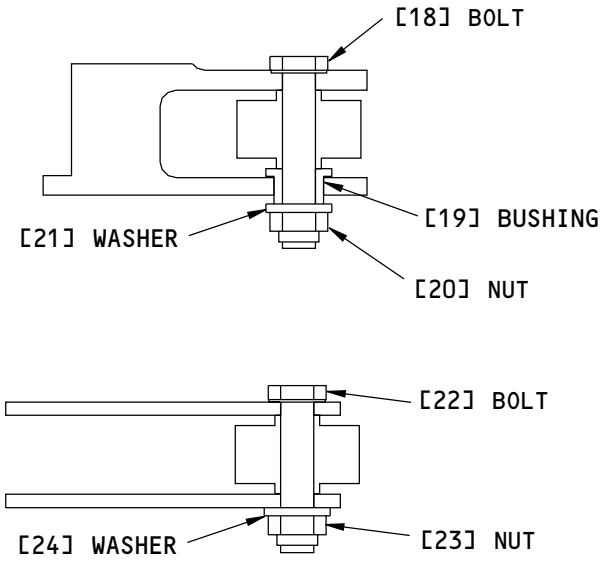
E

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Lateral Control Mechanism Installation
Figure 401/27-11-05-990-801 (Sheet 3 of 4)

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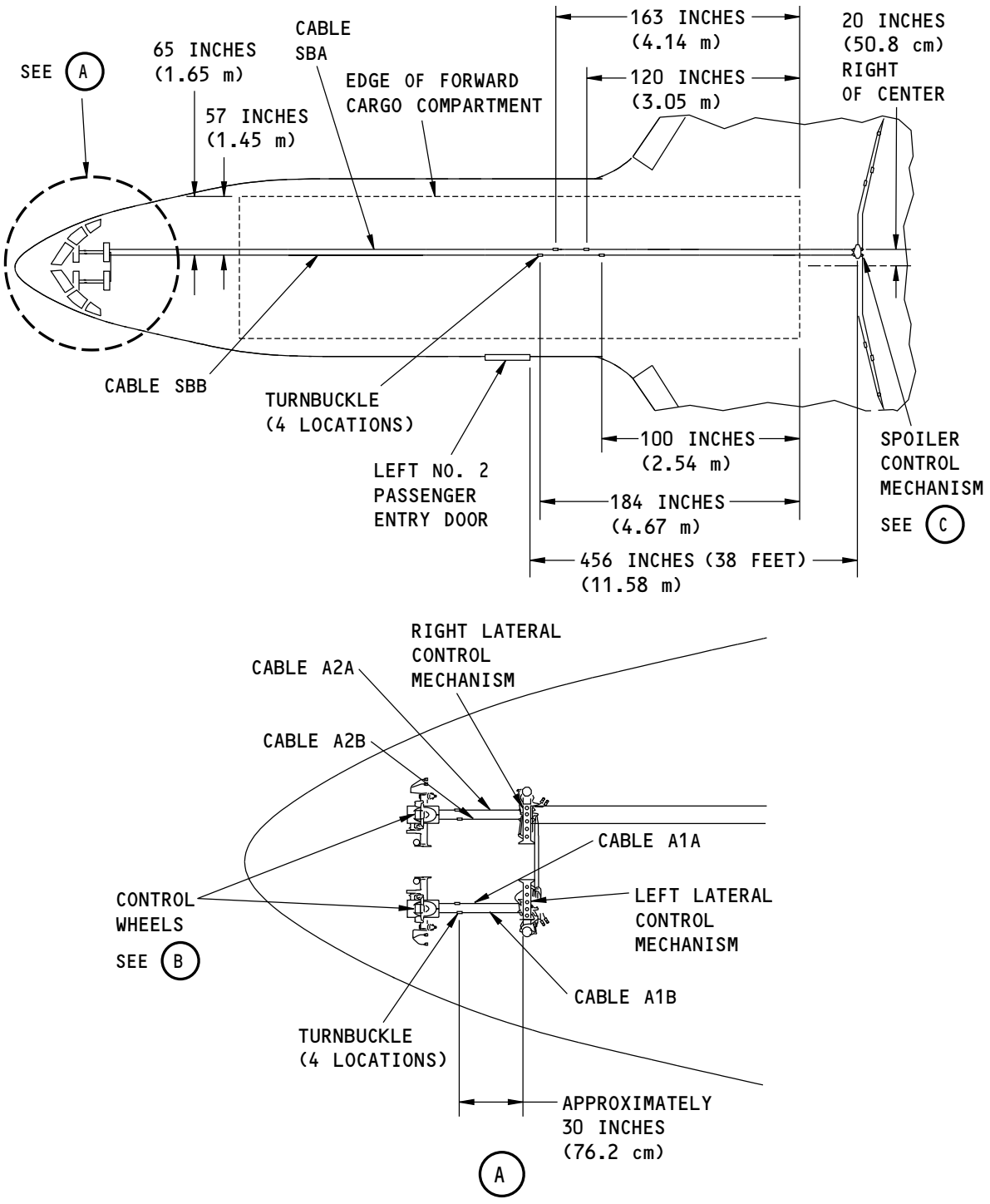


A–A

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Lateral Control Mechanism Installation
Figure 401/27-11-05-990-801 (Sheet 4 of 4)

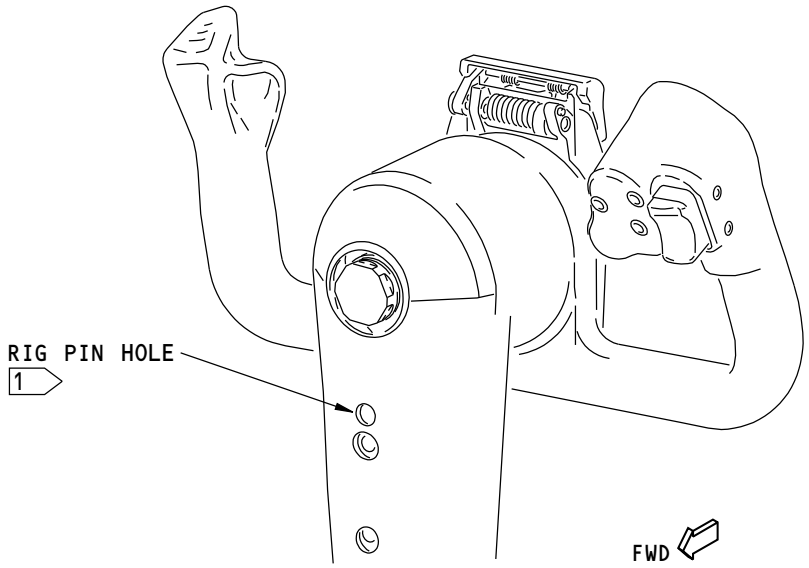
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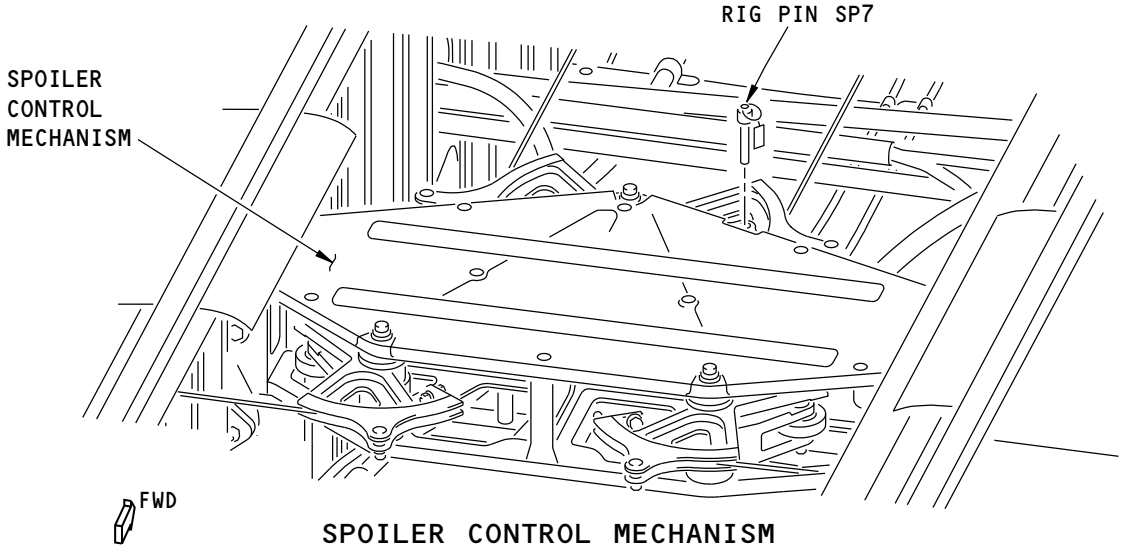
Lateral Control Mechanism Cables
Figure 402/27-11-05-990-802 (Sheet 1 of 2)

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CONTROL WHEELS

B



SPOILER CONTROL MECHANISM
(FLOOR PANEL REMOVED)

C

1 RIG PIN SP1 ON THE CAPTAIN'S CONTROL COLUMN.
RIG PIN SP2 ON THE FIRST OFFICER'S CONTROL COLUMN

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Lateral Control Mechanism Cables
Figure 402/27-11-05-990-802 (Sheet 2 of 2)

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TASK 27-11-05-400-801

3. Lateral Control Mechanism Installation

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
25-52-09-400-801	Ceiling Liner - Installation (P/B 401)
27-11-00-700-802	Control Wheel and Cable Adjustment (Rigging) (P/B 501)
27-11-00-820-801	Wheel Position Transducer (LVDT) Adjustment (P/B 501)
27-61-00-820-801	Control Cable Adjustment (Rigging) for Spoilers 4 and 11 (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
53-01-01-400-801	Floor Panel Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Mechanism assembly	27-11-05-05-070	ARO ALL
2	Mechanism assembly	27-11-05-05-150	ARO ALL

E. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
122	Forward Cargo Compartment, Right
212	Flight Compartment, Right
242	Passenger Compartment, Right - Section 44

F. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

G. Left Lateral Control Mechanism Installation

SUBTASK 27-11-05-420-001

(1) Hold the mechanism assembly [1] in its position (Figure 401).

NOTE: The mechanism assembly [1] weighs approximately 30 pounds (13.6 kilograms).

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SUBTASK 27-11-05-420-010

(2) Install the bolts [11] and washers [12].

SUBTASK 27-11-05-420-011

(3) Install the bolts [14], washers [15], bushings [16], washers [15], and nuts [17].

SUBTASK 27-11-05-420-002

(4) Do these steps to connect the two control rods [4] to the mechanism assembly [1]:

(a) For the top control rod, install the bushing [19], bolt [18], washer [21], and nut [20].

(b) For the bottom control rod, install the bolt [22], washers [24] and nut [23].

SUBTASK 27-11-05-420-003

(5) Connect cables A1A and A1B to the lateral control mechanism:

(a) Put the cables A1A and A1B in their position and install the pins [13].

(b) Tighten the turnbuckles for the cables until the cables are not loose (Figure 402).

NOTE: You will complete the adjustment of the cables subsequently.

(c) Install the cable guards [40], washers [43], and nuts [42] on the mechanism assembly [1].

(d) Install the jam nuts [41] on the cable guards [40].

(e) Remove the control cable clamp, SPL-1569, from the cables.

(f) Remove the labels that you put on the cables.

SUBTASK 27-11-05-420-014

(6) Connect these eight electrical connectors (View E) (Figure 401):

(a) The electrical connector for the backdrive actuator.

(b) The electrical connector for the aileron trim actuator.

(c) The three electrical connectors for the wheel force transducer.

NOTE: It is not important which location (of the two outboard force transducer connectors) each of the electrical connectors is connected to.

(d) The three electrical connectors for the wheel position transducers.

NOTE: It is not important which location (of the three position transducer connectors) each of these three electrical connectors is connected to.

SUBTASK 27-11-05-420-015

(7) Install the clamps [46] on the wires with the screws [44].

H. Right Lateral Control Mechanism Installation

SUBTASK 27-11-05-420-005

(1) Hold the mechanism assembly [2] in its position (Figure 401).

NOTE: The mechanism assembly [2] weighs approximately 25 pounds (11.3 kilograms).

SUBTASK 27-11-05-420-012

(2) Install the bolts [5] and washers [6].

SUBTASK 27-11-05-420-013

(3) Install the bolts [14], washers [15], bushings [16], washers [15] and nuts [17].

SUBTASK 27-11-05-420-006

(4) Do these steps to connect the two control rods [4] to the mechanism assembly [2]:

(a) For the top control rod, install the bolt [18], bushing [19], washer [21] and nut [20].

(b) For the bottom control rod, install the bolt [22], washer [24], and nut [23].

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SUBTASK 27-11-05-420-007

(5) Connect cables A2A and A2B to the mechanism assembly [2]:

(a) Put the cables A2A and A2B in their positions and install the pins [3].

(b) Tighten the turnbuckles for the cables until the cables are not loose (Figure 402).

NOTE: You will complete the adjustment of the cables subsequently.

(c) Install the spacers [25], screws [26], washers [27] and nuts [28] on the mechanism assembly [2] (View C) (Figure 401).

(d) Remove the control cable clamp, SPL-1569, from the cables.

(e) Remove the labels that you put on the cables.

SUBTASK 27-11-05-420-008

(6) Connect cables SBA and SBB to the mechanism assembly [2]:

(a) Put the cables SBA and SBB in their positions and install the plates [8], bolts [7], washers [9] (under the nut), and nuts [10].

(b) Tighten the nuts [10] to 25-35 pound-inches (2.83-3.96 newton-meters).

(c) Tighten the turnbuckles for the cables until the cables are not loose (Figure 402).

NOTE: You will complete the adjustment of the cables subsequently.

(d) Install the spacers [29], bolts [30], washers [31] and nuts [32] on the mechanism assembly [2] (View C) (Figure 401).

(e) Remove the control cable clamp, SPL-1569, from the cables.

(f) Remove the labels that you put on the cables.

SUBTASK 27-11-05-420-009

(7) Connect these four electrical connectors (View C) (Figure 401):

(a) The electrical connector for the backdrive actuator.

(b) The three electrical connectors for the wheel position transducers.

NOTE: It is not important which location (of the three position transducer connectors) each of these three electrical connectors is connected to.

SUBTASK 27-11-05-420-017

(8) Install the clamp [46] on the wire with the screw [44].

SUBTASK 27-11-05-420-018

(9) Install the clamp [46] on the wire with the screw [44] and washer [45].

SUBTASK 27-11-05-080-001

(10) Remove the rig pin SP7 from rigging pin set, SPL-2532, from the spoiler control mechanism (Figure 402).

I. Lateral Control Mechanism Adjustment and Test

SUBTASK 27-11-05-860-002

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	28	C27608	ACE-L2 PWR

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Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-11-05-080-002

(2) Remove the rigging pins SP1 and SP2 from the rigging pin set, SPL-2532, from the control columns.

SUBTASK 27-11-05-820-001

(3) Adjust these parts:

(a) To adjust the control wheel cables (cables A1A & A1B, or A2A & A2B), do this task: Control Wheel and Cable Adjustment (Rigging), TASK 27-11-00-700-802.

(b) To adjust the wheel position transducers, do this task: Wheel Position Transducer (LVDT) Adjustment, TASK 27-11-00-820-801.

(c) For the mechanical spoiler cables (SBA & SBB), do this task: Control Cable Adjustment (Rigging) for Spoilers 4 and 11, TASK 27-61-00-820-801.

NOTE: It is only necessary to adjust these cables if you replaced the right spoiler control mechanism.

SUBTASK 27-11-05-210-001

(4) Turn the applicable control wheel fully left and fully right. Make sure the electrical wires, at the lateral control mechanism, do not rub other parts.

SUBTASK 27-11-05-860-003

(5) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-05-740-001

(6) Use a maintenance access terminal (MAT) to do the LRU replacement test of the left (or right) control wheel backdrive actuator, (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

4) 22 Autopilot Flight Director System

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5) LRU REPLACEMENT TEST

6) Control Wheel Backdrive Actuator (left) or Control Wheel Backdrive Actuator (Right)

NOTE: Do the test for the left backdrive actuator if you replaced the left lateral control mechanism. Do the test for the right backdrive actuator if you replaced the right lateral control mechanism.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

SUBTASK 27-11-05-740-002

(7) Use a maintenance access terminal (MAT) to do the system test of the wheel force transducer and the wheel position transducer, (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

4) 27 Primary Flight Control System

5) SYSTEM TEST

6) Wheel Force Transducer, Wheel Position

NOTE: Do these tests independently.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-05-410-001

(1) If it is not installed, install the ceiling lining, in the forward cargo compartment, below the turnbuckles for cables SBA and SBB:

(a) To install the lining, do this task: Ceiling Liner - Installation, TASK 25-52-09-400-801.

SUBTASK 27-11-05-410-002

(2) If it is not installed, install the floor panel above the spoiler control mechanism:

(a) To install the floor panel, do this task: Floor Panel Installation, TASK 53-01-01-400-801.

SUBTASK 27-11-05-410-003

(3) Close access to the main equipment center, by:

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Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

END OF TASK

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FORCE LIMITER - REMOVAL/INSTALLATION

1. General

A. The force limiter is the two rods that connect the left and right lateral control mechanisms. The two rods are identical and each is referred to as a limiter assembly [8] in this procedure.

B. This procedure has these tasks:

(1) A removal of the limiter assembly [8].

(2) An installation of the limiter assembly [8].

TASK 27-11-07-000-801

2. Force Limiter Removal

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2535	Pin - Rig (J20003-15 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

B. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-11-07-860-001

(1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR

SUBTASK 27-11-07-480-001

(2) Install the rig pins SP3 and SP4 (rig pin (J20003-15 assembly), SPL-2535) in the left and right lateral control mechanisms (Figure 402).

SUBTASK 27-11-07-860-002

(3) Attach a DO-NOT-OPERATE tag on the control wheel.

D. Force Limiter Removal

SUBTASK 27-11-07-020-001

(1) Do these steps to remove the limiter assembly [8] from left and right lateral control mechanisms (Figure 401):

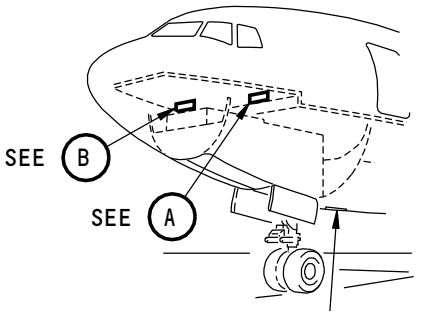
(a) For the bottom limiter assembly [8], remove the nuts [3], washers [2], and bolts [1] at each end the limiter assembly [8].

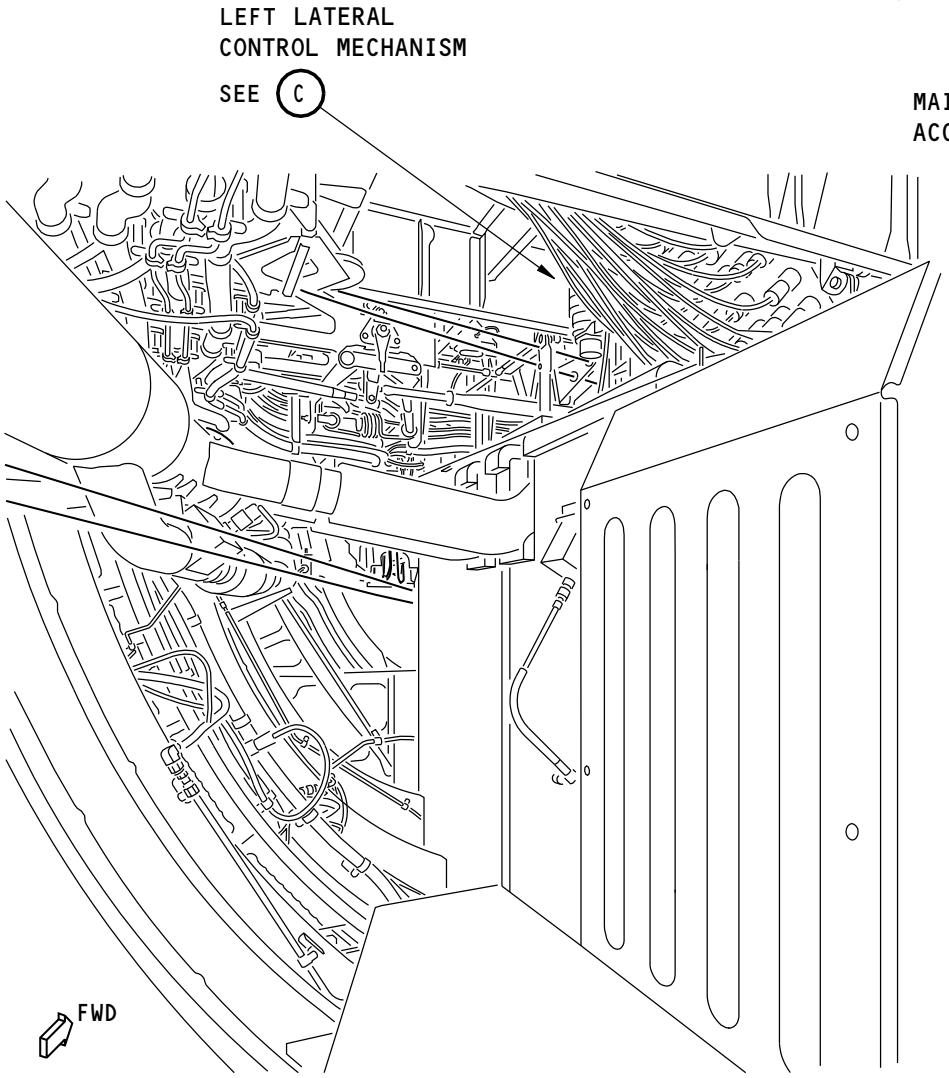
(b) For the top limiter assembly [8], remove the nuts [7], washers [6], bolts [4], and bushings [5] at each end the limiter assembly [8].

(c) Remove the limiter assembly [8].

END OF TASK

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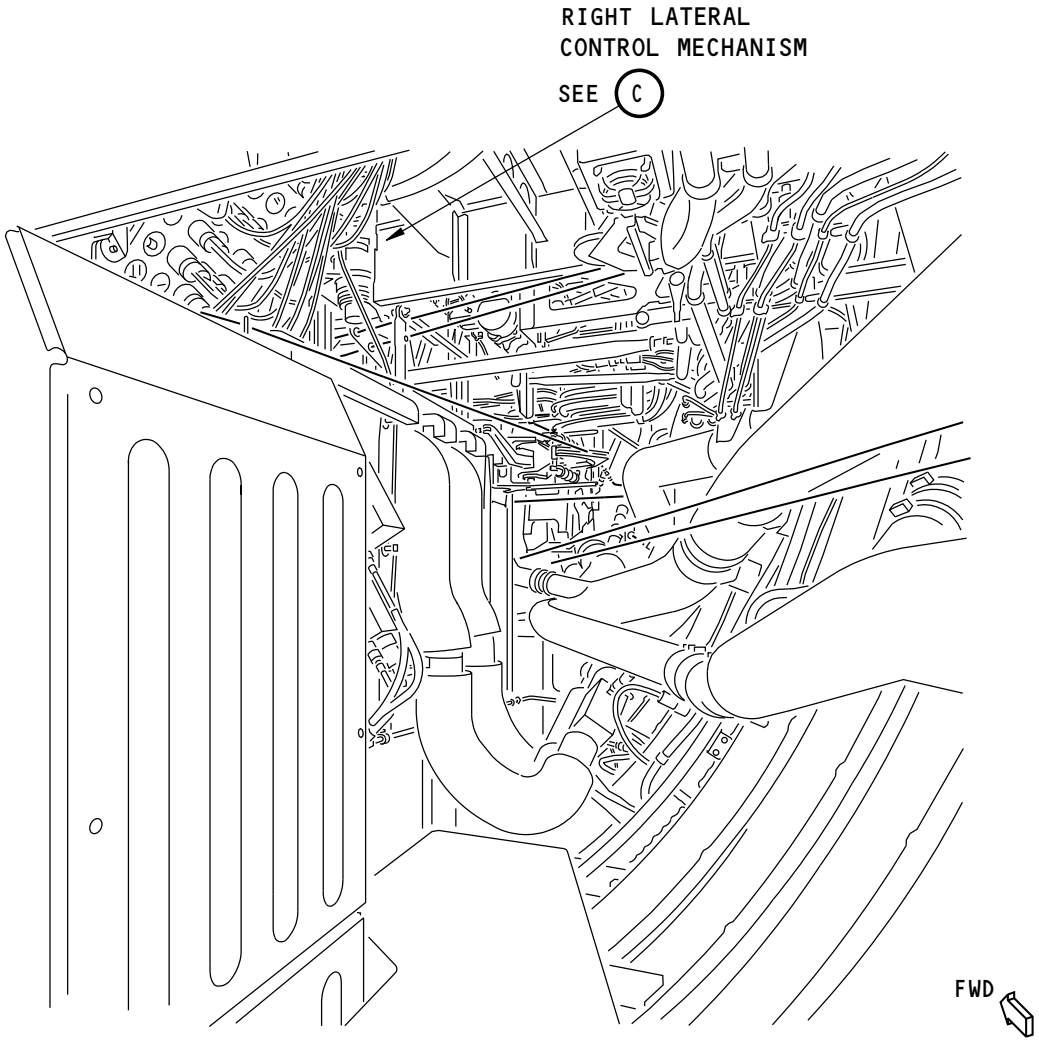
AREA OUTBOARD OF THE NOSE LANDING GEAR WHEEL WELL
(LEFT SIDE)

A

E26848 S0006412794_V1

Force Limiter Assembly Installation
Figure 401/27-11-07-990-801 (Sheet 1 of 3)

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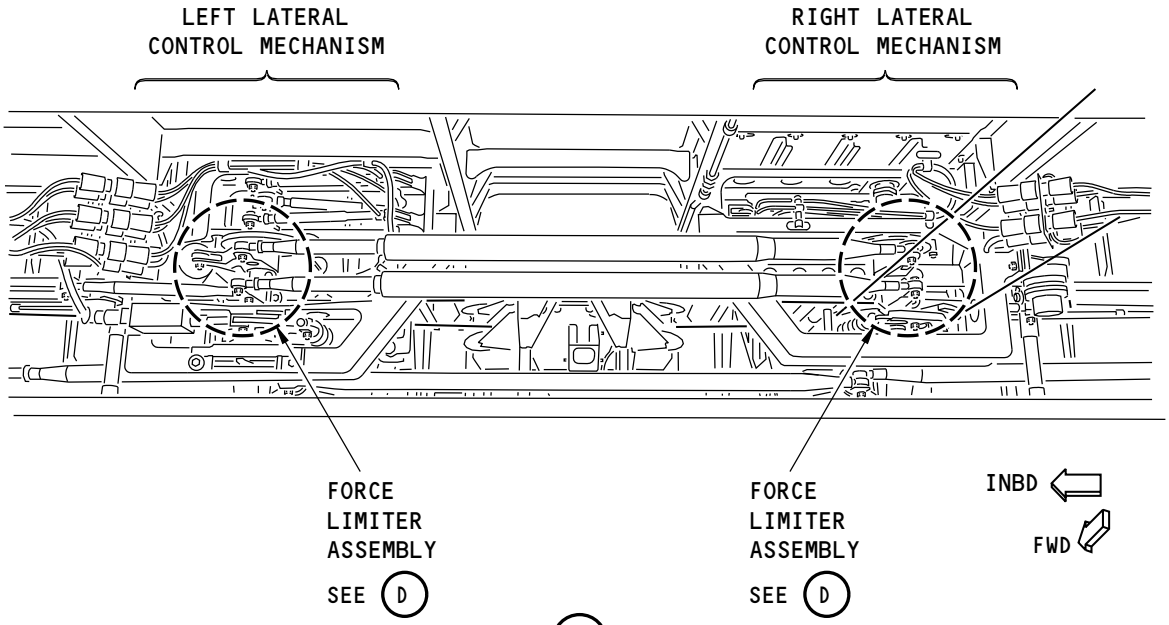
AREA OUTBOARD OF THE NOSE LANDING GEAR WHEEL WELL
(RIGHT SIDE)

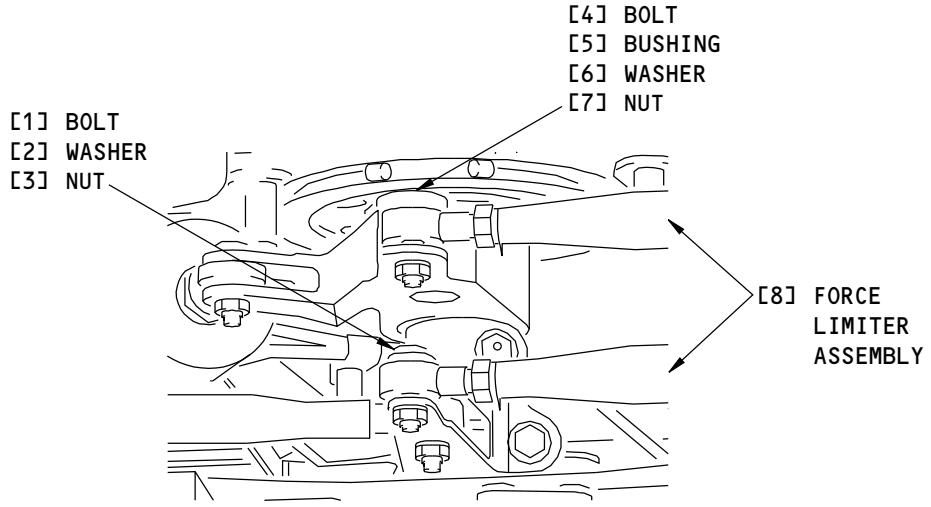
B

E26851 S0006412795_V1

Force Limiter Assembly Installation
Figure 401/27-11-07-990-801 (Sheet 2 of 3)

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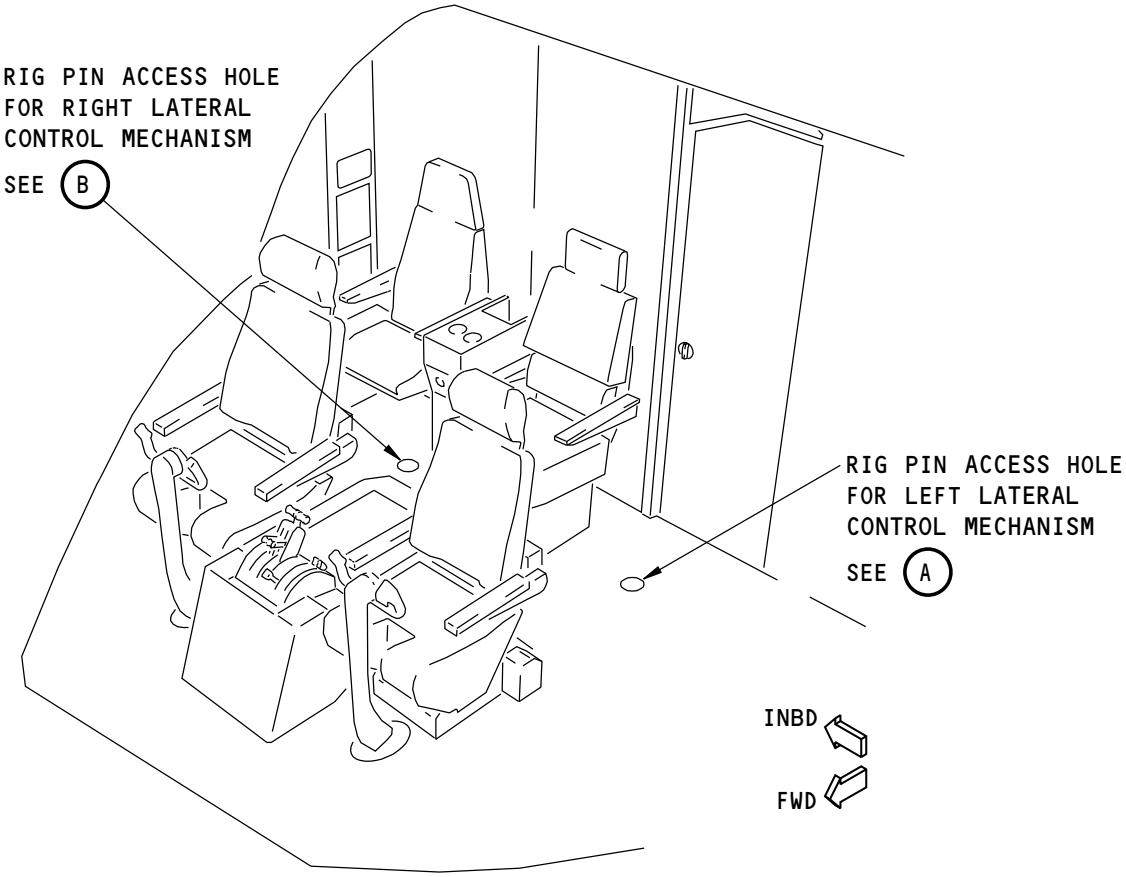
FORCE LIMITER ASSEMBLY
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

D

E26861 S0006412796_V1

Force Limiter Assembly Installation
Figure 401/27-11-07-990-801 (Sheet 3 of 3)

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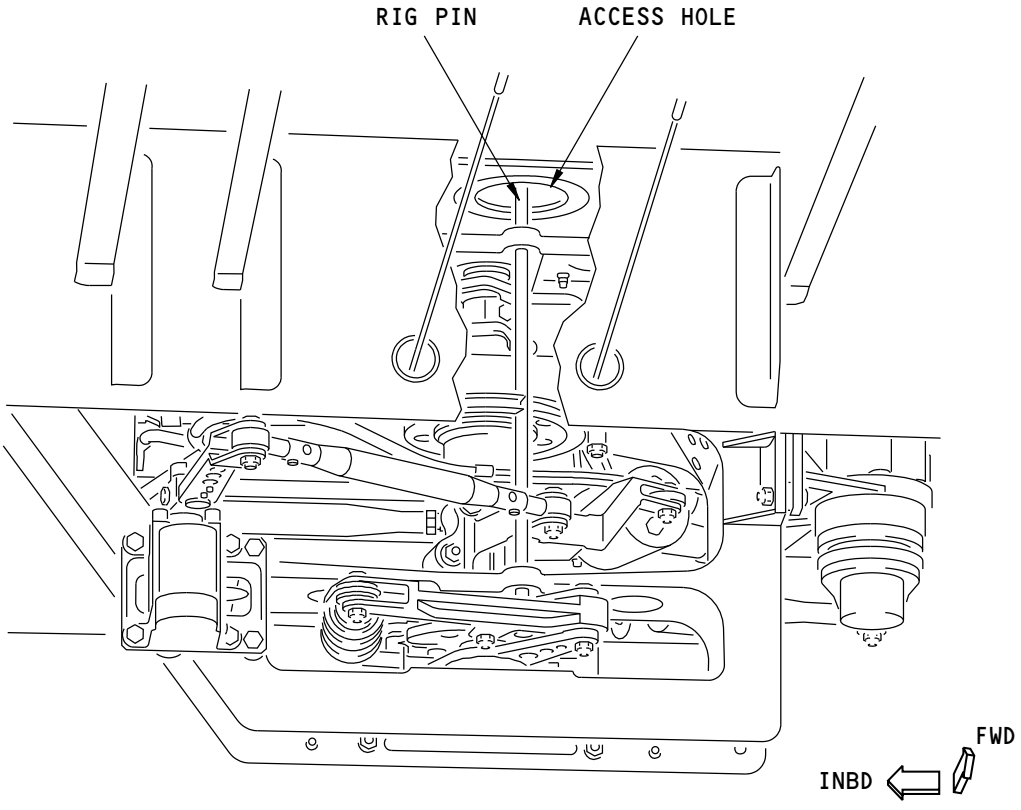


FLIGHT COMPARTMENT

E26862 S0006412797_V1

Rig Pin Installation
Figure 402/27-11-07-990-802 (Sheet 1 of 3)

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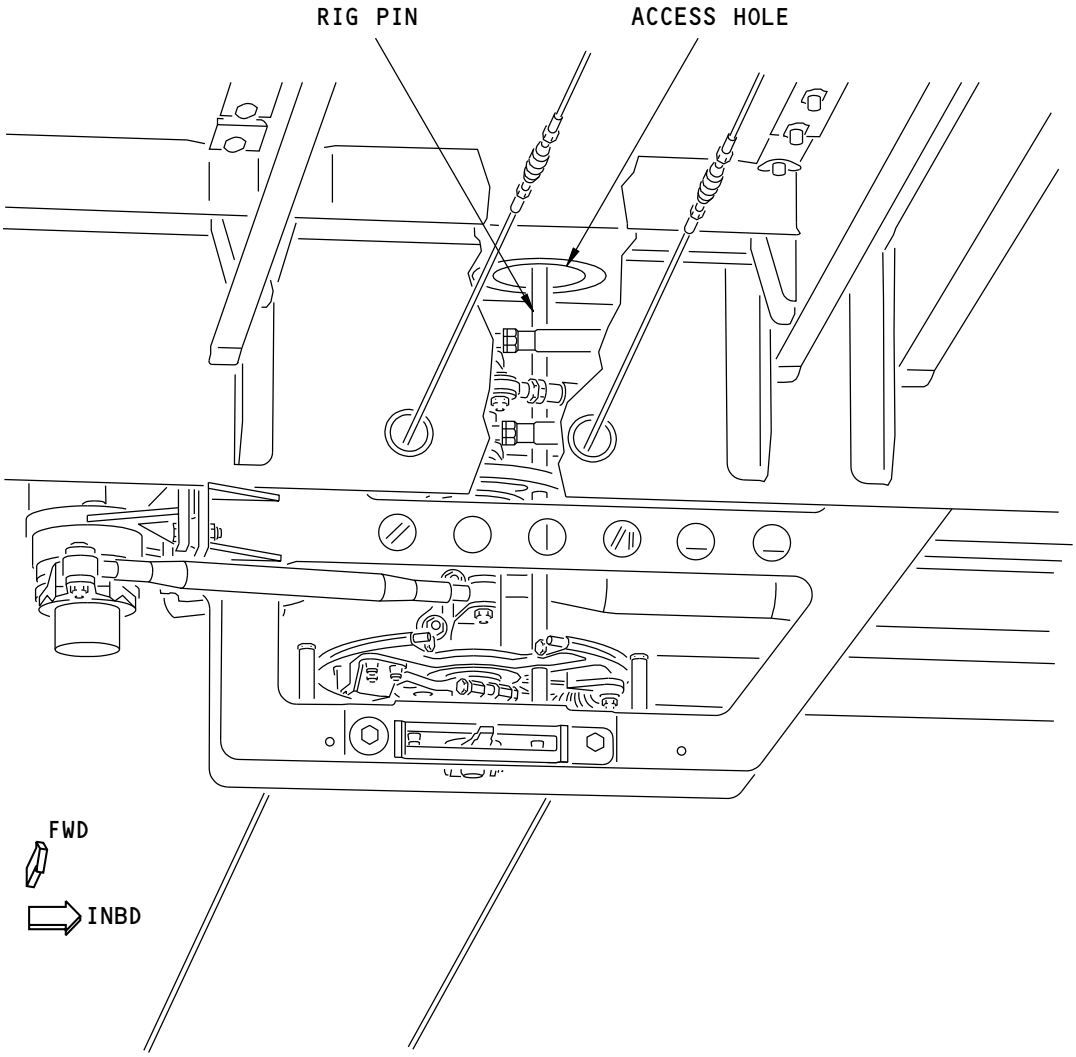
LEFT LATERAL CONTROL MECHANISM

A

E30219 S0006412798_V1

Rig Pin Installation
Figure 402/27-11-07-990-802 (Sheet 2 of 3)

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RIGHT LATERAL CONTROL MECHANISM

B

E30220 S0006412799_V1

Rig Pin Installation
Figure 402/27-11-07-990-802 (Sheet 3 of 3)

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TASK 27-11-07-400-801

3. Force Limiter Installation

A. References

Reference	Title
27-11-00-700-807	Force Limiter Operational Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2535	Pin - Rig (J20003-15 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Limiter assembly	27-11-07-01-005	ARO ALL

E. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

F. Force Limiter Installation

SUBTASK 27-11-07-420-001

(1) Do these steps to install the limiter assembly [8] (Figure 401):

(a) Put the limiter assembly [8] in its position.

NOTE: Install the limiter assembly [8] with the adjustable end on the left side.

(b) Do these steps to connect the right end of the limiter assembly [8] to the lateral control mechanism:

1) For the top limiter assembly [8], install the bushing [5], bolt [4], washer [6], and nut [7].

2) For the bottom limiter assembly [8], install the bolt [1], washer [2], and nut [3].

(c) Adjust the length of the limiter assembly [8] until the bolt at the left end goes in freely.

1) Tighten the locknut on the limiter assemblies [8] to 75-100 pound-inches (8.47-11.3 newton-meters).

a) Install MS20995C32 lockwire, G01048 on the locknut.

2) For the top limiter assembly [8], install the bushing [5], bolt [4], washer [6], and nut [7] (at the left end of the limiter assembly [8]).

3) For the bottom limiter assembly [8], install the bolt [1], washer [2], and nut [3] (at the left end of the limiter assembly [8]).

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SUBTASK 27-11-07-080-001

(2) Remove the rig pin (J20003-15 assembly), SPL-2535, from the left and right lateral control mechanisms (Figure 402).

SUBTASK 27-11-07-860-003

(3) Remove the DO-NOT-OPERATE tag from the control wheel.

G. Wheel Breakout Mechanism Installation Test

SUBTASK 27-11-07-860-004

(1) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR

SUBTASK 27-11-07-710-001

(2) Do this task: Force Limiter Operational Test, TASK 27-11-00-700-807.

——— END OF TASK ———

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WHEEL FORCE TRANSDUCER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the wheel force transducer

(2) An installation of the wheel force transducer.

TASK 27-11-08-000-801

2. Wheel Force Transducer - Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-11-00-210-801	Lateral Control Mechanism Wire Bundle Inspection (P/B 601)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-3992	Pin - Rig (J20003-16 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
17	FDR transducer assembly	27-11-08-01-166	ARO ALL

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Prepare for the Removal

SUBTASK 27-11-08-860-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

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G. Wheel Force Transducer Removal

SUBTASK 27-11-08-010-001

(1) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-08-480-001

(2) Insert the rig pin SP3 through the rig pin hole.

NOTE: This rig pin is from rig pin (J20003-16 assembly), SPL-3992.

SUBTASK 27-11-08-030-001

(3) Disconnect the electrical connector [7] for the FDR transducer assembly [17].

SUBTASK 27-11-08-020-001

(4) Disconnect the electrical connectors [7] for the transducer assembly [6].

SUBTASK 27-11-08-020-002

(5) Remove the nut [4], washer [3], bolt [2], and bushing [5] from one end of the transducer assembly [6].

SUBTASK 27-11-08-030-002

(6) Remove the bolt [18], bushing [19], washer [20], and nut [21] from the other end of the transducer assembly [6].

SUBTASK 27-11-08-030-003

(7) Remove the bolt [22], bushing [23], washer [24], and nut [25] from one end of the FDR transducer assembly [17].

SUBTASK 27-11-08-030-004

(8) Remove the bolt [26], washer [24], and nut [25] from the other end of the FDR transducer assembly [17].

SUBTASK 27-11-08-020-010

(9) Remove the screws [35] and clamps [37] from the wires.

SUBTASK 27-11-08-020-007

(10) Remove the clamps [31].

(a) Remove the screws [32] and washers [33].

(b) Remove the nut [34].

SUBTASK 27-11-08-020-008

(11) Remove the wire guide [27].

(a) Remove the screws [28], washers [29], and nuts [30].

SUBTASK 27-11-08-020-009

(12) Remove the clamps [31].

(a) Remove the screws [15] and the washers [14].

SUBTASK 27-11-08-020-005

(13) Remove the transducer assembly [6].

SUBTASK 27-11-08-020-006

(14) Remove the FDR transducer assembly [17].

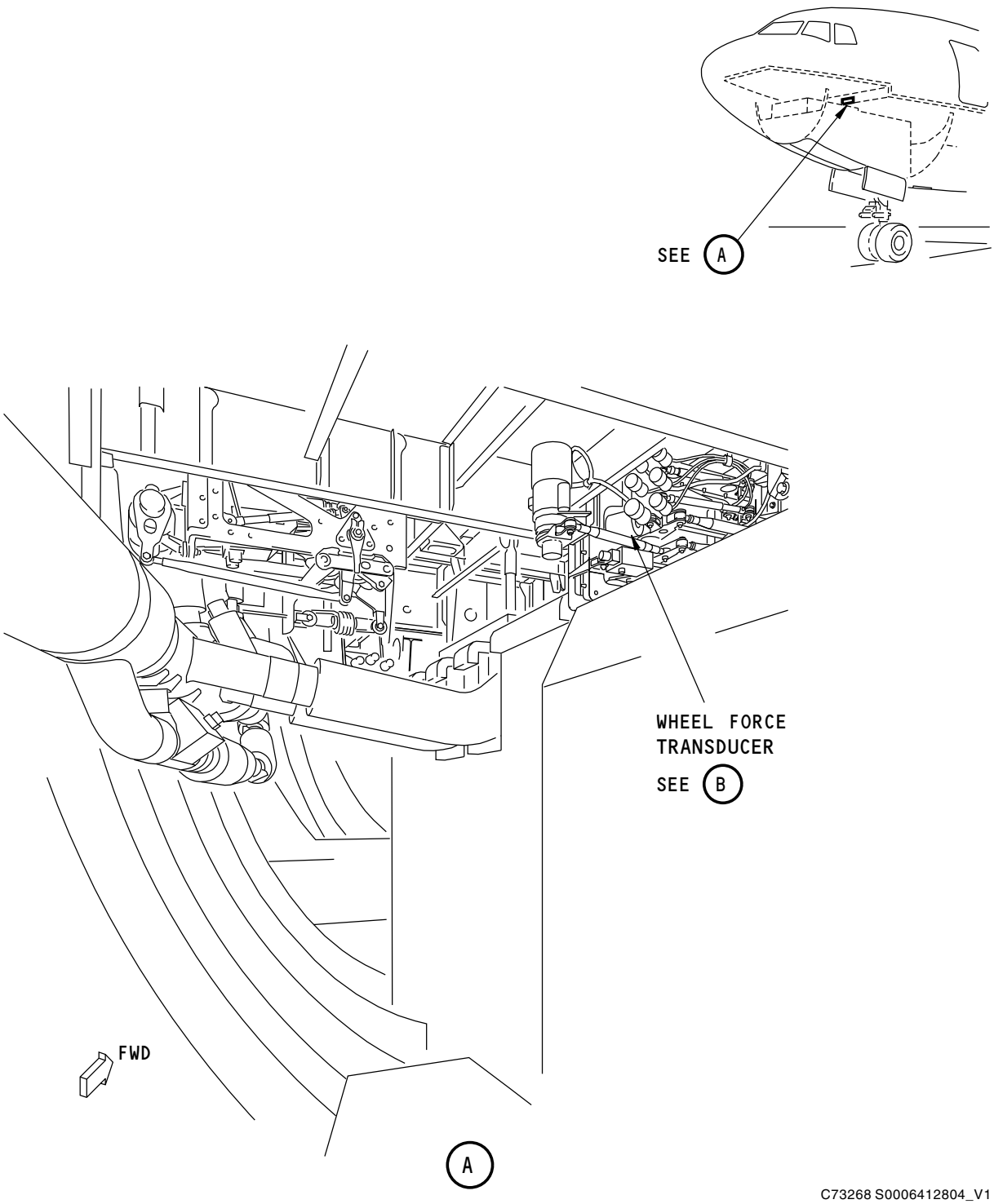
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SUBTASK 27-11-08-210-001

(15) Inspect the transducer wire bundles Lateral Control Mechanism Wire Bundle Inspection, TASK 27-11-00-210-801

——— END OF TASK ———

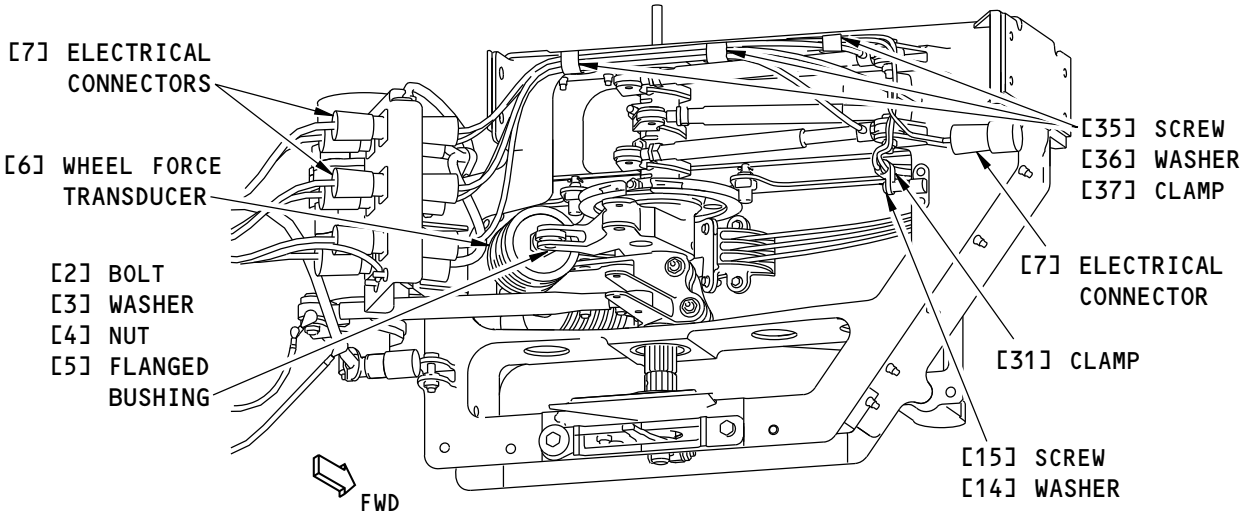
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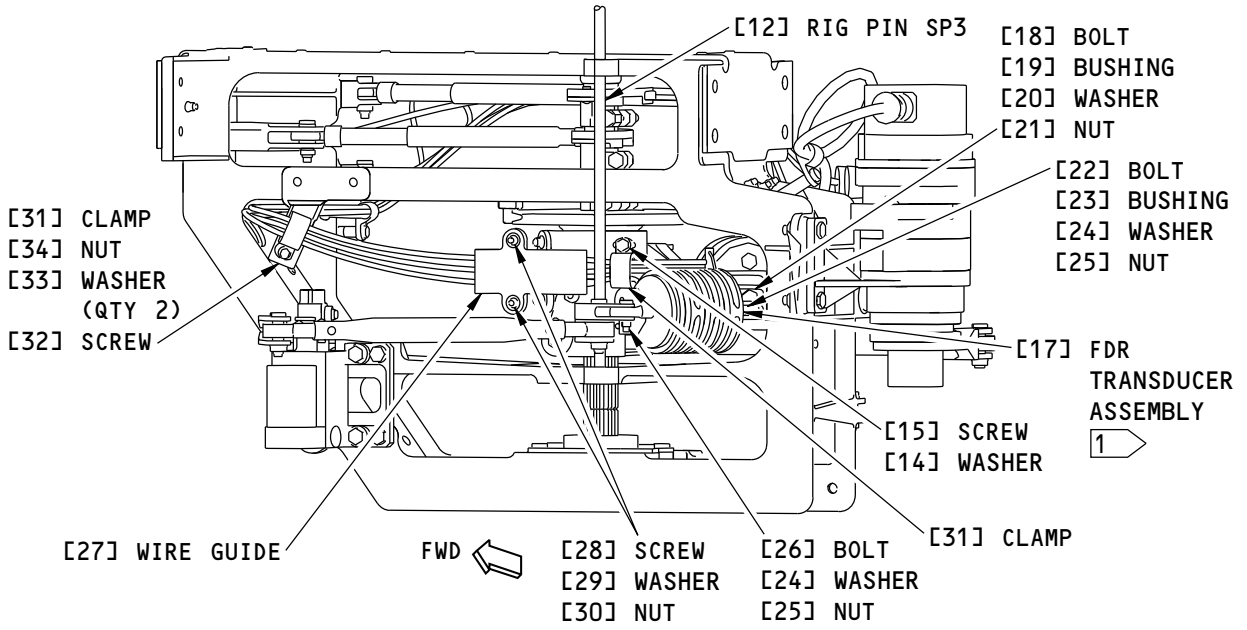
Wheel Force Transducer Installation
Figure 401/27-11-08-990-801 (Sheet 1 of 2)

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WHEEL FORCE TRANSDUCER

B



WHEEL FORCE TRANSDUCER

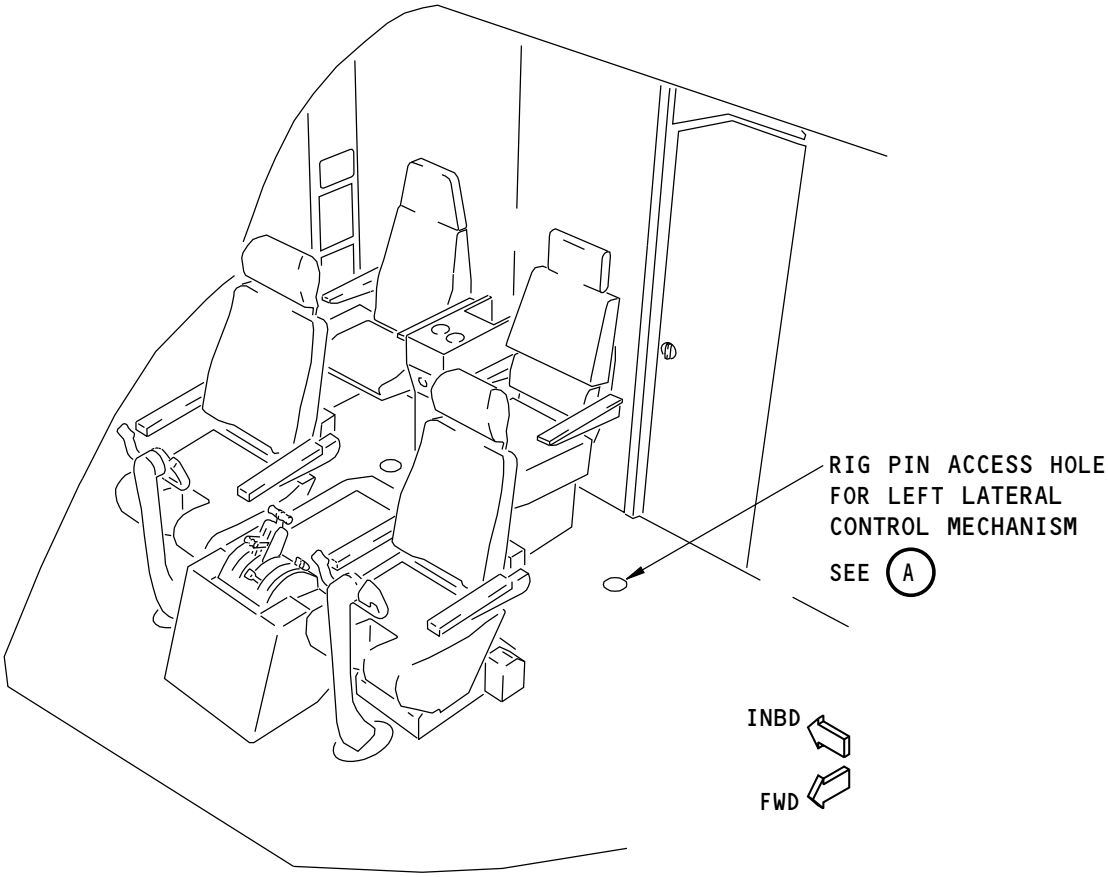
B

1 THE CLIP FOR THE ELECTRICAL WIRES IS ON THE RIGHT SIDE OF THE FDR TRANSDUCER ASSEMBLY

1370493 S0000248369_V2

Wheel Force Transducer Installation
Figure 401/27-11-08-990-801 (Sheet 2 of 2)

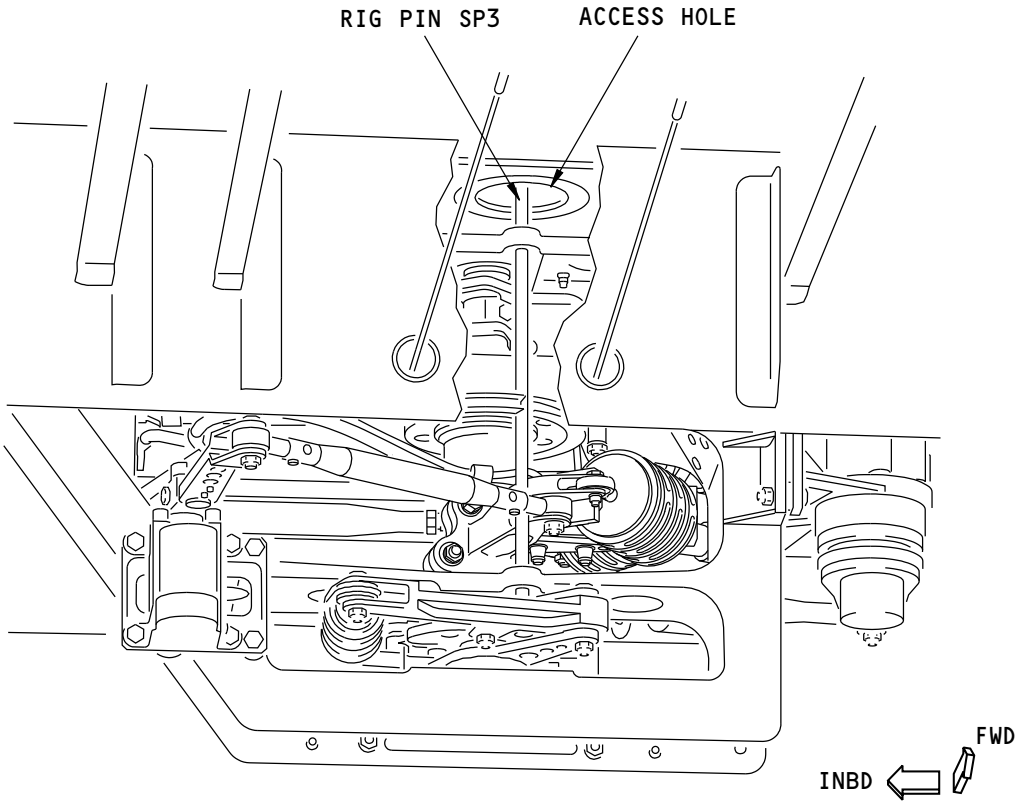
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E86823 S0006412806_V1

Rig Pin Installation
Figure 402/27-11-08-990-802 (Sheet 1 of 2)

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LEFT LATERAL CONTROL MECHANISM

A

400085 S0000135491_V1

Rig Pin Installation
Figure 402/27-11-08-990-802 (Sheet 2 of 2)

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TASK 27-11-08-400-801

3. Wheel Force Transducer - Installation

(Figure 401, Figure 402)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-00-700-808	Control Wheel Flight Data Recorder (FDR) Force Transducer Test (P/B 501)
27-11-00-710-802	Control Wheel Force Transducer Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Transducer assembly	27-11-08-01-148	ARO ALL

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Wheel Force Transducer Installation

SUBTASK 27-11-08-420-001

(1) Put the transducer assembly [6] in its position.

SUBTASK 27-11-08-420-006

(2) Install the bolt [18], bushing [19], washer [20], and nut [21] at one end of the transducer assembly [6].

SUBTASK 27-11-08-420-003

(3) Install the bushing [5], bolt [2], washer [3], and nut [4] at the other end of the transducer assembly [6].

NOTE: Lockwire should be installed on a rod end of the transducer assembly after connection.

SUBTASK 27-11-08-420-004

(4) Connect the electrical connectors [7] for the transducer assembly [6].

NOTE: The order in which each LVDT connects to the connector bracket determines the interface of the LVDT with the ACE.

SUBTASK 27-11-08-430-001

(5) Put the FDR transducer assembly [17] in its position.

SUBTASK 27-11-08-430-002

(6) Install the bolt [22], bushing [23], washer [24], and nut [25] at one end of the FDR transducer assembly [17].

SUBTASK 27-11-08-430-003

(7) Install the bolt [26], washer [24], and nut [25] at the other end of the FDR transducer assembly [17].

NOTE: Lockwire should be installed on a rod end of the transducer assembly after connection.

SUBTASK 27-11-08-430-004

(8) Connect the electrical connector to the FDR transducer assembly [17].

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SUBTASK 27-11-08-420-008

(9) Install the clamps [31].

(a) Install the washers [33], screws [32], and the nut [34].

SUBTASK 27-11-08-420-009

(10) Install the wire guide [27].

(a) Install the washers [29], screws [28], and nuts [30].

SUBTASK 27-11-08-420-010

(11) Install the clamps [37] on the wires with screws [35].

SUBTASK 27-11-08-080-001

(12) Remove the rig pin SP3.

SUBTASK 27-11-08-410-001

(13) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-08-860-002

(14) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE C PWR

F. Wheel Force Transducer Installation Test

SUBTASK 27-11-08-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-08-710-001

(2) Do this task: Control Wheel Force Transducer Test, TASK 27-11-00-710-802.

SUBTASK 27-11-08-710-002

(3) Do this task: Control Wheel Flight Data Recorder (FDR) Force Transducer Test, TASK 27-11-00-700-808

——— END OF TASK ———

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AILERON TRIM ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron trim actuator

(2) An installation of the aileron trim actuator.

B. In this procedure the aileron trim actuator is referred to as the actuator [5].

TASK 27-11-09-000-801

2. Aileron Trim Actuator - Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

B. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

C. Prepare for the Removal

SUBTASK 27-11-09-860-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	28	C27608	ACE-L2 PWR

D. Aileron Trim Actuator Removal

SUBTASK 27-11-09-010-001

(1) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-09-020-001

(2) Disconnect the electrical connector [6] from the actuator [5].

SUBTASK 27-11-09-020-002

(3) Remove the nut [4], washer [3], and bolt [2] from the actuator [5].

SUBTASK 27-11-09-020-003

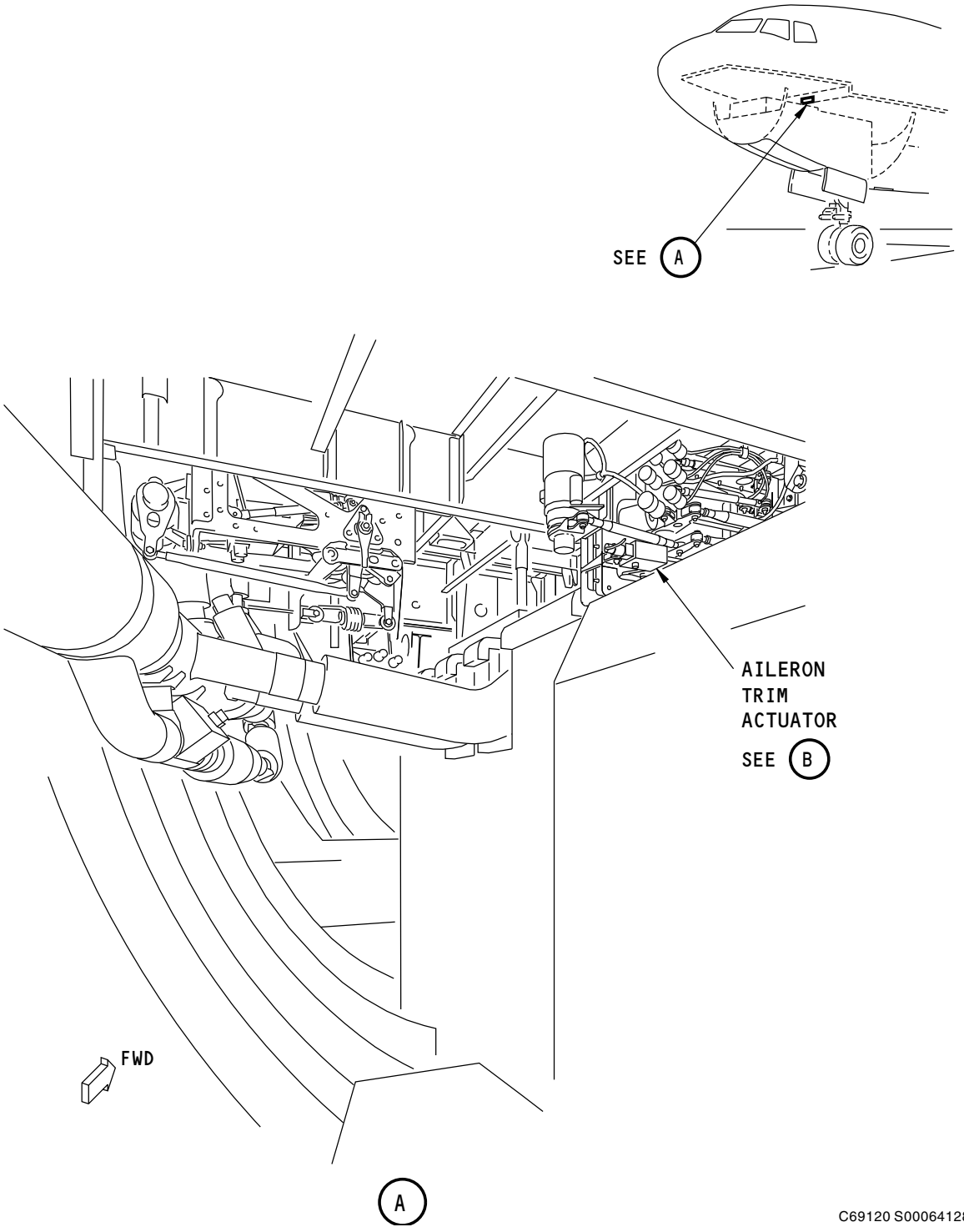
(4) Remove the nut [8], washer [7], bolt [1], and bushing [9] from the actuator [5] (View A-A) (Figure 401).

SUBTASK 27-11-09-020-004

(5) Remove the actuator [5].

END OF TASK

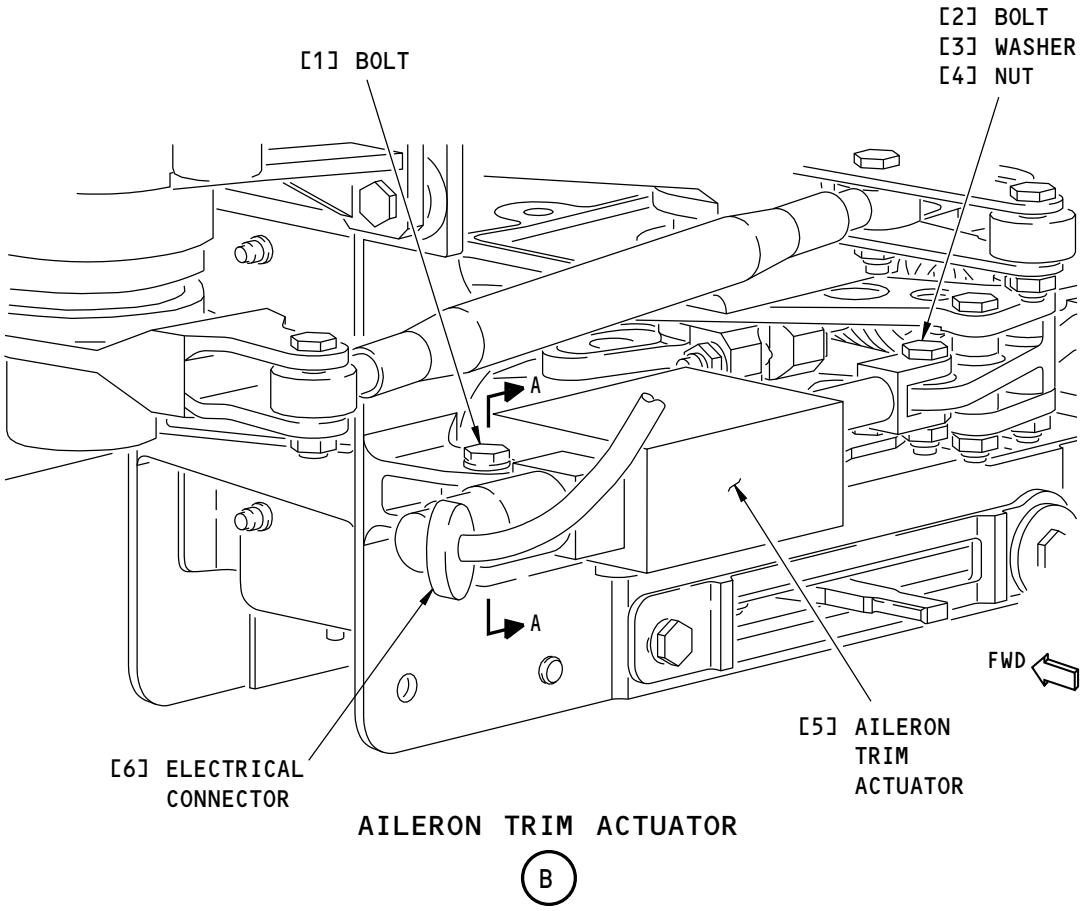
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Aileron Trim Actuator Installation
Figure 401/27-11-09-990-801 (Sheet 1 of 2)

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Aileron Trim Actuator Installation
Figure 401/27-11-09-990-801 (Sheet 2 of 2)

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TASK 27-11-09-400-801

3. Aileron Trim Actuator - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Actuator	27-11-09-01-030	ARO ALL

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Aileron Trim Actuator Installation

NOTE: Do not adjust the nut that adjusts the length of the actuator [5]. It was pre-adjusted to the correct length.

SUBTASK 27-11-09-420-001

(1) Put the actuator [5] in its location.

SUBTASK 27-11-09-420-002

(2) Install the bolt [2], washer [3], and nut [4].

SUBTASK 27-11-09-420-003

(3) Install the bushing [9], bolt [1], washer [7], and nut [8].

SUBTASK 27-11-09-420-004

(4) Connect the electrical connector [6] to the actuator [5].

SUBTASK 27-11-09-410-001

(5) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-11-09-860-002

(6) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	28	C27608	ACE-L2 PWR

F. Aileron Trim Actuator Installation Test

SUBTASK 27-11-09-710-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-09-710-002

(2) Move and hold the two aileron trim switches (on the P8 Aisle Stand Panel) to the right.

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SUBTASK 27-11-09-710-003

(3) Make sure the control wheels move.

SUBTASK 27-11-09-710-004

(4) Release the aileron trim switches.

——— END OF TASK ———

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AILERON POWER CONTROL UNITS (PCU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron power control unit (PCU)

(2) An installation of the aileron power control unit (PCU).

B. In this procedure the aileron power control units are referred to as the control assembly [6].

TASK 27-11-11-000-801

2. Aileron Power Control Unit (PCU) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1713	Lock - Power Control, Outboard Aileron Part #: J27033-1 Supplier: 81205

C. Location Zones

Zone	Area
568	Left Wing Aileron
668	Right Wing Aileron

D. Access Panels

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

E. Prepare for the Procedure

SUBTASK 27-11-11-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-11-010-001

(2) Open the access panels for the applicable control assembly [6]:

(a) For the left wing, by:

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Open these access panels:

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel

(b) For the right wing, by:

Open these access panels:

Number	Name/Location
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-11-11-860-002

(3) Use one of these two procedures to move the applicable aileron up:

CAUTION

DO NOT USE THIS PROCEDURE IF ONE OF THE AILERONS HAS LOCKS INSTALLED ON IT. ONLY USE THIS PROCEDURE IF THE TWO AILERONS ARE FREE TO MOVE. YOU CAN CAUSE DAMAGE TO THE PCUS IF HYDRAULIC POWER IS SUPPLIED WHEN THE LOCKS ARE INSTALLED ON THEM.

(a) Procedure 1; do these steps to move the aileron up with hydraulic power:

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) For the left or center (or the two) hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

2) If you will remove a control assembly [6] from the left wing, turn one of the control wheels fully counterclockwise. If you will remove a control assembly [6] from the right wing, turn one of the control wheels fully clockwise.

NOTE: Hold the control wheel in its position until you close the flight control hydraulic valves.

a) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

b) Release the control wheels.

c) Install the outboard aileron power control lock, SPL-1713, on the control assembly [6] that is not being removed from the airplane.

(b) Procedure 2; do these steps to manually move the aileron up:

1) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the SHUT OFF position.

2) Operate the manual bypass valves on the two control assembly [6].

a) Use a 5/32-inch allen wrench to rotate the manual bypass cam counter-clockwise to move the valve in the bypass position.

3) Push the trailing edge of the aileron up.

NOTE: The aileron will only move slowly because of the resistance in the PCUs.

4) When the aileron is fully up, release the manual bypass valves.

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a) Remove the 5/32-inch allen wrench.

5) Install the outboard aileron power control lock, SPL-1713, on the control assembly [6] that is not being removed from the airplane.

SUBTASK 27-11-11-860-008

(4) For the left wing:

Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A3 AIL PCU

SUBTASK 27-11-11-860-004

(5) For the right wing; Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A3 AIL PCU

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A3 AIL PCU

SUBTASK 27-11-11-840-001

(6) For the inboard control assembly [6] (on the left or right wing), remove hydraulic pressure from the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-11-11-840-002

(7) For the outboard control assembly [6] (on the left or right wing), remove hydraulic pressure from the left hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

F. Remove the Aileron PCU

NOTE: If replacing both aileron PCU's on either the left or right wing, remove and replace one PCU at a time, to prevent over rotation of the aileron.

SUBTASK 27-11-11-020-003

(1) Disconnect the hydraulic lines from the control assembly [6].

SUBTASK 27-11-11-480-001

(2) Install caps on the hydraulic lines and the control assembly [6].

SUBTASK 27-11-11-020-001

(3) Disconnect the electrical connectors [23] from the control assembly [6].

SUBTASK 27-11-11-030-001

(4) If you are removing the inboard PCU, remove the wire bundles [24] from the control assembly [6].

SUBTASK 27-11-11-020-002

(5) Do these steps to remove the control assembly [6]:

NOTE: The link assembly [1] (reaction link) will be removed from the airplane with the control assembly [6] as one assembly.

(a) Remove the nuts [11] and the washers [10] from the bolts [7].

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(b) Remove the nut [16] and the washer [15].

(c) Hold the control assembly [6] and do these steps:

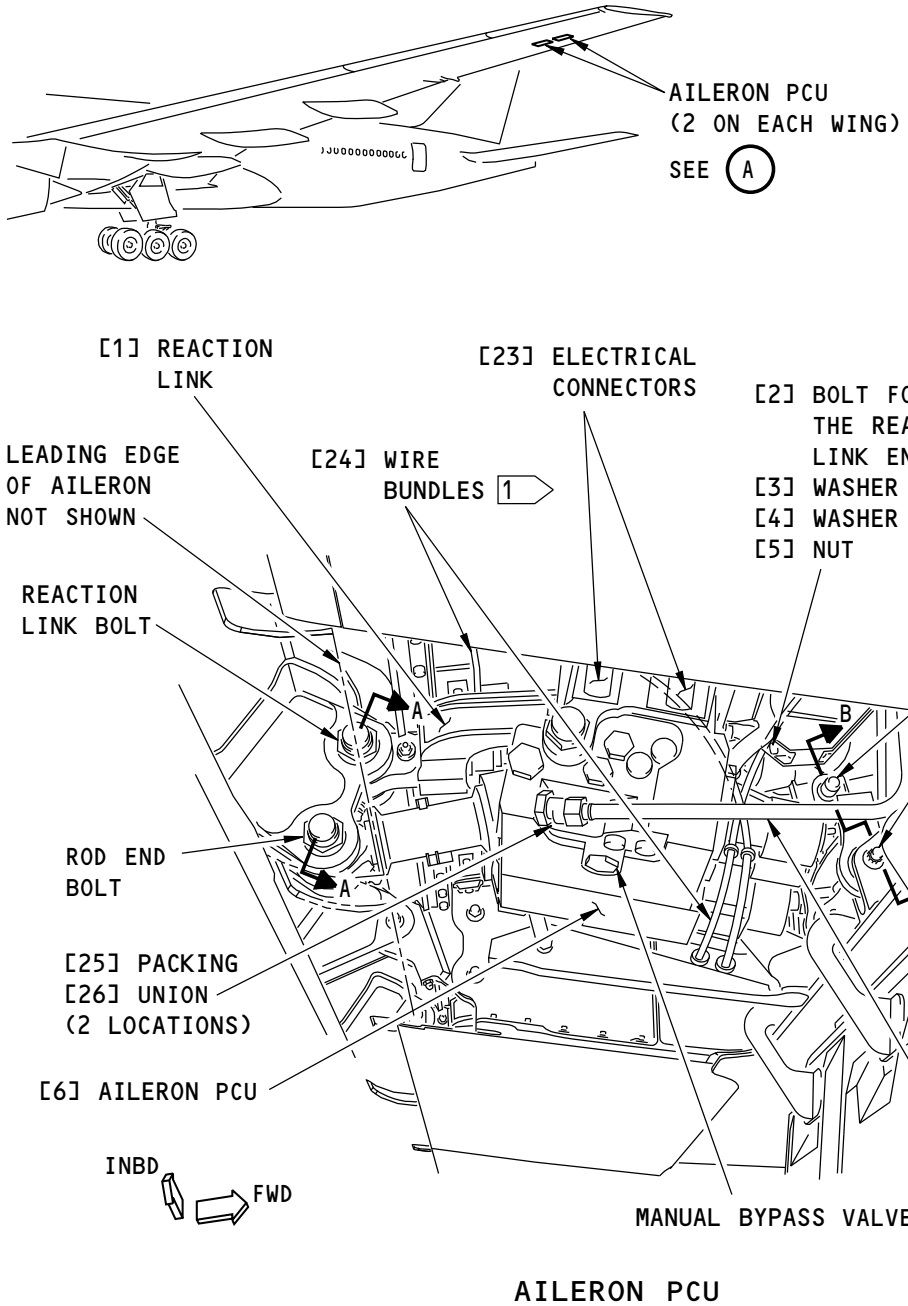
1) Remove the bolt [12], washer [13], and bushing [14].

2) Remove the bolts [7], washers [8], and bushings [9].

3) Remove the control assembly [6], with the link assembly [1] still attached to the control assembly [6], from the airplane.

——— END OF TASK ———

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AILERON PCU
(THE LEFT INBOARD PCU IS SHOWN,
THE OTHER PCUs ARE EQUIVALENT)

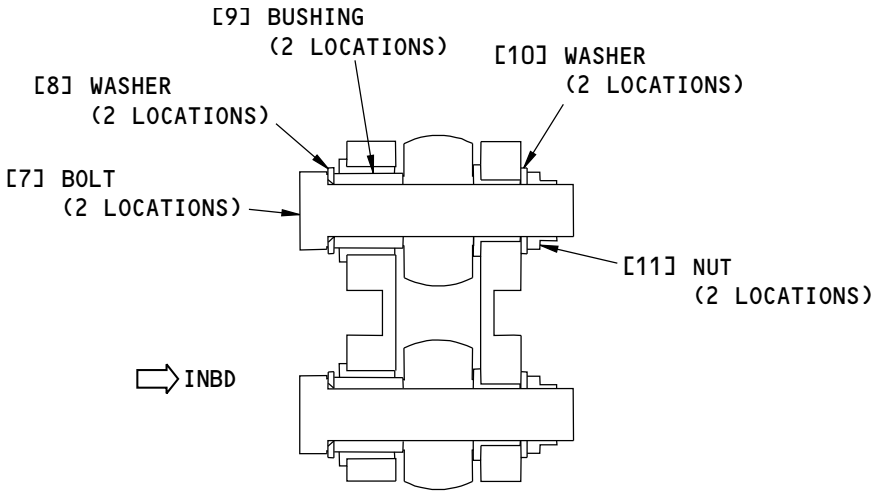
A

1 INBOARD PCU ONLY

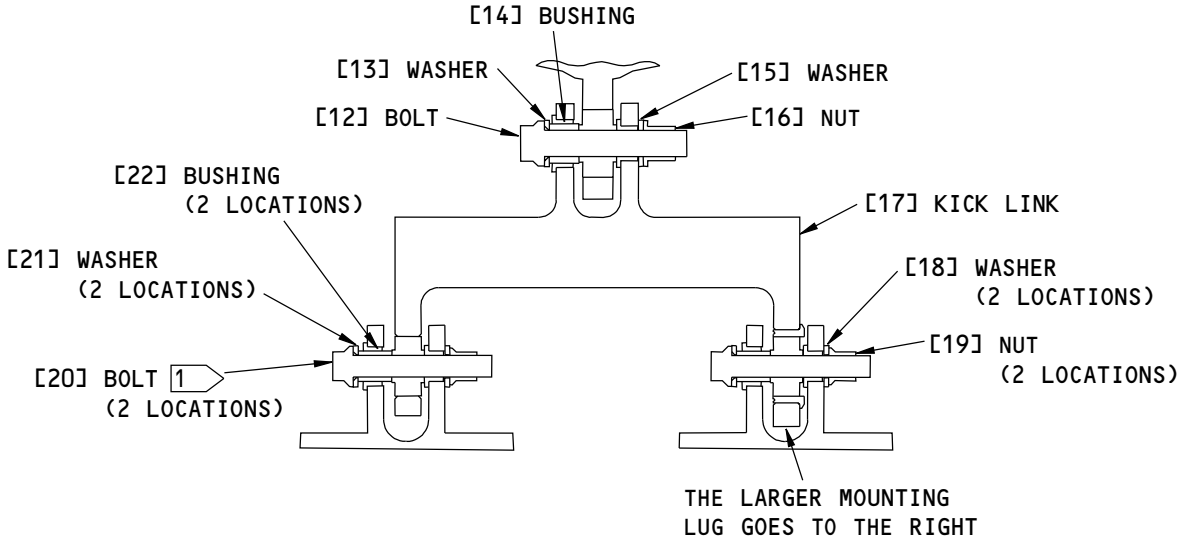
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Aileron PCU Installation
Figure 401/27-11-11-990-801 (Sheet 1 of 2)

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ROD END AND REACTION LINK BOLTS
A–A



KICK LINK BOLTS
(VIEW IN THE FORWARD DIRECTION)
B–B

1 THE LEFT WING INSTALLATION FOR THESE BOLTS [20] IS SHOWN. ON THE RIGHT WING, INSTALL THESE BOLTS [20] WITH THEIR HEADS TO THE RIGHT (OUTBOARD).

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Aileron PCU Installation
Figure 401/27-11-11-990-801 (Sheet 2 of 2)

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TASK 27-11-11-400-801

3. Aileron Power Control Unit (PCU) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
27-11-00-820-802	Aileron Adjustment (Rigging) (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1713	Lock - Power Control, Outboard Aileron Part #: J27033-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Control assembly	27-11-11-10-140	ARO ALL
17	Link assembly	27-11-11-10-170	ARO ALL
		27-11-11-10-200	ARO ALL
		27-11-11-10-270	ARO ALL

F. Location Zones

Zone	Area
568	Left Wing Aileron
668	Right Wing Aileron

G. Access Panels

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
661PB	Outboard Fixed Trailing Edge Panel

H. Procedure

SUBTASK 27-11-11-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) If it is not installed, do these steps to install the link assembly [1] on the control assembly [6]:

(a) Put the link assembly [1] in its position on the control assembly [6].

NOTE: The link assembly [1] and the end cap are a set. Keep them together. The end cap that you can remove goes on the side of the PCU that has the electrical connectors.

1) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the shank and threads of bolts [2], washers [3], washers [4], and nuts [5].

2) Install the bolts [2], the washers [3] (at the bolt heads), the washers [4] (at the nuts), and the nuts [5].

a) Tighten the nuts [5] to 110 in-lb (12 N·m) - 130 in-lb (15 N·m).

(b) Fill the index notches in the end cap of the link assembly [1] with sealant, A00247 or grease, D00633.

SUBTASK 27-11-11-420-002

(2) If it is not installed, do these steps to install the link assembly [17] on the wing structure:

(a) Put grease, D00633 on the bolt [20].

(b) Put the link assembly [17] in its position on the wing structure and install the bushing [22], bolt [20], and washer [21] as shown in View B-B (Figure 401).

(c) Install the washer [18] and nut [19].

1) Tighten the nut [19] to 90 in-lb (10 N·m) - 125 in-lb (14 N·m).

SUBTASK 27-11-11-420-003

(3) Do these steps to install the control assembly [6]:

(a) Apply a thin layer of grease, D00633, to the shanks and threads of bolts [7] and bolt [12].

(b) Put the control assembly [6] in its position.

1) If necessary, to move the aileron then do the steps that follow:

a) Remove the installed outboard aileron power control lock, SPL-1713 from the control assembly [6].

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b) Operate the manual bypass valves on the two control assembly [6].

(c) Install the bushings [9], bolts [7], washers [8] (at the bolt heads), washers [10] (at the nuts), and nuts [11].

(d) Install the bushing [14], bolt [12], washer [13] (at the bolt heads), washer [15] (at the nuts), and nut [16].

(e) Tighten the nut [11] to 1100 in-lb (124 N·m) - 1350 in-lb (153 N·m).

(f) Tighten the nut [16] to 150 in-lb (17 N·m) - 250 in-lb (28 N·m).

SUBTASK 27-11-11-420-004

(4) Remove the caps from the hydraulic lines [27] and connect the hydraulic lines [27] to the control assembly [6].

(a) When required, install the unions [26] and packings [25] into pressure and return ports.

1) Tighten the unions [26] to 170 ±5 in-lb (19 ±1 N·m).

(b) Connect the hydraulic lines [27] to the unions [26].

1) Tighten the B-nut on the hydraulic lines [27] to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 27-11-11-430-001

(5) If you are installing the inboard PCU, connect the wire bundles [24] to the control assembly [6].

SUBTASK 27-11-11-420-005

(6) Connect the electrical connectors [23] to the control assembly [6].

SUBTASK 27-11-11-080-001

(7) Remove the outboard aileron power control lock, SPL-1713, from the control assembly [6] that was not removed from the airplane.

SUBTASK 27-11-11-860-009

(8) For the left wing, remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A3 AIL PCU

SUBTASK 27-11-11-860-006

(9) For the right wing, remove the safety tags and close these circuit breakers:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A3 AIL PCU

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A3 AIL PCU

SUBTASK 27-11-11-860-007

(10) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - WING switches to the NORM position.

SUBTASK 27-11-11-820-001

(11) Do this task: Aileron Adjustment (Rigging), TASK 27-11-00-820-802.

SUBTASK 27-11-11-740-001

(12) Use the MAT to do the test of the applicable control assembly [6] (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

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1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Left Aileron Actuator Confidence (Right Aileron Actuator Confidence)
7) CONTINUE

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE AILERONS. THE AILERONS WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do the instructions that show on the MAT and then make these selections:
1) CONTINUE
2) START TEST

NOTE: To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

EICAS messages will occur during the test. This is OK.

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-11-11-790-001

(13) Make sure the control assembly [6] does not have a leak.

SUBTASK 27-11-11-410-001

(14) Close these access panels that you opened:

Number	Name/Location
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-11-11-610-001

(15) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

(a) For the inboard PCUs, fill the reservoir for the center hydraulic system

(b) For the outboard PCUs, fill the reservoir for the left hydraulic system.

END OF TASK

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AILERON POWER CONTROL UNIT - INSPECTION/CHECK

1. General

A. This procedure has the following two tasks:

(1) An inspection of the aileron PCU's attach points for wear beyond permissible limits.

(2) A freeplay inspection of the aileron PCUs.

TASK 27-11-11-200-801

2. Aileron PCU - Inspection and Wear Limits

(Figure 601)

A. Location Zones

Zone	Area
568	Left Wing Aileron
668	Right Wing Aileron

B. Aileron PCU's Wear Limits Examination

SUBTASK 27-11-11-210-001

(1) Visually examine the Aileron PCU's components shown (Figure 601). Check for wear beyond the limits given in Table 601. Refer to the Aileron PCU's Removal/Installation for the procedures to access a component area and to remove or install a component for wear inspection.

SUBTASK 27-11-11-220-001

(2) Use the following table to see the permitted quantity of wear:

Table 601/27-11-11-993-805 AILERON PCU BEARING WEAR LIMITS

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPAIR
			DIAMETER inches (millimeters)		ALLOWED WEAR DIM. inches (millimeters)	MAX CLEARANCE inches (millimeters)	
			MIN	MAX			
1	BOLT	OD	0.7485 (19.012)	0.7490 (19.025)	0.7468 (18.968)	0.0032 (0.082)	
	BUSHING	ID	0.7495 (19.037)	0.7500 (19.050)	0.7505 (19.063)		
2	BOLT	OD	0.7485 (19.012)	0.7490 (19.025)	0.7468 (18.968)	0.0035 (0.090)	
	BUSHING	ID	0.7495 (19.037)	0.7503 (19.058)	0.7508 (19.070)		
3	BUSHING	OD	1.0605 (26.937)	1.0615 (26.962)	1.0584 (26.884)	0.0044 (0.111)	
	BUSHING	ID	1.0620 (26.975)	1.0628 (26.995)	1.0638 (27.021)		

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Table 601/27-11-11-993-805 AILERON PCU BEARING WEAR LIMITS (Continued)

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPAIR
			DIAMETER inches (millimeters)		ALLOWED WEAR DIM. inches (millimeters)	MAX CLEARANCE inches (millimeters)	
			MIN	MAX			
4	BOLT	OD	0.3740 (9.500)	0.3745 (9.512)	0.3728 (9.468)	0.0027 (0.069)	
	BUSHING	ID	0.3750 (9.525)	0.3755 (9.538)	0.3760 (9.550)		
5	BUSHING	OD	0.5610 (14.249)	0.5615 (14.262)	0.5595 (14.211)	0.0030 (0.076)	
	BUSHING	ID	0.5620 (14.275)	0.5625 (14.288)	0.5630 (14.300)		
6	BOLT	OD	0.3740 (9.500)	0.3745 (9.512)	0.3728 (9.469)	0.0023 (0.059)	
	BUSHING	ID	0.3746 (9.515)	0.3751 (9.528)	0.3756 (9.540)		
7	BOLT	OD	0.3115 (7.912)	0.3120 (7.925)	0.3104 (7.884)	0.0026 (0.066)	
	BUSHING	ID	0.3125 (7.938)	0.3130 (7.950)	0.3135 (7.963)		
8	BOLT	OD	0.3115 (7.912)	0.3120 (7.925)	0.3104 (7.884)	0.0027 (0.069)	
	BUSHING	ID	0.3125 (7.938)	0.3131 (7.953)	0.3136 (7.965)		
9	BUSHING	OD	0.4365 (11.087)	0.4370 (11.100)	0.4352 (11.053)	0.0030 (0.077)	
	BUSHING	ID	0.4375 (11.113)	0.4382 (11.130)	0.4387 (11.143)		

NOTE: These components are repairable. If repair procedures do not exist, contact The Boeing Company.

SUBTASK 27-11-11-200-001

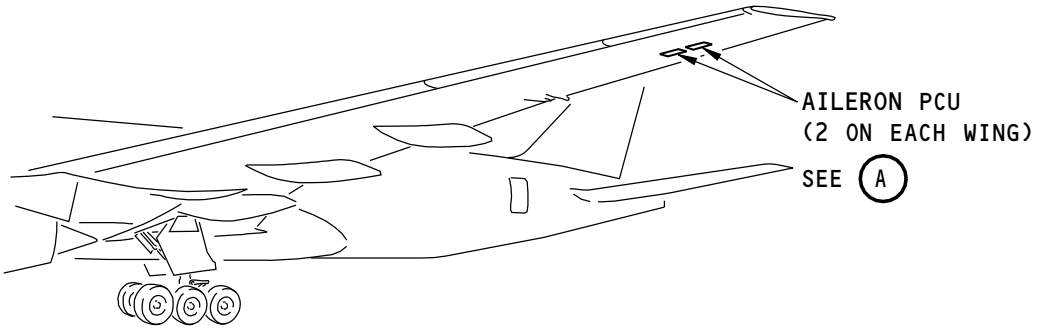
(3) Do a check of the bolts and bushings.

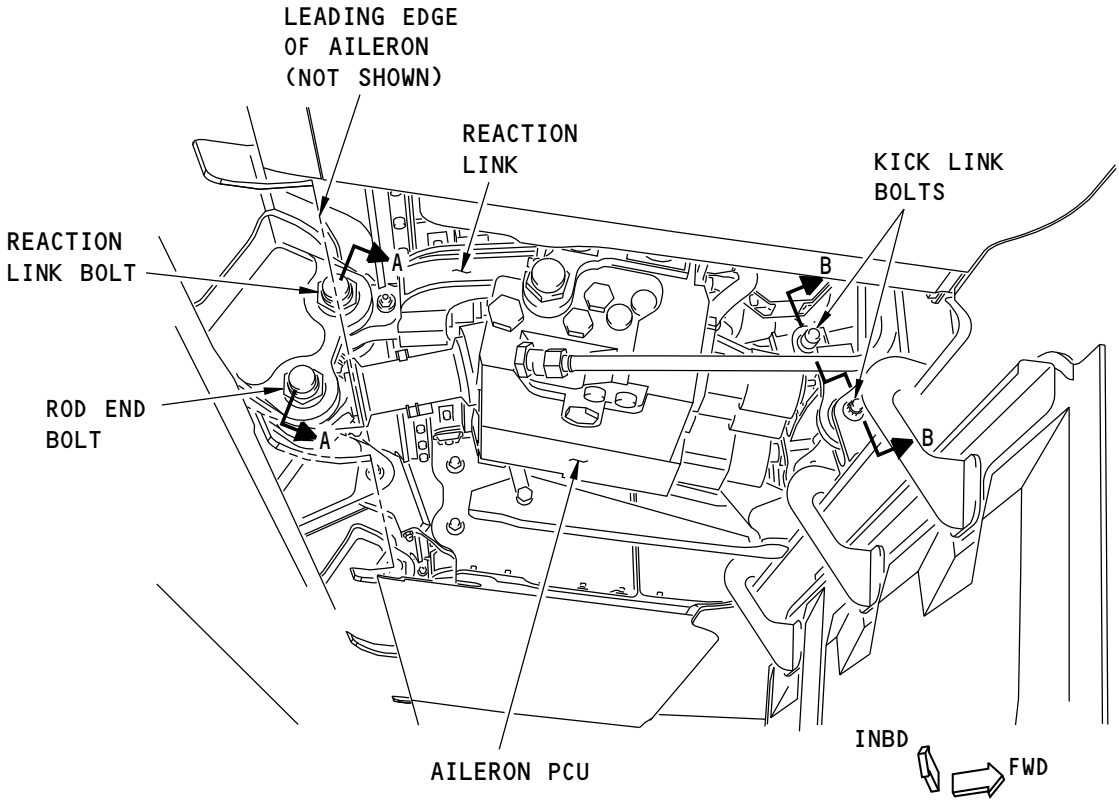
(a) Examine the bushings and the bolts for wear.

(b) Replace all the parts that have more than the permitted quantity of wear shown in Table 601.

——— END OF TASK ———

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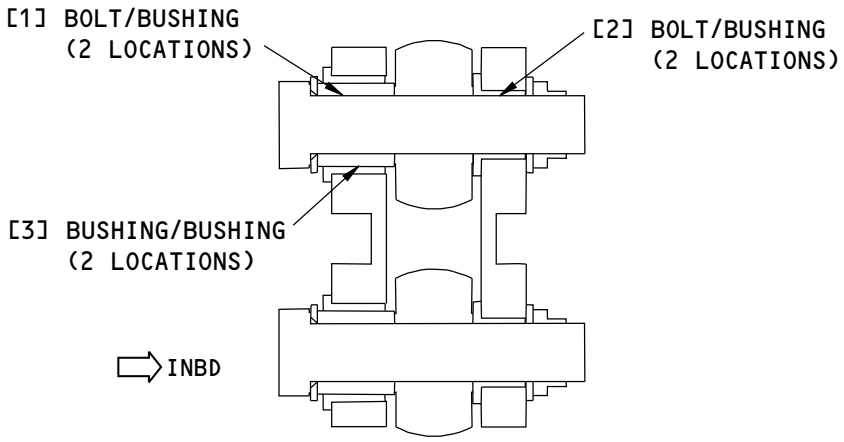
AILERON PCU ATTACH POINTS
(THE LEFT INBOARD PCU IS SHOWN,
THE OTHER PCUs ARE EQUIVALENT)

A

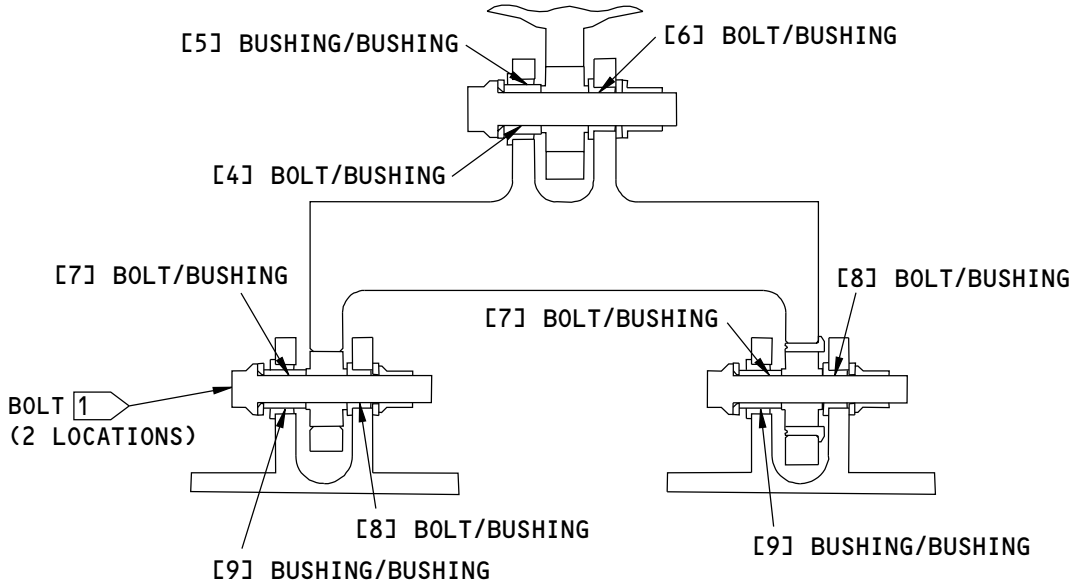
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Aileron PCU Attach Points Wear Limits Inspection
Figure 601/27-11-11-990-802 (Sheet 1 of 2)

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ROD END AND REACTION LINK BOLTS
A-A



KICK LINK BOLTS
(VIEW IN THE FORWARD DIRECTION)
B-B

1 THE LEFT WING INSTALLATION FOR THESE BOLTS IS SHOWN. ON THE RIGHT WING, INSTALL THESE BOLTS WITH THEIR HEADS TO THE RIGHT (OUTBOARD).

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Aileron PCU Attach Points Wear Limits Inspection
Figure 601/27-11-11-990-802 (Sheet 2 of 2)

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TASK 27-11-11-200-802

3. Aileron Power Control Unit Freeplay Inspection

(Figure 602, Figure 603)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1238	Indicator - Dial
STD-1396	Pad - 5x5x0.25 inch (127x127x7.4 mm) wood block or 6 inch (152 mm) diameter x 0.25 inch (7.4 mm) thick circular wood block.
STD-1397	Gauge - Force
STD-1398	Jack

C. Location Zones

Zone	Area
568	Left Wing Aileron
668	Right Wing Aileron

D. Prepare for the Freeplay Inspection

SUBTASK 27-11-11-860-010

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-11-040-001

(2) Attach DO-NOT-OPERATE tags to the captain's and first officer's control wheels.

SUBTASK 27-11-11-480-002

(3) Install rig pins SP1 and SP2 in the control wheels (Figure 602).

NOTE: Install the rig pins to prevent accidental movement of the control wheels.

SUBTASK 27-11-11-480-003

(4) Install rig pins SP3 and SP4 in the right and left lateral control mechanisms (Figure 602).

NOTE: Install the rig pins to prevent accidental movement of the ailerons.

E. Freeplay Inspection

NOTE: This procedure inspects only one PCU at a time. Repeat the procedure for each PCU.

SUBTASK 27-11-11-860-011

WARNING

DO NOT CLOSE THE FLIGHT-CONTROL-WING HYDRAULIC-SHUTOFF VALVES DURING THIS INSPECTION. IF YOU CLOSE A VALVE BEFORE YOU REMOVE THE RELATED HYDRAULIC PRESSURE, THE AILERON WILL MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

WARNING

REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCU'S FOR A SINGLE AILERON SURFACE MAY RESULT IN THAT SURFACE SLOWLY MOVING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S ON THAT SURFACE. FAILURE TO OBEY THESE INSTRUCTIONS WILL CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Supply hydraulic power for the aileron PCU that you will inspect. To supply hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

Hydraulic power must be off for the other PCU of the same aileron. Table 602 shows which hydraulic system to have on for each PCU.

Table 602/27-11-11-993-806

POWER CONTROL UNIT (PCU)	HYDRAULIC SYSTEM	
	LEFT	CENTER
Left Aileron, Outboard PCU	ON	OFF
Left Aileron, Inboard PCU	OFF	ON
Right Aileron, Inboard PCU	OFF	ON
Right Aileron, Outboard PCU	ON	OFF

SUBTASK 27-11-11-480-004

(2) Install an dial indicator, STD-1238 on the trailing edge of the wing next to the aileron so that it will measure the vertical movement at the trailing edge of the aileron (Figure 603).

NOTE: Shims may be necessary to make the indicator stable.

SUBTASK 27-11-11-220-002

(3) Push down on the trailing edge of the aileron with your hands (push with approximately 100 pounds (445 newtons) of force), and then release the aileron.

SUBTASK 27-11-11-220-003

(4) Set the dial indicator, STD-1238 to zero.

NOTE: Because the aileron PCU continuously adjusts the position of the aileron, the dial indicator, STD-1238 needle can move through (oscillate) approximately 0.050 inch (1.27 millimeters). This is normal operation of the aileron. Set the zero on the dial indicator, STD-1238 to the middle of the needle's movement.

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SUBTASK 27-11-11-480-005

WARNING MAKE SURE YOU USE A STRONG AND STABLE LIFT TO HOLD YOU, YOUR EQUIPMENT, AND THE ADDITIONAL 50 POUNDS (222 NEWTONS) FORCE OF THE JACK. IF YOU USE TOO SMALL OF A LIFT, IT CAN FAIL.

(5) Put the pad, STD-1396, force gauge, STD-1397, and jack, STD-1398 in position under the aileron (Figure 603). The center of the pad must be on the aileron rib that is aligned with the PCU you are measuring. Also, the center of the pad must be approximately 6 inches (150 millimeters) forward of the trailing edge of the aileron.

SUBTASK 27-11-11-220-004

(6) Use the jack, STD-1398 to push the aileron up with 50 pounds (222 newtons) of force.

SUBTASK 27-11-11-220-005

(7) Read the dial indicator, STD-1238.

NOTE: Because the aileron PCU continuously adjusts the position of the aileron, the dial indicator, STD-1238 needle can move through (oscillate) approximately 0.050 inch (1.27 millimeters). This is normal operation of the aileron. Use the middle of the needle's movement for the value you read.

(a) If the dial indicator, STD-1238 shows 0.10 inch (2.5 millimeters) or less, then the bearings for the PCU are serviceable.

(b) If the dial indicator, STD-1238 shows more than 0.10 inch (2.5 millimeters), then the bearings for the PCU must be replaced.

SUBTASK 27-11-11-220-006

(8) Release the jack, STD-1398.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-11-080-002

(1) Remove the jack, STD-1398, force gauge, STD-1397, and pad, STD-1396.

SUBTASK 27-11-11-080-003

(2) Remove the dial indicator, STD-1238.

SUBTASK 27-11-11-860-012

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-11-080-004

(4) Remove rig pins A1 and A2 from the control wheels (Figure 601, Figure 602).

SUBTASK 27-11-11-080-005

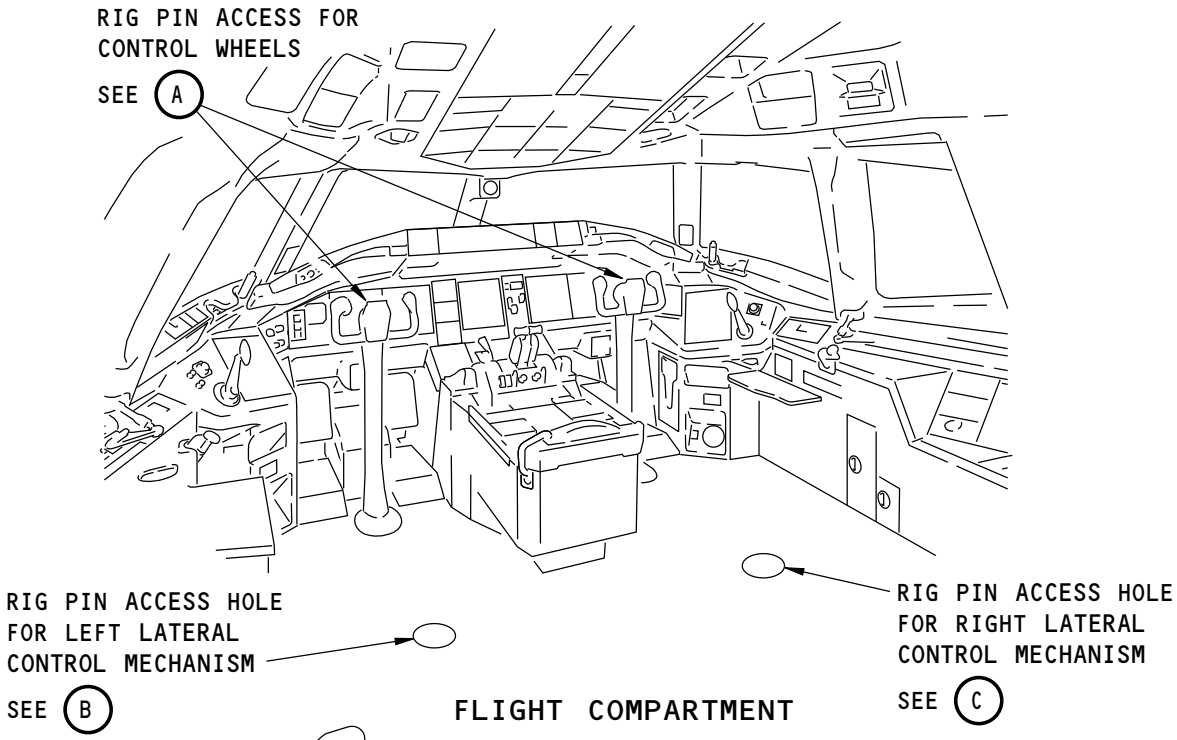
(5) Remove rig pins SP3 and SP4 from the right and left lateral control mechanisms (Figure 601, Figure 602).

SUBTASK 27-11-11-440-001

(6) Remove the DO-NOT-OPERATE tags from the captain's and first officer's control wheels.

END OF TASK

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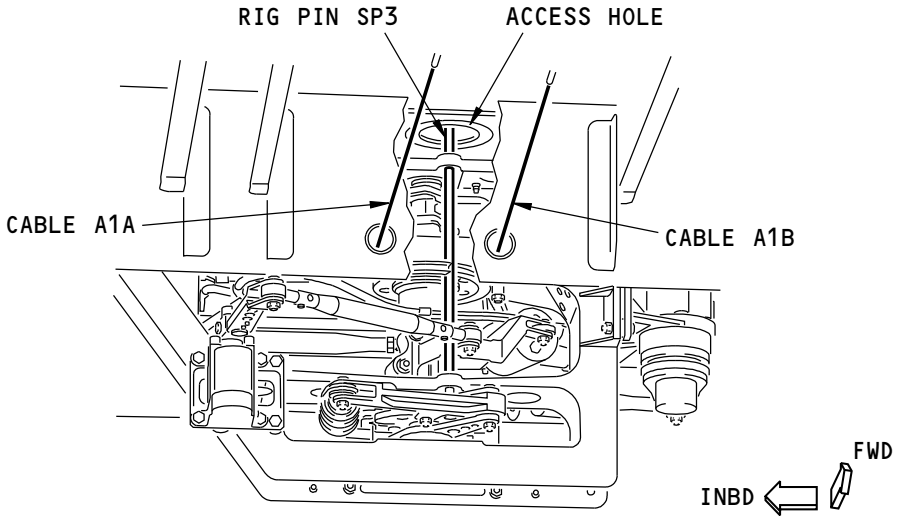


1 RIG PIN SP1 ON THE CAPTAIN'S CONTROL COLUMN.
RIG PIN SP2 ON THE FIRST OFFICER'S CONTROL COLUMN.

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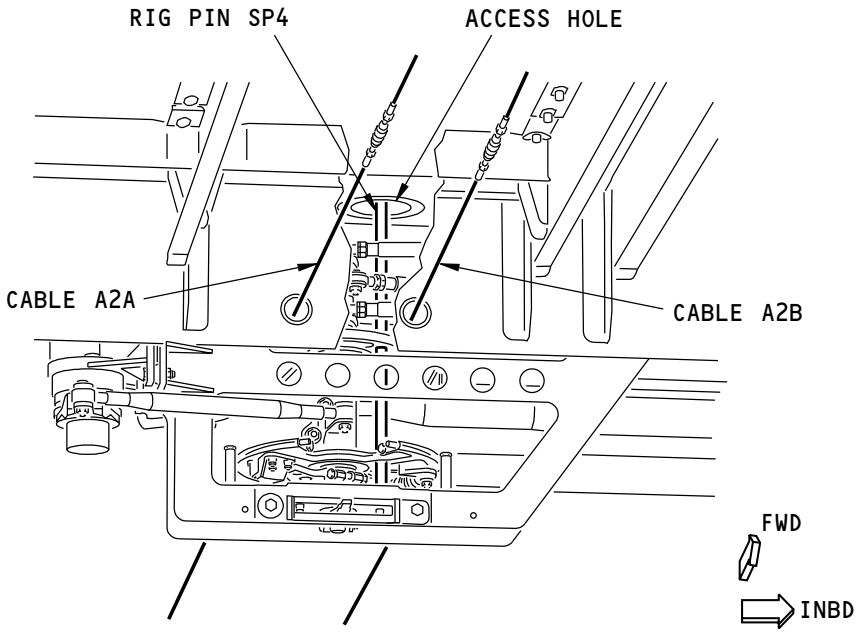
Aileron PCU Freeplay Inspection
Figure 602/27-11-11-990-803 (Sheet 1 of 2)

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LEFT LATERAL CONTROL MECHANISM

B



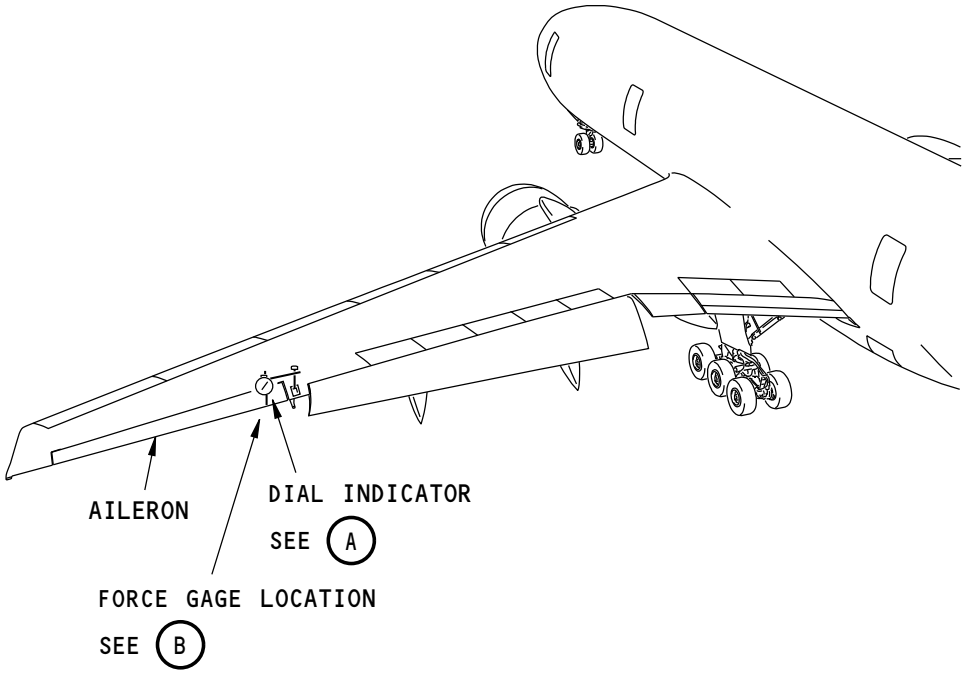
RIGHT LATERAL CONTROL MECHANISM

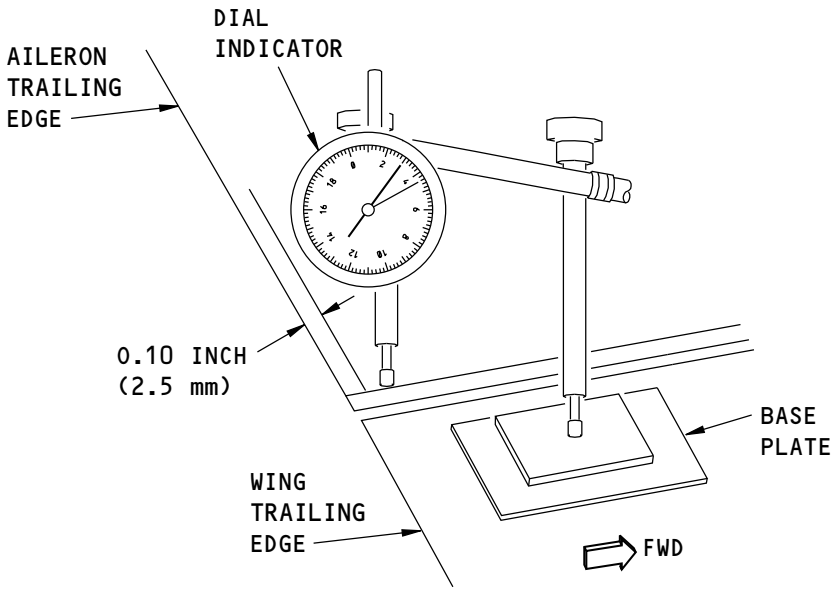
C

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Aileron PCU Freeplay Inspection
Figure 602/27-11-11-990-803 (Sheet 2 of 2)

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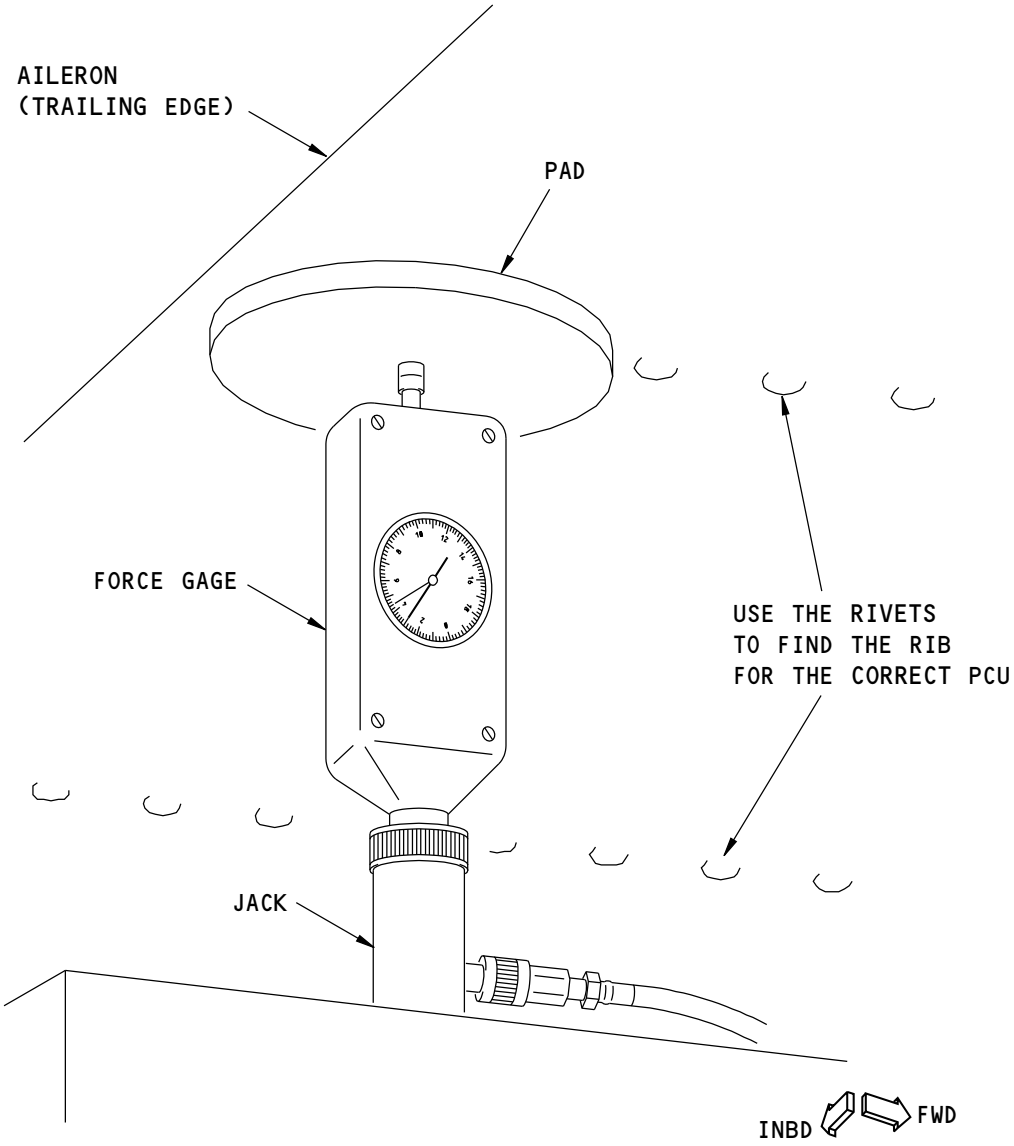
DIAL INDICATOR

A

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Aileron PCU Freeplay Inspection
Figure 603/27-11-11-990-804 (Sheet 1 of 2)

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FORCE GAGE LOCATION
(VIEW IN THE UP DIRECTION)

B

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Aileron PCU Freeplay Inspection
Figure 603/27-11-11-990-804 (Sheet 2 of 2)

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FLAPERON POWER CONTROL UNIT (PCU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flaperon Power Control Unit (PCU)

(2) An installation of the flaperon Power Control Unit (PCU).

(3) A removal of the Yoke Assembly.

(4) An installation of the Yoke Assembly.

(5) A removal of the flaperon Tube Assembly.

(6) An installation of the flaperon Tube Assembly.

B. In this procedure the flaperon Power Control Units are referred to as the control unit [1] and the control unit [13].

TASK 27-11-12-000-801

2. Flaperon Power Control Unit - Removal

(Figure 401)

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205
SPL-1759	Support Equipment- Flaperon Part #: J27045-1 Supplier: 81205

C. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

D. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel

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(Continued)

Number	Name/Location
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel
574AL	Inbd Flaperon Support Fairing - Fwd
575BB	Outbd Flaperon Support Fairing - Aft
652HB	Inboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel
674AR	Inbd Flaperon Support Fairing - Fwd
675BB	Outbd Flaperon Support Fairing - Aft

E. Prepare for Removal

SUBTASK 27-11-12-860-001

(1) Make sure the flaperon is in the retracted position.

SUBTASK 27-11-12-860-002

(2) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the SHUTOFF position.

SUBTASK 27-11-12-860-007

(3) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

SUBTASK 27-11-12-860-003

(4) Open these circuit breakers and install safety tags:

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

SUBTASK 27-11-12-010-001

(5) Open the access panels for the applicable PCU (TASK 06-44-00-800-802):

(a) For the right wing:

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Open these access panels:

Number	Name/Location
652HB	Inboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel
674AR	Inbd Flaperon Support Fairing - Fwd
675BB	Outbd Flaperon Support Fairing - Aft

(b) For the left wing:

Open these access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel
574AL	Inbd Flaperon Support Fairing - Fwd
575BB	Outbd Flaperon Support Fairing - Aft

SUBTASK 27-11-12-860-008

(6) For the outboard PCU on the left wing, do this step for the left hydraulic system:

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-11-12-860-009

(7) For the outboard PCU on the right wing, do this step for the center hydraulic system.

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-11-12-860-010

(8) For the inboard PCU on the left or right wing, do this step for the right hydraulic system:

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-11-12-860-004

(9) Move the flaperon as necessary to get access to the end fittings for the PCU.

NOTE: You can move the flaperon manually (by hand) to get to the end fittings.

F. Flaperon Power Control Unit Removal

NOTE: If you will remove the two power control units at the same time, make sure you install the two flaperon support, SPL-1759.

SUBTASK 27-11-12-020-001

(1) For the inboard control unit [1]:

(a) Disconnect the hydraulic line [11] and hydraulic line [26] from the control unit [1].

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1) Install caps on the hydraulic fittings.

(b) Disconnect the electrical connector [10] from the control unit [1].

1) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the airplane wiring only for the flaperon.

NOTE: The cover for the power control unit is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

CAUTION

REMOVE ONLY ONE PCU AT A TIME OR USE THE FLAPERON SUPPORT, SPL-1759. YOU CAN CAUSE DAMAGE TO THE FLAPERON AND ITS SURROUNDING STRUCTURE IF YOU REMOVE MORE THAN ONE PCU AT A TIME WITHOUT THE FLAPERON SUPPORT, SPL-1759, INSTALLED.

(c) Remove the nut [6] and washer [5] that connect the control unit [1] to the flaperon (View B).

(d) Remove the bolt [2] approximately 0.5 in. (12.70 mm).

(e) Move the flaperon to the full trailing edge up position.

NOTE: You can move the flaperon manually (by hand) to get the trailing edge up.

(f) Remove the bolt [2], washer [3] and bushing [4].

CAUTION

DO NOT PUSH THE PCU SIDEWAYS. THE PCU OR THE AIRPLANE STRUCTURE CAN BE DAMAGED IF YOU PUSH THE PCU SIDEWAYS WHEN ONE END OF THE PCU IS DISCONNECTED.

(g) Remove the lockwire [12], bolts [7], washers [8], and bushings [9] that hold the control unit [1] to the forward fitting (View D).

SUBTASK 27-11-12-480-001

(2) If you will remove the inboard and the outboard PCUs at the same time, install the flaperon support, SPL-1759.

SUBTASK 27-11-12-020-002

(3) For the outboard power control unit [13]:

(a) Disconnect the hydraulic line [24] and hydraulic line [25] from the control unit [13] (View G).

1) Install caps on the hydraulic fittings.

(b) Disconnect the electrical connector [19] from the control unit [13].

1) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the airplane wiring only for the flaperon.

NOTE: The cover for the power control unit is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

CAUTION

REMOVE ONLY ONE PCU AT A TIME OR USE THE FLAPERON SUPPORT, SPL-1759. YOU CAN CAUSE DAMAGE TO THE FLAPERON AND ITS SURROUNDING STRUCTURE IF YOU REMOVE MORE THAN ONE PCU AT A TIME WITHOUT THE FLAPERON SUPPORT, SPL-1759, INSTALLED.

(c) Remove the nut [18] and washer [17] that connect the control unit [13] to the flaperon (View E).

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(d) Remove the bolt [14] approximately 0.5 in. (12.70 mm).

(e) Move the flaperon to the full trailing edge up position.

NOTE: You can move the flaperon manually (by hand) to get the trailing edge up.

(f) Remove the bolt [14], washer [15], and bushing [16].

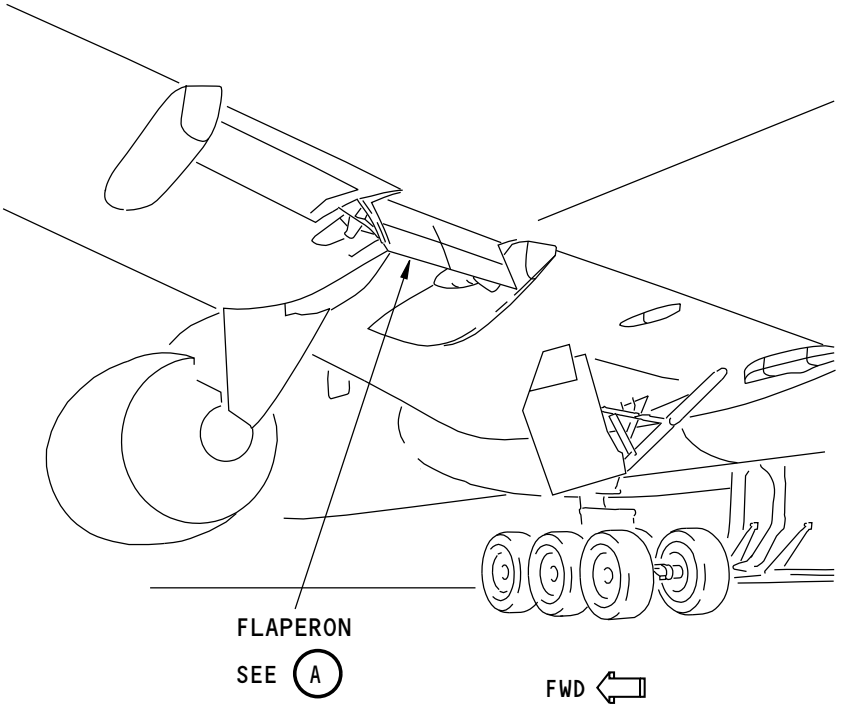
CAUTION

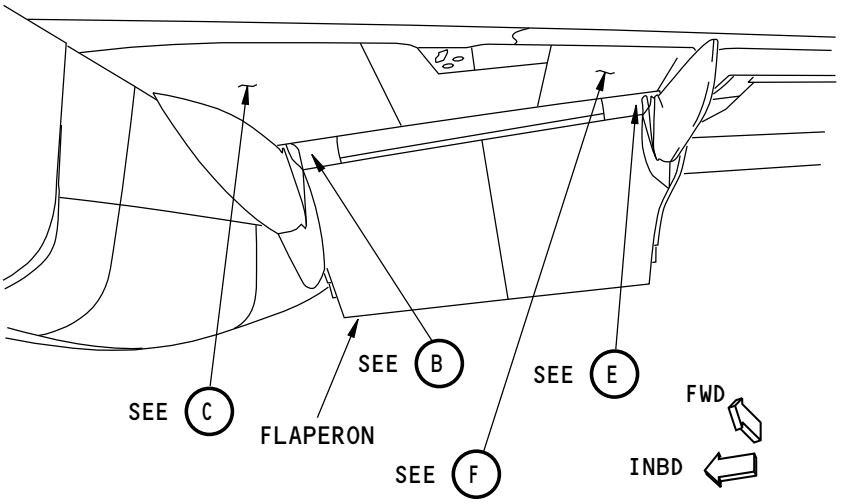
DO NOT PUSH THE PCU SIDEWAYS. THE PCU OR THE AIRPLANE STRUCTURE CAN BE DAMAGED IF YOU PUSH THE PCU SIDEWAYS WHEN ONE END OF THE PCU IS DISCONNECTED.

(g) Remove the lockwire [20], bolts [21], washers [22], and bushings [23] that hold the control unit [13] to the structure (View G).

——— END OF TASK ———

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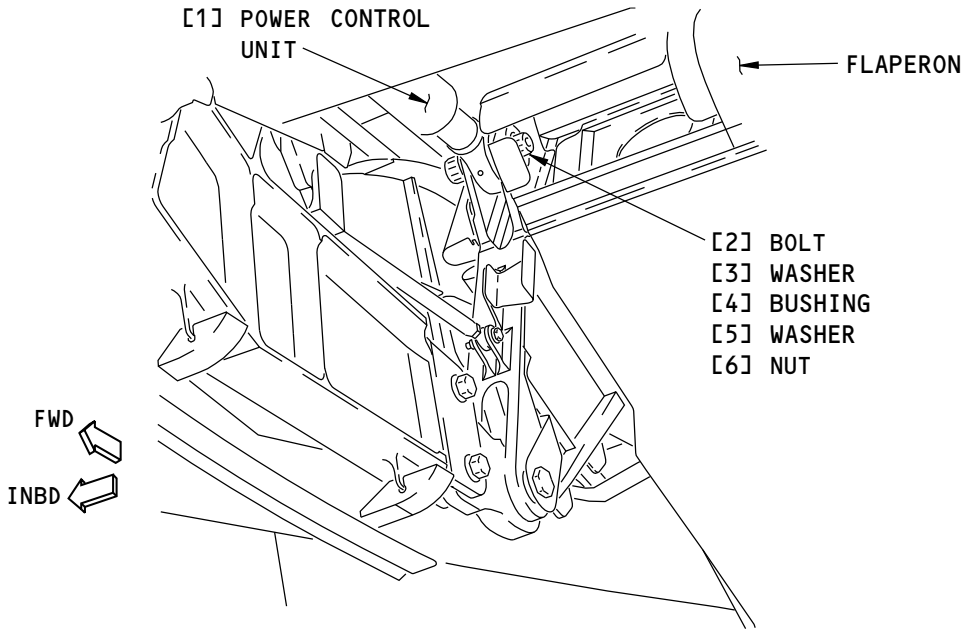


FLAPERON
(ACCESS PANELS SHOWN INSTALLED)
A

D03002 S0006412835_V1

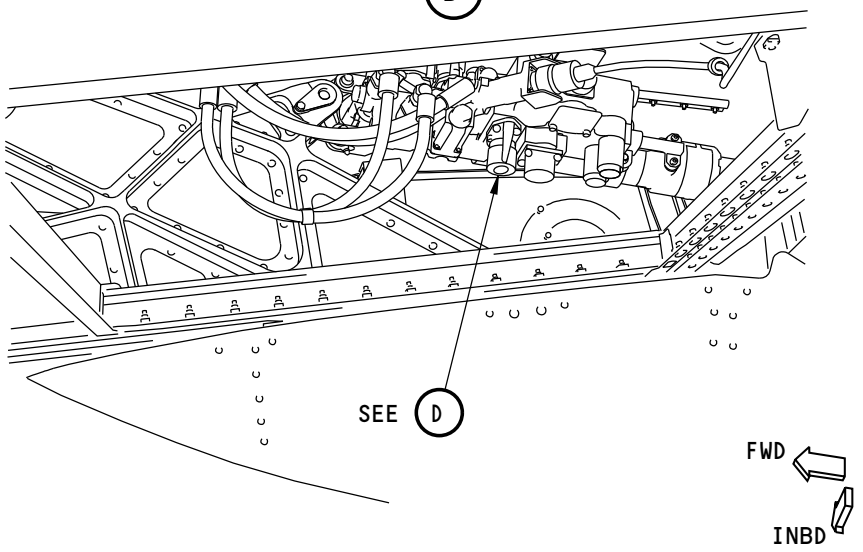
Flaperon Power Control Unit Installation
Figure 401/27-11-12-990-801 (Sheet 1 of 4)

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INBOARD FLAPERON POWER CONTROL UNIT
(AFT FITTING)

B



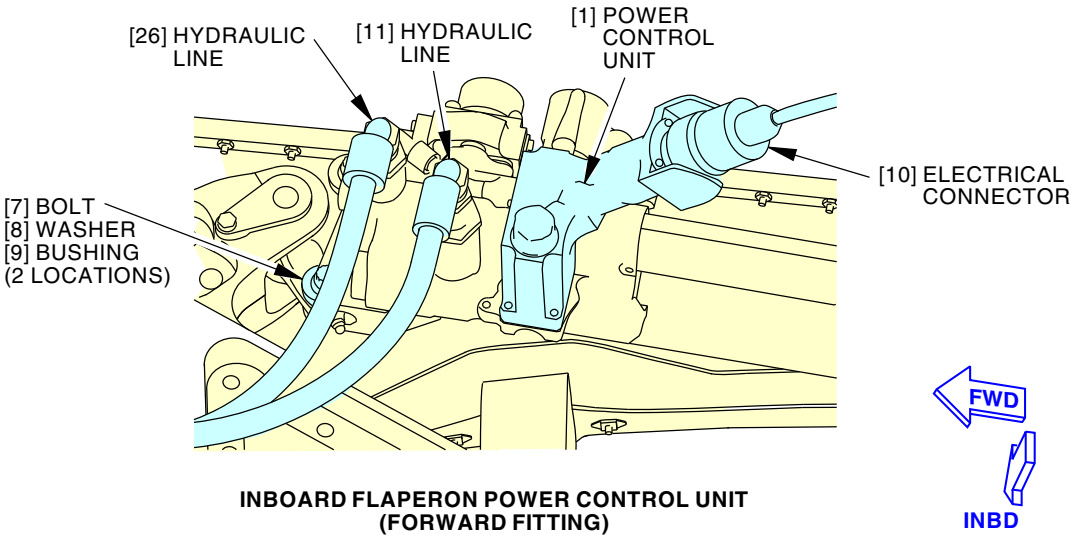
INBOARD FLAPERON POWER CONTROL UNIT
(FORWARD FITTING)

C

U40141 S0000194413_V1

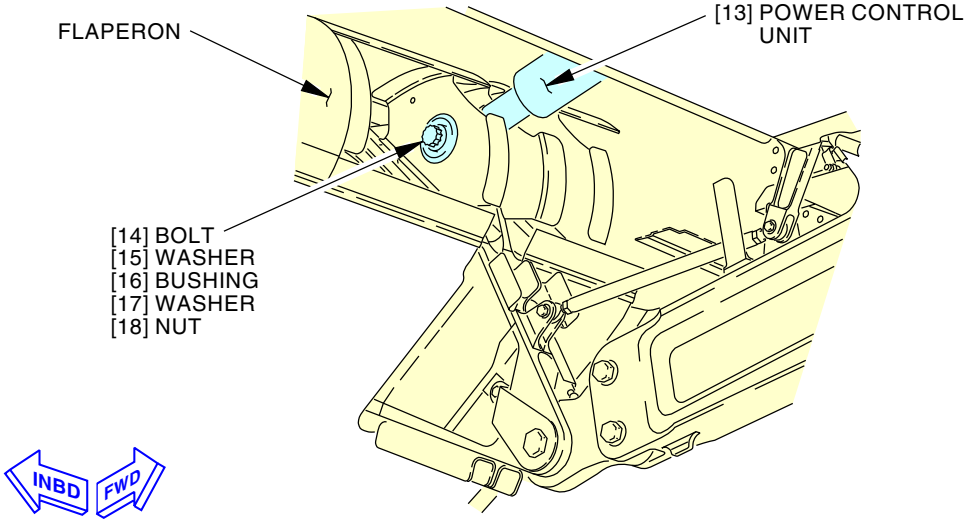
Flaperon Power Control Unit Installation
Figure 401/27-11-12-990-801 (Sheet 2 of 4)

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INBOARD FLAPERON POWER CONTROL UNIT (FORWARD FITTING)

D



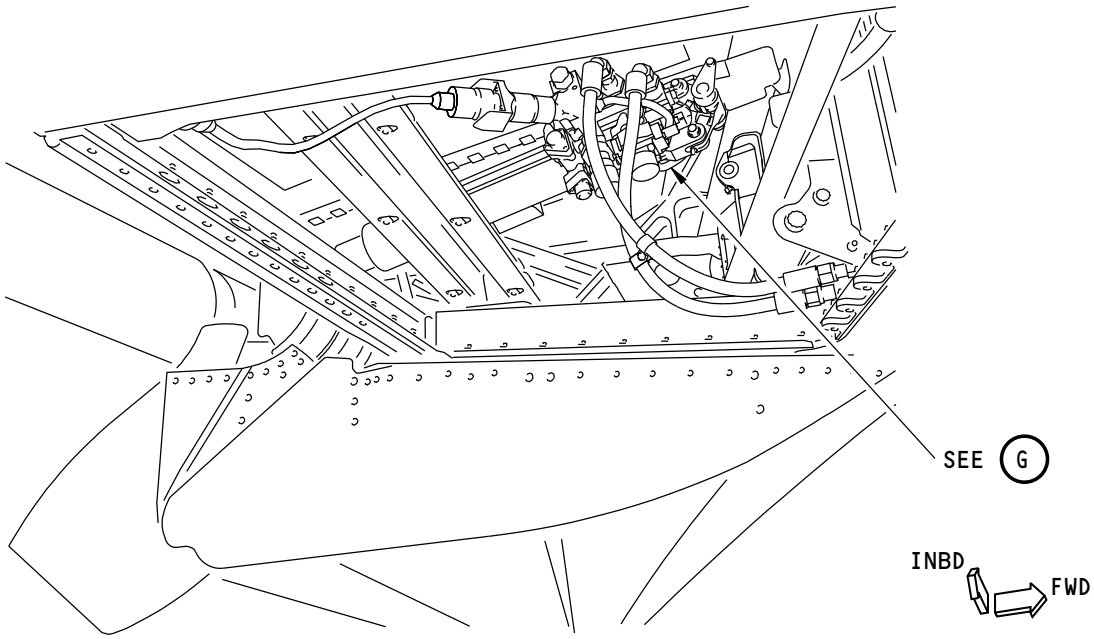
OUTBOARD FLAPERON POWER CONTROL UNIT (AFT FITTING)

E

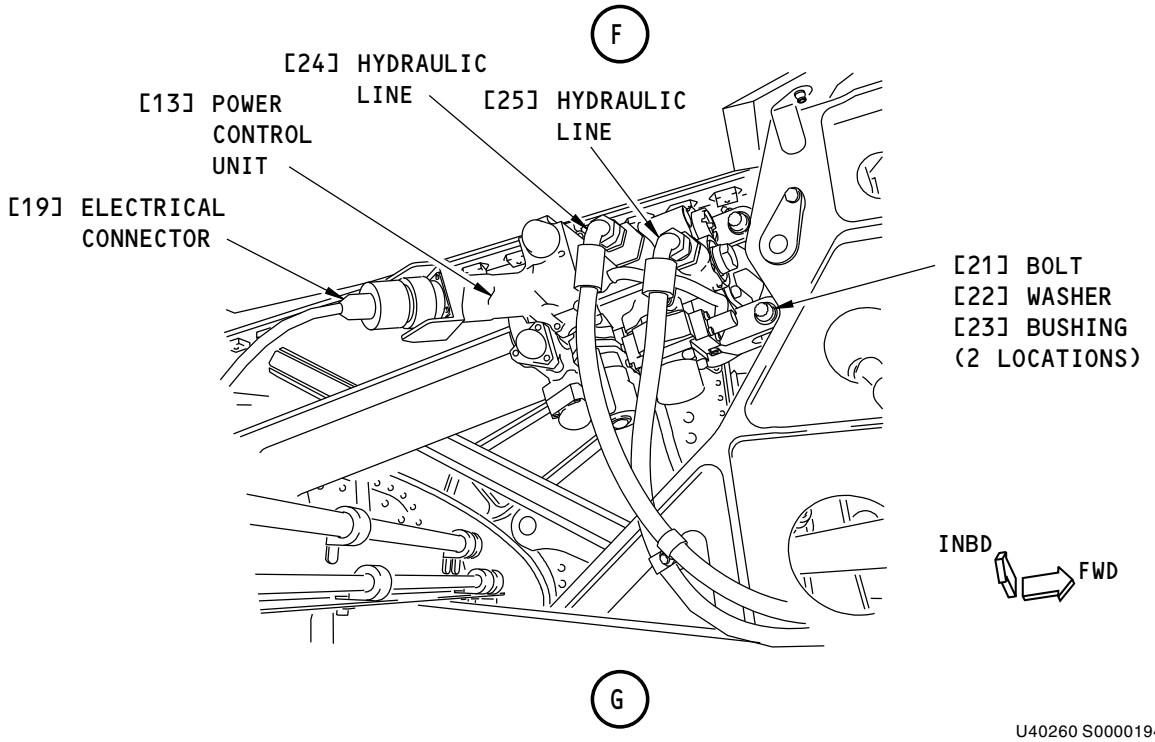
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Flaperon Power Control Unit Installation
Figure 401/27-11-12-990-801 (Sheet 3 of 4)

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OUTBOARD FLAPERON POWER CONTROL UNIT
(FORWARD FITTING)



U40260 S0000194417_V2

Flaperon Power Control Unit Installation
Figure 401/27-11-12-990-801 (Sheet 4 of 4)

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TASK 27-11-12-400-801

3. Flaperon Power Control Unit - Installation

(Figure 401)

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
12-21-07-600-803	Lubricate the Flaperon Power Control Units (PCUs) (P/B 301)
27-11-00-820-803	Flaperon Adjustment (Rigging) (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205
SPL-1759	Support Equipment- Flaperon Part #: J27045-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

E. Access Panels

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel
574AL	Inbd Flaperon Support Fairing - Fwd
575BB	Outbd Flaperon Support Fairing - Aft
652HB	Inboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel
674AR	Inbd Flaperon Support Fairing - Fwd
675BB	Outbd Flaperon Support Fairing - Aft

F. Install the Flaperon Power Control Unit

SUBTASK 27-11-12-420-001

(1) For the outboard power control unit [13]:

(a) Install the bushings [23] and bushing [16].

CAUTION DO NOT PUSH THE PCU SIDEWAYS AFTER YOU INSTALL THE BOLTS. THE PCU OR THE AIRPLANE STRUCTURE CAN BE DAMAGED IF YOU PUSH THE PCU SIDEWAYS WHEN ONE END OF THE PCU IS DISCONNECTED.

(b) Put the control unit [13] in its position.

(c) Install the bolts [21], and washers [22].

1) Tighten the bolts [21] 300 in-lb (33.90 N·m) to 350 in-lb (39.54 N·m) plus run-on torque.

(d) Install MS20995C32 lockwire, G01048 [20] between the two bolts [21] (View G).

(e) Move the flaperon to the full trailing edge up position.

NOTE: You can move the flaperon manually (by hand) to get the trailing edge up.

(f) Install the bolt [14] and washer [15] (View E).

NOTE: Carefully insert the bolt [14] or you can cause damage to the coating inside the bushing [16].

(g) Move the flaperon to the full trailing edge down position.

(h) Install the washer [17] and nut [18] on the bolt [14].

(i) Tighten the nut [18] 900 in-lb (101.69 N·m) to 1125 in-lb (127.11 N·m).

(j) Remove the caps from the hydraulic fittings.

(k) Connect the hydraulic line [24] and hydraulic line [25] to the control unit [13].

1) Tighten the B-nut on the hydraulic line [24] to 500 ±25 in-lb (56 ±3 N·m).

2) Tighten the B-nut on the hydraulic line [25] to 700 ±35 in-lb (79 ±4 N·m).

(l) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the airplane wiring for the flaperon.

NOTE: The cover for the power control unit is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

(m) Connect the electrical connector [19] to the control unit [13].

SUBTASK 27-11-12-420-002

(2) If it is installed, remove the flaperon support, SPL-1759.

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SUBTASK 27-11-12-420-003

(3) For the inboard control unit [1]:

(a) Install the bushings [9] and bushing [4].

CAUTION

DO NOT PUSH THE PCU SIDEWAYS AFTER YOU INSTALL THE BOLTS. THE PCU OR THE AIRPLANE STRUCTURE CAN BE DAMAGED IF YOU PUSH THE PCU SIDEWAYS WHEN ONE END OF THE PCU IS DISCONNECTED.

(b) Put the power control unit [1] in its position.

(c) Install the bolts [7], and washers [8] (View D).

1) Tighten the bolts [7] 300 in-lb (33.90 N·m) to 350 in-lb (39.54 N·m) plus run-on torque.

(d) Install MS20995C32 lockwire, G01048 [12] between the two bolts [7] (View D).

(e) Move the flaperon to the full trailing edge up position.

NOTE: You can move the flaperon manually (by hand) to get the trailing edge up.

(f) Install the bolt [2] and washer [3] (View B).

NOTE: Carefully the bolt [2] or you can cause damage to the coating inside the bushing [4].

(g) Move the flaperon to the full trailing edge down position.

(h) Install the washer [5] and nut [6] on the bolt [2].

(i) Tighten the nut [6] 900 in-lb (101.69 N·m) to 1125 in-lb (127.11 N·m).

(j) Remove the caps from the hydraulic fittings.

(k) Connect the hydraulic line [11] and hydraulic line [26] to the control unit [1].

1) Tighten the B-nut on the hydraulic line [11] to 500 ±25 in-lb (56 ±3 N·m).

2) Tighten the B-nut on the hydraulic line [26] to 700 ±35 in-lb (79 ±4 N·m).

(l) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the airplane wiring for the flaperon.

NOTE: The cover for the power control unit is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

(m) Connect the electrical connector [10] to the control unit [1].

SUBTASK 27-11-12-640-001

(4) Do this task: Lubricate the Flaperon Power Control Units (PCUs), TASK 12-21-07-600-803.

G. Adjust and Test the Flaperon

SUBTASK 27-11-12-860-005

(1) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the NORM position.

SUBTASK 27-11-12-860-011

(2) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

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SUBTASK 27-11-12-860-006

(3) Remove the safety tags and close these circuit breakers:

(a) On the PSA-C in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

SUBTASK 27-11-12-820-002

(4) Do this task: Flaperon Adjustment (Rigging), TASK 27-11-00-820-803.

SUBTASK 27-11-12-740-001

(5) Use the MAT to do the test of the applicable control unit [1] (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

4) 27 Primary Flight Control System

5) SYSTEM TEST

6) Left Flaperon Actuator Confidence (Right Flaperon Actuator Confidence)

7) CONTINUE

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLAPERONS. THE FLAPERONS WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

NOTE: To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

EICAS messages will occur during the test. This is OK.

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

H. Put the Airplane Back to its Usual Condition

SUBTASK 27-11-12-410-003

(1) Close the access panels for the applicable flaperon PCUs:

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(a) For the left wing:

Close these access panels:

Number	Name/Location
652HB	Inboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel
674AR	Inbd Flaperon Support Fairing - Fwd
675BB	Outbd Flaperon Support Fairing - Aft

(b) For the right wing;

Close these access panels:

Number	Name/Location
552HB	Inboard Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel
574AL	Inbd Flaperon Support Fairing - Fwd
575BB	Outbd Flaperon Support Fairing - Aft

SUBTASK 27-11-12-610-004

(2) If you installed the outboard PCU on the left wing, then do this step for the reservoir for the left hydraulic system:

(a) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

SUBTASK 27-11-12-610-005

(3) If you installed the outboard PCU on the right wing, then do this step for the reservoir for the center hydraulic system:

(a) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

SUBTASK 27-11-12-610-006

(4) If you installed the inboard PCU on the left or right wings, then do this step for the reservoir for the right hydraulic system:

(a) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

——— END OF TASK ———

TASK 27-11-12-000-802

4. Flaperon Yoke Assembly - Removal

(Figure 402)

A. Location Zones

Zone	Area
557	Left Wing Flaperon

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(Continued)

Zone	Area
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

B. Prepare for Removal

SUBTASK 27-11-12-020-003

(1) Remove the yoke assembly [49] from the forward end of the inboard or outboard flaperon PCU.

NOTE: The PCUs do not have to be completely removed from the airplane. The forward ends can be disconnected and moved up to allow for Yoke Assembly Replacement. Do not push the PCUs sideways during Yoke Assembly Replacement.

(a) Remove the bolts [7], washers [8], and bushings [9] which connect the yoke assembly [49].

SUBTASK 27-11-12-020-004

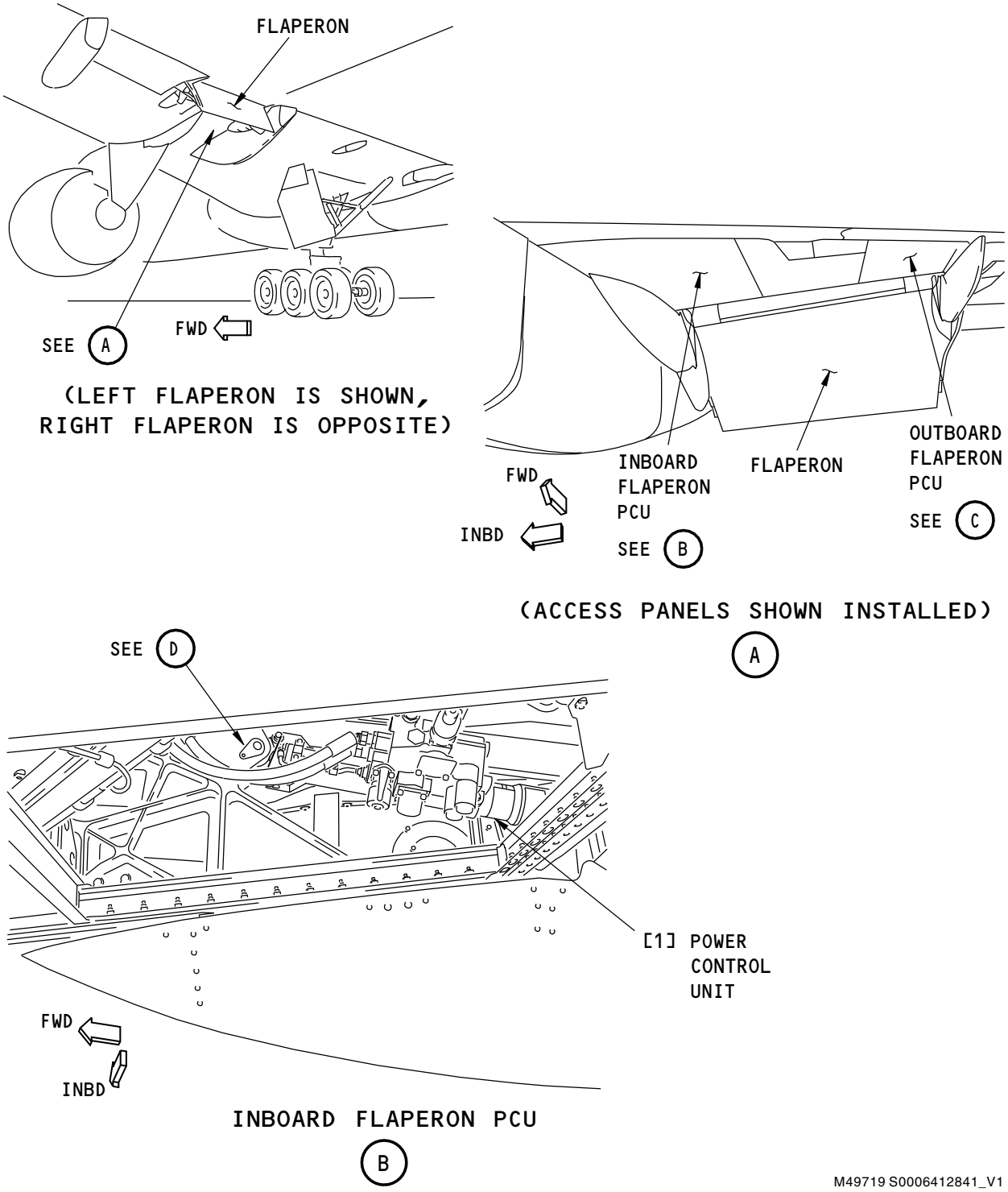
(2) Remove the bolt [44], washer [43], washer [45] and nut [46].

(a) Remove the nut [47], washer [48], and pin [42].

(b) Remove the yoke assembly [49] from the airplane.

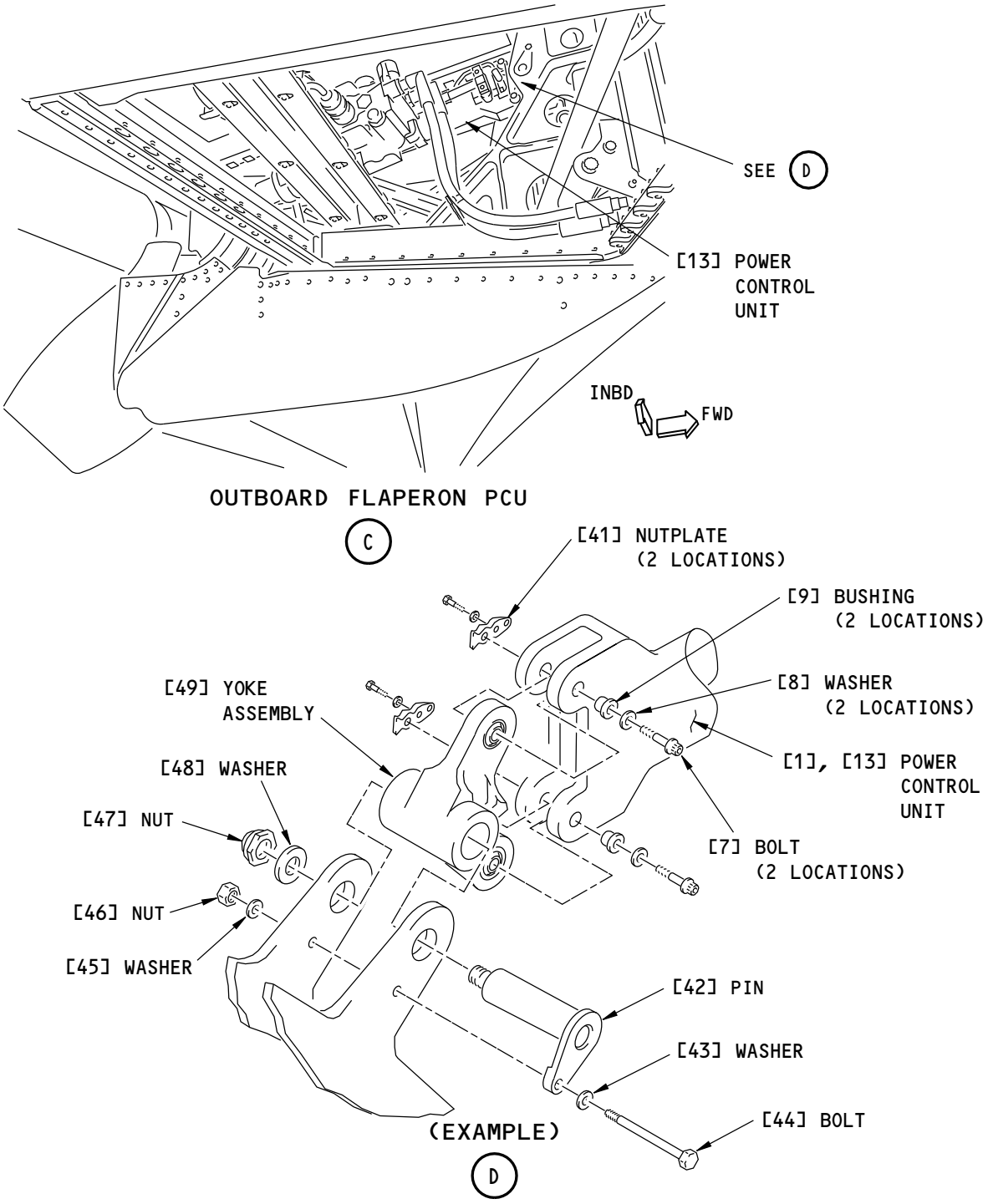
——— END OF TASK ———

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Flaperon PCU Yoke Assembly
Figure 402/27-11-12-990-802 (Sheet 1 of 2)

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Flaperon PCU Yoke Assembly
Figure 402/27-11-12-990-802 (Sheet 2 of 2)

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TASK 27-11-12-000-803

5. Flaperon Yoke Assembly - Installation

(Figure 402)

A. References

Reference	Title
12-21-07-600-803	Lubricate the Flaperon Power Control Units (PCUs) (P/B 301)
27-11-00-700-801	Aileron and Flaperon - Operational Test (P/B 501)

B. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

D. Prepare for Installation

NOTE: Install the yoke assembly [49] to the support structure before you install the PCU on the yoke assembly [49].

SUBTASK 27-11-12-420-004

(1) Install the yoke assembly [49]:

(a) Install the pin [42], washer [48], and nut [47].

1) Tighten the nut [47]1000 in-lb (112.98 N·m) to 1300 in-lb (146.88 N·m).

(b) Install the bolt [44], washer [43], washer [45], and nut [46].

1) Tighten the nut [46]50 in-lb (5.65 N·m) to 80 in-lb (9.04 N·m).

SUBTASK 27-11-12-420-005

(2) Connect the PCU to the yoke assembly [49]:

(a) Install the bolts [7], washers [8], and bushings [9] to connect the yoke assembly [49] to the PCU.

1) Tighten the bolts [7]300 in-lb (33.90 N·m) to 350 in-lb (39.54 N·m) plus run-on torque.

2) Install MS20995C32 lockwire, G01048 between the two bolts [7].

(b) Do this task: Lubricate the Flaperon Power Control Units (PCUs), TASK 12-21-07-600-803.

SUBTASK 27-11-12-860-018

(3) Do this task: Aileron and Flaperon - Operational Test, TASK 27-11-00-700-801.

SUBTASK 27-11-12-860-012

(4) Put the aircraft back to a serviceable condition.

END OF TASK

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TASK 27-11-12-000-804

6. Flaperon Tube Assembly - Removal

Figure 403

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Location Zones

Zone	Area
575	Outboard Flaperon Support Fairing - Left Wing
675	Outboard Flaperon Support Fairing - Right Wing

C. Access Panels

Number	Name/Location
552LB	Outboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

D. Prepare for Removal

SUBTASK 27-11-12-860-013

(1) Make sure the flaperon is in the retracted position.

SUBTASK 27-11-12-860-014

(2) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the SHUTOFF position.

SUBTASK 27-11-12-860-015

(3) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

SUBTASK 27-11-12-860-016

(4) Open these circuit breakers and install safety tags:

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

SUBTASK 27-11-12-010-002

(5) Open the access panel for the applicable tube assembly (Finding an Access Door or Panel on the Wings, TASK 06-44-00-800-802):

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For the right wing, open this access panel:

Number	Name/Location
652LB	Outboard Fixed Trailing Edge Panel

For the left wing, open this access panel:

Number	Name/Location
552LB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-11-12-860-017

(6) For the tube assembly on the left wing, do this step for the left hydraulic system:

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

(7) For the tube assembly on the right wing, do this step for the center hydraulic system:

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-11-12-030-001

(8) Disconnect the PCU hydraulic lines [24].

(a) Install caps on the hydraulic fittings.

E. Tube Assembly Removal

SUBTASK 27-11-12-000-001

(1) Remove the cover bracket.

(a) Remove the bolts [50] and washers [51] from the cover bracket [52].

(b) Remove the bolt [53], washer [54], washer [55], and nut [56] from the cover bracket [52].

(c) Remove the cover bracket [52] from the bracket assembly [65].

SUBTASK 27-11-12-030-002

(2) Disconnect the hydraulic hoses [57].

SUBTASK 27-11-12-000-002

(3) Remove the bulkhead nut [58] and bulkhead nut [59].

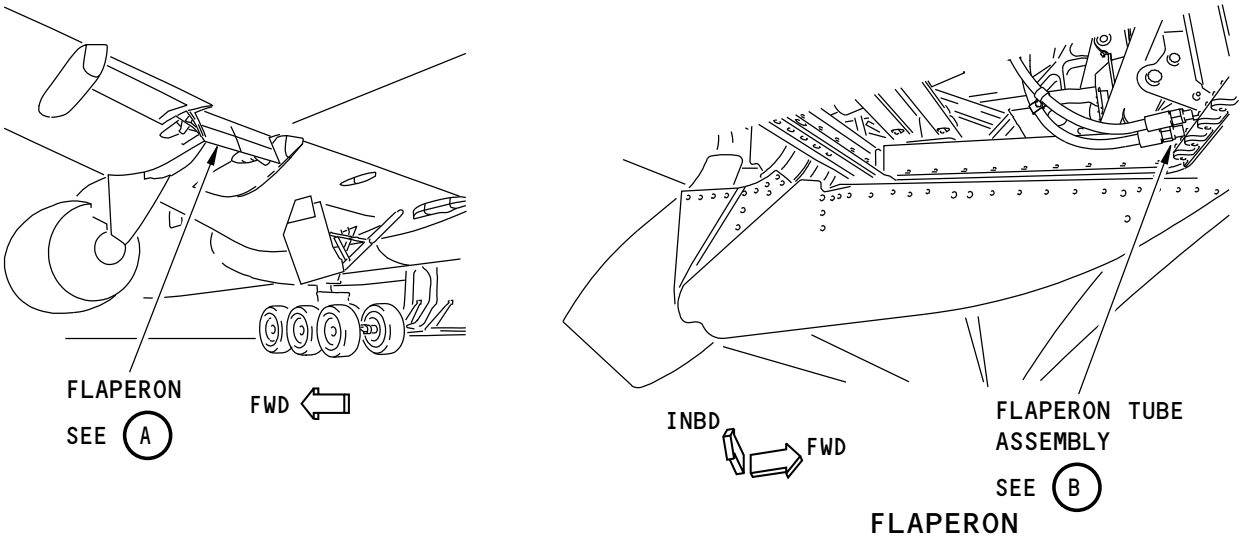
SUBTASK 27-11-12-000-003

(4) Remove the nut [60], washer [61], washer [62], and bolt [63] from the bracket assembly [65].

(5) Remove the tube assembly [64] from the bracket assembly [65].

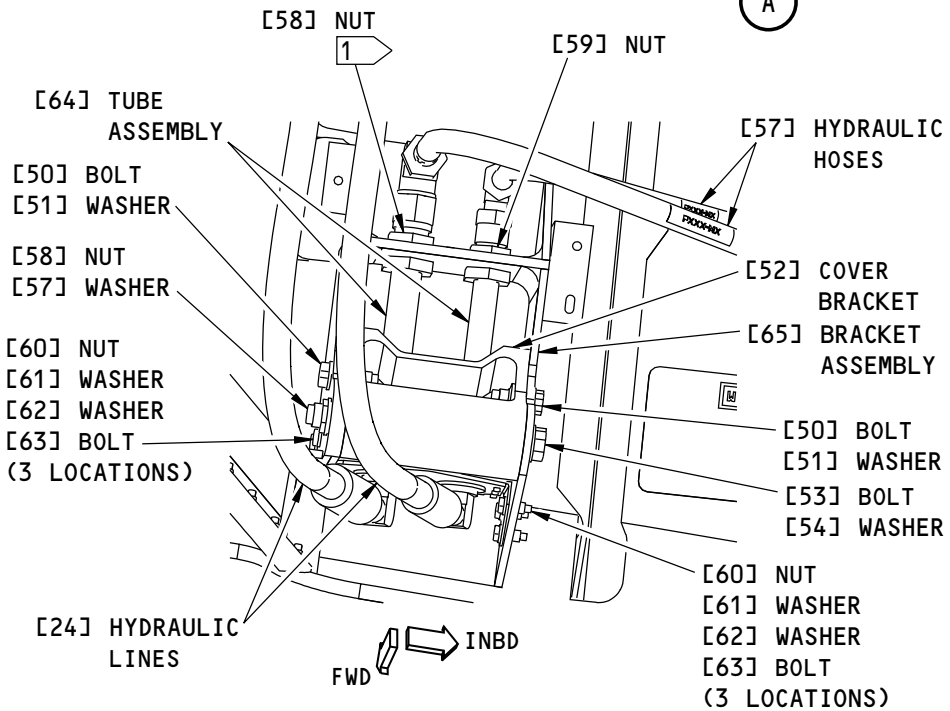
——— END OF TASK ———

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FLAPERON

A



FLAPERON TUBE ASSEMBLY
(LEFT WING IS SHOWN, RIGHT WING IS OPPOSITE)

B

1 RETURN LINE ON RIGHT WING HAS STRAIGHT FITTING

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Flaperon Tube Assembly Installation
Figure 403/27-11-12-990-804

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TASK 27-11-12-400-802

7. Flaperon Tube Assembly - Installation

Figure 403

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)

B. Location Zones

Zone	Area
557	Left Wing Flaperon
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
675	Outboard Flaperon Support Fairing - Right Wing

C. Access Panels

Number	Name/Location
552LB	Outboard Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel

D. Install the tube assembly

SUBTASK 27-11-12-420-006

(1) Put the tube assembly [64] in position.

SUBTASK 27-11-12-400-001

(2) Install the bolts [63], washers [62], washers [61], and nuts [60] in the bracket assembly [65] finger tight.

SUBTASK 27-11-12-400-002

(3) Install the bulkhead nut [59] and bulkhead nut [58].

SUBTASK 27-11-12-430-001

(4) Tighten the nuts [60].

SUBTASK 27-11-12-430-002

(5) Attach the hydraulic hoses [57].

SUBTASK 27-11-12-400-003

(6) Install the cover bracket [52].

(a) Install the bolt [53], washer [54], washer [55], and nut [56].

(b) Install the bolts [50] and washers [51].

SUBTASK 27-11-12-430-003

(7) Connect the PCU hydraulic lines [24].

E. Put the airplane back to its usual condition

SUBTASK 27-11-12-410-004

(1) Close the acces panel for the applicable tube assembly.

For the left wing, close this access panel:

Number	Name/Location
552LB	Outboard Fixed Trailing Edge Panel

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For the right wing, close this access panel:

Number	Name/Location
652LB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-11-12-611-001

(2) If you installed the tube assembly on the left wing, then do this step for the left hydraulic system.

(a) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

SUBTASK 27-11-12-611-002

(3) If you installed the tube assembly on the right wing, then do this task for the center hydraulic system:

(a) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

——— END OF TASK ———

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AILERON - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron.

(2) An installation of the aileron.

TASK 27-11-13-000-801

2. Aileron - Removal

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1699	Assembly - Sling, Aileron Removal/Installation Part #: J27008-13 Supplier: 81205

C. Location Zones

Zone	Area
568	Left Wing Aileron
668	Right Wing Aileron

D. Access Panels

Number	Name/Location
561KB	Outboard Fixed Trailing Edge Panel
561LB	Outboard Fixed Trailing Edge Panel
561MB	Outboard Fixed Trailing Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
561QB	Outboard Fixed Trailing Edge Panel
561RB	Outboard Fixed Trailing Edge Panel
561SB	Outboard Fixed Trailing Edge Panel
661KB	Outboard Fixed Trailing Edge Panel
661LB	Outboard Fixed Trailing Edge Panel
661MB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel
661QB	Outboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
661RB	Outboard Fixed Trailing Edge Panel
661SB	Outboard Fixed Trailing Edge Panel

E. Prepare for the Removal

SUBTASK 27-11-13-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-13-860-002

(2) Fully extend the trailing edge flap. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-11-13-860-011

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-11-13-860-003

(4) On the P61 maintenance panel, move the L, C, R FLT CONTROL HYD POWER - WING switches to the SHUT OFF position.

SUBTASK 27-11-13-860-004

(5) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	21	C27619	C FC SOV WG
K	22	C27618	L FC SOV WG
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

Right Power Management Panel, P210

Row	Col	Number	Name
K	6	C27620	R FC SOV WG

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR
2) A3 AIL PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR
2) A3 AIL PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR
2) A3 AIL PCU

SUBTASK 27-11-13-860-005

(6) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-11-13-010-001

(7) Open these access panels (TASK 06-44-00-800-802):

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(a) For the left wing, open these access panels:

Number	Name/Location
561KB	Outboard Fixed Trailing Edge Panel
561LB	Outboard Fixed Trailing Edge Panel
561MB	Outboard Fixed Trailing Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
561QB	Outboard Fixed Trailing Edge Panel
561RB	Outboard Fixed Trailing Edge Panel
561SB	Outboard Fixed Trailing Edge Panel

(b) For the right wing, open these access panels:

Number	Name/Location
661KB	Outboard Fixed Trailing Edge Panel
661LB	Outboard Fixed Trailing Edge Panel
661MB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel
661QB	Outboard Fixed Trailing Edge Panel
661RB	Outboard Fixed Trailing Edge Panel
661SB	Outboard Fixed Trailing Edge Panel

F. Remove the Aileron

SUBTASK 27-11-13-480-001

(1) Attach the aileron sling assembly, SPL-1699 [31] to the aileron assembly [11], and to a hoist (Figure 402).

NOTE: Each aileron weighs approximately 178 pounds (80.7 kilograms). The center of gravity of the aileron is forward of the hinge centerline. This is because of the counter weights. If you use a load-positioner, the movement of the aileron can be made easier.

(a) Remove the bolts [33] from the upper surface of the aileron assembly [11].

(b) Connect the sling fittings [32] to the aileron assembly [11].

SUBTASK 27-11-13-020-001

(2) Disconnect the power control units [17] from the aileron assembly [11] (Figure 401):

(a) Remove the nuts [16], washers [15], bolts [12], washers [13] and bushings [14] that connect the two power control units [17] to the aileron assembly [11].

(b) Use a rope to hold the power control units [17] so they do not hang from the hydraulic lines or the electrical connectors.

SUBTASK 27-11-13-020-006

(3) Remove the nuts [10], washers [9], washer [34], bolts [7] and washers [8] that connect the jumpers [1] to the wing.

SUBTASK 27-11-13-020-003

(4) Remove the aileron assembly [11]:

(a) At the inboard and outboard hinges, remove the nuts [6], washers [5], bolts [2], washers [3] and bushings [4].

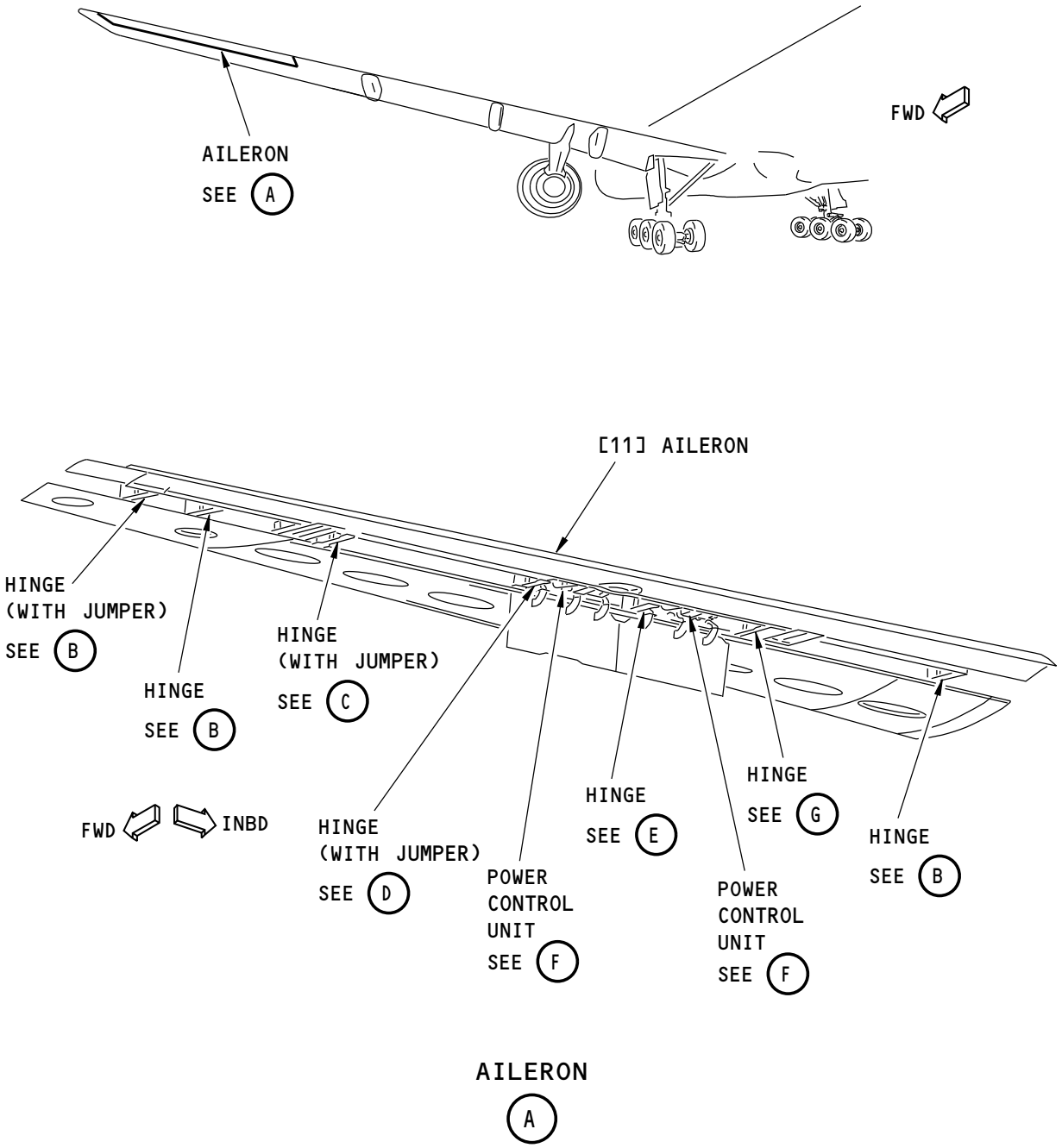
(b) At the center hinges, remove the nuts [22], washers [21], bolt [18], bolt [23], bolt [25], bolt [28], washers [19], bushing [20], bushing [24], bushing [26] and bushing [27].

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(c) Use the aileron sling assembly, SPL-1699 [31] to remove the aileron assembly [11].

——— END OF TASK ———

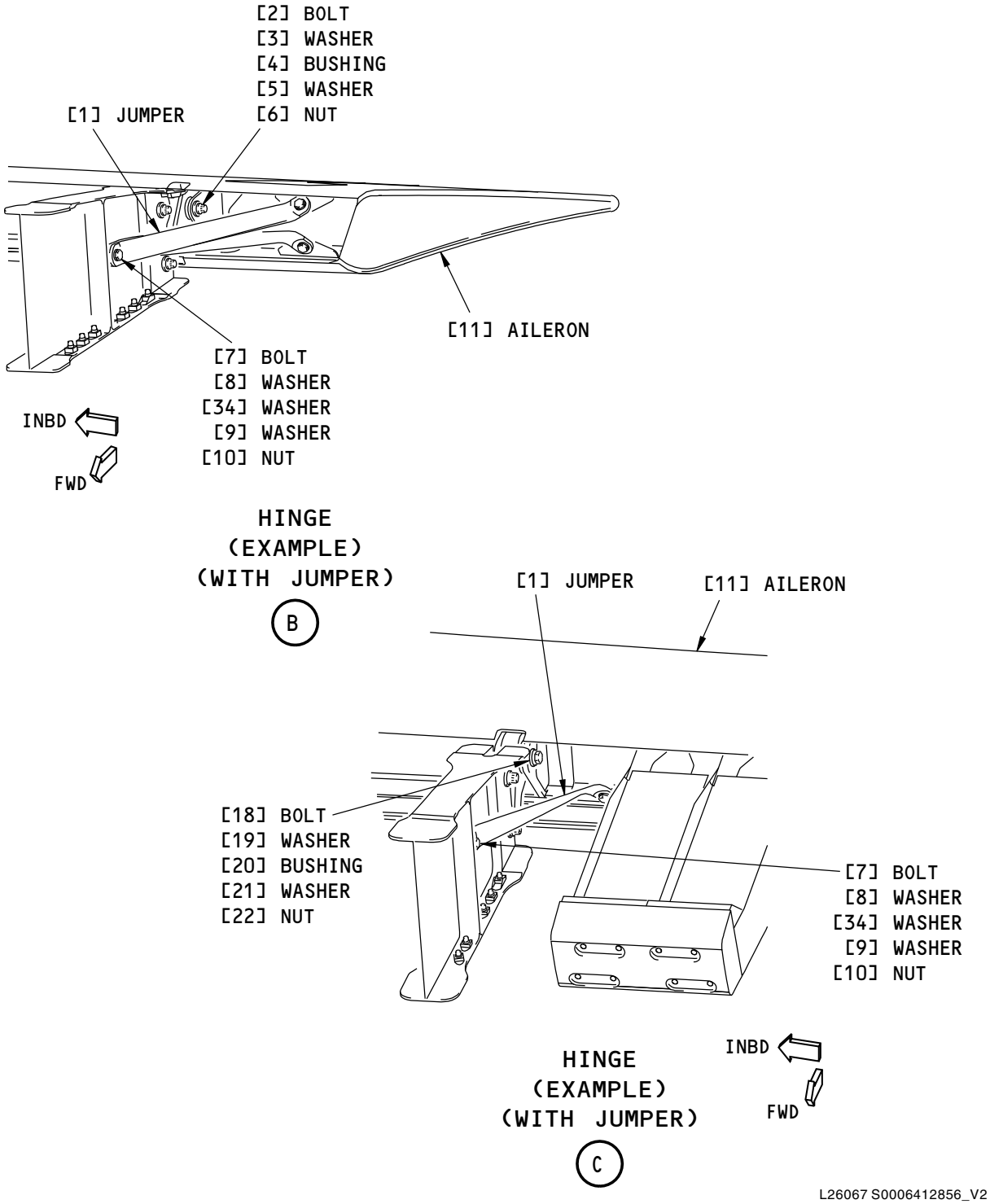
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U83352 S0000218178_V1

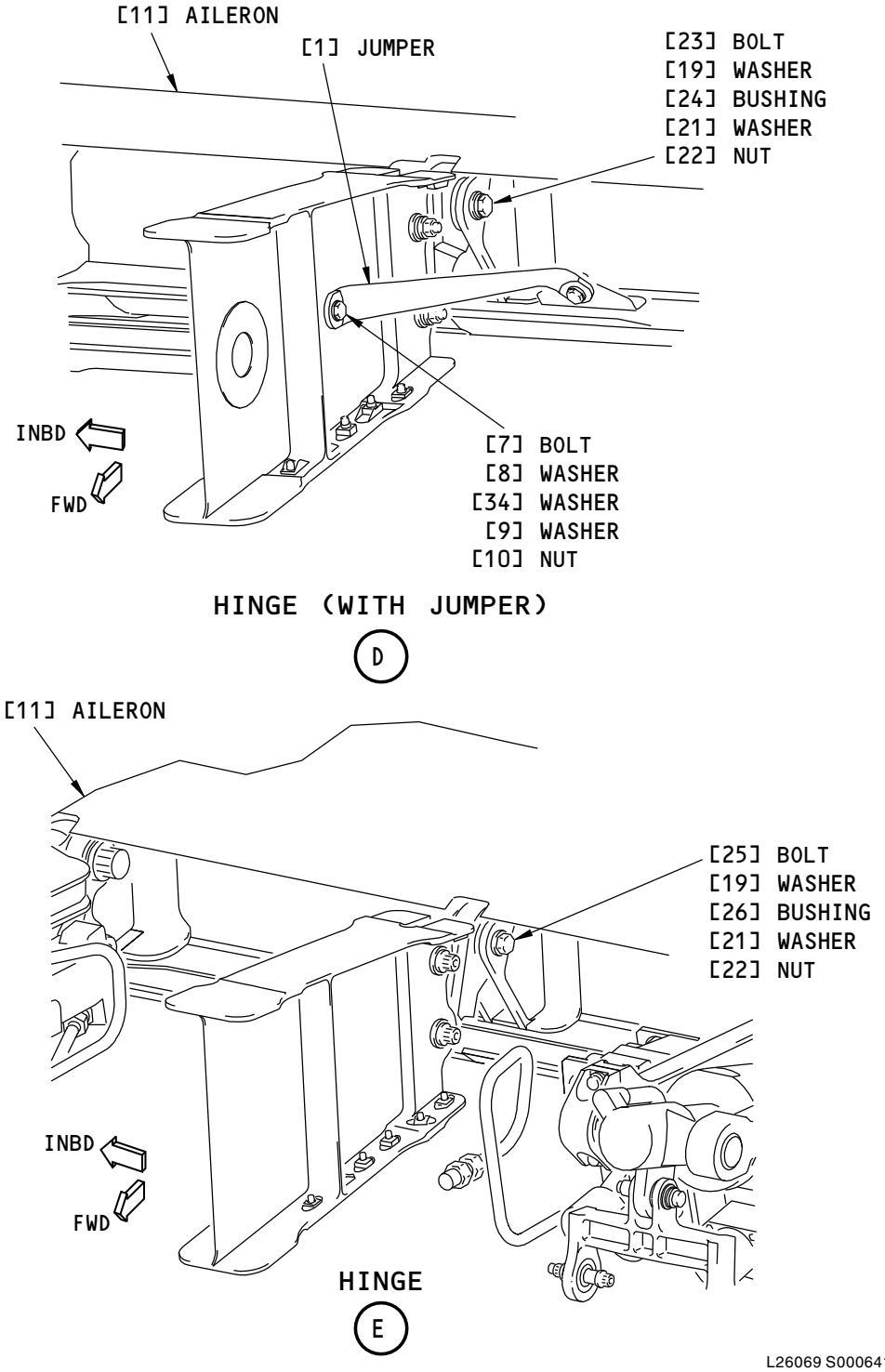
Aileron Installation
Figure 401/27-11-13-990-801 (Sheet 1 of 5)

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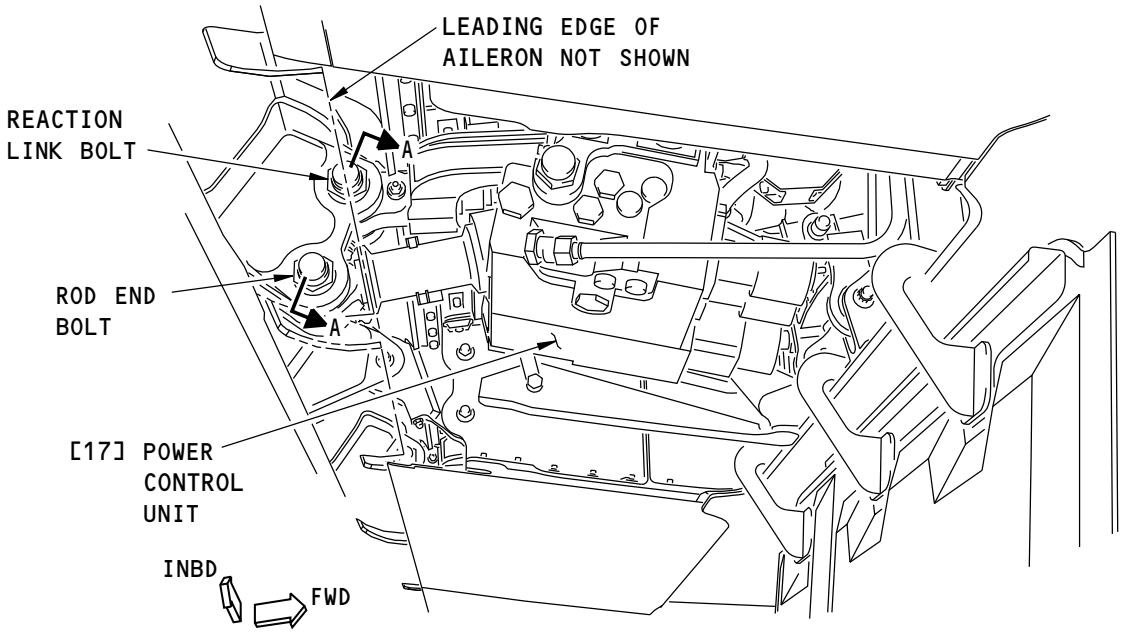
Aileron Installation
Figure 401/27-11-13-990-801 (Sheet 2 of 5)

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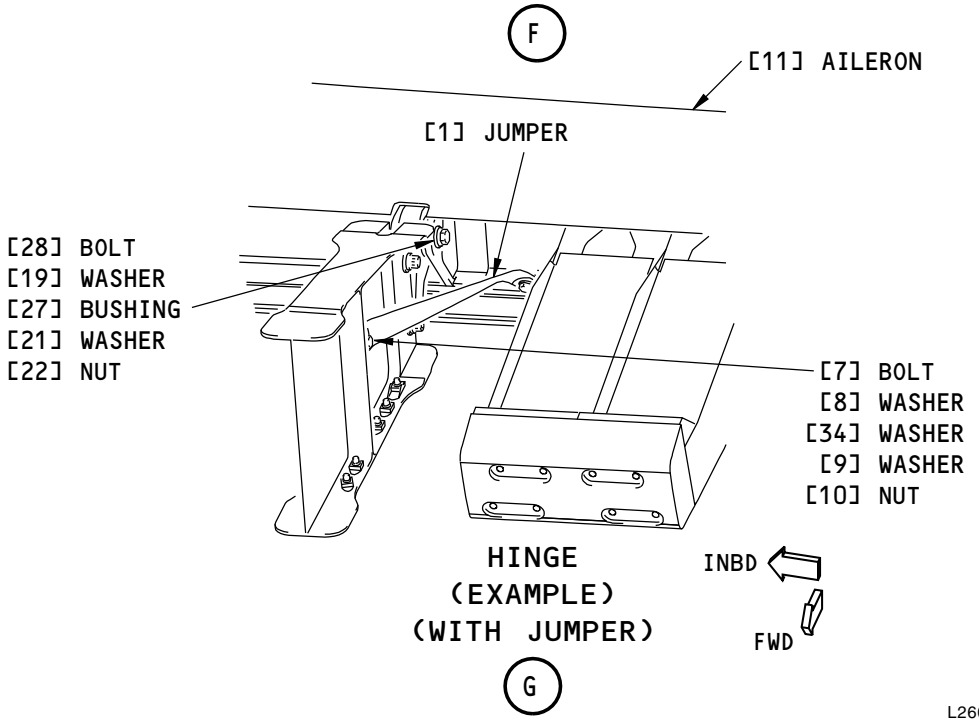


Aileron Installation
Figure 401/27-11-13-990-801 (Sheet 3 of 5)

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POWER CONTROL UNIT
(THE LEFT INBOARD PCU IS SHOWN,
THE OTHER PCUs ARE EQUIVALENT)

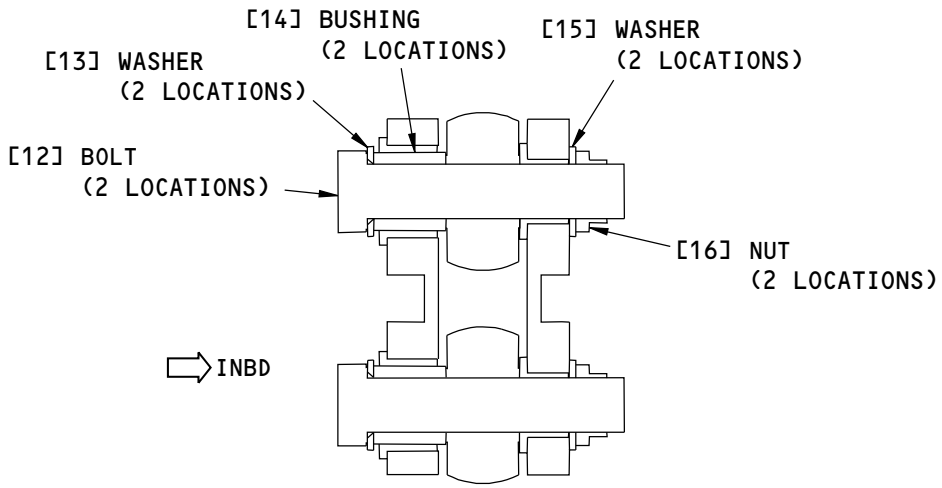


HINGE
(EXAMPLE)
(WITH JUMPER)

L26073 S0006412862_V2

Aileron Installation
Figure 401/27-11-13-990-801 (Sheet 4 of 5)

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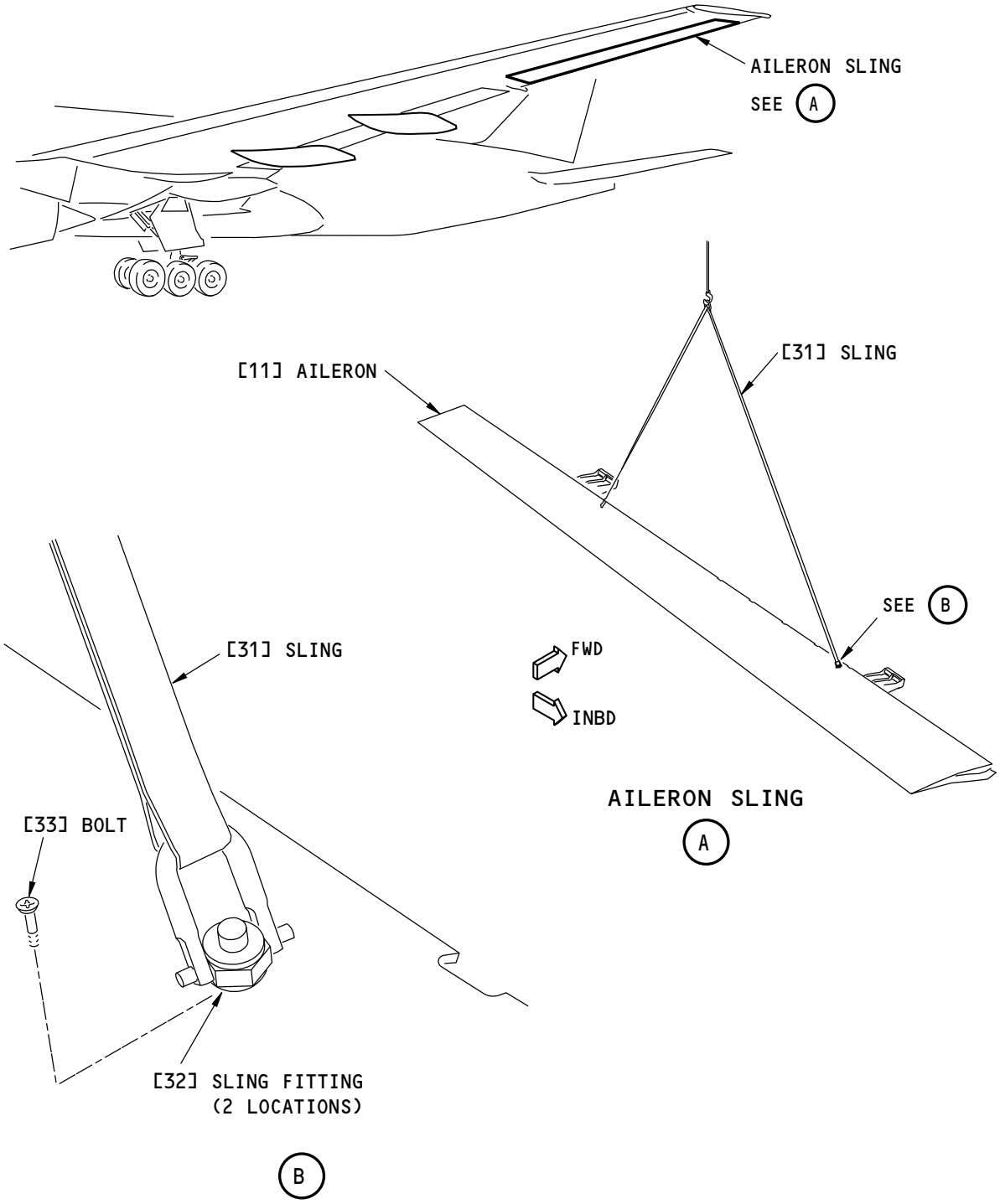


ROD END AND REACTION LINK BOLTS
A–A

F99529 S0006412864_V1

Aileron Installation
Figure 401/27-11-13-990-801 (Sheet 5 of 5)

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Aileron Sling
Figure 402/27-11-13-990-802

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TASK 27-11-13-400-801

3. Aileron - Installation

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
12-21-07-600-801	Lubricate the Aileron Power Control Units (PCUs) (P/B 301)
27-11-00-740-801	Aileron or Flaperon Power Control Unit (PCU) Test (P/B 501)
27-11-00-820-802	Aileron Adjustment (Rigging) (P/B 501)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1699	Assembly - Sling, Aileron Removal/Installation Part #: J27008-13 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A01076	Adhesive - Synthetic Rubber	BAC5010 Type 93 (BMS5-95 Class B)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Aileron assembly	27-11-13-16-120	ARO ALL
		27-11-13-16-125	ARO ALL

E. Location Zones

Zone	Area
568	Left Wing Aileron
668	Right Wing Aileron

F. Access Panels

Number	Name/Location
561KB	Outboard Fixed Trailing Edge Panel
561LB	Outboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
561MB	Outboard Fixed Trailing Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
561QB	Outboard Fixed Trailing Edge Panel
561RB	Outboard Fixed Trailing Edge Panel
561SB	Outboard Fixed Trailing Edge Panel
661KB	Outboard Fixed Trailing Edge Panel
661LB	Outboard Fixed Trailing Edge Panel
661MB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel
661QB	Outboard Fixed Trailing Edge Panel
661RB	Outboard Fixed Trailing Edge Panel
661SB	Outboard Fixed Trailing Edge Panel

G. Install the Aileron

SUBTASK 27-11-13-480-002

(1) Attach the aileron sling assembly, SPL-1699 [31] to the aileron assembly [11], and to a hoist (Figure 402).

NOTE: Each aileron weighs approximately 178 pounds (80.7 kilograms). The center of gravity of the aileron is forward of the hinge centerline. This is because of the counter weights. If you use a load-positioner, the movement of the aileron can be made easier.

SUBTASK 27-11-13-820-001

(2) Move the aileron assembly [11] into its position (Figure 401).

SUBTASK 27-11-13-420-004

(3) Attach the jumpers [1] (SWPM 20-20-00 Category 2 Fay Sealed Direct Standard Ground Stud Installation). Use adhesive, A01076 to seal:

NOTE: It is easier to install the jumpers [1] before you attach the aileron assembly [11] to the hinges.

(a) Install the bolts [7], washers [8] (under the bolt heads), washer [34] (under the jumpers), washers [9] (under the nuts), and nuts [10] to connect the jumpers [1].

SUBTASK 27-11-13-420-001

(4) Connect the aileron assembly [11] to the hinges:

(a) Apply a layer of grease, D00633 to the outside of the bushings [20], bushing [24] and bushing [26].

(b) Install the four center hinge fasteners.

1) Install the bushing [20], washer [19] (under the bolt head), bolt [18], washer [21] (under nuts) and nut [22].

2) Install the bushing [24], washer [19] (under the bolt head), bolt [23], washer [21] (under nuts) and nuts [22].

3) Install the bushing [26], washer [19] (under the bolt head), bolt [25], washer [21] (under nut) and nut [22].

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4) Install the bushing [27], washer [19] (under the bolt head), bolt [28], washer [21] (under nut) and nut [22].

5) Tighten the nuts [22] to 180-220 pound-inches (20.3-24.9 newton-meter).

(c) Install the inboard and outboard hinge fasteners.

1) Install the bushings [4], washers [3] (under the bolt heads), bolts [2], washers [5] (under nuts) and nuts [6].

NOTE: The bolts must be installed with the bolt-head in the outboard direction for both the left and right ailerons.

2) Tighten the nuts [6] to 50-80 pound-inches (5.6-9.0 newton-meter).

SUBTASK 27-11-13-080-001

(5) Remove the aileron sling assembly, SPL-1699, [31] from the aileron assembly [11] (Figure 402):

(a) Remove the sling fittings [32] from the upper surface of the aileron assembly [11].

(b) Install the bolts [33] in the upper surface of the aileron assembly [11].

SUBTASK 27-11-13-760-001

(6) Measure the bonding resistance between the airplane structure and the aileron assembly [11] across the jumpers [1] with the intrinsically safe approved bonding meter, COM-1550

(a) Make sure the resistance is less than 0.0025 ohm.

SUBTASK 27-11-13-700-001

(7) Manually move the aileron assembly [11] through its full travel. Make sure it moves freely, and that much force is not necessary.

SUBTASK 27-11-13-420-003

(8) Do these steps to attach the two power control units [17] to the aileron assembly [11] (Figure 401):

(a) Apply a thin layer of grease, D00633 to the bolts [12].

(b) Move the power control units [17] to their position and remove the rope.

(c) Install the bushings [14], washers [13] (under the bolt heads), bolts [12], washers [15] (under the nuts), and nuts [16].

NOTE: The bolts must be installed with the bolt-head in the outboard direction for both the left and right ailerons.

(d) Tighten the nuts [16] to 1100-1350 pound-inches (124.3-152.6 newton-meters).

SUBTASK 27-11-13-640-001

(9) Lubricate the aileron assembly [11]. To lubricate it, (TASK 12-21-07-600-801).

SUBTASK 27-11-13-820-002

(10) Adjust the aileron assembly [11]. To adjust it, do this task: Aileron Adjustment (Rigging), TASK 27-11-00-820-802.

H. Put the Airplane Back to its Usual Condition

SUBTASK 27-11-13-410-001

(1) Close these access panels (TASK 06-44-00-800-802):

(a) For the left wing, close these access panels:

Number	Name/Location
561KB	Outboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
561LB	Outboard Fixed Trailing Edge Panel
561MB	Outboard Fixed Trailing Edge Panel
561NB	Outboard Fixed Trailing Edge Panel
561PB	Outboard Fixed Trailing Edge Panel
561QB	Outboard Fixed Trailing Edge Panel
561RB	Outboard Fixed Trailing Edge Panel
561SB	Outboard Fixed Trailing Edge Panel

(b) For the right wing, close these access panels:

Number	Name/Location
661KB	Outboard Fixed Trailing Edge Panel
661LB	Outboard Fixed Trailing Edge Panel
661MB	Outboard Fixed Trailing Edge Panel
661NB	Outboard Fixed Trailing Edge Panel
661PB	Outboard Fixed Trailing Edge Panel
661QB	Outboard Fixed Trailing Edge Panel
661RB	Outboard Fixed Trailing Edge Panel
661SB	Outboard Fixed Trailing Edge Panel

SUBTASK 27-11-13-860-006

(2) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the NORM position.

SUBTASK 27-11-13-860-007

(3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	21	C27619	C FC SOV WG
K	22	C27618	L FC SOV WG
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

Right Power Management Panel, P210

Row	Col	Number	Name
K	6	C27620	R FC SOV WG

(a) On the PSA-C in the E2-6 shelf:

1) A1 ACE PWR
2) A3 AIL PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR
2) A3 AIL PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR
2) A3 AIL PCU

SUBTASK 27-11-13-860-008

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-11-13-860-009

(5) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-11-13-710-001

(6) Do this task: Aileron or Flaperon Power Control Unit (PCU) Test, TASK 27-11-00-740-801.

SUBTASK 27-11-13-860-010

(7) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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FLAPERON - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Flaperon

(2) An installation of the Flaperon

(3) A removal of the Cove Lip Door

(4) An installation of the Cove Lip Door.

(5) A removal of the Flaperon Seals.

(6) An installation of the Flaperon Seals.

B. In this procedure the flaperons are referred to as the flaperon assembly [1].

TASK 27-11-14-000-801

2. Flaperon - Removal

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-15-000-801	Outboard Flaperon Fairing Removal (P/B 401)
27-11-15-000-802	Inboard Flaperon Fairing Removal (P/B 401)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1700	Sling - Flaperon, Removal/Installation Part #: J27012-20 Supplier: 81205 Opt Part #: J27012-1 Supplier: 81205

C. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

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D. Access Panels

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

E. Prepare for Removal

SUBTASK 27-11-14-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-14-860-003

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the left, center, and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-14-860-004

(3) Extend the flaps to the 30 unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804

NOTE: The PRIMARY FLIGHT COMPUTER DISC switch on the overhead panel P5 must be in the AUTO position. In this position the PFC will be in the Normal Mode. This will permit the flaperon assembly [1] to fully extend.

If the PFC is in the Direct Mode the flaperon assembly [1] will only extend approximately half way down. This will not provide sufficient access to the hinges and PCUs.

SUBTASK 27-11-14-860-005

(4) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the SHUT OFF position.

SUBTASK 27-11-14-860-006

(5) If it is necessary for better access to the flaperon assembly [1], retract the flaps. To retract the flaps, (TASK 27-51-00-860-805).

SUBTASK 27-11-14-860-008

(6) For the left, center, and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

NOTE: It is also possible to manually extend the flaperon assembly [1] by carefully pulling down on the trailing edge of the flaperon assembly [1].

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SUBTASK 27-11-14-860-007

(7) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

SUBTASK 27-11-14-010-001

(8) Do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

SUBTASK 27-11-14-010-002

(9) Do this task: Inboard Flaperon Fairing Removal, TASK 27-11-15-000-802.

SUBTASK 27-11-14-010-003

(10) Remove the bull nose panels from the flaperon assembly [1] to get access to the power control units' (PCU) fitting (TASK 06-44-00-800-802):

(a) For the left wing, open these access panels:

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel

(b) For the right wing, open these access panels:

Number	Name/Location
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

F. Remove the Flaperon

SUBTASK 27-11-14-020-001

(1) Remove the flaperon assembly [1] as follows:

(a) Remove the nut [11], washer [10], bolt [7], washer [8], and bushing [9] that connects the link [17] to the flaperon assembly [1] (Figure 401).

(b) Remove the nut [28], washer [27], bolt [24], washer [25], and bushing [26] that connects the link [18] to the flaperon assembly [1].

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WARNING MAKE SURE THE FLAPERON IS SUFFICIENTLY SUPPORTED BEFORE YOU DISCONNECT THE POWER CONTROL UNITS. IF THE FLAPERON IS NOT SUPPORTED SUFFICIENTLY, IT CAN FALL AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) Remove the nut [6], washer [5], bolt [2], washer [3], and bushing [4] that connects the inboard power control unit (PCU) to the flaperon assembly [1].

(d) Remove the nut [33], washer [32], bolt [29], washer [30], and bushing [31] that connects the outboard power control unit (PCU) to the flaperon assembly [1].

(e) Install the flaperon sling, SPL-1700, [51] (Figure 402).

NOTE: You can move the flaperon assembly [1] as necessary to install the flaperon sling, SPL-1700, [51].

(f) Disconnect the flaperon assembly [1] from the fixed trailing edge of the wing (Figure 401):

1) At the inboard end of the flaperon assembly [1], remove the bolt [42], washer [43], washer [44] and nut [45] that attach the bracket [40].

2) Remove the nut [16], washer [15], bolt [12], washer [13] and bushing [14].

3) At the outboard end of the flaperon assembly [1], remove the bolt [42], washer [43], washer [44] and nut [45] that attach the bracket [41].

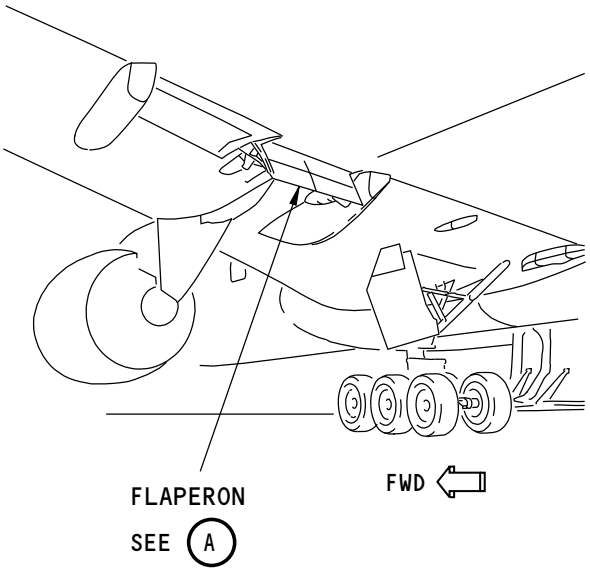
4) Remove the nut [23], washer [22], bolt [19], washer [20] and bushing [21].

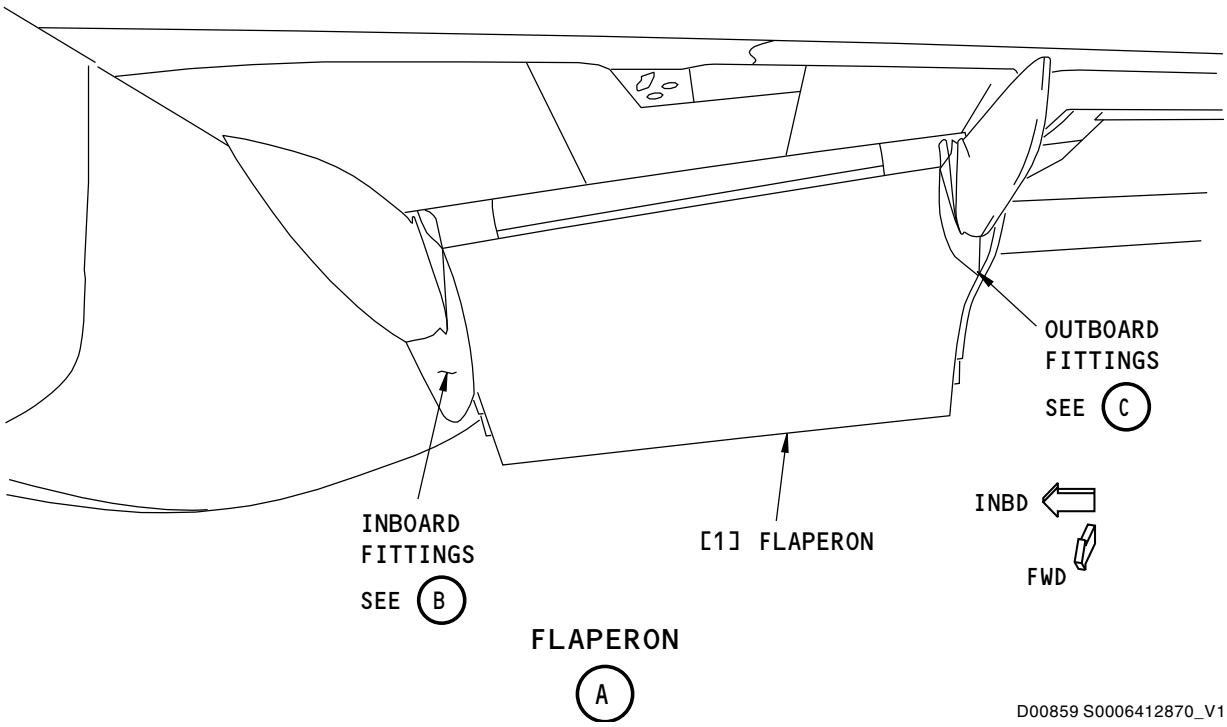
SUBTASK 27-11-14-020-002

(2) Carefully move the flaperon assembly [1] away from the airplane.

END OF TASK

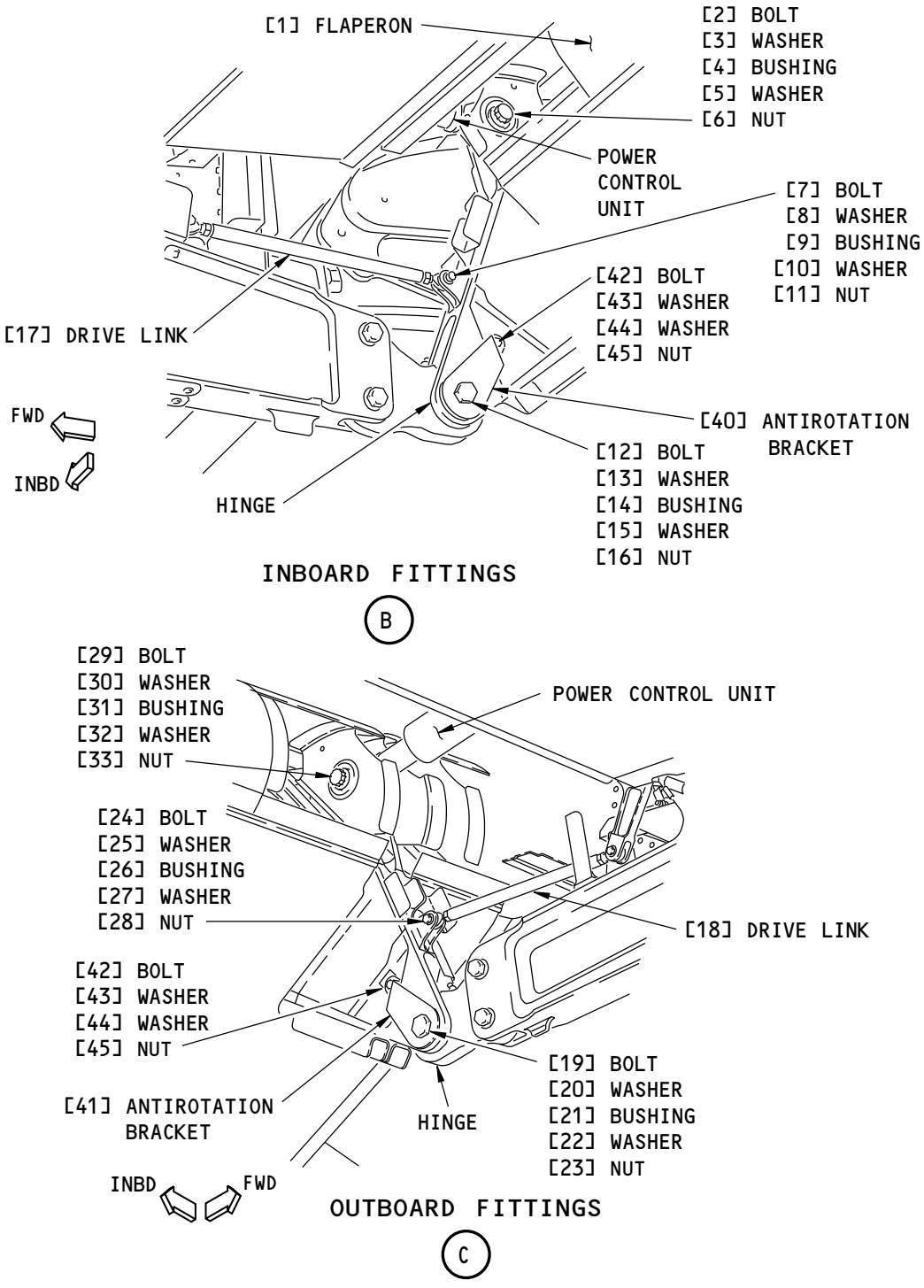
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Flaperon Installation
Figure 401/27-11-14-990-801 (Sheet 1 of 2)

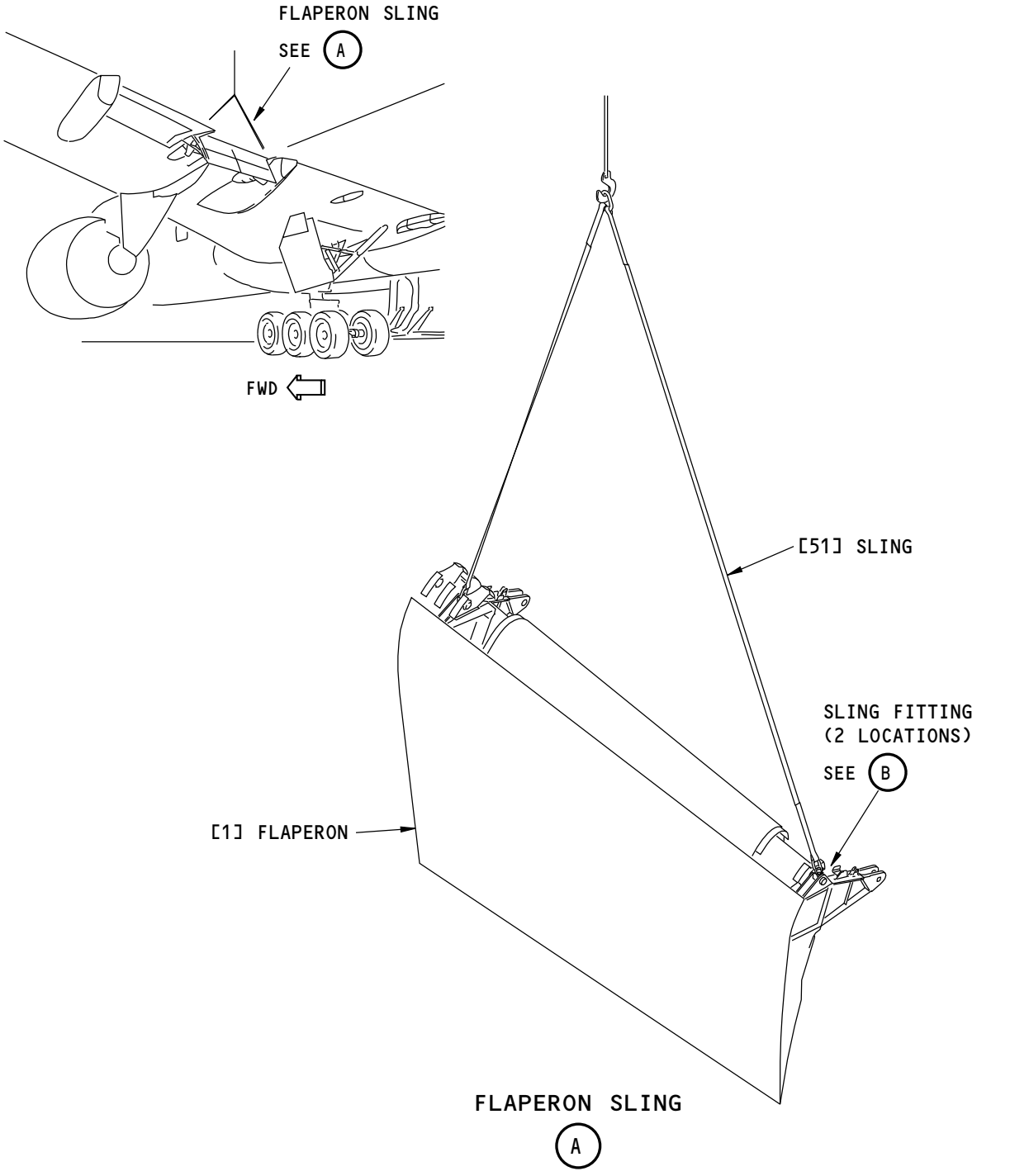
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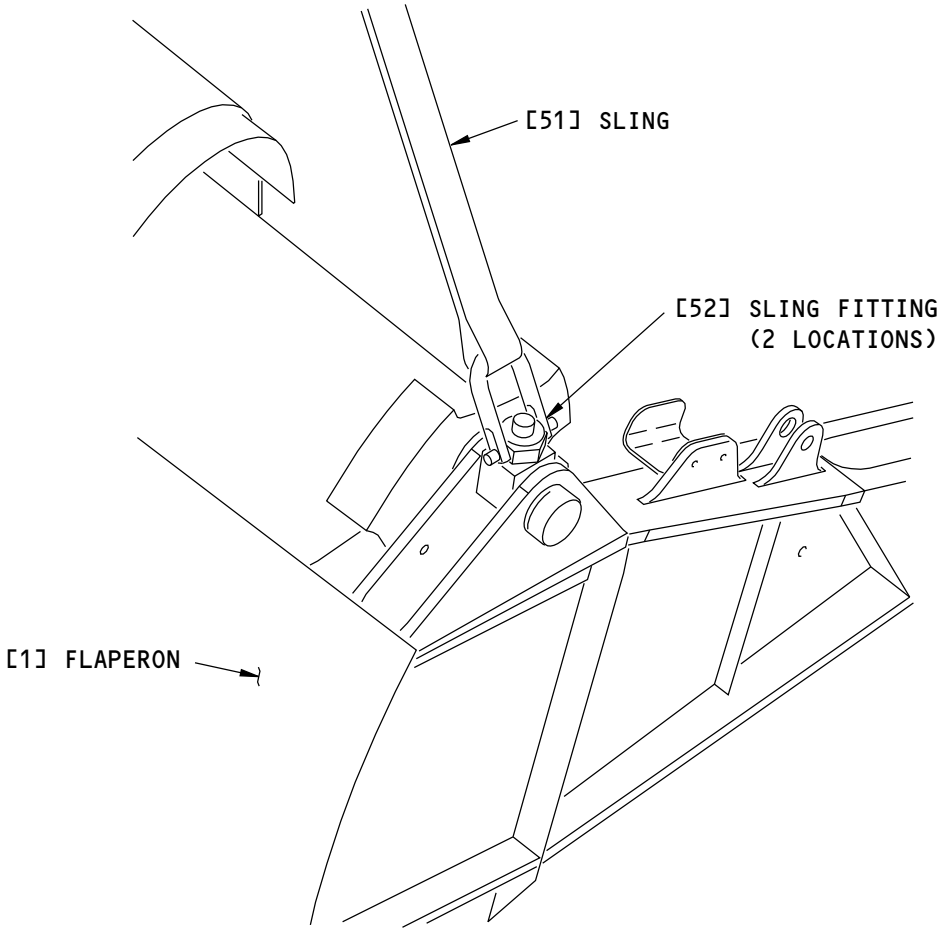
Flaperon Installation
Figure 401/27-11-14-990-801 (Sheet 2 of 2)

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Flaperon Sling Installation
Figure 402/27-11-14-990-802 (Sheet 1 of 2)

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Flaperon Sling Installation
Figure 402/27-11-14-990-802 (Sheet 2 of 2)

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TASK 27-11-14-400-801

3. Flaperon - Installation

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
12-21-07-600-803	Lubricate the Flaperon Power Control Units (PCUs) (P/B 301)
12-21-07-600-804	Lubricate the Flaperon Hinges (P/B 301)
27-11-00-740-801	Aileron or Flaperon Power Control Unit (PCU) Test (P/B 501)
27-11-00-820-803	Flaperon Adjustment (Rigging) (P/B 501)
27-11-15-400-801	Outboard Flaperon Fairing Installation (P/B 401)
27-11-15-400-802	Inboard Flaperon Fairing Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1700	Sling - Flaperon, Removal/Installation Part #: J27012-20 Supplier: 81205 Opt Part #: J27012-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Flaperon assembly	27-11-14-01-065	ARO ALL
		27-11-14-01-070	ARO ALL

E. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

F. Access Panels

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel

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(Continued)

Number	Name/Location
557EB	Flaperon Leading Edge Panel
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

G. Install the Flaperon

SUBTASK 27-11-14-480-001

(1) Connect the flaperon sling, SPL-1700, to the flaperon assembly [1] and to a hoist.

SUBTASK 27-11-14-420-001

(2) Move the flaperon assembly [1] into its position.

SUBTASK 27-11-14-420-002

(3) Install the fasteners that connect the flaperon assembly [1] to the fixed trailing edge of the wing as follows (Figure 401):

(a) For the inboard hinge (View B):

1) Apply a thin layer grease, D00633, on the bolt [12].
2) Install the bushing [14], washer [13] (under the bolthead), bolt [12], washer [15] (under nut), and nut [16].

NOTE: Make sure the head of the bolt [12] is located on the outboard side of the hinge.

3) Tighten the nut [16] to 1300-2000 pound-inches (146.9-226 newton-meters).
4) Put the bracket [40] in its position on the head of the bolt [12].
5) Install the bolt [42], washer [43], washer [44] and nut [45] that connect the bracket [40].

(b) For the outboard hinge, (View C):

1) Apply a thin layer of grease, D00633, on the bolt [19].
2) Install the bushing [21], washer [20] (under the bolthead), bolt [19], washer [22] (under nut), and nut [23].

NOTE: Make sure the head of the bolt [19] is located on the inboard side of the joint.

3) Tighten the nut [23] to 1300-2000 pound-inches (146.9-226 newton-meters).
4) Put the bracket [41] in its position on the head of the bolt [19].
5) Install the bolt [42], washer [43], washer [44] and nut [45] that connect the bracket [41].

SUBTASK 27-11-14-080-001

WARNING MAKE SURE THE FLAPERON IS SUFFICIENTLY SUPPORTED BEFORE YOU REMOVE THE FLAPERON SLING. THE FLAPERON CAN FALL AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Remove the flaperon sling, SPL-1700, [51] (Figure 402).

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SUBTASK 27-11-14-420-003

(5) Move the flaperon assembly [1] as necessary to connect the power control units (PCUs).

SUBTASK 27-11-14-420-004

(6) Install the fasteners that connect the power control units (PCUs) to the flaperon assembly [1] as follows (Figure 401):

(a) For the inboard power control unit:

1) Apply a thin layer of grease, D00633, to the bolt [2].

2) Install the bushing [4], washer [3] (under the bolthead), bolt [2], washer [5] (under nut), and nut [6] (Figure 401).

3) Tighten the nut [6] to 900-1125 pound-inches (101.7-127.1 newton-meters).

(b) For the outboard power control unit:

1) Apply a thin layer of grease, D00633, to the bolt [29].

2) Install the bushing [31], washer [30] (under the bolthead), bolt [29], washer [32] (under nut), and nut [33] (Figure 401).

3) Tighten the nut [33] to 900-1125 pound-inches (101.7-127.1 newton-meters).

SUBTASK 27-11-14-420-005

(7) Install the fasteners that connect the link [17] and link [18] to the flaperon assembly [1] as follows (Figure 401):

(a) For the inboard link [17], (View B):

1) Install the bushing [9], washer [8] (under the bolthead), bolt [7], washer [10] (under nut), and nut [11].

NOTE: Make sure the head of the bolt [7] is located on the outboard side of the joint.

2) Tighten the nut [11] to 50-75 pound-inches (5.6-8.5 newton-meters).

(b) For the outboard link [18], (View C):

1) Install the bushing [26], washer [25] (under the bolthead), bolt [24], washer [27] (under nut), and nut [28].

NOTE: Make sure the head of the bolt [24] is located on the inboard side of the joint.

2) Tighten the nut [28] to 50-75 pound-inches (5.6-8.5 newton-meters).

SUBTASK 27-11-14-640-001

(8) Do this task: Lubricate the Flaperon Hinges, TASK 12-21-07-600-804.

SUBTASK 27-11-14-640-002

(9) Do this task: Lubricate the Flaperon Power Control Units (PCUs), TASK 12-21-07-600-803.

SUBTASK 27-11-14-010-006

(10) Install the bull nose panels on the flaperon (TASK 06-44-00-800-802):

(a) For the flaperon on the left wing:

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel

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(Continued)

Number	Name/Location
557EB	Flaperon Leading Edge Panel

(b) For the flaperon on the right wing:

Number	Name/Location
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

(c) Seal the clearances between the panels with sealant, A00247.

SUBTASK 27-11-14-410-001

(11) Do this task: Inboard Flaperon Fairing Installation, TASK 27-11-15-400-802.

SUBTASK 27-11-14-410-002

(12) Do this task: Outboard Flaperon Fairing Installation, TASK 27-11-15-400-801.

SUBTASK 27-11-14-860-016

(13) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the PSA-C in the E2-6 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

SUBTASK 27-11-14-820-002

(14) If a replacement flaperon is installed, or if either of the flaperon PCUs have been adjusted, do this task: Flaperon Adjustment (Rigging), TASK 27-11-00-820-803.

NOTE: If the flaperon is removed and re-installed, and there is no change to the flaperon or either PCU, the adjustment is not necessary.

H. Put the Airplane Back to its Usual Condition

SUBTASK 27-11-14-860-017

(1) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the NORM position.

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SUBTASK 27-11-14-700-001

(2) For the flaperon that you installed, do this task: Aileron or Flaperon Power Control Unit (PCU) Test, TASK 27-11-00-740-801.

——— END OF TASK ———

TASK 27-11-14-000-802

4. Cove Lip Door - Removal

(Figure 403)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-15-000-801	Outboard Flaperon Fairing Removal (P/B 401)
27-11-15-000-802	Inboard Flaperon Fairing Removal (P/B 401)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

C. Prepare for Removal

SUBTASK 27-11-14-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-14-860-010

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-14-860-011

(3) Extend the flaps to the 30 unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804

NOTE: The PRIMARY FLIGHT COMPUTER DISC switch on the overhead panel P5 must be in the AUTO position. In this position the PFC will be in the Normal Mode. This will permit the flaperon assembly [1] to fully extend.

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If the PFC is in the Direct Mode the flaperon assembly [1] will only extend approximately half way down. This will not provide sufficient access to the hinges and PCUs.

NOTE: It is also possible to manually extend the flaperon assembly [1] by carefully pulling down on the trailing edge of the flaperon assembly [1].

SUBTASK 27-11-14-860-012

(4) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the SHUT OFF position.

SUBTASK 27-11-14-860-013

(5) If it is necessary for better access to the flaperon, retract the flaps. To retract the flaps, (TASK 27-51-00-860-805).

SUBTASK 27-11-14-860-014

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

SUBTASK 27-11-14-860-015

(7) For the left, center, and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-14-010-004

(8) Do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

SUBTASK 27-11-14-010-005

(9) Do this task: Inboard Flaperon Fairing Removal, TASK 27-11-15-000-802.

D. Remove the Cove Lip Door

SUBTASK 27-11-14-020-003

(1) Remove the nuts [81], washers [79] and screws [78] to disconnect the jumpers [77] (2 locations) from the cove lip door [71].

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SUBTASK 27-11-14-020-004

WARNING MAKE SURE THE COVE LIP DOOR IS SUFFICIENTLY SUPPORTED BEFORE THE DRIVE LINKS ARE DISCONNECTED. THE COVE LIP DOOR CAN FALL AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Remove the nut [87], washer [86], bolt [83], washer [84], and bushing [85] that connects the drive link [82] to the cove lip door [71].

SUBTASK 27-11-14-020-005

(3) Remove the nut [108], washer [107], bolt [104], washer [105], and bushing [106] that connects the drive link [103] to the cove lip door [71].

SUBTASK 27-11-14-020-006

(4) Remove the nut [76], washer [75], bolt [72], washer [73], and bushing [74] for the outboard main hinge (View B).

SUBTASK 27-11-14-020-007

(5) Remove the nut [102], washer [101], bolt [98], washer [99], and bushing [100] for the inboard main hinge (View E).

SUBTASK 27-11-14-020-008

(6) Remove the nut [97], washer [96], bolt [93], washer [94], and bushing [95] for the inboard auxiliary hinge (View D).

SUBTASK 27-11-14-020-009

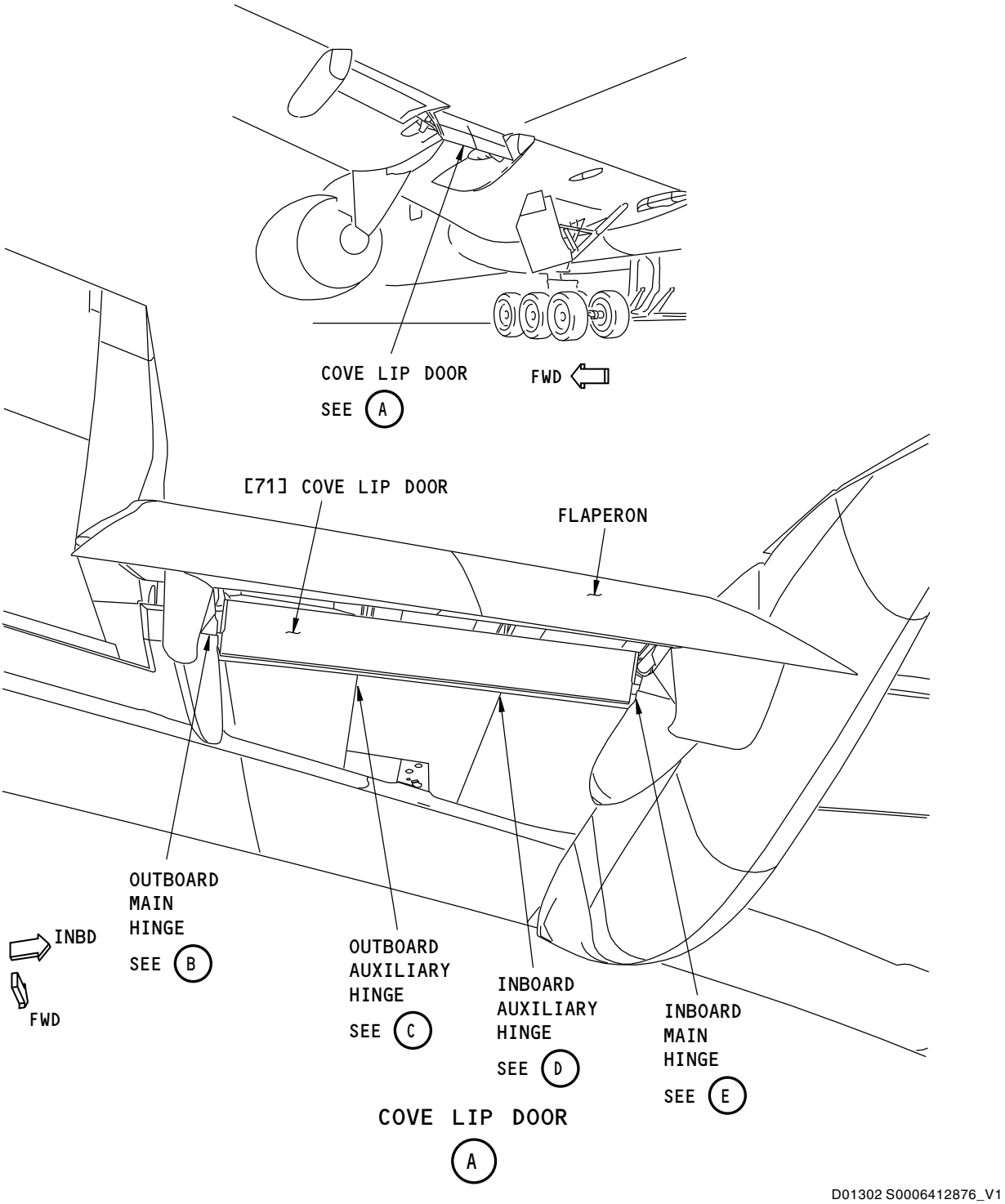
(7) Remove the nut [92], washer [91], bolt [88], washer [89], and bushing [90] for the outboard auxiliary hinge (View C).

SUBTASK 27-11-14-020-010

(8) Remove the cove lip door [71].

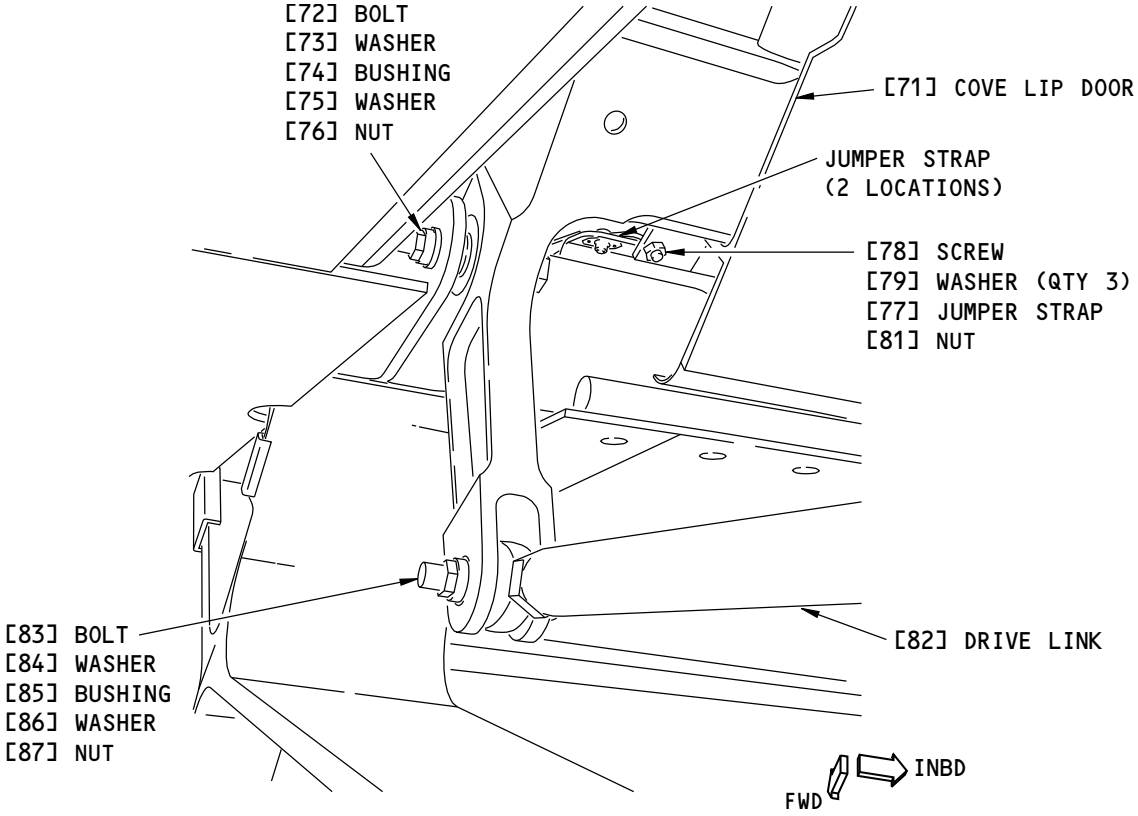
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Cove Lip Door Installation
Figure 403/27-11-14-990-803 (Sheet 1 of 3)

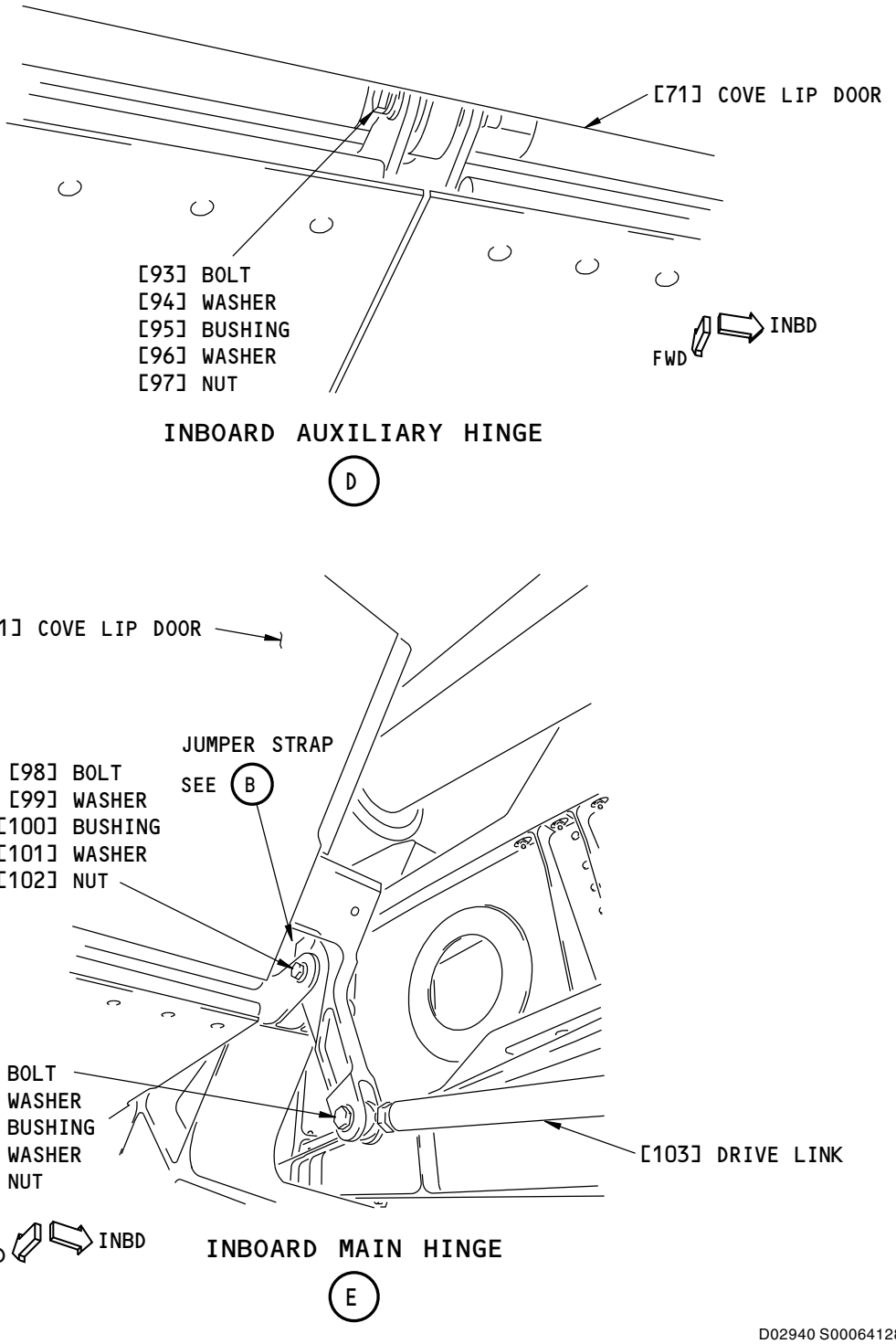
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Cove Lip Door Installation
Figure 403/27-11-14-990-803 (Sheet 2 of 3)

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Cove Lip Door Installation
Figure 403/27-11-14-990-803 (Sheet 3 of 3)

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TASK 27-11-14-400-802

5. Cove Lip Door - Installation

(Figure 403)

A. References

Reference	Title
27-11-00-820-804	Cove Lip Door Adjustment (Rigging) (P/B 501)
27-11-15-400-801	Outboard Flaperon Fairing Installation (P/B 401)
27-11-15-400-802	Inboard Flaperon Fairing Installation (P/B 401)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
71	Cove lip door	27-11-14-05-205	ARO ALL
		27-11-14-05-210	ARO ALL

E. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

F. Install the Cove Lip Door

SUBTASK 27-11-14-420-006

(1) Put the cove lip door [71] in its position.

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SUBTASK 27-11-14-420-007

WARNING MAKE SURE THE COVE LIP DOOR IS SUFFICIENTLY SUPPORTED WHEN YOU INSTALL THE FASTENERS FOR THE HINGES. THE COVE LIP DOOR CAN FALL AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Install the fasteners for the hinges as follows (Figure 403):

(a) For the inboard auxiliary hinge (View D):

1) Install the bushing [95], washer [94] (under the bolthead), bolt [93], washer [96] (under the nut) and nut [97].

NOTE: Make sure the head of the bolt [93] is located on the outboard side of the hinge.

2) Tighten the nut [97] to 50-75 pound-inches (5.6-8.5 newton-meters).

(b) For the outboard auxiliary hinge (View C):

1) Install the bushing [90], washer [89] (under the bolthead), bolt [88], washer [91] (under the nut) and nut [92].

NOTE: Make sure the head of the bolt [88] is located on the inboard side of the hinge.

2) Tighten the nut [92] to 150-200 pound-inches (16.9-22.6 newton-meters).

(c) For the outboard main hinge (View B):

1) Install the bushing [74], washer [73](under the bolthead), bolt [72], washer [75] (under the nut) and nut [76].

NOTE: Make sure the head of the bolt [72] is located on the inboard side of the hinge.

2) Tighten the nut [76] to 50-75 pound-inches (5.6-8.5 newton-meters).

(d) For the inboard main hinge (View E):

1) Install the bushing [100], washer [99] (under the bolthead), bolt [98], washer [101] (under the nut), and nut [102].

NOTE: Make sure the head of the bolt [98] is located on the outboard side of the hinge.

2) Tighten the nut [102] to 50-75 pound-inches (5.6-8.5 newton-meters).

SUBTASK 27-11-14-420-008

(3) Install the fasteners for the drive link [82], and [103] as follows:

(a) For the inboard drive link [103], (View E):

1) Install the bushing [106], washer [105] (under the bolthead), bolt [104], washer [107] (under the nut), and nut [108].

NOTE: Make sure the head of the bolt [104] is located on the outboard side of the link.

2) Tighten the nut [108] to 50-75 pound-inches (5.6-8.5 newton-meters).

(b) For the outboard drive link [82], (View B):

1) Install the bushing [85], washer [84] (under the bolthead), bolt [83], washer [86] (under the nut), and nut [87].

NOTE: Make sure the head of the bolt [83] is located on the inboard side of the link.

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2) Tighten the nut [87] to 50-75 pound-inches (5.6-8.5 newton-meters).

SUBTASK 27-11-14-420-009

(4) Install the fasteners for the jumpers [77] as follows:

(a) Install the screws [78], washers [79] (3 places) and nuts [81] (SWPM 20-20-00). The stackup is screw, washer, jumper, washer, composite structure, washer and nut. Torque the nut to 25-30 in-lbs (2.8-3.3 newton-meters).

(b) Measure the bonding resistance between the jumper terminal and exposed graphite by placing one intrinsically safe approved bonding meter, COM-1550 probe on the jumper [77] terminal and the second ohmeter probe on exposed graphite of the cove lip door [71], with the distance between probes not to exceed 0.25 inches (6.35 mm).

1) Make sure the resistance is equal to or less than 1.0 ohm.

(c) Apply a cap seal on head and tail of the fastener, terminal end and washer with sealant, A02315, and at the junction of the terminal and jumper braid.

SUBTASK 27-11-14-820-001

(5) Adjust the position of the cove lip door [71], do this task: Cove Lip Door Adjustment (Rigging), TASK 27-11-00-820-804.

G. Put the Airplane Back to its Usual Condition

SUBTASK 27-11-14-410-003

(1) Do this task: Outboard Flaperon Fairing Installation, TASK 27-11-15-400-801.

SUBTASK 27-11-14-410-004

(2) Do this task: Inboard Flaperon Fairing Installation, TASK 27-11-15-400-802.

SUBTASK 27-11-14-860-001

(3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

SUBTASK 27-11-14-860-018

(4) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the NORM position.

END OF TASK

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TASK 27-11-14-000-803

6. Flaperon Seals - Removal

Figure 404

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-15-000-801	Outboard Flaperon Fairing Removal (P/B 401)
27-11-15-000-802	Inboard Flaperon Fairing Removal (P/B 401)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

C. Access Panels

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

D. Prepare for Removal

SUBTASK 27-11-14-860-019

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-14-860-020

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the left, center, and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-11-14-860-021

(3) Extend the flaps to the 30 unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804

NOTE: The PRIMARY FLIGHT COMPUTER DISC switch on the overhead panel P5 must be in the AUTO position. In this position the PFC will be in the Normal Mode. This will permit the flaperon assembly to fully extend.

If the PFC is in the Direct Mode the flaperon assembly will only extend approximately half way down. This will not provide sufficient access to the hinges and PCUs.

NOTE: It is also possible to manually extend the flaperon assembly by carefully pulling down on the trailing edge of the flaperon assembly.

SUBTASK 27-11-14-860-022

(4) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the SHUT OFF position.

SUBTASK 27-11-14-860-023

(5) If it is necessary for better access to the flaperon assembly, retract the flaps. To retract the flaps, (TASK 27-51-00-860-805).

SUBTASK 27-11-14-860-024

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

2) A5 FLPRN PCU

SUBTASK 27-11-14-860-025

(7) For the left, center, and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-14-010-007

(8) Do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

SUBTASK 27-11-14-010-008

(9) Do this task: Inboard Flaperon Fairing Removal, TASK 27-11-15-000-802.

SUBTASK 27-11-14-010-009

(10) If necessary, remove the bull nose panels from the flaperon assembly. (TASK 06-44-00-800-802):

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(a) For the left wing, open these access panels:

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel

(b) For the left wing, open these access panels:

Number	Name/Location
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

E. Remove the Flaperon Seals

ARO 005-999; ARO 001-004 PRE SB 777-57-0085

SUBTASK 27-11-14-020-015

(1) Do these steps to remove the seal [111] and seal [112] or seal [113] if alternative method was used from the flaperon assembly: (Figure 404)

(a) Remove the seal plug [121].

(b) If applicable, remove the bolts [122], washers [123] and nuts [124] from seal [111] and seal [112] or seal [113].

(c) If applicable, remove the bolts [125], washers [126] and clips [127] from seal [111] and seal [112] or seal [113].

(d) If applicable, remove the bolts [122], plates [128] and nuts [124] from seal [111] and seal [112] or seal [113].

(e) Remove the seal [111] and seal [112] or seal [113] if alternative method was used.

ARO 001-004 POST SB 777-57-0085

SUBTASK 27-11-14-020-019

(2) Do these steps to remove the seal [111] and seal [112] from the flaperon assembly: (Figure 404)

(a) Remove the seal plug [121] from seal [111] and seal plug [133] from seal [112].

(b) Remove the bolts [129], retainer [130] and self-locking nuts [132].

(c) Remove the seal [111] and seal [112].

ARO ALL

SUBTASK 27-11-14-020-016

(3) Remove the seal [115] from the flaperon assembly. (Figure 404)

ARO 005-999; ARO 001-004 PRE SB 777-57-0085

SUBTASK 27-11-14-020-017

(4) Do these steps to remove the seal [114], seal [117] and seal [118] from the flaperon assembly: (Figure 404)

(a) Remove the seal plug [121] from seal [117].

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ARO 005-999; ARO 001-004 PRE SB 777-57-0085 (Continued)

(b) If applicable, remove the bolts [122], washers [123] and nuts [124] from seal [114], seal [117] and seal [118].

(c) If applicable, remove the bolts [125], washers [126] and clips [127] from seal [114], seal [117] and seal [118].

(d) Remove seal [114], seal [117] and seal [118].

ARO 001-004 POST SB 777-57-0085

SUBTASK 27-11-14-020-021

(5) Do these steps to remove the seal [114], seal [117] and seal [118] from the flaperon assembly: (Figure 404

(a) Remove the seal plug [133] from seal [117].

(b) Remove the bolts [129], retainer [130] and self-locking nuts [132] from seal [114], seal [117] and seal [118].

(c) Remove seal [114], seal [117] and seal [118].

ARO 005-999; ARO 001-004 PRE SB 777-57-0085

SUBTASK 27-11-14-020-018

(6) Do these steps to remove the seal [119] and seal [120] from the flaperon assembly: (Figure 404)

(a) Remove the seal plugs [121] from seal [119] and seal [120].

(b) If applicable, remove the bolts [122], washers [123] and nuts [124] from seal [119] and seal [120].

(c) If applicable, remove the bolts [122], plates [128] and nuts [124] from seal [119] and seal [120].

(d) Remove the seal [119] and seal [120].

ARO 001-004 POST SB 777-57-0085

SUBTASK 27-11-14-020-020

(7) Do these steps to remove the seal [119] and seal [120] from the flaperon assembly: (Figure 404)

(a) Remove the seal plug [121] from seal [119] and seal plug [133] from seal [120].

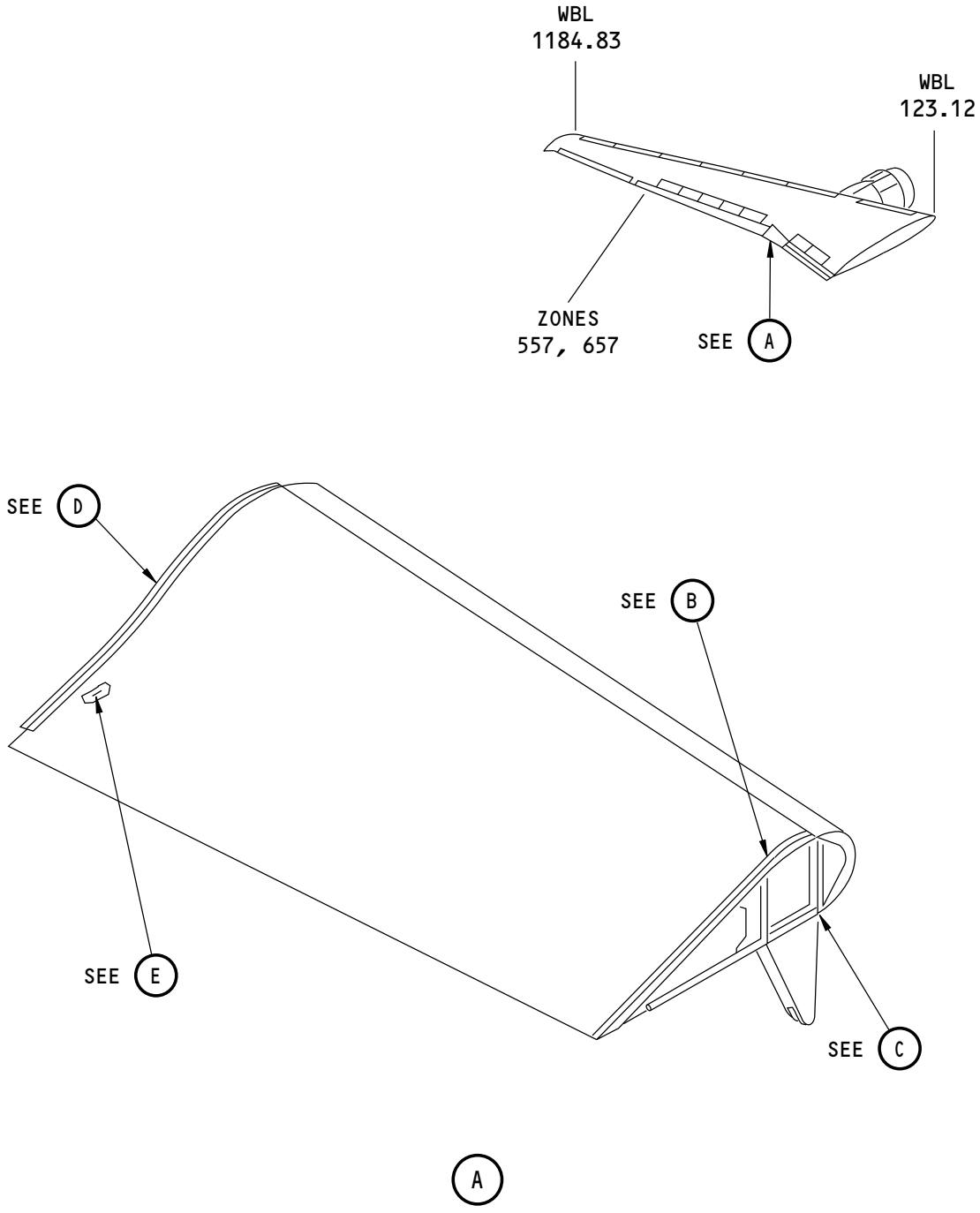
(b) Remove the bolts [129], retainers [130] and self-locking nuts [132].

(c) Remove the seal [119] and seal [120].

ARO ALL

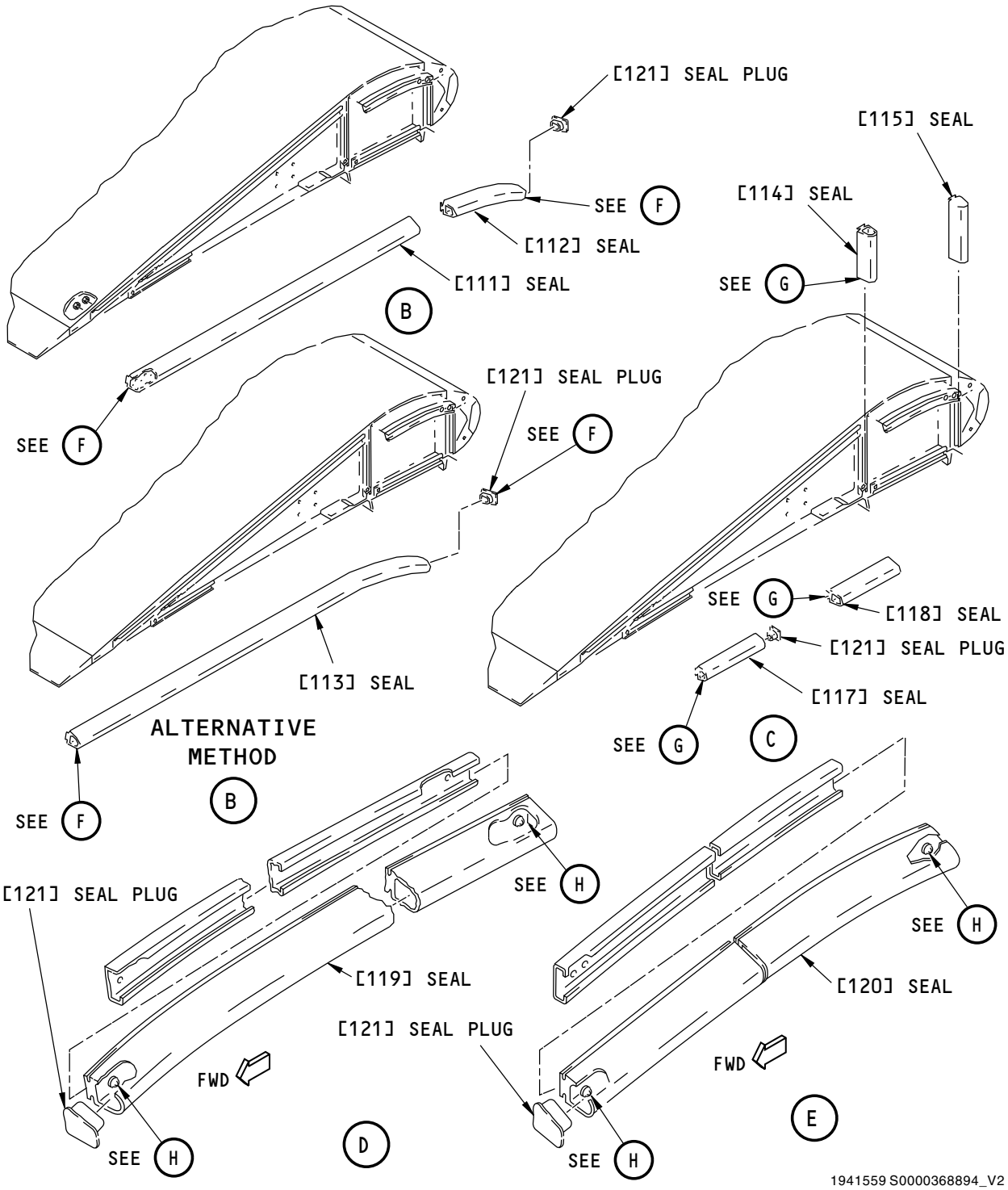
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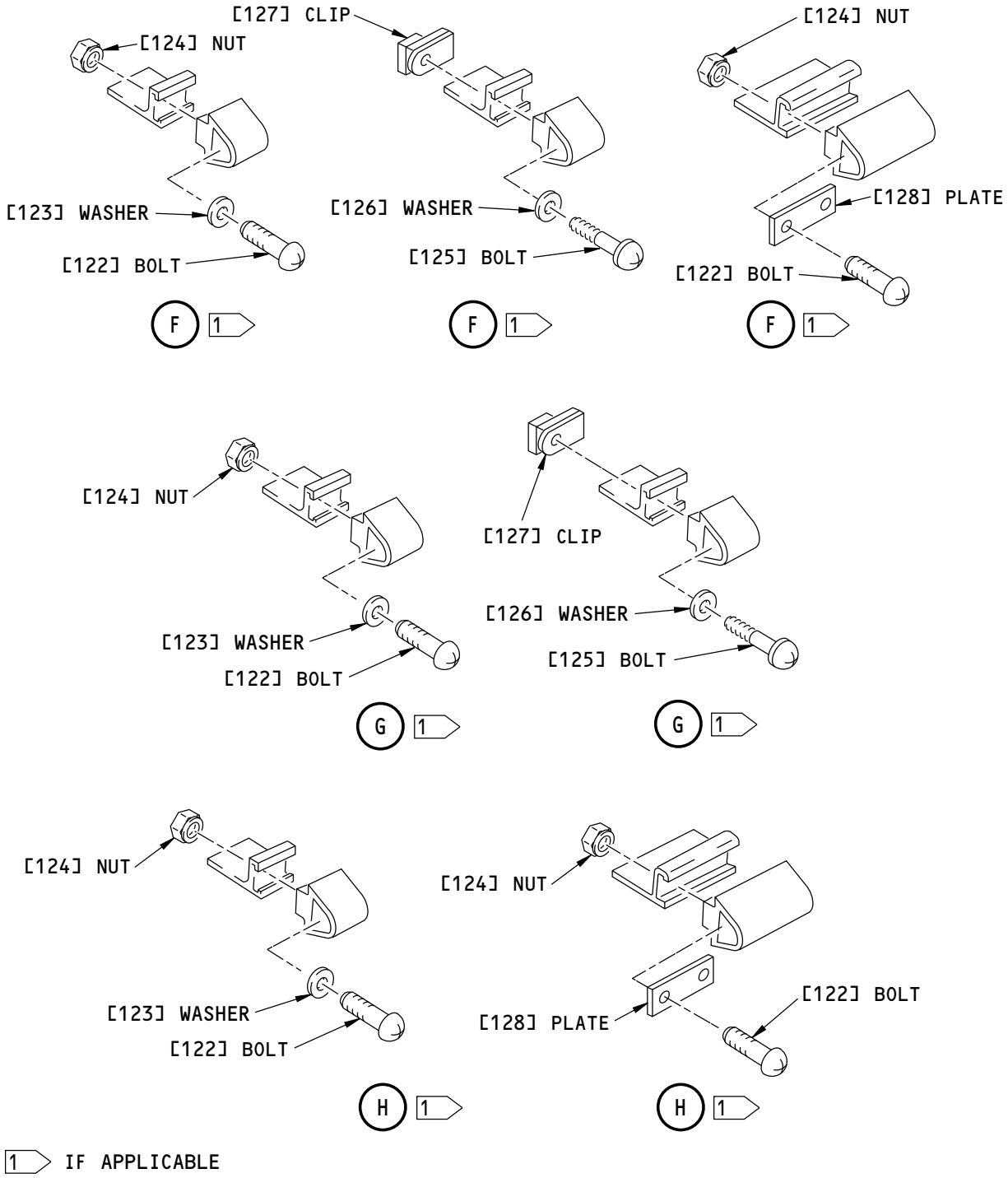
Flaperon Seals Removal and Installation
Figure 404/27-11-14-990-806 (Sheet 1 of 6)

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Flaperon Seals Removal and Installation
Figure 404/27-11-14-990-806 (Sheet 2 of 6)

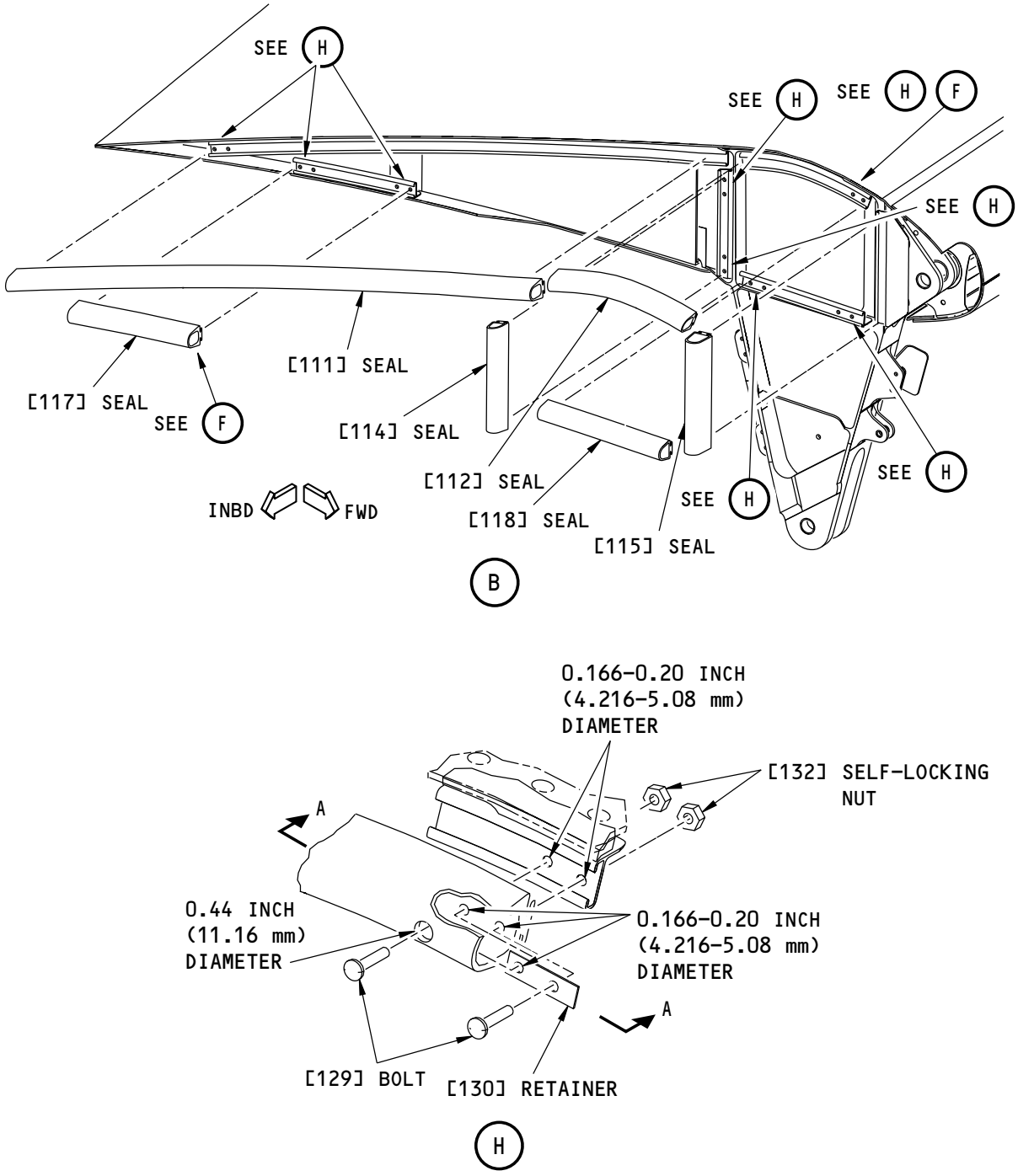
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Flaperon Seals Removal and Installation
Figure 404/27-11-14-990-806 (Sheet 3 of 6)

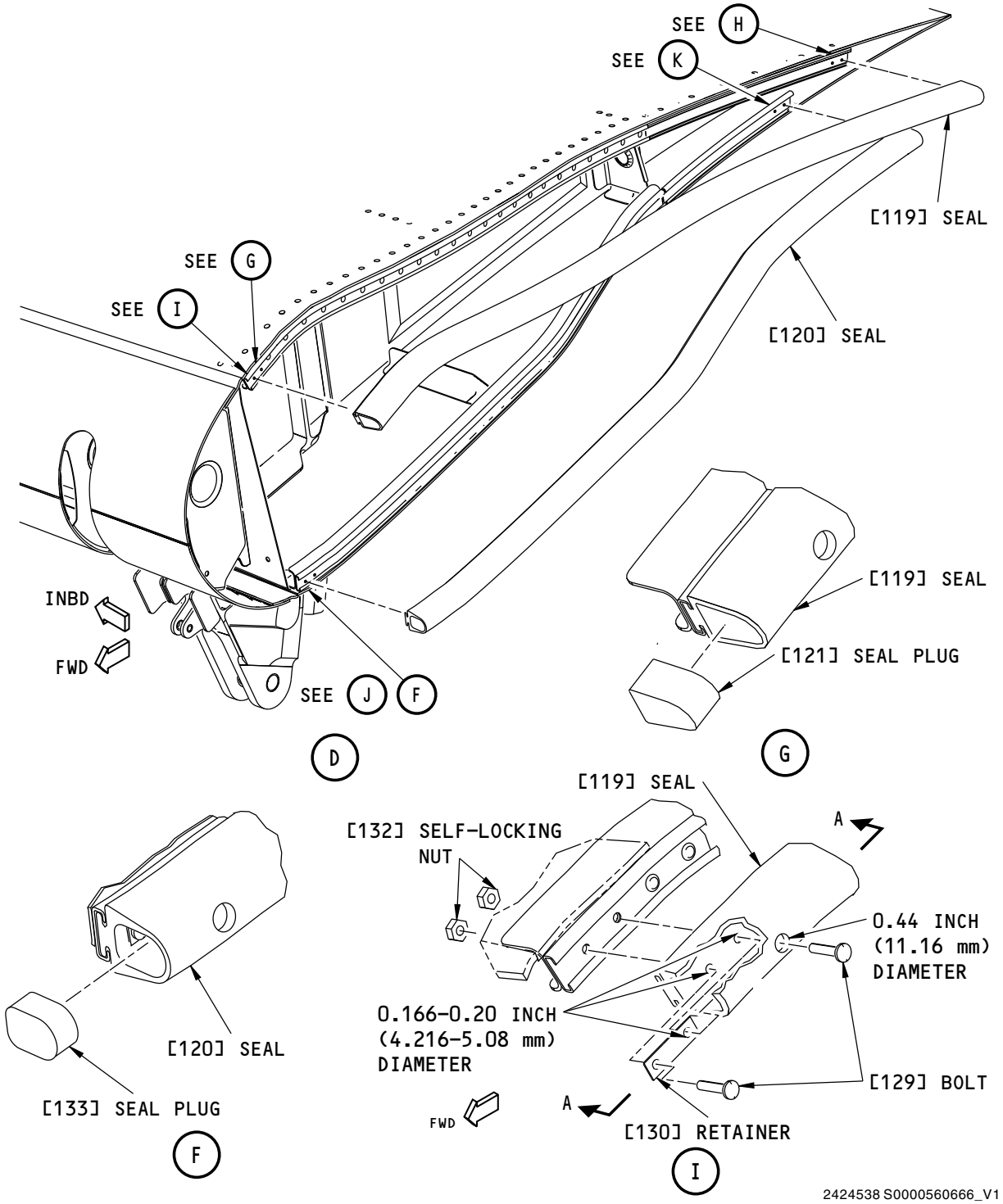
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2424528 S0000560665_V1

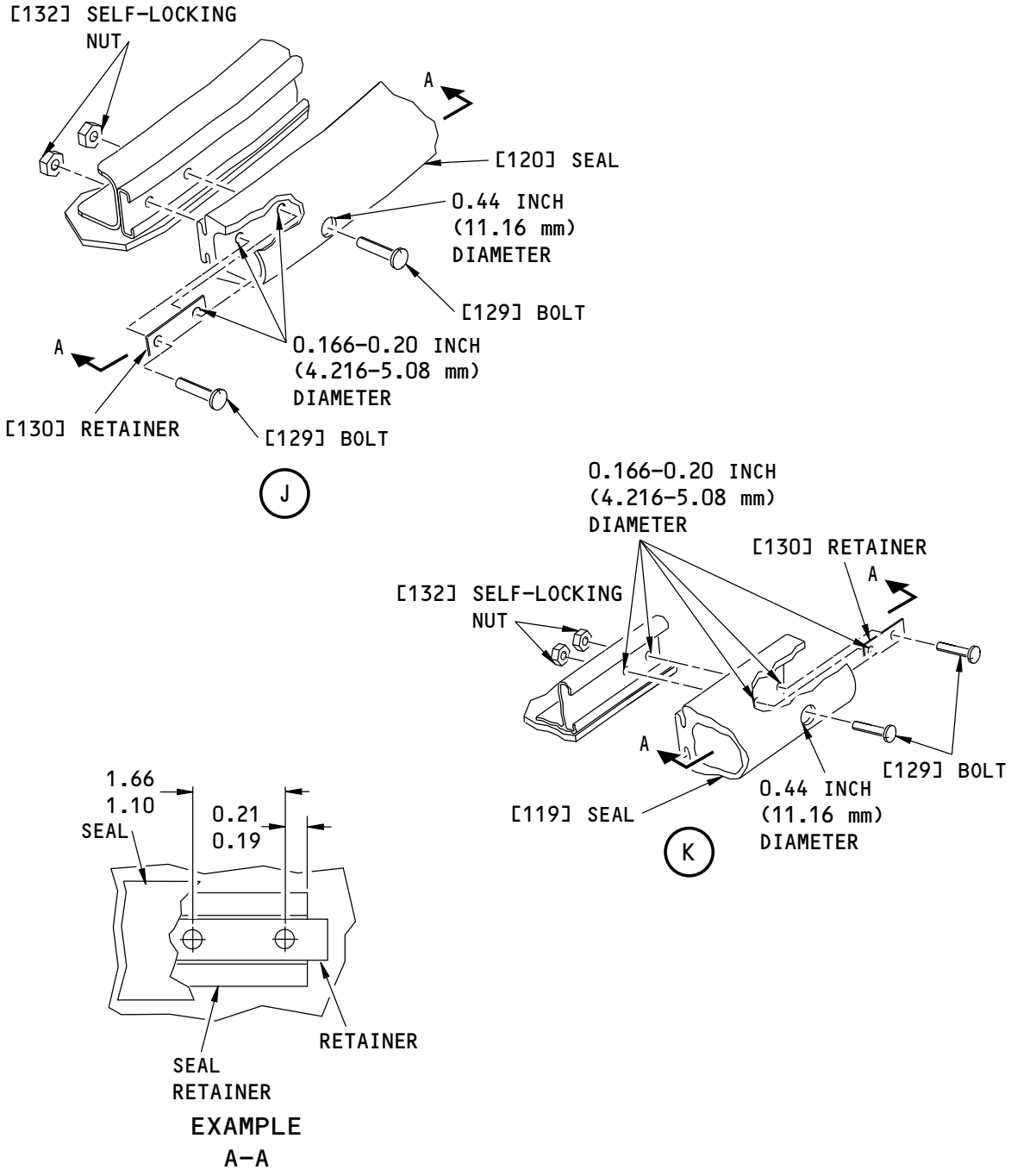
Flaperon Seals Removal and Installation
Figure 404/27-11-14-990-806 (Sheet 4 of 6)

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Flaperon Seals Removal and Installation
Figure 404/27-11-14-990-806 (Sheet 5 of 6)

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Flaperon Seals Removal and Installation
Figure 404/27-11-14-990-806 (Sheet 6 of 6)

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TASK 27-11-14-000-804

7. Flaperon Seals - Installation

Figure 404

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
27-11-15-400-801	Outboard Flaperon Fairing Installation (P/B 401)
27-11-15-400-802	Inboard Flaperon Fairing Installation (P/B 401)
51-31-01 P/B 201	SEALS AND SEALING - MAINTENANCE PRACTICES

B. Consumable Materials

Reference	Description	Specification
A00027	Adhesive - Silicone Rubber, 1 Part, RTV	BAC5010 Type 60
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C50148	Compound - Corrosion Preventative, Ardrox AV 30 (Formally Dinitrol AV 30)	BMS3-29
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing
675	Outboard Flaperon Support Fairing - Right Wing

D. Access Panels

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

E. Install the Flaperon Seals

ARO 005-999; ARO 001-004 PRE SB 777-57-0085

SUBTASK 27-11-14-420-010

(1) Do these steps to install the seal [111] and seal [112] or seal [113] if alternative method was used: (Figure 404)

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ARO 005-999; ARO 001-004 PRE SB 777-57-0085 (Continued)

(a) If applicable, install the seal [111] and seal [112] or seal [113] to the flaperon assembly with the bolts [122], washers [123] and nuts [124].

(b) If applicable, install the seal [111] and seal [112] or seal [113] to the flaperon assembly with the bolts [125], washers [126] and clips [127].

(c) If applicable, install the seal [111] and seal [112] or seal [113] to the flaperon assembly with the bolts [122], plates [128] and nuts [124].

(d) Install the seal plug [121] in seal [112] or seal [113] with adhesive, A00027, refer to: SEALS AND SEALING - MAINTENANCE PRACTICES, PAGEBLOCK 51-31-01/201.

ARO 001-004 POST SB 777-57-0085

SUBTASK 27-11-14-420-015

(2) Do these steps to install the seal [111] and seal [112]: (Figure 404)

(a) Install the seal [111] and seal [112] to the flaperon assembly with the bolts [129], retainer [130] and self-locking nuts [132].

1) Tighten the bolts [129] to 20 ±1 in-lb (2.3 ±0.2 N·m).

2) If necessary, drill a 0.166 in. (4.216 mm) to 0.20 in. (5.080 mm) diameter hole in the seal [111], seal [112] and seal retainer for the bolts [129].

a) Apply Ardrox AV 30 compound, C50148 to the seal retainer as shown in SOPM 20–41–05.

3) If necessary, drill a 0.44 in. (11.18 mm) diameter hole in the seal bulb for bolt access.

(b) Install the seal plug [133] in seal [112] with adhesive, A00027, refer to: SEALS AND SEALING - MAINTENANCE PRACTICES, PAGEBLOCK 51-31-01/201.

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SUBTASK 27-11-14-420-011

(3) Install the MS20995NC32 lockwire, G01912 to the seal [115] and the flaperon assembly with sealant, A00247 as shown in SOPM 20–50–02. (Figure 404)

ARO 005-999; ARO 001-004 PRE SB 777-57-0085

SUBTASK 27-11-14-420-012

(4) Do these steps to install the seal [114], seal [117] and seal [118]: (Figure 404)

(a) If applicable, install the seal [114], seal [117] and seal [118] to the flaperon assembly with the bolts [122], washers [123] and nuts [124].

(b) If applicable, install the seal [114], seal [117] and seal [118] to the flaperon assembly with the bolts [125], washers [126] and clips [127].

(c) Install the seal plug [121] in seal [117] with adhesive, A00027, refer to: SEALS AND SEALING - MAINTENANCE PRACTICES, PAGEBLOCK 51-31-01/201.

ARO 001-004 POST SB 777-57-0085

SUBTASK 27-11-14-420-017

(5) Do these steps to install the seal [114], seal [117] and seal [118]: (Figure 404)

(a) Install the seal [114], seal [117] and seal [118] to the flaperon assembly with the bolts [129], retainer [130] and self-locking nuts [132].

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ARO 001-004 POST SB 777-57-0085 (Continued)

(b) Install the seal plug [133] in seal [117] with adhesive, A00027, refer to: SEALS AND SEALING - MAINTENANCE PRACTICES, PAGEBLOCK 51-31-01/201.

ARO 005-999; ARO 001-004 PRE SB 777-57-0085

SUBTASK 27-11-14-420-013

(6) Do these steps to install the seal [119] and seal [120]: (Figure 404)

(a) If applicable, install the seal [119] and seal [120] to the flaperon assembly with the bolts [122], washers [123] and nuts [124].

(b) If applicable, install the seal [119] and seal [120] to the flaperon assembly with the bolts [122], plates [128] and nuts [124].

(c) Install the seal plugs [121] in seal [119] and seal [120] with adhesive, A00027, refer to: SEALS AND SEALING - MAINTENANCE PRACTICES, PAGEBLOCK 51-31-01/201.

ARO 001-004 POST SB 777-57-0085

SUBTASK 27-11-14-420-016

(7) Do these steps to install the seal [119] and seal [120]: (Figure 404)

(a) Install the seal [119] and seal [120] to the flaperon assembly with the bolts [129], retainer [130] and self-locking nuts [132].

1) Tighten the bolts [129] to 20 ±1 in-lb (2.3 ±0.2 N·m).

2) If necessary, drill a 0.166 in. (4.216 mm) to 0.20 in. (5.080 mm) diameter hole in the seal [119], seal [120] and seal retainer for the bolts [129].

a) Apply Ardrox AV 30 compound, C50148 to the seal retainer as shown in SOPM 20–41–05.

3) If necessary, drill a 0.44 in. (11.18 mm) diameter hole in the seal bulb for bolt access.

(b) Install the seal plug [121] in seal [119] and seal plug [133] in seal [120] with adhesive, A00027, refer to: SEALS AND SEALING - MAINTENANCE PRACTICES, PAGEBLOCK 51-31-01/201.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-14-420-014

(1) If removed, install the bull nose panels on the flaperon (TASK 06-44-00-800-802):

(a) For the flaperon on the left wing:

Number	Name/Location
557AT	Flaperon Leading Edge Panel
557BB	Flaperon Leading Edge Panel
557CT	Flaperon Leading Edge Panel
557DB	Flaperon Leading Edge Panel
557EB	Flaperon Leading Edge Panel

(b) For the flaperon on the left wing:

Number	Name/Location
657AT	Flaperon Leading Edge Panel
657BB	Flaperon Leading Edge Panel

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(Continued)

Number	Name/Location
657CT	Flaperon Leading Edge Panel
657DB	Flaperon Leading Edge Panel
657EB	FLaperon Leading Edge Panel

(c) Seal the clearances between the panels with sealant, A00247, refer to: SEALS AND SEALING - MAINTENANCE PRACTICES, PAGEBLOCK 51-31-01/201.

SUBTASK 27-11-14-410-005

(2) Do this task: Inboard Flaperon Fairing Installation, TASK 27-11-15-400-802.

SUBTASK 27-11-14-410-006

(3) Do this task: Outboard Flaperon Fairing Installation, TASK 27-11-15-400-801.

SUBTASK 27-11-14-860-026

(4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(a) On the PSA-C in the E2-6 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

(b) On the PSA-L in the E1-6 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR
2) A5 FLPRN PCU

SUBTASK 27-11-14-860-027

(5) On the P61 panel, move the FLT CONTROL HYD POWER - WING switches to the NORM position.

——— END OF TASK ———

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FLAPERON FAIRINGS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard fairing for the flaperon

(2) An installation of the outboard fairing for the flaperon

(3) A removal of the inboard fairing for the flaperon

(4) An installation of the inboard fairing for the flaperon.

TASK 27-11-15-000-801

2. Outboard Flaperon Fairing Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205

C. Location Zones

Zone	Area
557	Left Wing Flaperon
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
675	Outboard Flaperon Support Fairing - Right Wing

D. Prepare for Removal

SUBTASK 27-11-15-860-001

(1) Make sure hydraulic power is not supplied. If hydraulic power is supplied, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-15-860-010

(2) Move the FLT CONTROL HYD POWER - WING switches on the P61 panel to the SHUT OFF position.

SUBTASK 27-11-15-480-001

(3) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 for the flaperon.

NOTE: The cover for the flaperon is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

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SUBTASK 27-11-15-860-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAPERON SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Procedure

SUBTASK 27-11-15-020-001

(1) Do these steps to remove the fairing assembly [6]:

(a) Remove the bolts [1] (6 locations) and the bolt [2] that attach the fairing assembly [6] to the support assembly.

NOTE: The bolts are located on the inboard and outboard sides of the fairing.

(b) Remove the fairing assembly [6].

SUBTASK 27-11-15-020-002

(2) Do these steps to remove the fairing assembly [5]:

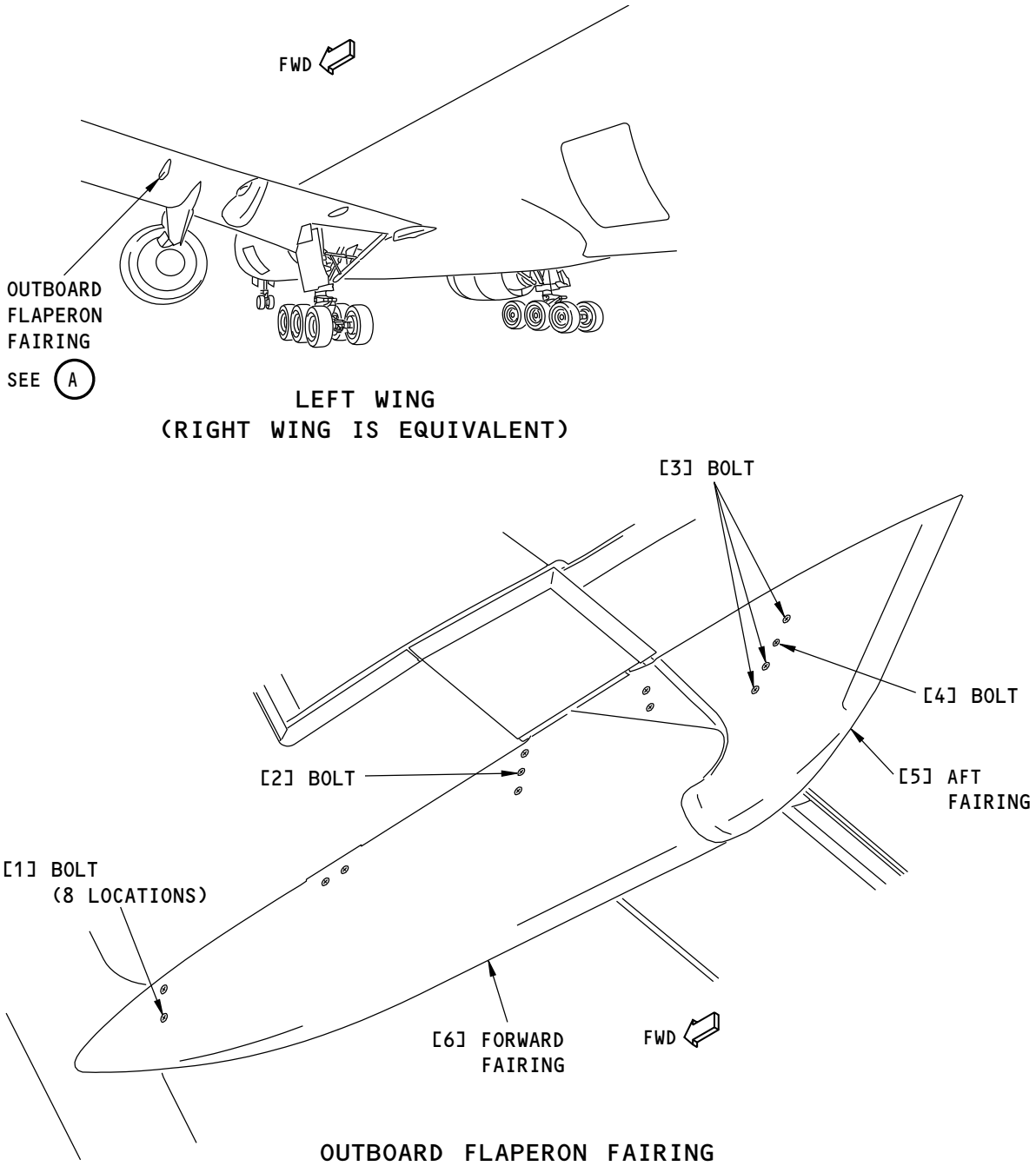
(a) Remove the bolts [1] (2 locations), the bolts [3] (3 locations), and the bolt [4] that attach the fairing assembly [5] to the fairing assembly [5].

NOTE: The bolts are located on the inboard and outboard sides of the fairing.

(b) Move the fairing assembly [5] in the aft direction to remove it from the inboard and outboard attach clips.

——— END OF TASK ———

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Outboard Flaperon Fairing Installation
Figure 401/27-11-15-990-801

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TASK 27-11-15-400-801

3. Outboard Flaperon Fairing Installation

(Figure 401)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00032	Coating - Protective Enamel, General Use	BMS10-60 Type I
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Fairing assembly	27-11-15-01-041	ARO ALL
		27-11-15-01-046	ARO ALL
6	Fairing assembly	27-11-15-01-030	ARO ALL
		27-11-15-01-035	ARO ALL

E. Location Zones

Zone	Area
557	Left Wing Flaperon
575	Outboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
675	Outboard Flaperon Support Fairing - Right Wing

F. Procedure

SUBTASK 27-11-15-420-001

(1) Do these steps to install the fairing assembly [5]:

(a) Put the fairing assembly [5] in its position and move it forward to attach it to the forward and aft attach clips.

(b) Align the bolt holes on the fairing assembly [5] with the holes on the flaperon assembly (inboard and outboard holes).

(c) Apply corrosion preventive compound, C00308 or compound, C00528 to all areas of the holes where you will install bolts [1], bolts [3] and bolt [4] and on the threads of the bolts.

(d) Install the bolts [1] (2 locations), bolts [3] (3 locations) and bolt [4].

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(e) Tighten the bolts [1] (2 locations), bolts [3] (3 locations) and bolt [4].

(f) Make sure the flushness of the bolt heads to the fairing skin are within +0.010 and -0.020 inch (+0.25 and -0.51 millimeter).

(g) Do an electrical bonding test on the bolt [4] (SWPM 20-20-00).

(h) Apply coating, C00032 on the bolt heads if it is necessary.

SUBTASK 27-11-15-420-002

(2) Do these steps to install the fairing assembly [6]:

(a) Put the fairing assembly [6] in its position.

(b) Align the bolt holes on the fairing assembly [6] with the holes on the support assembly (inboard and outboard holes).

(c) Apply corrosion preventive compound, C00308 or compound, C00528 to all areas of the holes where you will install bolts [1] and bolt [2] and on the threads of the bolts.

(d) Install the bolts [1] (6 locations) and bolt [2].

(e) Tighten the bolts [1] (6 locations) and bolt [2].

(f) Make sure the flushness of the bolt heads to the fairing skin are between in +0.010 and -0.020 inch (+0.25 and -0.51 millimeter).

(g) Do an electrical bonding test on the bolt [2] (SWPM 20-20-00).

(h) Apply coating, C00032 on the bolt heads if it is necessary.

G. Put the Airplane Back to Its Initial Condition

SUBTASK 27-11-15-080-001

(1) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the flaperon.

NOTE: The cover for the flaperon is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

SUBTASK 27-11-15-860-003

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-11-15-860-011

(3) Move the FLT CONTROL HYD POWER - WING switches on the P61 panel to the NORM position.

——— END OF TASK ———

TASK 27-11-15-000-802

4. Inboard Flaperon Fairing Removal

(Figure 402)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
557	Left Wing Flaperon

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(Continued)

Zone	Area
574	Inboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing

C. Prepare for Removal

SUBTASK 27-11-15-860-004

(1) Make sure hydraulic power is not supplied. If hydraulic power is supplied, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-11-15-860-012

(2) Move the FLT CONTROL HYD POWER - WING switches on the P61 panel to the SHUT OFF position.

SUBTASK 27-11-15-860-005

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-11-15-860-006

(4) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-11-15-860-007

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAPERON SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

D. Procedure

SUBTASK 27-11-15-020-003

(1) Do these steps to remove the fairing assembly [26]:

(a) Remove the bolts [21] (8 locations), the bolts [27] (2 locations) and the bolts [22] (2 locations) that attach the fairing assembly [26] to the support assembly.

NOTE: The bolts are located on the outboard side only for the inboard fairing.

(b) Move the fairing assembly [26] in the forward direction to remove it from the outboard attach clips as shown in Figure 402.

SUBTASK 27-11-15-020-004

(2) Do these steps to remove the fairing assembly [25]:

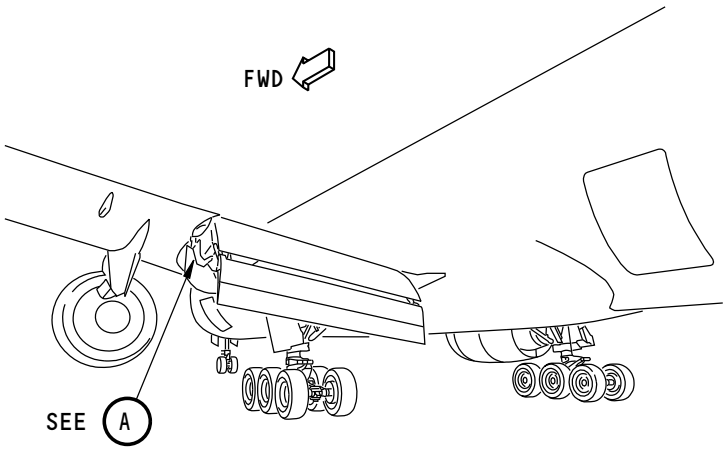
(a) Remove the bolts [24] (4 locations), the bolts [23] (2 locations), the bolt [28], and the washers [29] (4 locations) that attach the fairing assembly [25] to the flaperon assembly.

NOTE: The bolts are located on the outboard side only for the inboard fairing.

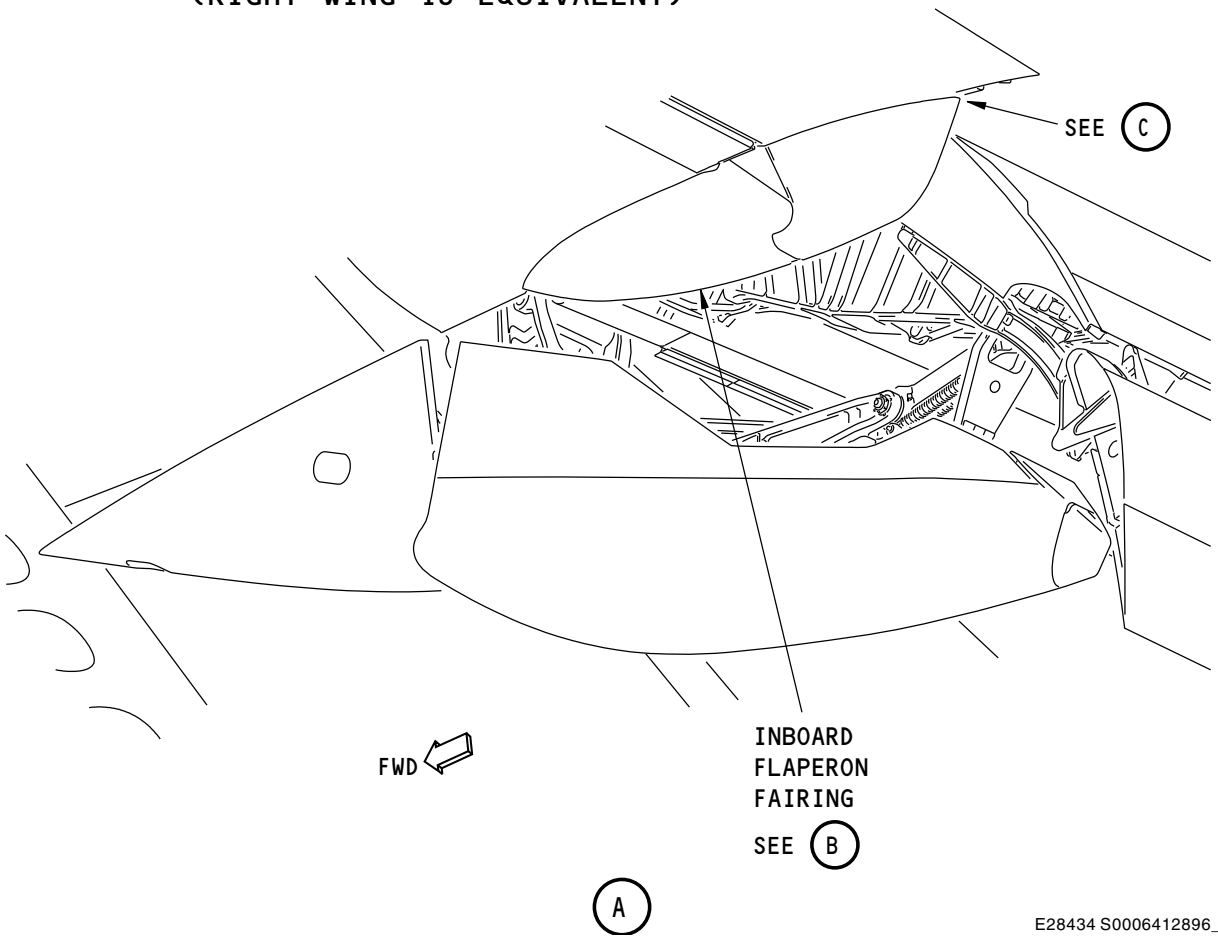
(b) Remove the fairing assembly [25].

END OF TASK

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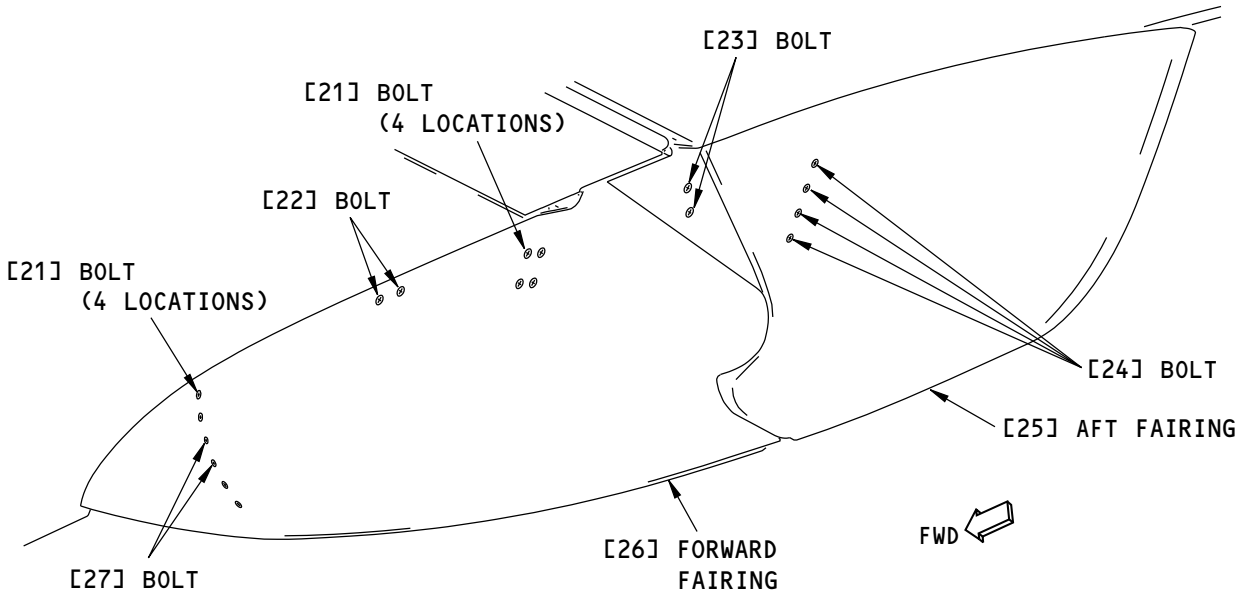
LEFT WING
(RIGHT WING IS EQUIVALENT)



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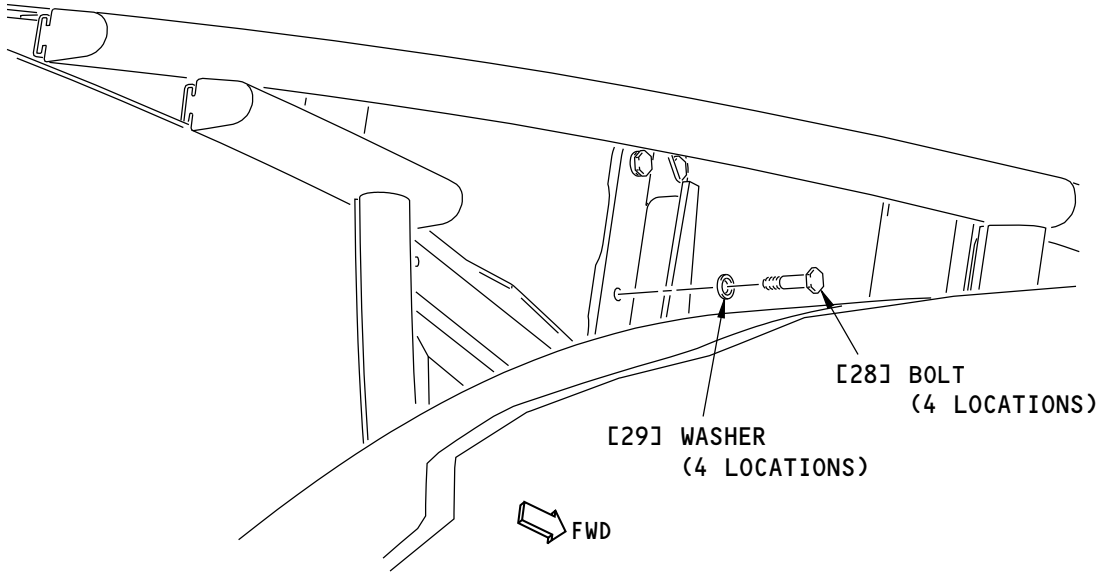
Inboard Flaperon Fairing Installation
Figure 402/27-11-15-990-802 (Sheet 1 of 3)

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INBOARD FLAPERON FAIRING

B



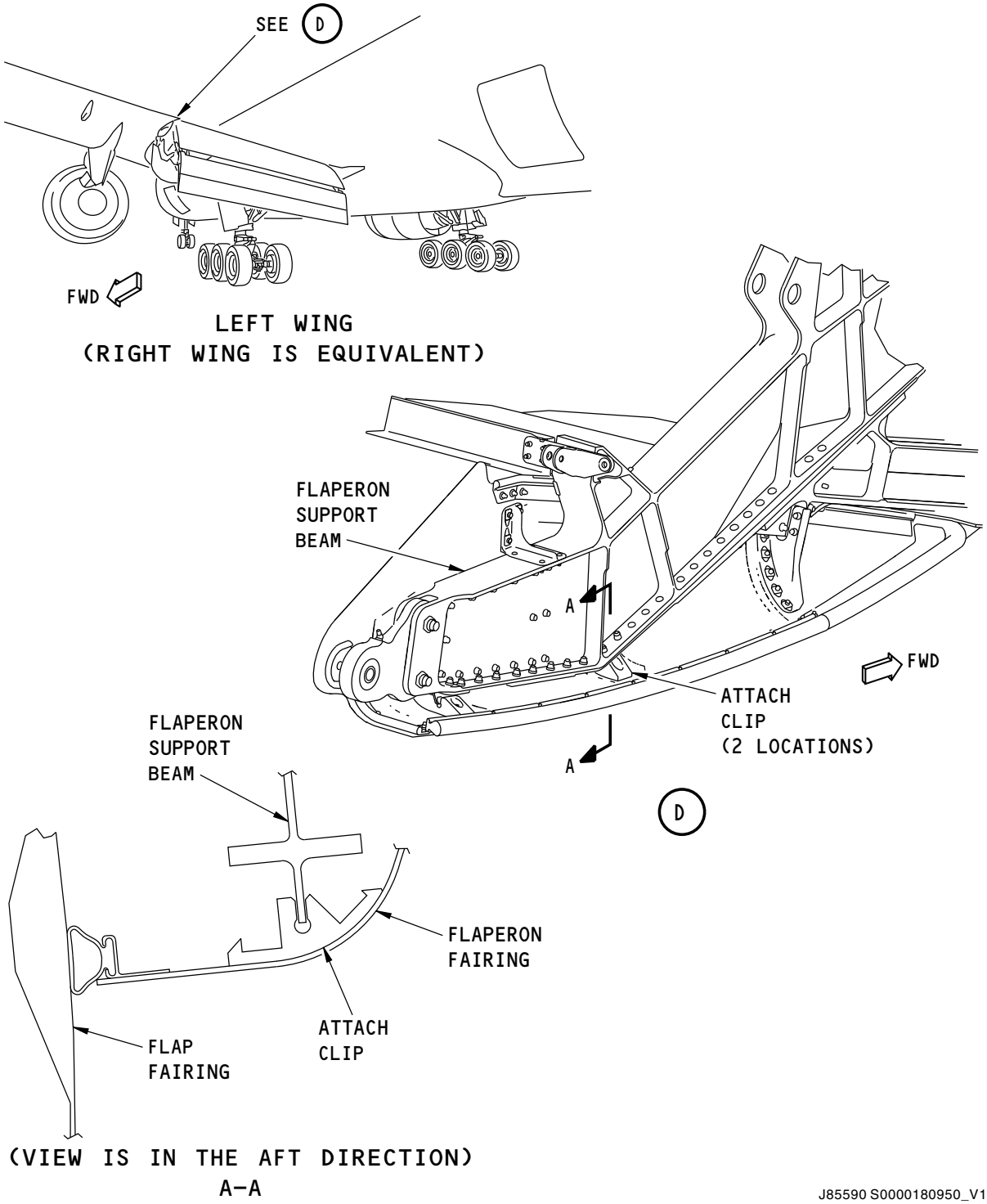
AFT ATTACH POINTS

C

E28546 S0006412897_V2

Inboard Flaperon Fairing Installation
Figure 402/27-11-15-990-802 (Sheet 2 of 3)

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Inboard Flaperon Fairing Installation
Figure 402/27-11-15-990-802 (Sheet 3 of 3)

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TASK 27-11-15-400-802

5. Inboard Flaperon Fairing Installation

(Figure 402)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00032	Coating - Protective Enamel, General Use	BMS10-60 Type I
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
25	Fairing assembly	27-11-15-10-195	ARO ALL
		27-11-15-10-200	ARO ALL
26	Fairing assembly	27-11-15-10-025	ARO ALL
		27-11-15-10-030	ARO ALL

E. Location Zones

Zone	Area
557	Left Wing Flaperon
574	Inboard Flaperon Support Fairing - Left Wing
657	Right Wing Flaperon
674	Inboard Flaperon Support Fairing - Right Wing

F. Procedure

SUBTASK 27-11-15-866-001

(1) Make sure the trailing edge flaps are extended. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-11-15-420-003

(2) Do these steps to install the fairing assembly [25]:

(a) Install the fairing assembly [25] and align the bolt holes with the holes on the flaperon assembly (outboard holes).

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(b) Apply corrosion preventive compound, C00308 or compound, C00528 to all areas of the holes where you will install bolts [23], bolts [24] and bolts [28], and on the threads of the bolts.

(c) Install the bolts [23] (2 locations), the bolts [24] (4 locations), the bolts [28] and the washers [29] (4 locations).

(d) Tighten the bolts [23], the bolts [24], and the bolts [28].

(e) Apply coating, C00032 on the bolt heads if it is necessary.

SUBTASK 27-11-15-420-004

(3) Do these steps to install the fairing assembly [26]:

(a) Put the fairing assembly [26] in its position and move it in the aft direction to attach it to the forward and aft attach clips as shown in Figure 402.

(b) Align the bolt holes on the fairing assembly [26] with the holes on the support assembly.

(c) Apply corrosion preventive compound, C00308 or compound, C00528 to all areas of the holes where you will install bolts [21], bolts [22] and bolts [27], and on the threads of the bolts.

(d) Install the bolts [21] (8 locations), the bolts [22] (2 locations), and the bolts [27] (2 locations).

(e) Tighten the bolts [21], the bolts [22], and the bolts [27].

(f) Do an electrical bonding test on the bolts [27] (SWPM 20-20-00).

(g) Apply coating, C00032 on the bolt heads if it is necessary.

G. Put the Airplane Back to Its Initial Condition

SUBTASK 27-11-15-080-002

(1) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the flaperon.

NOTE: The cover for the flaperon is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

SUBTASK 27-11-15-860-008

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-11-15-860-013

(3) Move the FLT CONTROL HYD POWER - WING switches on the P61 panel to the NORM position.

SUBTASK 27-11-15-860-009

(4) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

——— END OF TASK ———

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RUDDER CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Rudder Adjustment (Rigging) - Use this procedure to adjust (rig) the rudder to its center position.

(2) Rudder Adjustment (Rigging) Without the MAT - Use this procedure to adjust (rig) the rudder to its center position without the use of the MAT.

(3) Rudder Pedal Adjustment (Rigging) - Use this procedure to adjust the rudder pedals to the center position.

(4) Left and Right Rudder Controls Mechanisms Adjustment (Rigging) - Use this procedure to adjust the control rods for the left and right rudder controls mechanisms.

(5) Pedal Position Transducer Adjustment (Rigging) - Use this procedure to adjust the position transducers for the rudder pedals. They must be adjusted until they all are at zero when the rudder pedals are in their center position.

(6) Rudder Trim Adjustment (Rigging) - Use this procedure to adjust the rudder trim system. It must be adjusted until the rudder pedals will move to their center position when the CENTER switch is pushed.

(7) Rudder Power Control Unit Test - Use this procedure to automatically do a test of the operation of the power control units (PCUs) on the rudder.

(8) Rudder Position Test - Use this procedure to automatically do a test of the operation of the position transducers (LVDTs) for the rudder. The position transducers are part of the PCUs.

(9) Direct Mode Test - Use this procedure to make sure the rudder moves the correct distance when the flight control system is in direct mode.

(10) Pressure Reducer Test - Use this procedure to make sure the pressure reducers for the rudder PCUs are serviceable. The pressure reducers are part of the PCUs.

(11) Rudder Trim Test - Use this procedure to make sure the rudder trim operates correctly.

(12) Pedal Damper Test - Use this procedure to make sure the pedal damper operates correctly. The pedal damper slows the movement of the rudder pedals to stop them from oscillating.

(13) Rudder Pedal Adjustment and Travel Test - Use this procedure to make sure the rudder pedals can move through their full travel and the pedal adjustment crank operates correctly.

(14) Rudder Trim Position Transducer Test - Use this procedure to make sure the rudder trim position transducers operate correctly.

(15) Rudder Pedal Force Transducer Test - Use this procedure to make sure the rudder pedal force Flight Data Recorder (FDR) transducers operate correctly.

TASK 27-21-00-800-801

2. Rudder Adjustment (Rigging)

A. General

(1) You must use the maintenance access terminal (MAT) to do this procedure.

(2) Use this procedure to adjust (rig) the rudder to its center position or to make sure it is adjusted correctly. Also, use this procedure to adjust the rudder tab to its center position.

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(3) The rudder pedals can be in any position when you do this test on the MAT. The primary flight computer (PFC) ignores the position of the rudder pedals when it does this test.

NOTE: The flight controls will move to agree with the pilot's controls when the test is done (if you keep hydraulic power on).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right
320	Subzone 320 - Vertical Stabilizer and Rudder

D. Access Panels

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel

E. Rudder Tab Adjustment

NOTE: Adjust the rudder tab correctly first before the adjustment of the rudder.

SUBTASK 27-21-00-820-013

(1) With the rudder tab aligned with the index mark, measure the distance between the trailing edges of the rudder (pt A) and the rudder tab (pt B), View B (Figure 502). If the distance is 0.18 to 0.28 inches (4.6 to 7.1 millimeters) to the left of the rudder, the rudder tab is adjusted correctly. If the distance is not correct, do these steps to adjust the rudder tab.

NOTE: If it is necessary, you can manually hold the rudder tab to keep it aligned with the index mark.

(a) Do these steps to adjust the three pushrods for the rudder tab, (Figure 502).

1) Remove the middle and forward pushrod fairings [2] and [4] for each of the three pushrods for access to the pushrods.

NOTE: The pushrod fairings are on the right side of the rudder where the rudder tab connects to the rudder.

a) Remove bolts [1], [3] and [5].

2) Loosen the two jamnuts [6] and [7] at the tab end of each pushrod.

3) Turn the sleeve to adjust the position of the rudder tab. Adjust the three pushrods the same number of turns. Adjust the pushrods until you get the correct distance between the rudder and the rudder tab.

a) Measure the position of the rod end and the sleeve, and make sure they are not extended too far (Figure 502).

4) Tighten the jamnuts.

a) Tighten the rod end jamnut [6] 500 in-lb (56 N·m) - 700 in-lb (79 N·m).

b) Tighten the sleeve jamnut [7] 700 in-lb (79 N·m) - 920 in-lb (104 N·m).

5) Install lockwire on the jamnuts.

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6) Install the middle and forward pushrod fairings [1] and [2].
   a) Put the middle pushrod fairing [4] in its position.
   b) Install bolts [1] and [5].
   c) Put the forward pushrod fairing and seals [2] in its position.
   d) Install the bolts [3].

(b) Do the rudder adjustment procedure (on the MAT).

F. Prepare for the Rudder Adjustment

NOTE: Adjust the rudder tab correctly first before the adjustment of the rudder.

SUBTASK 27-21-00-010-001

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE RUDDER. PUT THE EQUIPMENT YOU USE FOR ACCESS TO THE RUDDER PCUS FORWARD OF THE HORIZONTAL STABILIZER. THE RUDDER WILL MOVE AUTOMATICALLY DURING THIS TEST.

(1) Remove this access panel, to the rudder power control units (PCUs):

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel

NOTE: You must remove these access panels only if you will adjust the position of the rudder. It is not necessary to remove them to do a test of the center position of the rudder.

SUBTASK 27-21-00-840-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it. Refer to (TASK 29-11-00-860-801).

G. Procedure for the Rudder Adjustment

SUBTASK 27-21-00-840-002

WARNING

DO NOT PUT THE PFC DISC SWITCH TO THE DISC POSITION WHEN THIS TEST IS IN OPERATION. IF YOU DO THIS THE ACES WILL GO INTO DIRECT MODE. THIS CAN CAUSE THE FLIGHT CONTROL SURFACES (INCLUDING THE RUDDER) TO MOVE SUDDENLY.

(1) Attach a DO-NOT-OPERATE tag to the PFC DISC switch.

SUBTASK 27-21-00-820-001

(2) Use the MAT to do the rudder adjustment, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808
   (a) Make these selections on the MAT:
      1) ONBOARD MAINTENANCE
      2) LINE MAINTENANCE
      3) GROUND TESTS
      4) 27 Primary Flight Control System
      5) SYSTEM TEST
      6) Rudder Alignment
      7) CONTINUE

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE RUDDER. KEEP YOUR HANDS WHERE THE RUDDER CANNOT CATCH THEM. THE RUDDER WILL MOVE AUTOMATICALLY DURING THIS TEST.

(b) Do the instructions that show on the MAT and then make these selections:

NOTE: Make sure the rudder moves when you adjust a null LVDT. If the rudder does not move, make sure you have adjusted the null LVDT on the correct PCU. Refer to View B (Figure 501) for the location of the null LVDT and the rudder index tab. The rudder is adjusted correctly when the trailing edge of the rudder tab is aligned with the index mark (Figure 501) on the tail cone. To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to start the test again or to stop the test completely. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

1) CONTINUE
2) START TEST

(c) Do these steps to adjust the PCUs when instructed by the MAT:

1) Remove the lockwire from the null LVDT cap.
2) Remove the cap from the PCU.
3) Use a 1/8-inch allen type tool to adjust the PCU.
4) Turn the null LVDT on the PCU to bring the left aft edge of the rudder tab surface as close to the neutral mark on the index plate as possible.
   a) The left aft edge of the rudder tab should be +/- 0.075 inches (1.91 millimeters) from the neutral mark on the index plate.
5) Monitor page 2 of the maintenance pages for the flight controls, on the multi-functional display (MFD), Showing a Maintenance Page, TASK 31-61-00-800-804.
   a) Make sure the three DELTA PRESS indications for the RUDDER are not more than 200.
6) Install the cap and tighten it to 30-40 pound-inches (3.4-4.5 newton-meters).
7) Install lockwire on the null LVDT cap.

(d) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION.

(e) If FAILED shows, select the maintenance message and select the MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-840-004

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

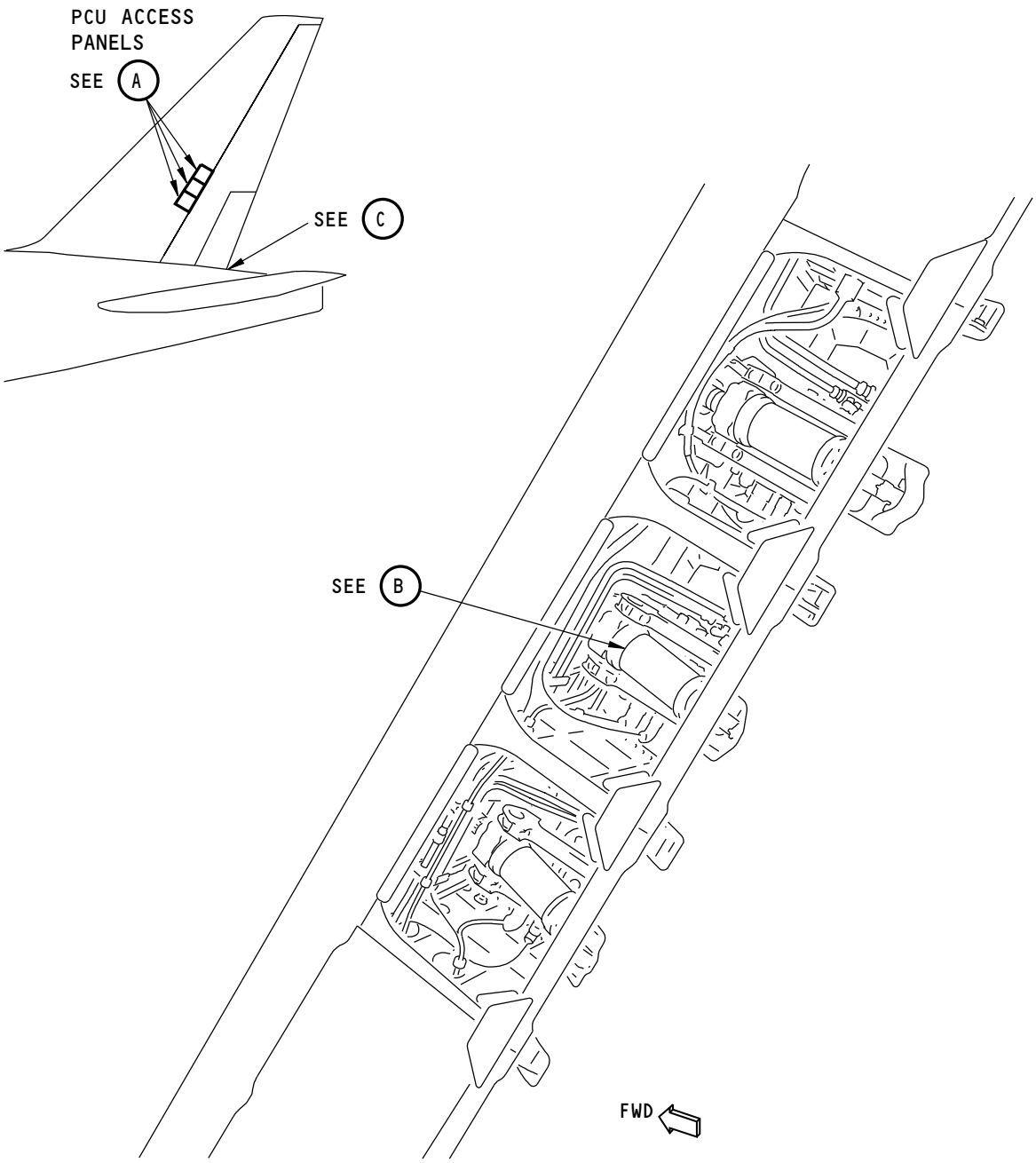
SUBTASK 27-21-00-410-002

(2) Install this access panel, on the vertical stabilizer:

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel

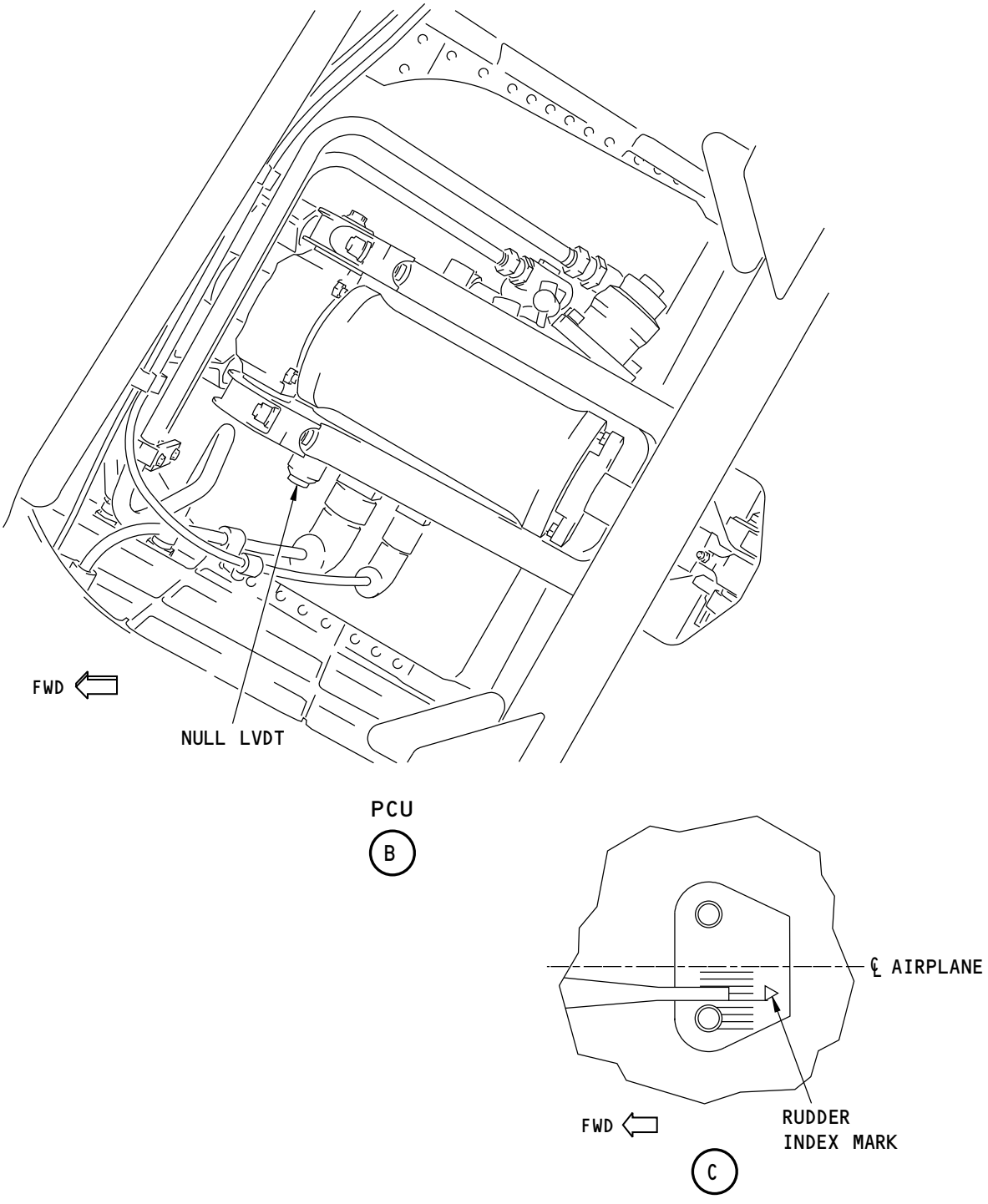
END OF TASK

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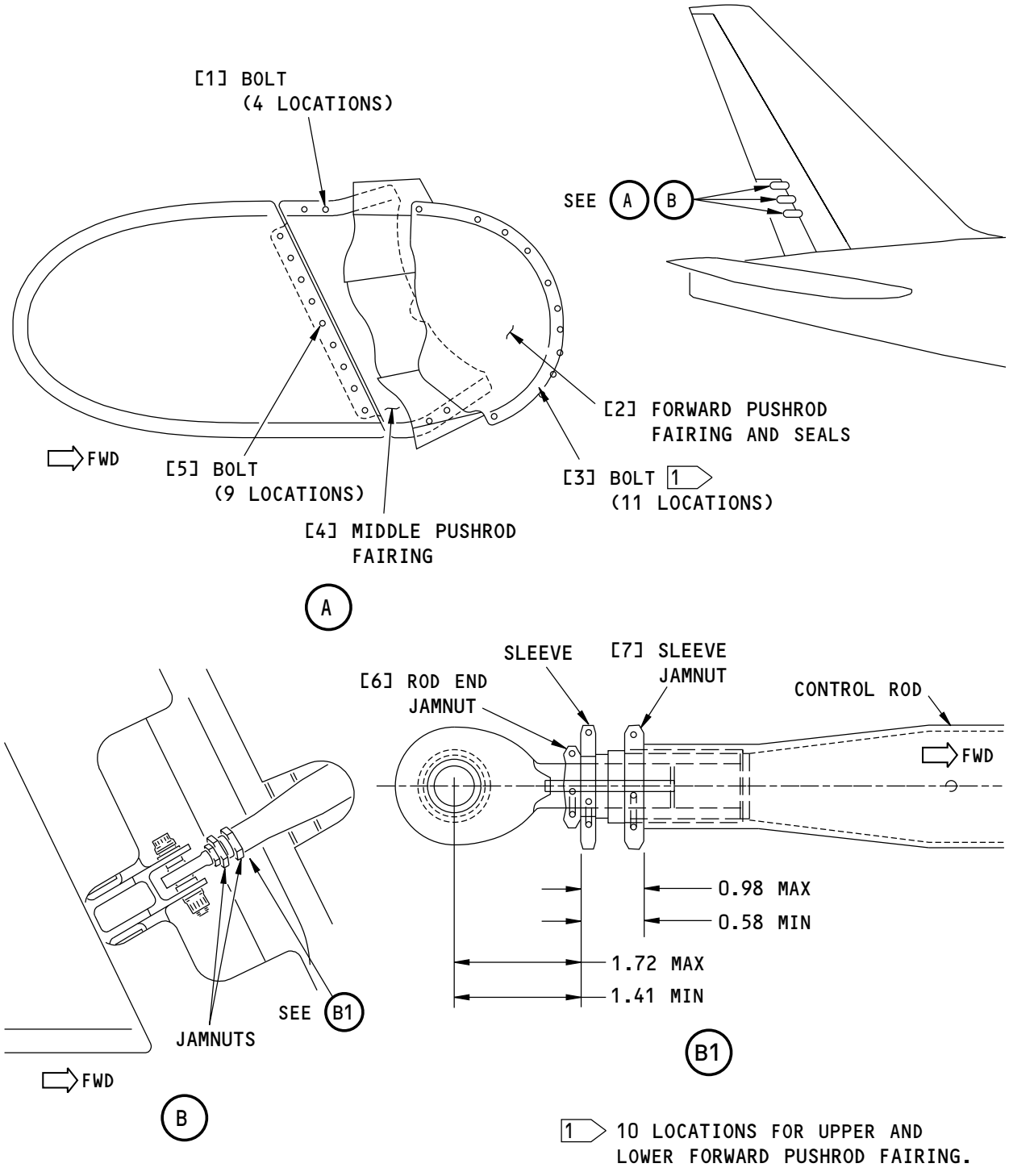
Rudder Adjustment
Figure 501/27-21-00-990-801 (Sheet 1 of 2)

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Rudder Adjustment
Figure 501/27-21-00-990-801 (Sheet 2 of 2)

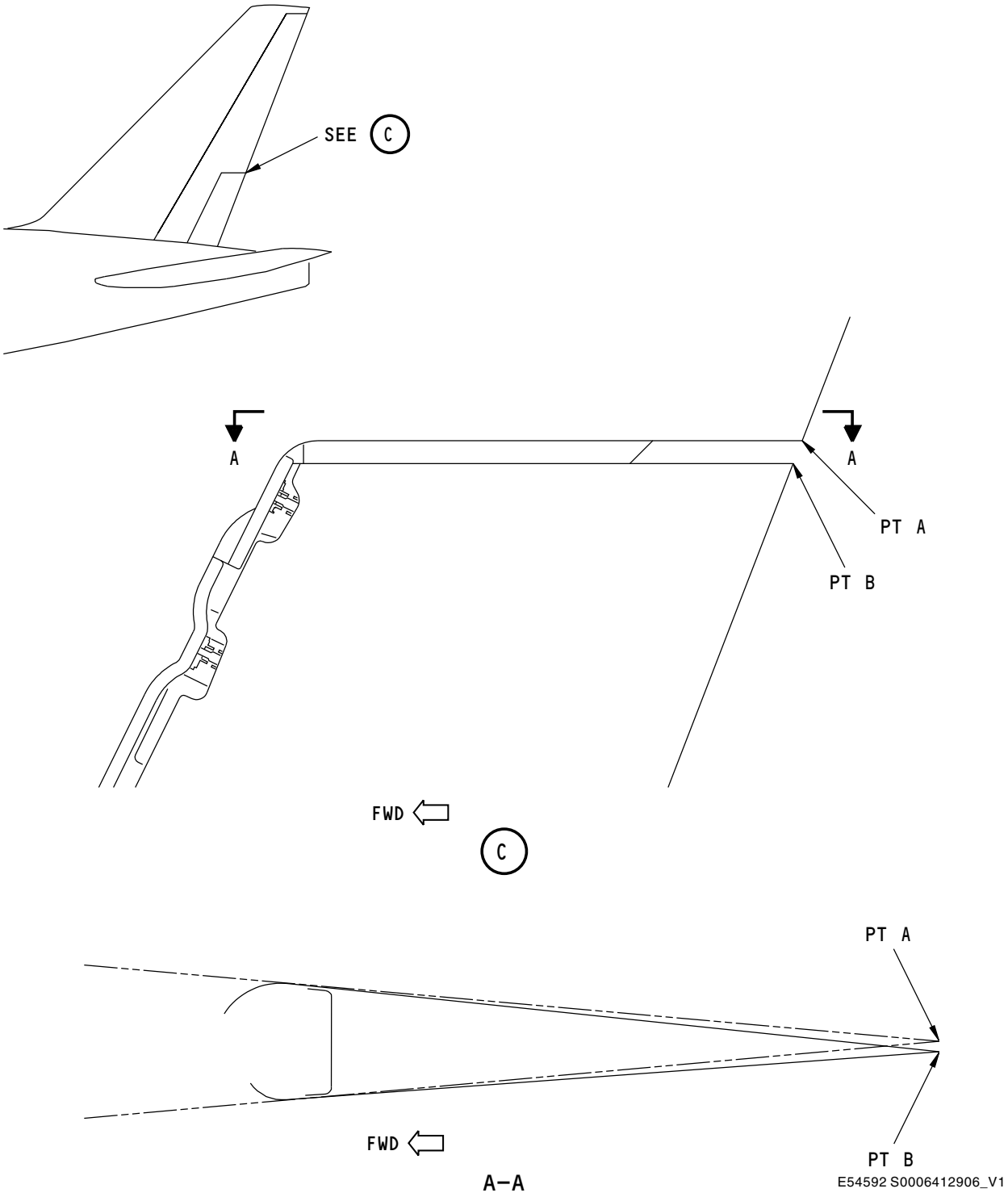
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E50836 S0006412905_V3

Rudder Tab Adjustment
Figure 502/27-21-00-990-802 (Sheet 1 of 2)

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Rudder Tab Adjustment
Figure 502/27-21-00-990-802 (Sheet 2 of 2)

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TASK 27-21-00-820-802

3. Rudder Adjustment (Rigging) Without the MAT

A. General

(1) This task gives you an alternative procedure for the rudder adjustment (rigging) without the use of the MAT.

(2) Use this procedure to adjust (rig) the rudder to its center position or to make sure that the rudder is adjusted correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
31-61-00-800-816	Showing a System Synoptic Page (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
320	Subzone 320 - Vertical Stabilizer and Rudder

E. Access Panels

Number	Name/Location
112AL	Forward Access Door
324DXL	Vertical Stabilizer Trailing Edge Cover Panel

F. Prepare for the Rudder Adjustment

SUBTASK 27-21-00-820-014

(1) You must first adjust the rudder tab correctly before the adjustment of the rudder. Refer to the Rudder Tab Adjustment procedure in TASK 27-21-00-800-801.

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SUBTASK 27-21-00-010-006

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE RUDDER. PUT THE EQUIPMENT YOU USE FOR ACCESS TO THE RUDDER PCUS FORWARD OF THE HORIZONTAL STABILIZER. THE RUDDER WILL MOVE AUTOMATICALLY DURING THIS TEST. THE RUDDER CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(2) Open these access panels to gain access to the rudder power control units (PCUs) and the rudder pedal mechanism:

Number	Name/Location
112AL	Forward Access Door
324DXL	Vertical Stabilizer Trailing Edge Cover Panel

NOTE: You must remove these access panels only if you will adjust the position of the rudder. It is not necessary to remove them to do a test of the center position of the rudder.

SUBTASK 27-21-00-860-043

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-860-044

(4) Make sure that the FUEL CONTROL switches are in the CUTOFF position on the P10 aisle stand.

SUBTASK 27-21-00-860-045

(5) Make sure that the L1, L2, C and R actuator control electronics (ACEs) report NORMAL on page 3 of the flight controls maintenance pages, on the multi-function display (MFD).

NOTE: To show the maintenance pages, refer to TASK 31-61-00-800-804.

SUBTASK 27-21-00-860-046

(6) Put the PRIMARY FLIGHT COMPUTERS switch in the AUTO position on the P5 overhead panel.

SUBTASK 27-21-00-860-047

(7) Make sure that FLT CNTRL MODE is NORMAL on the flight controls synoptic page on the MFD.

NOTE: To show the system synoptic page, refer to TASK 31-61-00-800-816.

SUBTASK 27-21-00-860-048

(8) Make sure that the TAIL VALVE switches are in the CLOSED position on the P61 overhead panel.

SUBTASK 27-21-00-860-049

(9) Make sure that the calibrated airspeed (CAS) is blank or less than 50 knots on page 1 of the flight controls maintenance pages.

NOTE: During the test, if the CAS goes above 50 knots, abort the test and resume when the CAS is less than 50 knots.

G. Procedure for the Rudder Adjustment

SUBTASK 27-21-00-820-015

(1) Look at page 1 of the flight controls maintenance pages on the MFD.

(a) Make sure the captain's and first officer's pedal positions 1 and 2 read between -0.01 to 0.01.

(b) Make sure that RUD TRIM reads between -0.01 to 0.01.

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SUBTASK 27-21-00-860-050

(2) Push the MANUAL TRIM CANCEL switch on the P8 aisle stand (View A, Figure 503).

SUBTASK 27-21-00-860-051

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) To power the PCU, pressurize the applicable (left, center or right) hydraulic system to 3000 ±100 psi (20,684 ±690 kPa). Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-21-00-820-016

(4) Use one of the two methods that follow to move the rudder to the left and return it to neutral.

(a) On the P8 aisle stand, turn the RUDDER TRIM control knob counter-clockwise to at least 5 units to move the rudder to the left (View A, Figure 503).

1) Push the MANUAL TRIM CANCEL switch to return the rudder to neutral.

(b) Push the captain's left rudder pedal fully forward to move the rudder to the left.

1) Release the captain's left rudder pedal to return the rudder to neutral.

SUBTASK 27-21-00-820-017

(5) Shake the rudder pedals lightly to make sure that they are in their center position.

SUBTASK 27-21-00-820-018

(6) Look at page 1 of the flight controls maintenance pages on the MFD.

(a) Make sure the captain's and first officer's pedal positions 1 and 2 read between -0.01 to 0.01.

(b) Make sure that RUD TRIM reads between -0.01 to 0.01.

SUBTASK 27-21-00-420-002

(7) Install rig pins R1 and R2 from rigging pin set, SPL-2532, into the captain's and first officer's left rudder pedal mechanism (View C, Figure 504).

(a) Use your hand to apply a light force onto the rig pins to help push the pins into their position.

1) You must not use tools to force the rig pins in.

SUBTASK 27-21-00-820-020

(8) Do these steps to adjust the PCU (Figure 501):

(a) Remove the null LVDT cap from the PCU.

1) Remove the lockwire from the cap first.

(b) Adjust the null LVDT on the PCU to move the left aft edge of the rudder tab surface as close to the neutral mark on the index plate as possible.

1) The left aft edge of the rudder tab should be ±0.075 in (±1.905 mm) from the neutral mark on the index plate.

NOTE: The null LVDT allows adjustments in 0.15 in. (3.81 mm) increments at the tab trailing edge (TE). Accurate alignment of the left aft edge to the neutral mark may not be possible.

(c) Install the null LVDT cap onto the PCU and tighten by hand.

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SUBTASK 27-21-00-020-003

(9) Remove the rig pins R1 and R2.

SUBTASK 27-21-00-420-001

(10) Tighten the null LVDT cap to 30 in-lb (3.4 N·m) - 40 in-lb (4.5 N·m).

(a) Install lockwire on the cap.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-840-035

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-21-00-410-005

(2) Close these access panels:

Number	Name/Location
112AL	Forward Access Door
324DXL	Vertical Stabilizer Trailing Edge Cover Panel

——— END OF TASK ———

TASK 27-21-00-800-802

4. Rudder Pedal Adjustment

A. General

(1) Use this procedure to adjust the rudder pedals to their center position.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Prepare for the Procedure

SUBTASK 27-21-00-840-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-840-006

(2) Push the MANUAL TRIM CANCEL switch for the rudder, View A (Figure 503).

NOTE: Make sure that RUD TRIM reads 0.00 on the Flight Controls Maintenance Page display.

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SUBTASK 27-21-00-820-003

(3) Do these steps for the Captain's and the First Officer's rudder pedals:

(a) Turn the pedal adjustment crank clockwise until the rudder pedals are fully forward, View B (Figure 504).

(b) Turn the pedal adjustment crank counter-clockwise 3.8 turns.

(c) Put the knob of the pedal adjustment crank into the stowed position.

NOTE: If the crank handle of the rudder pedal adjustment crank assembly is not stowed, pushing on the rudder pedals may cause the pedals to move forward and the crank handle to rotate. The crank handle should be stowed after it is used to adjust the position of the rudder pedals.

SUBTASK 27-21-00-480-001

(4) Install rig pin R3 from rigging pin set, SPL-2532, in the rudder pedal jack shaft (Figure 504).

NOTE: If it is necessary to install the rig pin, refer to the disconnecting control rod steps in the TASK 27-21-00-800-803.

F. Procedure

SUBTASK 27-21-00-820-004

(1) Adjust the four pushrods, one for each rudder pedal, until you can freely install rig pins R1 and R2 from rigging pin set, SPL-2532 (Figure 504).

(a) Loosen the jam nuts (4 locations) on the control rods.

(b) Turn the rod adjust sleeves until rig pins R1 and R2 can be freely installed.

(c) Make sure at least 50% of the inspection hole is covered.

(d) Tighten the jam nuts 70 to 100 pound-inches (7.9-11.3 newton-meters).

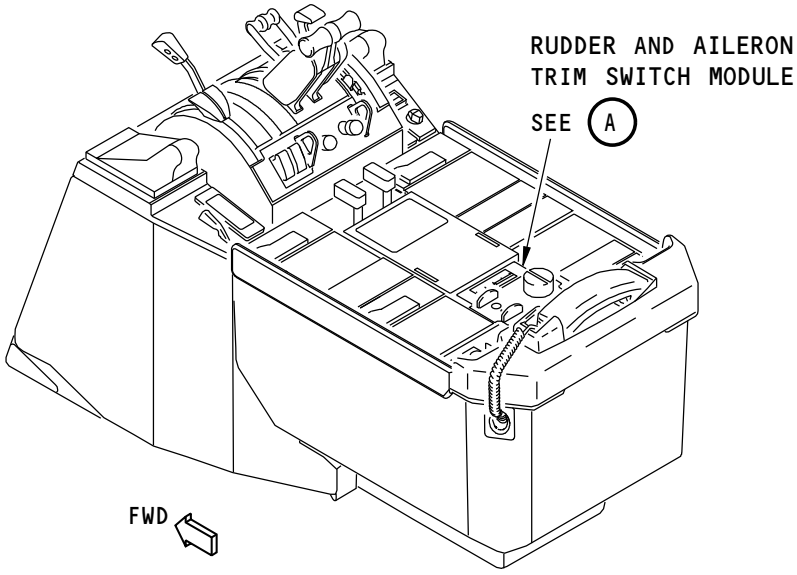
G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-080-001

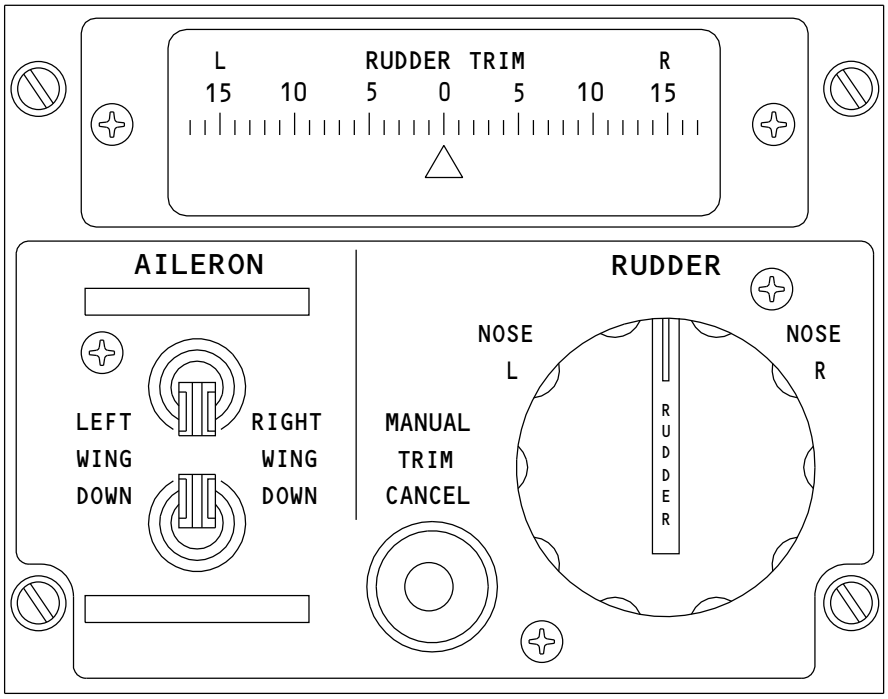
(1) Remove rig pins R1, R2, and R3.

——— END OF TASK ———

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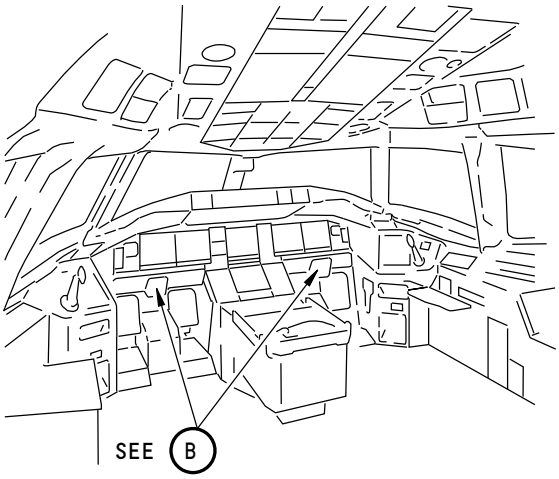
AISLE STAND



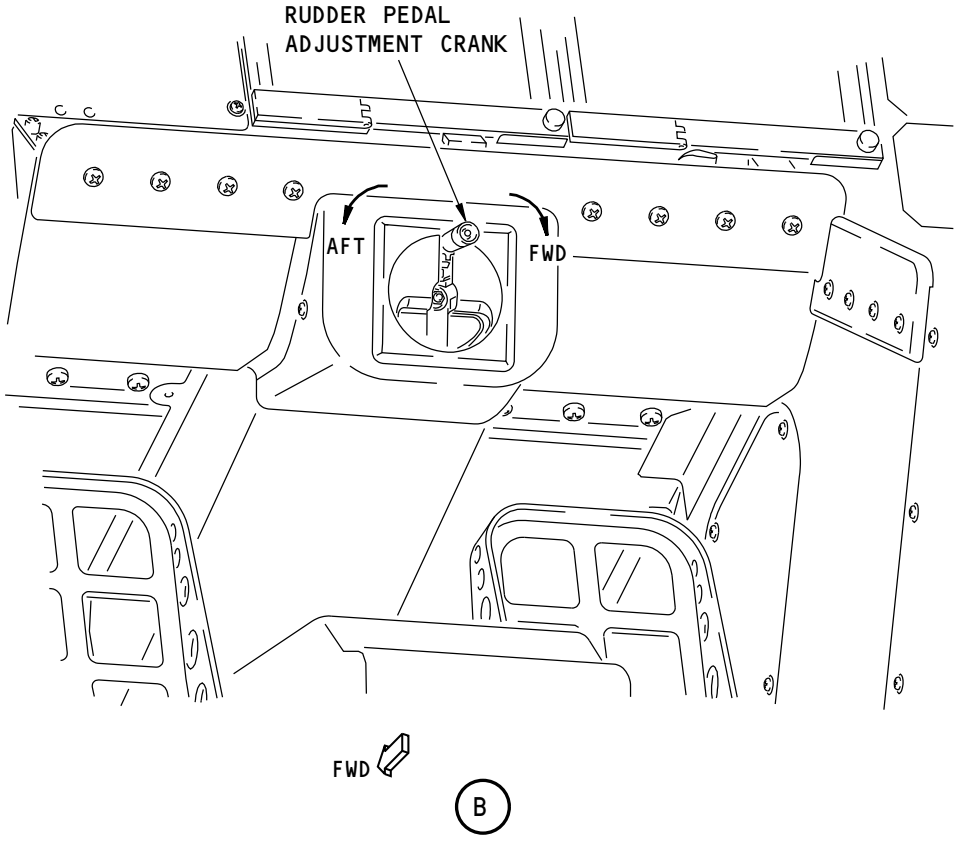
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Rudder Pedal Adjustment
Figure 503/27-21-00-990-803 (Sheet 1 of 2)

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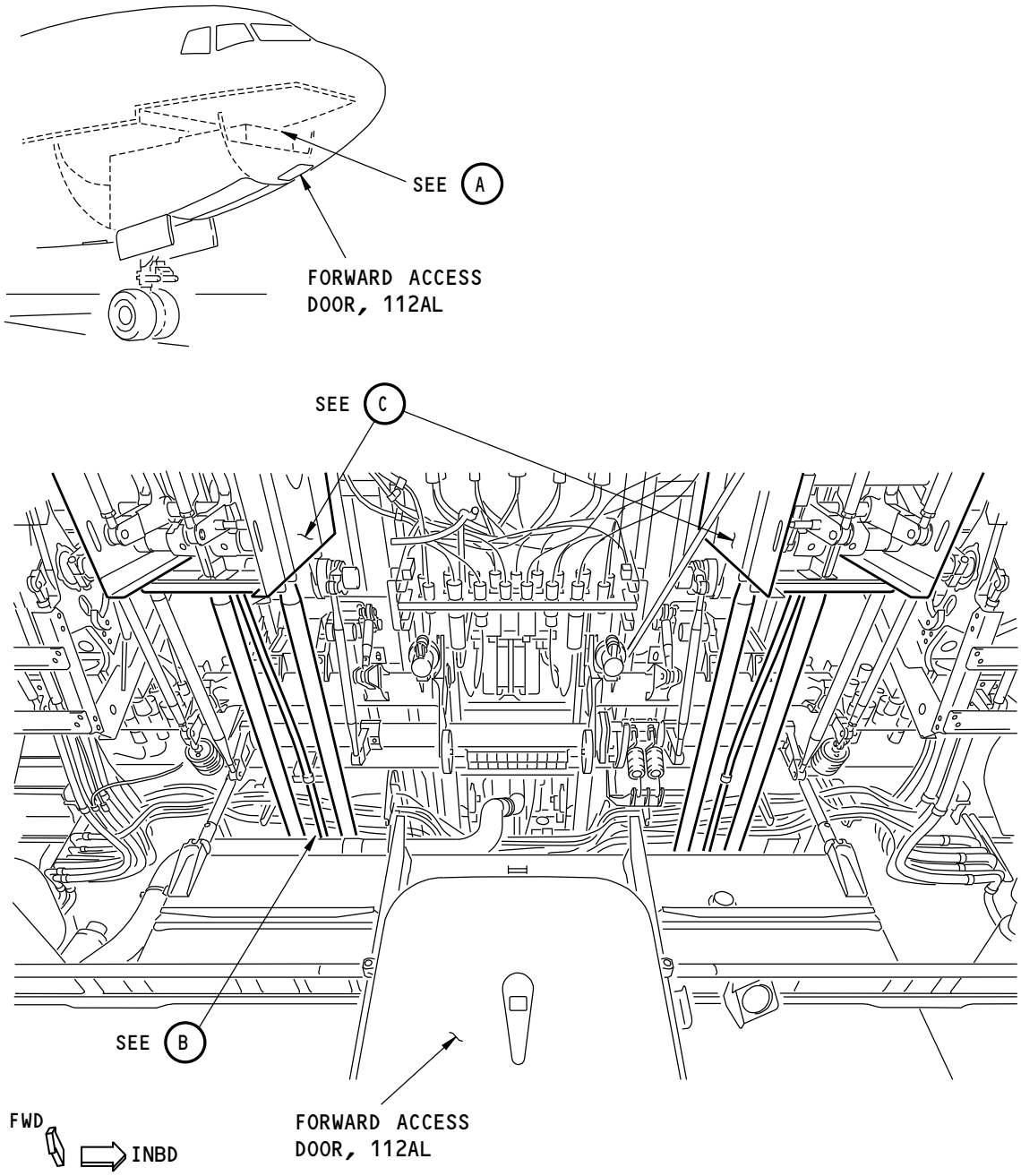
FLIGHT COMPARTMENT



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Rudder Pedal Adjustment
Figure 503/27-21-00-990-803 (Sheet 2 of 2)

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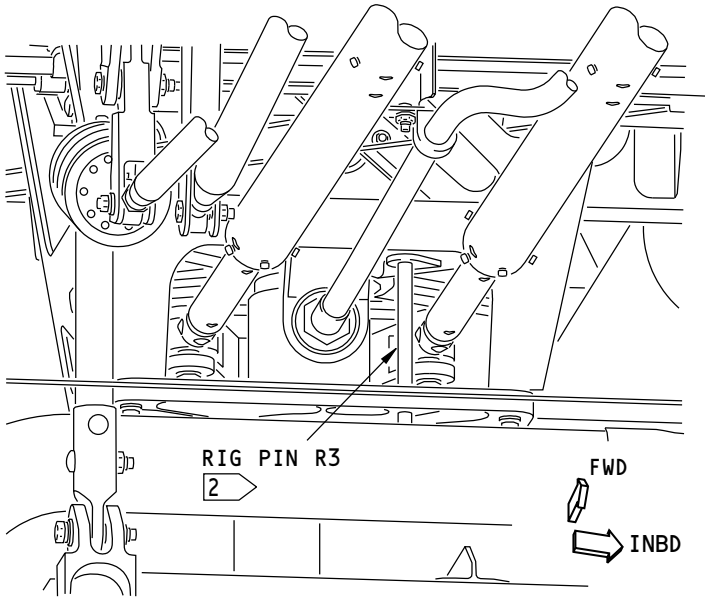
AREA FORWARD OF NOSE LANDING GEAR WHEEL WELL

A

E50966 S0006412910_V1

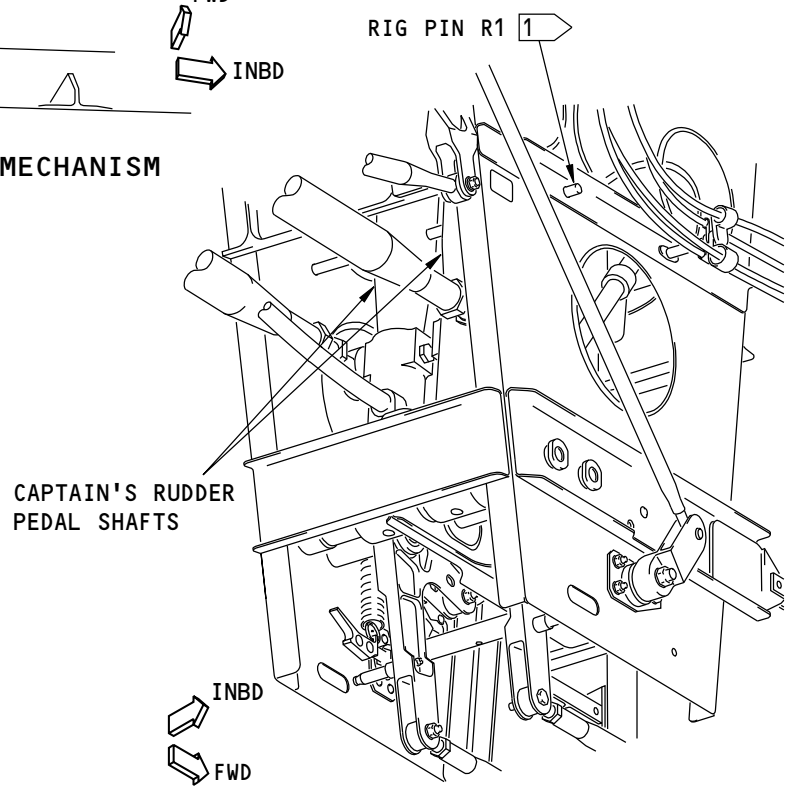
Rig Pin Location for Rudder Pedal Adjustment
Figure 504/27-21-00-990-804 (Sheet 1 of 2)

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RIGHT RUDDER PEDAL MECHANISM

B



LEFT RUDDER PEDAL MECHANISM
(RIGHT RUDDER PEDAL MECHANISM
IS EQUIVALENT)

C

1 RIG PIN R2 IS INSTALLED IN THE FIRST OFFICER'S RUDDER PEDALS.

2 THERE IS NO RIG PIN FOR THE LEFT SIDE.

E50971 S0006412911_V1

Rig Pin Location for Rudder Pedal Adjustment
Figure 504/27-21-00-990-804 (Sheet 2 of 2)

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TASK 27-21-00-800-803

5. Left and Right Rudder Control Mechanisms Adjustment (Rigging)

A. General

(1) Use this procedure to adjust the control rods for the left and right rudder controls mechanisms.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2535	Pin - Rig (J20003-15 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-3991	Pin - Rig (J20003-14 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Prepare for the Procedure

SUBTASK 27-21-00-840-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-840-008

(2) Push the MANUAL TRIM CANCEL (MTC) switch for the rudder (Figure 503).

SUBTASK 27-21-00-840-009

(3) Shake the rudder pedals lightly to make sure they are in there center position.

F. Left Rudder Control Mechanism Adjustment

SUBTASK 27-21-00-480-002

(1) Install rig pins R1, R2 and R3 from rig pin (J20003-15 assembly), SPL-2535(Figure 504).

SUBTASK 27-21-00-020-001

(2) Disconnect the control rod at the left rudder control mechanism, View D. (Figure 505)

(a) Remove the bolt [1].

(b) Support the control rod to prevent damage to the rod end bearing that is still connected.

SUBTASK 27-21-00-480-003

(3) Install rig pin R4 from rig pin (J20003-14 assembly), SPL-3991 in the left rudder controls mechanism, View C (Figure 505).

NOTE: If it is necessary you can use the rudder trim switch to move the rudder trim actuator until rig pin R4 can be freely installed.

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SUBTASK 27-21-00-820-005

(4) Look at the Flight Controls Maintenance Page 1 on the Multi Functional Display.

(a) Make sure the Captain's Pedal Positions 1 and 2 show between -0.01 to +0.01.

SUBTASK 27-21-00-820-006

(5) Connect the control rod to the left rudder controls mechanism.

(a) Loosen the jam nuts on the control rod, View D (Figure 505).

(b) Put the control rod in its position on the left rudder controls mechanism.

(c) Turn the adjustment sleeve of the rod until the bolt [1] can be freely installed.

(d) Make sure the threads of the mating part cover at least 50% of the inspection holes on the control rods and sleeves.

(e) Tighten the jam nuts.

(f) Install the washer [2] and the nut [3].

G. Right Rudder Control Mechanism Adjustment

SUBTASK 27-21-00-480-004

(1) Make sure rig pins R1, R2, R3 and R4 are installed.

SUBTASK 27-21-00-020-002

(2) Disconnect the control rod at the right rudder control mechanism, View F (Figure 505).

(a) Remove the bolt [4].

(b) Support the control rod to prevent damage to the rod end bearing that is still connected.

SUBTASK 27-21-00-480-005

(3) Install rig pin R5 from in the right rudder controls mechanism, View F rig pin (J20003-14 assembly), SPL-3991(Figure 505).

SUBTASK 27-21-00-820-007

(4) Look at the Flight Controls Maintenance Page 1 on the Multi Functional Display.

(a) Make sure the First Officer's Pedal Positions 1 and 2 show between -0.01 to +0.01.

(b) Make sure the Captain's Pedal Positions 1 and 2 show between -0.01 to +0.01.

SUBTASK 27-21-00-820-008

(5) Connect the control rod to the right rudder controls mechanism.

(a) Loosen the jam nuts on the control rod, View F (Figure 505).

(b) Put the control rod in its position on the right rudder controls mechanism.

(c) Turn the adjustment sleeve of the rod until the bolt [4] can be freely installed.

(d) Make sure the threads of the mating part cover at least 50% of the inspection holes on the control rods and sleeves.

(e) Tighten the jam nuts.

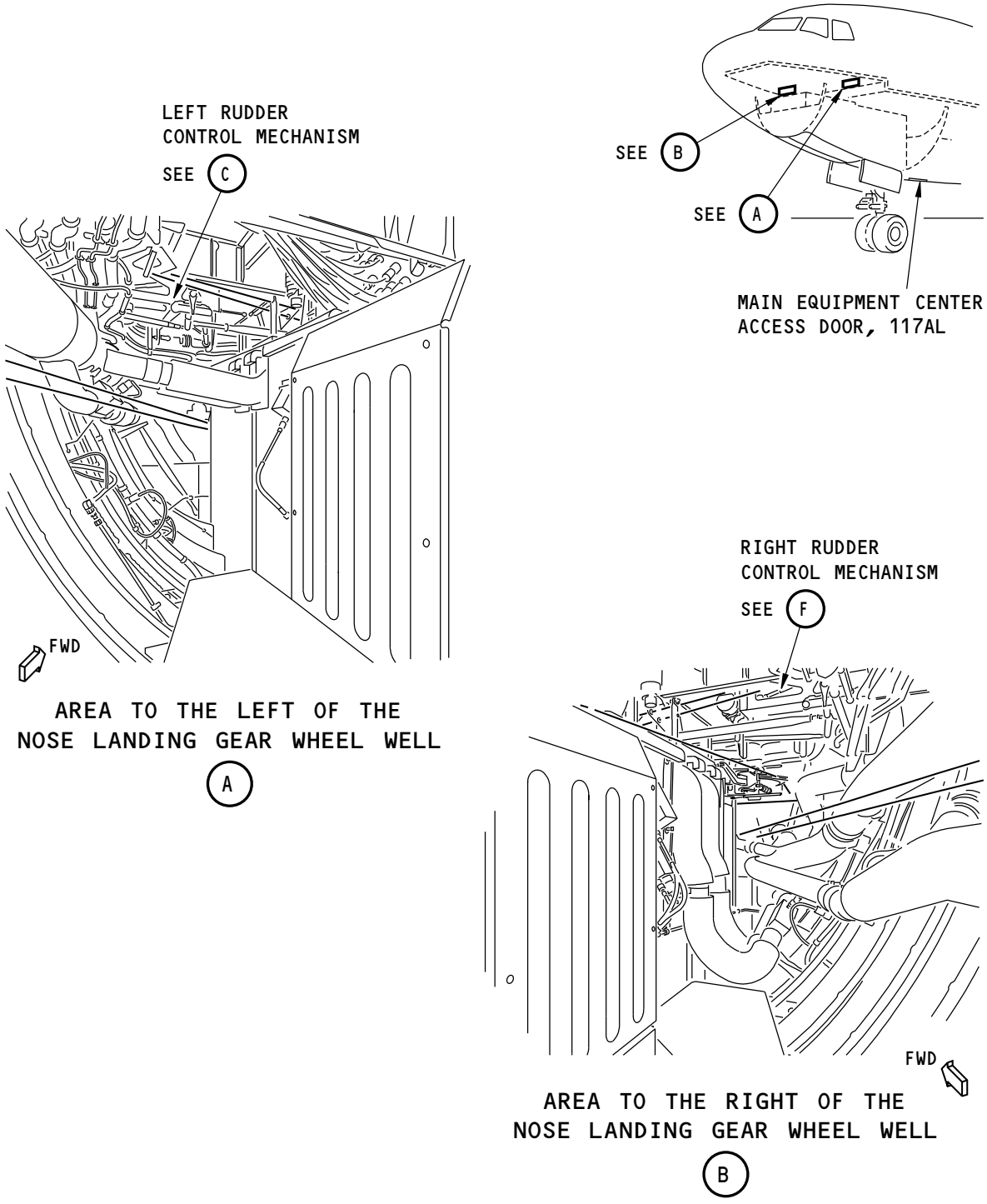
(f) Install the washer [5] and the nut [6].

SUBTASK 27-21-00-080-002

(6) Remove rig pins R1, R2, R3, R4 and R5.

END OF TASK

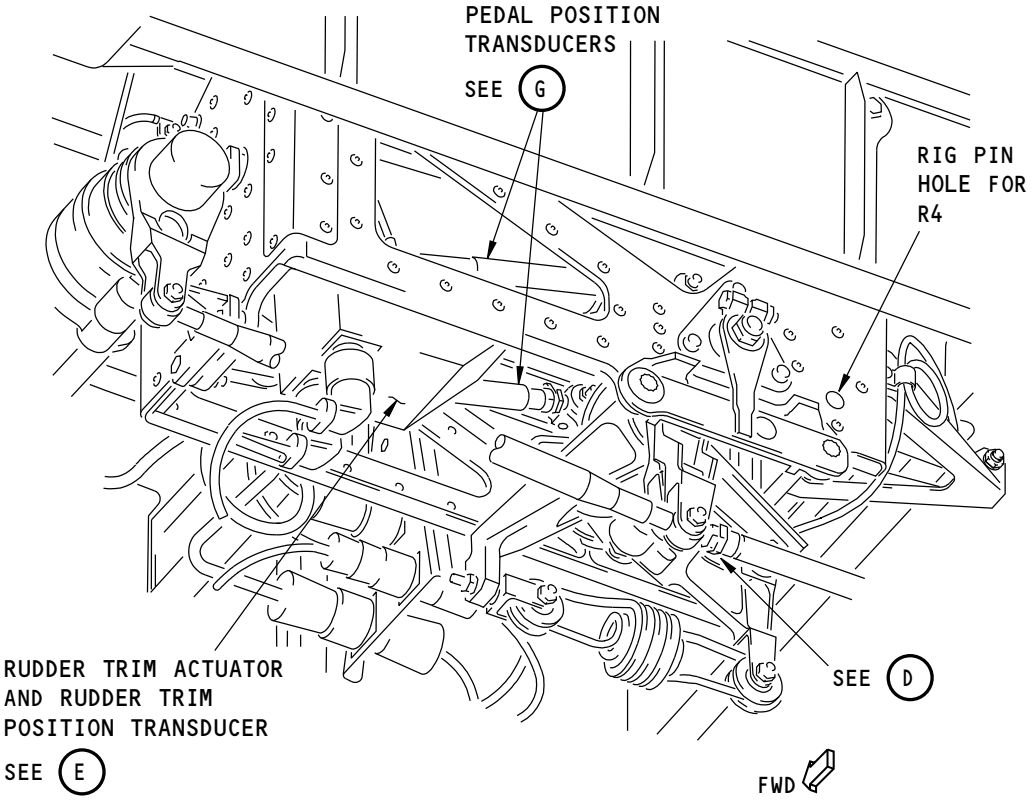
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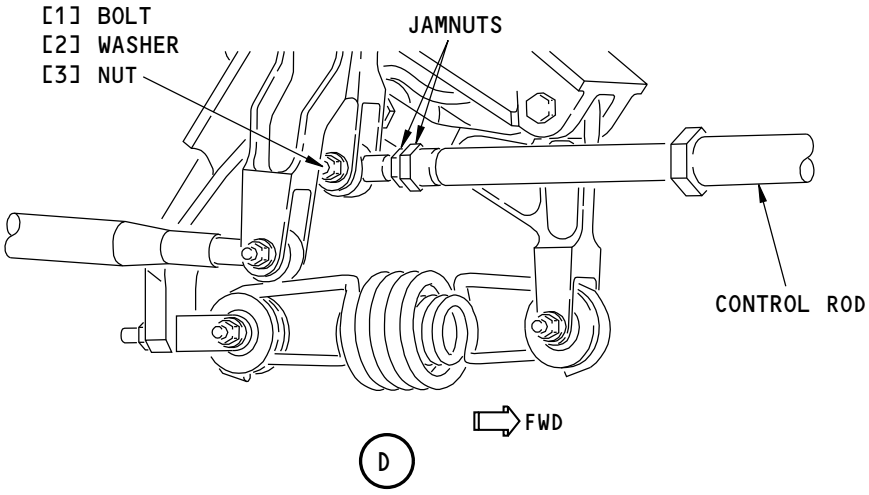
Rudder Trim Adjustment
Figure 505/27-21-00-990-805 (Sheet 1 of 4)

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LEFT RUDDER CONTROL MECHANISM

C

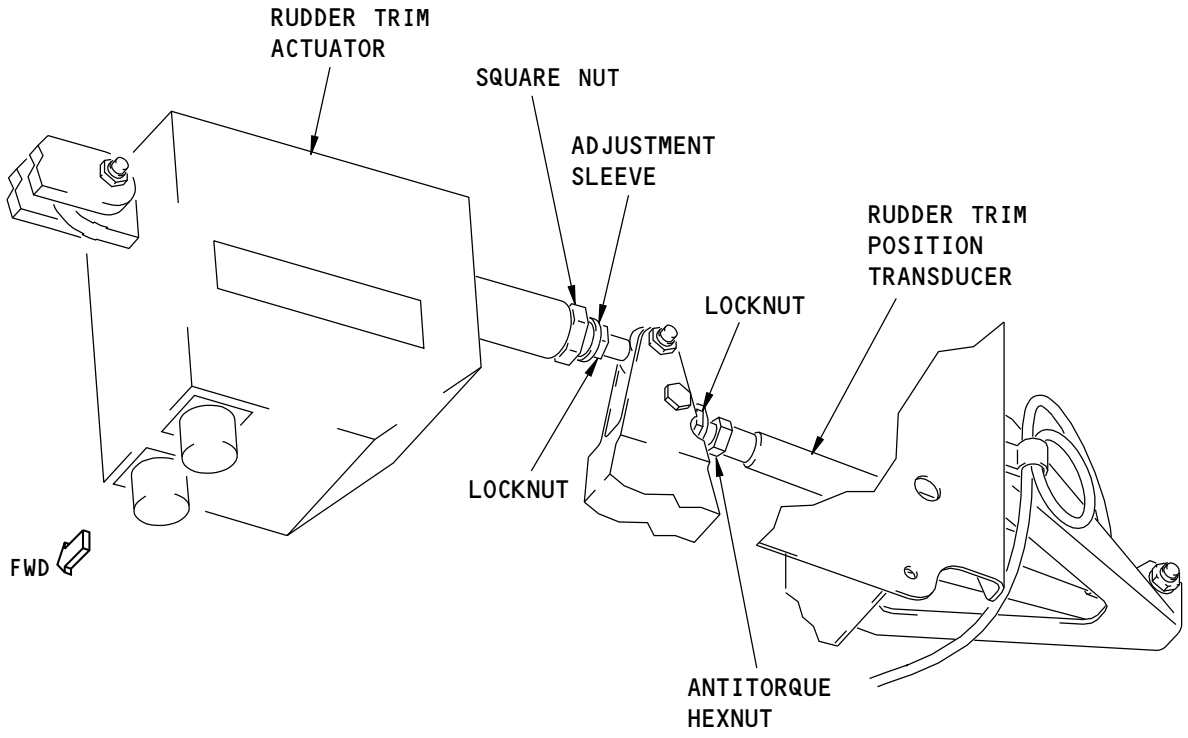


D

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Rudder Trim Adjustment
Figure 505/27-21-00-990-805 (Sheet 2 of 4)

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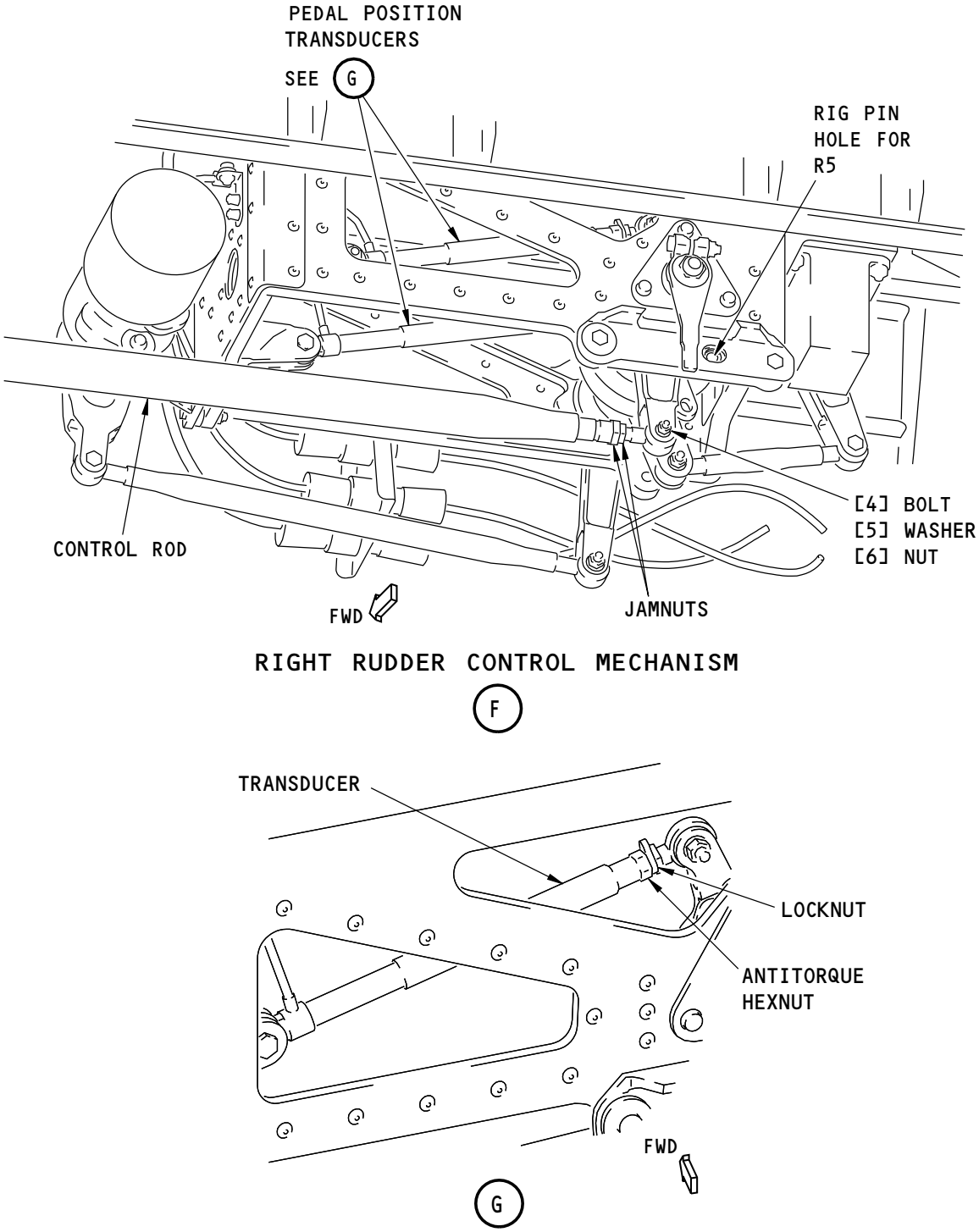
RUDDER TRIM ACTUATOR AND
RUDDER TRIM POSITION TRANSDUCER

E

E89369 S0006412915_V1

Rudder Trim Adjustment
Figure 505/27-21-00-990-805 (Sheet 3 of 4)

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Rudder Trim Adjustment
Figure 505/27-21-00-990-805 (Sheet 4 of 4)

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TASK 27-21-00-800-804

6. Pedal Position Transducer Adjustment (Rigging)

A. General

(1) Use this procedure to adjust the position transducers for the rudder pedals. They must be adjusted until they all are at zero when the rudder pedals are in their center position.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-3991	Pin - Rig (J20003-14 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Prepare for the Procedure

SUBTASK 27-21-00-840-010

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-840-011

(2) Push the MANUAL TRIM CANCEL switch for the rudder, View A (Figure 503).

SUBTASK 27-21-00-480-006

(3) Install rig pins R4 and R5 from rig pin (J20003-14 assembly), SPL-3991, Views C and F (Figure 505).

F. Procedure

SUBTASK 27-21-00-820-009

(1) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

(a) Make sure the two CAPT PEDAL POSITION and the two F/O PEDAL POSITION indications show -0.01 to 0.01.

(b) Make sure the difference between the largest and the smallest indication is less than 0.01.

(c) If the maintenance page does not show the correct position, adjust the applicable position transducers, View G (Figure 505):

1) Loosen the locknut on the position transducer.

2) Turn the anti-torque hex on the applicable position transducers until you get these conditions:

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a) The maintenance page shows -0.01 to 0.01 for the PEDAL POSITION indication.

b) The difference between the smallest and the largest of the indications is less than 0.01.

3) Tighten the locknut.

4) Install the lockwire on the locknut.

SUBTASK 27-21-00-080-003

(2) Remove rig pins R4 and R5.

SUBTASK 27-21-00-720-001

(3) Push the left rudder pedal fully forward.

(a) Make sure the CAPT PEDAL POSITION and the F/O PEDAL POSITION indications show 1.39 to 1.49.

SUBTASK 27-21-00-720-041

(4) Release the rudder pedal.

SUBTASK 27-21-00-820-010

(5) Push the right rudder pedal fully forward.

(a) Make sure the CAPT PEDAL POSITION and the F/O PEDAL POSITION indications show -1.49 to -1.39.

SUBTASK 27-21-00-720-042

(6) Release the rudder pedal.

——— END OF TASK ———

TASK 27-21-00-820-801

7. Rudder Trim Adjustment (Rigging)

A. General

(1) Use this procedure to adjust the rudder trim system. It must be adjusted until the rudder pedals will move to their center position when the Manual Trim Cancel switch is pushed.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Procedure

SUBTASK 27-21-00-840-029

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-21-00-820-021

(2) Push the MANUAL TRIM CANCEL switch for the rudder, View A (Figure 503).

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that rudder trim position 1 shows ±0.01.

2) If the rudder trim position 1 does not show ±0.01, continue with the procedure.

(b) Loosen the locknut and the square nut on the rudder trim actuator, View E (Figure 505).

(c) Use the adjustment sleeve to adjust the rod end until rig pin R4 can be installed freely, View E (Figure 505).

CAUTION HOLD THE ADJUSTMENT SLEEVE WITH A WRENCH WHEN YOU TIGHTEN THE SQUARE NUT AND THE LOCKNUT. DO NOT TIGHTEN THE SQUARE NUT TO MORE THAN 75 POUND-INCHES (8.5 NEWTON-METERS). THE ACTUATOR CAN BE DAMAGED IF YOU TIGHTEN THE NUT INCORRECTLY.

1) Hold the adjustment sleeve with a wrench while you tighten the square nut to 50-75 pound-inches (5.7-8.5 newton-meters).

2) Hold the adjustment sleeve with a wrench while you tighten the locknut to 95-160 pound-inches (10.3-18.1 newton-meters).

3) Install MS20995C32 lockwire, G01048 on the two nuts.

(d) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that rudder trim position 2 shows ±0.01.

(e) If the rudder trim position 2 does not show ±0.01, adjust the rudder trim position transducer, View E (Figure 505).

1) Loosen the locknut on the rudder trim position transducer.

2) Turn the anti-torque hex on the transducer until rudder trim position 2 shows ±0.01.

3) Tighten the locknut.

4) Install the lockwire on the locknut.

SUBTASK 27-21-00-210-002

(3) Make sure the rudder trim indicator shows 0 units.

SUBTASK 27-21-00-210-003

(4) Make sure that rudder trim positions 1 and 2 on maintenance page 1 show ±0.01.

SUBTASK 27-21-00-080-004

(5) Remove the rig pin R4.

——— END OF TASK ———

TASK 27-21-00-700-801

8. Rudder Power Control Unit Test

A. General

(1) You must use the maintenance access terminal (MAT) to do this procedure.

(2) Use this procedure to automatically do a test of the operation of the power control units (PCUs) on the rudder.

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(3) This test will use each rudder PCU (one at a time) to move the rudder. It will use the two PCUs that are not moving the rudder to resist the PCU that is moving the rudder. The test measures the pressures in the PCUs and uses this data to calculate if the PCUs are operating correctly.

(4) The rudder pedals can be in any position when you do this test. The primary flight computer (PFC) ignores the position of the rudder pedals when it does this test.

NOTE: The flight controls will move to agree with the pilot's controls when the test is done (if you keep hydraulic power on).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-21-00-840-012

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it. Refer to (TASK 29-11-00-860-801).

SUBTASK 27-21-00-730-001

(2) Use the MAT to do the system test of the Rudder Power Control Unit (TASK 45-10-00-740-808)

(a) Make these selection on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Rudder Actuator Confidence

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE RUDDER. THE RUDDER WILL MOVE AUTOMATICALLY DURING THIS TEST.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

NOTE: To stop the test, select "STOP TEST". This will stop the rudder. Follow the instructions on the MAT to start the test again or to stop the test completely.

If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

1) CONTINUE

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2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-840-013

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-21-00-700-802

9. Rudder Position Test

A. General

(1) You must use the maintenance access terminal (MAT) to do this procedure.

(2) Use this procedure to do a test of the operation of the position transducers (LVDTs) for the rudder. The position transducers are part of the PCUs.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-21-00-840-014

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it. Refer to (TASK 29-11-00-860-801).

SUBTASK 27-21-00-730-002

(2) Use the MAT to do the Rudder Position system test (TASK 45-10-00-740-808):

(a) Make these selection on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

4) 27 Primary Flight Control System

5) SYSTEM TEST

6) Rudder Position

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE RUDDER. THE RUDDER WILL MOVE AUTOMATICALLY DURING THIS TEST.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

NOTE: This test operates for approximately 1-2 minutes. To stop the test, select "STOP TEST". This will stop the rudder. Follow the instructions on the MAT to start the test again or to stop the test completely. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer the applicable Maintenance Message Index in the FIM.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-840-015

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-21-00-720-801

10. Direct Mode Test

A. General

(1) Use this procedure to make sure the rudder moves the correct distance when the flight control system is in direct mode.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-21-00-840-016

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-21-00-840-017

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply left, center, and right hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-21-00-410-006

(3) Move the flap control lever to the UP position to retract the flaps and slats.

E. Procedure

SUBTASK 27-21-00-720-002

(1) Put the PRIMARY FLIGHT COMPUTER switch (on the overhead panel, P5) in the DISC position.

SUBTASK 27-21-00-720-003

(2) Monitor page 2 of the flight controls maintenance pages, on the MFD, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(a) Make sure the three RUDDER POSITION indications on the maintenance page all show -0.088 to +0.61.

(b) Push the captain's left rudder pedal fully forward and hold it there.

1) Make sure three RUDDER POSITION indications all show -1.04 to -0.82.

2) Release the captain's left rudder pedal.

(c) Push the captain's right rudder pedal fully forward and hold it there.

1) Make sure three RUDDER POSITION indications show 1.28 to 1.62

(d) Release the captain's right rudder pedal.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-840-018

(1) Put the PRIMARY FLIGHT COMPUTER switch (on the overhead panel, P5) in the NORM position.

SUBTASK 27-21-00-840-019

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-21-00-720-802

11. Pressure Reducer Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this procedure to make sure the pressure reducers for the rudder PCUs are serviceable. The pressure reducers are part of the PCUs.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

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(Continued)

Reference	Title
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the procedure

SUBTASK 27-21-00-840-020

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-840-021

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: A pressure of 2700 psi to 3200 is necessary in all three hydraulic systems for this test.

SUBTASK 27-21-00-840-022

(3) Make sure the PRIMARY FLIGHT COMPUTER DISC switch (on the overhead panel, P5) is in the AUTO position.

SUBTASK 27-21-00-840-034

(4) Make sure that these circuit breakers are closed:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
A	7	C34433	RAD ALT C
E	7	C34431	RAD ALT L
E	20	C34432	RAD ALT R

SUBTASK 27-21-00-840-023

(5) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

E. Procedure

SUBTASK 27-21-00-720-004

(1) Monitor page 2 of the maintenance pages for the flight controls, on the multi-functional display (MFD), do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(a) Make sure the three DELTA PRESS indications for the RUDDER show -300 to +300.

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WARNING MAKE SURE THAT ALL PERSONNEL AND EQUIPMENT ARE AWAY FROM THE AREA AROUND THE LANDING GEAR. IF THE LANDING GEAR MOVES, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Push one of the left rudder pedals fully forward.

NOTE: You can use the captain's or the first officer's rudder pedals during this test.

NOTE: If you block the tillers in neutral position, you can prevent the nose gear wheels movement.

1) Make sure the three DELTA PRESS indications for the RUDDER show +1360 to +1918.

2) Release the rudder pedals.

(c) Push one of the right rudder pedals fully forward.

1) Make sure the three DELTA PRESS indications for the RUDDER show -1918 to -1360.

2) Release the rudder pedals.

(d) Extend the flaps to the 5 unit position, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(e) Push one of left rudder pedals fully forward.

1) Make sure the three DELTA PRESS indications for the RUDDER show +2532 to +3305.

2) Release the rudder pedals.

(f) Push one of right rudder pedals fully forward.

1) Make sure the three DELTA PRESS indications for the RUDDER show -3305 to -2532.

2) Release the rudder pedals.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-840-024

(1) Return the flaps to the up position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-21-00-840-025

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-21-00-700-803

12. Rudder Trim Test

A. General

(1) Use this procedure to make sure the rudder trim operates correctly.

(2) Hydraulic power is not necessary for this test. If it is supplied, the rudder will move.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

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C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-21-00-840-026

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-720-005

(2) Look at page 3 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

(a) Make sure these indications show:

1) RUD MTC SW PUSHED - NO

2) RUD TRIM ARMED - NO

3) RUD TRIM RATE - SLOW

4) RUD TRIM DIRECTION - NO

5) RUD TRIM BRAKE RELEASED - NO

SUBTASK 27-21-00-720-006

(3) Slowly turn the rudder trim knob counterclockwise until the maintenance page shows RUD TRIM ARMED - YES and RUD TRIM BRAKE RELEASED - YES. Hold the knob in this position.

NOTE: If the rudder trim gets to full travel before you complete these steps, then move the rudder back to the right (use the rudder trim knob or the MTC switch) and continue the test from where you stopped.

(a) Make sure maintenance page 3 shows RUD TRIM DIRECTION - LEFT.

(b) Make sure the rudder trim indicator moves in the left rudder trim direction.

(c) Make sure the left pedals move forward and the right pedals move aft.

SUBTASK 27-21-00-720-007

(4) Turn the rudder trim knob fully counterclockwise and hold it.

NOTE: If the rudder trim gets to full travel before you complete these steps, then move the rudder back to the right (use the rudder trim knob or the CENTER switch) and continue the test from where you stopped.

(a) Make sure maintenance page 3 shows:

1) RUD TRIM RATE - FAST

SUBTASK 27-21-00-720-008

(5) Release the rudder trim knob.

(a) Make sure the rudder trim indicator and the rudder pedals stop.

SUBTASK 27-21-00-720-009

(6) Turn the rudder trim knob fully counterclockwise again. Hold it until the rudder trim indicator stops.

(a) Make sure the rudder trim indicator is fully left.

SUBTASK 27-21-00-720-010

(7) Push the MANUAL TRIM CANCEL (MTC) switch for the rudder.

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(a) Make sure the rudder trim indicator shows 0.0 ±0.2 unit.

(b) Make sure the rudder pedals move to their center position.

(c) Look at page 1 of the maintenance pages for the flight controls:

1) Make sure the two CAPT PEDAL POSITION and the two F/O PEDAL POSITION indications show -0.07 to 0.07.

(d) Make sure maintenance page 3 shows:

1) RUD MTC SW PUSHED - NO

2) RUD TRIM ARMED - NO

3) RUD TRIM RATE - SLOW

4) RUD TRIM DIRECTION - NO

5) RUD TRIM BRAKE RELEASED - NO

SUBTASK 27-21-00-720-011

(8) Slowly turn the rudder trim knob clockwise until maintenance page 3 shows RUD TRIM ARMED - YES and RUD TRIM BRAKE RELEASED - YES. Hold the knob in this position.

NOTE: If the rudder trim gets to full travel before you complete these steps, then move the rudder back to the left (use the rudder trim knob or the MTC switch) and continue the test from where you stopped.

(a) Make sure maintenance page 3 shows RUD TRIM DIRECTION - RIGHT.

(b) Make sure the rudder trim indicator moves in the right rudder trim direction.

(c) Make sure the rudder pedals move. The right pedal must move forward and the left pedal must move aft.

SUBTASK 27-21-00-720-012

(9) Turn the rudder trim knob fully clockwise and hold it.

NOTE: If the rudder trim gets to full travel before you complete these steps, then move the rudder back to the left (use the rudder trim knob or the MTC switch) and continue the test from where you stopped.

(a) Make sure maintenance page 3 shows:

1) RUD TRIM RATE - FAST

SUBTASK 27-21-00-720-013

(10) Release the rudder trim knob.

(a) Make sure the rudder trim indicator and the rudder pedals stop.

SUBTASK 27-21-00-720-014

(11) Turn the rudder trim knob fully clockwise again. Hold it until the rudder trim indicator stops.

(a) Make sure the rudder trim indicator is fully right.

SUBTASK 27-21-00-840-027

(12) Push the MTC switch.

(a) Make sure the rudder trim indicator shows 0.0 ±0.2 unit.

——— END OF TASK ———

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TASK 27-21-00-700-804

13. Pedal Damper Test

A. General

(1) Use this test to make sure the pedal damper operates correctly. The pedal damper slows the movement of the rudder pedals to stop them from oscillating.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-21-00-840-028

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

E. Procedure

SUBTASK 27-21-00-720-015

(1) Push the left rudder pedal (Captain's or First Officer's) fully forward.

SUBTASK 27-21-00-720-016

(2) Release the left rudder pedal quickly.

NOTE: Keep your feet clear of the rudder pedals until the rudder pedals stop.

(a) Make sure the rudder pedals do not move after 1.5 seconds.

——— END OF TASK ———

TASK 27-21-00-700-805

14. Rudder Pedal Adjustment and Travel Test

A. General

(1) Use this procedure to make sure the rudder pedals can move through their full travel and the pedal adjustment crank operates correctly.

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Procedure

SUBTASK 27-21-00-720-017

(1) Turn the pedal adjustment knobs (of the Captain and the First Officer) counter clockwise to adjust the rudder pedals to the full aft position.

SUBTASK 27-21-00-720-018

(2) Shake the rudder pedals lightly to make sure they are in their center position.

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SUBTASK 27-21-00-720-019

(3) Make sure the Captain's and the First Officer's rudder pedals are 4.7 to 5.7 inches (11.9 to 14.5 centimeters) from the aft surface of the pedal covers (distance X), (Figure 506).

NOTE: Measurements (distance X) of the rudder pedals are made from the nearest inboard point of the pedal tread flange to the aft surface of the pedal covers.

SUBTASK 27-21-00-720-020

(4) Make sure the difference between the left and the right pedals on each side is not more than 0.3 inches (7.6 millimeters).

SUBTASK 27-21-00-720-021

(5) Slowly push the Captain's left pedal to the full forward position and hold.

(a) Make sure either the left or right (or both) mechanical stop on the feel mechanism is touched.

SUBTASK 27-21-00-720-022

(6) Slowly release the Captain's left pedal.

SUBTASK 27-21-00-720-023

(7) Slowly push the Captain's right pedal to the full forward position and hold.

(a) Make sure either the left or right (or both) mechanical stop on the feel mechanism is touched.

SUBTASK 27-21-00-720-024

(8) Slowly release the Captain's right pedal.

SUBTASK 27-21-00-720-025

(9) Slowly push the First Officer's left pedal to the full forward position and hold.

SUBTASK 27-21-00-720-026

(10) Release the First Officer's LEFT control pedal SLOWLY back to the neutral detent position.

SUBTASK 27-21-00-720-027

(11) PUSH the First Officer's RIGHT control pedal to full forward and hold.

SUBTASK 27-21-00-720-028

(12) Slowly release the First Officer's Right rudder pedal back to the detent position.

SUBTASK 27-21-00-720-029

(13) Turn the pedal adjustment knob Clockwise to adjust the Captain's and First Officer's rudder pedals to the full forward position.

SUBTASK 27-21-00-720-030

(14) Shake the rudder pedals lightly to make sure they are in their center position.

SUBTASK 27-21-00-720-031

(15) Make sure the pedals are in the neutral detent.

SUBTASK 27-21-00-720-032

(16) Make sure both the Captain's and First Officer's control pedals are at least 12.3 inches (31.2 centimeters), but no more than 13.3 inches (33.8 centimeters) from the aft surface of pedal covers using a hand-held scale.

SUBTASK 27-21-00-720-033

(17) Make sure the difference between the left and right pedals on each side is a maximum of 0.3 inch (7.6 millimeters).

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SUBTASK 27-21-00-720-034

(18) Push the Captain's left control pedal slowly to full forward and hold.

SUBTASK 27-21-00-720-035

(19) Make sure either the left or the right (or the two) mechanical stop on the feel mechanism is touched.

SUBTASK 27-21-00-720-036

(20) Release the Captain's left control pedal slowly back to the neutral position.

SUBTASK 27-21-00-720-037

(21) Push the Captain's Right control pedal slowly to full forward and hold.

SUBTASK 27-21-00-720-038

(22) Make sure either the left or right (or both) mechanical stop on the feel mechanism is contacted.

SUBTASK 27-21-00-720-039

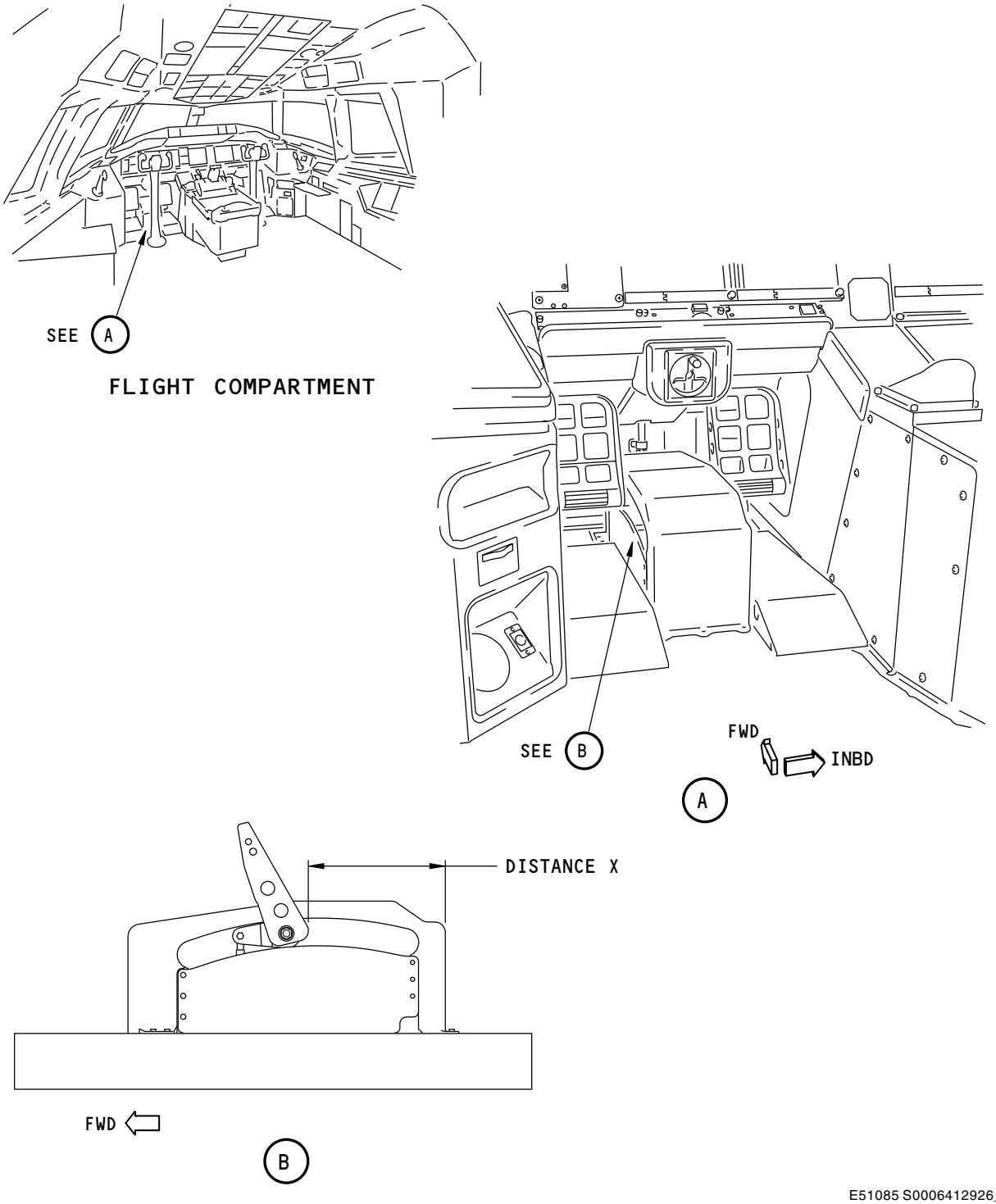
(23) Release the Captain's RIGHT control pedal slowly back to the neutral position.

SUBTASK 27-21-00-720-040

(24) Adjust the pedals back to their mid-adjustment position, 3.5 to 4.0 turns back from full forward.

——— END OF TASK ———

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Rudder Pedal Adjustment and Travel Test
Figure 506/27-21-00-990-806

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TASK 27-21-00-700-806

15. Rudder Trim Position Transducer Test

A. General

(1) Use this procedure to make sure the rudder trim position transducers operate correctly.

(2) Hydraulic power is not necessary for this test. If it is supplied, the rudder will move.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
FIM 27-21 TASK 806	Aileron/Rudder Trim Module Manual Trim Cancel Switch Problems - Fault Isolation

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-21-00-840-031

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-720-043

(2) Turn the rudder trim knob fully counterclockwise and hold it.

NOTE: If you release the rudder trim knob before the rudder trim gets to full travel, then move the rudder back to center (use the rudder trim knob or the manual trim cancel switch) and continue the test.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that rudder trim position 1 is from 1.44 to 1.56.

2) Make sure that rudder trim position 2 is from 1.00 to 1.19.

SUBTASK 27-21-00-720-044

(3) Turn the rudder trim knob fully clockwise and hold it.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that rudder trim position 1 is from -1.44 to -1.56.

2) Make sure that rudder trim position 2 is from -1.00 to -1.19.

(b) Release the rudder trim knob.

SUBTASK 27-21-00-840-032

(4) Push the MANUAL TRIM CANCEL switch for the rudder, View A (Figure 503).

(a) Make sure the rudder trim indicator shows 0.0 ±0.2 unit.

1) If the rudder trim indicator shows less than -0.2 unit or more than +0.2 unit, perform this task:FIM 27-21 TASK 806.

2) If the rudder trim indicator shows between -0.2 unit and +0.2 units, no action is required.

END OF TASK

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TASK 27-21-00-700-807

16. Rudder Pedal Force Transducer Test

A. General

(1) Use this procedure to make sure the rudder pedal force Flight Data Recorder (FDR) transducers operate correctly.

(2) Hydraulic power is not necessary for this test. If it is supplied, the rudder will move.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-21-00-840-033

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-00-740-001

(2) Ensure no force is being applied to the rudder pedals.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that the CAPT PEDAL FORCE FDR reads from -3.0 to +3.0.

2) Make sure that the F/O PEDAL FORCE FDR reads from -3.0 to +3.0.

SUBTASK 27-21-00-720-045

(3) Push the Captain's left pedal forward to the stop and hold.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that the CAPT PEDAL FORCE FDR reads from -60.0 to -200.0

SUBTASK 27-21-00-720-046

(4) Release the Captain's left pedal and make sure it returns to the detent.

SUBTASK 27-21-00-720-047

(5) Push the Captain's right pedal forward to the stop and hold.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that the CAPT PEDAL FORCE FDR reads from +60.0 to +200.0.

SUBTASK 27-21-00-720-048

(6) Release the Captain's right pedal and make sure it returns to the detent.

SUBTASK 27-21-00-720-049

(7) Push the First Officer's left pedal forward to the stop and hold.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that the F/O PEDAL FORCE FDR reads from -60.0 to -200.0

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SUBTASK 27-21-00-720-050

(8) Release the First Officer's left pedal and make sure it returns to the detent.

SUBTASK 27-21-00-720-051

(9) Push the First Officer's right pedal forward to the stop and hold.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that the F/O PEDAL FORCE FDR reads from +60.0 to +200.0.

SUBTASK 27-21-00-720-052

(10) Release the First Officer's right pedal and make sure it returns to the detent.

SUBTASK 27-21-00-740-002

(11) Ensure no force is being applied to the rudder pedals.

(a) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

1) Make sure that the CAPT PEDAL FORCE FDR reads from -3.0 to +3.0.

2) Make sure that the F/O PEDAL FORCE FDR reads from -3.0 to +3.0.

——— END OF TASK ———

TASK 27-21-00-200-802

17. Rudder Pedal Breakout Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the rudder pedal control rods (pogo) mechanism operates correctly.

B. References

Reference	Title
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Procedure

NOTE: This test can cause the "Rudder pedal positon signals from rudder pedal positon transducers (left) and rudder pedal position transducers (right) do not agree" fault (27-12206) to occur. This is not a failure of the test. This fault occurs if you hold one rudder pedal in a different position than the other rudder pedal with hydraulic power supplied. It is not necessary for the message to show to complete this test.

SUBTASK 27-21-00-700-002

(1) Use the MFD to do these steps that follow, Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 27-21-00-860-015

CAUTION

MAKE SURE EQUIPMENT AND PERSONNEL ARE CLEAR OF FLIGHT CONTROLS.

(2) Select the flight control maintenance page 1.

NOTE: Hydraulic pressure is not required for this test.

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SUBTASK 27-21-00-860-016

(3) Make sure on maintenance page 1 that the CAPT and F/O PEDAL POSITIONS indicate -0.01 to +0.01.

SUBTASK 27-21-00-860-017

(4) Pull the captain's left control pedal slowly aft until it stops.

SUBTASK 27-21-00-860-018

(5) Verify on maintenance page 1 that the CAPT and F/O PEDAL POSITIONS do not change by more than -0.05.

SUBTASK 27-21-00-860-019

(6) Return the control pedal back to the neutral position.

SUBTASK 27-21-00-860-020

(7) Pull the captain's right control pedal slowly aft until it stops.

SUBTASK 27-21-00-860-021

(8) Verify on maintenance page 1 that the CAPT and F/O PEDAL POSITIONS do not change by more than +0.05.

SUBTASK 27-21-00-860-022

(9) Return the control pedal back to the neutral position.

SUBTASK 27-21-00-860-023

(10) Pull the first officer's left control pedal slowly aft until it stops.

SUBTASK 27-21-00-860-024

(11) Verify on maintenance page 1 that the CAPT and F/O PEDAL POSITIONS do not change by more than -0.05.

SUBTASK 27-21-00-860-025

(12) Return the control pedal back to the neutral position.

SUBTASK 27-21-00-860-026

(13) Pull the first officer's right control pedal slowly aft until it stops.

SUBTASK 27-21-00-860-027

(14) Verify on maintenance page 1 that the CAPT and F/O PEDAL POSITIONS do not change by more than +0.05.

SUBTASK 27-21-00-860-028

(15) Return the control pedal back to neutral position.

NOTE: You need to do the rudder pedal position system test to clear the "Rudder pedal position signals from rudder pedal position transducers (left) and rudder pedal position transducers (right) do not agree" fault.

(a) Make these selections on the MAT, (TASK 45-10-00-740-819):

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 PRIMARY FLIGHT CONTROL SYSTEM
5) SYSTEM TEST
6) PEDAL POSITION
7) CONTINUE

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(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

NOTE: To stop the test, select "STOP TEST". This will cause flight controls to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

(c) When the test is completed, make sure PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

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RUDDER PEDALS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder pedal bellcrank

(2) An installation of the rudder pedal bellcrank.

(3) A removal of the rudder pedals

(4) An installation of the rudder pedals.

TASK 27-21-01-020-801

2. Rudder Pedal Bellcrank Assembly Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Access Panels

Number	Name/Location
112AL	Forward Access Door

D. Prepare for the Removal

SUBTASK 27-21-01-840-003

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-21-01-865-001

WARNING REMOVE ELECTRICAL POWER FROM THE FIRST OFFICER'S AND CAPTAIN'S SEATS. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

(a) On the left power supply assembly (PSA-L) in the E1-6 rack.

1) A1, ACE-L1 PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack.

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1) A1, ACE-R PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack.

1) A1, ACE-C PWR

SUBTASK 27-21-01-860-001

(3) Make sure that the parking brake is not set.

(a) If the parking brake is set, release the parking brake.

E. Rudder Pedal Bellcranks Removal

SUBTASK 27-21-01-010-003

(1) To get access to the area forward of the nose gear wheel well, do this step:

Open this access panel, to get access to the area forward of the nose gear wheel well

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-21-01-430-001

(2) Install rig pins R1 or R2, and R3 from the rigging pin set, SPL-2532, Figure 401.

SUBTASK 27-21-01-030-001

(3) Remove the nuts [10], washers [9] and bolts [8], and disconnect the brake pushrods from the bellcranks [23].

SUBTASK 27-21-01-030-002

(4) Remove the nuts [26], washers [25] and bolts [24], and disconnect the brakerods from the bellcranks [23].

SUBTASK 27-21-01-030-003

(5) Remove the nuts [7] and the washers [5] and the washers [6].

NOTE: If you are not removing the pedal assembly at this time, remove the forward shafts [4] only and leave the aft shafts [4] in place.

SUBTASK 27-21-01-030-004

(6) Hold the bellcranks [23] and remove the forward shafts [4].

NOTE: Catch the bushings [12], bushings [13] and bushings [14].

SUBTASK 27-21-01-020-009

(7) Remove the bellcranks [23] through the floor.

——— END OF TASK ———

TASK 27-21-01-420-801

3. Rudder Pedal Bellcrank Assembly Installation

(Figure 401)

A. References

Reference	Title
32-41-00-820-801	Brake Hydro-Mechanical Control System Adjustment (P/B 501)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left
212	Flight Compartment, Right

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C. Rudder Pedal Bellcrank Installation

SUBTASK 27-21-01-430-002

(1) Put the bushings [12], bushings [13] and bushings [14], and thebellcranks [23] in their positions.

SUBTASK 27-21-01-430-003

(2) Install the forward shafts [4]

NOTE: Install the shafts [4] with the heads inboard.

(a) Slide the shafts [4] through the inboard housing hole, the shortest bushings [12], the inboard bellcranks [23], the longest bushings [13], the outboard bellcranks [23], bushings [14], and outboard housing hole.

NOTE: The bushing lengths from shortest to longest are: [12], [14], [13].

SUBTASK 27-21-01-430-004

(3) Install the washers [5] and the washers [6] (both under the nuts [7]) and install the nuts [7].

(a) If the nuts [7] is not fully engaged on the threads of the shafts [4], then remove one of the washers.

(b) Tighten the nuts [7] 270 to 330 pound-inches (30.5-37.3 newton-meters).

SUBTASK 27-21-01-430-005

(4) Install the bolts [24],washers [25] and nuts [26] to connect the brakerods to the bellcranks [23].

SUBTASK 27-21-01-430-006

(5) Install the bolts [8], washers [9] and nuts [10], to connect the brake pushrods to the bellcranks [23].

SUBTASK 27-21-01-430-007

(6) Remove rig pins R1, R2, and R3.

SUBTASK 27-21-01-820-002

(7) Adjust the brake pedal bus. To adjust it, do this task: Brake Hydro-Mechanical Control System Adjustment, TASK 32-41-00-820-801.

——— END OF TASK ———

TASK 27-21-01-000-801

4. Rudder Pedal Assembly Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
22	Cotter pin	27-21-14-10A-085	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left
212	Flight Compartment, Right

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D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-21-01-840-001

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-21-01-840-002

WARNING REMOVE ELECTRICAL POWER FROM THE FIRST OFFICER'S AND CAPTAIN'S SEATS. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

(a) On the left power supply assembly (PSA-L) in the E1-6 rack.

1) A1, ACE-L1 PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack.

1) A1, ACE-R PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack.

1) A1, ACE-C PWR

F. Rudder Pedals Removal

SUBTASK 27-21-01-010-001

(1) To get access to the area forward of the nose gear wheel well, do this step:

Open this access panel, to get access to the area forward of the nose gear wheel well

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-21-01-010-002

(2) Do these steps to remove the cover [20] in the flight compartment.

(a) Remove bolts [17] and bolts [18] and then remove the side panels [19].

(b) Remove the screws [15] and the washers [16].

SUBTASK 27-21-01-020-001

(3) Remove the nuts [10], washers [9] and bolts [8], and disconnect the brake pushrods from the bellcranks of the crank assemblies [21].

SUBTASK 27-21-01-020-008

(4) Remove the nuts [3], washers [2], bolts [1], and cotter pins [22] and disconnect the rudder pedal pushrods from of the crank assemblies [21].

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SUBTASK 27-21-01-020-003

(5) Disconnect the parking brake springs.

SUBTASK 27-21-01-020-004

(6) Remove the nuts [7] and the washers [5] and the washers [6].

SUBTASK 27-21-01-020-005

(7) Hold the crank assemblies [21] and remove the shafts [4].

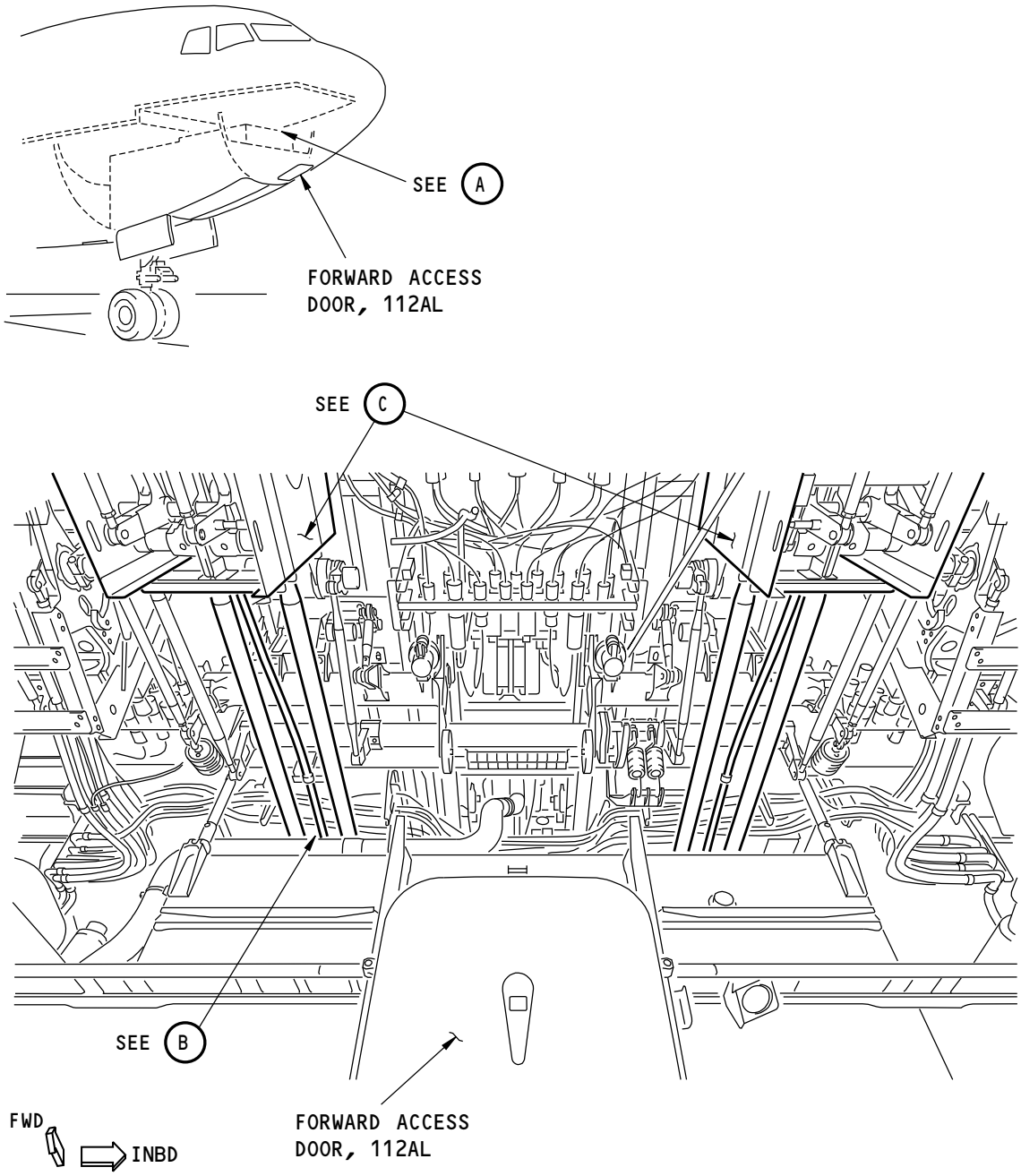
NOTE: Catch the bushing [12], bushing [13], bushing [14], and bushings [11]

SUBTASK 27-21-01-020-006

(8) Remove the crank assemblies [21] up and through the floor.

——— END OF TASK ———

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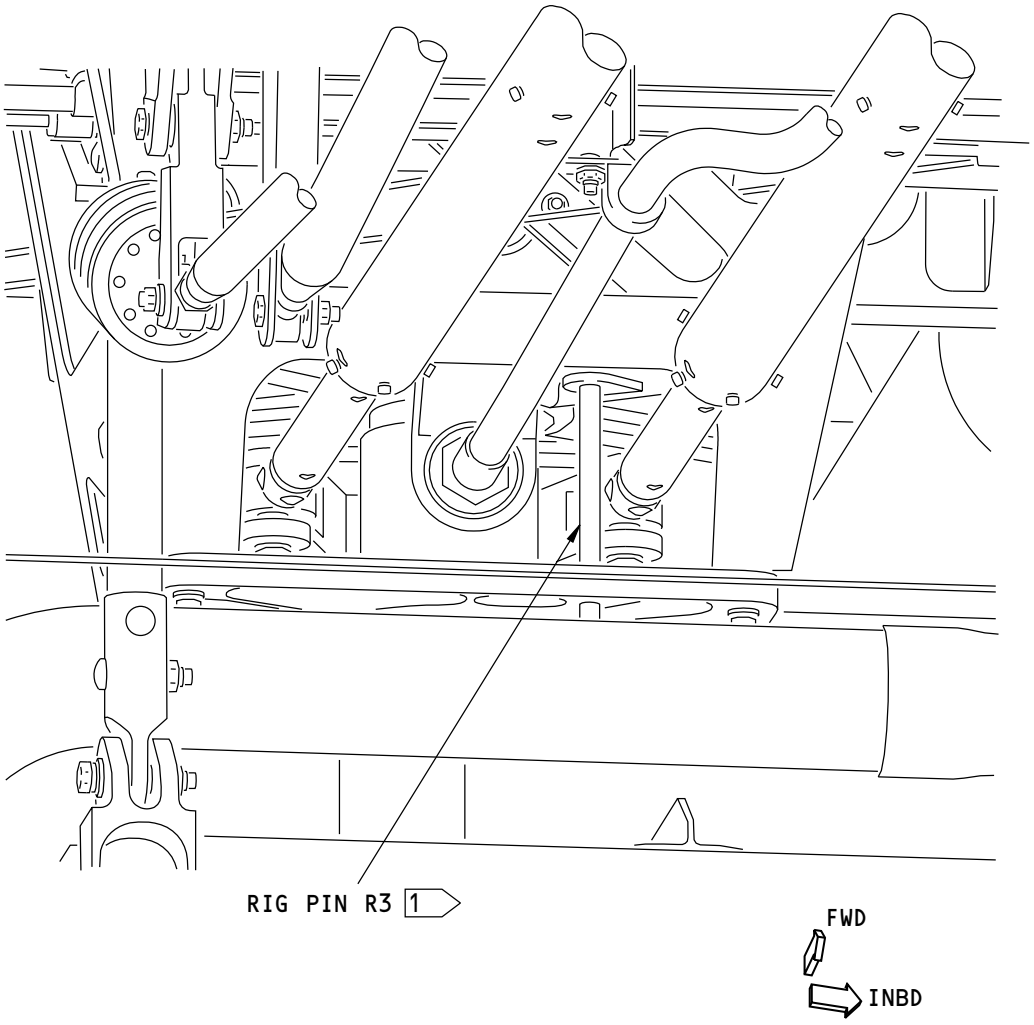
AREA FORWARD OF NOSE LANDING GEAR WHEEL WELL

A

E49642 S0006412933_V1

Rudder Pedal Installation
Figure 401/27-21-01-990-801 (Sheet 1 of 5)

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RIGHT RUDDER PEDAL MECHANISM

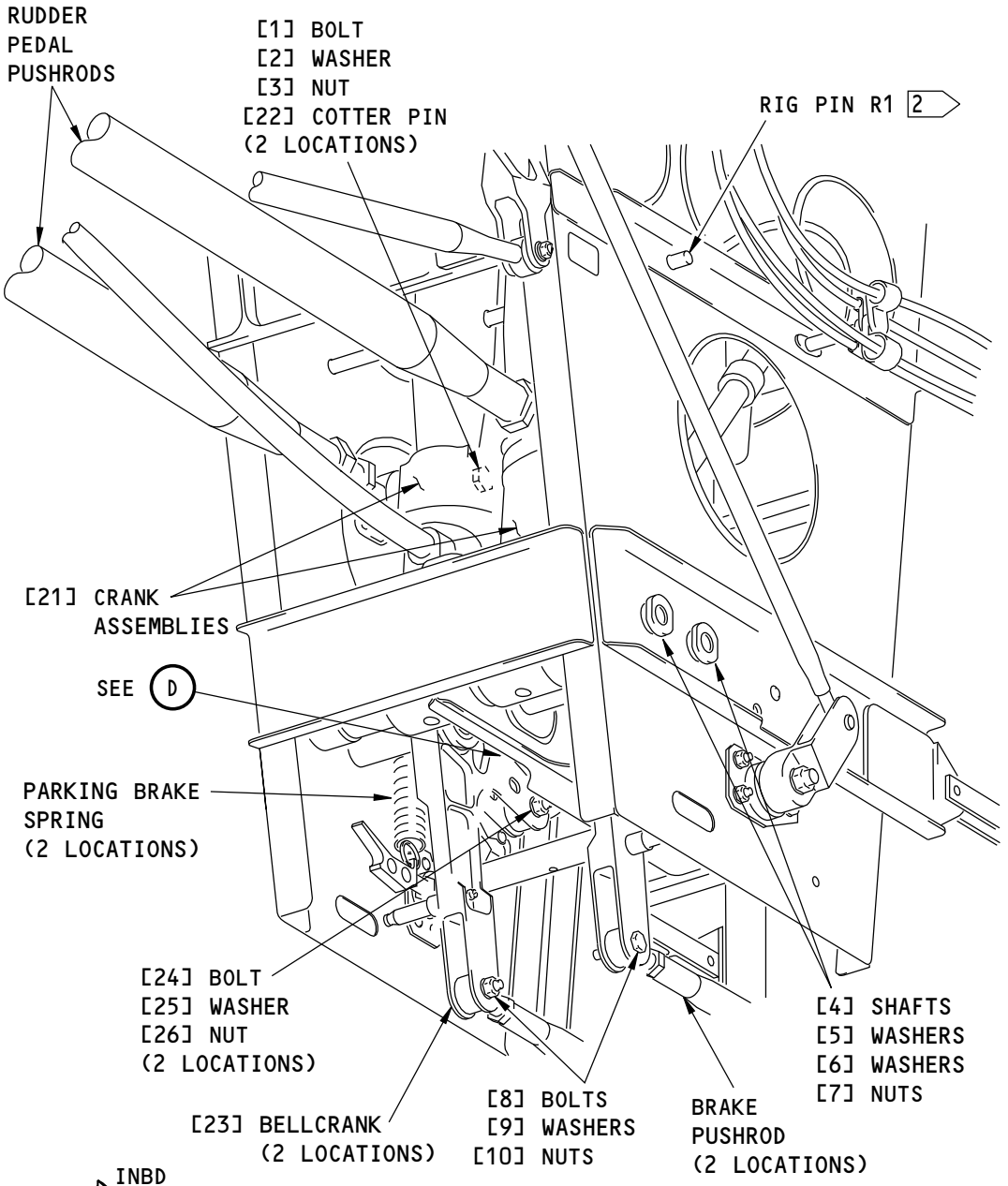
B

1 THERE IS NO RIG PIN FOR THE LEFT SIDE.

E49682 S0006412934_V1

Rudder Pedal Installation
Figure 401/27-21-01-990-801 (Sheet 2 of 5)

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LEFT RUDDER PEDAL MECHANISM
(RIGHT RUDDER PEDAL MECHANISM IS EQUIVALENT)

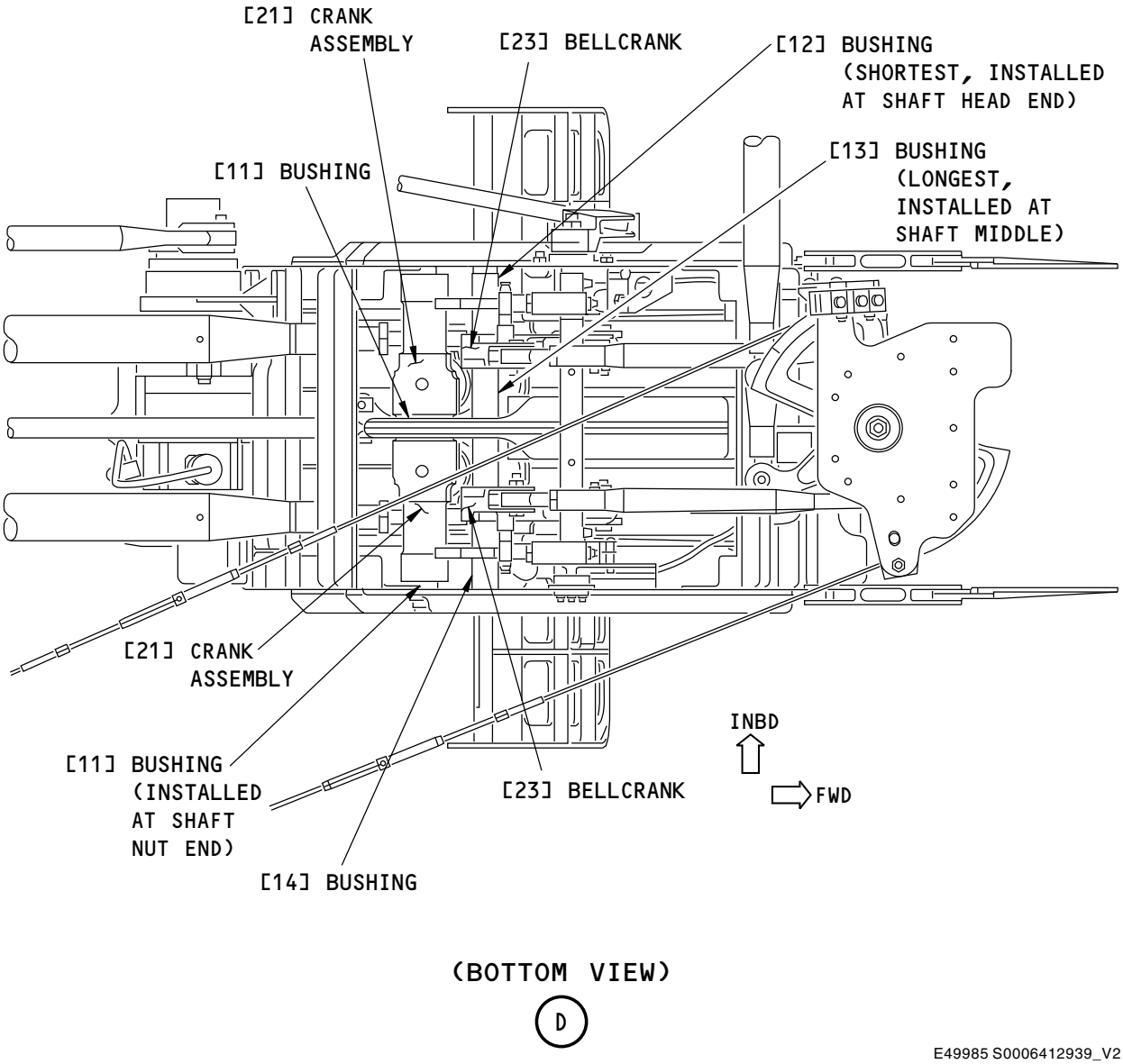
C

2 RIG PIN R2 IS INSTALLED IN THE FIRST OFFICER'S RUDDER PEDALS.

E49687 S0006412935_V2

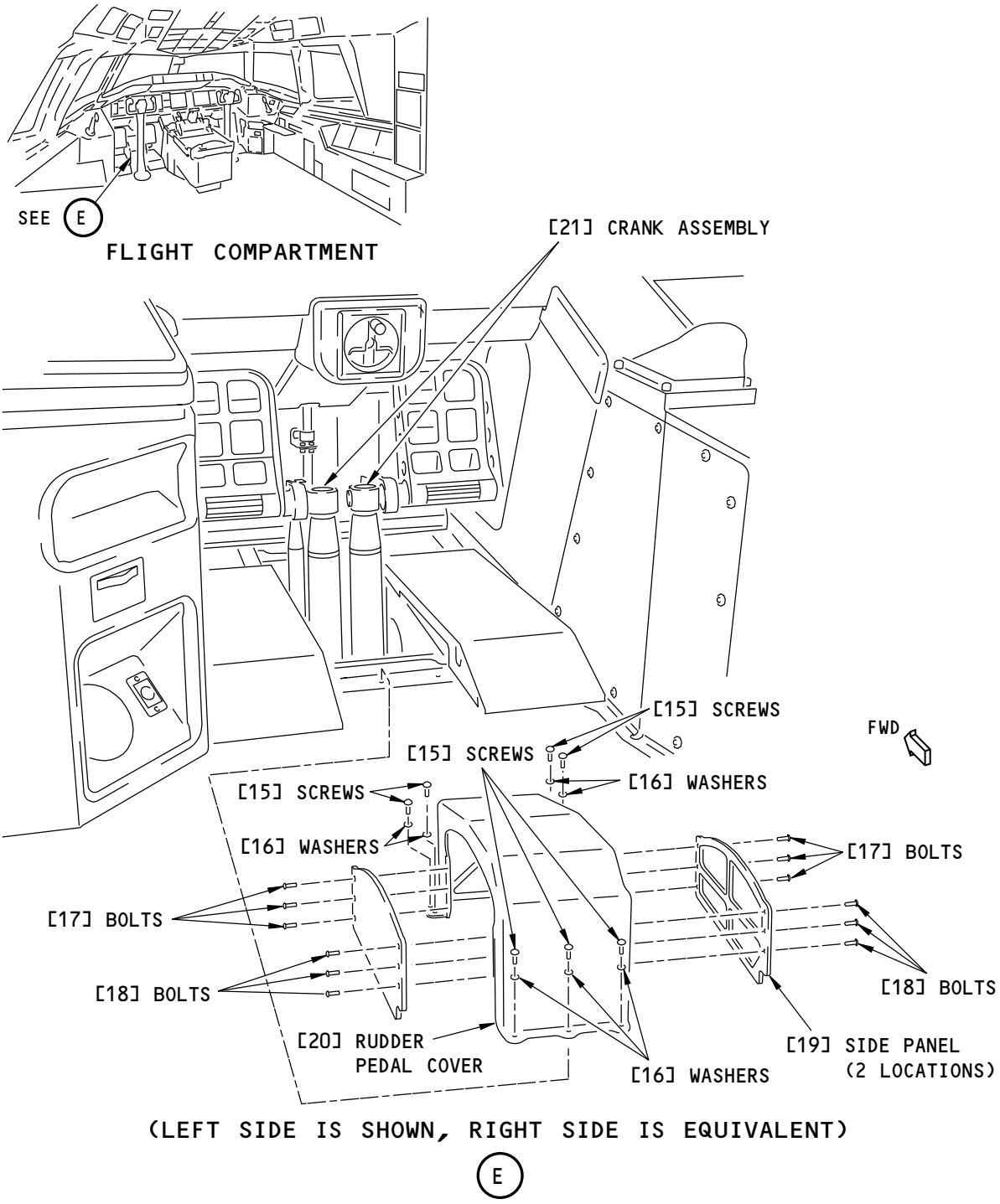
Rudder Pedal Installation
Figure 401/27-21-01-990-801 (Sheet 3 of 5)

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Rudder Pedal Installation
Figure 401/27-21-01-990-801 (Sheet 4 of 5)

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E54594 S0006412940_V1

Rudder Pedal Installation
Figure 401/27-21-01-990-801 (Sheet 5 of 5)

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TASK 27-21-01-400-801

5. Rudder Pedal Assembly Installation

(Figure 401)

A. References

Reference	Title
27-21-00-700-805	Rudder Pedal Adjustment and Travel Test (P/B 501)
32-41-00-820-801	Brake Hydro-Mechanical Control System Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
21	Crank assembly	27-21-01-10-070	ARO ALL
		27-21-01-10-072	ARO 001-010
		27-21-01-10-073	ARO 001-010
		27-21-01-10-075	ARO ALL
		27-21-01-10-077	ARO 001-010
		27-21-01-10-078	ARO 001-010
22	Cotter pin	27-21-14-10A-085	ARO ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left
212	Flight Compartment, Right

F. Access Panels

Number	Name/Location
112AL	Forward Access Door

G. Rudder Pedals Installation

SUBTASK 27-21-01-420-001

(1) Put the bushings [11], bushing [12], bushing [13] and bushing [14], and the crank assemblies [21] in their positions.

SUBTASK 27-21-01-420-002

(2) Install the shafts [4]

NOTE: Install the shafts [4] with the heads inboard.

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(a) Slide the aft shaft [4] through the inboard housing hole, inboard crank assembly [21], middle bushing [14], outboard crank assembly [21], outboard bushing [11], and outboard housing hole.

(b) Slide the forward shafts [4] through the inboard housing hole, the shortest bushing [12], the inboard crank assembly [21], the longest bushing [13], the outboard crank assembly [21], bushing [14], and outboard housing hole.

NOTE: The bushing lengths from shortest to longest are: [12], [14], [13].

SUBTASK 27-21-01-420-003

(3) Install the washers [5] and the washers [6] (both under the nuts [7]) and install the nuts [7].

(a) If the nuts [7] is not fully engaged on the threads of the shafts [4], then remove one of the washers.

(b) Tighten the nuts [7] 270 to 330 pound-inches (30.5-37.3 newton-meters).

SUBTASK 27-21-01-420-005

(4) Do these steps to connect the rudder pedal pushrods to the crank assemblies [21]:

(a) Turn the rudder pedal adjustment crank (in the flight compartment) clockwise until it stops.

NOTE: The pushrods will move, make sure they do not hit anything.

(b) Turn the rudder pedal adjustment crank counterclockwise 3.8 turns.

NOTE: This puts the pushrods in the correct position to be adjusted.

(c) Install the bolts [1] in the crank assemblies [21].

(d) Set the crank assemblies [21] at the middle of their travel.

(e) Install rig pins R1 or R2, and R3 from the rigging pin set, SPL-2532, (Figure 401).

(f) Adjust the pushrods to the correct length, and put them on the bolts [1].

1) Tighten the locknut on the pushrod and install MS20995C32 lockwire, G01048 on it.

(g) Install the washers [2] and the nuts [3].

(h) Tighten the nuts [3] 110 to 150 pound-inches (12.43-16.95 newton-meters).

(i) Install the cotter pin [22] on the bolts [1].

SUBTASK 27-21-01-480-003

(5) Remove rig pins R1, R2, and R3.

SUBTASK 27-21-01-420-006

(6) Connect the springs for the parking brake.

SUBTASK 27-21-01-420-007

(7) Do these steps to connect the brake pushrods:

(a) Put the brake pushrods in their positions.

(b) Install the bolts [8], the washers [9] and the nuts [10].

SUBTASK 27-21-01-820-001

(8) Adjust the brake pedal bus. To adjust it, do this task: Brake Hydro-Mechanical Control System Adjustment, TASK 32-41-00-820-801.

SUBTASK 27-21-01-410-001

(9) Put the cover [20] in its position.

SUBTASK 27-21-01-410-004

(10) Install the screws [15] and the washers [16].

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SUBTASK 27-21-01-410-002

(11) Do these steps to install the side panels [19] of the cover [20]:

(a) Put the side panels [19] in their positions.

(b) Install the bolts [17] and the bolts [18].

H. Rudder Pedals Installation Test

SUBTASK 27-21-01-080-001

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

(a) On the left power supply assembly (PSA-L) in the E1-6 rack.

1) A1, ACE PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack.

1) A1, ACE PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack.

1) A1, ACE PWR

SUBTASK 27-21-01-720-001

(2) Do this task: Rudder Pedal Adjustment and Travel Test, TASK 27-21-00-700-805.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-01-410-003

(1) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

——— END OF TASK ———

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CRANK AND FLEX SHAFT FOR RUDDER PEDAL ADJUSTMENT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder pedal adjustment crank.

(2) An installation of the rudder pedal adjustment crank.

(3) A removal of the rudder pedal adjustment flex shaft.

(4) An installation of the rudder pedal adjustment flex shaft.

TASK 27-21-02-000-801

2. Rudder Pedal Adjustment Crank Removal

(Figure 401)

A. References

Reference	Title
32-41-11-000-801	Brake Accumulator Pressure Gage (Flight Compartment) Removal (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Prepare for the Removal

SUBTASK 27-21-02-840-001

WARNING REMOVE ELECTRICAL POWER FROM THE FIRST OFFICER'S AND CAPTAIN'S SEATS. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

(a) On the left power supply assembly (PSA-L) in the E1-6 rack.

1) A1, ACE-L1 PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack.

1) A1, ACE-R PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack.

1) A1, ACE-C PWR

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SUBTASK 27-21-02-010-003

(2) For the captain's side, do this task: Brake Accumulator Pressure Gage (Flight Compartment) Removal, TASK 32-41-11-000-801.

SUBTASK 27-21-02-010-004

(3) For the first officer's side, remove the 'blank off' panel.

D. Rudder Pedal Adjustment Crank Assembly Removal

SUBTASK 27-21-02-020-005

(1) Remove the handle assembly [4] from the panel:

(a) Remove the nut [16] and the washer [15] which attaches the crank to the handle [8].

NOTE: The handle [8] should pull off freely.

(b) Remove the bolt [24].

(c) Pull the shaft [7] aft through the housing cover cutout.

SUBTASK 27-21-02-010-001

(2) Remove the cover [19]:

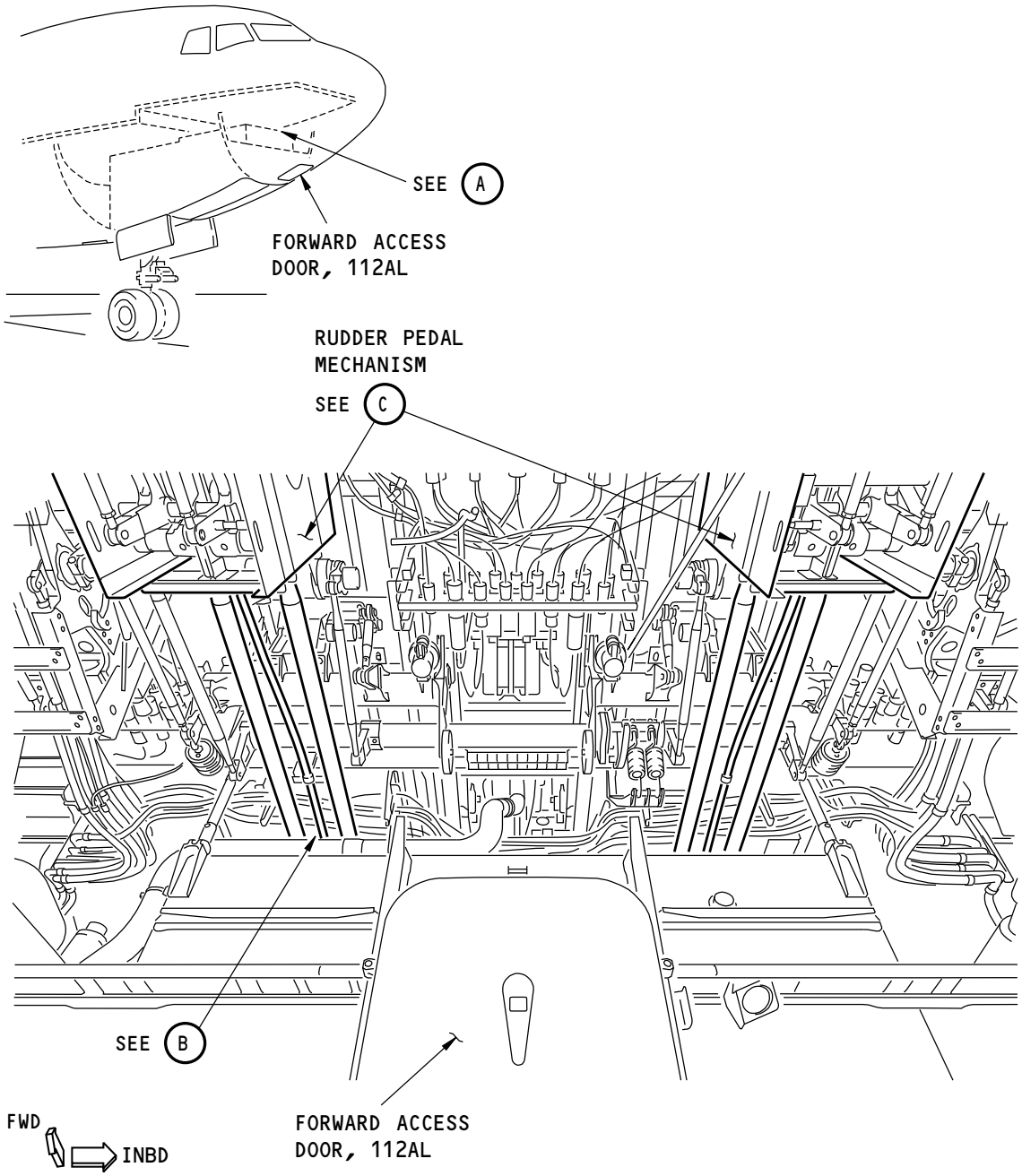
(a) Remove the screws [20].

(b) Remove the screws [17] and the washers [18].

(c) Pull the cover downward out of the kickpad slot.

——— END OF TASK ———

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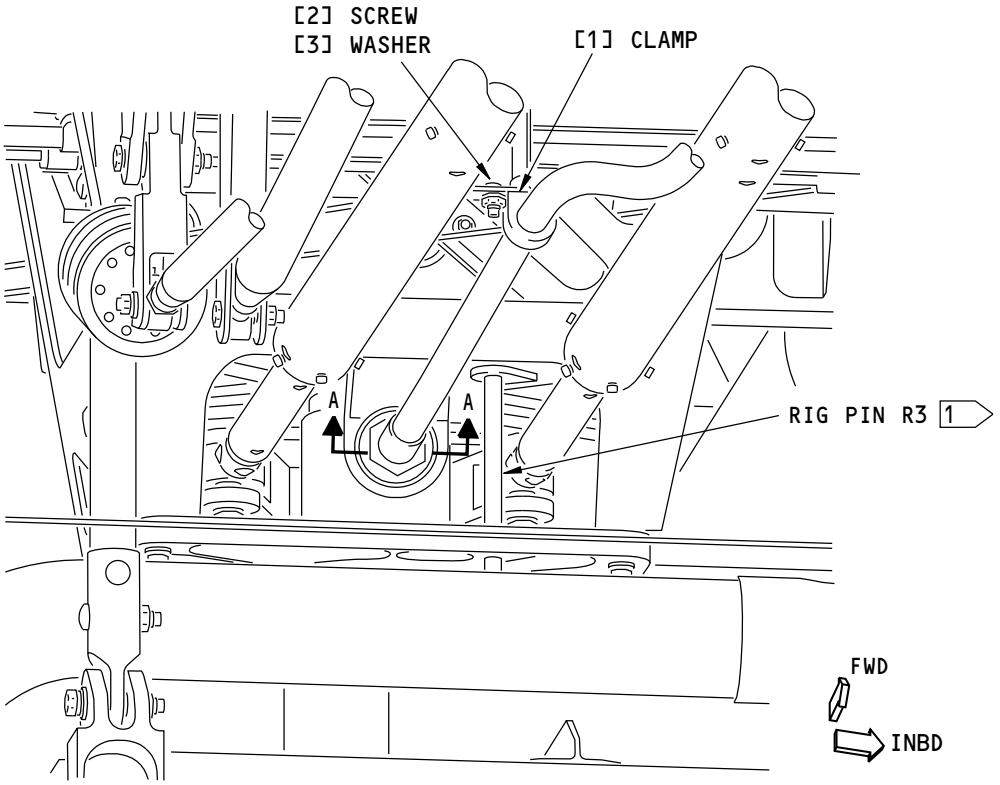
AREA FORWARD OF NOSE LANDING GEAR WHEEL WELL

A

E45979 S0006412945_V1

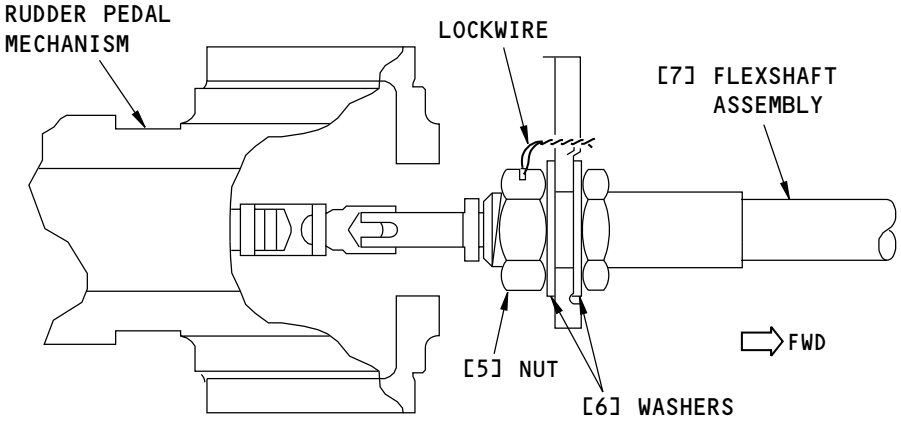
Crank and Flexshaft (for Rudder Pedal Adjustment) Installation
Figure 401/27-21-02-990-801 (Sheet 1 of 5)

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RIGHT RUDDER PEDAL MECHANISM
(LEFT RUDDER PEDAL MECHANISM IS ALMOST THE SAME)

B



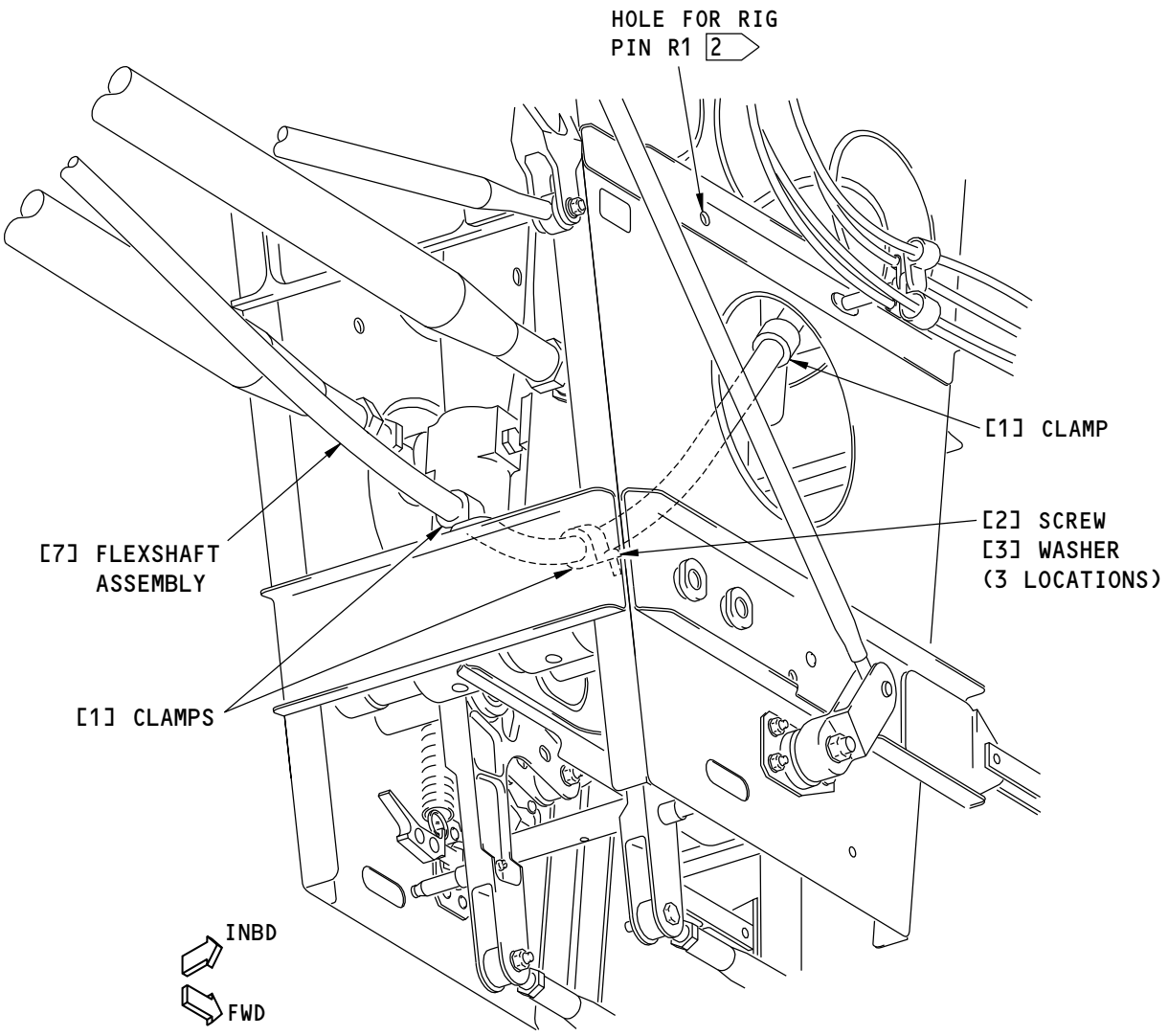
A–A

1 THERE IS NO RIG PIN FOR THE LEFT SIDE.

E46011 S0006412946_V1

Crank and Flexshaft (for Rudder Pedal Adjustment) Installation
Figure 401/27-21-02-990-801 (Sheet 2 of 5)

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LEFT RUDDER PEDAL MECHANISM
(RIGHT RUDDER PEDAL MECHANISM IS EQUIVALENT)

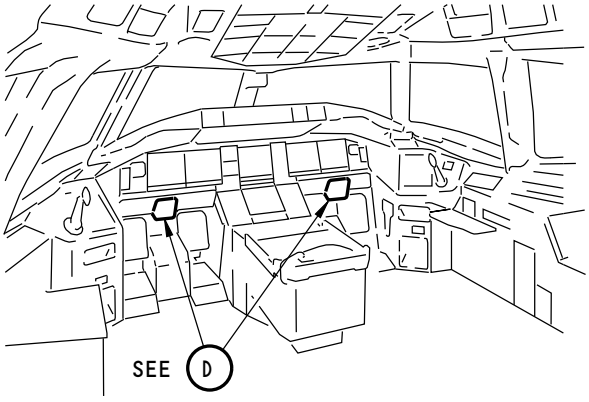
C

2 RIG PIN R2 IS INSTALLED IN THE FIRST OFFICER'S RUDDER PEDAL.

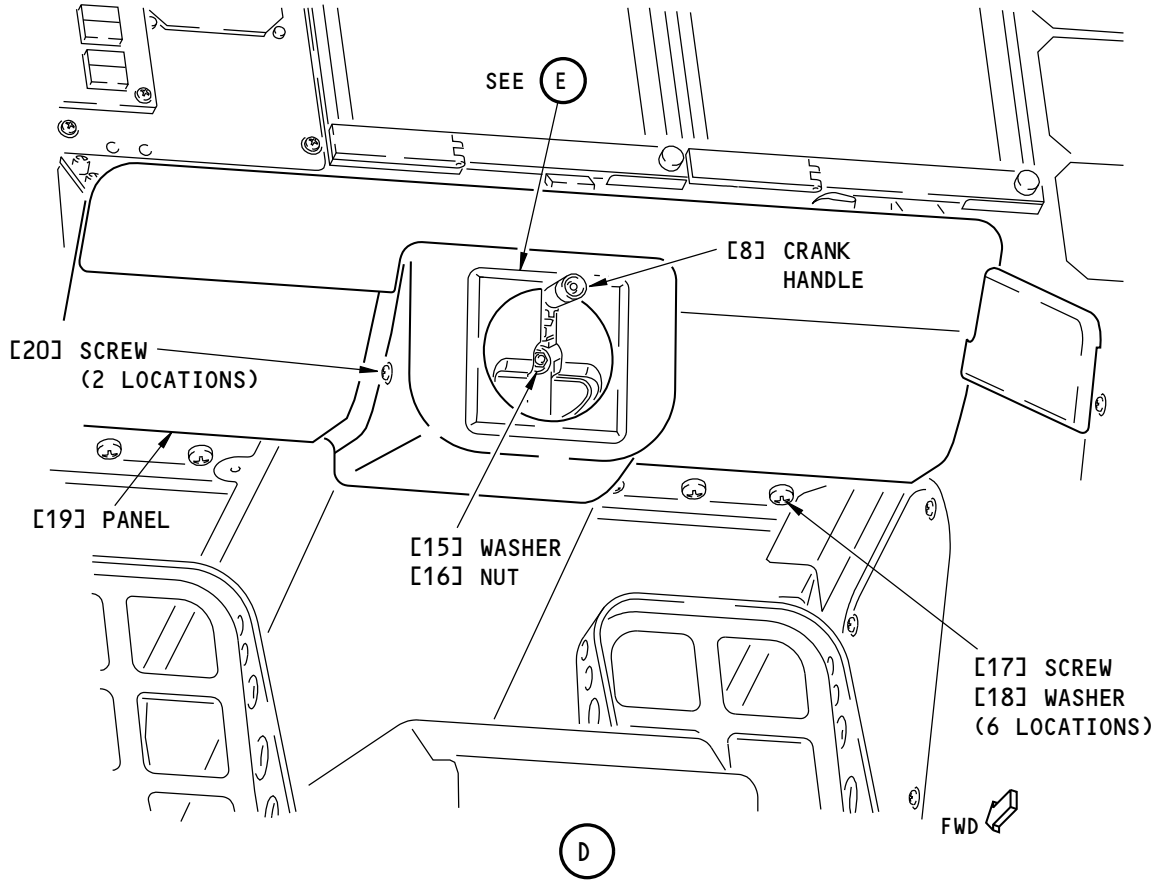
E46045 S0006412947_V1

Crank and Flexshaft (for Rudder Pedal Adjustment) Installation
Figure 401/27-21-02-990-801 (Sheet 3 of 5)

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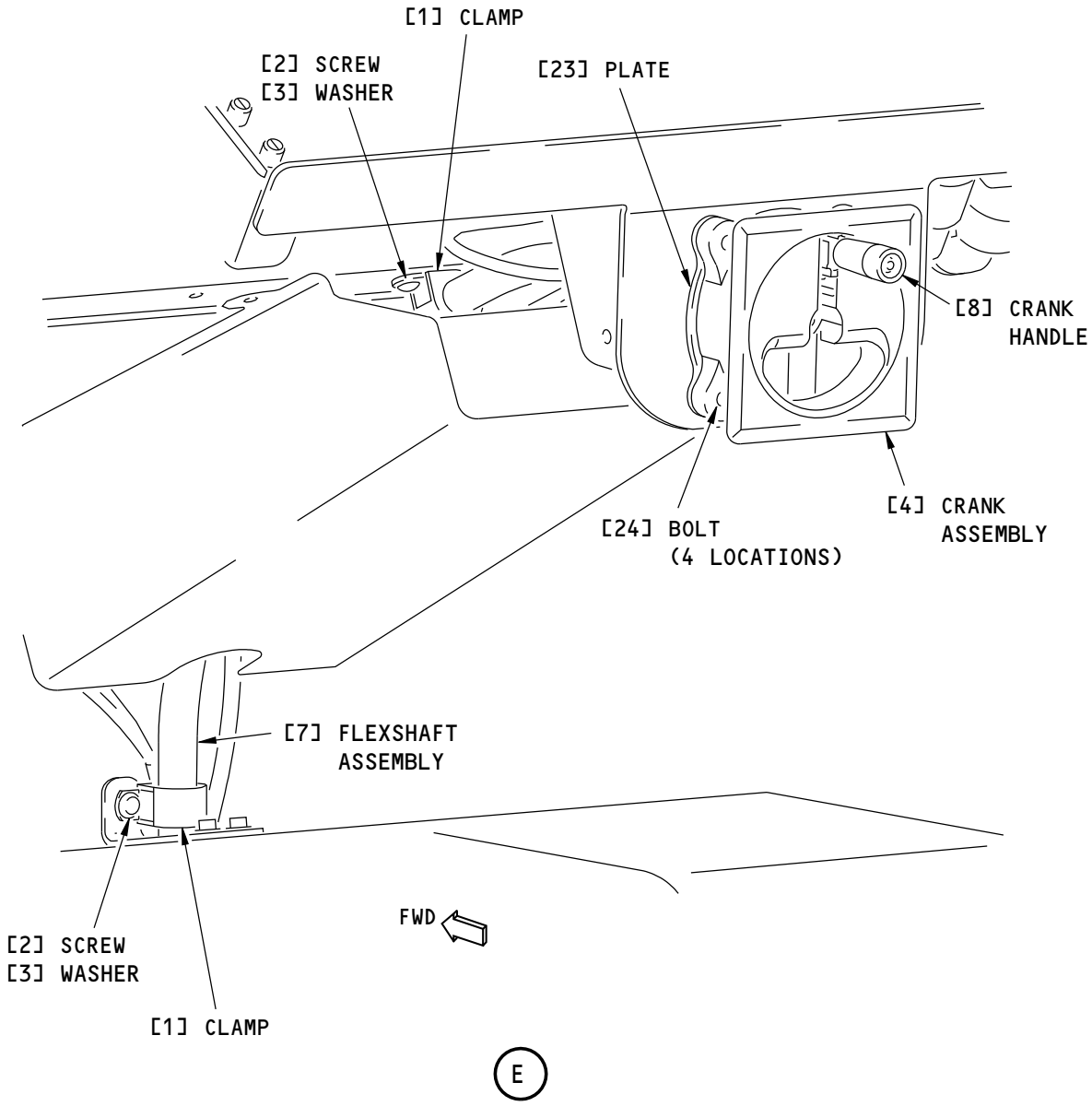
FLIGHT COMPARTMENT



E46048 S0006412948_V1

Crank and Flexshaft (for Rudder Pedal Adjustment) Installation
Figure 401/27-21-02-990-801 (Sheet 4 of 5)

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E47142 S0006412949_V1

Crank and Flexshaft (for Rudder Pedal Adjustment) Installation
Figure 401/27-21-02-990-801 (Sheet 5 of 5)

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TASK 27-21-02-400-801

3. Rudder Pedal Adjustment Crank Assembly Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Rudder Pedal Adjustment (P/B 501)
32-41-11-400-801	nyufBrake Accumulator Pressure Gage (Flight Compartment) Installation (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Handle assembly	27-21-02-10-045	ARO ALL
8	Handle	27-21-02-10-070	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Rudder Pedal Adjustment Crank Assembly Installation

SUBTASK 27-21-02-420-004

(1) Do these steps to connect the handle assembly [4] to the panel:

(a) Make sure the bolt holes of the handle assembly [4] align with the plate [23].

(b) Install the bolt [24].

SUBTASK 27-21-02-410-001

(2) Install the crank cover and the housing assembly:

(a) Put the cover [19] in its position by sliding it up through the kick pad slot.

1) Install the screws [20].

2) Install the screws [17] and the washers [18].

(b) Install the handle assembly [4] with the bolt [24].

(c) Attach the handle [8] to the shaft [7] with the nut [16] and the washer [15].

(d) Install the brake accumulator gage panel (TASK 32-41-11-400-801) or the First Officer's 'blank off' panel as applicable.

F. Crank and Flex Shaft for Rudder Pedal Adjustment Installation Test

SUBTASK 27-21-02-840-002

NOTE: If the crank handle of the rudder pedal adjustment crank assembly is not stowed, pushing on the rudder pedals may cause the pedals to move forward and the crank handle to rotate. The crank handle should be stowed after it is used to adjust the position of the rudder pedals.

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(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

(a) On the left power supply assembly (PSA-L) in the E1-6 rack.

1) A1, ACE-L1 PW

(b) On the right power supply assembly (PSA-R) in the E5-1 rack.

1) A1, ACE-R PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack.

1) A1, ACE-C PWR

SUBTASK 27-21-02-710-001

(2) Do this task: Rudder Pedal Adjustment, TASK 27-21-00-800-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-02-410-002

(1) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

——— END OF TASK ———

TASK 27-21-02-000-802

4. Rudder Pedal Adjustment Flex Shaft Removal

(Figure 401)

A. References

Reference	Title
32-41-11-000-801	Brake Accumulator Pressure Gage (Flight Compartment) Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2535	Pin - Rig (J20003-15 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-3989	Pin - Rig (J20003-12 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

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C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-21-02-840-003

WARNING REMOVE ELECTRICAL POWER FROM THE FIRST OFFICER'S AND CAPTAIN'S SEATS. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

(a) On the left power supply assembly (PSA-L) in the E1-6 rack.

1) A1, ACE-L1 PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack.

1) A1, ACE-R PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack.

1) A1, ACE-C PWR

SUBTASK 27-21-02-010-005

(2) For the captain's side, do this task: Brake Accumulator Pressure Gage (Flight Compartment) Removal, TASK 32-41-11-000-801

SUBTASK 27-21-02-010-006

(3) For the first officer's side, remove the blank off panel.

F. Rudder Pedal Adjustment Flex Shaft Removal

SUBTASK 27-21-02-020-006

(1) Remove the handle assembly [4] from the panel:

(a) Remove the nut [16] and the washer [15] which attaches the handle [8] to the shaft [7].

NOTE: The handle [8] should pull off freely.

SUBTASK 27-21-02-010-007

(2) Remove the cover [19]:

(a) Remove the screws [20].

(b) Remove the screws [17] and the washers [18].

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(c) Pull the cover downward out of the kickpad slot.

SUBTASK 27-21-02-010-008

(3) Get access to the area forward of the nose landing gear wheel well through this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-21-02-480-003

(4) If you are going to remove the shaft [7] on the Captain's side, install rig pin R1 from rig pin (J20003-15 assembly), SPL-2535.

SUBTASK 27-21-02-480-004

(5) If you are to remove the shaft [7] on the First Officer's side, install rig pins R2 and R3 from rig pin (J20003-12 assembly), SPL-3989 andrig pin (J20003-15 assembly), SPL-2535 .

SUBTASK 27-21-02-020-007

(6) Disconnect the shaft [7] from the rudder pedal mechanism:

(a) Remove the lockwire and loosen the jamnut [5] at the bottom end of the shaft [7].

1) Slide the jamnut [5] aft.

(b) Hold the jamnut [5] and the washers [6] and pull the shaft [7] through the grommet hole.

SUBTASK 27-21-02-020-008

(7) Remove the clamps [1]:

(a) Remove the screw [2] and the clamps [1].

SUBTASK 27-21-02-020-009

(8) Disconnect the shaft [7] from the panel.

——— END OF TASK ———

TASK 27-21-02-400-802

5. Rudder Pedal Adjustment Flex Shaft Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Rudder Pedal Adjustment (P/B 501)
32-41-11-400-801	nyufBrake Accumulator Pressure Gage (Flight Compartment) Installation (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Access Panels

Number	Name/Location
112AL	Forward Access Door

D. Rudder Pedal Adjustment Flex Shaft Installation

SUBTASK 27-21-02-420-009

(1) Put the shaft [7] in its position in the flight compartment and in the area forward of the nose gear wheel well.

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SUBTASK 27-21-02-420-010

(2) Do these steps to connect the shaft [7] to the rudder pedal mechanism:

(a) Put the shaft [7] in its position in the area forward of the nose landing gear wheel well.

1) Put the jamnut [5] and the washer [6] in their positions on the shaft [7].

(b) Connect the shaft [7] to the rudder pedal mechanism.

(c) Tighten the jamnut [5].

1) Install the lockwire.

SUBTASK 27-21-02-420-011

(3) Install the clamps [1] on the shaft [7].

(a) Install the screws [2] and the washers [3].

SUBTASK 27-21-02-420-012

(4) Remove rig pins R1, R2, and R3.

SUBTASK 27-21-02-410-003

(5) Install the crank cover and the housing assembly:

(a) Put the cover [19] in its position.

1) Install the screws [20].

2) Install the screws [17] and the washers [18].

(b) Attach the handle [8] to the shaft [7] with the nut [16] and the washer [15].

(c) Install the lockwire on the jamnut [5].

(d) Install the brake accumulator gage panel (TASK 32-41-11-400-801) or the First Officer's 'blank off' panel as applicable.

E. Crank and Flex Shaft for Rudder Pedal Adjustment Installation Test

SUBTASK 27-21-02-840-004

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

(a) On the left power supply assembly (PSA-L) in the E1-6 rack.

1) A1, ACE-L1 PW

(b) On the right power supply assembly (PSA-R) in the E5-1 rack.

1) A1, ACE-R PWR

(c) On the center power supply assembly (PSA-C) in the E2-6 rack.

1) A1, ACE-C PWR

SUBTASK 27-21-02-710-002

(2) Do this task: Rudder Pedal Adjustment, TASK 27-21-00-800-802.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-02-410-004

(1) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

——— END OF TASK ———

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RUDDER TRIM POSITION TRANSDUCER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the transducer [11].

NOTE: The transducer [11] is also known as LVDT.

(2) An installation of the transducer [11].

TASK 27-21-03-000-801

2. Rudder Trim Position Transducer Removal

(Figure 401)

A. General

(1) The number of the electrical connector for the transducer [11] is DM27043.

B. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Prepare for the Removal

SUBTASK 27-21-03-010-001

(1) Get access to the main equipment center through this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-21-03-860-001

(2) Open this circuit breaker and attach DO-NOT-CLOSE tags:

(a) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE PWR

E. Rudder Trim Position Transducer Removal

SUBTASK 27-21-03-020-001

(1) Disconnect the electrical connector for the transducer [11].

(a) Disconnect the clamp [6].

1) Remove the screw [7].

SUBTASK 27-21-03-020-002

(2) Remove the bolt [1] and bolt [8].

SUBTASK 27-21-03-020-003

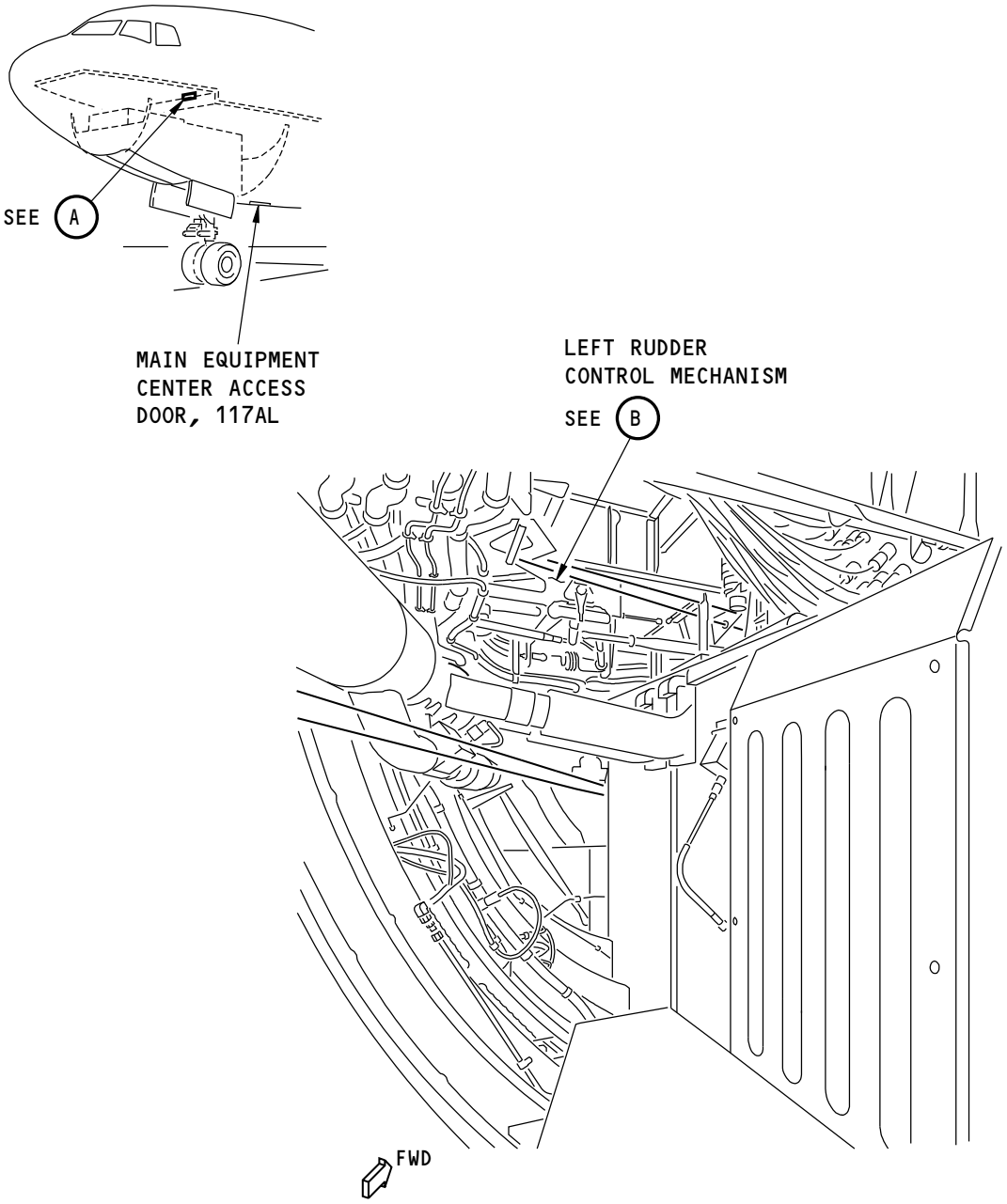
(3) Remove the bushing [2], bushing [3] and bushing [9].

SUBTASK 27-21-03-020-004

(4) Remove the transducer [11].

END OF TASK

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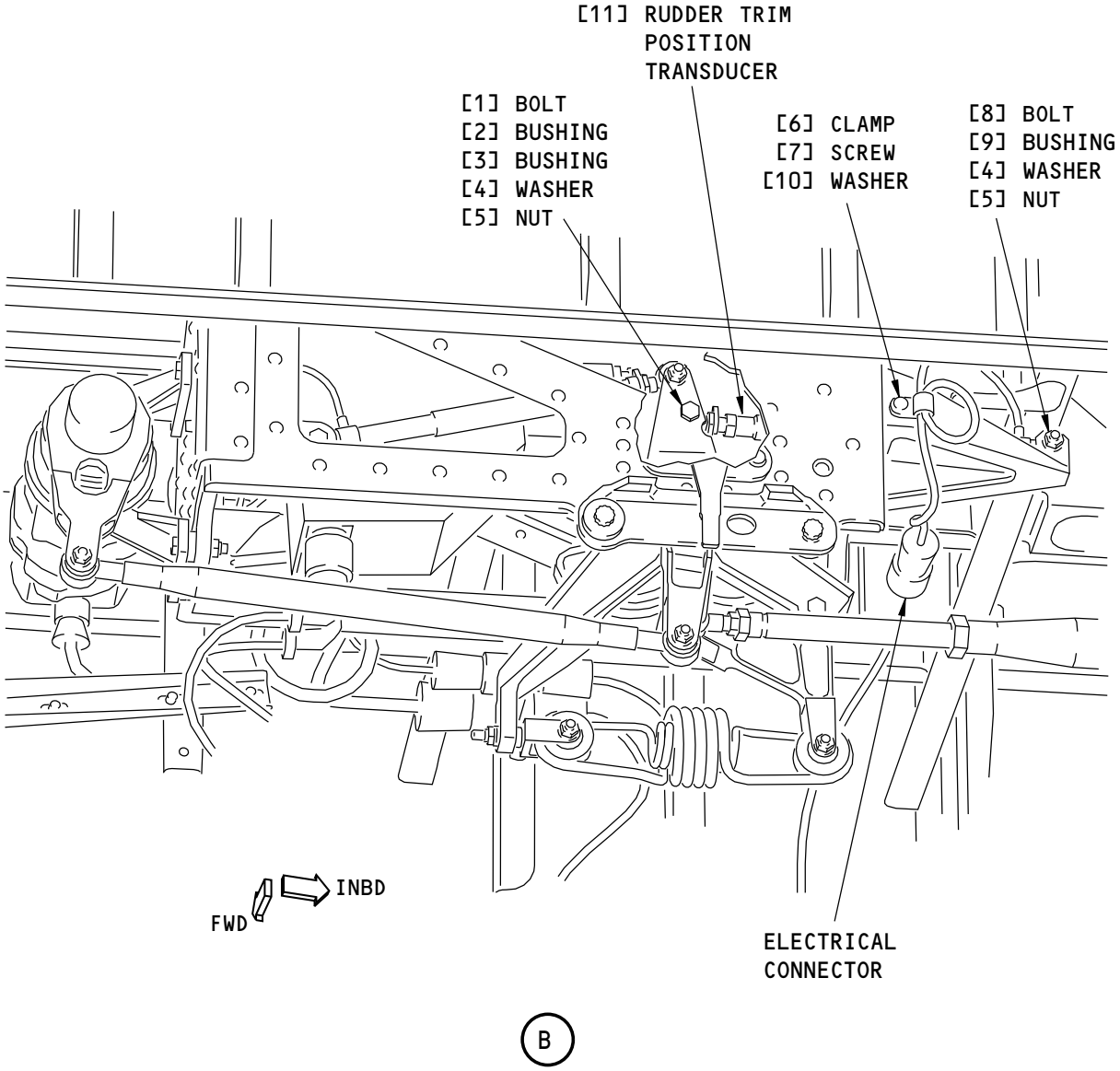


AREA OUTBOARD OF THE NOSE LANDING GEAR WHEEL WELL
(LEFT SIDE)
A

E83049 S0006412956_V1

Rudder Trim Position Transducer Installation
Figure 401/27-21-03-990-801 (Sheet 1 of 2)

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E83088 S0006412957_V1

Rudder Trim Position Transducer Installation
Figure 401/27-21-03-990-801 (Sheet 2 of 2)

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TASK 27-21-03-400-801

3. Rudder Trim Position Transducer Installation

(Figure 401)

A. General

(1) The number of the electrical connector for the transducer [11] is DM27043.

B. References

Reference	Title
27-21-00-700-806	Rudder Trim Position Transducer Test (P/B 501)
27-21-00-820-801	Rudder Trim Adjustment (Rigging) (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Transducer	27-21-03-01-040	ARO ALL

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Rudder Trim Position Transducers Installation

SUBTASK 27-21-03-420-001

(1) If it is not installed, put the bushing [3] and bushing [9] in the mounting brackets for the transducer [11] (the flanges of the bushing [3] and bushing [9] go against the transducer [11]).

SUBTASK 27-21-03-420-002

(2) Put the transducer [11] in its position.

(a) Install the bolt [8], the washer [4] and the nut [5] in the end of transducer [11] that has the wire attached to it.

(b) Install the bolt [1], the bushing [2], the washer [4] and nut [5] in the other end of the transducer [11].

SUBTASK 27-21-03-420-003

(3) Connect the electrical connector for the transducer [11].

(a) Install the clamp [6], the screw [7], and the washer [10].

SUBTASK 27-21-03-860-002

(4) Remove the DO-NOT-CLOSE tag and close this circuit breaker:

(a) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE PWR

SUBTASK 27-21-03-820-001

(5) Do this task: Rudder Trim Adjustment (Rigging), TASK 27-21-00-820-801.

SUBTASK 27-21-03-820-002

(6) Do this task: Rudder Trim Position Transducer Test, TASK 27-21-00-700-806.

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SUBTASK 27-21-03-410-001

(7) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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RUDDER PEDAL TRANSDUCERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder pedal position transducers.

NOTE: The position transducers are also known as LVDTs.

(2) A removal of the Flight Data Recorder (FDR) rudder pedal force transducers.

(3) An installation of the rudder pedal position transducers.

(4) An installation of the Flight Data Recorder (FDR) rudder pedal force transducers.

TASK 27-21-04-000-801

2. Rudder Pedal Position Tranducers Removal

(Figure 401)

A. General

(1) There are two transducers [18] on each side of the airplane. For the two transducers [18] on one side of the airplane, it is not important which transducer [18] is connected to which electrical connector. Each electrical connector has a label adjacent to it on the airplane structure. To find a transducer [18], look at the label and follow the wire to the transducer [18]. Table 401shows the name of the transducer [18] that is connected to each electrical connector.

Table 401/27-21-04-993-801

Connector Number (shown on the label)	Position (Name) of the Transducer
DM27237	R1
DM27238	R2
DM27137	L1
DM27138	L2

B. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Prepare for the Removal

SUBTASK 27-21-04-010-001

(1) Get access to the main equipment center through this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-21-04-860-001

(2) For the left transducers (L1 and L2), open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the left power supply assembly (PSA-L) in the E1-6 shelf:

1) A1 ACE PWR

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(b) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

SUBTASK 27-21-04-860-002

(3) For the right transducers (R1 and R2), open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the right power supply assembly (PSA-R) in the E5-1 shelf:

1) A1 ACE PWR

E. Rudder Pedal Position Transducers Removal

SUBTASK 27-21-04-020-001

(1) Disconnect the electrical connector for the transducer [18].

(a) Disconnect the clamp [3] and clamp [7], or clamp [11] and clamp [15].

SUBTASK 27-21-04-020-002

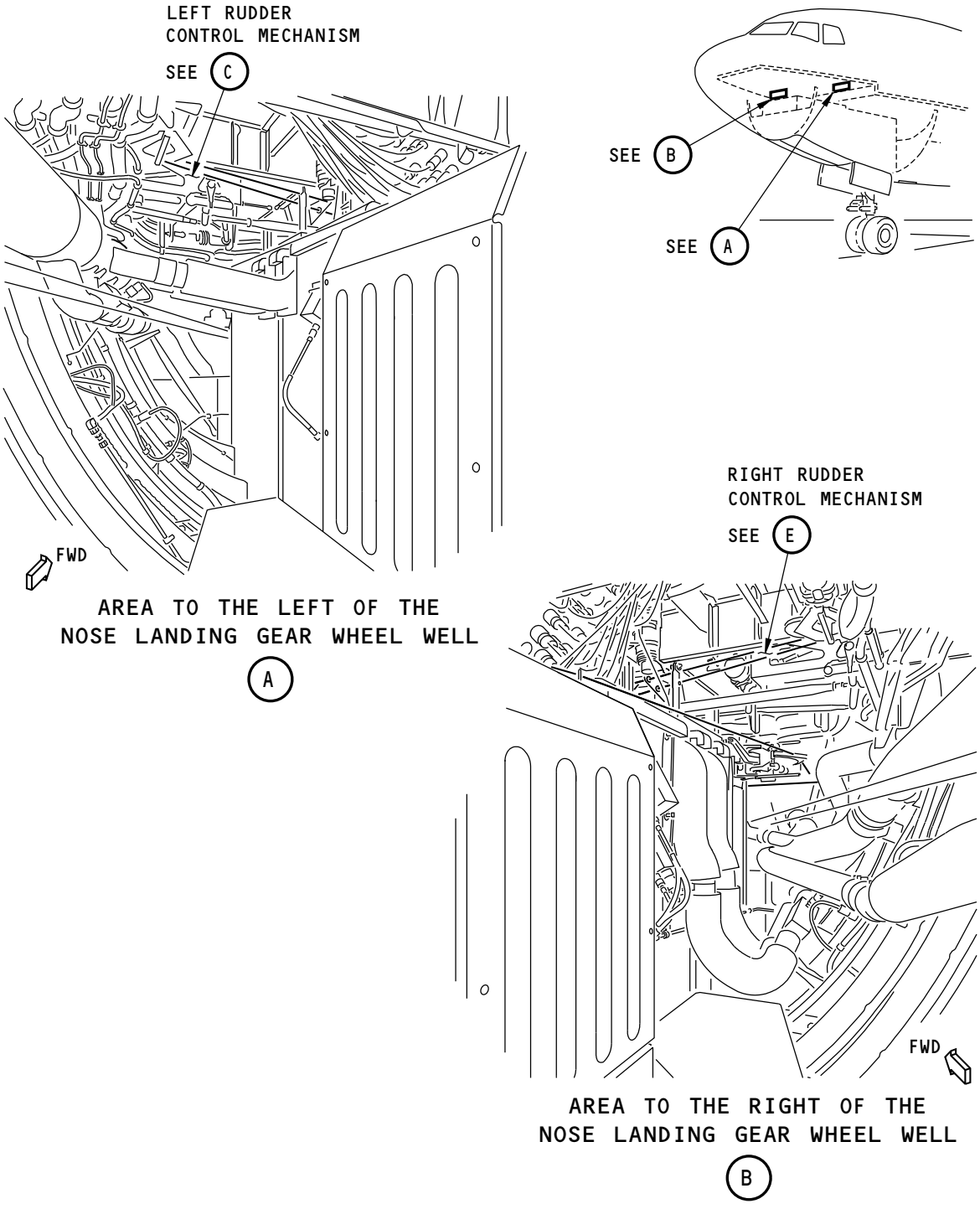
(2) Remove the bolt [19] and bolt [22].

SUBTASK 27-21-04-020-003

(3) Remove the transducer [18].

——— END OF TASK ———

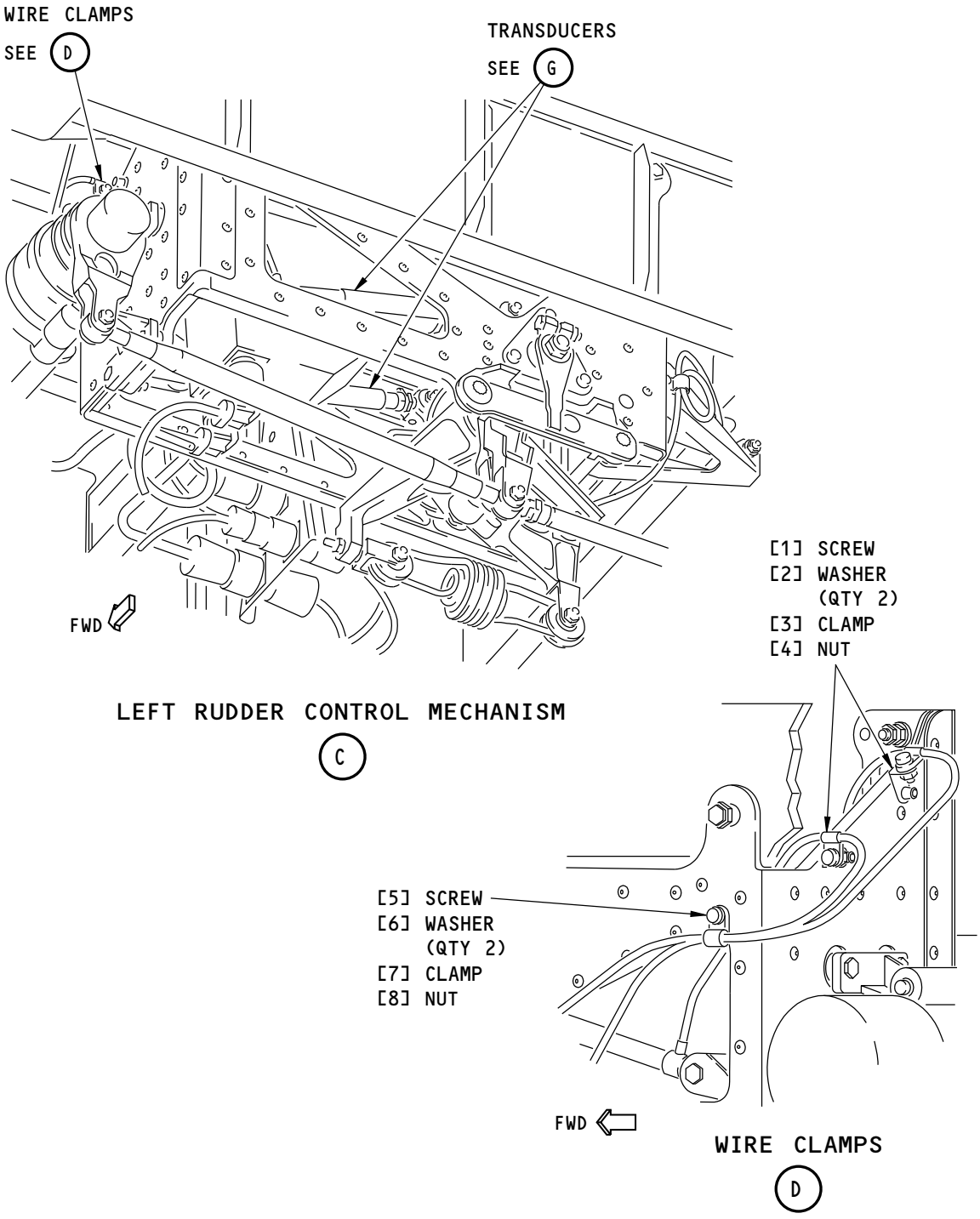
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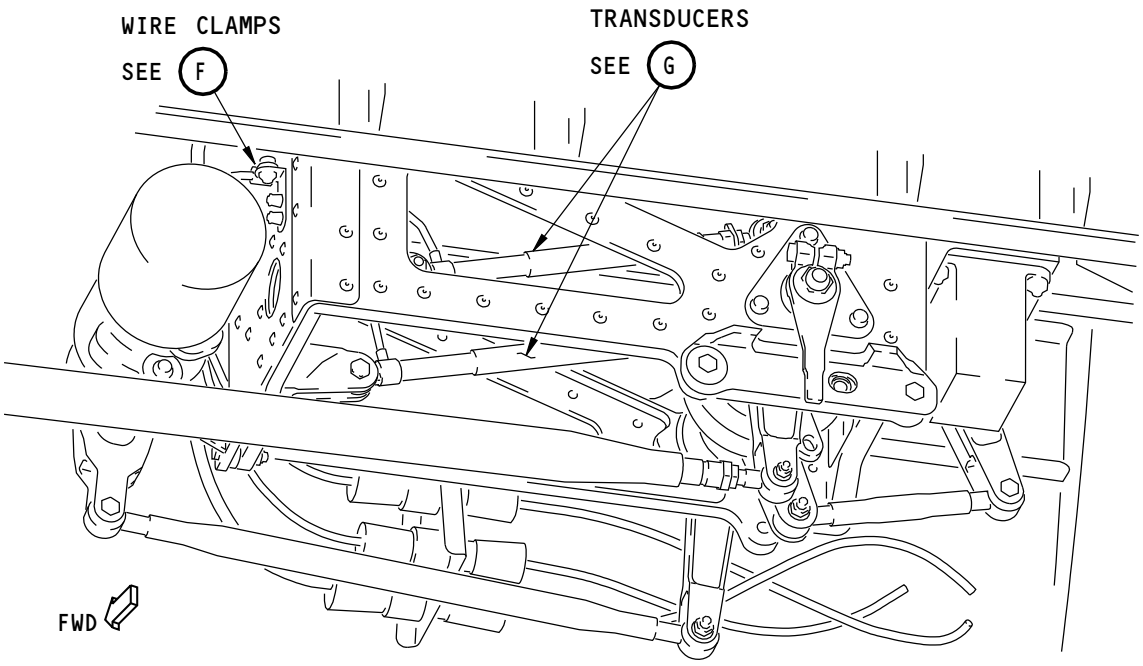
Rudder Pedal Position Transducers Installation
Figure 401/27-21-04-990-801 (Sheet 1 of 4)

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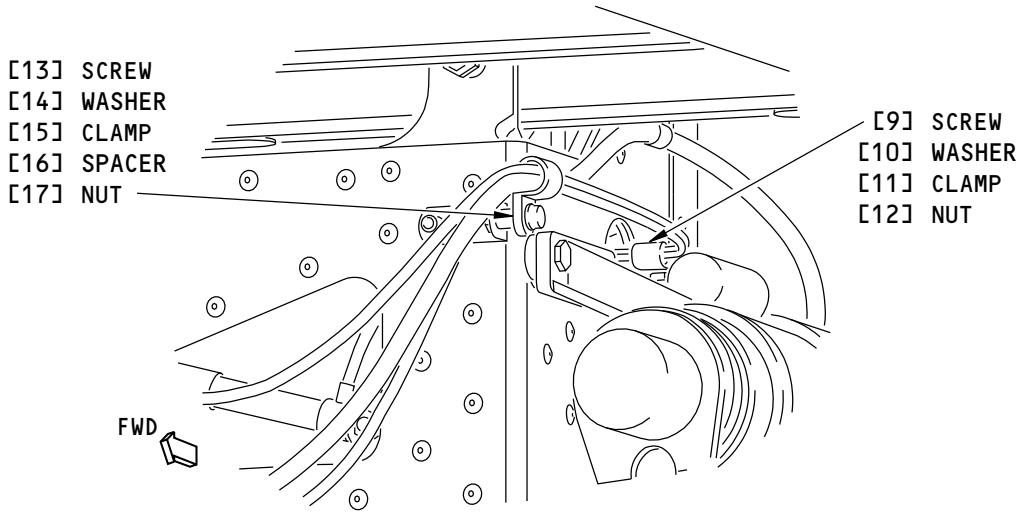
Rudder Pedal Position Transducers Installation
Figure 401/27-21-04-990-801 (Sheet 2 of 4)

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RIGHT RUDDER CONTROL MECHANISM

E



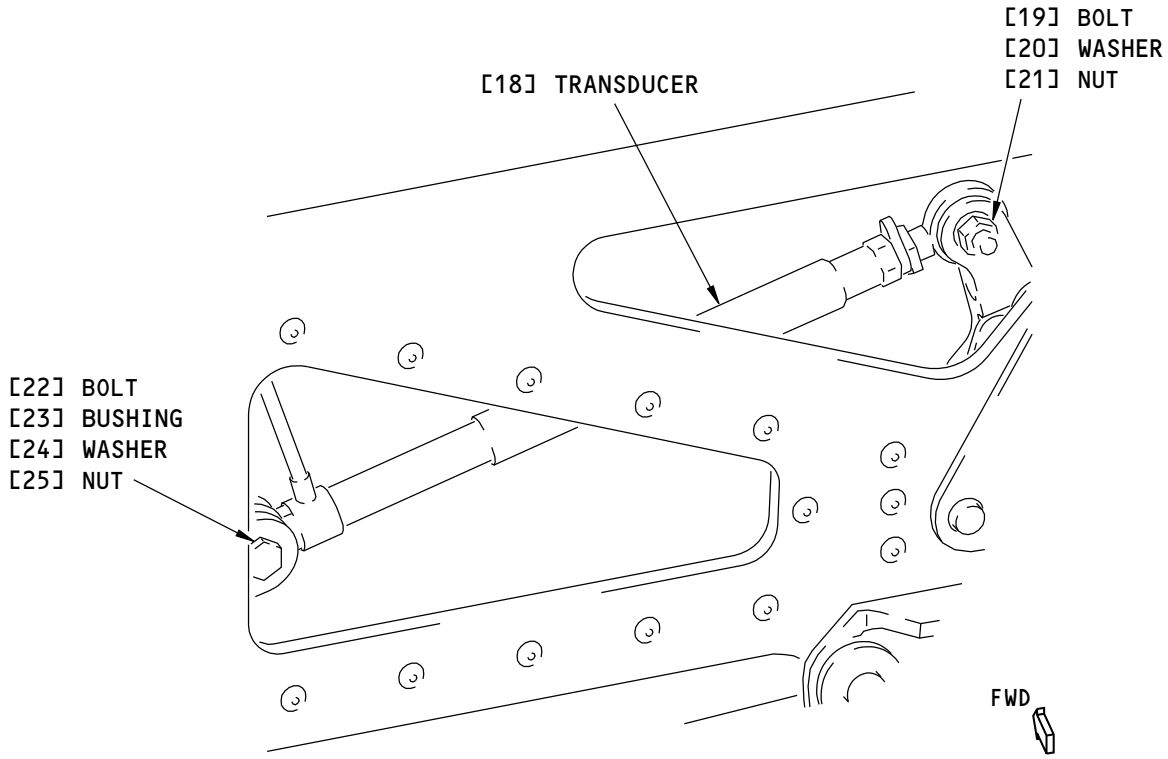
WIRE CLAMPS

F

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Rudder Pedal Position Transducers Installation
Figure 401/27-21-04-990-801 (Sheet 3 of 4)

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TRANSDUCER
G

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Rudder Pedal Position Transducers Installation
Figure 401/27-21-04-990-801 (Sheet 4 of 4)

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TASK 27-21-04-000-802

3. Rudder Pedal Flight Data Recorder (FDR) Force Transducer Removal

Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation, TASK 27-21-04-400-802

A. General

(1) There are two force transducers which send rudder pedal force data to the Flight Data Recorder (FDR), located aft and below each set of rudder pedals.

B. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Prepare for the Removal

SUBTASK 27-21-04-010-002

(1) Get access to the main equipment center through this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-21-04-860-004

(2) For the left rudder pedal FDR force transducer, open this circuit breaker and attach a DO-NOT-CLOSE tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

SUBTASK 27-21-04-860-005

(3) For the right rudder pedal FDR force transducer, open this circuit breaker and attach a DO-NOT-CLOSE tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

E. Rudder Pedal Flight Data Recorder (FDR) Force Transducers Removal

SUBTASK 27-21-04-020-004

(1) Disconnect the electrical connector for the FDR transducer assembly [33].

(a) Disconnect the two clamps [29] and the clamp [41] for the electrical connector.

SUBTASK 27-21-04-020-005

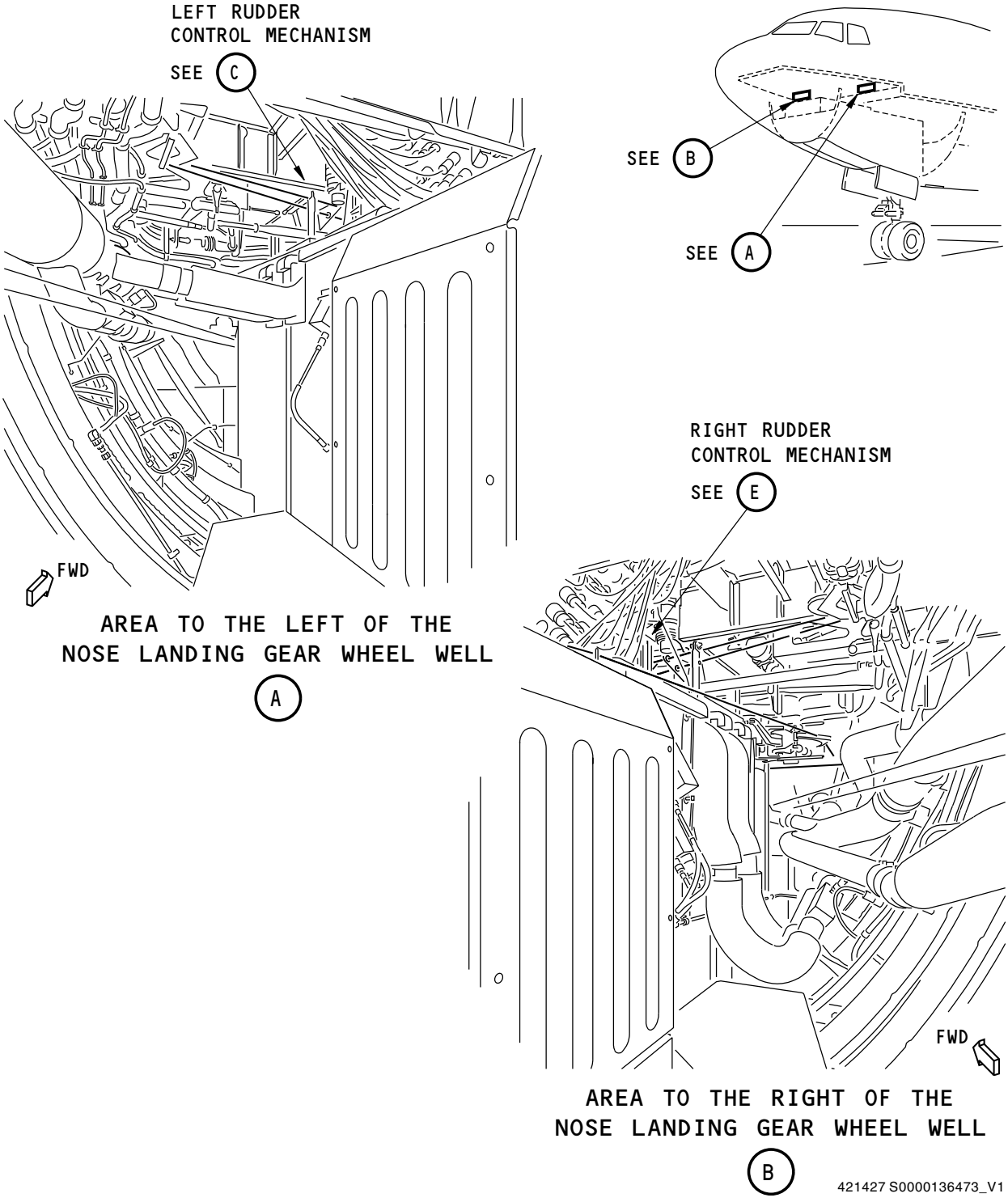
(2) Remove the two bolts [34] at the ends of the FDR transducer assembly [33].

SUBTASK 27-21-04-020-006

(3) Remove the FDR transducer assembly [33].

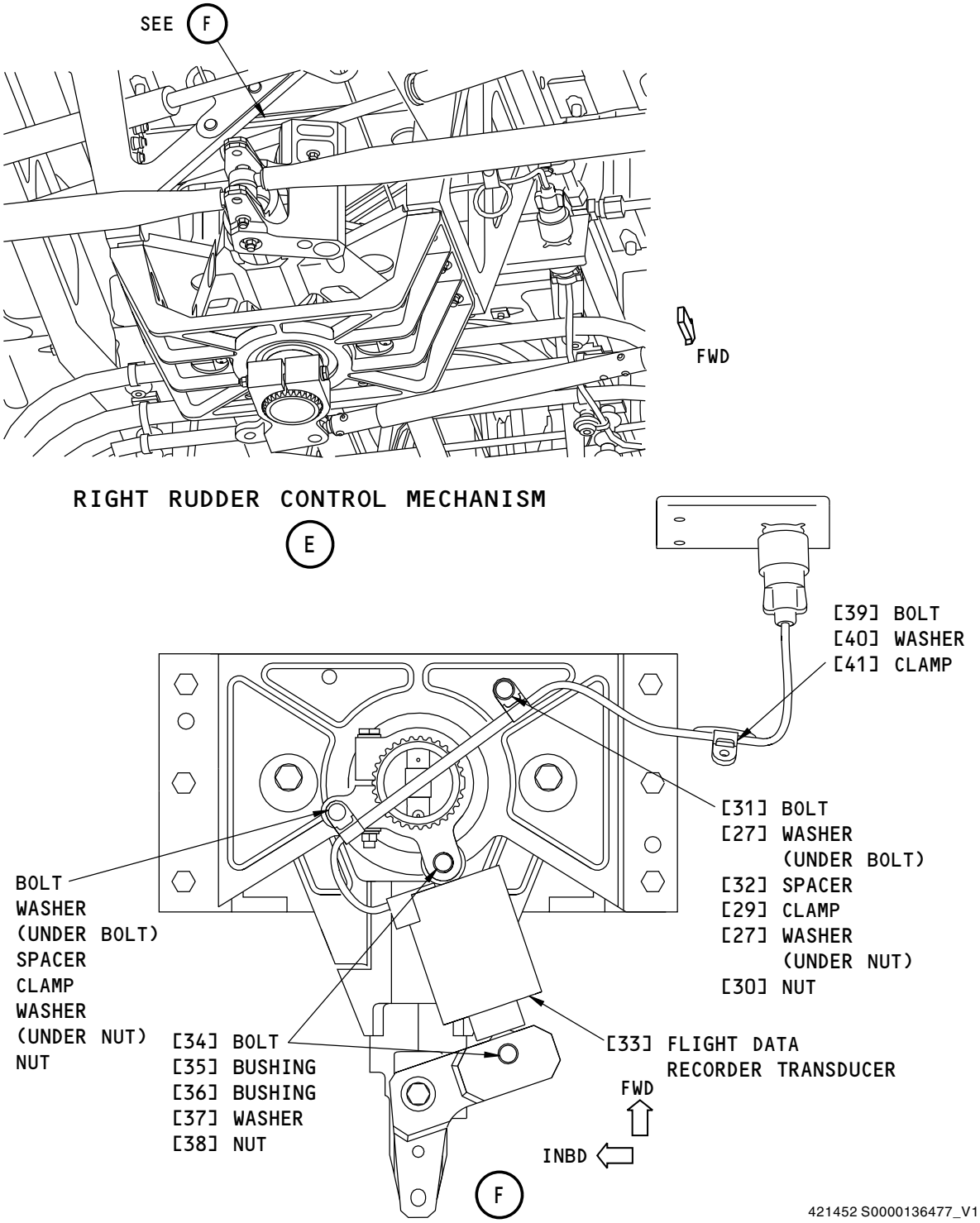
END OF TASK

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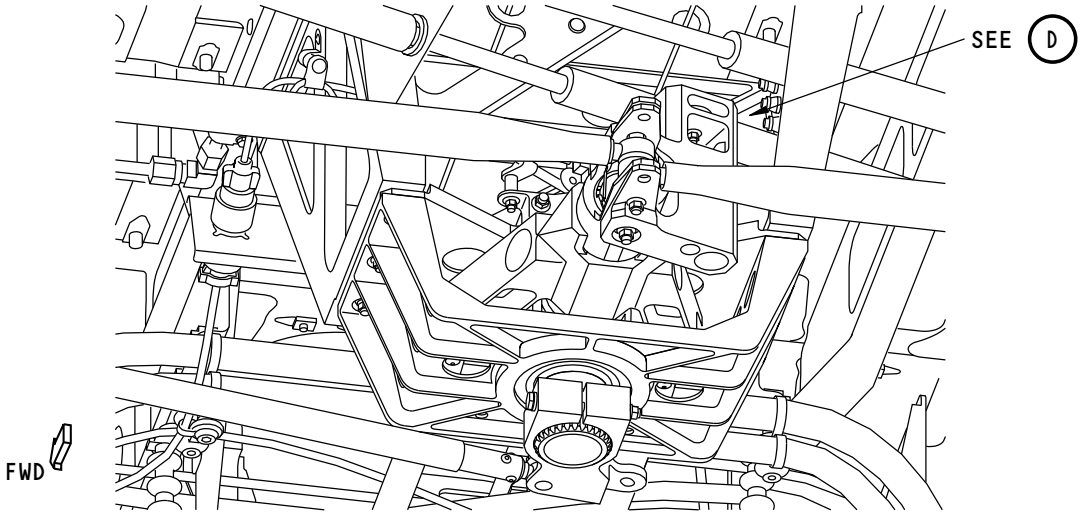
Rudder Pedal FDR Force Transducers Installation
Figure 402/27-21-04-990-802 (Sheet 1 of 3)

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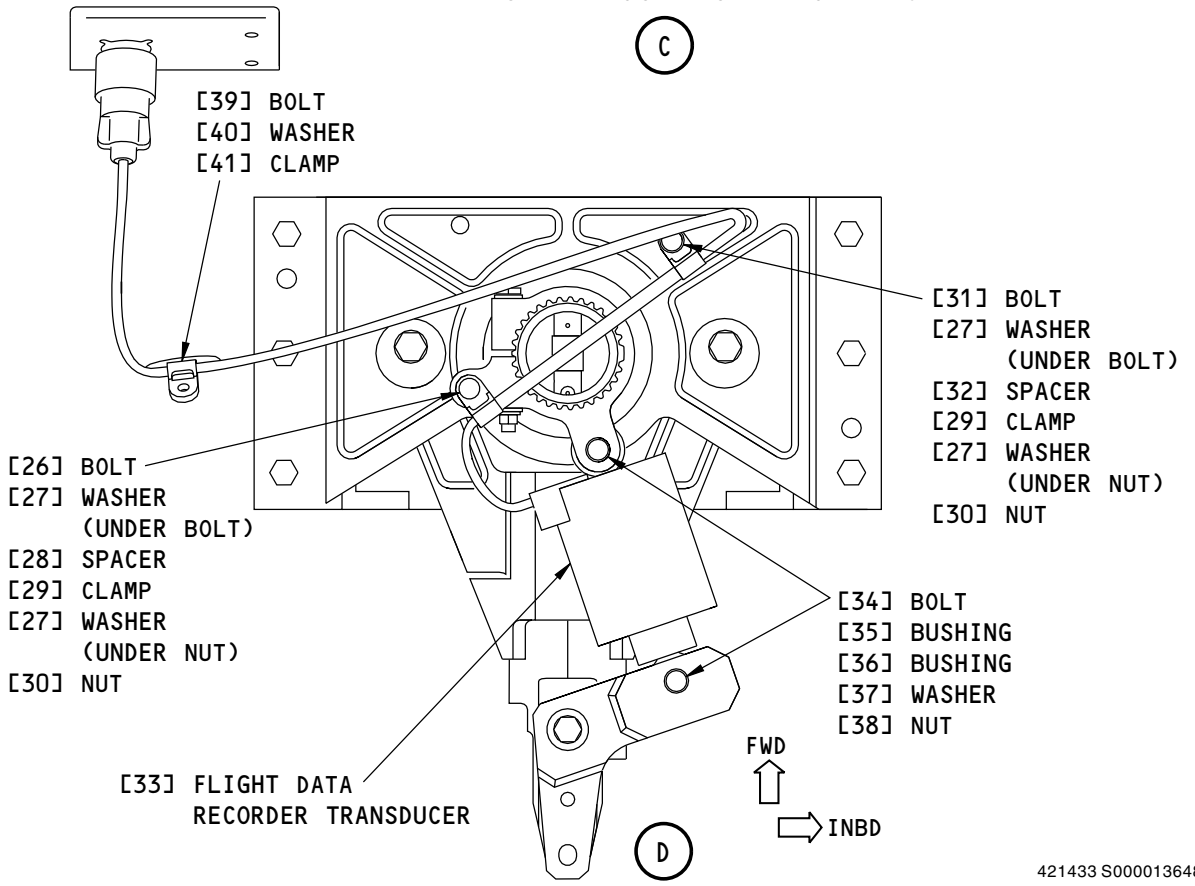


Rudder Pedal FDR Force Transducers Installation
Figure 402/27-21-04-990-802 (Sheet 2 of 3)

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LEFT RUDDER CONTROL MECHANISM



Rudder Pedal FDR Force Transducers Installation
Figure 402/27-21-04-990-802 (Sheet 3 of 3)

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TASK 27-21-04-400-801

4. Rudder Pedal Position Transducer Installation

(Figure 401)

A. General

(1) There are two transducers [18] on each side of the airplane. For the two transducers [18] on one side of the airplane, it is not important which transducer [18] is connected to which electrical connector. Each electrical connector has a label adjacent to it on the airplane structure. To find a transducer [18], look at the label and follow the wire to the transducer [18]. Table 402shows the name of the transducer [18] that is connected to each electrical connector.

Table 402/27-21-04-993-802

Connector Number (shown on the label)	Position (Name) of the Transducer
DM27237	R1
DM27238	R2
DM27137	L1
M27138	L2

B. References

Reference	Title
27-21-00-800-804	Pedal Position Transducer Adjustment (Rigging) (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
18	Transducer	27-21-04-10-125	ARO ALL

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Rudder Pedal Position Transducers Installation

SUBTASK 27-21-04-420-001

(1) If it is not installed, put the bushing [23] in the mounting bracket for the transducer [18] (the flange of the bushing [23] goes against the transducer [18]).

SUBTASK 27-21-04-420-002

(2) Put the transducer [18] in its position.

(a) Install the bolt [22], washer [24] and nut [25] in the end of transducer [18] that has the wire attached to it.

(b) Install the bolt [19], washer [20] and nut [21] in the other end of the transducer [18].

SUBTASK 27-21-04-420-003

(3) Connect the electrical connector for the transducer [18].

NOTE: It is not important which of the two transducers [18] is connected to which electrical connector.

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(a) For the left transducers [18] (L1 and L2), install these wire clamps.

1) Install the clamp [3], the screw [1], the two washers [2] and the nut [4].

2) Install the clamp [7], the screw [5], the two washers [6] and the nut [8].

NOTE: Two wires go in clamp [7], one from each transducer.

(b) For the right transducers [18] (R1 and R2), install these wire clamps.

1) Install the clamp [11], the screw [9], the washer [10] and the nut [12].

NOTE: Two wires go in clamp [11], one from each transducer.

2) Install the clamp [15], the screw [13], the washer [14], the spacer [16] and the nut [17].

NOTE: Three wires go in clamp [15], one from each transducer and one from the backdrive actuator. The parts go on the screw [13] in this sequence: washer [14], clamp [15], spacer [16], structure and nut [17].

SUBTASK 27-21-04-860-003

(4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 shelf:

1) A1 ACE PWR

(b) On the center power supply assembly (PSA-C) in the E2-6 shelf:

1) A1 ACE PWR

(c) On the right power supply assembly (PSA-R) in the E5-1 shelf:

1) A1 ACE PWR

SUBTASK 27-21-04-820-001

(5) Do this task: Pedal Position Transducer Adjustment (Rigging), TASK 27-21-00-800-804.

SUBTASK 27-21-04-410-001

(6) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

TASK 27-21-04-400-802

5. Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation

Figure 402

A. General

(1) There are two FDR transducer assemblies [33], one for each set of rudder pedals. While it is not important which FDR transducer assembly [33] is installed in each location, the assembly for the Left rudder control mechanism may have a longer electrical cable between the transducer and the connector.

B. References

Reference	Title
27-21-00-700-807	Rudder Pedal Force Transducer Test (P/B 501)

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C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

D. Rudder Pedal Flight Data Recorder (FDR) Force Transducers Installation

SUBTASK 27-21-04-420-004

(1) If it is not installed, insert the bushing [35] and bushing [36] into the flanges of the transducer connector clevises. The flanges of bushing [35] and bushing [36] must face up.

SUBTASK 27-21-04-420-005

(2) Put the ends of the FDR transducer assembly [33] in place between the clevis flanges, with the end with the electrical connector facing forward.

(a) Install the bolt [34], washer [37] and nut [38] in the end of the FDR transducer assembly [33] that has the wire attached to it.

(b) Install the bolt [34], washer [37] and nut [38] in the other end of the FDR transducer assembly [33].

SUBTASK 27-21-04-430-001

(3) Connect the electrical connector for the FDR transducer assembly [33].

(a) Attach the clamp [29] closer to the FDR transducer assembly [33], using the bolt [26], two washers [27], spacer [28] and nut [30]. One of the washers [27] is installed under the head of the bolt [26], the other washer [27] is installed under the nut [30].

(b) Attach theclamp [29] further away from the FDR transducer assembly [33] using the bolt [31], two washers [27], spacer [28] and nut [30]. One of the washers [27] is installed under the head of the bolt [31], the other washer [27] is installed under the nut [30].

SUBTASK 27-21-04-860-006

(4) For the left rudder pedal FDR force transducer, close this circuit breaker and remove the DO-NOT-CLOSE tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

SUBTASK 27-21-04-860-007

(5) For the right rudder pedal FDR force transducer, close this circuit breaker and remove the DO-NOT-CLOSE tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-21-04-700-001

(6) Do this test Rudder Pedal Force Transducer Test, TASK 27-21-00-700-807

END OF TASK

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PEDAL DAMPER - REMOVAL/INSTALLATION

1. General

A. There is one pedal damper. It is on the right side of the airplane, but it is operated by both the captain's and the first officer's rudder pedals.

B. This procedure has these tasks:

(1) A removal of the pedal damper for the rudder pedals.

(2) An installation of the pedal damper for the rudder pedals.

TASK 27-21-05-000-801

2. Pedal Damper Removal

(Figure 401)

A. Location Zones

Zone	Area
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

B. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

C. Prepare for the Removal

SUBTASK 27-21-05-010-001

(1) Get access to the main equipment center through this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Pedal Damper Removal

SUBTASK 27-21-05-020-001

(1) Remove the nuts [3] and the washers [2] from the bolts [1] of the damper [4].

SUBTASK 27-21-05-020-002

(2) Remove the damper [4] from its position.

SUBTASK 27-21-05-020-003

(3) Remove the nut [7], washer [6], and bolt [5] that attach the crank to the damper [4].

SUBTASK 27-21-05-020-004

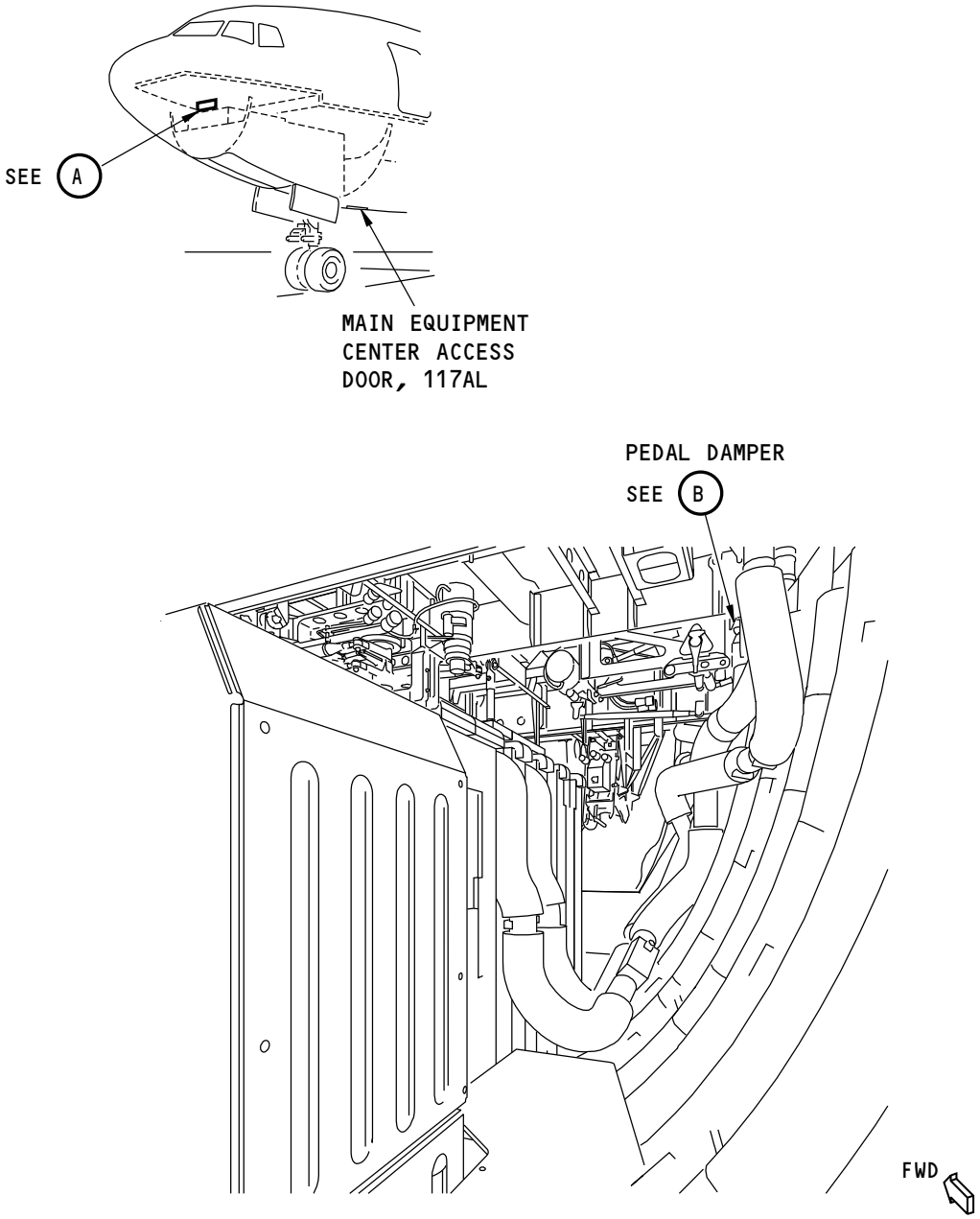
(4) Disconnect the crank from the damper [4].

SUBTASK 27-21-05-020-005

(5) Remove the damper [4].

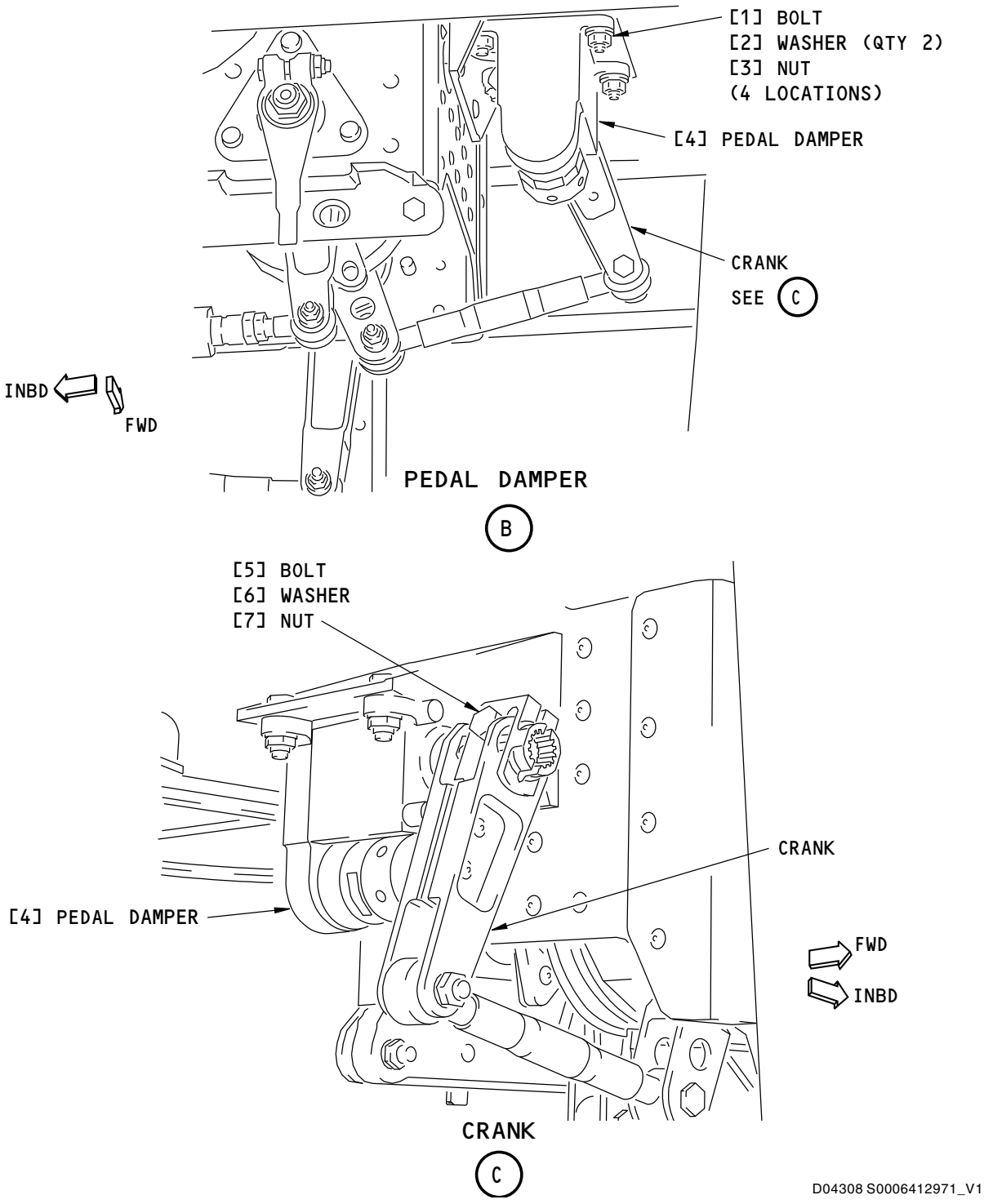
END OF TASK

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Pedal Damper Installation
Figure 401/27-21-05-990-803 (Sheet 1 of 2)

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Pedal Damper Installation
Figure 401/27-21-05-990-803 (Sheet 2 of 2)

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TASK 27-21-05-400-801

3. Pedal Damper Installation

(Figure 401)

A. References

Reference	Title
27-21-00-700-804	Pedal Damper Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Damper	27-21-05-10-025	ARO ALL

C. Location Zones

Zone	Area
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Pedal Damper Installation

SUBTASK 27-21-05-420-001

(1) Install the crank on the damper [4].

(a) Install the bolt [5], the washer [6] and nut [7], and tighten the nut.

SUBTASK 27-21-05-420-002

(2) Put the damper [4] in its position.

SUBTASK 27-21-05-420-003

(3) Install the bolts [1], washers [2] and nuts [3].

SUBTASK 27-21-05-720-001

(4) Do this task: Pedal Damper Test, TASK 27-21-00-700-804.

SUBTASK 27-21-05-410-001

(5) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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PEDAL DAMPER - INSPECTION/CHECK

1. General

A. There is one pedal damper. It is on the right side of the airplane, but it is operated by both the captain's and the first officer's rudder pedals.

B. This procedure has this task:

(1) An inspection of the fluid level in the pedal damper.

TASK 27-21-05-210-801

2. Pedal Damper Fluid Level Inspection

(Figure 601)

A. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

B. Procedure

SUBTASK 27-21-05-010-002

(1) Get access to the main equipment center through this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 27-21-05-210-001

(2) Look through one of the windows on the damper.

(a) If the width of the green band that shows through the window is 1/16 of an inch (1.6 millimeter) or more, then there is sufficient fluid in the damper.

NOTE: The damper must be at room temperature (50 to 90 degrees F, 10 to 32 degrees C) to get the correct indication.

(b) If the width of the green band that shows through the window is less than 1/16 of an inch (1.6 millimeter), then replace the damper.

NOTE: If the window shows only red or no color (no green) then replace the damper.

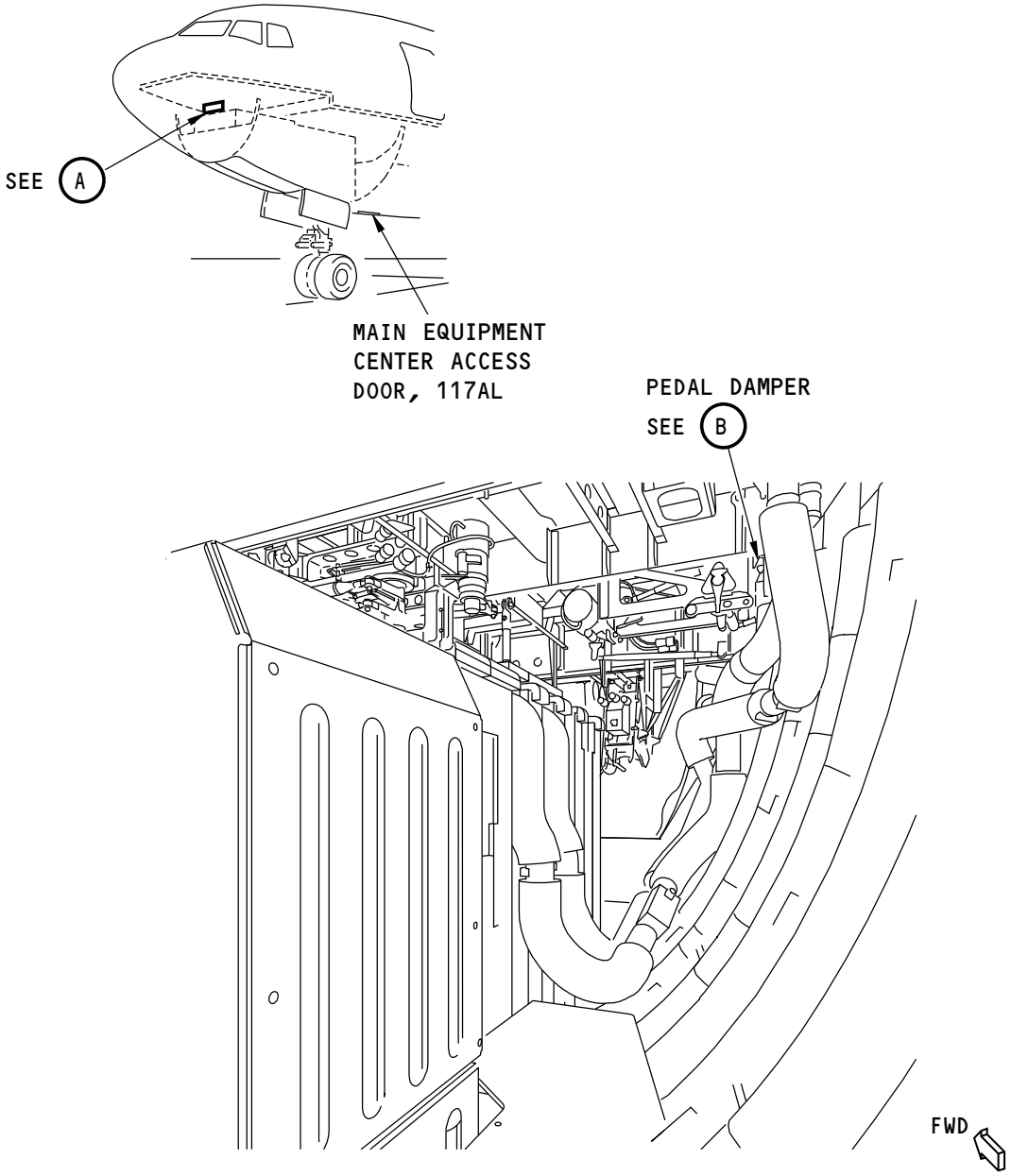
SUBTASK 27-21-05-410-002

(3) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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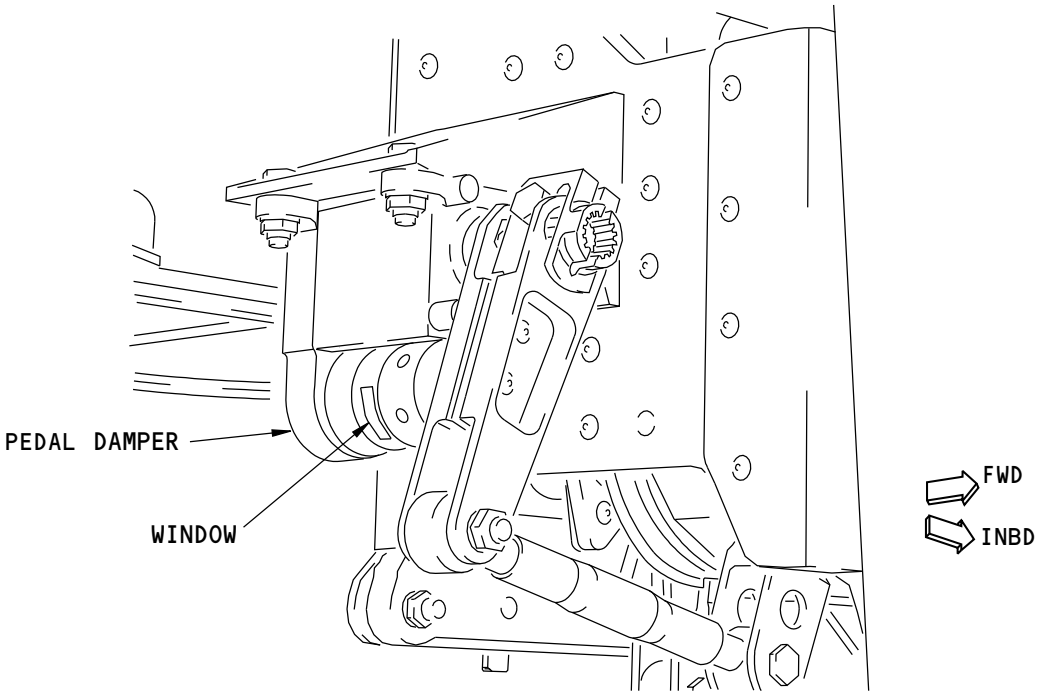
AREA OUTBOARD OF THE NOSE LANDING GEAR WHEEL WELL
(RIGHT SIDE)

A

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Pedal Damper Inspection
Figure 601/27-21-05-990-804 (Sheet 1 of 2)

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PEDAL DAMPER

B

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Pedal Damper Inspection
Figure 601/27-21-05-990-804 (Sheet 2 of 2)

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RUDDER CONTROL MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder control mechanism

(2) An installation of the rudder control mechanism.

B. There are two rudder control mechanisms. One is in the area to the left of the nose landing gear wheel well and one is in the area to the right of the nose landing gear wheel well.

C. In this procedure the rudder control mechanisms are referred to as the mechanism assembly [1] and the mechanism assembly [2].

TASK 27-21-06-000-801

2. Rudder Control Mechanism Removal

(Figure 401)

A. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

B. Prepare for the Removal

SUBTASK 27-21-06-040-001

(1) If you will remove the left mechanism assy, open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L

(a) On the left power supply assembly (PSA-L) in the E1-6 shelf:

1) A1 ACE PWR

2) B8 RUD TRIM ACTR (L)

(b) On the PSA-C in the E2-6 shelf:

1) A1 ACE PWR

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

SUBTASK 27-21-06-040-002

(2) If you will remove the right mechanism assy, open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

(a) On the PSA-R in the E5-1 shelf:

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1) A1 ACE PWR

C. Rudder Control Mechanism Removal

SUBTASK 27-21-06-020-012

(1) Disconnect these electrical connectors:

(a) The two electrical connectors for the rudder pedal position transducers (DM27137 and DM27138 for the left mechanism assembly [1]; DM27237 and DM27238 for the right mechanism assembly [2])

(b) The electrical connector for the rudder pedal backdrive actuator (DM22104 for the left mechanism assembly [1]; DM22204 for the right mechanism assembly [2])

(c) The two electrical connectors for the rudder trim actuator (DM27126A and DM27126B, for the left mechanism assembly [1] only)

(d) The electrical connector for the rudder trim position transducer (DM27043, for the left mechanism assembly [1] only).

SUBTASK 27-21-06-020-001

(2) Do this step to disconnect the rod [19] from the applicable mechanism:

(a) Remove the nut [17], bolt [20], and washer [18].

SUBTASK 27-21-06-020-002

(3) Remove the nuts [9] and nuts [10], the washers [8] and washers [11], and the bolts [3] and bolts [15].

SUBTASK 27-21-06-020-003

(4) Remove the nuts [7] and nuts [12], and the washers [6] and washers [13].

SUBTASK 27-21-06-020-004

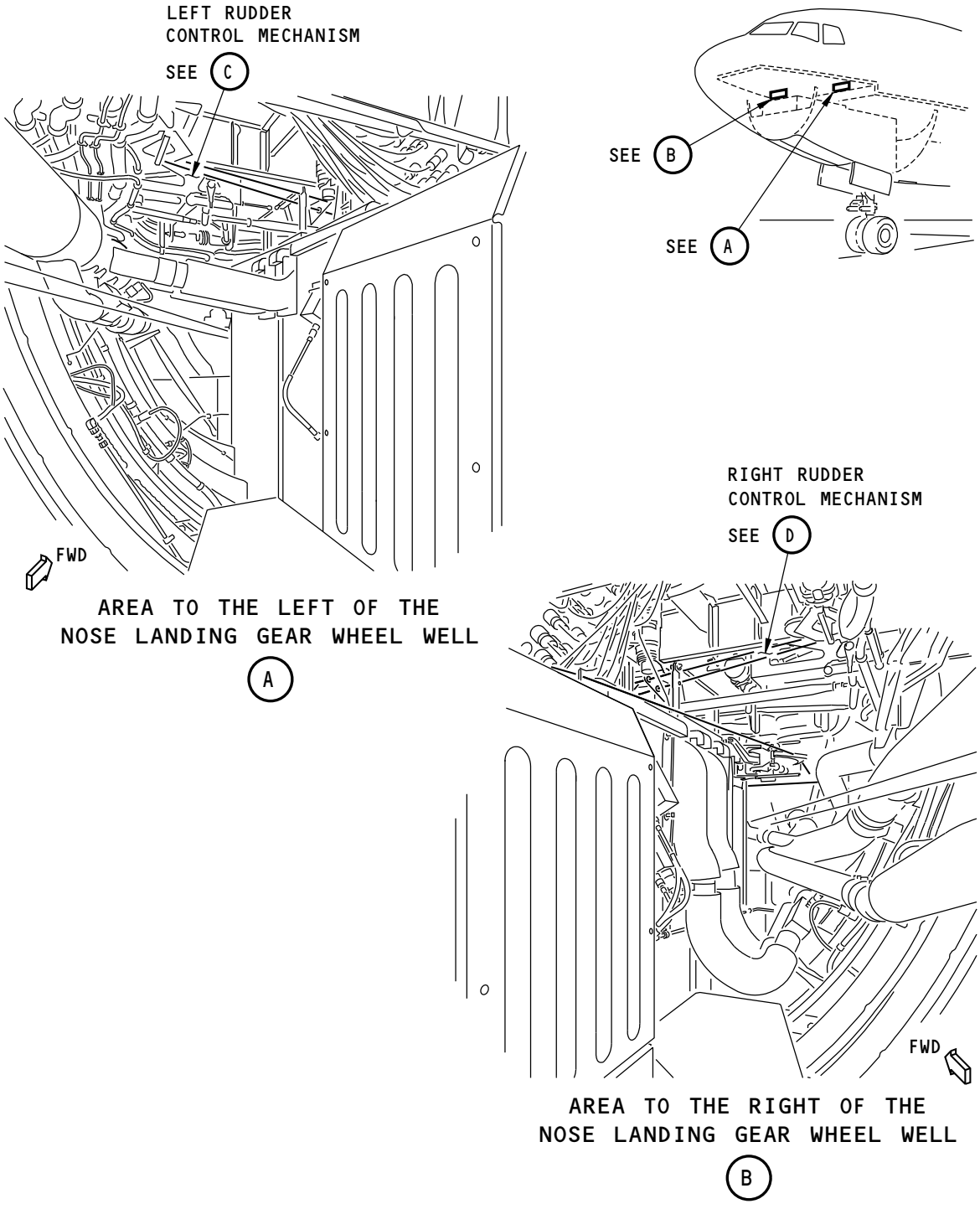
(5) Hold the mechanism assembly [1] or the mechanism assembly [2] and remove the bolts [4] and bolts [16].

SUBTASK 27-21-06-020-005

(6) Remove the mechanism assembly [1] or the mechanism assembly [2] from the airplane.

——— END OF TASK ———

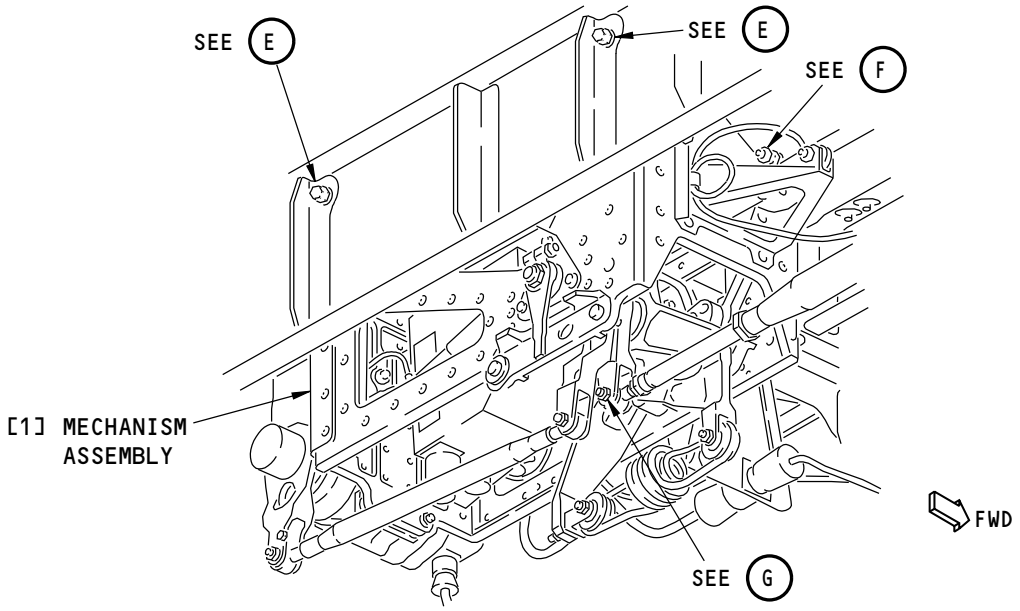
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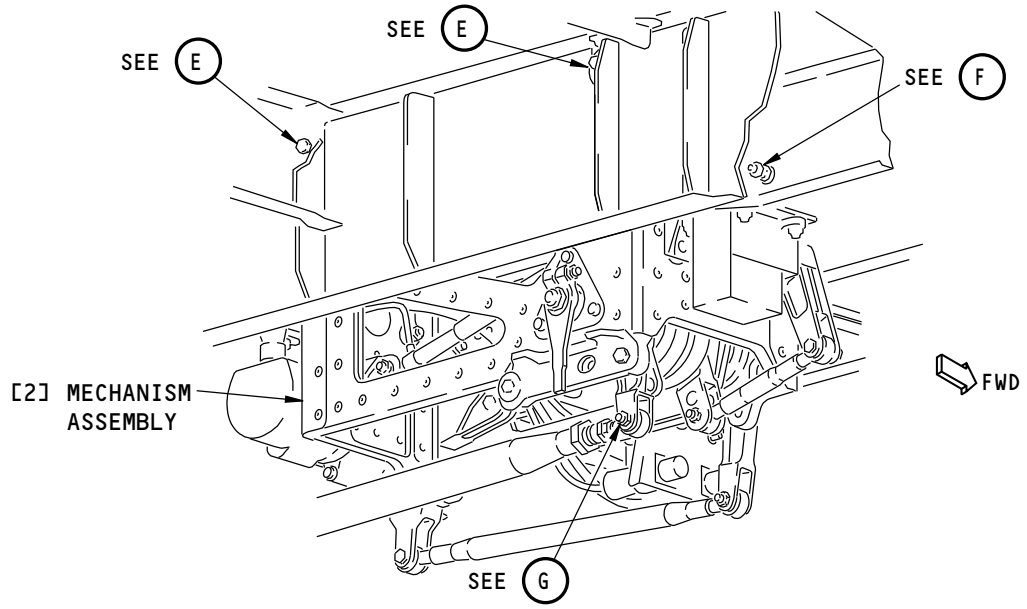
Rudder Control Mechanism Installation
Figure 401/27-21-06-990-801 (Sheet 1 of 3)

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LEFT RUDDER CONTROL MECHANISM

C



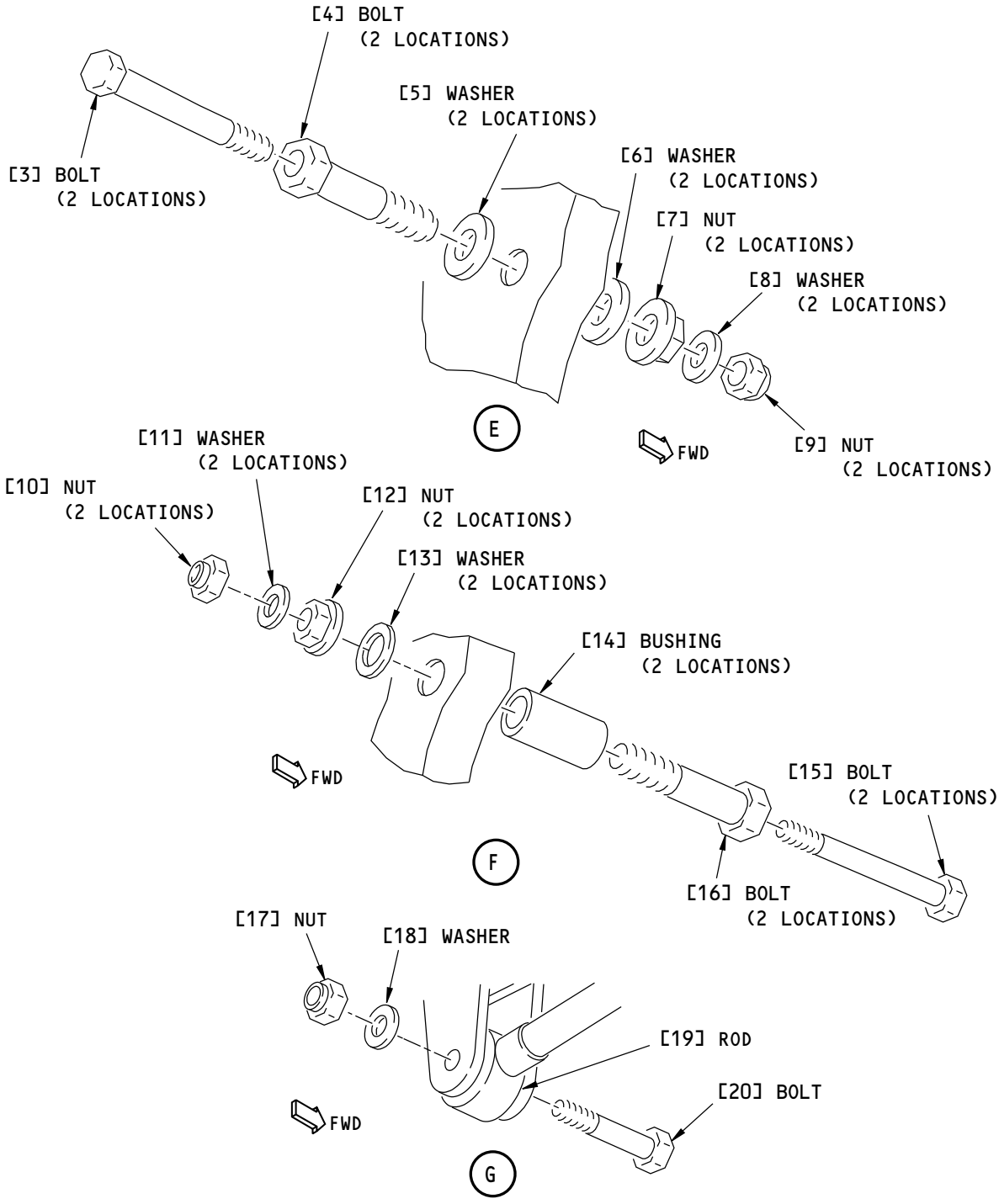
RIGHT RUDDER CONTROL MECHANISM

D

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Rudder Control Mechanism Installation
Figure 401/27-21-06-990-801 (Sheet 2 of 3)

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Rudder Control Mechanism Installation
Figure 401/27-21-06-990-801 (Sheet 3 of 3)

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TASK 27-21-06-400-801

3. Rudder Control Mechanism Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-21-00-800-803	Left and Right Rudder Control Mechanisms Adjustment (Rigging) (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Mechanism assembly	27-21-06-10-060	ARO ALL
2	Mechanism assembly	27-21-06-10-090	ARO ALL

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

D. Rudder Control Mechanism Installation

SUBTASK 27-21-06-420-001

(1) Hold the mechanism assembly [1] or mechanism assembly [2] in its position and install the bolts [4] and washers [5], and the bolts [16] and bushings [14].

SUBTASK 27-21-06-420-002

(2) Install the washers [6] and washers [13], and the nuts [7] and nuts [12].

(a) Tighten the nuts [7] and nuts [12] to 95-160 pound-inches (10.7-18.1 newton-meters).

SUBTASK 27-21-06-420-003

(3) Install the bolts [3] and bolts [15], the washers [8] and washers [11], and the nuts [9] and nuts [10].

(a) Tighten the nuts [9] and nuts [10] to 30-60 pound-inches (3.4-6.8 newton-meters).

NOTE: Do not tighten the nuts [7] or nuts [12] after you tighten the nuts [9] and nuts [10].

SUBTASK 27-21-06-420-004

(4) Connect these electrical connectors:

(a) The two electrical connectors for the rudder pedal position transducers (DM27137 and DM27138 for the left mechanism assembly [1]; DM27237 and DM27238 for the right mechanism assembly [2])

(b) The electrical connector for the rudder pedal backdrive actuator (DM22104 for the left mechanism assembly [1]; DM22204 for the right mechanism assembly [2])

(c) The two electrical connectors for the rudder trim actuator (DM27126A and DM27126B, for the left mechanism assembly [1] only)

(d) The electrical connector for the rudder trim position transducer (DM27043, for the left mechanism assembly [1] only).

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SUBTASK 27-21-06-040-003

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

(a) On the left power supply assembly (PSA-L) in the E1-6 shelf:

1) A1 ACE PWR

2) B8 RUD TRIM ACTR (L)

(b) On the PSA-C in the E2-6 shelf:

1) A1 ACE PWR

(c) On the PSA-R in the E5-1 shelf:

1) A1 ACE PWR

SUBTASK 27-21-06-820-003

(6) Do this task: Left and Right Rudder Control Mechanisms Adjustment (Rigging), TASK 27-21-00-800-803.

NOTE: The rod [19] will be connected to the mechanism assembly [1] or mechanism assembly [2] in the adjustment procedure. These parts will be necessary to connect it: bolt [20], washer [18], and nut [17]. Install the bolt in the direction shown in Figure 401. Do not install a washer at the head of the bolt. The bolt can hit other parts if it is installed incorrectly.

E. Installation Test

SUBTASK 27-21-06-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-06-710-002

(2) If you installed the left mechanism assembly [1], then do these steps to make sure the rudder trim actuator and the rudder trim transducer operate:

(a) For page 1 of the flight controls maintenance pages, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(b) Monitor the two RUD TRIM indications on the maintenance page.

(c) Turn the rudder trim knob (fully clockwise or counterclockwise) and make sure the two RUD TRIM indications change.

(d) Push the MANUAL TRIM CANCEL switch.

SUBTASK 27-21-06-740-001

(3) Do these steps to make sure the backdrive actuator operates:

(a) If the power is not removed from the left, center, and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808

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WARNING KEEP ALL PERSONS AND EQUIPMENT CLEAR OF THE CAPTAIN'S AND FIRST OFFICER'S RUDDER PEDALS. THIS TEST WILL MOVE THE RUDDER PEDALS THROUGH THEIR FULL RANGE OF TRAVEL. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Use a maintenance access terminal (MAT) to do the LRU replacement test of the left (right) Rudder Pedal Backdrive Actuator:

1) Make these selections on the MAT:
   a) ONBOARD MAINTENANCE
   b) LINE MAINTENANCE
   c) GROUND TESTS
   d) 22 Autopilot Flight Director System
   e) LRU REPLACEMENT TEST
   f) Rudder Pedal Backdrive Actuator (left, right)
   g) CONTINUE
   h) Do the instructions that show on the MAT and then make these selections:
   i) CONTINUE
   j) START TEST
2) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
3) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

END OF TASK

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RUDDER TRIM ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder trim actuator

(2) An installation of the rudder trim actuator.

B. In this procedure the rudder trim actuator is referred to as the actuator [2].

TASK 27-21-07-000-801

2. Rudder Trim Actuator Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

B. Prepare for the Removal

SUBTASK 27-21-07-040-001

(1) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1 ACE L1 PWR

2) B8 RUD TRIM ACTR

C. Rudder Trim Actuator Removal

SUBTASK 27-21-07-020-001

CAUTION

DO NOT TOUCH THE CONNECTOR PINS ON THE ACTUATOR. IF YOU TOUCH THESE PINS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ACTUATOR.

(1) Disconnect the electrical connectors [1] from the actuator [2].

(a) Install caps on the electrical connectors.

SUBTASK 27-21-07-020-002

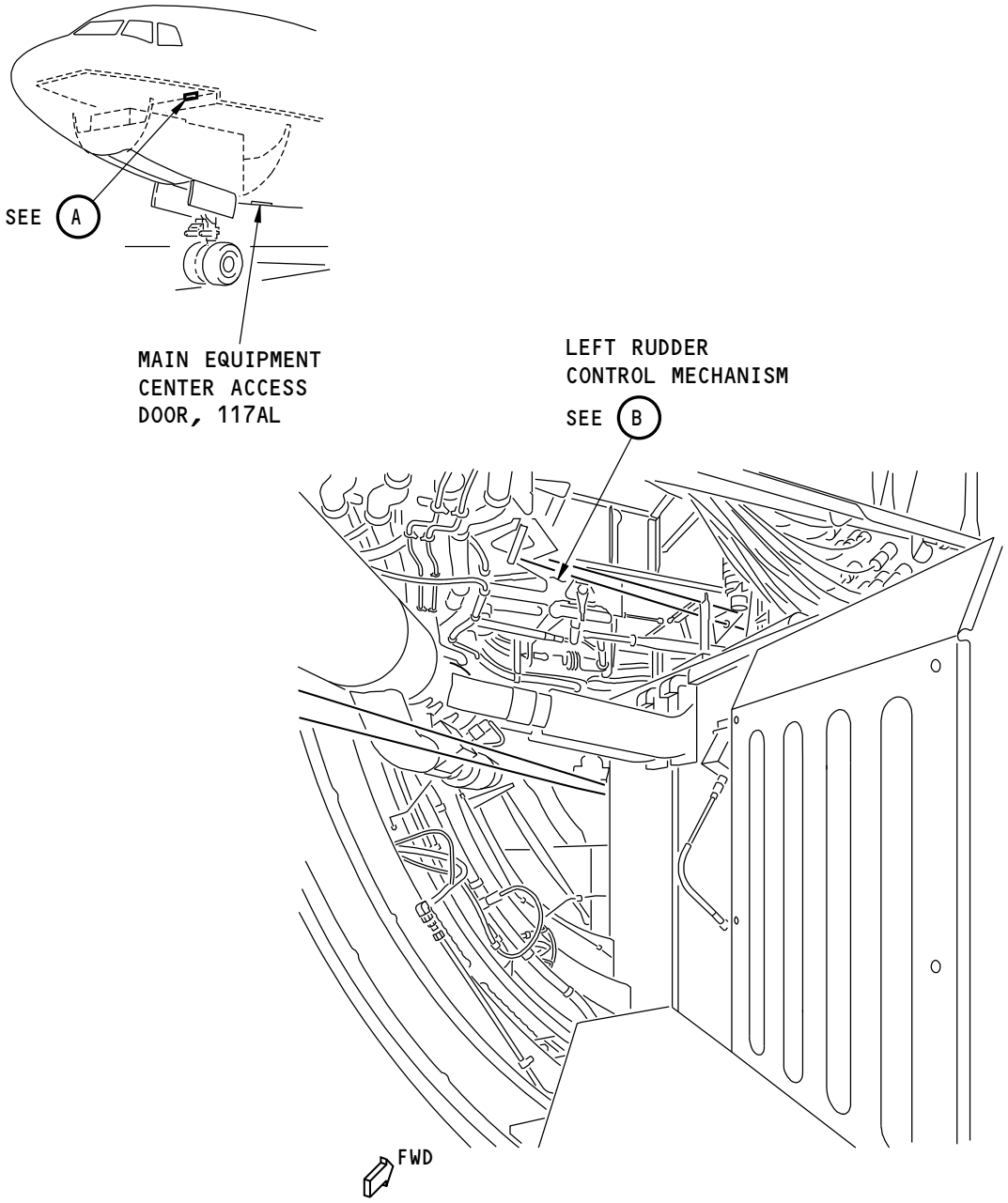
(2) Remove the bolt [6] and bolt [3] from the ends of the actuator [2].

SUBTASK 27-21-07-020-003

(3) Remove the actuator [2].

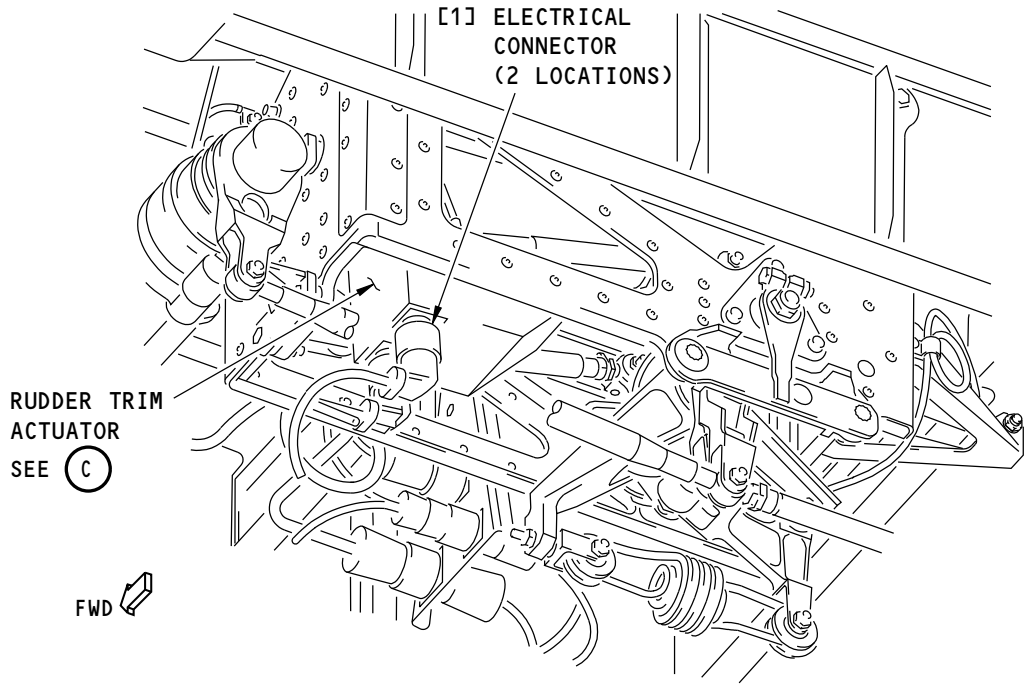
END OF TASK

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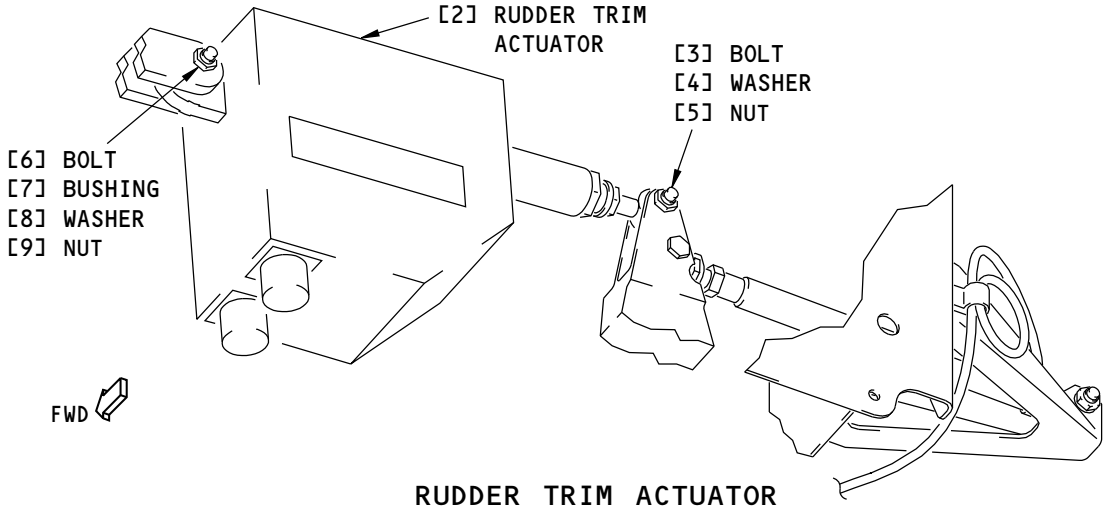


Rudder Trim Actuator Installation
Figure 401/27-21-07-990-801 (Sheet 1 of 2)

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LEFT RUDDER CONTROL MECHANISM
B



RUDDER TRIM ACTUATOR
C

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Rudder Trim Actuator Installation
Figure 401/27-21-07-990-801 (Sheet 2 of 2)

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TASK 27-21-07-400-801

3. Rudder Trim Actuator Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-21-00-700-806	Rudder Trim Position Transducer Test (P/B 501)
27-21-00-820-801	Rudder Trim Adjustment (Rigging) (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Actuator	27-21-07-10-030	ARO ALL

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left

D. Rudder Trim Actuator Installation

SUBTASK 27-21-07-420-001

(1) If it is not installed, put the bushing [7] in the mounting bracket for the actuator [2] (flange of the bushing goes against the actuator).

SUBTASK 27-21-07-420-002

(2) Put the actuator [2] in its location.

(a) Install the bolt [6], washer [8] and nut [9] in the actuator end that has the bushing [7] in it.

(b) Install the bolt [3], washer [4], and nut [5] in the other end of the actuator.

CAUTION

DO NOT TOUCH THE CONNECTOR PINS ON THE ACTUATOR [2]. IF YOU TOUCH THESE PINS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ACTUATOR [2].

(c) Remove the caps from the electrical connectors.

(d) Connect the electrical connectors [1] to the actuator [2].

E. Rudder Trim Actuator Installation Test

SUBTASK 27-21-07-440-001

(1) Remove the DO-NOT-CLOSE tag and close these circuit breakers:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1 ACE L1 PWR

2) B8 RUD TRIM ACTR

SUBTASK 27-21-07-840-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-21-07-720-001

CAUTION

HOLD THE ADJUSTMENT SLEEVE WITH A WRENCH WHEN YOU TIGHTEN THE SQUARE NUT AND THE LOCKNUT. DO NOT TIGHTEN THE SQUARE NUT TO MORE THAN 75 POUND-INCHES (8.5 NEWTON-METERS). THE ACTUATOR CAN BE DAMAGED IF YOU TIGHTEN THE NUT INCORRECTLY.

(3) Do this task: Rudder Trim Adjustment (Rigging), TASK 27-21-00-820-801.

SUBTASK 27-21-07-720-002

(4) Do this task: Rudder Trim Position Transducer Test, TASK 27-21-00-700-806.

——— END OF TASK ———

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RUDDER AND AILERON TRIM SWITCHES - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the module assembly [1].

NOTE: The rudder and aileron trim switches are removed from the airplane as one part on the module assembly [1]. The rudder trim indicator must also be removed with the switches. Refer to (TASK 27-21-09-000-801), Rudder Trim Indicator for the procedure to remove and install only the rudder trim indicator.

(2) An installation of the module assembly [1].

(3) A procedure to clean the knob [2].

TASK 27-21-08-000-801

2. Rudder and Aileron Trim Module - Removal

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-21-09-000-801	Rudder Trim Indicator Removal (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Remove the Rudder and Aileron Trim Module

SUBTASK 27-21-08-860-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE L1 PWR

2) B8, RUD TRIM ACTR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE R PWR

SUBTASK 27-21-08-020-001

(2) Do this task: Rudder Trim Indicator Removal, TASK 27-21-09-000-801.

SUBTASK 27-21-08-020-002

(3) Turn the four quick-release fasteners on the module assembly [1] to the control stand.

NOTE: The module assembly [1] has these parts: the aileron trim switches, the rudder trim switch, the rudder center switch, and the rudder trim indicator. The rudder trim indicator can be disconnected from the other parts before or after the module assembly [1] is removed from the airplane.

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SUBTASK 27-21-08-020-003

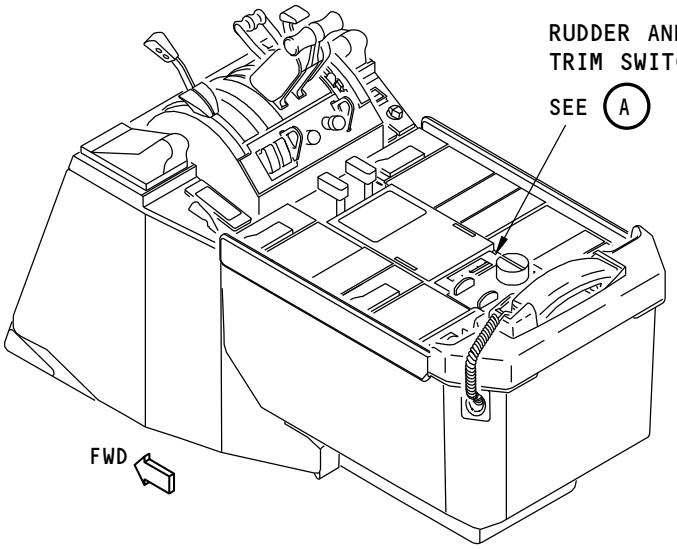
(4) Lift the module assembly [1] up.

SUBTASK 27-21-08-020-004

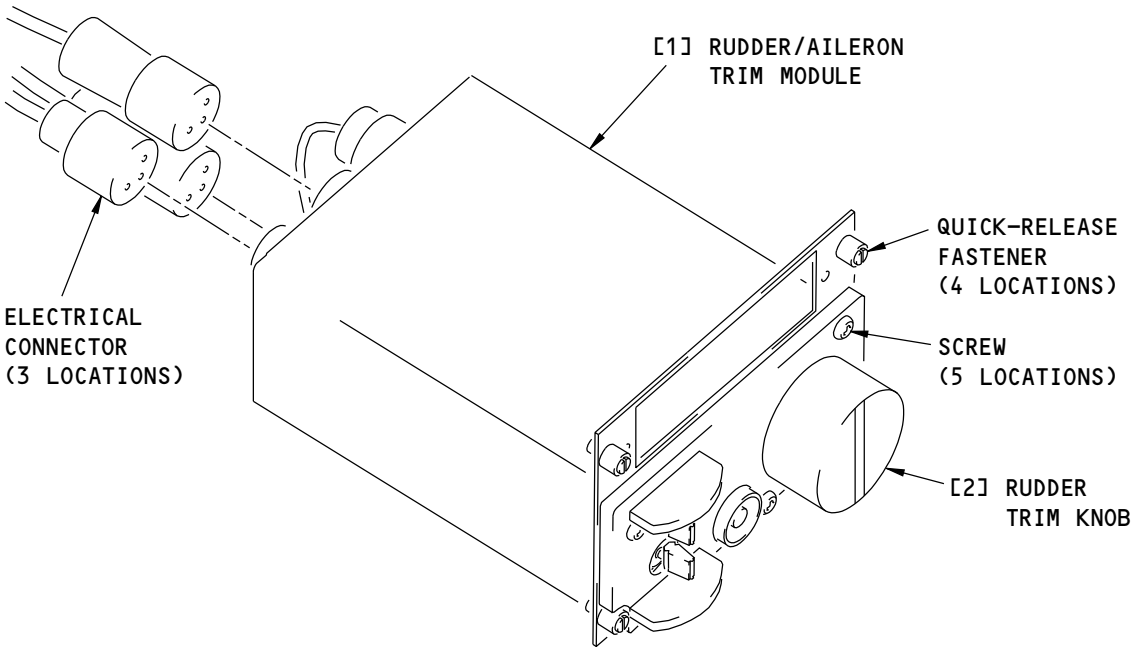
(5) Disconnect the electrical connectors from the module assembly [1] and remove it from the airplane.

——— END OF TASK ———

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AISLE STAND



RUDDER AND AILERON TRIM SWITCH MODULE

A

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Rudder and Aileron Trim Switch Installation
Figure 201/27-21-08-990-801

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TASK 27-21-08-400-801

3. Rudder and Aileron Trim Module - Installation

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-21-00-700-803	Rudder Trim Test (P/B 501)
27-21-09-400-801	Rudder Trim Indicator Installation (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module assembly	27-21-08-01-105	ARO ALL
		31-11-36-01A-045	ARO 001-013
		33-13-00-01-205	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Install the Rudder and Aileron Trim Module

SUBTASK 27-21-08-410-001

(1) Connect the electrical connectors for the module assembly [1].

SUBTASK 27-21-08-410-002

(2) Put the module assembly [1] in its position.

SUBTASK 27-21-08-410-003

(3) Turn the four quick-release fasteners to attach the module assembly [1] to the control stand.

SUBTASK 27-21-08-410-005

(4) Do this task: Rudder Trim Indicator Installation, TASK 27-21-09-400-801.

SUBTASK 27-21-08-860-002

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE L1 PWR

2) B8, RUD TRIM ACTR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE R PWR

SUBTASK 27-21-08-720-001

(6) Do this task: Rudder Trim Test, TASK 27-21-00-700-803.

——— END OF TASK ———

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TASK 27-21-08-100-801

4. Rudder Trim Knob - Cleaning

(Figure 201)

A. Consumable Materials

Reference	Description	Specification
B00460	Cleaner - Multi-Purpose - Winsol APC-120-WX	

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Knob	27-21-08-01-110	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-21-08-860-003

(1) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE L1 PWR

2) B8, RUD TRIM ACTR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE R PWR

SUBTASK 27-21-08-010-001

(2) Loosen the three screws around the knob [2].

SUBTASK 27-21-08-010-002

(3) Remove the knob [2] from the rudder trim switch.

SUBTASK 27-21-08-100-001

(4) Use a sponge or rag and the Winsol APC-120-WX cleaner, B00460 to clean the lightplate surface and the knob [2].

NOTE: Do not get Winsol APC-120-WX cleaner, B00460 in the switch.

SUBTASK 27-21-08-410-004

(5) Put the knob [2] on the rudder trim switch and tighten the three screws.

SUBTASK 27-21-08-710-001

(6) Turn the knob [2] through its full travel.

SUBTASK 27-21-08-710-002

(7) Make sure the knob [2] does not touch the lightplate.

SUBTASK 27-21-08-710-003

(8) Make sure the knob [2] is not loose on the rudder trim switch.

SUBTASK 27-21-08-860-004

(9) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE L1 PWR

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2) B8, RUD TRIM ACTR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack: Close,

1) A1, ACE R PWR

——— END OF TASK ———

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RUDDER TRIM INDICATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder trim indicator

(2) An installation of the rudder trim indicator.

TASK 27-21-09-000-801

2. Rudder Trim Indicator Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Rudder Trim Indicator Removal

SUBTASK 27-21-09-040-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L
N	23	C33613	MASTER BRT CTRL & MASTER BRT OVRD RLY

SUBTASK 27-21-09-020-001

(2) Turn the two screws [1] that hold the indicator assembly [2] to the control stand.

SUBTASK 27-21-09-020-002

(3) Lift the indicator assembly [2].

SUBTASK 27-21-09-020-003

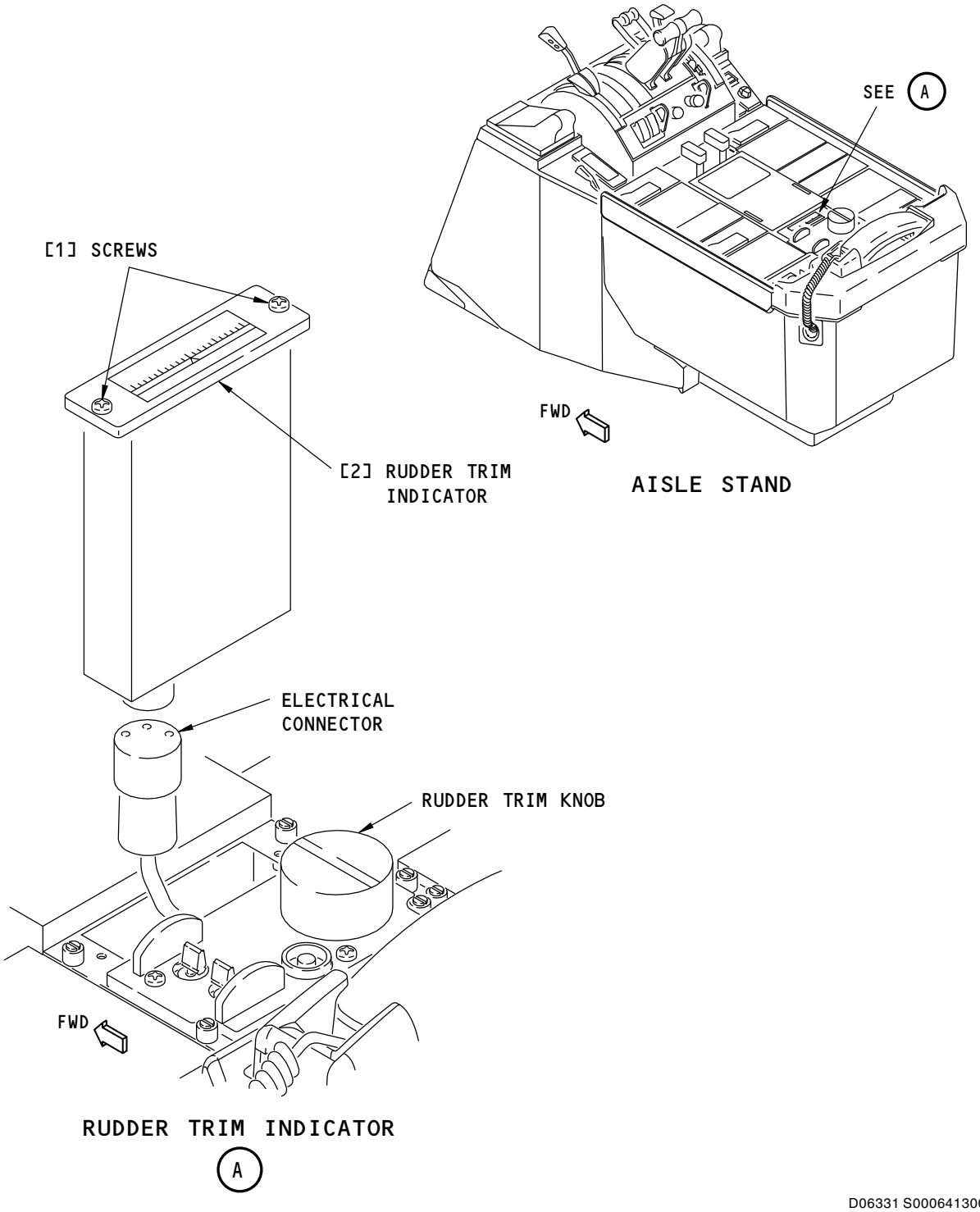
(4) Disconnect the electrical connector from indicator assembly [2].

SUBTASK 27-21-09-020-004

(5) Remove the indicator assembly [2] from the airplane.

——— END OF TASK ———

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Rudder Trim Indicator Installation
Figure 401/27-21-09-990-801

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TASK 27-21-09-400-801

3. Rudder Trim Indicator Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Indicator assembly	27-21-09-01-055	ARO ALL
		31-11-36-01A-040	ARO 001-013

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Rudder Trim Indicator Installation

SUBTASK 27-21-09-420-001

(1) Connect the electrical connector to the indicator assembly [2].

SUBTASK 27-21-09-420-002

(2) Put the indicator assembly [2] in its position.

SUBTASK 27-21-09-420-003

(3) Turn the screws [1] to hold the indicator assembly [2] to the control stand.

SUBTASK 27-21-09-440-001

(4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L
N	23	C33613	MASTER BRT CTRL & MASTER BRT OVRD RLY

E. Rudder Trim Indicator Installation Test

SUBTASK 27-21-09-840-001

WARNING

MAKE SURE THAT HYDRAULIC POWER IS NOT SUPPLIED OR THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES. IF HYDRAULIC POWER IS SUPPLIED, THE RUDDER WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-21-09-840-002

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-09-710-001

(3) Turn the rudder trim knob.

(a) Make sure the indicator assembly [2] moves.

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SUBTASK 27-21-09-710-002

(4) Turn the rudder trim knob fully counterclockwise and hold it until the indicator assembly [2] stops.

(a) Make sure the indicator assembly [2] moves in the left rudder trim direction.

SUBTASK 27-21-09-710-003

(5) Push the MANUAL TRIM CANCEL switch.

(a) Make sure the indicator assembly [2] shows 0.0 ±0.2 unit.

SUBTASK 27-21-09-710-004

(6) Turn the rudder trim knob fully clockwise and hold it until the indicator assembly [2] stops.

(a) Make sure the indicator assembly [2] moves in the right rudder trim direction.

SUBTASK 27-21-09-710-005

(7) Release the rudder trim knob.

(a) Make sure the indicator assembly [2] is fully right.

SUBTASK 27-21-09-710-006

(8) Push the MANUAL TRIM CANCEL switch.

(a) Make sure the indicator assembly [2] shows 0.0 ±0.2 unit.

——— END OF TASK ———

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GUST SUPPRESSION PRESSURE TRANSDUCER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the gust suppression pressure transducers

(2) An installation of the gust suppression pressure transducers.

(3) A leak test of the gust suppression transducer tubing.

TASK 27-21-10-000-801

2. Gust Suppression Pressure Transducer Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The gust suppression pressure transducers are installed on the auxiliary spar of the vertical fin.

B. Location Zones

Zone	Area
322	Vertical Stabilizer - Auxiliary Spar to Front Spar

C. Access Panels

Number	Name/Location
322DL	Vertical Stabilizer Forward Box Panel
322EL	Vertical Stabilizer Forward Box Panel

D. Prepare for the Removal

SUBTASK 27-21-10-040-001

(1) For the lower transducer assembly [6], M27038, remove power from the L1 ACE.

(a) Open this circuit breaker and install a DO-NOT-CLOSE tag:

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE PWR.

SUBTASK 27-21-10-040-002

(2) For the upper transducer assembly [6], M27039, remove power from the C ACE.

(a) Open this circuit breaker and install a DO-NOT-CLOSE tag:

1) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) A1, ACE PWR.

SUBTASK 27-21-10-010-001

(3) Remove these access panels:

Number	Name/Location
322DL	Vertical Stabilizer Forward Box Panel
322EL	Vertical Stabilizer Forward Box Panel

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E. Gust Suppression Pressure Transducer Removal

SUBTASK 27-21-10-020-003

CAUTION

DO NOT TOUCH THE CONNECTOR PINS ON THE PRESSURE TRANSDUCER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRESSURE TRANSDUCER.

(1) Remove the electrical connector from the transducer assembly [6].

SUBTASK 27-21-10-020-001

(2) Disconnect the pneumatic hoses from the transducer assembly [6].

SUBTASK 27-21-10-020-002

(3) Remove the transducer assembly [6] from the vertical stabilizer.

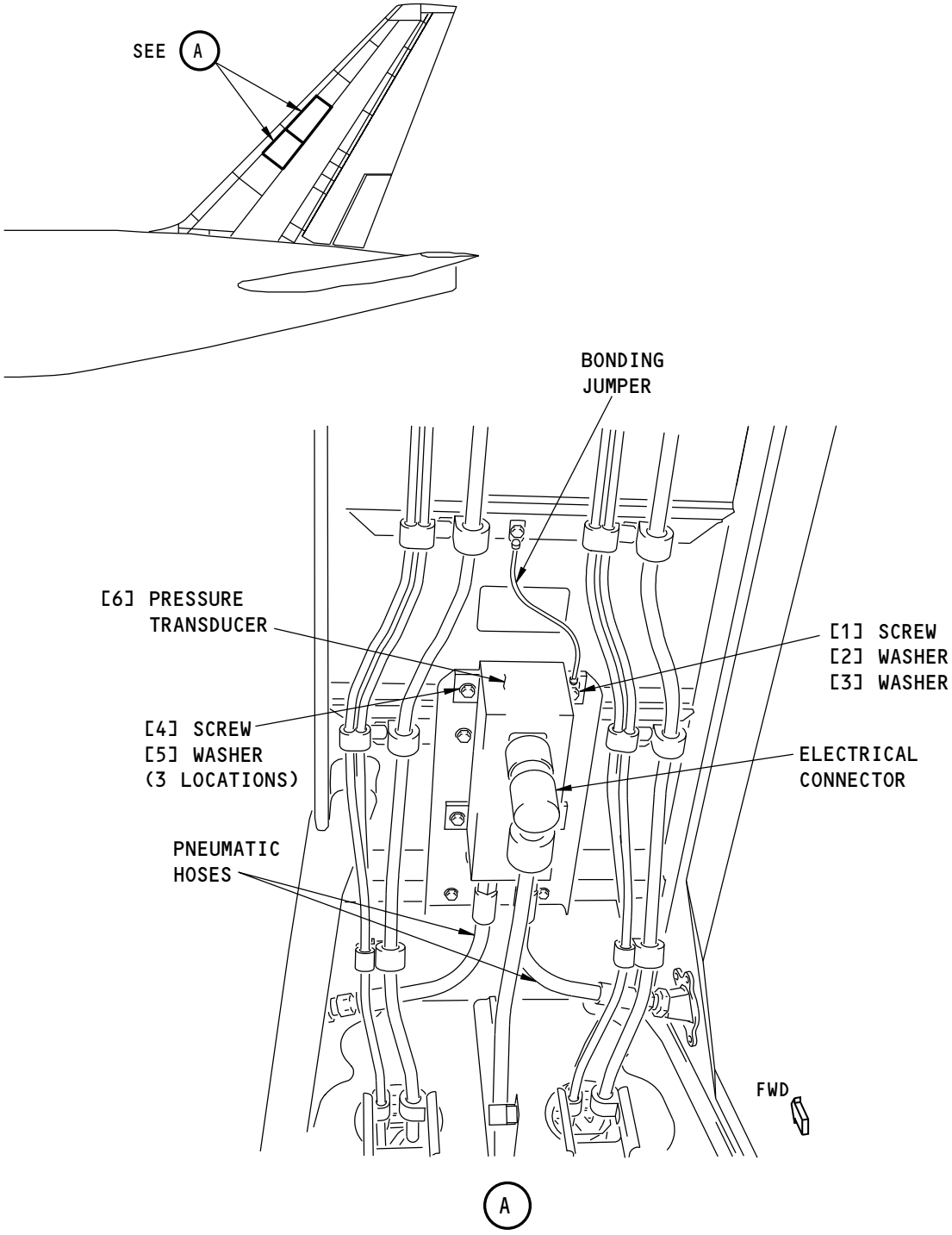
(a) Remove the screw [1], the washer [2] and the washer [3] to disconnect the bonding jumper.

(b) Hold the transducer assembly [6] and remove the screws [4] and the washers [5].

(c) Remove the transducer assembly [6].

——— END OF TASK ———

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Gust Suppression Pressure Transducer Installation
Figure 401/27-21-10-990-801

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TASK 27-21-10-400-801

3. Gust Suppression Pressure Transducer Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-10-22-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D50011	Grease - Perfluoropolyether - Christo-lube MCG111	
D50063	Grease - Perfluoropolyether, fuel and oxygen resistant - Krytox 240AC	MIL-PRF- 27617 Type III

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Transducer assembly	27-21-10-10-065	ARO ALL

F. Location Zones

Zone	Area
322	Vertical Stabilizer - Auxiliary Spar to Front Spar

G. Access Panels

Number	Name/Location
322DL	Vertical Stabilizer Forward Box Panel
322EL	Vertical Stabilizer Forward Box Panel

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H. Gust Suppression Pressure Transducer Installation

SUBTASK 27-21-10-420-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS ON THE PRESSURE TRANSDUCER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRESSURE TRANSDUCER.

(1) Install the transducer assembly [6] in the vertical fin:

(a) Put the transducer assembly [6] in its position.

(b) Install the screws [4] and washers [5].

(c) Clean the surface of the transducer assembly [6] where the bonding jumper will be installed.

1) Do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-22-110-802.

(d) Measure the electrical bond resistance of the bonding jumper using a intrinsically safe approved bonding meter, COM-1550. The maximum bond resistance is 0.0005 ohms.

(e) Install the washer [2], the bonding jumper, the washer [3] and the screw [1].

(f) Seal the screw [1], washer [2], the bonding jumper, and washer [3] with sealant, A00247.

SUBTASK 27-21-10-420-002

(2) Connect the pneumatic tubes to the transducer assembly [6] per BAC5001-6 and O-RINGS per BAC5506 except use Krytox 240AC perfluoropolyether grease, D50063 (Optional Christo-lube MCG111 grease, D50011) as assembly lubricant for all installations.

SUBTASK 27-21-10-420-003

(3) Connect the electrical connector to the transducer assembly [6].

SUBTASK 27-21-10-440-001

(4) For the lower transducer assembly [6], M27038, restore power to the L1 ACE.

(a) Remove the DO-NOT-CLOSE tag and close this circuit breaker:

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE PWR.

SUBTASK 27-21-10-440-002

(5) For the upper transducer assembly [6], M27039, restore power to the C ACE.

(a) Remove the DO-NOT-CLOSE tag and close this circuit breaker:

1) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) A1, ACE PWR.

I. Gust Suppression Pressure Transducers Installation Test

SUBTASK 27-21-10-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-10-730-001

(2) Use a maintenance access terminal (MAT) to start the test.

(a) Select "LINE MAINTENANCE"

(b) Select "GROUND TESTS"

(c) Select "27 Primary Flight Control System"

(d) Select "System Test"

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(e) Select "GUST SUPPRESSION PRESSURE TRANSDUCERS".

1) If the MAT shows "Test status: TEST FAILED", do a check on the electrical connections to the pressure transducers and do this test again.

2) If no problems occurred during the test, the MAT will show "Test status: Passed".

SUBTASK 27-21-10-700-002

(3) Do this task: Gust Suppression Transducer Pneumatic Tubes - Leak Test, TASK 27-21-10-700-801.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-10-410-001

(1) Install these access panels:

Number	Name/Location
322DL	Vertical Stabilizer Forward Box Panel
322EL	Vertical Stabilizer Forward Box Panel

——— END OF TASK ———

TASK 27-21-10-700-801

4. Gust Suppression Transducer Pneumatic Tubes - Leak Test

(Figure 401)

A. General

(1) This test will determine the integrity of the tubing and the joints where the tubing connects to the pressure transducer and static port.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: 18910920000 Supplier: 89944 Part #: ADTS405F Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: DPS350 Supplier: 21844 Part #: DPS450 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
SPL-6103	Adapter - Side Gust Suppression Leak Test Part #: J27052-1 Supplier: 81205

C. Location Zones

Zone	Area
322	Vertical Stabilizer - Auxiliary Spar to Front Spar

D. Gust Suppression Pressure Transducer Pneumatic Tubes - Leak Test

SUBTASK 27-21-10-700-003

(1) Do a check for pneumatic leaks from the pneumatic tubes:

CAUTION DO NOT APPLY MORE THAN THE MAXIMUM PERMITTED AIR PRESSURE ACROSS THE TRANSDUCER. DAMAGE CAN OCCUR TO THE TRANSDUCER IF THE PRESSURE IS TOO HIGH.

(a) Install the leak test adapter, SPL-6103, on the upper left-side static port of the vertical fin.

(b) Connect the air data model test set, COM-1914 to the leak test adapter, SPL-6103.

(c) Apply an upper left-side port vacuum of -1.9 psig (-13.10 kPa) to -2.1 psig (-14.48 kPa) gauge pressure or 3770 to 4200 feet standard atmosphere (relative to the altitude where the test is conducted) and wait 2 minutes.

(d) Verify the vacuum has dropped no more than0.1 psig (0.69 kPa) gauge pressure or -195 feet standard atmosphere (relative to the altitude where the test is conducted.

(e) Using the test equipment, slowly vent the vacuum from the static port.

SUBTASK 27-21-10-200-001

(2) Check the other gust suppression ports using the same method.

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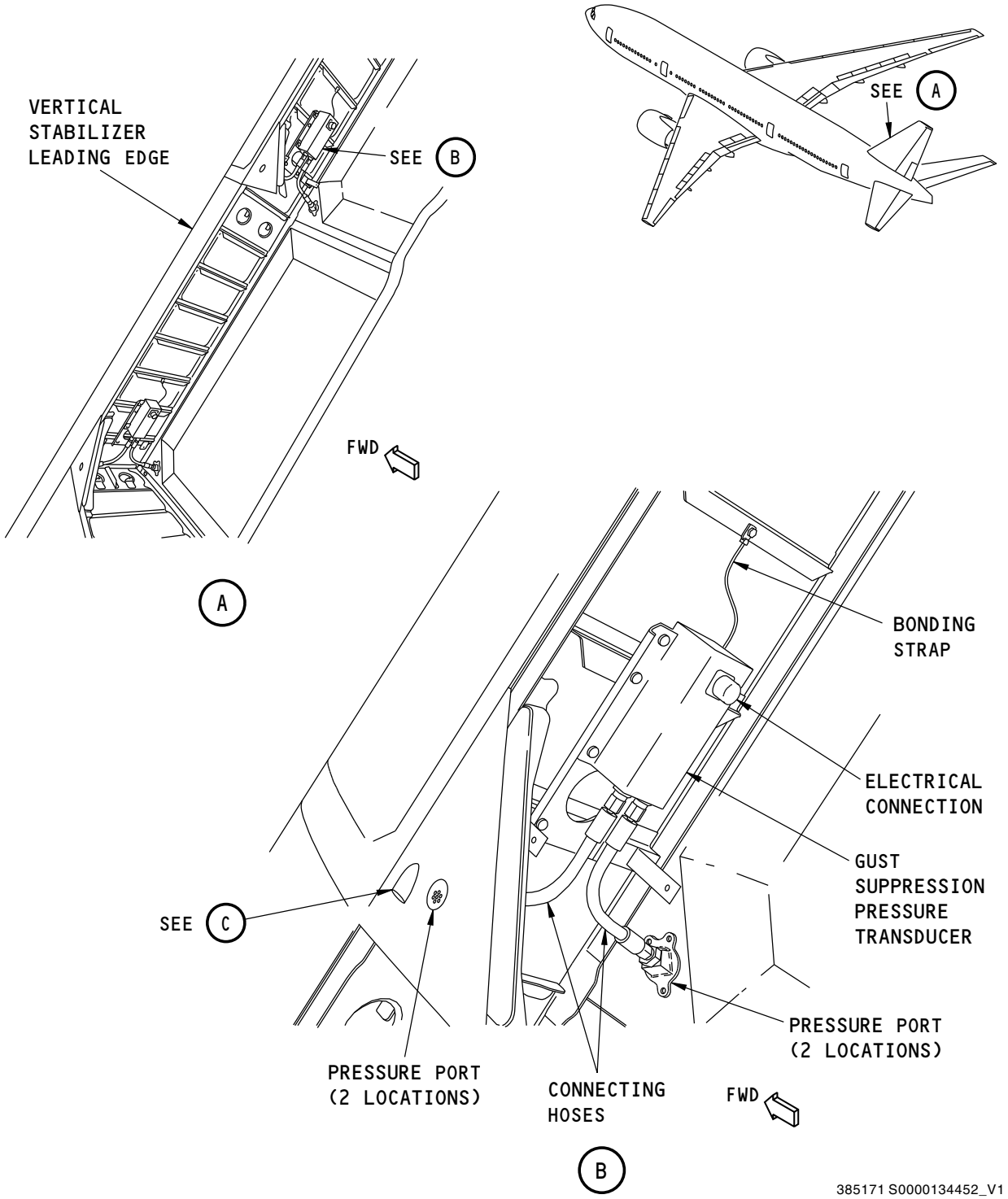
E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-10-080-001

(1) Remove the test equipment from the airplane.

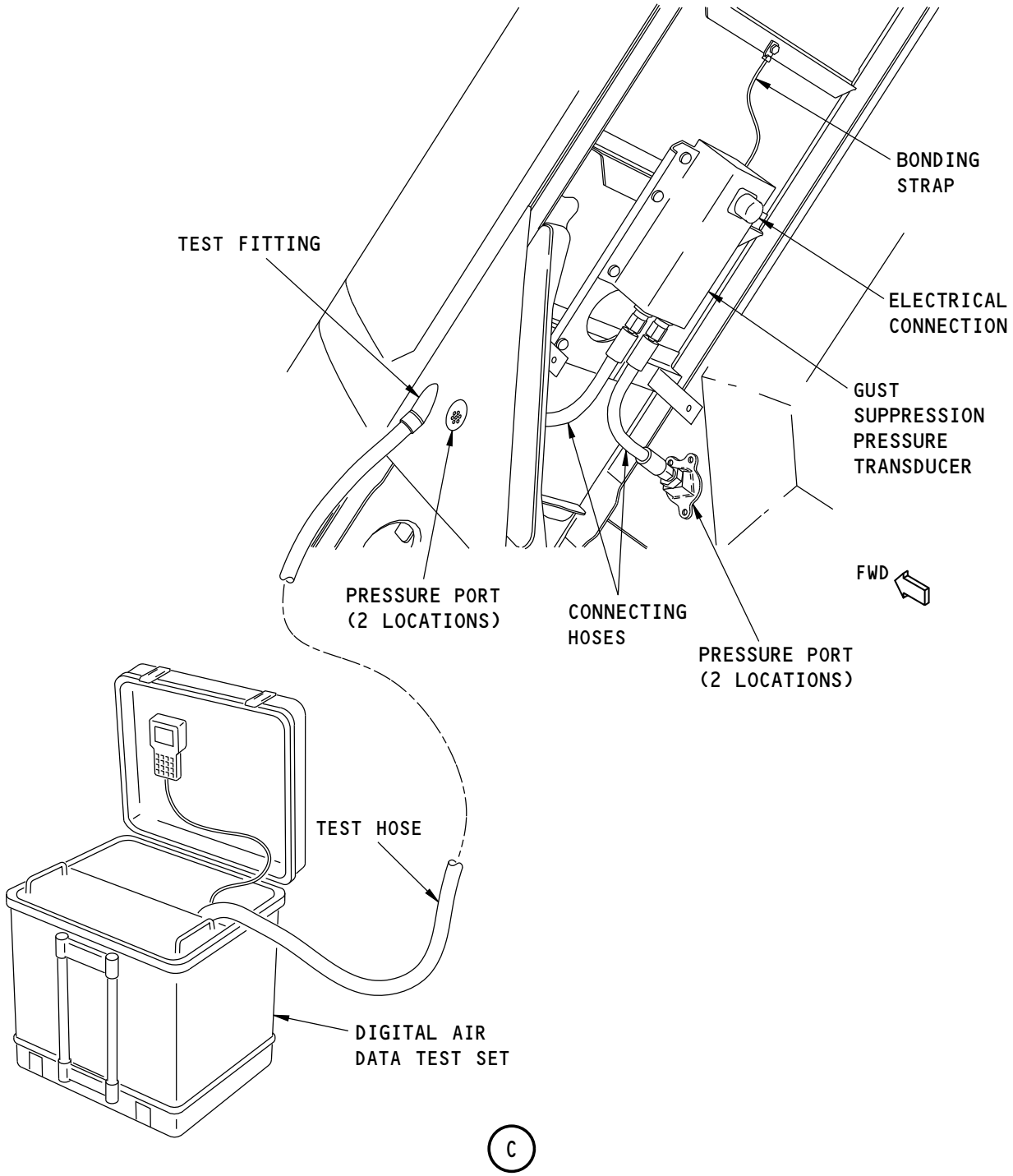
——— END OF TASK ———

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Gust Suppression Transducer Pneumatic Tubes - Leak Test
Figure 402/27-21-10-990-802 (Sheet 1 of 2)

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Gust Suppression Transducer Pneumatic Tubes - Leak Test
Figure 402/27-21-10-990-802 (Sheet 2 of 2)

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RUDDER POWER CONTROL UNITS (PCU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder power control units (PCU)

(2) An installation of the rudder power control units (PCU).

(3) In these procedures the rudder power control units (PCU) are called "unit assy".

TASK 27-21-11-000-801

2. Rudder Power Control Units (PCU) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure is applicable for all rudder PCUs.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
SPL-1712	Lock, Rudder Power Control Unit Part #: J27028-21 Supplier: 81205
SPL-1718	Hoist Equipment, Rudder PCU Removal/Installation (applicable to 777 airplanes prior to LN 423) Part #: J27027-52 Supplier: 81205
SPL-8394	Hoist Equipment, Rudder PCU Removal/Installation Part #: J27027-52 Supplier: 81205

D. Location Zones

Zone	Area
323	Vertical Stabilizer - Front Spar to Rear Spar
324	Vertical Stabilizer - Rear Spar to Trailing Edge
325	Rudder

E. Access Panels

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel

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(Continued)

Number	Name/Location
324PLX	Vertical Stabilizer Trailing Edge Seal

F. Prepare for the Removal

SUBTASK 27-21-11-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-11-840-002

(2) Depressurize the hydraulic system and reservoir. To depressurize them, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

(a) Operate the rudder pedals several times to remove the remaining hydraulic pressure.

SUBTASK 27-21-11-840-003

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-21-11-040-001

(4) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	9	CBA9-C	RUD PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	9	CBA9-L	RUD PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	9	CBA9-R	RUD PCU

G. Rudder Power Control Units (PCU) Removal

CAUTION

DO NOT LET THE RUDDER PCU, THE PCU REMOVAL TOOL, OR OTHER OBJECTS FALL WHEN YOU REMOVE THE RUDDER PCU. IF SOMETHING FALLS, IT CAN HIT THE HORIZONTAL STABILIZER AND CAUSE DAMAGE TO IT. THE HORIZONTAL STABILIZER IS MADE WITH COMPOSITES. IF THE HORIZONTAL STABILIZER IS DAMAGED BADLY, IT MUST BE REPLACED.

SUBTASK 27-21-11-010-001

(1) Remove these access panels:

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324PLX	Vertical Stabilizer Trailing Edge Seal

SUBTASK 27-21-11-010-002

(2) Remove the beam [34]:

(a) Remove the bolts [36], washers [37], and nuts [38] at each side of the beam [34].

(b) Remove the bolts [35] at each side of the beam [34].

(c) Remove the beam [34].

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SUBTASK 27-21-11-020-001

(3) Manually move the rudder to its center position and hold it there.

NOTE: A force of approximately 30-60 pounds (133.5-266.9 newtons) at the trailing edge of the rudder tab will be necessary to move the rudder. The rudder will only move slowly because of damping in the PCUs.

(a) Disconnect the electrical connectors from the PCU [2].

CAUTION

REMOVE THE HYDRAULIC LINES FROM THE AIRPLANE. YOU WILL BEND THE HYDRAULIC LINES IF YOU TRY TO REMOVE THE PCU WHILE THEY ARE INSTALLED. BENT HYDRAULIC LINES ARE WEAKER AND CAN SUBSEQUENTLY BREAK.

(b) Remove the hydraulic line [18] and hydraulic line [19] that connect to the PCU [2]:

NOTE: Immediately put the cap on the hydraulic lines to prevent fluid loss. You might have to reset the hydraulic fuse after the hydraulic system is pressurized.

1) Disconnect the hydraulic line [18] and hydraulic line [19] from the PCU [2].
2) Disconnect the ends of the hydraulic line [18] and hydraulic line [19] where they connect to the other tubes.
3) Remove the clamp assembly [20]:
   a) Remove the screws [21], washers [22], spacers [23], washers [32] and nuts [33].
4) Remove the hydraulic line [18] and hydraulic line [19] from the airplane.
5) Install caps on the fittings where you disconnected the hydraulic line [18] and hydraulic line [19].

(c) Do these steps to install the rudder PCU hoist equipment, SPL-8394 (Recommended) or rudder PCU hoist equipment, SPL-1718 (Optional), and the cable fishpole hoist, COM-1563 (Figure 402):

1) Attach the lower fitting for the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718, to the vertical stabilizer.
2) Put the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718, in its position on the lower fitting and attach the upper fitting to the vertical stabilizer.
3) Install the swivel hook in the hole on the top of the PCU.
4) Connect the cable on the end of the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718, to the swivel hook.
5) Turn the adjustment nut on the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718, until the cable is tight.
6) Install the cable fishpole hoist, COM-1563, on the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718.

(d) Remove the bolt [24] and the bushing [26] that attach the PCU [2] to the rudder.

(e) Install the rudder power control unit locks, SPL-1712 on all the rudder PCUs that you will not remove.

NOTE: If only one PCU is removed, you need to install the lock on both of the two PCUs not being removed.

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WARNING BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEM, MAKE SURE THAT THE REVERSERS, FLAPS, SPOILERS, NOSEWHEEL, ELEVATORS, RUDDER, SLATS, RUDDER PEDALS, AND CONTROL COLUMNS ARE CLEAR OF PERSONS AND EQUIPMENT. THIS WILL HELP PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Push the rudder fully right and hold.
2) Install the rudder power control unit lock, SPL-1712.
3) Release the rudder.

(f) Remove the bolt [24] and the bushing [26] that attach the reaction link assembly [1] to the rudder.

(g) Remove the screw [29] and washer [30] and remove the bracket [31].

(h) Remove the bolt [13] and the bushing [15] that attach the kick link assembly [12] to the PCU [2].

(i) Pull the aft end of the PCU [2] out to the left and remove the it from the airplane.

NOTE: You can manually push the rudder to the right to get more clearance to remove the PCU [2].

SUBTASK 27-21-11-020-002

(4) If it is necessary, remove these parts:

(a) Remove the kick link assembly [12]:

1) Remove the bolts [7], washers [8], bushings [9], washers [10] and nuts [11].
2) Remove the kick link assembly [12] from the airplane.

(b) Remove the reaction link assembly [1]:

NOTE: The reaction link and its end caps are a matched set. Each set is identified by the serial number.

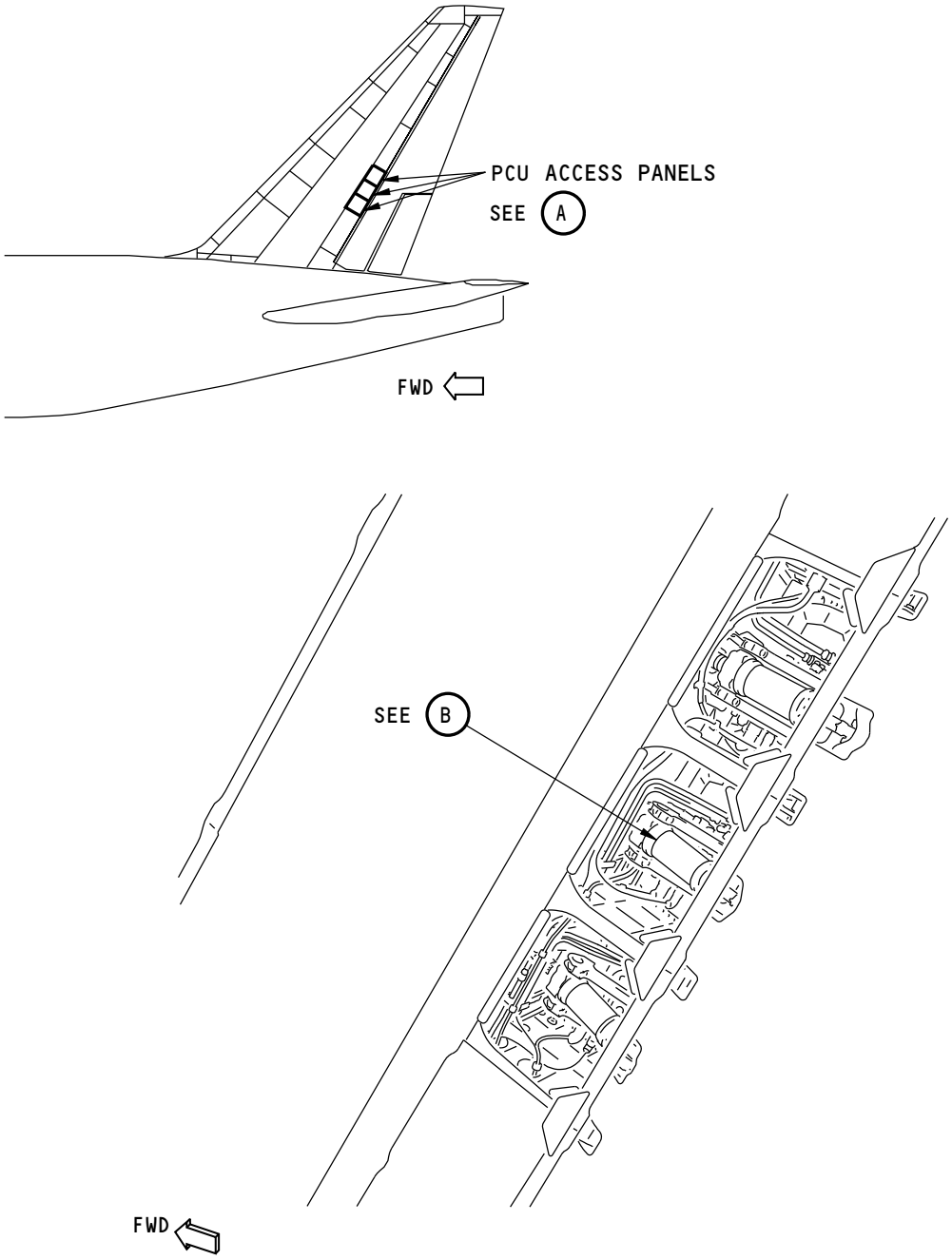
There are two end caps per set. Keep them together.

Make sure each end cap is installed on the same reaction link leg from which it is removed.

1) Mark the end caps and the reaction link legs so that you can install each end cap on the same reaction link leg that you removed it from.
2) Remove the bolts [3], washers [4], washers [5] and nuts [6].
3) Remove the reaction link assembly [1] from the PCU.

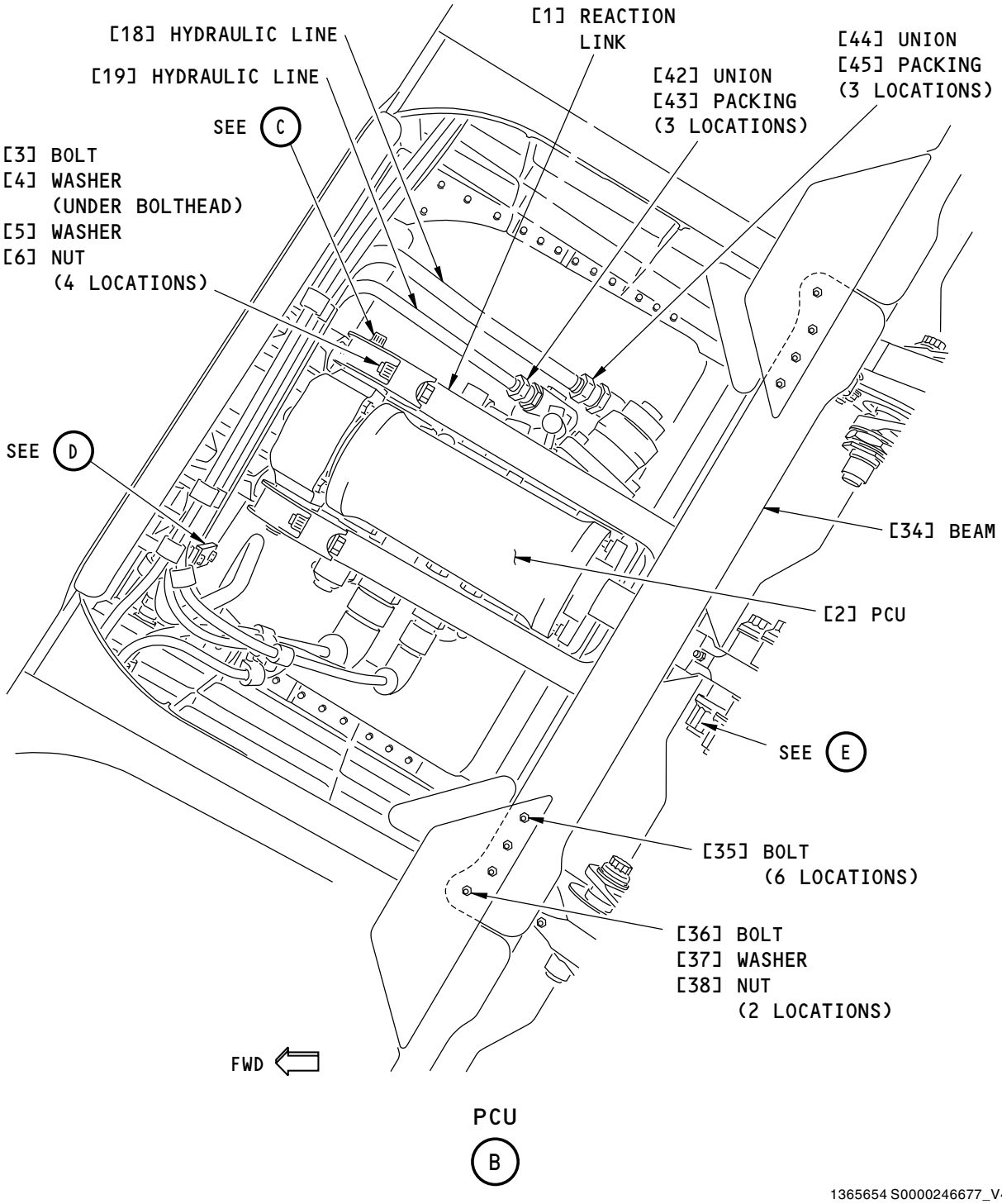
——— END OF TASK ———

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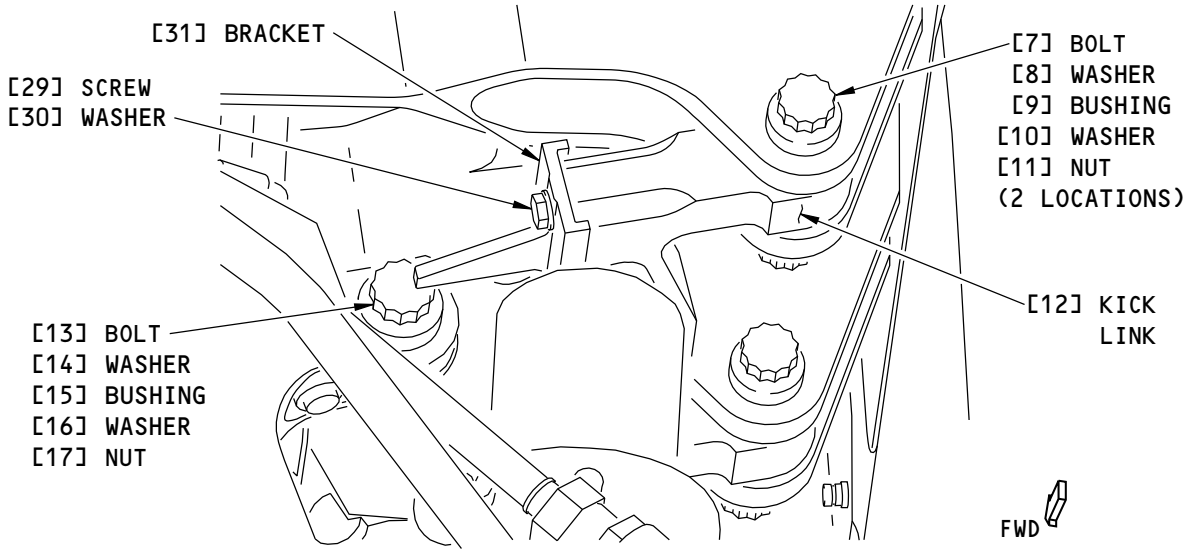
Rudder Power Control Unit (PCU) Installation
Figure 401/27-21-11-990-801 (Sheet 1 of 4)

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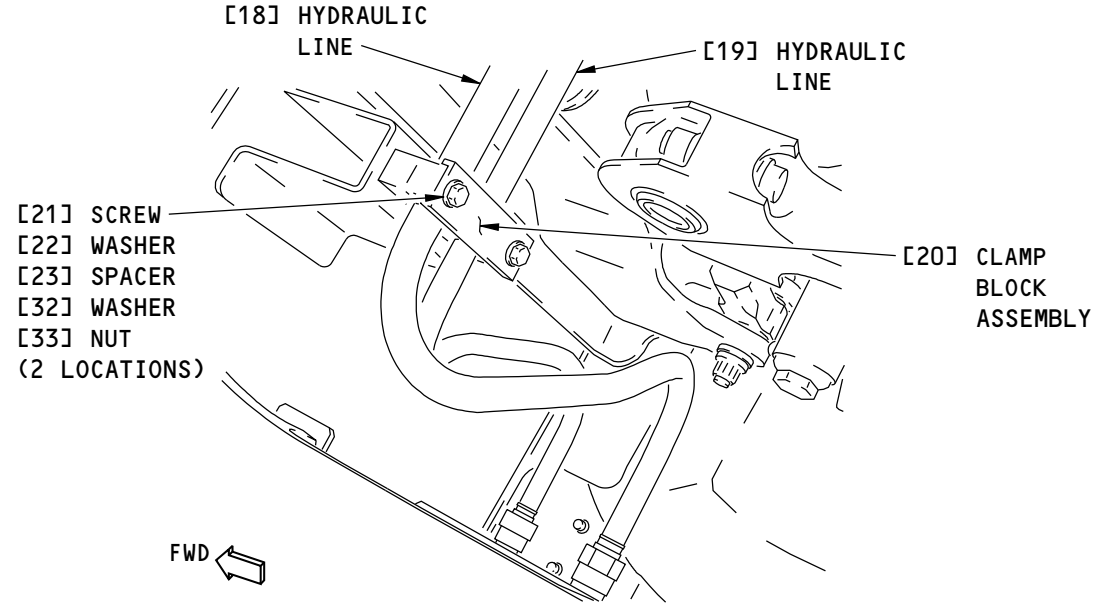
Rudder Power Control Unit (PCU) Installation
Figure 401/27-21-11-990-801 (Sheet 2 of 4)

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KICK LINK ATTACHMENT
(EXAMPLE)

C



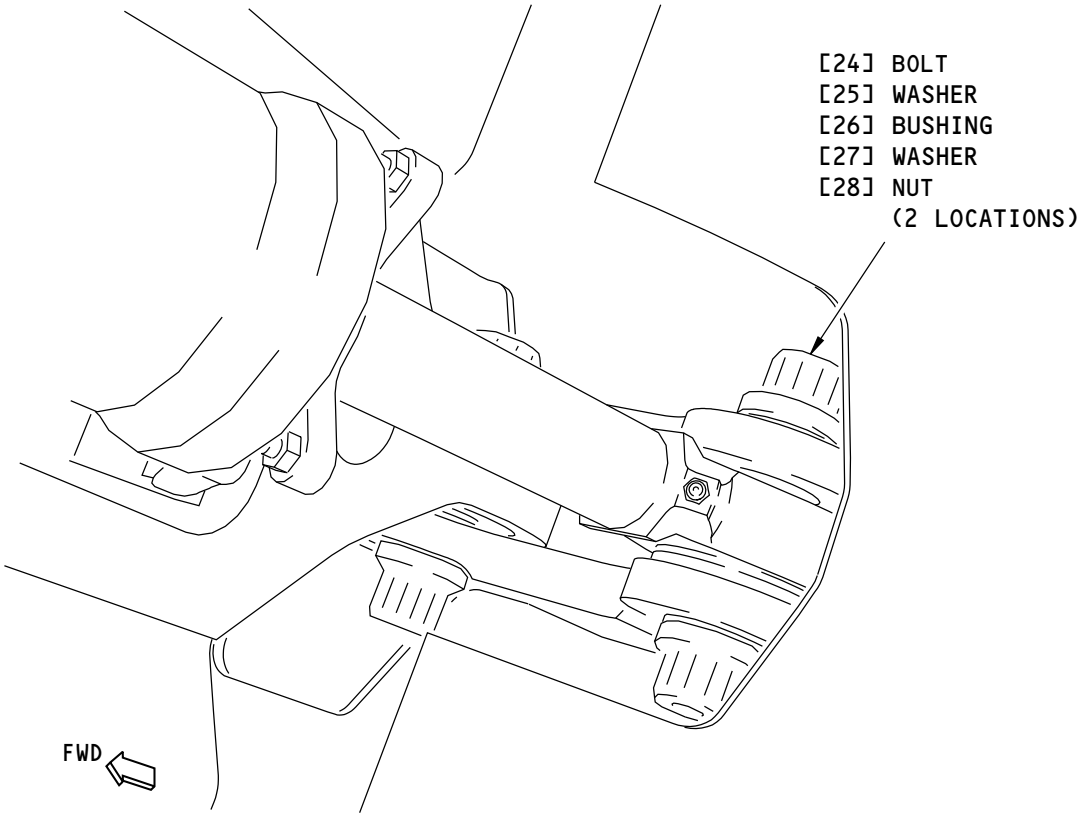
(EXAMPLE)

D

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Rudder Power Control Unit (PCU) Installation
Figure 401/27-21-11-990-801 (Sheet 3 of 4)

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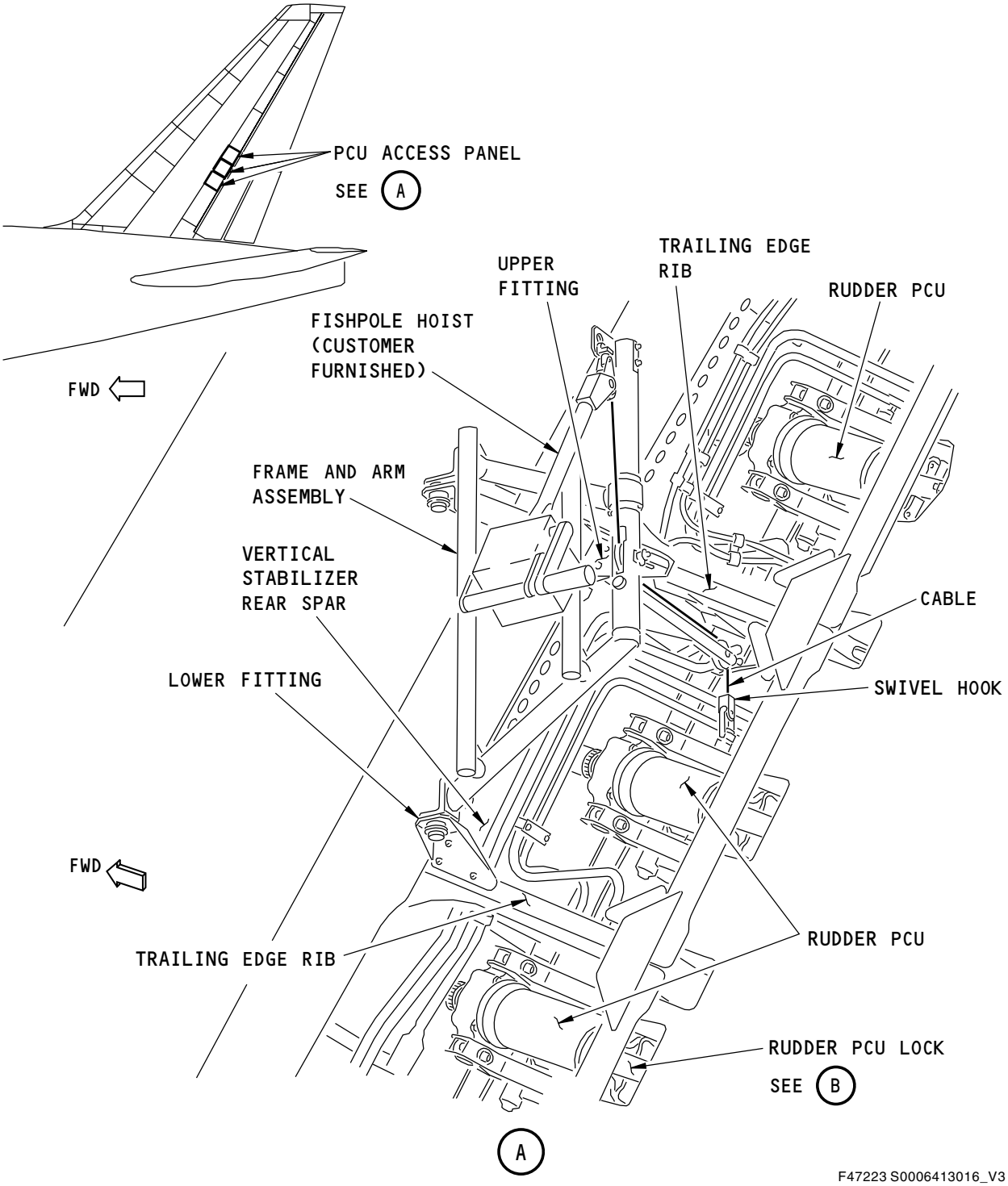
PCU AND REACTION LINK TO RUDDER ATTACHMENT
(EXAMPLE)

E

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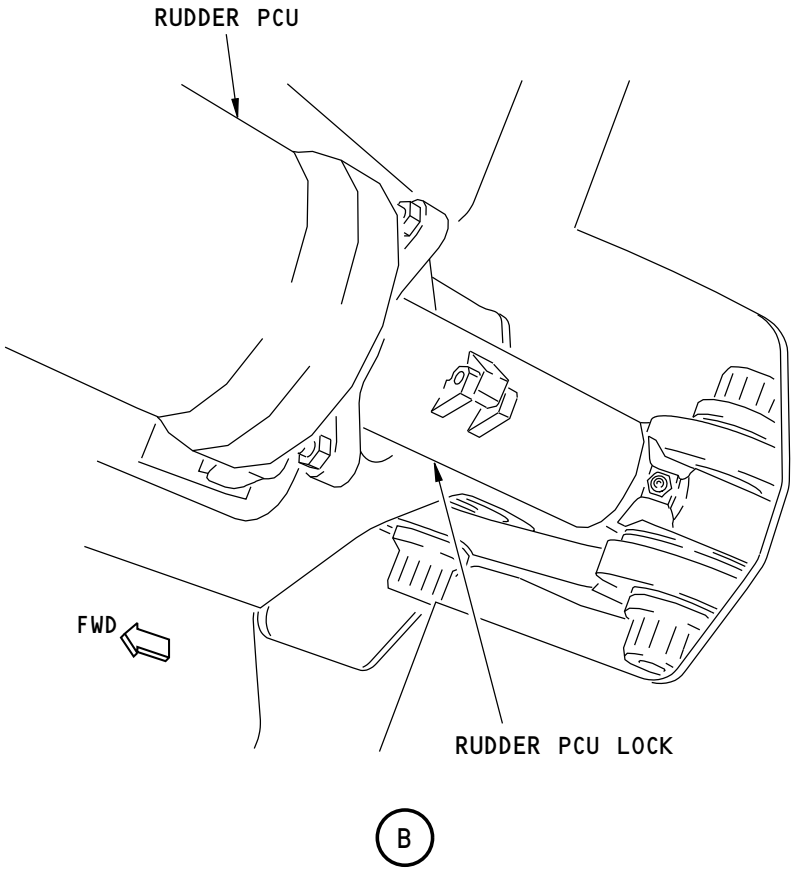
Rudder Power Control Unit (PCU) Installation
Figure 401/27-21-11-990-801 (Sheet 4 of 4)

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Rudder Power Control Unit (PCU) Installation Tools
Figure 402/27-21-11-990-802 (Sheet 1 of 2)

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Rudder Power Control Unit (PCU) Installation Tools
Figure 402/27-21-11-990-802 (Sheet 2 of 2)

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TASK 27-21-11-400-801

3. Rudder Power Control Units (PCU) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure is applicable for all the rudder PCUs.

(2) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
12-21-06-600-801	Lubricate the Rudder Power Control Units (PCUs) (P/B 301)
27-21-00-800-801	Rudder Adjustment (Rigging) (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
SPL-1499	Pin - Lock, NLG Towing Lever Part #: A09003-2 Supplier: 81205 Opt Part #: A09003-1 Supplier: 81205
SPL-1712	Lock, Rudder Power Control Unit Part #: J27028-21 Supplier: 81205
SPL-1718	Hoist Equipment, Rudder PCU Removal/Installation (applicable to 777 airplanes prior to LN 423) Part #: J27027-52 Supplier: 81205
SPL-8394	Hoist Equipment, Rudder PCU Removal/Installation Part #: J27027-52 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
D00633	Grease - Aircraft General Purpose	BMS3-33
D50105	Grease - BATCO X8401-1	

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E. Location Zones

Zone	Area
323	Vertical Stabilizer - Front Spar to Rear Spar
324	Vertical Stabilizer - Rear Spar to Trailing Edge
325	Rudder

F. Access Panels

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324PLX	Vertical Stabilizer Trailing Edge Seal

G. Rudder Power Control Units (PCU) Installation

NOTE: The reaction link and its end caps are a matched set. Each set is identified by the serial number.

There are two end caps per set. Keep them together.

Make sure each end cap is installed on the same reaction link leg from which it is removed.

SUBTASK 27-21-11-420-001

(1) If it is not installed, do these steps to install the reaction link assembly [1] on the PCU [2]:

(a) Put the reaction link assembly [1] on the PCU [2].

NOTE: Make sure the lube fitting points toward the PCU rod end.

(b) Install each end cap on the same reaction link leg that you removed it from.

1) Make sure the serial number on the end cap matches the serial number on the reaction link.

(c) Install the bolts [3], washers [4] (under the boltheads), washers [5] (under the nuts) and nuts [6].

NOTE: Make sure the heads of bolts [3] point aft on the airplane after the PCU [2] is installed.

1) Tighten the nuts [6] to 395 ±20 in-lb (45 ±3 N·m).

SUBTASK 27-21-11-420-002

(2) If it is not installed, do these steps to install the kick link assembly [12] on the airplane:

(a) Put the kick link assembly [12] in its position.

(b) Install the bolts [7] (with the boltheads pointed up), washers [8] (under the boltheads), bushings [9], washers [10] (under the nuts) and nuts [11].

NOTE: No grease is permitted to help with the installation of the bushings [9].

1) Tighten the nuts [11] to 1025 ±175 in-lb (116 ±20 N·m).

SUBTASK 27-21-11-480-001

(3) If it is not installed, install the rudder PCU hoist equipment, SPL-8394 (Recommended), or rudder PCU hoist equipment, SPL-1718 (Optional), and the cable fishpole hoist, COM-1563, to the side of the vertical stabilizer.

SUBTASK 27-21-11-480-002

(4) Install the swivel hook (part of the rudder PCU removal tool) in the hole in the top of the PCU [2].

SUBTASK 27-21-11-480-003

(5) Attach the cable of the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718 to the PCU [2].

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SUBTASK 27-21-11-420-003

(6) Install the PCU [2]:

(a) Put the PCU [2] in its position.

NOTE: Put the forward end of the PCU [2] in first, then move the aft end in. You can manually push the rudder to the right to get more clearance to install the PCU [2].

(b) Install the bolt [13] (with the bolthead up), washer [14] (under the bolthead), bushing [15], washer [16] (under the nut) and nut [17] that attach the PCU [2] to the kick link assembly [12].

NOTE: No grease is permitted to help with the installation of the bushing [15].

1) Tighten the nut [17] to 1900-2400 pound-inches (214.7-271.2 newton-meters).

(c) If it is necessary, move the rudder manually to align the bolt holes of the rudder with the bolt hole of the rod end of the PCU [2].

(d) Install the bolt [24] (with the bolthead up), washer [25] (under the bolthead), bushing [26], washer [27] (under the nut) and nut [28] that connect the reaction link assembly [1] to the rudder.

NOTE: The use of grease, D00633 to help with the installation of the bushing [26] is permitted.

1) Tighten the nut [28] to 2500-2750 pound-inches (282-311 newton-meters).

WARNING

MAKE SURE THE HYDRAULIC SYSTEM IS NOT PRESSURIZED WHEN YOU REMOVE THE LOCK FROM THE RUDDER PCU. IF THE HYDRAULIC SYSTEM IS PRESSURIZED, THE RUDDER MIGHT MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(e) Remove all the rudder power control unit locks, SPL-1712 from the rudder PCUs.

NOTE: Verify that there is no hydraulic pressure before you do this step.

1) If it is necessary, move the rudder manually to remove the rudder power control unit lock, SPL-1712.

(f) Install the bracket [31]:

1) Put the bracket [31] in its position.

2) Install the screw [29] and the washer [30].

SUBTASK 27-21-11-080-001

(7) Do these steps to remove the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718, from the vertical stabilizer:

(a) Disconnect the cable from the swivel fitting.

(b) Remove the swivel fitting from the PCU.

(c) Remove the cable fishpole hoist, COM-1563.

(d) Disconnect the upper fitting of the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718, and remove the rudder PCU hoist equipment, SPL-8394 or rudder PCU hoist equipment, SPL-1718, from the airplane.

(e) Disconnect and remove the lower fitting from the airplane.

SUBTASK 27-21-11-420-004

(8) Connect the electrical connector to the PCU [2].

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SUBTASK 27-21-11-640-001

(9) Do this task: Lubricate the Rudder Power Control Units (PCUs), TASK 12-21-06-600-801.

SUBTASK 27-21-11-420-005

(10) Manually move the rudder to its center position and hold it there.

CAUTION

INSTALL THE HYDRAULIC LINES WHILE THE RUDDER IS IN ITS CENTER POSITION. IF YOU INSTALL THE HYDRAULIC LINES WHILE THE RUDDER IS TURNED, THE HYDRAULIC LINES WILL TWIST TOO MUCH WHEN THE RUDDER TURNS THE OTHER DIRECTION. THIS CAN BREAK THE HYDRAULIC LINE.

(a) Install the hydraulic line [18] and the hydraulic line [19] that you removed:

1) If it is necessary, install the union [42] and union [44]:

a) Install the packing [43] on the union [42].

<1> Lubricate the threads of the union [42] with BATCO X8401-1 grease, D50105.

b) Install the union [42] in the pressure port of the PCU [2].

<1> Tighten the union [42] to 170 ±10 in-lb (19 ±1 N·m).

c) Install the packing [45] on the union [44].

<1> Lubricate the threads of the union [44] with BATCO X8401-1 grease, D50105.

d) Install the union [44] in the return port of the PCU [2].

<1> Tighten the union [44] to 210 ±10 in-lb (24 ±1 N·m).

2) Remove the caps from the hydraulic lines on the airplane.

3) Put the hydraulic line [18] and hydraulic line [19] in their positions.

4) Connect the hydraulic line [18] and hydraulic line [19] to the PCU [2] and to the hydraulic connectors on the airplane.

a) Tighten the B-nut on the hydraulic line [18] to 900 ±45 in-lb (102 ±5 N·m)

b) Tighten the B-nut on the hydraulic line [19] to 700 ±35 in-lb (79 ±4 N·m).

5) Install the clamp assembly [20]:

a) Put the clamp assembly [20] in its position on the hydraulic line [18] and hydraulic line [19].

b) Install the screws [21], washers [22], spacers [23], washers [32] and nuts [33].

H. Rudder Power Control Units (PCU) Installation Test

SUBTASK 27-21-11-440-001

(1) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	9	CBA9-C	RUD PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	9	CBA9-L	RUD PCU

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Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	9	CBA9-R	RUD PCU

SUBTASK 27-21-11-840-004

(2) Remove the DO-NOT-OPERATE tags and put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

SUBTASK 27-21-11-840-005

(3) Put the towing lever (on the nose landing gear) in the tow position, do this task: Maintenance Towing, TASK 09-11-00-580-801.

NOTE: This will prevent the nose landing gear from moving when you move the rudder pedals.

WARNING

ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Install the NLG towing lever pin, SPL-1499, do this task: Maintenance Towing, TASK 09-11-00-580-801.

SUBTASK 27-21-11-840-006

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-21-11-710-001

(5) Slowly move the rudder pedals through their full travel two times.

NOTE: Move them at a speed that takes approximately five seconds to go from fully left to fully right.

SUBTASK 27-21-11-790-001

(6) Make sure the PCU [2] and hydraulic line [18] and hydraulic line [19] do not have a leak.

SUBTASK 27-21-11-820-001

(7) Do this task: Rudder Adjustment (Rigging), TASK 27-21-00-800-801.

SUBTASK 27-21-11-740-001

(8) Use the MAT to do the test of the applicable PCU [2] (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Rudder Actuator Confidence

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7) CONTINUE

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE RUDDER. THE RUDDER WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

NOTE: To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

EICAS messages will occur during the test. This is OK.

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-11-410-002

(1) Do these steps to install the beam [34]:

CAUTION USE PR-1405-G SEALANT, A00723. DO NOT USE OTHER SEALANTS. OTHER SEALANTS CAN BE TOO STRONG WHICH WILL CAUSE THE PANEL TO BREAK WHEN IT IS REMOVED.

(a) Put a bead of the PR-1405-G sealant, A00723, on the beam [34].

(b) Put the beam [34] in its position.

(c) Install the bolts [35].

(d) Install the bolts [36], washers [37], and nuts [38].

SUBTASK 27-21-11-410-001

(2) Do these steps to install these access panels:

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324PLX	Vertical Stabilizer Trailing Edge Seal

CAUTION USE PR-1405-G SEALANT, A00723. DO NOT USE OTHER SEALANTS. OTHER SEALANTS CAN BE TOO STRONG WHICH WILL CAUSE THE PANEL TO BREAK WHEN IT IS REMOVED.

(a) Put a bead of the PR-1405-G sealant, A00723, around the edge of the access panel.

(b) Install the access panel on the vertical stabilizer.

SUBTASK 27-21-11-840-007

(3) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

(a) For the upper PCU [2], fill the reservoir for the center hydraulic system.

(b) For the middle PCU [2], fill the reservoir for the left hydraulic system.

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(c) For the lower PCU [2], fill the reservoir for the right hydraulic system.

SUBTASK 27-21-11-080-002

WARNING MOVE AWAY FROM THE NOSE WHEELS. THE NOSE WHEELS CAN TURN QUICKLY TO THEIR CENTERED POSITION WHEN THE LOCKPIN IS REMOVED AND INJURY TO PERSONS CAN OCCUR.

(4) Remove the NLG towing lever pin, SPL-1499 (TASK 09-11-00-580-801).

SUBTASK 27-21-11-040-002

(5) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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RUDDER POWER CONTROL UNIT - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An inspection of the wear limits of the rudder power control unit components.

(2) A freeplay inspection of the rudder power control unit components.

(3) An inspection of the wear limits of the rudder tab bearing components.

(4) A freeplay inspection of the rudder tab components.

TASK 27-21-11-200-801

2. Rudder PCU Inspection and Wear Limits

(Figure 601)

A. Location Zones

Zone	Area
323	Vertical Stabilizer - Front Spar to Rear Spar
324	Vertical Stabilizer - Rear Spar to Trailing Edge
325	Rudder

B. Rudder PCU's Dimensions Examination

SUBTASK 27-21-11-210-001

(1) Visually examine the Rudder PCU's components (Figure 601).

SUBTASK 27-21-11-220-001

CAUTION MAKE SURE THAT THE RUDDER SURFACE FREE PLAY INSPECTION REQUIREMENT IS MET AT ALL TIMES WHEN YOU DO THE WEAR LIMITS CHECK.

(2) Check for wear beyond the limits given in the table that follows (Table 601). Refer to the Rudder PCU's Removal/Installation procedures to access a component area and to remove or install a component for wear inspection.

NOTE: The Free play Inspection procedures are located in Task 27-21-11-200-802, Task 27-21-11-200-804, and Boeing Airplane Service Bulletin 777-27-0062.

Table 601/27-21-11-993-806

			DESIGN LIMITS		WEAR LIMITS		
INDEX NO.	PART NAME	DIM.	DIAMETER inches (millimeters)		ALLOWED WEAR DIM.	MAX CLEAR-ANCE	REPAIR
			MIN	MAX			
1	BOLT	OD	0.5610 (14.249)	0.5615 (14.262)	0.5595 (14.211)	0.0037 (0.094)	
	BUSHING	ID	0.5625 (14.288)	0.5632 (14.305)	0.5637 (14.318)		

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Table 601/27-21-11-993-806 (Continued)

			DESIGN LIMITS		WEAR LIMITS		
INDEX NO.	PART NAME	DIM.	DIAMETER inches (millimeters)		ALLOWED WEAR DIM.	MAX CLEAR-ANCE	REPAIR
			MIN	MAX			
2	BOLT	OD	0.5610 (14.249)	0.5615 (14.262)	0.5595 (14.211)	0.0030 (0.076)	
	BUSHING	ID	0.5620 (14.275)	0.5625 (14.288)	0.5630 (14.300)		
3	BUSHING	OD	0.8110 (20.599)	0.8115 (20.612)	0.8092 (20.554)	0.0036 (0.091)	
	BUSHING	ID	0.8120 (20.625)	0.8128 (20.645)	0.8133 (20.658)		
4	BUSHING	OD	0.8110 (20.599)	0.8115 (20.612)	0.8092 (20.554)	0.0040 (0.102)	
	BUSHING	ID	0.8125 (20.638)	0.8132 (20.655)	0.8137 (20.668)		
5	BOLT	OD	0.7485 (19.01)	0.7490 (19.02)	0.7470 (18.95)	0.0030 (0.076)	
	BUSHING	ID	0.7495 (19.0373)	0.7500 (19.0500)	0.7515 (19.0881)		
6	BOLT	OD	0.7485 (19.0119)	0.7490 (19.0246)	0.7467 (18.9662)	0.0036 (0.0914)	
	BUSHING	ID	0.7495 (19.0373)	0.7503 (19.0576)	0.7521 (19.1033)		
7	BUSHING	OD	1.0605 (26.9367)	1.0615 (26.9621)	1.0582 (27.8783)	0.0046 (0.1168)	
	BUSHING	ID	1.0620 (26.9748)	1.0628 (26.9951)	1.0651 (27.0535)		
8	BOLT	OD	0.9985 (25.362)	0.9990 (25.375)	0.9965 (25.311)	0.0038 (0.097)	
	BUSHING	ID	0.9995 (25.387)	1.0003 (25.408)	1.0008 (25.420)		
9	BOLT	OD	0.9985 (25.362)	0.9990 (25.375)	0.9965 (25.311)	0.0035 (0.089)	
	BUSHING	ID	0.9995 (25.387)	1.0000 (25.400)	1.0005 (25.413)		
10	BOLT	OD	1.3725 (34.862)	1.3740 (34.900)	1.3702 (34.802)	0.0053 (0.136)	
	BUSHING	ID	1.3745 (34.912)	1.3755 (34.938)	1.3770 (34.976)		

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Table 601/27-21-11-993-806 (Continued)

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPAIR
			DIAMETER inches (millimeters)		ALLOWED WEAR DIM.	MAX CLEAR-ANCE	
			MIN	MAX			
11	BUSHING	OD	0.9985 (25.362)	0.9990 (25.375)	0.9965 (25.311)	0.0035 (0.089)	
	BUSHING	ID	0.9995 (25.387)	1.0000 (25.400)	1.0005 (25.413)		
12	BOLT	OD	0.9985 (25.362)	0.9990 (25.375)	0.9965 (25.311)	0.0038 (0.097)	
	BUSHING	ID	0.9995 (25.387)	1.0003 (25.408)	1.0008 (25.420)		

SUBTASK 27-21-11-200-001

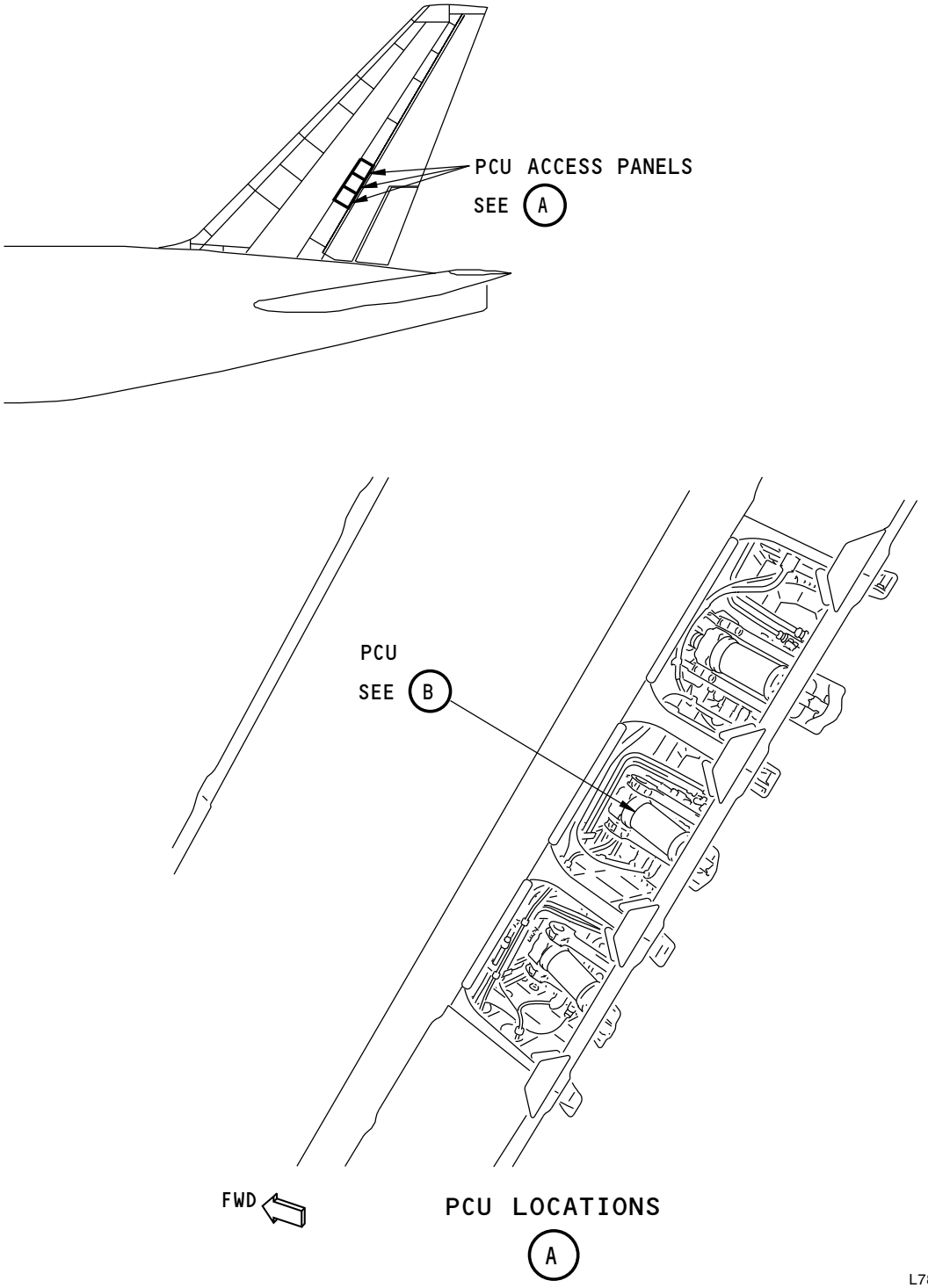
(3) Do a check of the bolts and bushings.

(a) Examine the bushings and the bolts for wear.

(b) Replace all the parts that have more than the permitted quantity of wear shown in Table 601.

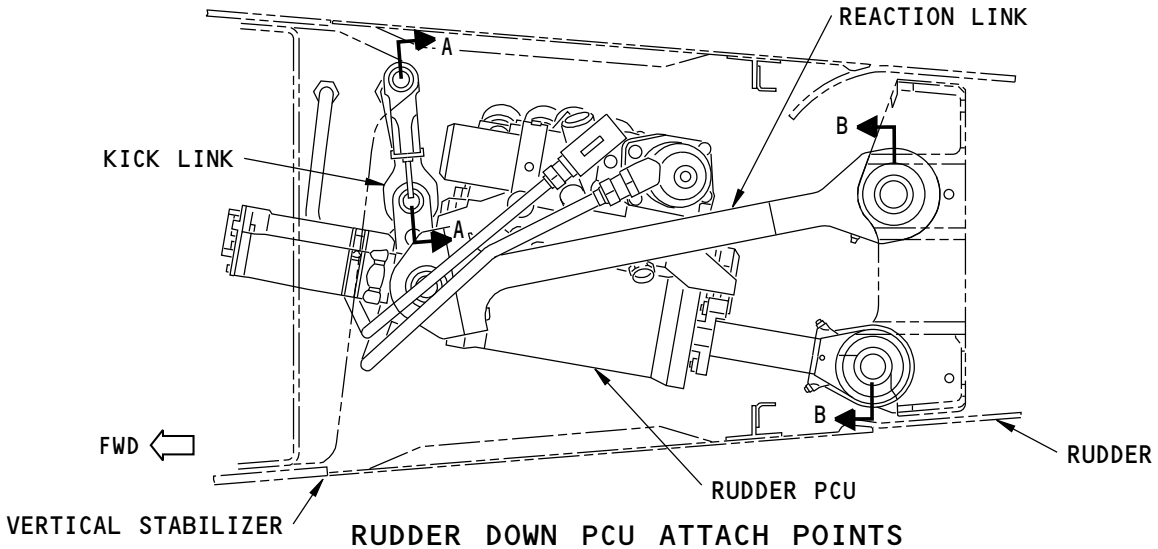
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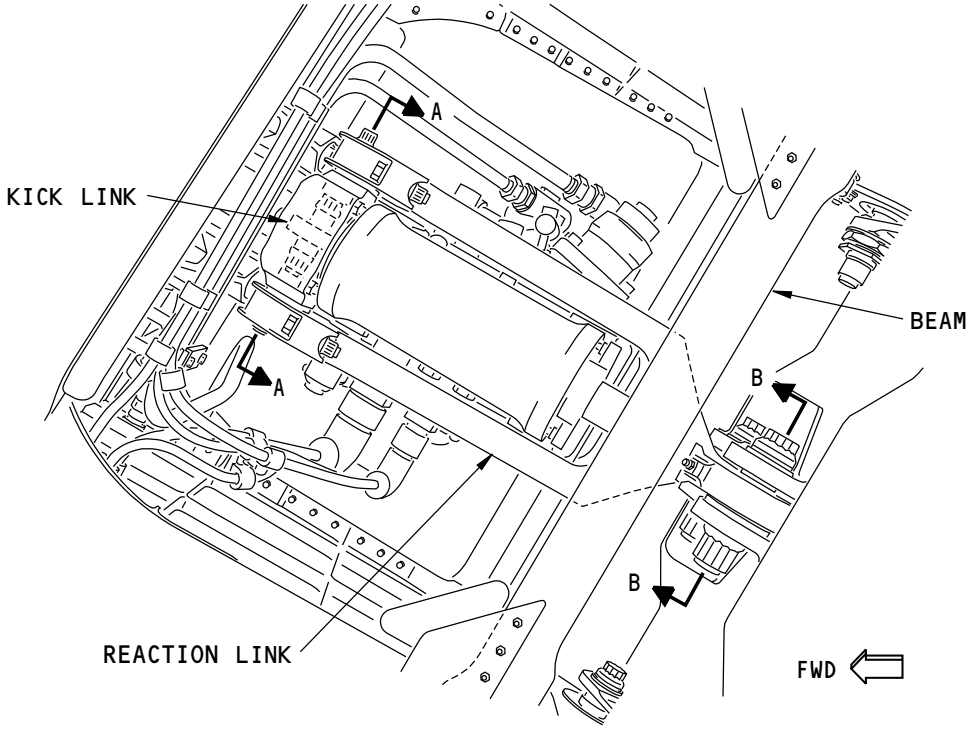
Rudder Power Control Unit (PCU) Wear Limits Inspection
Figure 601/27-21-11-990-803 (Sheet 1 of 3)

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RUDDER DOWN PCU ATTACH POINTS

B



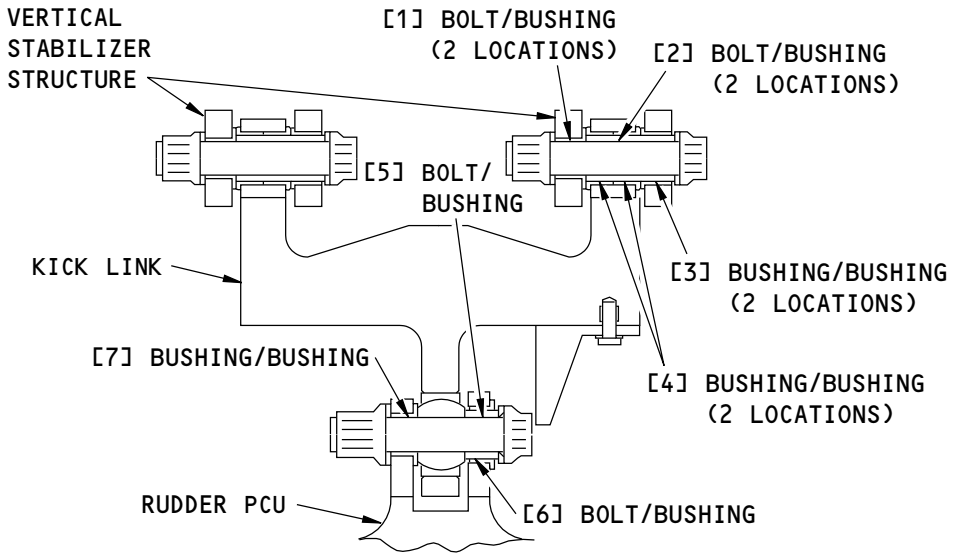
RUDDER PCU ATTACH POINTS

B

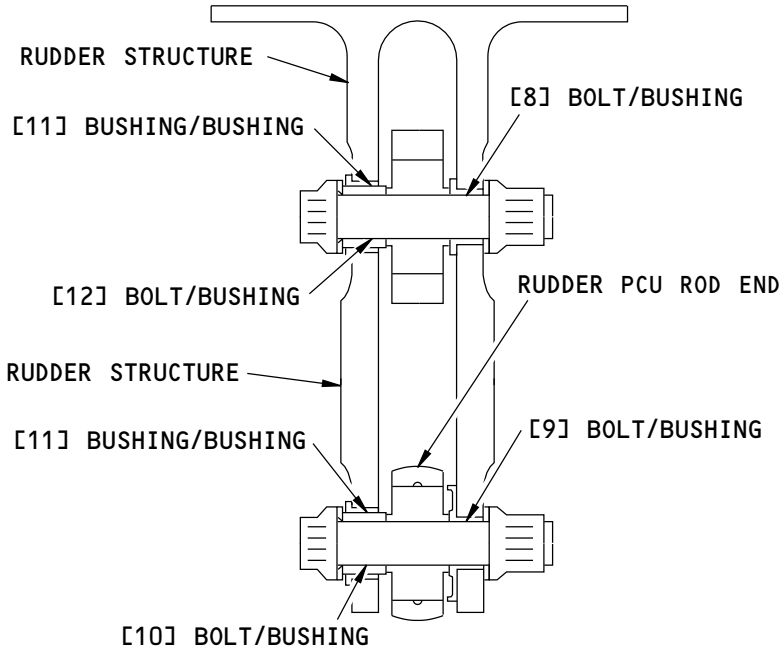
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Rudder Power Control Unit (PCU) Wear Limits Inspection
Figure 601/27-21-11-990-803 (Sheet 2 of 3)

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KICK LINK ATTACH POINTS
(VIEW IN THE AFT DIRECTION)
A–A



PCU ROD END AND REACTION LINK ATTACH POINTS
(VIEW IN THE FORWARD DIRECTION)
B–B

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Rudder Power Control Unit (PCU) Wear Limits Inspection
Figure 601/27-21-11-990-803 (Sheet 3 of 3)

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27-CMR-09

TASK 27-21-11-200-802

3. Rudder Power Control Unit Freeplay - Inspection

(Figure 602, Figure 603)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-21-11-000-801	Rudder Power Control Units (PCU) Removal (P/B 401)
27-21-12-000-801	Rudder Removal (P/B 401)
27-21-12-400-801	Rudder Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-3989	Pin - Rig (J20003-12 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-3991	Pin - Rig (J20003-14 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-9951	Force Equipment - Rudder Freeplay Check Part #: A27124-36 Supplier: 81205 Opt Part #: A27124-1 Supplier: 81205
STD-1238	Indicator - Dial
STD-1396	Pad - 5x5x0.25 inch (127x127x7.4 mm) wood block or 6 inch (152 mm) diameter x 0.25 inch (7.4 mm) thick circular wood block.
STD-1397	Gauge - Force

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
320	Subzone 320 - Vertical Stabilizer and Rudder

D. Prepare for the Freeplay Inspection

SUBTASK 27-21-11-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-21-11-040-003

WARNING DO NOT MOVE THE RUDDER PEDALS DURING THIS PROCEDURE. IF THE RUDDER PEDALS ARE MOVED, THEN THE RUDDER WILL MOVE.

(2) Attach DO-NOT-OPERATE tags to the captain's and first officer's rudder pedals.

SUBTASK 27-21-11-480-004

(3) Install rig pins R1, R2 and R3 (rig pin (J20003-12 assembly), SPL-3989rig pin (J20003-14 assembly), SPL-3991) in the locations shown (Figure 602).

NOTE: Install the rig pins to prevent accidental movement of the rudder pedals.

E. Freeplay Inspection

NOTE: This procedure inspects only one PCU at a time. Repeat the procedure for each PCU.

SUBTASK 27-21-11-860-002

WARNING REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCU'S FOR A SINGLE AILERON SURFACE MAY RESULT IN THAT SURFACE SLOWLY MOVING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S ON THAT SURFACE. FAILURE TO OBEY THESE INSTRUCTIONS WILL CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING DO NOT CLOSE THE HYDRAULIC TAIL VALVES DURING THIS INSPECTION. IF YOU CLOSE A VALVE BEFORE THE RELATED HYDRAULIC PRESSURE IS REMOVED, THE RUDDER CAN MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Supply hydraulic power for the rudder PCU that you will inspect. To supply hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

Hydraulic power must be off for the other two PCUs not being inspected. Table 602 shows which hydraulic system to have on for each PCU that is being tested.

Table 602/27-21-11-993-807 PCU And Corresponding Hydraulic System

POWER CONTROL UNIT (PCU)	HYDRAULIC SYSTEM
Upper Rudder PCU	Center Hydraulic System
Lower Rudder PCU	Right Hydraulic System
Middle Rudder PCU	Left Hydraulic System

SUBTASK 27-21-11-480-011

(2) Attach a mounting device for the dial indicator to the aft fuselage left side of the rudder.

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SUBTASK 27-21-11-480-005

(3) Install a dial indicator, STD-1238 on the mounting device so that it will measure the horizontal movement at the aft edge of the rudder that is just forward of the rudder tab (Figure 603).

NOTE: Position the indicator within 0.10 in. (2.54 mm) of the forward edge of the tab seal at the bottom of the rudder.

NOTE: Make sure the dial indicator plunger can move within a range of at least ±0.20 in. (5.08 mm).

SUBTASK 27-21-11-480-012

(4) Put the pad, STD-1396 and force gauge, STD-1397 or force equipment, SPL-9951 (alternative) in position on the left side of the rudder tab (Figure 603). The center of the pad must be placed on the extension of the rudder tab rib rivet centerline within ±1.0 in. (25.4 mm).

NOTE: Position the aft edge of the pad between 1.0 in. (25.4 mm) and 3.0 in. (76.2 mm) inches forward of the trailing of the rudder tab.

SUBTASK 27-21-11-220-021

CAUTION

PUT SUFFICIENT PADDING BETWEEN THE FORCE SCALE, AND THE CONTROL SURFACE TO PREVENT DAMAGE TO THE CONTROL SURFACE. THE FORCE SCALE CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

NOTE: Use a pad that distributes the force over a minimum area of 25 in^2 (161.3 cm^2) or more.

(5) Apply 70 ±5 lb (32 ±3 kg) of force to the rudder tab on the left side.

SUBTASK 27-21-11-220-022

(6) Decrease the force on the rudder tab to 20 ±5 lb (9 ±2 kg) and hold.

SUBTASK 27-21-11-220-003

(7) Set the dial indicator, STD-1238 to zero.

NOTE: Because the rudder PCU has a tendency to continuously oscillate about the commanded position, the dial indicator, STD-1238 needle can move (oscillate) continuously. This is normal operation of the rudder. Set the zero on the dial indicator, STD-1238 to the middle of the needle's movement.

SUBTASK 27-21-11-800-001

(8) Release force on the rudder tab completely.

SUBTASK 27-21-11-480-006

(9) Put the pad and force gauge in position on the right side of the rudder tab (Figure 603). The center of the pad must be placed on the extension of the rudder tab rib rivet centerline within ±1.0 in. (25.4 mm). Also, position the aft edge of the pad between 1.0 in. (25.4 mm) and 3.0 in. (76.2 mm) forward of the trailing edge of the rubber tab.

SUBTASK 27-21-11-220-004

(10) Apply 70 ±5 lb (32 ±3 kg) of force to the rudder tab on the right side.

SUBTASK 27-21-11-220-005

(11) Read the dial indicator, STD-1238 and record the measurement as “TOTAL FREEPLAY”.

NOTE: Because the rudder PCU has a tendency to continuously oscillate about the commanded position, the dial indicator, STD-1238 needle can move (oscillate) continuously. This is normal operation of the rudder. Use the middle of the needle's movement for the value that you record.

SUBTASK 27-21-11-800-002

(12) Release force on the rudder tab completely.

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SUBTASK 27-21-11-220-009

(13) Evaluate "TOTAL FREEPLAY".

(a) If the total freeplay is 0.15 in. (3.81 mm) or less, then the bearings for the PCU are serviceable (in good condition).

(b) If the total freeplay is more than 0.15 in. (3.81 mm), then you need to do the following, as necessary, to replace the worn or damaged parts:

1) Remove the rudder for inspection of the hinge bolts and bearings Rudder Removal, TASK 27-21-12-000-801Rudder Installation, TASK 27-21-12-400-801.

2) Do a wear limits check of the reaction link and kick link (Rudder PCU Inspection and Wear Limits, TASK 27-21-11-200-801). If you need to replace worn parts of the rudder PCU and reaction link, do the following: Rudder Power Control Units (PCU) Removal, TASK 27-21-11-000-801.

SUBTASK 27-21-11-080-007

(14) Remove the dial indicator, STD-1238, the mounting device, force gauge, STD-1397 or force equipment, SPL-9951 (alternative) and pad, STD-1396.

NOTE: You need to do this even if you are not finished with the freeplay check of the other rudder PCUs because the hydraulic system changes may cause the rudder to move suddenly and damage the dial indicator.

SUBTASK 27-21-11-200-002

(15) Repeat the freeplay procedure for each of the remaining rudder PCUs.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-11-080-003

(1) Remove the force gauge, STD-1397 or force equipment, SPL-9951 (alternative) and pad, STD-1396.

SUBTASK 27-21-11-080-004

(2) Remove the dial indicator, STD-1238 and base.

SUBTASK 27-21-11-860-003

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-21-11-080-005

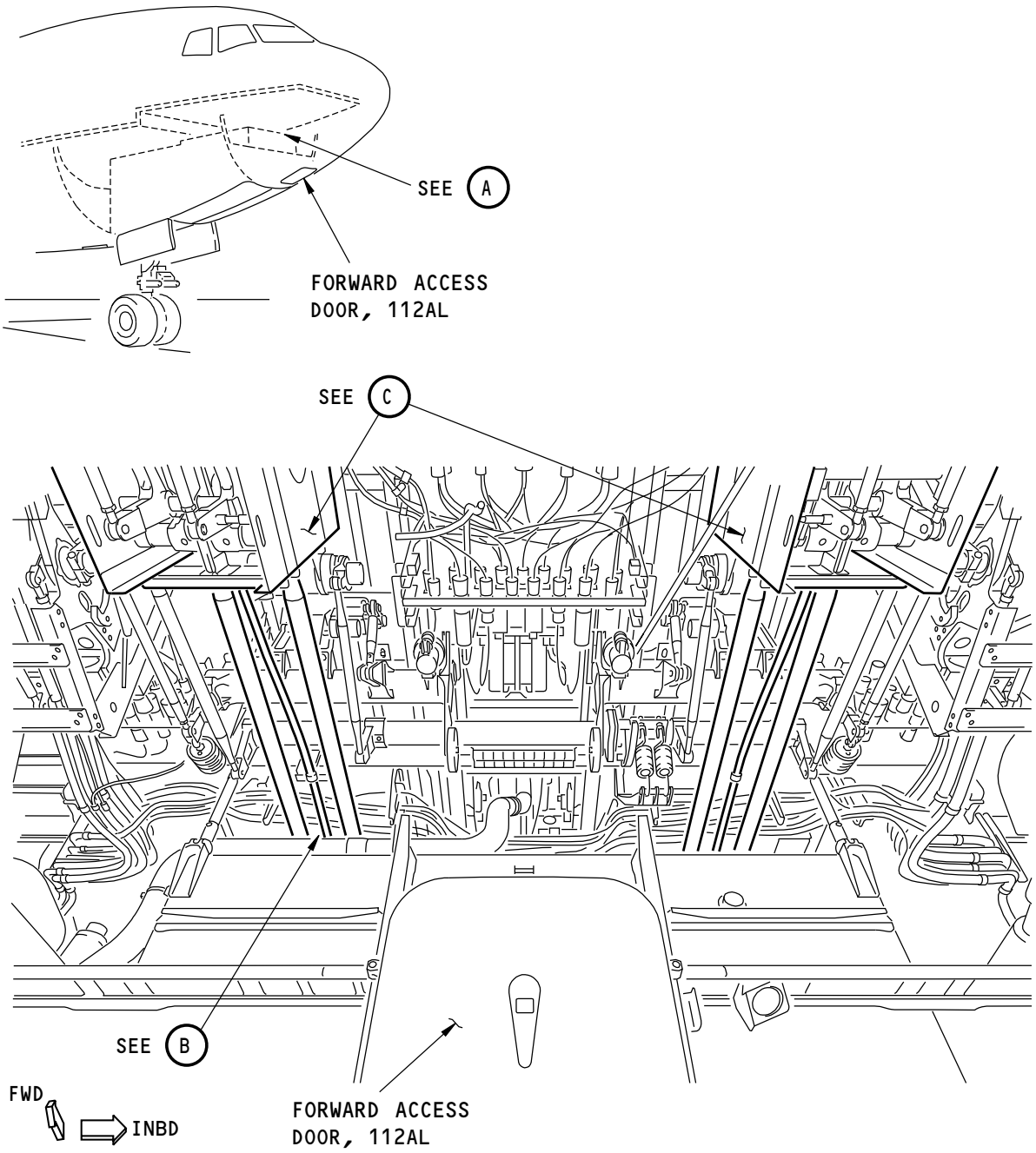
(4) Remove rig pins R1, R2, and R3 from the rudder pedals and linkages.

SUBTASK 27-21-11-440-002

(5) Remove the DO-NOT-OPERATE tags from the captain's and first officer's rudder pedals.

——— END OF TASK ———

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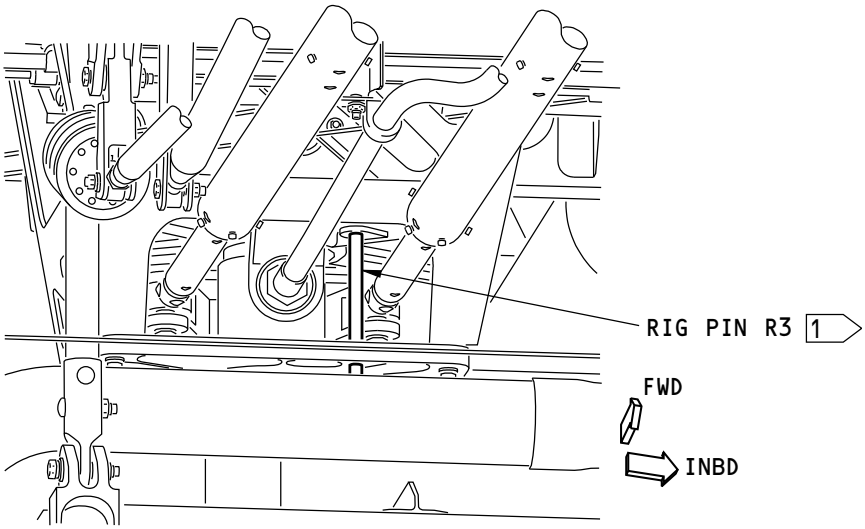
AREA FORWARD OF NOSE LANDING GEAR WHEEL WELL
(ACCESS DOOR IS SHOWN OPEN)

A

L78696 S0006413027_V1

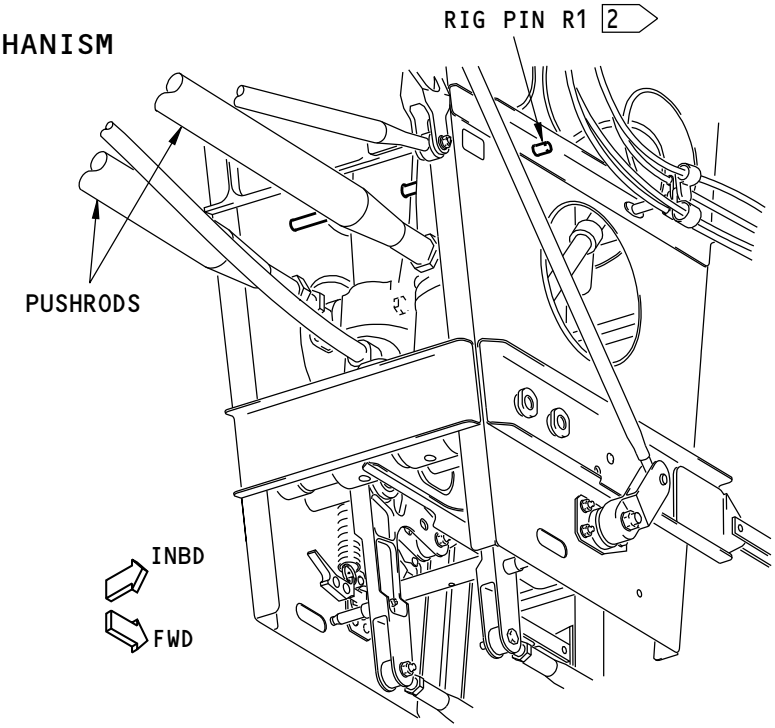
Rudder Freeplay Rig Pin Installation
Figure 602/27-21-11-990-804 (Sheet 1 of 2)

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RIGHT RUDDER PEDAL MECHANISM

B



LEFT RUDDER PEDAL MECHANISM
(RIGHT RUDDER PEDAL MECHANISM IS EQUIVALENT)

C

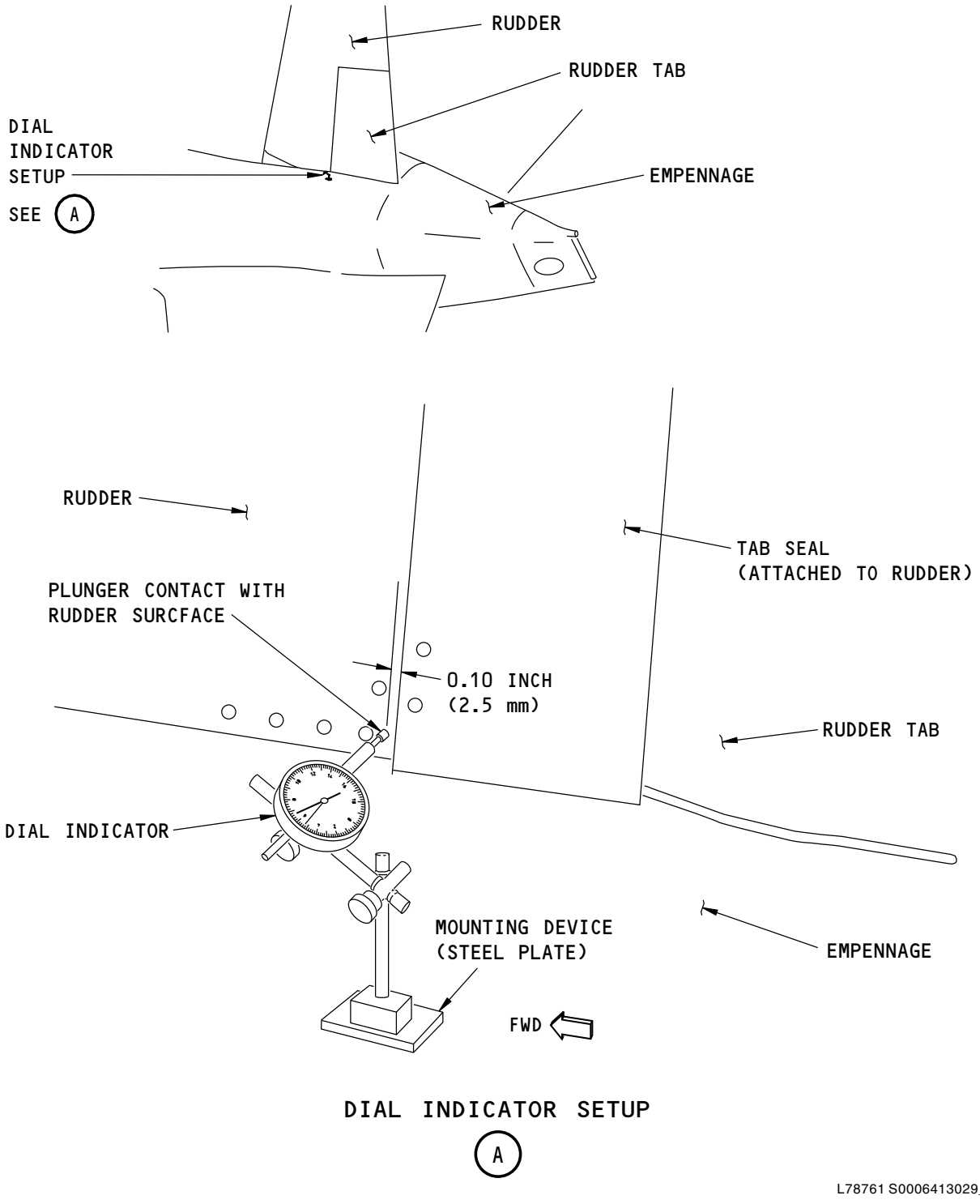
1 THERE IS NO RIG PIN FOR THE LEFT SIDE.

2 RIG PIN R2 IS INSTALLED IN THE FIRST OFFICER'S RUDDER PEDALS.

L78717 S0006413028_V1

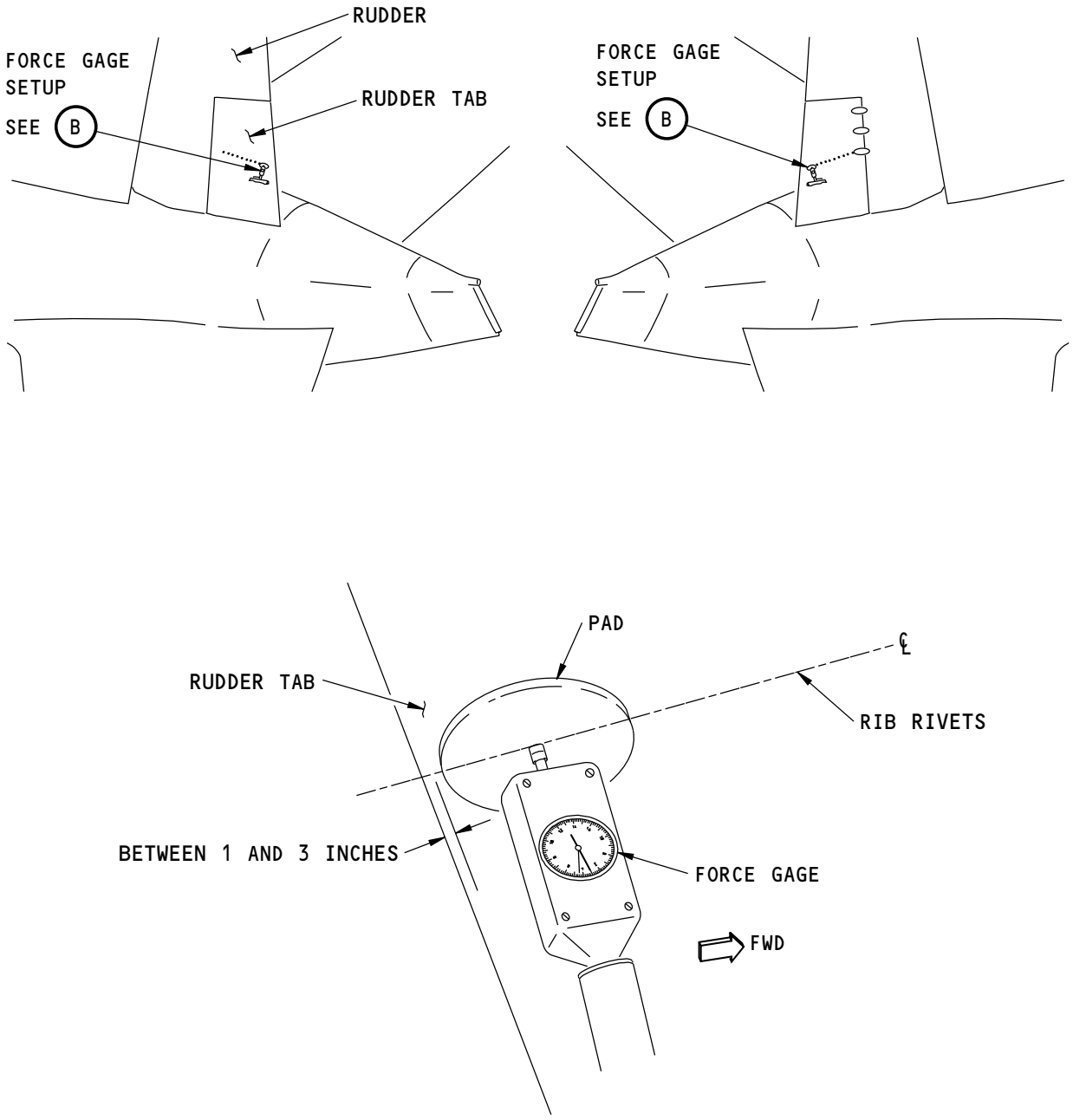
Rudder Freeplay Rig Pin Installation
Figure 602/27-21-11-990-804 (Sheet 2 of 2)

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Rudder PCU Freeplay Inspection
Figure 603/27-21-11-990-805 (Sheet 1 of 2)

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FORCE GAGE SETUP
(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)

B

L78784 S0006413030_V3

Rudder PCU Freeplay Inspection
Figure 603/27-21-11-990-805 (Sheet 2 of 2)

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TASK 27-21-11-200-803

4. Rudder Tab Bearings Inspection and Wear Limits

A. References

Reference	Title
27-21-12-000-802	Rudder Tab Removal (P/B 401)

B. Location Zones

Zone	Area
325	Rudder
326	Rudder Tab

C. Rudder Tab Bearing Dimensions Examination

SUBTASK 27-21-11-211-001

(1) Visually examine the Rudder tab bearing components.

CAUTION MAKE SURE THAT THE RUDDER SURFACE FREE PLAY INSPECTION REQUIREMENT IS MET AT ALL TIMES WHEN YOU DO THE WEAR LIMITS CHECK.

(2) Check for wear beyond the limits given in the table that follows:

NOTE: Refer to Rudder Tab Removal, TASK 27-21-12-000-802 to access a component area and to remove or install a component for wear inspection.

NOTE: The Free play Inspection procedures are located in Task 27-21-11-200-802, Task 27-21-11-200-804, and Boeing Airplane Service Bulletin 777-27-0062.

Table 603/27-21-11-993-808 Rudder Tab Bearing Wear Limits

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPAIR
			DIAMETER inches (millimeters)		ALLOWED WEAR DIM.	MAX CLEARANCE	
			MIN	MAX			
1	BOLT	OD	0.3735 (9.486)	0.3745 (9.512)	0.3720 (9.449)	0.0035 0.089	
	BUSHING	ID	0.3750 (9.525)	0.3755 (9.538)	0.3760 (9.550)		
2	BOLT	OD	0.3735 (9.487)	0.3745 (9.512)	0.3720 (9.449)	0.0030 (0.076)	
	BUSHING	ID	0.3745 (9.512)	0.3750 (9.525)	0.3755 (9.538)		
3	BOLT	OD	0.3735 (9.487)	0.3745 (9.512)	0.3720 (9.449)	0.0032 (0.081)	
	BUSHING	ID	0.3745 (9.512)	0.3752 (9.530)	0.3757 (9.543)		

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Table 603/27-21-11-993-808 Rudder Tab Bearing Wear Limits (Continued)

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPAIR
			DIAMETER inches (millimeters)		ALLOWED WEAR DIM.	MAX CLEARANCE	
			MIN	MAX			
4	BUSHING	OD	0.5610 (14.249)	0.5615 (14.262)	0.5595 (14.211)	0.0032 (0.081)	
	BUSHING	ID	0.5620 (14.275)	0.5627 (14.293)	0.5632 (14.305)		
5	BOLT	OD	0.3735 (9.487)	9.3745 (9.512)	0.3720 (9.449)	0.0035 (0.089)	
	BUSHING	ID	0.3750 (9.525)	0.3755 (9.538)	0.3760 (9.550)		
6	BOLT	OD	0.3735 (9.487)	0.3745 (9.512)	0.3720 (9.449)	0.0036 (0.091)	
	BUSHING	ID	0.3750 (9.525)	0.3756 (9.540)	0.3761 (9.553)		
7	BOLT	OD	0.3735 (9.487)	0.3745 (9.512)	0.3720 (9.449)	0.0036 (0.091)	
	BUSHING	ID	0.3750 (9.525)	0.3756 (9.540)	0.3761 (9.553)		
8	BUSHING	OD	0.5610 (14.249)	0.5615 (14.262)	0.5595 (14.211)	0.0032 (0.081)	
	BUSHING	ID	0.5620 (14.275)	0.5627 (14.283)	0.5632 (14.305)		
9	BOLT	OD	0.4985 (12.662)	0.4995 (12.687)	0.4970 (12.624)	0.0035 (0.089)	
	BUSHING	ID	0.5000 12.700	0.5005 (12.713)	0.5010 (12.725)		
10	BOLT	OD	0.4985 (12.662)	0.4995 (12.687)	0.4970 12.624	0.0031 (0.079)	
	BUSHING	ID	0.4995 (12.687)	0.5001 (12.703)	0.5006 (1.272)		
11	BOLT	OD	0.4985 (12.662)	0.4995 (12.687)	0.4970 (12.624)	0.0037 (0.094)	
	BUSHING	ID	0.5000 (12.700)	0.5007 (12.718)	0.5012 (12.731)		
12	BUSHING	OD	0.6860 (17.424)	0.6865 (17.468)	0.6843 (17.381)	0.0034 (0.086)	
	BUSHING	ID	0.6870 (17.450)	0.6877 (17.468)	0.6882 (17.480)		

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Table 603/27-21-11-993-808 Rudder Tab Bearing Wear Limits (Continued)

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPAIR
			DIAMETER inches (millimeters)		ALLOWED WEAR DIM.	MAX CLEARANCE	
			MIN	MAX			
13	BOLT	OD	0.4985 (12.662)	0.4995 (12.687)	0.4970 (12.624)	0.0030 (0.076)	
	BUSHING	ID	0.4995 (12.687)	0.5000 (12.700)	0.5005 (12.713)		

SUBTASK 27-21-11-220-010

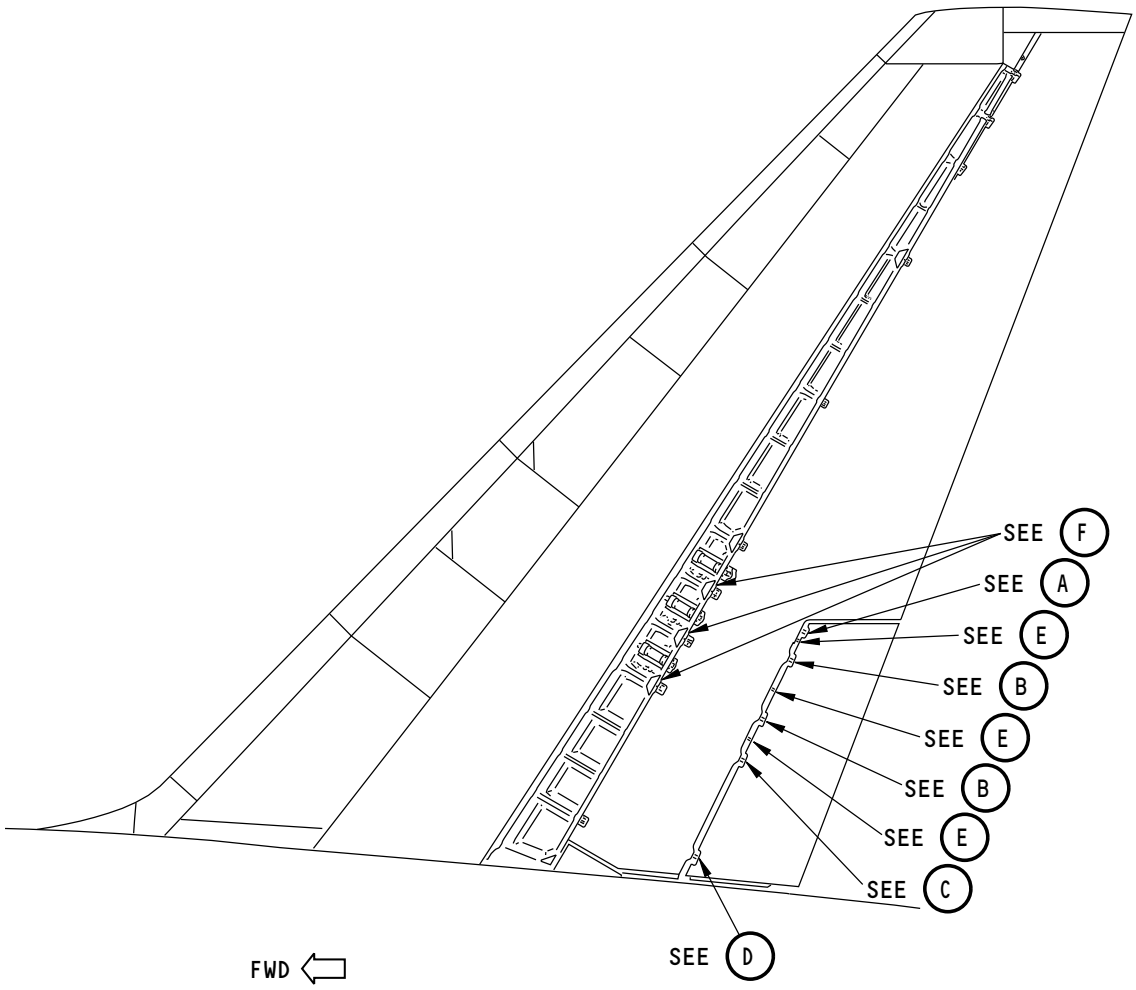
(3) Do a check of the bolts and bushings.

(a) Examine the bushings and the bolts for wear.

(b) Replace all the parts that have more than the permitted quantity of wear shown in Table 603..

——— END OF TASK ———

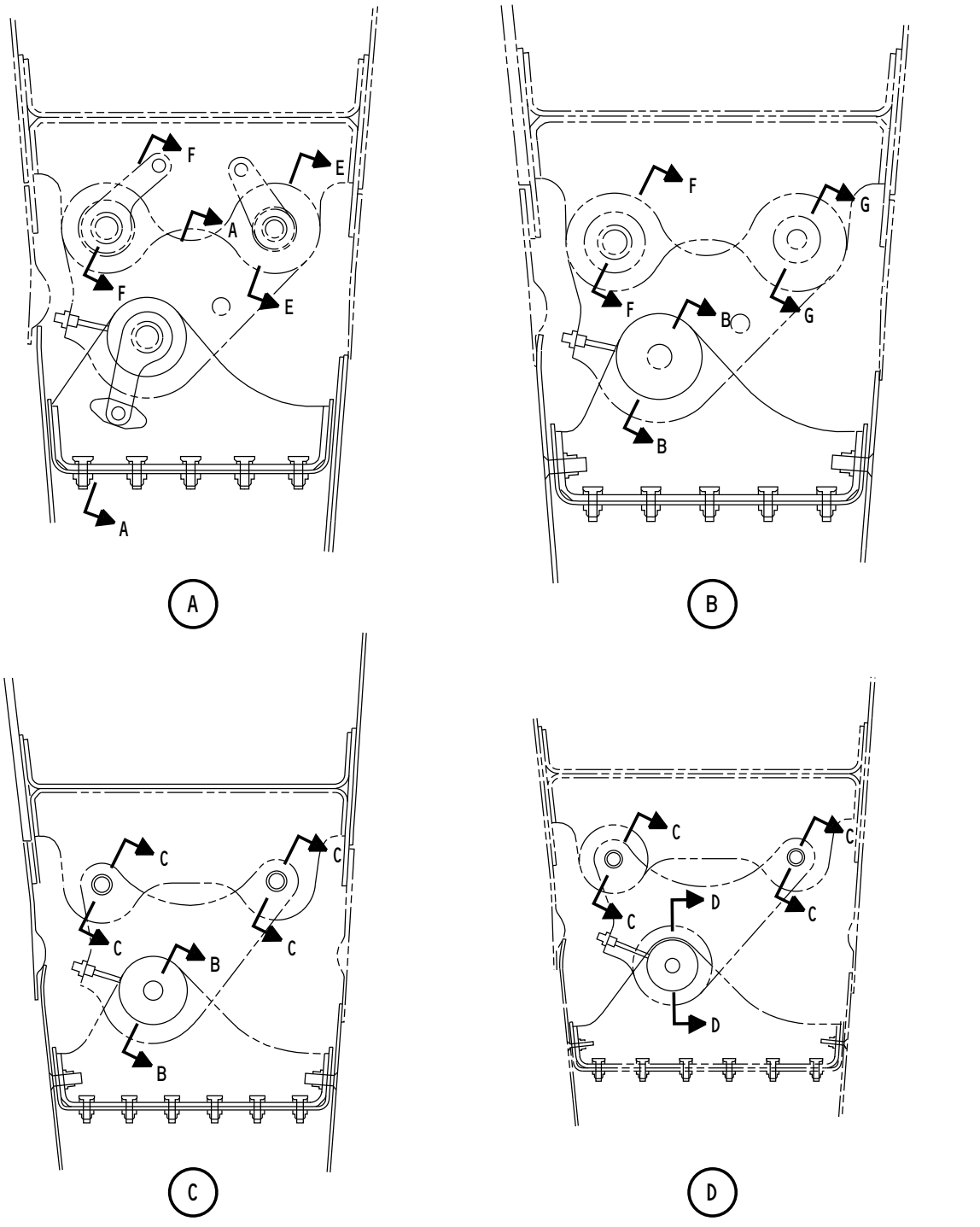
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Rudder Tab Bearing Inspection
Figure 604/27-21-11-990-806 (Sheet 1 of 6)

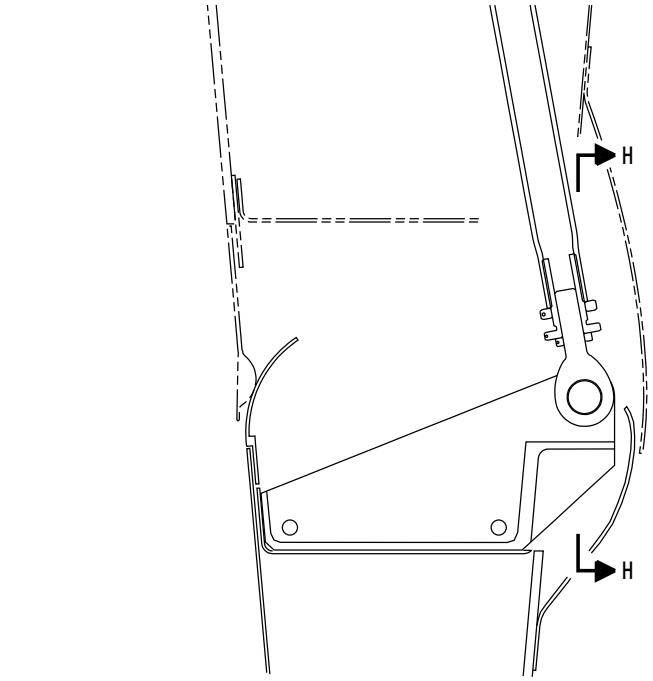
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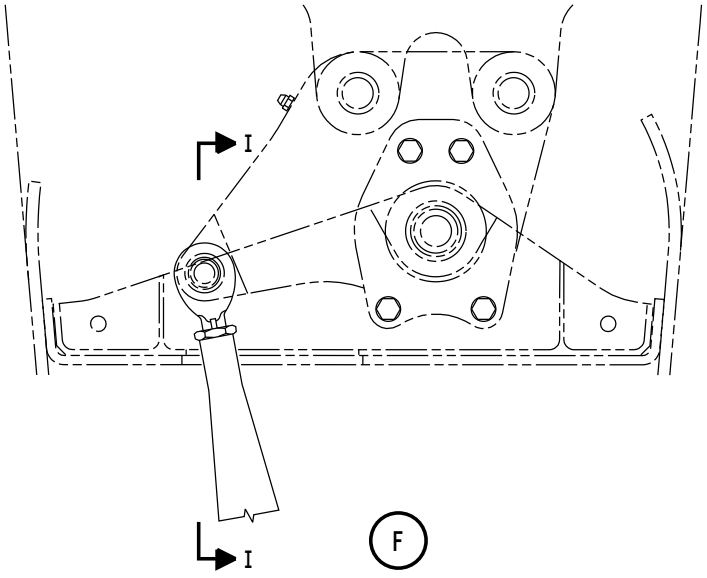
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Rudder Tab Bearing Inspection
Figure 604/27-21-11-990-806 (Sheet 2 of 6)

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E

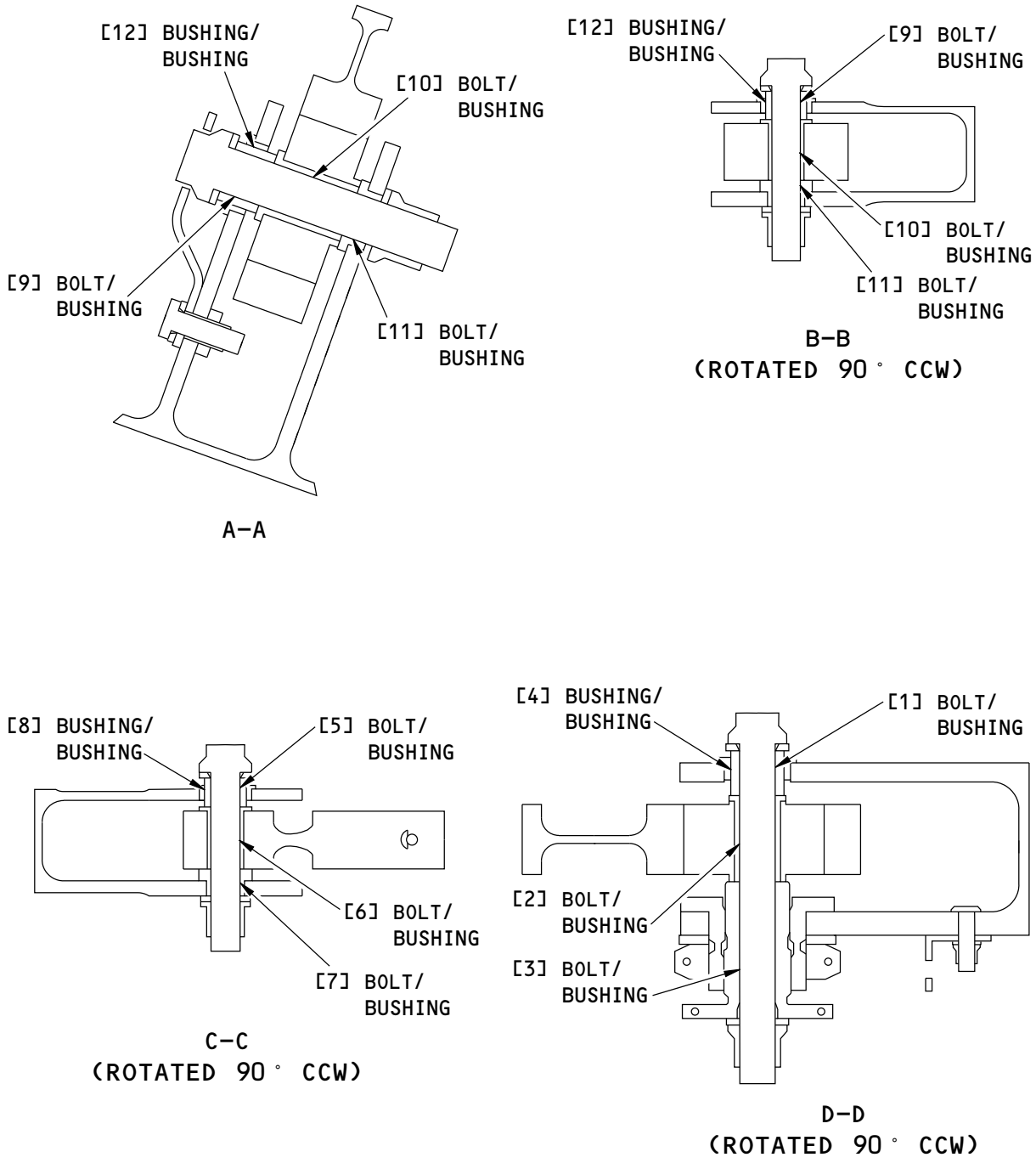


F

480424 S0000143299_V1

Rudder Tab Bearing Inspection
Figure 604/27-21-11-990-806 (Sheet 3 of 6)

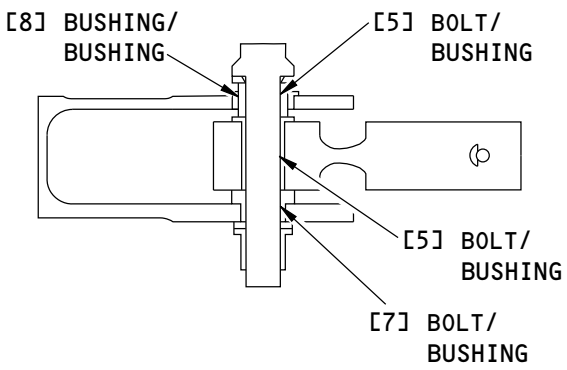
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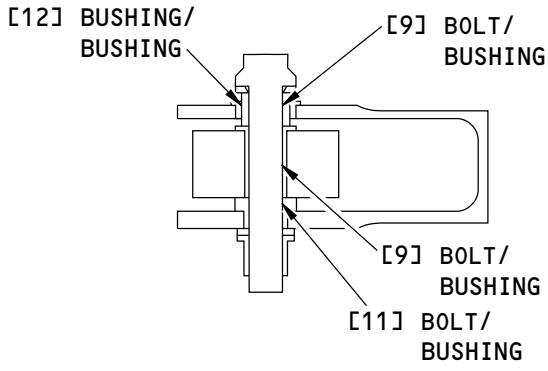
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Rudder Tab Bearing Inspection
Figure 604/27-21-11-990-806 (Sheet 4 of 6)

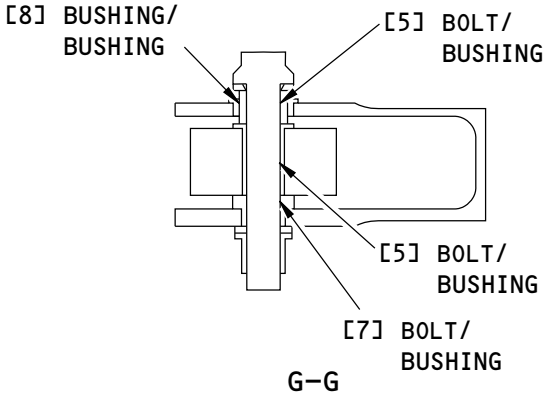
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E-E
(ROTATED 90° CCW)



F-F
(ROTATED 90° CCW)

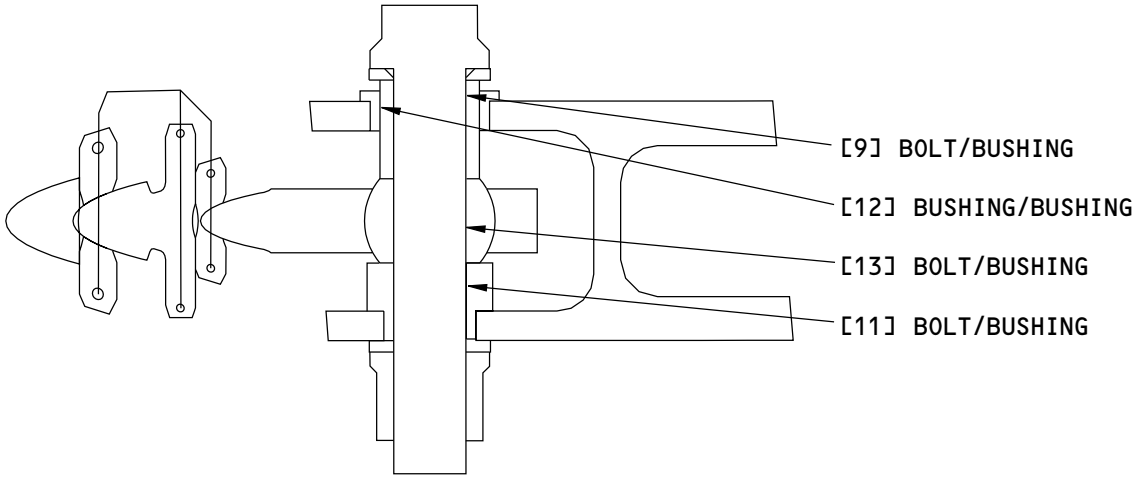


G-G
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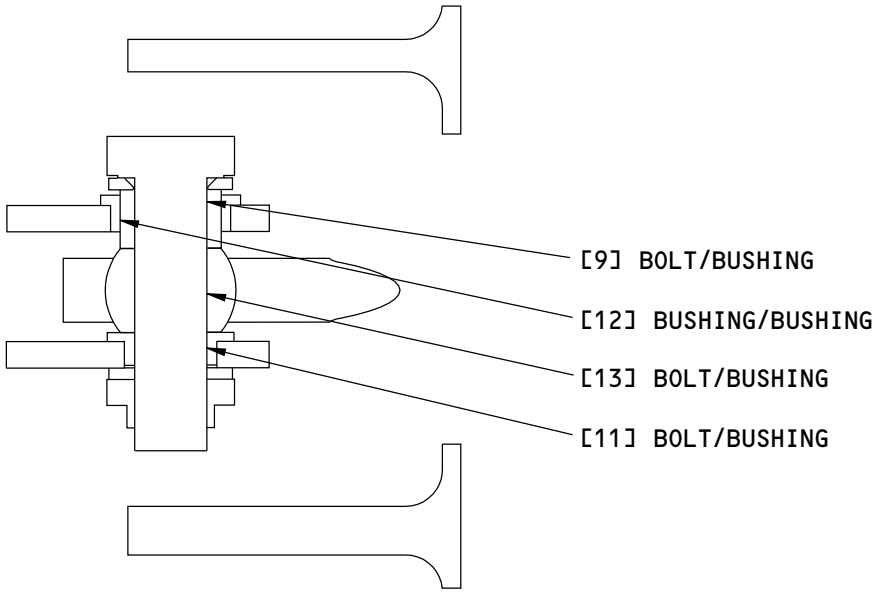
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Rudder Tab Bearing Inspection
Figure 604/27-21-11-990-806 (Sheet 5 of 6)

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H-H
(ROTATED 90° CCW)



I-I
(ROTATED 90° CCW)

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Rudder Tab Bearing Inspection
Figure 604/27-21-11-990-806 (Sheet 6 of 6)

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27-CMR-09

TASK 27-21-11-200-804

5. Rudder Tab Bearings Freeplay - Inspection

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-21-00-990-804	Figure: Rig Pin Location for Rudder Pedal Adjustment (P/B 501)
27-21-12-000-802	Rudder Tab Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2535	Pin - Rig (J20003-15 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-3989	Pin - Rig (J20003-12 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-3991	Pin - Rig (J20003-14 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-9951	Force Equipment - Rudder Freeplay Check Part #: A27124-36 Supplier: 81205 Opt Part #: A27124-1 Supplier: 81205
STD-1238	Indicator - Dial
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator
STD-1396	Pad - 5x5x0.25 inch (127x127x7.4 mm) wood block or 6 inch (152 mm) diameter x 0.25 inch (7.4 mm) thick circular wood block.
STD-1397	Gauge - Force

C. Consumable Materials

Reference	Description	Specification
G02485	Tape - Double Adhesive, 2-3/8 inches (60mm)	

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
320	Subzone 320 - Vertical Stabilizer and Rudder

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E. Prepare for the Freeplay Inspection

SUBTASK 27-21-11-861-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-11-863-001

WARNING PRIOR TO APPLICATION OF HYDRAULIC POWER, MAKE CERTAIN AREAS AROUND AIRPLANE HYDRAULIC POWERED SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-21-11-980-001

(3) Move the rudder pedals quickly for approximately 5 cycles and do this check:

(a) Make sure the rudder pedals are in their neutral positions.

SUBTASK 27-21-11-981-001

(4) Operate the rudder trim switch on the aft electronic control panel, P8, until the rudder trim indicator shows zero units of trim.

(a) Make sure the rudder pedals are in their neutral positions.

SUBTASK 27-21-11-040-004

(5) Attach DO-NOT-OPERATE tags to the captain's and first officer's rudder pedals.

SUBTASK 27-21-11-480-008

(6) Install rig pin (J20003-15 assembly), SPL-2535,rig pin (J20003-14 assembly), SPL-3991, and rig pin (J20003-12 assembly), SPL-3989 (R1, R2 and R3) at the locations shown in Figure 27-21-00-990-804.

NOTE: Install the rig pins to prevent unintended movement of the rudder pedals.

F. Rudder Tab Surface Freeplay - Check

WARNING DO NOT CLOSE THE HYDRAULIC TAIL VALVES DURING THIS INSPECTION. IF YOU CLOSE A VALVE BEFORE THE RELATED HYDRAULIC PRESSURE IS REMOVED, THE RUDDER CAN MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

SUBTASK 27-21-11-480-009

(1) Do the steps that follow to attach the dial indicator, STD-1238 against one side of the rudder:

(a) Use tape, G02485 to attach a steel plate on one side of the rudder at the aft corner just above the rudder tab.

(b) Attach mount, STD-1279 to the steel plate at the aft corner of the rudder just above the rudder tab.

(c) Use adjustable rods to attach the dial indicator, STD-1238 to the fixed rod of the mount, STD-1279.

(d) Put the indicator plunger approximately 0.5 in. (12.7 mm) forward of the trailing edge and 0.5 in. (12.7 mm) below the top edge of the rudder tab.

(e) Adjust the position of the dial indicator, STD-1238 until the needle moves to approximately mid-travel and lock the location of the dial indicator, STD-1238.

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(f) Adjust the needle of the dial indicator, STD-1238 to zero.

NOTE: The rudder PCU makes small position adjustments continuously. This can cause the dial indicator needle to move continuously through a constant range. Set the zero on the dial indicator to the middle of the needle's movement range.

SUBTASK 27-21-11-480-010

CAUTION

PUT SUFFICIENT PADDING BETWEEN THE FORCE SCALE, AND THE CONTROL SURFACE TO PREVENT DAMAGE TO THE CONTROL SURFACE. THE FORCE SCALE CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(2) Put the force gauge, STD-1397 or force equipment, SPL-9951 (alternative) and pad, STD-1396 on the left side of the rudder tab in line with the middle rudder PCU rib and 12 ±1 in. (305 ±25 mm) forward of the rudder tab trailing edge.

NOTE: Use the rows of fasteners on the rudder skin to identify the rib locations.

SUBTASK 27-21-11-220-011

(3) Using the force gauge, STD-1397 or force equipment, SPL-9951 (alternative), apply a 30 ±3 lbf (133 ±14 N) force to the left side of the rudder tab.

(a) Keep the force constant until the needle on the dial indicator, STD-1238 becomes stable. Hold the force during the next step.

SUBTASK 27-21-11-220-012

(4) Read the dial indicator, STD-1238 and record the measurement as “Value A”.

NOTE: The rudder PCU makes small position adjustments continuously. This can cause the dial indicator needle to move continuously through a constant range. Set the zero on the dial indicator to the middle of the needle's movement range.

SUBTASK 27-21-11-220-013

(5) Slowly remove the load from the left side of the rudder tab.

NOTE: Do not adjust the dial indicator to zero even if it does not return to the original zero.

SUBTASK 27-21-11-220-014

CAUTION

PUT SUFFICIENT PADDING BETWEEN THE FORCE SCALE, AND THE CONTROL SURFACE TO PREVENT DAMAGE TO THE CONTROL SURFACE. THE FORCE SCALE CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(6) Put the force gauge, STD-1397 or force equipment, SPL-9951 (alternative) and pad, STD-1396 on the right side of the rudder tab in line with middle rudder PCA rib and 12 ±1 in. (305 ±25 mm) forward of the rudder tab trailing edge.

NOTE: Use the rows of fasteners on the rudder skin to identify the rib locations.

SUBTASK 27-21-11-220-015

(7) Using the force gauge, STD-1397 or force equipment, SPL-9951 (alternative), apply a 30 ±3 lbf (133 ±14 N) force to the right side of the rudder tab.

(a) Keep the force constant until the needle on the dial indicator, STD-1238 becomes stable. Hold the force during the next step.

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SUBTASK 27-21-11-220-016

(8) Read the dial indicator, STD-1238 and record the measurement as “Value B”.

NOTE: The rudder PCU makes small position adjustments continuously. This can cause the dial indicator needle to move continuously through a constant range. Set the zero on the dial indicator to the middle of the needle's movement range.

SUBTASK 27-21-11-220-017

(9) Slowly remove the load from the right side of the rudder tab.

SUBTASK 27-21-11-220-018

(10) Calculate the rudder tab freeplay by adding “Value A” to “Value B”.

SUBTASK 27-21-11-220-020

(11) Compare the rudder tab free play to the free play limits as follows:

(a) If the rudder tab free play is less than 0.28 in. (7.1 mm), then the rudder tab freeplay is acceptable.

NOTE: For reference, the maximum rudder tab free play expected for a new airplane is 0.14 in. (3.6 mm).

(b) If the rudder tab free play is more than 0.28 in. (7.1 mm), then do the following:

1) Do the free play check again and then do these checks:

a) Make sure the last calculated freeplay is approximately the same as the first.

b) If the measurements are not repeatable, make sure the dial indicator, STD-1238 is securely attached and begin the freeplay measurements again.

(c) If the rudder tab freeplay is still more than 0.28 in. (7.1 mm), then you must make repairs, as necessary, to decrease the freeplay to less than 0.28 inch (7.1 mm). Do the following, as necessary:

1) Remove the rudder tab, as necessary, to inspect for worn tab hinge bolts and bushings Rudder Tab Removal, TASK 27-21-12-000-802.

a) Replace any worn or damaged parts, as necessary.

2) Check the wear limits of the hinge bolt-to-bearing connection (5 locations) and the PCU pushrod and bolt-to-bearing connection (3 locations) (Rudder Tab Bearings Freeplay - Inspection, TASK 27-21-11-200-804 and Rudder Tab Bearings Inspection and Wear Limits, TASK 27-21-11-200-803).

a) Replace any worn or damaged parts, as necessary.

SUBTASK 27-21-11-864-001

(12) Remove power from the hydraulic system Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-11-080-006

(1) Remove rig pins R1, R2 and R3 at the locations shown in Figure 27-21-00-990-804.

SUBTASK 27-21-11-440-003

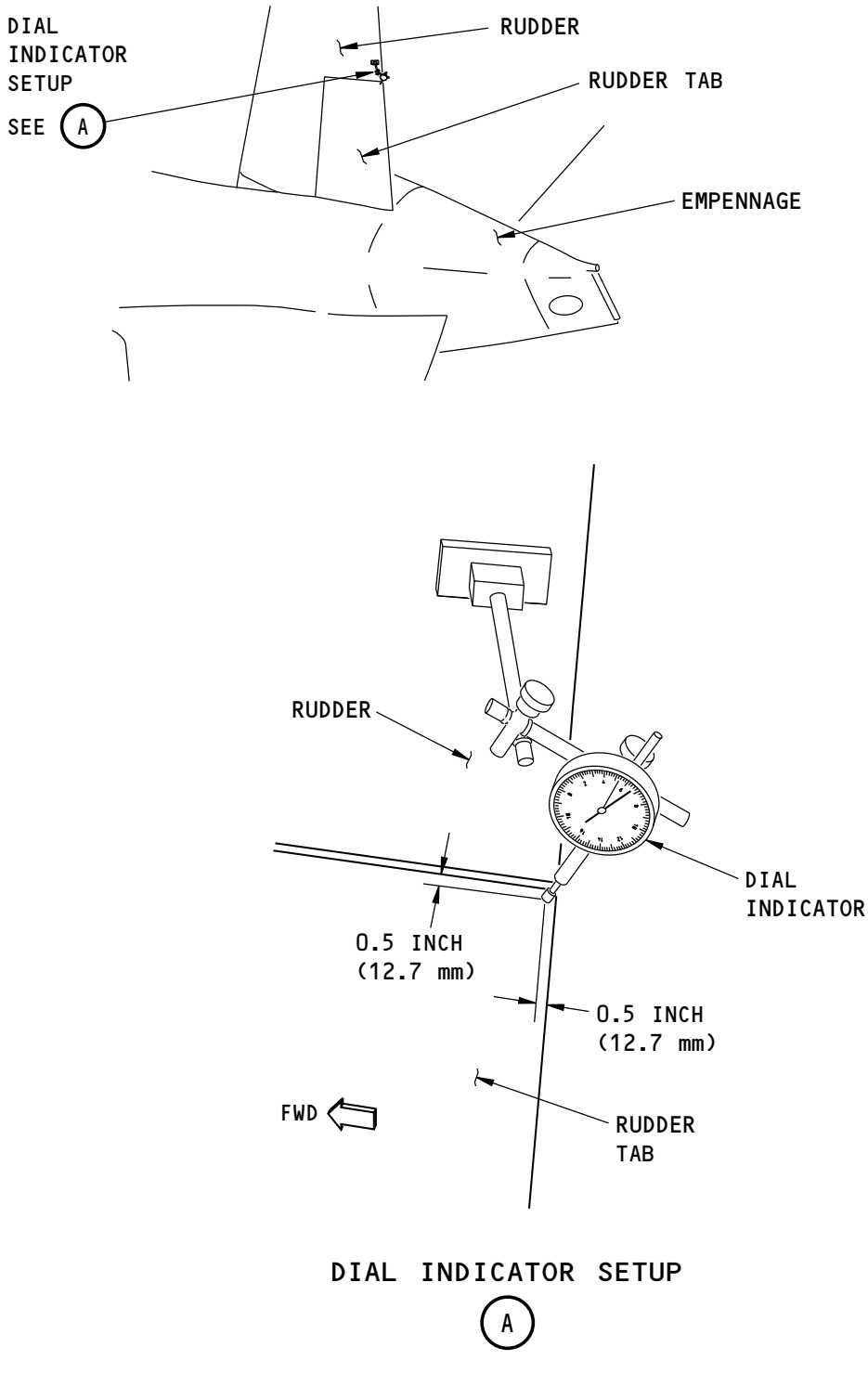
(2) Remove the DO-NOT-OPERATE tags to the captain's and first officer's rudder pedals.

SUBTASK 27-21-11-862-001

(3) Remove electrical power, if it is not necessary Remove Electrical Power, TASK 24-22-00-860-806.

END OF TASK

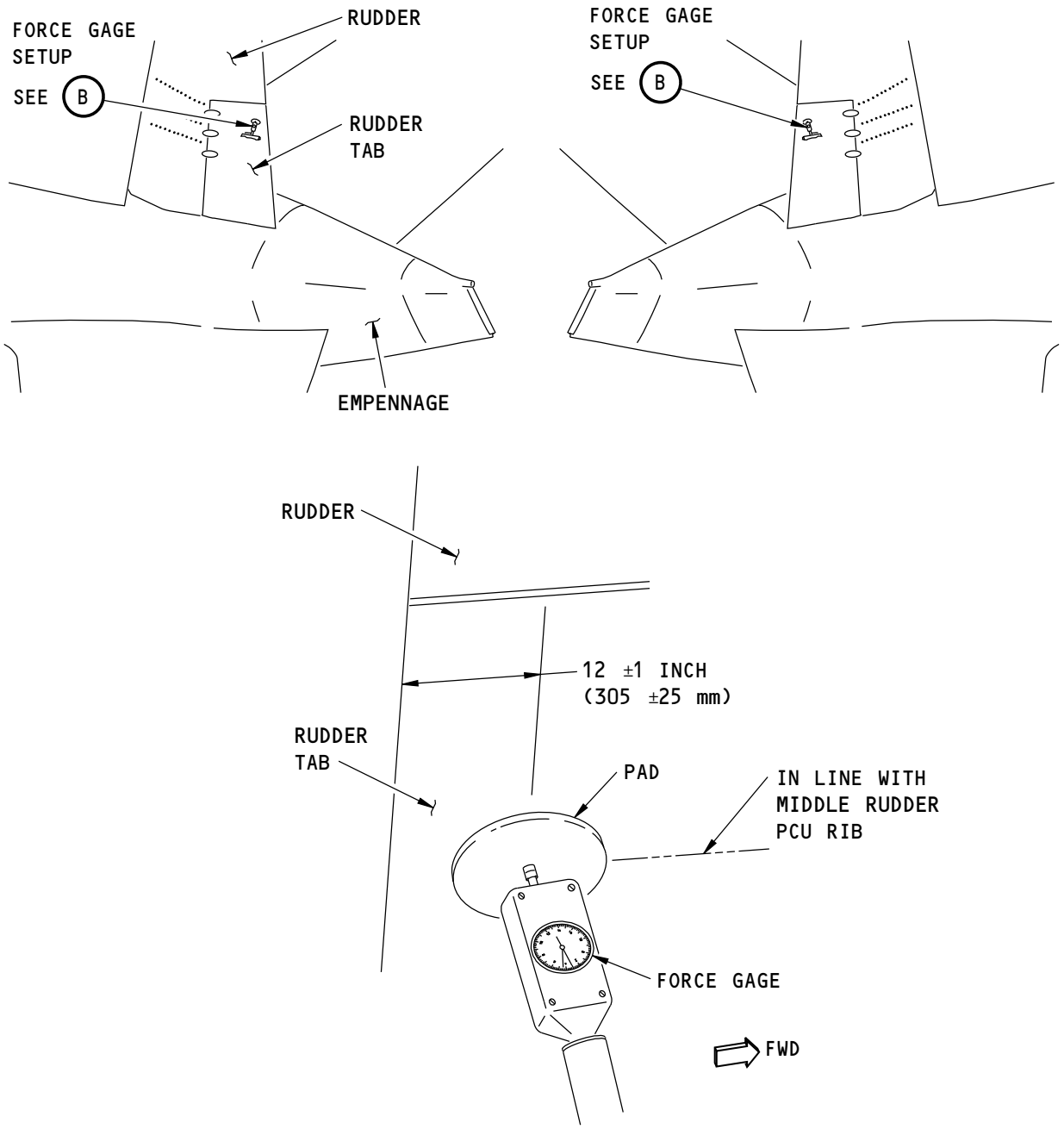
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D56015 S0000159257_V1

Rudder Tab Bearing Freeplay Check
Figure 605/27-21-11-990-807 (Sheet 1 of 2)

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FORCE GAGE SETUP
(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)

B

D56024 S0000159259_V2

Rudder Tab Bearing Freeplay Check
Figure 605/27-21-11-990-807 (Sheet 2 of 2)

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RUDDER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder

(2) An installation of the rudder.

(3) A removal of the rudder tab.

(4) An installation of the rudder tab.

TASK 27-21-12-000-801

2. Rudder Removal

A. References

Reference	Title
06-42-00-800-801	Finding an Access Door or Panel in the Empennage (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1692	Clamp Assembly - Rudder Tab Part #: J27001-1 Supplier: 81205
SPL-1725	Sling Equipment, Rudder Removal/Installation Part #: J27024-65 Supplier: 81205 Part #: J27024-66 Supplier: 81205 Opt Part #: J27024-47 Supplier: 81205 Opt Part #: J27024-48 Supplier: 81205

C. Location Zones

Zone	Area
324	Vertical Stabilizer - Rear Spar to Trailing Edge
325	Rudder
326	Rudder Tab

D. Access Panels

Number	Name/Location
324CXL	Vertical Stabilizer Trailing Edge Cover Panel
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324GL	Vertical Stabilizer Trailing Edge Panel
324HL	Vertical Stabilizer Trailing Edge Panel
324JXL	Vertical Stabilizer Trailing Edge Cover Panel
324LLX	Vertical Stabilizer Trailing Edge Seal
324MLX	Vertical Stabilizer Trailing Edge Seal
324PLX	Vertical Stabilizer Trailing Edge Seal
324RLX	Vertical Stabilizer Trailing Edge Seal

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(Continued)

Number	Name/Location
324TLX	Vertical Stabilizer Trailing Edge Seal
324VLX	Vertical Stabilizer Trailing Edge Seal
324WL	Vertical Stabilizer Trailing Edge Seal

E. Prepare for the Removal

SUBTASK 27-21-12-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-12-010-003

(2)

Remove these access panels:

(TASK 06-42-00-800-801)

Number	Name/Location
324CXL	Vertical Stabilizer Trailing Edge Cover Panel
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324GL	Vertical Stabilizer Trailing Edge Panel
324HL	Vertical Stabilizer Trailing Edge Panel
324JXL	Vertical Stabilizer Trailing Edge Cover Panel
324LLX	Vertical Stabilizer Trailing Edge Seal
324MLX	Vertical Stabilizer Trailing Edge Seal
324PLX	Vertical Stabilizer Trailing Edge Seal
324RLX	Vertical Stabilizer Trailing Edge Seal
324TLX	Vertical Stabilizer Trailing Edge Seal
324VLX	Vertical Stabilizer Trailing Edge Seal
324WL	Vertical Stabilizer Trailing Edge Seal

SUBTASK 27-21-12-840-021

(3) Open the circuit breakers that follow and install DO-NOT-CLOSE tags:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A9, RUD PCU

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A9, RUD PCU

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A9, RUD PCU

SUBTASK 27-21-12-840-022

(4) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-21-12-840-002

(5) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position.

F. Rudder Removal

SUBTASK 27-21-12-020-001

(1) Do these steps to disconnect the pushrods for the rudder tab from the vertical fin (Figure 403):

(a) Move the rudder assembly [77] to the right to provide better access to the pushrods.

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(b) Disconnect the pushrods.

1) Remove the bolts [6] and the bushings [7] (Views B, C and F).

SUBTASK 27-21-12-480-001

(2) Install the clamp assembly, SPL-1692 (Figure 401):

(a) Move the trailing edge of the tab assembly [78] until it aligns with the trailing edge of the rudder assembly [77].

(b) Install the clamp assembly, SPL-1692.

SUBTASK 27-21-12-480-002

(3) Do these steps to install the sling equipment, SPL-1725 on the rudder assembly [77] (Figure 402):

(a) Install the hoist fittings on to the rudder assembly [77].

(b) Attach the sling equipment, SPL-1725 to the hoist fittings installed on the rudder assembly [77].

SUBTASK 27-21-12-020-002

(4) Lift the rudder assembly [77] until the load is removed from its hinges.

NOTE: The rudder assembly [77] and tab assembly weighs approximately 610 pounds (276.7 kilograms).

SUBTASK 27-21-12-020-016

(5) Disconnect the bonding jumpers from the vertical fin (Figure 403):

(a) If the bonding jumpers are disconnected at the bracket do this step:

1) Remove the bolts [80], washers [81], nuts [82] and bonding jumpers.

(b) If the bonding jumpers are disconnected at the ground clip do this step:

1) Remove the bolts [83], washers [84], washers [85], nuts [86] and bonding jumpers.

SUBTASK 27-21-12-020-004

(6) Do these steps to disconnect the rudder PCUs from the rudder assembly [77] (Figure 404):

(a) Remove the bolts [41] that attach the reaction link and the PCU rod end to the rudder assembly [77].

SUBTASK 27-21-12-020-014

(7) Move the rudder assembly [77] to the neutral position.

SUBTASK 27-21-12-020-005

(8) Disconnect the hinges (Figure 403):

(a) Remove the nuts, bolts, washers, spacers and bushings that follow:

1) Remove the nut [4], washer [5], bolt [1], washer [2] and bushing [3] (View A).

2) Remove the nut [12], washer [11], bolt [8], washer [9] and bushing [10] (View B).

3) Remove the nut [12], washer [11], bolt [15], washer [9] and bushing [10] (View C).

4) Remove the nut [19], washer [20], bolt [16], washer [17] and bushing [18] (View D).

5) Remove the nut [12], washer [11], bolt [25], washer [9], bushing [10] and spacer [14] (View F).

(b) Loosen the bushing [13] (View B).

(c) Remove the nuts, bolts, washers and bushings that follow:

1) Remove the nuts [28], washers [27], bolts [26], washers [30] and bushings [29] (View C).

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2) Remove the nuts [34], washers [33], bolts [31], washers [32] and bushings [35] (View F).

SUBTASK 27-21-12-020-006

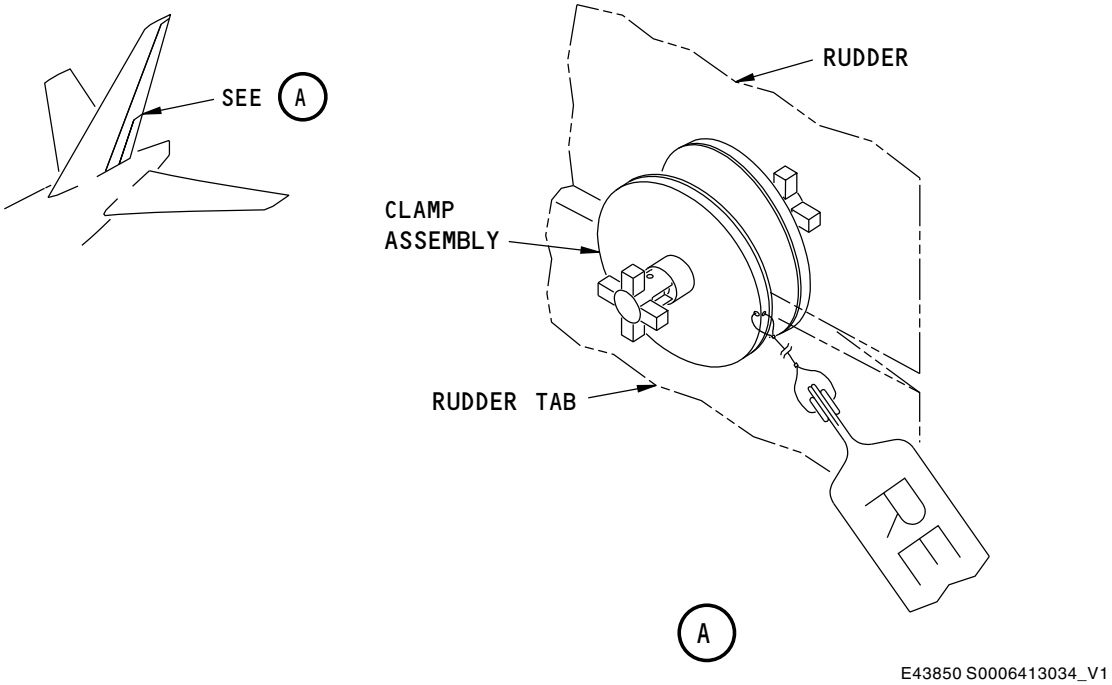
CAUTION

YOU MUST MOVE THE RUDDER [77] UP BEFORE YOU MOVE IT BACK FROM THE VERTICAL FIN. YOU CAN CAUSE DAMAGE TO THE RUDDER TIP.

(9) Remove the rudder assembly [77]:

(a) Move the rudder assembly [77] up and aft from the vertical fin and lower it to the ground.

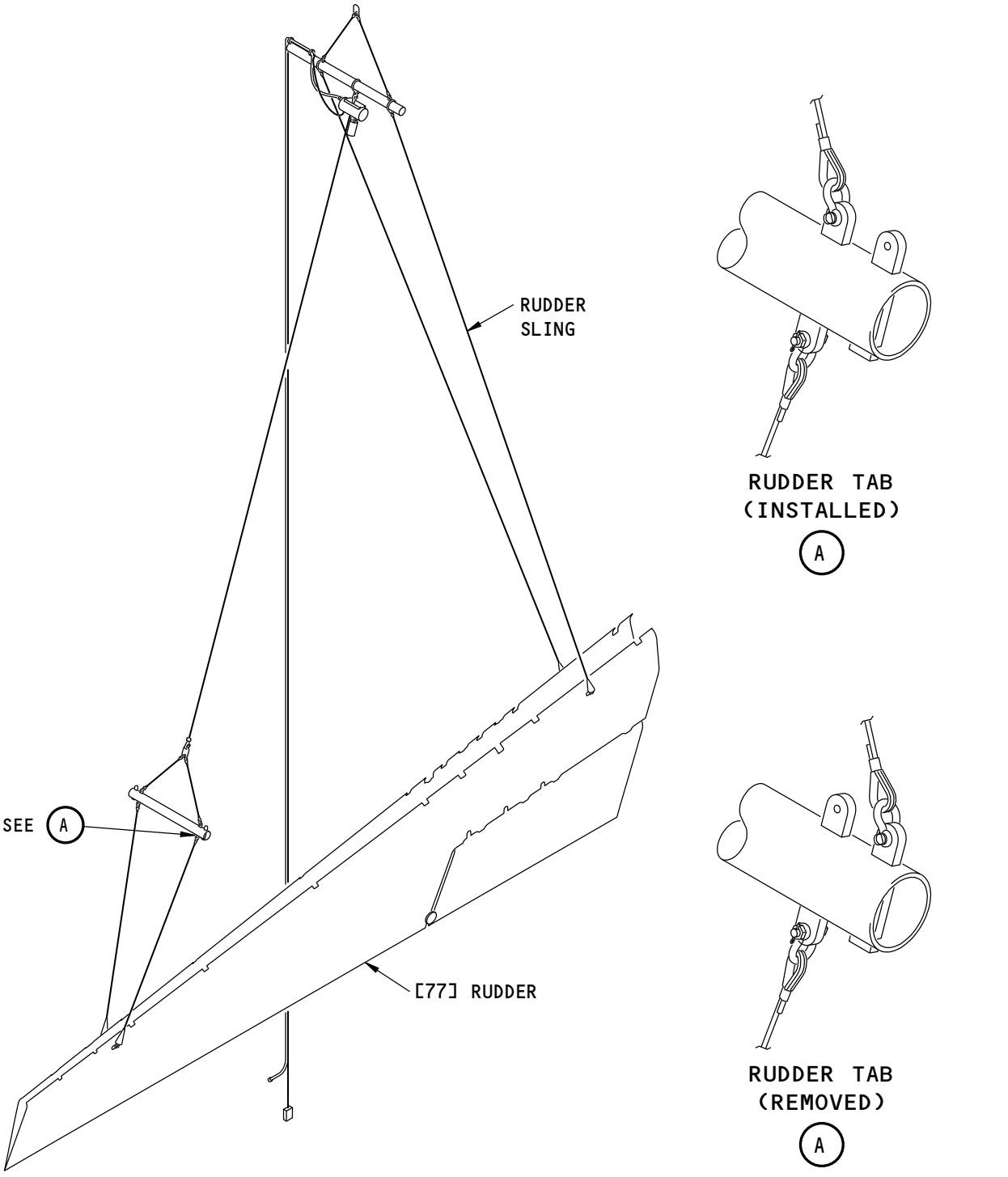
END OF TASK



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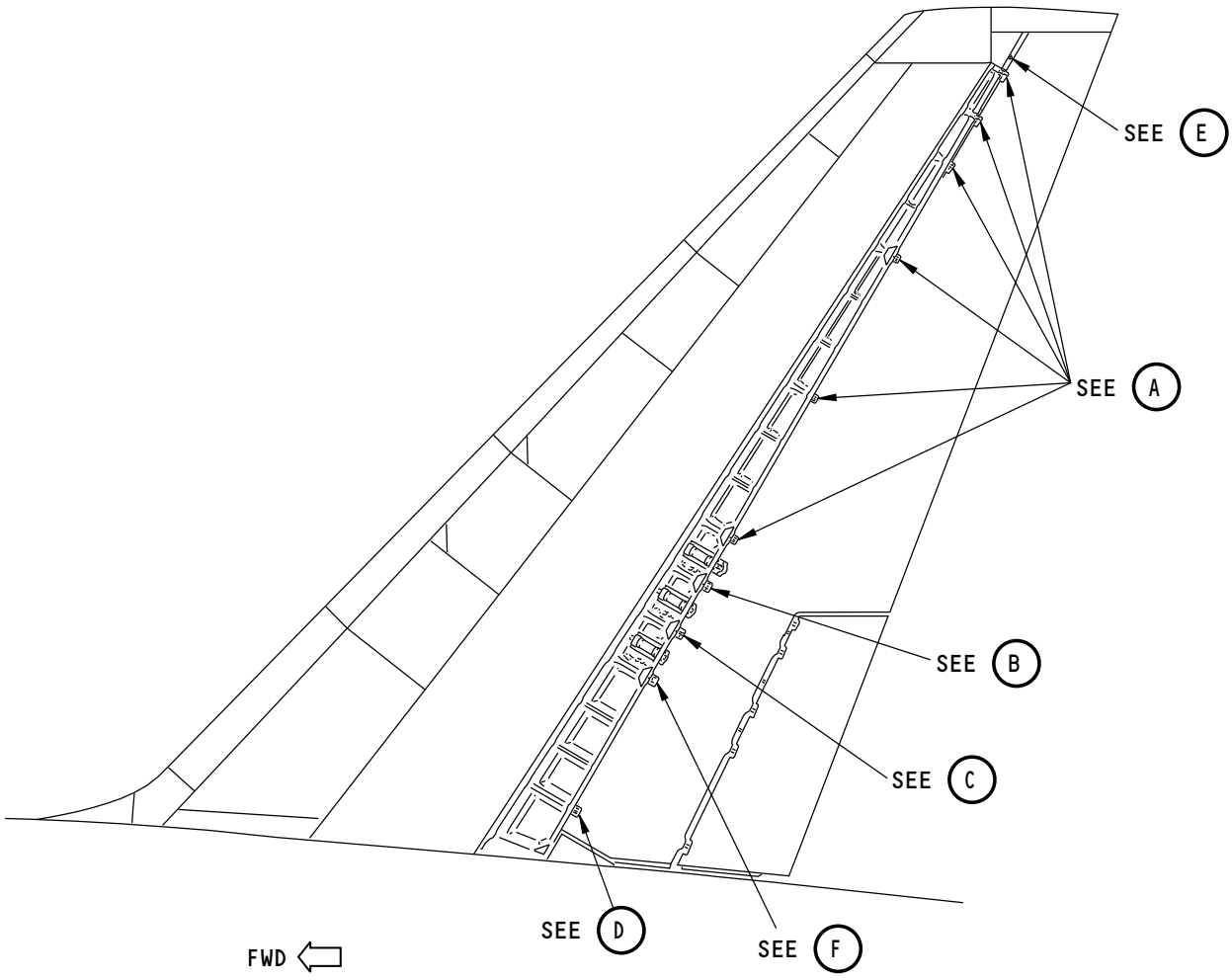
Rudder Tab Clamp Assembly
Figure 401/27-21-12-990-801

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Rudder Sling Equipment Installation
Figure 402/27-21-12-990-802

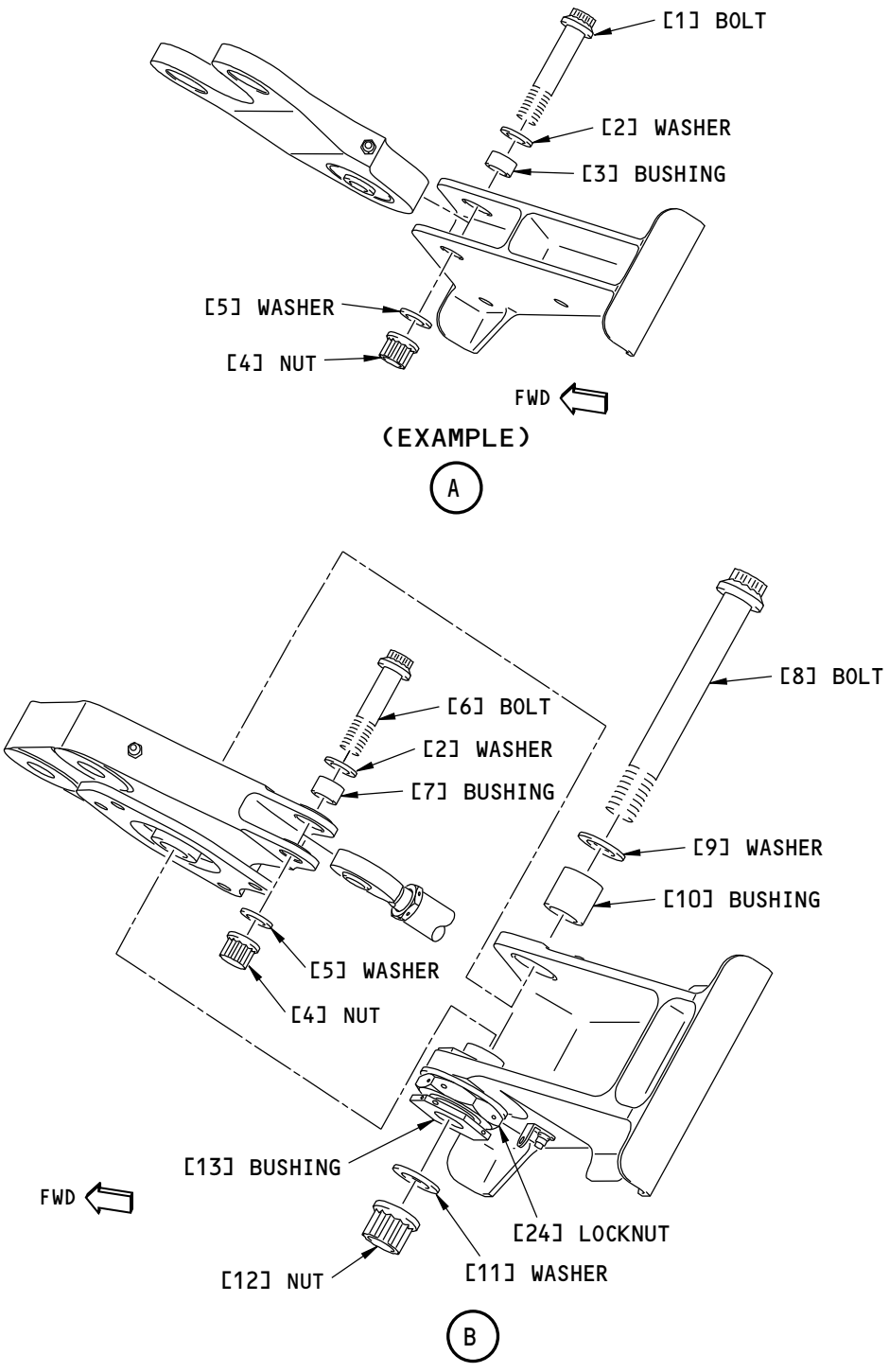
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Rudder Installation
Figure 403/27-21-12-990-803 (Sheet 1 of 4)

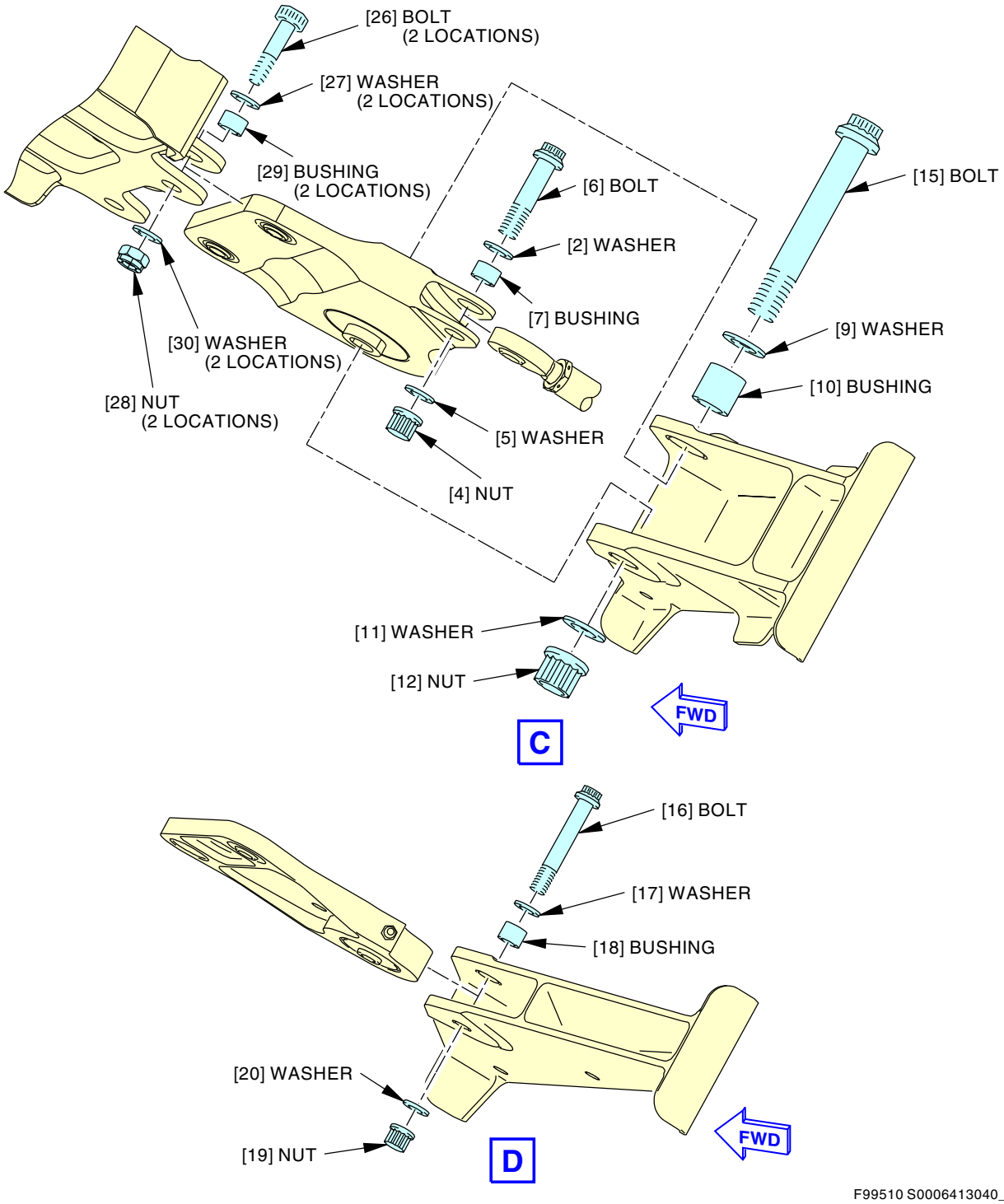
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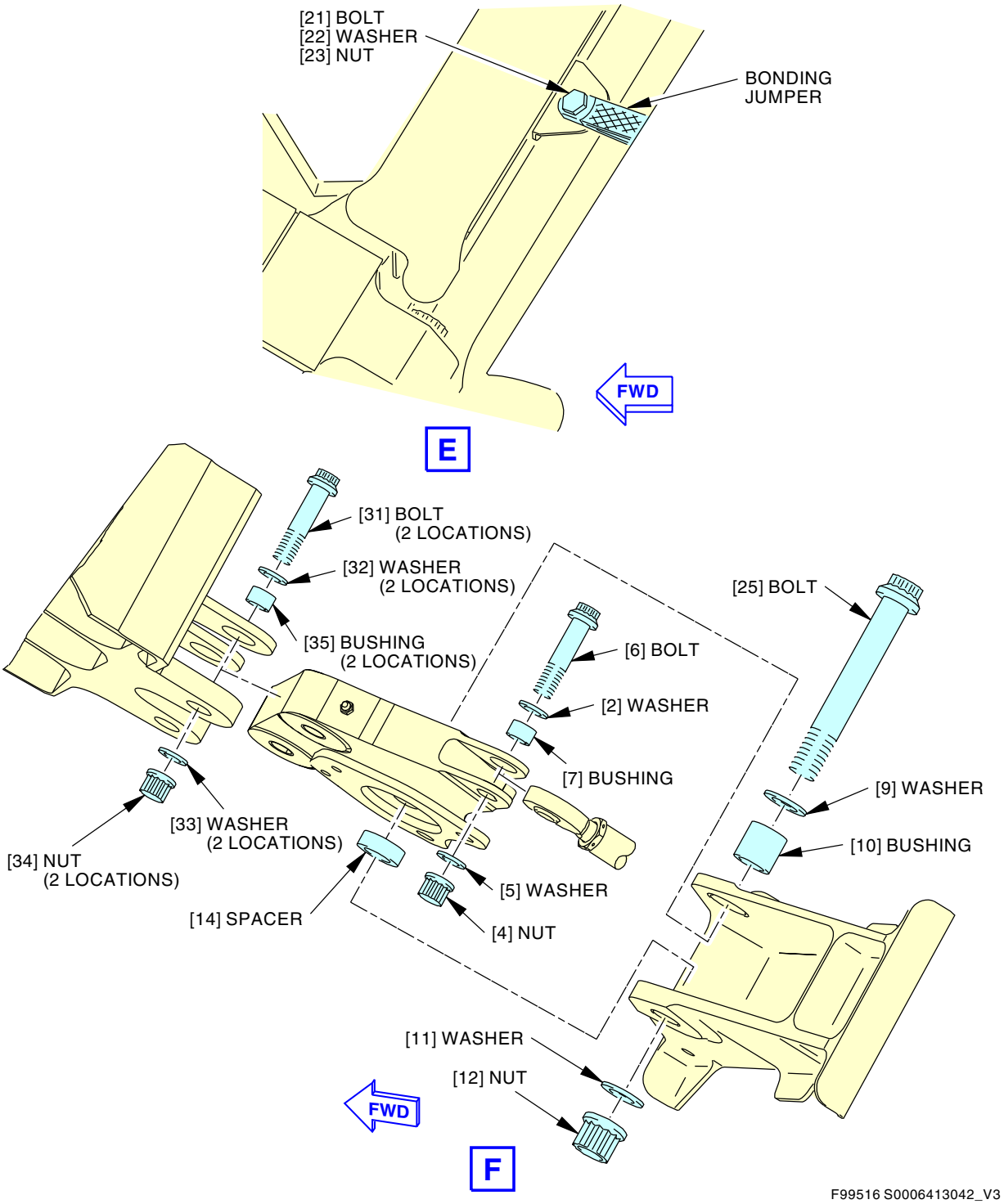
Rudder Installation
Figure 403/27-21-12-990-803 (Sheet 2 of 4)

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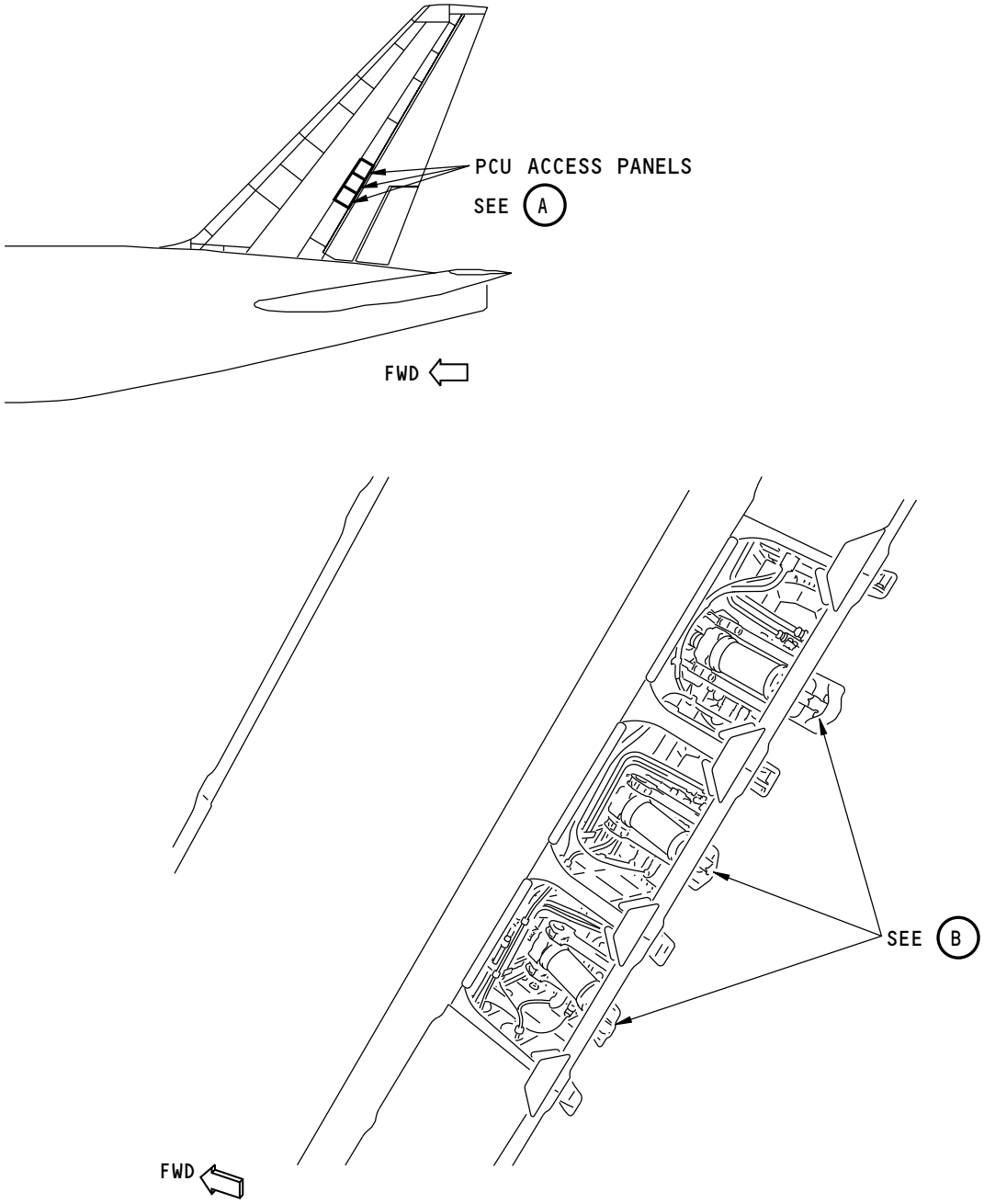
Rudder Installation
Figure 403/27-21-12-990-803 (Sheet 3 of 4)

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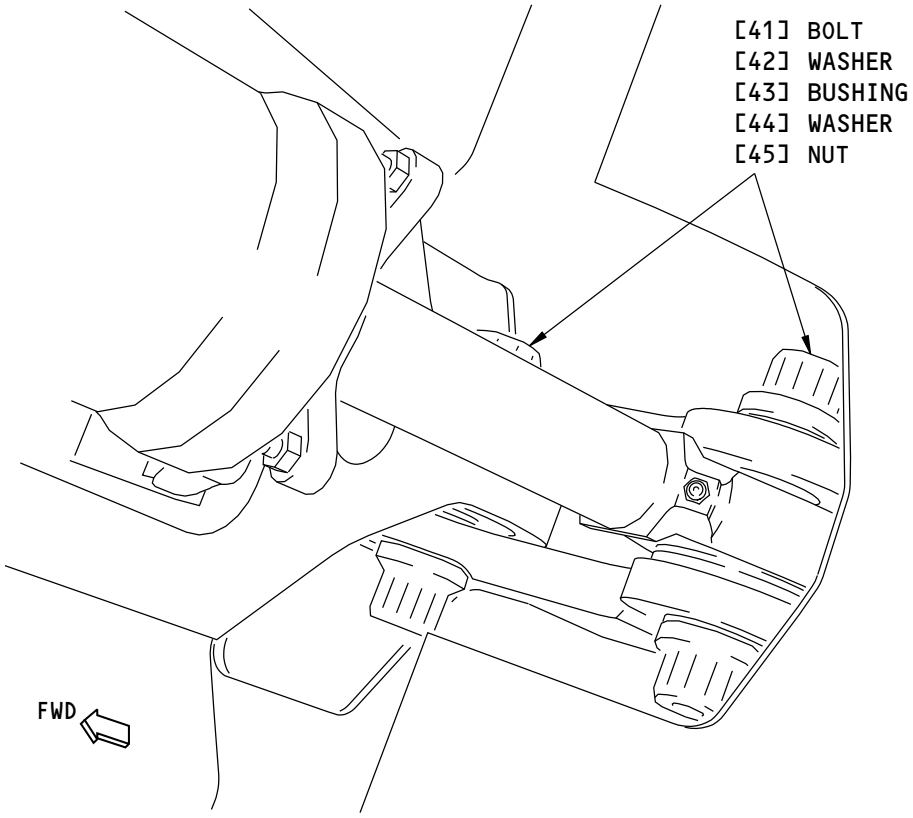
Rudder Installation
Figure 403/27-21-12-990-803 (Sheet 4 of 4)

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Rudder Power Control Unit (PCU) Connections
Figure 404/27-21-12-990-804 (Sheet 1 of 2)

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PCU AND REACTION LINK TO RUDDER ATTACHMENT
(EXAMPLE)

B

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Rudder Power Control Unit (PCU) Connections
Figure 404/27-21-12-990-804 (Sheet 2 of 2)

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TASK 27-21-12-400-801

3. Rudder Installation

A. References

Reference	Title
06-42-00-800-801	Finding an Access Door or Panel in the Empennage (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-21-00-800-801	Rudder Adjustment (Rigging) (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1692	Clamp Assembly - Rudder Tab Part #: J27001-1 Supplier: 81205
SPL-1725	Sling Equipment, Rudder Removal/Installation Part #: J27024-65 Supplier: 81205 Part #: J27024-66 Supplier: 81205 Opt Part #: J27024-47 Supplier: 81205 Opt Part #: J27024-48 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
77	Rudder assembly	27-21-12-02-185	ARO ALL

E. Location Zones

Zone	Area
324	Vertical Stabilizer - Rear Spar to Trailing Edge
325	Rudder
326	Rudder Tab

F. Access Panels

Number	Name/Location
324CXL	Vertical Stabilizer Trailing Edge Cover Panel

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(Continued)

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324GL	Vertical Stabilizer Trailing Edge Panel
324HL	Vertical Stabilizer Trailing Edge Panel
324JXL	Vertical Stabilizer Trailing Edge Cover Panel
324LLX	Vertical Stabilizer Trailing Edge Seal
324MLX	Vertical Stabilizer Trailing Edge Seal
324PLX	Vertical Stabilizer Trailing Edge Seal
324RLX	Vertical Stabilizer Trailing Edge Seal
324TLX	Vertical Stabilizer Trailing Edge Seal
324VLX	Vertical Stabilizer Trailing Edge Seal
324WL	Vertical Stabilizer Trailing Edge Seal

G. Rudder Installation

SUBTASK 27-21-12-420-001

(1) Do these steps to put the rudder assembly [77] in its position and to connect the hinges (Figure 403):

(a) Apply a thin layer grease, D00633, to the smooth surfaces of all the hinge bolts, bushings and bearings before you install them.

(b) Put the sling equipment, SPL-1725 or sling equipment, SPL-1725, in its position and connect it to the rudder assembly [77].

(c) Lift the rudder assembly [77] to its position on the vertical fin.

(d) Install the bolts, washers, spacer and bushings that follow:

1) Install the bolt [26], washer [27], washer [30], nut [28] and bushing [29] (View C).

a) Tighten the nut [28] to 290 in-lb (33 N·m) - 350 in-lb (40 N·m).

2) Install the bolt [31], washer [32], washer [33], nut [34] and bushing [35] (View F).

a) Tighten the nut [34] to 1400 in-lb (158 N·m) - 1900 in-lb (215 N·m).

3) Install the bolt [16], washer [17] (under the bolt) and bushing [18] (View D).

4) Install the bolts [1], washers [2] (under the bolt) and bushings [3] (View A).

5) Install the bolt [15], washer [9] (under the bolt) and bushing [10] (View C).

6) Install the bolt [25], washer [9] (under the bolt) and bushing [10], spacer [14] (View F).

a) Install the washer [11] (under the nut) and nut [12]

b) Tighten the nut [12] to 1000-1200 pound-inches (113-136 newton-meters).

7) Put the bushing [13] in its position (View B).

NOTE: Install the bushing [13] after you have installed the hinge bolts listed above.

a) Tighten the bushing [13] until it is finger-tight against the rudder bearing.

NOTE: Do not tighten the bushing [13] any more until all the other hinge nuts had been tightened

8) Install the bolt [8], washer [9] (under the bolt) and bushing [10] (View B).

(e) Remove the sling equipment, SPL-1725 or sling equipment, SPL-1725 and the hoist fittings.

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(f) Install and tighten the nuts and washers in the order that follows:

1) Install the washer [20] (under the nut) and nut [19] (View D).

a) Tighten the nut [19] to 300-350 pound-inches (33.9-39.6 newton-meters).

2) Install the washers [5] (under the nut) and nuts [4] (View A).

a) Tighten the nuts [4] to 300-350 pound-inches (33.9-39.6 newton-meters).

3) Install the washers [11] (under the nut) and nuts [12] (View C).

a) Tighten the nuts [12] to 1000-1200 pound-inches (113-136 newton-meters).

4) Install the washer [11] (under the nut) and nut [12] (View B).

a) Tighten the nut [12] to 1000-1200 pound-inches (113-136 newton-meters).

5) Tighten the bushing [13] and install a lockwire on the bushing [13] and the locknut [24], View B.

SUBTASK 27-21-12-420-002

(2) Do these steps to connect the rudder PCUs to the rudder assembly [77] (Figure 404):

(a) Install the reaction link and bolts [41] (with the boltheads pointed up), washers [42] (under the bolthead), bushings [43], washers [44] (under the nut) and nuts [45].

NOTE: You can apply grease, D00633, on the bushings [43] to help the installation, if it is necessary.

1) Tighten the nuts [45] to 2500-2750 pound-inches (283-311 newton-meters).

SUBTASK 27-21-12-080-001

(3) Remove the clamp assembly, SPL-1692 (Figure 401).

SUBTASK 27-21-12-420-003

(4) Do these steps to connect the control rods for the rudder tab assembly [78] to the vertical fin, (Figure 403):

(a) Move the rudder assembly [77] to neutral.

(b) Put the control rods in their positions (Views B, C and F).

1) Install the bolts [6], washers [2] (under bolt), bushings [7], washers [5] (under nut) and the nuts [4].

a) Tighten the nuts [4] to 440-650 pound-inches (49.7-73.4 newton-meters).

SUBTASK 27-21-12-420-004

(5) Connect the bonding jumper to the vertical fin (View E of Figure 403) in accordance with Category 2 Fay Sealed Direct Standard Ground Stud Installation (SWPM 20-20-10):

(a) Install the bolt [21], washer [22], and nut [23].

(b) Measure the electrical bond resistance across the jumper using a intrinsically safe approved bonding meter, COM-1550.

1) Measure between the vertical fin and the rudder assembly.

2) Make sure that the maximum bond resistance is 0.001 ohms.

SUBTASK 27-21-12-840-005

(6) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A9, RUD PCU

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

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1) A9, RUD PCU

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A9, RUD PCU

SUBTASK 27-21-12-840-006

(7) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-12-840-023

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-21-12-840-008

(9) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

SUBTASK 27-21-12-840-009

(10) Do this task: Rudder Adjustment (Rigging), TASK 27-21-00-800-801.

H. Rudder Installation Test

NOTE: It is necessary to use the maintenance access terminal (MAT) for this test.

SUBTASK 27-21-12-730-001

(1) Use a maintenance access terminal (MAT) to do the Rudder Actuator Confidence test: do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Flight Controls General
5) SYSTEM TEST
6) Rudder Actuator Confidence
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) To put the MAT back to its initial condition, make these selections:

1) LINE MAINTENANCE
2) EXIT MAINTENANCE

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-12-840-019

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-21-12-410-001

(2)

Install the access panels at the front of the rudder:

(TASK 06-42-00-800-801)

Number	Name/Location
324CXL	Vertical Stabilizer Trailing Edge Cover Panel
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324GL	Vertical Stabilizer Trailing Edge Panel
324HL	Vertical Stabilizer Trailing Edge Panel
324JXL	Vertical Stabilizer Trailing Edge Cover Panel
324LLX	Vertical Stabilizer Trailing Edge Seal
324MLX	Vertical Stabilizer Trailing Edge Seal
324PLX	Vertical Stabilizer Trailing Edge Seal
324RLX	Vertical Stabilizer Trailing Edge Seal
324TLX	Vertical Stabilizer Trailing Edge Seal
324VLX	Vertical Stabilizer Trailing Edge Seal
324WL	Vertical Stabilizer Trailing Edge Seal

——— END OF TASK ———

TASK 27-21-12-000-802

4. Rudder Tab Removal

A. References

Reference	Title
06-42-00-800-801	Finding an Access Door or Panel in the Empennage (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1712	Lock, Rudder Power Control Unit Part #: J27028-21 Supplier: 81205
SPL-1723	Sling, Rudder Tab Removal/Installation Part #: J27025-1 Supplier: 81205

C. Location Zones

Zone	Area
325	Rudder
326	Rudder Tab

D. Access Panels

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324PLX	Vertical Stabilizer Trailing Edge Seal
325AR	Rudder Pushrod Fairing - Lower

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(Continued)

Number	Name/Location
325BR	Rudder Pushrod Fairing - Center
325CR	Rudder Pushrod Fairing - Upper
326AR	Tab Pushrod Fairing - Lower
326BR	Tab Pushrod Fairing - Center
326CR	Tab Pushrod Fairing - Upper

E. Prepare for the Removal

SUBTASK 27-21-12-010-002

(1) Remove these access panels:

(TASK 06-42-00-800-801)

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324PLX	Vertical Stabilizer Trailing Edge Seal
325AR	Rudder Pushrod Fairing - Lower
325BR	Rudder Pushrod Fairing - Center
325CR	Rudder Pushrod Fairing - Upper
326AR	Tab Pushrod Fairing - Lower
326BR	Tab Pushrod Fairing - Center
326CR	Tab Pushrod Fairing - Upper

SUBTASK 27-21-12-840-012

(2) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) A9, RUD PCU (On the left power supply assembly (PSA-L) in the E1-6 rack)

(b) A9, RUD PCU (On the center power supply assembly (PSA-C) in the E2-6 rack)

(c) A9, RUD PCU (On the right power supply assembly (PSA-R) in the E5-1 rack)

SUBTASK 27-21-12-840-024

(3) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-21-12-840-014

(4) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-21-12-840-010

(5) Install the rudder power control unit lock, SPL-1712, for the rudder PCUs.

(a) Push the rudder assembly [77] fully right and hold it there.

(b) Install the rudder power control unit lock, SPL-1712, on the rudder PCUs.

(c) Release the rudder assembly [77].

F. Rudder Tab Removal

SUBTASK 27-21-12-480-003

(1) Attach the rudder tab sling, SPL-1723, to the tab assembly [78] (Figure 405).

SUBTASK 27-21-12-420-005

(2) Lift the tab assembly [78] until the load is removed from its hinges.

SUBTASK 27-21-12-020-007

(3) Disconnect the pushrods from the tab assembly [78], View A (Figure 406).

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(a) Remove the bolts [61] and bushings [65].

SUBTASK 27-21-12-020-008

(4) Remove the retainer [68], View B:

(a) Remove bolt [67] and washer [66].

(b) Remove the retainer [68].

SUBTASK 27-21-12-020-009

(5) Remove the bolt [61] and bushing [69], View B.

SUBTASK 27-21-12-020-010

(6) Remove the bolt [71] and bushing [73], View E.

SUBTASK 27-21-12-020-015

(7) Remove the bushing [76], View E.

SUBTASK 27-21-12-020-011

(8) Remove the bolts [61] and bushings [69], View C.

SUBTASK 27-21-12-020-012

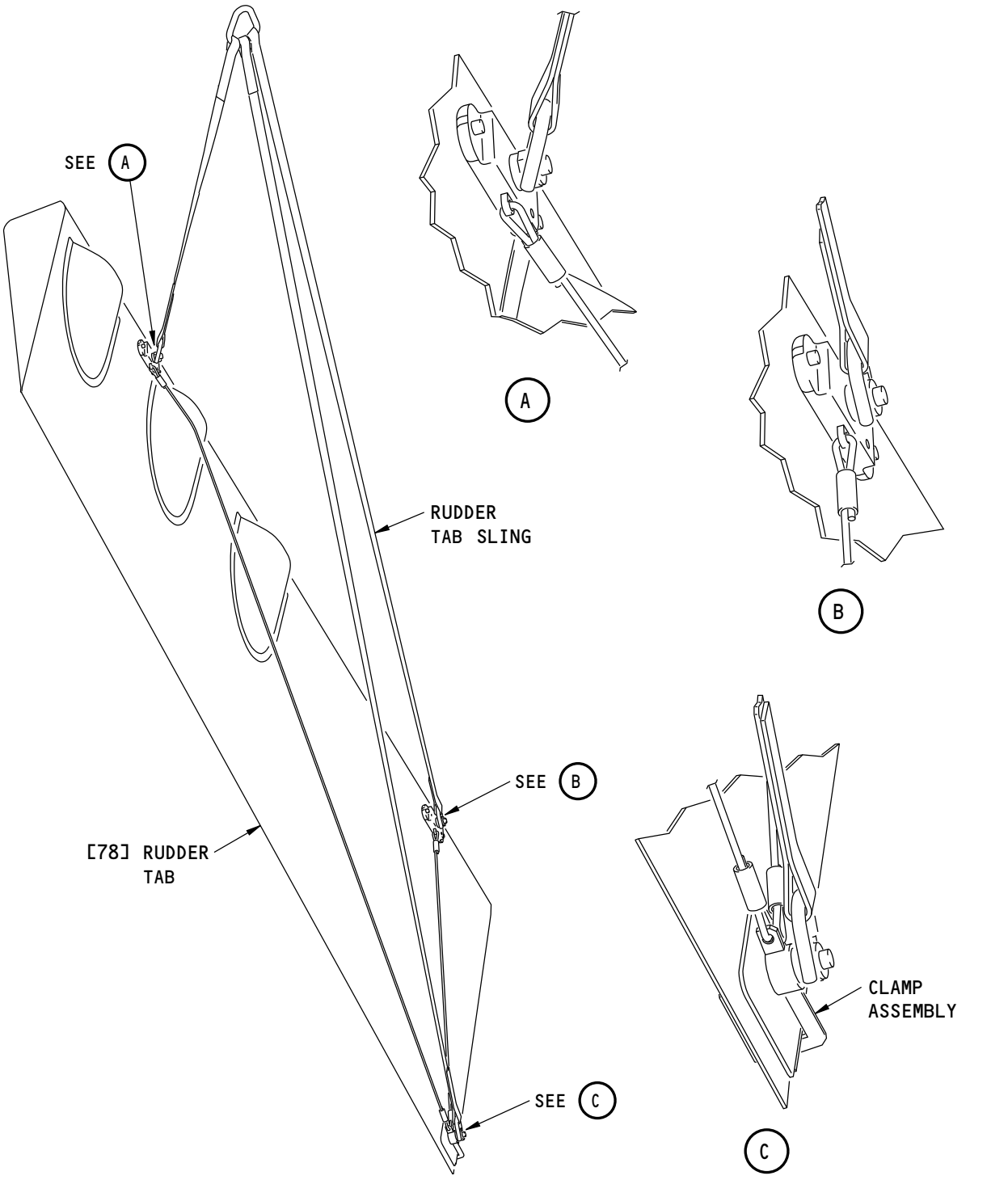
(9) Remove the bolt [70] and bushings [69], View D.

SUBTASK 27-21-12-020-013

(10) Move the tab assembly [78] aft of the rudder assembly [77] and lower it to the ground.

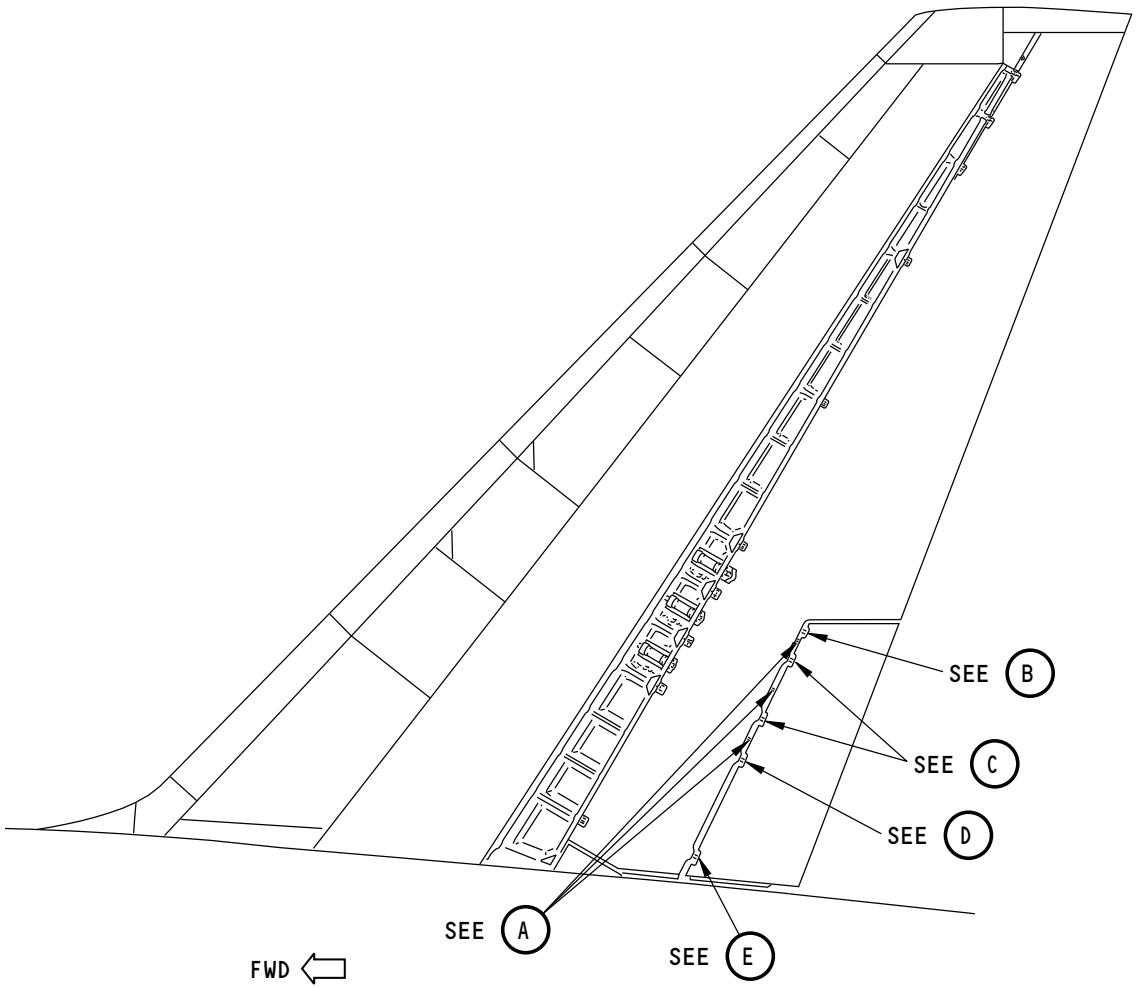
——— END OF TASK ———

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Rudder Tab Sling Installation
Figure 405/27-21-12-990-805

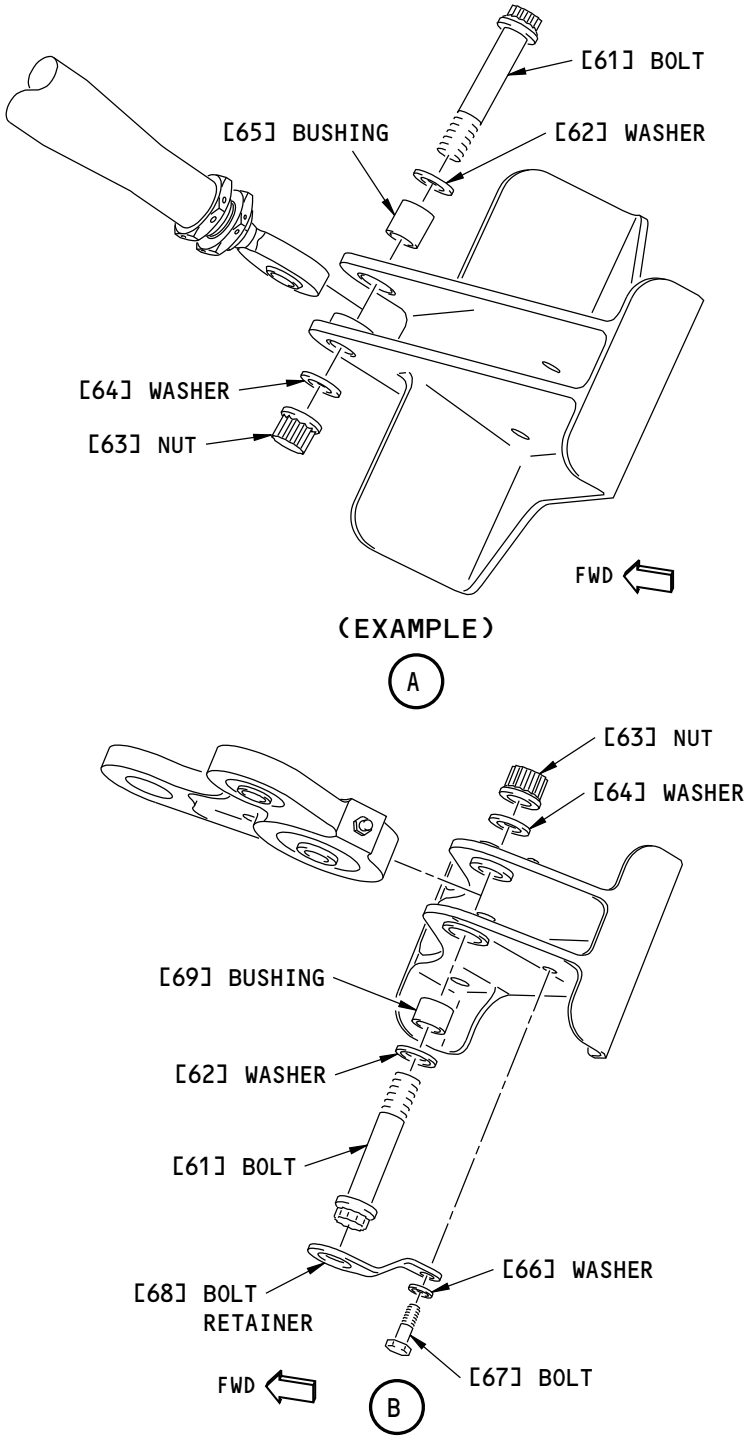
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Rudder Tab Installation
Figure 406/27-21-12-990-806 (Sheet 1 of 4)

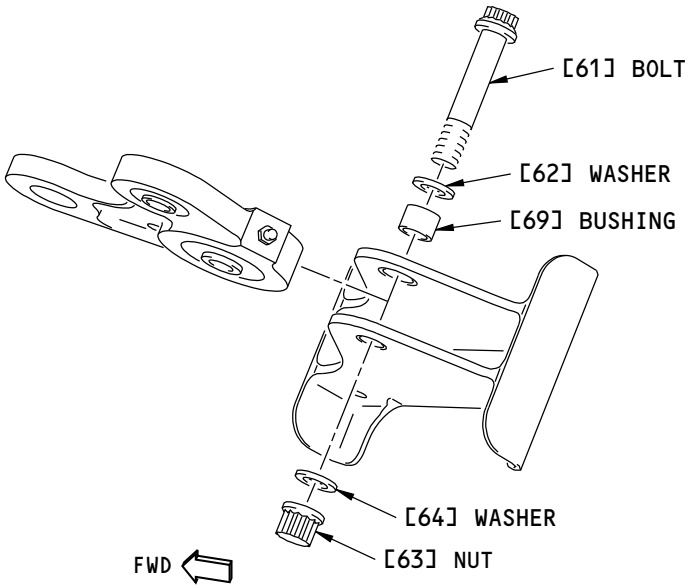
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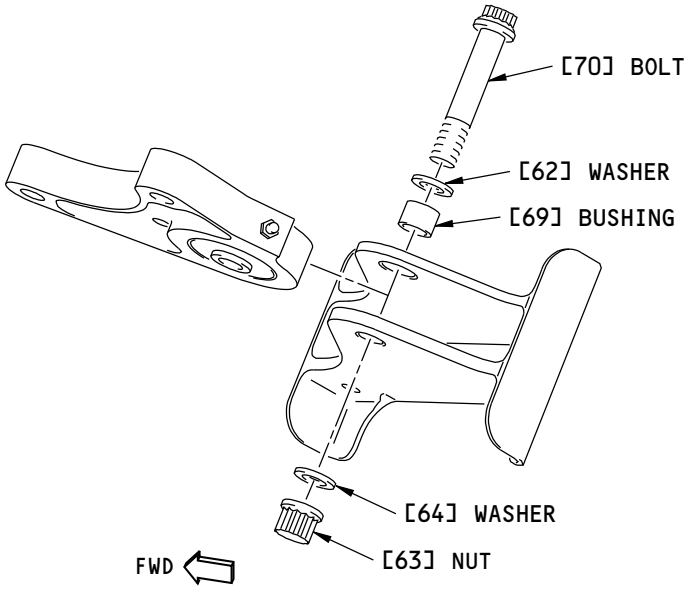
Rudder Tab Installation
Figure 406/27-21-12-990-806 (Sheet 2 of 4)

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(EXAMPLE)

C

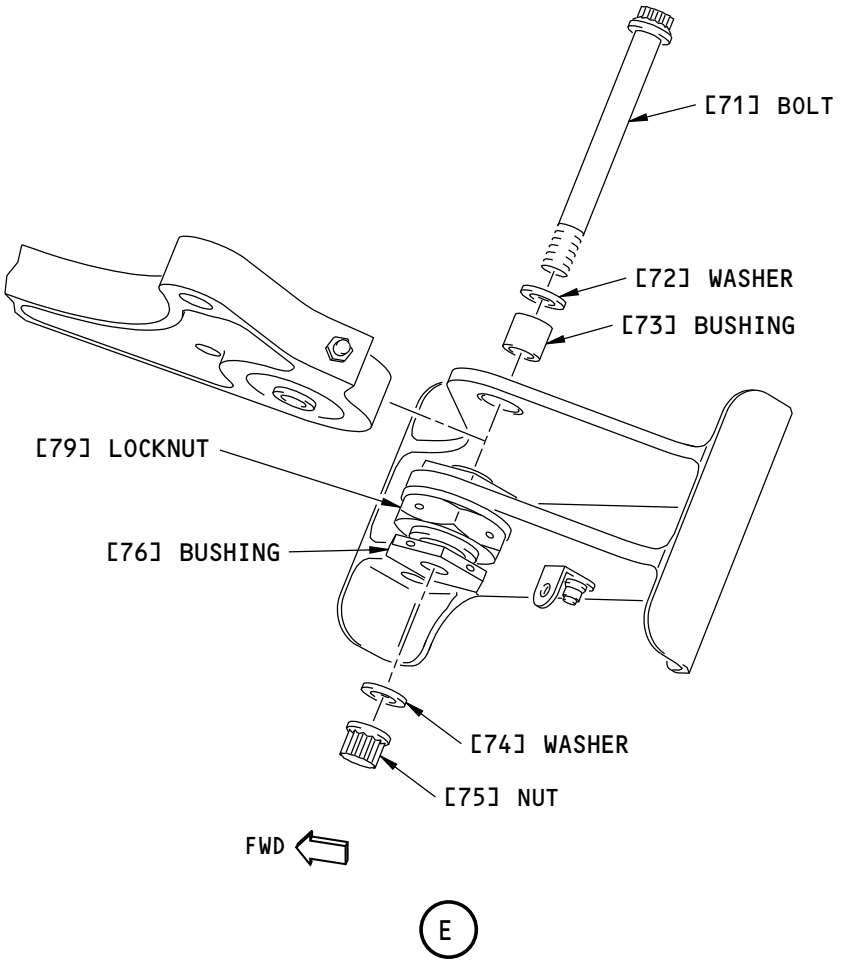


D

E44736 S0006413050_V1

Rudder Tab Installation
Figure 406/27-21-12-990-806 (Sheet 3 of 4)

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E44742 S0006413051_V1

Rudder Tab Installation
Figure 406/27-21-12-990-806 (Sheet 4 of 4)

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TASK 27-21-12-400-802

5. Rudder Tab Installation

A. References

Reference	Title
06-42-00-800-801	Finding an Access Door or Panel in the Empennage (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-21-00-800-801	Rudder Adjustment (Rigging) (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1712	Lock, Rudder Power Control Unit Part #: J27028-21 Supplier: 81205
SPL-1723	Sling, Rudder Tab Removal/Installation Part #: J27025-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
68	Retainer	55-45-00-02-010	ARO ALL
78	Tab assembly	55-45-00-02-300	ARO ALL

E. Location Zones

Zone	Area
325	Rudder
326	Rudder Tab

F. Access Panels

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324PLX	Vertical Stabilizer Trailing Edge Seal
325AR	Rudder Pushrod Fairing - Lower
325BR	Rudder Pushrod Fairing - Center
325CR	Rudder Pushrod Fairing - Upper
326AR	Tab Pushrod Fairing - Lower
326BR	Tab Pushrod Fairing - Center
326CR	Tab Pushrod Fairing - Upper

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G. Rudder Tab Installation

SUBTASK 27-21-12-640-001

(1) Apply a thin layer of grease, D00633, to the smooth surfaces of all the hinge bolts, bushings and bearings.

SUBTASK 27-21-12-480-004

(2) Attach the rudder tab sling, SPL-1723, to the tab assembly [78].

SUBTASK 27-21-12-420-006

(3) Lift the tab assembly [78] to its position on the rudder assembly [77].

SUBTASK 27-21-12-420-007

(4) Install the bolt [70] (bolthead up), washer [62] (under the bolthead), bushing [69], washer [64] (under the nut) and nut [63], View D (Figure 406).

(a) Tighten the nut [63] to 440-650 pound-inches (49.7-73.4 newton-meters).

SUBTASK 27-21-12-420-008

(5) Install the bolts [61] (bolthead up), washers [62] (under the bolthead), bushings [69], washers [64] (under the nut) and nuts [63], View C.

(a) Tighten the nuts [63] to 440-650 pound-inches (49.7-73.4 newton-meters).

SUBTASK 27-21-12-420-009

(6) Install the bolt [61] (bolthead down), washer [62] (under the bolthead), bushing [69], washer [64] (under the nut) and nut [63], View B.

(a) Tighten the nut [63] to 440-650 pound-inches (49.7-73.4 newton-meters).

SUBTASK 27-21-12-420-010

(7) Install the retainer [68], View B:

(a) Apply sealant, A00247, to the bolt [67].

(b) Put the retainer [68] in its position on the head of the bolt [61].

(c) Install the bolt [67] and washer [66].

SUBTASK 27-21-12-420-011

(8) Install the bushing [76] until it is finger-tight, View E.

SUBTASK 27-21-12-420-012

(9) Install the bolt [71] (bolthead up), washer [72] (under the bolt), bushing [73], washer [74] (under the nut) and nut [75], View E.

(a) Tighten the nut [75] to 150-250 pound-inches (16.9-28.2 newton-meters).

SUBTASK 27-21-12-420-013

(10) Install the lockwire on the bushing [76] and the locknut [79], View E.

SUBTASK 27-21-12-080-002

(11) Remove the rudder tab sling, SPL-1723.

SUBTASK 27-21-12-420-014

(12) Connect the rudder tab pushrods to the tab assembly [78], View A (Figure 406).

(a) Put the pushrods in their position on the tab assembly [78].

(b) Install the bolts [61] (bolthead up), washers [62] (under the bolt), bushings [65], washers [64] (under the nut) and nuts [63].

1) Tighten the nuts [63] to 440-650 pound-inches (49.7-73.4 newton-meters).

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SUBTASK 27-21-12-840-015

WARNING MAKE SURE THE HYDRAULIC SYSTEM IS NOT PRESSURIZED WHEN YOU REMOVE THE LOCK FROM THE RUDDER PCU. IF THE HYDRAULIC SYSTEM IS PRESSURIZED, THE RUDDER MIGHT MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(13) Remove the rudder power control unit lock, SPL-1712, from the rudder PCUs.

(a) If it is necessary, move the rudder manually to remove the rudder power control unit lock, SPL-1712.

SUBTASK 27-21-12-840-016

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(14) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-21-12-840-017

(15) Remove the DO-NOT-OPERATE tags and put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

SUBTASK 27-21-12-840-018

(16) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-21-12-840-011

(17) Remove the DO-NOT-CLOSE tags and close these circuit breakers.

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A9, RUD PCU

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A9, RUD PCU

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A9, A9, RUD PCU

SUBTASK 27-21-12-820-001

(18) Do this task: Rudder Adjustment (Rigging), TASK 27-21-00-800-801.

H. Rudder Tab Installation Test

SUBTASK 27-21-12-710-001

(1) Move the rudder pedals through their full travel.

(a) Make sure the tab assembly [78] moves smoothly as the rudder assembly [77] moves.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-12-840-020

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-21-12-390-001

CAUTION

USE SEALANT PR-1405-G. DO NOT USE OTHER SEALANTS. OTHER SEALANTS CAN BE TOO STRONG WHICH WILL CAUSE THE PANEL TO BREAK WHEN IT IS REMOVED.

(2) Put a bead of the sealant, PR-1405-G, around the edge of these access panels: 324FL, 324EL, and 324DL.

SUBTASK 27-21-12-410-002

(3) Install these access panels:

(TASK 06-42-00-800-801)

Number	Name/Location
324DXL	Vertical Stabilizer Trailing Edge Cover Panel
324PLX	Vertical Stabilizer Trailing Edge Seal
325AR	Rudder Pushrod Fairing - Lower
325BR	Rudder Pushrod Fairing - Center
325CR	Rudder Pushrod Fairing - Upper
326AR	Tab Pushrod Fairing - Lower
326BR	Tab Pushrod Fairing - Center
326CR	Tab Pushrod Fairing - Upper

END OF TASK

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MODAL SUPPRESSION ACCELEROMETERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a modal suppression accelerometer.

(2) An installation of a modal suppression accelerometer.

B. In this procedure, the modal suppression accelerometer is referred to as the accelerometer [2].

C. This procedure is applicable for the left and right accelerometer [2].

TASK 27-21-13-000-801

2. Accelerometer Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) There are two accelerometers [2] on the airplane. They are located on the floor beam assembly at station 2050 at approximately LBL 51 (left accelerometer) and RBL 82 (right accelerometer).

B. References

Reference	Title
25-52-06-000-801	Sidewall Liner Removal (P/B 401)
52-36-00-860-801	Open the Door (P/B 201)

C. Location Zones

Zone	Area
165	Area Aft of Bulk Cargo Compartment, Left
166	Area Aft of Bulk Cargo Compartment, Right

D. Prepare for the Removal

SUBTASK 27-21-13-010-001

(1) To get access to the bulk cargo compartment, do this task: Open the Door, TASK 52-36-00-860-801.

SUBTASK 27-21-13-010-002

(2) Remove the aft vertical sidewall liner in the bulk cargo compartment area. To remove it, do this task: Sidewall Liner Removal, TASK 25-52-06-000-801.

SUBTASK 27-21-13-860-001

(3) For the right accelerometer [2]:

(a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-21-13-860-002

(4) For the left accelerometer [2]:

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(a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

E. Accelerometer Removal

SUBTASK 27-21-13-020-001

(1) Disconnect the electrical connector for the accelerometer [2].

SUBTASK 27-21-13-020-002

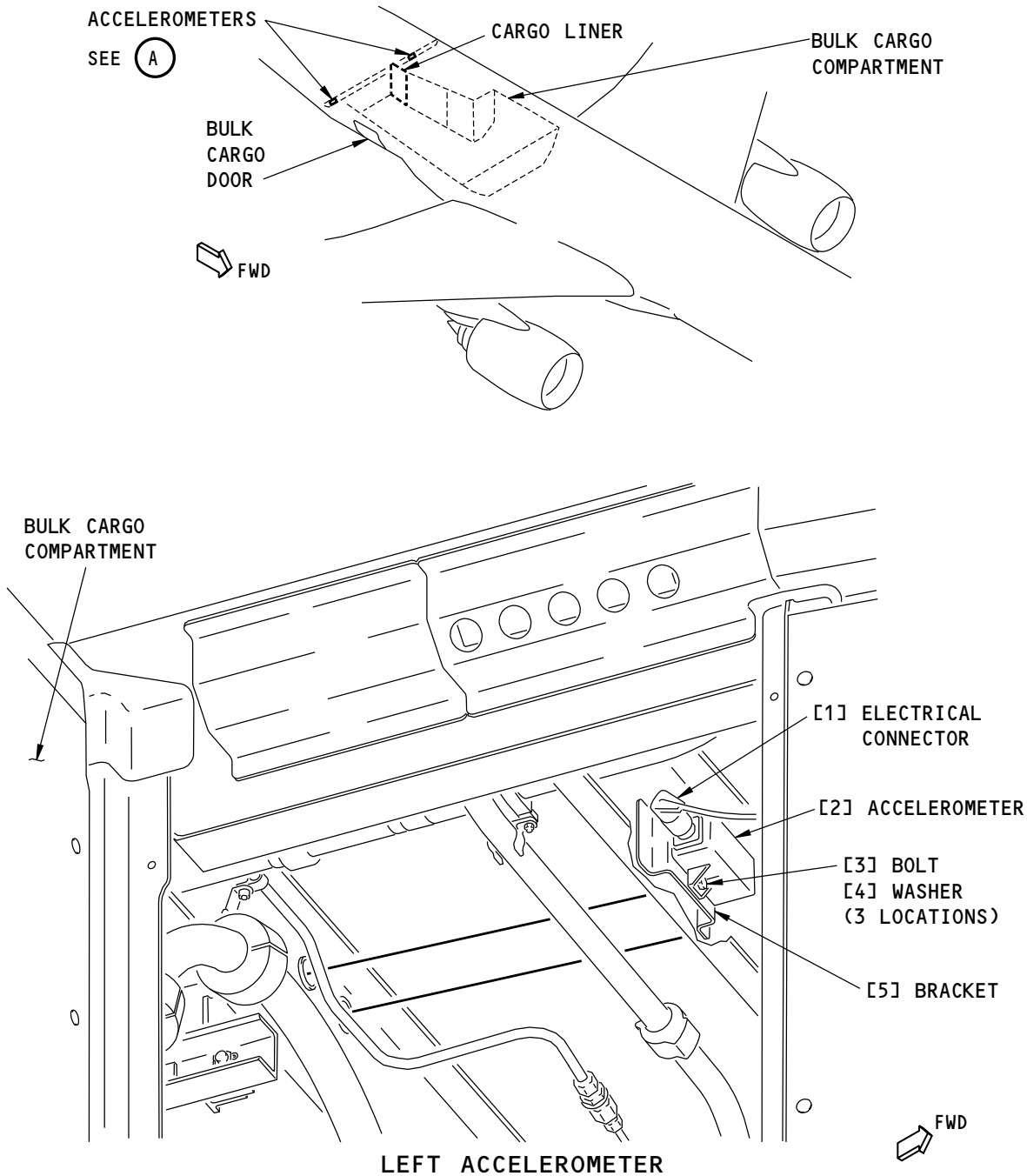
(2) Remove the washers [4] and bolts [3].

SUBTASK 27-21-13-020-003

(3) Remove the accelerometer [2] from the bracket [5].

——— END OF TASK ———

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Accelerometer Installation
Figure 401/27-21-13-990-801

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TASK 27-21-13-400-801

3. Accelerometer Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) There are two accelerometers [2] on the airplane. They are located on the floor beam assembly at station 2050 at approximately LBL 51 (left accelerometer) and RBL 82 (right accelerometer).

B. References

Reference	Title
25-52-06-400-801	Sidewall Liner Installation (P/B 401)
45-10-00-740-819	How to Do a Ground Test (P/B 201)
52-36-00-860-802	Close the Door (P/B 201)

C. Location Zones

Zone	Area
165	Area Aft of Bulk Cargo Compartment, Left
166	Area Aft of Bulk Cargo Compartment, Right

D. Accelerometer Installation

SUBTASK 27-21-13-420-001

(1) Put the accelerometer [2] in its position on the bracket [5].

SUBTASK 27-21-13-420-002

(2) Install the washers [4] and bolts [3].

SUBTASK 27-21-13-420-003

(3) Connect the electrical connector [1] to the accelerometer [2].

SUBTASK 27-21-13-860-003

(4) For the right accelerometer:

(a) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-21-13-860-004

(5) For the left accelerometer:

(a) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

SUBTASK 27-21-13-730-001

(6) Use the MAT to do the system test of the accelerometer [2] (TASK 45-10-00-740-819):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

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3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) MODAL SUPPRESSION ACCELEROMETERS
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:
1) CONTINUE
2) START TEST

NOTE: To stop the test, select "STOP TEST". This will cause the flight controls to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

(c) When the test is completed, make sure PASSED show adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

E. Put the Airplane Back to its Usual Condition

SUBTASK 27-21-13-410-001

(1) Install the aft vertical sidewall liner in the bulk cargo compartment area. To install it, do this task: Sidewall Liner Installation, TASK 25-52-06-400-801.

SUBTASK 27-21-13-410-002

(2) Close the bulk cargo door. To close it, do this task: Close the Door, TASK 52-36-00-860-802.

——— END OF TASK ———

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RUDDER JACKSHAFT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder jackshaft.

(2) An installation of the rudder jackshaft.

B. This procedure is applicable for the left and right rudder jackshafts.

TASK 27-21-14-000-803

2. Rudder Jackshaft Removal

(Figure 401)

A. References

Reference	Title
27-21-04-000-802	Rudder Pedal Flight Data Recorder (FDR) Force Transducer Removal (P/B 401)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2535	Pin - Rig (J20003-15 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-21-14-820-006

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

NOTE: If hydraulic pressure must be on for other maintenance, ensure that the TAIL FLT CONTROL HYD POWER VALVE switches are in the SHUTOFF position to prevent any rudder movement.

SUBTASK 27-21-14-010-002

(2) Get access to the area forward of the nose landing gear wheel well through this access panel:

Number	Name/Location
112AL	Forward Access Door

(Figure 401).

SUBTASK 27-21-14-480-002

(3) Install the rudder pedal mechanism rig pins:

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(a) In order to align the rig pin holes you will need to supply power to the Rudder Trim System and operate the Rudder Trim Knob located on the P-8 panel. You must close the following circuit breakers to supply power to the Rudder Trim System:

1) On the left power supply assembly (PSA-L) in the E1-6 rack

a) A1, ACE-L1 PW

b) B8.

2) On the right power supply assembly (PSA-R) in the E5-1 rack

a) A1, ACE-R PW

(b) Operate the Rudder Trim Knob until the rig pin holes align and install rig pin R1 from rig pin (J20003-15 assembly), SPL-2535.

(c) Operate the Rudder Trim Knob until the rig pin holes align and install rig pin R2 from rig pin (J20003-15 assembly), SPL-2535.

SUBTASK 27-21-14-820-007

(4) Adjust the Captain's and First Officer's control pedals full aft by rotating the rudder pedal adjustment handle clockwise.

F. Rudder Jackshaft Removal

SUBTASK 27-21-14-020-006

(1) Carefully disconnect the two limiter assembly [17] by removing the bolt [13], bushing [14], washer [15], washer [15A] and nut [16] from each assembly.

(a) Let the rudder pedals fall forward to disengage the limiter assembly [17].

(b) Attach the loose rods from each limiter assembly [17] to the surrounding structure.

SUBTASK 27-21-14-020-008

(2) Disconnect the rod assembly [6] from the jackshaft assembly [10].

(a) Remove the nut [22], lower washer [23], bolt [20], the upper washer [23], the bolt [20], and the bushing [24] and bushing [25].

SUBTASK 27-21-14-020-009

(3) If you remove the RIGHT rudder jackshaft assembly [10], then do these steps:

(a) Remove the nut [9], washer [8] and bolt [7] from the nose gear steering crank [11].

(b) Disconnect the nose gear steering crank [11] from the jackshaft assembly [10].

SUBTASK 27-21-14-020-010

(4) Disconnect the handle assembly [1] (or rudder pedal adjustment cable) from the jackshaft assembly [10]:

(a) Remove the lockwire from the jamnut [19].

(b) Loosen the jamnut [19] of the handle assembly [1] (rudder pedal adjustment cable).

1) Slide the jamnut [19] aft.

(c) Hold the jamnut [19] and the aft washer [18] and pull the handle assembly [1] through the grommet hole.

SUBTASK 27-21-14-020-012

(5) Disconnect the flight data recorder transducer [26] connector.

SUBTASK 27-21-14-020-013

(6) Remove the bolt [37], washer [38] and clamp [39] that holds the flight data recorder transducer [26] cable.

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SUBTASK 27-21-14-020-014

(7) Remove the bolts [27], washers [28], washers [29] and nuts [30] from the frame [31].

(a) Remove the jackshaft assembly [10], frame [31] and plate [32].

SUBTASK 27-21-14-020-015

(8) Remove the flight data recorder transducer [26] from the jackshaft assembly [10] (Rudder Pedal Flight Data Recorder (FDR) Force Transducer Removal, TASK 27-21-04-000-802).

SUBTASK 27-21-14-020-016

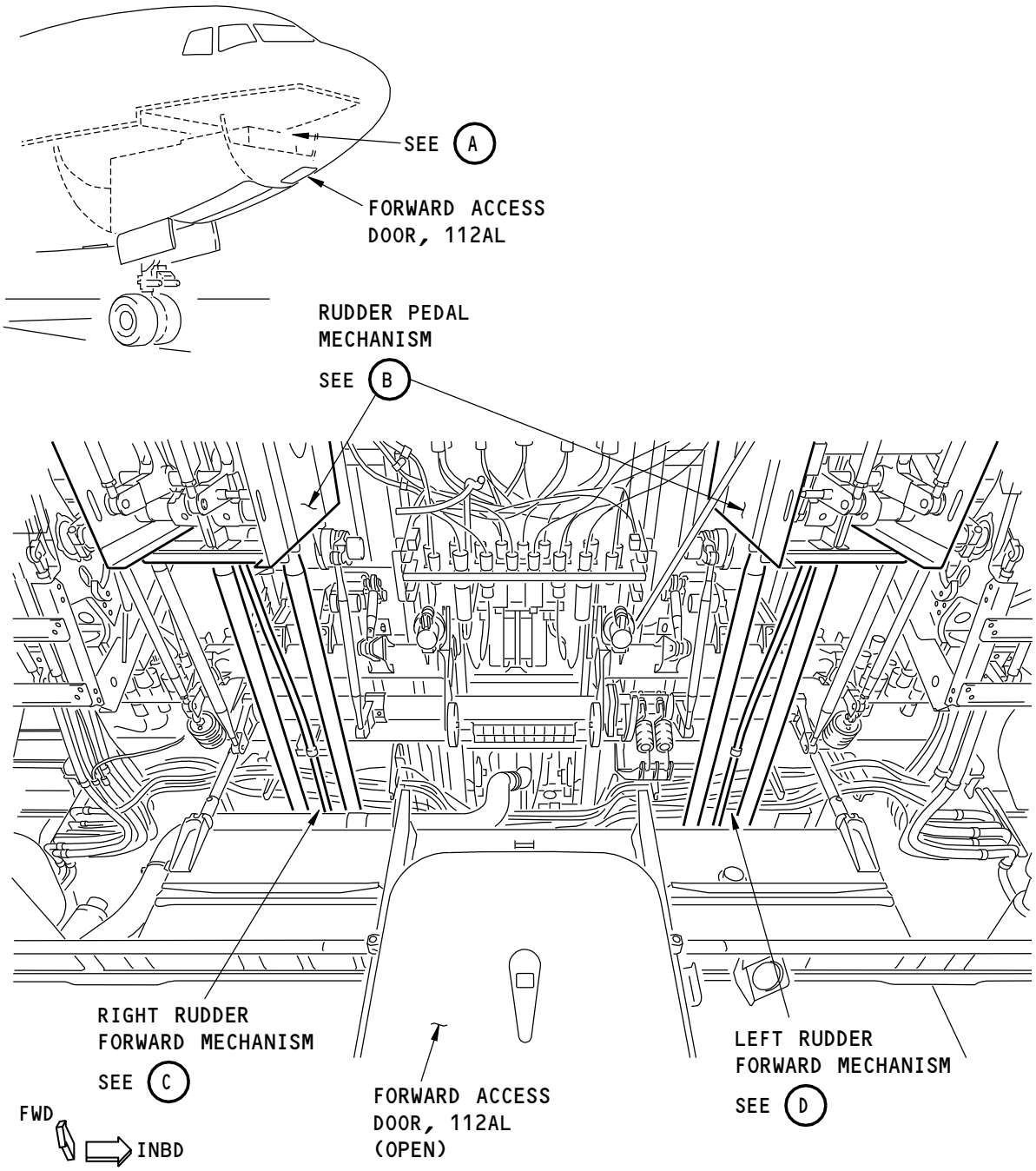
(9) Remove the bolts [34], washers [35] and nuts [36] from the frame [31] and plate [32].

SUBTASK 27-21-14-020-017

(10) Remove the frame [31], plate [32] and bearings [33] from the jackshaft assembly [10].

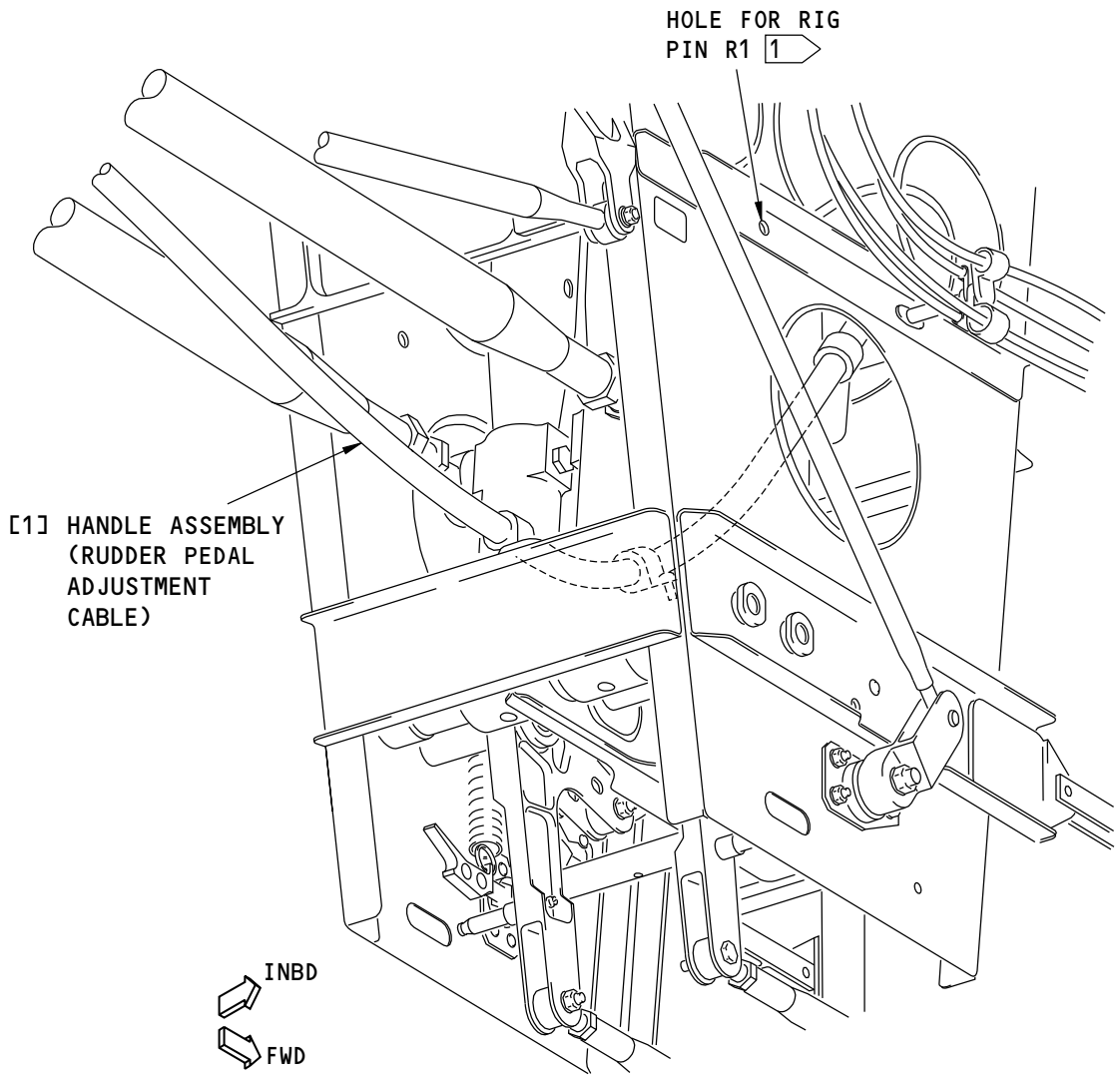
——— END OF TASK ———

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Rudder Jackshaft Installation
Figure 401/27-21-14-990-802 (Sheet 1 of 6)

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LEFT RUDDER PEDAL MECHANISM
(RIGHT RUDDER PEDAL MECHANISM IS EQUIVALENT)

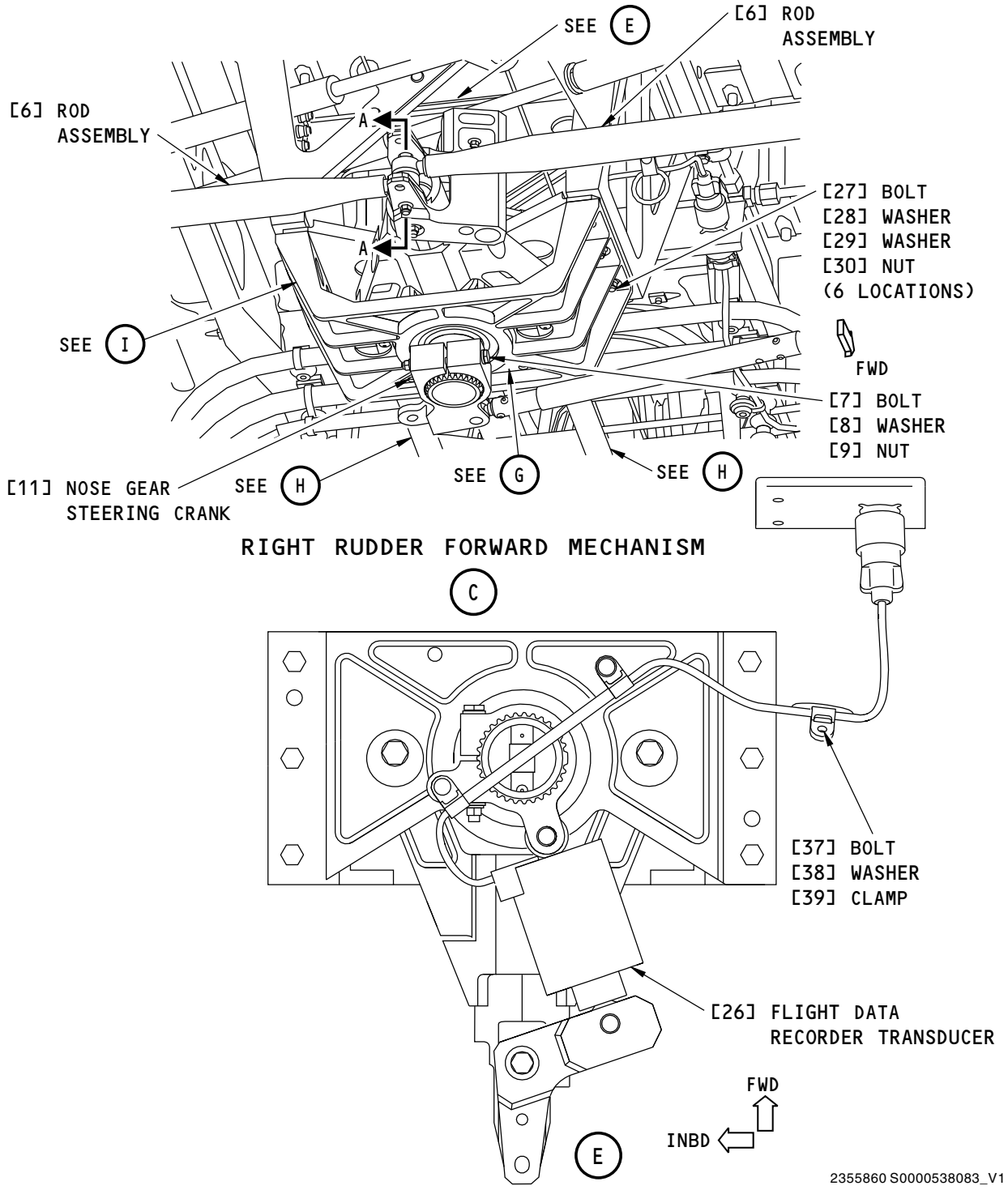
B

1 RIG PIN R2 IS INSTALLED IN THE RIGHT RUDDER PEDAL.

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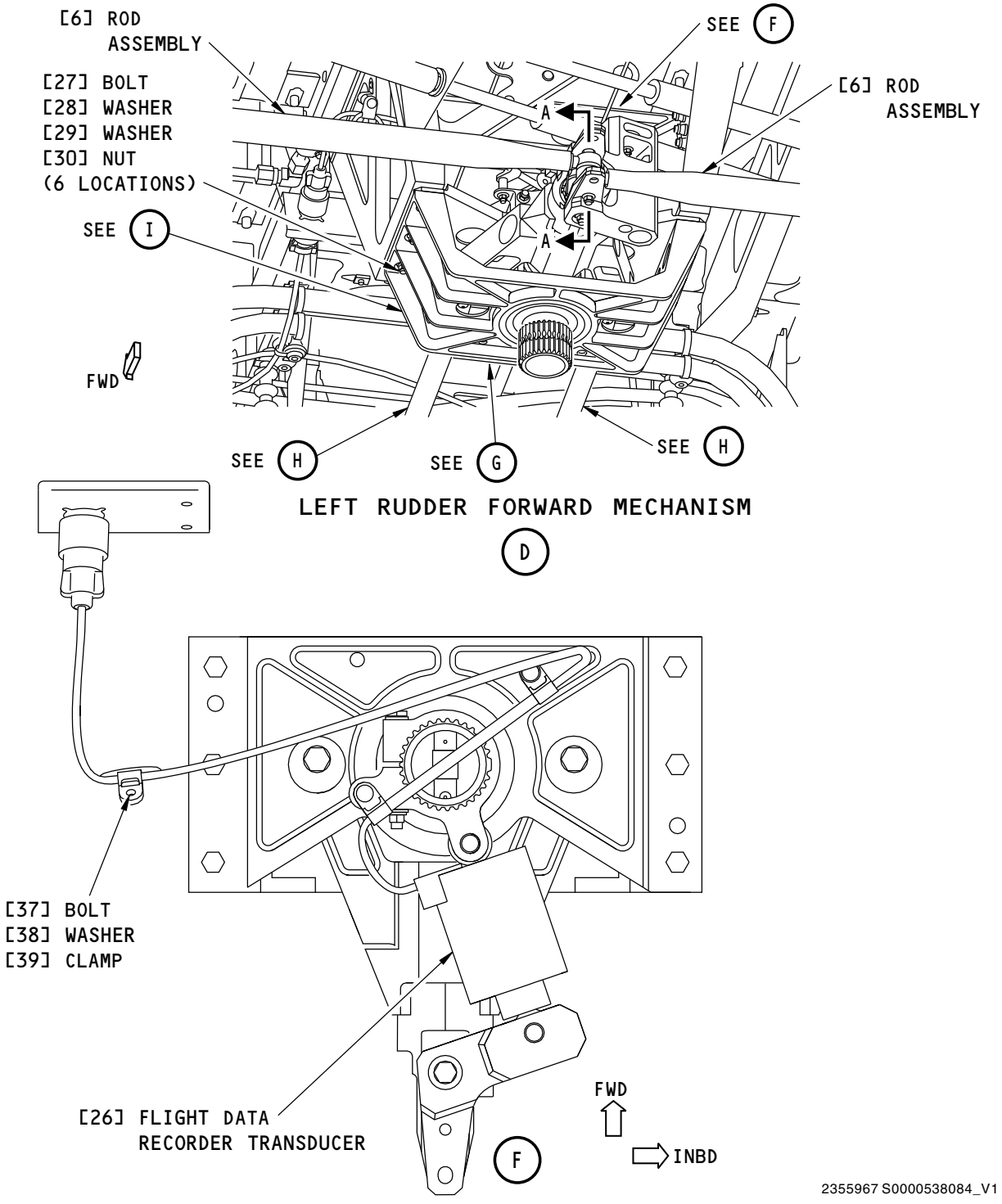
Rudder Jackshaft Installation
Figure 401/27-21-14-990-802 (Sheet 2 of 6)

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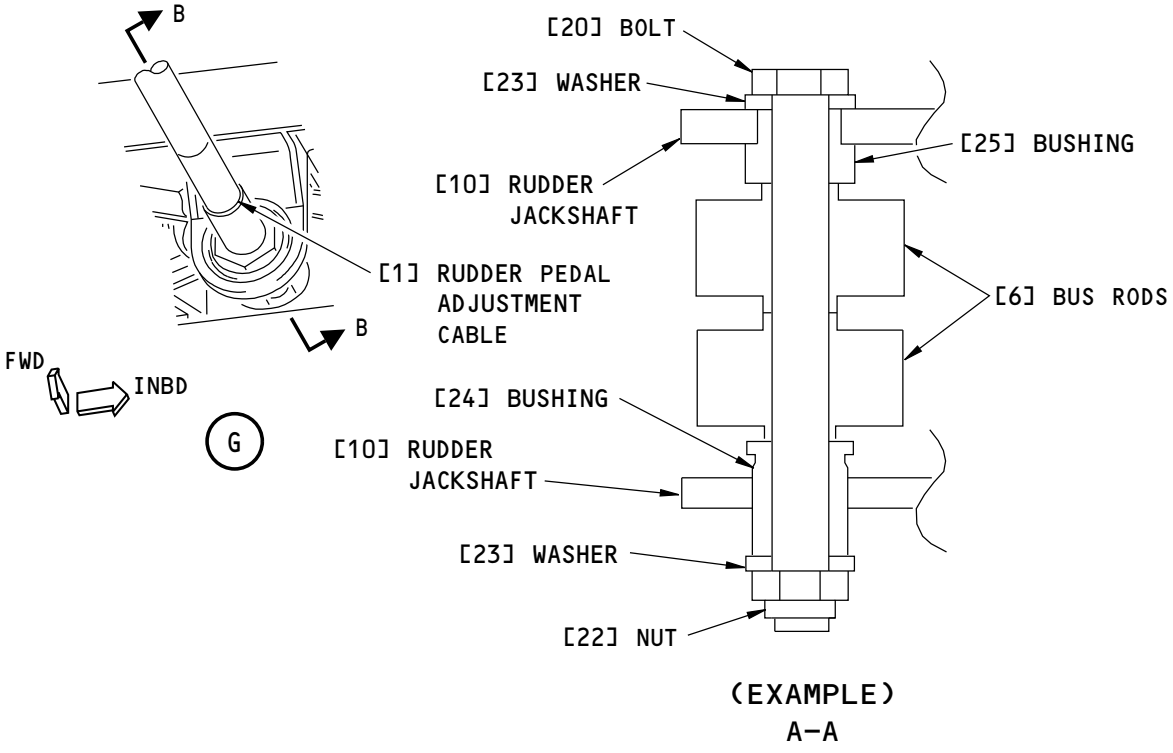
Rudder Jackshaft Installation
Figure 401/27-21-14-990-802 (Sheet 3 of 6)

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Rudder Jackshaft Installation
Figure 401/27-21-14-990-802 (Sheet 4 of 6)

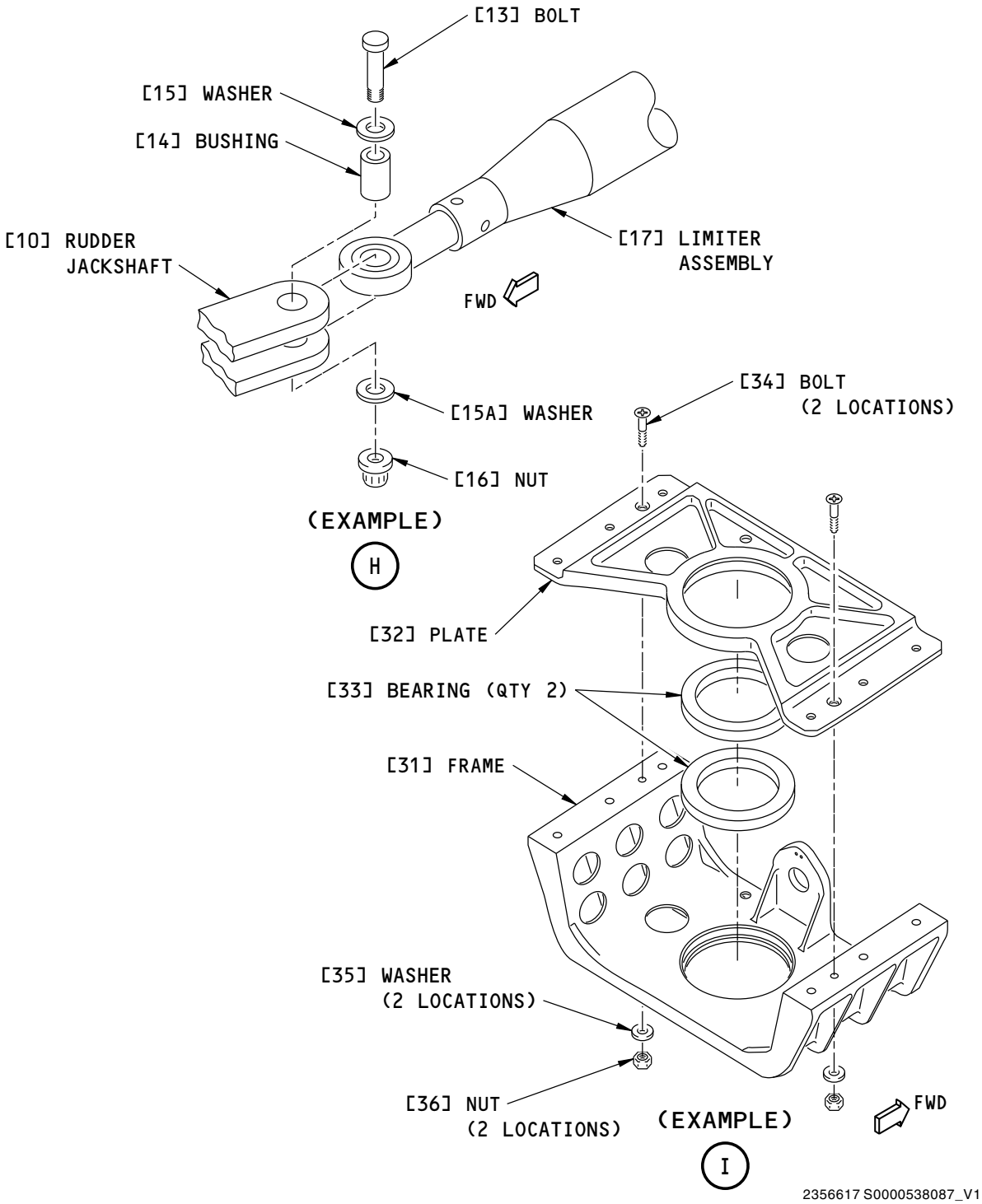
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Rudder Jackshaft Installation
Figure 401/27-21-14-990-802 (Sheet 5 of 6)

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Rudder Jackshaft Installation
Figure 401/27-21-14-990-802 (Sheet 6 of 6)

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TASK 27-21-14-400-802

3. Rudder Jackshaft Installation

(Figure 401)

A. References

Reference	Title
27-21-00-700-805	Rudder Pedal Adjustment and Travel Test (P/B 501)
27-21-00-700-807	Rudder Pedal Force Transducer Test (P/B 501)
27-21-00-800-802	Rudder Pedal Adjustment (P/B 501)
27-21-00-800-803	Left and Right Rudder Control Mechanisms Adjustment (Rigging) (P/B 501)
27-21-00-800-804	Pedal Position Transducer Adjustment (Rigging) (P/B 501)
27-21-02-400-802	Rudder Pedal Adjustment Flex Shaft Installation (P/B 401)
27-21-04-400-802	Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation (P/B 401)
32-51-00-720-802	Nose Landing Gear Steering System - Functional Test (P/B 501)

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Rudder Jackshaft Installation

SUBTASK 27-21-14-420-009

(1) If necessary, do these steps to assemble the jackshaft assembly [10], frame [31], plate [32] and bearings [33]:

NOTE: The jackshaft assembly [10], frame [31], plate [32] and bearings [33] should come assembled prior to installation. If they are assembled the following steps are not necessary.

(a) Install the bearing [33] in the frame [31].

1) Lubricate the outside diameter of the bearing [33] with grease, D00633.

(b) Install the bearing [33] in the plate [32].

1) Lubricate the outside diameter of the bearing [33] with grease, D00633.

(c) Install the jackshaft assembly [10] on the frame [31].

(d) Install the plate [32] on the jackshaft assembly [10] and frame [31] with the bolts [34], washers [35] and nuts [36].

SUBTASK 27-21-14-420-011

(2) Install the flight data recorder transducer [26] on the jackshaft assembly [10] (Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation, TASK 27-21-04-400-802).

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SUBTASK 27-21-14-420-012

(3) Install the assembled jackshaft assembly [10], frame [31] and flight data recorder transducer [26] with the bolts [27], washers [28], washers [29] and nuts [30].

SUBTASK 27-21-14-420-015

(4) Connect the handle assembly [1] (rudder pedal adjustment cable) to the jackshaft assembly [10] by doing this task (TASK 27-21-02-400-802):

SUBTASK 27-21-14-420-014

(5) If you install the right rudder jackshaft assembly [10], then do these steps:

(a) Connect the nose gear steering crank [11] to the jackshaft assembly [10].

(b) Install the bolt [7], washer [8] and nut [9] to the nose gear steering crank [11].

1) Tighten the nut [9] to 55 ±5 in-lb (6 ±1 N·m).

SUBTASK 27-21-14-420-013

(6) Connect the rod assemblies [6] to the jackshaft assembly [10]:

(a) Install the lower bushing [24], the upper bushing [25], the rod assemblies [6], the washers [23], the bolt [20], and the nut [22].

SUBTASK 27-21-14-420-010

(7) Connect the limiter assemblies [17] to the jackshaft assembly [10]:

(a) Install the bushing [14], bolt [13], washer [15], washer [15A] and the nut [16].

SUBTASK 27-21-14-080-001

(8) Remove rig pins R1 and R2.

F. Rudder Jackshaft Installation Test

SUBTASK 27-21-14-820-008

(1) Do this task: Rudder Pedal Adjustment, TASK 27-21-00-800-802.

SUBTASK 27-21-14-820-009

(2) Do this task: Left and Right Rudder Control Mechanisms Adjustment (Rigging), TASK 27-21-00-800-803.

SUBTASK 27-21-14-820-010

(3) Do this task: Pedal Position Transducer Adjustment (Rigging), TASK 27-21-00-800-804.

SUBTASK 27-21-14-710-002

(4) Do this task: Rudder Pedal Force Transducer Test, TASK 27-21-00-700-807

SUBTASK 27-21-14-710-003

(5) Do this task: Rudder Pedal Adjustment and Travel Test, TASK 27-21-00-700-805.

SUBTASK 27-21-14-710-004

NOTE: Nose Landing Gear Steering System - Functional Test, TASK 32-51-00-720-802 contains a check of the steering system's travel with the rudder pedals.

(6) Only do the steps from the Nose Landing Gear Steering System - Functional Test, TASK 32-51-00-720-802 that checks the steering system's travel with the rudder pedals.

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-14-410-003

(1) Make sure that these circuit breakers are closed:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-21-14-410-002

(2) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

END OF TASK

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ELEVATOR CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Elevator Adjustment (Rigging) - Use this procedure to adjust (rig) the elevator to its neutral position or to make sure it is adjusted correctly.

(2) Control Column Adjustment (Rigging) - Use this procedure to adjust the control column and the position transducers for the control column. They must be adjusted until the position transducers are at zero when the control columns are in their neutral position.

(3) Elevator Power Control Unit Test - Use this procedure to automatically do a test of the operation of the power control units (PCUs) for the elevator.

(4) Elevator Position Test - Use this procedure to automatically do a test of the operation of the position transducers (LVDTs) for the elevators. The position transducers are part of the PCUs.

(5) Direct Mode Test - Use this procedure to make sure the elevators move the correct distance when the flight control system is in the direct mode.

(6) Pressure Reducer Test - Use this procedure to make sure the pressure reducers for the elevator PCUs are serviceable. The pressure reducers are part of the PCUs.

(7) Compensator Test for the Elevator PCUs - Use this procedure to make sure the compensators for the elevator PCUs are serviceable. The compensators are part of the PCUs.

(8) Column Breakout Mechanism Test - Use this test to make sure the column breakout mechanism operates correctly. The column breakout mechanism lets one control column move even if the other column is caught (jammed) and cannot move.

(9) Control Column Damper Test - Use this test to make sure the column damper operates correctly. The column damper slows the movement of the control columns to stop them from oscillating.

(10) Control Column Travel Test - Use this procedure to make sure the control columns can move through their full travel.

(11) Column Force Transducer Test - Use this procedure to make sure the column force transducers for the Captain and the First Officer operate correctly.

(12) Column Force Test - Use this procedure to make sure the column force transducers for the Captain and First Officer supplies the correct forces.

(13) Elevator Feel System Test - Use this procedure to make sure the feel and centering mechanism for the elevator supplies the correct forces.

TASK 27-31-00-800-801

2. Elevator Adjustment (Rigging)

(Figure 501)

A. General

(1) You must use the maintenance access terminal (MAT) to do this procedure.

(2) Use this procedure to adjust (rig) the elevator to its neutral position or to make sure it is adjusted correctly.

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(3) The control columns can be in any position when you do this test. The primary flight computer (PFC) ignores the position of the control columns when it does this test.

NOTE: The flight controls will move to agree with the pilot's controls when the test is done (if you keep hydraulic power on).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Cap	27-31-09-11-855	ARO ALL

D. Location Zones

Zone	Area
212	Flight Compartment, Right
330	Subzone 330 - Left Horizontal Stabilizer and Elevator
340	Subzone 340 - Right Horizontal Stabilizer and Elevator

E. Access Panels

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

F. Prepare for the Adjustment

SUBTASK 27-31-00-860-001

(1) Do these steps to set the horizontal stabilizer to the position that is necessary to adjust the elevators.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the center or right hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(b) Operate the horizontal stabilizer until dimension "B" on the stabilizer trim actuator is 8.53 to 8.55 inches (Figure 502).

NOTE: Use the pitch trim switches on the control wheels or the alternate pitch trim levers on the control stand to operate the horizontal stabilizer.

NOTE: Dimension "B" is the distance between the top of the ballscrew nut, and the bottom of the actuator housing. Measure between the flat surfaces that encircle to the screw. Do not measure from the tops of the teeth on these surfaces.

(c) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-31-00-840-001

WARNING PUT EQUIPMENT YOU WILL USE TO ADJUST THE ELEVATOR PCUS FORWARD OF THE ELEVATORS. THE ELEVATORS WILL MOVE AUTOMATICALLY DURING THIS TEST. DAMAGE TO EQUIPMENT AND INJURY TO PERSONS CAN OCCUR.

(2) Remove the access panels for the elevator power control units (PCUs):

NOTE: You must remove these access panels only if you will adjust the position of the elevator.

It is not necessary to remove them to check the adjustment of each elevator PCU at neutral.

The two elevators are adjusted independently, therefore you must remove the access panels only for the elevator you will adjust.

(a) For the left elevator power control units, open this access panel:

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel

(b) For the right elevator power control units, open this access panel:

Number	Name/Location
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

SUBTASK 27-31-00-840-002

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it (the instruction to supply hydraulic power is on the bottom of the screen that shows the hydraulic power warning, you must scroll down the screen to see the instruction). Refer to (TASK 29-11-00-860-801) for the procedure to supply hydraulic power.

G. Procedure

SUBTASK 27-31-00-820-001

(1) Use the MAT to do the system test for the left or right elevator alignment (TASK 45-10-00-740-819):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Left Elevator Alignment (Right Elevator Alignment)
7) CONTINUE

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR. KEEP YOUR HANDS WHERE THEY CANNOT GET CAUGHT WHEN THE ELEVATOR MOVES. THE ELEVATOR WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST.

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

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2) START TEST

3) On the MAT, select the procedure for the desired PCU.

NOTE: The elevator will move.

(c) Check the adjustment of the PCU.

1) Make sure the top surface at the trailing edge of the elevator aligns (±one small mark) with the center mark on the index plate Figure 501.

NOTE: Use a straight-edge, on the trailing edge of the elevator, to see how it aligns with the index plate.

2) If the top surface at the trailing edge of the elevator aligns with the center mark on the index plate, you do not need to adjust the PCU.

3) If the top surface at the trailing edge of the elevator does not align with the center mark on the index plate, you must adjust the PCU.

(d) Do these steps to adjust the PCUs when instructed by the MAT:

1) Remove the lockwire from the cap [1] on the null adjust LVDT (Figure 501).

2) Remove the cap [1] from the null adjust LVDT on the PCU that you will adjust.

3) Use a 1/8-inch allen type tool to adjust the null adjust LVDT.

4) Turn the null adjust LVDT on the PCU until the top surface at the trailing edge of the elevator aligns (±one small mark) with the center mark on the index plate (Figure 501).

a) Make sure the elevator moves when you adjust a null LVDT.

NOTE: If the elevator does not move, make sure you have the correct null LVDT. To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped).

Follow the instructions on the MAT to complete the stop test procedure. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

5) Replace the o-ring [] on the cap [1].

6) Install the cap [1] on the null adjust LVDT and tighten to 30-40 pound-inches.

7) Install a lockwire on the cap [1].

(e) Complete the test on the MAT.

NOTE: If you select NO you cannot align the elevator, then the MAT will show TEST CONDITION: FAILED.

(f) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(g) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

(h) Check the adjustment of the second PCU on the same elevator with the instructions above and adjust the PCU if necessary.

NOTE: Make sure the second PCU is also within limits prevents force-fight faults when the airplane is returned to service.

You do not need to remove the access panel to check the adjustment of the second PCU.

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-840-003

(1) Close the access panels for the elevator power control units (PCUs):

(a) For the left elevator power control units, close this access panel:

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel

(b) For the right elevator power control units, close this access panel:

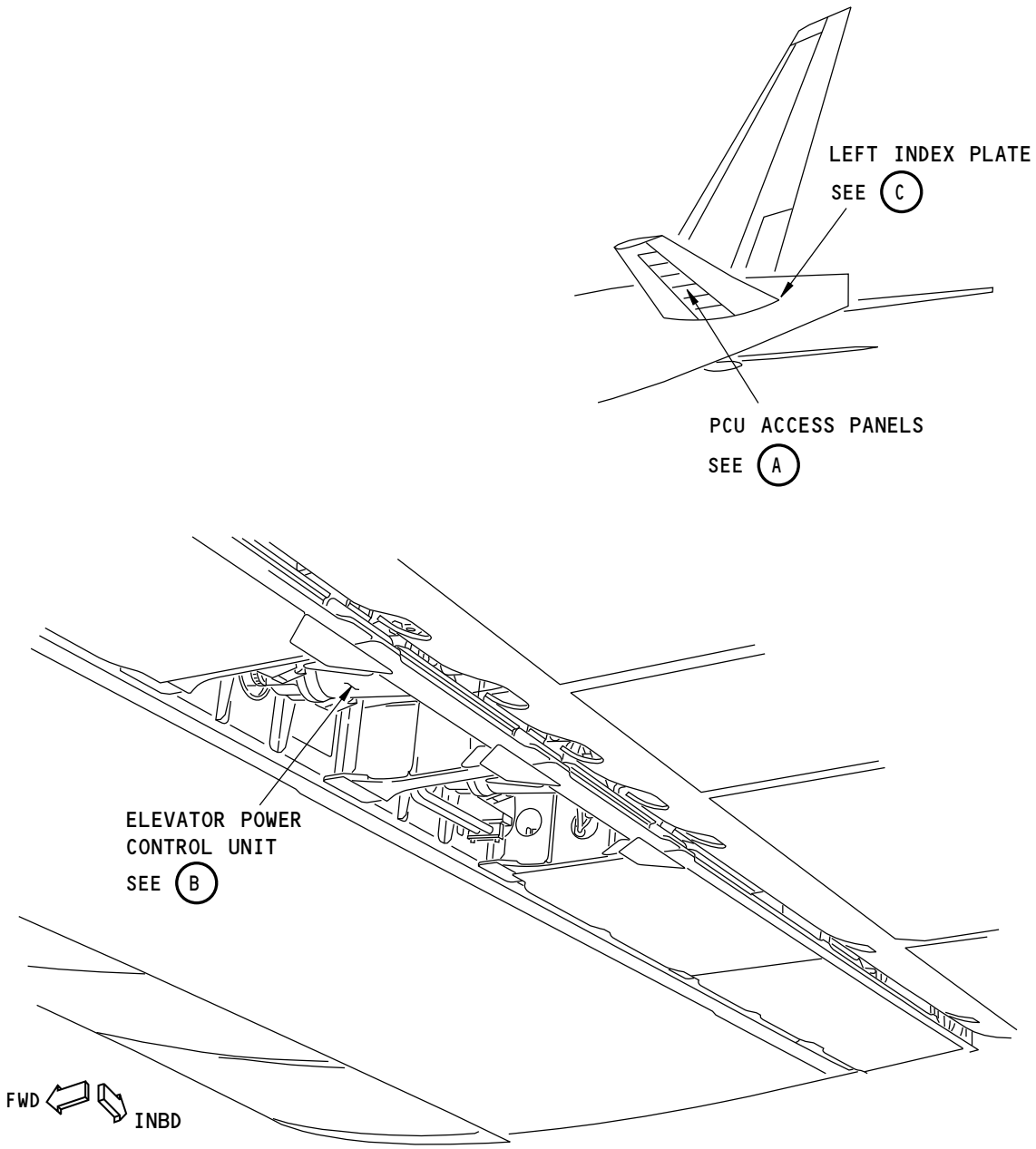
Number	Name/Location
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

SUBTASK 27-31-00-840-004

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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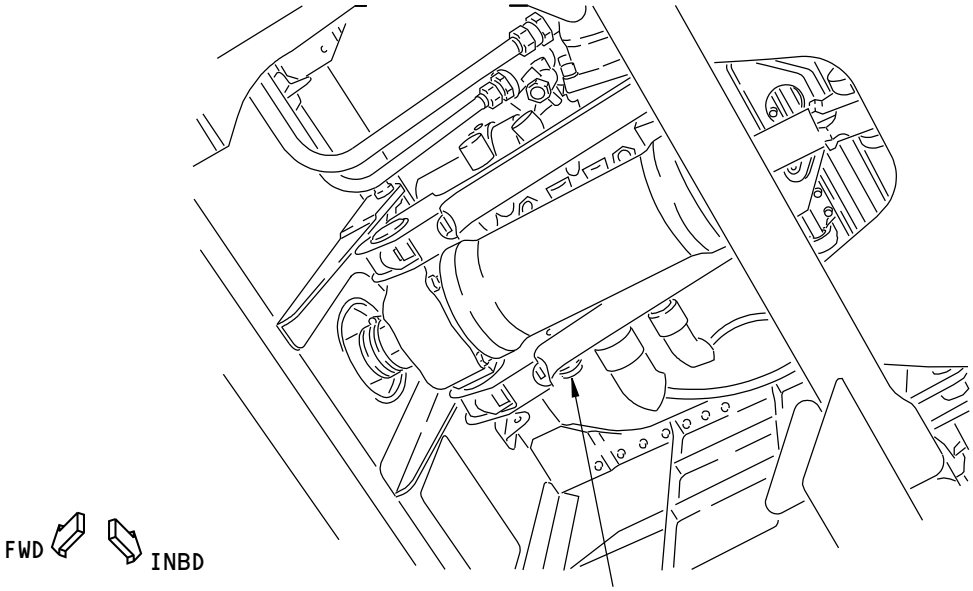


ELEVATOR POWER CONTROL UNIT ACCESS PANELS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
A

E49175 S0006413072_V1

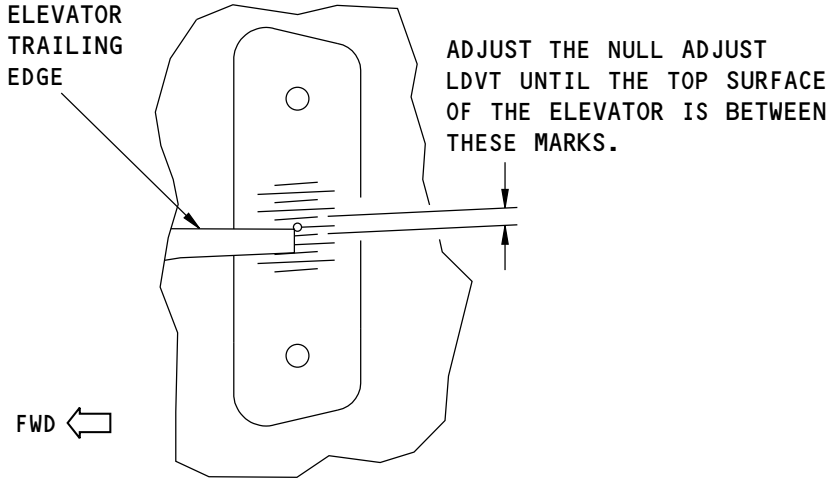
Elevator Adjustment
Figure 501/27-31-00-990-801 (Sheet 1 of 2)

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LEFT OUTBOARD ELEVATOR POWER CONTROL UNIT
(OTHER POWER CONTROL UNITS ARE EQUIVALENT)

B



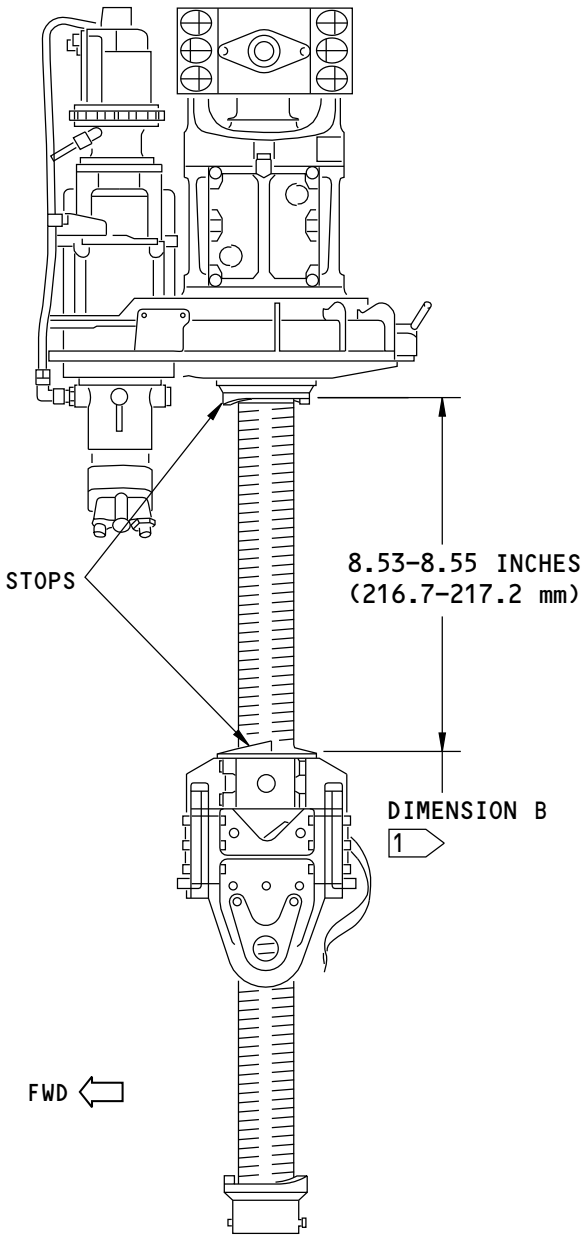
LEFT INDEX PLATE
(RIGHT INDEX PLATE IS OPPOSITE)

C

E49174 S0006413073_V2

Elevator Adjustment
Figure 501/27-31-00-990-801 (Sheet 2 of 2)

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1 MEASURE FROM THE FLAT SURFACES AT THE BASE OF THE STOPS, NOT FROM THE TOP OF THE STOPS.

E75372 S0006413074_V1

Stabilizer Position for Elevator Adjustment
Figure 502/27-31-00-990-802

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TASK 27-31-00-800-802

3. Control Column Adjustment (Rigging)

A. General

(1) Use this procedure to adjust the control column and the position transducers for the control column. They must be adjusted until the position transducers are at zero when the control columns are in their neutral position.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Prepare for the Procedure

SUBTASK 27-31-00-840-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

G. Adjust the Control Rods for the Control Column

SUBTASK 27-31-00-020-001

(1) Do these steps to disconnect these three control rods from the elevator feel units (Figure 503):

(a) Remove the nut [25], washer [24] and bolt [23], and disconnect the control rod [22] from the right elevator feel unit, View E.

(b) Remove the nut [25], washer [24] and bolt [23], and disconnect the control rod [22] from the left elevator feel unit, View D.

(c) Remove the nut [28], washer [27] and bolt [26], and disconnect control rod [21] from the left elevator feel unit, View D.

SUBTASK 27-31-00-820-002

(2) Install rig pin E1 from the rigging pin set, SPL-2532 in the Captain's control column, View B (Figure 503).

(a) Make sure the cam roller of the elevator feel unit is in the cam detent.

(b) Do these steps to adjust the control rod [21] for the left elevator feel and centering mechanism, View D (Figure 503).

1) Loosen the jam nuts on both ends of the control rod [21].

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2) Turn the control rod [21] until the bolt [26] can be easily removed and installed.

3) Tighten the jam nuts on the control rod to 70-100 pound-inches (7.91 - 11.30 newton-meters).

NOTE: Make sure you can see the rod ends through the inspection holes.

4) Install the bolt [26], washer [27] and nut [28].

SUBTASK 27-31-00-820-003

(3) Do these steps for the First Officer's control column.

(a) Remove the nut [28], washer [27] and bolt [26], and disconnect control rod [21] from the right elevator feel unit, View E (Figure 503).

(b) Install rig pin E2 from the rigging pin set, SPL-2532 in the First Officer's control column, View C (Figure 503).

(c) Make sure the cam roller of the elevator feel unit is in the cam detent

(d) Do these steps to adjust the control rod [21] on the right elevator feel unit, View E (Figure 503).

1) Loosen the jam nuts on both ends of the control rod [21].

2) Turn the control rod [21] until the bolt [26] can be easily removed and installed.

3) Tighten the jam nuts on the control rod to 70-100 pound-inches (7.91 - 11.30 newton-meters).

NOTE: Make sure you can see the rod ends through the inspection holes.

4) Install the bolt [26], washer [27] and nut [28].

SUBTASK 27-31-00-420-001

(4) Install the bolt [23], washer [24], and nut [25] to connect the control rod [22] for the left elevator feel unit.

NOTE: Keep control rod [22] disconnected from the right elevator feel unit.

SUBTASK 27-31-00-820-004

(5) Do these steps to adjust control rod [22] at the left elevator feel unit.

(a) Loosen the jam nuts on both ends of the control rod [22].

(b) Turn the control rod until rig pin E3 (from the rigging pin set, SPL-2532) can be easily removed and installed.

(c) Tighten the jam nuts on the control rod to 70-100 pound-inches (7.91 -11.30 newton-meters).

NOTE: Make sure you can see the rod ends through the inspection holes.

SUBTASK 27-31-00-820-005

(6) Do these steps to adjust the control rod [22] for the right elevator feel unit.

(a) Loosen the jam nuts on both ends of the control rod [22].

(b) Turn the control rod until the bolt [23] can be easily removed and installed.

(c) Tighten the jam nuts on the control rod to 70 to 100 pound-inches (7.91 - 11.30 newton-meters).

NOTE: Make sure you can see the rod ends through the inspection holes.

(d) Install the bolt [23], washer [24], and nut [25].

SUBTASK 27-31-00-210-001

(7) Make sure that the cam roller for each elevator feel unit is in its detent.

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H. Adjust the Column Position Transducers

SUBTASK 27-31-00-820-006

(1) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

(a) Make sure the six COLUMN POSITION indications (three CAPT and three F/O) show -0.01 to 0.01.

NOTE: It can be necessary to rock the columns slightly forward and aft to make sure the columns are in their detent.

(b) If the correct position is not shown on the maintenance page, adjust the position transmitters:

1) Get access to the column position transducers through this access panel:

Number	Name/Location
112AL	Forward Access Door

2) Remove the lockwire on the jam nuts.

3) Loosen the jam nuts.

4) Adjust the position transmitters until you get these conditions:

a) The maintenance page shows -0.01 to 0.01 for all the COLUMN POSITION indications.

5) Tighten the jam nuts 90-160 pound-inches (10.17 - 18.08 newton-meters).

6) Install the lockwire.

SUBTASK 27-31-00-080-001

(2) Remove rig pins E1, E2 and E3.

I. Put the Airplane Back to Its Usual Condition

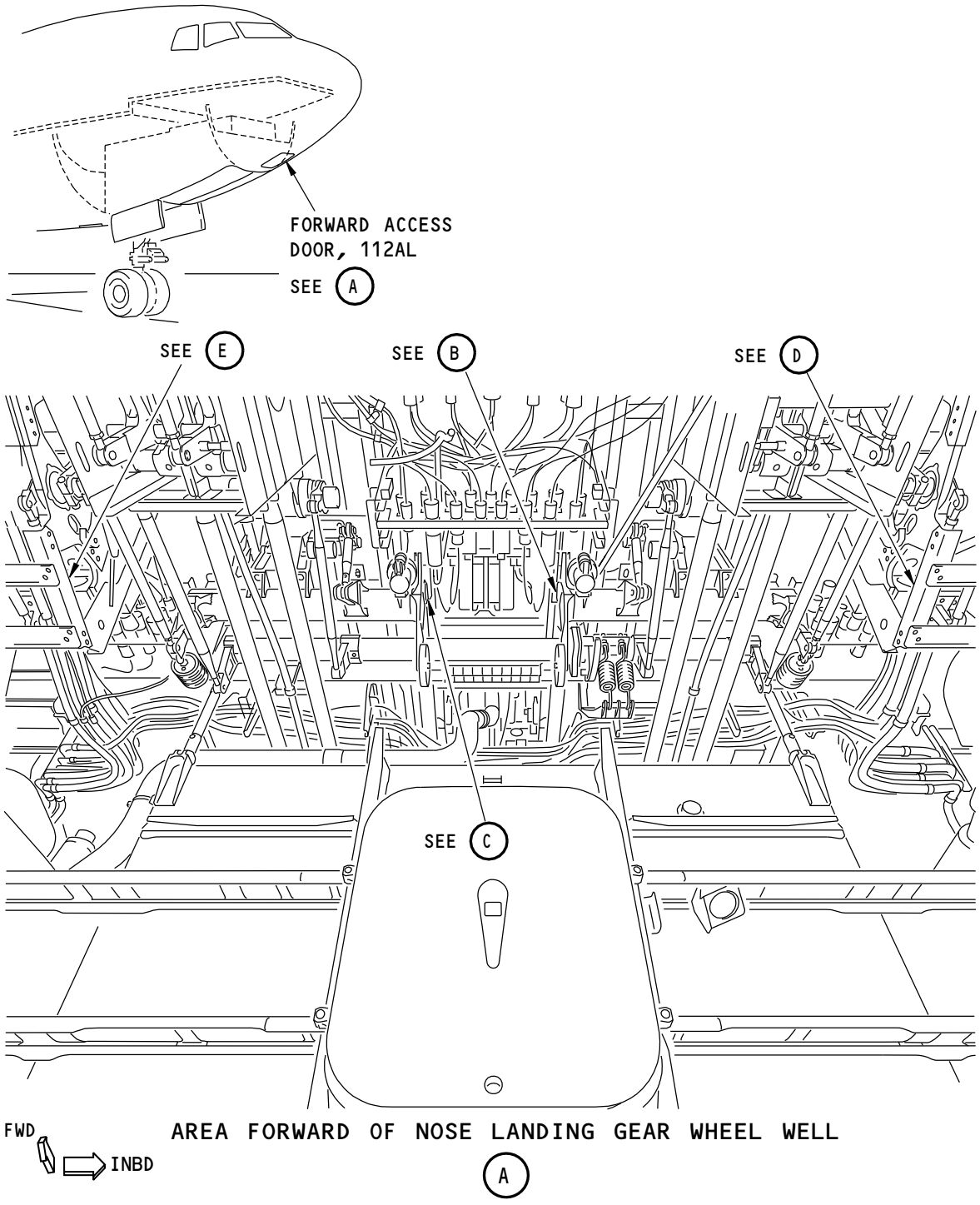
SUBTASK 27-31-00-410-001

(1) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

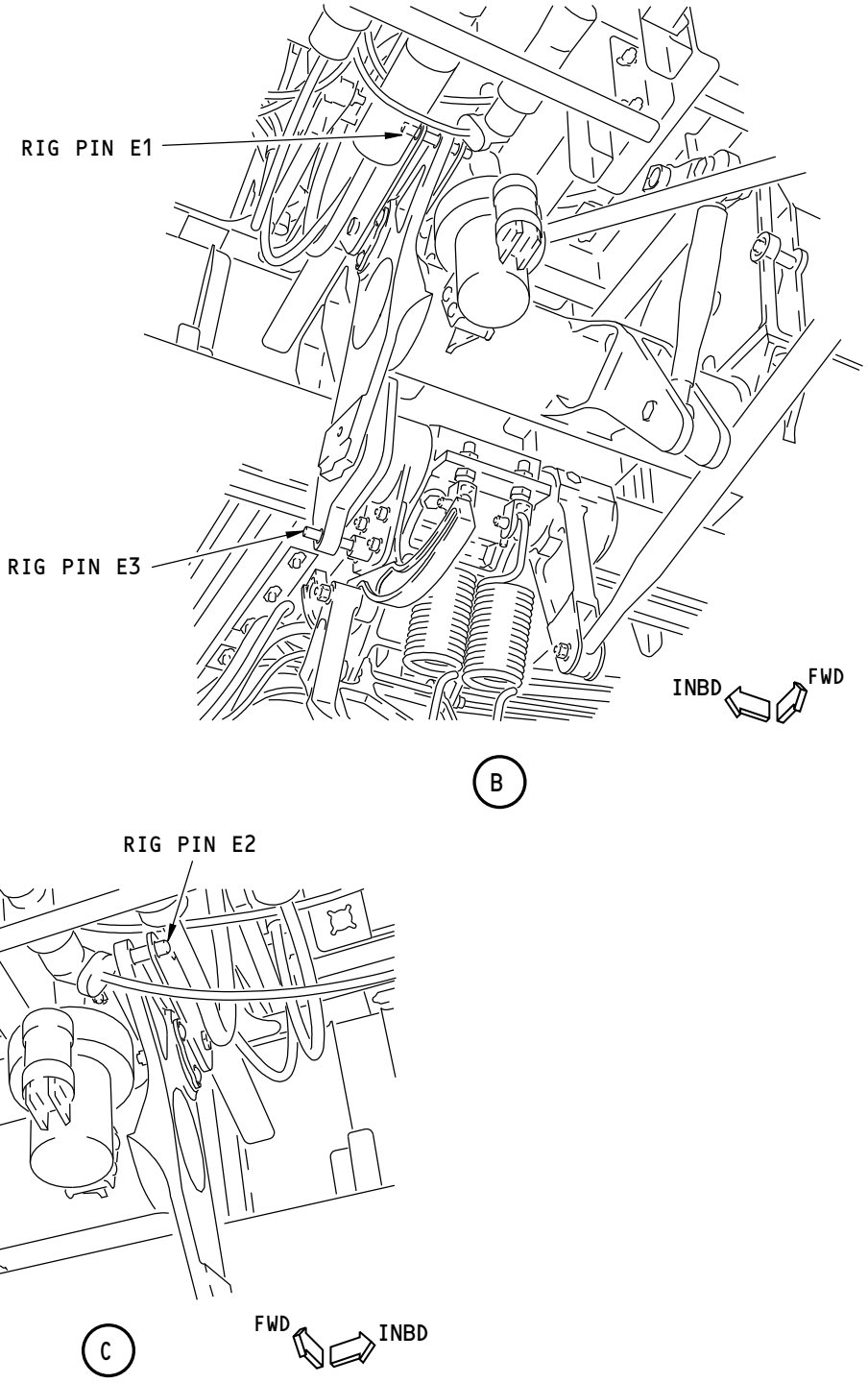
——— END OF TASK ———

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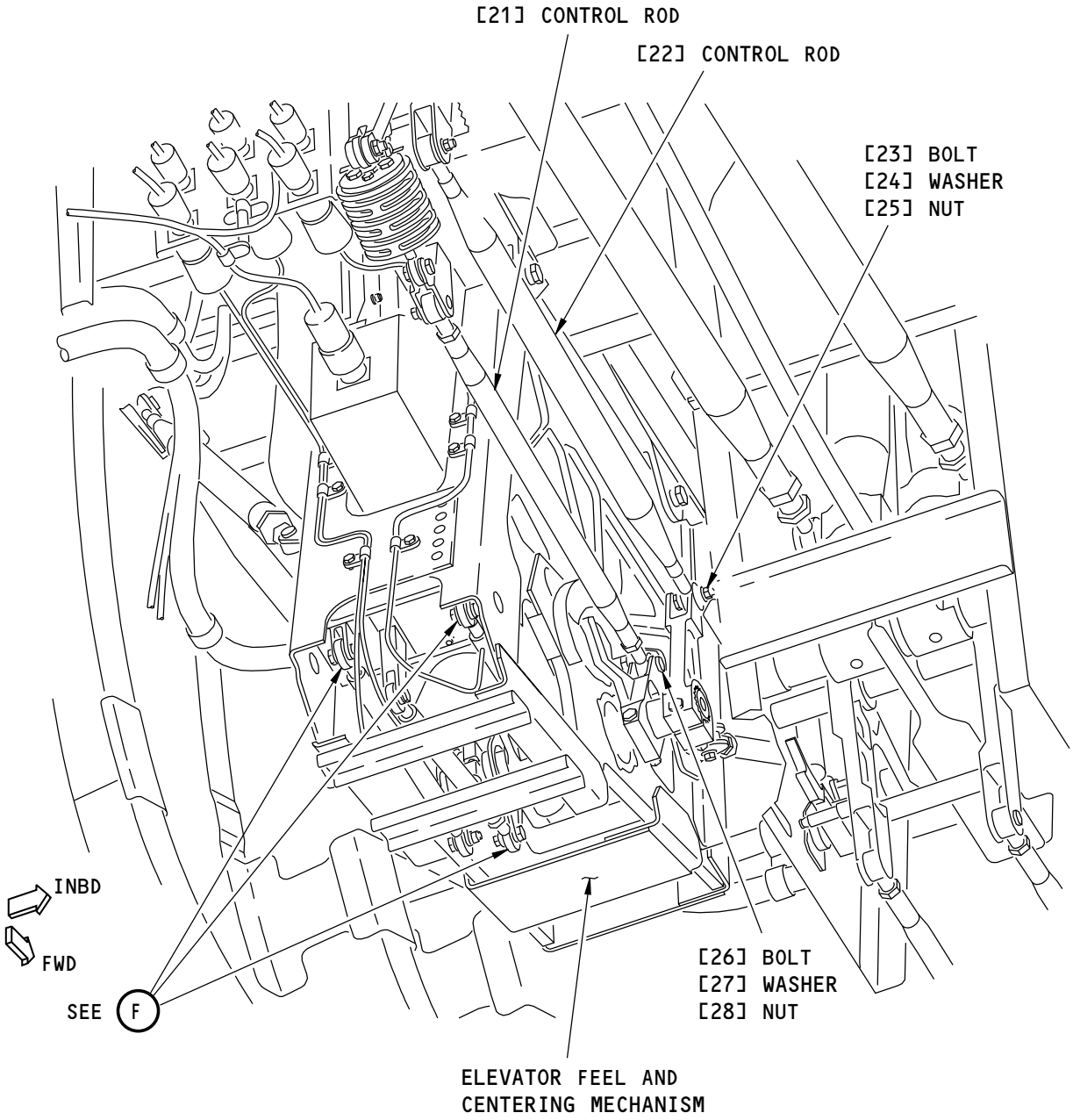
Control Column Adjustment
Figure 503/27-31-00-990-803 (Sheet 1 of 4)

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Control Column Adjustment
Figure 503/27-31-00-990-803 (Sheet 2 of 4)

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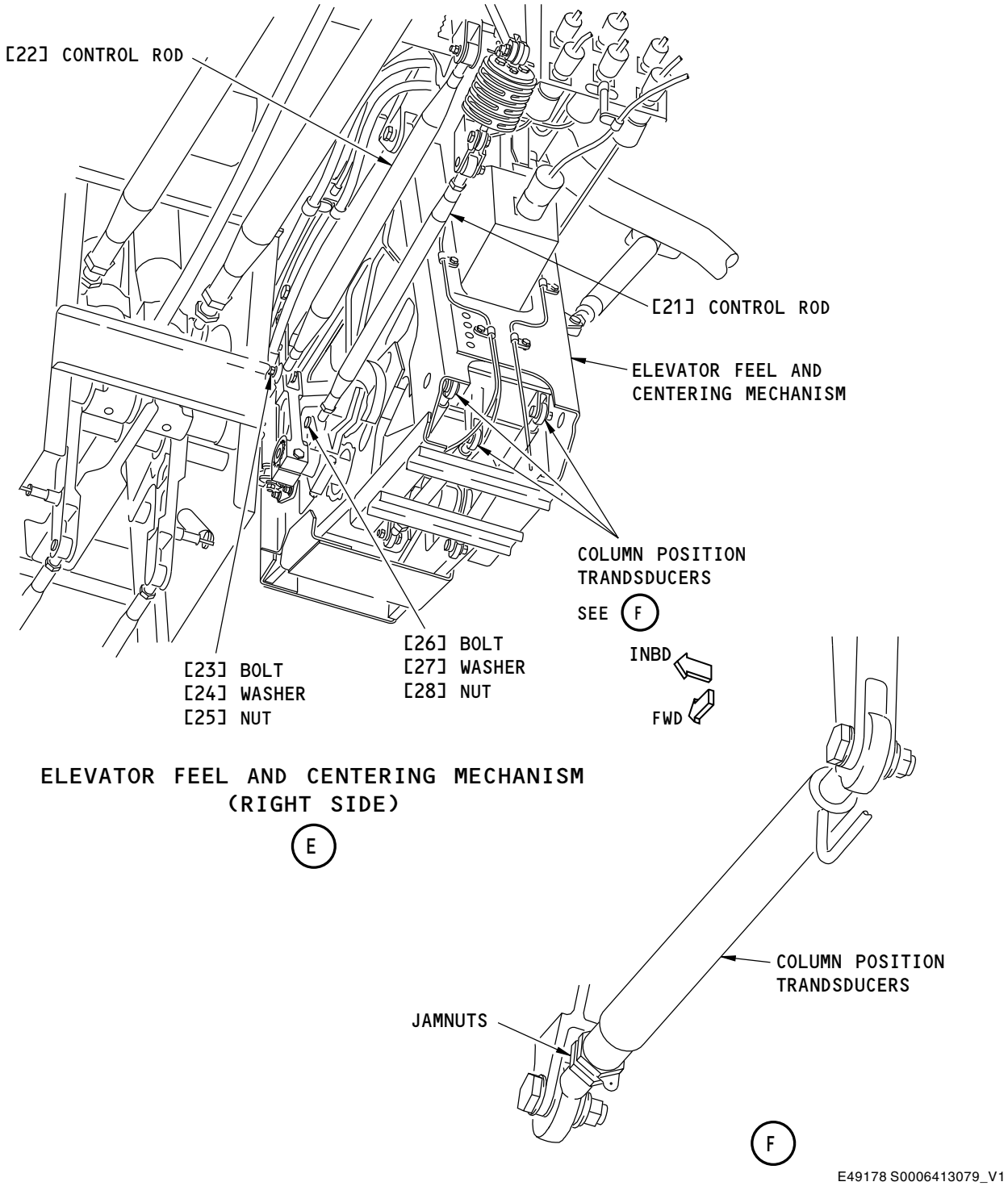
ELEVATOR FEEL AND CENTERING MECHANISM
(LEFT SIDE)

D

E49177 S0006413078_V1

Control Column Adjustment
Figure 503/27-31-00-990-803 (Sheet 3 of 4)

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Control Column Adjustment
Figure 503/27-31-00-990-803 (Sheet 4 of 4)

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TASK 27-31-00-700-801

4. Elevator Power Control Unit Test

A. General

(1) You must use the maintenance access terminal (MAT) to do this procedure.

(2) Use this procedure to automatically do a test of the operation of the power control units (PCUs) for the elevator.

(3) The control column can be in any position when you do this test. The primary flight computer (PFC) ignores the position of the control column when it does this test.

NOTE: The flight controls will move to agree with the pilot's controls when the test is done (if you keep hydraulic power on).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-31-00-840-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it (the instruction to supply hydraulic power is on the bottom of the screen that shows the hydraulic power warning, you must scroll down the screen to see the instruction). Refer to (TASK 29-11-00-860-801) for the procedure to supply hydraulic power.

SUBTASK 27-31-00-730-001

(2) Use the MAT to do a system test of the left or right elevator actuator confidence (TASK 45-10-00-740-819):

(a) Make these selection on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Left Elevator Actuator Confidence (Right Elevator Actuator Confidence)

NOTE: Each test will test the two PCUs on the applicable elevator.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR. THE ELEVATOR WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST. DAMAGE TO EQUIPMENT AND INJURY TO PERSONS CAN OCCUR.

2) START TEST

NOTE: To stop the test, select "STOP TEST". This will cause the flight control surfaces to stop (and stay stopped). Follow the instruction on the MAT to complete the stop test procedure. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

(c) When the test is completed, make sure PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-840-007

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-31-00-700-802

5. Elevator Position Test

A. General

(1) Use this procedure to do a test of the operation of the position transducers (LVDTs) for the elevator. The position transducers are part of the PCUs.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-31-00-840-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-31-00-840-009

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

E. Procedure

SUBTASK 27-31-00-720-001

(1) Monitor page 2 of the flight controls maintenance pages, on the MFD (TASK 31-61-00-800-804).

(a) Make sure the four ELEVATOR POSITION indications on the maintenance page all show -0.05 to +0.05.

(b) Push the captain's control column fully forward and hold it there.

1) Make sure four ELEVATOR POSITION indications all show -2.84 to -3.14.

(c) Pull the captain's control column fully aft.

1) Make sure four ELEVATOR POSITION indications show +3.32 to +3.67.

(d) Release the captain's control column.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-840-010

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-31-00-700-803

6. Direct Mode Test

A. General

(1) Use this procedure to make sure the elevators move the correct distance when the flight control system is in direct mode.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Prepare for the Procedure

SUBTASK 27-31-00-840-011

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-31-00-840-012

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-31-00-840-013

(3) Put the PRIMARY FLIGHT COMPUTER switch (on the overhead panel, P5) in the DISC position.

D. Procedure

SUBTASK 27-31-00-710-001

(1) Monitor page 2 of the flight controls maintenance pages, on the MFD.

(a) Make sure the four ELEVATOR POSITION indications on the maintenance page all show -0.050 to +0.050.

(b) Push the captain's control column fully forward and hold it there.

1) Make sure four ELEVATOR POSITION indications all show -2.75 to -2.49.

(c) Pull the captain's control column fully aft.

1) Make sure four ELEVATOR POSITION indications show +2.93 to +3.24.

(d) Release the captain's control column.

(e) Push the first officer's control column fully forward and hold it there.

1) Make sure four ELEVATOR POSITION indications all show -2.75 to -2.49.

(f) Pull the first officer's control column fully aft.

1) Make sure four ELEVATOR POSITION indications show +2.93 to +3.24.

(g) Release the first officer's control column.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-840-014

(1) Put the PRIMARY FLIGHT COMPUTER switch (on the overhead panel, P5) in the AUTO position.

SUBTASK 27-31-00-840-015

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-31-00-700-804

7. Pressure Reducer Test for the Elevator PCUs

A. General

(1) Use this procedure to make sure the pressure reducers for the elevator PCUs are serviceable. The pressure reducers are part of the PCUs.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)

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(Continued)

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-31-00-840-016

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-00-840-017

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply left, center, and right hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: A minimum of 2500 psi (17,237 kPa) is necessary in all three hydraulic systems for this test.

SUBTASK 27-31-00-710-002

(3) Monitor page 2 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

(a) Make sure all four DELTA PRESS indications for the ELEVATOR show -200 to +200.

(b) Remove the center and right hydraulic power, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(c) Push the control column fully forward.

1) Make sure the difference between the DELTA PRESS indication for the outboard PCU of the left ELEVATOR and the L HYDRAULIC indication is less than 250.

2) Make sure the difference between the DELTA PRESS indication for the outboard PCU of the right ELEVATOR and the L HYDRAULIC indication is less than 250.

3) Release the control column.

(d) Pull the control column fully aft.

1) Make sure the difference between the DELTA PRESS indication for the outboard PCU of the left ELEVATOR and the L HYDRAULIC indication is less than 250.

2) Make sure the difference between the DELTA PRESS indication for the outboard PCU of the right ELEVATOR and the L HYDRAULIC indication is less than 250.

3) Release the control column.

(e) Remove the left hydraulic power, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(f) Supply the center hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(g) Push the control column fully forward.

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1) Make sure the difference between the DELTA PRESS indication for the inboard PCU of the left ELEVATOR and the C HYDRAULIC indication is less than 250.

2) Release the control column.

(h) Pull the control column fully aft.

1) Make sure the difference between the DELTA PRESS indication for the inboard PCU of the left ELEVATOR and the C HYDRAULIC indication is less than 250.

2) Release the control column.

(i) Remove the center hydraulic power, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(j) Supply the right hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(k) Push the control column fully forward.

1) Make sure the difference between the DELTA PRESS indication for the inboard PCU of the right ELEVATOR and the R HYDRAULIC indication is less than 250.

2) Release the control column.

(l) Pull the control column fully aft.

1) Make sure the difference between the DELTA PRESS indication for the inboard PCU of the right ELEVATOR (Figure 505) and the R HYDRAULIC indication is less than 250.

2) Release the control column.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-840-018

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-31-00-700-805

8. Compensator Test for the Elevator PCUs

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this procedure to make sure the compensators for the elevator PCUs are serviceable. The compensators are part of the PCUs.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator

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D. Access Panels

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

E. Procedure

SUBTASK 27-31-00-840-019

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-00-840-020

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL OF THE PCU'S FOR A SINGLE ELEVATOR SURFACE MAY RESULT IN THAT SURFACE SLOWLY LOWERING. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S OF THAT SURFACE.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-31-00-840-021

(3) Move the control column fully aft and then back to its neutral position.

NOTE: This step is to move the elevator which will fill the compensator with hydraulic fluid.

SUBTASK 27-31-00-840-022

WARNING

REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCU'S FOR A SINGLE ELEVATOR SURFACE MAY RESULT IN THAT SURFACE SLOWLY LOWERING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S OF THAT SURFACE. FAILURE TO OBEY THESE INSTRUCTIONS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-31-00-840-023

(5) Set the three FLT CONTROL HYD VALVE POWER switches for the TAIL to the SHUT OFF position.

(a) Make sure the three VALVE CLOSED lights come on.

SUBTASK 27-31-00-710-003

(6) Do these steps for each of the four elevator power control units (PCUs):

(a) Remove the elevator PCU access panel.

1) For the left elevator power control units, open this access panel:

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel

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2) For the right elevator power control units, open this access panel:

Number	Name/Location
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

(b) Make sure the indicator for the compensator is fully extended (Figure 504).

NOTE: The indicator is fully extended when it is extends the full length of the slot.

(c) Push the manual test valve for the compensator.

1) Make sure the indicator fully retracts.

NOTE: The indicator is fully retracted when it does not show in the slot.

SUBTASK 27-31-00-840-024

(7) Set the three FLT CONTROL HYD VALVE POWER switches for the TAIL to the NORM position.

SUBTASK 27-31-00-840-025

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-31-00-840-026

(9) Move the control column fully aft and then back to its neutral position.

SUBTASK 27-31-00-840-027

(10) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-31-00-840-028

(11) Set the three FLT CONTROL HYD VALVE POWER switches for the TAIL to the SHUT OFF position.

(a) Make sure the three VALVE CLOSED lights come on.

SUBTASK 27-31-00-710-004

(12) Make sure the indicators for the compensators, on all four PCUs, show full.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-840-029

(1) Close the access panels for the elevator power control units (PCUs):

(a) For the left elevator power control units, close this access panel:

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel

(b) For the right elevator power control units, close this access panel:

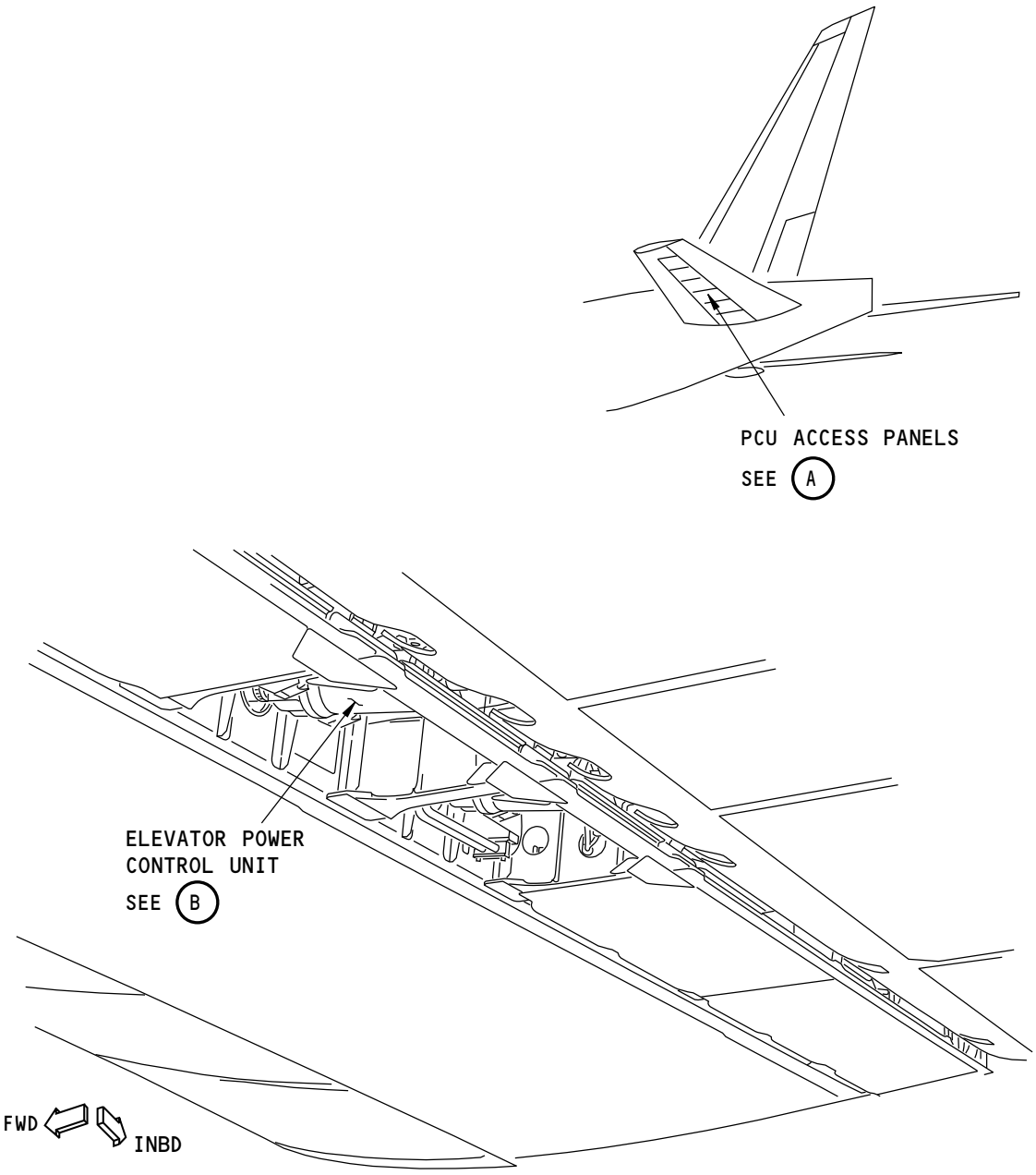
Number	Name/Location
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

SUBTASK 27-31-00-840-030

(2) Set the three FLT CONTROL HYD VALVE POWER switches for the TAIL to the NORM position.

END OF TASK

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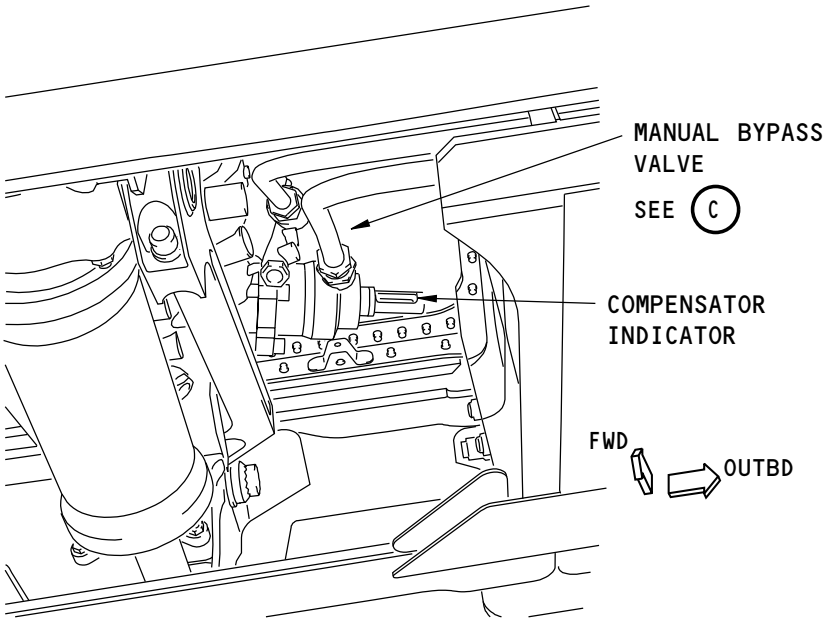


ELEVATOR POWER CONTROL UNIT ACCESS PANELS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
A

E49179 S0006413085_V1

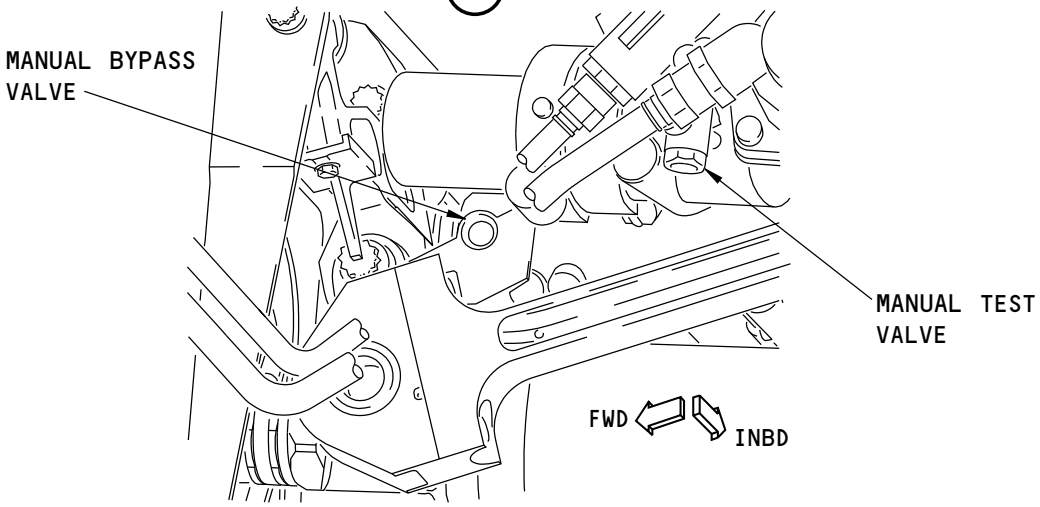
Compensator Test
Figure 504/27-31-00-990-804 (Sheet 1 of 2)

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ELEVATOR POWER CONTROL UNIT
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

B



MANUAL BYPASS VALVE
(EXAMPLE)

C

E49180 S0006413086_V2

Compensator Test
Figure 504/27-31-00-990-804 (Sheet 2 of 2)

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TASK 27-31-00-700-806

9. Column Breakout Mechanism Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the column breakout mechanism operates correctly. The column breakout mechanism lets one control column move even if the other column is caught (jammed) and cannot move.

B. References

Reference	Title
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

NOTE: This test can cause the "Column position signals from column position transducers (left) and column position transducers (right) do not agree" fault (27-12114) to occur. This is not a failure of the test. This fault occurs if you hold one control column in a different position than the other control column for more than 0.24 seconds with hydraulic power supplied. It is not necessary for the message to show to complete this test.

SUBTASK 27-31-00-840-031

(1) Move the first officer's control column fully forward and fully aft to find out how far the control column will move.

SUBTASK 27-31-00-710-005

(2) Hold the captain's control column.

(a) Make sure you can move the first officer's control column forward and aft approximately the same distance as in the step above.

NOTE: You must pull and push hard to move the control column to its full travel positions. Do not let the captain's control column move in the same direction as the first officer's control column. It is permitted to move the captain's control column in the opposite direction of the first officer's control column.

(b) Release the two control columns.

SUBTASK 27-31-00-730-002

(3) Use the MAT to do the system test of the column position (TASK 45-10-00-740-819):

NOTE: You need to do the column position system test to clear the "Column position signals from column position transducers (left) and column position transducers (right) do not agree" fault (27-12114).

(a) Make these selection on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST

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6) Column Position

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

NOTE: To stop the test, select "STOP TEST". This will cause the flight controls to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

(c) When the test is completed, make sure PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

TASK 27-31-00-700-807

10. Control Column Damper Test

A. General

(1) Use this test to make sure the column damper operates correctly. The column damper slows the movement of the control columns to stop them from oscillating.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-31-00-840-032

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

E. Procedure

SUBTASK 27-31-00-720-002

(1) Pull the control column (Captain's or First Officer's) fully aft.

SUBTASK 27-31-00-720-003

(2) Release the control column quickly.

NOTE: Keep your hands clear of the control column (and the control wheel) until the control columns stop.

(a) Make sure the control does not move after 1.5 seconds.

——— END OF TASK ———

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TASK 27-31-00-700-808

11. Control Column Travel Test

A. General

(1) Use this procedure to make sure the control columns can move through their full travel.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-31-00-840-033

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-00-720-004

(2) Look at page 1 of the flight controls maintenance pages, on the multi-functional display (MFD).

(a) Make sure the six COLUMN POSITION indications (three CAPT and three F/O) show -0.01 to 0.01.

NOTE: If the indications are not correct, do the Column Position Transducer Adjustment task in this procedure.

NOTE: It can be necessary to rock the columns slightly forward and aft to make sure the columns are in their detent.

SUBTASK 27-31-00-720-005

(3) Pull the Captain's control column fully aft and hold.

(a) Make sure the six COLUMN POSITION indications show 1.37 to 1.57.

SUBTASK 27-31-00-720-006

(4) Push the Captain's control column fully forward and hold.

(a) Make sure the six COLUMN POSITION indications show -1.30 to -1.50.

SUBTASK 27-31-00-720-007

(5) Release the Captain's control column.

SUBTASK 27-31-00-720-008

(6) Pull First Officer's control column fully aft.

(a) Make sure the six COLUMN POSITION indications show 1.37 to 1.57.

SUBTASK 27-31-00-720-009

(7) Push the First Officer's control column fully forward.

(a) Make sure the six COLUMN POSITION indications show -1.30 to -1.50.

SUBTASK 27-31-00-720-010

(8) Release the First Officer's control column.

——— END OF TASK ———

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TASK 27-31-00-720-801

12. Column Force Transducer Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this procedure to make sure the column force transducers for the Captain's and the First Officer's control columns operate correctly. This test can erase latches for the column force transducers.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-31-00-840-037

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-00-860-002

(2) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 27-31-00-730-003

(3) Use the MAT to do the system test of the column force transducer (TASK 45-10-00-740-819):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Column Force Transducer
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

NOTE: To stop the test, select "STOP TEST". This will cause the flight controls to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

(c) When the test is completed, make sure PASSED shows adjacent to TEST CONDITION on the MAT.

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(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

TASK 27-31-00-700-810

13. Column Flight Data Recorder (FDR) Force Transducer Test

A. General

(1) Use this procedure to make sure the column Flight Data Recorder (FDR) force transducers for the Captain's and the First Officer's control columns operate correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-31-00-840-039

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 27-31-00-720-019

(2) Ensure that the left and right control columns are in their detents.

NOTE: It may be necessary to rock the columns slightly forward and aft to ensure the control columns are in their detents.

SUBTASK 27-31-00-740-001

(3) Ensure no force is being applied to either control column.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the CAPT COLUMN FDR FORCE reads from -0.02 to +0.02.

2) Make sure that the F/O COLUMN FDR FORCE reads from -0.02 to +0.02.

SUBTASK 27-31-00-720-020

(4) Push the Captain's control column to full forward and hold.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the CAPT COLUMN FDR FORCE reads from -0.3 to -0.06.

SUBTASK 27-31-00-720-021

(5) Pull the Captain's control column to full aft and hold.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the CAPT COLUMN FDR FORCE reads from +0.06 to +0.3.

SUBTASK 27-31-00-720-022

(6) Return the Captain's control column to its detent.

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SUBTASK 27-31-00-720-023

(7) Push the first officer's control column to full forward and hold.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the F/O COLUMN FDR FORCE reads from -0.3 to -0.06.

SUBTASK 27-31-00-720-024

(8) Pull the first officer's control column to full aft and hold.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the F/O COLUMN FDR FORCE reads from +0.06 to +0.3.

SUBTASK 27-31-00-720-025

(9) Return the first officer's control column to its detent.

SUBTASK 27-31-00-720-026

(10) Ensure that the left and right control columns are in their detents.

NOTE: It may be necessary to rock the columns slightly forward and aft to ensure the control columns are in their detents.

SUBTASK 27-31-00-740-002

(11) Ensure no force is being applied to either control column.

(a) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

1) Make sure that the CAPT COLUMN FDR FORCE reads from -0.02 to +0.02.

2) Make sure that the F/O COLUMN FDR FORCE reads from -0.02 to +0.02.

——— END OF TASK ———

TASK 27-31-00-700-809

14. Column Force Test

A. General

(1) Use this procedure to make sure the column force transducers for the Captain and First Officer supplies the correct forces.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1705	Adapter - Control Wheel Part #: J27010-56 Supplier: 81205
STD-1184	Scale - Spring, 0-100 Lbs, Tension

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D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Prepare for the Test

SUBTASK 27-31-00-840-034

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-00-480-002

(2) Install the control wheel adapter, SPL-1705 and spring scale (0-100 Lbs), STD-1184 to the Captain's control wheel (Figure 505).

SUBTASK 27-31-00-840-035

(3) Look at page 1 of the maintenance pages for the flight controls, on the multi-functional display (MFD).

(a) Make sure the six (three CAPT and three F/O) COLUMN POSITION indications show -0.01 to 0.01.

NOTE: It can be necessary to rock the columns slightly forward and aft to make sure the columns are in their detent.

F. Procedure

SUBTASK 27-31-00-720-011

(1) Use the spring scale (0-100 Lbs), STD-1184 to pull the Captain's control column full aft.

(a) While you pull the Captain's control column full aft, make sure these conditions occur:

1) When the F/O COLUMN POSITION indications show 0.03 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 6.4 to 8.4 pounds (28 to 37 newtons).

2) When the F/O COLUMN POSITION indications show 1.30 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 38.0 to 48.0 pounds (169 to 214 newtons).

SUBTASK 27-31-00-720-012

(2) Release the Captain's control column.

SUBTASK 27-31-00-720-013

(3) Use the spring scale (0-100 Lbs), STD-1184 to pull the Captain's control column full forward.

(a) While you pull the Captain's control column full forward, make sure these conditions occur:

1) When the F/O COLUMN POSITION indications show -0.03 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 6.6 to 8.6 pounds (29 to 38 newtons).

2) When the F/O COLUMN POSITION indications show -1.25 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 35.2 to 45.2 pounds (157 to 201 newtons).

SUBTASK 27-31-00-720-014

(4) Release the Captain's control column.

SUBTASK 27-31-00-840-038

(5) Remove the control wheel adapter, SPL-1705 and spring scale (0-100 Lbs), STD-1184 from the Captain's control wheel.

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SUBTASK 27-31-00-480-003

(6) Install the control wheel adapter, SPL-1705 and spring scale (0-100 Lbs), STD-1184 to the First Officer's control wheel (Figure 505).

SUBTASK 27-31-00-720-015

(7) Use the spring scale (0-100 Lbs), STD-1184 to pull the First Officer's control column full aft.

(a) While you pull the First Officer's control column full aft, make sure these conditions occur:

1) When the CAPT COLUMN POSITION indications show 0.03 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 6.4 to 8.4 pounds (28 to 37 newtons).

2) When the CAPT COLUMN POSITION indications show 1.30 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 38.0 to 48.0 pounds (169 to 214 newtons).

SUBTASK 27-31-00-720-016

(8) Release the First Officer's control column.

SUBTASK 27-31-00-720-017

(9) Use the spring scale (0-100 Lbs), STD-1184 to pull the First Officer's control column full forward.

(a) While you pull the First Officer's control column full forward, make sure these conditions occur:

1) When the CAPT COLUMN POSITION indications show -0.03 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 6.6 to 8.6 pounds (29 to 38 newtons).

2) When the CAPT COLUMN POSITION indications show -1.25 more than the neutral indication, the spring scale (0-100 Lbs), STD-1184 shows 35.2 to 45.2 pounds (157 to 201 newtons).

SUBTASK 27-31-00-720-018

(10) Release the First Officer's control column.

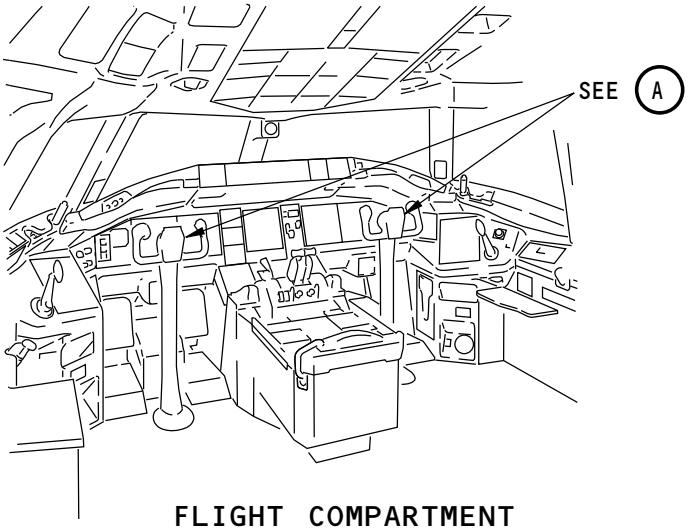
G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-840-036

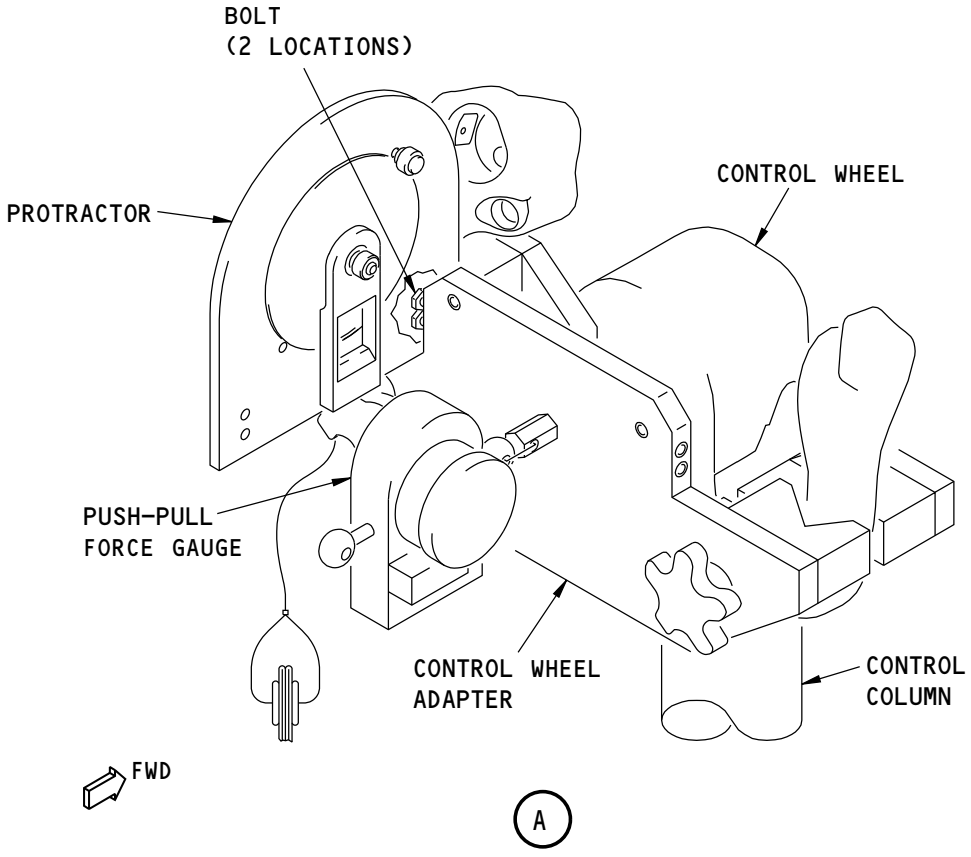
(1) Remove the control wheel adapter, SPL-1705 and spring scale (0-100 Lbs), STD-1184 from the First Officer's control wheel.

——— END OF TASK ———

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FLIGHT COMPARTMENT



E51507 S0006413092_V2

Elevator Feel Test
Figure 505/27-31-00-990-805

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TASK 27-31-00-700-811

15. Elevator Feel System Test

A. General

(1) Use this procedure to make sure the feel and centering mechanism for the elevator supplies the correct forces.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-31-00-840-040

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-00-860-003

(2) Find maintenance page 1 for the Primary Flight Controls on the MFD. To find the maintenance page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 27-31-00-730-004

(3) Use the MAT to do the system test of the Elevator Feel System (TASK 45-10-00-740-819):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) Elevator Feel System
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

NOTE: To stop the test, select "STOP TEST". This will cause the flight controls to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

(c) When the test is completed, make sure PASSED shows adjacent to TEST CONDITION on the MAT.

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(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

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CONTROL COLUMN - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

NOTE: These tasks are for the captain's or the first officer's control column.

(1) A removal of the control column.

(2) An installation of the control column.

TASK 27-31-01-000-801

2. Control Column Removal

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-31-01-040-001



WARNING REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S AND FIRST OFFICER'S SEATS. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To remove power from the captain's and first officer's seats, open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-31-01-860-001

(2) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
A	21	C22606	AFDC WARN
A	24	C22604	AFDC-C
B	25	C23627	INTERPHONE-CAPTAIN
C	25	C23628	INTERPHONE-F/O
F	4	C22601	MCP-L

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(Continued)

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L
F	17	C22600	MCP-R
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

D. Control Column Removal

SUBTASK 27-31-01-020-001

(1) Do these steps in the flight compartment (Figure 401):

(a) Remove the ten bolts (bolts [1], bolts [4], and bolts [5]) from the seal assembly [7].

(b) Lift the seal assembly [7] and remove the shims [6].

SUBTASK 27-31-01-010-001

(2) Open this access panel, for access to the bottom of the control column:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-31-01-020-002

(3) Disconnect the applicable cables (A1A and A1B for the captain's column, A2A and A2B for the first officer's column) at the turnbuckles [22] (Figure 402).

SUBTASK 27-31-01-020-003

(4) For the captain's wheel and column assembly [2], disconnect these electrical connectors (Figure 402):

(a) D2101

(b) D2102

(c) D2103

(d) D2104

(e) D2105

(f) D2106

SUBTASK 27-31-01-020-004

(5) For the first officer's wheel and column assembly [3], disconnect these electrical connectors (Figure 402):

(a) D2107

(b) D2108

(c) D2109

(d) D2110

(e) D2111

(f) D2112

SUBTASK 27-31-01-020-005

(6) Disconnect the clamps [21] or clamps [38] for the wires you disconnected.

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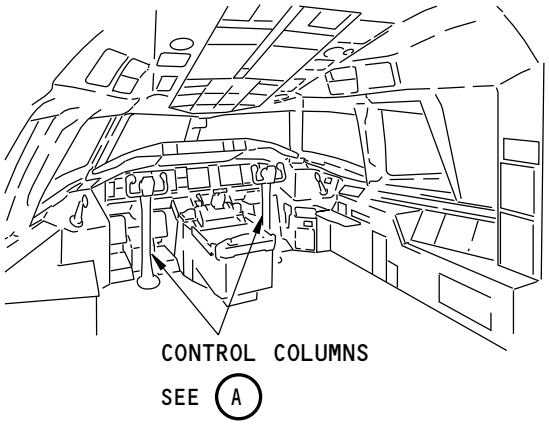
SUBTASK 27-31-01-020-006

(7) Hold the wheel and column assembly [2] or wheel and column assembly [3], and remove the four bolts [26] or bolts [30] that attach it to the torque tube (Figure 402).

(a) Lift the wheel and column assembly [2] or wheel and column assembly [3] up and remove it from the airplane.

——— END OF TASK ———

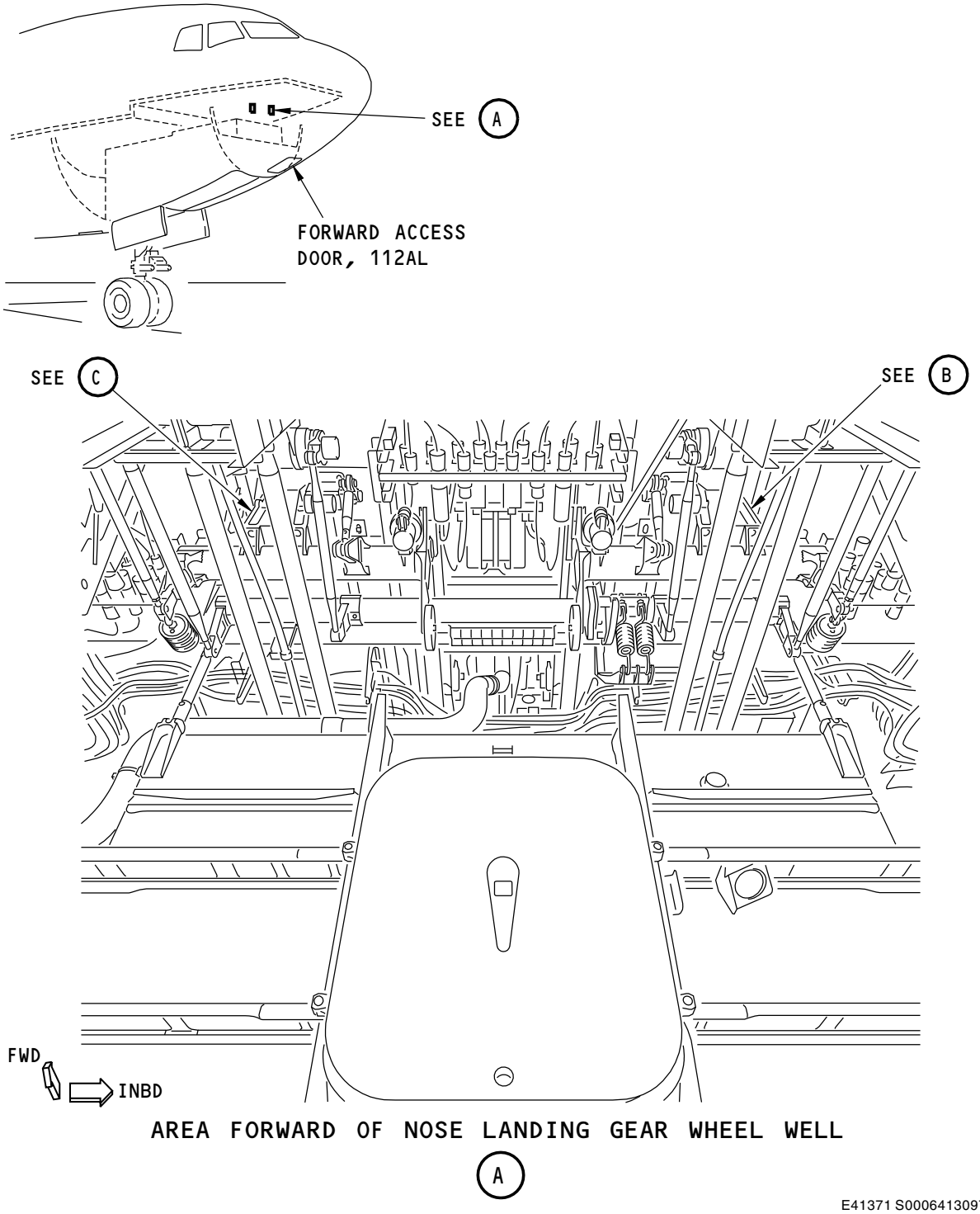
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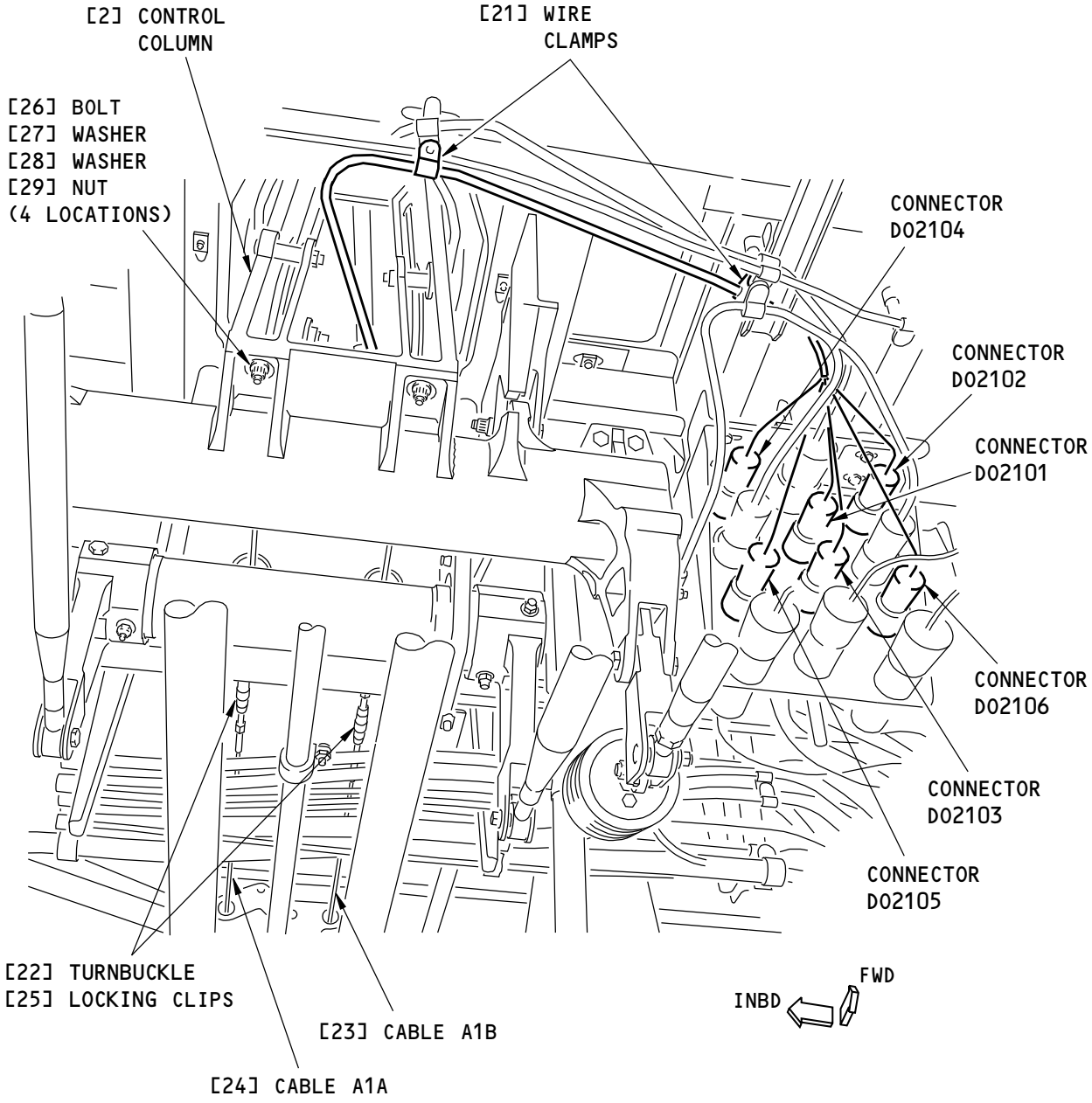
Control Column Installation
Figure 401/27-31-01-990-801

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Control Column Installation
Figure 402/27-31-01-990-802 (Sheet 1 of 3)

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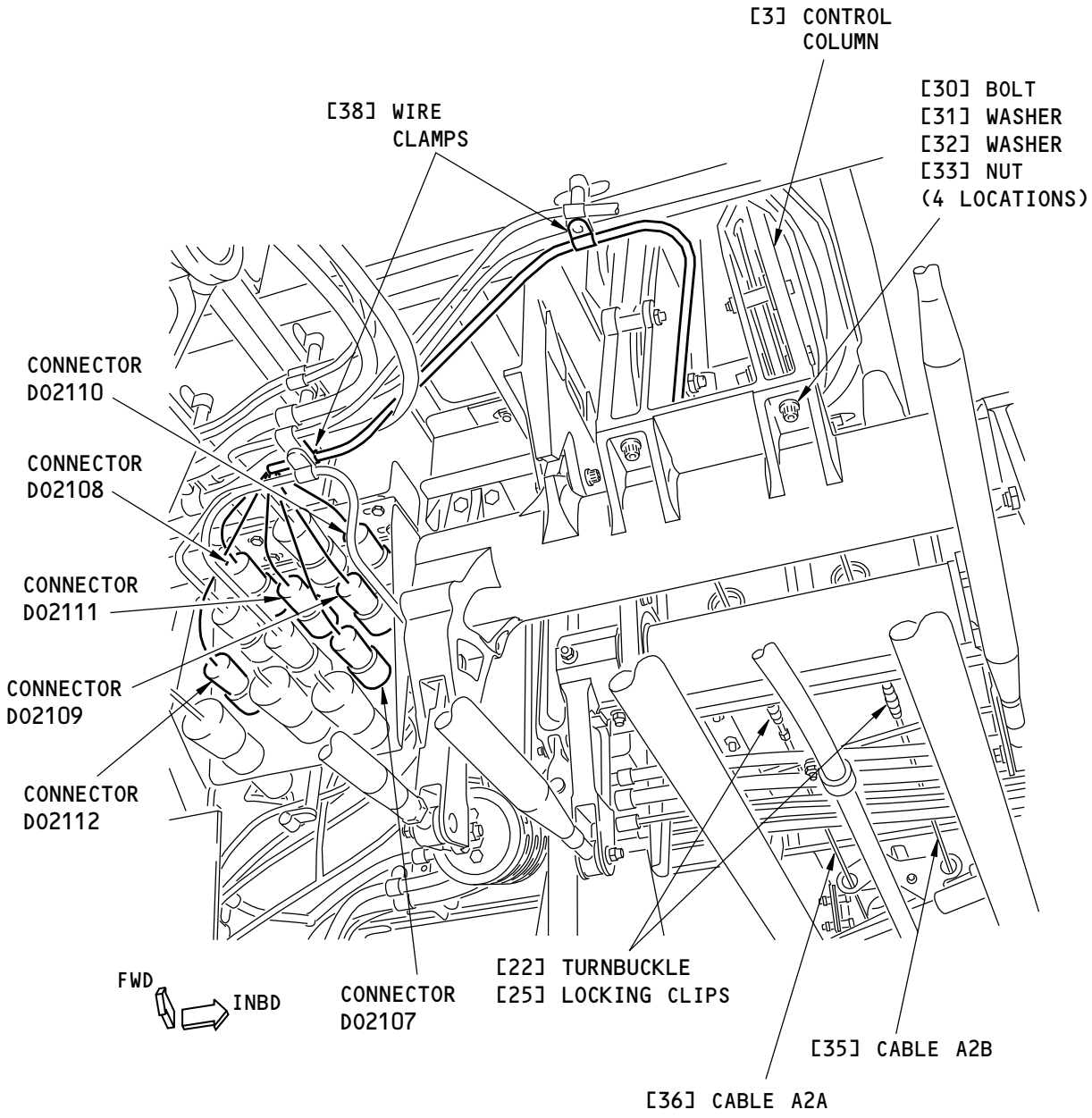
LOWER END OF LEFT CONTROL COLUMN

B

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Control Column Installation
Figure 402/27-31-01-990-802 (Sheet 2 of 3)

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LOWER END OF RIGHT CONTROL COLUMN

C

E43701 S0006413099_V1

Control Column Installation
Figure 402/27-31-01-990-802 (Sheet 3 of 3)

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TASK 27-31-01-400-801

3. Control Column Installation

A. References

Reference	Title
22-11-03-400-801	Autopilot Disconnect Switch Installation (P/B 401)
23-51-06-400-801	Control Wheel PTT Switch Installation (P/B 401)
27-11-00-700-802	Control Wheel and Cable Adjustment (Rigging) (P/B 501)
27-31-00-700-808	Control Column Travel Test (P/B 501)
27-41-00-700-803	Pitch Trim Switch Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Wheel and column assembly	27-31-01-15-055	ARO ALL
3	Wheel and column assembly	27-31-01-15-060	ARO ALL
6	Shim	27-31-01-15-030	ARO ALL
7	Seal assembly	27-31-01-15-010	ARO ALL
21	Clamp	27-31-01-15-005	ARO ALL
22	Turnbuckle	27-61-05-01-015	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Prepare for the Installation

SUBTASK 27-31-01-040-002

WARNING REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S AND FIRST OFFICER'S SEATS. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To remove power form the captain's and first officer's seats; Make sure that these circuit breakers are open:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

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F. Control Column Installation

SUBTASK 27-31-01-420-001

(1) Put the wheel and column assembly [2] or wheel and column assembly [3] in its position, and install the parts that follow to attach it to the torque tube (Figure 402).

(a) Install the four washers [27] or washers [31], at the bolt head.

(b) Install the four bolts [26] or bolts [30].

(c) Install the four washers [28] or washers [32], at the nut.

(d) Install the four nuts [29] or nuts [33].

SUBTASK 27-31-01-420-002

(2) For the captain's wheel and column assembly [2], connect these electrical connectors (Figure 402):

(a) D2101

(b) D2102

(c) D2103

(d) D2104

(e) D2105

(f) D2106

SUBTASK 27-31-01-420-003

(3) For the first officer's wheel and column assembly [3], connect these electrical connectors (Figure 402):

(a) D2107

(b) D2108

(c) D2109

(d) D2110

(e) D2111

(f) D2112

SUBTASK 27-31-01-420-004

(4) Install the clamps [21] or clamps [38].

NOTE: Make sure the wires do not rub other parts when the column is moved.

SUBTASK 27-31-01-420-005

(5) Do these steps in the flight compartment (Figure 401):

(a) Put the seal assembly [7] and the shims [6] in their position:

1) Put a thickness of shims [6] below the seal assembly [7] until there is a clearance of 0.00 to 0.015 inch between the seal assembly [7] and the wheel and column assembly [2] or wheel and column assembly [3].

2) Remove one of the shims [6] from below the seal assembly [7].

NOTE: The seal assembly [7] will lightly touch the control column.

(b) Install the ten bolts (bolts [1], bolts [4], and bolts [5]) in the seal assembly.

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SUBTASK 27-31-01-820-001

(6) Install the turnbuckles [22] to connect the applicable cables (A1A and A1B for the captain's column, A2A and A2B for the first officer's column) (Figure 402).

NOTE: You will install new clips [25] after you do the step below to adjust the cables.

SUBTASK 27-31-01-820-002

(7) Do this task: Control Wheel and Cable Adjustment (Rigging), TASK 27-11-00-700-802.

SUBTASK 27-31-01-860-002

(8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
A	21	C22606	AFDC WARN
A	24	C22604	AFDC-C
B	25	C23627	INTERPHONE-CAPTAIN
C	25	C23628	INTERPHONE-F/O
F	4	C22601	MCP-L
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L
F	17	C22600	MCP-R
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-31-01-710-001

(9) Do this task: Control Wheel PTT Switch Installation, TASK 23-51-06-400-801.

(10) Only do the part of the task that does a test of the PTT switch.

SUBTASK 27-31-01-710-002

(11) Do this task: Autopilot Disconnect Switch Installation, TASK 22-11-03-400-801.

NOTE: Only do the part of the task that does a test of the autopilot disconnect switch.

SUBTASK 27-31-01-710-003

(12) Do this task: Pitch Trim Switch Test, TASK 27-41-00-700-803.

SUBTASK 27-31-01-720-001

(13) Do this task: Control Column Travel Test, TASK 27-31-00-700-808.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-01-010-002

(1) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

END OF TASK

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COLUMN TORQUE TUBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

NOTE: These tasks are for the torque tubes attached to the bottom of the captain's or the first officer's control column. For the torque tubes attached to column breakout mechanism refer to (TASK 27-31-03-000-801).

(1) A removal of the torque tubes for the control columns.

(2) An installation of the torque tubes for the control columns.

TASK 27-31-02-000-801

2. Column Torque Tube Removal

(Figure 401)

A. References

Reference	Title
27-31-01-000-801	Control Column Removal (P/B 401)

B. Column Torque Tube Removal

SUBTASK 27-31-02-000-001

(1) Do this task: Control Column Removal, TASK 27-31-01-000-801.

SUBTASK 27-31-02-020-001

(2) For the left (captain's) column torque tube, do the steps that follow:

(a) Remove the clamp [2].

(b) Disconnect these electrical connectors:

1) DM27139A and DM27139B, for the column force transducer

2) DM31105, for the stick shaker actuator.

SUBTASK 27-31-02-020-002

(3) For the right (first officer's) column torque tube, do the steps that follow:

(a) Remove the clamp [19].

(b) Disconnect these electrical connectors:

1) DM27239A and DM27239B, for the column force transducer

2) DM31205, for the stick shaker actuator.

SUBTASK 27-31-02-020-003

(4) Remove the bolt [18] and disconnect the pushrod [13] (for the column damper) from the applicable torque tube.

SUBTASK 27-31-02-020-004

(5) Remove the bolt [4] and disconnect the pushrod [3] (that goes to the elevator feel unit) from the torque tube.

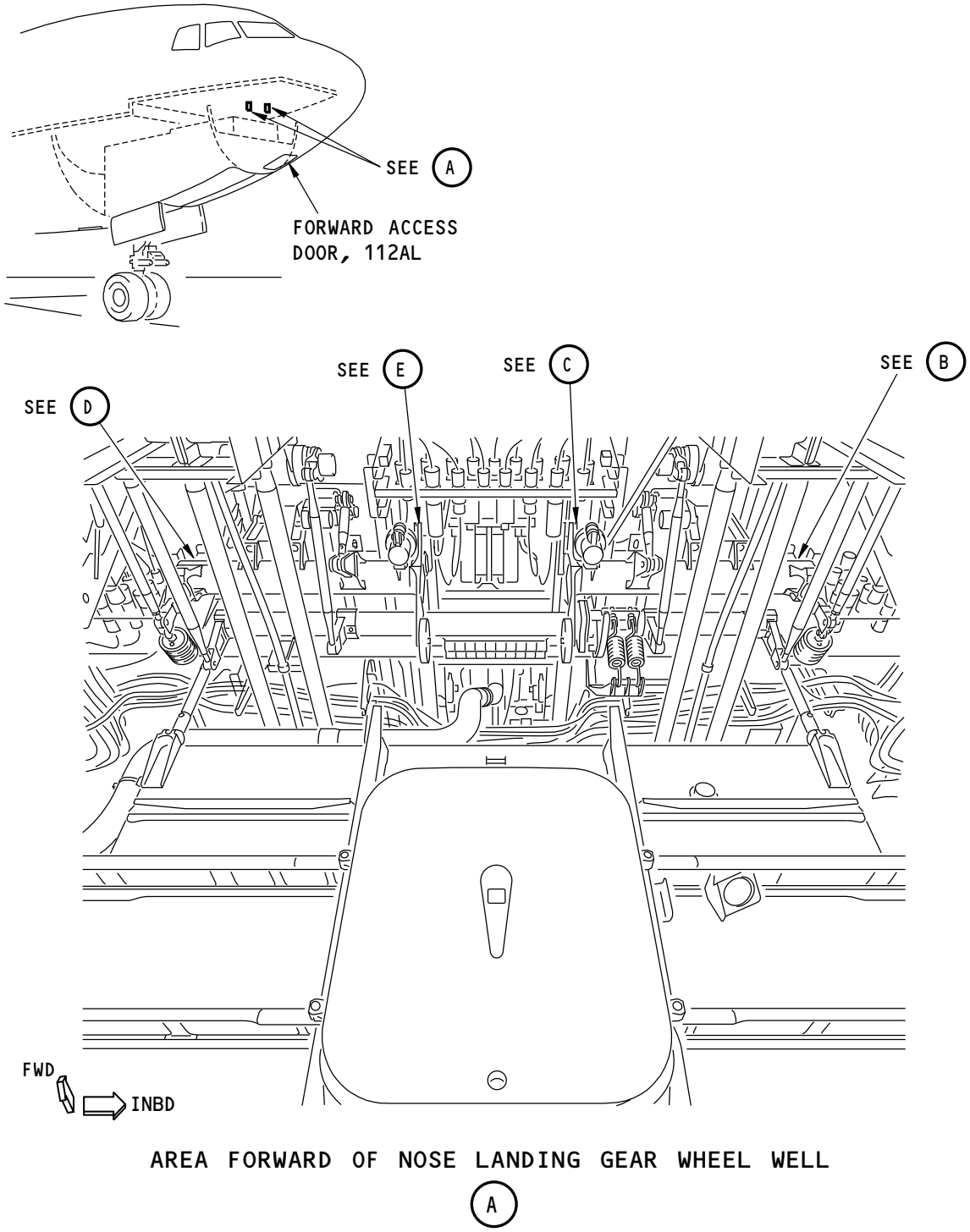
SUBTASK 27-31-02-020-005

(6) Hold the tube assembly [7] or tube assembly [21] and remove the bolt [8] and bolt [14].

(a) Remove the tube assembly [7] or bolt [14] from the airplane.

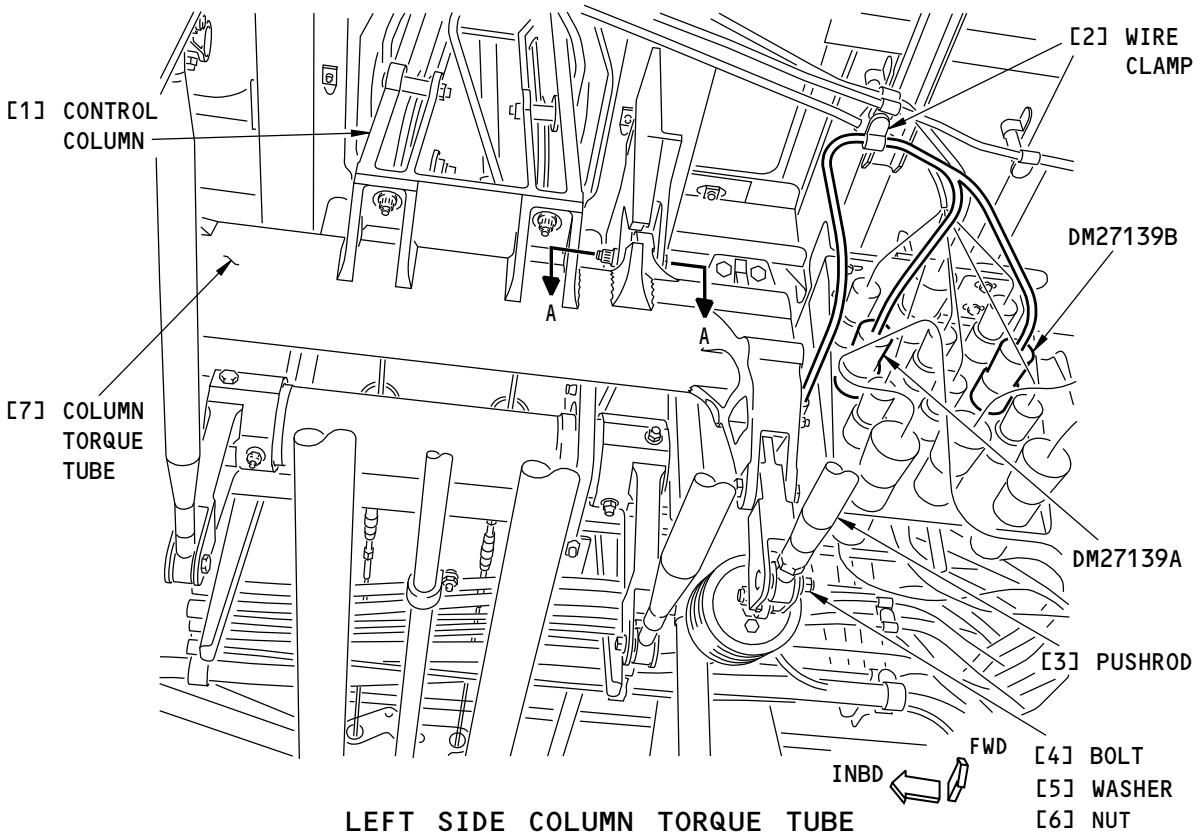
END OF TASK

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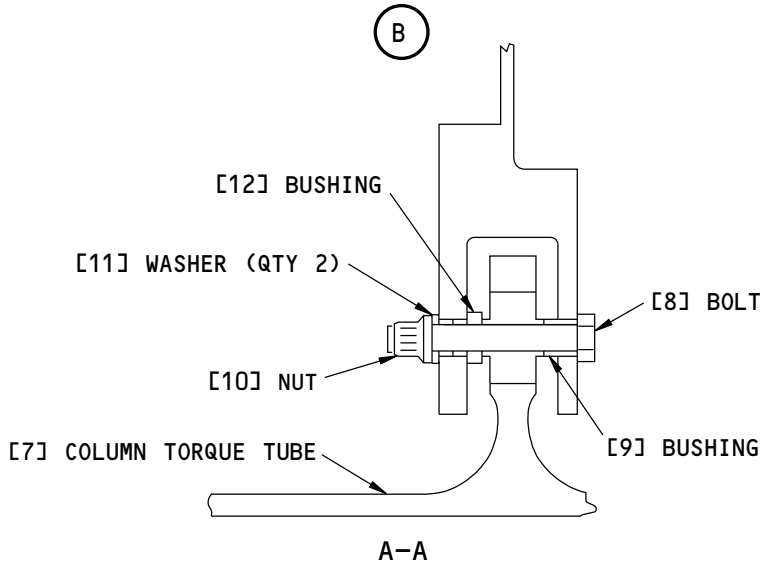


Control Column Torque Tube Installation
Figure 401/27-31-02-990-801 (Sheet 1 of 5)

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LEFT SIDE COLUMN TORQUE TUBE
(OUTBOARD END)

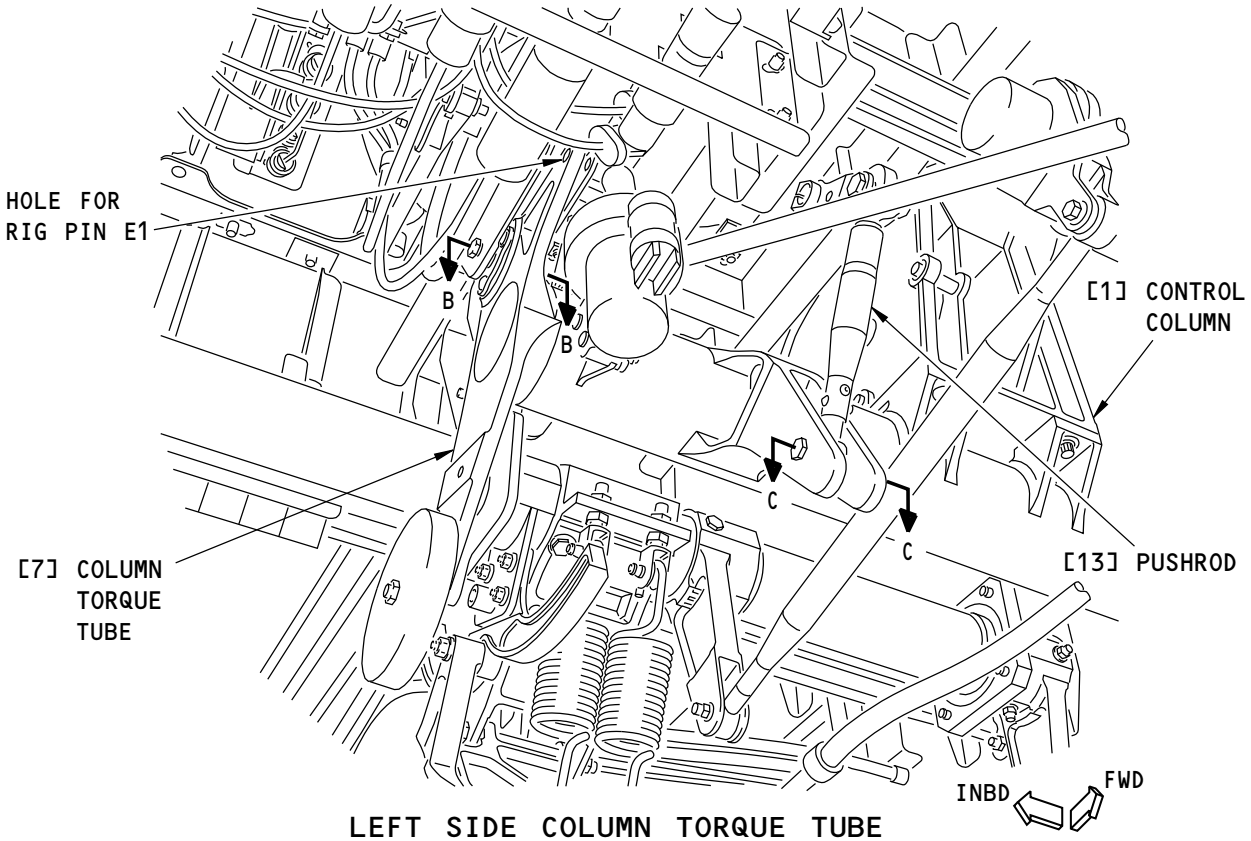


A–A

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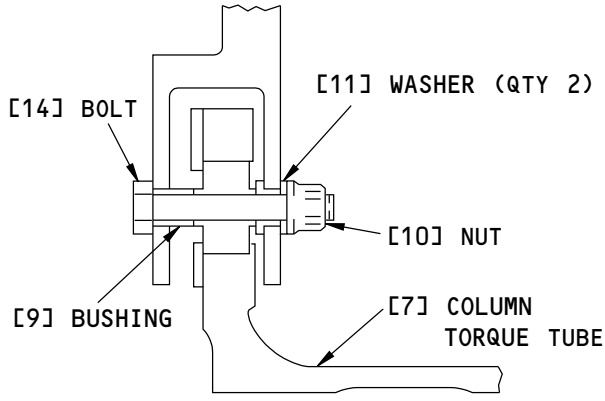
Control Column Torque Tube Installation
Figure 401/27-31-02-990-801 (Sheet 2 of 5)

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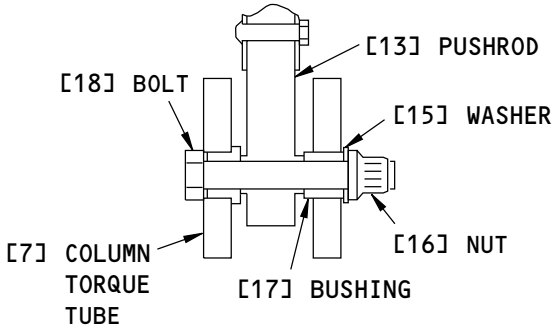


LEFT SIDE COLUMN TORQUE TUBE
(INBOARD END)

C



B–B

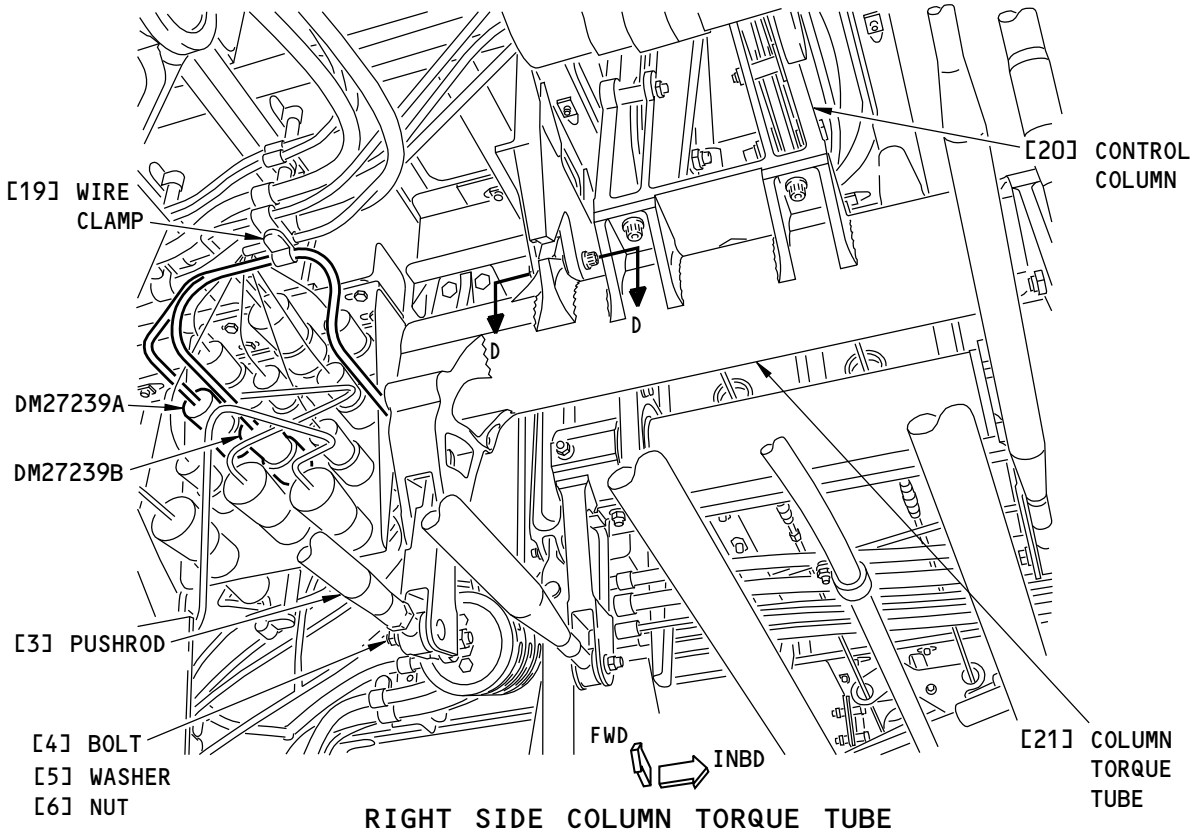


C–C

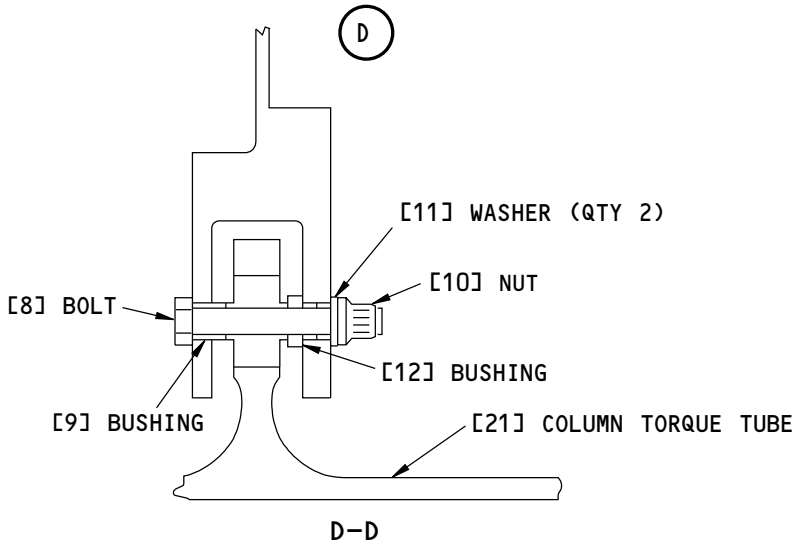
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Control Column Torque Tube Installation
Figure 401/27-31-02-990-801 (Sheet 3 of 5)

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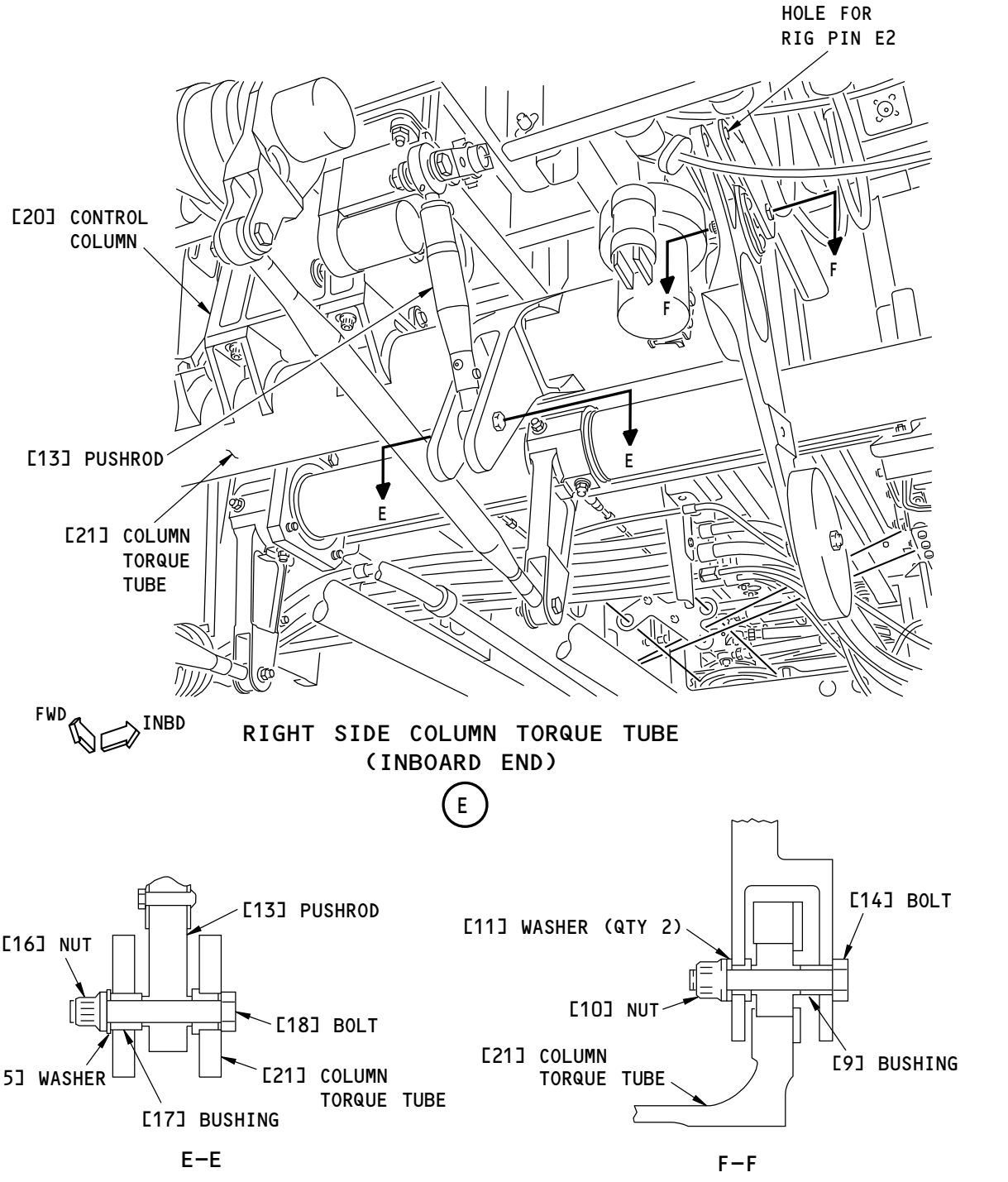
RIGHT SIDE COLUMN TORQUE TUBE
(OUTBOARD END)



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Control Column Torque Tube Installation
Figure 401/27-31-02-990-801 (Sheet 4 of 5)

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Control Column Torque Tube Installation
Figure 401/27-31-02-990-801 (Sheet 5 of 5)

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TASK 27-31-02-400-801

3. Column Torque Tube Installation

(Figure 401)

A. References

Reference	Title
27-31-00-800-802	Control Column Adjustment (Rigging) (P/B 501)
27-31-01-400-801	Control Column Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Tube assembly	27-31-02-15-040	ARO ALL
21	Tube assembly	27-31-02-15-045	ARO ALL

D. Column Torque Tube Installation

SUBTASK 27-31-02-420-001

(1) Put the tube assembly [7] or tube assembly [21] in its position.

(a) Make sure the bushing [12] is in its position.

(b) Install the bolt [8] and bolt [14] and the bushings [9].

(c) Install washers [11] (at the nut end of the bolt) and the nut [10] on bolt [8] and bolt [14].

SUBTASK 27-31-02-420-002

(2) Do these steps to connect the pushrods to the torque tube:

(a) Install the bolt [4], washer [5], and nut [6] to connect the pushrod [3] to the torque tube.

(b) Make sure the bushing [17] is in its position.

(c) Install the bolt [18], washer [15], and nut [16] to connect the pushrod [13] to the torque tube.

SUBTASK 27-31-02-420-003

(3) For the left tube assembly [7], connect these electrical connectors:

(a) DM27139A and DM27139B, for the column force transducer

(b) DM31105, for the stick shaker actuator.

(c) Install the clamp [2] for the column force transducer wires with 11.2 ±0.125 inches (284 ±3 millimeters) of wire between this clamp [2] and the clamp that holds the wires to the torque tube assembly.

SUBTASK 27-31-02-420-004

(4) For the right tube assembly [21], connect these electrical connectors:

(a) DM27239A and DM27239B, for the column force transducer

(b) DM31205, for the stick shaker actuator.

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(c) Install the wire clamp [19] for the column force transducer wires with 11.2 ±0.125 inches (284 ±3 millimeters) of wire between this clamp [19] and the clamp that holds the wires to the torque tube assembly.

SUBTASK 27-31-02-400-001

(5) Do this task: Control Column Installation, TASK 27-31-01-400-801.

SUBTASK 27-31-02-820-001

(6) Do these steps to make sure the control columns are adjusted (rigged) correctly.

(a) Make sure you can install rig pins E1 and E2, from the rigging pin set, SPL-2532, at the inboard ends of the torque tubes.

(b) If you cannot install rig pins E1 and E2, then, do this task: Control Column Adjustment (Rigging), TASK 27-31-00-800-802.

——— END OF TASK ———

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COLUMNS BREAKOUT MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the breakout mechanism for the control columns.

(2) An installation of the breakout mechanism for the control columns.

TASK 27-31-03-000-801

2. Column Breakout Mechanism Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-31-03-040-001

(1) Attach DO NOT OPERATE tags to the control columns.

SUBTASK 27-31-03-860-001

(2) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L

SUBTASK 27-31-03-860-002

(3) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

D. Column Breakout Mechanism Removal

SUBTASK 27-31-03-010-001

(1) Open this access panel, for access to the breakout mechanism:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-31-03-020-001

(2) Do these steps to remove the two springs [10] from the breakout mechanism.

NOTE: Do not adjust the clevis bolt [14] at the top of the spring [10] to remove the spring [10]. If you change this adjustment the springs [10] will not provide the correct force.

(a) If the same breakout mechanism will be re-installed in the airplane, then put tags on the two springs [10] to show which one goes in which location.

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(b) Put a rag through the hook on the lower end of the spring [10]. Pull on the rag to remove the spring [10].

NOTE: Do not use pliers or other metal tools to remove the spring [10]. They can cause damage to the spring [10].

SUBTASK 27-31-03-020-002

(3) Disconnect the four pushrods [6] and [15] from the torque tubes for the breakout mechanism.

SUBTASK 27-31-03-020-003

(4) Remove the three bolts [2] and bolt [5] from the left support for the tube assembly [1].

SUBTASK 27-31-03-020-004

(5) Move the left tube assembly [1] (which includes the left part of the breakout mechanism) approximately three inches (76 millimeters) outboard. This will disengage it from the right part of the breakout mechanism.

NOTE: For more space to move the breakout mechanism, pull the captain's control column aft. Make sure the pushrods that you disconnected from the torque tube do not catch on something when the control column moves.

(a) Remove the left tube assembly [1] from the airplane.

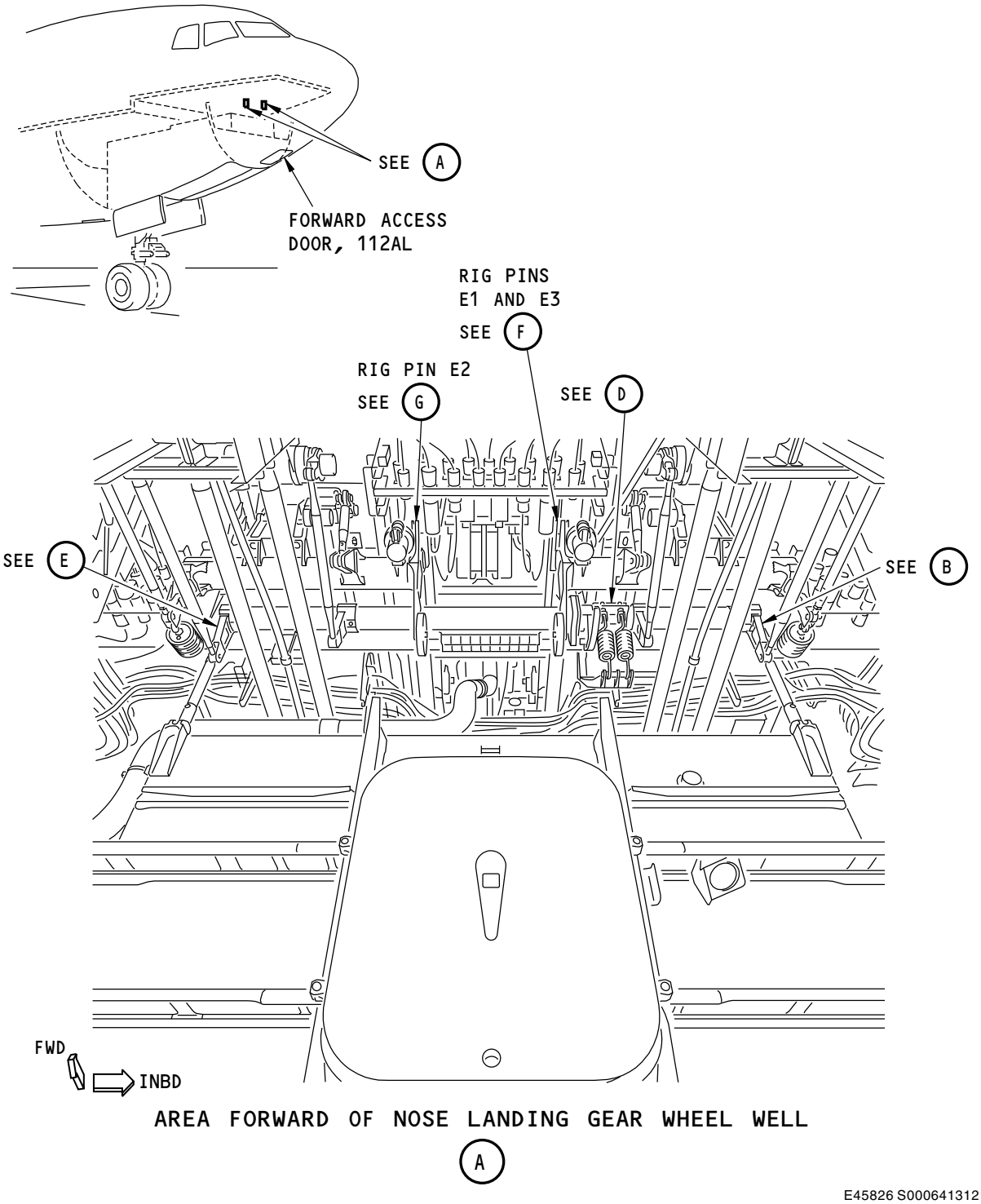
SUBTASK 27-31-03-020-005

(6) Remove the three bolts [2], bolt [5], and four bolts [9] from the right and center supports for the tube assembly [12].

(a) Remove the right tube assembly [12] (which includes the right part of the breakout mechanism) from the airplane.

——— END OF TASK ———

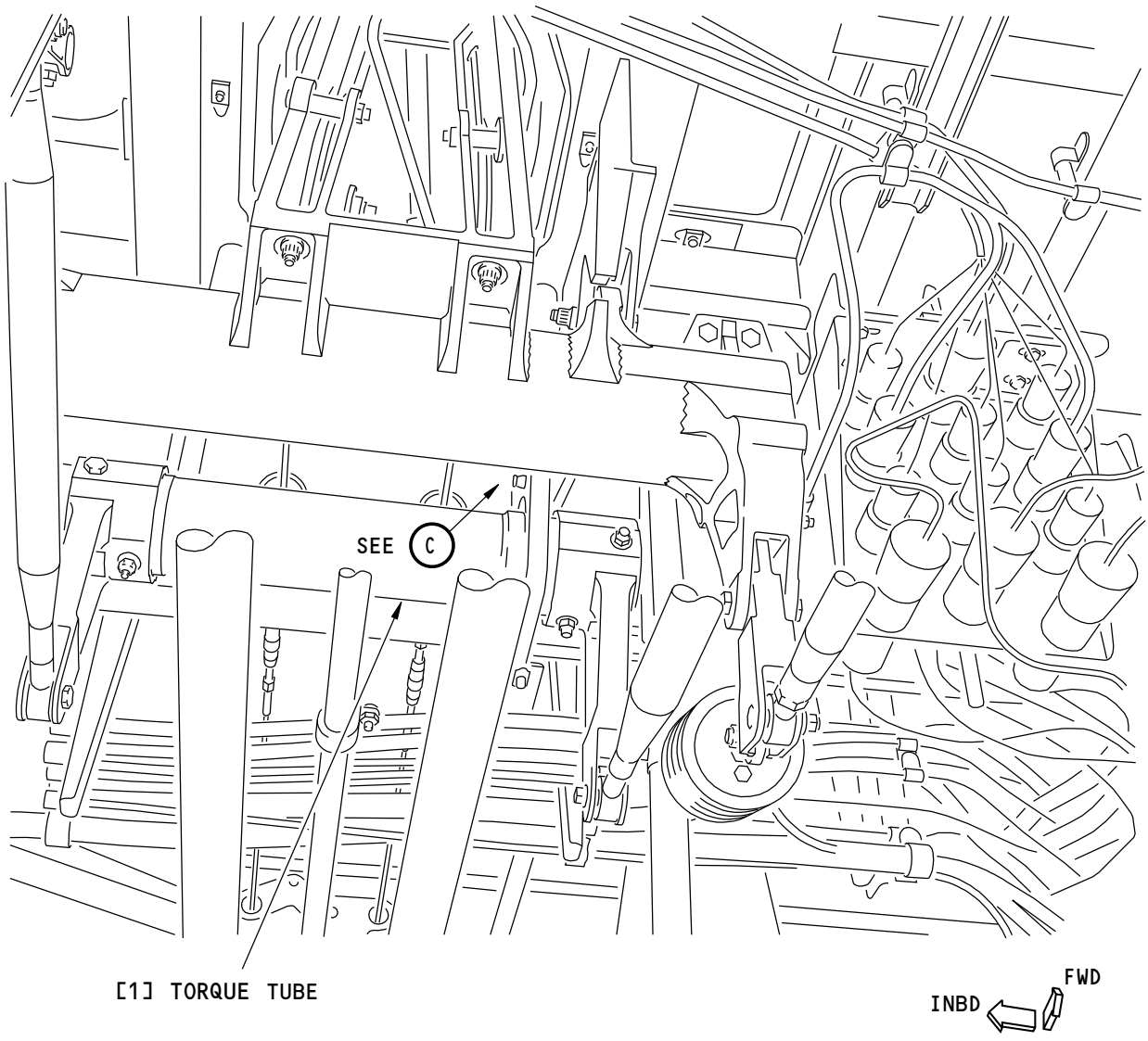
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Column Breakout Mechanism Installation
Figure 401/27-31-03-990-801 (Sheet 1 of 6)

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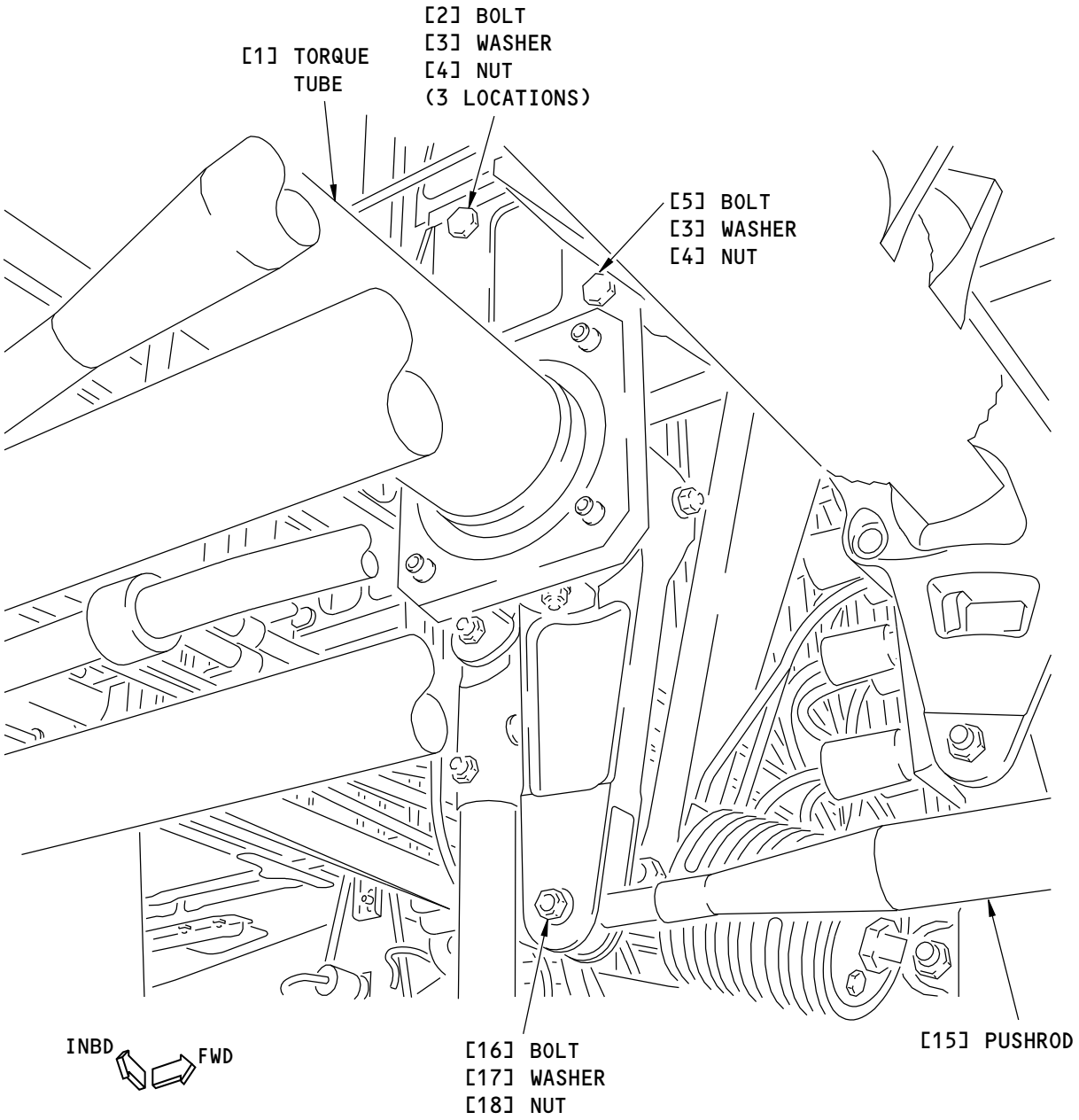
LEFT SIDE COLUMN BREAKOUT MECHANISM

B

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Column Breakout Mechanism Installation
Figure 401/27-31-03-990-801 (Sheet 2 of 6)

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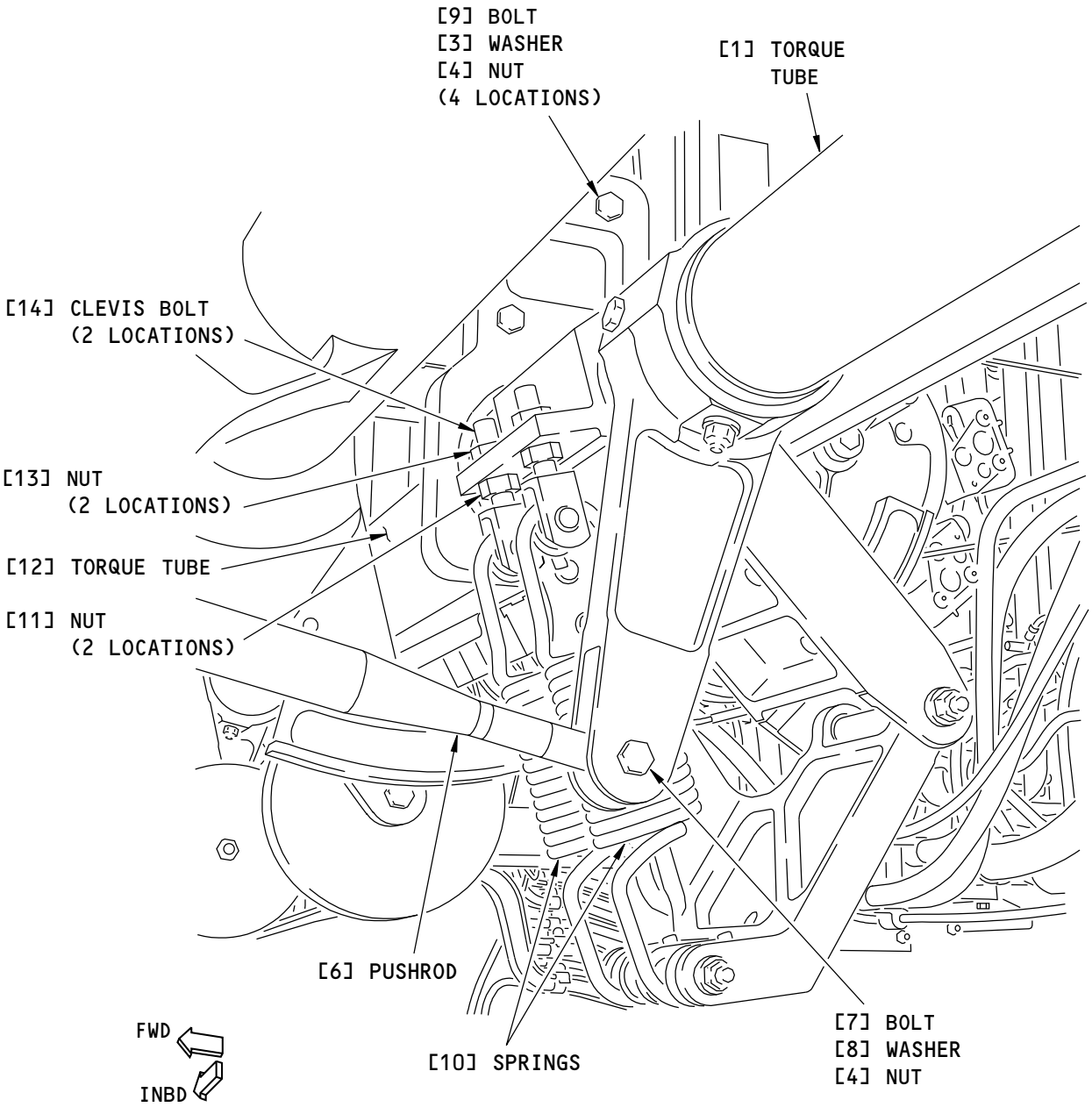
LEFT SIDE COLUMN BREAKOUT MECHANISM

C

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Column Breakout Mechanism Installation
Figure 401/27-31-03-990-801 (Sheet 3 of 6)

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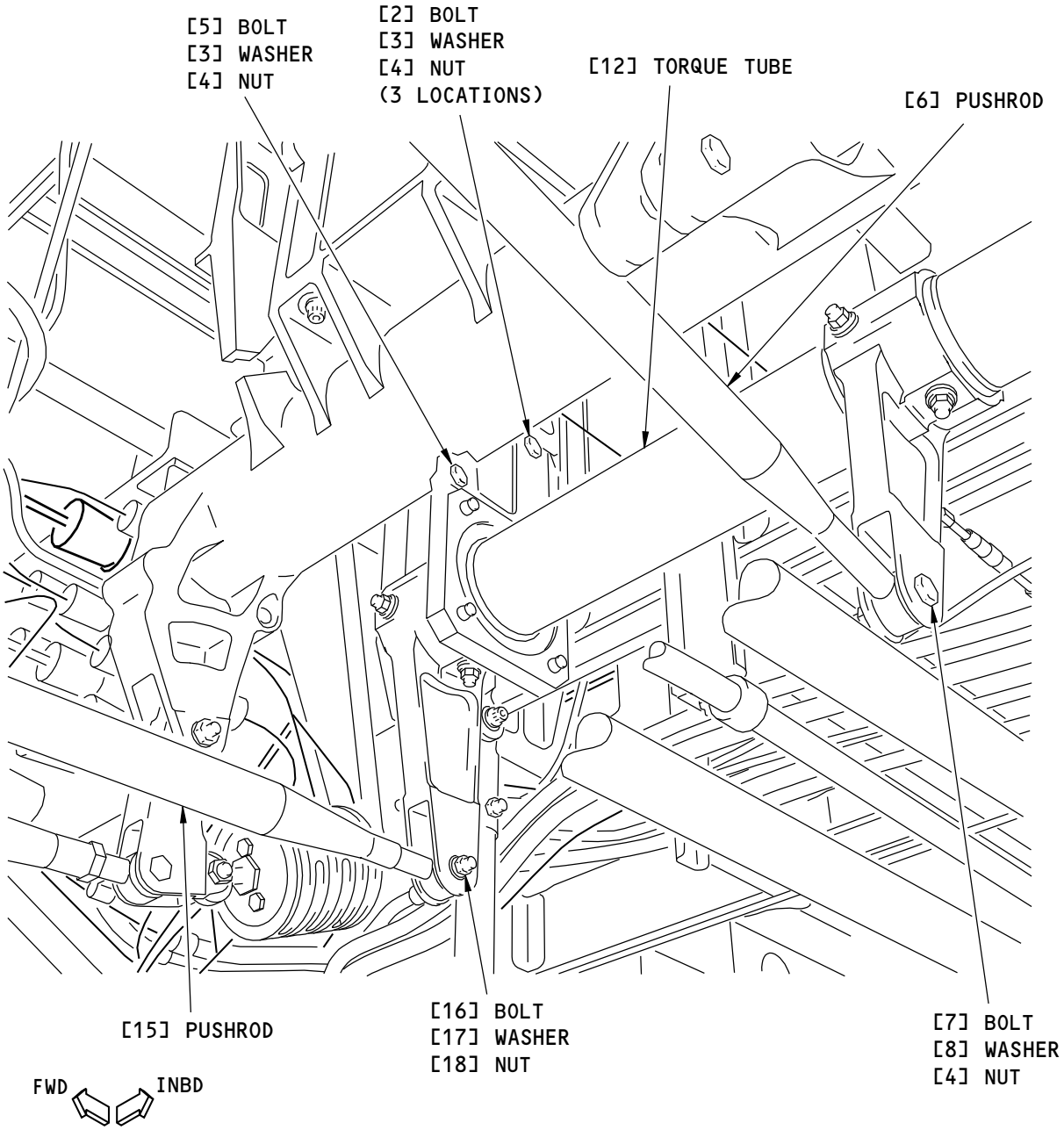
COLUMN BREAKOUT MECHANISM

D

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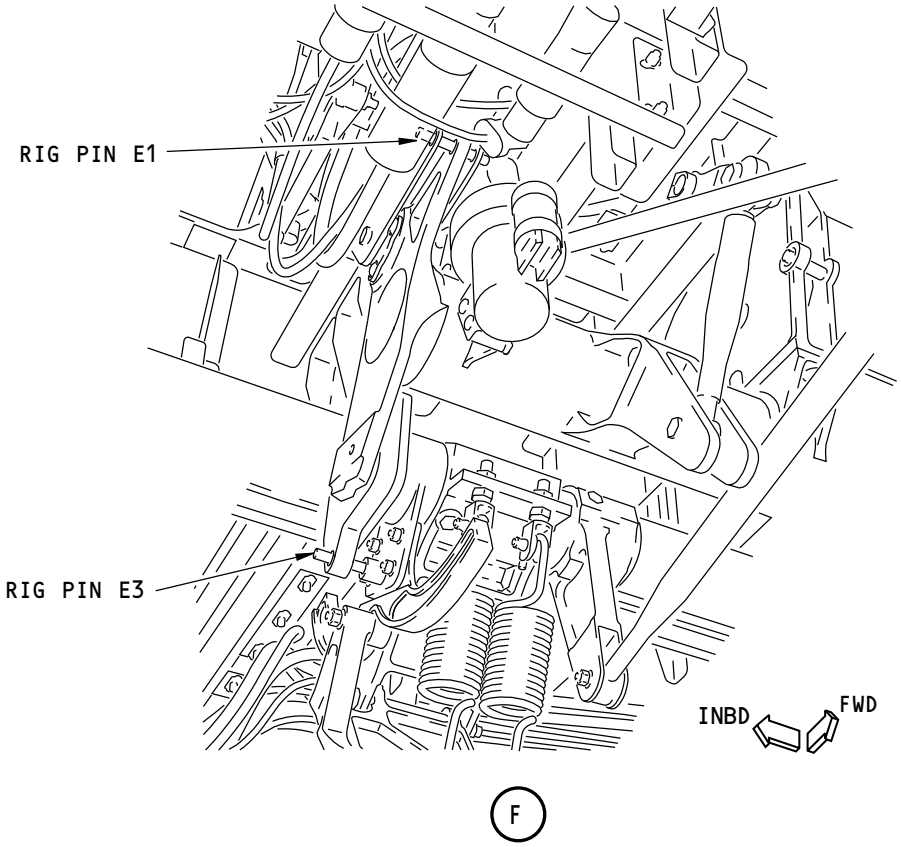
Column Breakout Mechanism Installation
Figure 401/27-31-03-990-801 (Sheet 4 of 6)

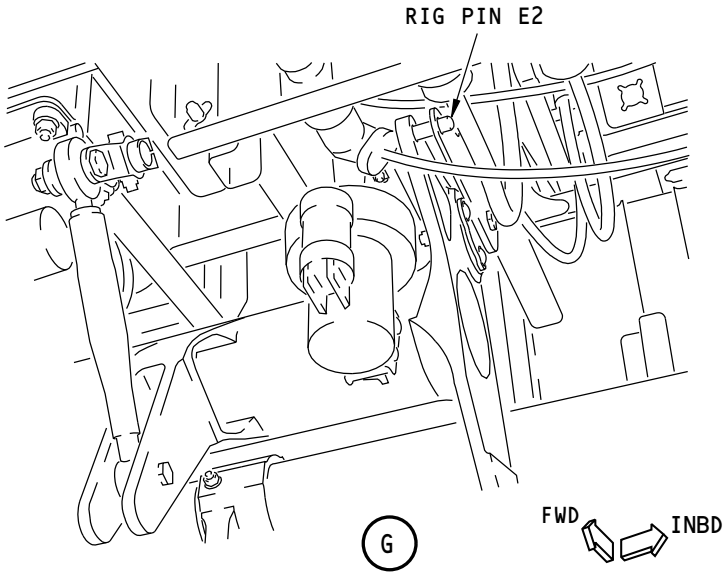
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Column Breakout Mechanism Installation
Figure 401/27-31-03-990-801 (Sheet 5 of 6)

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Column Breakout Mechanism Installation
Figure 401/27-31-03-990-801 (Sheet 6 of 6)

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TASK 27-31-03-400-801

3. Column Breakout Mechanism Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-806	Column Breakout Mechanism Test (P/B 501)
27-31-00-700-809	Column Force Test (P/B 501)
27-31-00-800-802	Control Column Adjustment (Rigging) (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Tube assembly	27-31-03-01-060	ARO ALL
10	Spring	27-31-03-01-065	ARO ALL
12	Tube assembly	27-31-03-01-060	ARO ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Column Breakout Mechanism Installation

SUBTASK 27-31-03-420-001

(1) Put the right tube assembly [12] (which includes part of the breakout mechanism) in its position.

NOTE: The right tube assembly [12] is the longer torque tube.

(a) Install the three bolts [2] and bolt [5], with the washers [3] and the nuts [4], in the right support for the tube assembly [12].

(b) Install the four bolts [9], the washers [3], and the nuts [4] in the center support for the tube assembly [12].

SUBTASK 27-31-03-420-002

(2) Engage the left tube assembly [1] with the right tube assembly [12].

NOTE: For more space to move the tube assembly [1], have someone pull the captain's control column aft. Make sure the pushrods that you disconnected from the tube assembly [1] do not catch on something when the control column moves.

(a) Install the three bolts [2] and bolt [5], the washers [3], and the nuts [4] in the left support for the tube assembly [1].

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SUBTASK 27-31-03-420-003

(3) Install the bolt [16], the washer [17], and the nut [18] to connect the pushrods [15] from the left and right elevator feel units.

SUBTASK 27-31-03-420-004

(4) Install the bolt [7], the washer [8], and the nut [4] to connect the pushrods [6] from the left and right backdrive actuators.

SUBTASK 27-31-03-420-005

(5) Do these steps to install the two spring [10] for the breakout mechanism.

NOTE: Do not adjust the clevis bolt [14] at the top connection for the springs [10]. The adjustment is pre-set to the correct location. If you change this adjustment the springs [10] will not provide the correct force.

(a) Look for tags to show which spring [10] goes in which location.

(b) Connect the top end of the spring [10] first.

(c) Put a rag through the hook on the bottom end of the spring [10]. Pull on the rag to extend the spring [10], and connect the bottom end of the spring [10].

NOTE: Do not use pliers or other metal tools to install the spring [10]. They can cause damage to the spring [10].

(d) Pull the rag out from under the end of the spring [10].

(e) Remove the tags from the springs [10].

SUBTASK 27-31-03-440-001

(6) Remove the DO NOT CLOSE tags from the control column.

SUBTASK 27-31-03-820-001

(7) Do these steps to make sure the breakout mechanism is adjusted (rigged) correctly.

(a) Install rig pins E1 and E2, from the rigging pin set, SPL-2532, at the inboard ends of the torque tubes that the control columns are attached to.

(b) Make sure you can install rig pin E3, from the rigging pin set, SPL-2532, in the breakout mechanism.

(c) If you cannot install rig pin E3, then, do this task: Control Column Adjustment (Rigging), TASK 27-31-00-800-802.

SUBTASK 27-31-03-710-001

(8) Do this task: Column Breakout Mechanism Test, TASK 27-31-00-700-806.

SUBTASK 27-31-03-710-002

(9) Do this task: Column Force Test, TASK 27-31-00-700-809

SUBTASK 27-31-03-860-003

(10) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	10	C22603	AFDC-L
F	11	C22607	AFDC BACK DRIVE L

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SUBTASK 27-31-03-860-004

(11) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	24	C22602	AFDC-R
F	25	C22608	AFDC BACK DRIVE R

SUBTASK 27-31-03-410-001

(12) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

END OF TASK

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COLUMN POSITION TRANSDUCERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

NOTE: The position transducers are often referred to as the LVTDs.

(1) A removal of the position transducers for the control column

(2) An installation of the position transducers for the control column.

(3) There are three transducers on each side of the airplane. For the three transducers on one side of the airplane, it is not important which transducer is connected to which electrical connector. This procedure is applicable for each position transducer on the elevator feel and centering mechanisms.

TASK 27-31-04-000-801

2. Column Position Transducers Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-31-04-040-001

(1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE-L1 PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE-C PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE-R PWR
2) D8, PFC BATT INTLK

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3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

SUBTASK 27-31-04-010-001

(2) To get access to the transducer [8], do this step:

Open this access panel:

Number	Name/Location
112AL	Forward Access Door

D. Column Position Transducers Removal

SUBTASK 27-31-04-020-001

(1) Remove the transducer [8] from the feel and centering mechanism:

(a) Disconnect the electrical connector for the transducer [8].

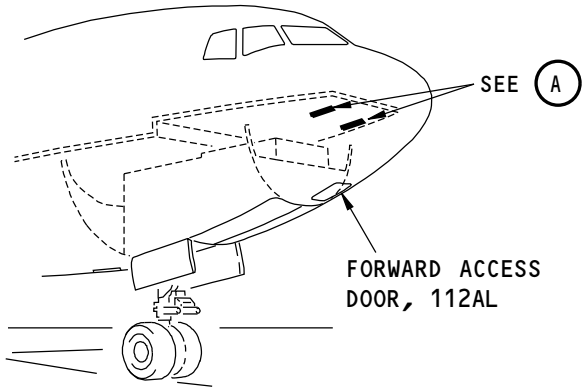
(b) Disconnect the wire clamps [1].

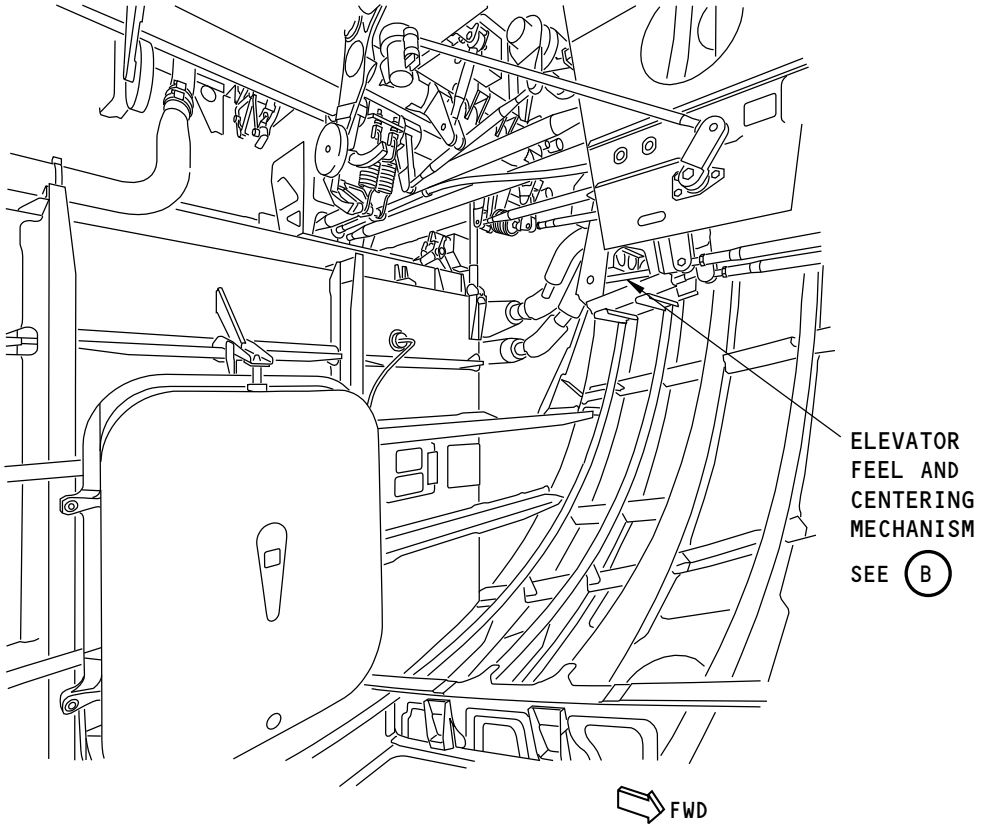
(c) Remove the bolt [2] and the bolt [5].

(d) Remove the transducer [8].

——— END OF TASK ———

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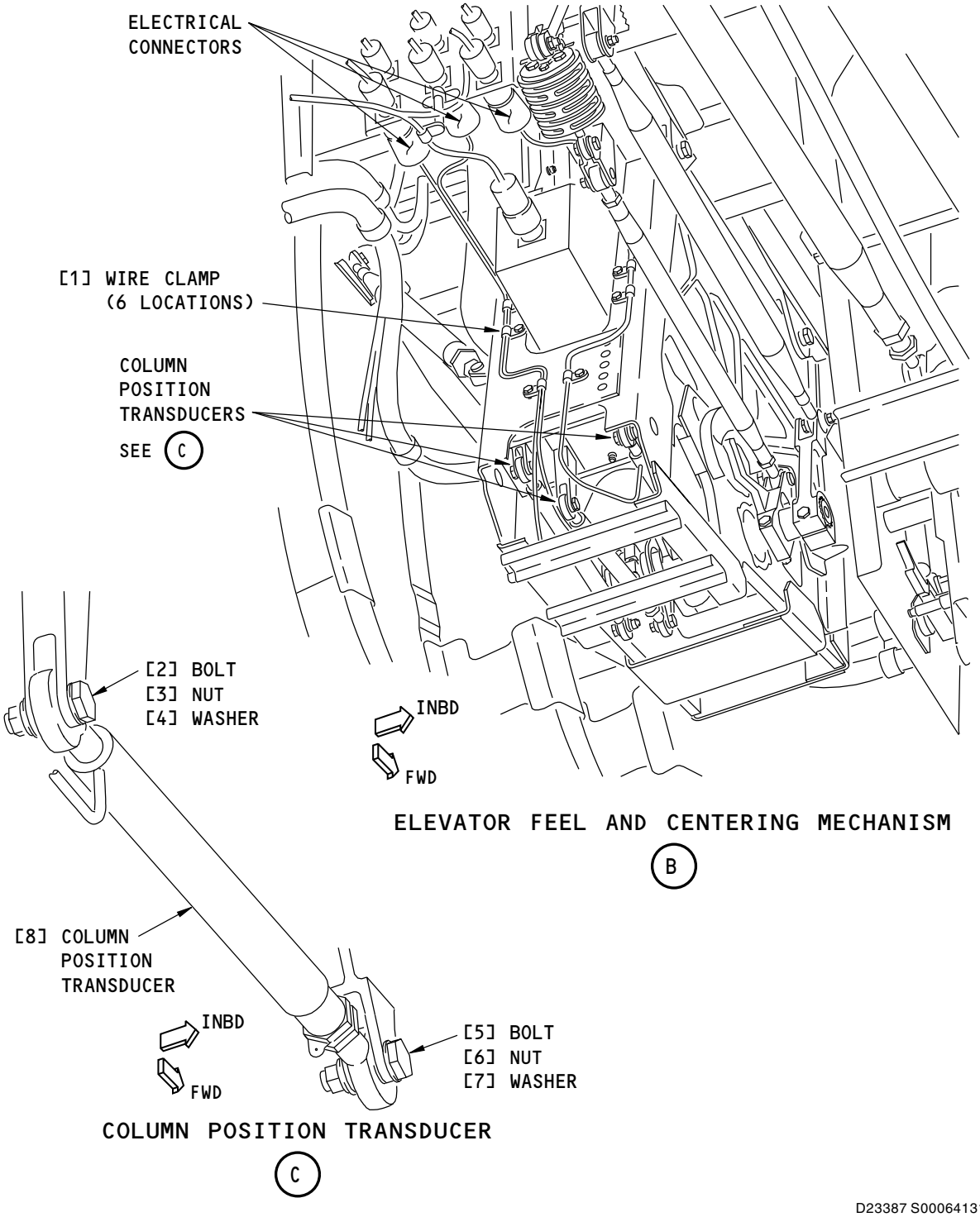
AREA FORWARD OF NOSE LANDING GEAR WHEEL WELL

A

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Column Position Transducers Installation
Figure 401/27-31-04-990-801 (Sheet 1 of 2)

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Column Position Transducers Installation
Figure 401/27-31-04-990-801 (Sheet 2 of 2)

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TASK 27-31-04-400-801

3. Column Position Transducers Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-808	Control Column Travel Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Transducer	27-31-04-01-030	ARO ALL
		27-31-04-02-020	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Column Position Transducers Installation

SUBTASK 27-31-04-420-001

(1) Install the transducer [8] on the feel and centering mechanism:

(a) Put the transducer [8] in its position.

(b) Install the bolt [2], the washer [4] and the nut [3].

(c) Install the bolt [5], the washer [7], and the nut [6].

(d) Connect the electrical connector for the transducer [8].

(e) Install the wire clamps [1].

SUBTASK 27-31-04-440-001

(2) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-L1 PWR

2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-C PWR

2) D8, PFC BATT INTLK

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3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-R PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

SUBTASK 27-31-04-720-001

(3) Do this task: Control Column Travel Test, TASK 27-31-00-700-808.

SUBTASK 27-31-04-410-001

(4) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

——— END OF TASK ———

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COLUMN DAMPER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the column damper.

(2) An installation of the column damper.

TASK 27-31-05-000-801

2. Column Damper Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-31-05-010-001

(1) Get access to the area forward of the nose landing gear wheel well through this access panel:

Number	Name/Location
112AL	Forward Access Door

D. Column Damper Removal

SUBTASK 27-31-05-040-001

(1) Attach DO NOT OPERATE tags to the control columns.

SUBTASK 27-31-05-020-001

(2) Remove the nut [9], the washer [7], the washer [8] and the bolt [6] that attach the crank [1] to the damper [2].

SUBTASK 27-31-05-020-002

(3) Remove the nuts [5] and the washers [4] from the bolts [3] of the damper [2].

SUBTASK 27-31-05-020-003

(4) Remove the damper [2] from its position.

SUBTASK 27-31-05-020-004

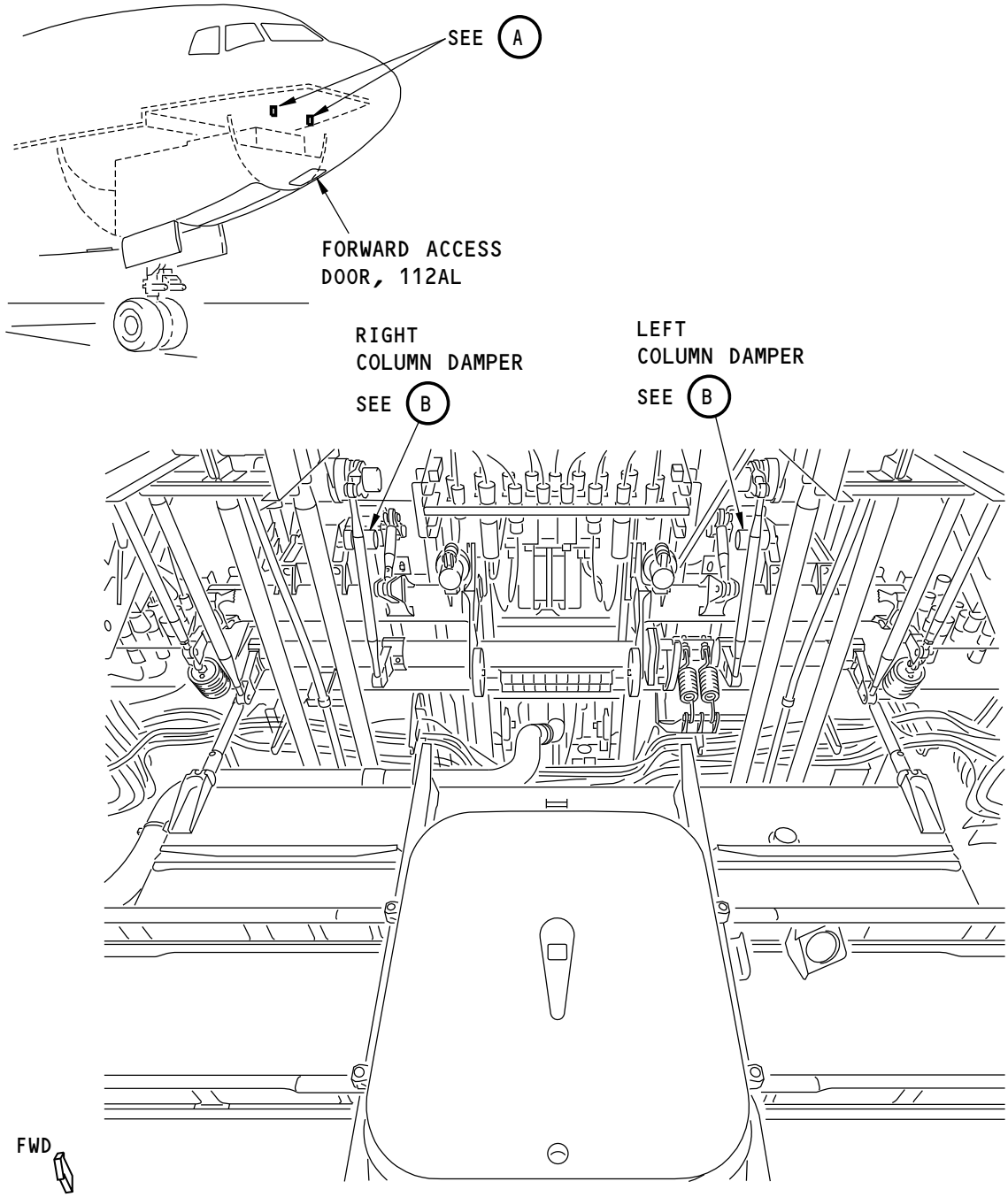
(5) Disconnect the crank [1] from the damper [2].

SUBTASK 27-31-05-020-005

(6) Remove the damper [2].

END OF TASK

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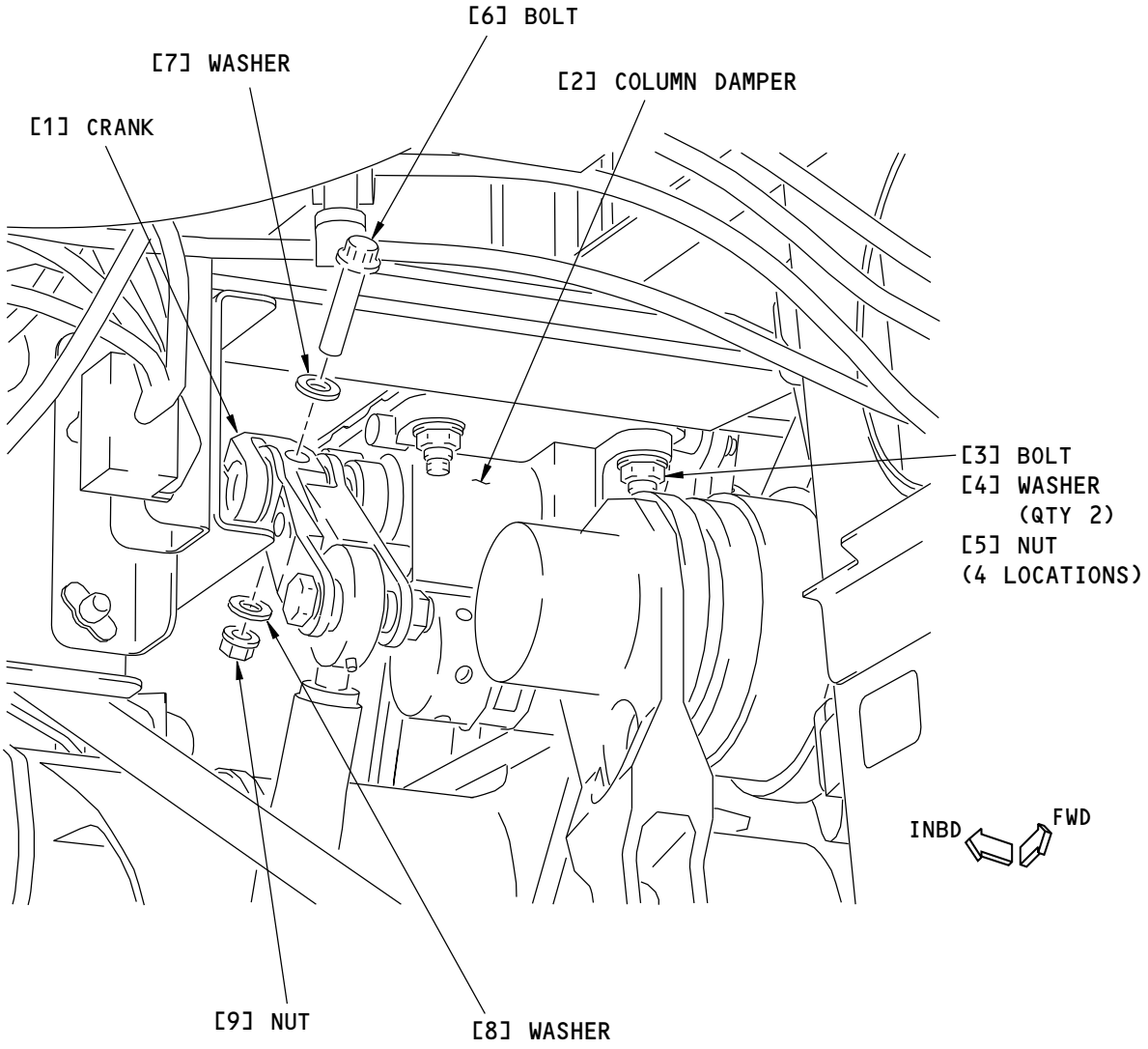
AREA FORWARD OF NOSE LANDING GEAR WHEEL WELL

A

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Column Damper Installation
Figure 401/27-31-05-990-804 (Sheet 1 of 2)

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LEFT COLUMN DAMPER
(RIGHT COLUMN DAMPER IS ALMOST THE SAME)

B

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Column Damper Installation
Figure 401/27-31-05-990-804 (Sheet 2 of 2)

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TASK 27-31-05-400-801

3. Column Damper Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-807	Control Column Damper Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Damper	27-31-05-01-100	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Column Damper Installation

SUBTASK 27-31-05-420-001

(1) Connect the crank [1] to the damper [2].

SUBTASK 27-31-05-420-002

(2) Put the damper [2] in its position.

SUBTASK 27-31-05-420-003

(3) Install the bolts [3], the washers [4] and the nuts [5].

SUBTASK 27-31-05-420-004

(4) Install the bolt [6], the washer [7], the washer [8], and the nut [9].

SUBTASK 27-31-05-720-001

(5) Do this task: Control Column Damper Test, TASK 27-31-00-700-807.

SUBTASK 27-31-05-440-001

(6) Remove the DO NOT OPERATE tags from the control columns.

SUBTASK 27-31-05-410-001

(7) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

——— END OF TASK ———

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COLUMN DAMPER - INSPECTION

1. General

A. This procedure has this task:

(1) An inspection of the fluid level in the column damper.

TASK 27-31-05-210-801

2. Column Damper Fluid Level Inspection

(Figure 601)

A. Access Panels

Number	Name/Location
112AL	Forward Access Door

B. Procedure

SUBTASK 27-31-05-010-002

(1) Get access to the area forward of the nose landing gear wheel well through this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-31-05-210-001

(2) Look through one of the windows on the damper.

(a) If the width of the green band that shows through the window is 1/16 inch (1.59 millimeters), or more, then there is sufficient fluid in the damper.

NOTE: The damper must be at room temperature (50 to 90 degrees F, 10 to 32 degrees C) to get the correct indication.

(b) If the width of the green band that shows through the window is less than 1/16 inch (1.59 millimeters), then the damper must be replaced.

NOTE: If the window shows only red or no color (no green), the damper must be replaced.

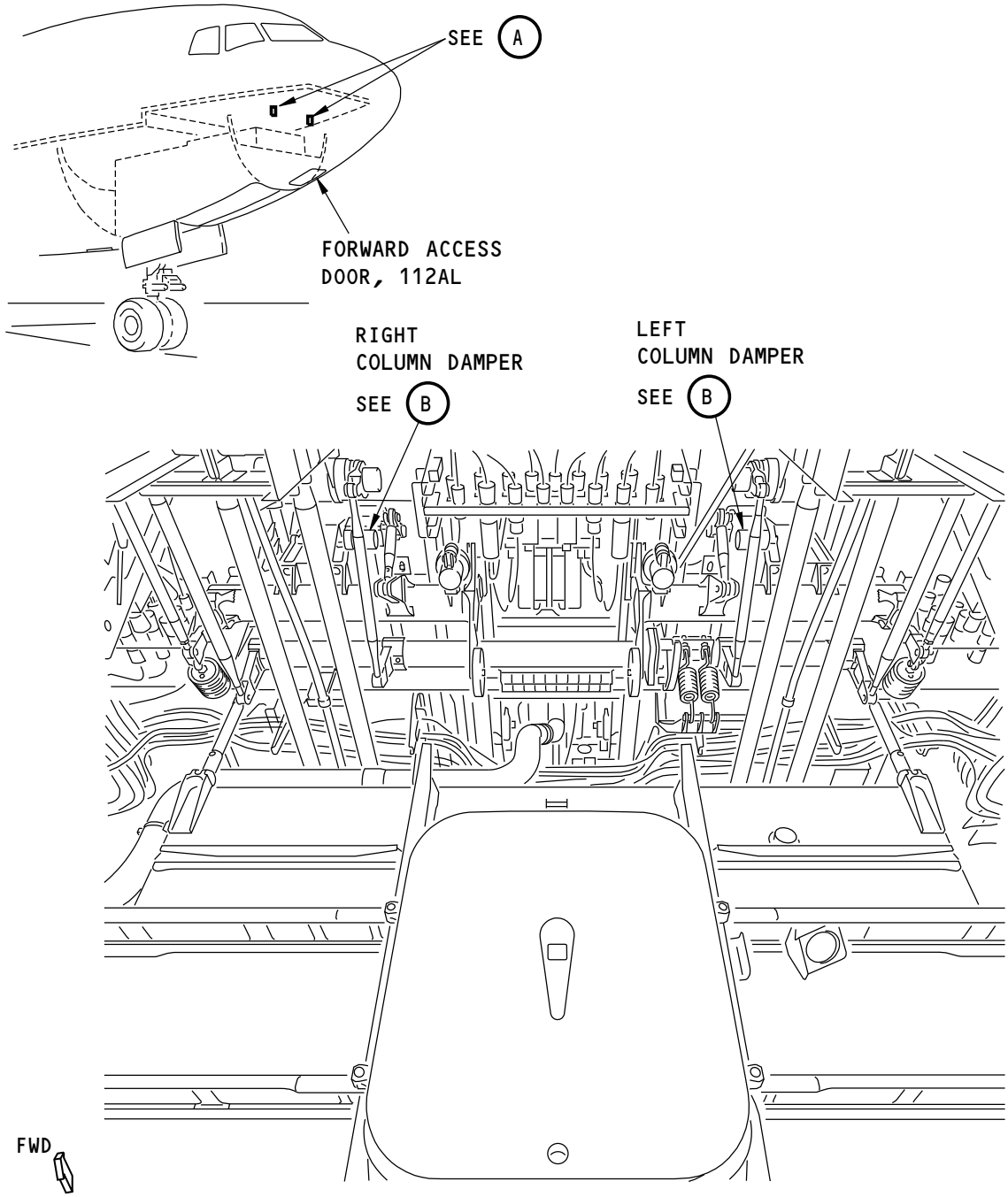
SUBTASK 27-31-05-410-002

(3) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

END OF TASK

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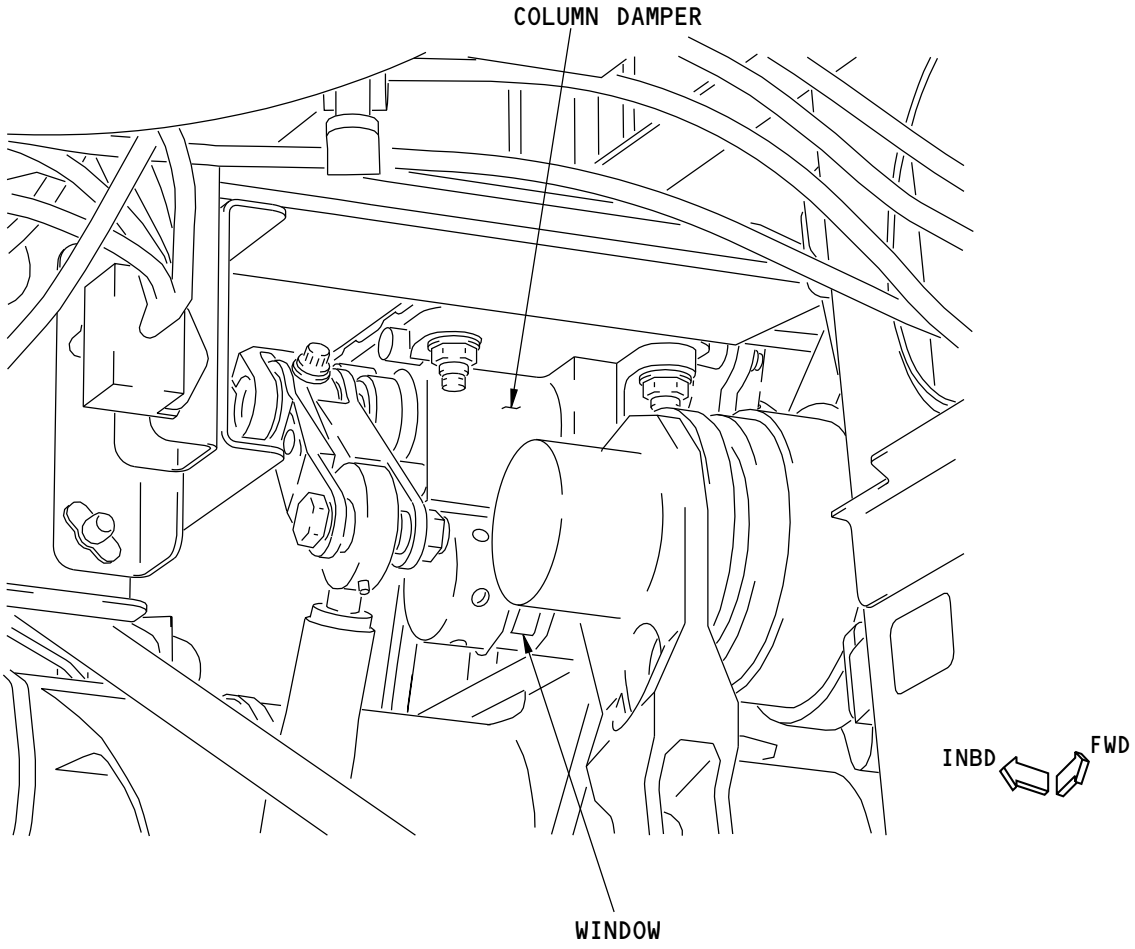
AREA FORWARD OF NOSE LANDING GEAR WHEEL WELL

A

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Column Damper Inspection
Figure 601/27-31-05-990-803 (Sheet 1 of 2)

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LEFT COLUMN DAMPER
(RIGHT COLUMN DAMPER IS ALMOST THE SAME)

B

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Column Damper Inspection
Figure 601/27-31-05-990-803 (Sheet 2 of 2)

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ELEVATOR FEEL AND CENTERING MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the feel and centering mechanism for the elevator

(2) An installation of the feel and centering mechanism for the elevator.

(3) This procedure is applicable for the left and the right elevator feel and centering mechanism.

B. In this procedures the left elevator feel and centering mechanisms is called the unit assembly [10]. The right elevator feel and centering mechanisms is called the unit assembly [20].

TASK 27-31-06-000-801

2. Elevator Feel and Centering Mechanism Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-31-06-040-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE-L1 PWR

2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE C PWR

2) B6, ELEV FEEL ACTR

3) D8, PFC BATT INTLK

4) D2, PFC LANE 1

5) D4, PFC LANE 2

6) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE-R PWR.

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2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

SUBTASK 27-31-06-010-001

(2) To get access to the unit assembly [10] or the unit assembly [20], do this step:

Open this access panel:

Number	Name/Location
112AL	Forward Access Door

D. Elevator Feel and Centering Mechanism Removal

SUBTASK 27-31-06-020-001

(1) Remove the unit assembly [10] or the unit assembly [20]:

(a) Disconnect the electrical connectors.

(b) Remove the bolt [1] from the override crank.

(c) Remove the bolt [7] from the input crank.

(d) Remove the bolt [4] that connects a control rod to the unit assembly [10], or the unit assembly [20].

(e) Remove the bolt [11] that connects a control rods to the unit assembly [10], or the unit assembly [20].

(f) Hold the unit assembly [10], or the unit assembly [20] and do the steps that follow:

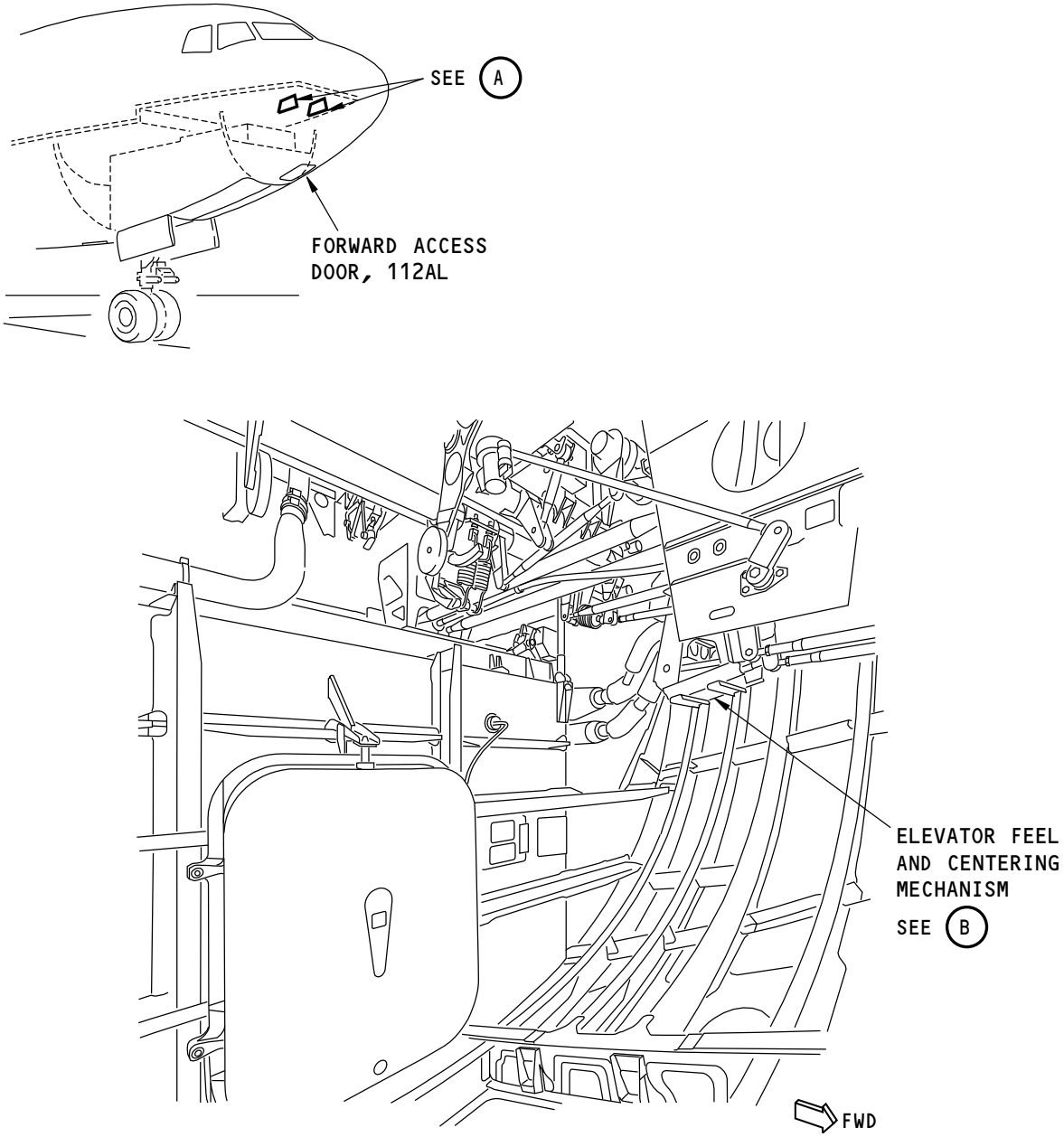
1) For the unit assembly [10] on the left side, remove the bolts [14], bolts [16], and bushings [15].

2) For the unit assembly [20] on the right side, remove the bolts [17], bolts [19], and bushings [18].

(g) Remove the unit assembly [10].

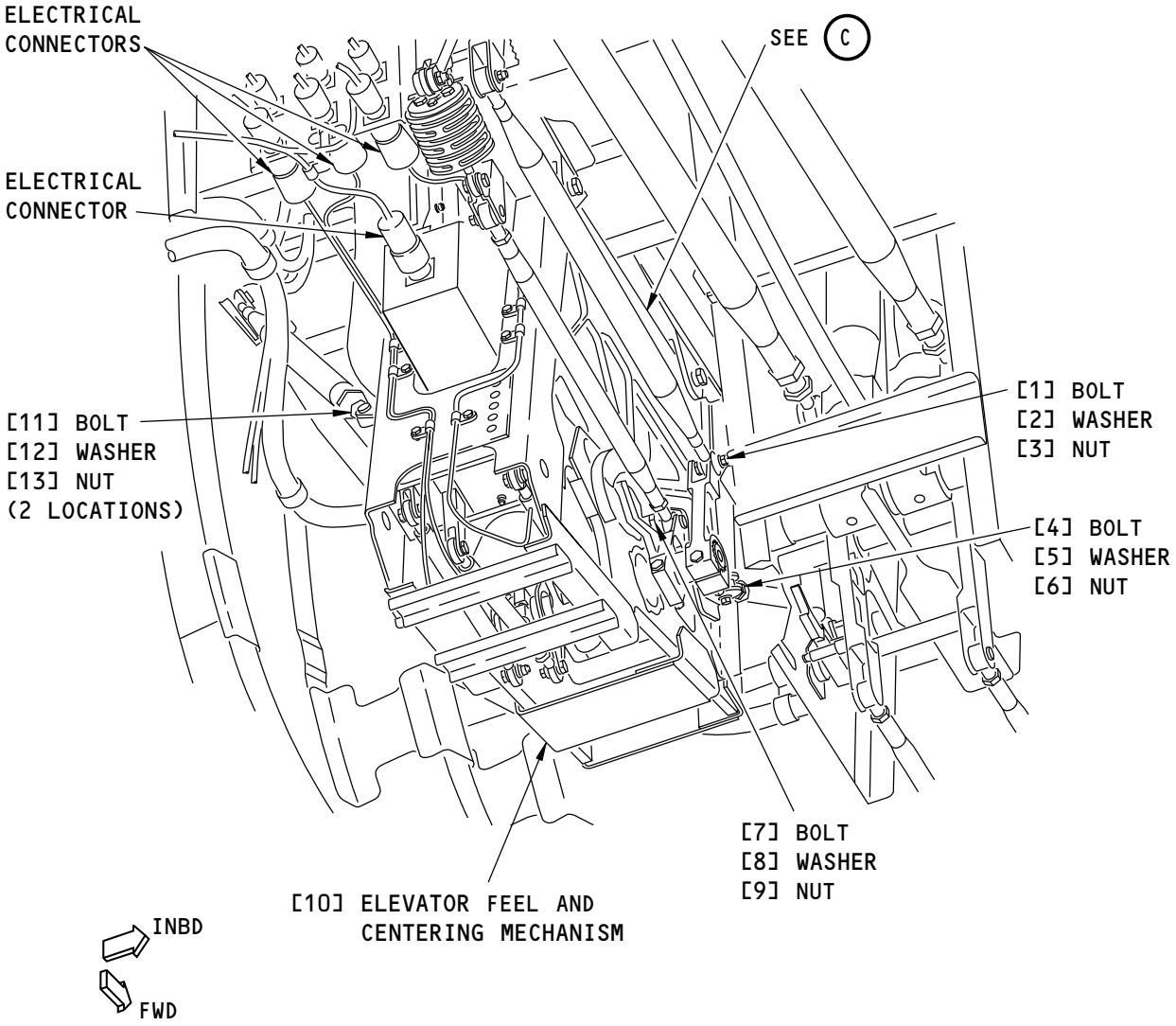
——— END OF TASK ———

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Elevator Feel and Centering Mechanism Installation
Figure 401/27-31-06-990-801 (Sheet 1 of 4)

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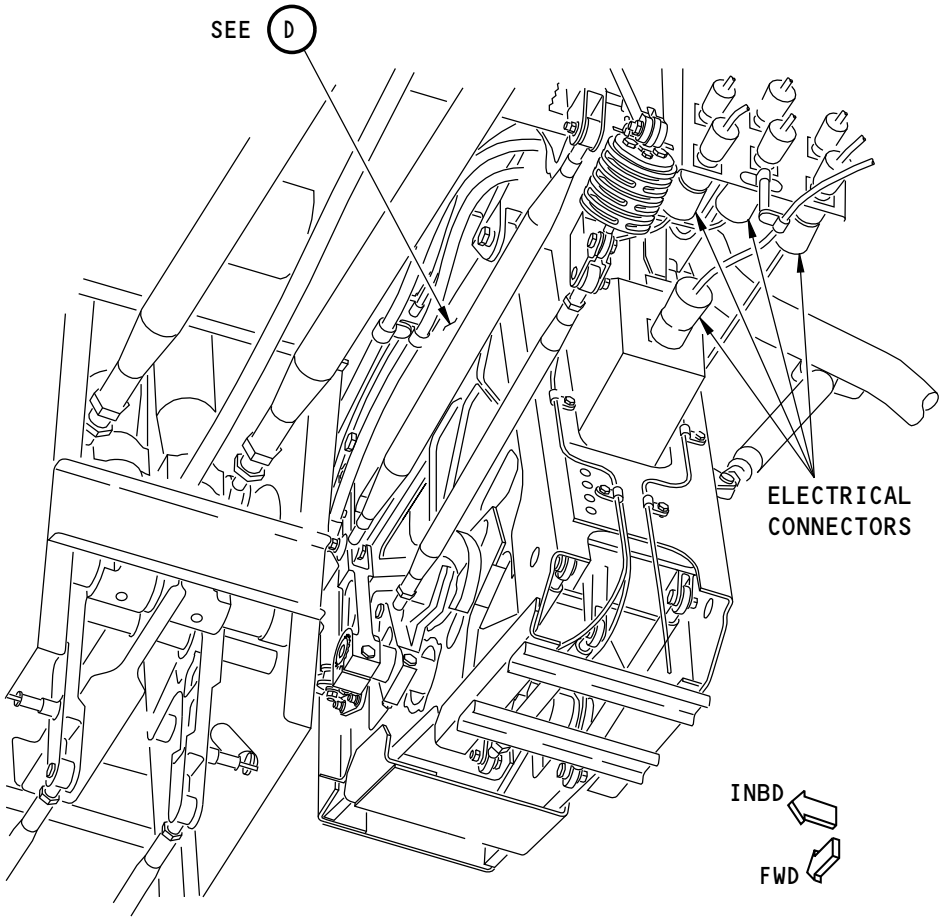
ELEVATOR FEEL AND CENTERING MECHANISM
(LEFT SIDE)

B

D23524 S0006413150_V1

Elevator Feel and Centering Mechanism Installation
Figure 401/27-31-06-990-801 (Sheet 2 of 4)

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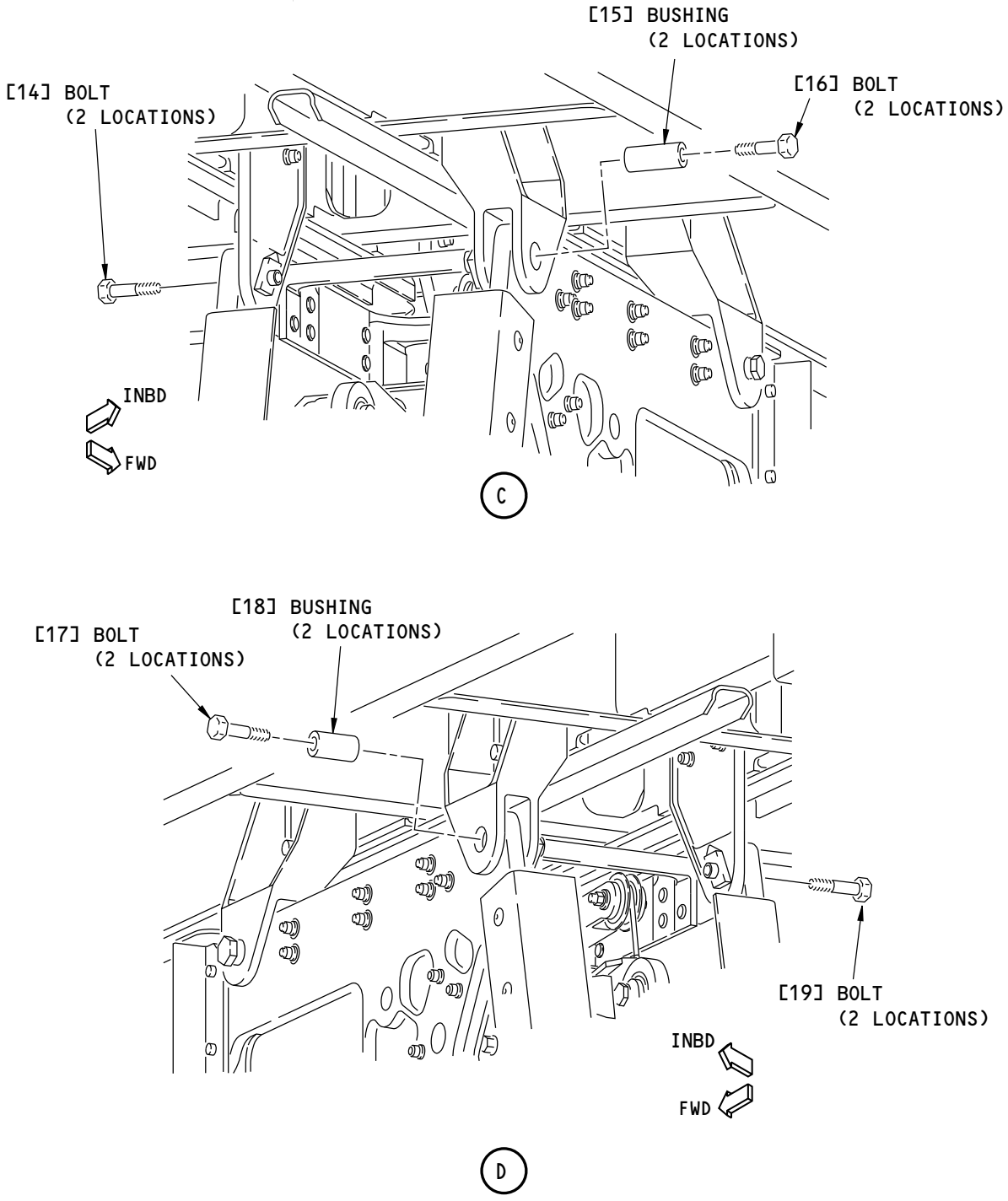
ELEVATOR FEEL AND CENTERING MECHANISM
(RIGHT SIDE)

B

D24105 S0006413151_V1

Elevator Feel and Centering Mechanism Installation
Figure 401/27-31-06-990-801 (Sheet 3 of 4)

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D24246 S0006413152_V1

Elevator Feel and Centering Mechanism Installation
Figure 401/27-31-06-990-801 (Sheet 4 of 4)

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TASK 27-31-06-400-801

3. Elevator Feel and Center Mechanism Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-31-00-700-809	Column Force Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Unit assembly	27-31-04-02-010	ARO ALL
		27-31-06-01-085	ARO ALL
		27-31-07-01-005	ARO ALL
20	Unit assembly	27-31-04-02-015	ARO ALL
		27-31-06-01-087	ARO ALL
		27-31-07-01-010	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Elevator Feel and Centering Mechanism Installation

SUBTASK 27-31-06-420-001

(1) Hold the unit assembly [10] or the unit assembly [20] in its position and do the steps below.
  (a) For the left unit assembly [10], install the bolts [16], and the bushings [15].
  (b) For the left unit assembly [10], install the bolts [14].
  (c) For the right unit assembly [20], install the bolts [17], and the bushings [18].
  (d) For the right unit assembly [20], install the bolts [19].
  (e) Connect the control rods:
    1) Hold the control rod in its position and install the bolt [4].
      a) If you can not easily install the bolt [4], adjust the control rod.
      b) Tighten the jam nuts when the adjustment is correct.
    2) Install the washer [5] and nut [6].
    3) Hold the control rod in its position and install the bolt [11]:
      a) If you can not easily install the bolt [11], adjust the control rod.
      b) Tighten the jam nuts when the adjustment is correct.
    4) Install the washer [12] and nut [13].
  (f) Connect the control rod to the override crank:
    1) Install the bolt [1], washer [2], and the nut [3].
  (g) Connect the control rod to the input crank:

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1) Install the bolt [7], washer [8], and the nut [9].

(h) Connect the electrical connectors for the column position transducers and the elevator feel actuator.

SUBTASK 27-31-06-440-001

(2) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-L1 PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE C PWR
2) B6, ELEV FEEL ACTR
3) D8, PFC BATT INTLK
4) D2, PFC LANE 1
5) D4, PFC LANE 2
6) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-R PWR.
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

SUBTASK 27-31-06-720-001

(3) Do this task: Column Force Test, TASK 27-31-00-700-809.

SUBTASK 27-31-06-410-001

(4) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

END OF TASK

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ELEVATOR FEEL ACTUATORS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator feel actuators

(2) An installation of the elevator feel actuators.

TASK 27-31-07-000-801

2. Elevator Feel Actuators Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-31-07-860-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE-C PWR

2) B6, ELEV FEEL ACTR

D. Elevator Feel Actuators Removal

SUBTASK 27-31-07-010-001

(1) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-31-07-020-001

(2) Disconnect the electrical connector [5] from the actuator [11].

SUBTASK 27-31-07-020-002

(3) Remove the nut [4], the bolt [1], the washer [2], the washer [3] and the bushing [13] from the actuator [11].

SUBTASK 27-31-07-020-003

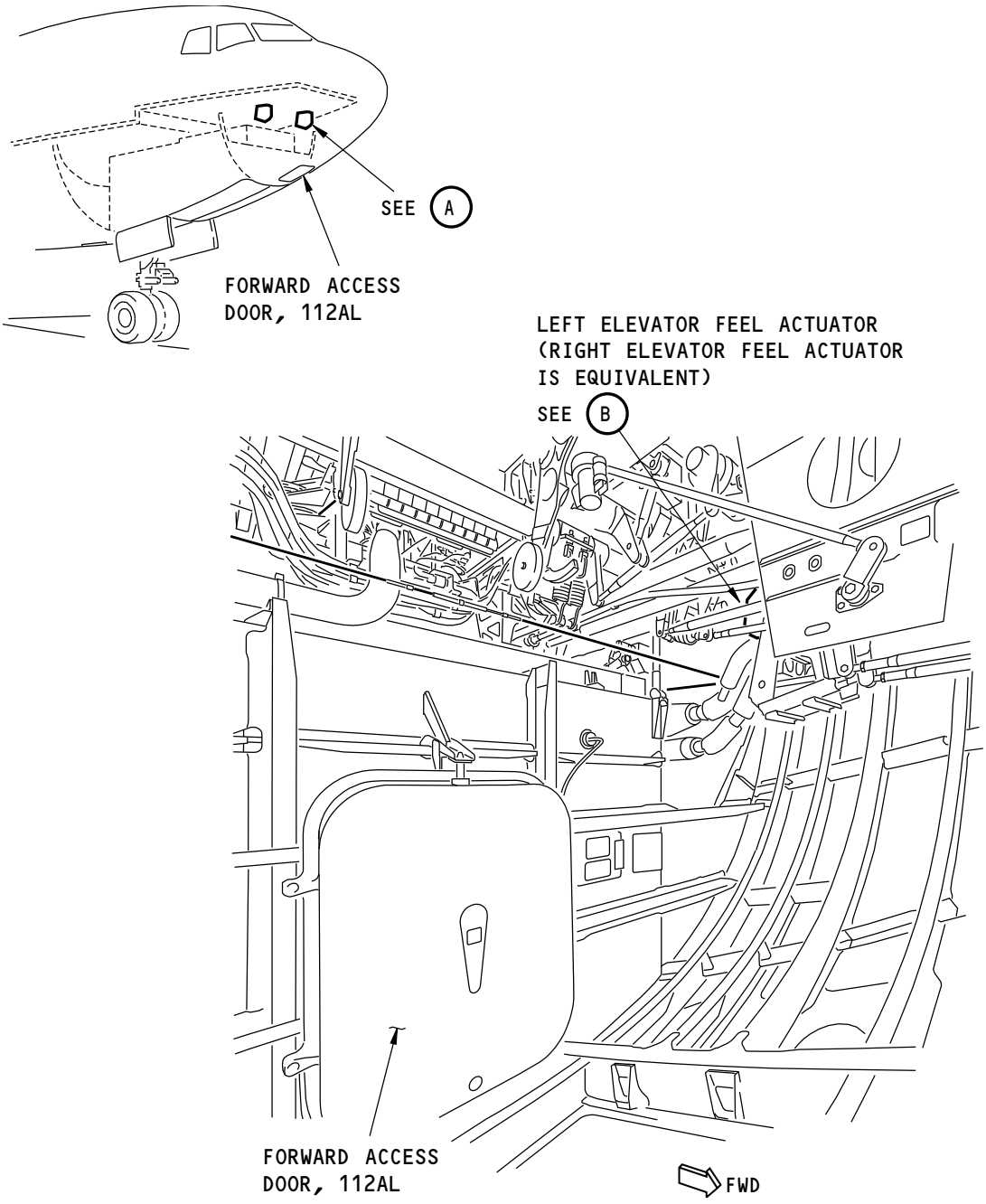
(4) Remove the nut [10], the bolt [6], the washer [8], the washer [9] and the bushing [7] from the actuator [11].

SUBTASK 27-31-07-020-004

(5) Remove the actuator [11].

END OF TASK

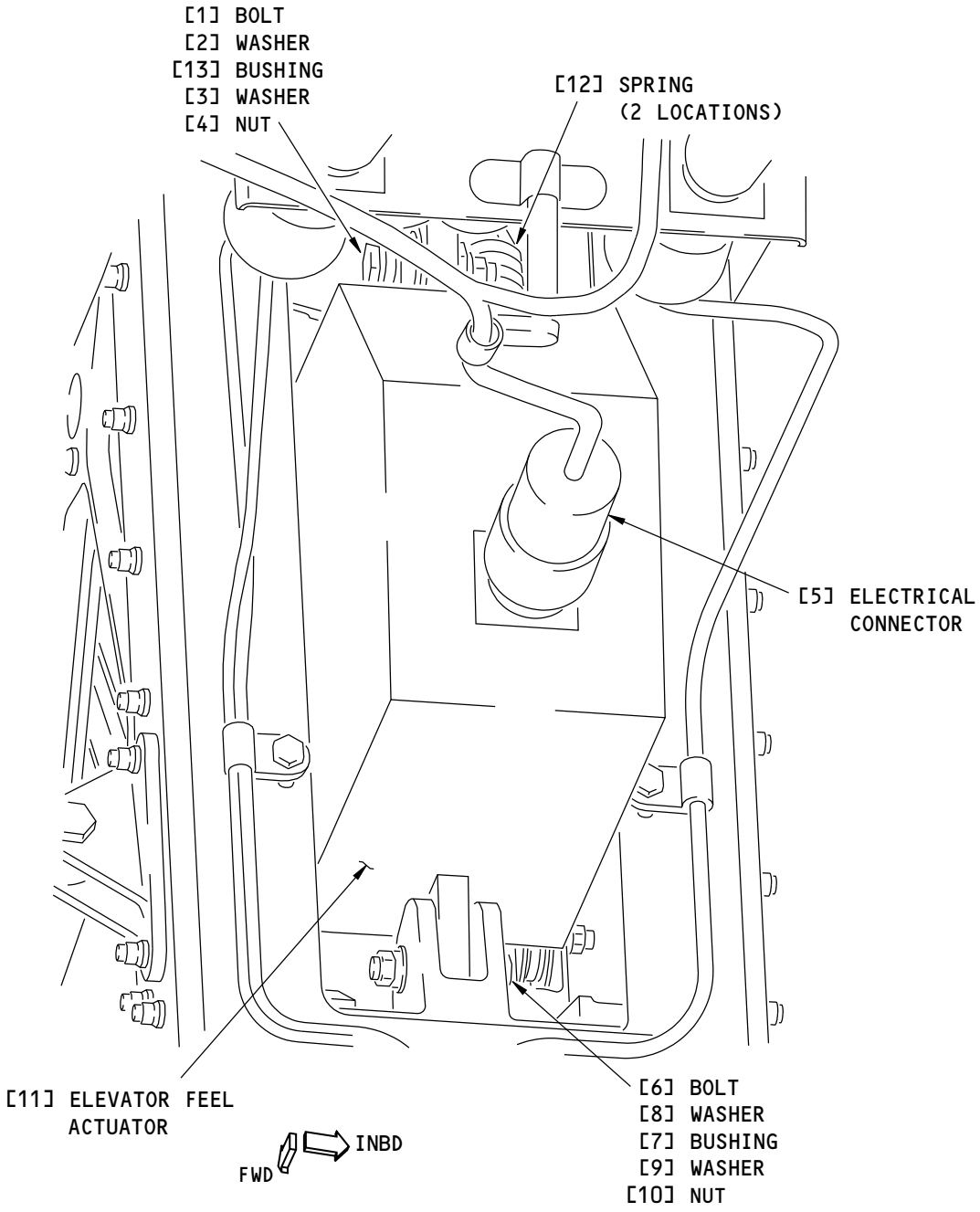
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Elevator Feel Actuators Installation
Figure 401/27-31-07-990-801 (Sheet 1 of 2)

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ELEVATOR FEEL ACTUATOR

B

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Elevator Feel Actuators Installation
Figure 401/27-31-07-990-801 (Sheet 2 of 2)

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TASK 27-31-07-400-801

3. Elevator Feel Actuators - Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-809	Column Force Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Actuator	27-31-07-01-025	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Elevator Feel Actuators Installation

SUBTASK 27-31-07-420-001

(1) Put the actuator [11] in its correct location.

SUBTASK 27-31-07-420-002

(2) Install the bushing [7], the washer [8], the washer [9], the bolt [6], and the nut [10] on the actuator [11].

SUBTASK 27-31-07-420-003

(3) Install the bushing [13], the bolt [1], the washer [2], the washer [3] and the nut [4] on the actuator [11].

SUBTASK 27-31-07-420-004

(4) Connect the electrical connector [5] to the actuator [11].

SUBTASK 27-31-07-860-002

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	28	C27608	ACE-L2 PWR

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE C PWR

2) B6, ELEV FEEL ACTR-L

SUBTASK 27-31-07-710-001

(6) Do this task: Column Force Test, TASK 27-31-00-700-809.

SUBTASK 27-31-07-410-002

(7) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

END OF TASK

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COLUMN FORCE TRANSDUCER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the force transducer for the control column.

(2) A removal of the Flight Data Recorder (FDR) force transducer for the control column.

(3) An installation of the force transducer for the control column.

(4) An installation of the Flight Data Recorder (FDR) force transducer for the control column.

(5) In this procedure the column force transducer is referred to as the transducer assembly [5].

TASK 27-31-08-000-801

2. Column Force Transducer Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-31-08-040-001

(1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1, ACE-L1 PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE-C PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE-R PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1

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4) D4, PFC LANE 2

5) D6, PFC LANE 3

SUBTASK 27-31-08-010-001

(2) Get access to the area forward of the nose landing gear wheel well through this access panel:

Number	Name/Location
112AL	Forward Access Door

D. Column Force Transducer Removal

SUBTASK 27-31-08-020-001

(1) Do these steps to remove the transducer assembly [5]:

(a) Disconnect the electrical connectors for the transducer assembly [5].

(b) Remove the wire clamps: clamp [1], and nut [9], washer [10] and clamp [11].

(c) Remove the nut [4], nut [8], washer [3], washer [7], bolt [2], and bolt [6].

(d) Remove the transducer assembly [5].

SUBTASK 27-31-08-020-002

(2) Do these steps to remove the FDR transducer assembly [16]:

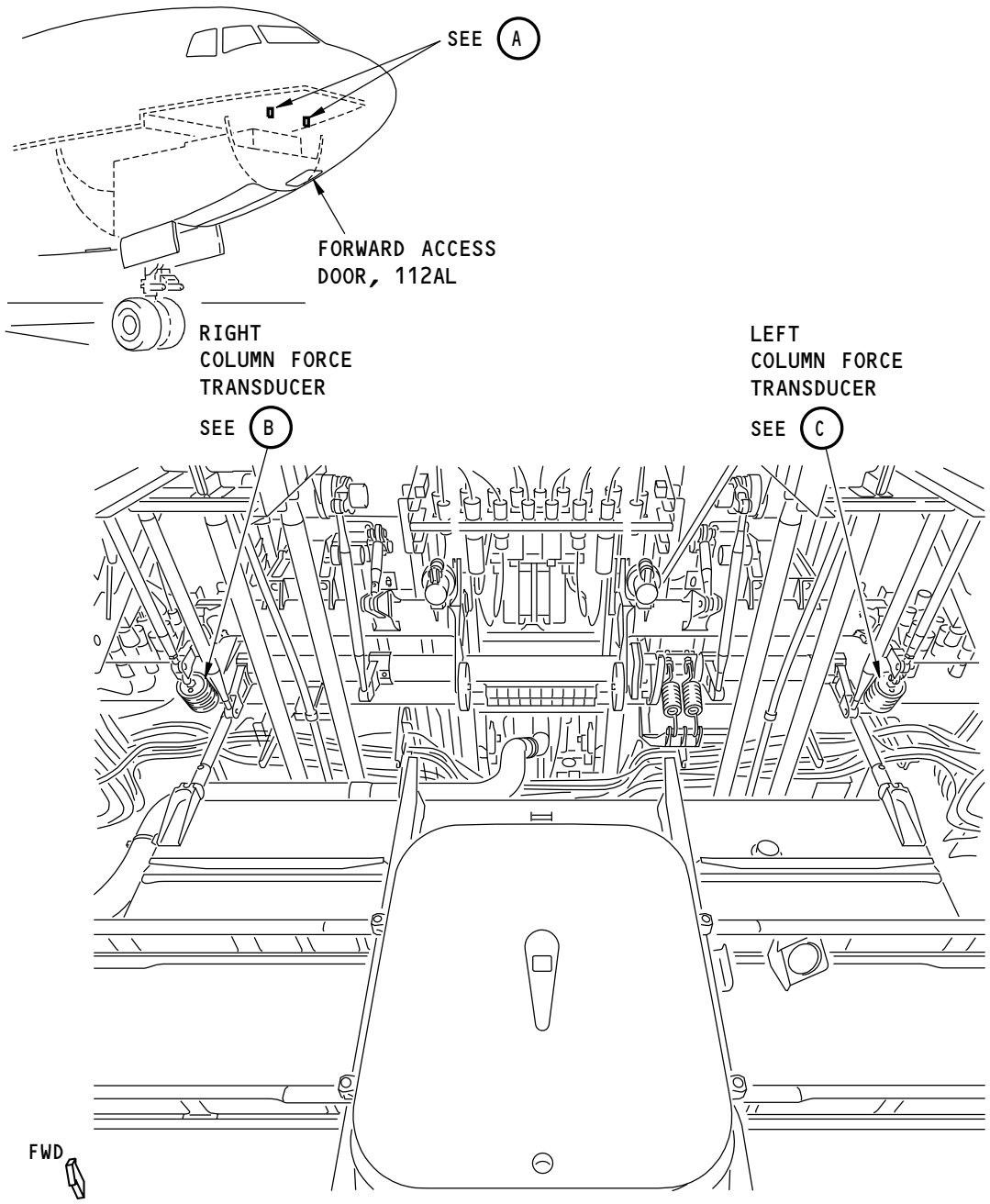
(a) Disconnect the electrical connectors for the FDR transducer assembly [16].

(b) Remove the wire clamp: clamp [23], washer [22], bolt [21], washer [22], and nut [24].

(c) Remove the bolt [17], washer [18], washer [19], and nut [20] from each end of the FDR transducer assembly [16].

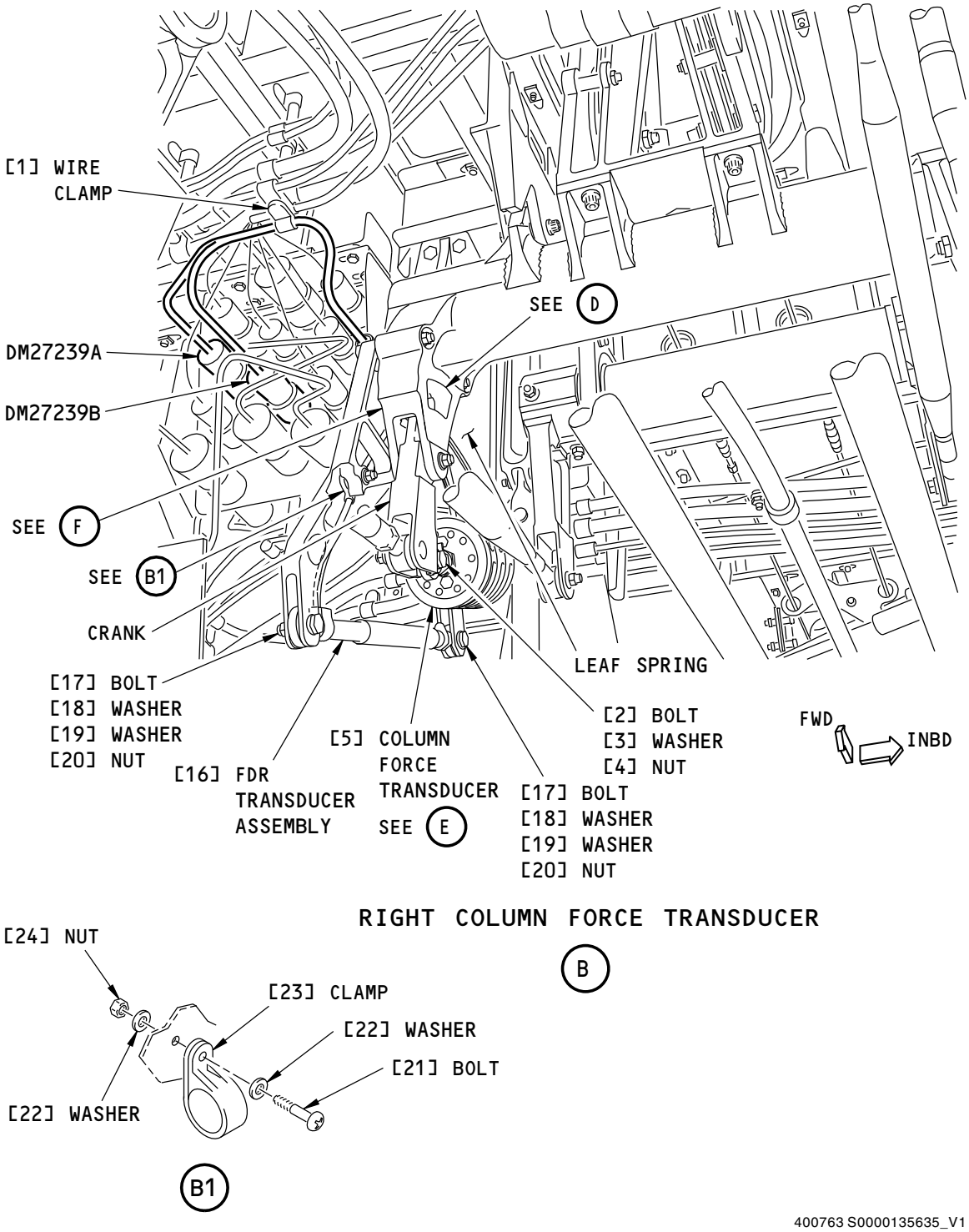
——— END OF TASK ———

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Column Force Transducer Installation
Figure 401/27-31-08-990-801 (Sheet 1 of 5)

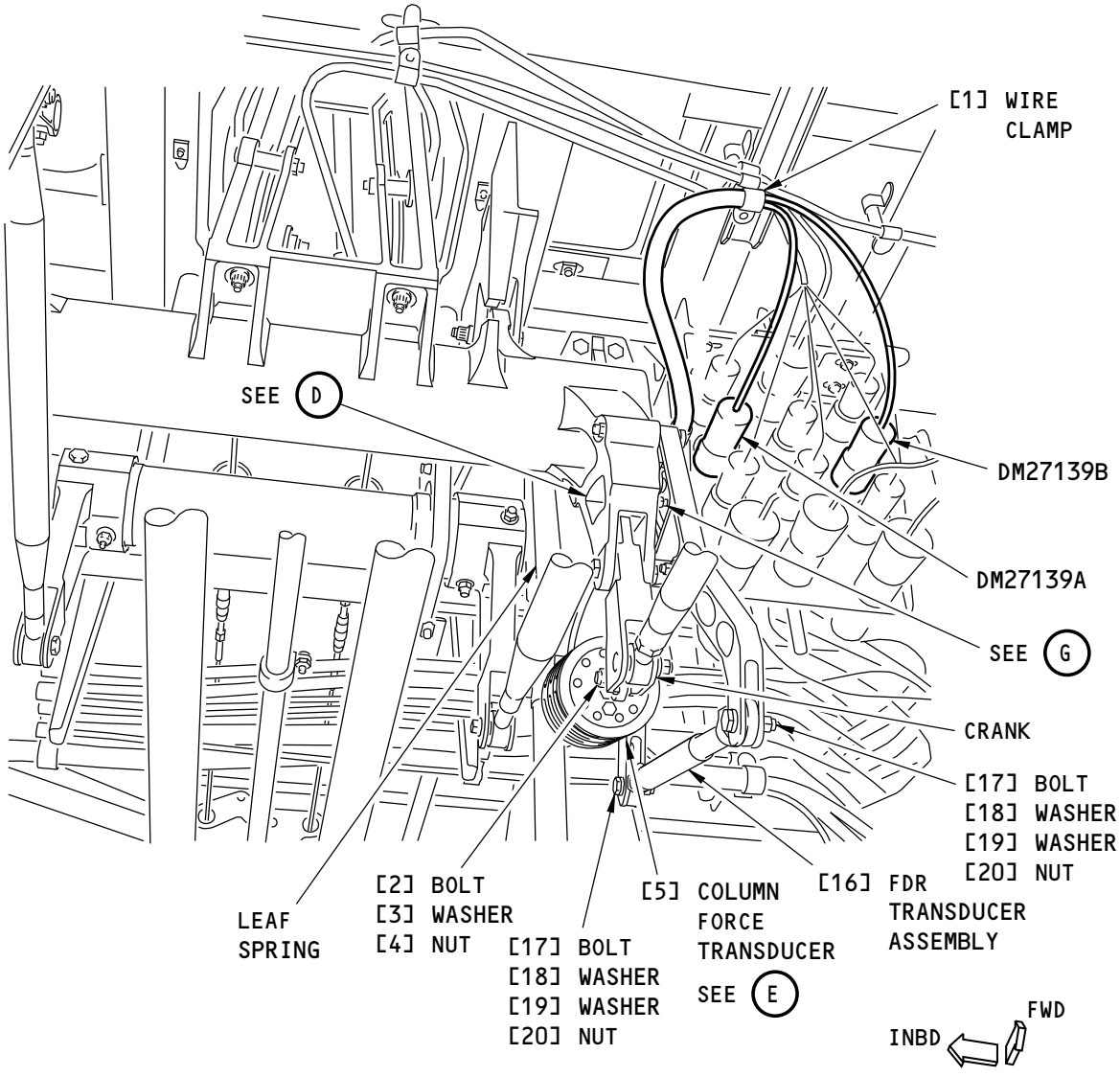
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Column Force Transducer Installation
Figure 401/27-31-08-990-801 (Sheet 2 of 5)

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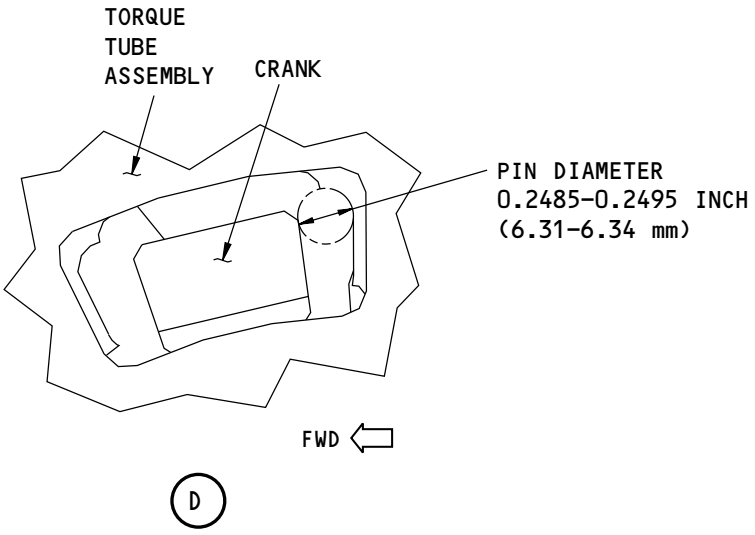
LEFT COLUMN FORCE TRANSDUCER

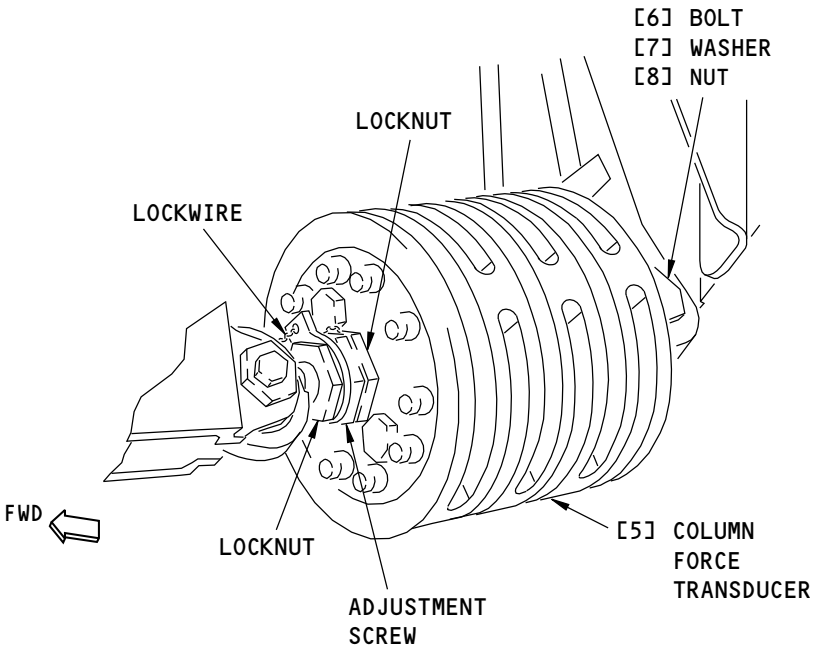
C

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Column Force Transducer Installation
Figure 401/27-31-08-990-801 (Sheet 3 of 5)

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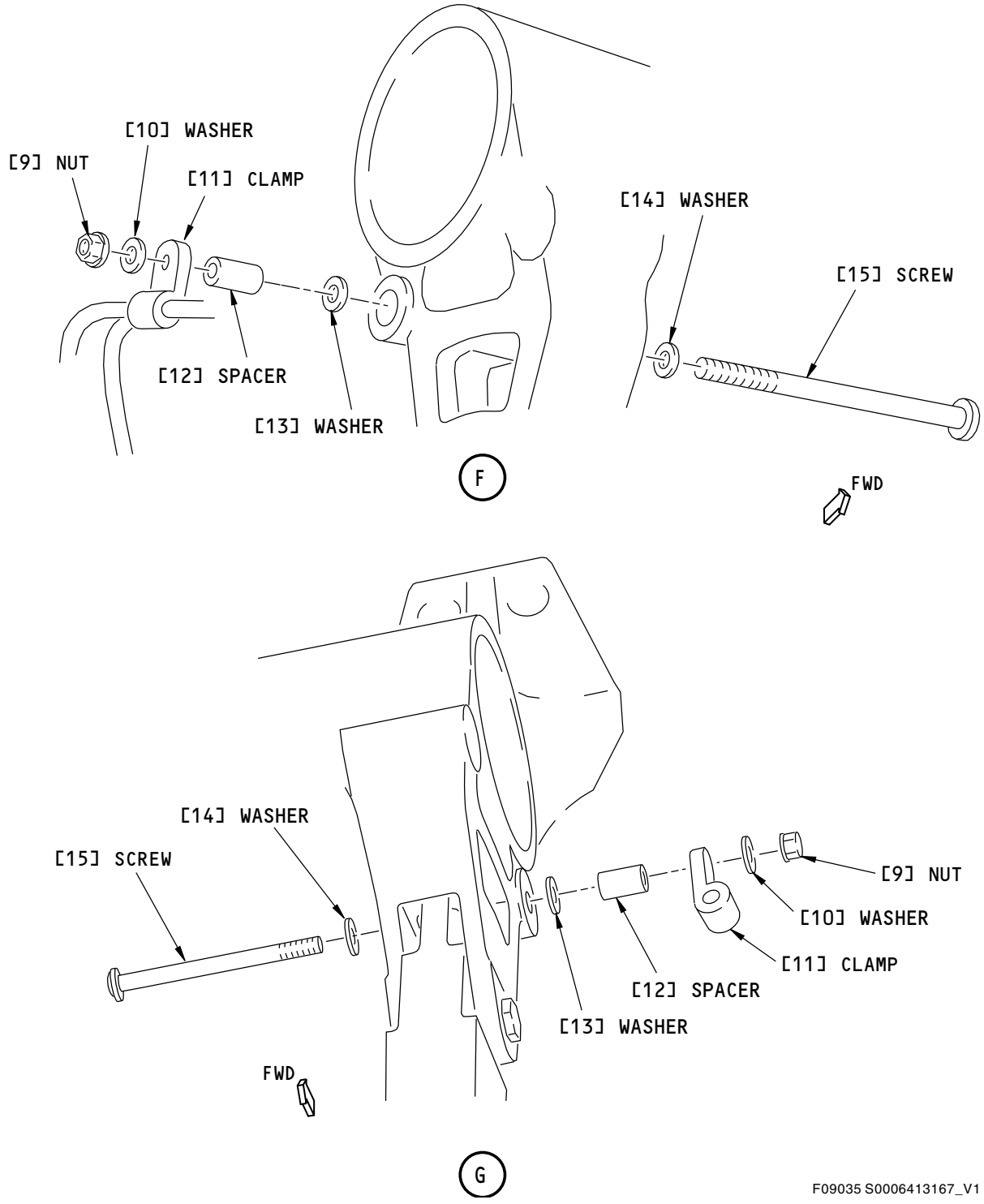
RIGHT COLUMN FORCE TRANSDUCER
(LEFT COLUMN FORCE TRANSDUCER IS EQUIVALENT)

E

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Column Force Transducer Installation
Figure 401/27-31-08-990-801 (Sheet 4 of 5)

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Column Force Transducer Installation
Figure 401/27-31-08-990-801 (Sheet 5 of 5)

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TASK 27-31-08-400-801

3. Column Force Transducer Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-810	Column Flight Data Recorder (FDR) Force Transducer Test (P/B 501)
27-31-00-720-801	Column Force Transducer Test (P/B 501)

B. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Transducer assembly	27-31-08-01-035	ARO ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Column Force Transducer Installation

SUBTASK 27-31-08-420-001

(1) Do these steps to install the transducer assembly [5]:

(a) Put the transducer assembly [5] in its position.

(b) Install the bolt [2], the washer [3], and the nut [4].

(c) Put a 0.249 inch diameter pin in the position shown in View D, (Figure 401).

NOTE: Move the control column as necessary to install the pin.

(d) Lightly push the control column forward to hold the 0.249 inch (6.32 millimeter) diameter pin in its position.

(e) Do these steps to adjust the transducer assembly [5] to align the hole in the rod end with the holes in the leaf spring.

NOTE: You must align the holes to permit the installation of the bolt [6] without a load on the column force transducer and the leaf spring.

1) Loosen the locknuts on the transducer assembly [5].

2) Hold the transducer assembly [5] and turn the adjustment screw until the hole in the transducer rod end aligns with the holes in the leaf spring.

3) Tighten the locknuts.

a) Install MS20995C32 lockwire, G01048 on the locknuts and adjustment screw.

(f) Install the bolt [6], washer [7], and nut [8].

1) Remove the 0.249 inch (6.32 millimeter) diameter pin.

(g) Connect the electrical connectors to the transducer assembly [5].

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(h) Install these wire clamps.

1) Install the clamp [1].

2) Install the clamp [11], the screw [15], washer [14], washer [13], spacer [12], washer [10], and nut [9].

(i) Move the control column through its full travel and make sure the electrical wires do not pull on the transducer assembly [5].

SUBTASK 27-31-08-420-002

(2) Do these steps to install the FDR transducer assembly [16]:

(a) Install the bolt [17], washer [18], washer [19], and nut [20] from each end of the FDR transducer assembly [16].

(b) Install the wire clamp: clamp [23], washer [22], bolt [21], washer [22], and nut [24].

(c) Connect the electrical connectors for the FDR transducer assembly [16].

SUBTASK 27-31-08-440-001

(3) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-L1 PWR

2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-C PWR

2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

NOTE: Close the PFC circuit breakers last.

1) A1, ACE-R PWR

2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

SUBTASK 27-31-08-480-001

(4) Do this task: Column Force Transducer Test, TASK 27-31-00-720-801.

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SUBTASK 27-31-08-480-002

(5) Do this task Column Flight Data Recorder (FDR) Force Transducer Test, TASK 27-31-00-700-810

SUBTASK 27-31-08-410-001

(6) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

END OF TASK

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ELEVATOR POWER CONTROL UNITS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator Power Control Units (PCUs)

(2) An installation of the elevator Power Control Units (PCUs).

TASK 27-31-09-000-801

2. Elevator Power Control Units (PCU) - Removal

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
SPL-1708	Pin Set, Elevator PCU Bypass Part #: J27019-1 Supplier: 81205
SPL-1709	Equipment, Elevator PCU Removal/Installation Part #: J27016-46 Supplier: 81205
SPL-11197	Lock, Elevator Power Control Unit Part #: J27028-20 Supplier: 81205

C. Location Zones

Zone	Area
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator

D. Access Panels

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel
335GXB	Horizontal Stabilizer Trailing Edge Panel
335RBX	Horizontal Stabilizer Trailing edge Seal
345DB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

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(Continued)

Number	Name/Location
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel
345RBX	Horizontal Stabilizer Trailing Edge Seal

E. Prepare for the Removal

SUBTASK 27-31-09-010-001

(1) Open the access panels on the lower surface of the stabilizer to get access to the PCUs.

(a) For the left elevator power control units, open this access panel:

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel

(b) If you are to remove the left outboard elevator PCU, remove this access panel:

Number	Name/Location
335GXB	Horizontal Stabilizer Trailing Edge Panel

(c) For the right elevator power control units, open this access panel:

Number	Name/Location
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

(d) If you are to remove the right inboard elevator PCU, remove these access panels:

Number	Name/Location
345DB	Horizontal Stabilizer Trailing Edge Panel
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel

SUBTASK 27-31-09-010-002

(2) Remove the seals on the lower surface of the stabilizer:

For the left stabilizer, remove this access panel:

Number	Name/Location
335RBX	Horizontal Stabilizer Trailing edge Seal

For the right stabilizer, remove this access panel:

Number	Name/Location
345RBX	Horizontal Stabilizer Trailing Edge Seal

SUBTASK 27-31-09-840-001

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-09-840-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION DO NOT SUPPLY HYDRAULIC POWER IF ONE OF THE ELEVATOR PCUS HAS LOCKS INSTALLED ON IT. THE PCUS CAN BE DAMAGED IF HYDRAULIC POWER IS SUPPLIED WHEN THE LOCKS ARE INSTALLED ON THEM.

(4) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-31-09-840-003

(5) Move the stabilizers to approximately the 4 unit position.

SUBTASK 27-31-09-040-001

(6) Put the C and R STAB CUTOUT switches to the CUTOUT position.

SUBTASK 27-31-09-840-004

WARNING

REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCU'S FOR A SINGLE ELEVATOR SURFACE MAY RESULT IN THAT SURFACE SLOWLY LOWERING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S OF THAT SURFACE. FAILURE TO OBEY THESE INSTRUCTIONS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Use one of these two procedures to move the applicable elevator to the up position:

(a) Procedure 1, do these steps to move the elevator up manually:

1) Depressurize the hydraulic system and reservoir. To depressurize them, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

2) Operate the control column several times to remove the remaining hydraulic pressure.

3) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - TAIL switches to the SHUT OFF position.

4) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	7	CBA7-C	ELEV PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	7	CBA7-L	ELEV PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	7	CBA7-R	ELEV PCU

5) Operate the manual bypass valves on the two elevator PCUs (units [10]):

a) Install the elevator PCU bypass pin, SPL-1708, on the manual bypass valves on the two elevator PCUs.

b) Push the trailing edge of the elevator up.

NOTE: The elevator will only move slowly because of the resistance in the units [10].

6) Install the elevator power control unit lock, SPL-11197, on the unit [10] that you will not remove.

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7) Remove the elevator PCU bypass pin, SPL-1708, from the manual bypass valves.

CAUTION

BEFORE YOU USE THIS PROCEDURE, MAKE SURE THAT THERE IS NO LOCK INSTALLED ON ANY OF THE ELEVATOR PCUS. THE PCUS CAN BE DAMAGED IF HYDRAULIC POWER IS SUPPLIED WHEN THE LOCKS ARE INSTALLED ON THEM.

(b) Procedure 2, do these steps to move the elevator up with hydraulic power:

1) Make sure the Primary Flight Computer (PFC) switch (on the overhead panel, P5) is in the AUTO position.

2) Move and hold the Captain's or the First Officer's control column full aft to put the elevators in the up position.

3) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	7	CBA7-C	ELEV PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	7	CBA7-L	ELEV PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	7	CBA7-R	ELEV PCU

4) Depressurize the hydraulic system and reservoir. To depressurize them, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

5) Operate the control column several times to remove the remaining hydraulic pressure.

6) Release the control column.

7) On the P61 panel, move the FLT CONTROL HYD VALVE POWER - TAIL switches to the SHUT OFF position.

8) Make sure that there is no elevator movement.

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WARNING MAKE SURE THE CIRCUIT BREAKERS FOR THE PCUS ARE OPEN AND HYDRAULIC POWER FOR THE ELEVATOR PCUS IS REMOVED BEFORE YOU INSTALL THE SAFETY LOCKS. IF THE CIRCUIT BREAKERS FOR THE PCUS ARE CLOSED, THE ELEVATOR CAN FALL WHILE YOU INSTALL THE SAFETY LOCKS. IF HYDRAULIC POWER FOR THE PCUS IS ON, THE ELEVATOR CAN MOVE DOWN VERY FAST WHILE YOU INSTALL THE SAFETY LOCKS. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE EQUIPMENT.

9) Install the elevator power control unit lock, SPL-11197, on the elevator PCU (unit [10]) that you will not remove (Figure 403).

SUBTASK 27-31-09-010-003

(8) Remove the beam assembly [36] (Figure 401):

(a) Remove the plate [29] at each end of the beam assembly [36].

NOTE: You can remove the attach plate with the plate [29] if the maintenance access panel on the horizontal stabilizer is removed.

1) Remove the bolts [26] and bolts [27].

(b) Remove the bolts [23], washers [24] and nuts [25] at each end of the beam assembly [36].

(c) Hold the beam assembly [36] and remove the bolts [31] and bolts [34] at each end of the beam.

NOTE: You may have to shake the beam assembly [36] to remove the bolts [31] and bolts [34].

(d) Remove the beam assembly [36], strap [37] and the angle [30] from the airplane.

F. Elevator PCU Removal

SUBTASK 27-31-09-020-004

CAUTION REMOVE THE HYDRAULIC TUBES FROM THE AIRPLANE. YOU WILL BEND THE HYDRAULIC LINES IF YOU TRY TO REMOVE THE PCU WHILE THEY ARE INSTALLED. BENT HYDRAULIC LINES ARE WEAKER AND CAN SUBSEQUENTLY BREAK.

(1) Remove the applicable tube assembly [51], tube assembly [52], tube assembly [53], tube assembly [54], tube assembly [55], tube assembly [56], tube assembly [57], or tube assembly [58]] that connect to the unit [10] (Figure 402):

(a) Disconnect the ends of the hydraulic tubes.

(b) Remove the block assembly [64].

1) Remove the screws [59], washers [60], washers [62]], nuts [63] and spacers [61].

(c) Remove the applicable tube assembly [51], tube assembly [52], tube assembly [53], tube assembly [54], tube assembly [55], tube assembly [56], tube assembly [57], or tube assembly [58] from the airplane.

(d) Install caps on the open ports of the hydraulic tubes on the airplane.

SUBTASK 27-31-09-020-001

(2) Disconnect the electrical connectors from the unit [10].

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SUBTASK 27-31-09-020-002

(3) Remove the unit [10]:

NOTE: The link assembly [12] comes out with the unit [10], but the link assembly [11] stays with the airplane.

(a) Retract the rod end of the unit [10] that is to be removed:

1) Loosen the nut [22] on the end of the unit [10].

2) Operate the manual bypass valves on the two units [10]:

a) Install the elevator PCU bypass pin, SPL-1708, on the manual bypass valves on the two units [10].

3) Push the trailing edge of the elevator up and remove the elevator power control unit lock, SPL-11197.

NOTE: The elevator will only move slowly because of the resistance in the unit [10].

4) Lower the elevator and hold.

5) Use a rope to hold the unit [10] in its position when you remove the bolt [18].

6) Remove the bolt [18], washer [19], bushing [20], washer [21] and nut [22] that attach the unit [10] to the elevator.

7) Push the elevator to the full up position.

8) Install the elevator power control unit lock, SPL-11197 on the unit [10] that is not to be removed.

9) Remove the elevator PCU bypass pin, SPL-1708 on the unit [10].

(b) Install the elevator PCU equipment, SPL-1709, for the unit [10] (Figure 403):

1) Install the brackets and beams on the trailing edge rib and the rear spar of the horizontal stabilizer.

CAUTION MAKE SURE TO INSTALL THE CABLE FISHPOLE HOIST, COM-1563 CORRECTLY. THE CABLE FISHPOLE HOIST, COM-1563 CAN DISENGAGE AND CAUSE DAMAGE TO THE ELEVATOR AND ITS PCU.

2) Attach the cable fishpole hoist, COM-1563, to the beams and the cables to the cradle assembly.

3) Attach the cradle assembly to the unit [10].

(c) Remove the screw [39], washer [40] and the bracket [38].

(d) Remove these parts:

1) Remove the bolt [18], washer [19], bushing [20], washer [21] and nut [22] that attach the link assembly [12] to the elevator.

2) The bolt [13], washer [14], bushing [15], washer [16] and nut [17] that hold the link assembly [11] to the unit [10].

WARNING YOU MUST HAVE A MINIMUM OF THREE PERSONS FOR THE PCU REMOVAL. THE PCU WEIGHS APPROXIMATELY 73 POUNDS (33 KILOGRAMS) AND CAN EASILY TURN OVER WHEN YOU MOVE IT DOWN. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(e) Remove the unit [10] from the airplane.

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SUBTASK 27-31-09-020-003

(4) If it is necessary, remove these parts:

(a) Remove the link assembly [11] from the airplane:

1) Remove the bolts [1], washer [2], bushings [3], washer [4] and nut [5].

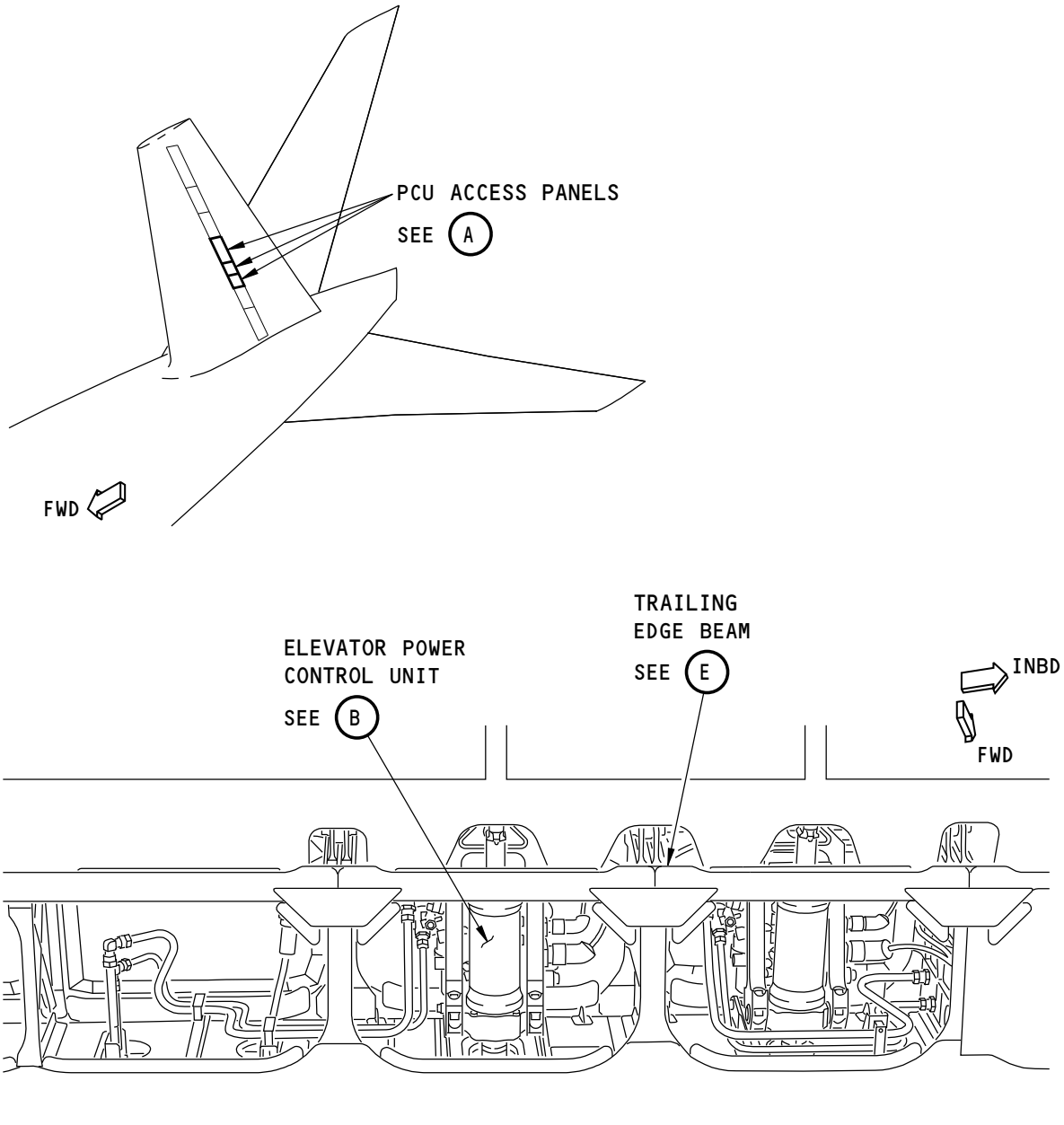
(b) Remove the link assembly [12] from the unit [10]:

NOTE: The link assembly [12] and its end cap are a set. Keep them together.

1) Remove the bolts [6], washers [7], washers [8] and nuts [9].

END OF TASK

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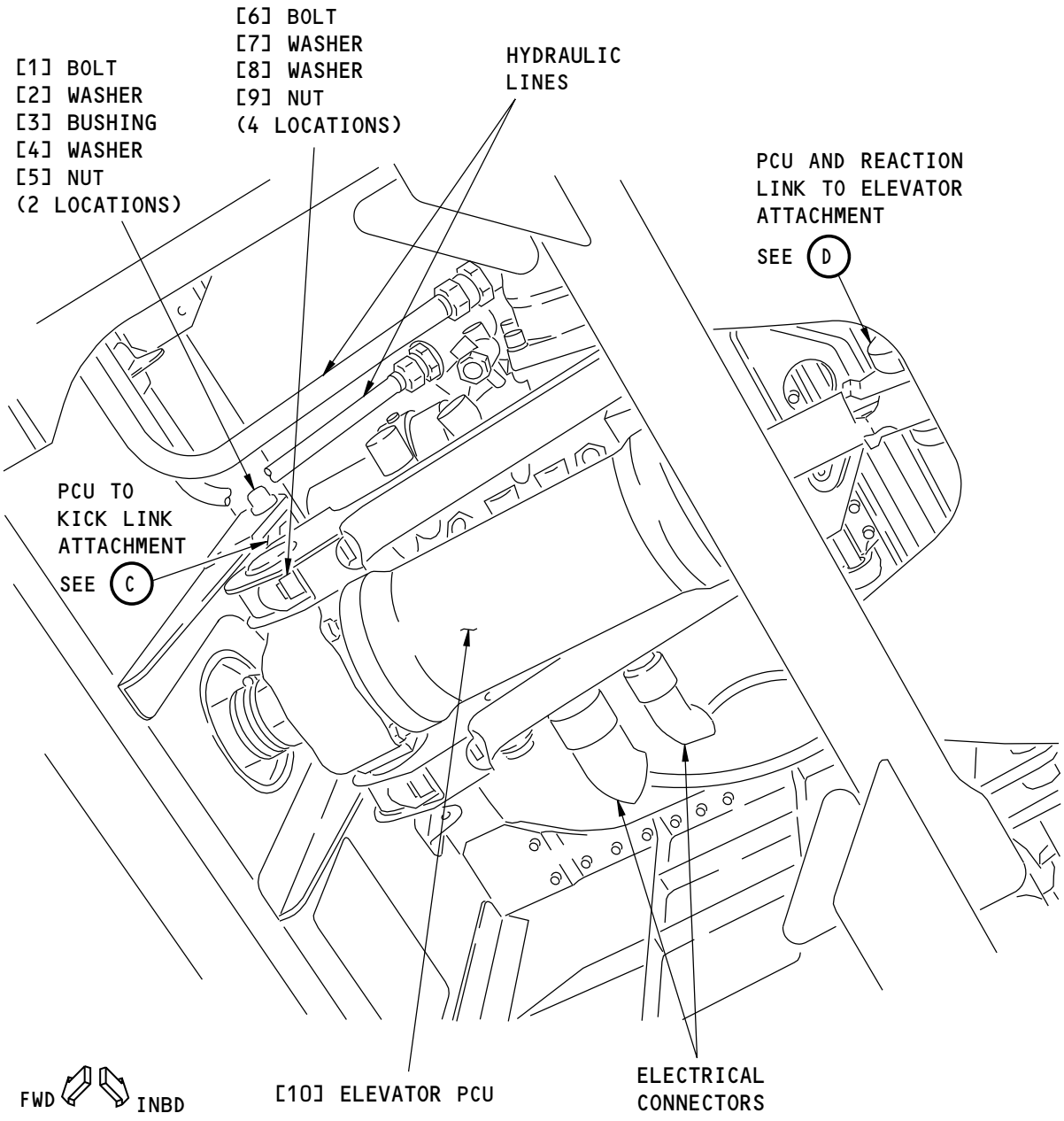
ELEVATOR POWER CONTROL UNITS WITH ACCESS PANELS REMOVED
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

E08560 S0006413177_V1

Elevator Power Control Unit (PCU) Installation
Figure 401/27-31-09-990-801 (Sheet 1 of 4)

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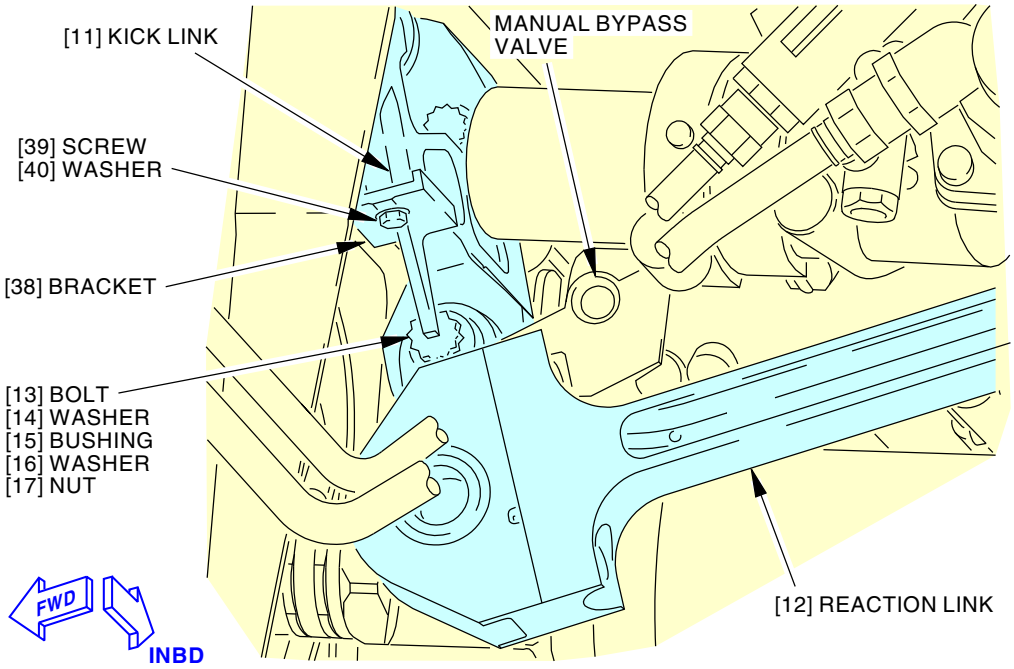


ELEVATOR POWER CONTROL UNIT
(LEFT SIDE SHOWN, RIGHT SIDE EQUIVALENT)
B

E08572 S0006413178_V2

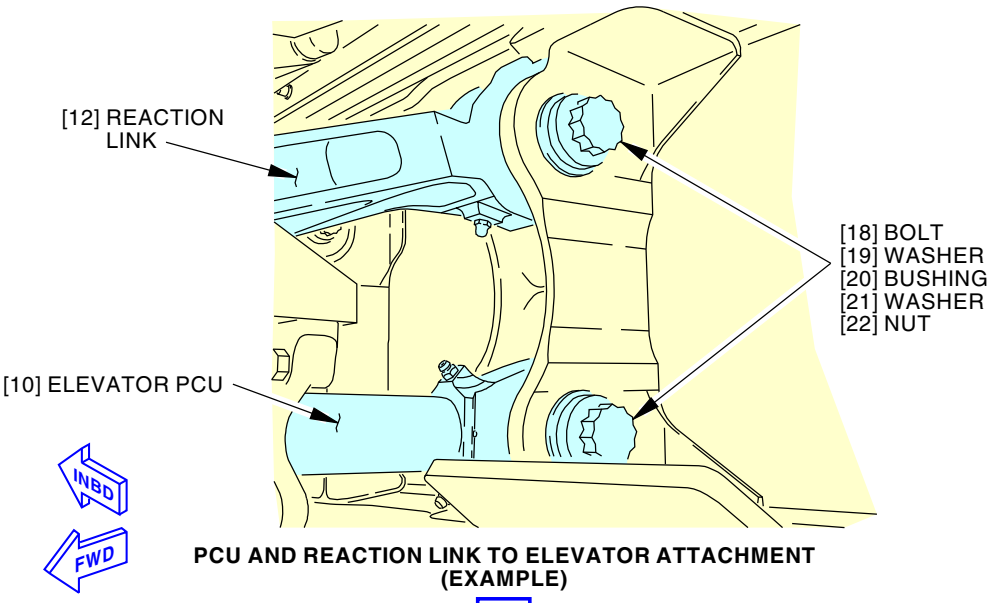
Elevator Power Control Unit (PCU) Installation
Figure 401/27-31-09-990-801 (Sheet 2 of 4)

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PCU TO KICK LINK ATTACHMENT (EXAMPLE)

C



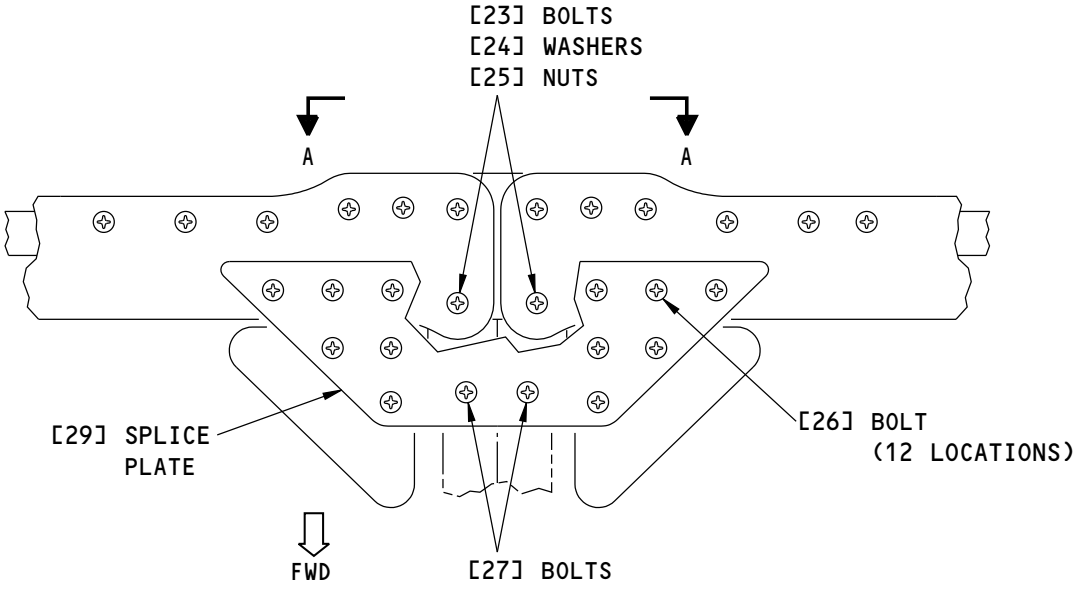
PCU AND REACTION LINK TO ELEVATOR ATTACHMENT (EXAMPLE)

D

E08577 S0006413179_V3

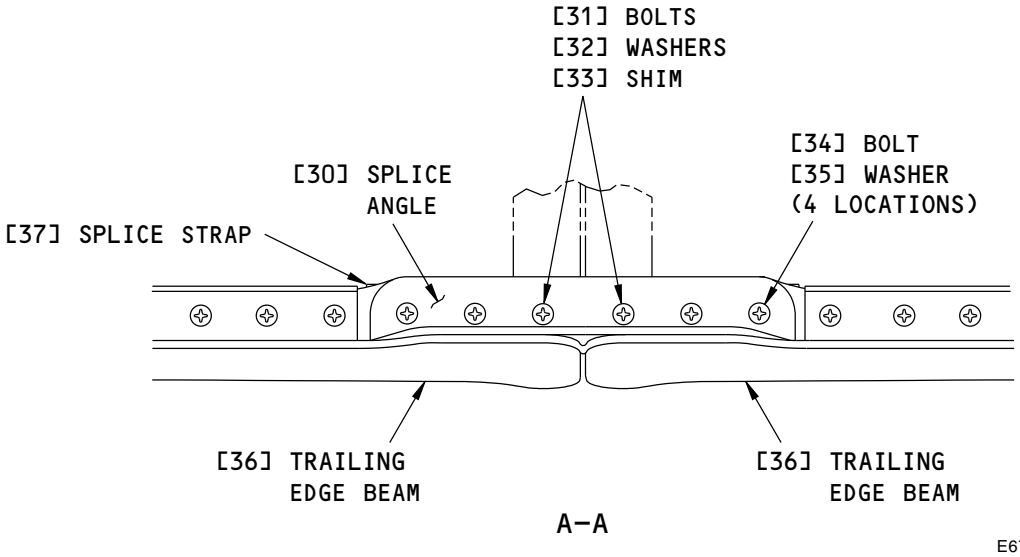
Elevator Power Control Unit (PCU) Installation
Figure 401/27-31-09-990-801 (Sheet 3 of 4)

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STABILIZER TRAILING EDGE BEAM
(EXAMPLE)

E

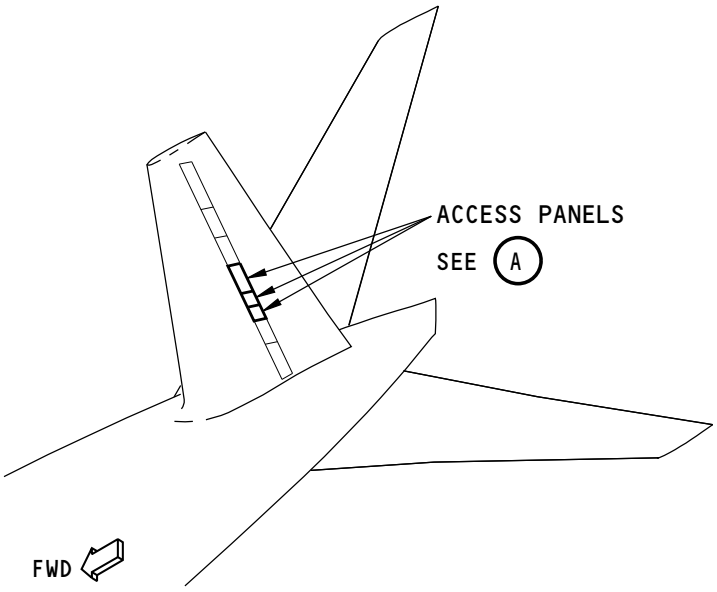


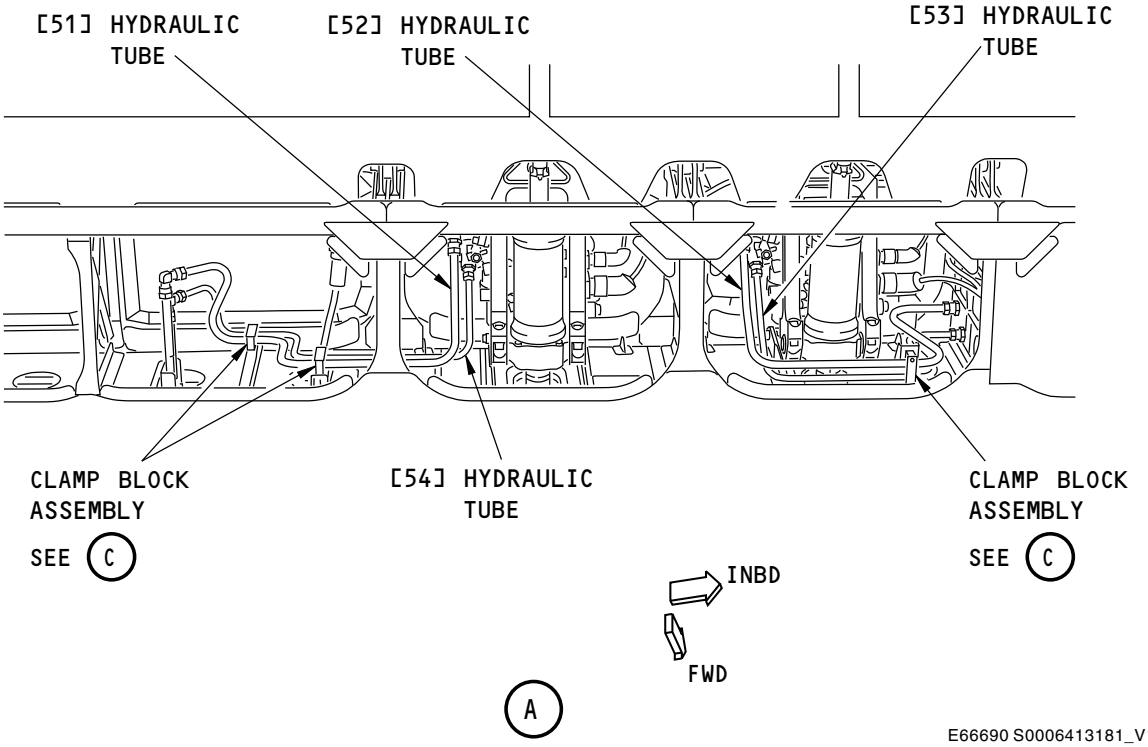
A–A

E67147 S0006413180_V1

Elevator Power Control Unit (PCU) Installation
Figure 401/27-31-09-990-801 (Sheet 4 of 4)

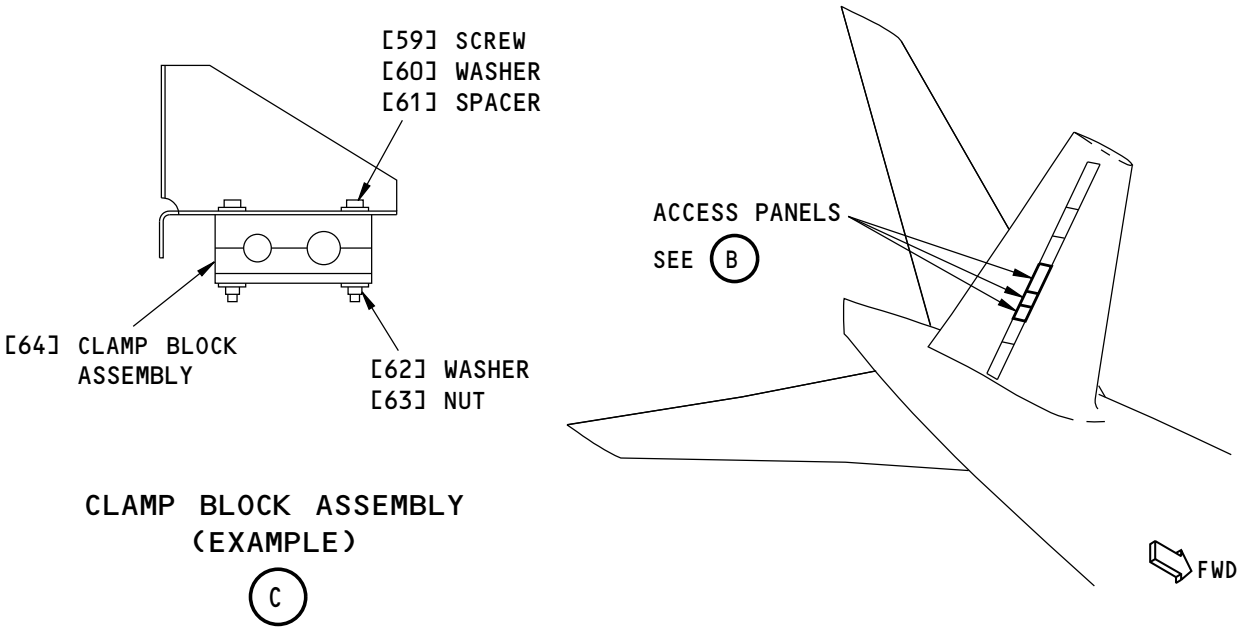
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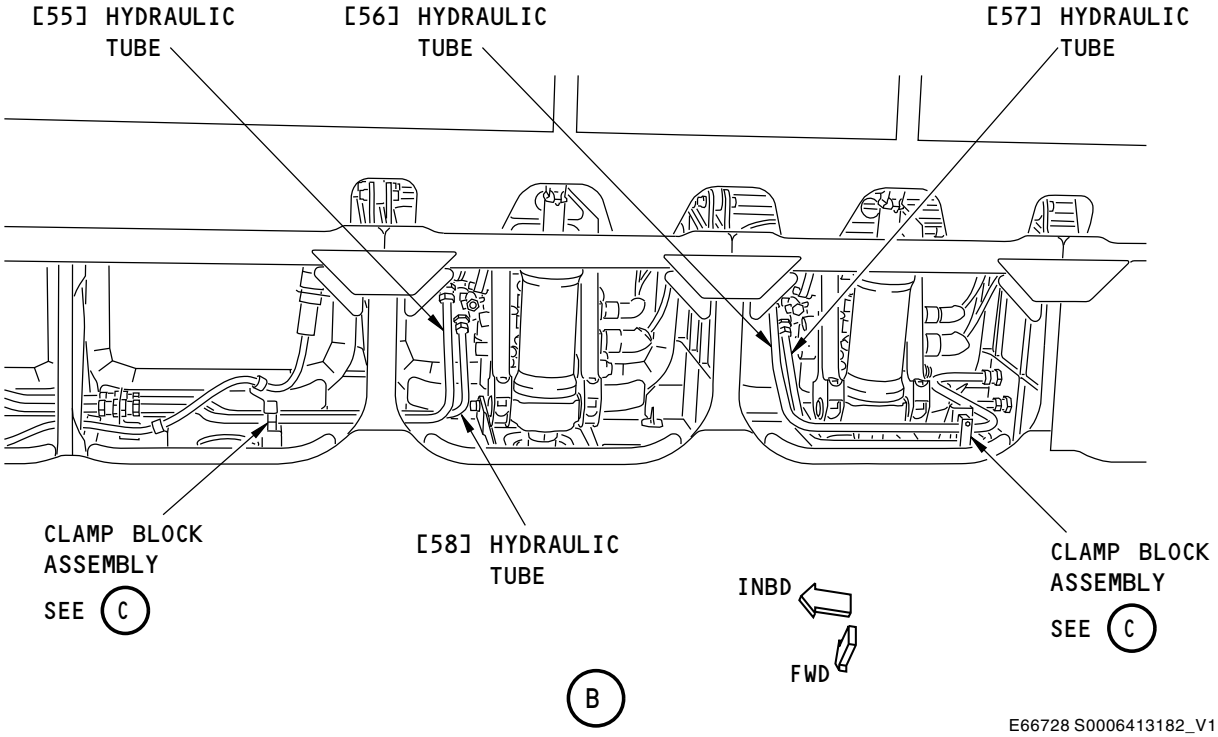
Hydraulic Tubing for Elevator PCU Installation
Figure 402/27-31-09-990-802 (Sheet 1 of 2)

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CLAMP BLOCK ASSEMBLY (EXAMPLE)

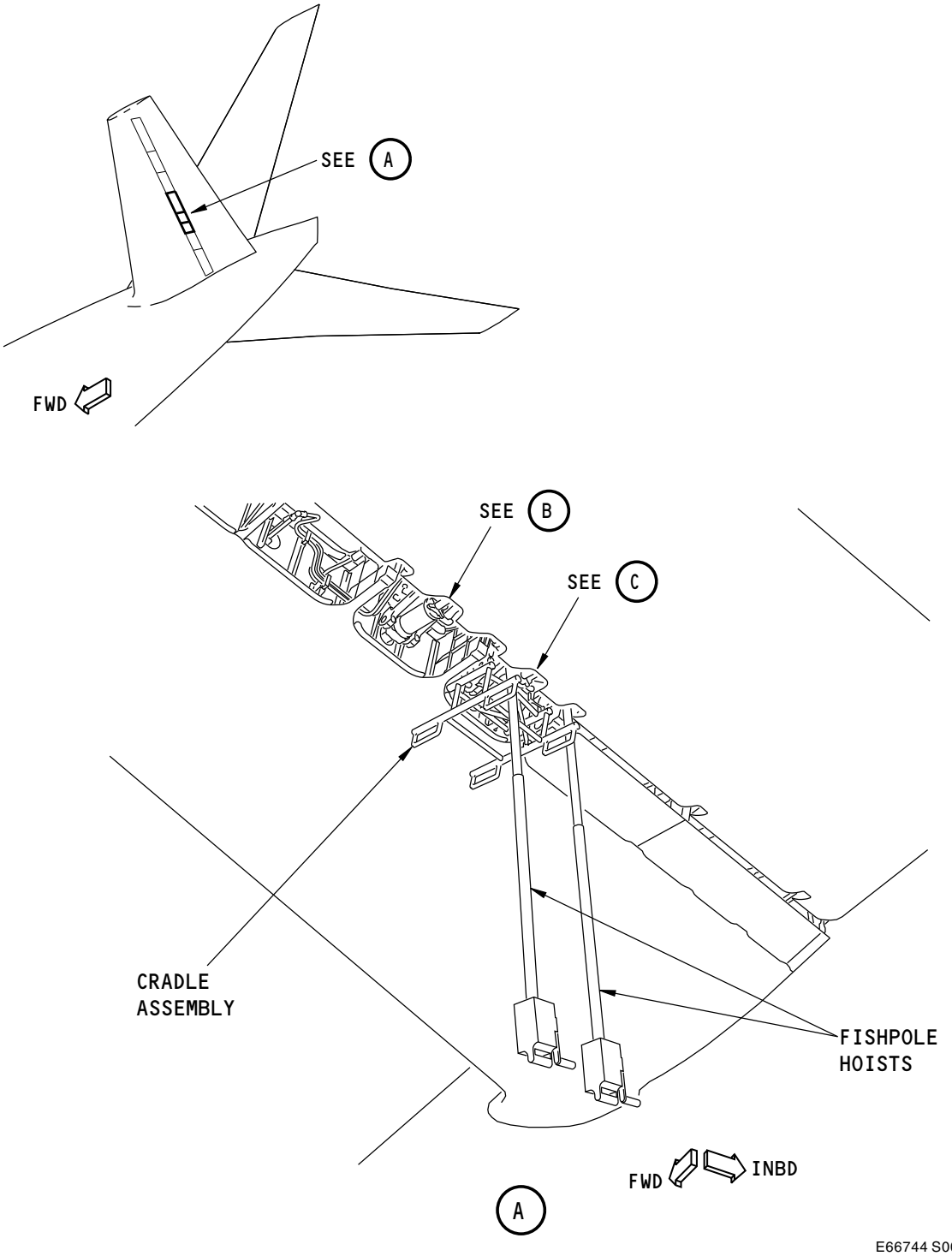
C



E66728 S0006413182_V1

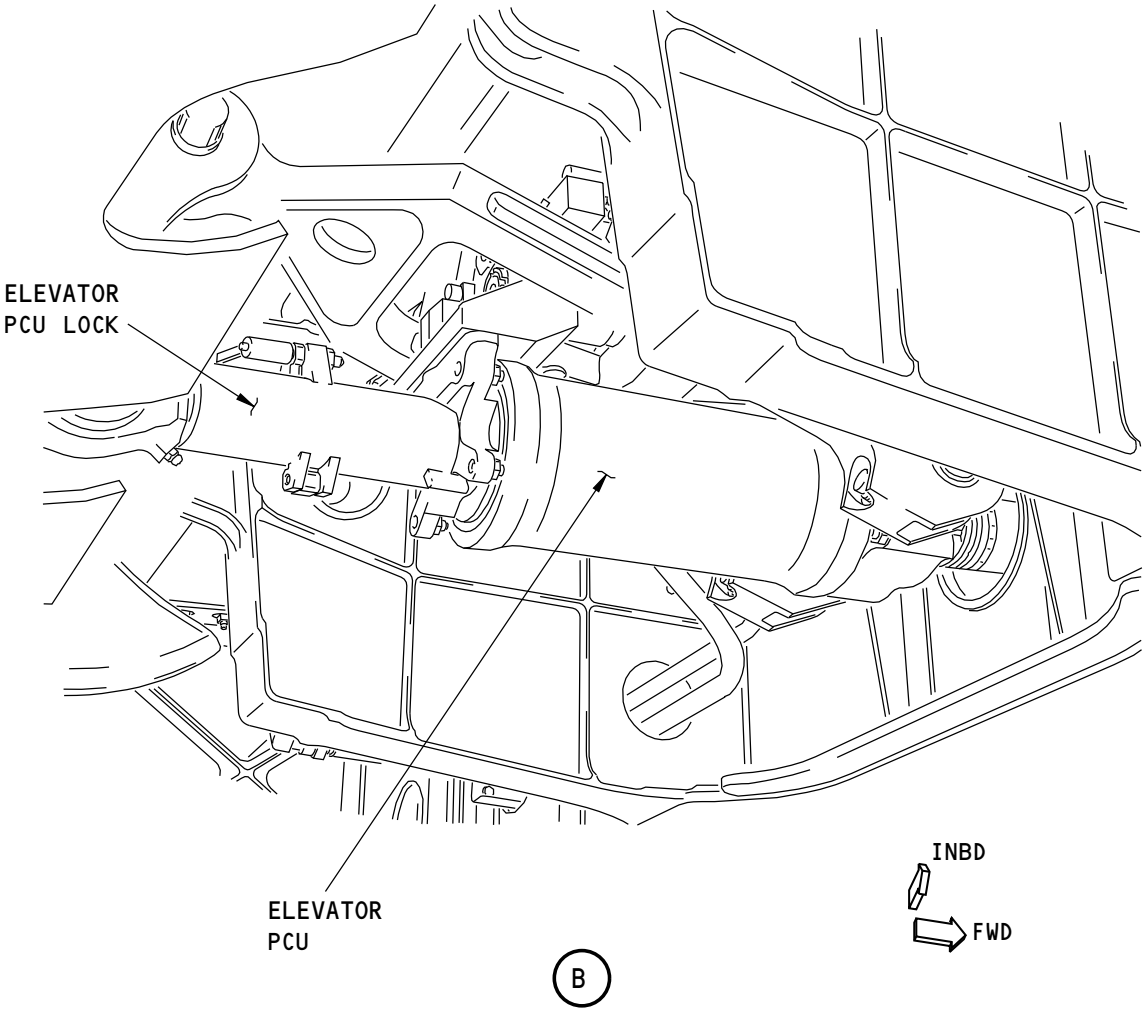
Hydraulic Tubing for Elevator PCU Installation
Figure 402/27-31-09-990-802 (Sheet 2 of 2)

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Elevator PCU Installation Tools
Figure 403/27-31-09-990-803 (Sheet 1 of 3)

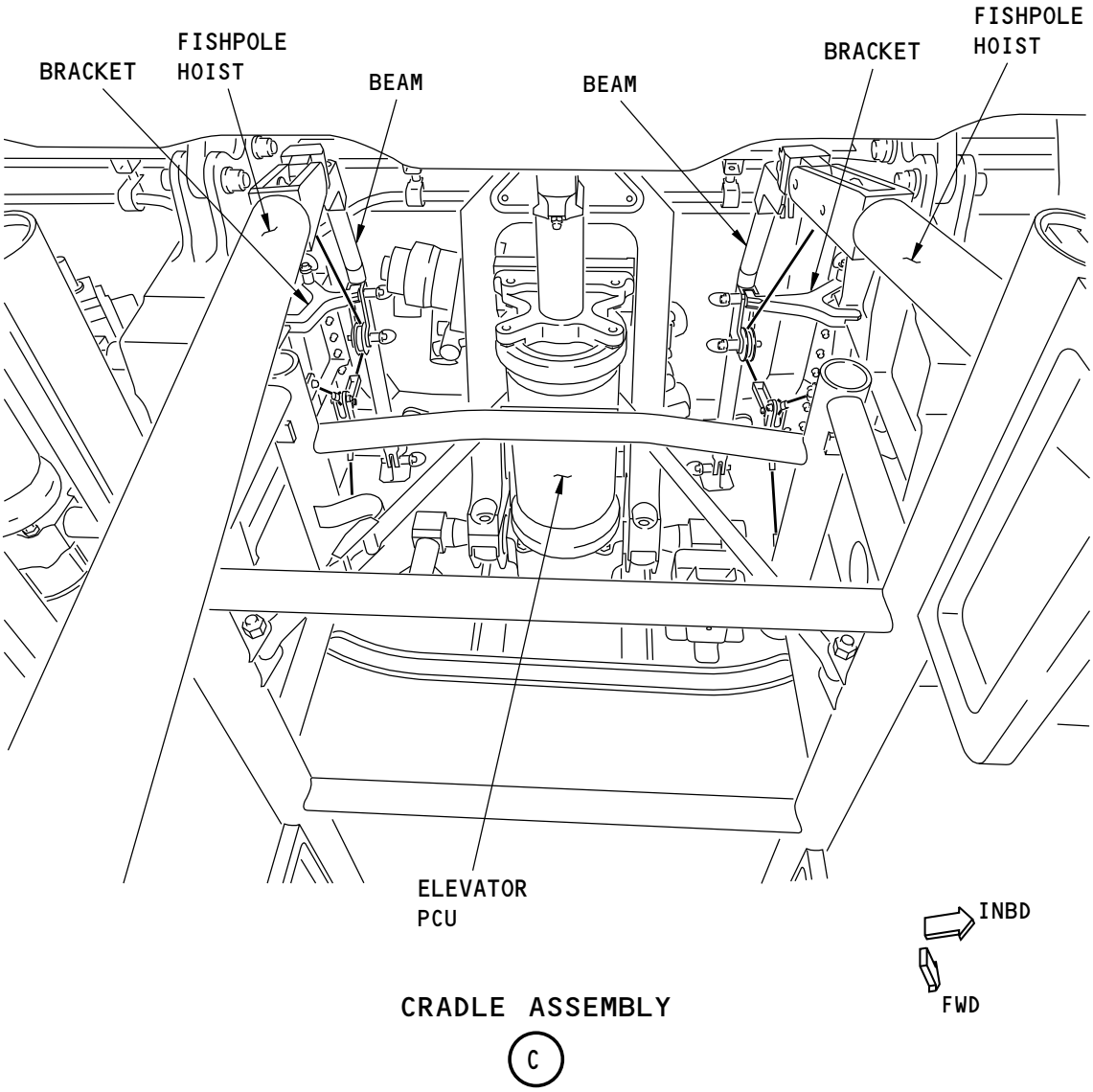
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Elevator PCU Installation Tools
Figure 403/27-31-09-990-803 (Sheet 2 of 3)

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E66968 S0006413185_V1

Elevator PCU Installation Tools
Figure 403/27-31-09-990-803 (Sheet 3 of 3)

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TASK 27-31-09-400-801

3. Elevator Power Control Units (PCU) - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal (MAT) is necessary for this procedure.

B. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
12-21-04-600-801	Elevator Power Control Units (PCUs) - Lubrication (P/B 301)
27-31-00-800-801	Elevator Adjustment (Rigging) (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
SPL-1708	Pin Set, Elevator PCU Bypass Part #: J27019-1 Supplier: 81205
SPL-1709	Equipment, Elevator PCU Removal/Installation Part #: J27016-46 Supplier: 81205
SPL-11197	Lock, Elevator Power Control Unit Part #: J27028-20 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Unit	27-31-09-10-260	ARO ALL
		27-31-09-10-555	ARO ALL

F. Location Zones

Zone	Area
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge

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(Continued)

Zone	Area
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator

G. Access Panels

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel
335GXB	Horizontal Stabilizer Trailing Edge Panel
335RBX	Horizontal Stabilizer Trailing edge Seal
345DB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel
345RBX	Horizontal Stabilizer Trailing Edge Seal

H. Procedure

SUBTASK 27-31-09-420-001

(1) If it is not installed, do these steps to install the link assembly [12] on the unit [10]:

(a) Put the link assembly [12] on the unit [10].

NOTE: The link assembly [12] and the end cap are a set. Keep them together.

(b) Install the bolts [6], washers [7] (under the head of the bolts), washers [8] (under the nuts) and nuts [9].

NOTE: The bolt heads of the bolts [6] should point aft when the unit [10] and the link assembly [12] are installed on the airplane.

1) Tighten the nuts [9] to 370 in-lb (41.8 N·m) - 410 in-lb (46.3 N·m).

SUBTASK 27-31-09-420-002

(2) If it is not installed, do these steps to install the link assembly [11]:

(a) Put the link assembly [11] in its position.

1) Install the bolts [1], washers [2] (under the bolt head) and bushings [3].

NOTE: The bolts [1] are to be installed from the same side as the bushings [3].

The countersunk washers [2] are installed under the bolt heads.

a) Install the bolts [1], countersunk washer [2], from the same side as the bushings [3].

NOTE: The use of grease, D00633, to help the installation of the bushings [3] IS NOT permitted.

2) Install the washers [4] (under the nut) and the nuts [5].

3) Tighten the nuts [5] to 750 in-lb (84.7 N·m) - 1050 in-lb (118.6 N·m).

SUBTASK 27-31-09-420-003

(3) Install the unit [10]:

(a) Lift the unit [10] to its position between the horizontal stabilizer and the elevator.

(b) Connect the unit [10] to the link assembly [11].

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CAUTION THE INSTALLATION OF BOLT [13] AND NUT [17] IS BLIND. MAKE SURE THE BOLT [13] AND NUT [17] ARE INSTALLED AND TIGHTENED CORRECTLY. IF THE BOLT [13] AND NUT [17] ARE NOT INSTALLED AND TIGHTENED CORRECTLY, DAMAGE TO THE AIRPLANE CAN OCCUR.

1) Install the bolt [13], washer [14] (below the bolt head) and bushing [15].

   NOTE: The use of grease, D00633, to help with the installation of the bushing [15] IS NOT permitted. For the left elevator, install the bolt [13] with the bolt head on the outboard side. For the right elevator, install the bolt [13] with the bolt head on the inboard side.

2) Install the washer [16] (below the nut) and the nut [17].

3) Tighten the nut [17] to 1200 in-lb (135.6 N·m) - 1500 in-lb (169.5 N·m).

(c) Connect the link assembly [12] to the elevator:

1) Install the bolt [18], washer [19] (below the bolt head) and bushing [20] to connect the link assembly [12] to the elevator.

   NOTE: The use of grease, D00633 to help with the installation of the bushing [20] IS permitted. Also, install the bolt [18] with the bolt heads on the outboard side.

2) Install the washer [21] (below the nut) and the nut [22].

3) Tighten the nut [22] to 2500 in-lb (282.5 N·m) - 2750 in-lb (310.7 N·m).

(d) Connect the rod end of the unit [10] to the elevator:

1) Operate the manual bypass valves on the two elevator PCUs (units [10]):

   a) Install the elevator PCU bypass pin, SPL-1708, on the manual bypass valves on the two elevator PCUs.

2) Push the trailing edge of the elevator up and remove the elevator power control unit lock, SPL-11197.

   NOTE: The elevator will only move slowly because of the resistance in the units [10].

3) Lower the elevator until the bolt hole in the elevator aligns with the rod end of the unit [10].

4) Install the bolt [18], washer [19] (below the bolt head) and bushing [20].

   NOTE: The use of grease, D00633 to help with the installation of the bushing [20] IS permitted. Also, install the bolt [18] with the bolt heads on the outboard side.

5) Remove the rope from the unit [10].

6) Push the elevator to the full up position.

7) Install the elevator power control unit lock, SPL-11197 on the elevator PCU that you did not remove.

8) Install the washer [21] (below the nut) and the nut [22].

9) Tighten the nut [22] to 2500 in-lb (282.5 N·m) - 2750 in-lb (310.7 N·m).

10) Remove the elevator PCU bypass pin, SPL-1708 from the elevator PCUs.

(e) Install the bracket [38]:

1) Put the bracket [38] in its position on the link assembly [11].

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2) Install the screw [39] and the washer [40].

SUBTASK 27-31-09-080-001

(4) Remove the elevator PCU equipment, SPL-1709 and the cable fishpole hoist, COM-1563.

SUBTASK 27-31-09-420-007

(5) Install the applicable tube assembly [51], tube assembly [52], tube assembly [53], tube assembly [54], tube assembly [55], tube assembly [56], tube assembly [57] or tube assembly [58] that you removed (Figure 402):

(a) Remove the caps from the hydraulic tubes and the elevator PCU ports (if installed) on the airplane.

(b) Put the applicable tube assembly [51], tube assembly [52], tube assembly [53], tube assembly [54], tube assembly [55], tube assembly [56], tube assembly [57] or tube assembly [58] in their positions.

(c) Connect the hydraulic tubes to the unit [10] and to the hydraulic tubes on the airplane.

1) Tighten the B-nuts on the tube assembly [53], tube assembly [54], tube assembly [57], tube assembly [58] to 500 ±25 in-lb (56 ±3 N·m).

2) Tighten the B-nuts on the tube assembly [51], tube assembly [52], tube assembly [55], tube assembly [56] to 700 ±35 in-lb (79 ±4 N·m).

(d) Install the block assembly [64]:

1) Put the block assembly [64] in its position on the hydraulic tubes.

2) Install the screws [59], washers [60], spacers [61], washers [62] and nuts [63] that attach the block assembly [64].

SUBTASK 27-31-09-420-004

(6) Connect the electrical connectors to the unit [10].

SUBTASK 27-31-09-640-001

(7) Do this task: Elevator Power Control Units (PCUs) - Lubrication, TASK 12-21-04-600-801.

SUBTASK 27-31-09-410-002

(8) Install the beam assembly [36] (Figure 401):

(a) Apply PR-1405-G sealant, A00723 to the mating areas of the beam assembly [36] and the trailing edge rib.

(b) Apply PR-1405-G sealant, A00723 to the two sides of the shim [33].

(c) Put the beam assembly [36] and the shim [33] in their positions.

NOTE: The maximum thickness of the shim [33] is 0.06 in. (1.52 mm). The maximum peelable part of the shim [33] is 0.03 in. (0.76 mm).

(d) Apply a layer of PR-1405-G sealant, A00723 to the shafts of the bolts [23].

(e) Install the bolts [23], washers [24] and nuts [25].

(f) Apply PR-1405-G sealant, A00723 to the mating area of the beam assembly [36] and the strap [37].

(g) Apply a layer of PR-1405-G sealant, A00723 to the shafts of the bolts [31] and bolts [34].

(h) Put the strap [37] and the angle [30] in their positions.

1) Install the bolts [31] and washers [32].

2) Install the bolts [34] and washers [35].

(i) Install the plate [29]:

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1) Apply a layer of PR-1405-G sealant, A00723 to the mating surfaces of the beam assembly [36] and the plate [29].
2) Put the plate [29] in its position.
3) Install the bolts [26] and bolts [27].

SUBTASK 27-31-09-080-003

(9) Make sure that these circuit breakers are open and have safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	7	CBA7-C	ELEV PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	7	CBA7-L	ELEV PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	7	CBA7-R	ELEV PCU

SUBTASK 27-31-09-860-006

(10) Make sure the hydraulic pressure is removed. To remove it, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-31-09-080-007

WARNING

MAKE SURE THAT THE ELEVATOR PCU CIRCUIT BREAKERS ARE OPEN AND HYDRAULIC POWER IS REMOVED. IF ELEVATOR PCU CIRCUIT BREAKERS ARE CLOSED, THE ELEVATOR CAN FALL WHEN THE SAFETY LOCKS ARE REMOVED. IF HYDRAULIC POWER IS ON, THE ELEVATOR CAN MOVE DOWN VERY FAST WHEN THE SAFETY LOCKS ARE REMOVED.

(11) Remove the elevator power control unit lock, SPL-11197.

(a) If the safety locks are caught (jammed) because the elevator has moved down, do the following:

1) Install the elevator PCU bypass pin, SPL-1708, on the manual bypass valves on the two elevator PCUs.
2) Push the trailing edge of the elevator up and hold.

NOTE: The elevator will only move slowly because of the resistance in the units [10].

3) Remove the elevator power control unit lock, SPL-11197.
4) Remove the elevator PCU bypass pin, SPL-1708 from the manual bypass valves on the two elevator PCUs.
5) Release lifting pressure on the elevator trailing edge.

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SUBTASK 27-31-09-420-005

(12) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	7	CBA7-C	ELEV PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	7	CBA7-L	ELEV PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	7	CBA7-R	ELEV PCU

SUBTASK 27-31-09-860-007

(13) Do the steps to Put the Airplane Back to its Usual Condition, after the Main Hydraulic System and Reservoir Depressurization. To do this, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-31-09-420-006

(14) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(a) For the inboard unit [10] on the left elevator, supply pressure to the center hydraulic system.

(b) For the inboard unit [10] on the right elevator, supply pressure to the right hydraulic system.

(c) For the outboard unit [10] on the left or right elevator, supply pressure to the left hydraulic system.

SUBTASK 27-31-09-440-001

(15) On the P61 panel, move the FLT CONTROL HYD POWER - TAIL switches to the NORM position.

SUBTASK 27-31-09-820-001

(16) Adjust the position of the elevator, do this task: Elevator Adjustment (Rigging), TASK 27-31-00-800-801.

SUBTASK 27-31-09-740-001

(17) Use the Maintenance Access Terminal (MAT) to do the test of the applicable unit [10] (TASK 45-10-00-740-808):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST

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6) Left Elevator Actuator Confidence (Right Elevator Actuator Confidence)

7) CONTINUE

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATORS. THE ELEVATORS WILL MOVE AUTOMATICALLY AND QUICKLY DURING THIS TEST. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

NOTE: To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure.

Engine Indication and Crew Alerting System (EICAS) messages will occur during the test. This is OK.

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-31-09-790-001

(18) Make sure the unit [10] does not have a hydraulic fluid leak.

SUBTASK 27-31-09-860-001

(19) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-31-09-410-001

(20) Install the access panels you removed:

(a) For the left elevator power control units, install this access panel:

Number	Name/Location
335EXB	Horizontal Stabilizer Trailing Edge Panel

(b) If you removed and installed the left outboard elevator PCU, install this access panel:

Number	Name/Location
335GXB	Horizontal Stabilizer Trailing Edge Panel

(c) For the right elevator power control units, install this access panel:

Number	Name/Location
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel

(d) If you removed and installed the right inboard elevator PCU, install these access panels:

Number	Name/Location
345DB	Horizontal Stabilizer Trailing Edge Panel
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel

SUBTASK 27-31-09-410-003

(21) Install the seals on the lower surface of the stabilizer:

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For the left stabilizer install this access panel:

Number	Name/Location
335RBX	Horizontal Stabilizer Trailing edge Seal

For the right stabilizer, install this access panel:

Number	Name/Location
345RBX	Horizontal Stabilizer Trailing Edge Seal

SUBTASK 27-31-09-610-001

(22) Do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

(a) For the inboard unit [10] on the left elevator, fill the reservoir for the center hydraulic system.

(b) For the inboard unit [10] on the right elevator, fill the reservoir for the right hydraulic system.

(c) For the outboard unit [10] on the left or right elevator, fill the reservoir for the left hydraulic system.

——— END OF TASK ———

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ELEVATOR POWER CONTROL UNIT - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has a freeplay inspection of the power control units (PCU) for the elevator.

27-CMR-08

TASK 27-31-09-200-801

2. Elevator Power Control Unit Freeplay - Inspection

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-31-09-000-801	Elevator Power Control Units (PCU) - Removal (P/B 401)
27-31-10-000-801	Elevator - Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205
SPL-3988	Pin - Rig (J20003-11 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-4267	Inspection Equipment, Elevator Freeplay Part #: J27079-38 Supplier: 81205 Opt Part #: J27079-31 Supplier: 81205 Opt Part #: J27079-32 Supplier: 81205

C. Location Zones

Zone	Area
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Prepare for the Freeplay Inspection

SUBTASK 27-31-09-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-31-09-040-002

WARNING

DO NOT MOVE THE CONTROL COLUMNS DURING THIS PROCEDURE. IF A CONTROL COLUMN IS MOVED, THEN THE ELEVATOR WILL MOVE.

(2) Attach DO-NOT-OPERATE tags to the captain's and first officer's control columns.

SUBTASK 27-31-09-010-005

(3) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-31-09-480-001

(4) From the rigging pin set, SPL-2532, install rig pins (J20003-11 assemblies), SPL-3988 (E1 and E2) in the torque tubes for the control columns (Figure 601).

NOTE: Install the rig pins to prevent accidental movement of the control columns.

F. Freeplay Inspection

NOTE: Each elevator has two PCUs. This procedure inspects only one PCU at a time. Repeat the procedure for each PCU.

SUBTASK 27-31-09-860-003

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

DO NOT CLOSE THE FLIGHT CONTROL SHUTOFF VALVES DURING THIS INSPECTION. IF A VALVE IS CLOSED BEFORE ITS RELATED HYDRAULIC SYSTEM IS DEPRESSURIZED, AN ELEVATOR MAY MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCU'S FOR A SINGLE ELEVATOR SURFACE MAY RESULT IN THAT SURFACE SLOWLY LOWERING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S OF THAT SUFACE. FAILURE TO OBEY THESE INSTRUCTIONS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Supply pressure to one of the two PCUs for the elevator surface.Table 601 shows the correct hydraulic systems to pressurize for each inspection.

(a) Supply hydraulic power to the left, center, and right hydraulic systems (setup step). To supply hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(b) Remove hydraulic power for the PCU not under inspection on the same control surface. To remove hydraulic power, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

NOTE: Each PCU can be inspected in any order, as long as the setup step is performed first.

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Table 601/27-31-09-993-805 Elevator PCU Test Setup

POWER CONTROL UNIT (PCU)	STEP	HYDRAULIC SYSTEM PRESSURE		
		LEFT	CENTER	RIGHT
Left Elevator, Outboard PCU	Setup	ON	ON	ON
	Inspection	ON	OFF	ON
Left Elevator, Inboard PCU	Setup	ON	ON	ON
	Inspection	OFF	ON	ON
Right Elevator, Inboard PCU	Setup	ON	ON	ON
	Inspection	OFF	ON	ON
Right Elevator, Outboard PCU	Setup	ON	ON	ON
	Inspection	ON	ON	OFF

SUBTASK 27-31-09-210-001

(2) Install a dial indicator on the side of the empennage so that it will measure the vertical movement at the trailing edge of the elevator (Figure 602). Make sure that the plunger is 0.50 inch (12.7 mm) forward of the trailing edge.

NOTE: The dial indicator is included in the inspection equipment, SPL-4267 kit.

NOTE: Shims may be required to obtain a stable base, when using a flat steel plate on a curved fuselage.

SUBTASK 27-31-09-220-002

(3) Push down on the trailing edge of the elevator with your hands (push with approximately 100 pounds (445 newtons) of force), and then release the elevator.

NOTE: The center of the force must be on the elevator rib that is aligned with the PCU that has hydraulic power. The center of the force must be approximately 6 inches (150 mm) forward of the trailing edge of the elevator.

SUBTASK 27-31-09-220-003

(4) Set the dial indicator to zero.

NOTE: The elevator PCU makes small position adjustments continuously. This elevator movement can cause the dial indicator needle to move continuously through a constant range. Set the zero on the dial indicator to the middle of the range of the needle movement.

SUBTASK 27-31-09-480-003

WARNING MAKE SURE YOU USE A STRONG AND STABLE LIFT TO HOLD YOU, YOUR EQUIPMENT, AND THE ADDITIONAL 170 POUNDS (77 KILOGRAMS) FORCE OF THE JACK. IF YOU USE A LIFT THAT IS TOO SMALL, IT CAN FAIL.

(5) Put the pad, force gauge, and jack, included in the inspection equipment, SPL-4267, in position under the elevator (Figure 603).

(a) The center of the pad must be on the elevator rib that is aligned with the PCU that you are measuring, and the center of the pad must be approximately 6 inches (150 millimeters) forward of the trailing edge of the elevator.

SUBTASK 27-31-09-220-004

(6) Use the jack, included in the inspection equipment, SPL-4267, to push the elevator up with 170 pounds (77 kilograms) of force.

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SUBTASK 27-31-09-220-005

(7) Read the dial indicator.

NOTE: Because the elevator PCU has a tendency to continuously oscillate about the commanded position, the dial indicator needle can move through (oscillate) approximately 0.050 inch (1.27 millimeter). This is normal operation of the elevator. Set the zero on the dial indicator to the middle of the needle's movement.

(a) If the dial indicator shows 0.30 inch (7.6 millimeters) or less, then the bearings for the PCU are serviceable (in good condition).

(b) If the dial indicator shows more than 0.30 inch (7.6 millimeters), then you must make repairs, as necessary, until the freeplay is less than 0.30 (7.6 mm). Do the freeplay again after you make the necessary repairs. Do the following, as necessary, to find and then replace the worn parts:

1) To get access to the elevator hinge pins and elevator hinge bearings, do this task: Elevator - Removal, TASK 27-31-10-000-801.

2) Inspection and then removal or replacement of the PCU and PCU reaction links (Elevator Power Control Units (PCU) - Removal, TASK 27-31-09-000-801).

NOTE: Kick link bearings can affect freeplay. A partial removal of the kick link from the PCU is included in the AMM procedure for the reaction link removal.

3) Do an inspection and repair of the rod end bearing.

NOTE: The PCU rod end bearing will make a small amount of dark-colored powder which can be seen at the edge of the bearing liner. This powder is normal and comes from the normal wear of the self-lubricating bearing liner.

NOTE: It is possible that the dust seal has come off of the PCU rod end bearing. It is not necessary to replace the bearing or the dust seal if the bearing is within the permitted wear limits.

SUBTASK 27-31-09-220-006

(8) Release the pressure on the elevator that was applied with the jack.

SUBTASK 27-31-09-710-001

(9) Repeat the previous steps on each remaining elevator PCU.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-09-080-004

(1) Remove the jack, force gauge and pad.

SUBTASK 27-31-09-080-005

(2) Remove the dial indicator.

SUBTASK 27-31-09-860-004

WARNING

REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCU'S FOR A SINGLE ELEVATOR SURFACE MAY RESULT IN THAT SURFACE SLOWLY LOWERING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S OF THAT SURFACE. FAILURE TO OBEY THESE INSTRUCTIONS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Remove power from the left, center, and right hydraulic systems. To remove hydraulic power, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-31-09-080-006

(4) Remove rig pin (J20003-11 assembly), SPL-3988 from the torque tubes for the control columns (Figure 601).

SUBTASK 27-31-09-410-005

(5) Close this access panel:

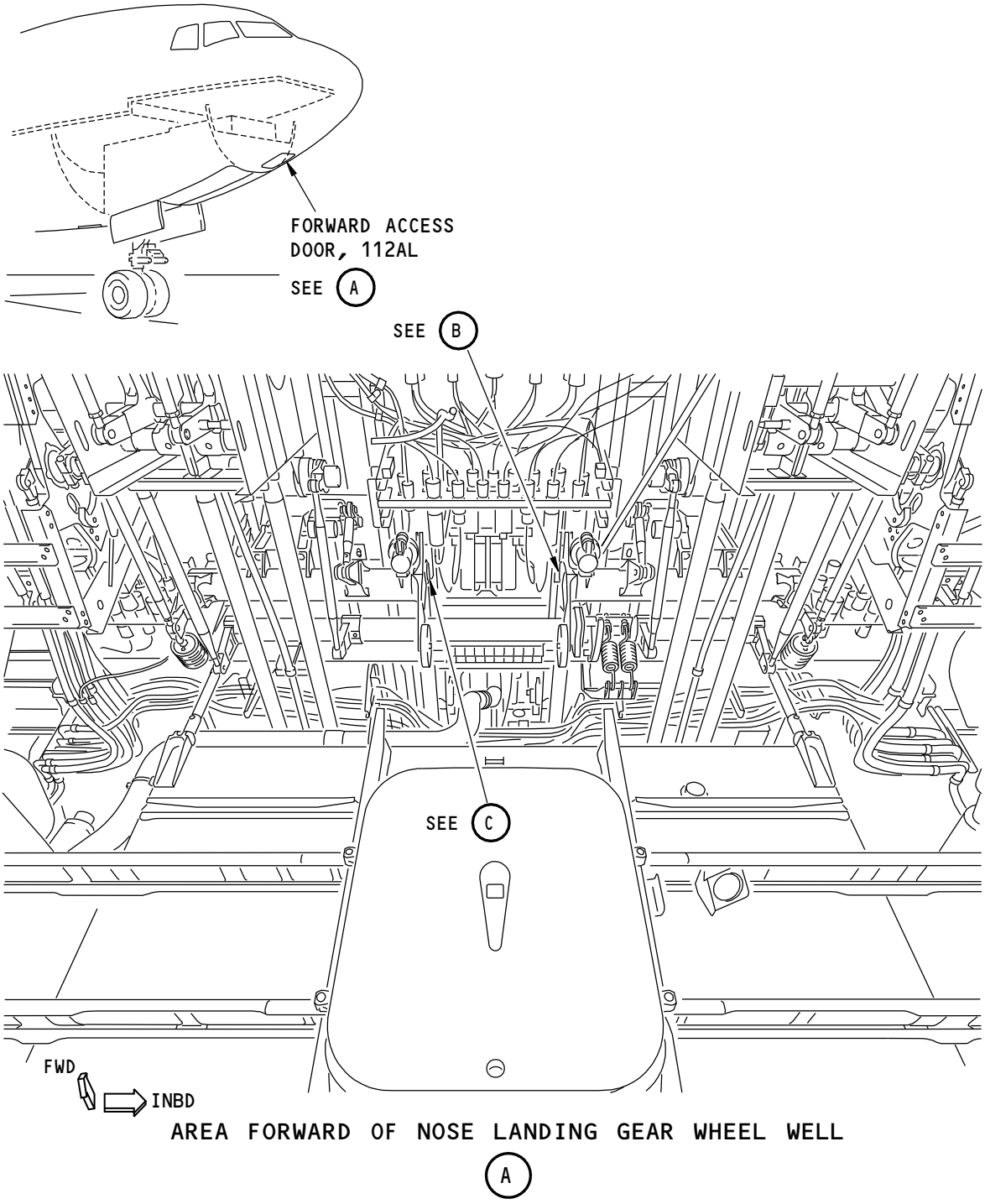
Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-31-09-440-002

(6) Remove the DO-NOT-OPERATE tags from the captain's and first officer's control columns.

——— END OF TASK ———

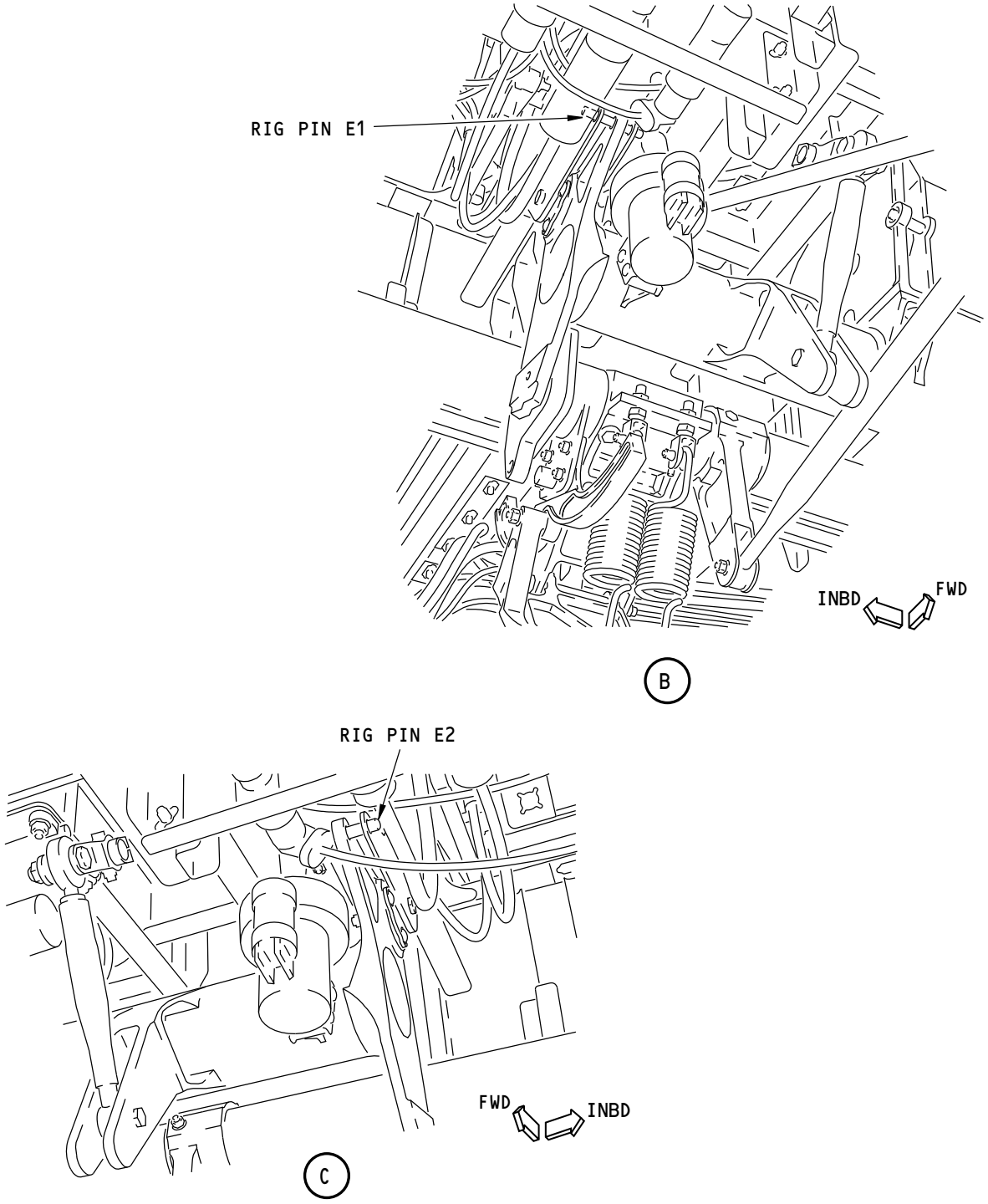
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F22461 S0006413190_V1

Control Column Rig Pins
Figure 601/27-31-09-990-806 (Sheet 1 of 2)

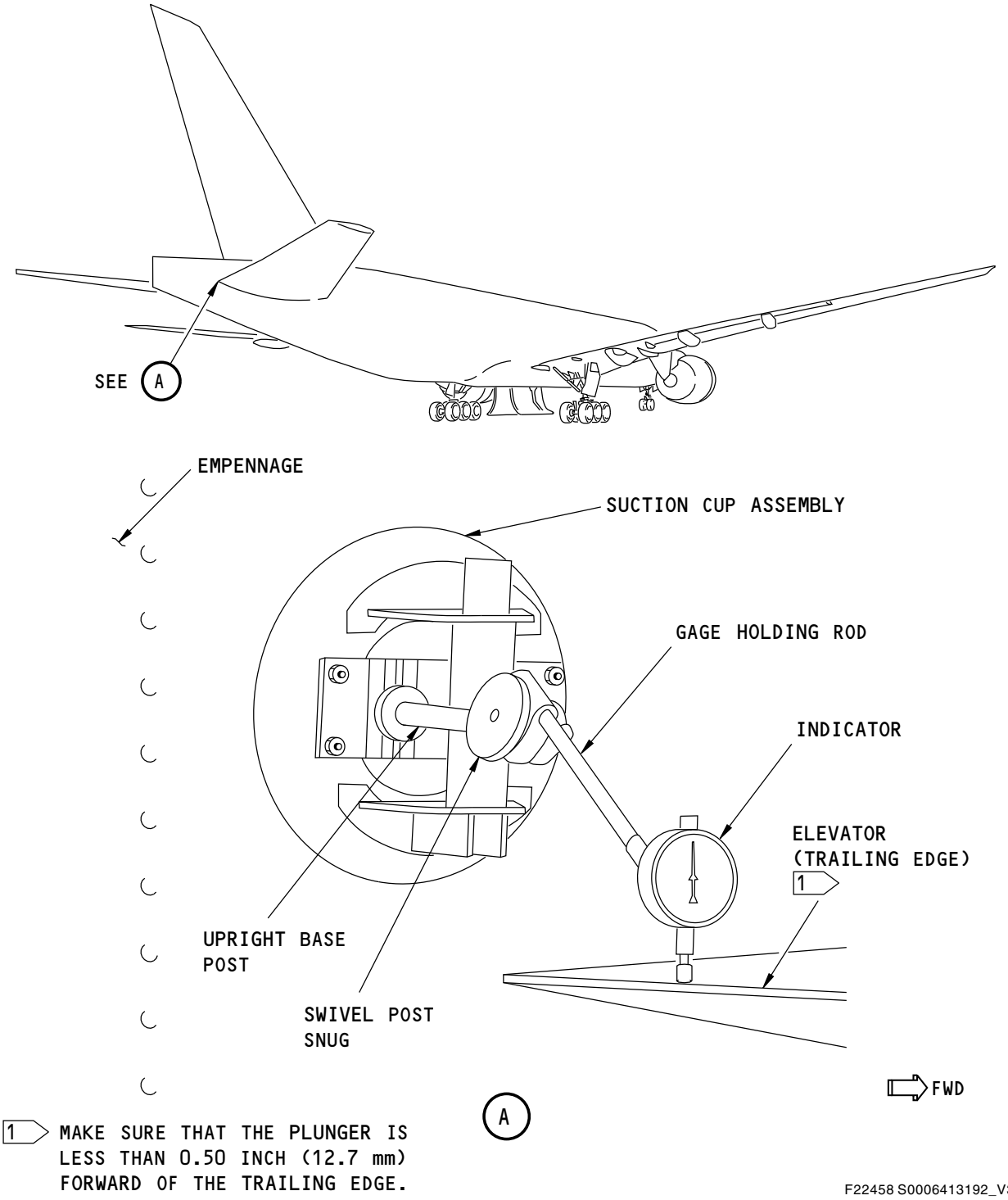
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F22448 S0006413191_V1

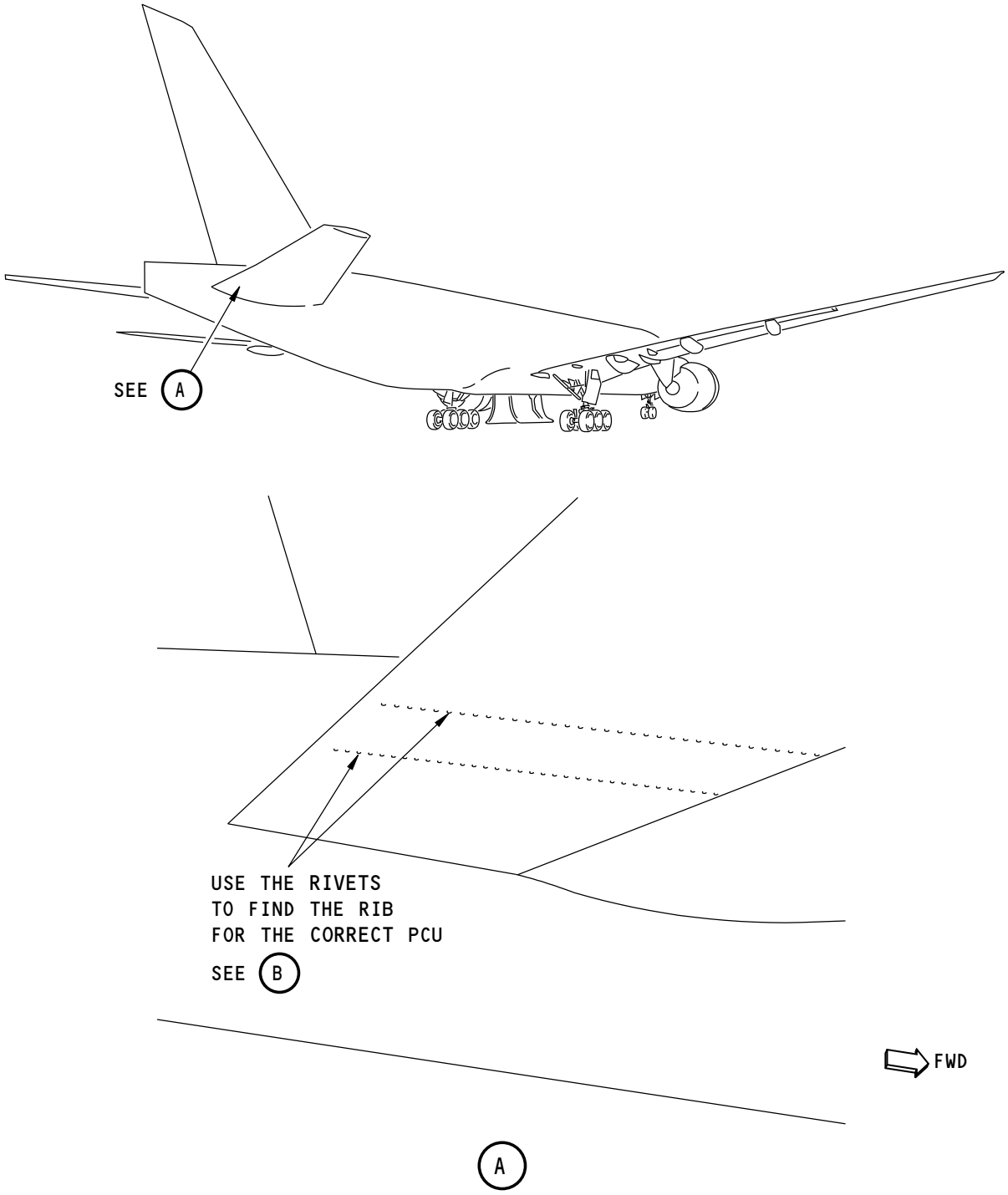
Control Column Rig Pins
Figure 601/27-31-09-990-806 (Sheet 2 of 2)

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Dial Indicator
Figure 602/27-31-09-990-804

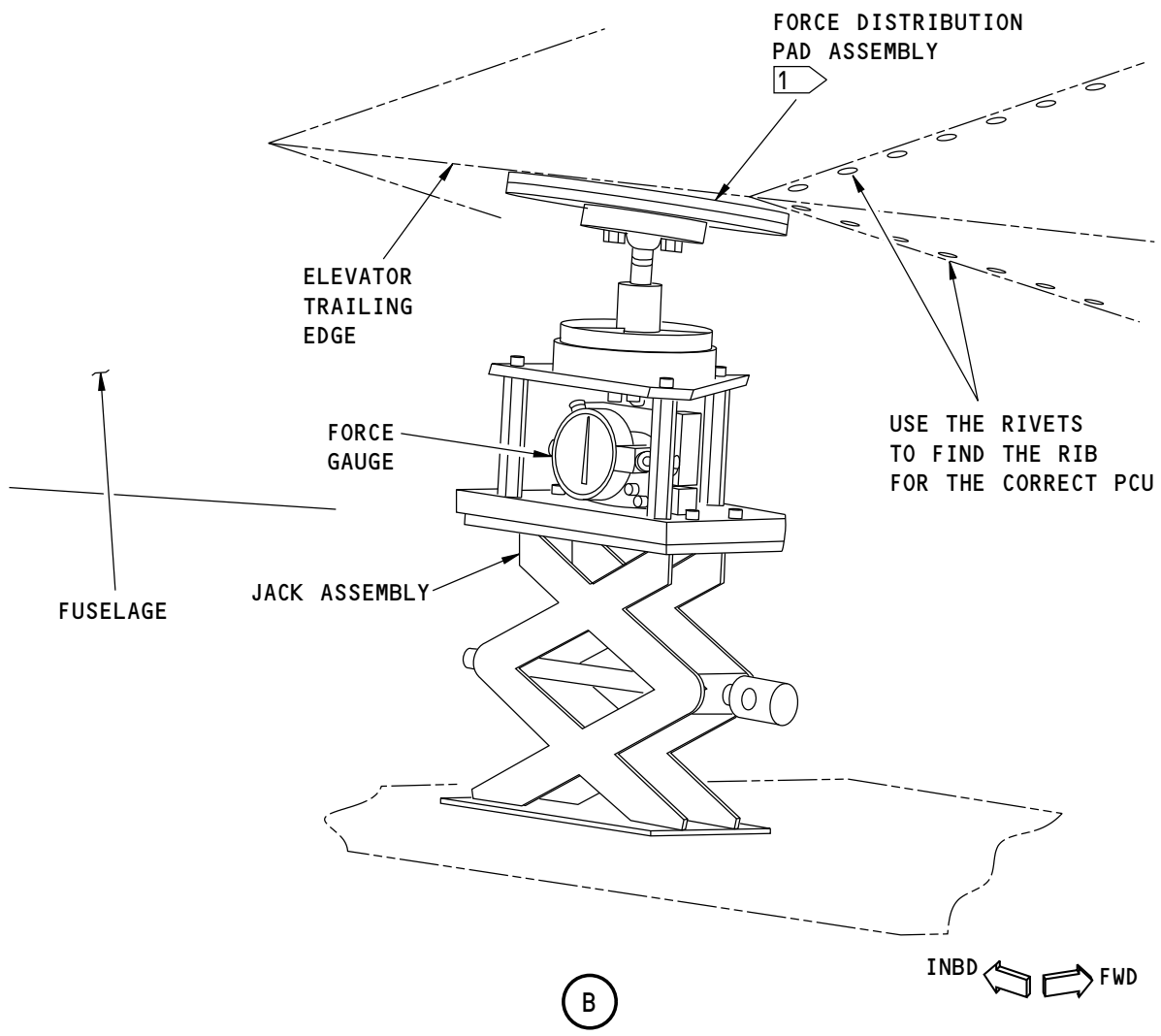
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F22465 S0006413193_V1

Jack and Force Gage
Figure 603/27-31-09-990-807 (Sheet 1 of 2)

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1 THE CENTER OF THE FORCE DISTRIBUTION PAD ASSEMBLY MUST BE APPROXIMATELY 6 INCHES (150 mm) FORWARD OF THE TRAILING EDGE OF THE ELEVATOR.

F27277 S0006413194_V3

Jack and Force Gage
Figure 603/27-31-09-990-807 (Sheet 2 of 2)

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ELEVATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator

(2) An installation of the elevator.

TASK 27-31-10-000-801

2. Elevator - Removal

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1702	Sling Equipment, Elevator Removal/Installation Part #: J27013-27 Supplier: 81205 Opt Part #: J27013-20 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
G50079	Scraper - Wood or Plastic	

D. Location Zones

Zone	Area
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator

E. Access Panels

Number	Name/Location
335CB	Horizontal Stabilizer Trailing Edge Panel
335DB	Horizontal Stabilizer Trailing Edge Panel
335EXB	Horizontal Stabilizer Trailing Edge Panel
335GXB	Horizontal Stabilizer Trailing Edge Panel
335JB	Horizontal Stabilizer Trailing Edge Panel
335KB	Horizontal Stabilizer Trailing Edge Panel
335LB	Horizontal Stabilizer Trailing Edge Panel
345CB	Horizontal Stabilizer Trailing Edge Panel
345DB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel

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(Continued)

Number	Name/Location
345JB	Horizontal Stabilizer Trailing Edge Panel
345KB	Horizontal Stabilizer Trailing Edge Panel
345LB	Horizontal Stabilizer Trailing Edge Panel

F. Prepare for the Removal

SUBTASK 27-31-10-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-31-10-840-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCUS FOR A SINGLE ELEVATOR SURFACE MAY RESULT IN THAT SURFACE SLOWLY LOWERING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S OF THAT SURFACE. FAILURE TO OBEY THESE INSTRUCTIONS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-31-10-840-003

WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, DRIVE MECHANISMS AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU OPERATE THEM WITH ELECTRICAL OR HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Move the stabilizer to the neutral position.

(a) Move the stabilizer until the two stabilizer trim position indicators show 4 units of trim.

NOTE: You can move the stabilizer with the CAPTAIN'S or the FIRST OFFICER'S control wheel PITCH TRIM switches or the ALTN PITCH trim levers on the P10 control stand.

1) Make sure that the middle value of the three stabilizer position indication readings on the flight controls maintenance page 2 shows 75 to 65.

SUBTASK 27-31-10-840-008

(4) Make sure the elevator is in the neutral position.

NOTE: The elevator will move to the neutral position if: 1) hydraulics are on, 2) the tail shutoff valves for flight control hydraulic power are open, and 3) the control columns are not moved.

SUBTASK 27-31-10-040-001

(5) Put the C and R STAB CUTOUT switches to the CUTOUT position.

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SUBTASK 27-31-10-040-002

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	7	CBA7-C	ELEV PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	7	CBA7-L	ELEV PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	7	CBA7-R	ELEV PCU

SUBTASK 27-31-10-840-009

WARNING REMOVING HYDRAULIC SYSTEM PRESSURE TO ALL THE PCU'S FOR A SINGLE ELEVATOR SURFACE MAY RESULT IN THAT SURFACE SLOWLY LOWERING. KEEP PERSONS AND EQUIPMENT CLEAR OF THE ELEVATOR SURFACE WHEN REMOVING ALL HYDRAULIC SYSTEM PRESSURE TO THE PCU'S OF THAT SURFACE. FAILURE TO OBEY THESE INSTRUCTIONS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-31-10-840-005

(8) On the P61 panel, move the FLT CONTROL HYD POWER - TAIL switches to the SHUT OFF position.

SUBTASK 27-31-10-010-001

(9) If you are to remove the left elevator open these access panels:

Number	Name/Location
335CB	Horizontal Stabilizer Trailing Edge Panel
335DB	Horizontal Stabilizer Trailing Edge Panel
335EXB	Horizontal Stabilizer Trailing Edge Panel
335GXB	Horizontal Stabilizer Trailing Edge Panel
335JB	Horizontal Stabilizer Trailing Edge Panel
335KB	Horizontal Stabilizer Trailing Edge Panel
335LB	Horizontal Stabilizer Trailing Edge Panel

SUBTASK 27-31-10-010-002

(10) If you are to remove the right elevator, open these access panels:

Number	Name/Location
345CB	Horizontal Stabilizer Trailing Edge Panel
345DB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel

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(Continued)

Number	Name/Location
345JB	Horizontal Stabilizer Trailing Edge Panel
345KB	Horizontal Stabilizer Trailing Edge Panel
345LB	Horizontal Stabilizer Trailing Edge Panel

G. Elevator Removal

SUBTASK 27-31-10-480-001

(1) Do these steps to install the sling equipment, SPL-1702, on the elevator assembly [1] (Figure 401).

(a) Install the hoist ring assemblies on the elevator assembly [1].

(b) Put the clamp on the trailing edge of the elevator assembly [1]. Attach the longer cable of the clamp to the outboard hoist ring assembly. Attach the shorter cable of the clamp to the inboard hoist ring assembly.

(c) Attach the sling to the clamp and the hoist ring assemblies. Attach the longest cable to the inboard hoist ring. Attach the shortest cable to the clamp at the trailing edge. Attach the middle length cable to the outboard hoist ring.

SUBTASK 27-31-10-020-001

(2) Lift at the top of the elevator sling with a force of approximately 350 lb (159 kg).

NOTE: The elevator weighs approximately 350 lb (159 kg).

SUBTASK 27-31-10-020-002

(3) Do these steps to remove the elevator assembly [1]:

(a) Remove or disconnect the bonding jumper [69], and bonding jumper [70] from the horizontal stabilizer, (View K, Figure 402).

(b) Do this step to disconnect the two PCUs from the elevator assembly [1]:

1) Remove the nut [42], and bolt [38], (at the elevator end of the reaction link and the PCU), (View E) (Figure 402).

(c) Remove the nut [74], bolt [44], and spacer [43], (View F) (Figure 402).

(d) Remove the nut [25] and bolt [26] (View G) (Figure 402).

(e) Remove the nut [25] and bolt [21] (View B) (Figure 402).

(f) Remove the nut [25] and bolt [26] (View C) (Figure 402).

(g) Remove the nut [58] and bolt [54] (View H) (Figure 402).

(h) Remove the nut [77] and bolt [59] (View I) (Figure 402).

(i) Remove the nut [58] and bolt [64] (View J) (Figure 402).

(j) Remove the nut [37] and bolt [33] (View L) (Figure 402).

(k) Remove the nut [77] and bolt [78] (View M) (Figure 402).

(l) Remove the sealant with scraper, G50079.

(m) Remove the lockwire on the locknut [32] and the bushing [31].

(n) Loosen the locknut [32], and remove the bushing [31] (View L) (Figure 402).

(o) Move the elevator assembly [1] aft and down, away from the horizontal stabilizer.

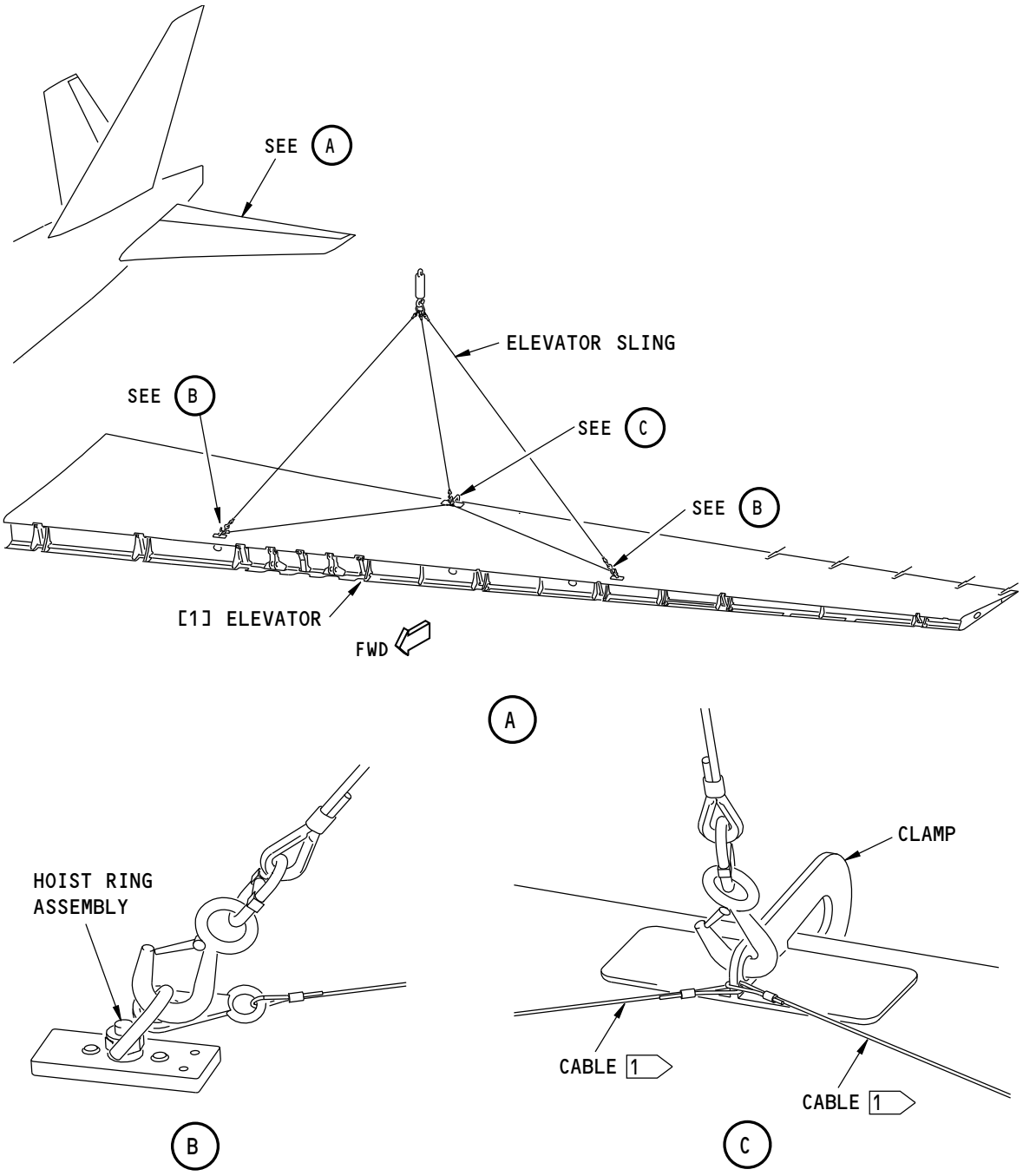
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SUBTASK 27-31-10-020-003

(4) Remove these bushings: bushing [23] (View B), bushing [28] (View C), bushing [35] (View L), bushing [40] (4 locations), bushing [46] (View F), bushing [28] (View G), bushing [56] (View H), bushing [61] (View I), bushing [56] (View J), and bushing [79] (View M).

——— END OF TASK ———

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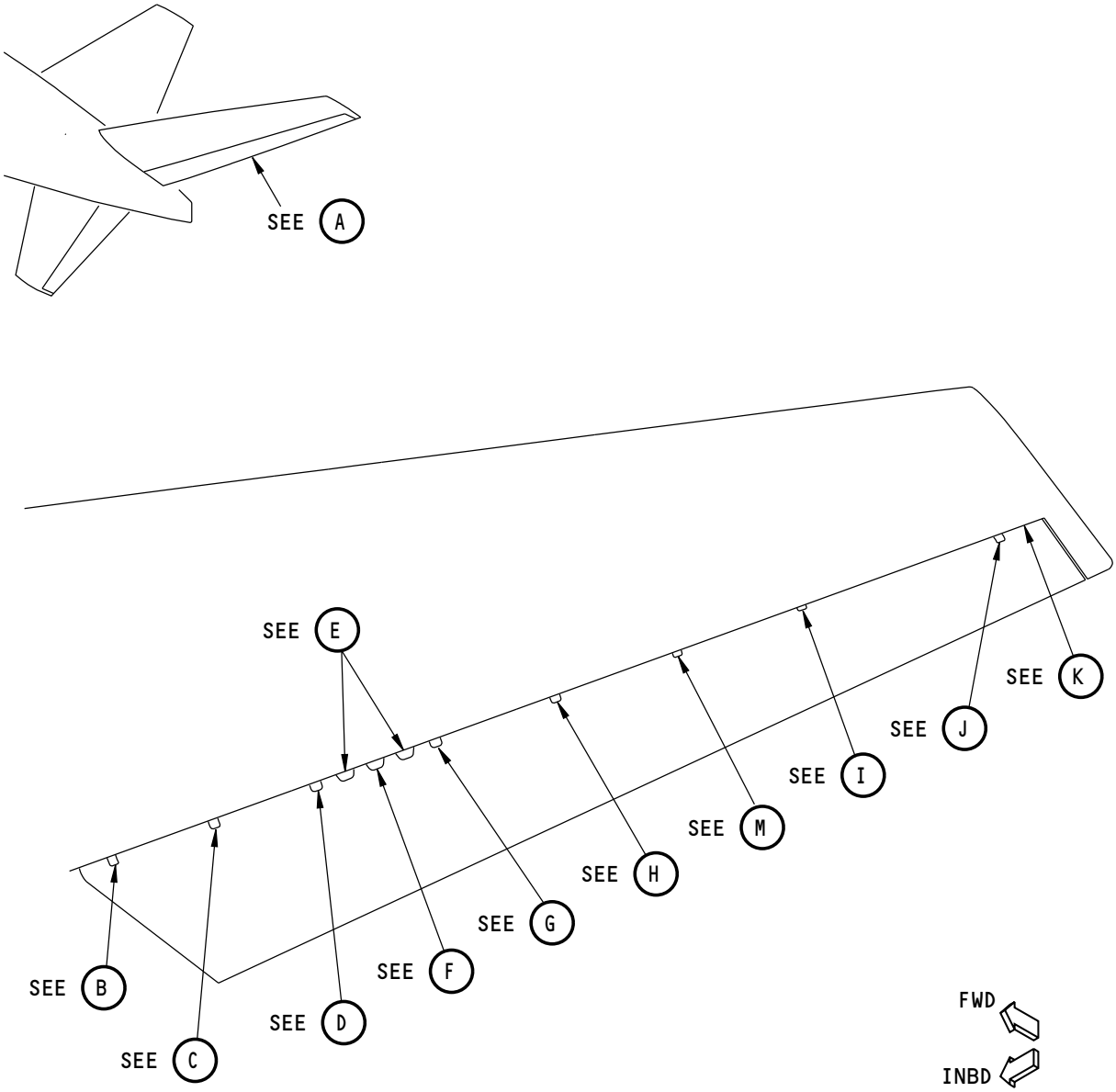


1 MAKE SURE CABLES HAVE EQUAL AMOUNTS OF TENSION BEFORE RAISING ELEVATOR WITH SLING.

E48654 S0006413198_V1

Elevator Sling Installation
Figure 401/27-31-10-990-801

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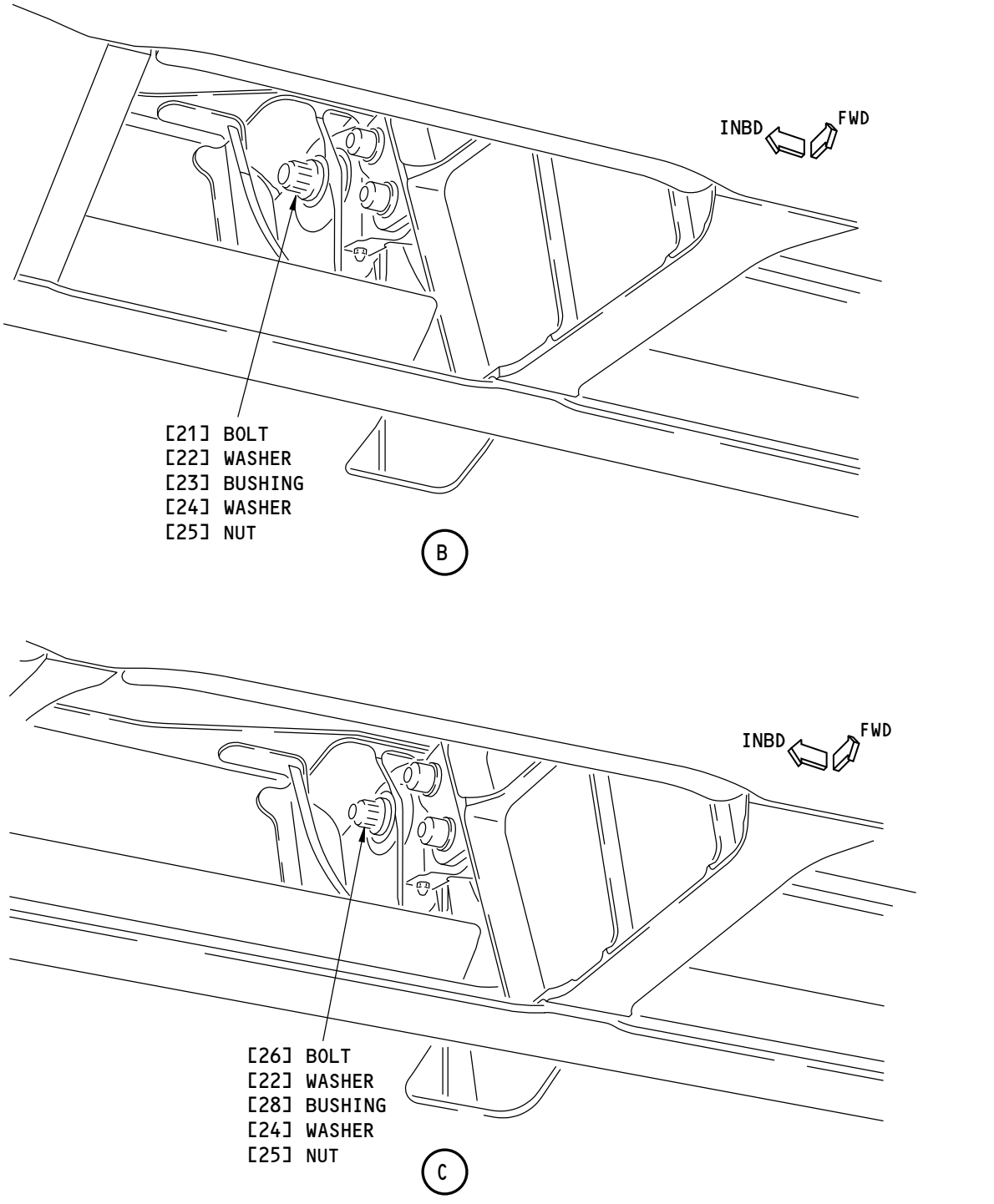
[1] LEFT ELEVATOR
(RIGHT ELEVATOR IS EQUIVALENT)

A

E48925 S0006413199_V1

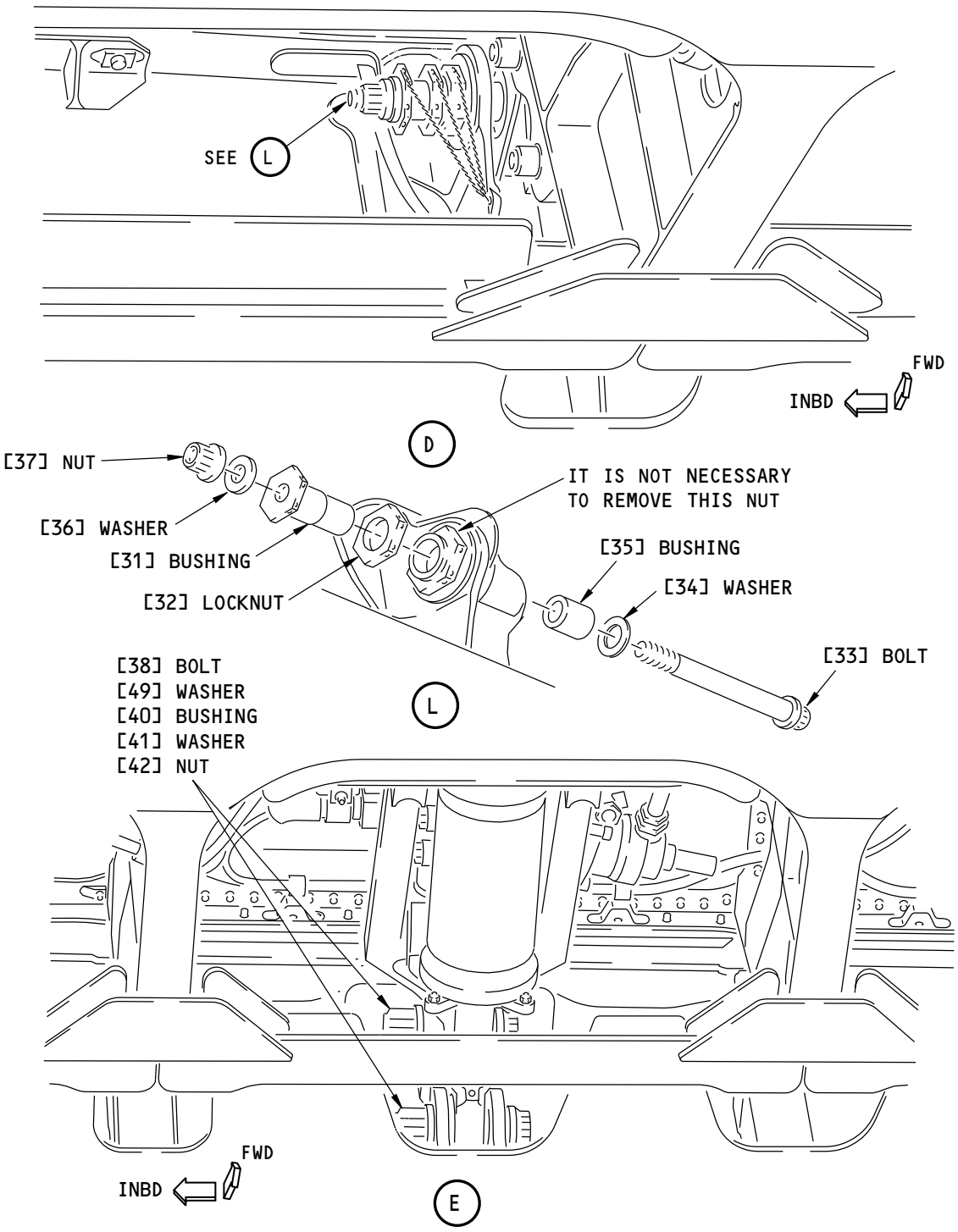
Elevator Installation
Figure 402/27-31-10-990-802 (Sheet 1 of 6)

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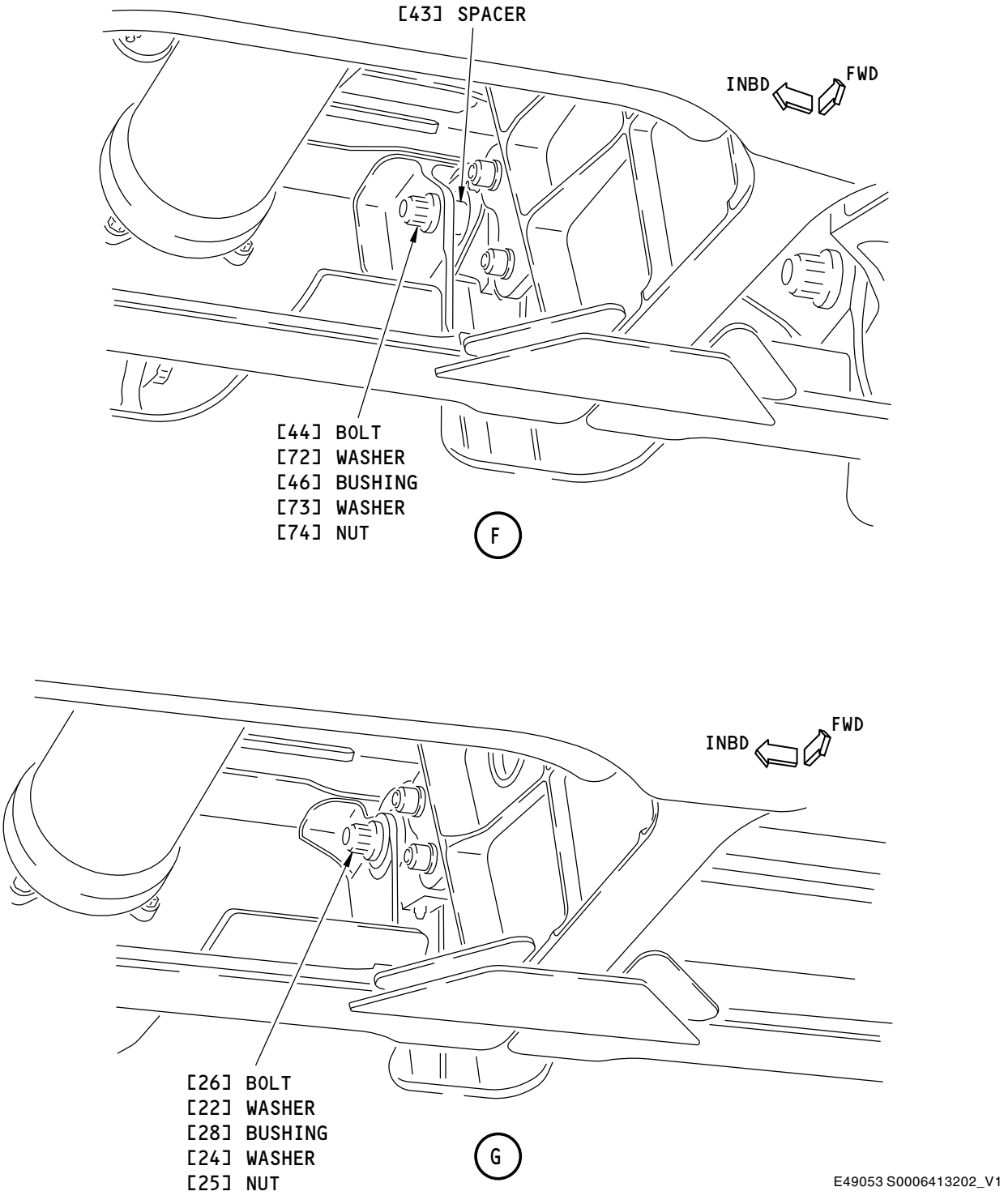
Elevator Installation
Figure 402/27-31-10-990-802 (Sheet 2 of 6)

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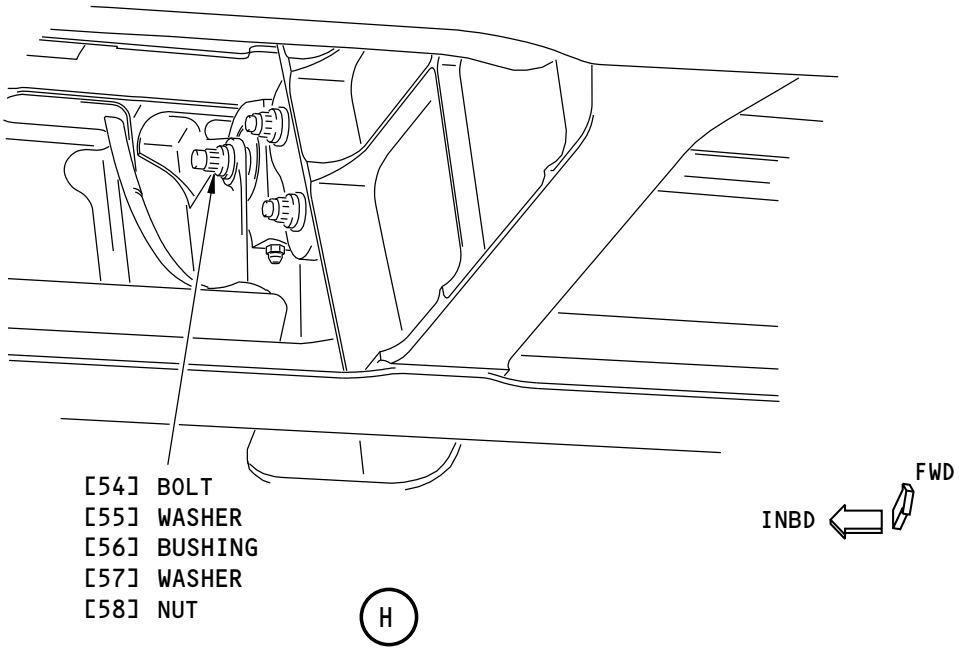
Elevator Installation
Figure 402/27-31-10-990-802 (Sheet 3 of 6)

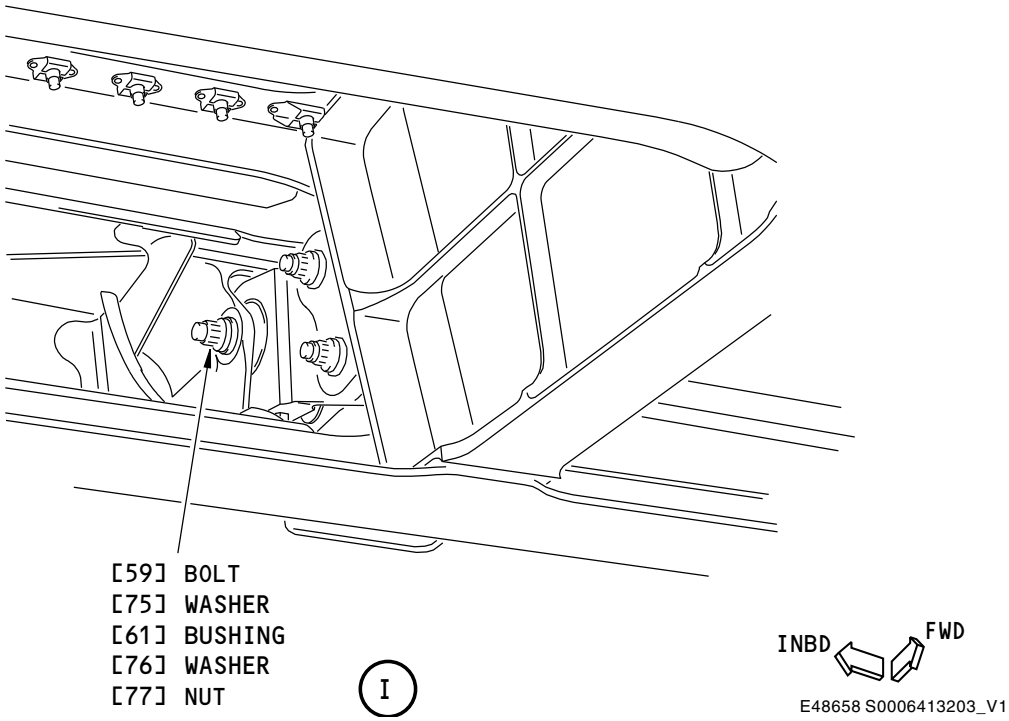
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Elevator Installation
Figure 402/27-31-10-990-802 (Sheet 4 of 6)

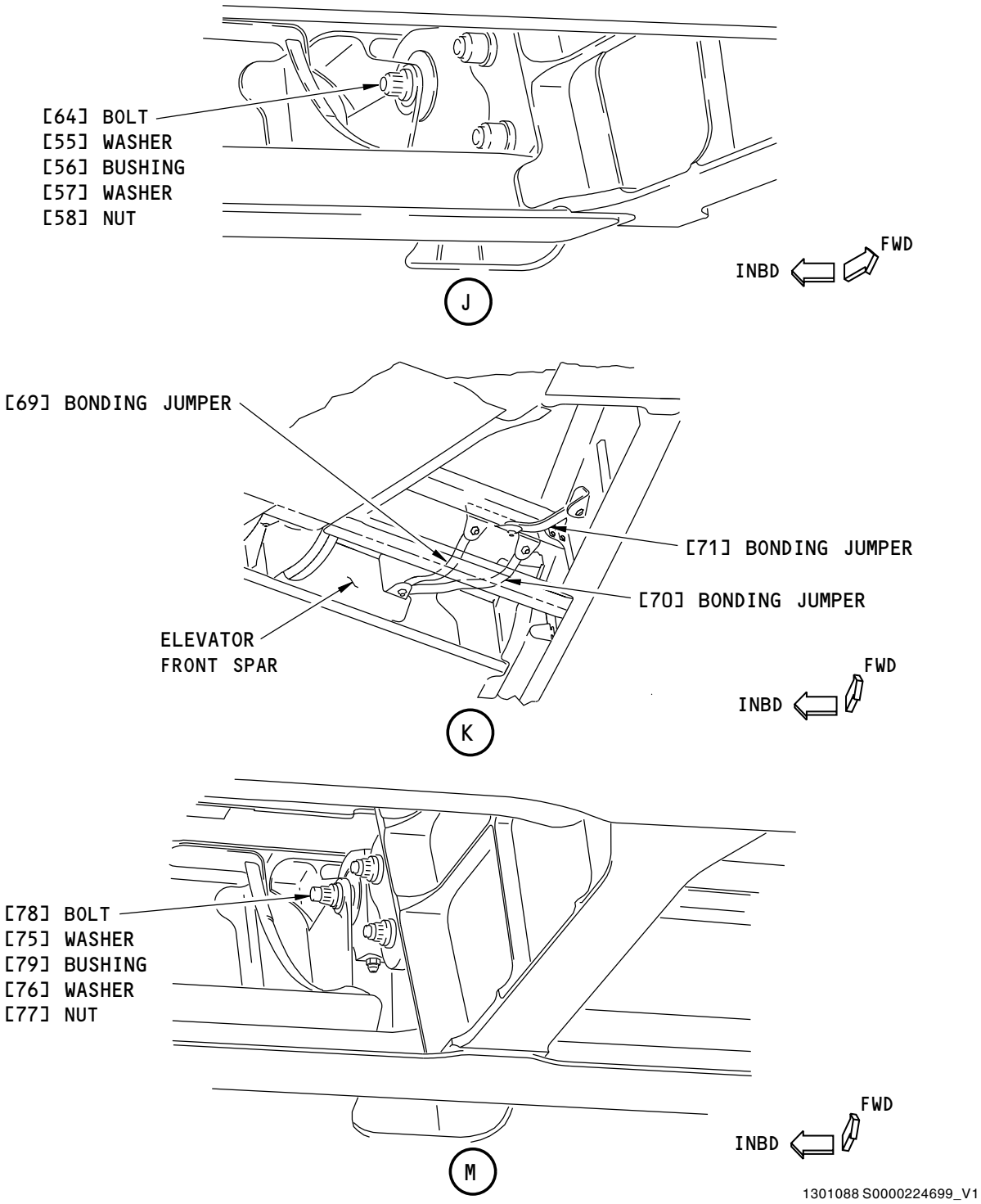
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Elevator Installation
Figure 402/27-31-10-990-802 (Sheet 5 of 6)

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Elevator Installation
Figure 402/27-31-10-990-802 (Sheet 6 of 6)

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TASK 27-31-10-400-801

3. Elevator - Installation

A. References

Reference	Title
12-21-04-600-801	Elevator Power Control Units (PCUs) - Lubrication (P/B 301)
27-31-00-700-801	Elevator Power Control Unit Test (P/B 501)
27-31-00-800-801	Elevator Adjustment (Rigging) (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1702	Sling Equipment, Elevator Removal/Installation Part #: J27013-27 Supplier: 81205 Opt Part #: J27013-20 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Elevator assembly	27-31-10-02-315	ARO ALL
		27-31-10-02-320	ARO ALL

E. Location Zones

Zone	Area
335	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
336	Left Elevator
345	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
346	Right Elevator

F. Access Panels

Number	Name/Location
335CB	Horizontal Stabilizer Trailing Edge Panel
335DB	Horizontal Stabilizer Trailing Edge Panel
335EXB	Horizontal Stabilizer Trailing Edge Panel

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(Continued)

Number	Name/Location
335GXB	Horizontal Stabilizer Trailing Edge Panel
335JB	Horizontal Stabilizer Trailing Edge Panel
335KB	Horizontal Stabilizer Trailing Edge Panel
335LB	Horizontal Stabilizer Trailing Edge Panel
345CB	Horizontal Stabilizer Trailing Edge Panel
345DB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel
345JB	Horizontal Stabilizer Trailing Edge Panel
345KB	Horizontal Stabilizer Trailing Edge Panel
345LB	Horizontal Stabilizer Trailing Edge Panel

G. Procedure

SUBTASK 27-31-10-640-001

(1) Apply a thin layer of grease, D00633, to the elevator hinge bushings and the bolts.

SUBTASK 27-31-10-420-001

(2) Do these steps to install the elevator assembly [1]:

CAUTION

DO NOT LET THE ELEVATOR HIT OTHER PARTS OF THE AIRPLANE. THERE IS A SMALL CLEARANCE BETWEEN THE ELEVATOR AND THE HINGES ON THE HORIZONTAL STABILIZER. THE BOLTS OR OTHER FITTINGS CAN BE DAMAGED IF THEY HIT A HINGE. ALSO, THE PAINT ON THE HINGE CAN BE DAMAGED WHICH WILL CAUSE CORROSION. THE HINGES SHOWN IN (FIGURE 402) (VIEWS D, F AND I) HAVE THE SMALLEST CLEARANCE.

(a) Use the sling equipment, SPL-1702 to lift the elevator assembly [1] elevator to its position on the horizontal stabilizer.

NOTE: The elevator must be held by the sling equipment, SPL-1702, and not be removed until the elevator PCUs are connected.

(b) Install the bolt [44], washer [72] (at the bolt head), bushing [46], and spacer [43] (View F) (Figure 402).

NOTE: Install all of the bolts before you install the nuts.

(c) Install the bolt [26], washer [22] (at the bolt head), and bushing [28] (View G) (Figure 402).

(d) Install the bolt [21], washer [22] (at the bolt head), and bushing [23] (View B) (Figure 402).

(e) Install the bolt [26], washer [22] (at the bolt head), and bushing [28] (View C) (Figure 402).

(f) Install the bolt [78], washer [75] (at the bolt head), and bushing [79] (View M) (Figure 402).

(g) Install the bolt [54], washer [55] (at the bolt head), and bushing [56] (View H) (Figure 402).

(h) Install the bolt [59], washer [75] (at the bolt head), and bushing [61] (View I) (Figure 402).

(i) Install the bolt [64], washer [55] (at the bolt head), and bushing [56] (View J) (Figure 402).

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(j) After the installation of the above bolts but before the installation of the nuts, make sure that each bolt is able to rotate under a maximum applied torque of 100 in-lb (11 N·m).

(k) Put the locknut [32] on the bushing [31] and install the bushing [31] (View D and L) (Figure 402). Tighten the bushing [31] with your fingers, do not use a wrench.

1) Adjust the bushing [31] until it seats against the horizontal stabilizer bearing with finger pressure only.

2) Tighten the locknut [32] to 450 in-lb (51 N·m) to 540 in-lb (61 N·m).

(l) Install washers [24] and nuts [25] on the bolts in Views G, B, and C. Tighten these nuts to 500 in-lb (56 N·m) to 560 in-lb (63 N·m).

(m) Install washer [73] and nut [74] on the bolts in View F. Tighten these nuts to 620 in-lb (70 N·m) to 670 in-lb (76 N·m).

(n) Install washers [76] and nuts [77] on the bolts in Views I and M. Tighten these nuts to 200 in-lb (23 N·m) to 260 in-lb (29 N·m).

(o) Install washer [57] and nut [58] on the bolts in Views H and J. Tighten these nuts to 150 in-lb (17 N·m) to 200 in-lb (23 N·m).

(p) Install the bolt [33], washer [34] (at the bolt head), bushing [35], washer [36] (at the nut), and nut [37] (View D and L) (Figure 402). Tighten the nut [37] to 620 in-lb (70 N·m) to 670 in-lb (76 N·m).

NOTE: Lockwire and seal will be applied on locknut [32] and bushing [31] after the step to check the elevator hinges for binding.

(q) Do this step to make sure that the bearings in each of the elevator hinges is free:

CAUTION

DO NOT TURN THE ELEVATOR MORE THAN 27 ° BELOW NEUTRAL OR 33 ° ABOVE NEUTRAL. DAMAGE TO THE ELEVATOR CAN OCCUR IF THE ELEVATOR IS TURNED MORE THAN 27 ° BELOW NEUTRAL OR 33 ° ABOVE NEUTRAL.

1) Apply sufficient force to turn the elevator around its hinges to do a check for binding.

NOTE: The force should be distributed over one square foot (0.093 square meter), centered 22 inches (0.559 meter) aft of the hingeline at elevator station 258. Also, the force should not be more than 309 pounds (1375 newtons).

(r) Install MS20995C32 lockwire, G01048 on the locknut [32] and the bushing [31].

NOTE: Put lockwire on the locknut [32] to prevent counterclockwise rotation. Put lockwire on the bushing [31] to prevent clockwise and counterclockwise rotation.

(s) Apply sealant, A00247 into the lockwire hole and then a layer of sealant, A00247 around the hole inboard and outboard exits.

NOTE: The hole is where the lockwire meets from the locknut [32], bushing [31], and the stationary nut.

(t) Do these steps to install or connect the bonding jumpers to the horizontal stabilizer, (View K, Figure 402).

1) Install the bonding jumper [69], and bonding jumper [70] in accordance with Category 2 Fay Sealed Direct Standard Ground Stud Installation (SWPM 20-20-10).

2) Measure the electrical bond resistance across the jumpers using intrinsically safe approved bonding meter, COM-1550.

a) Measure between the two brackets on the elevator assembly and the stabilizer structure that the bonding jumpers are connected to.

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b) Make sure that the maximum bond resistance is not more than 0.001 ohms.

(u) Do these steps to connect the elevator PCUs and the reaction links to the elevator, (View E) (Figure 402).

1) Install the bolts [38], washers [49] (at the bolt head), and bushing [40].

NOTE: The use of grease, D00633 to help with the installation of the bushings [40], is allowed.

NOTE: Also, install the bolts [38] with the bolt heads on the outboard side.

2) Install the washers [41] and the nuts [42].

a) Tighten the nuts [42] to 2500 to 2750 pound-inches or 208 to 230 pound-feet (282.5 to 311 newton-meters).

SUBTASK 27-31-10-080-001

(3) Do these steps to remove the sling equipment, SPL-1702, from the elevator assembly [1]:

(a) Disconnect the sling assembly from the clamp and the hoist ring assemblies.

(b) Remove the clamp and the hoist ring assemblies from the elevator.

SUBTASK 27-31-10-640-002

(4) Do this task: Elevator Power Control Units (PCUs) - Lubrication, TASK 12-21-04-600-801.

SUBTASK 27-31-10-420-003

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	7	CBA7-C	ELEV PCU

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	7	CBA7-L	ELEV PCU

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	7	CBA7-R	ELEV PCU

SUBTASK 27-31-10-820-001

(6) Do this task: Elevator Adjustment (Rigging), TASK 27-31-00-800-801.

SUBTASK 27-31-10-410-001

(7) If you installed the left elevator, close these access panels:

Number	Name/Location
335CB	Horizontal Stabilizer Trailing Edge Panel
335DB	Horizontal Stabilizer Trailing Edge Panel
335EXB	Horizontal Stabilizer Trailing Edge Panel
335GXB	Horizontal Stabilizer Trailing Edge Panel
335JB	Horizontal Stabilizer Trailing Edge Panel
335KB	Horizontal Stabilizer Trailing Edge Panel

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(Continued)

Number	Name/Location
335LB	Horizontal Stabilizer Trailing Edge Panel

SUBTASK 27-31-10-410-002

(8) If you installed the right elevator, close these access panels:

Number	Name/Location
345CB	Horizontal Stabilizer Trailing Edge Panel
345DB	Horizontal Stabilizer Trailing Edge Panel
345EXB	Horizontal Stabilizer Lower Trailing Edge Panel
345GXB	Horizontal Stabilizer Trailing Edge Cover Panel
345JB	Horizontal Stabilizer Trailing Edge Panel
345KB	Horizontal Stabilizer Trailing Edge Panel
345LB	Horizontal Stabilizer Trailing Edge Panel

SUBTASK 27-31-10-840-006

(9) On the P61 panel, move the FLT CONTROL HYD POWER - TAIL switches to the NORM position.

SUBTASK 27-31-10-720-001

(10) Do this task: Elevator Power Control Unit Test, TASK 27-31-00-700-801.

——— END OF TASK ———

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PITCH RATE SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a pitch rate sensor

(2) An installation of a pitch rate sensor.

B. In this procedure, the pitch rate sensor is referred to as the sensor assembly [1].

C. This procedure is applicable for the four pitch rate sensor assemblies [1].

TASK 27-31-11-000-801

2. Pitch Rate Sensor - Removal

(Figure 401)

A. General

(1) There are four pitch rate sensor assemblies [1] on the airplane. The sensors are unique to the 777-300 airplanes. Each sensor supplies pitch rate information to one of the actuator control electronics (ACE) units. The sensors are located behind the endwall in the aft end of the front cargo compartment. Pitch rate sensor left 1 and left 2 are located at approximately STA 1030, WL 170 and BL L85. Pitch rate sensor right 1 and right 2 are located at approximately STA 1030, WL 180 and BL R85.

B. References

Reference	Title
25-52-17-000-801	Forward Cargo Compartment Aft End Wall Removal (P/B 401)

C. Location Zones

Zone	Area
125	Area Aft of Forward Cargo Compartment, Left
126	Area Aft of Forward Cargo Compartment, Right

D. Access Panels

Number	Name/Location
122AR	Forward Cargo Door Control Door

E. Prepare for the Removal

SUBTASK 27-31-11-010-001

(1) Open this access panel, to get access to the forward cargo compartment:

Number	Name/Location
122AR	Forward Cargo Door Control Door

SUBTASK 27-31-11-010-002

(2) To remove the endwall panel, do this task: Forward Cargo Compartment Aft End Wall Removal, TASK 25-52-17-000-801.

SUBTASK 27-31-11-860-001

(3) Remove the electrical power to the sensor assembly [1] that you will remove:

(a) If you will remove the pitch rate left 1 sensor,

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1) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

(b) If you will remove the pitch rate left 2 sensor,

Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(c) If you will remove the pitch rate right 1 sensor,

1) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(d) If you will remove the pitch rate right 2 sensor,

1) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

F. Pitch Rate Sensor Removal

SUBTASK 27-31-11-020-001

(1) Disconnect the electrical connector [5] from the sensor assembly [1].

SUBTASK 27-31-11-020-002

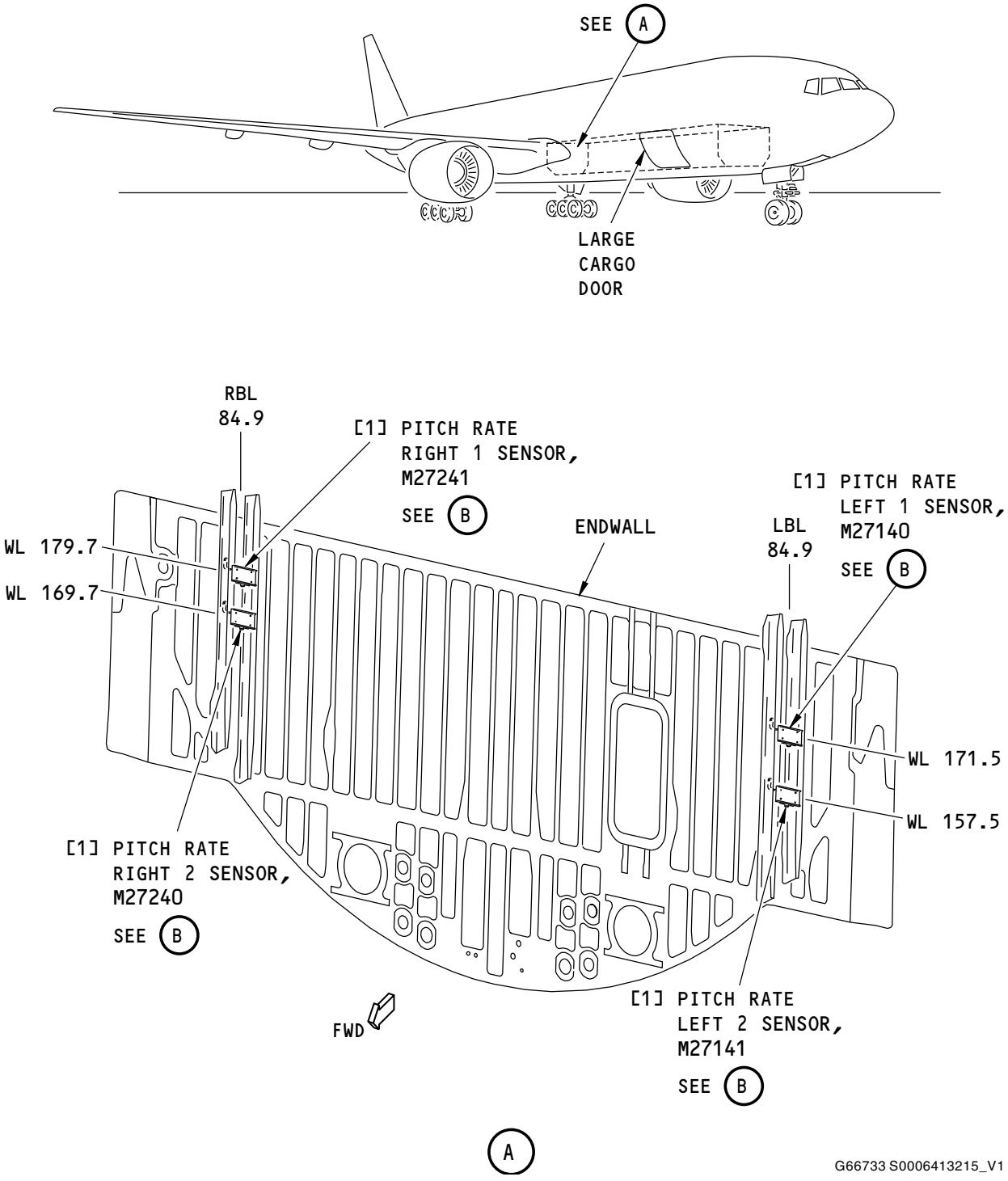
(2) Remove the nut [4], washer [3] and jumper strap [2] from the sensor assembly [1].

SUBTASK 27-31-11-020-003

(3) Remove the four screws [6] and nuts [7] that attach the sensor assembly [1] to the bracket.

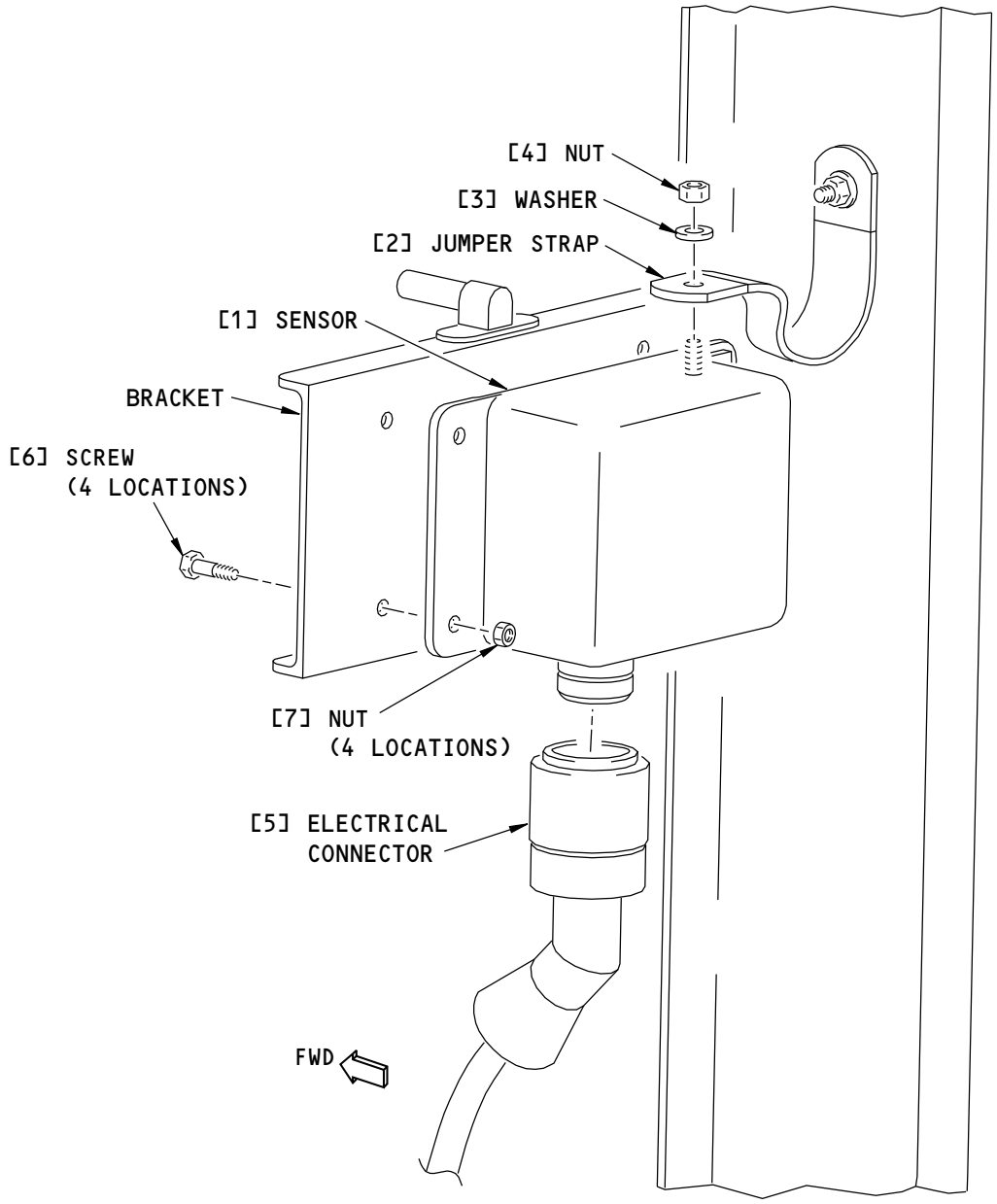
——— END OF TASK ———

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Pitch Rate Sensor Installation
Figure 401/27-31-11-990-801 (Sheet 1 of 2)

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SENSOR
(EXAMPLE, 4 LOCATIONS)

B

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Pitch Rate Sensor Installation
Figure 401/27-31-11-990-801 (Sheet 2 of 2)

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TASK 27-31-11-400-801

3. Pitch Rate Sensor - Installation

(Figure 401)

A. General

(1) There are four pitch rate sensors assemblies [1]. Each sensor supplies pitch rate information to one of the actuator control electronics (ACE) units. The sensors are located behind the endwall in the aft end of the front cargo compartment. Pitch rate sensors left 1 and left 2 are located at approximately STA 1030, WL 170 and BL L85. Pitch rate sensors right 1 and right 2 are located at approximately STA 1030, WL 180 and BL R85.

B. References

Reference	Title
05-55-53-200-801	HIRF/Lightning Protection - Pitch Rate Sensor Bundles - Inspection/Check (P/B 601)
05-56-03-760-801	Joint Resistance Measurement (P/B 201)
25-52-17-400-801	Forward Cargo Compartment Aft End Wall Installation (P/B 401)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Sensor assembly	27-31-11-01-055	ARO ALL
		27-31-11-01-060	ARO ALL
		27-51-05-10-038	ARO ALL

D. Location Zones

Zone	Area
125	Area Aft of Forward Cargo Compartment, Left
126	Area Aft of Forward Cargo Compartment, Right

E. Access Panels

Number	Name/Location
122AR	Forward Cargo Door Control Door

F. Pitch Rate Sensor Installation

SUBTASK 27-31-11-420-001

(1) Put the sensor assembly [1] in its position on the mounting bracket.

NOTE: Refer to decal on the front of the bracket for instructions on orientation of the sensor.

SUBTASK 27-31-11-420-002

(2) Attach the sensor assembly [1] to the bracket with the four screws [6] and nuts [7].

SUBTASK 27-31-11-420-003

(3) Connect the jumper strap [2] to the sensor assembly [1] with washer [3] and nut [4].

SUBTASK 27-31-11-420-004

(4) Connect the electrical connector [5] to the sensor assembly [1] .

SUBTASK 27-31-11-760-001

(5) Do a check of the pitch rate sensor loop resistance for each pitch rate sensor (PRS) that you installed. Do this task: HIRF/Lightning Protection - Pitch Rate Sensor Bundles - Inspection/Check, TASK 05-55-53-200-801.

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SUBTASK 27-31-11-765-001

(6) Do a check of the bonding resistance for each PRS that you installed. Do this task: Joint Resistance Measurement, TASK 05-56-03-760-801.

SUBTASK 27-31-11-860-002

(7) Supply electrical power to the sensor assembly [1]:

(a) If you removed the pitch rate left 2 sensor,

1) Close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

(b) If you removed pitch rate left 1 sensor,

1) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR

(c) If you removed the pitch rate right 1 sensor,

1) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

(d) If you removed the pitch rate right 2 sensor,

1) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

SUBTASK 27-31-11-730-001

(8) Use the MAT to do the system test of the sensor assembly [1], (TASK 45-10-00-740-819):

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TEST
6) PITCH RATE SENSORS
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

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2) START TEST

NOTE: To stop the test, select "STOP TEST". This will cause the flight controls to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition.

(c) When the test is completed, make sure PASSED is shown adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

G. Put the Airplane Back to its Usual Condition

SUBTASK 27-31-11-410-001

(1) Install the backwall panel in the cargo compartment area. To install it, do this task: Forward Cargo Compartment Aft End Wall Installation, TASK 25-52-17-400-801.

SUBTASK 27-31-11-410-002

(2) Close this access panel:

Number	Name/Location
122AR	Forward Cargo Door Control Door

END OF TASK

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ALTERNATE GEAR DOWN DISPATCH SWITCH GUARD - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Removal of the alternate gear down dispatch switch guard.

(2) Installation of the alternate gear down dispatch switch guard.

TASK 27-32-01-000-801

2. Alternate Gear Down Dispatch Switch - Removal

Figure 401

A. General

(1) This task includes the steps to remove the switch guard [1] for the alternate gear down dispatch switch.

B. Location Zones

Zone	Area
118	Main Equipment Center, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Prepare for the Removal

SUBTASK 27-32-01-010-002

(1) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

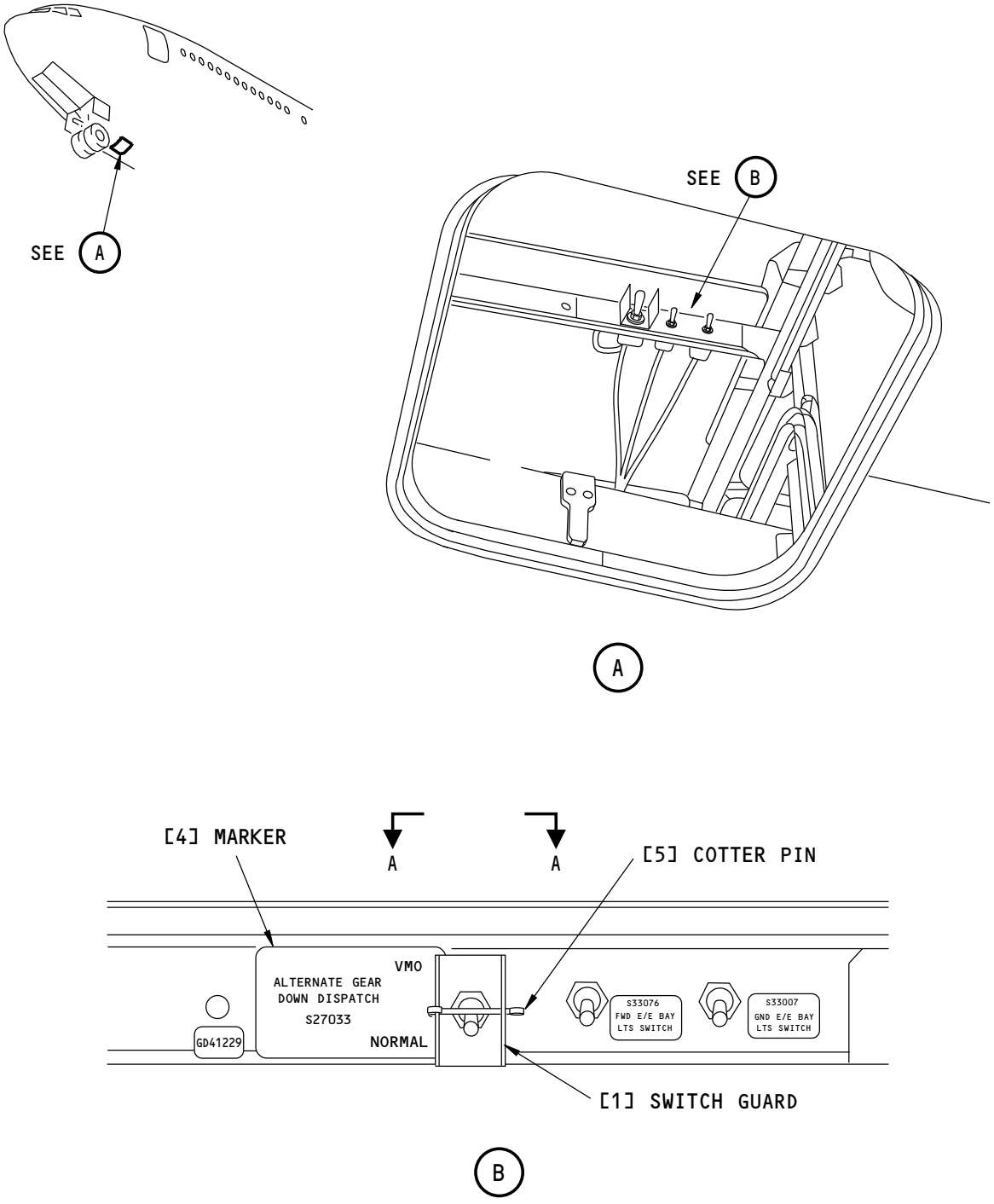
E. Alternate Gear Down Dispatch Switch Guard Removal

SUBTASK 27-32-01-020-001

(1) Remove the nut [3], lock washer [2] and switch guard [1].

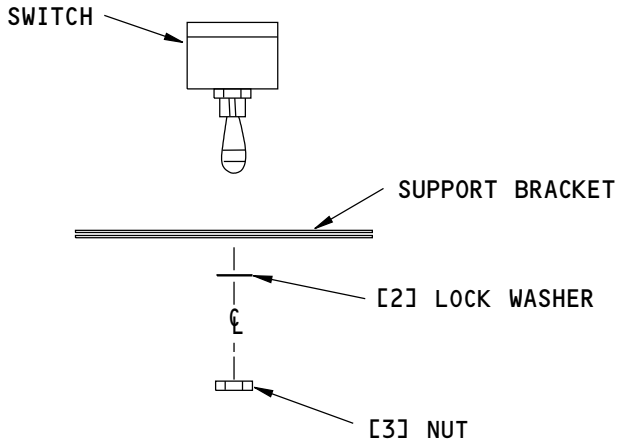
END OF TASK

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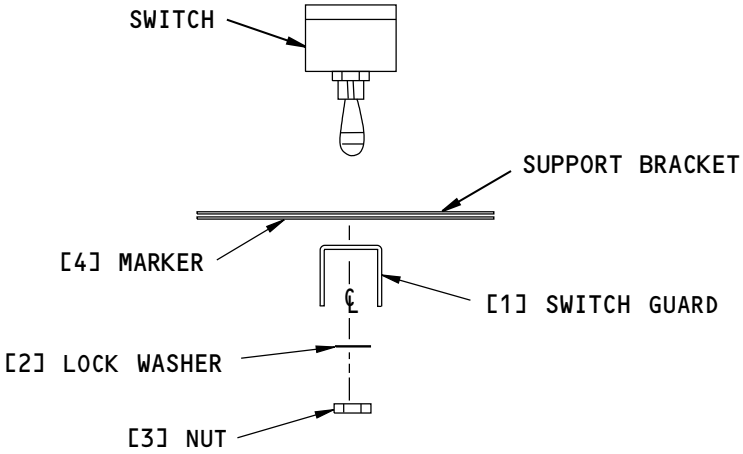


Alternate Gear Down Dispatch Switch Guard Installation
Figure 401/27-32-01-990-802 (Sheet 1 of 2)

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(SWITCH GUARD NOT INSTALLED)
A–A



(SWITCH GUARD INSTALLED)
A–A

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Alternate Gear Down Dispatch Switch Guard Installation
Figure 401/27-32-01-990-802 (Sheet 2 of 2)

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TASK 27-32-01-400-801

3. Alternate Gear Down Dispatch Switch - Installation

Figure 401

A. General

(1) This task includes the steps to install the switch guard [1] for the alternate gear down dispatch switch.

B. Location Zones

Zone	Area
118	Main Equipment Center, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Prepare for the Installation

SUBTASK 27-32-01-010-001

(1) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Alternate Gear Down Dispatch Switch Guard Installation

SUBTASK 27-32-01-420-001

(1) Do these steps to install the switch guard [1] for the alternate gear down dispatch switch:

(a) Install the marker [4].

1) If applicable, first remove the old marker.

(b) Install the switch guard [1], lock washer [2], and nut [3].

(c) Install the cotter pin [5].

1) Bend the longest leg of the cotter pin [5] around the flange of switch guard [1] to prevent cotter pin [5] rotation.

2) If necessary, trim the end of the cotter pin [5] to prevent snags.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-32-01-410-001

(1) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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STICK SHAKER ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the stick shaker actuator

(2) An installation of the stick shaker actuator.

B. In this procedure the stick shaker actuator is referred to as the motor [1].

TASK 27-32-05-000-801

2. Stick Shaker Actuator Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-32-05-040-001

(1) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	2	C27001	STICK SHAKER-L
C	15	C27616	STICK SHAKER-R

SUBTASK 27-32-05-010-001

(2) Get access to the area forward of the nose landing gear wheel well through this access panel:

Number	Name/Location
112AL	Forward Access Door

D. Stick Shaker Actuator Removal

SUBTASK 27-32-05-020-002

(1) Remove the nuts [4], washers [3], and bolts [2].

SUBTASK 27-32-05-020-004

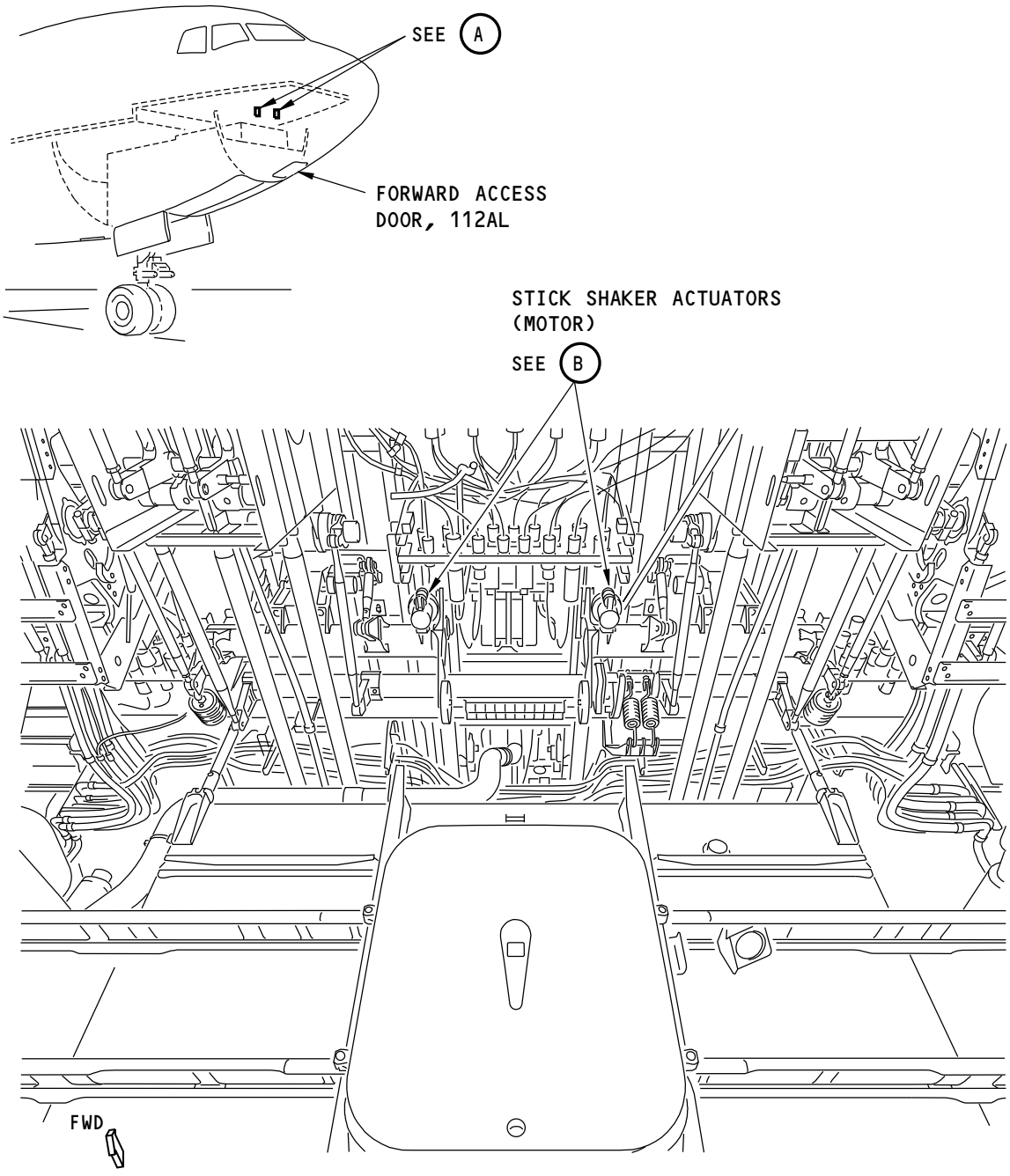
(2) Move the motor [1] down and disconnect the electrical connector from it.

SUBTASK 27-32-05-020-003

(3) Remove the motor [1].

——— END OF TASK ———

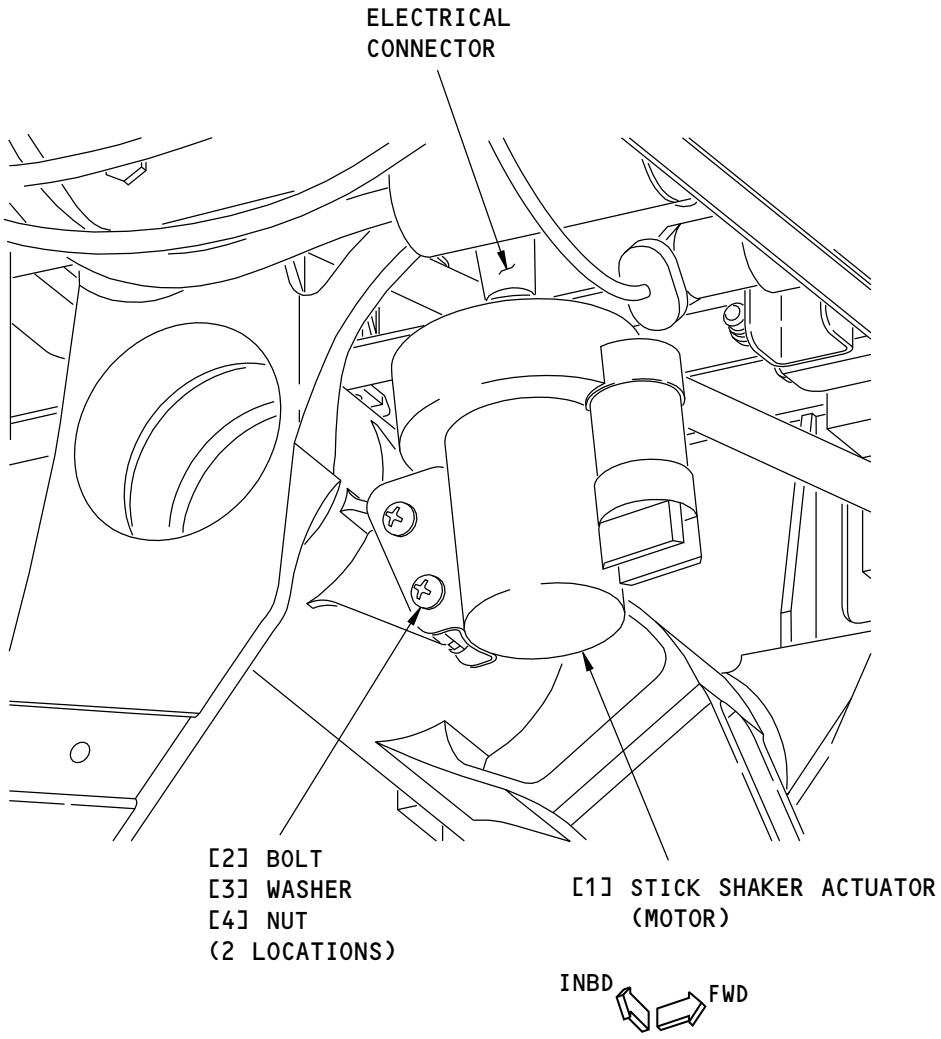
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Stick Shaker Actuator Installation
Figure 401/27-32-05-990-801 (Sheet 1 of 2)

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STICK SHAKER ACTUATOR
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

B

D21064 S0006413223_V1

Stick Shaker Actuator Installation
Figure 401/27-32-05-990-801 (Sheet 2 of 2)

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TASK 27-32-05-400-801

3. Stick Shaker Actuator Installation

(Figure 401)

A. References

Reference	Title
31-51-00-730-801	Warning Electronic System - System Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Motor	27-32-05-01-020	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Stick Shaker Actuator Installation

SUBTASK 27-32-05-420-001

(1) Do these steps to install the stick shaker actuator (referred to as the motor [1]):

(a) Connect the motor [1] to the electrical connector.

(b) Put the motor [1] in its position.

(c) Install the bolts [2], the washers [3], and the nuts [4].

SUBTASK 27-32-05-210-001

(2) Move the control column through its full travel.

(a) Make sure the wiring for the motor [1] moves freely.

SUBTASK 27-32-05-440-001

(3) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	2	C27001	STICK SHAKER-L
C	15	C27616	STICK SHAKER-R

SUBTASK 27-32-05-720-001

(4) Do the stall warning test, do this task: Warning Electronic System - System Test, TASK 31-51-00-730-801.

SUBTASK 27-32-05-410-001

(5) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

——— END OF TASK ———

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HORIZONTAL STABILIZER CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Stabilizer Control Cable Adjustment - Use this procedure to adjust the cables that connect the pitch trim levers to the stabilizer trim control module (STCM). They must be adjusted to the correct length and tension.

(2) Stabilizer Trim Control Module Adjustment (rigging) - Use this procedure to adjust the control rods that are connected to the stabilizer trim control modules (STCMs).

(3) Alternate Pitch Trim Lever Adjustment - Use this procedure to adjust the alternate pitch trim levers on the control stand.

(4) Stabilizer System Test - Use this test to make sure these parts of the stabilizer system, that are controlled by the primary flight computers (PFCs), operate correctly: The speed that the stabilizer moves, the output of the position transducers, the operation of the parts of the stabilizer trim control, modules (STCMs) that are controlled by the PFCs (such as the solenoid valves), the electrical travel limits for the stabilizer. Use the other tests listed here for the other parts of the system.

(5) Alternate Pitch Trim Lever Position Switch Test - Use this procedure to make sure the position switches for the ALTN PITCH TRIM levers operate correctly. The position switches send signals to the PFCs that the pilot has moved the ALTN PITCH TRIM levers.

(6) Pitch Trim Switch Test - Use this procedure to make sure the pitch trim switches operate correctly. The pitch trim switches send signals to the actuator control electronics (ACEs) to move the horizontal stabilizer.

(7) Alternate Pitch Trim Operational Test - Use this test to make sure the pitch trim levers control the horizontal stabilizer correctly.

(8) Alternate Pitch Trim Lever Force Test - Use this test to make sure the alternate pitch trim levers move with the correct force.

(9) Stabilizer Limit Switch Test - Use this test to make sure the limit switches for the stabilizer operate correctly. The limit switches are in the stabilizer position modules.

(10) Stabilizer Mechanical Limit Test - Use this test to make sure the horizontal stabilizer has the correct travel limits when it is operated from the alternate pitch trim levers.

(11) Stabilizer Mechanical Trim Rate Test - Use this test to make sure the horizontal stabilizer moves at the correct speed when it is operated from the alternate pitch trim levers.

(12) Stabilizer Mechanical Override Test - Use this test to make sure the horizontal stabilizer follows the commands from the alternate pitch trim levers, even if the pitch trim switches give the opposite command.

(13) Stabilizer Secondary Brake Test - Use this test to make sure the stabilizer secondary brake can prevent movement of the horizontal stabilizer.

(14) Stabilizer Cutout Test - Use this test to make sure the stabilizer cutout switches and valves work correctly. They stop the flow of hydraulic power to the horizontal stabilizer.

(15) Horizontal Stabilizer Trim Actuator Freeplay Test - Use this test to check the freeplay between the horizontal stabilizer trim actuator and the ballscrew.

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TASK 27-41-00-800-801

2. Stabilizer Control Cable Adjustment

A. General

(1) Use this procedure to adjust the cables that connect the pitch trim levers to the stabilizer trim control module. They must be adjusted to the correct length and tension.

B. References

Reference	Title
25-52-06-000-801	Sidewall Liner Removal (P/B 401)
25-52-06-400-801	Sidewall Liner Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1554	Tensiometer - Cable, High Tension (200 lbs and above) Part #: 102-03120 Supplier: 21844 Part #: ACM-300 Supplier: 13331 Part #: ACM-600 Supplier: 13331 Part #: T5-8008-106-00 Supplier: 0N8U4 Part #: T60-1001-C9-1A Supplier: 0N8U4
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
112AL	Forward Access Door
311BL	Service Access Door

F. Procedure

SUBTASK 27-41-00-840-001

(1) Put the STAB CUTOUT switches on the control stand in the CUTOUT position.

SUBTASK 27-41-00-840-002

(2) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) on the E5-1 rack

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 rack

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1) CBB2, STAB TRIM CTRL-C

SUBTASK 27-41-00-010-001

(3) Get access to the forward and aft quadrants:

(a) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

(b) Open this access panel:

Number	Name/Location
311BL	Service Access Door

(c) Install the ladder equipment, SPL-2011.

1) Install the service access door barrier, SPL-1976.

SUBTASK 27-41-00-840-003

(4) If you are to get access to the turnbuckles in the cargo area for the cables (ST1A, ST1B, ST2A and ST2B) (Figure 501) remove the applicable sidewall liners.

NOTE: Additional turnbuckles for cables ST1A, ST1B, ST2A and ST2B are located in the aft stabilizer compartment.

NOTE: ST1A turnbuckles are located at Sta 825+94.5, Sta 899.5, and Sta 1434+136.5.

ST1B turnbuckles are located at Sta 825+73.5, Sta 919.5, and Sta 1434+115.5

(a) Do this task: Sidewall Liner Removal, TASK 25-52-06-000-801.

SUBTASK 27-41-00-820-001

(5) If you installed a new cable, do these steps to stretch the cable:

NOTE: It is only necessary to do these steps for the set of cables (ST1A & ST1B or ST2A & ST2B) that has the new cable.

(a) Install rig pins ST3 and ST4 (from the rigging pin set, SPL-2532) in the aft quadrants.

(b) Tighten the turnbuckles on the cables until the high tension cable tensiometer, COM-1554 shows the tension in them is 200 ±10 pounds (890 ±45 newtons).

NOTE: Tighten the two cables such that the pitch trim levers on the control stand stay near their neutral position.

(c) If you are to stretch cables ST1A and ST1B, do the steps that follow:

1) Adjust the turnbuckles on cables ST1A and ST1B as necessary to install rig pin ST1 (from the rigging pin set, SPL-2532) in the left forward quadrant.

(d) If you are to stretch cables ST2A and ST2B, do the steps that follow:

1) Adjust the turnbuckles on cables ST2A and ST2B as necessary to install rig pin ST2 (from the rigging pin set, SPL-2532) in the right forward quadrant.

(e) Adjust all the seals during rigging to prevent bending of the cables:

1) Set the adjustable grommets to center on the cable.

(f) Remove rig pins ST1 through ST4.

(g) Move the pitch trim levers through their full travel approximately 25 times and check for the conditions that follow:

1) The cables do not touch the pulley or quadrant flanges

2) The cables are in 2 ° of the plane of the pulley or the quadrant

3) The pulleys turn freely with no interference from the guards

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4) The cables are installed through the grommets and the air pressure seals

5) The cables are not deflected by fairleads, rub strips or grommets from the rigged or the normal position.

SUBTASK 27-41-00-820-002

(6) Do these steps to adjust the cables to their correct position:

(a) Install rig pins ST3, and ST4.

(b) Adjust the turnbuckles on the control cables until these two conditions occur:

1) The cables have the correct tension as shown in (Figure 502).

2) You can easily install rig pins ST1 and ST2 in the forward quadrants (Figure 501).

(c) Remove all of the rig pins (ST1, ST2, ST3, and ST4).

(d) Move the pitch trim levers through their full travel 1 time.

1) Make sure the turnbuckle assemblies in the cables (ST1A, ST1B, ST2A and ST2B) do not move closer than 1.0 inch (25 mm) to fairleads, grommets or pulleys.

(e) Make sure the cables have the correct tension in them.

(f) Install clip locks on the turnbuckles.

G. Return the Airplane to Its Usual Condition

SUBTASK 27-41-00-840-004

(1) Do this task: Sidewall Liner Installation, TASK 25-52-06-400-801.

SUBTASK 27-41-00-020-001

(2) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-00-080-001

(3) Remove the service access door barrier, SPL-1976.

SUBTASK 27-41-00-410-001

(4) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-00-410-002

(5) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-41-00-840-005

(6) Put the STAB CUTOUT switches on the control stand to the NORM position.

SUBTASK 27-41-00-840-006

(7) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) on the E5-1 rack

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 rack

1) CBB2, STAB TRIM CTRL-C

SUBTASK 27-41-00-710-033

(8) Prior to releasing the airplane for flight, do this task: Alternate Pitch Trim Operational Test, TASK 27-41-00-700-804.

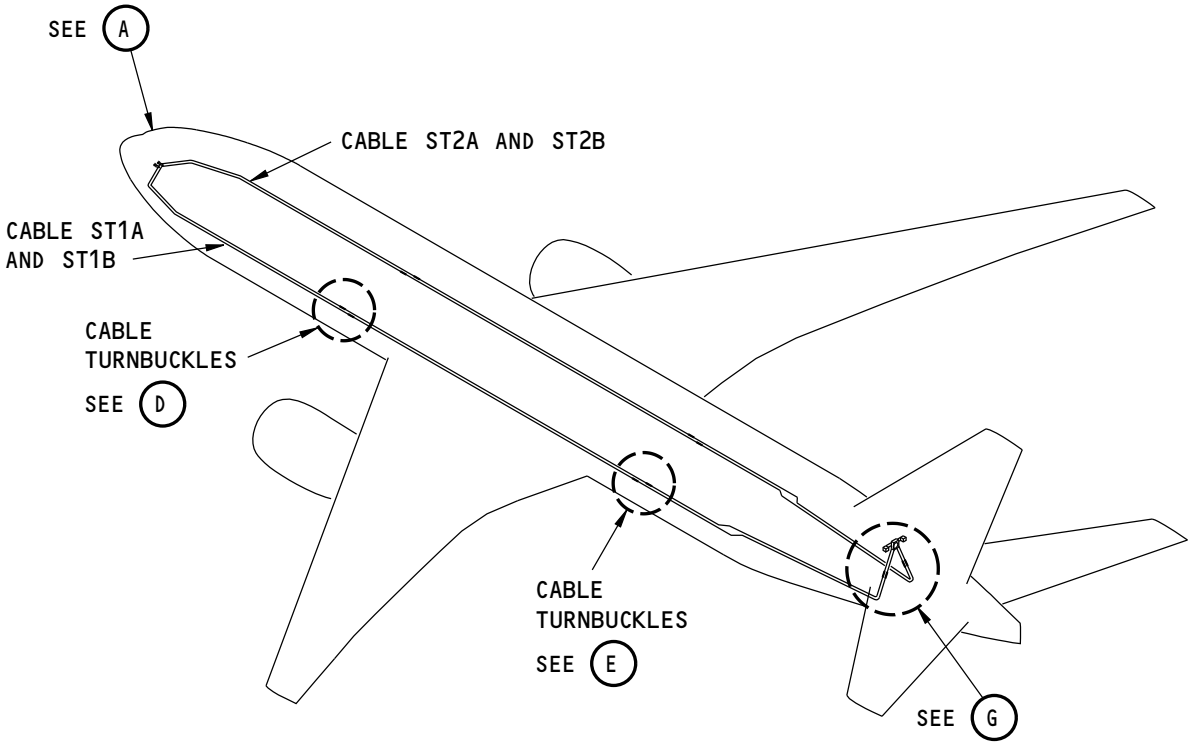
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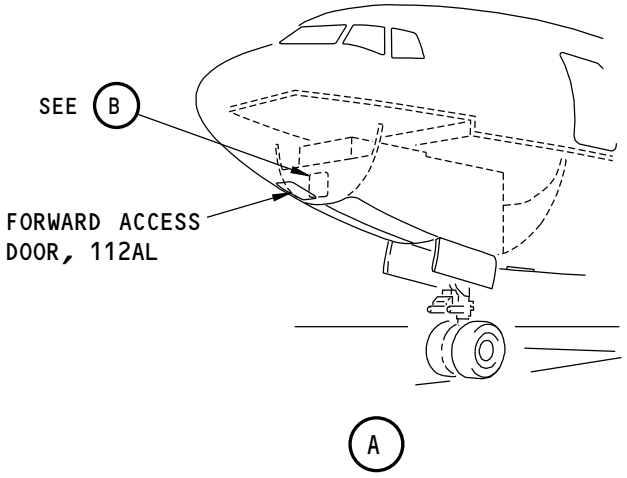
SUBTASK 27-41-00-710-034

(9) Prior to releasing the airplane for flight, do this task: Alternate Pitch Trim Lever Force Test, TASK 27-41-00-700-805.

——— END OF TASK ———

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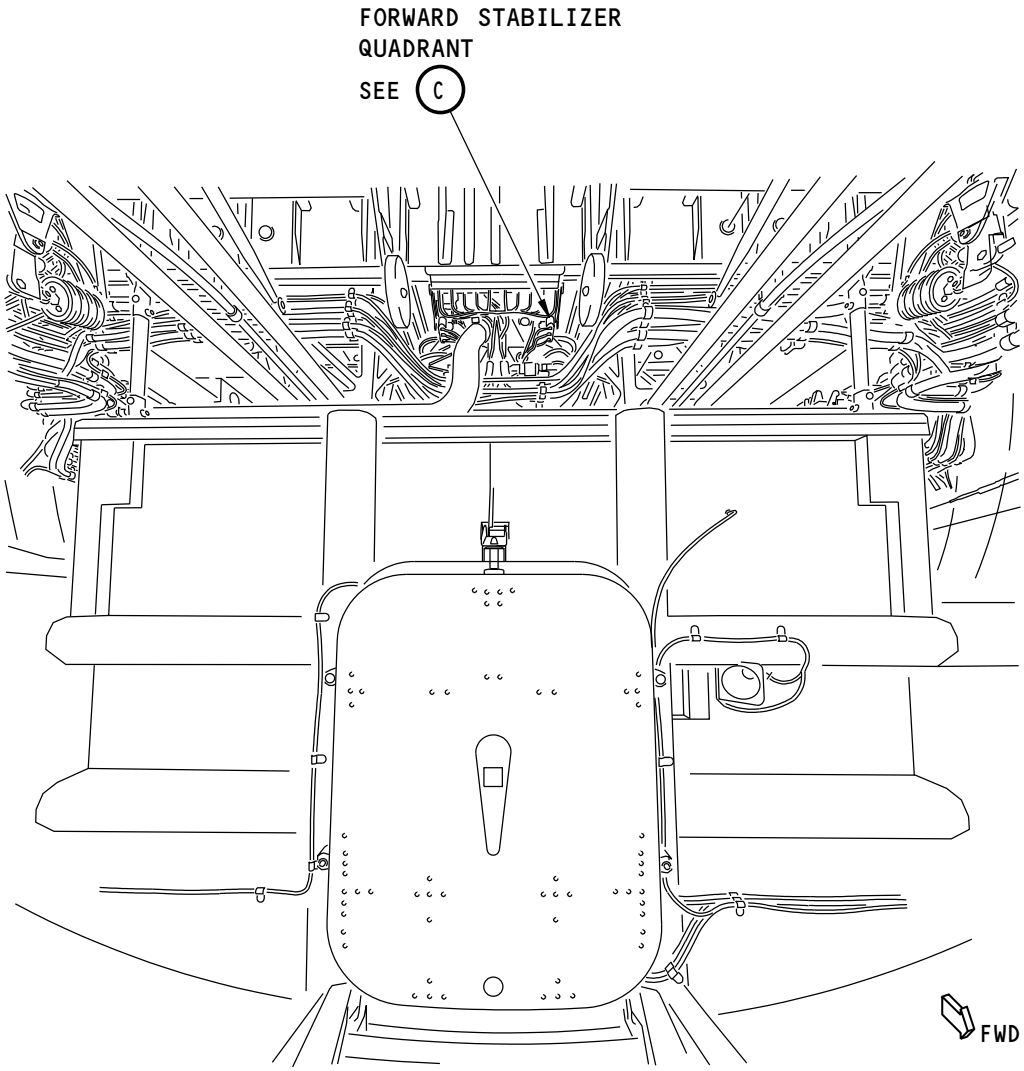




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Horizontal Stabilizer Cable, Rig Pin and Turnbuckle Locations
Figure 501/27-41-00-990-801 (Sheet 1 of 7)

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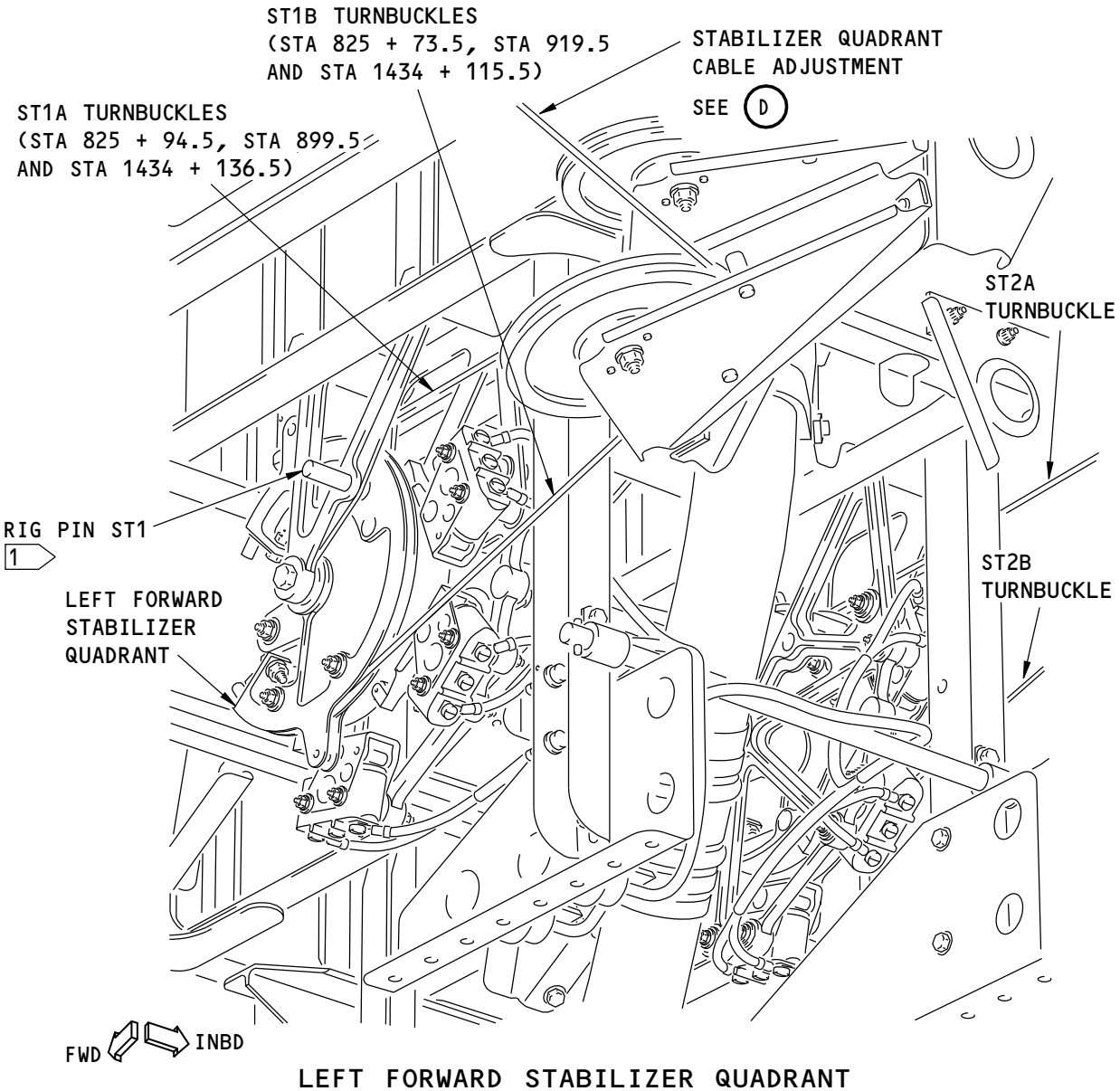


FORWARD BULKHEAD ACCESS DOOR
B

E30443 S0006413230_V1

Horizontal Stabilizer Cable, Rig Pin and Turnbuckle Locations
Figure 501/27-41-00-990-801 (Sheet 2 of 7)

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LEFT FORWARD STABILIZER QUADRANT
(RIGHT FORWARD STABILIZER QUADRANT IS EQUIVALENT)

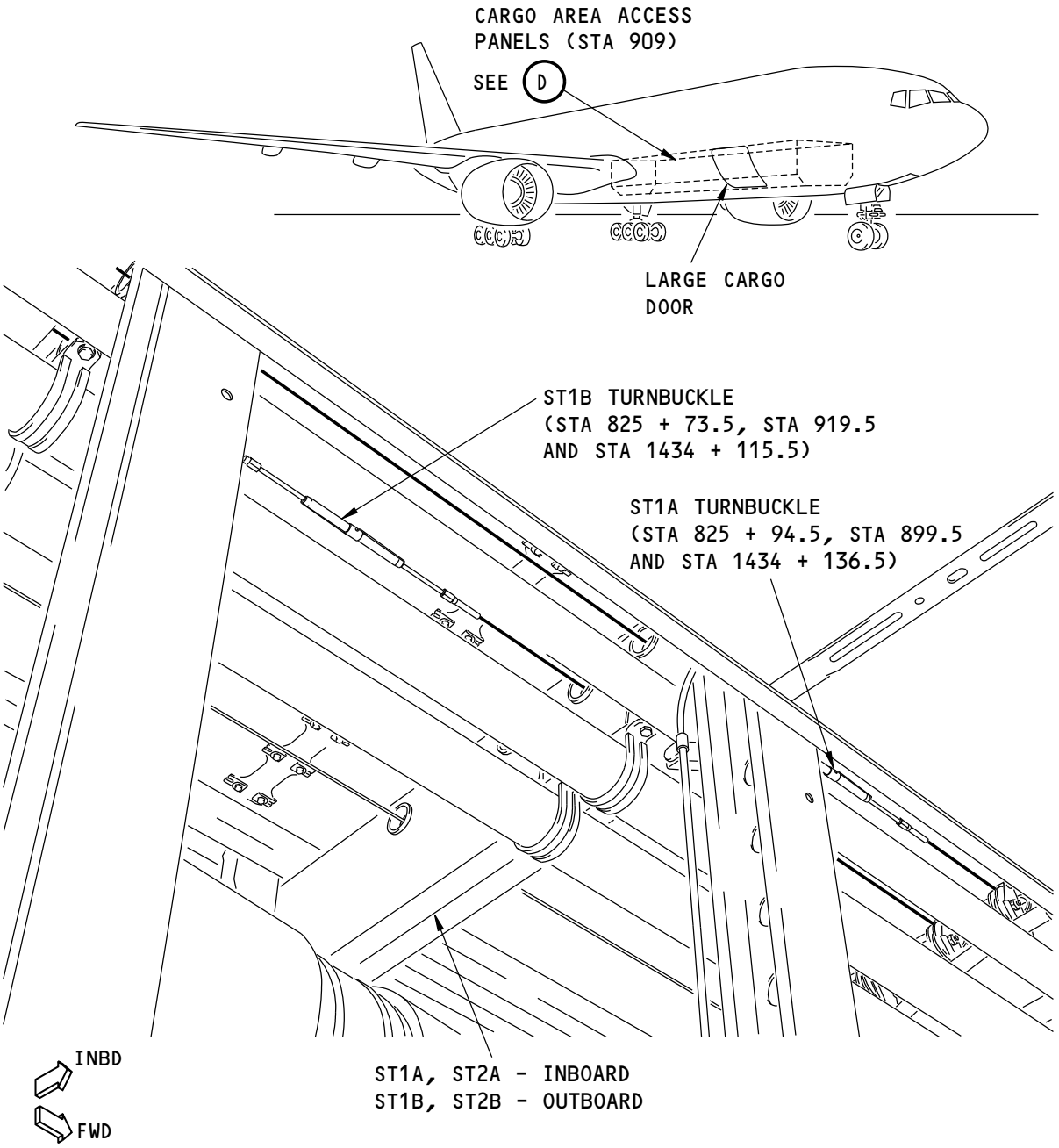
(C)

1 DURING THE CABLE ADJUSTMENT RIG PIN ST2 IS INSTALLED IN THE RIGHT FORWARD STABILIZER QUADRANT.

2073519 S0000430098_V1

Horizontal Stabilizer Cable, Rig Pin and Turnbuckle Locations
Figure 501/27-41-00-990-801 (Sheet 3 of 7)

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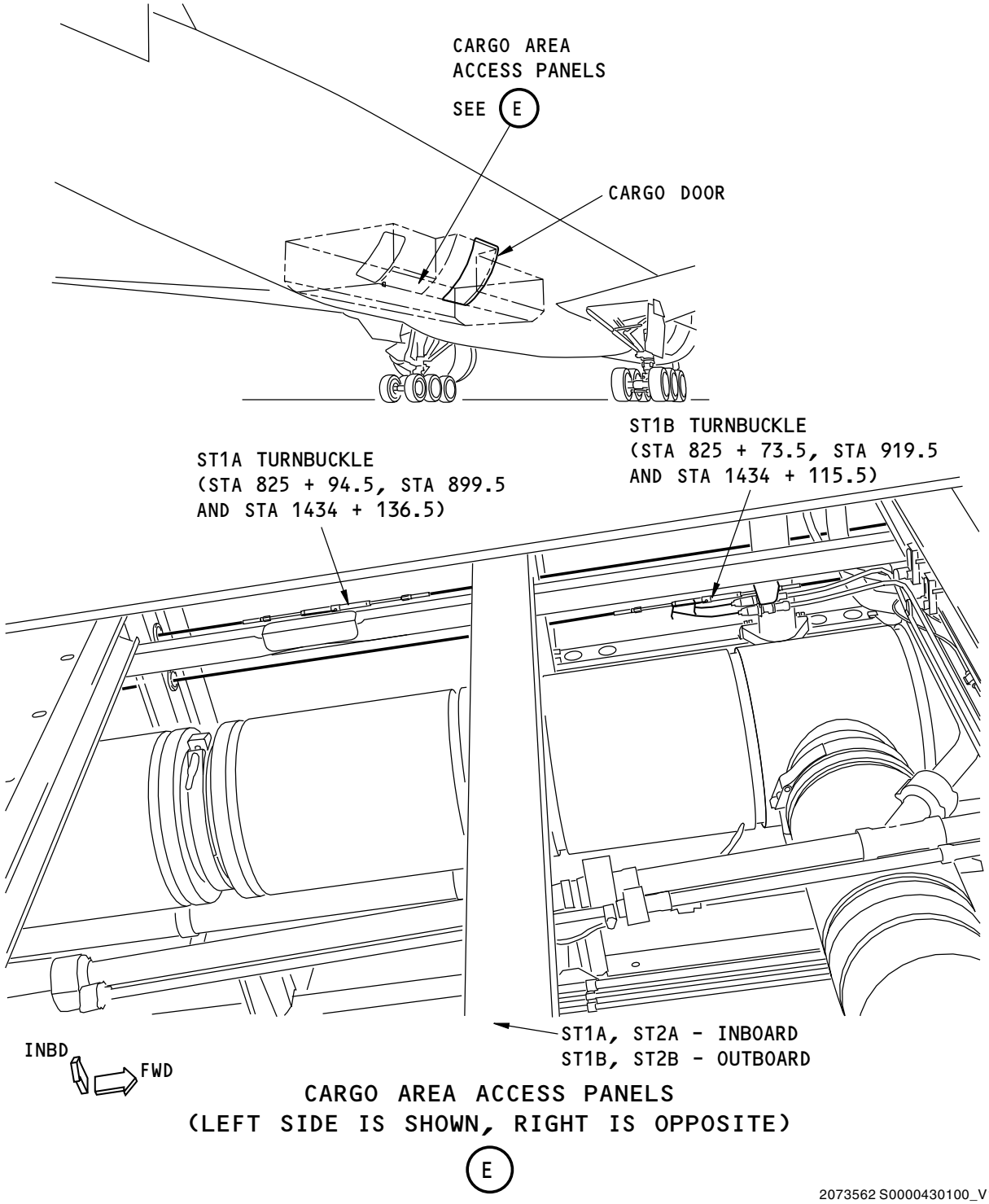
CARGO AREA ACCESS PANELS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

D

2073551 S0000430099_V1

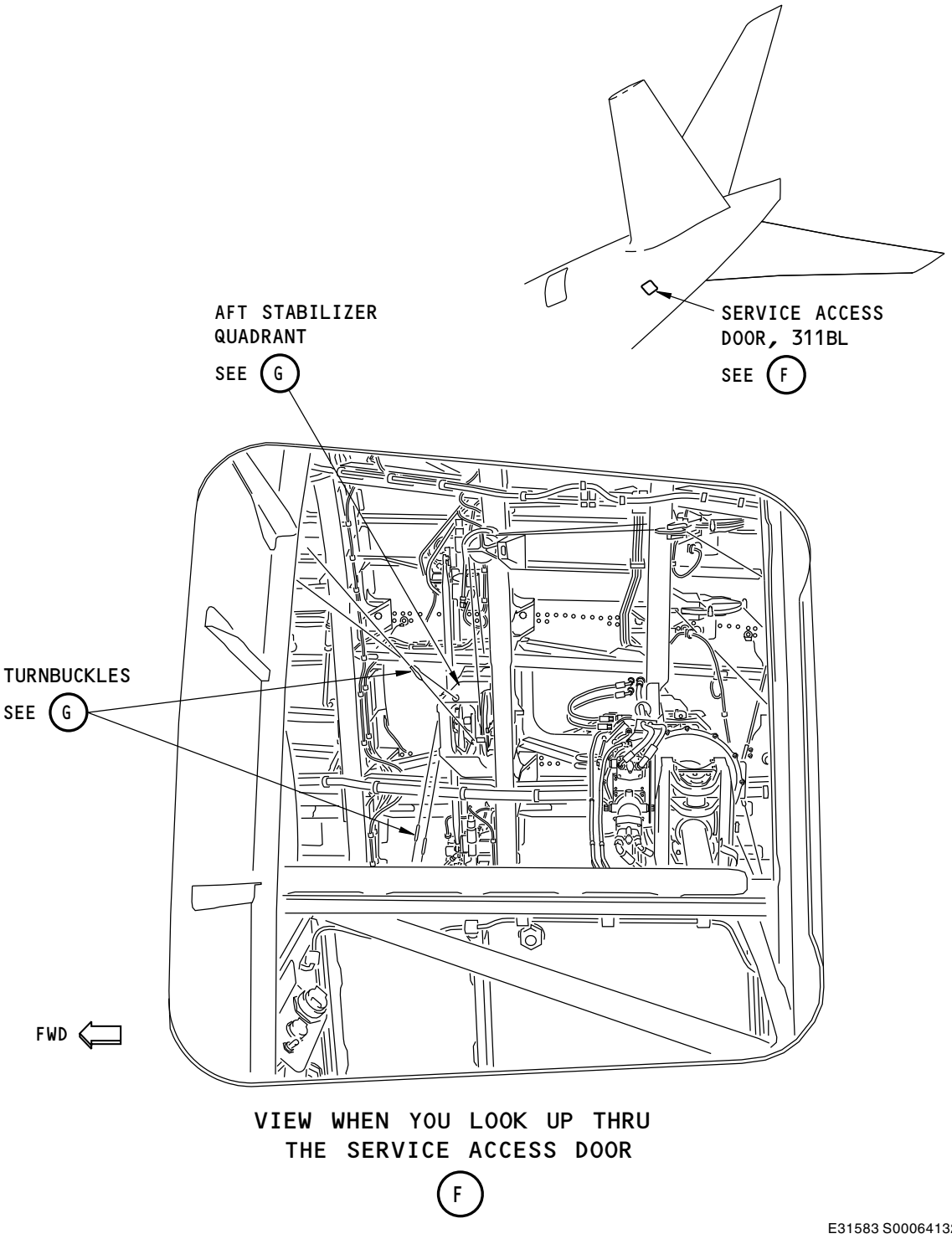
Horizontal Stabilizer Cable, Rig Pin and Turnbuckle Locations
Figure 501/27-41-00-990-801 (Sheet 4 of 7)

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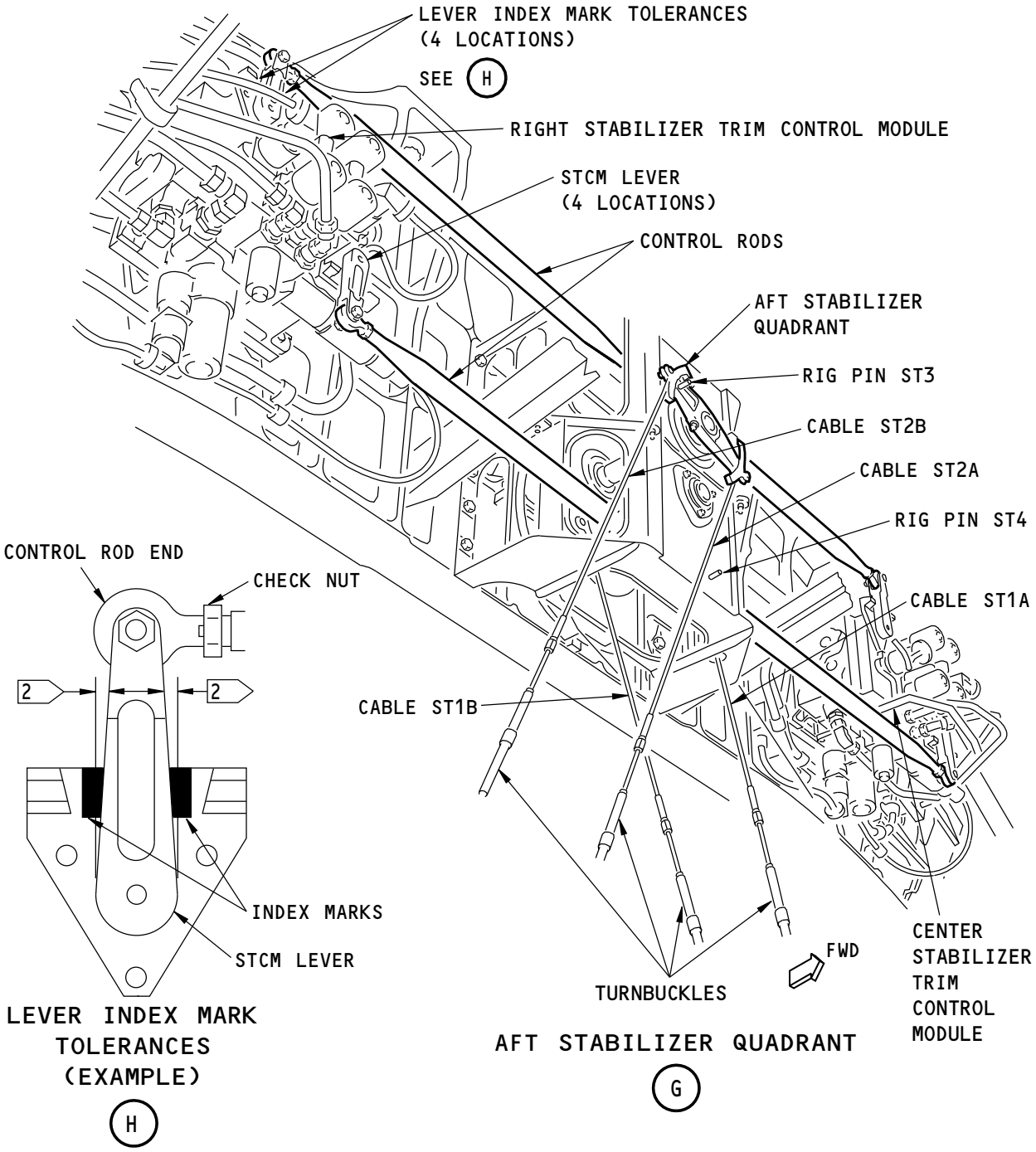
Horizontal Stabilizer Cable, Rig Pin and Turnbuckle Locations
Figure 501/27-41-00-990-801 (Sheet 5 of 7)

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Horizontal Stabilizer Cable, Rig Pin and Turnbuckle Locations
Figure 501/27-41-00-990-801 (Sheet 6 of 7)

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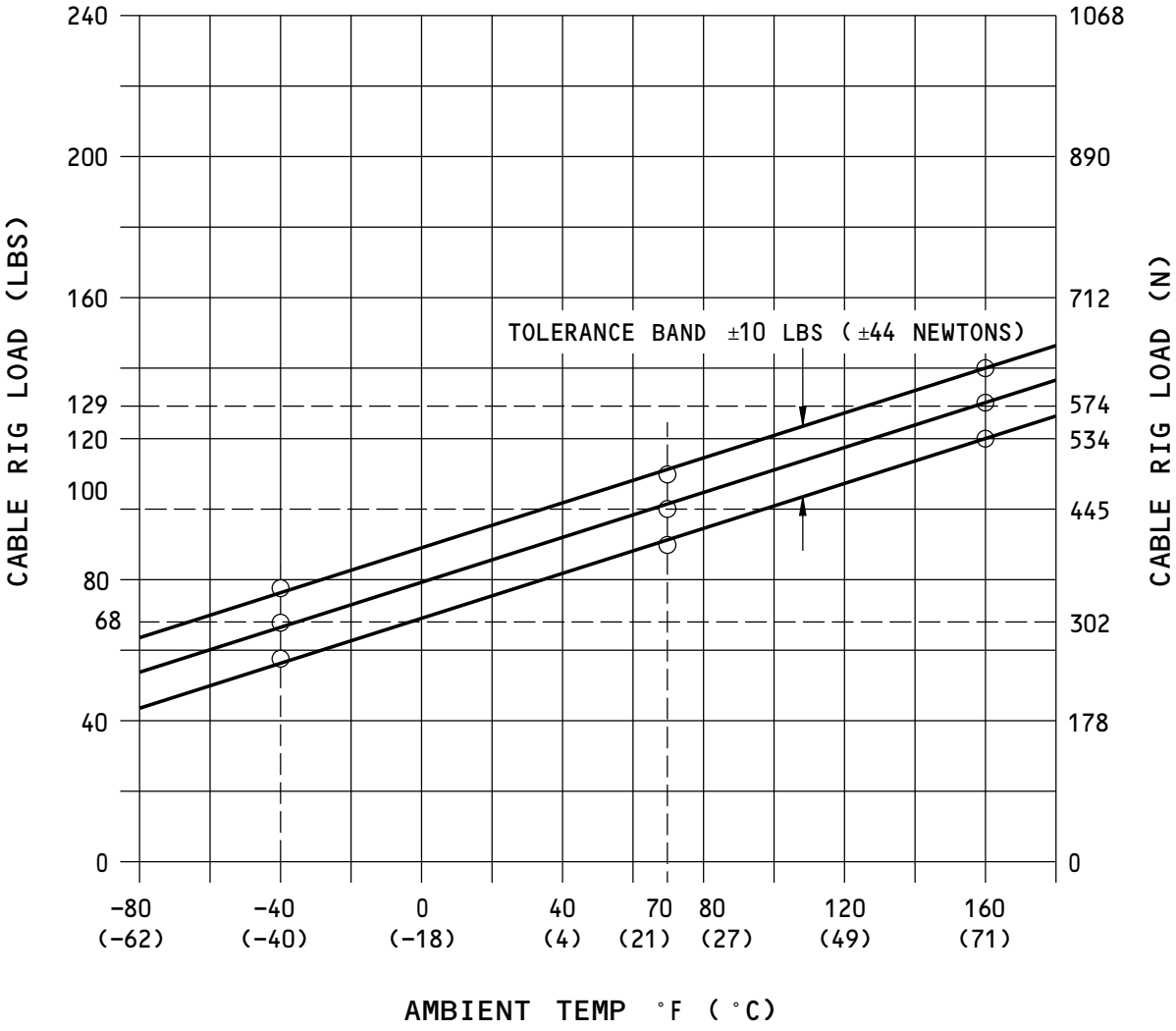


2 THE FOUR STCM LEVERS SHOULD BE BETWEEN THE INDEX MARKS OR SHOULD NOT GO THROUGH THE INDEX MARKS MORE THAN 0.03 INCH (0.8 mm) ON EITHER SIDE.

E31591 S0006413235_V2

Horizontal Stabilizer Cable, Rig Pin and Turnbuckle Locations
Figure 501/27-41-00-990-801 (Sheet 7 of 7)

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NOTE: THE TEMPERATURE OF THE UN-PRESSURIZED AREA OF THE AIRPLANE MUST BE WITHIN ±10°F (±5.6°C) OF THE AMBIENT TEMPERATURE AND MUST BE STABLE FOR AT LEAST ONE HOUR IMMEDIATELY PRIOR TO RIGGING.

E31691 S0006413236_V1

Rig Load vs. Ambient Temperature
Figure 502/27-41-00-990-802

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TASK 27-41-00-800-802

3. Stabilizer Trim Control Module Adjustment (Rigging) (Fig. 501)

A. General

(1) Use this procedure to adjust the control rods that are connected to the stabilizer trim control modules (STCMs).

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Access Panels

Number	Name/Location
311BL	Service Access Door

E. Procedure

SUBTASK 27-41-00-840-007

(1) Put the STAB CUTOUT switches on the control stand to the CUT OUT position.

SUBTASK 27-41-00-840-008

(2) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) on the E5-1 rack

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 rack

1) CBB2, STAB TRIM CTRL-C

SUBTASK 27-41-00-010-002

(3) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-00-480-001

(4) Install the service access door barrier, SPL-1976 for the service access door 311BL.

SUBTASK 27-41-00-480-002

(5) Install rig pins ST3 and ST4 from the rigging pin set, SPL-2532, in the aft stabilizer quadrant (Figure 501).

SUBTASK 27-41-00-210-001

(6) Make sure the four levers of the STCMs are between the index marks or do not go through the index marks more than 0.03 inches (0.8 mm) on either side (Fig. 501, Sheet 7).

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SUBTASK 27-41-00-820-003

(7) If a lever does not meet this condition or if the index marks are not visible, do the steps that follow:

(a) Disconnect the control rod that is connected to the lever that does not align.

NOTE: The disconnected lever will go to center on its own in its detent that is within the index marks.

(b) Loosen the checknuts on the control rod.

(c) Adjust the control rod end until the hole in the control rod aligns with the holes in the lever.

(d) Tighten the checknuts on the control rod.

(e) Connect the control rod to the lever.

(f) Remove and then install both rig pins ST3 and ST4.

NOTE: It is possible the quadrants will move a small distance when you remove the rig pins.

1) If rig pins ST3 and ST4 can not be installed freely, do a check on the STCM levers again.

NOTE: If the levers meet the above conditions, the rigging is acceptable even if the rig pins ST3 and ST4 can not be installed freely.

SUBTASK 27-41-00-080-002

(8) Remove rig pins ST3 and ST4.

F. Return the Airplane to Its Usual Condition

SUBTASK 27-41-00-080-003

(1) Remove the service access door barrier, SPL-1976.

SUBTASK 27-41-00-410-003

(2) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-00-840-009

(3) Put the STAB CUTOUT switches on the control stand to the NORM position.

SUBTASK 27-41-00-840-010

(4) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) on the E5-1 rack

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 rack

1) CBB2, STAB TRIM CTRL-C

——— END OF TASK ———

TASK 27-41-00-800-803

4. Alternate Pitch Trim Lever Adjustment

A. General

(1) Use this procedure to adjust the alternate pitch trim levers on the control stand.

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B. References

Reference	Title
76-11-10-000-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal (P/B 401)
76-11-10-400-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Procedure

SUBTASK 27-41-00-840-011

(1) Put the STAB CUTOUT switches on the control stand to the CUT OUT position.

SUBTASK 27-41-00-840-012

(2) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) on the E5-1 rack

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 rack

1) CBB2, STAB TRIM CTRL-C

SUBTASK 27-41-00-010-003

(3) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

to get access to the forward quadrants.

SUBTASK 27-41-00-410-004

(4) Install rig pins ST1 and ST2 from the rigging pin set, SPL-2532, in the forward quadrants (Figure 501).

SUBTASK 27-41-00-010-004

(5) Remove the pitch trim lightplate on the control stand. To remove it, do this tasks: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal, TASK 76-11-10-000-805-H00.

NOTE: The alignment decal for the pitch trim levers is located under the pitch trim lightplate.

SUBTASK 27-41-00-820-004

(6) Loosen the checknuts on the control rods.

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SUBTASK 27-41-00-840-013

(7) Adjust the control rods on the forward quadrants as necessary until the forward edge of each lever arm is in the black stripe of the alignment decal (Figure 503).

SUBTASK 27-41-00-420-001

(8) Tighten the checknuts on the control rods.

SUBTASK 27-41-00-080-004

(9) Remove the rig pins ST1 and ST2.

SUBTASK 27-41-00-410-005

(10) Install the pitch trim lightplate on the control stand. To install it, do this tasks: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation, TASK 76-11-10-400-805-H00.

G. Return the Airplane to Its Usual Condition

SUBTASK 27-41-00-410-006

(1) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-41-00-840-014

(2) Put the STAB CUTOUT switches on the control stand to the NORM position.

SUBTASK 27-41-00-840-015

(3) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) on the E5-1 rack

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 rack

1) CBB2, STAB TRIM CTRL-C

SUBTASK 27-41-00-710-035

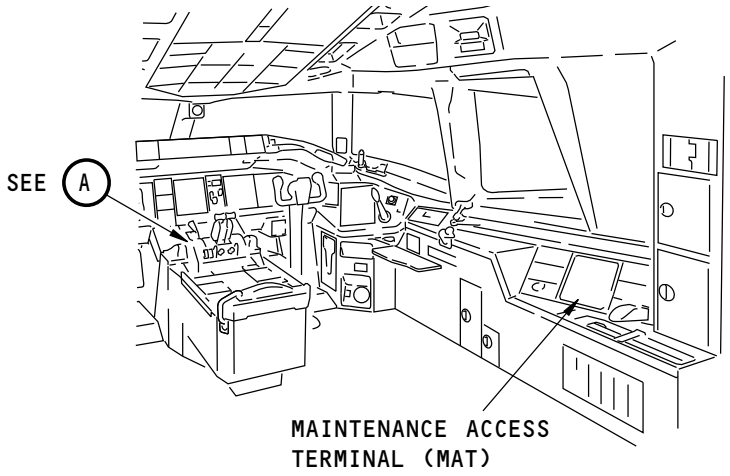
(4) Prior to releasing the airplane for flight, do this task: Alternate Pitch Trim Operational Test, TASK 27-41-00-700-804.

SUBTASK 27-41-00-710-036

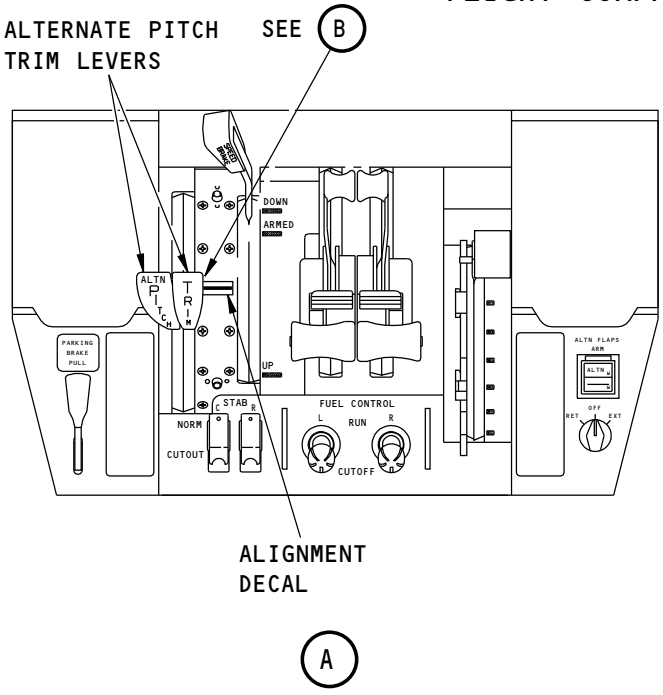
(5) Prior to releasing the airplane for flight, do this task: Alternate Pitch Trim Lever Force Test, TASK 27-41-00-700-805.

——— END OF TASK ———

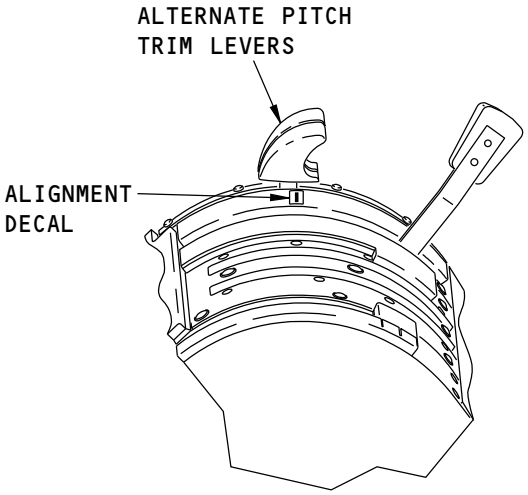
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FLIGHT COMPARTMENT



A



ALTN PITCH TRIM LEVER
ALIGNMENT

B

E31705 S0006413239_V1

Control Panel and MAT
Figure 503/27-41-00-990-803

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TASK 27-41-00-700-801

5. Stabilizer System Test

A. General

(1) You must use the maintenance access terminal (MAT) to do this task.

(2) Use this test to make sure these parts of the stabilizer system, that are controlled by the primary flight computers (PFCs), operate correctly: The speed that the stabilizer moves, the output of the position transducers, the operation of the parts of the stabilizer trim control, modules (STCMs) that are controlled by the PFCs (such as the solenoid valves), the electrical travel limits for the stabilizer.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-48-00-820-801	Horizontal Stabilizer Position Module and Travel Limiter Adjustment (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-819	How to Do a Ground Test (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-41-00-840-016

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

NOTE: Hydraulic power will be necessary in this test. The MAT will tell you when to supply it (the instruction to supply hydraulic power is on the bottom of the screen that shows the hydraulic power warning, you must scroll down the screen to see the instruction). Refer to (TASK 29-11-00-860-801) for the procedure to supply hydraulic power.

(2) Make sure that all PFC and ACE circuit breakers are closed on the PSAs and E1 and E2 racks.

NOTE: If you try to do the test with the PSA and E1/E2 rack breakers open, the Stab Auto Shutdown Relays will set. If these relays are set, the test will return an immediate Pass and will not ask for hydraulic power. There may be no correlated fault messages.

This test should take 10 to 15 minutes to run. Auto Shutdown relays can be reset per procedures in AMM 27-41-00 Part I, Functional Description - Hydraulic Cutout and Auto Shutdown Training Information Point. Use the PFC disconnect switch method.

SUBTASK 27-41-00-840-082

(3) Make sure the center and right stabilizer cutout switches are in the NORM position.

E. Procedure

SUBTASK 27-41-00-730-012

(1) Use the MAT to do the system test of the stabilizer system, do this task: How to Do a Ground Test, TASK 45-10-00-740-819

(a) Make these selections on the MAT

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1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Flight Controls
5) SYSTEM TEST
6) Stabilizer System
7) CONTINUE

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE HORIZONTAL STABILIZER. THE STABILIZER WILL MOVE AUTOMATICALLY DURING THIS TEST. SUDDEN MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

NOTE: To stop the test, select STOP TEST. This will cause all of the flight control surfaces to stop (and stay stopped). Follow the instructions on the MAT to complete the stop test procedure. If the test stopped before it was completed (the MAT will show TEST STOPPED), do the steps to put the airplane back to its usual condition. If the test stopped before it was completed (the test would not complete and must be aborted), do this task, Horizontal Stabilizer Position Module and Travel Limiter Adjustment (TASK 27-48-00-820-801). Do this Stabilizer System Test again.

(c) When the test is completed, make sure that PASSED shows adjacent to the TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-840-017

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-018

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-41-00-700-802

6. Alternate Pitch Trim Lever Position Switch Test

A. General

(1) Use this test to make sure the position switches for the ALTN PITCH TRIM levers operate correctly. The position switches send signals to the PFCs that the pilot has moved the ALTN PITCH TRIM levers.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)

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(Continued)

Reference	Title
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-41-00-840-019

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-020

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-00-840-021

(3) Use the ALTN PITCH TRIM levers to move the stabilizer to 6 to 15 units of trim.

SUBTASK 27-41-00-010-005

(4) Remove the pitch trim lightplate.

SUBTASK 27-41-00-480-003

(5) Apply a piece of tape, on the control stand, adjacent to the ALTN PITCH TRIM levers.

(a) Make a mark on the tape at the forward edge of the ALTN PITCH TRIM levers. This mark will be referred to as mark 0 in this procedure.

NOTE: You will use this mark to measure the position of the levers.

E. Procedure

SUBTASK 27-41-00-730-001

(1) Monitor page 3 of the maintenance pages for the flight controls, on the multi-functional display (MFD) (TASK 31-61-00-800-804).

(a) Make sure these indications show:

Table 501/27-41-00-993-802

AIMS				
	ACTIVE (L)	DIRECTION (L)	ACTIVE (R)	DIRECTION (R)
ALTN PITCH TRIM LVR ARM	NO		NO	
ALTN PITCH TRIM LVR CTRL	NO		NO	

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(b) Slowly push the ALTN PITCH TRIM levers forward and stop the levers immediately when these indications show:

NOTE: Make sure you keep the two levers together as you move them.

Table 502/27-41-00-993-803

AIMS				
	ACTIVE (L)	**DIRECTION (L)**	**ACTIVE (R)**	**DIRECTION (R)**
ALTN PITCH TRIM LVR ARM	YES	DOWN	YES	DOWN
ALTN PITCH TRIM LVR CTRL	YES	DOWN	YES	DOWN

1) Make sure the horizontal stabilizer does not move.

NOTE: Look at the stabilizer trim indicator on the control stand to see if the stabilizer moves.

2) Make a mark on the tape at the forward edge of the ALTN PITCH TRIM levers. This will be referred to as mark 1.

SUBTASK 27-41-00-730-002

(2) Slowly push the ALTN PITCH TRIM levers forward and stop the levers immediately when the horizontal stabilizer starts to move.

NOTE: Look at the stabilizer trim indicator on the control stand to see when the stabilizer moves.

Make sure you keep the two levers together as you move them.

(a) Make a mark on the tape at the forward edge of the ALTN PITCH TRIM levers. This will be referred to as mark 2.

(b) Release the pitch trim levers.

SUBTASK 27-41-00-730-003

(3) Measure the distance from mark 0 to marks 1 and 2.

(a) Make sure the distance from mark 0 to mark 1 is 0.53 to 0.96 inches (13.5 to 24.4 mm).

(b) Make sure the distance from mark 0 to mark 2 is 1.18 inches (30.0 mm) or more.

SUBTASK 27-41-00-730-004

(4) Monitor page 3 of the maintenance pages for the flight controls, on the multi-functional display (MFD) (TASK 31-61-00-800-804).

(a) Slowly pull the ALTN PITCH TRIM levers aft and stop the levers immediately when these indications show:

NOTE: Make sure you keep the two levers together as you move them.

Table 503/27-41-00-993-804

AIMS				
	ACTIVE (L)	**DIRECTION (L)**	**ACTIVE (R)**	**DIRECTION (R)**
ALTN PITCH TRIM LVR ARM	YES	UP	YES	UP
ALTN PITCH TRIM LVR CTRL	YES	UP	YES	UP

1) Make sure the horizontal stabilizer does not move.

NOTE: Look at the stabilizer trim indicator on the control stand to see if the stabilizer moves.

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2) Make a mark on the tape at the forward edge of the ALTN PITCH TRIM levers. This will be referred to as mark 3.

SUBTASK 27-41-00-730-005

(5) Slowly pull the ALTN PITCH TRIM levers aft and stop the levers immediately when the horizontal stabilizer starts to move.

NOTE: Look at the stabilizer trim indicator on the control stand to see when the stabilizer moves.

Make sure you keep the two levers together as you move them.

(a) Make a mark on the tape at the forward edge of the ALTN PITCH TRIM levers. This will be referred to as mark 4.

(b) Release the pitch trim levers.

SUBTASK 27-41-00-730-006

(6) Measure the distance from mark 0 to marks 3 and 4.

(a) Make sure the distance from mark 0 to mark 3 is 0.57 to 0.96 inches (14.5 to 24.4 mm).

(b) Make sure the distance from mark 0 to mark 4 is 1.18 inches (30.0 mm) or more.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-840-022

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-080-005

(2) Remove the tape from the control stand.

SUBTASK 27-41-00-410-007

(3) Install the pitch trim lightplate.

SUBTASK 27-41-00-840-023

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-41-00-700-803

7. Pitch Trim Switch Test

A. General

(1) Use this test to make sure the pitch trim switches operate correctly. The pitch trim switches send signals to the actuator control electronics (ACEs) to move the horizontal stabilizer.

(2) The pitch trim switches are on the control wheels.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

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D. Prepare for the procedure.

SUBTASK 27-41-00-840-024

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-025

(2) Put the C and R STAB cutout switches, on the control stand, in the CUTOUT position.

E. Procedure

SUBTASK 27-41-00-730-007

(1) Monitor page 3 of the maintenance pages for the flight controls, on the multi-functional display (MFD) (TASK 31-61-00-800-804).

(a) Make sure these indications show:

NOTE: Ignore the other indications on the maintenance page.

Table 504/27-41-00-993-805

	---------- ACE ----------			
	L1	L2	C	R
CAPT PITCH TRIM ARM	NO			
CAPT PITCH TRIM CTRL			NO	
F/O PITCH TRIM ARM		NO		
F/O PITCH TRIM CTRL				NO

SUBTASK 27-41-00-730-008

(2) Push the two pitch trim switches, on the captain's control wheel, up.

(a) Make sure these indications show:

NOTE: Ignore the other indications on the maintenance page.

Table 505/27-41-00-993-806

	---------- ACE ----------			
	L1	L2	C	R
CAPT PITCH TRIM ARM	DOWN			
CAPT PITCH TRIM CTRL			DOWN	
F/O PITCH TRIM ARM		NO		
F/O PITCH TRIM CTRL				NO

SUBTASK 27-41-00-730-009

(3) Push the two pitch trim switches, on the captain's control wheel, down.

(a) Make sure these indications show:

NOTE: Ignore the other indications on the maintenance page.

Table 506/27-41-00-993-807

	---------- ACE ----------			
	L1	L2	C	R
CAPT PITCH TRIM ARM	UP			

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Table 506/27-41-00-993-807 (Continued)

	---------- ACE ----------			
CAPT PITCH TRIM CTRL			UP	
F/O PITCH TRIM ARM		NO		
F/O PITCH TRIM CTRL				NO

(b) Release the pitch trim switches.

SUBTASK 27-41-00-730-010

(4) Push the two pitch trim switches, on the first officer's control wheel, up.

(a) Make sure these indications show:

NOTE: Ignore the other indications on the maintenance page.

Table 507/27-41-00-993-808

	---------- ACE ----------			
	L1	L2	C	R
CAPT PITCH TRIM ARM	NO			
CAPT PITCH TRIM CTRL			NO	
F/O PITCH TRIM ARM		DOWN		
F/O PITCH TRIM CTRL				DOWN

SUBTASK 27-41-00-730-011

(5) Push the two pitch trim switches, on the first officer's control wheel, down.

(a) Make sure these indications show:

NOTE: Ignore the other indications on the maintenance page.

Table 508/27-41-00-993-809

	---------- ACE ----------			
	L1	L2	C	R
CAPT PITCH TRIM ARM	NO			
CAPT PITCH TRIM CTRL			NO	
F/O PITCH TRIM ARM		UP		
F/O PITCH TRIM CTRL				UP

(b) Release the pitch trim switches.

(c) Make sure these indications show:

NOTE: Ignore the other indications on the maintenance page.

Table 509/27-41-00-993-810

	---------- ACE ----------			
	L1	L2	C	R
CAPT PITCH TRIM ARM	NO			
CAPT PITCH TRIM CTRL			NO	

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Table 509/27-41-00-993-810 (Continued)

	---------- ACE ----------			
F/O PITCH TRIM ARM		NO		
F/O PITCH TRIM CTRL				NO

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-840-026

(1) Put the C and R STAB cutout switches, on the control stand, in the NORM position.

SUBTASK 27-41-00-840-027

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-41-00-700-804

8. Alternate Pitch Trim Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the pitch trim levers control the horizontal stabilizer correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left

D. Prepare for the Procedure

SUBTASK 27-41-00-840-028

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-029

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system only, (TASK 29-11-00-860-801).

NOTE: The right hydraulic power must be off.

E. Procedure

SUBTASK 27-41-00-710-001

(1) Do these steps for the "TRIM" lever (the right of the two ALTN PITCH TRIM levers).

(a) Push the TRIM lever fully forward and hold it there for approximately 10 seconds.

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1) Make sure the horizontal stabilizer does not move.

NOTE: We recommend you use page 2 of the maintenance pages for the flight controls (on the multi-functional display, MFD) to look for movement of the horizontal stabilizer.

(b) Pull the TRIM lever fully aft and hold it there for approximately 10 seconds.

1) Make sure the horizontal stabilizer does not move.

(c) Release the TRIM lever.

SUBTASK 27-41-00-710-002

(2) Do these steps for the "ALTN PITCH" lever (the left of the two ALTN PITCH TRIM levers).

(a) Push the ALTN PITCH lever fully forward and hold it there for approximately 10 seconds.

1) Make sure the horizontal stabilizer does not move.

(b) Pull the ALTN PITCH lever fully aft and hold it there for approximately 10 seconds.

1) Make sure the horizontal stabilizer does not move.

SUBTASK 27-41-00-710-032

(3) Push the levers in opposite directions from each other at approximately the same rate.

(a) Make sure the stabilizer does not move.

SUBTASK 27-41-00-710-003

(4) Do these steps with the two ALTN PITCH TRIM levers together.

(a) Push the levers fully forward.

1) Make sure the horizontal stabilizer moves in the airplane nose down direction.

NOTE: The airplane nose down direction is smaller values of stabilizer position.

(b) Pull the levers fully aft.

1) Make sure the horizontal stabilizer moves in the airplane nose up direction.

NOTE: The airplane nose up direction is the larger values of stabilizer position.

(c) Release the levers.

SUBTASK 27-41-00-860-001

(5) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-030

(6) For the right hydraulic system, (TASK 29-11-00-860-801).

SUBTASK 27-41-00-710-031

(7) Repeat the above procedure with the right hydraulic system.

F. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-41-00-840-031

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-032

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

END OF TASK

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TASK 27-41-00-700-805

9. Alternate Pitch Trim Lever Force Test

A. General

(1) Use this test to make sure the alternate pitch trim levers move with the correct force.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force Part #: DG-200 Supplier: 92456 Part #: FDIX 100 Supplier: 0BFD9 Part #: FDIX 50 Supplier: 0BFD9 Part #: LG-010 Supplier: 92456 Part #: LG-050 Supplier: 92456 Part #: LG-100 Supplier: 92456 Opt Part #: DPP-500G Supplier: 92456 Opt Part #: DPPH-150 Supplier: 92456 Opt Part #: DPPH-200 Supplier: 92456 Opt Part #: DPPH-50 Supplier: 92456 Opt Part #: FDI 100 Supplier: 0BFD9 Opt Part #: FDI 50 Supplier: 0BFD9 Opt Part #: FDV 100 Supplier: 0BFD9 Opt Part #: FDV 50 Supplier: 0BFD9

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the procedure.

SUBTASK 27-41-00-840-033

(1) Set the C and R STAB cutout switches, on the control stand, to CUTOUT.

E. Procedure

SUBTASK 27-41-00-480-004

(1) Attach the force gauge, COM-1557, to the handle of one of the two ALTN PITCH TRIM levers.

SUBTASK 27-41-00-710-004

(2) Use the force scale to move the alternate pitch trim lever.

NOTE: Keep the scale approximately 90 degrees to the lever as you move it.

SUBTASK 27-41-00-710-005

(3) Make sure the force to move the lever is not more than the value shown in this table:

Table 510/27-41-00-993-801

Maximum ALTN PITCH TRIM Lever Forces	
Lever Position	**Maximum Force lbs (newtons)**
0.0 to 1.0 inch from center	10 pounds (44.5 N)

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Table 510/27-41-00-993-801 (Continued)

Maximum ALTN PITCH TRIM Lever Forces	
Lever Position	**Maximum Force lbs (newtons)**
1.0 inch from center to full travel	15 pounds (66.7 N)

(a) Measure the lever position along the surface of the control stand.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-080-006

(1) Remove the force gauge, COM-1557.

SUBTASK 27-41-00-840-034

(2) Set the C and R STAB cutout switches, on the control stand, to NORM.

——— END OF TASK ———

TASK 27-41-00-700-806

10. Stabilizer Limit Switch Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the limit switches for the stabilizer operate correctly. The limit switches are in the stabilizer position modules.

(2) Refer to AMM 27-48-01/401 for the procedure to remove and install the stabilizer position module. Refer to AMM 27-48-00/501 for the procedure to adjust the stabilizer position modules.

NOTE: The limit switches cannot be adjusted or replaced independently from the stabilizer position modules.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-48-00-820-801	Horizontal Stabilizer Position Module and Travel Limiter Adjustment (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the procedure.

SUBTASK 27-41-00-840-035

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-41-00-840-036

WARNING

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(2) For the center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-00-840-037

(3) Put the PRIMARY FLIGHT COMPUTER DISC switch in the DISC position.

E. Procedure

SUBTASK 27-41-00-860-002

(1) Position the stabilizer to approximately 1 to 2 units.

SUBTASK 27-41-00-860-003

(2) Set the C STAB CUTOUT switch to NORM and the R STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-720-001

(3) Push the PITCH TRIM switches on the CAPTAIN'S control wheel to the UP position and hold (airplane nose down) until the stabilizer stops.

SUBTASK 27-41-00-860-004

(4) Set C STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-860-005

(5) Measure B dimension (Figure 504).

(a) Make sure the B dimension is 0.62 to 1.23 inches (15.7 to 31.2 mm).

SUBTASK 27-41-00-860-006

(6) Make sure the indications for STAB POSITION L, C and R on the Flight Controls Maintenance Page 2 are 135.55 to 154.36 degrees RVDT.

SUBTASK 27-41-00-860-007

(7) Set the C and R STAB CUTOUT switches to NORM.

SUBTASK 27-41-00-860-008

(8) Set the stabilizer position to approximately 13 to 14 units.

SUBTASK 27-41-00-860-009

(9) Set the R STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-720-002

(10) Push the PITCH TRIM switches on the CAPTAIN'S control wheel to the DOWN position and hold (airplane nose up) until the stabilizer stops.

SUBTASK 27-41-00-860-010

(11) Set the C STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-860-011

(12) Measure the B dimension (Figure 504).

(a) Make sure the B dimension is 30.04 to 30.66 inches (76.3 to 77.9 cm).

SUBTASK 27-41-00-860-012

(13) Make sure indications for STAB POSITION L, C and R on the Flight Controls Maintenance Page 2 are -136.50 to -155.43 degrees RVDT.

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SUBTASK 27-41-00-860-013

(14) Set the C and R STAB CUTOUT switches to NORM.

SUBTASK 27-41-00-860-014

(15) Position the stabilizer to approximately 1 to 2 units.

SUBTASK 27-41-00-860-015

(16) Set the C STAB CUTOUT switch to CUTOUT and the R STAB CUTOUT switch to NORM.

SUBTASK 27-41-00-720-003

(17) Push the PITCH TRIM switches on the FIRST OFFICER'S control wheel to the UP position and hold (airplane nose down) until the stabilizer stops.

SUBTASK 27-41-00-860-016

(18) Set the R STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-860-017

(19) Measure the B dimension (Figure 504).

(a) Make sure the B dimension is 0.62 to 1.23 inches (15.7 to 31.2 mm).

SUBTASK 27-41-00-860-018

(20) Make sure indications for STAB POSITION L, C and R on the Flight Controls Maintenance Page 2 are 135.55 to 154.36 degree RVDT.

SUBTASK 27-41-00-860-019

(21) Set the C and R STAB CUTOUT switches to NORM.

SUBTASK 27-41-00-860-020

(22) Position the stabilizer approximately 13 to 14 units.

SUBTASK 27-41-00-860-021

(23) Set the C STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-720-004

(24) Push the PITCH TRIM switches on the FIRST OFFICER'S control wheel to the DOWN position and hold (airplane nose up) until the stabilizer stops.

SUBTASK 27-41-00-860-022

(25) Set the R STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-860-023

(26) Measure the B dimension (Figure 504).

(a) Make sure the B dimension is 30.04 to 30.66 inches (76.3 to 77.9 cm).

SUBTASK 27-41-00-860-024

(27) Make sure indications for STAB POSITION L, C and R on the Flight Controls Maintenance Page 2 are -136.50 to -155.43 degrees RVDT.

SUBTASK 27-41-00-860-025

(28) Set one STAB CUTOUT switch to NORM and the other STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-720-005

(29) Use the alternate pitch trim levers to move the stabilizer in the airplane nose down direction until B dimension is 8.55 to 8.53 inches (21.72 to 21.67 cm).

NOTE: Finer adjustments of the B dimension can be made at the stabilizer trim control modules (STCM's) through their input levers, (TASK 27-48-00-820-801).

SUBTASK 27-41-00-860-026

(30) Set the C and R CUTOUT switches to CUTOUT.

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SUBTASK 27-41-00-860-027

(31) Make sure indications for STAB POSITION L, C and R on the Flight Controls Maintenance Page 2 are 74.8 to 64.8 degrees RVDT.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-840-038

(1) Put the PRIMARY FLIGHT COMPUTER DISC switch in the AUTO position.

SUBTASK 27-41-00-840-039

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-040

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-41-00-700-807

11. Stabilizer Mechanical Limit Test

A. General

(1) Use this test to make sure the horizontal stabilizer has the correct travel limits when it is operated from the alternate pitch trim levers.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the procedure.

SUBTASK 27-41-00-840-041

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-042

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

E. Procedure

SUBTASK 27-41-00-710-007

(1) Push the ALTN PITCH TRIM levers fully forward and hold them there until the stabilizer stops.

NOTE: The left of the two levers will move back automatically when the stabilizer gets to the end of its travel.

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(a) Measure Dimension B (Figure 504).

1) Make sure Dimension B is 0.47 to 0.75 inches (11.9 to 19.1 mm).

SUBTASK 27-41-00-710-008

(2) Pull the ALTN PITCH TRIM levers fully aft and hold them there until the stabilizer stops.

NOTE: The left of the two levers will move forward when the stabilizer gets to the end of its travel.

(a) Measure Dimension C (Figure 504). Make sure Dimension C is 0.47 to 0.75 inches (11.9 to 19.1 mm).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-840-043

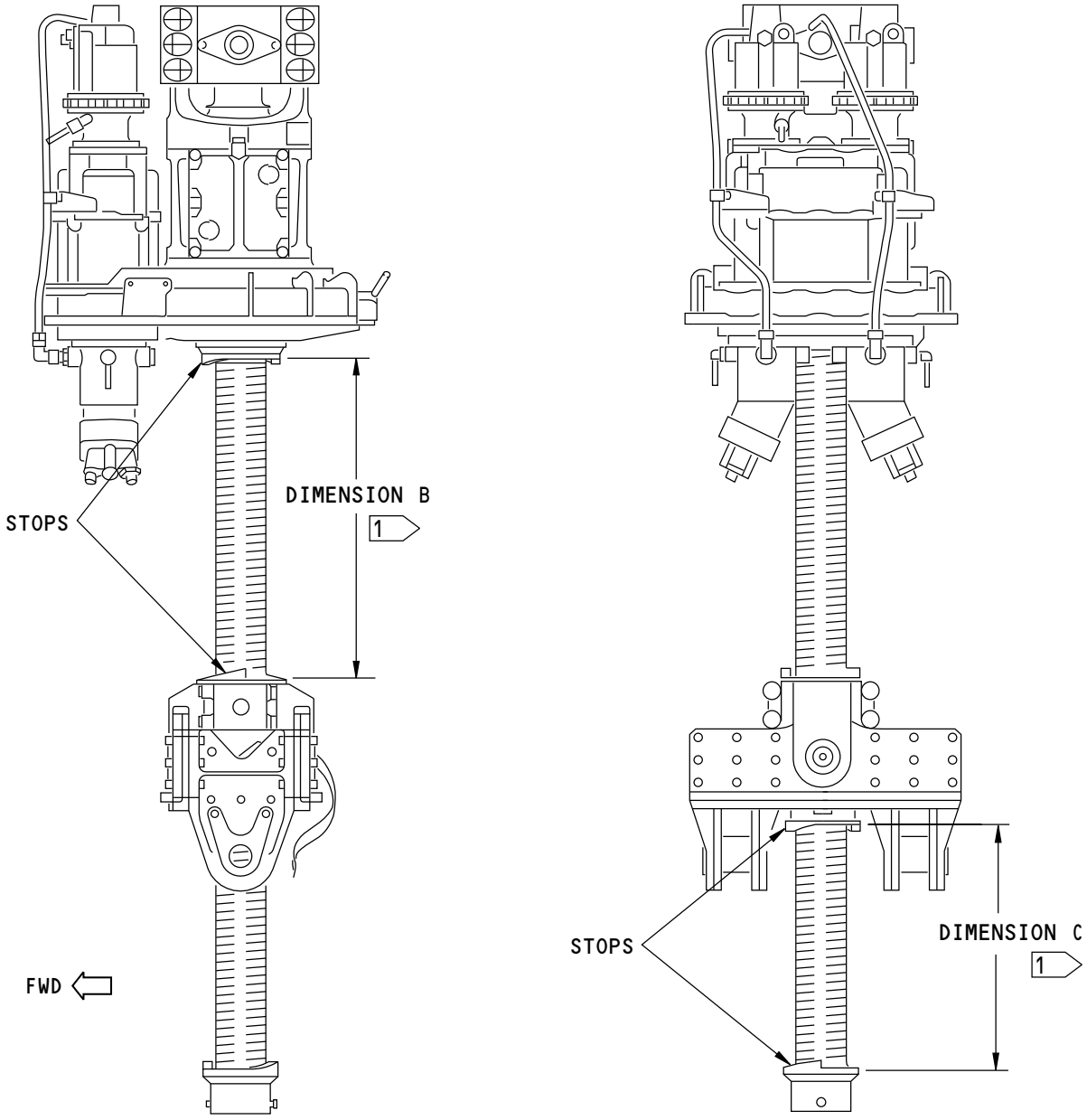
(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-044

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

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1 MEASURE FROM THE FLAT SURFACES AT THE BASE OF THE STOPS, NOT FROM THE TOP OF THE STOPS.

E31711 S0006413257_V1

Stabilizer Travel Limits
Figure 504/27-41-00-990-804

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TASK 27-41-00-700-808

12. Stabilizer Mechanical Trim Rate Test (Right Hydraulic System)

A. General

(1) Use this test to make sure the horizontal stabilizer moves at the correct speed when it is operated from the alternate pitch trim levers using the right hydraulic system.

NOTE: Use the Stabilizer Mechanical Trim Rate Test (Center Hydraulic System) to test the trim rate of the stabilizer using the center hydraulic system.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-802	Main Hydraulic System Pressurization with a Portable Hydraulic Cart (P/B 201)
29-11-00-860-804	Left or Right Hydraulic System Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-41-00-840-045

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-046



WARNING

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(2) For the right hydraulic system only, do one of the following tasks:

NOTE: The center hydraulic power must be off.

NOTE: The right ACMP does not have enough flow for the Mechanical Trim Rate Test.

(a) (TASK 29-11-00-860-804)

(b) (TASK 29-11-00-860-802).

SUBTASK 27-41-00-860-028

(3) Display the Flight Controls Maintenance Page 3.

SUBTASK 27-41-00-070-001

(4) Erase all manual snapshots

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E. Procedure

SUBTASK 27-41-00-710-009

(1) Use the ALTN PITCH TRIM levers to move the horizontal stabilizer to a STAB POSITION of approximately +10.

NOTE: The units for STAB POSITION are degrees of RVDT.

SUBTASK 27-41-00-710-010

(2) Push the ALTN PITCH TRIM levers fully forward and hold them there.

(a) When the horizontal stabilizer begins to move, take a manual snapshot (SN1).

(b) When STAB POSITION reaches +110, take another manual snapshot (SN2).

(c) After taking the manual snapshot SN2, return the ALTN PITCH TRIM levers to the center position.

SUBTASK 27-41-00-710-037

(3) Pull the ALTN PITCH TRIM levers fully aft and hold them there.

(a) When the horizontal stabilizer begins to move, take a manual snapshot (SN3).

(b) When STAB POSITION reaches +10, take another manual snapshot (SN4).

(c) After taking the manual snapshot SN4, return the ALTN PITCH TRIM levers to the center position.

SUBTASK 27-41-00-710-038

(4) Calculate the trim-down trim rate by doing the following:

(a) Subtract the average STAB POSITION of SN1 from SN2 (SN2 - SN1) to get the STAB POSITION difference (SPD1).

(b) Subtract the UTC of SN1 from SN2 (SN2 - SN1) to get the UTC difference (UTCD1).

(c) Divide the STAB POSITION difference by the UTC difference to calculate the trim-down rate (SPD1/UTCD1).

1) Make sure the trim-down rate is no greater than 6.4 degrees RVDT and no less than 4.7 degrees RVDT.

SUBTASK 27-41-00-710-039

(5) Calculate the trim-up trim rate by doing the following:

(a) Subtract the average STAB POSITION of SN4 from SN3 (SN3 - SN4, keeps the sign positive) to get the STAB POSITION difference (SPD2).

(b) Subtract the UTC of SN3 from SN4 (SN4 - SN3) to get the UTC difference (UTCD2).

(c) Divide the STAB POSITION difference by the UTC difference to calculate the trim-up rate (SPD2/UTCD2).

1) Make sure the trim-up rate is no greater than 6.4 degrees RVDT and no less than 4.7 degrees RVDT.

F. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-41-00-840-047

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-048

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

END OF TASK

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TASK 27-41-00-700-813

13. Stabilizer Mechanical Trim Rate Test (Center Hydraulic System)

A. General

(1) Use this test to make sure the horizontal stabilizer moves at the correct speed when it is operated from the alternate pitch trim levers using the center hydraulic system.

NOTE: Use the Stabilizer Mechanical Trim Rate Test (Right Hydraulic System) to test the trim rate of the stabilizer using the right hydraulic system.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-802	Main Hydraulic System Pressurization with a Portable Hydraulic Cart (P/B 201)
29-11-00-860-803	Main Hydraulic System Pressurization with an Alternating Current Motor Pump (P/B 201)
29-11-00-860-805	Center Hydraulic System Pressurization with an Air-Driven Pump (ADP) (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-41-00-840-084

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-000-001

(2) Remove the hydraulic power from the right hydraulic system. (TASK 29-11-00-860-808).

SUBTASK 27-41-00-840-085

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(3) For the center hydraulic system only, do one of the following tasks:

(a) (TASK 29-11-00-860-805)

(b) (TASK 29-11-00-860-802)

(c) (TASK 29-11-00-860-803).

NOTE: You must use both center Alternating Current Motor Pumps to have enough flow for the Mechanical Trim Rate Test.

SUBTASK 27-41-00-860-029

(4) Display the Flight Controls Maintenance Page 2.

SUBTASK 27-41-00-070-002

(5) Erase all manual snapshots

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E. Procedure

SUBTASK 27-41-00-710-040

(1) Use the ALTN PITCH TRIM levers to move the horizontal stabilizer to a STAB POSITION of approximately +10.

NOTE: The units for STAB POSITION are degrees of RVDT.

SUBTASK 27-41-00-710-041

(2) Push the ALTN PITCH TRIM levers fully forward and hold them there.

(a) When the horizontal stabilizer begins to move, take a manual snapshot (SN1).

(b) When STAB POSITION reaches +110, take another manual snapshot (SN2).

(c) After taking the manual snapshot SN2, return the ALTN PITCH TRIM levers to the center position.

SUBTASK 27-41-00-710-042

(3) Pull the ALTN PITCH TRIM levers fully aft and hold them there.

(a) When the horizontal stabilizer begins to move, take a manual snapshot (SN3).

(b) When STAB POSITION reaches +10, take another manual snapshot (SN4).

(c) After taking the manual snapshot SN4, return the ALTN PITCH TRIM levers to the center position.

SUBTASK 27-41-00-710-043

(4) Calculate the trim-down trim rate by doing the following:

(a) Subtract the average STAB POSITION of SN1 from SN2 (SN2 - SN1) to get the STAB POSITION difference (SPD1).

(b) Subtract the UTC of SN1 from SN2 (SN2 - SN1) to get the UTC difference (UTCD1).

(c) Divide the STAB POSITION difference by the UTC difference to calculate the trim-down rate (SPD1/UTCD1).

1) Make sure the trim-down rate is no greater than 6.4 degrees RVDT and no less than 4.7 degrees RVDT.

SUBTASK 27-41-00-710-044

(5) Calculate the trim-up trim rate by doing the following:

(a) Subtract the average STAB POSITION of SN4 from SN3 (SN3 - SN4, keeps the sign positive) to get the STAB POSITION difference (SPD2).

(b) Subtract the UTC of SN3 from SN4 (SN4 - SN3) to get the UTC difference (UTCD2).

(c) Divide the STAB POSITION difference by the UTC difference to calculate the trim-up rate (SPD2/UTCD2).

1) Make sure the trim-up rate is no greater than 6.4 degrees RVDT and no less than 4.7 degrees RVDT.

F. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-41-00-840-086

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-087

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

END OF TASK

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TASK 27-41-00-700-809

14. Stabilizer Mechanical Override Test

A. General

(1) Use this test to make sure the horizontal stabilizer obeys the commands from the alternate pitch trim levers. The horizontal stabilizer must ignore the pitch trim switches if they do not agree with the pitch trim levers.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Procedure

SUBTASK 27-41-00-840-049

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-050

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-00-840-051

(3) Set the C STAB cutout switch, on the control stand, to NORM.

SUBTASK 27-41-00-840-052

(4) Set the R STAB cutout switch, on the control stand, to CUTOUT.

SUBTASK 27-41-00-840-053

(5) Move the stabilizer to 6 to 11 units of trim.

NOTE: Use the pitch trim switches on the captain's control wheel to move the stabilizer.

E. Procedure

SUBTASK 27-41-00-710-013

(1) Push and hold the pitch trim switches on the captain's control wheel up (airplane nose down).

(a) Make sure the horizontal stabilizer moves in the airplane nose down direction (smaller value of position).

NOTE: You can use the STAB position indicator on the control stand to find which direction the horizontal stabilizer moves.

(b) Pull the ALTN PITCH TRIM levers aft (keep the pitch trim switches in the up position).

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1) Make sure the horizontal stabilizer changes direction (moves in the airplane nose up direction) in two seconds or less.

SUBTASK 27-41-00-710-014

(2) Release the pitch trim switches and the ALTN PITCH TRIM levers.

SUBTASK 27-41-00-710-015

(3) Put the ALTN PITCH TRIM levers in the neutral position.

SUBTASK 27-41-00-710-016

(4) Push and hold the pitch trim switches on the captain's control wheel down.

(a) Make sure the horizontal stabilizer moves in the airplane nose up direction (larger value of position).

NOTE: You can use the STAB position indicator on the control stand to find which direction the horizontal stabilizer moves.

(b) Push the ALTN PITCH TRIM levers forward (keep the pitch trim switches in the down position).

1) Make sure the horizontal stabilizer changes direction (moves in the airplane nose down direction) in two seconds or less.

SUBTASK 27-41-00-710-017

(5) Release the pitch trim switches and the ALTN PITCH TRIM levers.

SUBTASK 27-41-00-710-018

(6) Put the ALTN PITCH TRIM levers in the neutral position.

SUBTASK 27-41-00-710-019

(7) Set the R STAB cutout switch, on the control stand, to NORM.

SUBTASK 27-41-00-710-020

(8) Set the C STAB cutout switch, on the control stand, to CUTOUT.

SUBTASK 27-41-00-710-021

(9) Push and hold the pitch trim switches on the first officer's control wheel up (airplane nose down).

(a) Make sure the horizontal stabilizer moves in the airplane nose down direction (smaller value of position).

NOTE: You can use the STAB position indicator on the control stand to find which direction the horizontal stabilizer moves.

(b) Pull the ALTN PITCH TRIM levers aft (keep the pitch trim switches in the up position).

1) Make sure the horizontal stabilizer changes direction (moves in the airplane nose up direction) in two seconds or less.

SUBTASK 27-41-00-710-022

(10) Release the pitch trim switches and the ALTN PITCH TRIM levers.

SUBTASK 27-41-00-710-023

(11) Put the ALTN PITCH TRIM levers in the neutral position.

SUBTASK 27-41-00-710-024

(12) Push and hold the pitch trim switches on the first officer's control wheel down.

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(a) Make sure the horizontal stabilizer moves in the airplane nose up direction (larger value of position).

NOTE: You can use the STAB position indicator on the control stand to find which direction the horizontal stabilizer moves.

(b) Push the ALTN PITCH TRIM levers forward (keep the pitch trim switches in the down position).

1) Make sure the horizontal stabilizer changes direction (moves in the airplane nose down direction) in two seconds or less.

SUBTASK 27-41-00-710-025

(13) Release the pitch trim switches and the ALTN PITCH TRIM levers.

SUBTASK 27-41-00-710-026

(14) Put the ALTN PITCH TRIM levers in the neutral position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-840-054

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-055

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

TASK 27-41-00-700-810

15. Stabilizer Secondary Brake Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure that the stabilizer secondary brake can prevent movement of the horizontal stabilizer.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left

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(Continued)

Zone	Area
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Procedure

SUBTASK 27-41-00-010-007

(1) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-00-480-005

(2) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-00-840-056

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-057

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-00-840-058

(5) Move the stabilizer to 4 to 11 units of trim.

NOTE: Use the pitch trim switches on the captain's or first officer's control wheel to move the stabilizer.

G. Procedure

SUBTASK 27-41-00-840-059

(1) Set the R STAB cutout switch, on the control stand, to NORM.

SUBTASK 27-41-00-840-060

(2) Set the C STAB cutout switch, on the control stand, to CUTOUT.

SUBTASK 27-41-00-710-027

(3) Do these steps for the right stabilizer trim control module (STCM).

(a) Push and hold the brake bypass valve on the bottom of the right STCM (Figure 505).

NOTE: Use a screwdriver handle or other tool to hold the brake bypass valve in. The right STCM is on the right side of the airplane. The right STCM is connected to the right hydraulic system.

(b) Push the pitch trim switches on one of the control wheels down (airplane nose up). Hold the switches down for 10 to 15 seconds.

1) Make sure that the stabilizer ballscrew does not move.

(c) Release the pitch trim switches.

(d) Release the brake bypass valve.

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(e) Push the pitch trim switches down and then up.

1) Make sure that the stabilizer moves in the two directions.

(f) Release the pitch trim switches.

SUBTASK 27-41-00-840-061

(4) Set the R STAB cutout switch, on the control stand, to CUTOUT.

SUBTASK 27-41-00-840-062

(5) Set the C STAB cutout switch, on the control stand, to NORM.

SUBTASK 27-41-00-710-028

(6) Do these steps for the center stabilizer trim control module (STCM).

(a) Push and hold the brake bypass valve on the bottom of the center STCM.

NOTE: Use a screwdriver handle or other tool to hold the brake bypass valve in. Also, the center STCM is the one on the left side of the airplane (it gets its name because it is connected to the center hydraulic system).

(b) Push the pitch trim switches on one of the control wheels up (airplane nose down). Hold the switches up for 10 to 15 seconds.

1) Make sure that the stabilizer ballscrew does not move.

(c) Release the pitch trim switches.

(d) Release the brake bypass valve.

(e) Push the pitch trim switches down and then up.

1) Make sure that the stabilizer ballscrew moves in both directions.

(f) Release the pitch trim switches.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-080-008

(1) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-00-410-009

(2) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-00-840-063

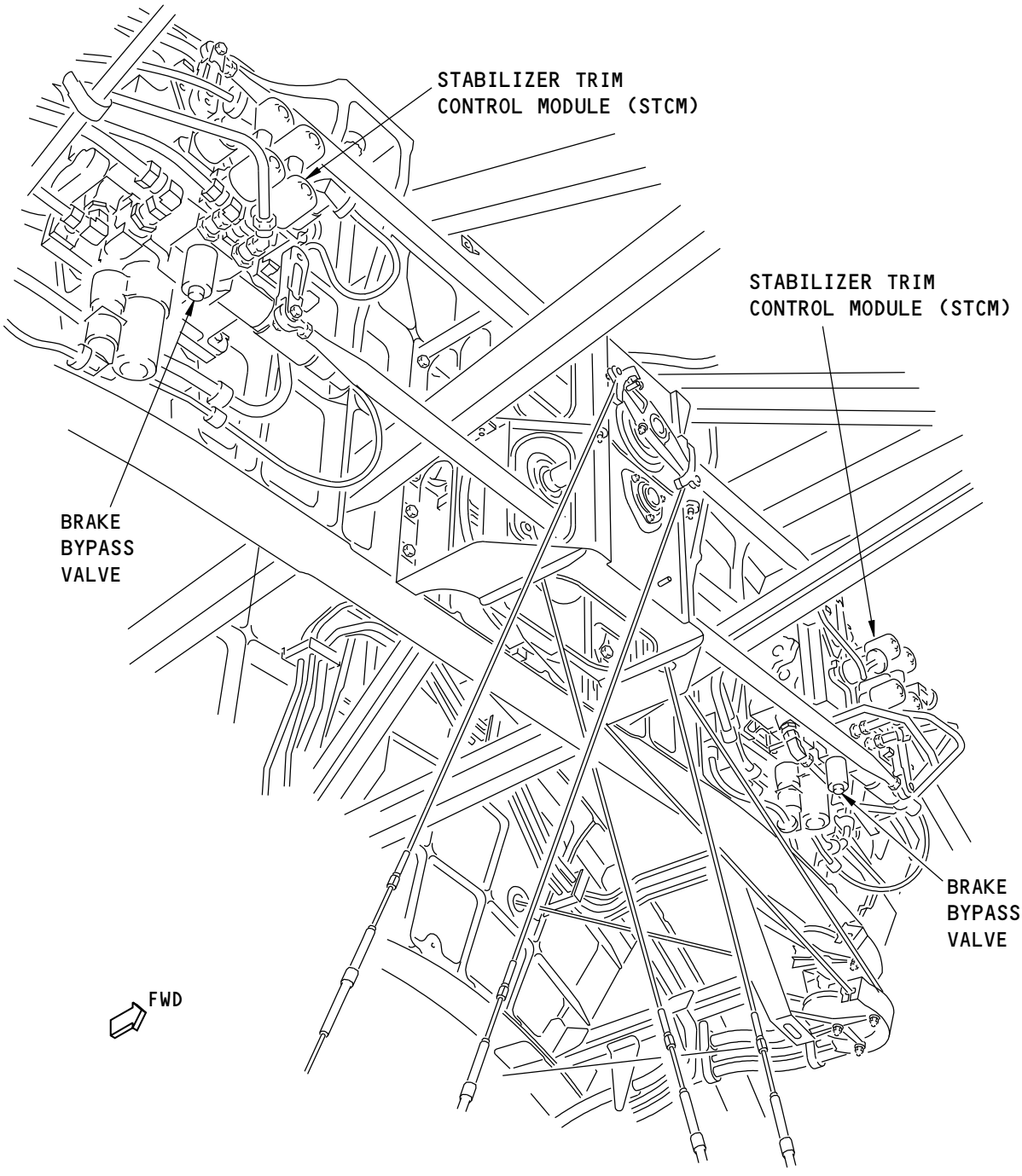
(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-00-840-064

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

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Stabilizer Trim Control Module (STCM) Brake Bypass Valve
Figure 505/27-41-00-990-805

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TASK 27-41-00-700-811

16. Stabilizer Cutout Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to make sure the stabilizer cutout switches and valves operate correctly. They stop the flow of hydraulic power to the horizontal stabilizer.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Prepare for the Procedure

SUBTASK 27-41-00-840-065

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-00-840-066

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

NOTE: Make sure the right hydraulic system is depressurized.

SUBTASK 27-41-00-840-067

(3) Set the R STAB cutout switch, on the control stand, to CUTOUT.

SUBTASK 27-41-00-840-068

(4) Set the C STAB cutout switch, on the control stand, to NORM.

SUBTASK 27-41-00-840-069

(5) Use the ALTN PITCH TRIM levers to move the horizontal stabilizer to a position of less than 8.0 units.

E. Procedure

SUBTASK 27-41-00-710-029

(1) Pull the ALTN PITCH TRIM levers fully aft.

(a) Make sure the horizontal stabilizer moves.

(b) Put the C STAB cutout switch in the CUTOUT position.

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1) Make sure the horizontal stabilizer stops in 2 seconds or less.

NOTE: We recommend you use page 2 of the maintenance pages for the flight controls, (TASK 31-61-00-800-804) to look for movement of the horizontal stabilizer.

(c) Put the C STAB cutout switch back in the NORM position.

1) Make sure the horizontal stabilizer moves in 2 seconds or less.

(d) Release the ALTN PITCH TRIM levers.

SUBTASK 27-41-00-840-083

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the right hydraulic system. do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

NOTE: Make sure the center hydraulic system is depressurized.

SUBTASK 27-41-00-840-070

(3) Set the R STAB cutout switch, on the control stand, to NORM.

SUBTASK 27-41-00-840-071

(4) Set the C STAB cutout switch, on the control stand, to CUTOUT.

SUBTASK 27-41-00-840-072

(5) If the horizontal stabilizer is in a position of less than 6.0 units, use the ALTN PITCH TRIM levers to move it to more than 6.0 units.

SUBTASK 27-41-00-710-030

(6) Push the ALTN PITCH TRIM levers fully forward.

(a) Make sure the horizontal stabilizer moves.

(b) Put the R STAB switch in the CUTOUT position.

1) Make sure the horizontal stabilizer stops in 2 seconds or less.

NOTE: We recommend you use page 2 of the maintenance pages for the flight controls, (TASK 31-61-00-800-804) to look for movement of the horizontal stabilizer.

(c) Put the R STAB switch back in the NORM position.

1) Make sure the horizontal stabilizer moves in 2 seconds or less.

(d) Release the ALTN PITCH TRIM levers.

(7) Set the C STAB cutout switch, on the control stand, to NORM.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-840-073

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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TASK 27-41-00-700-812

17. Horizontal Stabilizer Trim Actuator Freeplay - Test

A. General

(1) Use this test to check the freeplay between the horizontal stabilizer trim actuator and the ballscrew.

B. References

Reference	Title
27-41-13-010-801	Stabilizer Trim Actuator - Removal (P/B 401)
27-41-13-420-801	Stabilizer Trim Actuator - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-4138	Test Equipment, Horizontal Stabilizer Freeplay Part #: J55002-59 Supplier: 81205 Opt Part #: J55002-37 Supplier: 81205
STD-1238	Indicator - Dial

D. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Procedure

SUBTASK 27-41-00-840-075

(1) Set the C STAB CUTOUT switch and the R STAB CUTOUT switch to CUTOUT.

SUBTASK 27-41-00-840-076

(2) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	2	CBB2-R	STAB TRIM

SUBTASK 27-41-00-010-006

(3) Get access to the stabilizer trim actuator through this access panel:

Number	Name/Location
311BL	Service Access Door

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SUBTASK 27-41-00-480-006

(4) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-00-480-007

(5) Install the test equipment, SPL-4138 between the horizontal stabilizer and the lower fuselage (Figure 506).

SUBTASK 27-41-00-480-008

(6) Install the dial indicator between the stabilizer trim actuator gearbox housing and the ballscrew.

(a) Zero the dial indicator.

G. Procedure

SUBTASK 27-41-00-750-001

CAUTION

DO NOT APPLY MORE THAN 2500 POUNDS AS INDICATED ON THE FORCE GAUGE TEST EQUIPMENT, SPL-4138. ALSO, DO NOT APPLY POWER TO THE STABILIZER TRIM ACTUATOR WITH THE TEST EQUIPMENT, SPL-4138 INSTALLED. THE TEST EQUIPMENT, SPL-4138 CAN BREAK OR CAUSE DAMAGE TO THE AIRCRAFT.

(1) Use thetest equipment, SPL-4138, to slowly apply a downward force of 2250 pounds as indicated on the force gauge.

NOTE: To apply a downward force on the stabilizer, the lock must be turned in a direction that shortens the lock assembly length.

(a) Make a record of the quantity shown on the dial indicator.

NOTE: This quantity is the horizontal stabilizer trim actuator freeplay.

SUBTASK 27-41-00-750-002

CAUTION

MAKE SURE TO NOT APPLY A COMPRESSION LOAD ON THE HORIZONTAL STABILIZER FREEPLAY TEST EQUIPMENT. A COMPRESSION CONDITION WILL CAUSE DAMAGE TO THE HORIZONTAL STABILIZER FREEPLAY TEST EQUIPMENT.

(2) Use the test equipment, SPL-4138 to slowly release the downward force that was applied.

(a) Monitor the force gage on the test equipment, SPL-4138 and the dial indicator, STD-1238.

1) When the force gage reads zero and there is no movement on the dial indicator, STD-1238, remove the test equipment, SPL-4138.

2) Make sure not to put a compression load on the test equipment, SPL-4138.

NOTE: The test equipment, SPL-4138 can be damaged if it is in a compression load condition.

SUBTASK 27-41-00-750-004

(3) If the freeplay is 0.030 inch (0.76 mm) and more (maximum wear limits), remove the stabilizer trim actuator and overhaul.

(a) Do this task: Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801.

SUBTASK 27-41-00-750-005

(4) If the freeplay is 0.070 inch (1.78 mm) or more (excessive wear or broken part), remove the stabilizer trim actuator and inspect.

(a) Do this task: Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801.

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SUBTASK 27-41-00-420-002

(5) If you removed the stabilizer trim actuator, do this task: Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-41-00-840-078

(1) Remove the dial indicator between the stabilizer trim actuator gearbox housing and the ballscrew.

SUBTASK 27-41-00-840-079

(2) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-00-410-008

(3) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-00-840-080

(4) Set the C STAB CUTOUT switch and the R STAB CUTOUT switch to NORM.

SUBTASK 27-41-00-840-081

(5) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

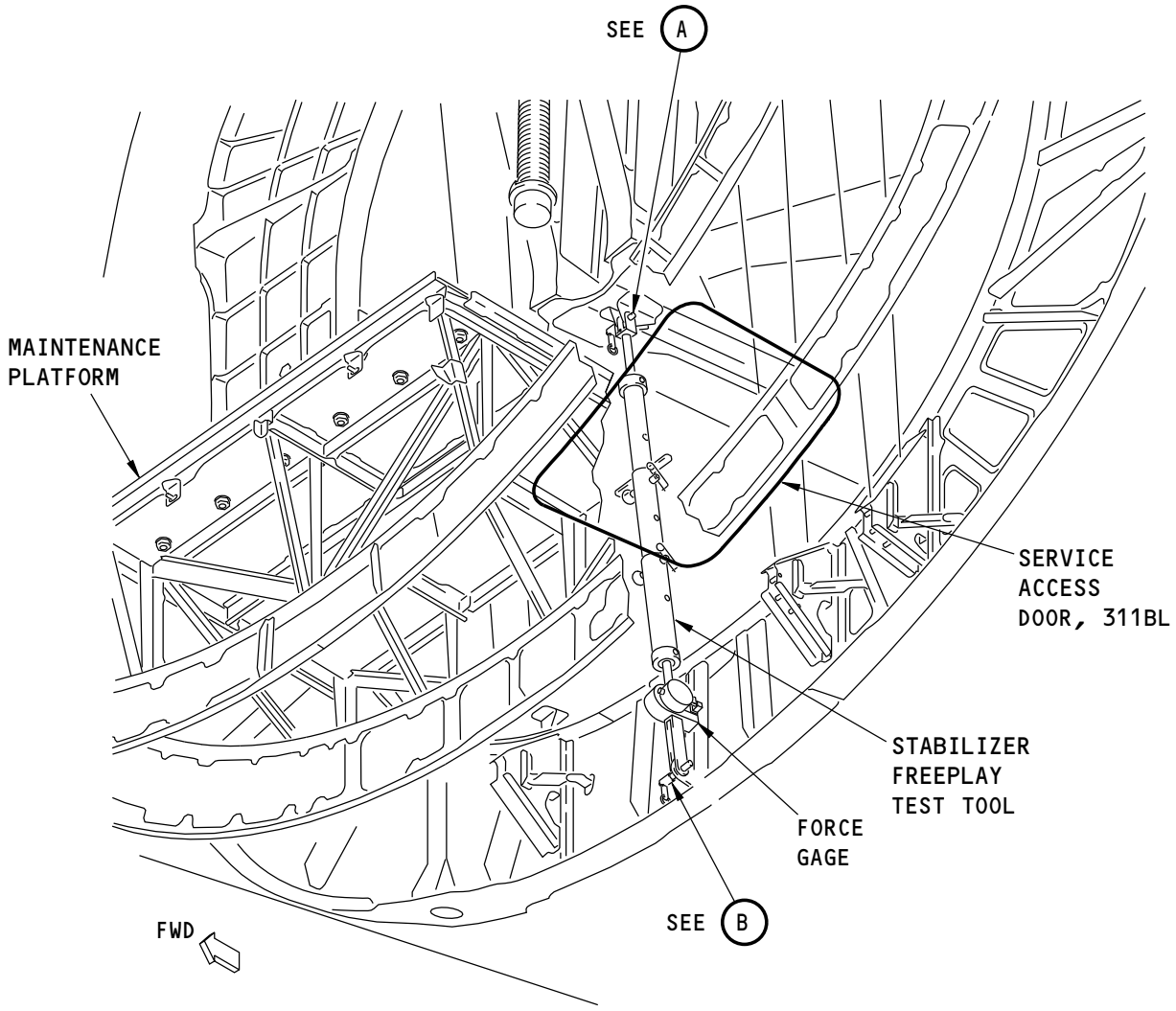
Row	Col	Number	Name
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	2	CBB2-R	STAB TRIM

——— END OF TASK ———

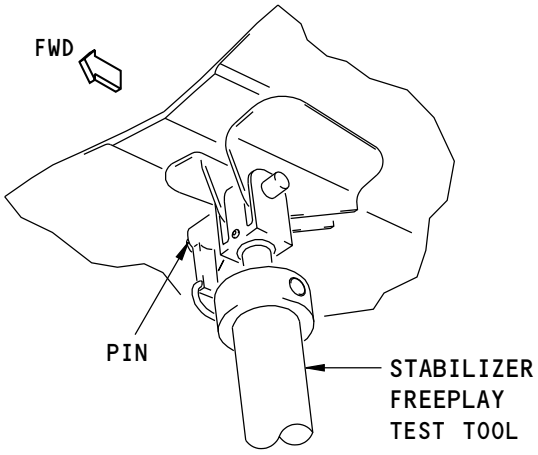
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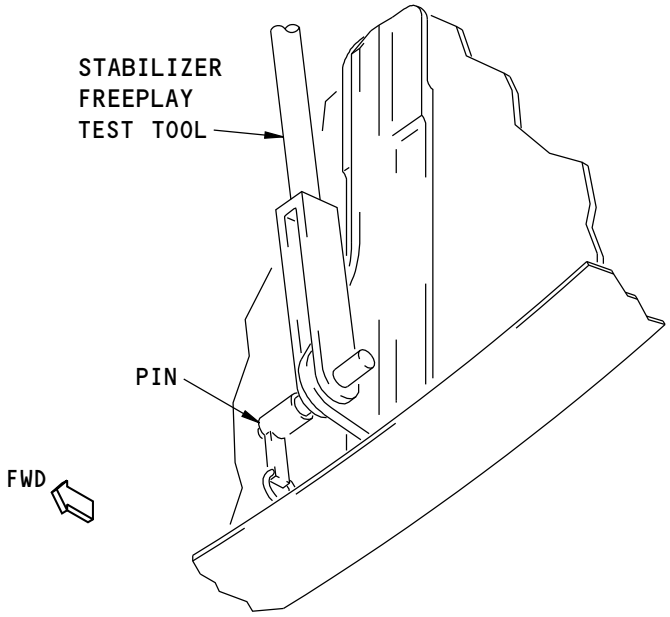
Stabilizer Trim Actuator Freeplay Test
Figure 506/27-41-00-990-806 (Sheet 1 of 3)

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UPPER ATTACHMENT

A



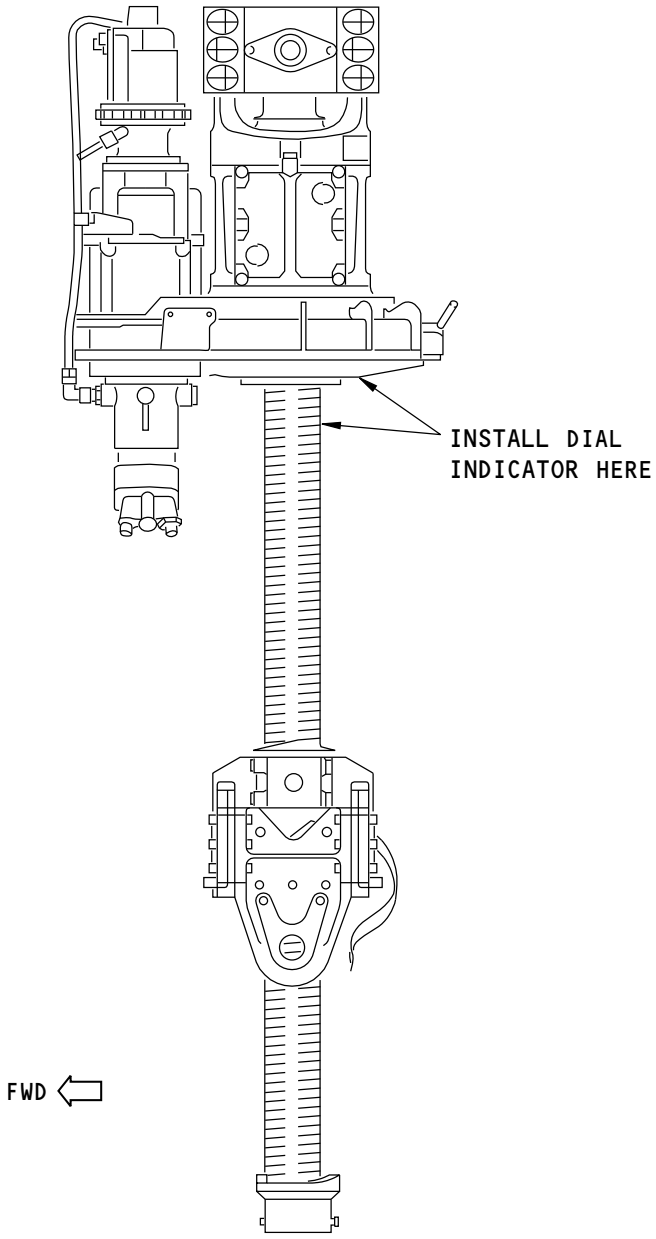
LOWER ATTACHMENT

B

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Stabilizer Trim Actuator Freeplay Test
Figure 506/27-41-00-990-806 (Sheet 2 of 3)

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Stabilizer Trim Actuator Freeplay Test
Figure 506/27-41-00-990-806 (Sheet 3 of 3)

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PITCH TRIM SWITCHES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the pitch trim switches

(2) An installation of the pitch trim switches.

TASK 27-41-01-000-801

2. Pitch Trim Switches Removal

A. General

(1) There are pitch trim switches installed in the Captain's and First Officers control wheels. This procedure is applicable to two switches.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1113	Tool - Wire Insertion and Extraction Part #: M15570-20 Supplier: 00779

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-41-01-040-001

(1) Put the Center and Right Stab Trim Cutoff switches on the control stand to the CUTOFF position.

SUBTASK 27-41-01-040-002

(2) If you will remove the pitch trim switch [1] on the Captain's control wheel, do the steps that follow:

(a) Open these circuit breakers and attach DO-NOT-CLOSE tags:

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE-L1 PWR

2) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) A1, ACE-C PWR

SUBTASK 27-41-01-040-003

(3) If you are to remove the pitch trim switch [1] on the First Officer's control wheel, do the steps that follow:

(a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

1) On the right power supply assembly (PSA-R) in the E5-1 rack:

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a) A1, ACE-R PWR

SUBTASK 27-41-01-010-001

(4) Remove the approach plate [6], the medallion [3] and the wire guard assembly [2] in the center of the control wheel (Figure 401).

NOTE: The approach plate is part of the medallion. To remove the medallion and the approach plate assembly, slide it up or down.

(a) Move the approach plate [6] until you can get access to screw [4] and screw [5] on the medallion [3].

(b) Remove the screw [4] and screw [5] on the medallion [3].

1) Remove the medallion [3] and the approach plate [6].

(c) Remove the wire guard assembly [2].

SUBTASK 27-41-01-020-001

(5) Use the wire insertion and extraction tool, COM-1113 to disconnect the six wires for the pitch trim switch [1] in the center of the control wheel (Figure 402).

(a) If it is necessary, loosen or remove the adapter [8] (Figure 401) to release the quick disconnects.

SUBTASK 27-41-01-020-002

(6) Remove the pitch trim switch [1] (Figure 401):

(a) Remove the screws [7] that hold the pitch trim switch [1] to the control wheel.

(b) Attach a threading wire to the end of the wire connectors for the pitch trim switch [1].

NOTE: This threading wire that is attached to the six wires is to help with the installation of the pitch trim switch. For the threading wire, you can use a 30-inch (762 mm) length of standard wire (No. 18 to 20 gage, without insulation).

(c) Remove the pitch trim switch [1] from the control wheel.

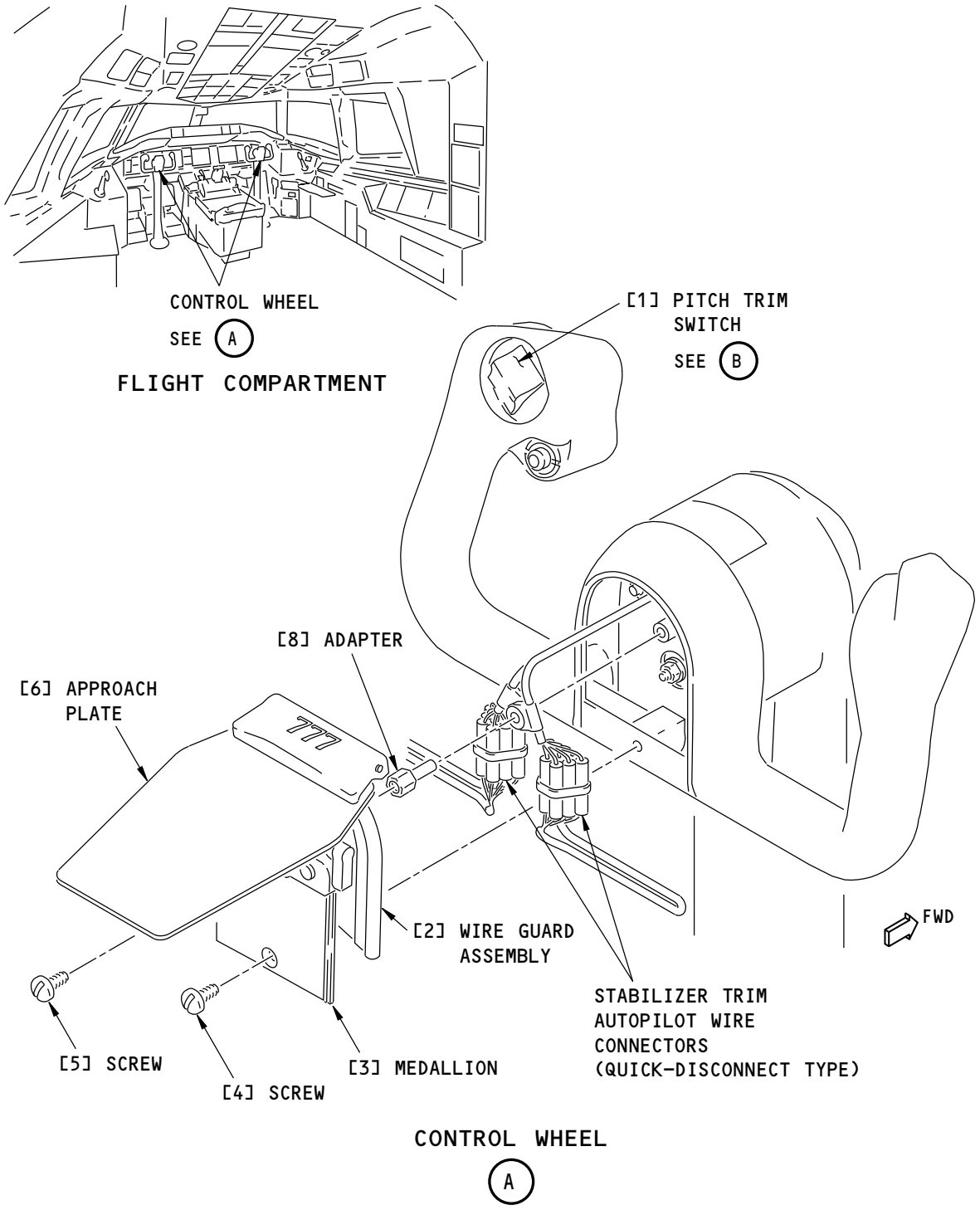
(d) Pull the six wires through the control wheel horn slowly until the threading wire shows.

NOTE: Pull until approximately 3 inches (76 mm) of the threading wire comes out of the control wheel horn. Do not remove the threading wire. It is necessary to use this threading wire for the installation.

(e) Remove the six wires of the pitch trim switch [1] from the threading wire.

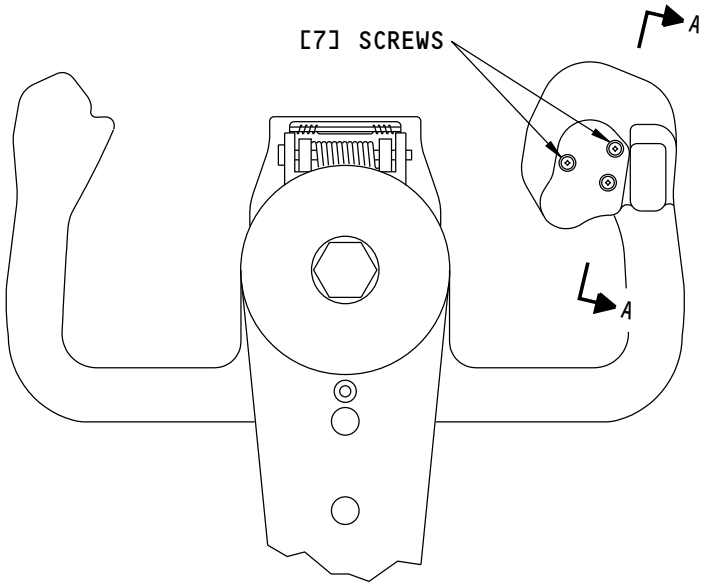
——— END OF TASK ———

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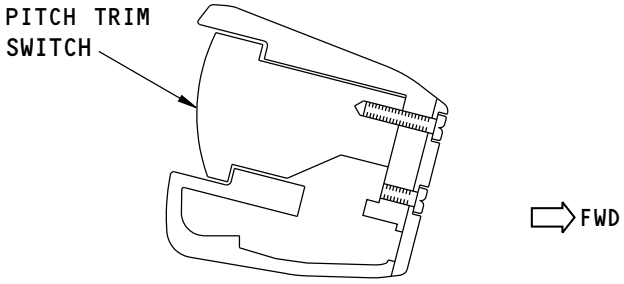
Pitch Trim Switch Installation
Figure 401/27-41-01-990-801 (Sheet 1 of 2)

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PITCH TRIM SWITCH
(VIEW IN THE AFT DIRECTION)

B

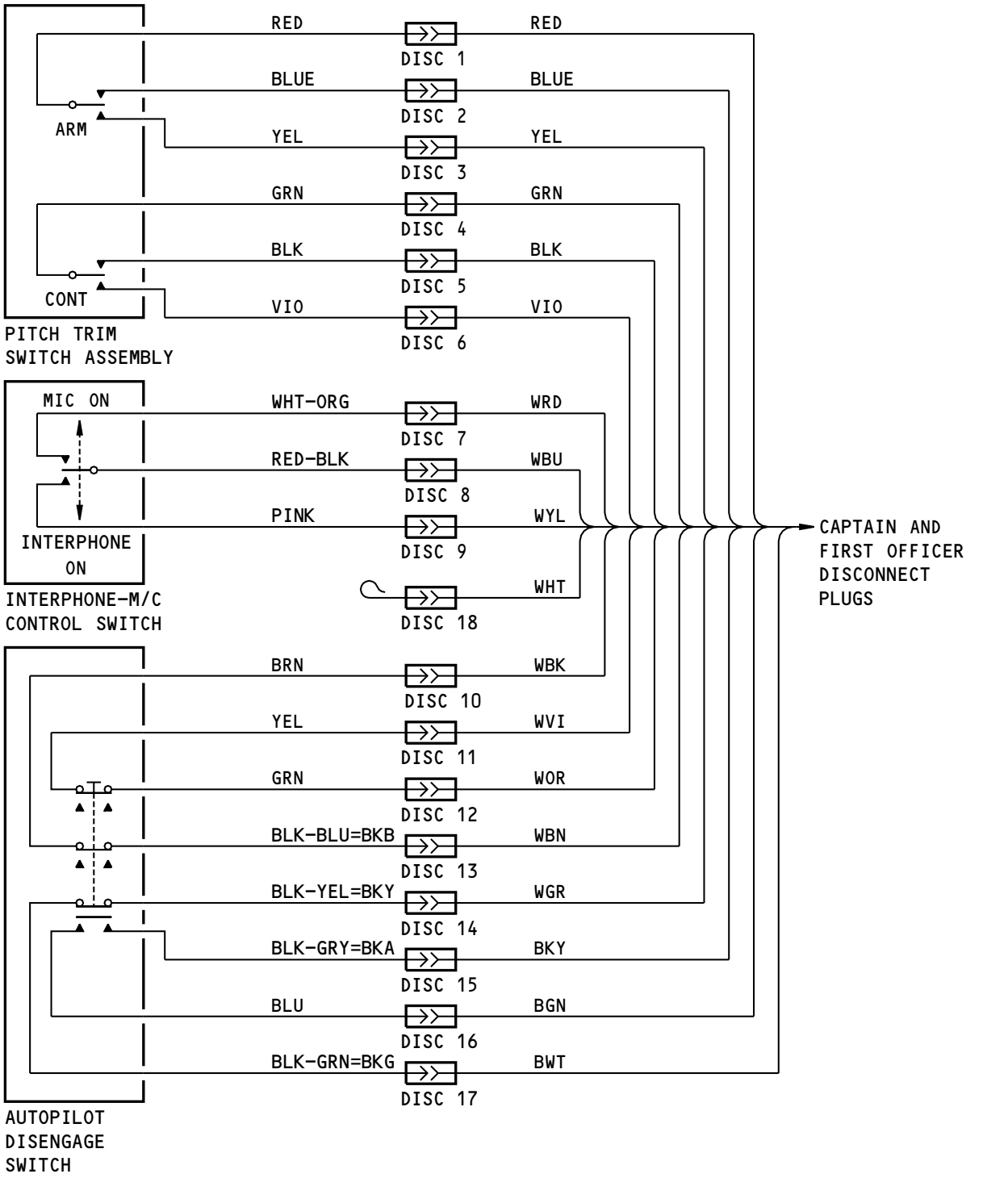


A–A

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Pitch Trim Switch Installation
Figure 401/27-41-01-990-801 (Sheet 2 of 2)

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E73702 S0006413273_V1

Control Wheel Schematic
Figure 402/27-41-01-990-802

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TASK 27-41-01-400-801

3. Pitch Trim Switches Installation

A. General

(1) There are pitch trim switches installed in the Captain's and First Officers control wheels. This procedure is applicable to the two switches.

B. References

Reference	Title
27-41-00-700-803	Pitch Trim Switch Test (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1113	Tool - Wire Insertion and Extraction Part #: M15570-20 Supplier: 00779

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pitch trim switch	27-41-01-01-015	ARO ALL

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

F. Procedure

SUBTASK 27-41-01-420-001

(1) Install the pitch trim switch (Figure 401):

(a) Make sure that the threading wire is in the control wheel horn and the two ends of the threading wire show.

(b) Attach the end of the threading wire that comes out of the control wheel horn around the six wires for the pitch trim switch [1].

(c) Slowly pull the six wires through the control wheel horn with the opposite end of the threading wire.

(d) Put the pitch trim switch [1] in the control wheel.

(e) Install the screws [7] that hold the pitch trim switch [1] to the control wheel.

(f) Remove the threading wire from the six wires of the pitch trim switch [1].

SUBTASK 27-41-01-420-002

(2) Use the wire insertion and extraction tool, COM-1113 to install the six wires for the pitch trim switch [1] in the center of the control wheel (Figure 402).

SUBTASK 27-41-01-420-003

(3) If it is necessary, install the adapter [8] through the clamps of the wire connectors (Figure 401).

SUBTASK 27-41-01-710-001

(4) Make sure the wires do not bind or limit the movement of the control wheel when you turn the control wheel.

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SUBTASK 27-41-01-410-002

(5) Install the wire guard assembly [2].

SUBTASK 27-41-01-410-001

(6) Install the medallion [3] and the approach plate [6] in the center of the control wheel.

NOTE: The approach plate is part of the medallion. To put the medallion and the approach plate assembly in its position, slide it up or down.

SUBTASK 27-41-01-420-004

(7) Install the screw [4] and screw [5].

SUBTASK 27-41-01-440-001

(8) If you installed the pitch trim switch on the Captain's control wheel, do the steps that follow:

(a) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE-L1 PWR

2) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) A1, ACE-C PWR

SUBTASK 27-41-01-440-002

(9) If you installed the pitch trim switch on the First Officer's control wheel, do the steps that follow:

(a) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

1) On the right power supply assembly (PSA-R) in the E5-1 rack:

a) A1, ACE-R PWR

SUBTASK 27-41-01-440-003

(10) Put the Center and Right Stab Trim Cutoff switches on the control stand to the NORM position.

SUBTASK 27-41-01-720-001

(11) Do this task: Pitch Trim Switch Test, TASK 27-41-00-700-803.

——— END OF TASK ———

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ALTERNATE PITCH TRIM LEVERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the alternate pitch trim levers

(2) An installation of the alternate pitch trim levers.

TASK 27-41-02-000-801

2. Alternate Pitch Trim Levers Removal

(Figure 401)

A. General

(1) The alternate pitch trim levers are referred to as the pitch trim control assembly [10] in this task.

(2) The pitch trim control assembly [10] is an assembly of the pitch trim lever assembly [9] and the shaft assembly [24].

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Procedure

SUBTASK 27-41-02-000-001

(1) Do these steps to remove the pitch trim lever assembly [9]:

(a) Turn the quick-release fasteners on the left and right sides of the control stand to release the side panel [1] and side panel [8].

1) Remove the side panel [1] and side panel [8].

(b) Remove the covers from around the pitch trim lever assembly [9]:

1) Remove the screws [6] and screws [7] that attach the switch pack cover [5] to the control stand.

a) Remove the switch pack cover [5].

2) Remove the screws [2] and screw [4] that attach the pitch trim lever cover [3] to the control stand.

a) Remove the pitch trim lever cover [3] and seal assembly [12].

(c) Remove the bolts [25], washers [26] and nuts [27] that attaches the links [20] to the shaft assembly [24].

NOTE: The links [20] are a part of the pitch trim lever assembly [9].

(d) Remove the bolts [13] and washers [14] that attach the pitch trim lever assembly [9] to the control stand.

(e) Remove the pitch trim lever assembly [9] through the top of the control stand.

(f) Remove the bolts [15], nuts [17] and washers [16] that make the links [20] a part of the pitch trim lever assembly [9].

SUBTASK 27-41-02-000-002

(2) Do these steps to remove the shaft assembly [24]:

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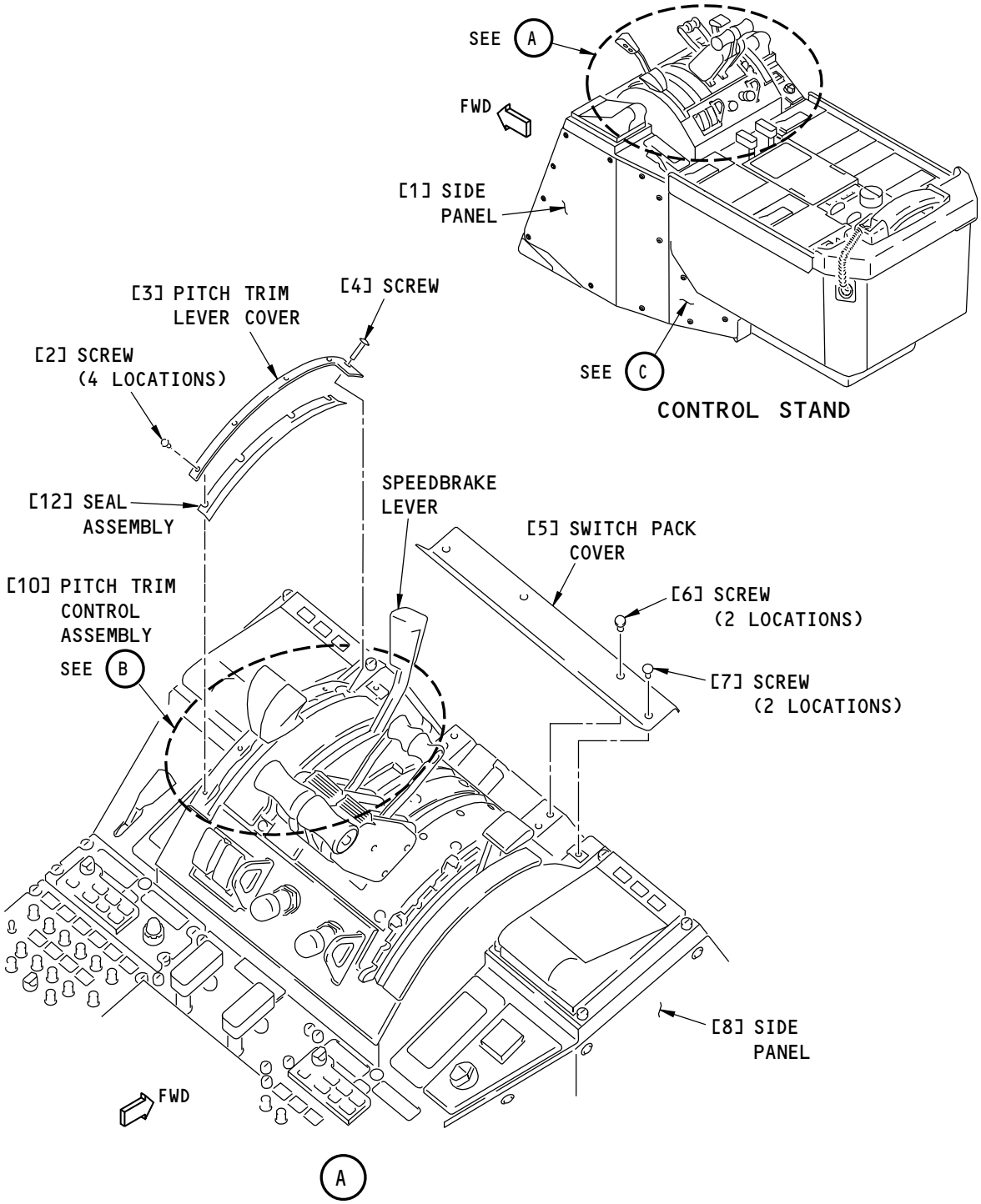
(a) Remove the bolts [21] and nuts [23] to disconnect the left and right control rods from the shaft assembly [24].

(b) Remove the bolts [18] and washers [19] that attach the shaft assembly [24] to the left and right sides of the control stand.

(c) Remove the shaft assembly [24].

END OF TASK

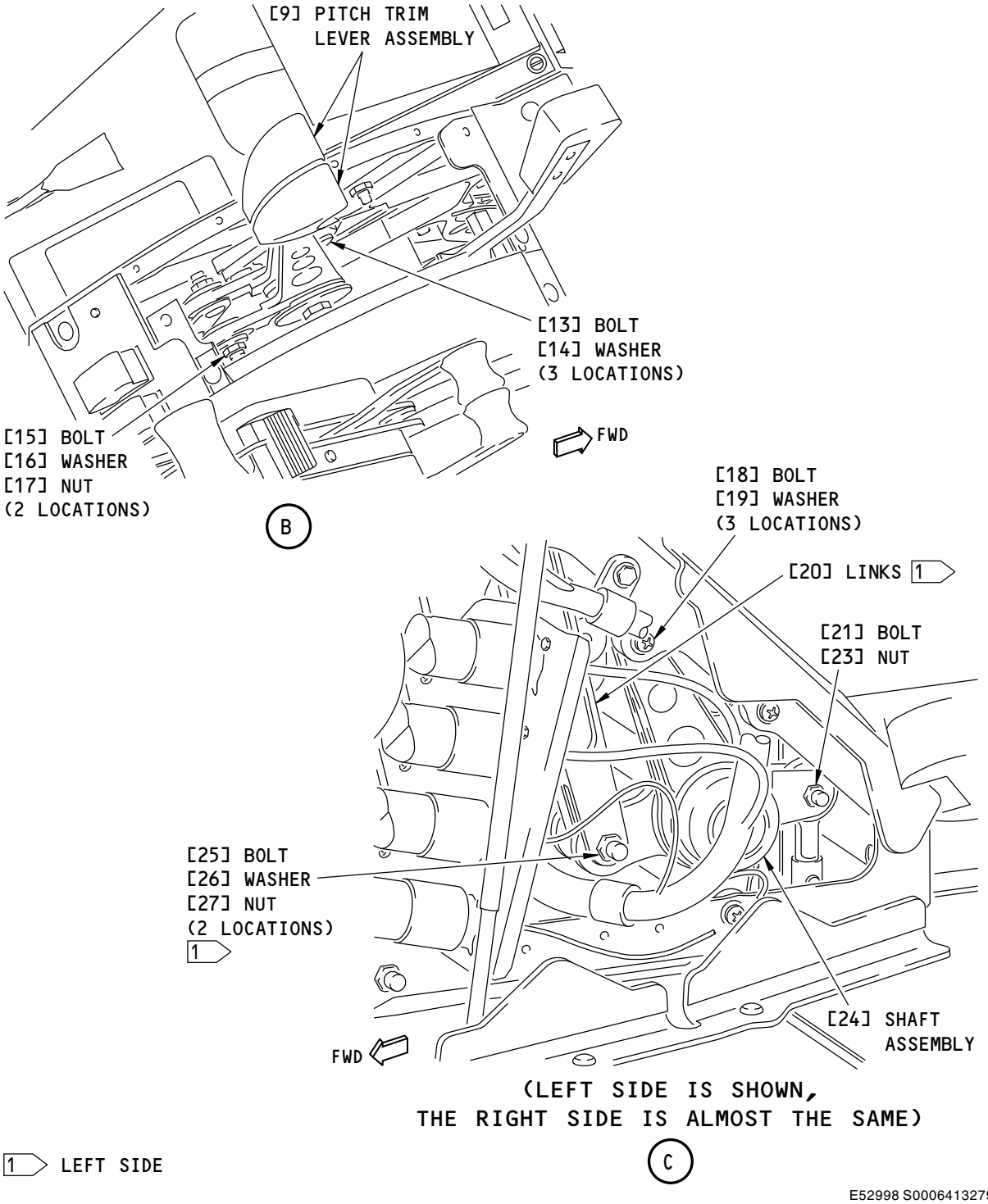
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Alternate Pitch Trim Levers Installation
Figure 401/27-41-02-990-801 (Sheet 1 of 2)

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Alternate Pitch Trim Levers Installation
Figure 401/27-41-02-990-801 (Sheet 2 of 2)

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TASK 27-41-02-400-801

3. Alternate Pitch Trim Levers Installation

(Figure 401)

A. General

(1) The alternate pitch trim levers are referred to as the pitch trim control assembly [10] in this task.

(2) The pitch trim control assembly [10] is an assembly of the pitch trim lever assembly [9] and the shaft assembly [24].

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Pitch trim lever cover	76-11-10-05-050	ARO ALL
9	Pitch trim lever assembly	27-41-02-05-040	ARO ALL
12	Seal assembly	76-11-10-05-040	ARO ALL
		76-11-10-05-045	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-41-02-400-001

(1) Do these steps to install the shaft assembly [24]:

(a) Put the shaft assembly [24] into position in the control stand.

(b) Install the washers [19] and bolts [18] that attach the shaft assembly [24] to the control stand.

(c) Install the bolts [21] and nuts [23] to connect the left and right control rods to the shaft assembly [24].

SUBTASK 27-41-02-400-002

(2) Do these steps to install the pitch trim lever assembly [9]:

(a) Install the bolts [15], nuts [17] and washers [16] that make the links [20] a part of the pitch trim lever assembly [9].

(b) Put the pitch trim lever assembly [9] into position, through the top of the control stand.

(c) Install the bolts [13] and washers [14] that attach the pitch trim lever assembly [9] to the control stand.

(d) Install the bolts [25], washers [26] and nuts [27] that attaches the links [20] to the shaft assembly [24].

NOTE: The links [20] are a part of the pitch trim lever assembly [9].

(e) Do these steps to install the covers around the pitch trim lever assembly [9]:

1) Install the seal assembly [12] and pitch trim lever cover [3].

2) Install the screws [2] and screw [4] that attach the pitch trim lever cover [3] to the control stand.

3) Install the switch pack cover [5].

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4) Install the screws [6] and screws [7] that attach the pitch trim lever cover [3] to the control stand.

(f) Put the side panel [1] and side panel [8] in their positions on the control stand.

(g) Turn the quick-release fasteners to hold the side panel [1] and side panel [8].

——— END OF TASK ———

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STABILIZER CUTOUT SWITCHES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the stabilizer cutout switches

(2) An installation of the stabilizer cutout switches.

B. The stabilizer cutout switches are installed on the engine start and stab cutout module on the control stand.

TASK 27-41-04-000-801

2. Stabilizer Cutout Switches Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Prepare for the Removal

SUBTASK 27-41-04-040-001

(1) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE-C PWR

2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE-R PWR

2) D8, PFC BATT INTLK

3) D2, PFC LANE 1

4) D4, PFC LANE 2

5) D6, PFC LANE 3

C. Stabilizer Cutout Switches Removal

SUBTASK 27-41-04-420-005

(1) Remove the lightplate [2] for the eng and stab cutout module [4]:

(a) Loosen the captive fasteners [3] which hold the lightplate [2] to the eng and stab cutout module [4].

(b) Break the connection between the lightplate electrical connector [8] and the power connector [9] on the eng and stab cutout module [4].

NOTE: To do this, carefully pull on the area of the lightplate [2] near the lightplate electrical connector [8].

(c) Carefully remove the lightplate [2] from the eng and stab cutout module [4].

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SUBTASK 27-41-04-020-001

(2) Remove screws [1] and screws [7] and pull the eng and stab cutout module [4] out from the control stand.

SUBTASK 27-41-04-020-002

(3) Disconnect the electrical terminals from the back of the stabilizer cutout switch [6].

SUBTASK 27-41-04-020-003

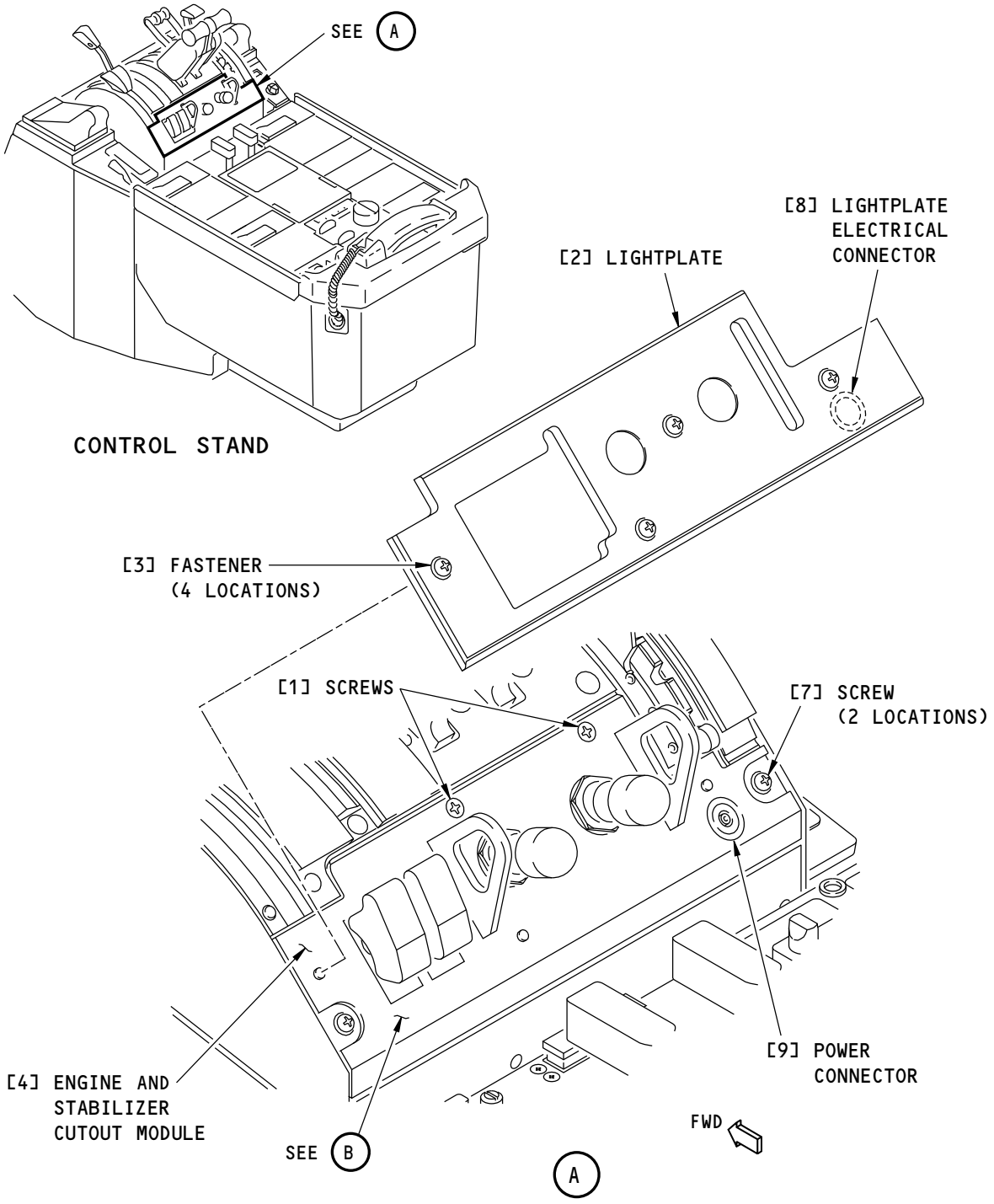
(4) Remove the stabilizer cutout switch [6] from the eng and stab cutout module [4]:

(a) Remove the locknuts [10], lockwasher [11], switch guard [5], locking ring [12].

(b) Remove the stabilizer cutout switch [6] from the back side of the eng and stab cutout module [4].

END OF TASK

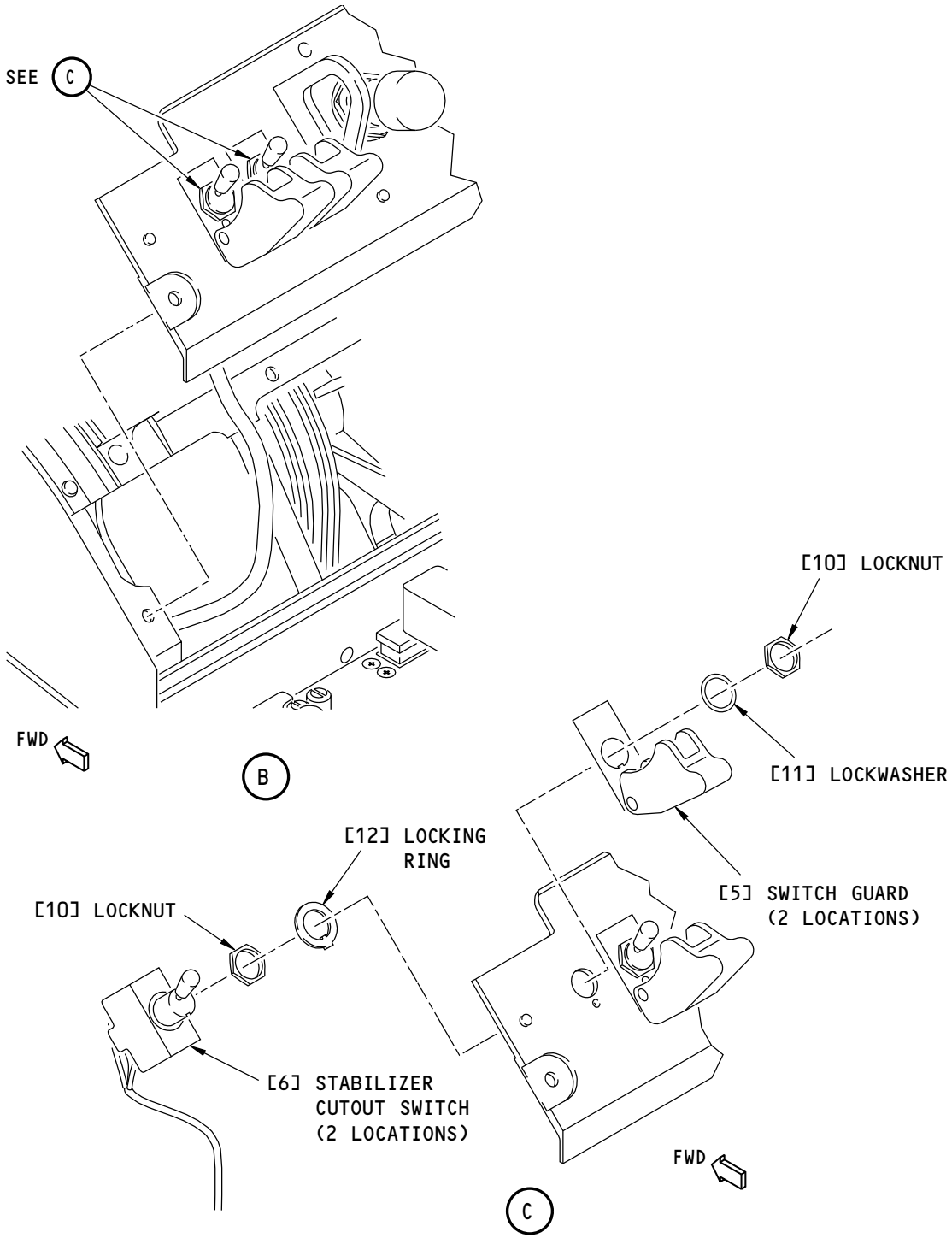
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Stabilizer Cutout Switches Installation
Figure 401/27-41-04-990-801 (Sheet 1 of 2)

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Stabilizer Cutout Switches Installation
Figure 401/27-41-04-990-801 (Sheet 2 of 2)

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TASK 27-41-04-400-801

3. Stabilizer Cutout Switches Installation

(Figure 401)

A. References

Reference	Title
27-41-00-700-811	Stabilizer Cutout Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Stabilizer cutout switch	27-41-04-05-015	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Stabilizer Cutout Switches Installation

SUBTASK 27-41-04-420-001

(1) Install the stabilizer cutout switch [6] on the eng and stab cutout module [4]:

(a) Install stabilizer cutout switch [6] on the back side of the eng and stab cutout module [4].

(b) Install the locking ring [12], switch guard [5], lockwasher [11], and locknuts [10].

NOTE: The stabilizer cutout switch [6], locking ring [12] and switch guard [5] are all keyed for correct installation.

SUBTASK 27-41-04-420-002

(2) Connect the electrical terminals to the back of the stabilizer cutout switch [6].

SUBTASK 27-41-04-420-003

(3) Install the eng and stab cutout module [4], the screws [1] and screws [7].

SUBTASK 27-41-04-420-004

(4) Install the lightplate [2] on the eng and stab cutout module [4]:

(a) Put the lightplate [2] into its position on the eng and stab cutout module [4].

NOTE: Make sure to align the lightplate electrical connector [8] with the power connector [9] on the eng and stab cutout module [4].

(b) Push against the front of the lightplate [2] where the lightplate electrical connector [8] touches the power connector [9] on the eng and stab cutout module [4].

NOTE: Do this to make sure the lightplate [2] has a good electrical connection.

(c) Tighten the captive fasteners [3] which hold the lightplate [2] to the eng and stab cutout module [4].

SUBTASK 27-41-04-440-001

(5) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

NOTE: For the circuit breakers on the two panels, close the PFC circuit breakers last.

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE-C PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2

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5) D6, PFC LANE 3

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE-R PWR
2) D8, PFC BATT INTLK
3) D2, PFC LANE 1
4) D4, PFC LANE 2
5) D6, PFC LANE 3

SUBTASK 27-41-04-710-001

(6) Do this task: Stabilizer Cutout Test, TASK 27-41-00-700-811.

——— END OF TASK ———

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STABILIZER QUADRANT AND ALTERNATE PITCH TRIM LEVER SWITCHES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the alternate pitch trim lever switches for the alternate pitch trim cables.

(2) An installation of the alternate pitch trim lever switches for the alternate pitch trim cables.

(3) A removal of the stabilizer quadrants for the alternate pitch trim cables.

(4) An installation of the stabilizer quadrants for the alternate pitch trim cables.

(5) A removal of the aft stabilizer trim linkage for the alternate pitch trim cables.

(6) An installation of the aft stabilizer trim linkage for the alternate pitch trim cables.

B. In this procedure the stabilizer quadrant is referred to as the forward pitch trim quadrant [5].

C. In this procedure the aft quadrant is referred to as the aft stabilizer trim linkage [34].

TASK 27-41-06-000-801

2. Alternate Pitch Trim Lever Switches Removal

(Figure 401)

A. General

(1) There are three alternate pitch trim switches on each of the forward pitch trim quadrants. This procedure is applicable to all six alternate pitch trim switches.

B. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

C. Access Panels

Number	Name/Location
112AL	Forward Access Door

D. Prepare for the Removal

SUBTASK 27-41-06-840-001

(1) Put the L, C and R FLT CONTROL HYD VALVE POWER - TAIL switches in the SHUT OFF position.

NOTE: These switches are located on the Overhead Maintenance Panel (P61) in the Flight Deck.

SUBTASK 27-41-06-840-002

(2) Put the C and R STAB CUTOUT switches in the CUTOUT position.

NOTE: These switches are located on the Control Stand (P10) in the Flight Deck.

SUBTASK 27-41-06-010-001

(3) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

to get access to the forward pitch trim quadrant [5].

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E. Alternate Pitch Trim Lever Switches Removal

SUBTASK 27-41-06-020-001

(1) Do these steps to the switch that you will remove:

(a) Loosen the screws [19] and disconnect the wire assembly [20] from the switch assembly [15].

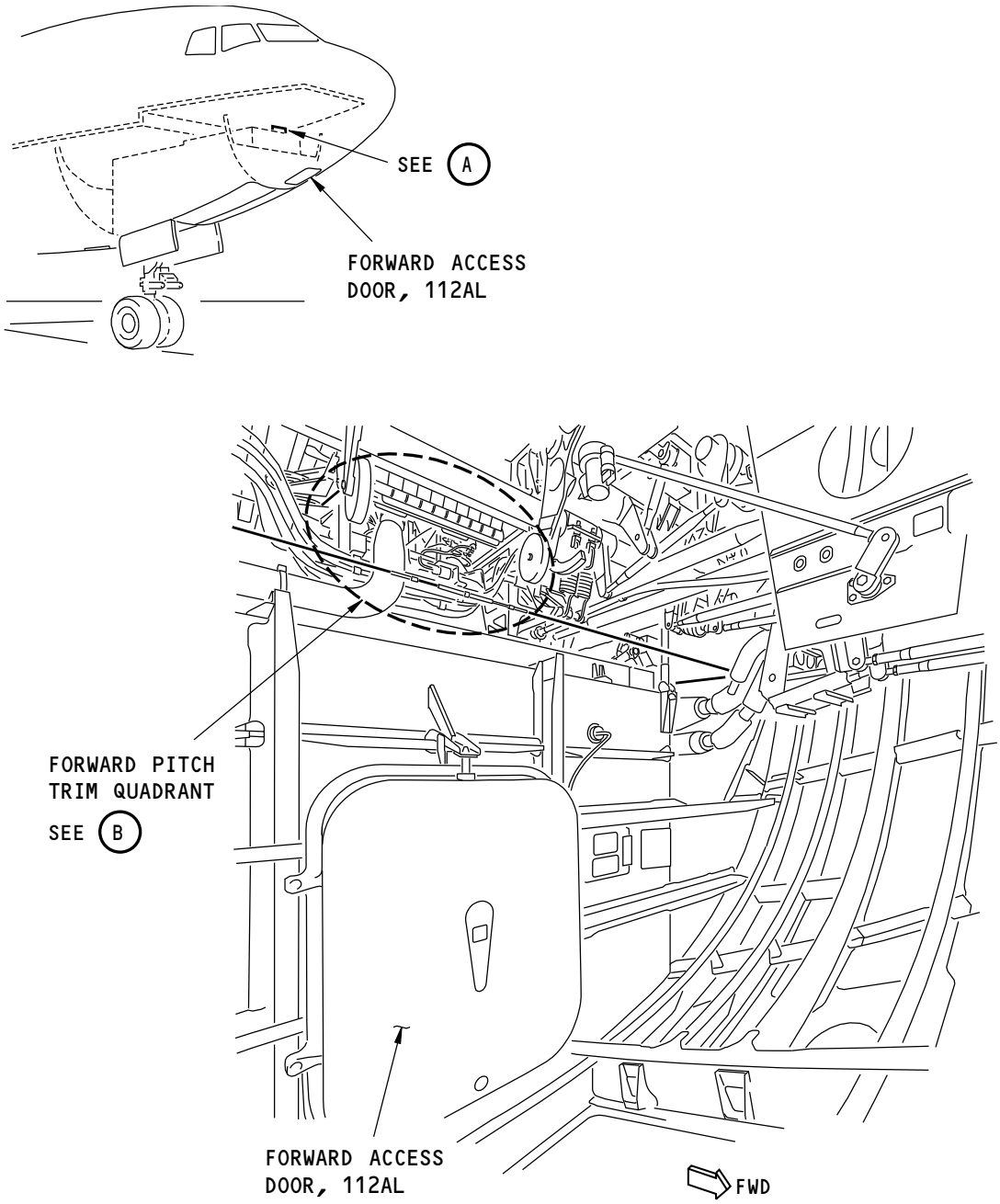
(b) Remove the nuts [17] and washers [18] that fasten the switch assembly [15] to the forward pitch trim quadrant [5].

(c) Remove the switch assembly [15].

(d) Continue to remove switch assembly [13], switch assemblies [14], switch assembly [15] and switch assembly [16] as necessary by repeating the above steps for each switch.

——— END OF TASK ———

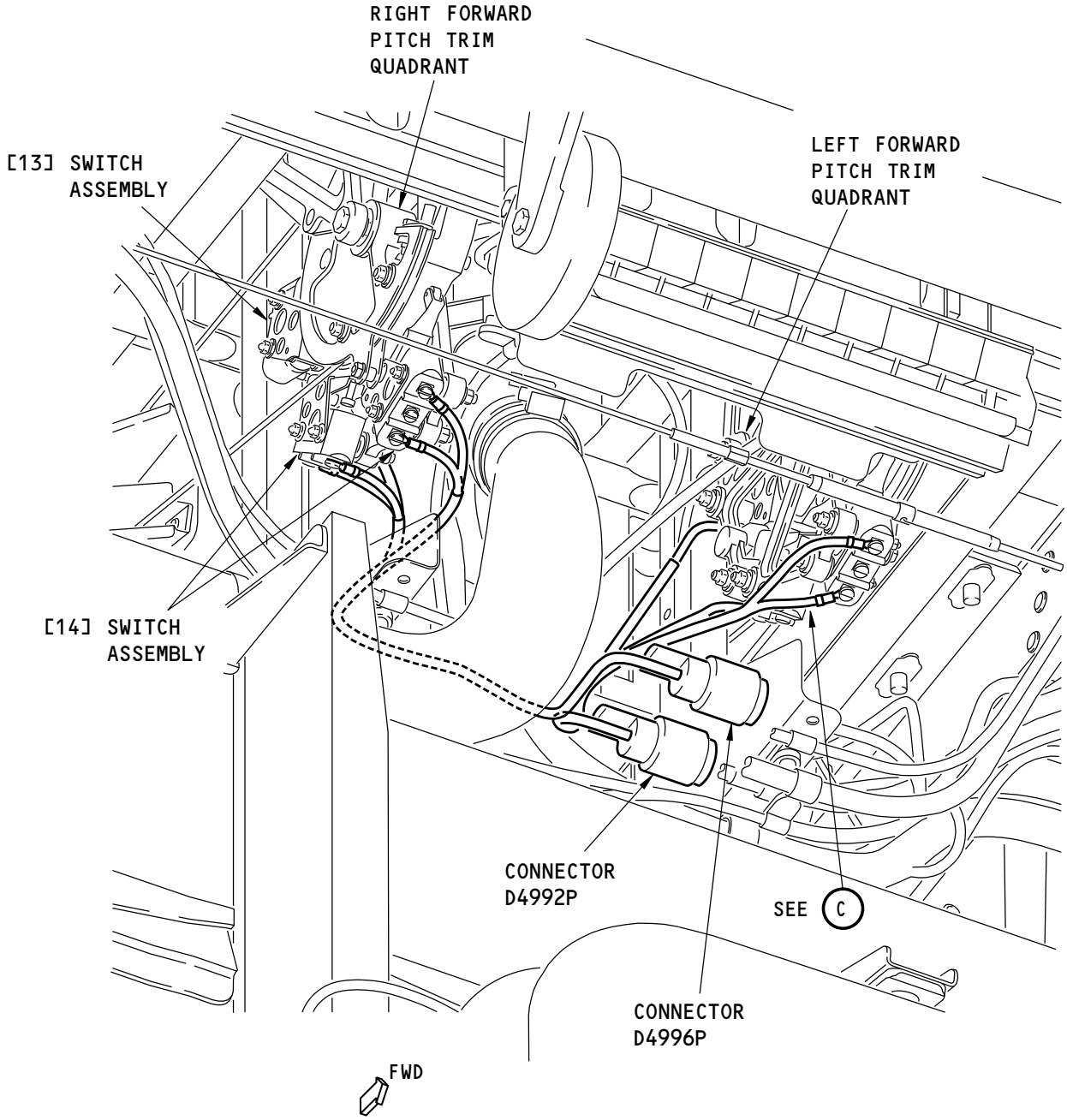
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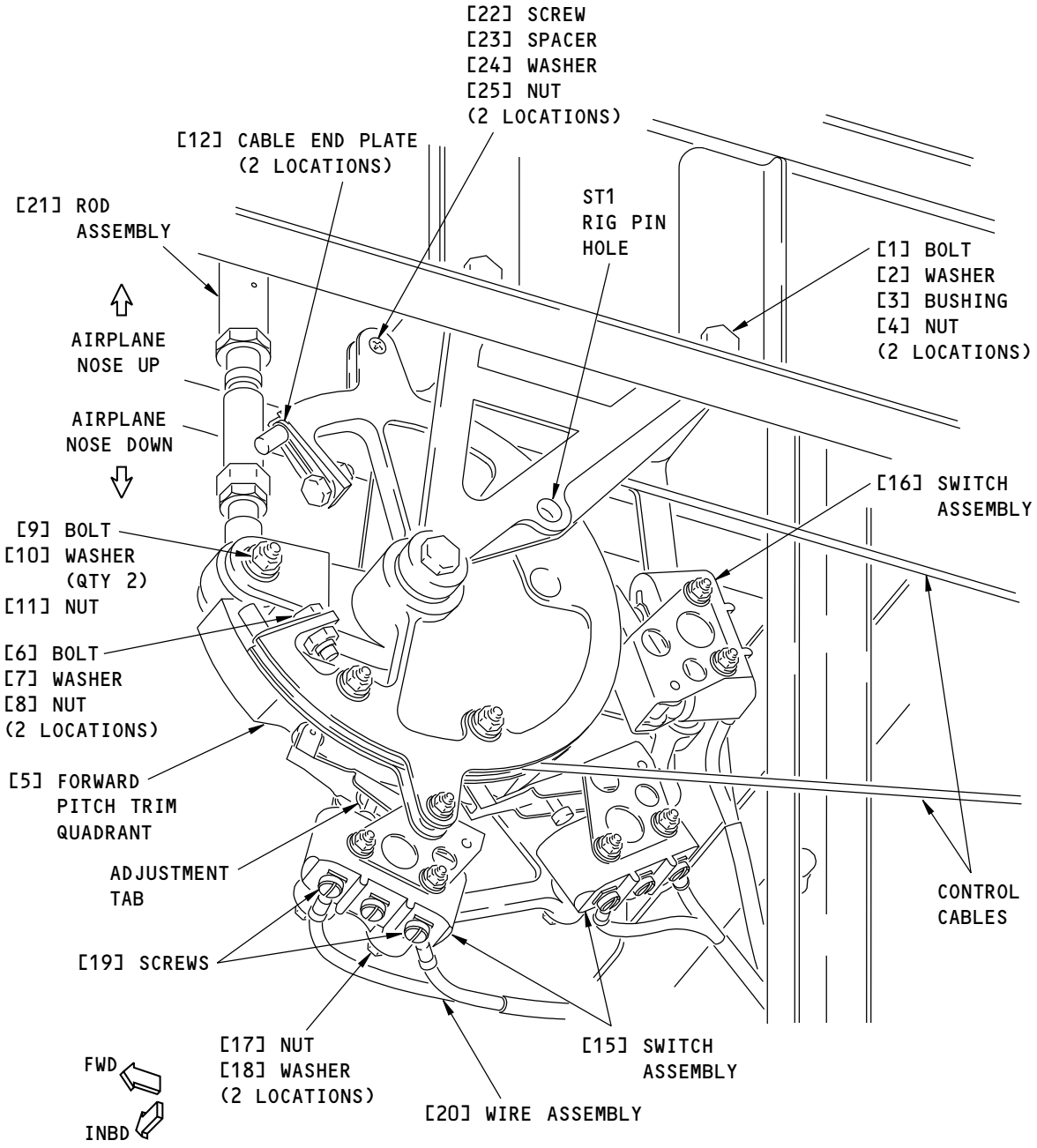
Forward Pitch Trim Quadrant Installation
Figure 401/27-41-06-990-801 (Sheet 1 of 3)

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Forward Pitch Trim Quadrant Installation
Figure 401/27-41-06-990-801 (Sheet 2 of 3)

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LEFT FORWARD PITCH TRIM QUADRANT
(RIGHT FORWARD PITCH TRIM QUADRANT IS EQUIVALENT)

C

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Forward Pitch Trim Quadrant Installation
Figure 401/27-41-06-990-801 (Sheet 3 of 3)

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TASK 27-41-06-400-802

3. Alternate Pitch Trim Lever Switches Installation

(Figure 401)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2536	Pin - Rig (J20003-10 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-2537	Pin - Rig (J20003-6 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
13	Switch assembly	27-41-06-10-190	ARO ALL
14	Switch assembly	27-41-06-10-145	ARO ALL
15	Switch assembly	27-41-06-10-140	ARO ALL
16	Switch assembly	27-41-06-10-185	ARO ALL

C. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right

D. Access Panels

Number	Name/Location
112AL	Forward Access Door

E. Alternate Pitch Trim Lever Switches Installation

SUBTASK 27-41-06-420-002

(1) Do these steps:

(a) Put the switch assembly [13] or switch assemblies [14] or switch assembly [15] or switch assembly [16] in its position on the forward pitch trim quadrant [5].

(b) Install the washers [18] and nuts [17].

(c) Connect the wire assembly [20].

(d) Do these steps again for the remaining switch if it is necessary.

(e) Tighten nuts [17] to 25-35 pound-inches (2.83 - 3.96 newton-meters).

F. Alternate Pitch Trim Lever Switches Test

SUBTASK 27-41-06-700-001

(1) Do these steps for testing the switch assemblies [15] and switch assembly [16]:

(a) Install therig pin (J20003-10 assembly), SPL-2536 (ST1) in the forward pitch trim quadrant [5].

(b) Disconnect the wire assembly [20] connector D4992P for the switch assemblies [15] and switch assembly [16].

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(c) Make sure there is continuity between the connector pins as shown in the Switch Continuity Test Table.

Table 401/27-41-06-993-801

Switch Continuity Test (Connector D4992P)				
Switch	**Connector**	**Switch Condition**		
	Pins	**"RIGGED"**	**"NOSE UP"**	**"NOSE DN"**
S27047	5 and 6	Closed	Open	Open
S27048	1 and 2	Closed	Open	Closed
S27049	3 and 4	Closed	Closed	Open

(d) If the switch does not meet the condition listed in the table, do this step:

1) Bend the adjustment tab on the switch as necessary.

(e) Remove the rig pin (J20003-10 assembly), SPL-2536 (ST1).

(f) Rotate the forward pitch trim quadrant [5] to 15 ° ± 2 ° in the "NOSE UP" direction from the "RIGGED" position.

(g) Make sure there is continuity between the connector pins as shown in the Switch Continuity Test Table.

(h) Turn the forward pitch trim quadrant [5] to 15 ° ± 2 ° in the "NOSE DN" direction from the "RIGGED" position.

(i) Make sure there is continuity between the connector pins as shown in the Switch Continuity Test Table.

(j) Connect the wire assembly [20] connector D4992P for the switch assemblies [15] and switch assembly [16].

SUBTASK 27-41-06-700-002

(2) Do this step for testing the switch assembly [13] and switch assemblies [14]:

(a) Install the rig pin (Included in Kit J20003-34), SPL-2537 (ST1) in the forward pitch trim quadrant [5].

(b) Do the procedure that you used for the switch assemblies [15] and switch assembly [16] again, but use the Switch Continuity Test Table below and test the pins of connector D4996P:

Table 402/27-41-06-993-802

Switch Continuity Test (Connector D4996P)				
Switch	**Connector**	**Switch Condition**		
	Pins	**"RIGGED"**	**"NOSE UP"**	**"NOSE DN"**
S27046	5 and 6	Closed	Open	Open
S27050	1 and 2	Closed	Open	Closed
S27051	3 and 4	Closed	Closed	Open

(c) Verify again the Alternate Pitch Trim Lever Switches Test.

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-06-410-001

(1) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-41-06-840-003

(2) Put the L, C and R FLT CONTROL HYD VALVE POWER - TAIL switches in the NORM position.

NOTE: These switches are located on the Overhead Maintenance Panel (P61) in the Flight Deck.

SUBTASK 27-41-06-840-004

(3) Put the C and R STAB CUTOUT switches in the NORM position.

NOTE: These switches are located on the Control Stand (P10) in the Flight Deck.

——— END OF TASK ———

TASK 27-41-06-000-803

4. Forward Pitch Trim Quadrant Removal

(Figure 401, Figure 402)

A. General

(1) There are two forward pitch trim quadrants. This procedure is applicable to the two quadrants.

B. References

Reference	Title
20-10-05-000-801	Turnbuckle Locking Clips Removal (P/B 401)
25-52-06-000-801	Sidewall Liner Removal (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

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F. Prepare for the Removal

SUBTASK 27-41-06-840-005

(1) Put the L, C and R FLT CONTROL HYD VALVE POWER - TAIL switches in the SHUT OFF position.

NOTE: These switches are located on the Overhead Maintenance Panel (P61) in the Flight Deck.

SUBTASK 27-41-06-840-006

(2) Put the C and R STAB CUTOUT switches in the CUTOUT position.

NOTE: These switches are located on the Control Stand (P10) in the Flight Deck.

SUBTASK 27-41-06-010-002

(3) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

to get access to the forward pitch trim quadrant [5].

G. Forward Pitch Trim Quadrant Removal

SUBTASK 27-41-06-020-004

(1) Do these steps to the cables for the forward pitch trim quadrant [5] you will remove:

(a) To get access to the cable turnbuckles, (Figure 402), do this task: Sidewall Liner Removal, TASK 25-52-06-000-801.

(b) Install a control cable clamp, SPL-1569 to keep some tension in the control cables.

NOTE: Tension on the cable will keep the cable on the cable drums. Tension will also make sure the cables do not move out of the pulley guides.

(c) Do this task: Turnbuckle Locking Clips Removal, TASK 20-10-05-000-801.

(d) Turn the turnbuckles for the control cables until the control cables are loose.

SUBTASK 27-41-06-020-005

(2) Disconnect the control cables from the forward pitch trim quadrant [5]:

(a) Remove the nuts [25], washers [24], spacers [23] and screws [22].

(b) Remove the bolts [6], washers [7], nuts [8] and the cable end plates [12].

(c) Remove the control cables from the forward pitch trim quadrant [5].

SUBTASK 27-41-06-020-006

(3) Do these steps to remove the forward pitch trim quadrant [5]:

(a) Disconnect the wire assembly [20] connector for the forward pitch trim quadrant [5].

(b) Remove the nut [11], washers [10] and bolt [9] that connects the rod assembly [21]] to the forward pitch trim quadrant [5].

(c) Remove the nuts [4], washers [2], bushings [3] and bolts [1] for the forward pitch trim quadrant [5].

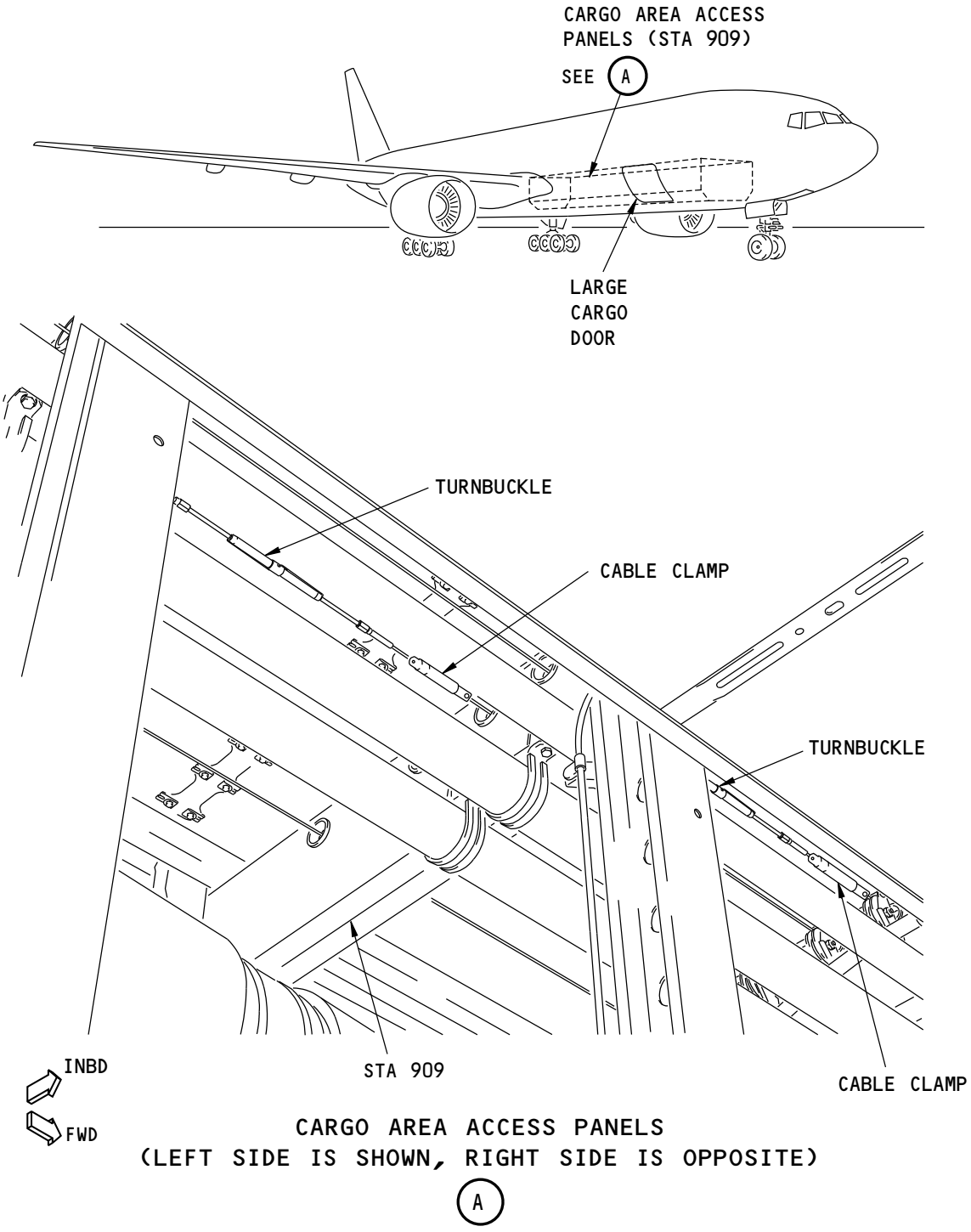
(d) Remove the forward pitch trim quadrant [5].

SUBTASK 27-41-06-020-007

(4) If removal of the alternate pitch trim lever switches is necessary, do this task: Alternate Pitch Trim Lever Switches Removal, TASK 27-41-06-000-801.

END OF TASK

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CARGO AREA ACCESS PANELS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

A

D14255 S0006413297_V1

Pitch Trim Cable
Figure 402/27-41-06-990-802

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TASK 27-41-06-400-803

5. Forward Pitch Trim Quadrant Installation

(Figure 401, Figure 402)

A. References

Reference	Title
20-10-05-400-801	Turnbuckle Locking Clips Installation (P/B 401)
25-52-06-400-801	Sidewall Liner Installation (P/B 401)
27-41-00-800-801	Stabilizer Control Cable Adjustment (P/B 501)
27-41-00-800-803	Alternate Pitch Trim Lever Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Forward pitch trim quadrant	27-41-06-10-080	ARO ALL

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Forward Pitch Trim Quadrant Installation

SUBTASK 27-41-06-420-003

(1) If installation of the alternate pitch trim lever switches is required, do this task: Alternate Pitch Trim Lever Switches Installation, TASK 27-41-06-400-802.

SUBTASK 27-41-06-420-004

(2) Do these steps to install the forward pitch trim quadrant [5]:

(a) Put the forward pitch trim quadrant [5] in its position.

(b) Install the bolts [1], washers [2], bushings [3] and nuts [4].

(c) Install the bolt [9], washers [10] and nut [11] that connects the rod assembly [21] to the forward pitch trim quadrant [5].

(d) Connect the wire assembly [20] connector for the forward pitch trim quadrant [5].

SUBTASK 27-41-06-420-005

(3) Connect the control cables to the forward pitch trim quadrant [5]:

(a) Install the control cables, cable end plates [12], bolts [6], washers [7] and nuts [8].

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(b) Install the screws [22], spacers [23], washers [24] and nuts [25].

SUBTASK 27-41-06-080-002

(4) Remove the control cable clamp, SPL-1569.

SUBTASK 27-41-06-820-002

(5) Do this task: Alternate Pitch Trim Lever Adjustment, TASK 27-41-00-800-803.

SUBTASK 27-41-06-820-003

(6) Do this task: Stabilizer Control Cable Adjustment, TASK 27-41-00-800-801.

SUBTASK 27-41-06-420-006

(7) Do this task: Turnbuckle Locking Clips Installation, TASK 20-10-05-400-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-06-410-002

(1) To install the sidewall liners that were removed for access to the turnbuckles, do this task: Sidewall Liner Installation, TASK 25-52-06-400-801.

SUBTASK 27-41-06-410-003

(2) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-41-06-840-007

(3) Put the L, C and R FLT CONTROL HYD VALVE POWER - TAIL switches in the NORM position.

NOTE: These switches are located on the Overhead Maintenance Panel (P61) in the Flight Deck.

SUBTASK 27-41-06-840-008

(4) Put the C and R STAB CUTOUT switches in the NORM position.

NOTE: These switches are located on the Control Stand (P10) in the Flight Deck.

——— END OF TASK ———

TASK 27-41-06-000-802

6. Aft Stabilizer Trim Linkage Removal

(Figure 403)

A. References

Reference	Title
20-10-05-000-801	Turnbuckle Locking Clips Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205

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(Continued)

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

C. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Access Panels

Number	Name/Location
311BL	Service Access Door

E. Prepare for the Removal

SUBTASK 27-41-06-840-009

(1) Put the L, C and R FLT CONTROL HYD VALVE POWER - TAIL switches in the SHUT OFF position.

NOTE: These switches are located on the Overhead Maintenance Panel (P61) in the Flight Deck.

SUBTASK 27-41-06-840-010

(2) Put the C and R STAB CUTOUT switches in the CUTOUT position.

NOTE: These switches are located on the Control Stand (P10) in the Flight Deck.

SUBTASK 27-41-06-010-003

(3) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-06-480-002

(4) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-06-480-003

(5) Install the service access door barrier, SPL-1976.

F. Aft Stabilizer Trim Linkage Removal

SUBTASK 27-41-06-020-002

(1) Do these steps to the control cables for the aft stabilizer trim linkage [34]:

(a) Install control cable clamp, SPL-1569 to keep some tension in the control cables.

NOTE: Tension on the cable will keep the cable on the cable drums. Tension will also make sure the cables do not move out of the pulley guides.

(b) Do this task: Turnbuckle Locking Clips Removal, TASK 20-10-05-000-801.

(c) Turn the turnbuckles for the control cables until the control cables are loose.

SUBTASK 27-41-06-020-008

(2) Do these steps to disconnect the control cables from the aft stabilizer trim linkage [34]:

(a) Remove the nut [40], washers [38], spacer [39] and bolt [37] at four locations to permit for cable removal from the quadrants.

(b) Remove the nut [43], washers [42], bolt [41] and cable end plate [44] at the four quadrant locations.

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(c) Remove the cotter pins [45].

(d) Disconnect the control cables.

SUBTASK 27-41-06-020-003

(3) Do these steps to remove the aft stabilizer trim linkage [34]:

(a) Remove the nut [33], washers [32] and bolt [31] from the rod assemblies.

(b) Remove the nut [48], washers [47] and bolt [46] from the rod assembly [49].

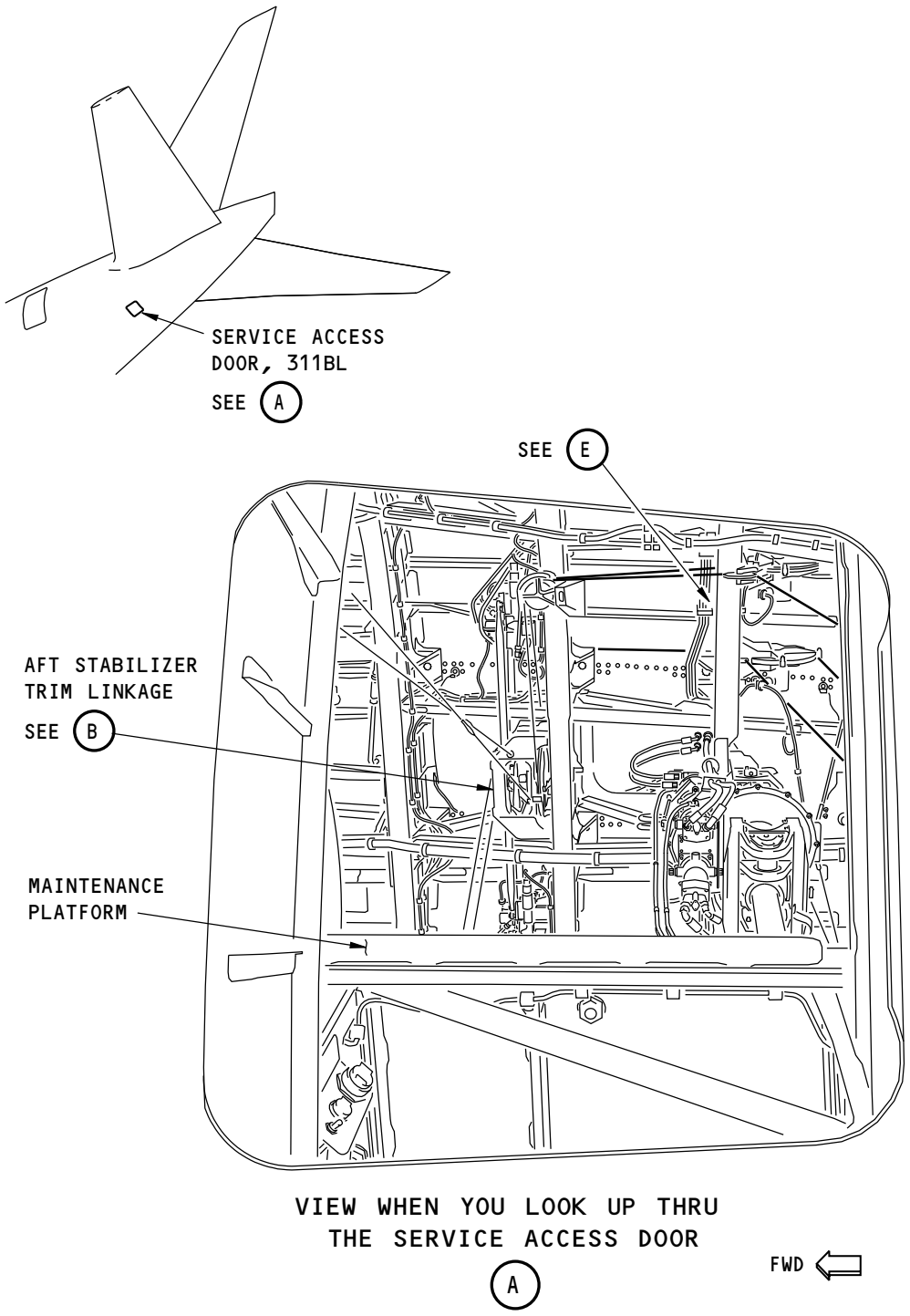
(c) Remove the rod assembly [49].

(d) Remove the bolts [35] and washers [36].

(e) Remove the aft stabilizer trim linkage [34].

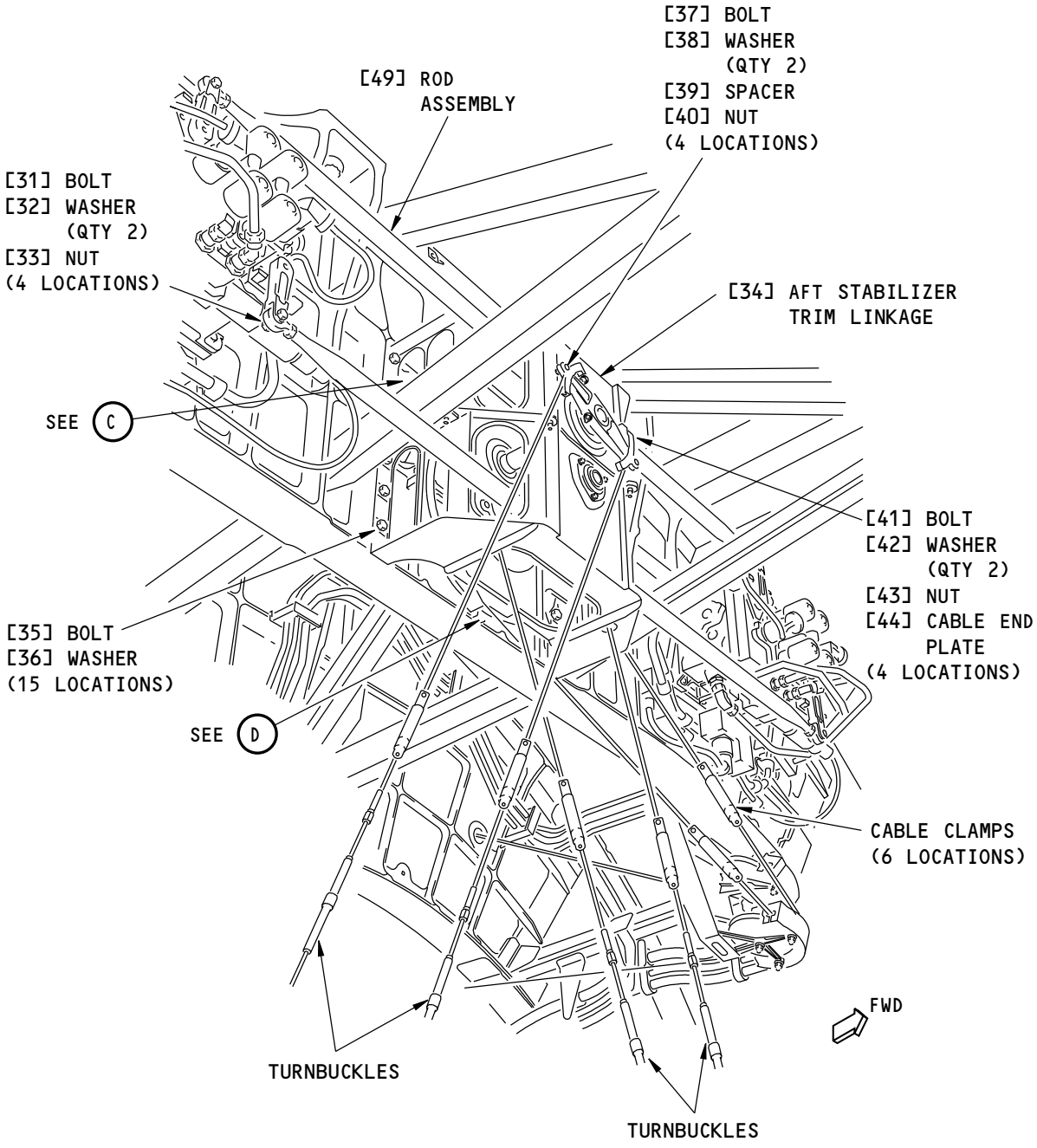
——— END OF TASK ———

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Aft Stabilizer Trim Linkage Installation
Figure 403/27-41-06-990-803 (Sheet 1 of 4)

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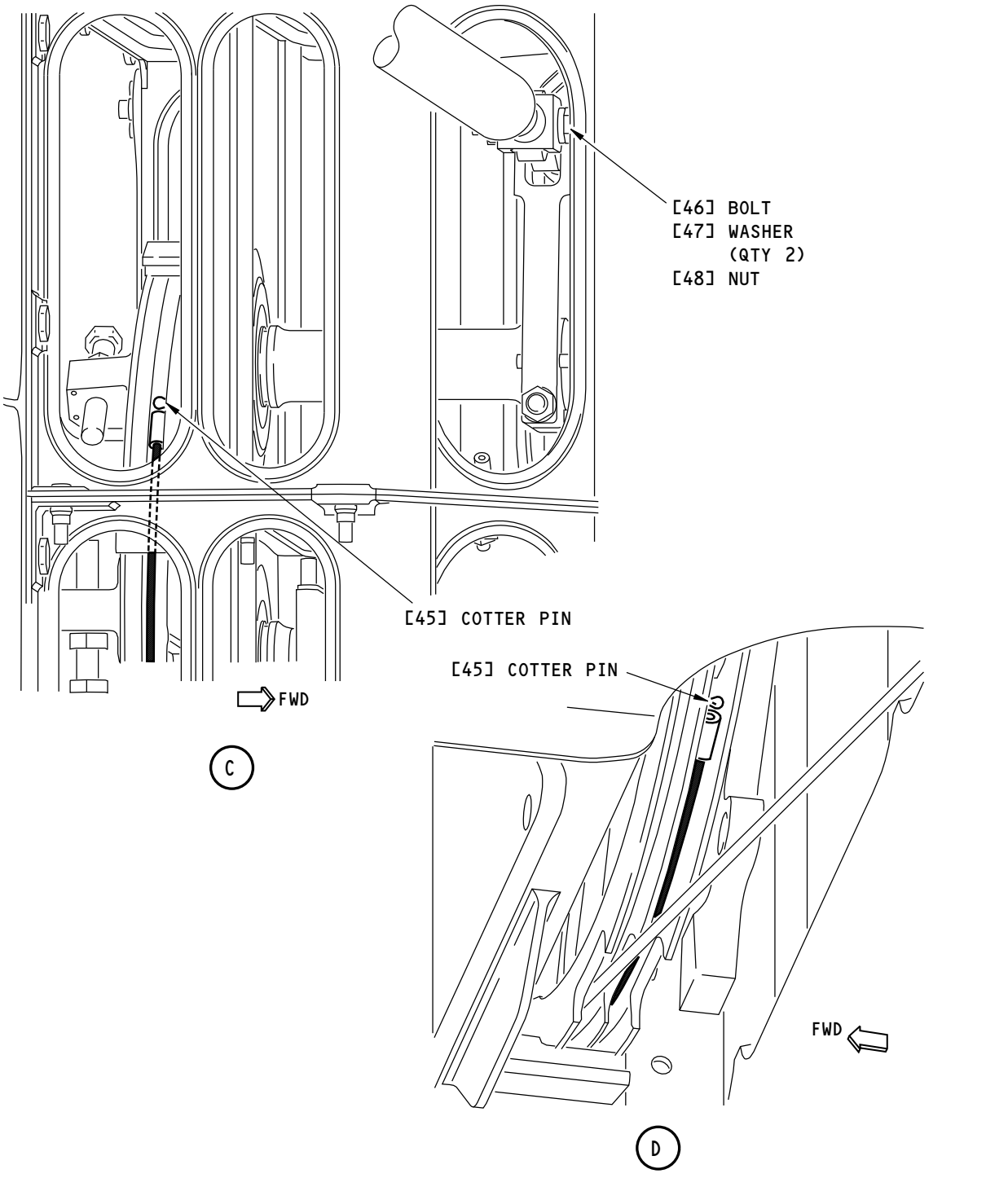
AFT STABILIZER TRIM LINKAGE

B

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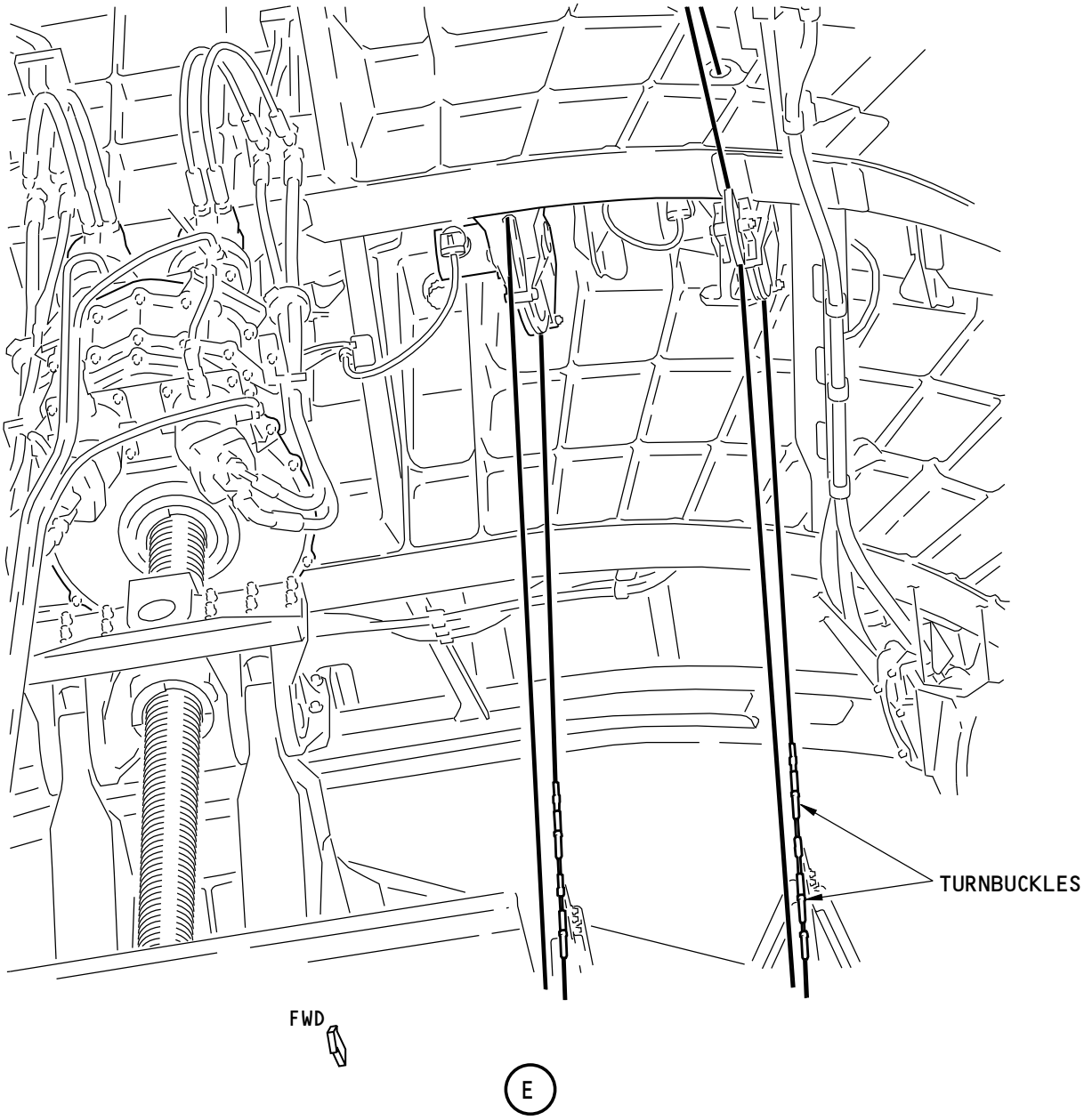
Aft Stabilizer Trim Linkage Installation
Figure 403/27-41-06-990-803 (Sheet 2 of 4)

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Aft Stabilizer Trim Linkage Installation
Figure 403/27-41-06-990-803 (Sheet 3 of 4)

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Aft Stabilizer Trim Linkage Installation
Figure 403/27-41-06-990-803 (Sheet 4 of 4)

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TASK 27-41-06-400-801

7. Aft Stabilizer Trim Linkage Installation

(Figure 403)

A. References

Reference	Title
20-10-05-400-801	Turnbuckle Locking Clips Installation (P/B 401)
27-41-00-800-801	Stabilizer Control Cable Adjustment (P/B 501)
27-41-00-800-802	Stabilizer Trim Control Module Adjustment (Rigging) (Fig. 501) (P/B 501)
27-48-00-820-801	Horizontal Stabilizer Position Module and Travel Limiter Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
45	Cotter pin	27-41-07-01-057	ARO ALL

E. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Aft Stabilizer Trim Linkage Installation

SUBTASK 27-41-06-420-007

(1) Do these steps to install the aft stabilizer trim linkage [34]:

(a) Put the aft stabilizer trim linkage [34] in its position.

(b) Apply a layer of sealant, A00247 to the shank and threads of the bolts [35].

(c) Install the bolts [35] and washers [36].

(d) Put the rod assembly [49] in its position.

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(e) Install the bolt [46], washers [47] and nut [48] for the rod assembly [49].

(f) Install the bolt [31], washers [32] and nut [33].

SUBTASK 27-41-06-420-001

(2) Do these steps to connect the control cables to the aft stabilizer trim linkage [34].

(a) Put the control cables in their positions.

(b) Install the cotter pins [45].

(c) Install the cable end plate [44], bolt [41], washers [42] and nut [43] at the four quadrant locations.

(d) Install the bolts [37], the spacers [39], the washers [38] and the nuts [40].

SUBTASK 27-41-06-080-001

(3) Remove the control cable clamp, SPL-1569.

SUBTASK 27-41-06-480-004

(4) Do this task: Stabilizer Trim Control Module Adjustment (Rigging) (Fig. 501), TASK 27-41-00-800-802.

SUBTASK 27-41-06-820-001

(5) Do this task: Stabilizer Control Cable Adjustment, TASK 27-41-00-800-801.

SUBTASK 27-41-06-480-005

(6) Do this task: Horizontal Stabilizer Position Module and Travel Limiter Adjustment, TASK 27-48-00-820-801.

SUBTASK 27-41-06-480-001

(7) Do this task: Turnbuckle Locking Clips Installation, TASK 20-10-05-400-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-06-080-003

(1) Remove the service access door barrier, SPL-1976.

SUBTASK 27-41-06-080-004

(2) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-06-410-004

(3) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-06-840-011

(4) Put the L, C and R FLT CONTROL HYD VALVE POWER - TAIL switches in the NORM position.

NOTE: These switches are located on the Overhead Maintenance Panel (P61) in the Flight Deck.

SUBTASK 27-41-06-840-012

(5) Put the C and R STAB CUTOUT switches in the NORM position.

NOTE: These switches are located on the Control Stand (P10) in the Flight Deck.

END OF TASK

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STABILIZER TRIM CONTROL MODULE (STCM) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Stabilizer Trim Control Module (STCM)

(2) An installation of the Stabilizer Trim Control Module (STCM).

B. In this procedure the Stabilizer Trim Control Module (STCM) is referred to as the module assembly [4].

TASK 27-41-07-000-801

2. Stabilizer Trim Control Modules (STCM) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) There are two STCMs for the pitch trim system. In this procedure they are called the module assembly [4]. You can use this procedure to remove the center or the right module assembly [4].

NOTE: Each STCM is named for the hydraulic system that it is connected to. The center STCM is on the left side of the airplane. The right STCM is on the right side of the airplane.

B. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Removal

SUBTASK 27-41-07-840-004

(1) For the center and right hydraulic systems, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

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SUBTASK 27-41-07-840-005

(2) On the control stand, put the Center and Right STAB CUTOUT switches in the CUTOUT position.

SUBTASK 27-41-07-840-007

(3) If you will remove the center module assembly [4], then do the steps that follow:

(a) Open these circuit breakers and attach DO-NOT-CLOSE tags:

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE PWR

b) B2, STAB TRIM

c) D8, PFC BATT INTLK

d) D2, PFC LANE 1

e) D4, PFC LANE 2

f) D6, PFC LANE 3

2) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) B2, STAB TRIM

b) D8, PFC BATT INTLK

c) D2, PFC LANE 1

d) D4, PFC LANE 2

e) D6, PFC LANE 3

SUBTASK 27-41-07-840-008

(4) If you will remove the right module assembly [4], then do the steps that follow:

(a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R
K	28	C27608	ACE-L2 PWR

1) On the right power assembly (PSA-R) in the E5-1 rack:

a) B2, STAB TRIM

b) D8, PFC BATT INTLK

c) D2, PFC LANE 1

d) D4, PFC LANE 2

e) D6, PFC LANE 3

SUBTASK 27-41-07-010-001

(5) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-07-480-002

(6) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-07-480-001

(7) Install the service access door barrier, SPL-1976.

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G. Stabilizer Trim Control Module (STCM) Removal

SUBTASK 27-41-07-020-001

(1) Remove bolts [1], washers [2], and nuts [3] and disconnect the pushrods from the applicable module assembly [4].

SUBTASK 27-41-07-020-002

(2) Remove the electrical connectors from the module assembly [4], and install caps.

SUBTASK 27-41-07-020-003

(3) Disconnect the hydraulic lines from the module assembly [4], and install caps.

SUBTASK 27-41-07-020-004

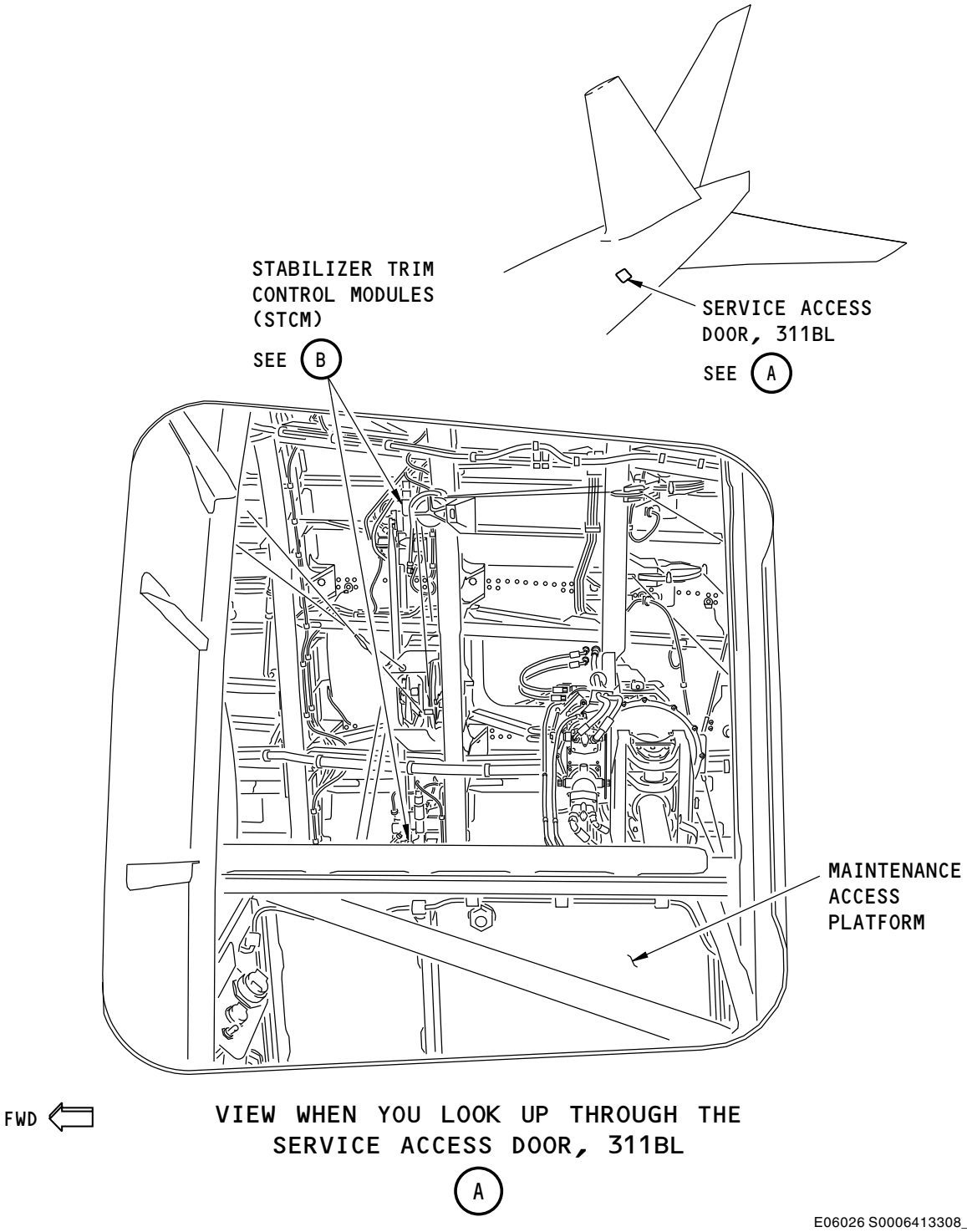
(4) Remove the module assembly [4]:

(a) Remove the bolts [5], and washers [6].

(b) Remove the bolt [7] and washer [8].

——— END OF TASK ———

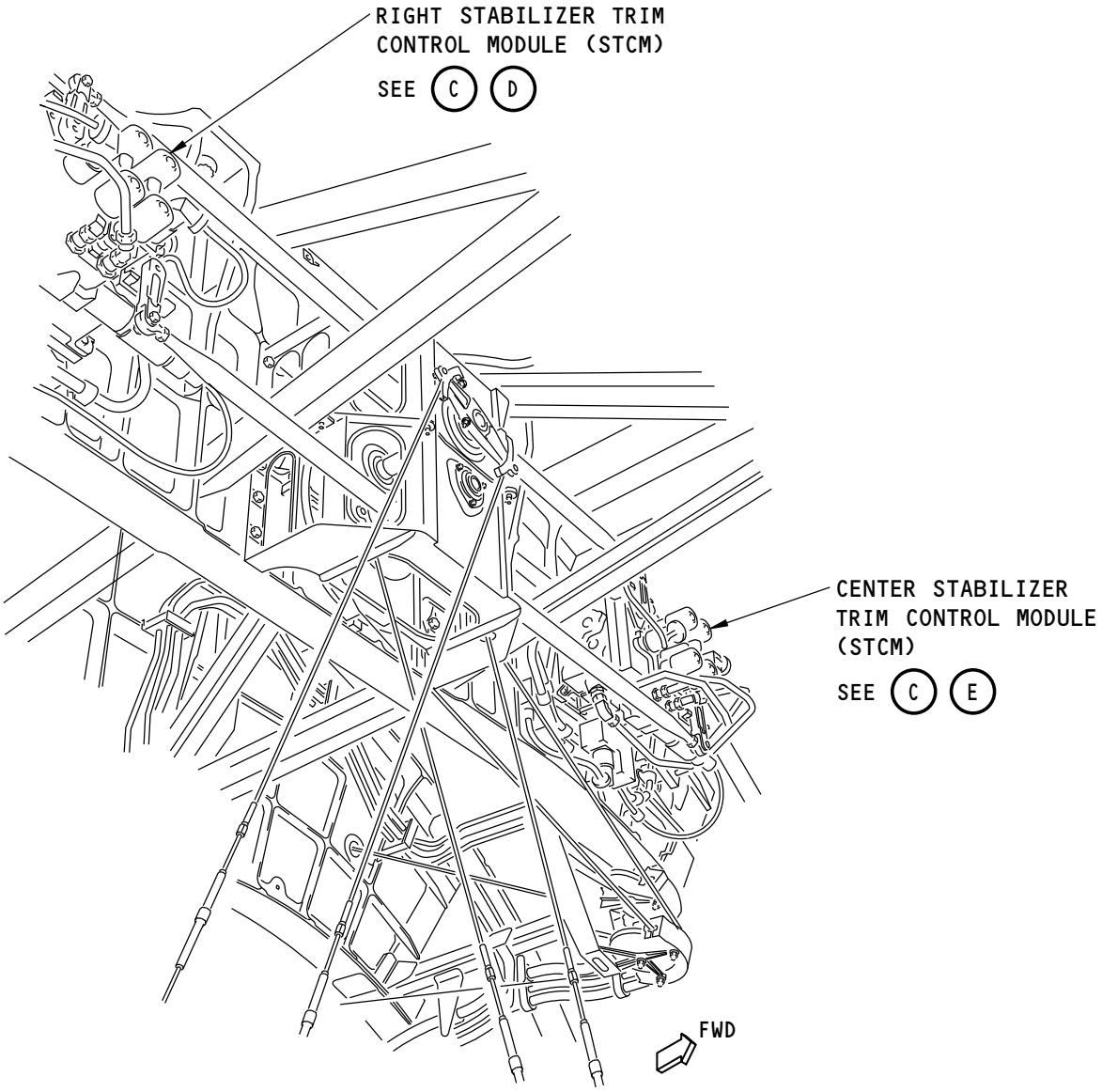
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Stabilizer Trim Control Modules (STCM) Installation
Figure 401/27-41-07-990-801 (Sheet 1 of 5)

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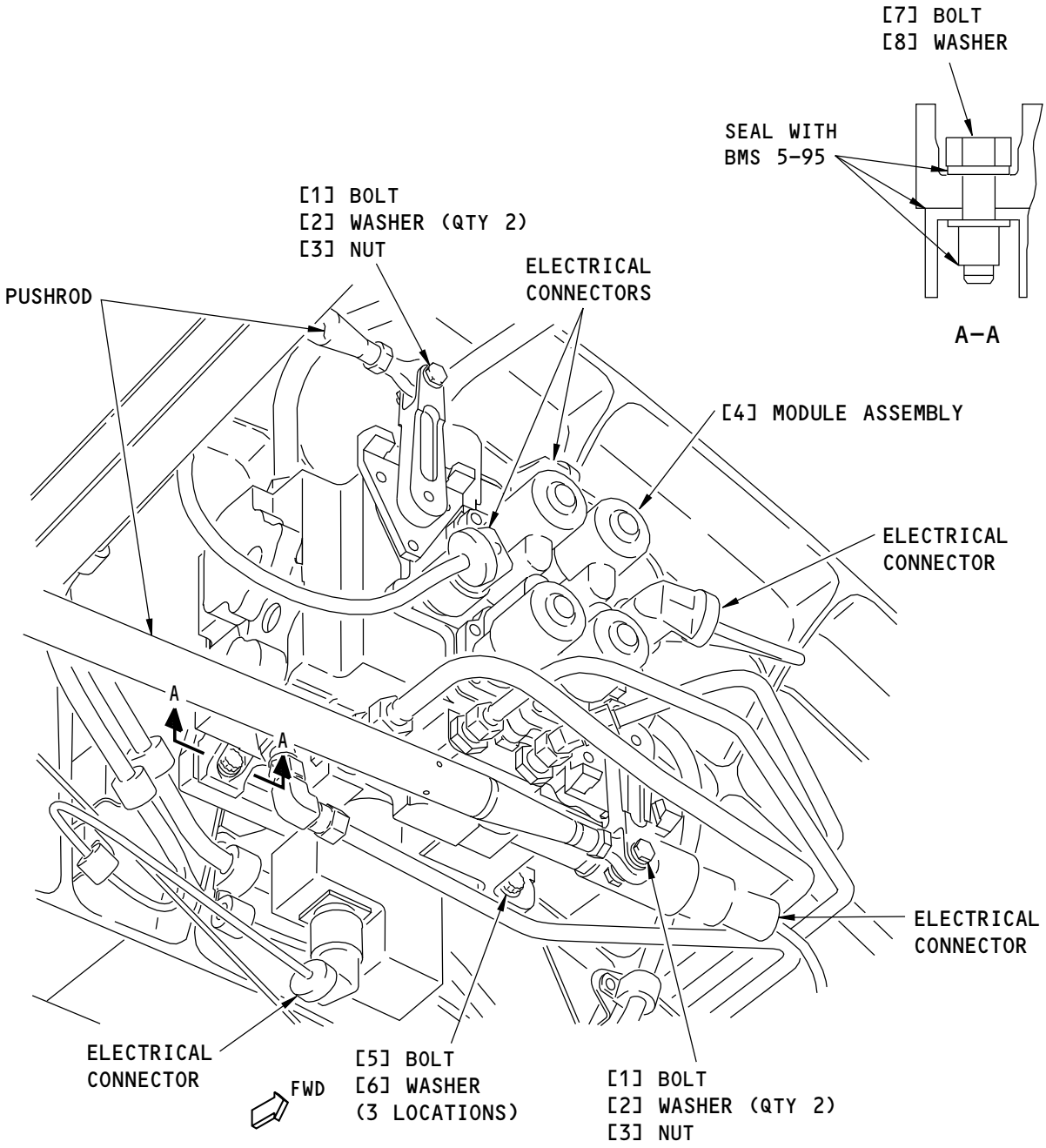


STABILIZER TRIM CONTROL MODULES (STCM)
B

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Stabilizer Trim Control Modules (STCM) Installation
Figure 401/27-41-07-990-801 (Sheet 2 of 5)

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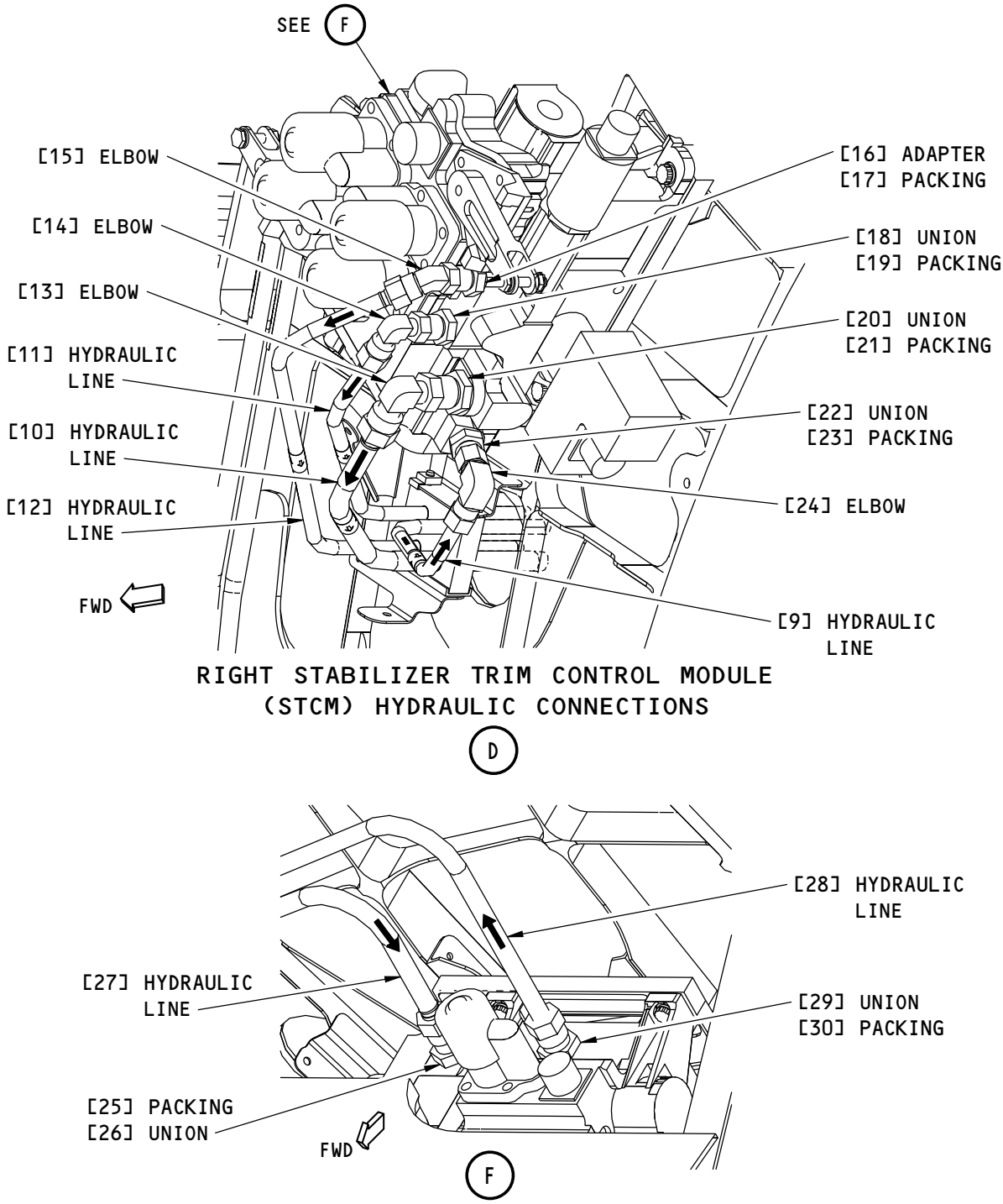
STABILIZER TRIM CONTROL MODULE (STCM)

C

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Stabilizer Trim Control Modules (STCM) Installation
Figure 401/27-41-07-990-801 (Sheet 3 of 5)

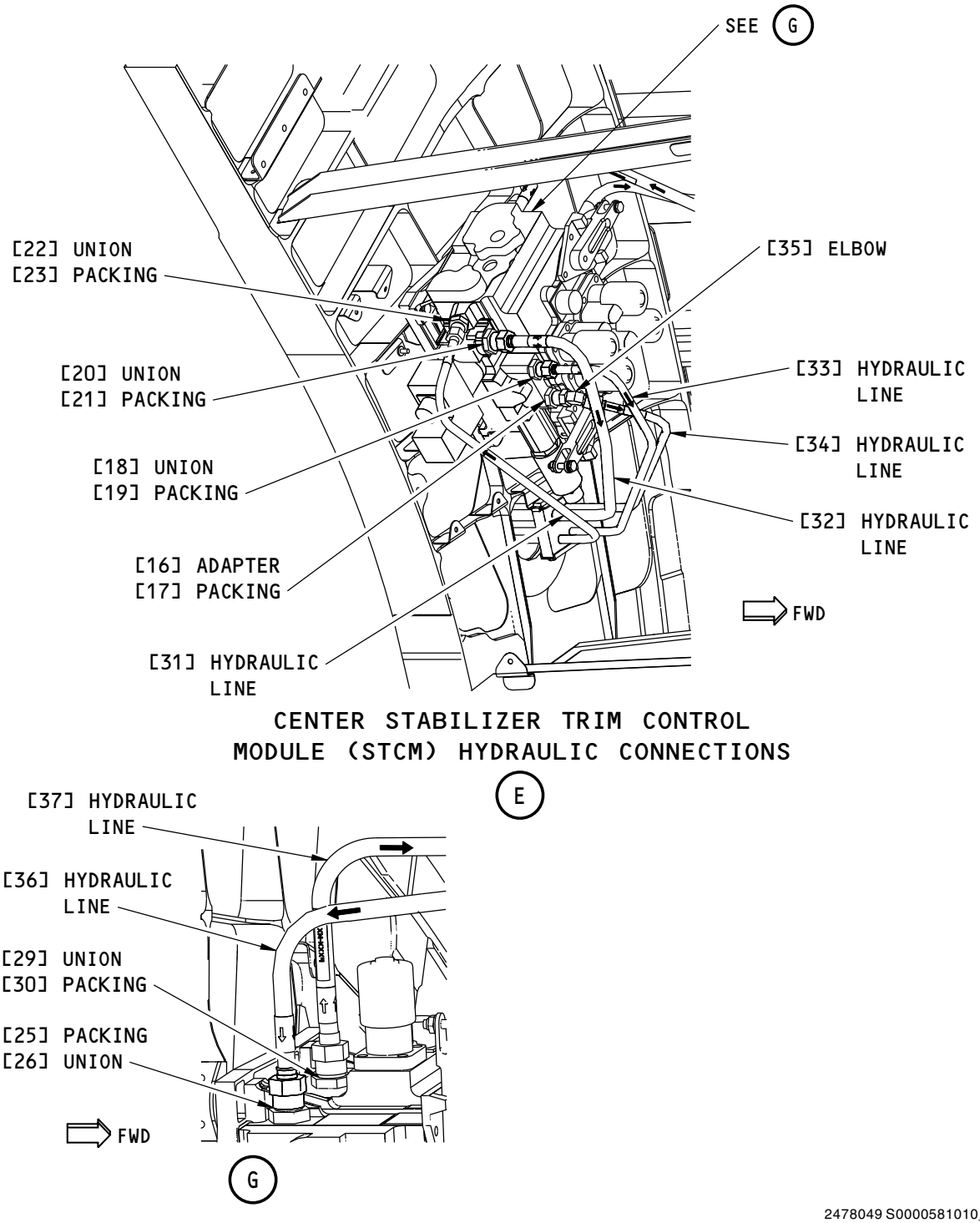
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RIGHT STABILIZER TRIM CONTROL MODULE (STCM) HYDRAULIC CONNECTIONS

Stabilizer Trim Control Modules (STCM) Installation
Figure 401/27-41-07-990-801 (Sheet 4 of 5)

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Stabilizer Trim Control Modules (STCM) Installation
Figure 401/27-41-07-990-801 (Sheet 5 of 5)

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TASK 27-41-07-400-801

3. Stabilizer Trim Control Modules (STCM) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) There are two STCMs for the pitch trim system. In this procedure they are called the module assembly [4]. You can use this procedure to install the center or the right module assembly [4].

B. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
27-41-00-700-801	Stabilizer System Test (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Module assembly	27-41-07-01-030	ARO ALL

F. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

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G. Access Panels

Number	Name/Location
311BL	Service Access Door

H. Stabilizer Trim Control Modules (STCM) Installation

SUBTASK 27-41-07-110-001

(1) Clean the mating surfaces between the module assembly [4] and the airplane structure with one of the solvents from Table 201 of the following task: Final Cleaning of Metal Prior to Non-Structural Bonding (TASK 20-30-88-910-801).

SUBTASK 27-41-07-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Do these steps to install the module assembly [4], View A-A (Figure 401):

(a) Put the module assembly [4] in its position.

(b) Install the bolts [5] and washers [6] with Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(c) Install the bolt [7] and washer [8] with Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(d) Make a fillet seal with sealant, A00247, to the entire joint and to the two ends of the bolt [7] (View A-A).

NOTE: This seal will help keep the bonding resistance correct.

SUBTASK 27-41-07-700-001

(3) Measure the bonding resistance between the airplane structure and the module assembly [4] with the intrinsically safe approved bonding meter, COM-1550.

(a) Make sure the resistance is less than 0.0025 ohm.

SUBTASK 27-41-07-420-002

(4) Remove the caps and install the electrical connectors on the module assembly [4]:

SUBTASK 27-41-07-420-003

(5) Remove the caps and connect the hydraulic lines to the module assembly [4].

(a) If necessary, install fittings in the applicable ports of the module assembly [4]:

1) Install the packing [25] on the union [26].

2) Install the union [26] in the PRESSURE 1 port and tighten the union [26] to 270 ±15 in-lb (31 ±2 N·m).

3) Install the packing [30] on the union [29].

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4) Install the union [29] in the RETURN 1 port and tighten the union [29] to 280 ±15 in-lb (32 ±2 N·m).
5) Install the packing [23] on the union [22].
6) Install the union [22] in the RETURN 2 port and tighten the union [22] to 270 ±15 in-lb (31 ±2 N·m).
7) Install the packing [21] on the union [20].
8) Install the union [20] in the AIRPLANE NOSE DOWN port and tighten the union [20] to 280 ±15 in-lb (32 ±2 N·m).
9) Install the packing [19] on the union [18].
10) Install the union [18] in the AIRPLANE NOSE UP port and tighten the union [18] to 270 ±15 in-lb (31 ±2 N·m).
11) Install the packing [17] on the adapter [16].
12) Install the adapter [16] in the BRAKE RELEASE port and tighten the adapter [16] to 142.5 ±7.5 in-lb (16.1 ±0.8 N·m).

(b) Connect the hydraulic lines to the right STCM, (Figure 401 (Sheet 4)).
1) Connect the hydraulic line [27] to the union [26] and tighten the B-nut on the hydraulic line [27] to 500 ±25 in-lb (56 ±3 N·m).
2) Connect the hydraulic line [28] to the union [29] and tighten the B-nut on the hydraulic line [28] to 280 ±14 in-lb (32 ±2 N·m).
3) Install the elbow [24] on the union [22] and tighten the B-nut on the elbow [24] to 170 ±9 in-lb (19 ±1 N·m).
4) Connect the hydraulic line [9] to the elbow [24] and tighten the B-nut on the hydraulic line [9] to 170 ±9 in-lb (19 ±1 N·m).
5) Install the elbow [13] on the union [20] and tighten the B-nut on the elbow [13] to 500 ±25 in-lb (56 ±3 N·m).
6) Connect the hydraulic line [10] to the elbow [13] and tighten the B-nut on the hydraulic line [10] to 500 ±25 in-lb (56 ±3 N·m).
7) Install the elbow [14] on the union [18] and tighten the B-nut on the elbow [14] to 270 ±14 in-lb (31 ±2 N·m).
8) Connect the hydraulic line [11] to the elbow [14] and tighten the B-nut on the hydraulic line [11] to 270 ±14 in-lb (31 ±2 N·m).
9) Install the elbow [15] on the adapter [16] and tighten the B-nut on the elbow [15] to 270 ±14 in-lb (31 ±2 N·m).
10) Connect the hydraulic line [12] to the elbow [15] and tighten the B-nut on the hydraulic line [12] to 270 ±14 in-lb (31 ±2 N·m).

(c) Connect the hydraulic lines to the center STCM, (Figure 401 (Sheet 5)).
1) Connect the hydraulic line [36] to the union [26] and tighten the B-nut on the hydraulic line [36] to 500 ±25 in-lb (56 ±3 N·m).
2) Connect the hydraulic line [37] to the union [29] and tighten the B-nut on the hydraulic line [37] to 280 ±14 in-lb (32 ±2 N·m).
3) Connect the hydraulic line [31] to the union [22] and tighten the B-nut on the hydraulic line [31] to 170 ±9 in-lb (19 ±1 N·m).
4) Connect the hydraulic line [32] to the union [20] and tighten the B-nut on the hydraulic line [32] to 500 ±25 in-lb (56 ±3 N·m).

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5) Connect the hydraulic line [33] to the union [18] and tighten the B-nut on the hydraulic line [33] to 270 ±14 in-lb (31 ±2 N·m).

6) Install the elbow [35] on the adapter [16] and tighten the B-nut on the elbow [35] to 270 ±14 in-lb (31 ±2 N·m).

7) Connect the hydraulic line [34] to the elbow [35] and tighten the B-nut on the hydraulic line [34] to 270 ±14 in-lb (31 ±2 N·m).

(d) Make sure a clearance of 0.1 in. (2.5 mm) and more exists between the module assembly [4] and the hydraulic line.

1) If a riding condition or clearance of less than 0.1 in. (2.5 mm) exists between the module assembly [4] and the hydraulic line, remove and replace the hydraulic line to obtain a clearance of more than 0.1 in. (2.5 mm).

SUBTASK 27-41-07-420-004

(6) Install the bolts [1], washers [2] and nuts [3] to connect the pushrods to the module assembly [4].

SUBTASK 27-41-07-440-001

(7) For the center module assembly [4] do the steps that follow:

(a) Remove the DO-NOT CLOSE tags and close these circuit breakers:

NOTE: For the circuit breakers on the these panels, close the PFC circuit breakers last.

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE PWR

b) B2, STAB TRIM

c) D8, PFC BATT INTLK

d) D2, PFC LANE 1

e) D4, PFC LANE 2

f) D6, PFC LANE 3

2) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) B2, STAB TRIM

b) D8, PFC BATT INTLK

c) D2, PFC LANE 1

d) D4, PFC LANE 2

e) D6, PFC LANE 3

SUBTASK 27-41-07-440-002

(8) For the right module assembly [4] do the steps that follow:

(a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R
K	28	C27608	ACE-L2 PWR

1) On the right power assembly (PSA-R) in the E5-1 rack:

a) B2, STAB TRIM

b) D8, PFC BATT INTLK

c) D2, PFC LANE 1

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d) D4, PFC LANE 2

e) D6, PFC LANE 3

SUBTASK 27-41-07-840-009

(9) On the control stand, put the Center and Right STAB CUT OFF switches in the NORM position.

I. Stabilizer Trim Control Modules Installation Test

SUBTASK 27-41-07-710-001

(1) Do this task: Stabilizer System Test, TASK 27-41-00-700-801.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-07-080-001

(1) Remove the service access door barrier, SPL-1976.

SUBTASK 27-41-07-480-003

(2) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-07-410-001

(3) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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STCM SOLENOID VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the solenoid valves from the Stabilizer Trim Control Modules (STCM)

(2) An installation of the solenoid valves from a Stabilizer Trim Control Module (STCM).

TASK 27-41-08-000-801

2. STCM Solenoid Valve Removal

(Figure 401)

A. General

(1) There are five solenoid valves installed on each of the two STCMs. This procedure is applicable to all of the solenoid valves.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Procedure

SUBTASK 27-41-08-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-08-840-002

(2) Make sure the center and right hydraulic systems are not powered, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-08-840-003

(3) On the control stand, put the Center and Right STAB CUT OFF switches in the CUT OUT position.

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SUBTASK 27-41-08-040-001

(4) For the solenoid valves on the center STCM do the steps that follow:

(a) Open these circuit breakers and attach DO-NOT-CLOSE tags:

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE-L1 PWR

b) B2, 28V DC

2) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) B2, 28V DC

SUBTASK 27-41-08-040-002

(5) For the solenoid valves on the right STCM do the steps that follow:

(a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R
K	28	C27608	ACE-L2 PWR

1) On the right power assembly (PSA-R) in the E5-1 rack:

a) B2, 28V DC

SUBTASK 27-41-08-010-001

(6) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-08-420-002

(7) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-08-480-001

(8) Install the service access door barrier, SPL-1976.

SUBTASK 27-41-08-020-001

(9) Remove the STCM solenoid valve [3]:

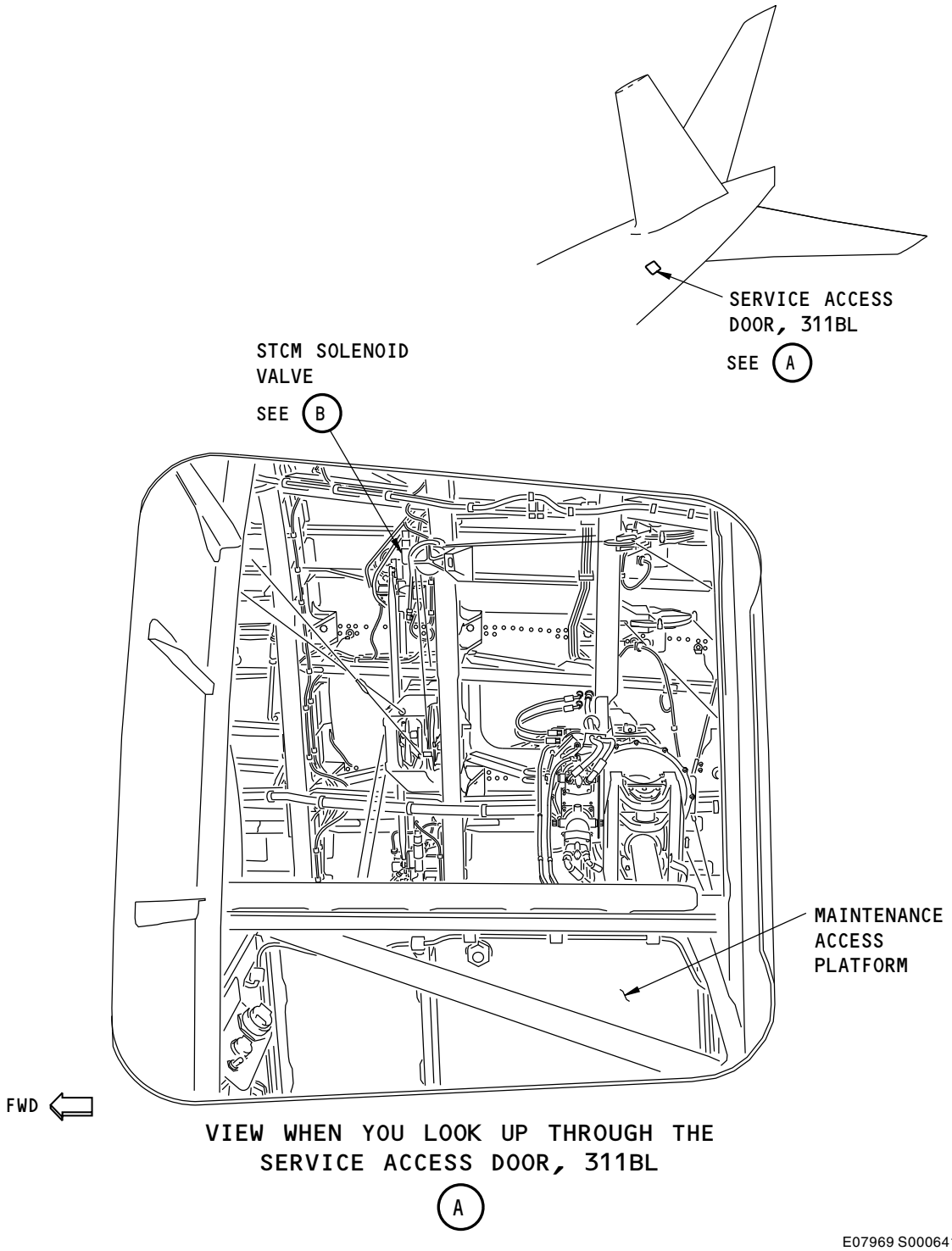
(a) Remove the bolts [2] and washers [1] that attach the solenoid valve [3] to the STCM.

(b) Remove the solenoid valve [3] and the plate [5] from the STCM.

(c) Remove and discard the plate [5] and the packing [4] from the solenoid valve [3].

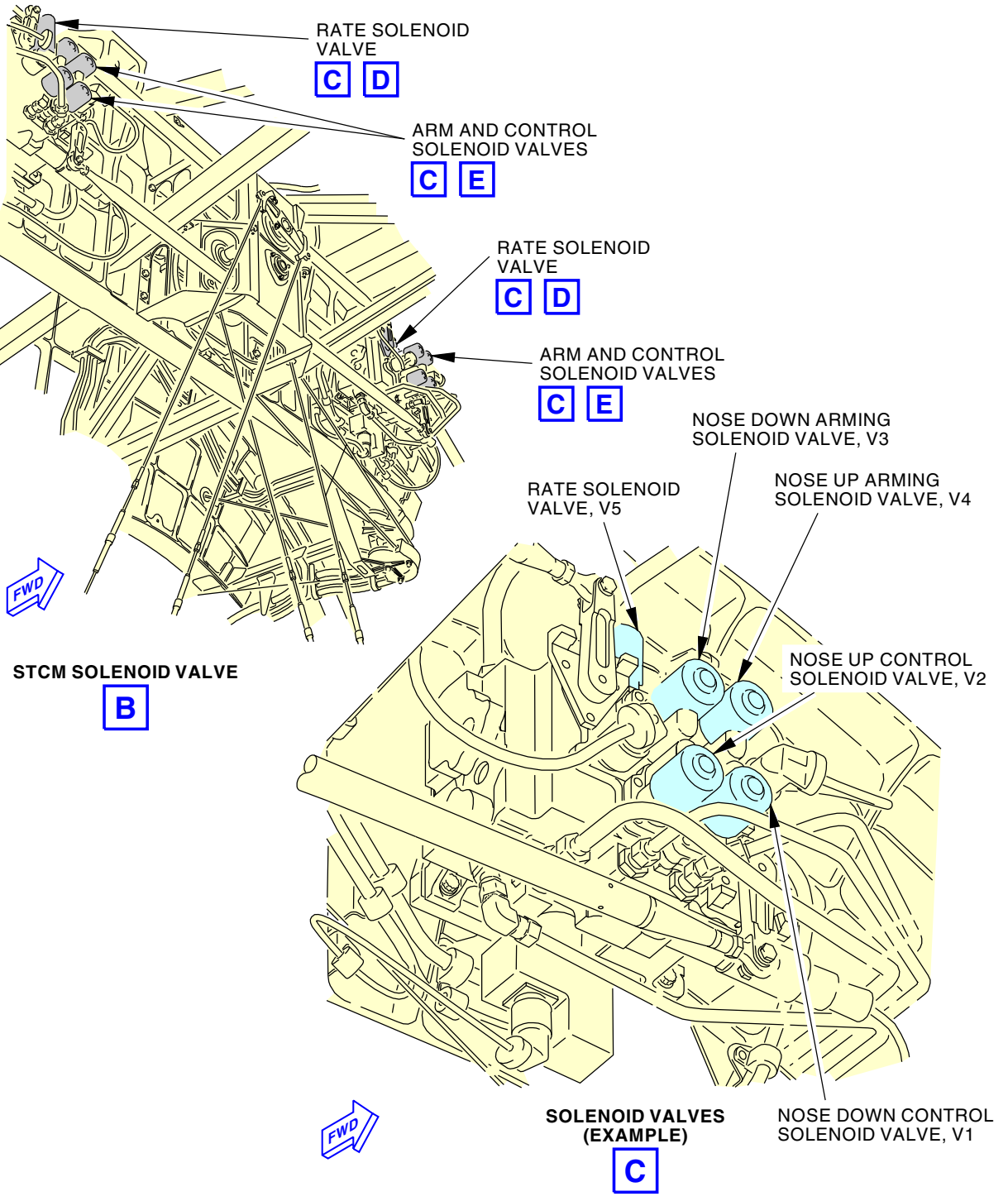
——— END OF TASK ———

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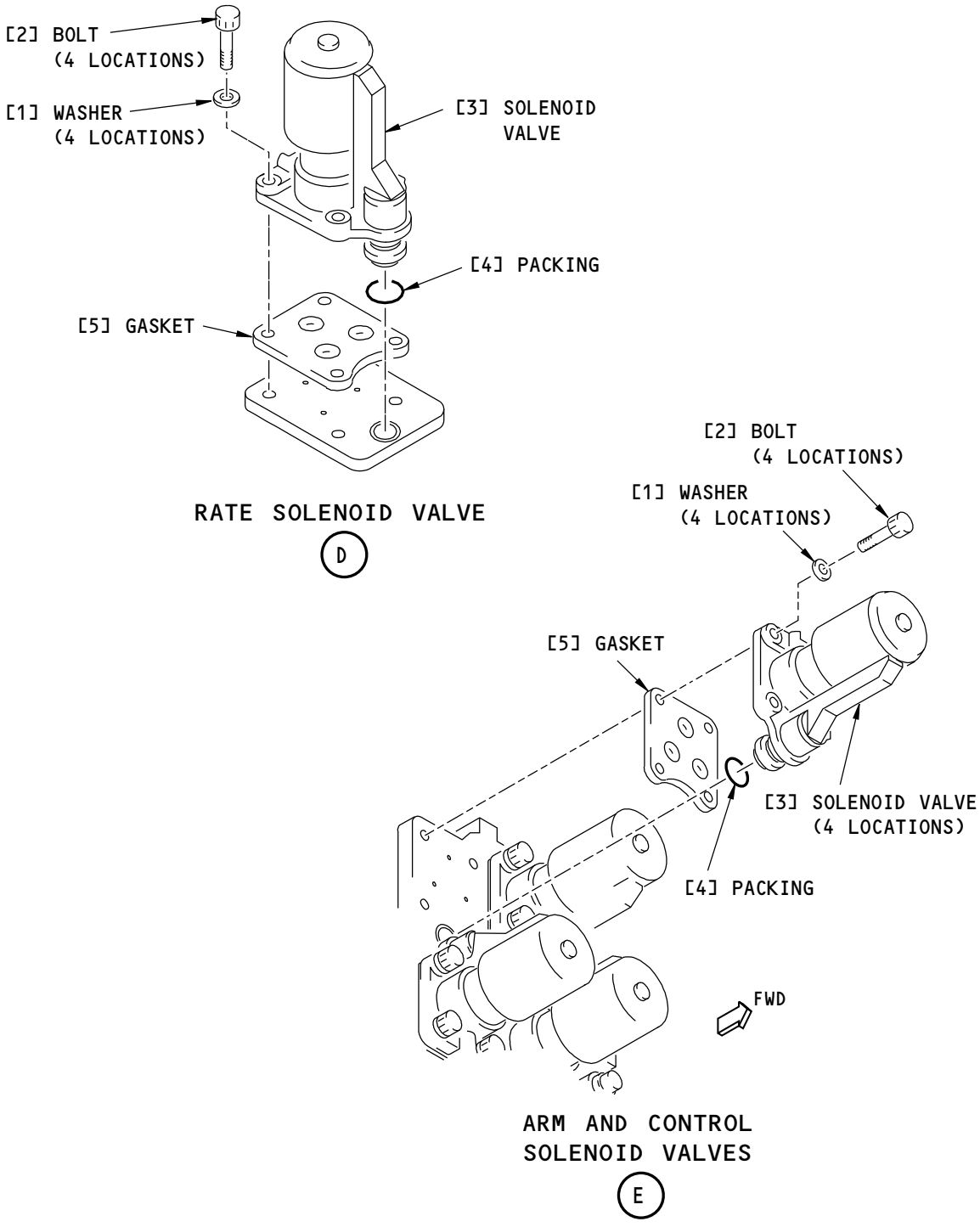
STCM Solenoid Valve Installation
Figure 401/27-41-08-990-801 (Sheet 1 of 3)

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STCM Solenoid Valve Installation
Figure 401/27-41-08-990-801 (Sheet 2 of 3)

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STCM Solenoid Valve Installation
Figure 401/27-41-08-990-801 (Sheet 3 of 3)

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TASK 27-41-08-400-801

3. STCM Solenoid Valve Installation

(Figure 401)

A. General

(1) There are five solenoid valves installed on the two STCMs. This procedure is applicable to all of the solenoid valves.

B. References

Reference	Title
27-41-00-700-801	Stabilizer System Test (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Solenoid valve	27-41-07-50-190	ARO ALL
4	Packing	27-41-07-50-210	ARO ALL
5	Plate	27-41-07-50-205	ARO ALL

F. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

G. Access Panels

Number	Name/Location
311BL	Service Access Door

H. Procedure

SUBTASK 27-41-08-420-001

(1) Install the STCM solenoid valve [3]:

(a) Apply a thin layer of hydraulic fluid, D00153 on the sides of the new plate [5] and packing [4].

(b) Install the new packing [4] and plate [5] on the solenoid valve [3].

(c) Put the solenoid valve [3] with the plate [5] in its location on the STCM.

(d) Install the bolts [2] and washers [1] that attach the solenoid valve [3] to the STCM.

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1) Torque bolts [2] to 50.0 in-lb (5.6 N·m) - 70.0 in-lb (7.9 N·m).

SUBTASK 27-41-08-440-001

(2) For the solenoid valves on the center STCM do the steps that follow:

(a) Close these circuit breakers and remove the DO-NOT-CLOSE tags:

1) On the left power supply assembly (PSA-L) in the E1-6 rack:

a) A1, ACE-L1 PWR

b) B2, 28V DC

2) On the center power supply assembly (PSA-C) in the E2-6 rack:

a) B2, 28V DC

SUBTASK 27-41-08-440-002

(3) For the solenoid valves on the right STCM do the steps that follow:

(a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R
K	28	C27608	ACE-L2 PWR

1) On the right power assembly (PSA-R) in the E5-1 rack:

a) B2, 28V DC

SUBTASK 27-41-08-840-004

(4) On the control stand, put the Center and Right STAB CUT OFF switches in the NORM position.

SUBTASK 27-41-08-720-001

(5) Do this task: Stabilizer System Test, TASK 27-41-00-700-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-08-080-002

(1) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-08-080-001

(2) Remove the service access door barrier, SPL-1976.

SUBTASK 27-41-08-410-001

(3) Close this access panel:

Number	Name/Location
311BL	Service Access Door

END OF TASK

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STCM BRAKE PRESSURE SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the brake pressure switch from the Stabilizer Trim Control Module (STCM)

(2) An installation of the brake pressure switch on the Stabilizer Trim Control Module (STCM).

TASK 27-41-09-000-801

2. STCM Brake Pressure Switch Removal

(Figure 401)

A. General

(1) There is one brake pressure switch installed on each stabilizer trim control module (STCM). This procedure is applicable to the two brake pressure switches.

B. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Procedure

SUBTASK 27-41-09-840-001

(1) For the center and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-09-840-002

(2) On the control stand, put the Center and Right STAB CUT OFF switches in the CUT OUT position.

SUBTASK 27-41-09-840-003

(3) Do the steps that follow to remove pressure from the STCM.

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(a) Move the alternate pitch trim levers to the APL NOSE UP and the APL NOSE DOWN positions 4 to 5 times to remove hydraulic pressure from the STCM.

(b) Attach a DO-NOT-OPERATE tag to the alternate pitch trim levers.

SUBTASK 27-41-09-040-001

(4) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE-C PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE-R PWR.

SUBTASK 27-41-09-010-001

(5) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-09-420-002

(6) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-09-480-001

(7) Install the service access door barrier, SPL-1976.

SUBTASK 27-41-09-020-001

(8) Remove the brake pressure switch [2]:

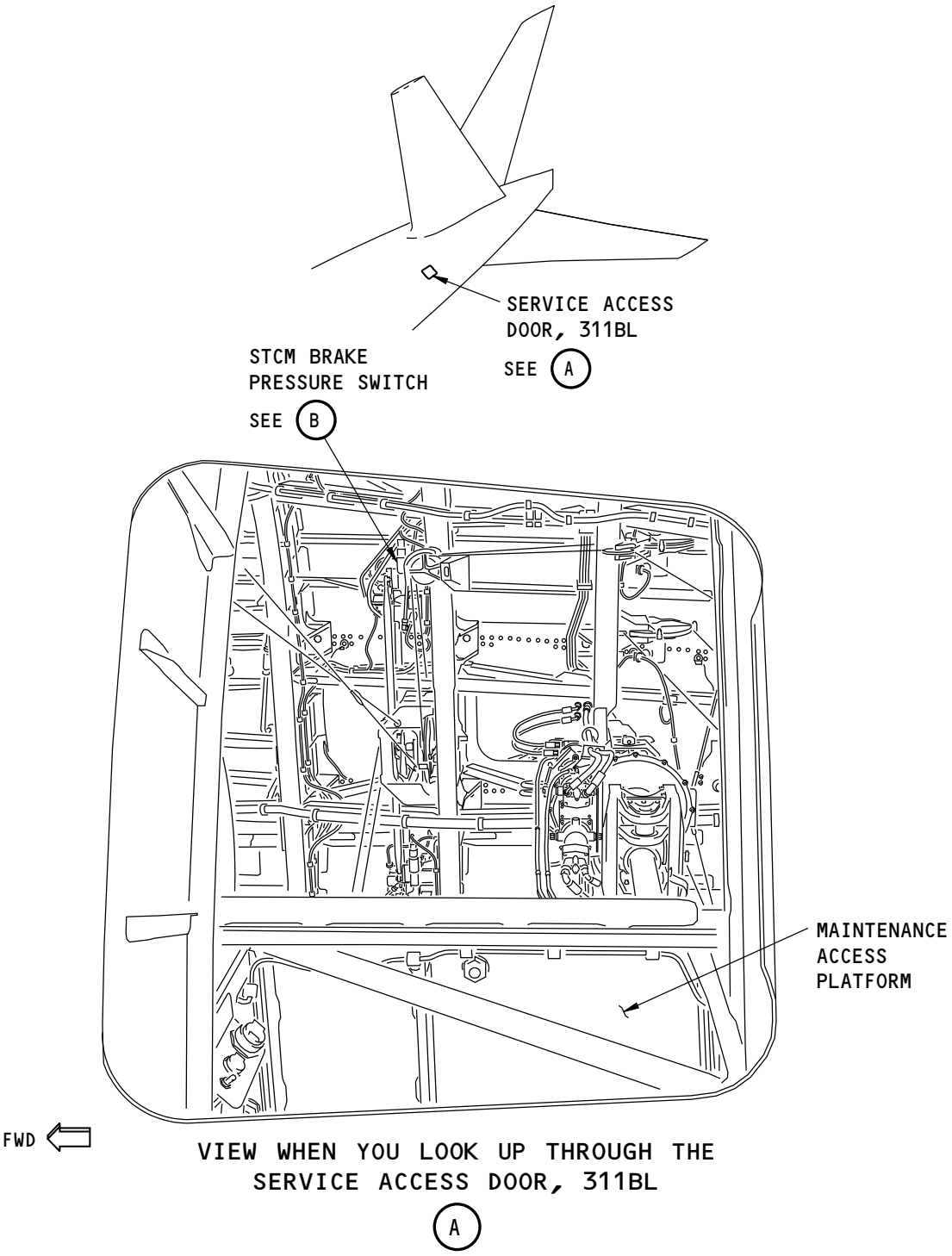
(a) Remove the electrical connector from the brake pressure switch [2].

(b) Remove the brake pressure switch [2] from the STCM.

(c) Remove and discard the packing [3] and the rings [1] from the brake pressure switch [2].

——— END OF TASK ———

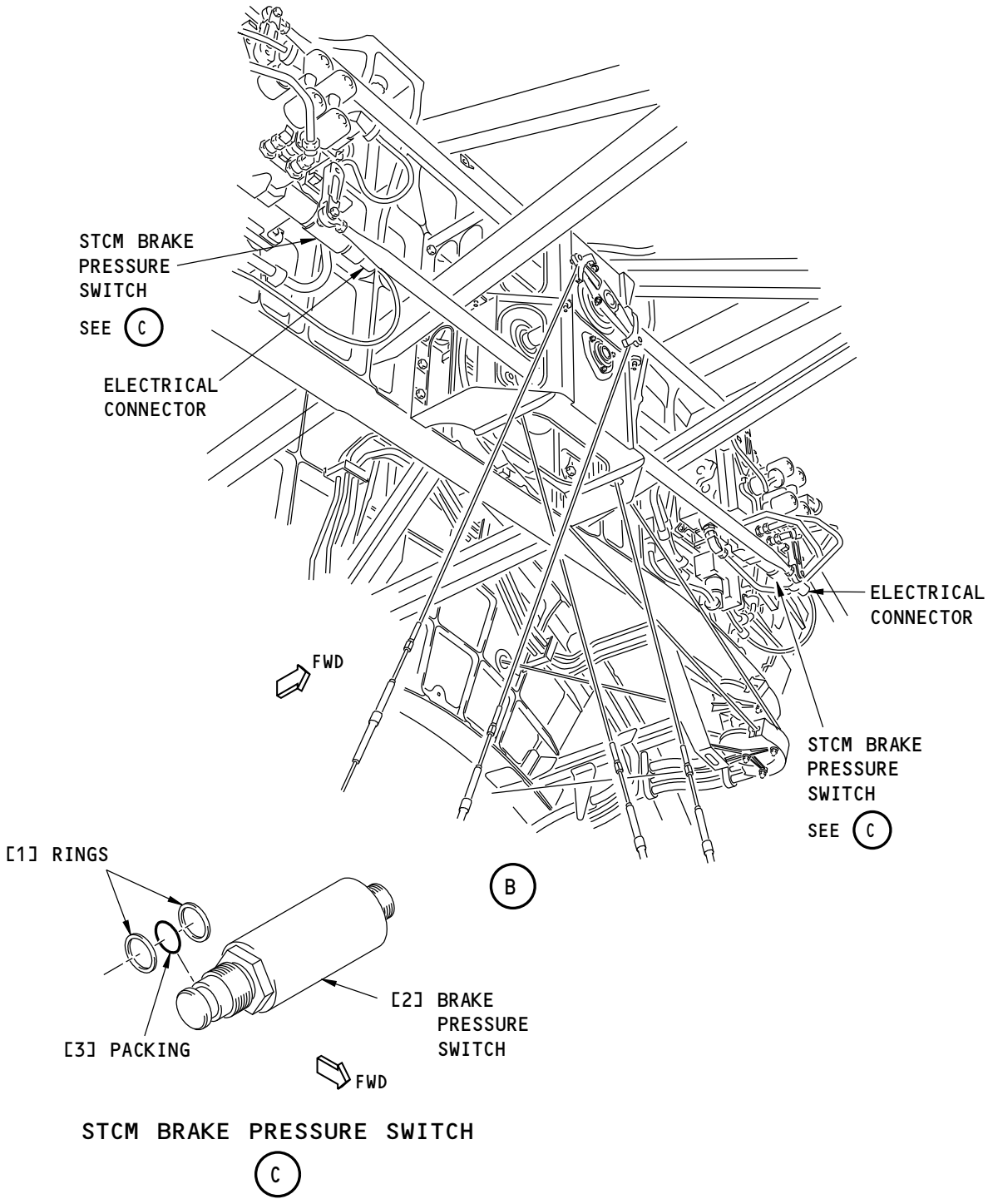
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STCM Brake Pressure Switch Installation
Figure 401/27-41-09-990-801 (Sheet 1 of 2)

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STCM Brake Pressure Switch Installation
Figure 401/27-41-09-990-801 (Sheet 2 of 2)

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TASK 27-41-09-400-801

3. STCM Brake Pressure Switch Installation

(Figure 401)

A. General

(1) There is one brake pressure switch installed on each stabilizer trim control module (STCM). This procedure is applicable to the two brake pressure switches.

B. References

Reference	Title
27-41-00-700-801	Stabilizer System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Ring	27-41-07-50-123	ARO ALL
		27-41-07-50-125	ARO 001-015
2	Brake pressure switch	27-41-07-50-115	ARO ALL
3	Packing	27-41-07-50-120	ARO ALL

F. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

G. Access Panels

Number	Name/Location
311BL	Service Access Door

H. Procedure

SUBTASK 27-41-09-420-001

(1) Install the brake pressure switch [2]:

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(a) Install a new packing [3] and rings [1] on the brake pressure switch [2].

1) Apply a layer of hydraulic fluid, D00153 to the packing [3].

(b) Install the brake pressure switch [2] on the STCM.

(c) Connect the electrical connector on the brake pressure switch [2].

SUBTASK 27-41-09-440-001

(2) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1, ACE-C PWR

(b) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1, ACE-R PWR.

SUBTASK 27-41-09-440-002

(3) On the control stand, put the Center and Right STAB CUT OFF switches in the NORM position.

SUBTASK 27-41-09-440-003

(4) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-09-080-001

(5) Remove the DO-NOT-OPERATE tag from the alternate pitch trim levers.

SUBTASK 27-41-09-710-001

(6) Do this task: Stabilizer System Test, TASK 27-41-00-700-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-09-840-004

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-09-420-003

(2) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-09-080-002

(3) Remove the service access door barrier, SPL-1976.

SUBTASK 27-41-09-410-001

(4) Close this access panel for the stabilizer compartment:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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STCM SHUTOFF VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the shutoff valve from the Stabilizer Trim Control Module (STCM)

(2) An installation of the shutoff valve on the Stabilizer Trim Control Module (STCM).

(3) In this procedure the STCM shutoff valve is referred to as the valve [5].

TASK 27-41-10-000-801

2. STCM Shutoff Valve Removal

(Figure 401)

A. General

(1) There is one shutoff valve installed on each of the two STCMs. This procedure is applicable to the two shutoff valves.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for STCM Shutoff Valve Removal

SUBTASK 27-41-10-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-41-10-840-002

WARNING MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED THE STABILIZER TRIM ACTUATOR CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-10-840-003

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-10-480-001

(4) Attach DO-NOT-OPERATE tags on the ALTN PITCH and TRIM levers.

SUBTASK 27-41-10-840-004

(5) On the control stand, put the Center and Right STAB CUT OFF switches in the CUT OUT position.

SUBTASK 27-41-10-840-005

(6) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the E5-1 Panel:

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 Panel:

1) CBB2, STAB TRIM CTRL-C

SUBTASK 27-41-10-010-001

(7) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-10-480-002

(8) Install the service access door barrier, SPL-1976.

SUBTASK 27-41-10-480-003

(9) Install the ladder equipment, SPL-2011.

G. STCM Shutoff Valve Removal

SUBTASK 27-41-10-020-001

(1) Do these steps to remove the valve [5]:

(a) Remove the electrical connector from the valve [5].

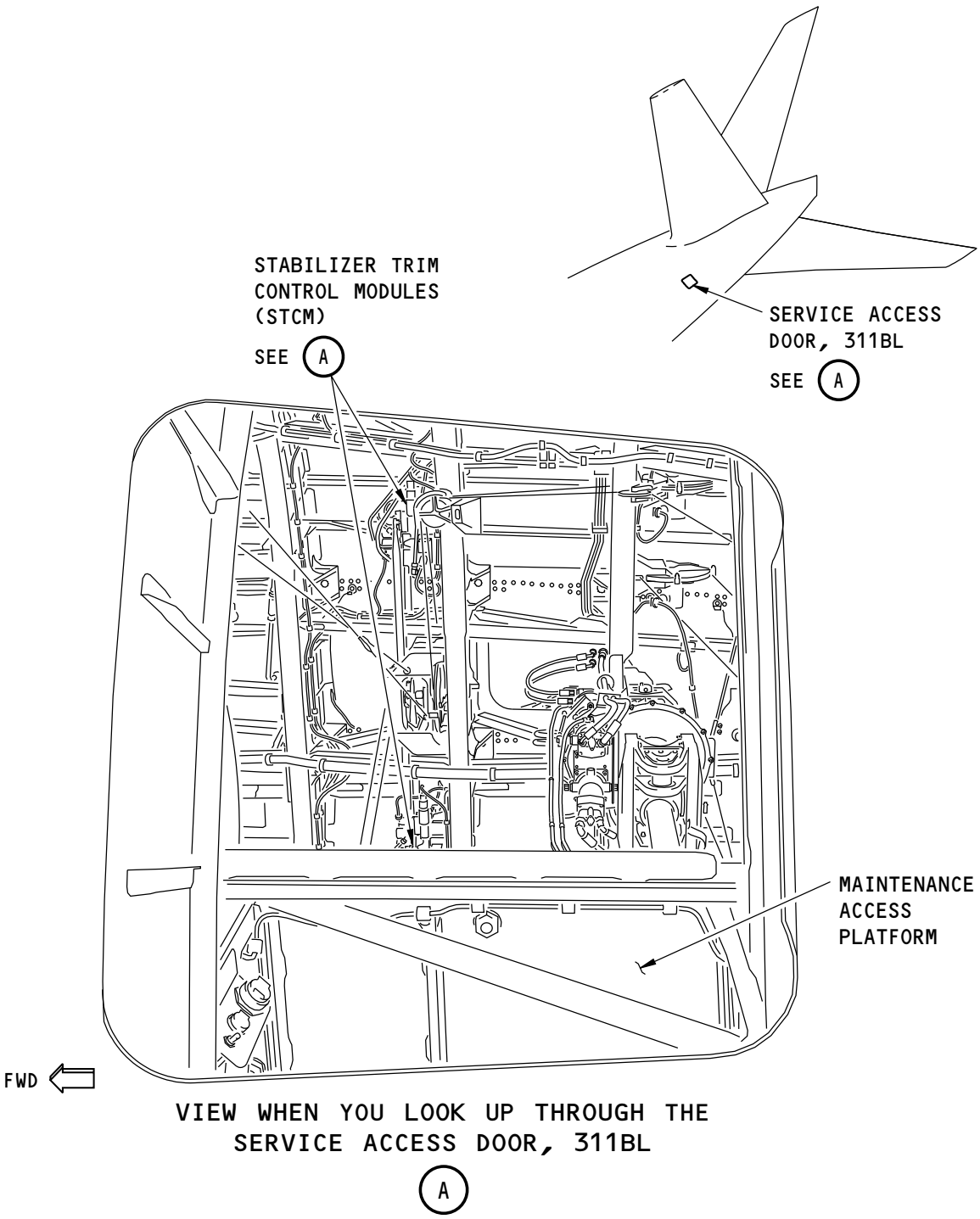
(b) Remove the bolts [4] and washers [3].

(c) Remove the valve [5] from the STCM.

(d) Remove the packing [2] and packing [7], and the backup rings [1] and rings [6] from the valve [5].

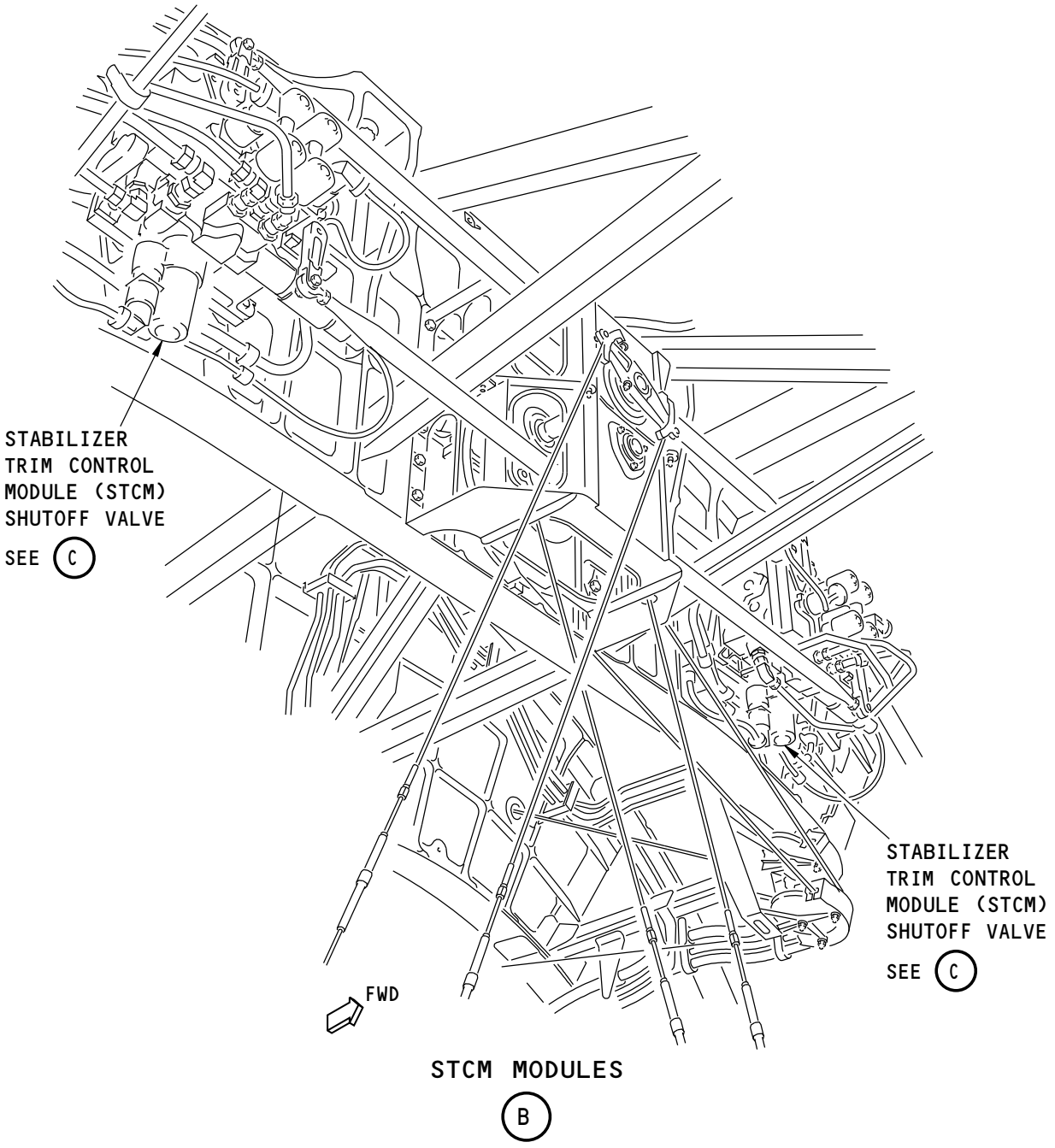
END OF TASK

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Stabilizer Trim Control Modules (STCM) Shutoff Valve Installation
Figure 401/27-41-10-990-801 (Sheet 1 of 3)

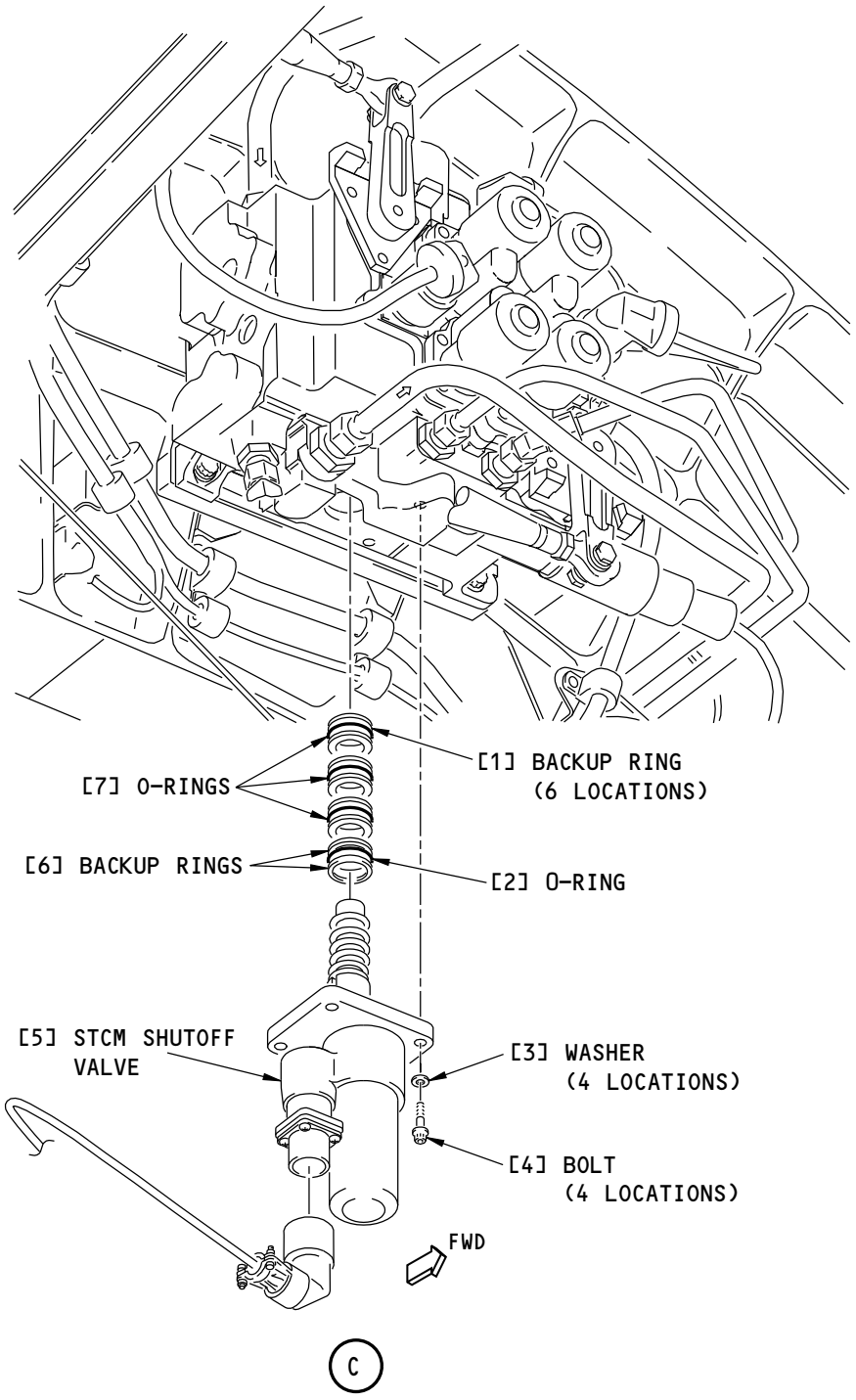
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Stabilizer Trim Control Modules (STCM) Shutoff Valve Installation
Figure 401/27-41-10-990-801 (Sheet 2 of 3)

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Stabilizer Trim Control Modules (STCM) Shutoff Valve Installation
Figure 401/27-41-10-990-801 (Sheet 3 of 3)

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TASK 27-41-10-400-801

3. STCM Shutoff Valve Installation

(Figure 401)

A. General

(1) There is one shutoff valve installed on each of the two STCMs. This procedure is applicable to the two shutoff valves.

B. References

Reference	Title
20-10-22-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
27-41-00-700-801	Stabilizer System Test (P/B 501)
SWPM 20-20-00	Standard Wiring Practices Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Ring	27-41-07-50-150	ARO ALL
2	Packing	27-41-07-50-155	ARO ALL
5	Valve	27-41-07-50-130	ARO ALL
6	Ring	27-41-07-50-160	ARO ALL
7	Packing	27-41-07-50-145	ARO ALL

F. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

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(Continued)

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

G. Access Panels

Number	Name/Location
311BL	Service Access Door

H. Procedure

SUBTASK 27-41-10-160-001

(1) Clean the mating surfaces between the valve [5] and the STCM (TASK 20-10-22-110-802).

SUBTASK 27-41-10-420-001

(2) Do these steps to install the valve [5]:

(a) Install the new packing [2] and packings [7], and install the rings [1] and rings [6] on the valve [5].

(b) Put the valve [5] in its position.

1) Apply a layer of grease, D00633 to the threads of the bolts [4].

2) Install the bolts [4] and washers [3]. Tighten the bolts [4] to 40 to 50 pound-inches (4.52 - 5.65 newton-meters).

3) Install MS20995C32 lockwire, G01048 on the bolt [4].

(c) Measure resistance between the valve [5] and the STCM with a intrinsically safe approved bonding meter, COM-1550. (SWPM 20-20-00)

NOTE: The maximum bond resistance that is permitted across these surfaces is 0.005 ohm or less.

(d) Connect the electrical connector to the valve [5].

SUBTASK 27-41-10-840-006

(3) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) On the E5-1 Panel:

1) CBB2, STAB TRIM CTRL-R

(b) On the E2-6 Panel:

1) CBB2, STAB TRIM CTRL-C

SUBTASK 27-41-10-840-007

(4) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position and remove the DO-NOT-OPERATE tags.

SUBTASK 27-41-10-840-008

(5) Remove the DO-NOT-OPERATE tags on the ALTN PITCH and TRIM levers.

SUBTASK 27-41-10-840-009

(6) On the control stand, put the Center and Right STAB CUT OFF switches in the NORM position.

SUBTASK 27-41-10-730-001

(7) Do the stabilizer system test, (TASK 27-41-00-700-801).

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-10-080-001

(1) Remove the ladder equipment, SPL-2011 and the service access door barrier, SPL-1976.

SUBTASK 27-41-10-410-001

(2) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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STABILIZER HYDRAULIC MOTORS - REMOVAL/INSTALLATION

1. General

A. There are two stabilizer hydraulic motors. They are each installed on the stabilizer trim actuator, in the tail of the airplane.

B. This procedure has these tasks:

(1) A removal of the stabilizer hydraulic motors

(2) An installation of the stabilizer hydraulic motors.

C. In this procedure the stabilizer hydraulic motor for the right hydraulic system is called the motor assembly [1]. The stabilizer hydraulic motor for the center hydraulic system is called the motor assembly [2].

TASK 27-41-11-000-801

2. Stabilizer Hydraulic Motor Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)

C. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Access Panels

Number	Name/Location
311BL	Service Access Door

E. Prepare for the Removal

SUBTASK 27-41-11-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-11-860-002

(2) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-11-860-003

(3) On the control stand, put the C and R STAB cutout switches in the CUTOUT position.

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SUBTASK 27-41-11-010-001

(4) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-11-480-001

(5) Install the ladder equipment, SPL-2011, for access to the motor assembly [1], or motor assembly [2].

F. Stabilizer Hydraulic Motor Removal

SUBTASK 27-41-11-020-001

(1) Do these steps to disconnect the hydraulic lines from the applicable motor assembly [1], or motor assembly [2]:

(a) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110 below the motor assembly [1], or motor assembly [2] to catch the hydraulic fluid.

(b) Disconnect the four hydraulic lines.

(c) Install caps on the hydraulic lines.

SUBTASK 27-41-11-020-002

(2) Do these steps to remove the applicable motor assembly [1], or motor assembly [2]:

NOTE: The motor assembly [1] and motor assembly [2] each weigh approximately 15 pounds.

(a) Remove the bolt [3], the washer [4], the washer [25], and nut [26].

(b) Remove the three nuts [12] and washers [11].

(c) Remove the motor assembly [1], or motor assembly [2] from the gearbox.

(d) Remove and discard the packing [5] from the gear box shaft [6].

SUBTASK 27-41-11-020-003

(3) If you will install a new motor assembly [1], or motor assembly [2], remove these parts from the used motor assembly [1], or motor assembly [2]:

(a) The adapter [16], and adapter [17]

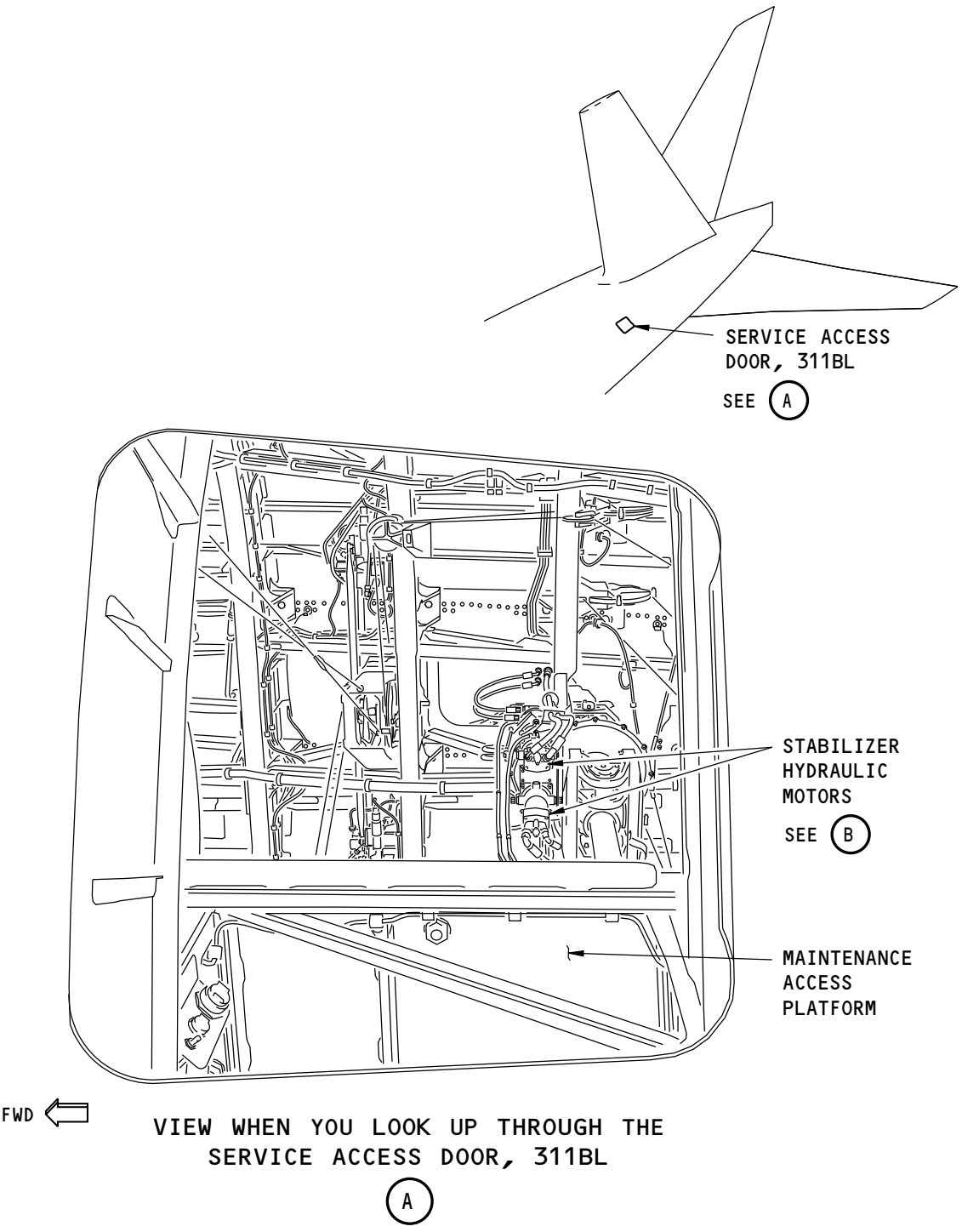
(b) The union [24]

(c) The plug [22]

(d) The elbow [7] and the nut [8].

——— END OF TASK ———

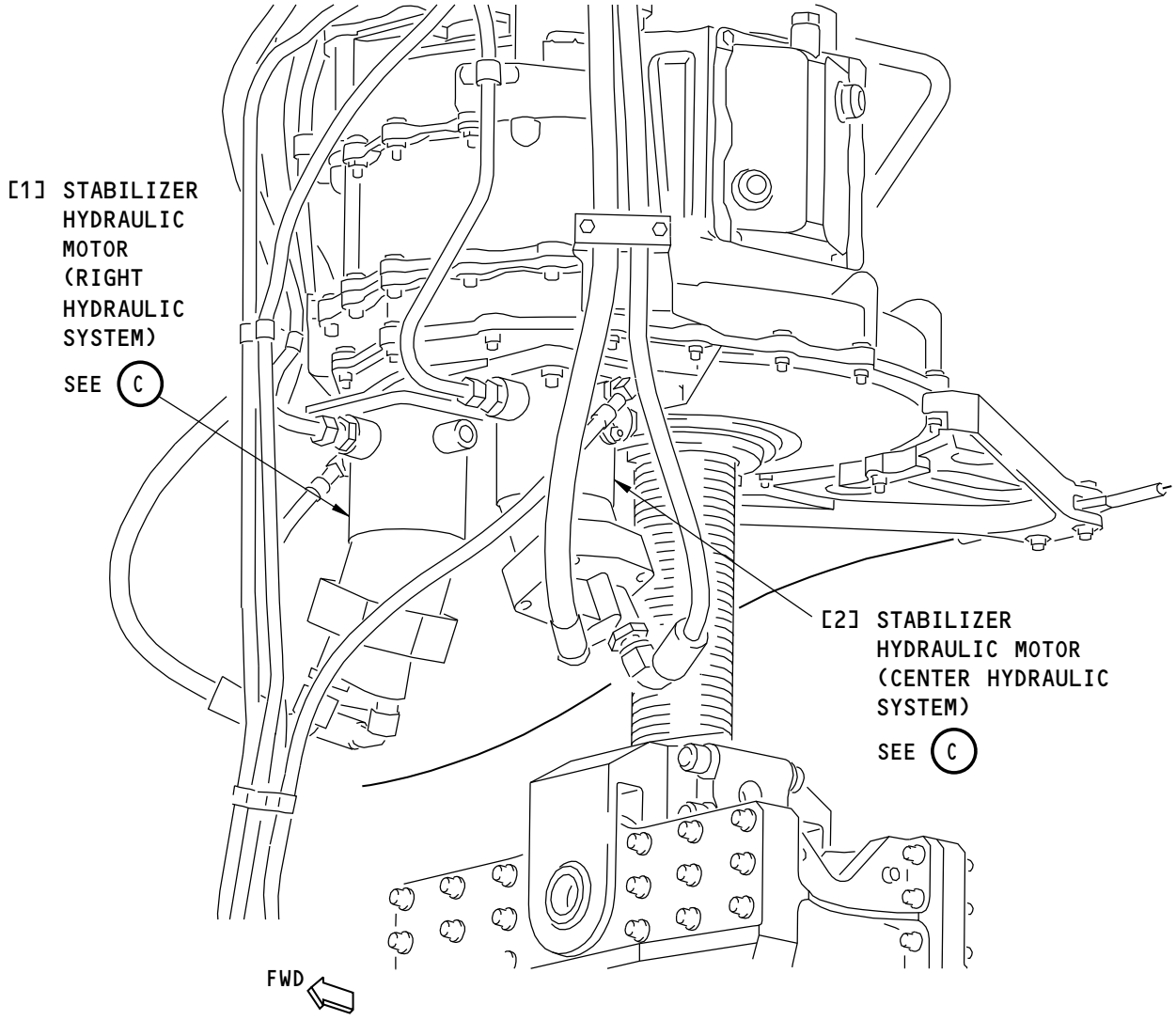
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Stabilizer Hydraulic Motors Installation
Figure 401/27-41-11-990-801 (Sheet 1 of 3)

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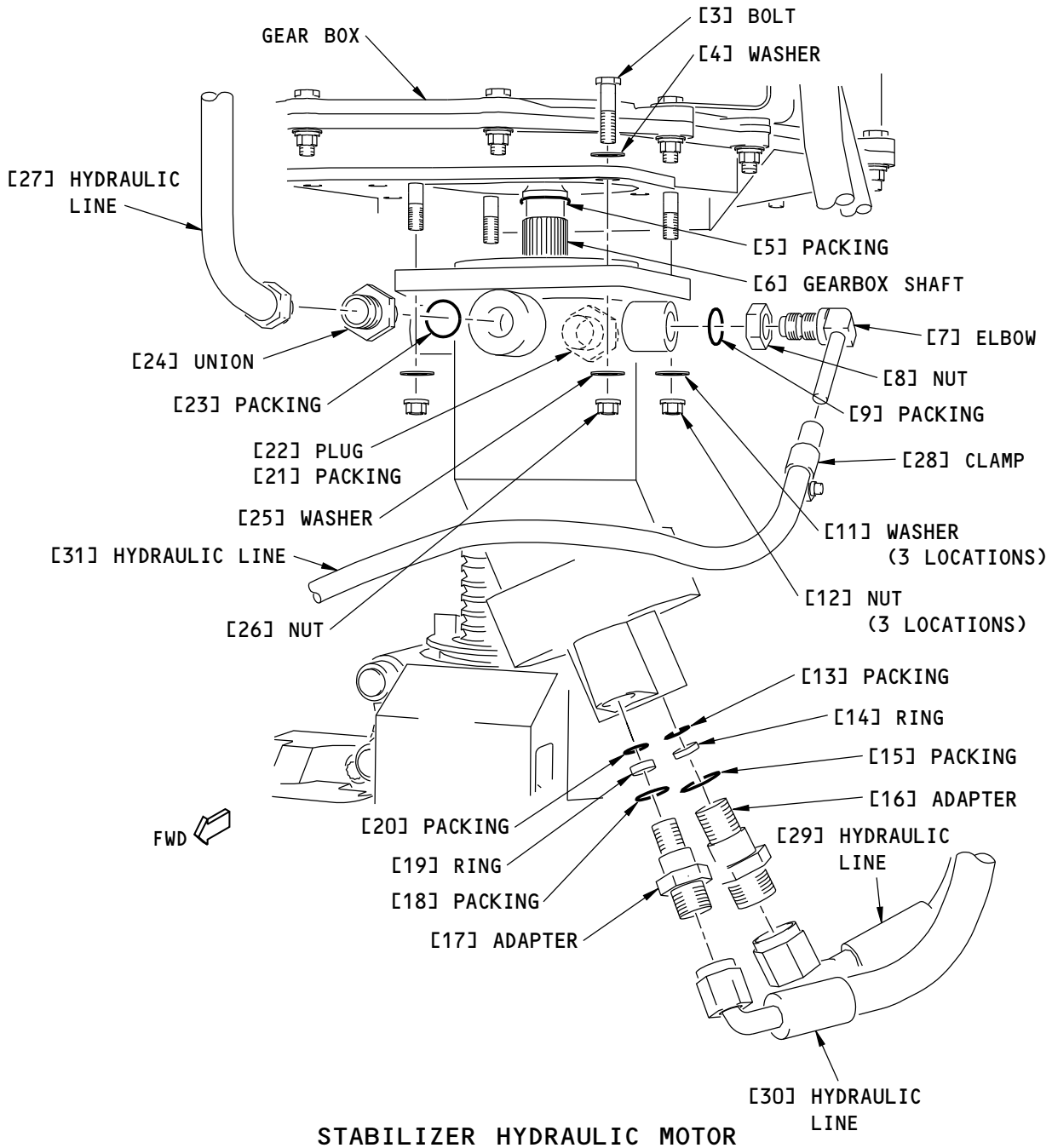


STABILIZER HYDRAULIC MOTORS
B

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Stabilizer Hydraulic Motors Installation
Figure 401/27-41-11-990-801 (Sheet 2 of 3)

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STABILIZER HYDRAULIC MOTOR
(EXAMPLE)

C

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Stabilizer Hydraulic Motors Installation
Figure 401/27-41-11-990-801 (Sheet 3 of 3)

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TASK 27-41-11-400-801

3. Stabilizer Hydraulic Motor Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Motor assembly	27-41-13-11-042	ARO ALL
2	Motor assembly	27-41-13-11-039	ARO ALL
5	Packing	27-41-13-11-306	ARO ALL
9	Packing	27-41-13-11-084	ARO ALL
13	Packing	27-41-13-11-081	ARO ALL
15	Packing	27-41-13-11-078	ARO ALL
18	Packing	27-41-13-11-087	ARO ALL
20	Packing	27-41-13-11-090	ARO ALL
21	Packing	27-41-13-11-078	ARO ALL
23	Packing	27-41-13-11-078	ARO ALL

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E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Stabilizer Hydraulic Motor Installation

SUBTASK 27-41-11-420-001

(1) If you will install a new motor assembly [1], or motor assembly [2], do these steps:

(a) If it has not already been done, remove and discard all of the used packings and backup rings.

(b) Clean the adapter [16], adapter [17], plug [22], and the union [24].

(c) Lubricate the adapter [16], the new packing [13], packing [15], and the new ring [14] with MCS 352B fluid, D00054 or hydraulic fluid, D00153.

(d) Install the ring [14], packing [13], and packing [15] on the adapter [16].

(e) Lubricate the adapter [17], the new packing [18], packing [20], and the new ring [19] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

(f) Install the ring [19], packing [18], and packing [20] on the adapter [17].

(g) Lubricate the union [24], and the new packing [23] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

(h) Install the packing [23] on the union [24].

(i) Lubricate the plug [22], and the new packing [21] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

(j) Install the packing [21] on the plug [22].

(k) Lubricate the elbow [7], and the new packing [9] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

(l) Install the nut [8] and packing [9] on the elbow [7].

NOTE: Put the nut [8] on the elbow [7] before you install the packing [9].

(m) Install the adapter [16].

(n) Install the adapter [17].

(o) Install the union [24].

(p) Install the plug [22].

(q) Install the elbow [7].

SUBTASK 27-41-11-420-002

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Do these steps to install the applicable motor assembly [1], or motor assembly [2]:

(a) Clean the gearbox shaft [6] with a clean dry rag.

(b) Lubricate the gearbox shaft [6] and the new packing [5] with grease, D00633 or grease, D00013.

(c) Install the packing [5] on the gearbox shaft [6].

(d) Apply grease, D00633 or grease, D00013, to the splines in the motor assembly [1], or motor assembly [2].

(e) Apply grease, D00633 or grease, D00013, to the mating surface of the motor assembly [1], or motor assembly [2].

(f) Apply grease, D00633 or grease, D00013, to the three studs.

(g) Put the stabilizer hydraulic motor assembly [1], or motor assembly [2] in its position on the gearbox.

(h) Install nuts [12] and the washers [11] on the studs.

(i) Put Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, on the bolt [3].

(j) Install the bolt [3], washer [4], washer [25], and nut [26]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-41-11-080-002

(3) Remove the caps from the hydraulic lines.

SUBTASK 27-41-11-420-003

(4) Connect the hydraulic lines to the motor assembly [1] or motor assembly [2].

(a) Connect the hydraulic line [27] to the union [24].

1) Tighten the B-nut on the hydraulic line [27] to 170 ±9 in-lb (19 ±1 N·m).

(b) Connect the hydraulic line [31] to the elbow [7].

1) Install the clamp [28] on the hydraulic line [31].

(c) Connect the hydraulic line [29] to the adapter [16].

1) Tighten the B-nut on the hydraulic line [29] to 500 ±25 in-lb (56 ±3 N·m).

(d) Connect the hydraulic line [30] to the adapter [17].

1) Tighten the B-nut on the hydraulic line [30] to 270 ±14 in-lb (31 ±2 N·m).

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H. Stabilizer Hydraulic Motor Installation Test

SUBTASK 27-41-11-860-004

> **WARNING** KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-11-860-005

(2) On the control stand, put the C and R STAB cutout switches in the NORM position.

SUBTASK 27-41-11-790-001

(3) Use the ALTN PITCH TRIM levers, on the control stand, to operate the horizontal stabilizer up and down. Operate the horizontal stabilizer in each direction for approximately 5 seconds.

SUBTASK 27-41-11-210-001

(4) Make sure there are no hydraulic fluid leaks.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-11-860-006

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-11-080-001

(2) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-11-410-001

(3) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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STABILIZER SECONDARY BRAKE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the secondary brake for the stabilizer

(2) An installation of the secondary brake for the stabilizer.

TASK 27-41-12-000-801

2. Stabilizer Secondary Brake - Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) There are two secondary brakes for the pitch trim actuator. In this procedure the secondary brakes are called the brake assembly [3]. You can use this procedure to remove either brake assembly [3].

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Removal

SUBTASK 27-41-12-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-41-12-860-002

(2) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-12-860-003

(3) On the control stand, put the C and R STAB CUT OFF switches in the CUTOUT position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-12-010-001

(4) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-12-480-001

(5) Install the ladder equipment, SPL-2011, for access to the brake assembly [3].

SUBTASK 27-41-12-480-002

(6) Install the service access door barrier, SPL-1976, for the service access door.

G. Stabilizer Secondary Brake Removal

SUBTASK 27-41-12-020-001

(1) Do these steps to disconnect the hydraulic lines from the applicable brake assembly [3]:

(a) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110 below the hydraulic lines to catch the hydraulic fluid.

(b) Disconnect the hydraulic line [18], hydraulic line [19], hydraulic line [20].

(c) Loosen the clamp [22] on the fitting [12] to disconnect the seal drain tube [21].

(d) Install caps on the hydraulic lines.

SUBTASK 27-41-12-020-002

(2) Do these steps to remove the applicable brake assembly [3]:

(a) Remove the nuts [14], washers [15], washers [9], and bolts [8].

(b) Remove the brake assembly [3] from the gearbox.

(c) Remove and discard the packing [13] from the gear box shaft that comes out of the gear box.

SUBTASK 27-41-12-020-003

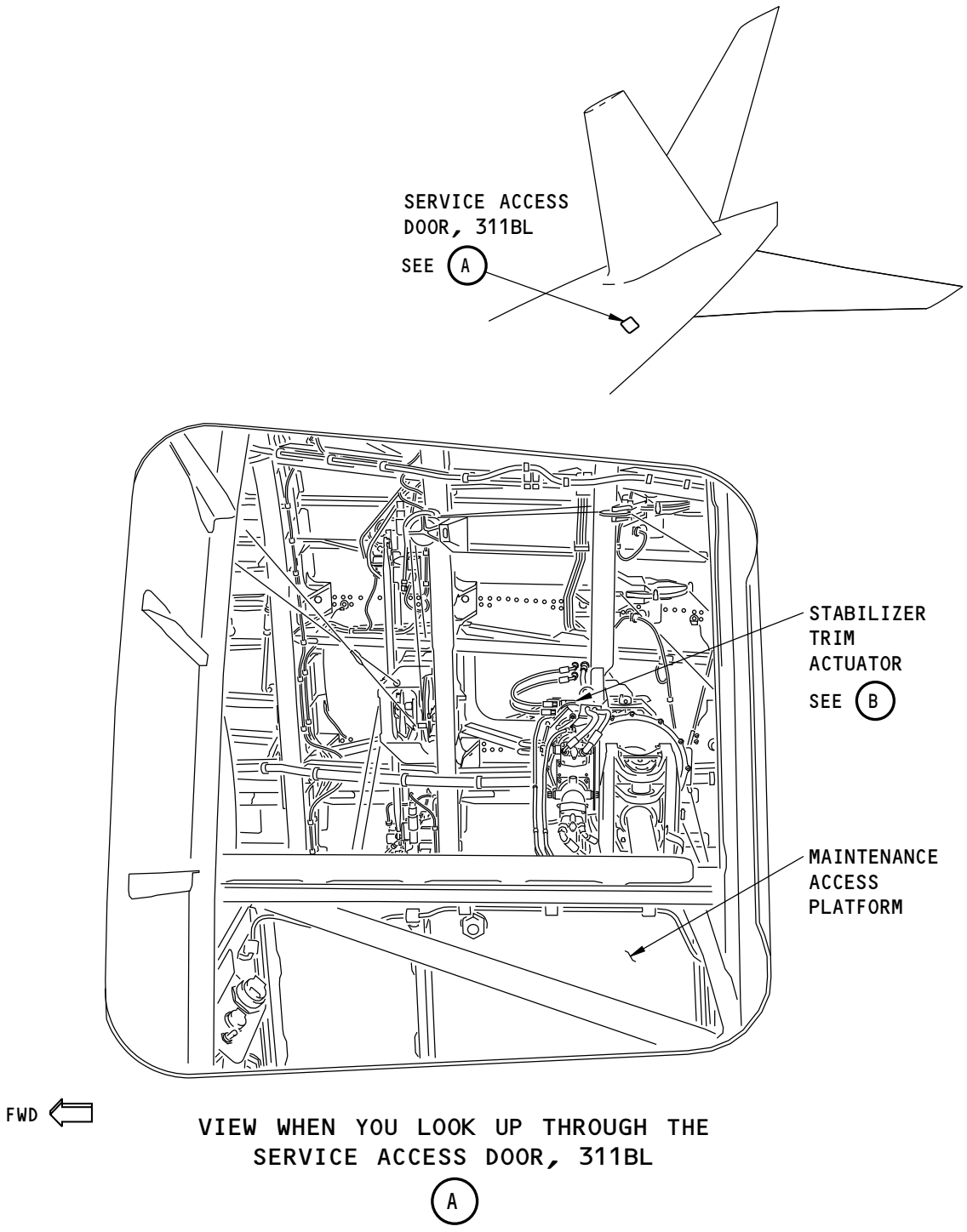
(3) If you will install a new brake assembly [3], remove these hydraulic fittings from the used brake assembly [3]:

(a) Remove the union [1], union [6], adapter [7], and fitting [12].

(b) Remove and discard all packings.

END OF TASK

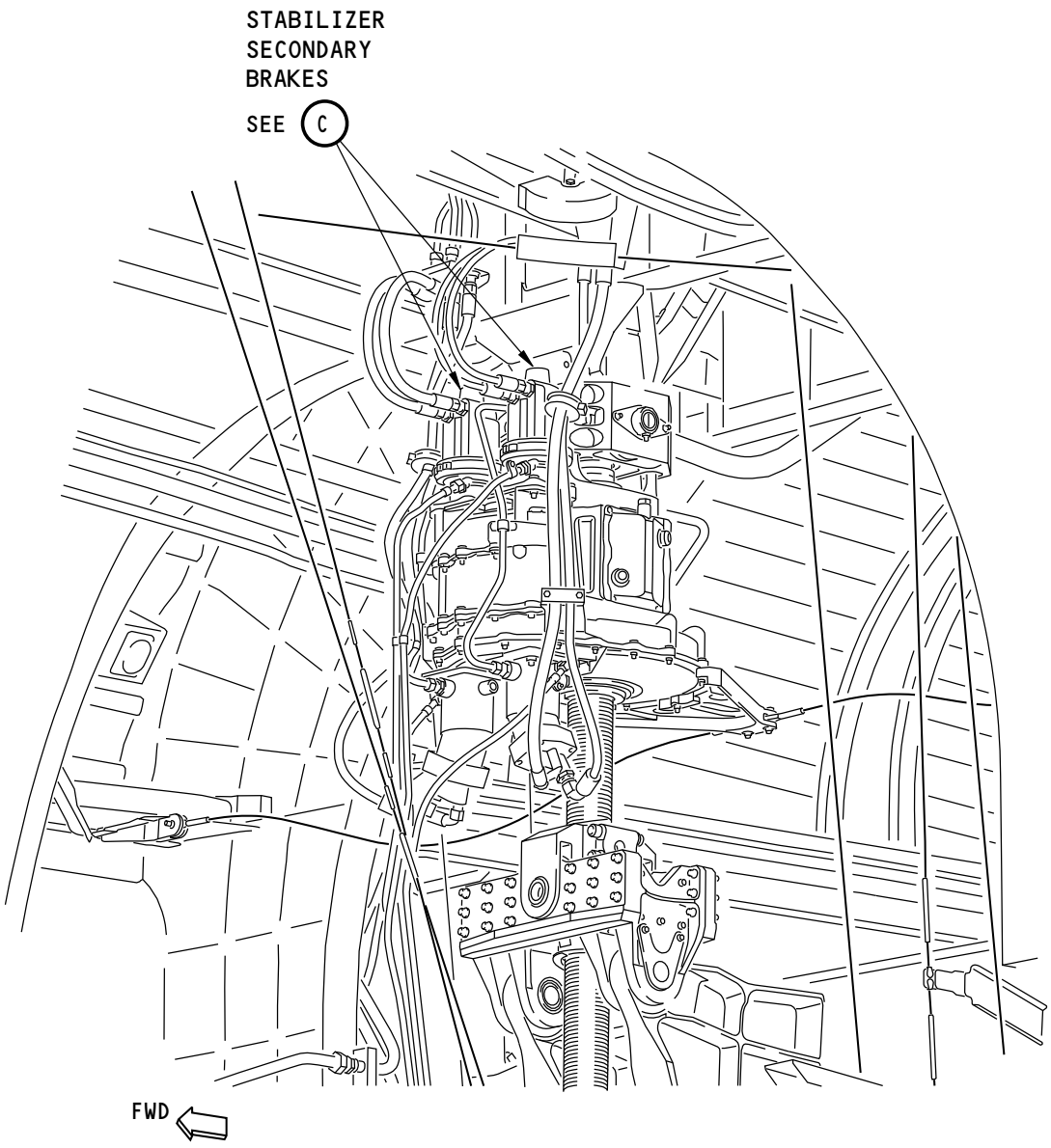
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Stabilizer Secondary Brake Installation
Figure 401/27-41-12-990-801 (Sheet 1 of 3)

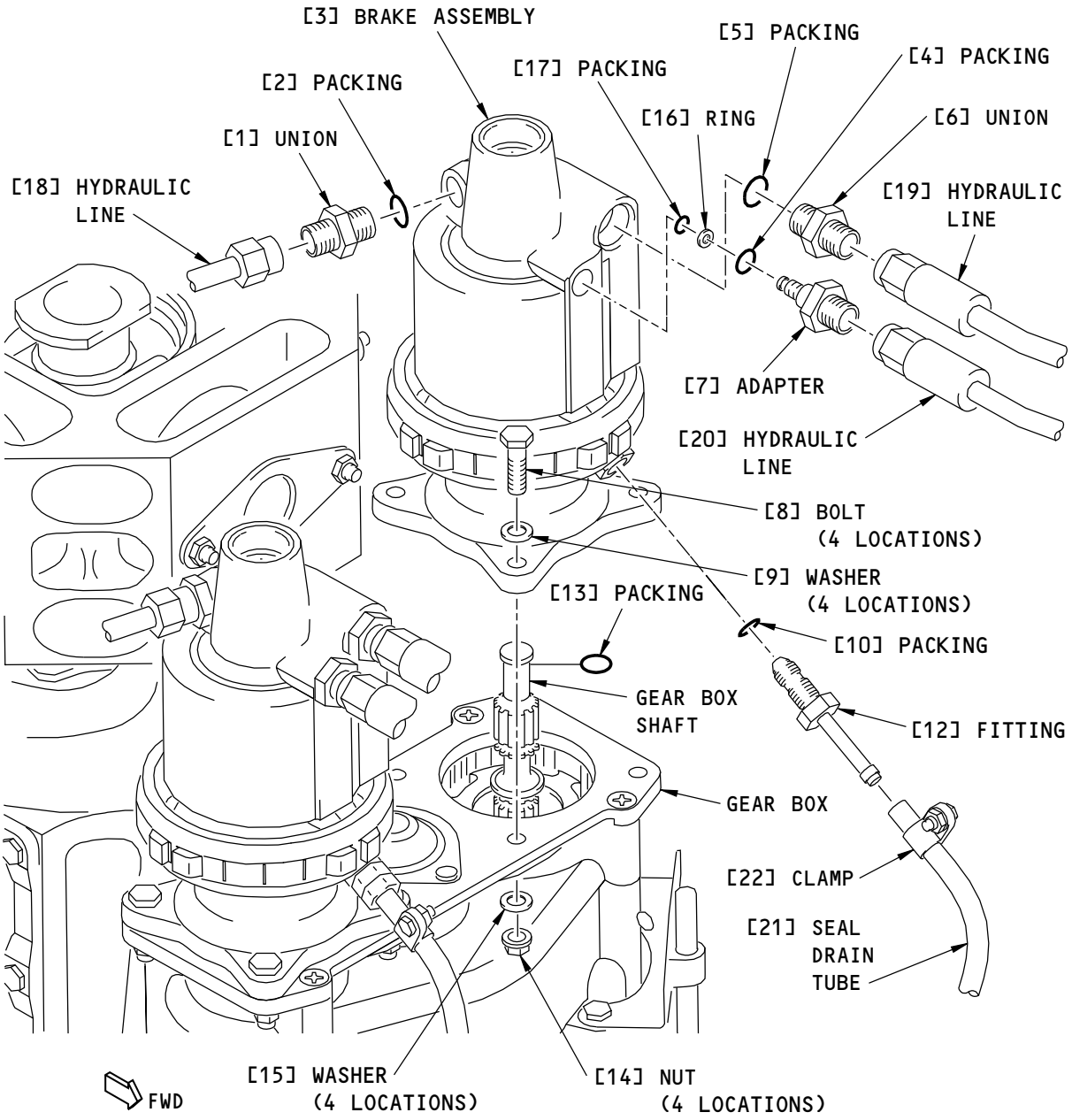
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Stabilizer Secondary Brake Installation
Figure 401/27-41-12-990-801 (Sheet 2 of 3)

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STABILIZER SECONDARY BRAKE
(EXAMPLE)

C

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Stabilizer Secondary Brake Installation
Figure 401/27-41-12-990-801 (Sheet 3 of 3)

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TASK 27-41-12-400-801

3. Stabilizer Secondary Brake - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
27-41-00-700-801	Stabilizer System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
D00633	Grease - Aircraft General Purpose	BMS3-33
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Packing	27-41-12-01-075	ARO ALL
3	Brake assembly	27-41-13-11-114	ARO ALL
4	Packing	27-41-12-01-085	ARO ALL
5	Packing	27-41-12-01-075	ARO ALL
10	Packing	27-41-12-01-105	ARO ALL
13	Packing	27-41-13-11-195	ARO ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
13 (cont.)		27-41-13-11-303	ARO ALL
17	Packing	27-41-12-01-095	ARO ALL

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Stabilizer Secondary Brake Installation

SUBTASK 27-41-12-420-001

(1) If you will install a new brake assembly [3], do these steps to install the hydraulic fittings (from the old brake assembly [3]) in the new brake assembly [3]:

(a) Clean the union [1], union [6], adapter [7], and fitting [12].

(b) Lubricate the union [1], union [6], adapter [7] and fitting [12], and new packing [2], packing [4], ring [16], packing [17], with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

(c) Install the packing [10], and fitting [12].

1) Tighten the fitting [12] to 17.5 ±2.5 in-lb (2.0 ±0.3 N·m).

(d) Install the packing [4], ring [16], packing [17] and adapter [7].

1) Tighten the adapter [7] to 142.5 ±7.5 in-lb (16.1 ±0.8 N·m).

(e) Install the packing [5] and union [6].

1) Tighten the union [6] to 270 ±15 in-lb (31 ±2 N·m).

(f) Install the packing [2] and union [1].

1) Tighten the union [1] to 270 ±15 in-lb (31 ±2 N·m).

SUBTASK 27-41-12-420-002

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Do these steps to install the applicable brake assembly [3]:

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(a) Clean the gear box shaft with a clean dry cotton wiper, G00034.

(b) Lubricate the gearbox shaft and the new packing [13] with grease, D00633 or grease, D00013.

(c) Install the new packing [13] on the gear box shaft.

(d) Apply grease, D00633 or grease, D00013, to the splines in the brake assembly [3].

(e) Apply grease, D00633 or grease, D00013, to the mating surface of the brake assembly [3].

(f) Put the brake assembly [3] in its position on the gear box.

(g) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the bolts [8].

(h) Install the bolts [8], washers [9], washers [15], and nuts [14]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-41-12-420-003

(3) Remove the caps on the hydraulic lines and connect the hydraulic lines to the applicable brake assembly [3].

(a) Connect the hydraulic line [18] to the union [1].

1) Tighten the B-nut on the hydraulic line [18] to 170 ±9 in-lb (19 ±1 N·m).

(b) Connect the hydraulic line [19] to the union [6].

1) Tighten the B-nut on the hydraulic line [19] to 270 ±14 in-lb (31 ±2 N·m).

(c) Connect the hydraulic line [20] to the adapter [7].

1) Tighten the B-nut on the hydraulic line [20] to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 27-41-12-420-004

(4) Connect the seal drain tube [21] to the fitting [12] and tighten the clamp [22].

H. Stabilizer Secondary Brake Installation Test

SUBTASK 27-41-12-860-004

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-12-860-005

(2) On the control stand, put the C and R STAB CUTOFF switches in the NORM position.

SUBTASK 27-41-12-700-001

(3) Do this task: Stabilizer System Test, TASK 27-41-00-700-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-12-860-006

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-12-080-001

(2) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-12-080-002

(3) Remove the service access door barrier, SPL-1976 for the service access door.

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SUBTASK 27-41-12-410-001

(4) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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STABILIZER TRIM ACTUATOR - MAINTENANCE PRACTICES

1. General

A. This procedure has the following two tasks:

(1) Stabilizer trim actuator removal for inspection of the jackscrew fitting

(2) Stabilizer trim actuator installation after inspection of the jackscrew fitting.

TASK 27-41-13-020-802

2. Stabilizer Trim Actuator Removal for Jackscrew Fitting Inspection

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The stabilizer trim actuator is referred to as the actuator assembly [9]. The approximate weight of the stabilizer assembly is 313 pounds (142kg).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-13-990-801	Figure: Horizontal Stabilizer Lock and Ballnut Lock Installation (P/B 401)
27-41-13-990-802	Figure: Stabilizer Trim Actuator Hoist Installation (P/B 401)
27-41-13-990-803	Figure: Stabilizer Trim Connections (P/B 401)
27-41-13-990-804	Figure: Stabilizer Trim Gimbal Pin Installation (P/B 401)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
SPL-1693	Lock Equipment, Horizontal Stabilizer Actuator Ball Nut Part #: J27002-1 Supplier: 81205
SPL-1697	Equipment - Hoist, horizontal stabilizer trim actuator Part #: J27007-15 Supplier: 81205 Opt Part #: J27007-7 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-2027	Lock Assembly, Horizontal Stabilizer Part #: J55002-53 Supplier: 81205 Opt Part #: J55002-1 Supplier: 81205 Opt Part #: J55002-36 Supplier: 81205

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(Continued)

Reference	Description
SPL-3997	Drive Adapter Equipment, Horizontal Stabilizer Trim Actuator Part #: J27078-1 Supplier: 81205

D. Procedure

SUBTASK 27-41-13-864-002

WARNING IF HYDRAULIC POWER IS SUPPLIED, THE STABILIZER TRIM ACTUATOR CAN MOVE. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) To remove the pressure from the reservoirs, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-13-760-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-13-860-048

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-13-430-001

(4) Attach DO-NOT-OPERATE tags on the ALTN PITCH TRIM levers.

SUBTASK 27-41-13-430-002

(5) Put the stabilizer trim cutout switches to the CUTOFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-13-862-001

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R

Power Supply Assembly Center, M24301

Row	Col	Number	Name
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	2	CBB2-L	STAB TRIM

Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	2	CBB2-R	STAB TRIM

E. Stabilizer Trim Actuator - Removal From the Jackscrew Fitting

SUBTASK 27-41-13-430-003

(1) Install the service access door barrier, SPL-1976 for the service access door.

NOTE: Make sure you get all necessary equipment and tools before you install the service access door barrier, SPL-1976 for the service access door.

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SUBTASK 27-41-13-430-004

(2) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-13-490-001

(3) Do these steps to secure the stabilizer trim actuator, (Figure 27-41-13-990-802):

(a) Attach the slings (4 locations) and snap hooks (2 locations) of the trim actuator hoist equipment, SPL-1697 to the upper gimbal, View A and View B (Figure 27-41-13-990-802).

(b) Install the cable fishpole hoist, COM-1563 at keyholes #1 and #2.

NOTE: It is recommended to attach a safety strap to make sure that the cable fishpole hoist, COM-1563 does not come loose from the keyhole. The stabilizer ballscrew is supported by only one cable fishpole hoist, COM-1563 at one keyhole during parts of the removal procedure. Without a safety strap that ensures that the fishpole eye does not come out of the keyhole, the stabilizer actuator assembly can fall.

(c) Attach the hoist cables to the snap hooks.

CAUTION

DO NOT APPLY TOO MUCH TENSION AT THE KEYHOLES WHEN YOU MOVE THE STABILIZER ACTUATOR ASSEMBLY. RELEASE THE TENSION AT ONE HOIST WHEN YOU INCREASE THE TENSION IN THE OTHER HOIST. YOU CAN CAUSE DAMAGE TO THE KEYHOLES, AND STRUCTURE OF THE AIRCRAFT.

(d) Adjust the cable fishpole hoist, COM-1563 as necessary to hold the weight of the actuator assembly [9].

NOTE: Make sure the hoists are tensioned before continuing.

SUBTASK 27-41-13-490-002

(4) Do these steps to install the lock assembly, SPL-2027 for the horizontal stabilizer, View A (Figure 27-41-13-990-801):

NOTE: This tool is used to lock the horizontal stabilizer in position during the removal or installation of the ballscrew actuator.

(a) Measure the distance between the lock assembly attach fitting on the stabilizer and the attach fitting located at STA 2268.25 frame.

(b) Select the lock assembly configuration that will give the necessary length and position of the lock assembly (see placard on the tool box).

(c) Adjust the two clevises to get equal number of threads exposed from the cylinder assembly at each end.

NOTE: If you do not have an equal number of threads on each clevis, you can damage the tool.

(d) Connect one end of the lock assembly, SPL-2027 to the attach fitting and turn the cylinder assembly until you can connect the other end.

SUBTASK 27-41-13-490-003

(5) Install the drive adapter equipment, SPL-3997, and use it to turn the manual drive until the upper gimbal pins are loose.

NOTE: Do not use a pneumatic drive to turn the ballscrew.

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SUBTASK 27-41-13-490-004

(6) Install the ball nut lock, SPL-1693 for the actuator ballnut, View D (Figure 27-41-13-990-801).

NOTE: This tool will keep the lower ballnut from rotating and moving toward the lower stop.

SUBTASK 27-41-13-030-001

CAUTION PUT A COVER ON THE PRESSURE BULKHEAD. THIS WILL PREVENT DAMAGE WHILE YOU REMOVE THE STABILIZER ACTUATOR ASSEMBLY. WITHOUT A COVER, DAMAGE TO THE PRESSURE BULKHEAD CAN OCCUR.

(7) Do these steps to disconnect the actuator assembly [9]:

(a) Disconnect one cable [5] from the airplane structure (Figure 27-41-13-990-803):

1) Remove the nut [3], washer [4], bushing [2] and bolt [1].
2) Remove the nuts [82], washers [81], and bolts [80] that hold the anti-rotation bracket [83] to the actuator assembly [9].
3) Move cables [5] and the anti-rotation bracket [83].

(b) Disconnect the ground strap [10] from the fitting on the horizontal stabilizer (View A):

1) Remove the bolt [6], washer [7] and nut [8].

(c) Disconnect the hydraulic lines and clamps from the actuator assembly [9](View B):

NOTE: Make sure you install caps on the hydraulic lines.

1) Remove the screw [19], washer [20], nut [21] and clamp [13].
2) Remove the clamp block [23]:
   a) Remove the nut [25],washer [24] and screw [22] from the clamp block [23].
   b) Remove the clamp block [23]from the hydraulic lines.
3) Disconnect the hydraulic lines [14], [15], [16], [17] and [18] from the hydraulic motors.
4) Disconnect the hydraulic lines [11] and [12] from the stabilizer secondary brakes.

(d) Remove the nut [43], washer [42] and bolt [41] that connect the pin assembly [44] to the actuator ballnut (View A) (Figure 27-41-13-990-804).

(e) Remove the pin assembly [44].

(f) Disconnect the actuator ballnut (lower gimbal) from the stabilizer.

(g) Remove the nut [47], washer [46] and bolt [45] that connect the pin [49] to the ballscrew actuator (View B) (Figure 27-41-13-990-804).

(h) Remove the nut [52], and bolt [50] that hold the pin [49] and the shaft [48].

(i) Remove the pin [49] and the shaft [48].

(j) Disconnect the ballscrew actuator (upper gimbal).

SUBTASK 27-41-13-020-016

(8) When the actuator assembly [9] is disconnected, do these steps to remove it from the jackscrew fitting (Figure 27-41-13-990-802):

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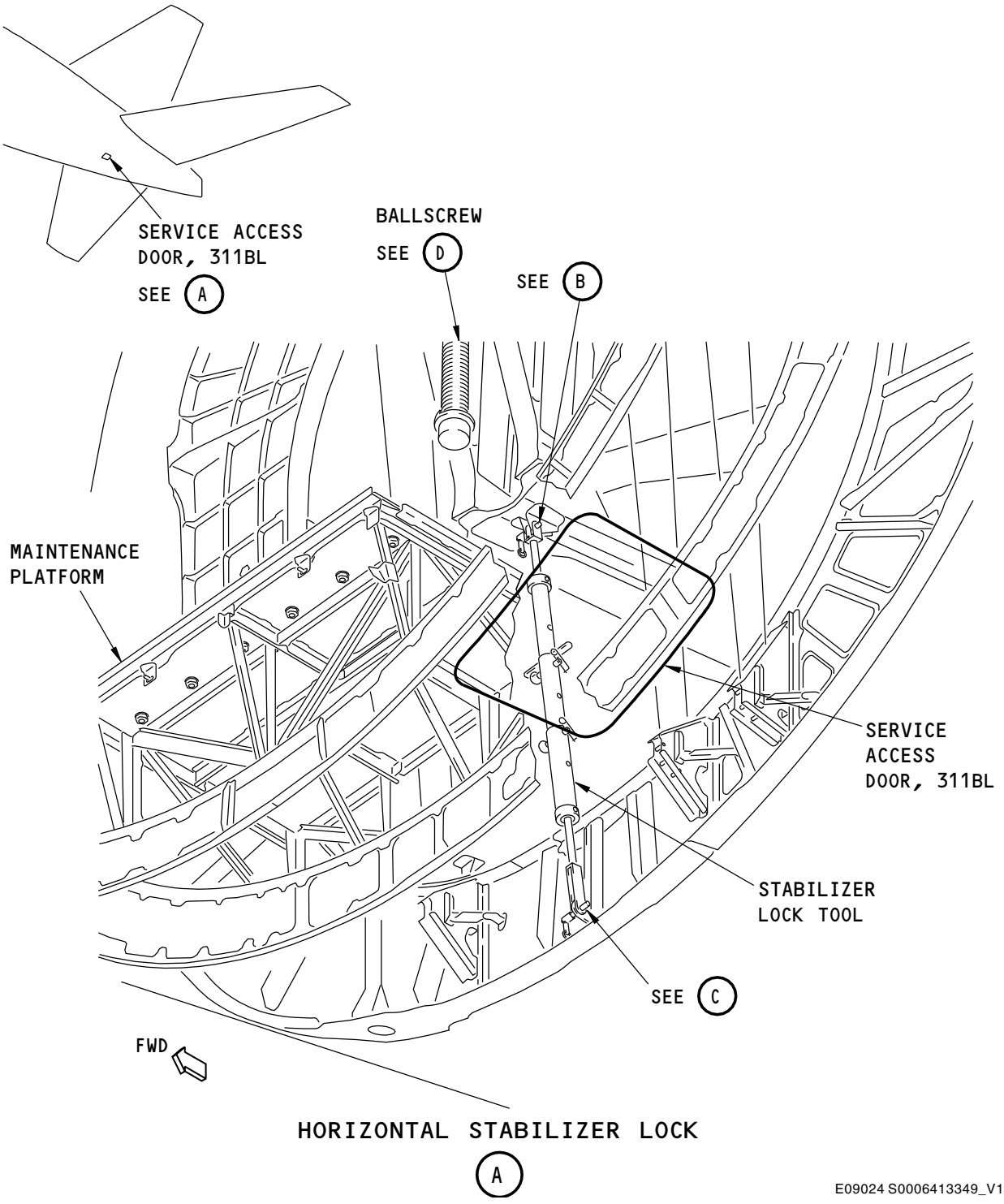
CAUTION

DO NOT APPLY TOO MUCH TENSION AT THE KEYHOLES WHEN YOU MOVE THE STABILIZER ACTUATOR ASSEMBLY. RELEASE THE TENSION AT ONE HOIST WHEN YOU INCREASE THE TENSION IN THE OTHER HOIST. YOU CAN CAUSE DAMAGE TO THE KEYHOLES, AND STRUCTURE OF THE AIRCRAFT.

(a) Adjust the cable fishpole hoist, COM-1563 to move the actuator forward and down until the stabilizer trim actuator hangs completely from keyhole #2 and it is away from the jackscrew fitting.

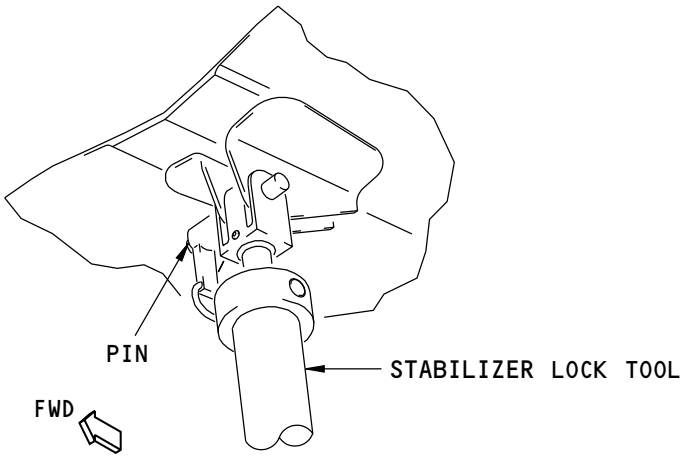
——— END OF TASK ———

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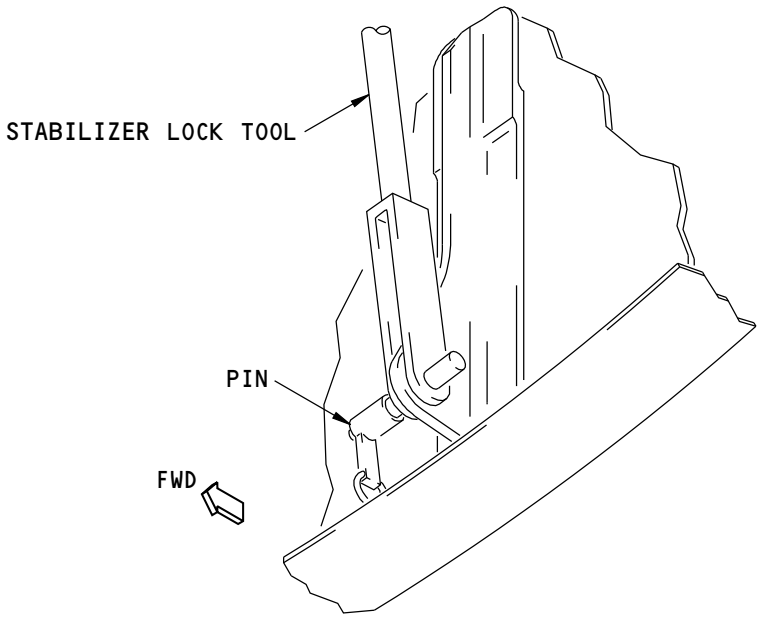
Horizontal Stabilizer Lock and Ballnut Lock Installation
Figure 201/27-41-13-990-812 (Sheet 1 of 3)

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UPPER ATTACHMENT

B



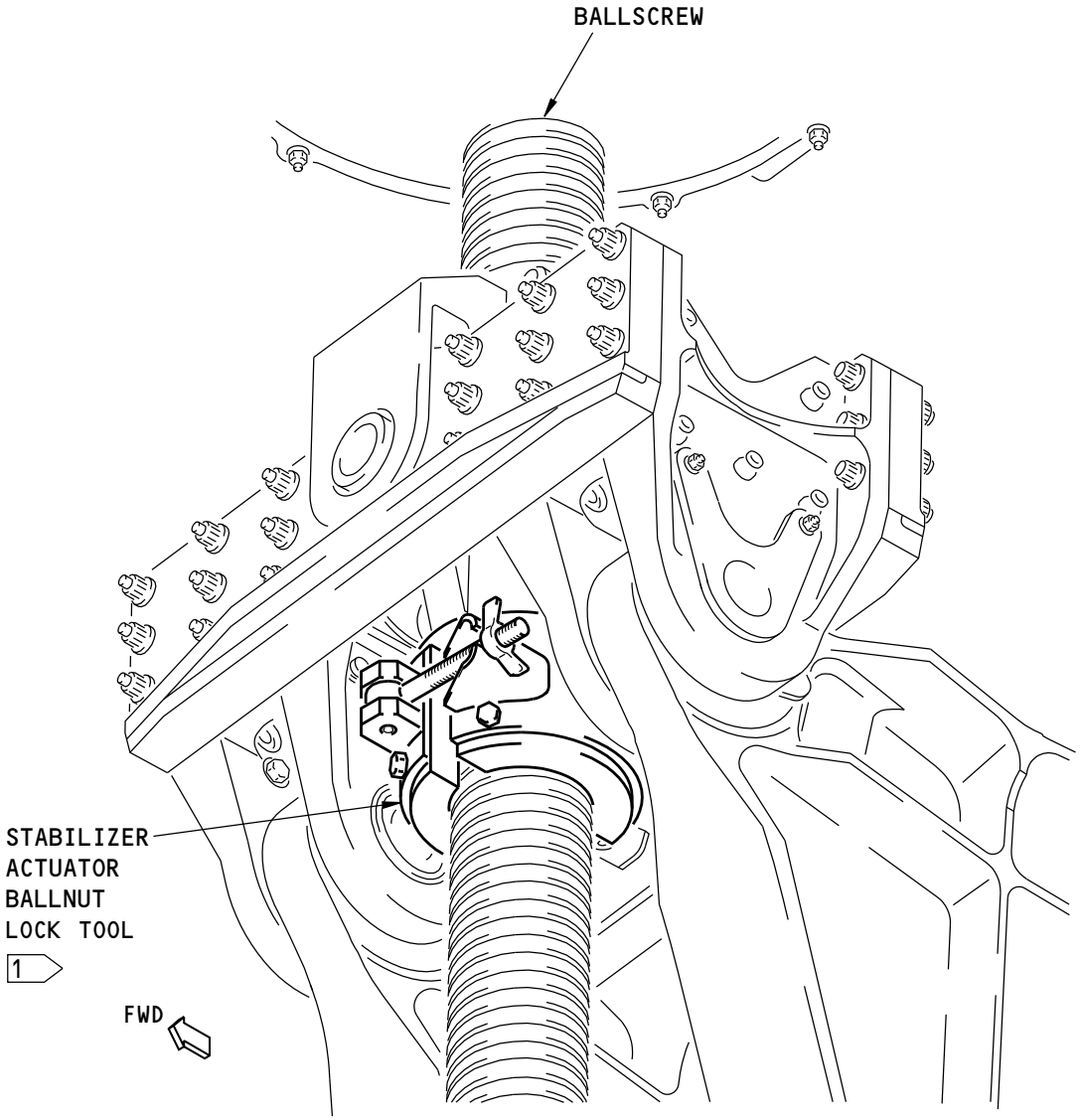
LOWER ATTACHMENT

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Horizontal Stabilizer Lock and Ballnut Lock Installation
Figure 201/27-41-13-990-812 (Sheet 2 of 3)

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HORIZONTAL STABILIZER ACTUATOR BALLNUT LOCK

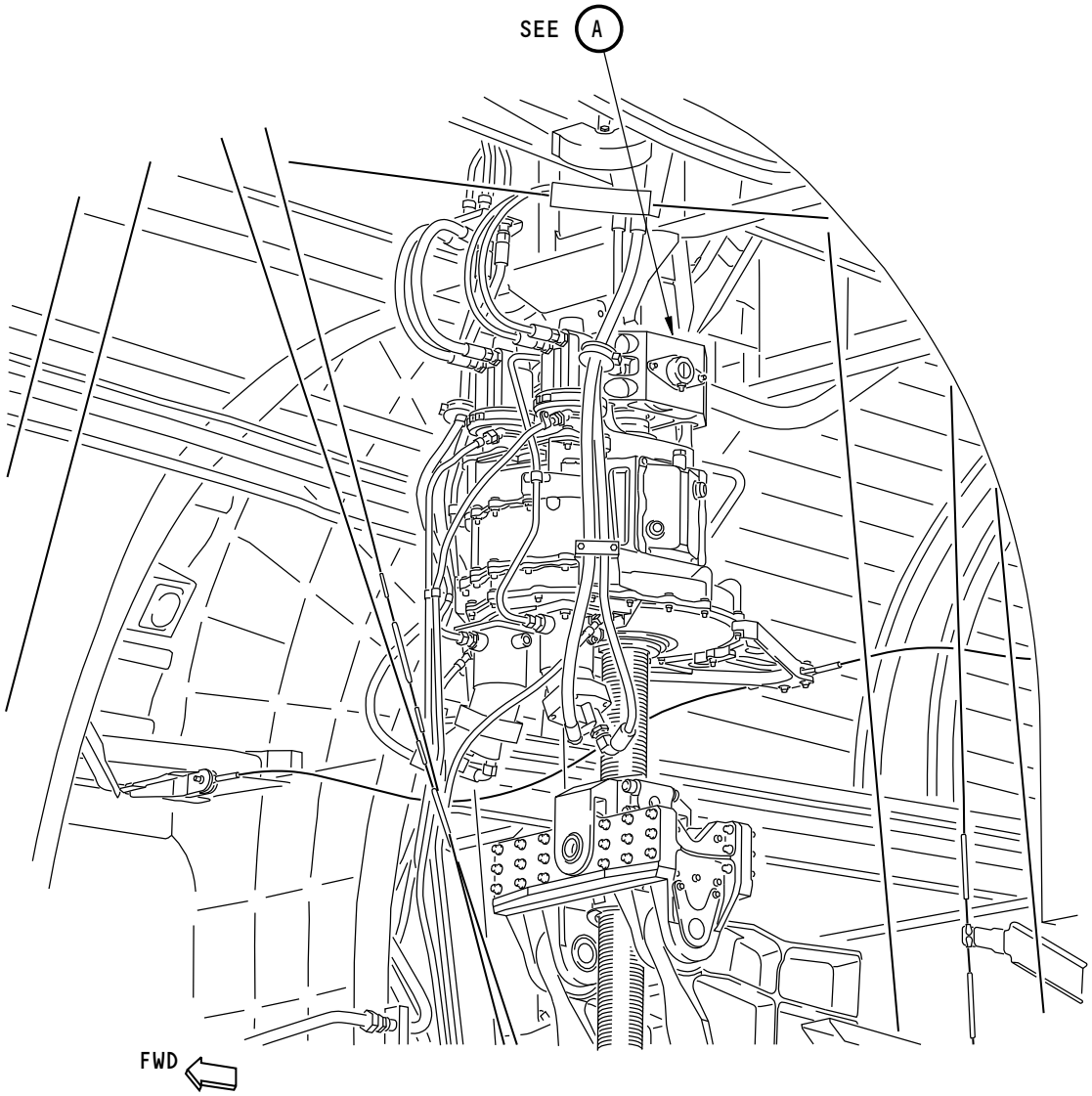
D

1 THIS STABILIZER ACTUATOR BALLNUT LOCK TOOL CAN BE USED TO KEEP THE LOWER GIMBAL FROM "RUNNING AWAY" WHEN IT IS NOT ATTACHED TO THE STABILIZER.

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Horizontal Stabilizer Lock and Ballnut Lock Installation
Figure 201/27-41-13-990-812 (Sheet 3 of 3)

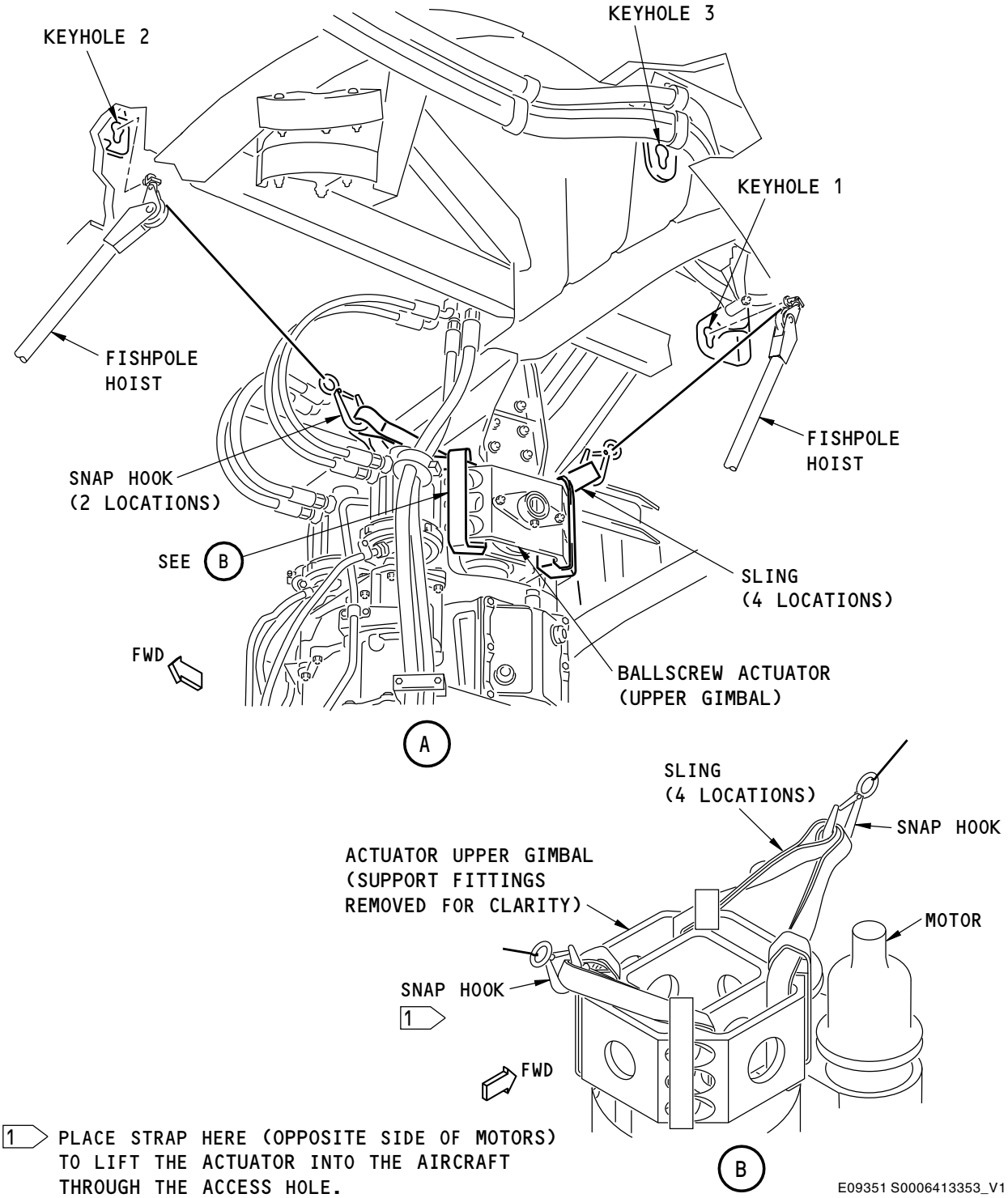
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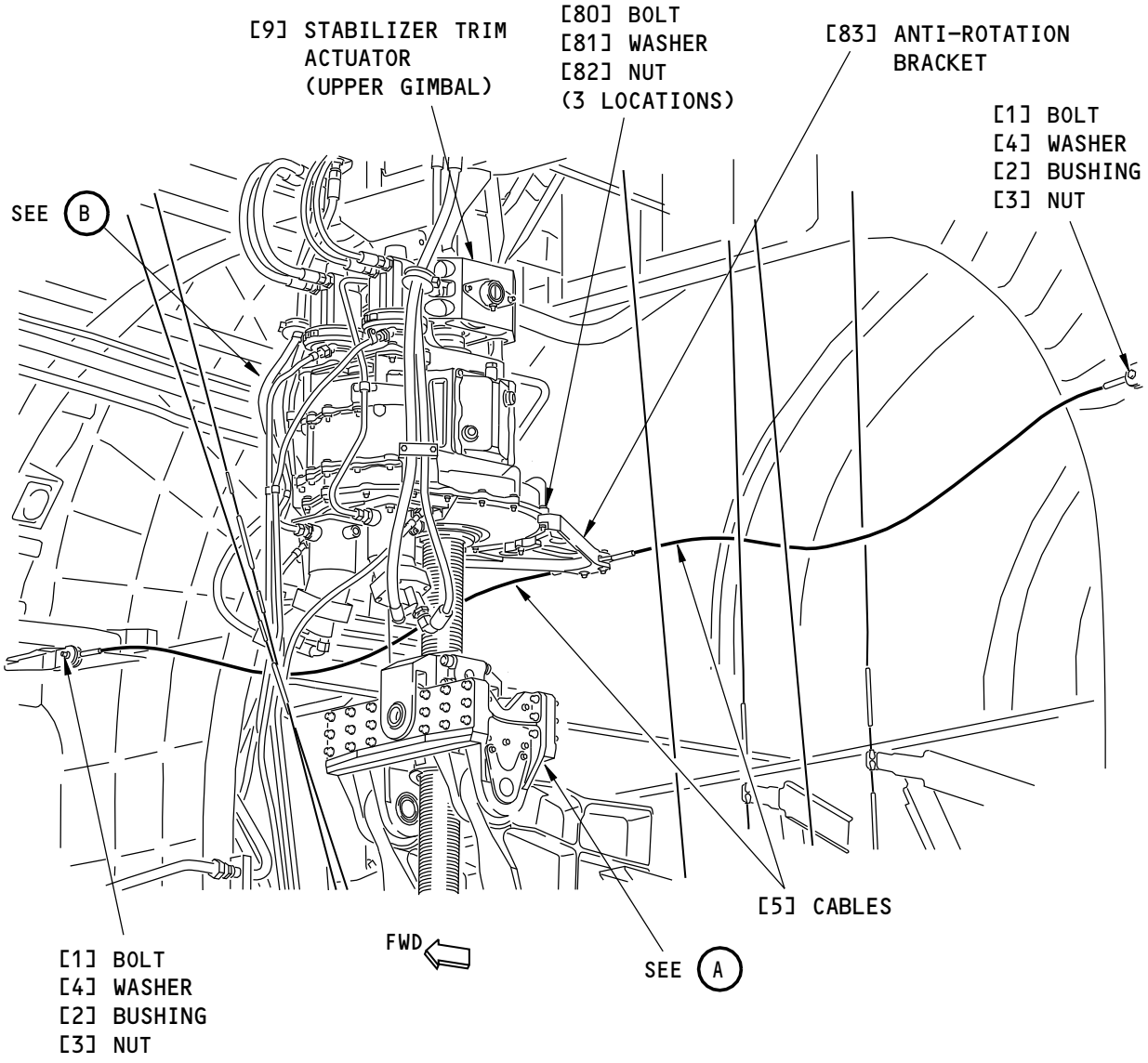
Stabilizer Trim Actuator Hoist Installation
Figure 202/27-41-13-990-813 (Sheet 1 of 2)

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Stabilizer Trim Actuator Hoist Installation
Figure 202/27-41-13-990-813 (Sheet 2 of 2)

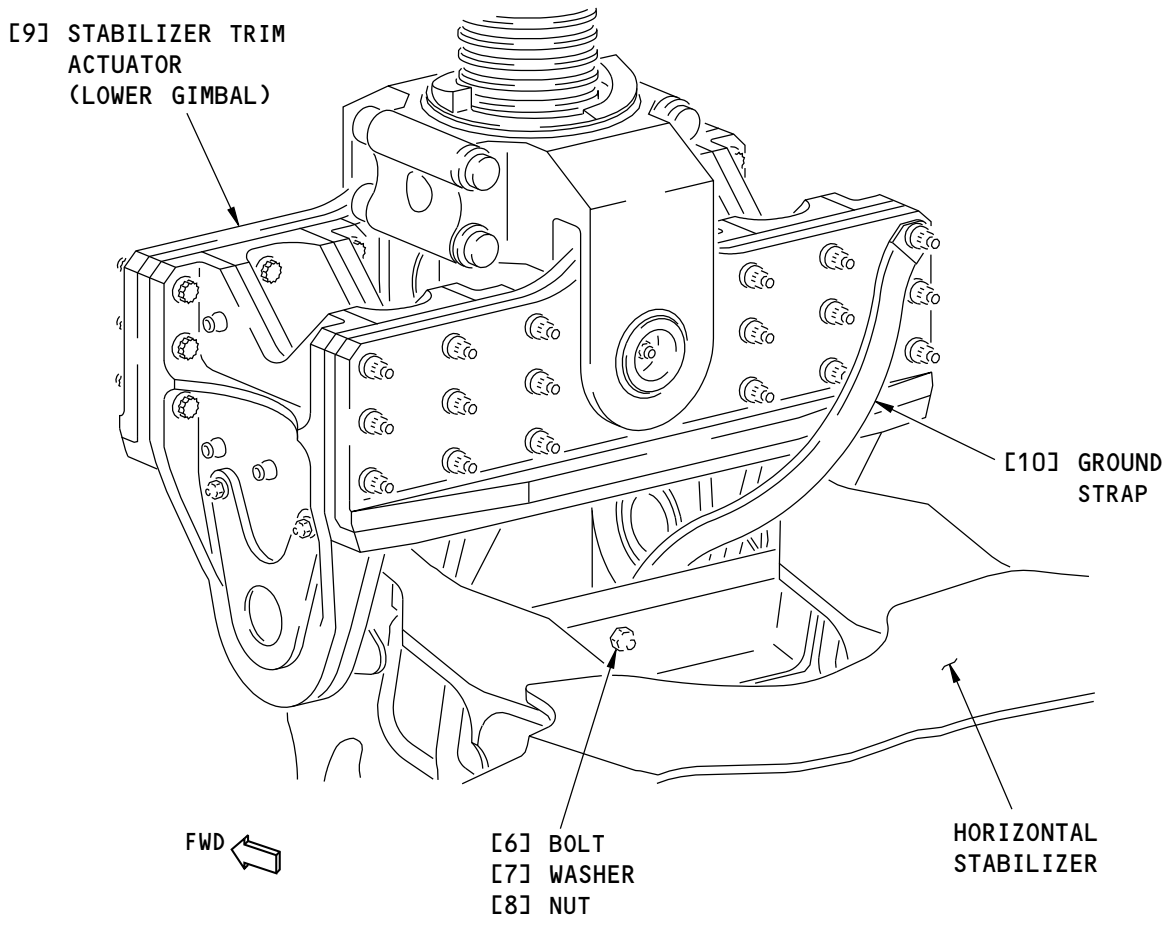
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E09720 S0006413354_V1

Stabilizer Trim Connections
Figure 203/27-41-13-990-814 (Sheet 1 of 3)

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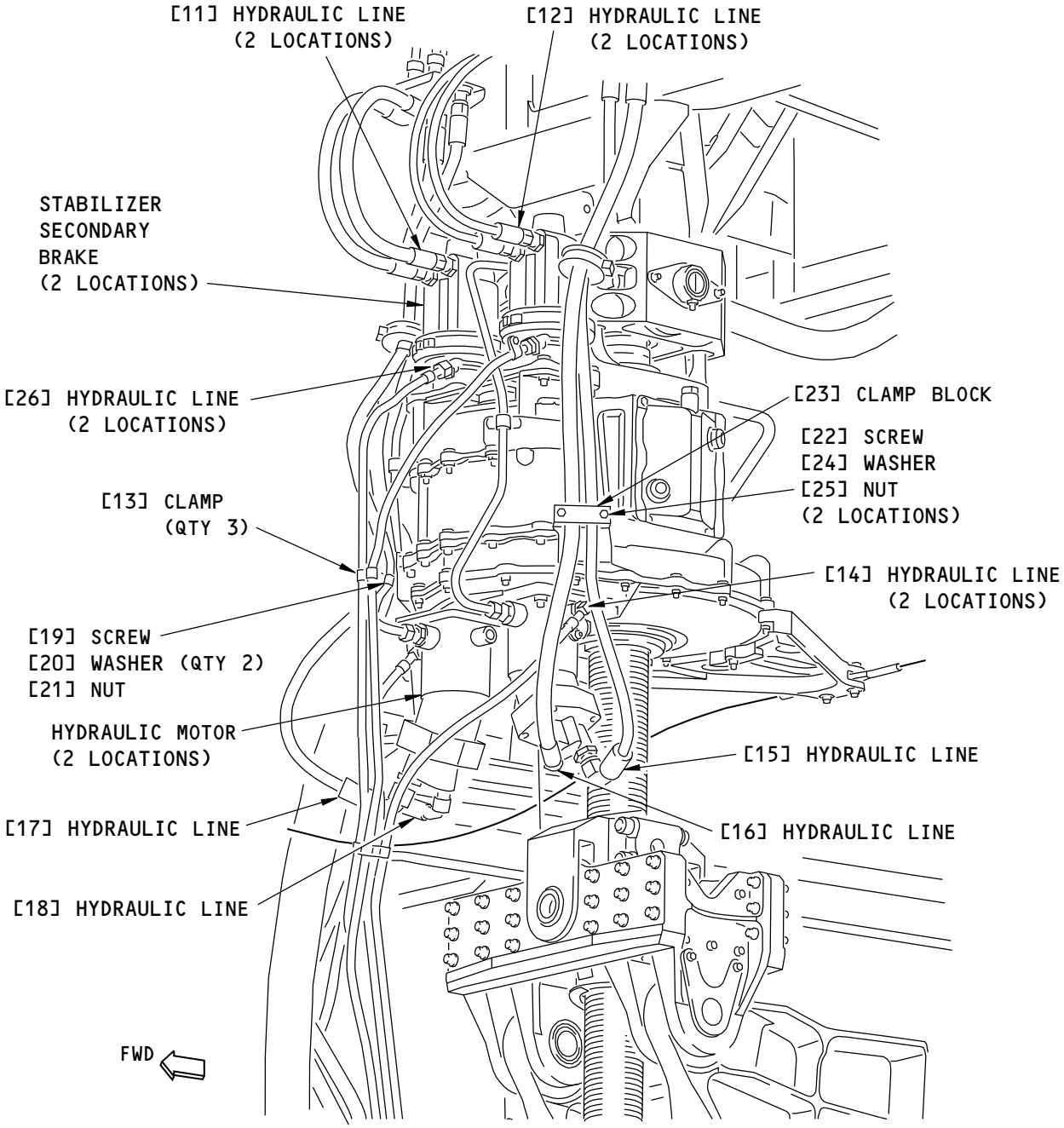
STABILIZER TRIM GROUND STRAP

A

E09721 S0006413355_V2

Stabilizer Trim Connections
Figure 203/27-41-13-990-814 (Sheet 2 of 3)

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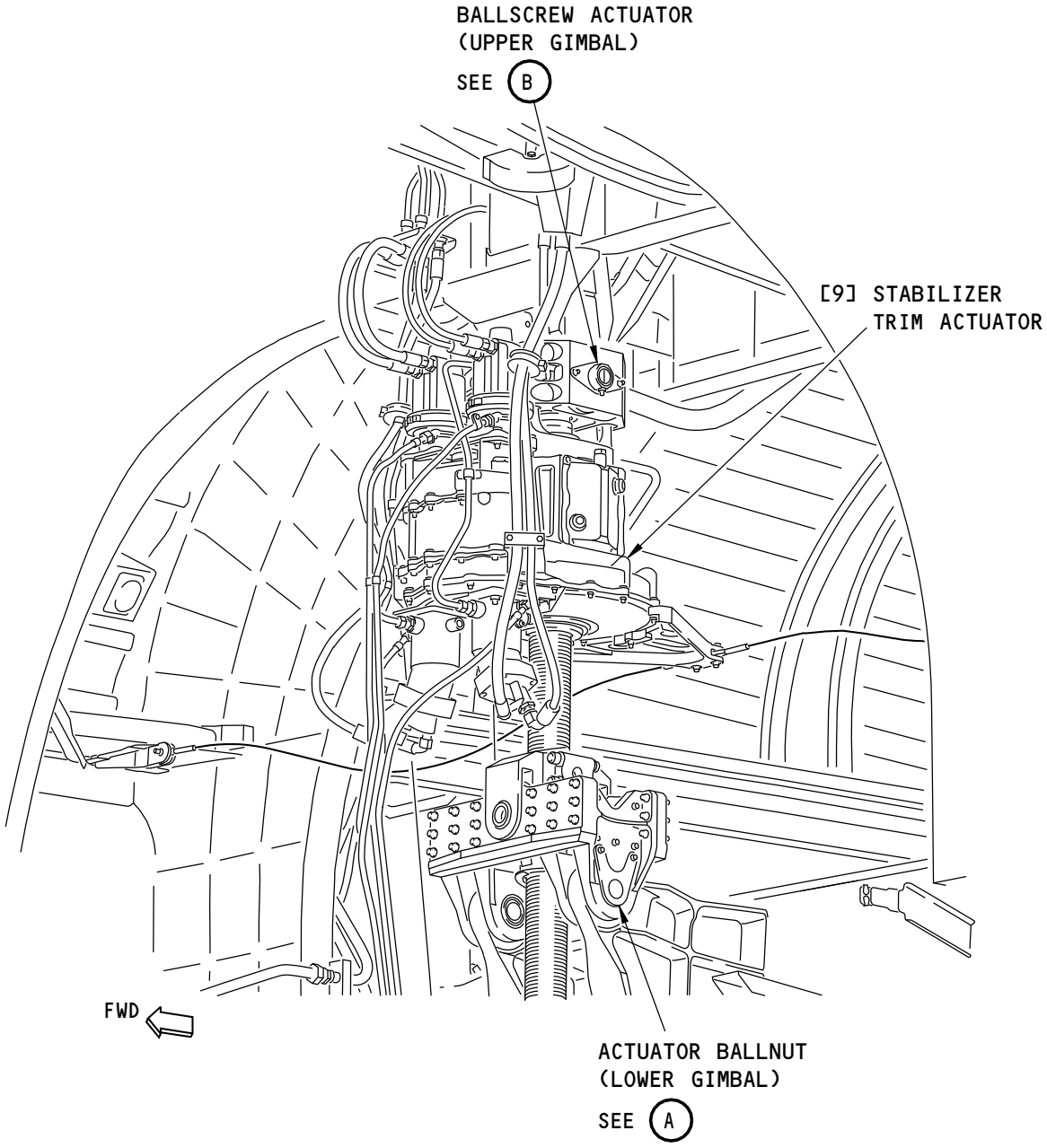
STABILIZER TRIM HYDRAULIC CONNECTIONS

B

E09724 S0006413356_V1

Stabilizer Trim Connections
Figure 203/27-41-13-990-814 (Sheet 3 of 3)

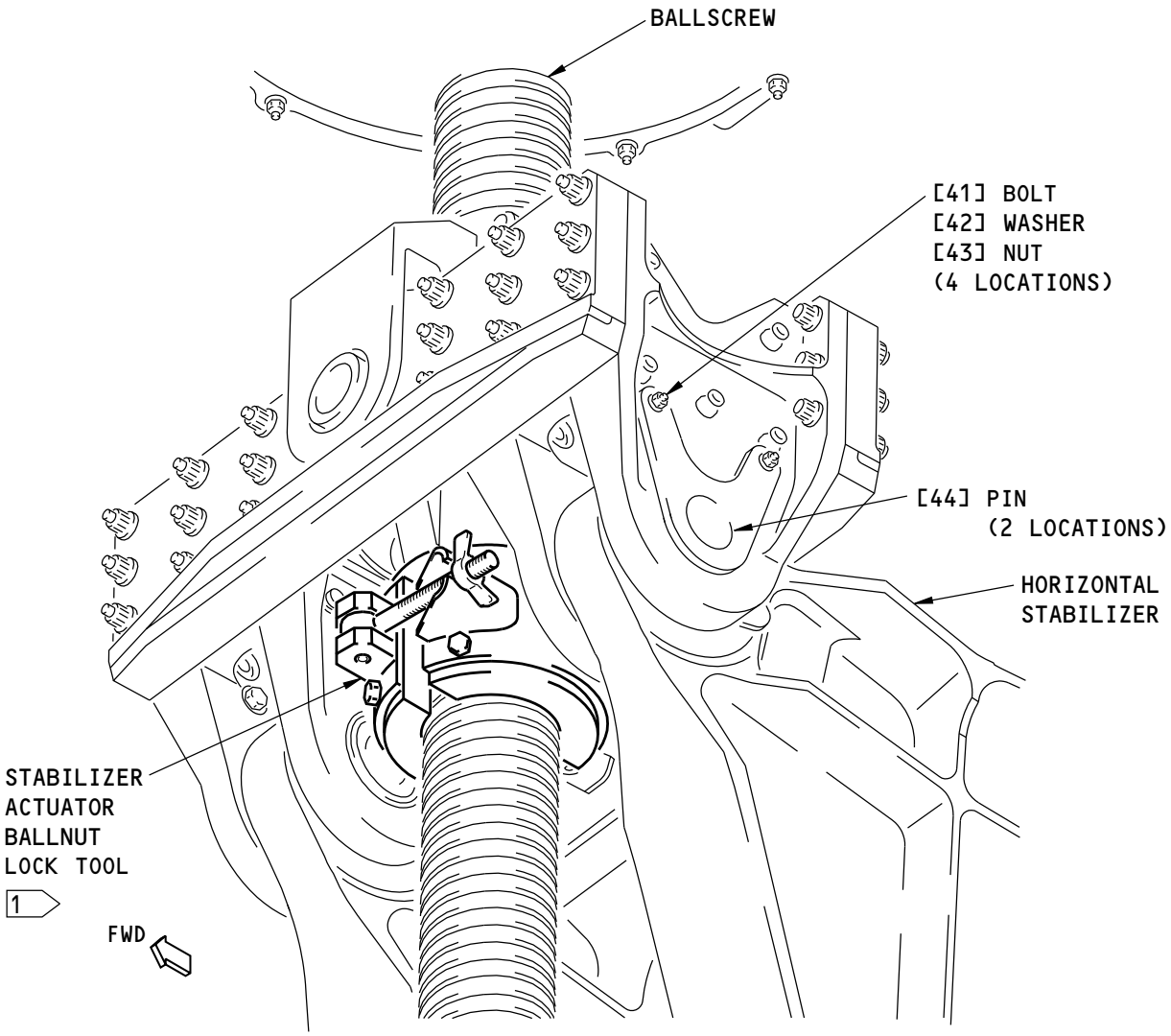
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E09728 S0006413357_V1

Stabilizer Trim Gimbal Pin Installation
Figure 204/27-41-13-990-815 (Sheet 1 of 3)

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ACTUATOR BALLNUT
(LOWER GIMBAL)

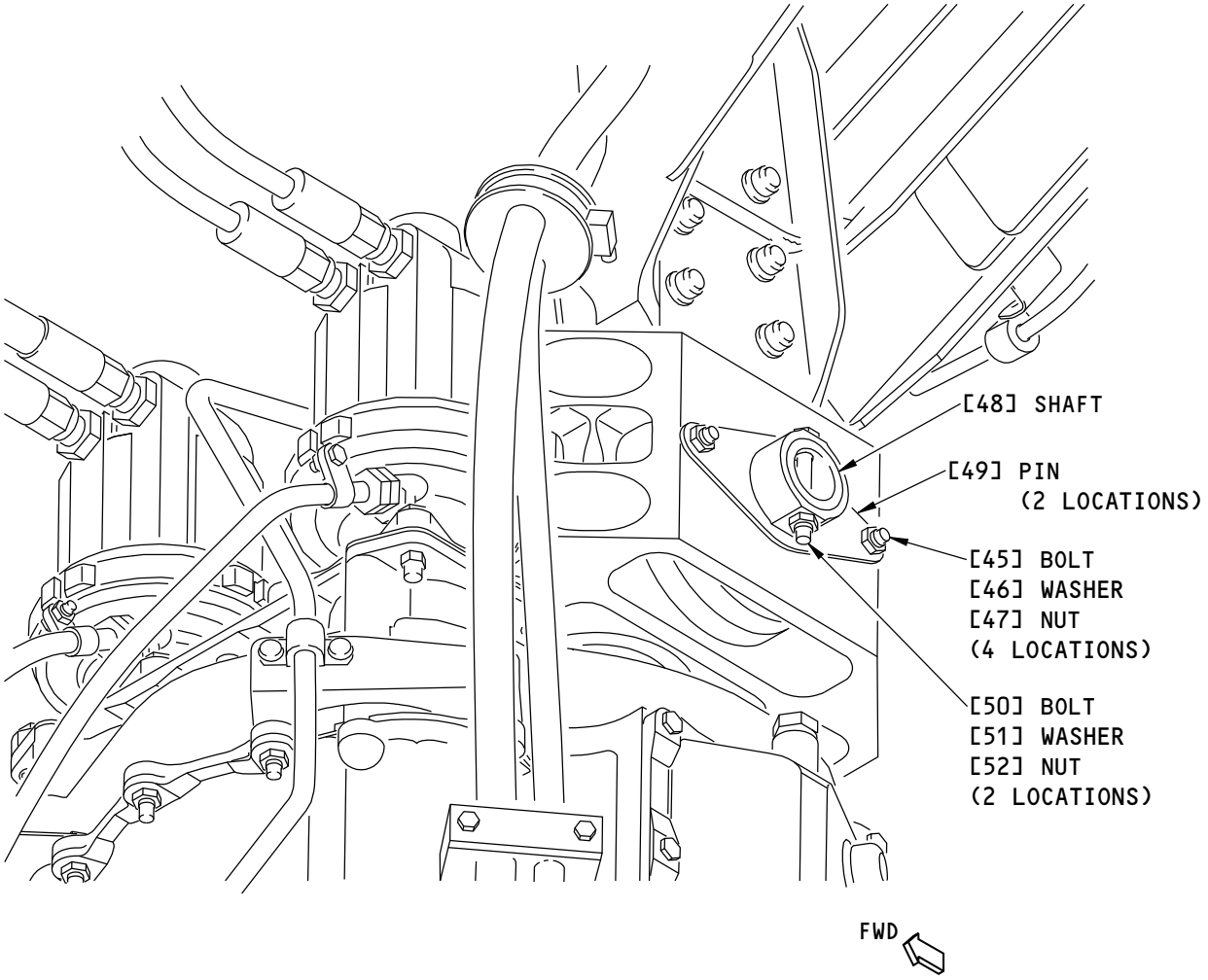
A

1 THIS STABILIZER ACTUATOR BALLNUT LOCK TOOL CAN BE USED TO KEEP THE LOWER GIMBAL FROM "RUNNING AWAY" WHEN IT IS NOT ATTACHED TO THE STABILIZER.

E09730 S0006413358_V1

Stabilizer Trim Gimbal Pin Installation
Figure 204/27-41-13-990-815 (Sheet 2 of 3)

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E09731 S0006413359_V1

Stabilizer Trim Gimbal Pin Installation
Figure 204/27-41-13-990-815 (Sheet 3 of 3)

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TASK 27-41-13-420-802

3. Stabilizer Trim Actuator Installation after Jackscrew Fitting Inspection

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) If you replace the actuator with a serviceable actuator that is not new or not overhauled, then you must do the following tasks before making a flight with that actuator installed:

- Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test, TASK 27-41-13-220-802
- Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection, TASK 27-41-13-211-801.

B. References

Reference	Title
12-21-05-600-801	Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-00-700-807	Stabilizer Mechanical Limit Test (P/B 501)
27-41-00-700-810	Stabilizer Secondary Brake Test (P/B 501)
27-41-13-211-801	Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection (P/B 601)
27-41-13-220-801	Horizontal Stabilizer Flutter Freeplay Test (P/B 601)
27-41-13-220-802	Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test (P/B 601)
27-41-13-990-801	Figure: Horizontal Stabilizer Lock and Ballnut Lock Installation (P/B 401)
27-41-13-990-802	Figure: Stabilizer Trim Actuator Hoist Installation (P/B 401)
27-41-13-990-803	Figure: Stabilizer Trim Connections (P/B 401)
27-41-13-990-804	Figure: Stabilizer Trim Gimbal Pin Installation (P/B 401)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425

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(Continued)

Reference	Description
SPL-1693	Lock Equipment, Horizontal Stabilizer Actuator Ball Nut Part #: J27002-1 Supplier: 81205
SPL-1697	Equipment - Hoist, horizontal stabilizer trim actuator Part #: J27007-15 Supplier: 81205 Opt Part #: J27007-7 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-2027	Lock Assembly, Horizontal Stabilizer Part #: J55002-53 Supplier: 81205 Opt Part #: J55002-1 Supplier: 81205 Opt Part #: J55002-36 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Stabilizer Trim Actuator - Installation after Jackscrew Fitting Inspection

SUBTASK 27-41-13-400-004

(1) Do these steps to get the actuator assembly [9] in its position (Figure 27-41-13-990-802):

(a) Adjust the cable fishpole hoist, COM-1563 #1 and #2 until the lower gimbal of the ballscrew actuator can be moved into the correct position.

SUBTASK 27-41-13-420-017

(2) Do these steps to attach the actuator assembly [9] to the airplane (Figure 27-41-13-990-803, Figure 27-41-13-990-804):

(a) Move the actuator assembly [9] until the ballscrew actuator is in its position (View B) (Figure 27-41-13-990-804).

(b) Install the pin assembly [44] that attach the ball nut to the horizontal stabilizer (View A) (Figure 27-41-13-990-804).

(c) Install the bolt [41], washer [42] and nut [43], that connect the pin assembly [44] to the actuator ballnut.

(d) Remove the ball nut lock, SPL-1693 for the actuator ballnut (lower gimbal), (View D) (Figure 27-41-13-990-801).

(e) Install the pin [49] in the upper gimbal and the airplane structure:

1) Apply a layer of grease, D00633 to the bolt [45].

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CAUTION DO NOT USE TOO MUCH FORCE WHEN YOU INSTALL THE PINS IN THE HOLE. IF YOU USE TOO MUCH FORCE, DAMAGE TO THE SURFACE OF THE PIN CAN OCCUR.

2) Put the pin [49] in their positions.

3) Install the bolt [45], washer [46] and nut [47] that connect the pin [49] to the upper gimbal of the actuator assembly [9].

(f) Install the shaft [48]:

1) Apply a layer of grade 2 or grade 3 compound, C00174, to the entire surface of the shaft [48].

2) Apply a layer of grease, D00633 to the bolt [50].

3) Put the shaft [48] in its position.

4) Install the bolt [50], washer [51] and nut [52] that attach the shaft [48] to the pin [49].

(g) Remove the trim actuator hoist equipment, SPL-1697 and the cable fishpole hoist, COM-1563.

(h) Remove the drive adapter, J27078 (if it was installed for gimbal adjustment) and install the hydraulic motor (if it was removed).

(i) Connect the hydraulic lines and clamps to the actuator assembly [9] (View B) (Figure 27-41-13-990-803):

1) Connect the hydraulic line [11] and hydraulic line [12] to the stabilizer secondary brakes.

a) Tighten the B-nuts on the hydraulic line [11] and hydraulic line [12] to 270 ±14 in-lb (31 ±2 N·m).

2) Connect the hydraulic line [26] to the stabilizer secondary brakes.

a) Torque the hydraulic line [26] to 17.5 ±2.5 in-lb (2.0 ±0.3 N·m).

3) Connect the hydraulic line [14] to the hydraulic motors.

a) Torque the hydraulic line [14] to 17.5 ±2.5 in-lb (2.0 ±0.3 N·m).

4) Connect the hydraulic line [15] and hydraulic line [18] to the hydraulic motors.

a) Tighten the B-nuts on the hydraulic line [15] and hydraulic line [18] to 500 ±25 in-lb (56 ±3 N·m).

5) Connect the hydraulic line [16] and hydraulic line [17] to the hydraulic motors.

a) Tighten the B-nut on the hydraulic line [16] and hydraulic line [17] to 270 ±14 in-lb (31 ±2 N·m).

6) Install the clamp [13]:

a) Put the clamp [13] in their positions on the hydraulic lines.

b) Install the screw [19], washer [20] and nut [21] to connect the clamp [13].

7) Install the clamp block [23]:

a) Put the clamp block [23] in its location on the hydraulic lines.

b) Install the screw [22], washer [24] and nut [25] that attach the clamp block [23].

(j) Attach the anti-rotation bracket [83] to the stabilizer trim actuator and the disconnected cable [5] to the airplane structure:

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1) Install the anti-rotation bracket [83] by installing the bolts [80], washers [81], and nuts [82].
2) Put the end of the cable [5] in its position.
3) Install the bolt [1], washer [4], bushing [2] and nut [3].
4) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance through the ends of cables [5] is not more than 0.0025 ohms.

(k) Attach the ground strap [10] to the stabilizer fitting (Figure 27-41-13-990-803) (View A):
1) Put the ground strap [10] in its position.
2) Install the bolt [6], washer [7] and nut [8].

SUBTASK 27-41-13-800-003

(3) If you replace the actuator with a serviceable actuator that is not new or not overhauled, then you must do the following tasks before making a flight with that actuator installed:
- Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test, TASK 27-41-13-220-802
- Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection, TASK 27-41-13-211-801.

NOTE: If the serviceable actuator is new, overhauled, or a re-installation following any maintenance, the Ballscrew to Ballnut Freeplay test and a Detailed Visual Inspection is only necessary if after doing the Stabilizer Trim Actuator Installation Test, the Flutter Freeplay Exceeds the limits listed in the Horizontal Stabilizer Flutter Freeplay Test, TASK 27-41-13-220-801

SUBTASK 27-41-13-030-002

(4) Do these steps to remove the lock assembly, SPL-2027 (Figure 27-41-13-990-801):
(a) Turn the cylinder assembly to transfer the load of the horizontal stabilizer to the stabilizer trim actuator.
(b) Remove the lock assembly, SPL-2027.

SUBTASK 27-41-13-600-002

(5) Do this task: Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication, TASK 12-21-05-600-801.

G. Stabilizer Trim Actuator Installation Test

SUBTASK 27-41-13-861-002

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R

Power Supply Assembly Center, M24301

Row	Col	Number	Name
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	2	CBB2-L	STAB TRIM

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Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	2	CBB2-R	STAB TRIM

SUBTASK 27-41-13-861-003

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-13-765-001

(3) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance through the ends of the ground strap [10] is not more than 0.0025 ohms.

SUBTASK 27-41-13-860-049

(4) Remove the DO-NOT-OPERATE tags and put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

SUBTASK 27-41-13-840-002

(5) Remove the DO-NOT-OPERATE tags on the ALTN PITCH and TRIM levers.

SUBTASK 27-41-13-840-003

(6) Remove the DO-NOT-OPERATE tags and put the stabilizer trim cutout switches to the NORM position.

SUBTASK 27-41-13-700-003

(7) Do this task: Stabilizer Mechanical Limit Test, TASK 27-41-00-700-807.

(a) Examine the hydraulic line connections [11], [12], [14], [15], [16], [17] and [18] for signs of hydraulic fluid leakage.

1) Make sure that hydraulic line connections are leak free.

SUBTASK 27-41-13-700-004

(8) Do this task: Stabilizer Secondary Brake Test, TASK 27-41-00-700-810.

SUBTASK 27-41-13-700-005

(9) Do this task: Horizontal Stabilizer Flutter Freeplay Test, TASK 27-41-13-220-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-13-700-006

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-13-090-001

(2) Remove the service access door barrier, SPL-1976 for the access door.

SUBTASK 27-41-13-090-002

(3) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-13-410-006

(4) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

TASK 27-41-13-710-801

4. Stabilizer Trim Actuator - Manual Operation

A. General

(1) Use this task to manually operate the horizontal stabilizer trim actuator without airplane power.

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B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-11-000-801	Stabilizer Hydraulic Motor Removal (P/B 401)
27-41-11-400-801	Stabilizer Hydraulic Motor Installation (P/B 401)
27-41-12-000-801	Stabilizer Secondary Brake - Removal (P/B 401)
27-41-12-400-801	Stabilizer Secondary Brake - Installation (P/B 401)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-3997	Drive Adapter Equipment, Horizontal Stabilizer Trim Actuator Part #: J27078-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Procedure

SUBTASK 27-41-13-860-056

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 27-41-13-860-057

(2) Remove pressure from the hydraulic reservoirs, Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-13-040-001

(3) On the control stand, put the C and R STAB CUT OFF switches in the CUTOUT position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-13-010-009

(4) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-490-007

(5) Install ladder equipment, SPL-2011.

SUBTASK 27-41-13-020-017

(6) Remove the horizontal stabilizer hydraulic motor (right hydraulic system) Stabilizer Hydraulic Motor Removal, TASK 27-41-11-000-801.

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SUBTASK 27-41-13-020-018

(7) Remove the horizontal stabilizer secondary brake corresponding to the stabilizer hydraulic motor (right hydraulic system) Stabilizer Secondary Brake - Removal, TASK 27-41-12-000-801.

SUBTASK 27-41-13-480-017

(8) Using existing fasteners, install the drive assembly from (drive adapter equipment, SPL-3997) to the horizontal stabilizer hydraulic motor previously removed.

SUBTASK 27-41-13-480-018

(9) Using existing fasteners, install the cover assembly from (drive adapter equipment, SPL-3997) to the horizontal stabilizer secondary brake previously removed.

SUBTASK 27-41-13-710-005

WARNING

MAKE SURE THAT ALL PERSONNEL, AND EQUIPMENT ARE AWAY FROM THE HORIZONTAL STABILIZER. THE MOVEMENT OF THE HORIZONTAL STABILIZER DURING MAINTENANCE CAN CAUSE INJURY TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(10) Attach a 1/2 inch drive manual ratchet to the drive assembly and turn the manual drive to set the horizontal stabilizer to the desired location.

G. Put the Airplane Back to its Usual Condition

SUBTASK 27-41-13-430-005

(1) Install the horizontal stabilizer hydraulic motor Stabilizer Hydraulic Motor Installation, TASK 27-41-11-400-801.

SUBTASK 27-41-13-430-006

(2) Install the horizontal stabilizer secondary brake Stabilizer Secondary Brake - Installation, TASK 27-41-12-400-801.

——— END OF TASK ———

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STABILIZER TRIM ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A removal of the stabilizer trim actuator

(2) An installation of the stabilizer trim actuator

(3) A removal of the stabilizer trim safety rod

(4) An installation of the stabilizer trim safety rod.

TASK 27-41-13-010-801

2. Stabilizer Trim Actuator - Removal

A. General

(1) The stabilizer trim actuator is referred to as the actuator assembly [9]. The approximate weight of the stabilizer assembly is 313 pounds (142kg).

(2) Boeing does not recommend towing the airplane when the actuator assembly [9] is removed and the lock assembly, SPL-2027 is installed. The lock assembly, SPL-2027 was not designed nor intended for use when towing the airplane.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-11-000-801	Stabilizer Hydraulic Motor Removal (P/B 401)
27-41-12-000-801	Stabilizer Secondary Brake - Removal (P/B 401)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
SPL-1693	Lock Equipment, Horizontal Stabilizer Actuator Ball Nut Part #: J27002-1 Supplier: 81205
SPL-1697	Equipment - Hoist, horizontal stabilizer trim actuator Part #: J27007-15 Supplier: 81205 Opt Part #: J27007-7 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

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(Continued)

Reference	Description
SPL-2027	Lock Assembly, Horizontal Stabilizer Part #: J55002-53 Supplier: 81205 Opt Part #: J55002-1 Supplier: 81205 Opt Part #: J55002-36 Supplier: 81205
SPL-3997	Drive Adapter Equipment, Horizontal Stabilizer Trim Actuator Part #: J27078-1 Supplier: 81205
SPL-15119	Dolly - Horizontal Stabilizer Trim Actuator Part #: J27009-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Procedure

SUBTASK 27-41-13-860-001

WARNING MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED THE STABILIZER TRIM ACTUATOR CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To remove the pressure from the reservoirs, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-13-860-002

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-13-860-003

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-13-860-004

(4) Attach DO-NOT-OPERATE tags on the ALTN PITCH TRIM levers.

SUBTASK 27-41-13-860-005

(5) Put the stabilizer trim cutout switches to the CUTOFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-13-860-006

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R

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Power Supply Assembly Center, M24301

Row	Col	Number	Name
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	2	CBB2-L	STAB TRIM

Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	2	CBB2-R	STAB TRIM

G. Stabilizer Trim Actuator - Removal

SUBTASK 27-41-13-010-006

(1) Remove the motors and brakes from the assembly.

NOTE: Although the actuator assembly [9] will fit through the access hole with the motors and brakes installed, the procedure is easier with the motors and brakes removed.

(a) For the center and right stabilizer hydraulic motors, do this task: Stabilizer Hydraulic Motor Removal, TASK 27-41-11-000-801.

(b) For the center and right stabilizer secondary brakes, do this task: Stabilizer Secondary Brake - Removal, TASK 27-41-12-000-801.

SUBTASK 27-41-13-010-001

(2) Remove this access panel at the hinge:

Number	Name/Location
311BL	Service Access Door

NOTE: The stabilizer trim actuator assembly will not fit through the opening with the Service Access Door installed.

SUBTASK 27-41-13-480-001

(3) Install the service access door barrier, SPL-1976 for the service access door.

NOTE: Make sure you get all necessary equipment and tools before you install the service access door barrier, SPL-1976 for the service access door.

SUBTASK 27-41-13-480-002

(4) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-13-480-013

(5) Do these steps to secure the stabilizer trim actuator, (Figure 402):

(a) Attach the slings (4 locations) and snap hooks (2 locations) of the trim actuator hoist equipment, SPL-1697 to the upper gimbal, View A and View B (Figure 402).

(b) Install the cable fishpole hoist, COM-1563 at keyholes #1 and #2.

NOTE: It is recommended to attach a safety strap to make sure that the cable fishpole hoist, COM-1563 does not come loose from the keyhole. The stabilizer ballscrew is supported by only one cable fishpole hoist, COM-1563 at one keyhole during parts of the removal procedure. Without a safety strap that ensures that the fishpole eye does not come out of the keyhole, the stabilizer actuator assembly can fall.

(c) Attach the hoist cables to the snap hooks.

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CAUTION

BE SURE TO NOT APPLY TOO MUCH TENSION AT THE KEYHOLES AS YOU MOVE THE STABILIZER ACTUATOR ASSEMBLY USING THE TWO FISHPOLE HOISTS. IF YOU DO NOT RELIEVE THE TENSION OF ONE HOIST AS YOU INCREASE THE TENSION IN THE OTHER HOIST TO MOVE THE ACTUATOR HORIZONTALLY THROUGH THE UNPRESSURIZED COMPARTMENT, YOU CAN DAMAGE THE KEYHOLES AND STRUCTURE OF THE AIRCRAFT.

(d) Adjust the cable fishpole hoist, COM-1563 as necessary to hold the weight of the actuator assembly [9].

NOTE: Make sure the hoists are tensioned before continuing.

SUBTASK 27-41-13-480-003

(6) Do these steps to install the lock assembly, SPL-2027 for the horizontal stabilizer, View A (Figure 401):

NOTE: This tool is used to lock the horizontal stabilizer in position during the removal or installation of the ballscrew actuator.

(a) Measure the distance between the lock assembly attach fitting on the stabilizer and the attach fitting located at STA 2268.25 frame.

(b) Select the lock assembly configuration that will give the necessary length and position of the lock assembly (see placard on the tool box).

(c) Adjust the two clevises to get equal number of threads exposed from the cylinder assembly at each end.

NOTE: If you do not have an equal number of threads on each clevis, you can damage the tool.

(d) Connect one end of the lock assembly, SPL-2027 to the attach fitting and turn the cylinder assembly until you can connect the other end.

SUBTASK 27-41-13-020-015

(7) Install the drive adapter equipment, SPL-3997, and use it to turn the manual drive until the upper gimbal pins are loose. Do not use a pneumatic drive to turn the ballscrew.

SUBTASK 27-41-13-480-004

(8) Install the ball nut lock, SPL-1693 for the actuator ballnut, View D (Figure 401).

NOTE: This tool will keep the lower ballnut from rotating and moving toward the lower stop.

SUBTASK 27-41-13-020-001

CAUTION

BE SURE TO COVER THE PRESSURE BULKHEAD TO PROTECT IT FROM DAMAGE WHILE YOU ARE REMOVING THE STABILIZER ACTUATOR ASSEMBLY. IF YOU DO NOT PROTECT IT, DAMAGE TO THE AIRCRAFT CAN OCCUR.

(9) Do these steps to disconnect the actuator assembly [9]:

(a) Disconnect one cable [5] from the airplane structure (Figure 403):

1) Remove the nut [3], washers [4], bushing [2] and bolt [1].

2) Remove the nuts [82], washers [81], and bolts [80] that hold the anti-rotation bracket [83] to the stabilizer trim actuator [9].

3) Move cables [5] and the anti-rotation bracket [83].

(b) Disconnect the ground strap [10] from the fitting on the horizontal stabilizer (View A):

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1) Remove the bolt [6], washer [7] and nut [8].

(c) Disconnect the hydraulic lines and clamps from the actuator assembly [9] (View B):

NOTE: Make sure you install caps on the hydraulic lines.

1) Remove the screw [19], washers [20], nut [21] and clamps [13].

2) Remove the clamp block [23]:

a) Remove the nuts [25], washers [24] and screws [22] from the clamp block [23].

b) Remove the clamp block [23] from the hydraulic lines.

3) Disconnect the hydraulic lines [14], [15], [16], [17] and [18] from the hydraulic motors.

4) Disconnect the hydraulic lines [11] and [12] from the stabilizer secondary brakes.

(d) Remove the nuts [43], washers [42] and bolts [41] that connect the pin assemblies [44] to the actuator ballnut (View A) (Figure 404).

(e) Remove the pin assemblies [44].

(f) Disconnect the actuator ballnut (lower gimbal) from the stabilizer.

(g) Remove the nuts [47], washers [46] and bolts [45] that connect the pins [49] to the ballscrew actuator (View B) (Figure 404).

(h) Remove the nuts [52], washers [51] and bolts [50] that hold the pins [49] and the shaft [48].

(i) Remove the pins [49] and the shaft [48].

(j) Disconnect the ballscrew actuator (upper gimbal).

SUBTASK 27-41-13-020-002

(10) When the actuator assembly [9] is disconnected, do these steps to remove it from the airplane (Figure 402):

(a) Remove the service access door barrier, SPL-1976 for the service access door.

(b) Remove the ladder equipment, SPL-2011.

CAUTION

BE SURE TO NOT APPLY TOO MUCH TENSION AT THE KEYHOLES AS YOU MOVE THE STABILIZER ACTUATOR ASSEMBLY USING THE TWO FISHPOLE HOISTS. IF YOU DO NOT RELIEVE THE TENSION OF ONE HOIST AS YOU INCREASE THE TENSION IN THE OTHER HOIST TO MOVE THE ACTUATOR HORIZONTALLY THROUGH THE UNPRESSURIZED COMPARTMENT, YOU CAN DAMAGE THE KEYHOLES AND STRUCTURE OF THE AIRCRAFT.

(c) Adjust the cable fishpole hoist, COM-1563 to move the actuator forward and down until the stabilizer trim actuator hangs completely from keyhole #2.

(d) Remove the ball nut lock, SPL-1693, from the ballscrew actuator (View D, (Figure 401)), and rotate the lower gimbal until it touches the lower stop.

NOTE: This will help to balance the actuator to maneuver it through the access hole.

(e) Disconnect the snap hook on cable fishpole hoist, COM-1563 #1 from the slings.

(f) Move cable fishpole hoist, COM-1563 #1 from keyhole #1 and install it on keyhole #3.

(g) Remove the two aft slings of the trim actuator hoist equipment, SPL-1697.

(h) Connect the cable fishpole hoist, COM-1563 #1 snap hook to the two forward slings that support the weight of the actuator assembly [9].

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(i) Adjust the cable fishpole hoist, COM-1563 to put the actuator assembly [9] directly under keyhole #3 and let the actuator hang completely from keyhole #3.

(j) Remove cable fishpole hoist, COM-1563 #2.

(k) Lower the actuator assembly [9] through the access door using cable fishpole hoist, COM-1563 #1.

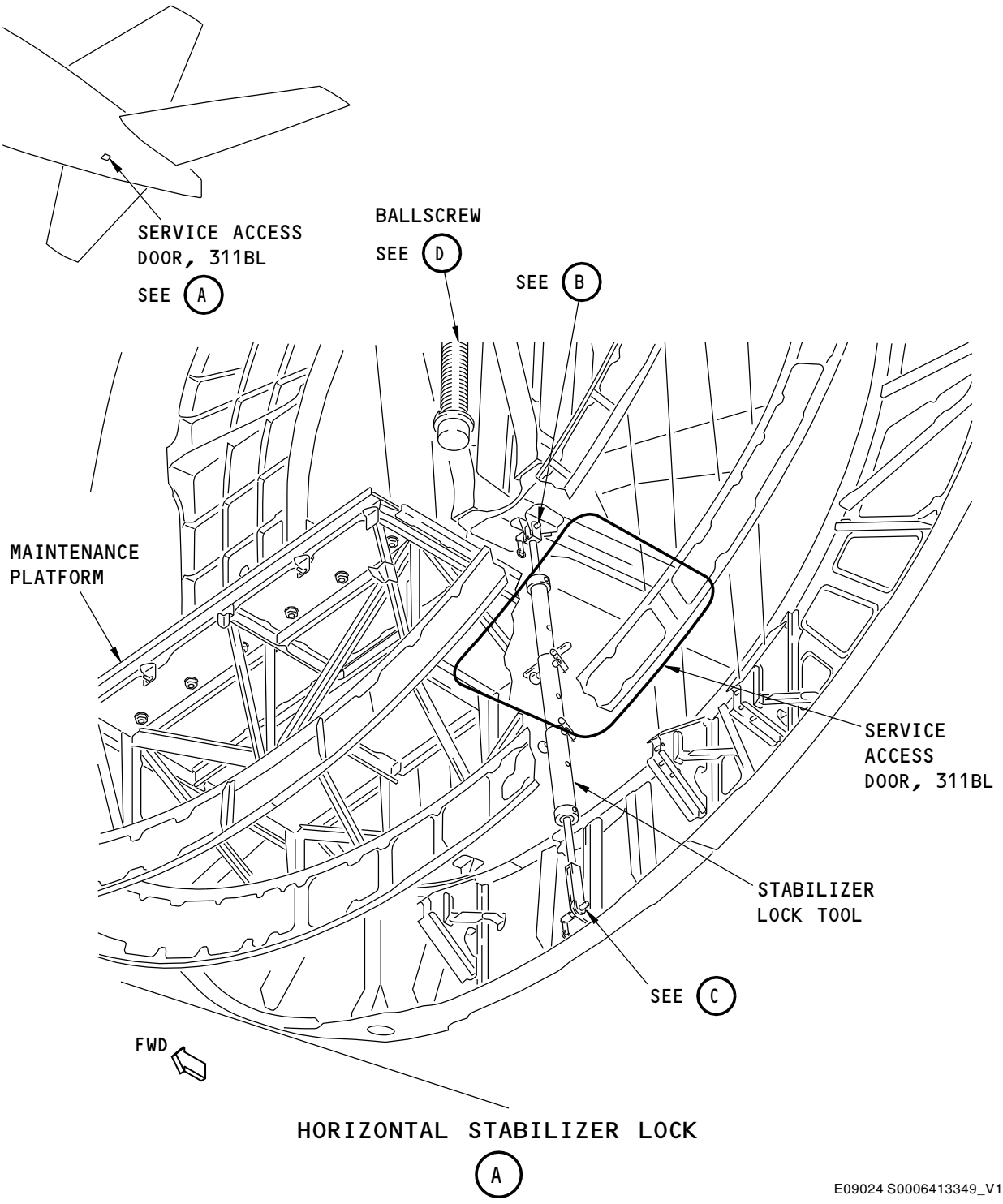
(l) Put the actuator assembly [9] on horizontal stabilizer trim actuator dolly, SPL-15119.

SUBTASK 27-41-13-480-016

(11) Remove the drive adapter equipment, SPL-3997 from the ball screw actuator assembly.

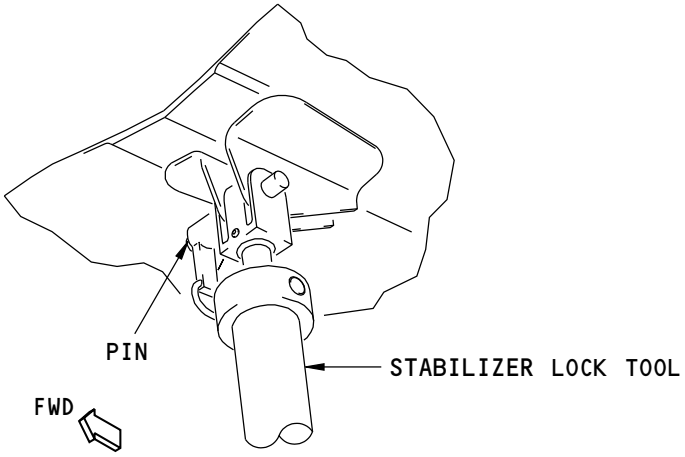
——— END OF TASK ———

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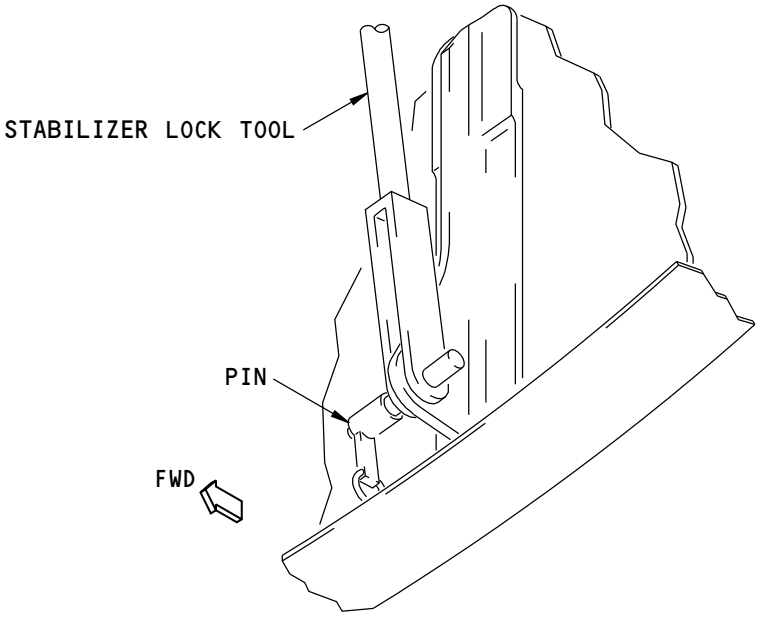
Horizontal Stabilizer Lock and Ballnut Lock Installation
Figure 401/27-41-13-990-801 (Sheet 1 of 3)

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UPPER ATTACHMENT

B



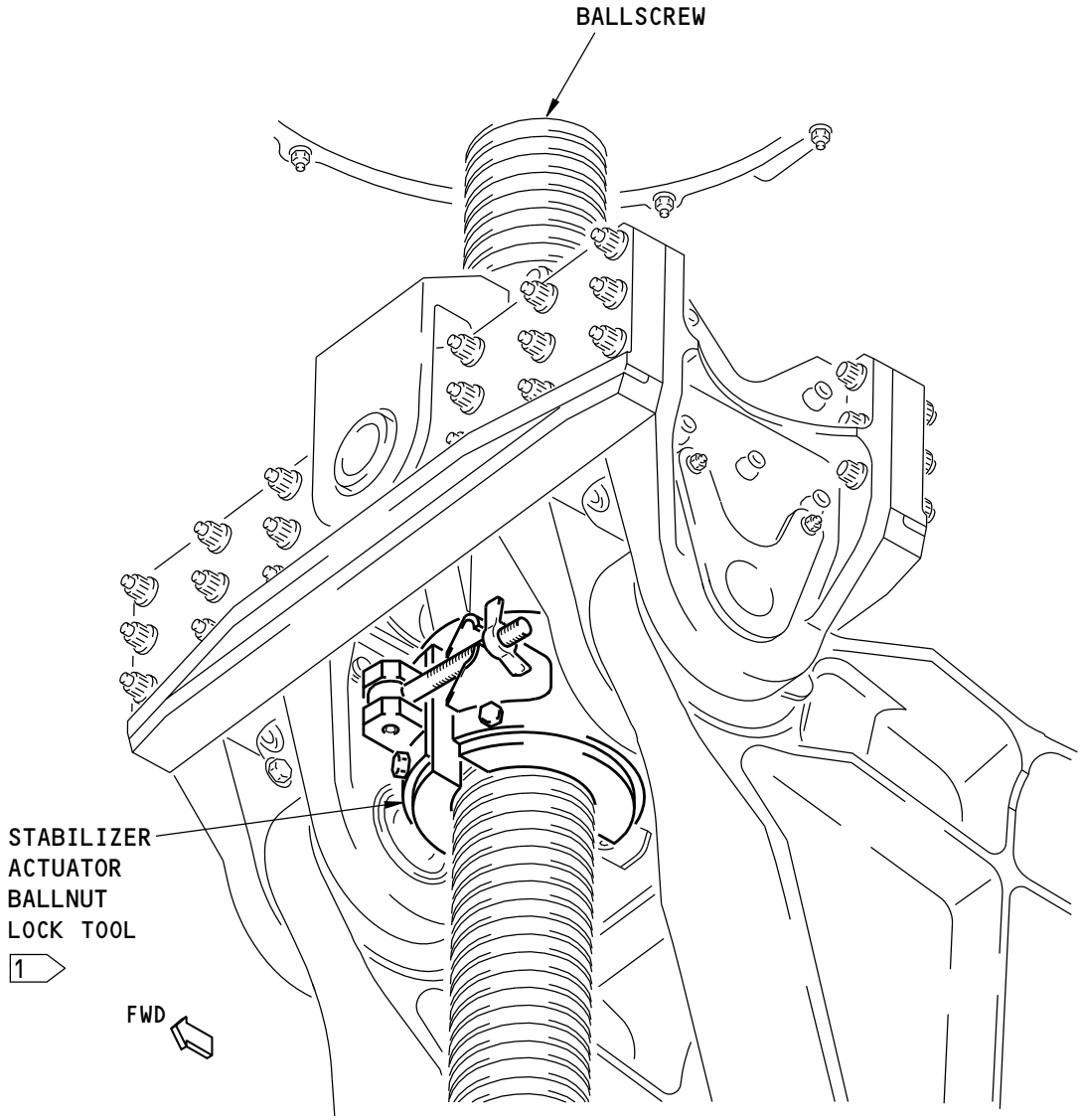
LOWER ATTACHMENT

C

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Horizontal Stabilizer Lock and Ballnut Lock Installation
Figure 401/27-41-13-990-801 (Sheet 2 of 3)

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HORIZONTAL STABILIZER ACTUATOR BALLNUT LOCK

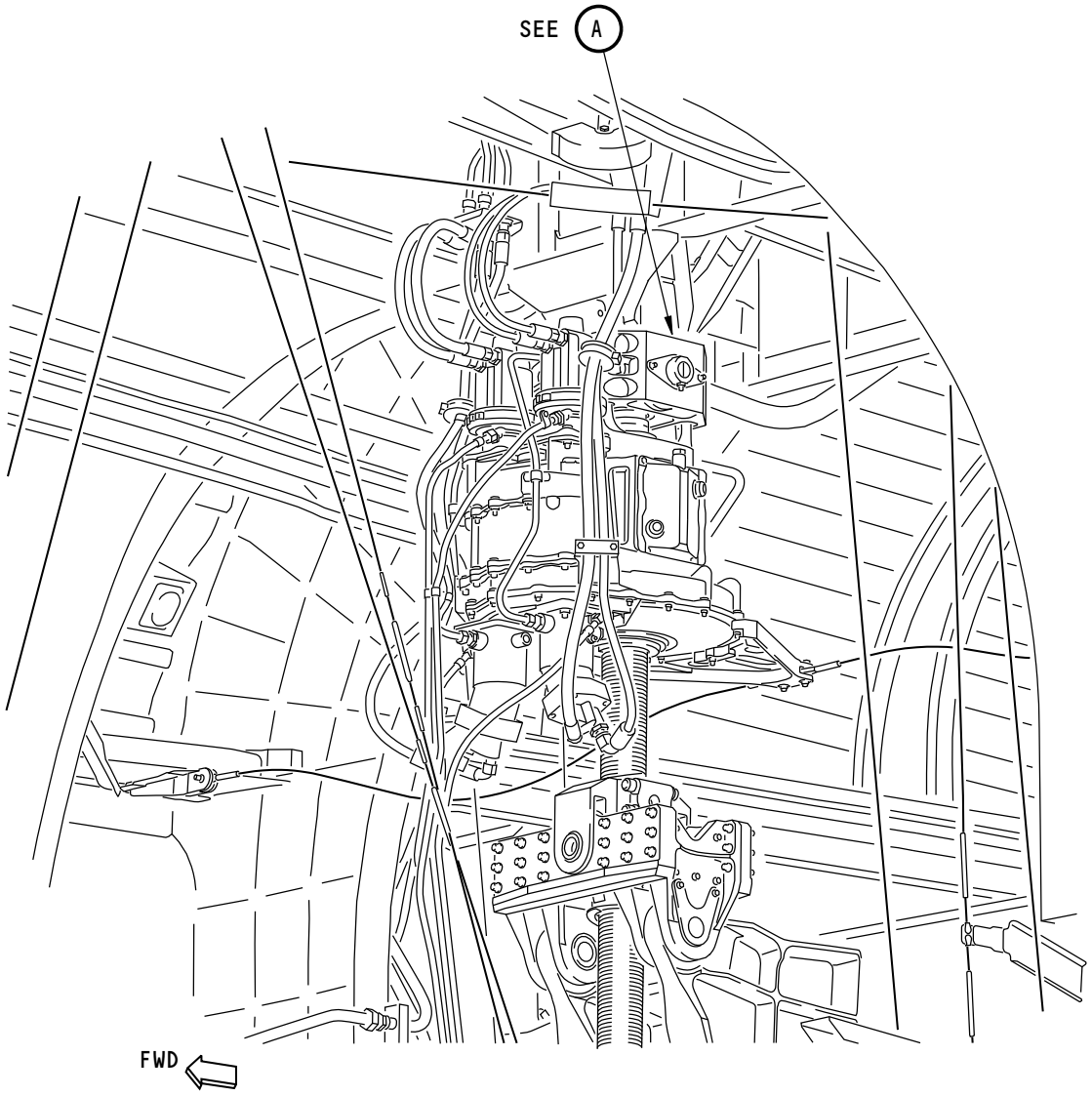
D

1 THIS STABILIZER ACTUATOR BALLNUT LOCK TOOL CAN BE USED TO KEEP THE LOWER GIMBAL FROM "RUNNING AWAY" WHEN IT IS NOT ATTACHED TO THE STABILIZER.

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Horizontal Stabilizer Lock and Ballnut Lock Installation
Figure 401/27-41-13-990-801 (Sheet 3 of 3)

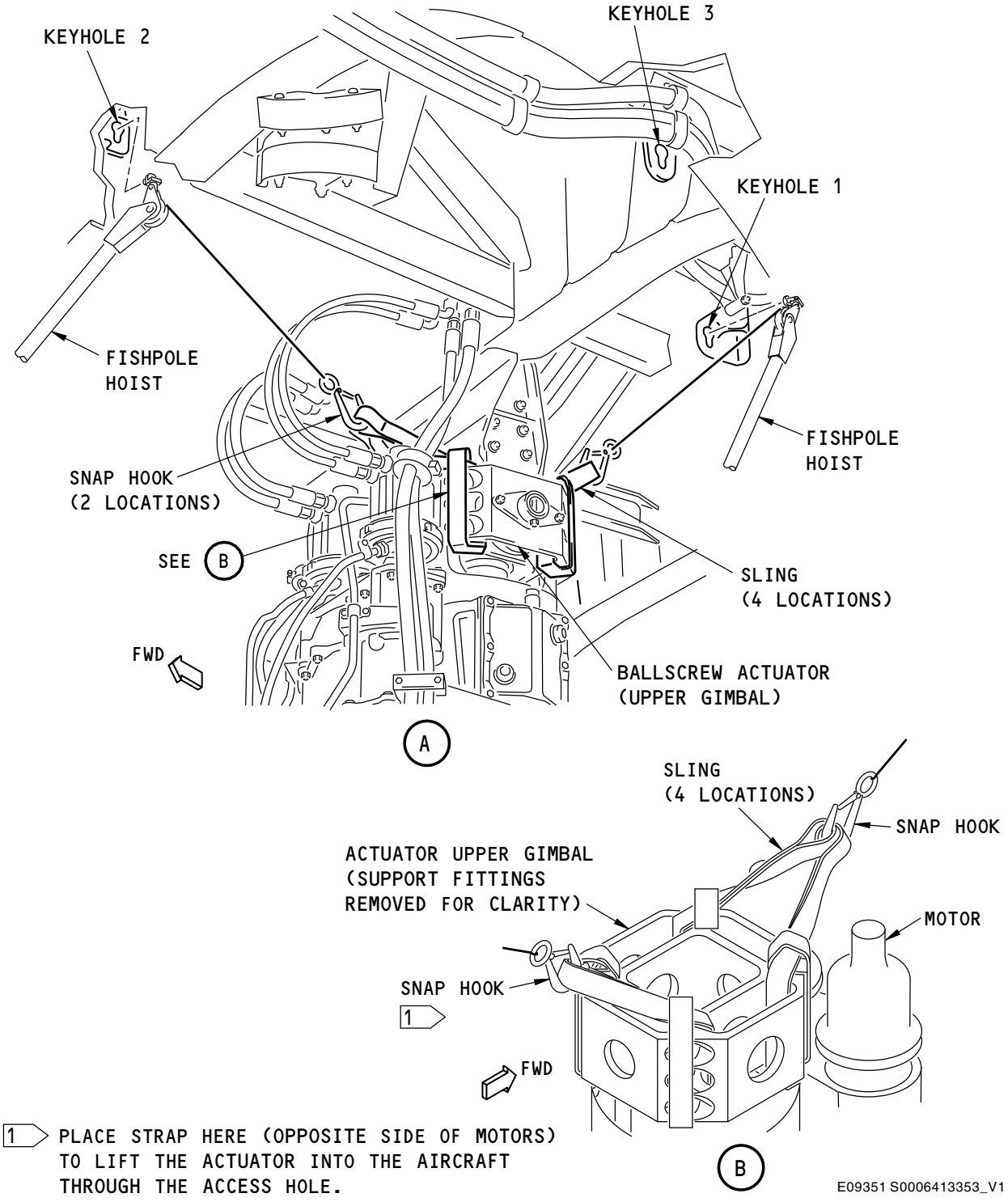
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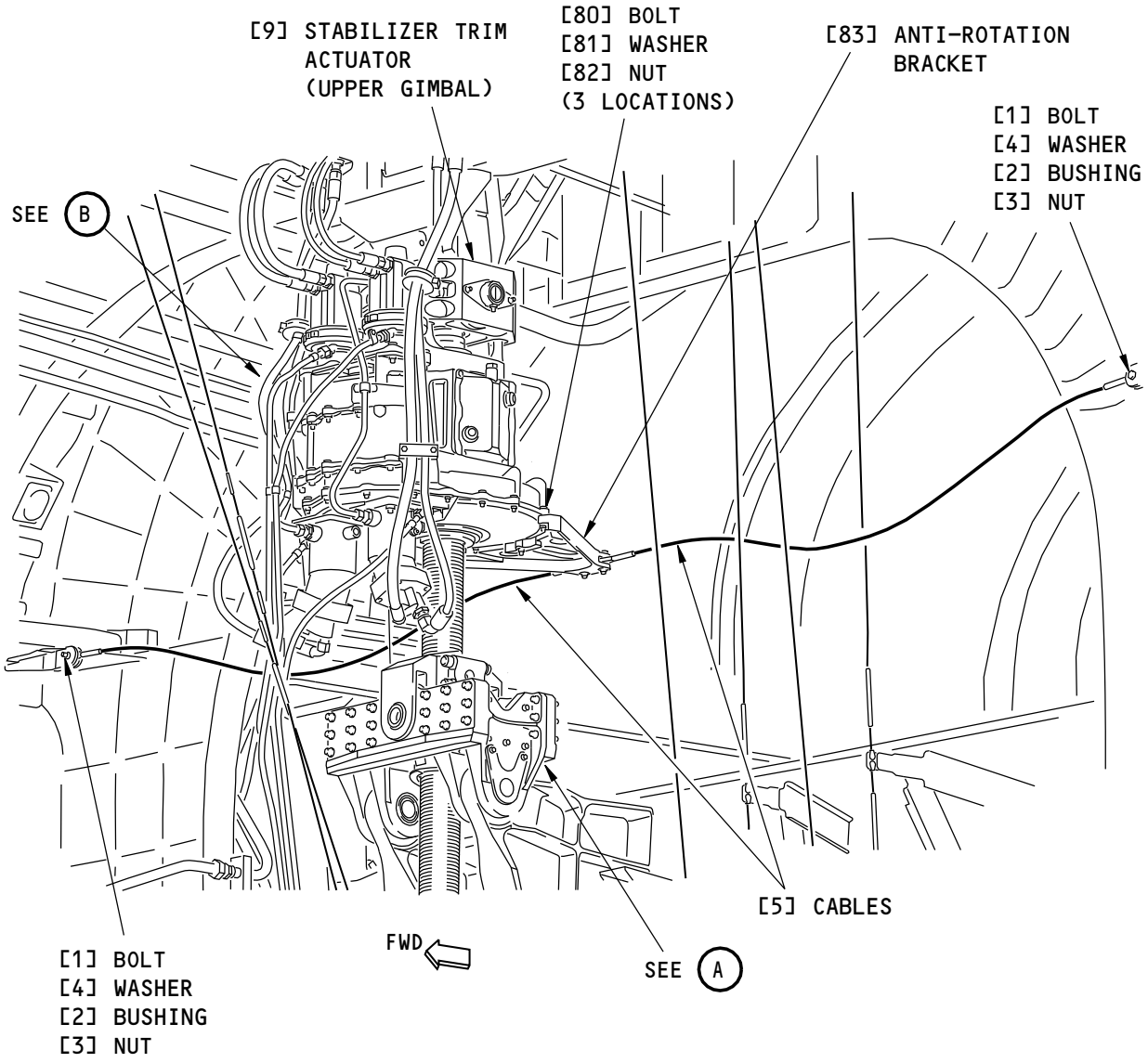
Stabilizer Trim Actuator Hoist Installation
Figure 402/27-41-13-990-802 (Sheet 1 of 2)

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Stabilizer Trim Actuator Hoist Installation
Figure 402/27-41-13-990-802 (Sheet 2 of 2)

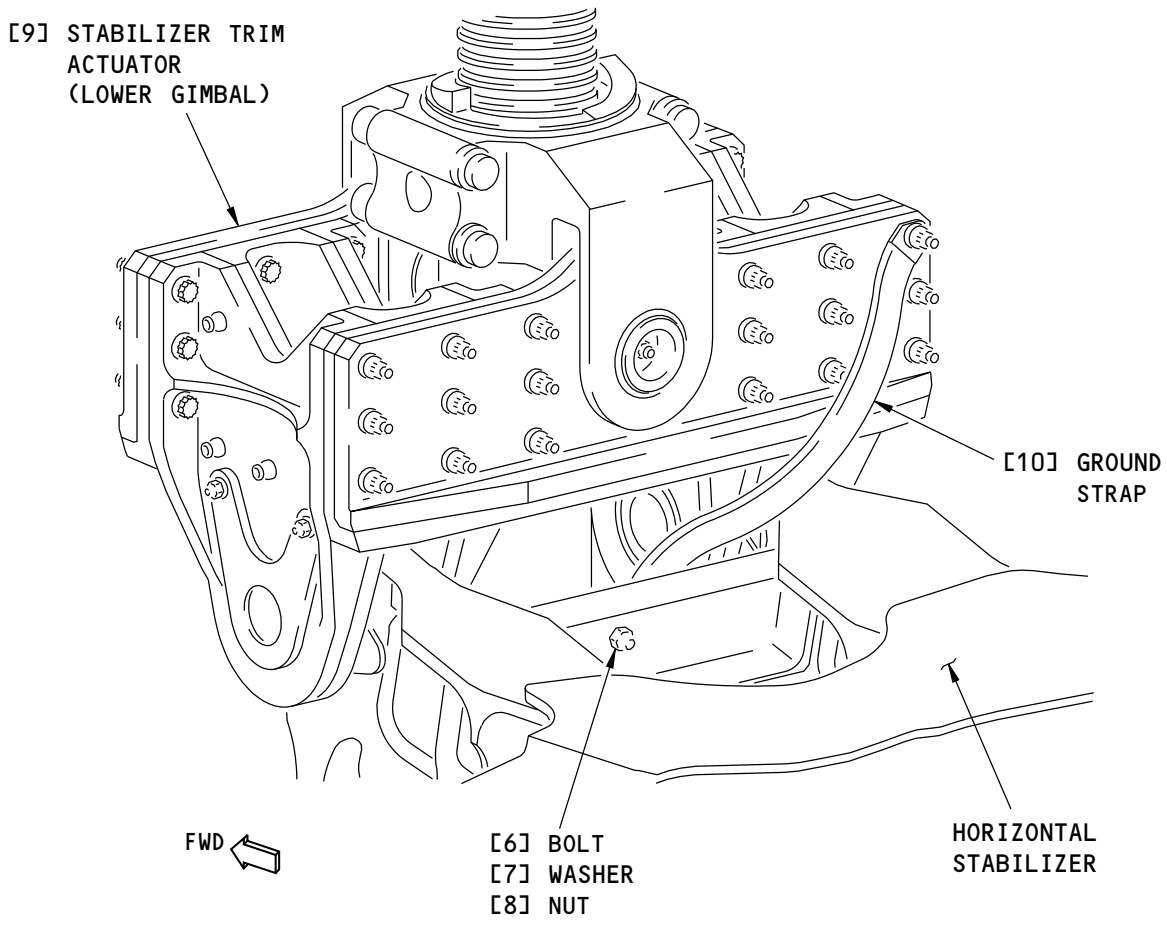
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Stabilizer Trim Connections
Figure 403/27-41-13-990-803 (Sheet 1 of 3)

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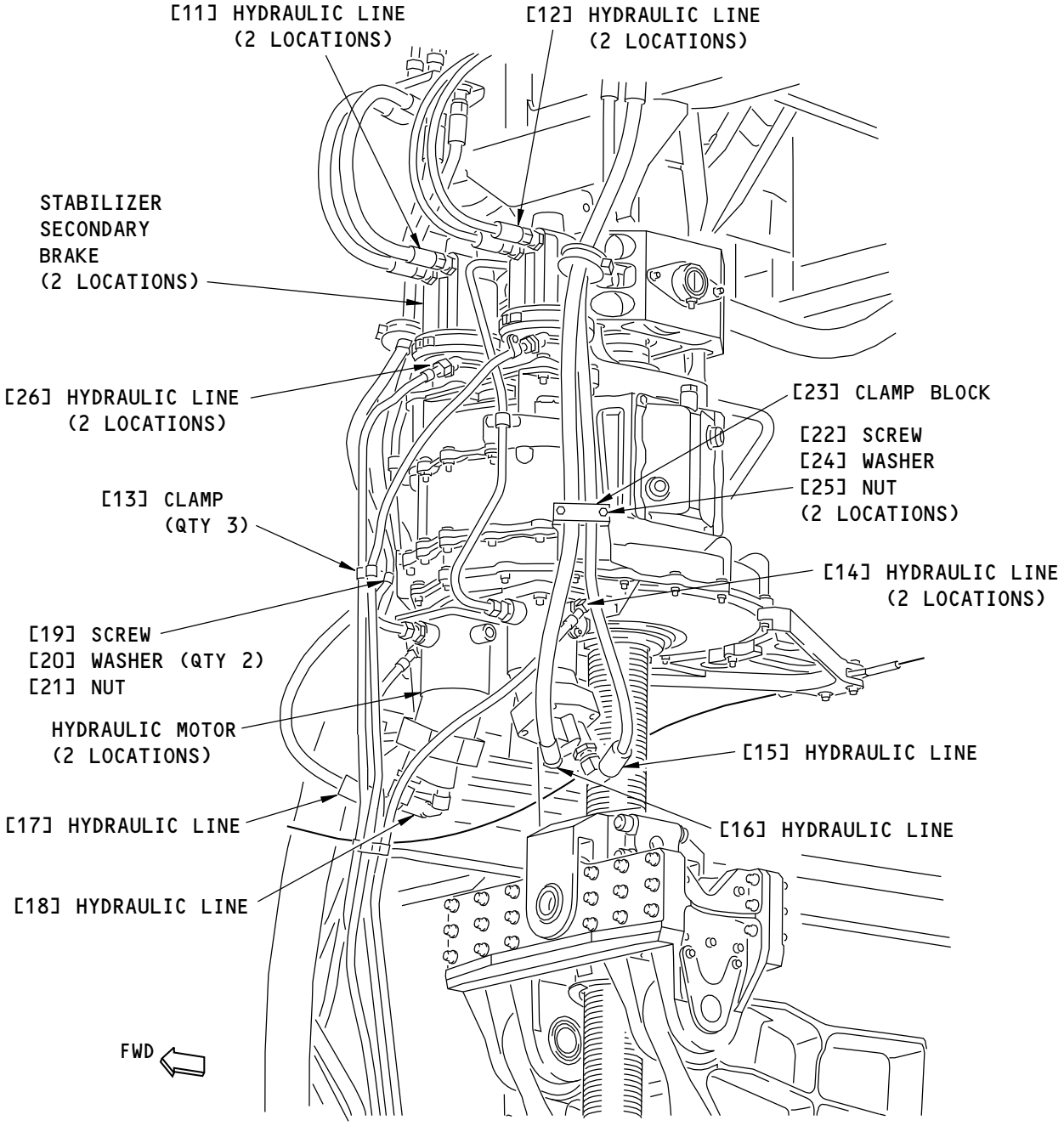
STABILIZER TRIM GROUND STRAP

A

E09721 S0006413355_V2

Stabilizer Trim Connections
Figure 403/27-41-13-990-803 (Sheet 2 of 3)

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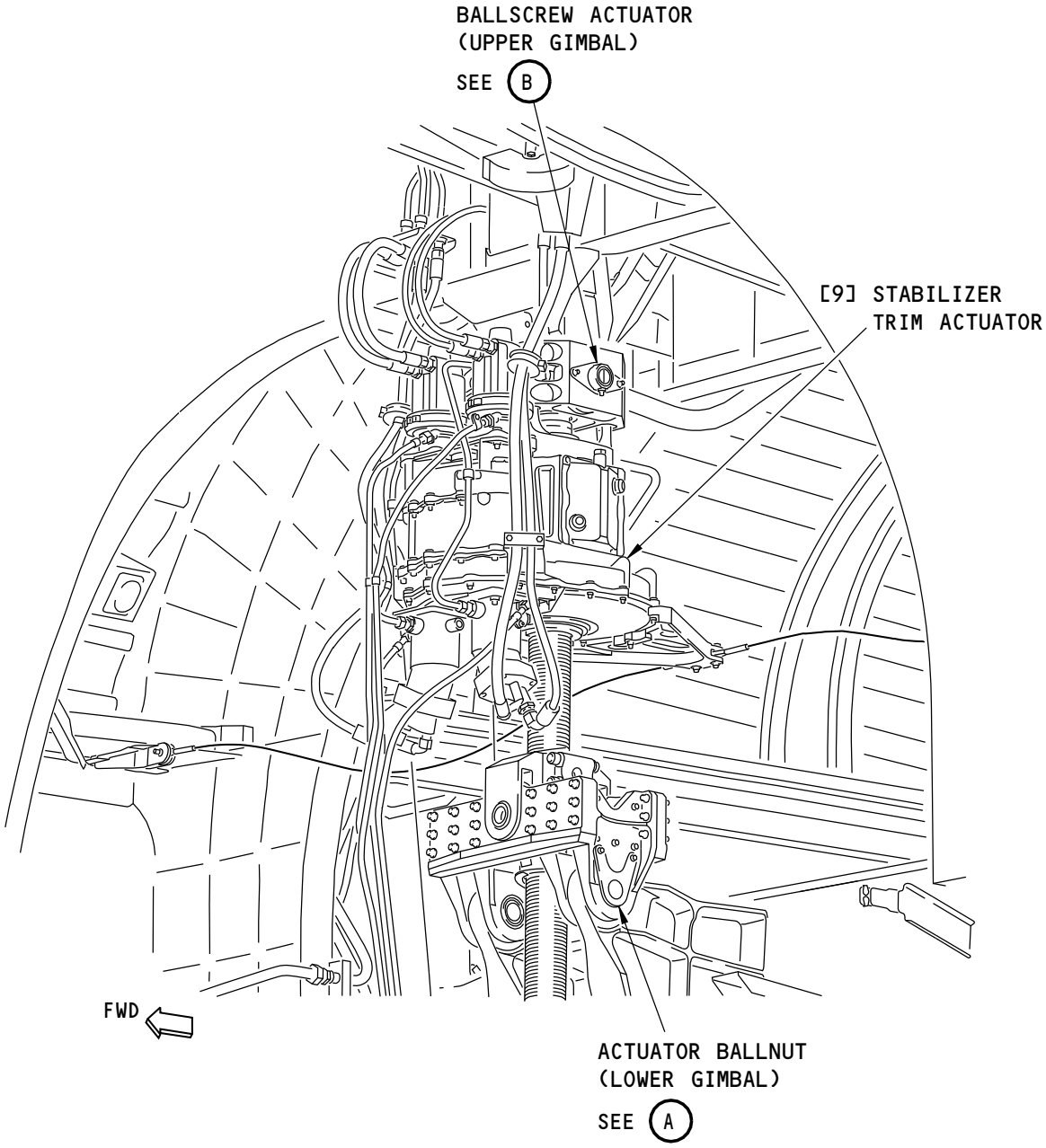
STABILIZER TRIM HYDRAULIC CONNECTIONS

B

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Stabilizer Trim Connections
Figure 403/27-41-13-990-803 (Sheet 3 of 3)

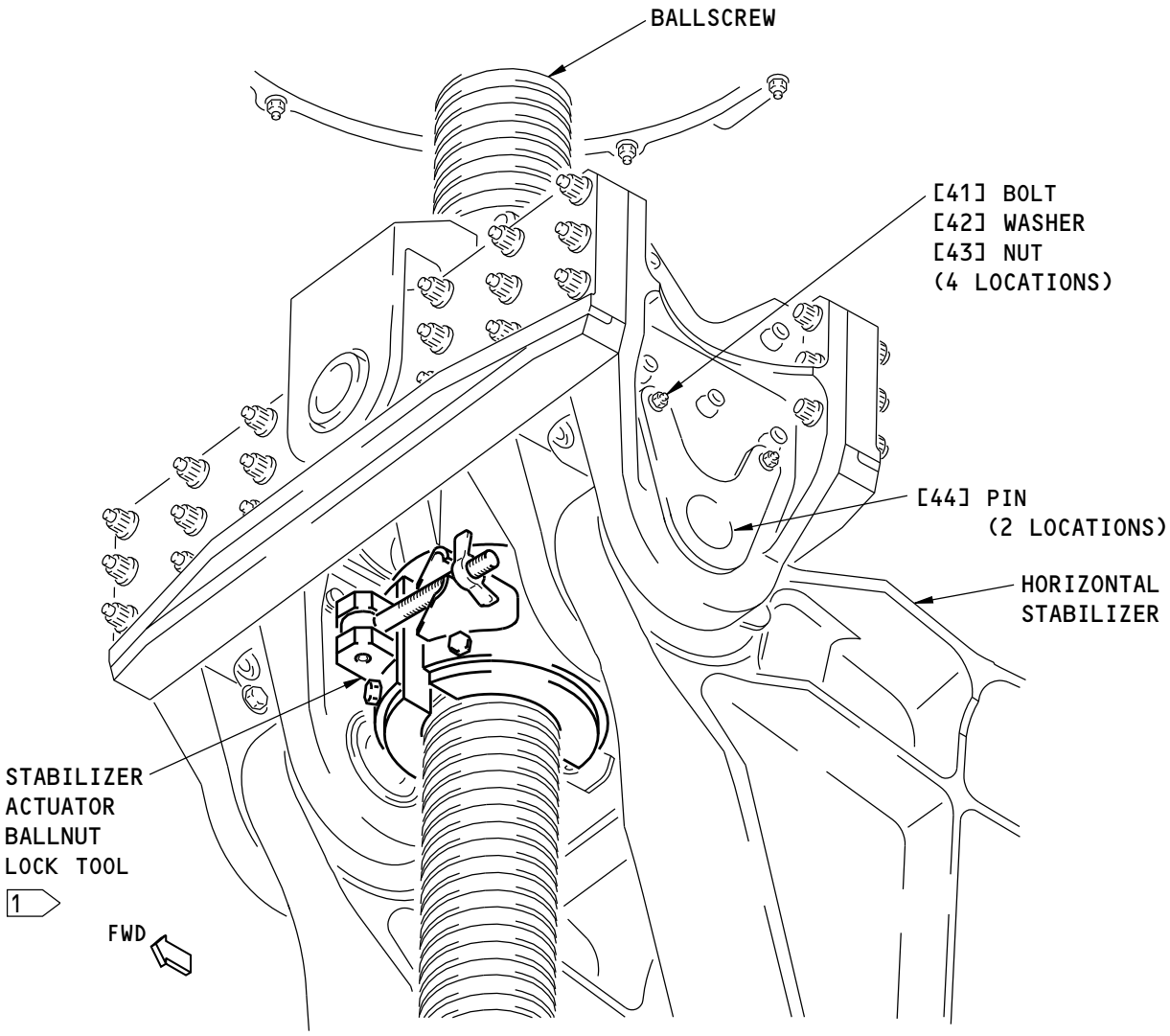
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Stabilizer Trim Gimbal Pin Installation
Figure 404/27-41-13-990-804 (Sheet 1 of 3)

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ACTUATOR BALLNUT
(LOWER GIMBAL)

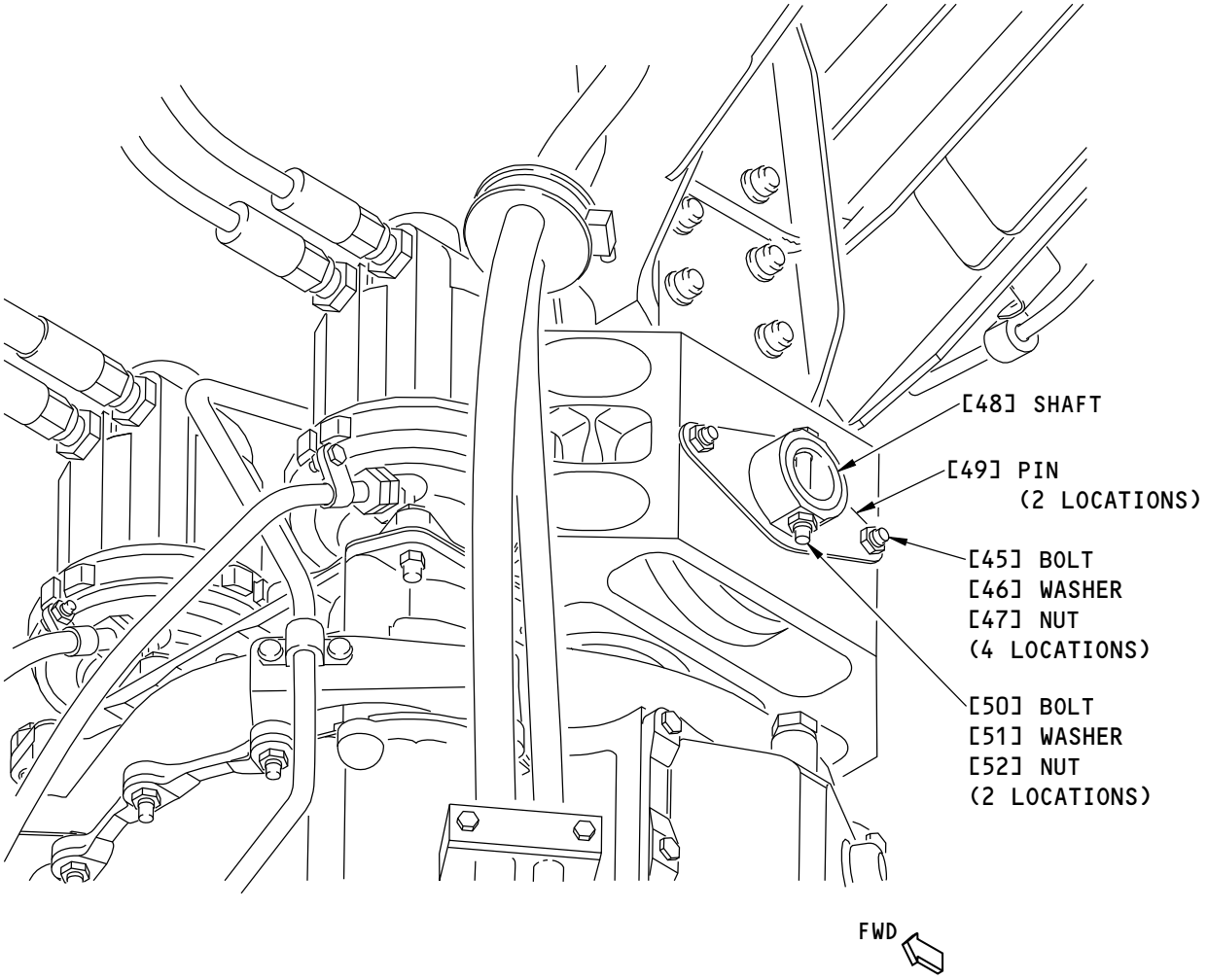
A

1 THIS STABILIZER ACTUATOR BALLNUT LOCK TOOL CAN BE USED TO KEEP THE LOWER GIMBAL FROM "RUNNING AWAY" WHEN IT IS NOT ATTACHED TO THE STABILIZER.

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Stabilizer Trim Gimbal Pin Installation
Figure 404/27-41-13-990-804 (Sheet 2 of 3)

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Stabilizer Trim Gimbal Pin Installation
Figure 404/27-41-13-990-804 (Sheet 3 of 3)

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TASK 27-41-13-420-801

3. Stabilizer Trim Actuator - Installation

A. General

(1) If you replace the stabilizer trim actuator with a serviceable stabilizer trim actuator that is not new or not overhauled, then you must do the following tasks before making a flight with that actuator installed:

- Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test, TASK 27-41-13-220-802
- Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection, TASK 27-41-13-211-801

(2) When replacing the Horizontal Stabilizer Trim Actuator and the serviceable condition is not known, then you must do the following tasks on the actuator that you install, before further flight.

(3) A replacement Horizontal Stabilizer Trim Actuator is in a known serviceable condition if your records agree with one of these conditions:

(a) The unit is now.

(b) The unit is overhauled in accordance with the applicable Linear Motion CMM 27-41-15, Ratier Figeac CMM 27-44-02 or Umbra Cuscinetti CMM 27-41-06; and Boeing CMM 27-41-03.

(c) The ballscrew assembly on the unit is new, or overhauled in accordance with the applicable Linear Motion CMM 27-41-15, Ratier Figeac CMM 27-44-02 or Umbra Cuscinetti CMM 27-41-06; and the unit is found satisfactory in accordance with the tests given in Boeing CMM 27-41-03.

(d) The condition of unit is found satisfactory in accordance with the tests and checks given in the applicable Linear Motion CMM 27-41-15, Ratier Figeac CMM 27-44-02 OR Cuscinetti CMM 27-41-06; and the tests given in Boeing CMM 27-41-03. This inspection is required per AD 2009-14-06 paragraph (k) & (l).

(4) Boeing does not recommend towing the airplane when the actuator assembly [9] is removed and the lock assembly, SPL-2027 is installed. The lock assembly, SPL-2027 was not designed nor intended for use when towing the airplane.

B. References

Reference	Title
12-21-05-600-801	Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-00-700-807	Stabilizer Mechanical Limit Test (P/B 501)
27-41-00-700-810	Stabilizer Secondary Brake Test (P/B 501)
27-41-11-400-801	Stabilizer Hydraulic Motor Installation (P/B 401)
27-41-12-400-801	Stabilizer Secondary Brake - Installation (P/B 401)
27-41-13-211-801	Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection (P/B 601)
27-41-13-220-801	Horizontal Stabilizer Flutter Freeplay Test (P/B 601)
27-41-13-220-802	Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test (P/B 601)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

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(Continued)

Reference	Title
CMM 27-41-03	Component Maintenance Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
SPL-1693	Lock Equipment, Horizontal Stabilizer Actuator Ball Nut Part #: J27002-1 Supplier: 81205
SPL-1697	Equipment - Hoist, horizontal stabilizer trim actuator Part #: J27007-15 Supplier: 81205 Opt Part #: J27007-7 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-2027	Lock Assembly, Horizontal Stabilizer Part #: J55002-53 Supplier: 81205 Opt Part #: J55002-1 Supplier: 81205 Opt Part #: J55002-36 Supplier: 81205
SPL-15119	Dolly - Horizontal Stabilizer Trim Actuator Part #: J27009-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
312	Area Aft of Bulkhead, Right

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F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Stabilizer Trim Actuator - Installation

SUBTASK 27-41-13-420-001

(1) Do these steps to get the actuator assembly [9] in its position (Figure 402):

NOTE: You should remove the motors and brakes. Although the actuator assembly [9] will fit through the access hole with the motors and brakes installed, the procedure is easier with the motors and brakes removed.

(a) Attach the trim actuator hoist equipment, SPL-1697 to the upper gimbal of the actuator assembly [9].

NOTE: It is recommended to attach the bolts [45] (4 locations) before attaching the slings to the upper gimbal of the stabilizer ballscrew assembly. Once the slings have weight on them, it is difficult to install the bolts [45].

(b) Attach a cable fishpole hoist, COM-1563 to the attachment point over the access door (keyhole #3) and connect the hoist cable to the trim actuator hoist equipment, SPL-1697 on the actuator assembly [9].

NOTE: Attach the hoist cable to what will be on the aft side of the actuator (opposite side of the motors) (Figure 402), View B.

(c) Rotate the lower gimbal until it is at the lower stop.

NOTE: This will balance the actuator assembly to help maneuver it through the access hole.

CAUTION

BE SURE TO NOT MAKE CONTACT BETWEEN THE BALLSCREW THREADS AND THE AIRCRAFT STRUCTURE. IF YOU DAMAGE THE BALLSCREW THREADS, YOU WILL HAVE TO REPLACE THE BALLSCREW.

(d) Use the cable fishpole hoist, COM-1563 to lift the actuator assembly [9] off the horizontal stabilizer trim actuator dolly, SPL-15119, through the access door.

NOTE: You will have to remove the access door to get the ballscrew through.

NOTE: If the anti-rotation bracket [83] is installed, you will have to remove it to be able to fit the ballscrew through the access door.

(e) Attach a second cable fishpole hoist, COM-1563 to the attachment forward of the actuator assembly [9] (keyhole #2) and connect the hoist cable to the actuator.

NOTE: Attach the cable to what will be the forward (motor) side of the actuator.

NOTE: It is recommended to attach a safety strap to make sure that the cable fishpole hoist, COM-1563 does not come loose from the keyhole. The stabilizer ballscrew is supported by only one cable fishpole hoist, COM-1563 at one keyhole during parts of the removal procedure. Without a safety strap that ensures that the fishpole eye does not come out of the keyhole, the stabilizer actuator assembly can fall.

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CAUTION

BE SURE TO NOT APPLY TOO MUCH TENSION AT THE KEYHOLES AS YOU MOVE THE STABILIZER ACTUATOR ASSEMBLY USING THE TWO FISHPOLE HOISTS. IF YOU DO NOT RELIEVE THE TENSION OF ONE HOIST AS YOU INCREASE THE TENSION IN THE OTHER HOIST TO MOVE THE ACTUATOR HORIZONTALLY THROUGH THE UNPRESSURIZED COMPARTMENT, YOU CAN DAMAGE THE KEYHOLES AND STRUCTURE OF THE AIRCRAFT.

(f) Adjust the cable fishpole hoist, COM-1563 #1 and #2 until the actuator assembly [9] is held only by keyhole #2.

(g) Move the cable fishpole hoist, COM-1563 from keyhole #3 to the attachment point aft of where the actuator assembly [9] will be installed (keyhole #1).

(h) Adjust the cable fishpole hoist, COM-1563 #1 and #2 until the lower gimbal of the ballscrew actuator can be moved into the correct position.

SUBTASK 27-41-13-480-006

(2) Install the ladder equipment, SPL-2011.

SUBTASK 27-41-13-480-007

(3) Install the service access door barrier, SPL-1976 for the service access door.

NOTE: Make sure you get all necessary equipment and tools before you install the barrier for the service access door.

SUBTASK 27-41-13-420-002

(4) Do these steps to attach the actuator assembly [9] to the airplane (Figure 403, Figure 404):

(a) Move the actuator assembly [9] until the ballscrew actuator is in its position (View B) (Figure 404).

(b) Install the pin assemblies [44] that attach the ball nut to the horizontal stabilizer (View A) (Figure 404).

(c) Install the bolts [41], washers [42] and nuts [43], that connect the pin assemblies [44] to the actuator ballnut.

(d) Remove the ball nut lock, SPL-1693 for the actuator ballnut (lower gimbal), (View D) (Figure 401).

(e) Remove one of the hydraulic motors (if necessary) and use the drive adapter, J27078 to turn the actuator ballnut (upper gimbal) until the length of the ballnut aligns with the structure of the aircraft.

(f) Install the pin [49] in the upper gimbal and the airplane structure:

1) Apply a layer of grease, D00633 to the bolts [45].

CAUTION

INSTALL THE PINS WITH LITTLE FORCE. IF YOU FORCE THE PINS INTO THE HOLE, DAMAGE TO THE SURFACE OF THE PIN CAN OCCUR.

2) Put the pins [49] in their positions.

3) Install the bolts [45], washers [46] and nuts [47] that connect the pins [49] to the upper gimbal of the actuator assembly [9].

(g) Apply a layer of grade 2 or grade 3 compound, C00174, on the entire surface of the shaft [48].

(h) Install the shaft [48]:

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1) Apply a layer of grade 2 or grade 3 compound, C00174, to the surface of the shaft [48].
2) Apply a layer of grease, D00633 to the bolts [50].
3) Put the shaft [48] in its position.
4) Install the bolts [50], washers [51] and nuts [52] that attach the shaft [48] to the pins [49].

(i) Remove the trim actuator hoist equipment, SPL-1697 and the cable fishpole hoist, COM-1563.

(j) Install the hydraulic motors and the hydraulic brakes that were removed to move the assembly through the access hole.
1) For the center and right stabilizer hydraulic motors, do this task: (Stabilizer Hydraulic Motor Installation, TASK 27-41-11-400-801).
2) For the center and right stabilizer secondary brakes, do this task: (Stabilizer Secondary Brake - Installation, TASK 27-41-12-400-801).

(k) Remove the drive adapter, J27078 (if it was installed) and install the hydraulic motor (if it was removed).

(l) Connect the hydraulic lines and clamps to the actuator assembly [9] (View B) (Figure 403):
1) Connect the hydraulic line [11] and hydraulic line [12] to the stabilizer secondary brakes.
a) Tighten the B-nuts on the hydraulic line [11] and hydraulic line [12] to 270 ±14 in-lb (31 ±2 N·m).
2) Connect the hydraulic line [26] to the stabilizer secondary brakes.
a) Torque the hydraulic line [26] to 17.5 ±2.5 in-lb (2.0 ±0.3 N·m).
3) Connect the hydraulic line [14] to the hydraulic motors.
a) Torque the hydraulic line [14] to 17.5 ±2.5 in-lb (2.0 ±0.3 N·m).
4) Connect the hydraulic line [15] and hydraulic line [18] to the hydraulic motors.
a) Tighten the B-nuts on the hydraulic line [15] and hydraulic line [18] to 500 ±25 in-lb (56 ±3 N·m).
5) Connect the hydraulic line [16] and hydraulic line [17] to the hydraulic motors.
a) Tighten the B-nut on the hydraulic line [16] and hydraulic line [17] to 270 ±14 in-lb (31 ±2 N·m).
6) Install the clamps [13]:
a) Put the clamps [13] in their positions on the hydraulic lines.
b) Install the screw [19], washers [20] and nut [21] to connect the clamps [13].
7) Install the clamp block [23]:
a) Put the clamp block [23] in its location on the hydraulic lines.
b) Install the screws [22], washers [24] and nuts [25] that attach the clamp block [23].

(m) Attach the anti-rotation bracket [83] to the stabilizer trim actuator and the disconnected cable [5] to the airplane structure:
1) Install the anti-rotation bracket [83] by installing the bolts [80], washers [81], and nuts [82].

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2) Put the end of the cable [5] in its position.

3) Install the bolts [1], washers [4], bushings [2] and nuts [3].

4) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance through the ends of cables [5] is not more than 0.0025 ohms.

(n) Attach the ground strap [10] to the stabilizer fitting (Figure 403) (View A):

1) Put the ground strap [10] in its position.

2) Install the bolt [6], washer [7] and nut [8].

SUBTASK 27-41-13-960-001

(5) If you replace the actuator with a serviceable actuator that is not new or not overhauled, then you must do the following tasks before making a flight with that actuator installed:

- Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test, TASK 27-41-13-220-802
- Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection, TASK 27-41-13-211-801.

NOTE: If the serviceable actuator is new, overhauled, or a re-installation following any maintenance, the Ballscrew to Ballnut Freeplay test and a Detailed Visual Inspection is only necessary if after doing the Stabilizer Trim Actuator Installation Test, the Flutter Freeplay Exceeds the limits listed in the Horizontal Stabilizer Flutter Freeplay Test, TASK 27-41-13-220-801

SUBTASK 27-41-13-080-001

(6) Do these steps to remove the lock assembly, SPL-2027 (Figure 401):

(a) Turn the cylinder assembly to transfer the load of the horizontal stabilizer to the stabilizer trim actuator.

(b) Remove the lock assembly, SPL-2027.

SUBTASK 27-41-13-640-001

(7) Do this task: (Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication, TASK 12-21-05-600-801).

H. Stabilizer Trim Actuator Installation Test

SUBTASK 27-41-13-860-007

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R

Power Supply Assembly Center, M24301

Row	Col	Number	Name
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	2	CBB2-L	STAB TRIM

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Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	2	CBB2-R	STAB TRIM

SUBTASK 27-41-13-860-008

(2) Do this task: (Supply Electrical Power, TASK 24-22-00-860-805).

SUBTASK 27-41-13-700-002

(3) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance through the ends of the ground strap [10] is not more than 0.0025 ohms.

SUBTASK 27-41-13-860-009

(4) Remove the DO-NOT-OPERATE tags and put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

SUBTASK 27-41-13-860-010

(5) Remove the DO-NOT-OPERATE tags on the ALTN PITCH and TRIM levers.

SUBTASK 27-41-13-860-011

(6) Remove the DO-NOT-OPERATE tags and put the stabilizer trim cutout switches to the NORM position.

SUBTASK 27-41-13-720-001

(7) Do this task: (Stabilizer Mechanical Limit Test, TASK 27-41-00-700-807).

SUBTASK 27-41-13-720-002

(8) Do this task: (Stabilizer Secondary Brake Test, TASK 27-41-00-700-810).

SUBTASK 27-41-13-700-001

(9) Do this task: (Horizontal Stabilizer Flutter Freeplay Test, TASK 27-41-13-220-801).

SUBTASK 27-41-13-211-006

(10) Do this task if the replaced Stabilizer Trim Actuator is not new or not overhauled: (Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection, TASK 27-41-13-211-801)

SUBTASK 27-41-13-700-008

(11) Do this task if the replaced Stabilizer Trim Actuator is not new or not overhauled: (Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test, TASK 27-41-13-220-802)

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-13-860-013

(1) Do this task: (Main Hydraulic System Power Removal, TASK 29-11-00-860-808).

SUBTASK 27-41-13-080-002

(2) Remove the service access door barrier, SPL-1976 for the access door.

SUBTASK 27-41-13-080-003

(3) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-13-410-001

(4) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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TASK 27-41-13-020-803

4. Stabilizer Trim Safety Rod - Removal

(Figure 405)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The stabilizer trim safety rod is referred to as the rod [64].

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-13-990-815	Figure: Stabilizer Trim Gimbal Pin Installation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-72-05-000-801	Tail Skid Aft Link Removal (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1693	Lock Equipment, Horizontal Stabilizer Actuator Ball Nut Part #: J27002-1 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-2027	Lock Assembly, Horizontal Stabilizer Part #: J55002-53 Supplier: 81205 Opt Part #: J55002-1 Supplier: 81205 Opt Part #: J55002-36 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Removal

SUBTASK 27-41-13-861-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 27-41-13-863-002

(2) Pressurize the center and right hydraulic systems Main Hydraulic System Pressurization, TASK 29-11-00-860-801

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SUBTASK 27-41-13-860-051

(3) Use the ALTN PITCH TRIM levers or the PITCH TRIM switches on the control wheels to move the stabilizer to 8.5 to 14.75 units.

NOTE: The stabilizer must be moved to permit clearance of the maintenance platform for removal of the rod [64].

SUBTASK 27-41-13-864-004

(4) Remove the pressure from the center and right hydraulics systems Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807

SUBTASK 27-41-13-860-052

(5) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-41-13-860-053

(6) Attach DO-NOT-OPERATE tags on the ALTN PITCH and TRIM levers.

SUBTASK 27-41-13-860-054

(7) Attach DO-NOT-OPERATE tags on the hydraulic system control panel.

SUBTASK 27-41-13-860-055

(8) Put the stabilizer trim cutout switches to the CUTOFF position.

SUBTASK 27-41-13-865-001

(9) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R

(a) On the left power supply assembly (PSA-L) in the E1-6 rack, B2, STAB TRIM ARM C.

(b) On the center power supply assembly (PSA-C) in the E2-6 rack, B2, STAB TRIM CTRL C.

(c) On the right power supply assembly (PSA-R) in the E5-1 rack, B2, STAB TRIM CTRL R.

G. Stabilizer Trim Ballscrew Safety Rod Removal

(Figure 405)

SUBTASK 27-41-13-010-008

(1) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-490-005

(2) Install the service access door barrier, SPL-1976 for the service access door.

NOTE: Make sure you get all necessary equipment and tools before you install the barrier for the service access door.

SUBTASK 27-41-13-490-006

(3) Install the ladder equipment, SPL-2011.

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ARO 001-004

SUBTASK 27-41-13-020-019

(4) Disconnect the tail skid aft link. (Tail Skid Aft Link Removal, TASK 32-72-05-000-801)

NOTE: The tail skid aft link must be disconnected to give the necessary clearance to remove the rod [64].

ARO ALL

SUBTASK 27-41-13-030-004

WARNING MAKE SURE THE BOLT [66] IS INSTALLED BEFORE REMOVING THE SHAFT [48] AND THE PIN [49]. THE ROD [64] CAN FALL OUT CAUSING INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Remove the nuts [52], washers [51], and bolts [50] that hold the shaft [48] to the pins [49].

SUBTASK 27-41-13-030-005

(6) Remove the shaft [48] (Figure 404).

SUBTASK 27-41-13-030-006

(7) Remove the ring [69] and the socket [70] from the upper gimbal fitting (View A-A) (Figure 405).

SUBTASK 27-41-13-030-007

(8) Remove the nut [63], washer [62], and bolt [61] for the upper fitting (View A-A) (Figure 405).

SUBTASK 27-41-13-030-008

(9) Turn the nut [72] and remove it from the top of the rod [64].

SUBTASK 27-41-13-030-009

(10) Remove the umbrella [71].

SUBTASK 27-41-13-480-019

(11) Do these steps to install the lock assembly, SPL-2027 for the horizontal stabilizer, View A (Figure 401):

NOTE: This tool is used to lock the horizontal stabilizer in position during the removal or installation of the ballscrew actuator.

(a) Measure the distance between the lock assembly attach fitting on the stabilizer and the attach fitting located at STA 2268.25 frame.

(b) Select the lock assembly configuration that will give the necessary length and position of the lock assembly (see placard on the tool box).

(c) Adjust the two clevises to get equal number of threads exposed from the cylinder assembly at each end.

NOTE: If you do not have an equal number of threads on each clevis, you can damage the tool.

(d) Connect one end of the lock assembly, SPL-2027 to the attach fitting and turn the cylinder assembly until you can connect the other end.

SUBTASK 27-41-13-030-010

WARNING SUPPORT THE ROD [64] WHEN REMOVING THE BOLT [66]. THE ROD [64] CAN FALL OUT CAUSING INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(12) Remove the nut [68], washer [67], and bolt [66] that attach the rod [64] to the ballscrew.

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SUBTASK 27-41-13-020-022

(13) Remove the bolts [41], washers [42] and nuts [43], that connect the pin assemblies [44] to the actuator ballnut. (Figure 27-41-13-990-815)

SUBTASK 27-41-13-020-020

(14) Remove the pin assembly [44] of the lower gimbal then swing the ballscrew forward.

SUBTASK 27-41-13-420-018

(15) Install the horizontal stabilizer actuator ball nut lock, ball nut lock, SPL-1693 for the actuator ballnut. (Figure 404)

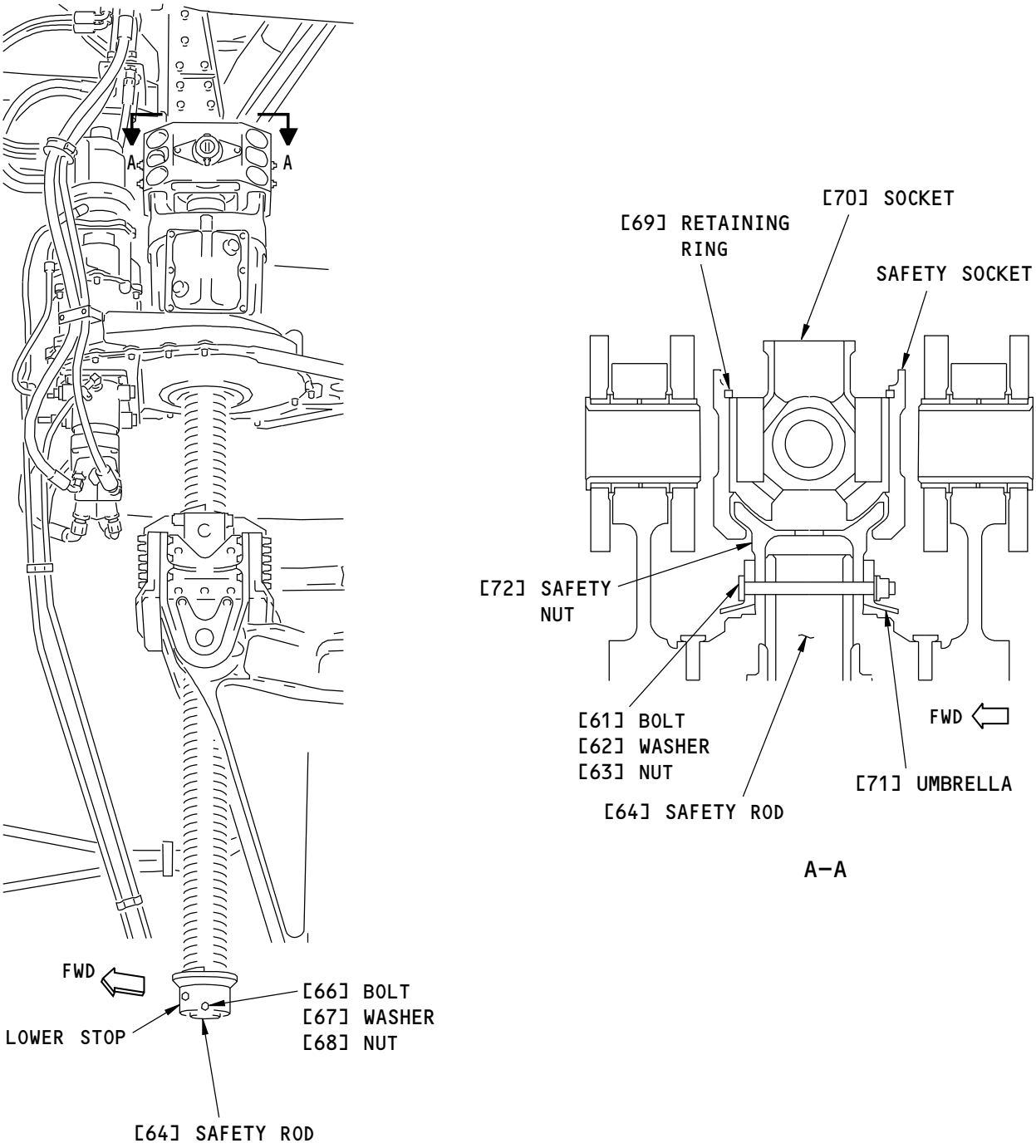
NOTE: This tool will keep the lower ballnut from rotating and moving toward the lower stop.

SUBTASK 27-41-13-030-011

(16) Slide the rod [64] out of the ballscrew.

——— END OF TASK ———

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Stabilizer Trim Ballscrew Safety Rod Installation
Figure 405/27-41-13-990-816

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TASK 27-41-13-420-803

5. Stabilizer Trim Safety Rod - Installation

(Figure 405)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The stabilizer trim safety rod will be referred to as the rod [64].

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-13-990-815	Figure: Stabilizer Trim Gimbal Pin Installation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-72-05-400-801	Tail Skid Aft Link Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1693	Lock Equipment, Horizontal Stabilizer Actuator Ball Nut Part #: J27002-1 Supplier: 81205
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-2027	Lock Assembly, Horizontal Stabilizer Part #: J55002-53 Supplier: 81205 Opt Part #: J55002-1 Supplier: 81205 Opt Part #: J55002-36 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
312	Area Aft of Bulkhead, Right

F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Stabilizer Trim Ballscrew Safety Rod Installation

SUBTASK 27-41-13-620-001

(1) Apply a layer of grade 2 or 3 compound, C00174 to the entire surface of the rod [64].

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SUBTASK 27-41-13-420-003

WARNING SUPPORT THE ROD [64] WHEN INSTALLING THE BOLT [66]. THE ROD [64] CAN FALL OUT CAUSING INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Put the rod [64] in its position through the ballscrew (Figure 405).

SUBTASK 27-41-13-420-007

(3) Align the bolt holes of the rod [64] with the bolt holes in the lower stop.

SUBTASK 27-41-13-420-020

(4) Install the pin assemblies [44] that attach the ball nut to the horizontal stabilizer

SUBTASK 27-41-13-420-021

(5) Install the bolts [41], washers [42] and nuts [43], that connect the pin assemblies [44] to the actuator ballnut. (Figure 27-41-13-990-815)

SUBTASK 27-41-13-420-008

(6) Install the bolt [66], washer [67], and nut [68] at the lower stop, (View A-A) (Figure 405).

SUBTASK 27-41-13-620-002

(7) Apply a layer of grade 2 or 3 compound, C00174 to the parts that follow before you install them:

(a) The bolt [61], the washer [62] and the nut [63].

(b) The ring [69].

(c) The socket [70].

(d) The nut [72].

SUBTASK 27-41-13-420-009

(8) Put the umbrella [71] in its position on the rod [64].

SUBTASK 27-41-13-420-010

(9) Put the nut [72] in its position between the rod [64] and the umbrella [71].

NOTE: Make sure the bolt holes of the nut [72] align with the bolt holes of the umbrella [71].

SUBTASK 27-41-13-420-011

(10) Tighten the nut [72] on the rod [64] hand tight.

NOTE: You can loosen the nut [72] a maximum of one half turn to align the bolt holes.

SUBTASK 27-41-13-420-004

(11) Install the bolt [61], washer [62] and nut [63] to connect the rod [64], umbrella [71] and nut [72] (View A-A).

SUBTASK 27-41-13-420-015

(12) Put the socket [70] in its position in the safety socket.

NOTE: Make sure the holes of the socket [70] align with the holes of the safety socket.

SUBTASK 27-41-13-420-016

(13) Install the ring [69].

SUBTASK 27-41-13-420-014

(14) Install the shaft [48] (View B) (Figure 404):

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(a) Put the shaft [48] in its position.

NOTE: Make sure the bolt holes at the ends of the shaft [48] align with the bolt holes of the pins [49].

(b) Install the bolts [50], washers [51] and nuts [52].

SUBTASK 27-41-13-080-011

(15) Do these steps to remove the lock assembly, SPL-2027 (Figure 401):

(a) Turn the cylinder assembly to transfer the load of the horizontal stabilizer to the stabilizer trim actuator.

(b) Remove the lock assembly, SPL-2027.

SUBTASK 27-41-13-020-021

(16) Remove the horizontal stabilizer actuator ball nut lock, ball nut lock, SPL-1693 for the actuator ballnut. (Figure 404)

ARO 001-004

SUBTASK 27-41-13-420-019

(17) Connect the tail skid aft link. (Tail Skid Aft Link Installation, TASK 32-72-05-400-801)

ARO ALL

H. Stabilizer Ballscrew Installation Test

SUBTASK 27-41-13-860-021

(1) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R

(a) On the left power supply assembly (PSA-L) in the E1-6 rack, B2, STAB TRIM ARM C.

(b) On the center power supply assembly (PSA-C) in the E2-6 rack, B2, STAB TRIM CTRL C.

(c) On the right power supply assembly (PSA-R) in the E5-1 rack, B2, STAB TRIM CTRL R.

SUBTASK 27-41-13-860-022

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-13-860-023

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORM position.

SUBTASK 27-41-13-860-024

(4) Remove the DO-NOT-OPERATE tags on the ALTN PITCH and TRIM levers.

SUBTASK 27-41-13-860-025

(5) Remove the DO-NOT-OPERATE tags and put the stabilizer trim cutout switches to the NORM position.

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SUBTASK 27-41-13-860-026

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Supply center and right hydraulic power, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-13-710-003

(7) Operate the pitch trim switches on the Captain's control wheel.

SUBTASK 27-41-13-210-004

(8) Make sure the ballscrew actuator moves.

SUBTASK 27-41-13-710-004

(9) Operate the pitch trim switches on the First Officer's control wheel.

SUBTASK 27-41-13-210-005

(10) Make sure the ballscrew actuator moves.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-13-860-027

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-41-13-080-004

(2) Remove the service access door barrier, SPL-1976 for the access door.

SUBTASK 27-41-13-080-005

(3) Remove the ladder equipment, SPL-2011.

SUBTASK 27-41-13-410-002

(4) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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STABILIZER BALLSCREW - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these inspections:

(1) An inspection of the flutter freeplay of the stabilizer at the stabilizer trim actuator.

NOTE: For an inspection of the stabilizer pivot fittings refer to (TASK 55-17-01-220-801). For an inspection of the internal freeplay of the stabilizer trim actuator refer to (TASK 27-41-00-700-812).

(2) An inspection of the horizontal stabilizer trim ballscrew to ballnut freeplay.

(3) A visual inspection of the horizontal stabilizer trim ballscrew gimbal fittings.

(4) A visual inspection of the safety rod that is in the stabilizer trim actuator.

(5) A detailed visual inspection of the ballscrew and ballnut of the stabilizer trim actuator.

(6) A Detailed visual Inspection and measurement of the Karon lined bushings.

TASK 27-41-13-220-801

2. Horizontal Stabilizer Flutter Freeplay Test

Figure 601

A. General

(1) Use this test to check the freeplay in the horizontal stabilizer trim actuator at the gimbal attachment points. To check for freeplay between the horizontal stabilizer trim actuator and the ballscrew, do this task: Horizontal Stabilizer Trim Actuator Freeplay - Test, TASK 27-41-00-700-812.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-00-700-812	Horizontal Stabilizer Trim Actuator Freeplay - Test (P/B 501)
55-17-01-220-801	Horizontal Stabilizer Pivot Fitting Free Play Check (P/B 601)
55-17-01-990-801	Figure: Horizontal Stabilizer Pivot Fittings Wear Limits (P/B 601)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-4138	Test Equipment, Horizontal Stabilizer Freeplay Part #: J55002-59 Supplier: 81205 Opt Part #: J55002-37 Supplier: 81205
STD-1238	Indicator - Dial

D. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

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E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Procedure

SUBTASK 27-41-13-860-029

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-13-860-030

(2) On the control stand, set the C STAB cutout switch and the R STAB cutout switch to the CUTOUT position.

(a) Attach DO-NOT-OPERATE tags to the switches.

SUBTASK 27-41-13-860-031

(3) On the overhead maintenance panel, set the three TAIL FLT CONTROL HYD VALVE POWER switches to the SHUT OFF position.

(a) Attach DO-NOT-OPERATE tags to the switches.

SUBTASK 27-41-13-010-003

(4) Get access to the stabilizer trim actuator through this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-480-011

(5) Do these steps to install the test equipment, SPL-4138, between the horizontal stabilizer and the lower fuselage (Figure 601).

(a) Measure the distance between the attachment points for the test equipment, SPL-4138.

(b) Use the distance you measured to set the test equipment, SPL-4138, to the correct of the three positions shown in (Figure 601).

(c) Connect one end of the test equipment, SPL-4138, to the airplane.

(d) Turn the test equipment, SPL-4138 to adjust it, until the other end can be attached.

NOTE: Adjust it so that approximately the same number of threads show at both ends of the test equipment, SPL-4138.

SUBTASK 27-41-13-480-012

(6) Do these steps to install an dial indicator, STD-1238 between the airplane structure and the stabilizer.

(a) Attach a rod or bar to the maintenance platform, or to the structure above the stabilizer ballscrew (whichever is easier).

NOTE: This bar is to hold the dial indicator, STD-1238. It must come near to where the actuator attaches to the stabilizer.

(b) Attach the dial indicator, STD-1238 to the rod or bar so that it will show the movement of the stabilizer near the actuator.

NOTE: Make sure the dial indicator, STD-1238 measures the total movement between the airplane structure and the stabilizer. Do not put the dial indicator, STD-1238 on the ballnut or any other part of the stabilizer trim actuator. To get the correct measurement, the dial indicator, STD-1238 must be less than approximately 3 inches (76 mm) forward or aft of the center of the actuator ballscrew.

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G. Procedure

SUBTASK 27-41-13-970-001

(1) Set the dial indicator, STD-1238 to zero.

SUBTASK 27-41-13-750-001

CAUTION

DO NOT APPLY MORE THAN 2500 POUNDS AS INDICATED ON THE FORCE GAUGE TEST EQUIPMENT, SPL-4138. ALSO, DO NOT APPLY POWER TO THE STABILIZER TRIM ACTUATOR WITH THE TEST EQUIPMENT, SPL-4138 INSTALLED. THE TEST EQUIPMENT, SPL-4138 CAN BREAK OR CAUSE DAMAGE TO THE AIRCRAFT.

(2) Use the test equipment, SPL-4138 to slowly apply a downward force of 2250 pounds to the stabilizer as indicated on the force gauge.

NOTE: To apply a downward force on the stabilizer, the lock must be turned in the direction that shortens the lock length.

SUBTASK 27-41-13-970-002

(3) Read the dial indicator, STD-1238 and record this reading. This is the actuator to gimbal freeplay.

CAUTION

MAKE SURE TO NOT APPLY A COMPRESSION LOAD ON THE HORIZONTAL STABILIZER FREEPLAY TEST EQUIPMENT. A COMPRESSION CONDITION WILL CAUSE DAMAGE TO THE HORIZONTAL STABILIZER FREEPLAY TEST EQUIPMENT.

(a) Turn the test equipment, SPL-4138 slowly to release the downward force from the stabilizer.

(b) Monitor the force gage on the test equipment, SPL-4138 and the dial indicator, STD-1238.

1) When the force gage reads zero and there is no movement on the dial indicator, STD-1238, remove the test equipment, SPL-4138.

2) Make sure not to put a compression load on the test equipment, SPL-4138.

NOTE: The test equipment, SPL-4138 can be damaged if it is in a compression load condition.

SUBTASK 27-41-13-220-001

(4) If the dial indicator, STD-1238 shows 0.040 inches (1.02 mm), or less, then the stabilizer actuator gimbal freeplay is acceptable.

SUBTASK 27-41-13-220-002

(5) If the dial indicator, STD-1238 shows more than 0.040 inches (1.02 mm), then determine the total flutter freeplay of the horizontal stabilizer:

(a) To calculate the total flutter freeplay of the horizontal stabilizer, do the following:

1) Add the stabilizer actuator gimbal freeplay that you measured in this test to the average freeplay measured in the left and right stabilizer pivot hinges. To measure the freeplay in the left and right stabilizer pivot hinges, do this task: Horizontal Stabilizer Pivot Fitting Free Play Check, TASK 55-17-01-220-801.

NOTE: The freeplay of the left and right stabilizer pivot hinges, used to determine total stabilizer flutter freeplay, is the average of the freeplay in the left and right pivot hinges.

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(b) If the total stabilizer freeplay (average pivot hinge freeplay added to the stabilizer actuator gimbal freeplay) is 0.070 inches (1.78 mm) or less, then the total stabilizer freeplay is within flutter limits and the test is complete.

SUBTASK 27-41-13-800-001

(6) If the total flutter freeplay exceeds 0.070 inches (1.78 mm), then do the following steps to determine the cause of the freeplay:

(a) If the stabilizer actuator gimbal freeplay exceeds 0.050 inches (1.27 mm), then look for excessive wear in the actuator. To do this, perform the following tasks:

1) Do this task: Horizontal Stabilizer Trim Actuator Freeplay - Test, TASK 27-41-00-700-812.

2) Do this task: Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test, TASK 27-41-13-220-802.

3) Perform a detailed visual inspection of the stabilizer, stabilizer ballscrew, ballnut, ballnut ball return tubes, gimbals, and attachment fittings.

(b) If the horizontal stabilizer actuator gimbal freeplay is less than or equal to 0.050 inches (1.27 mm), look for excessive wear at each stabilizer pivot hinge. Use (Figure 55-17-01-990-801) to check the wear limits.

(c) Repair or replace all components that exceed the specified wear limits.

(d) In case all components are within the specified wear limits but the total flutter freeplay limit of 0.070 inches (1.78 mm) is exceeded, repair or replace the components that are closest to the maximum specified wear limits.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-41-13-080-007

(1) Remove the dial indicator, STD-1238 and the rod or bar used to support it.

SUBTASK 27-41-13-410-003

(2) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-860-033

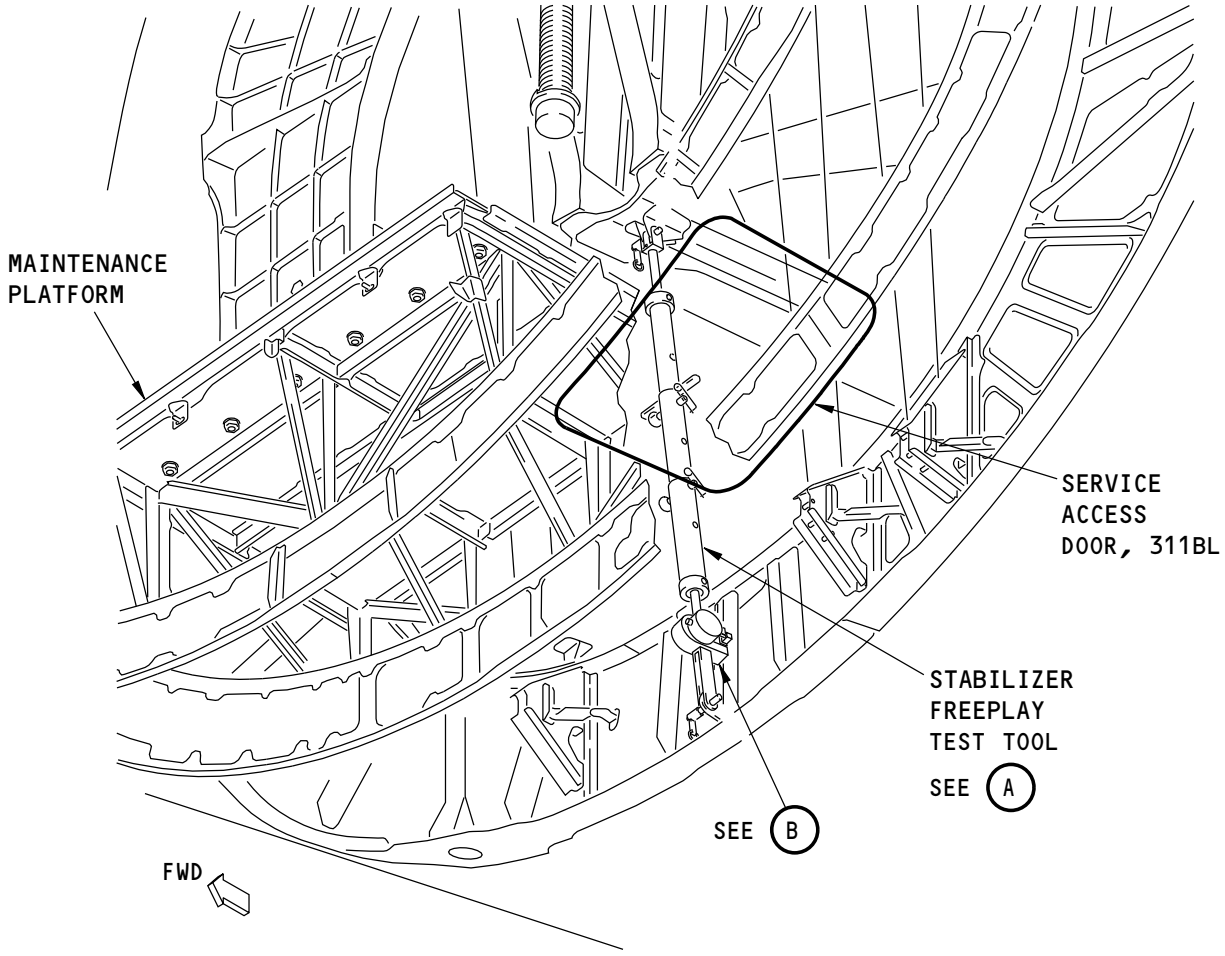
(3) Remove the DO-NOT-OPERATE TAGS, and set the C STAB cutout switch and the R STAB cutout switch to the NORM position.

SUBTASK 27-41-13-860-034

(4) Remove the DO-NOT-OPERATE TAGS, and set the three FLT CONTROL HYD VALVE POWER switches to the SHUT OFF position.

END OF TASK

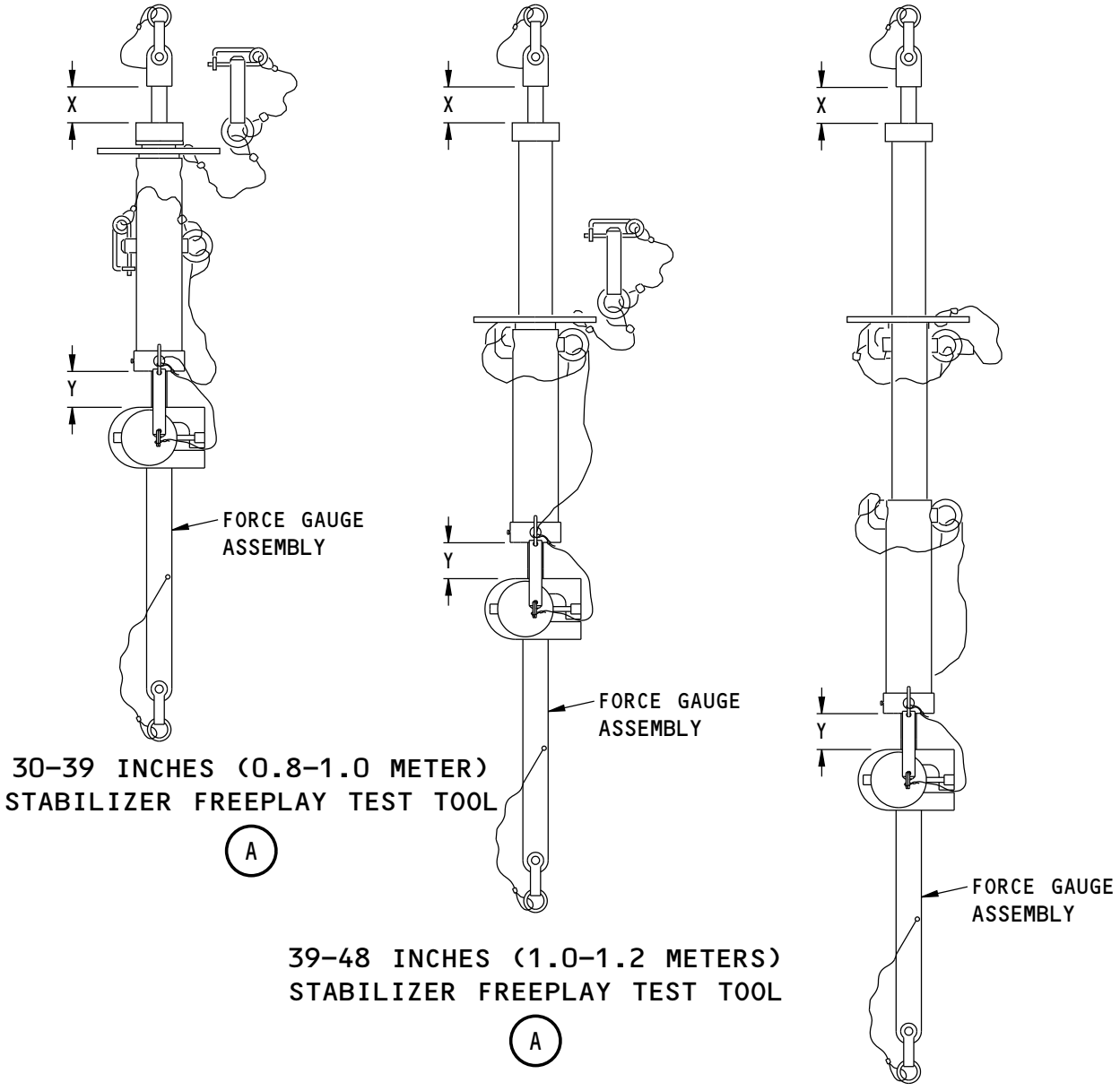
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Stabilizer Freeplay Inspection
Figure 601/27-41-13-990-808 (Sheet 1 of 3)

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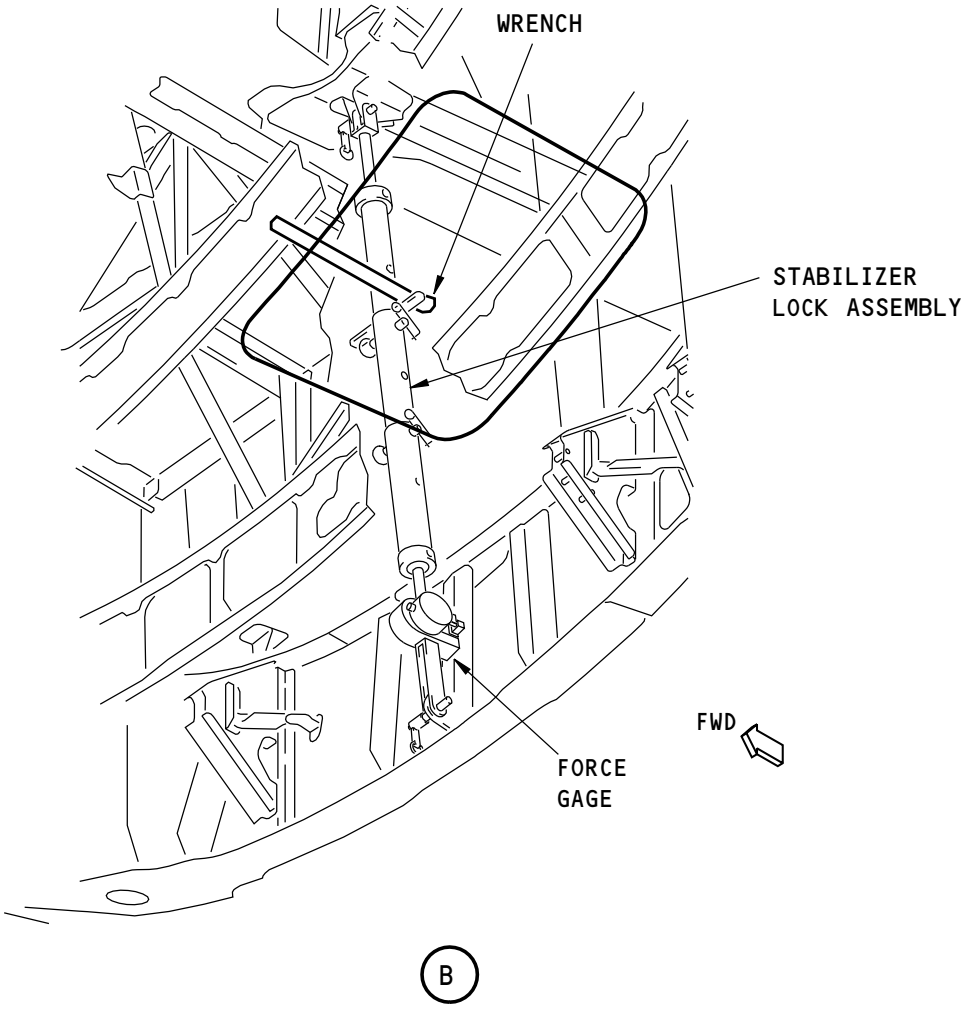


NOTE: MEASURE THE DISTANCE BETWEEN THE ATTACHMENT POINTS ON THE AIRPLANE AND SET THE TEST EQUIPMENT TO THE CORRECT POSITION.
ADJUST THE TOOL SO THAT THE THREADS ON EACH END (X AND Y), ARE APPROXIMATELY THE SAME LENGTH.

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Stabilizer Freeplay Inspection
Figure 601/27-41-13-990-808 (Sheet 2 of 3)

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Stabilizer Freeplay Inspection
Figure 601/27-41-13-990-808 (Sheet 3 of 3)

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TASK 27-41-13-220-802

3. Horizontal Stabilizer Trim Actuator Ballscrew to Ballnut Freeplay Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this test to check the freeplay between the horizontal stabilizer actuator ballscrew and the ballnut. To check for freeplay between the horizontal stabilizer trim actuator and the ballscrew, do this task: Horizontal Stabilizer Trim Actuator Freeplay - Test, TASK 27-41-00-700-812.

B. References

Reference	Title
12-21-05-600-801	Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication (P/B 301)
27-41-00-700-812	Horizontal Stabilizer Trim Actuator Freeplay - Test (P/B 501)
27-41-13-020-802	Stabilizer Trim Actuator Removal for Jackscrew Fitting Inspection (P/B 201)
27-41-13-420-801	Stabilizer Trim Actuator - Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-4138	Test Equipment, Horizontal Stabilizer Freeplay Part #: J55002-59 Supplier: 81205 Opt Part #: J55002-37 Supplier: 81205
STD-1238	Indicator - Dial

D. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Prepare for the Procedure

SUBTASK 27-41-13-640-002

(1) Lubricate the stabilizer ballscrew, do this task: Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication, TASK 12-21-05-600-801.

SUBTASK 27-41-13-860-035

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-41-13-860-036

(3) Use the STAB TRIM levers or switches to move the stabilizer to 6 units of trim on the stab trim position indicator.

SUBTASK 27-41-13-860-037

(4) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-41-13-860-038

(5) On the control stand, set the C STAB cutout switch and the R STAB cutout switch to the CUTOUT position.

(a) Attach DO-NOT-OPERATE tags to the switches.

SUBTASK 27-41-13-860-039

(6) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the E5-1 rack:

1) CBB2, STAB TRIM CNTL - R

(b) On the E2-6 rack:

1) CBB2, STAB TRIM CNTL - C

SUBTASK 27-41-13-010-005

(7) Get access to the stabilizer trim actuator through this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-480-014

(8) Do these steps to install the test equipment, SPL-4138, between the horizontal stabilizer and the lower fuselage (Figure 601).

(a) Measure the distance between the attachment points for the test equipment, SPL-4138.

(b) Use the distance you measured to set the test equipment, SPL-4138, to the correct of the three positions shown in (Figure 601).

(c) Connect one end of the test equipment, SPL-4138, to the airplane.

(d) Turn the test equipment, SPL-4138 to adjust it, until the other end can be attached.

NOTE: Adjust it so that approximately the same number of threads show at both ends of the test equipment, SPL-4138.

SUBTASK 27-41-13-480-015

(9) Do these steps to install a dial indicator between the stabilizer ballscrew and the ballnut (of the lower gimbal) Figure 602:

(a) Attach a magnetic base (commercially available) to the stabilizer ballscrew below the ballnut (of the lower gimbal) for the dial indicator.

(b) Install the dial indicator on the support arm so that the end of the dial indicator touches a flat spot on the top of the ballnut.

NOTE: The dial indicator must be installed so that it can read a downward movement of the ballnut relative to the ballscrew.

G. Procedure

SUBTASK 27-41-13-970-003

(1) Set the dial indicator, STD-1238 to zero.

NOTE: On the ground with the stabilizer at the neutral position, the stabilizer center of gravity loads the ballscrew in the upward direction which puts the ballscrew in compression.

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SUBTASK 27-41-13-750-002

CAUTION

DO NOT APPLY MORE THAN 2500 POUNDS AS INDICATED ON THE FORCE GAUGE TEST EQUIPMENT, SPL-4138. ALSO, DO NOT APPLY POWER TO THE STABILIZER TRIM ACTUATOR WITH THE TEST EQUIPMENT, SPL-4138 INSTALLED. THE TEST EQUIPMENT, SPL-4138 CAN BREAK OR CAUSE DAMAGE TO THE AIRCRAFT.

(2) Slowly apply a downward force on the ballscrew by doing the following:

(a) Turn the test equipment, SPL-4138 until the dial indicator stops moving (Figure 601).

(b) Use a ratchet to turn the test equipment, SPL-4138 to 2250 pounds as indicated on the force gauge.

NOTE: To apply a downward force on the stabilizer, the lock must be turned in a clockwise direction that shortens the lock length.

SUBTASK 27-41-13-970-004

(3) With downward force applied on the ballscrew, record the indication on the dial indicator, STD-1238. This is the ballscrew to ballnut freeplay.

SUBTASK 27-41-13-030-003

CAUTION

MAKE SURE TO NOT APPLY A COMPRESSION LOAD ON THE HORIZONTAL STABILIZER FREEPLAY TEST EQUIPMENT. A COMPRESSION CONDITION WILL CAUSE DAMAGE TO THE HORIZONTAL STABILIZER FREEPLAY TEST EQUIPMENT.

(4) Once indication is recorded, slowly release the downward force that was applied to the test equipment, SPL-4138.

(a) Monitor the force gage on the test equipment, SPL-4138 and the dial indicator, STD-1238.

1) When the force gage reads zero and there is no movement on the dial indicator, STD-1238, remove the test equipment, SPL-4138.

2) Make sure not to put a compression load on the test equipment, SPL-4138.

NOTE: The test equipment, SPL-4138 can be damaged if it is in a compression load condition.

SUBTASK 27-41-13-220-005

(5) If the freeplay is less than 0.0016 in. (0.0406 mm), then the stabilizer ballscrew to ballnut freeplay measurement may be in error.

(a) Verify that the procedure was run correctly by checking that the stabilizer was loaded in the correct direction and that the dial indicator is functioning properly.

SUBTASK 27-41-13-220-006

(6) If the ballscrew to ballnut freeplay is greater than or equal to 0.0016 in. (0.0406 mm) and less than 0.016 in. (0.406 mm), then the stabilizer ballscrew to ballnut freeplay is within acceptable limits and this freeplay check is completed.

SUBTASK 27-41-13-800-002

(7) If the ballscrew to ballnut freeplay is greater than or equal to 0.016 inch (0.40 mm), then the stab trim actuator is beyond the maximum in-service wear limits and the actuator needs to be removed and overhauled. Do this task: Stabilizer Trim Actuator Removal for Jackscrew Fitting Inspection, TASK 27-41-13-020-802.

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SUBTASK 27-41-13-900-001

(8) If you removed the stab trim actuator assembly, do this task: Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-41-13-080-009

(1) Remove the dial indicator base and dial indicator from the ballscrew and ballnut.

SUBTASK 27-41-13-410-004

(2) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-860-040

(3) Remove the DO-NOT-OPERATE TAGS, and set the C STAB cutout switch and the R STAB cutout switch to the NORM position.

SUBTASK 27-41-13-860-041

(4) Remove the DO-NOT-CLOSE TAGS, and close these circuit breakers:

(a) On the E5-1 rack:

1) CBB2, STAB TRIM CNTL - R

(b) On the E2-6 rack:

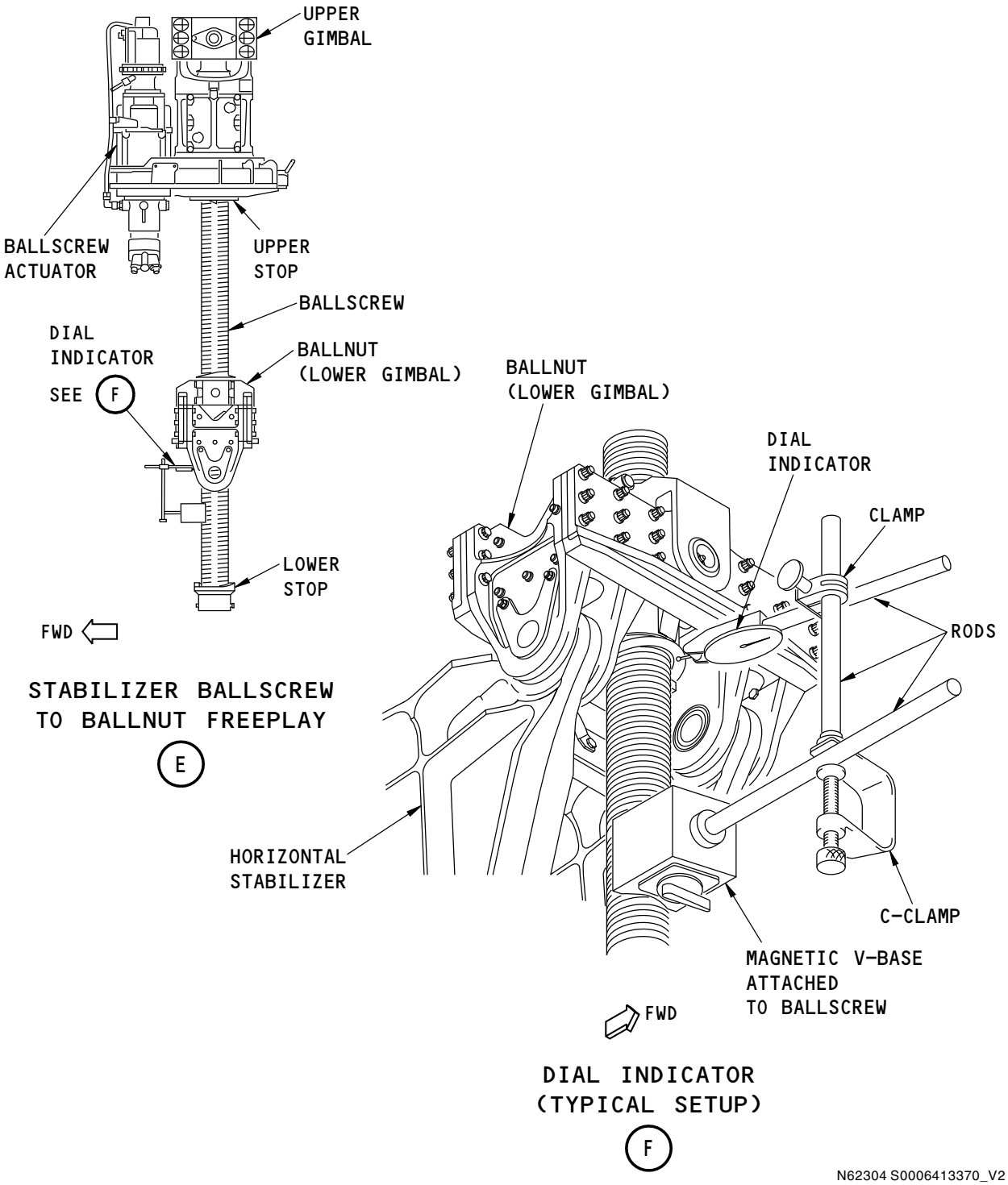
1) CBB2, STAB TRIM CNTL - C

SUBTASK 27-41-13-860-042

(5) If necessary, remove the DO-NOT-OPERATE TAGS, and set the three FLT CONTROL HYD VALVE POWER switches to the SHUT OFF position.

——— END OF TASK ———

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Stabilizer Trim Actuator - Ballscrew to Ballnut Freeplay Check
Figure 602/27-41-13-990-809

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TASK 27-41-13-200-801

4. Stabilizer Trim Actuator - Safety Rod Visual Inspection

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-41-13-020-803	Stabilizer Trim Safety Rod - Removal (P/B 401)
27-41-13-420-803	Stabilizer Trim Safety Rod - Installation (P/B 401)
SOPM 20-30-02	Stripping of Protective Finishes
SOPM 20-41-03	Application of Corrosion Preventives to Interior of Closed End Tubes
SOPM 20-41-05	Application of Corrosion Inhibiting Compounds

B. Consumable Materials

Reference	Description	Specification
B00722	Solvent - Stoddard	MIL-PRF-680 Type I or II (Supersedes P-D-680 Type I or II)
B50080	Compound - Corrosion Preventive, Solvent Cutback, Cold-Application (Grade 2 - Soft Film)	MIL-PRF-16173 Grade 2 (Supersedes MIL-C-16173 Grade 2)
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796

C. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Procedure

SUBTASK 27-41-13-000-001

(1) Do this task: Stabilizer Trim Safety Rod - Removal, TASK 27-41-13-020-803.

SUBTASK 27-41-13-100-001

(2) Clean the safety rod.

NOTE: The corrosion preventive and corrosion inhibiting compounds must be removed to examine the safety rod.

(a) Use solvent, B00722 to clean all surfaces of the safety rod per SOPM 20-30-02.

SUBTASK 27-41-13-210-007

(3) Examine the safety rod for cracks or heavy corrosion.

SUBTASK 27-41-13-400-001

(4) If the safety rod is OK, then apply the protective compounds and re-install it. To install it, do this task: Stabilizer Trim Safety Rod - Installation, TASK 27-41-13-420-803.

(a) Apply corrosion preventive compound, C00308, to the bore and bore chamfers of the safety rod per SOPM 20-41-03.

(b) Apply compound, B50080, to all surfaces of the safety rod except the bore and bore chamfers per SOPM 20-41-05.

(c) To install the safety rod, do this task: Stabilizer Trim Safety Rod - Installation, TASK 27-41-13-420-803.

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SUBTASK 27-41-13-400-002

(5) If the safety rod has cracks or corrosion, then install a new safety rod. To install it, do this task: Stabilizer Trim Safety Rod - Installation, TASK 27-41-13-420-803.

——— END OF TASK ———

TASK 27-41-13-211-801

5. Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed Visual Inspection

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this procedure to visually inspect the ballscrew and ballnut on the horizontal stabilizer for signs of corrosion, wear, and damage.

(2) If you replace the actuator with a serviceable actuator that is not new or not overhauled, then you must do the Detailed Inspection and the Ballscrew-to-Ballnut Freeplay Inspection of the replacement actuator before further flight.

B. References

Reference	Title
12-21-05-600-801	Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-13-010-801	Stabilizer Trim Actuator - Removal (P/B 401)
27-41-13-420-801	Stabilizer Trim Actuator - Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Access Panels

Number	Name/Location
311BL	Service Access Door

E. Procedure

SUBTASK 27-41-13-000-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-13-210-008

(2) On the control stand, set the C STAB cutout switch and the R STAB cutout switch to the CUTOUT position.

(a) Attach DO-NOT-OPERATE tags to the switches.

SUBTASK 27-41-13-780-001

(3) Do this task: (Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807).

SUBTASK 27-41-13-210-009

(4) On the overhead maintenance panel, set the three TAIL FLIGHT CONTROL HYD VALVE POWER cutout switches to the SHUT OFF position.

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(a) Attach DO NO OPERATE tags to the switches.

SUBTASK 27-41-13-010-004

(5) Get access to the horizontal stabilizer trim actuator through this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-210-010

(6) Clean the ballscrew by wiping any old grease and dirt from the ballscrew threads.

NOTE: Use a clean, dry, non-abrasive cloth.

(a) Do a detailed inspection for metal debris in the grease.

1) If the Detailed Inspection finds corrosion particles or metal particles in the grease on the ballscrew or ballnut, then the horizontal stabilizer trim actuator must be removed and replaced

(Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801) (Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801).

SUBTASK 27-41-13-211-001

(7) Do a detailed inspection of the stabilizer ballscrew for the following:

(a) Check for differences in the thread shape between thread grooves in the lower, middle, and upper sections of the ballscrew.

(b) Check for metal flaking on the stabilizer ballscrew threads.

(c) Inspect the stabilizer ballscrew threads for cross-threading, distortion, or stripping.

(d) Inspect the stabilizer ballscrew for corrosion.

(e) Inspect the stabilizer ballscrew for damage or cracking.

(f) If the Detailed Inspection finds any of the above, then the horizontal stabilizer trim actuator must be removed and replaced (Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801) (Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801).

SUBTASK 27-41-13-210-014

(8) On the control stand, remove DO-NOT-OPERATE tags on the switches and put the C STAB cutout switch and the R STAB cutout switch to the NORM position.

SUBTASK 27-41-13-780-002

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(9) Do this task: (Main Hydraulic System Pressurization, TASK 29-11-00-860-801)

SUBTASK 27-41-13-211-015

(10) Move the ballnut to a different position.

NOTE: This action will expose the area of the ballscrew that was covered.

SUBTASK 27-41-13-211-016

(11) On the control stand, set the C STAB cutout switch and the R STAB cutout switch to the CUTOUT position.

(a) Attach DO-NOT-OPERATE tags to the switches.

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SUBTASK 27-41-13-211-017

(12) After the ballnut has been moved, do a detailed inspection of the new area on the stabilizer ballscrew for the following:

(a) Check for differences in the thread shape between thread grooves in the lower, middle, and upper sections of the ballscrew.

(b) Check for metal flaking on the stabilizer ballscrew threads.

(c) Inspect the stabilizer ballscrew threads for cross-threading, distortion, or stripping.

(d) Inspect the stabilizer ballscrew for corrosion.

(e) Inspect the stabilizer ballscrew for damage or cracking.

(f) If the Detailed Inspection finds any of the above, then the horizontal stabilizer trim actuator must be removed and replaced (Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801) (Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801).

SUBTASK 27-41-13-210-011

(13) Inspect the stabilizer ballscrew ballnut for damage, cracking, corrosion, or obvious signs of wear.

(a) If the Detailed Inspection finds damage, cracking, corrosion, or obvious signs of wear, then the horizontal stabilizer trim actuator must be removed and replaced

(Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801) (Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801).

SUBTASK 27-41-13-211-002

(14) Inspect the ballnut return tubes for the following:

(a) Visually inspect the surrounding area of the return tubes, including the plates, nuts, bolts, safety devices, and the visible portion of the return tubes for security, corrosion, and damage.

1) If the Detailed Inspection finds damaged ballnut return tubes, then the horizontal stabilizer trim actuator must be removed and replaced (Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801) (Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801).

(b) Check the exterior of the ballnut, stabilizer actuator, and the area below the actuator for ball bearings.

NOTE: The ball bearings used inside the ballnut are 0.21875 in. (5.5562 mm) diameter.

1) If you find any ball bearings that may have fallen out of the ballnut, then the horizontal stabilizer trim actuator must be removed and replaced: (Stabilizer Trim Actuator - Removal, TASK 27-41-13-010-801) (Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801).

SUBTASK 27-41-13-600-001

(15) Lubricate the ballscrew and ballnut. Do this task, (Horizontal Stabilizer Ballscrew Actuator Assembly - Lubrication, TASK 12-21-05-600-801).

SUBTASK 27-41-13-210-012

(16) Return the three TAIL FLIGHT CONTROL HYD VALVE POWER cutout switches to the NORMAL position.

(a) Remove the DO-NOT-OPERATE tags from the switches.

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SUBTASK 27-41-13-210-013

(17) On the control stand, set the C STAB cutout switch and the R STAB cutout switch to the NORM position.

(a) Remove the DO-NOT-OPERATE tags from the switches.

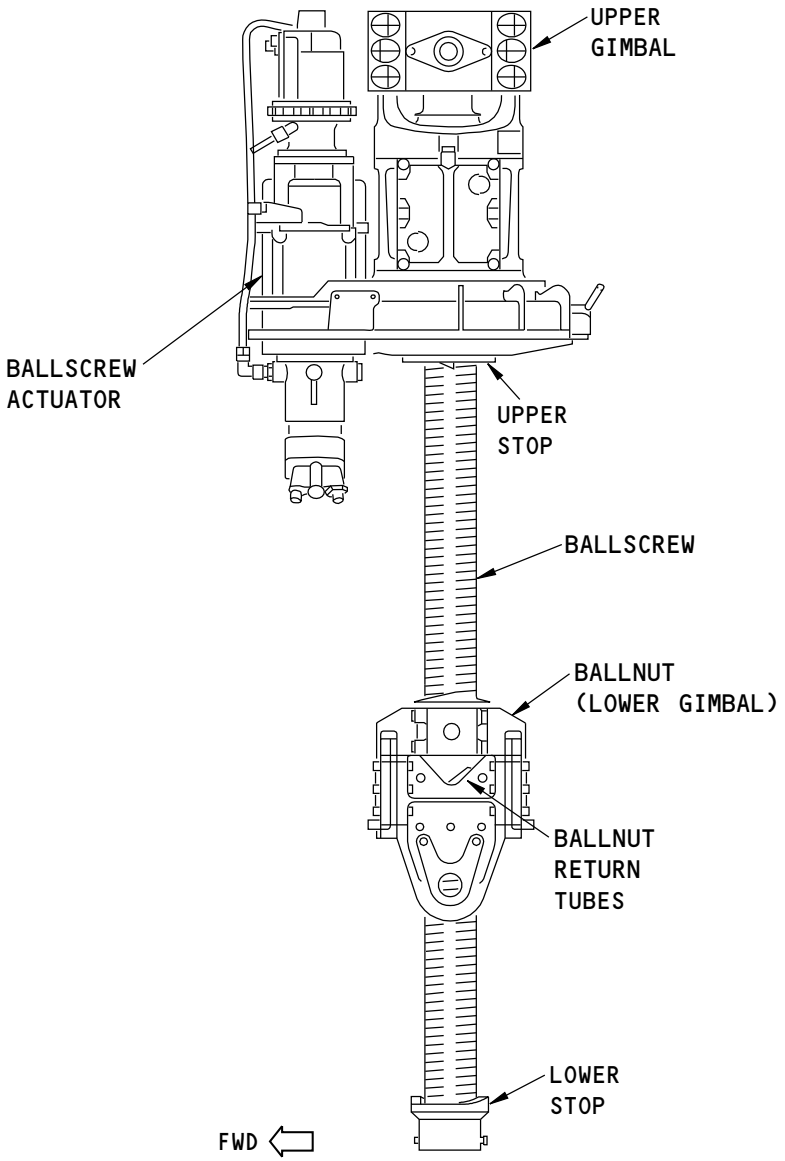
SUBTASK 27-41-13-400-003

(18) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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Horizontal Stabilizer Trim Actuator - Ballnut and Ballscrew Detailed
Figure 603/27-41-13-990-811

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TASK 27-41-13-211-802

6. Horizontal Stabilizer Trim Actuator - Gimbal Fitting Detailed Visual Inspection

Figure 604

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The gimbal fitting detailed visual inspection procedure is to visually inspect the gimbal fittings on the horizontal stabilizer for signs of corrosion and wear.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-41-13-420-801	Stabilizer Trim Actuator - Installation (P/B 401)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Access Panels

Number	Name/Location
311BL	Service Access Door

E. Gimbal Fitting Detailed Visual Inspection - Procedure

SUBTASK 27-41-13-861-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-41-13-860-044

(2) On the control stand, set the C STAB cutout switch and the R STAB cutout switch to the CUTOUT position.

(a) Attach DO-NOT-OPERATE tags to the switches.

SUBTASK 27-41-13-864-001

(3) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-41-13-860-045

(4) On the overhead maintenance panel, set the three TAIL FLIGHT CONTROL HYD VALVE POWER cutout switches to the SHUT OFF position.

(a) Attach DO-NOT-OPERATE tags to the switches.

SUBTASK 27-41-13-010-007

(5) Get access to the horizontal stabilizer trim actuator through this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-41-13-211-004

(6) Examine the horizontal stabilizer trim actuator ballscrew gimbal fittings for obvious signs of wear or cracking Figure 604.

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(a) If the gimbal fittings show obvious signs of wear or cracking, install new gimbal fittings. To install new gimbal fittings, do this task: Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801.

SUBTASK 27-41-13-211-005

(7) Examine the horizontal stabilizer trim actuator ballscrew gimbal fittings for signs of heavy corrosion.

(a) If the gimbal fittings show signs of heavy corrosion, install new parts as necessary. To install new gimbal fittings, do this task: Stabilizer Trim Actuator - Installation, TASK 27-41-13-420-801.

SUBTASK 27-41-13-860-046

(8) On the overhead maintenance panel, set the three TAIL FLIGHT CONTROL HYD VALVE POWER cutout switches to the NORM position.

(a) Remove the DO-NOT-OPERATE tags from the switches.

SUBTASK 27-41-13-860-047

(9) On the control stand, set the C STAB cutout switch and the R STAB cutout switch to the NORM position.

(a) Remove the DO-NOT-OPERATE tags from the switches.

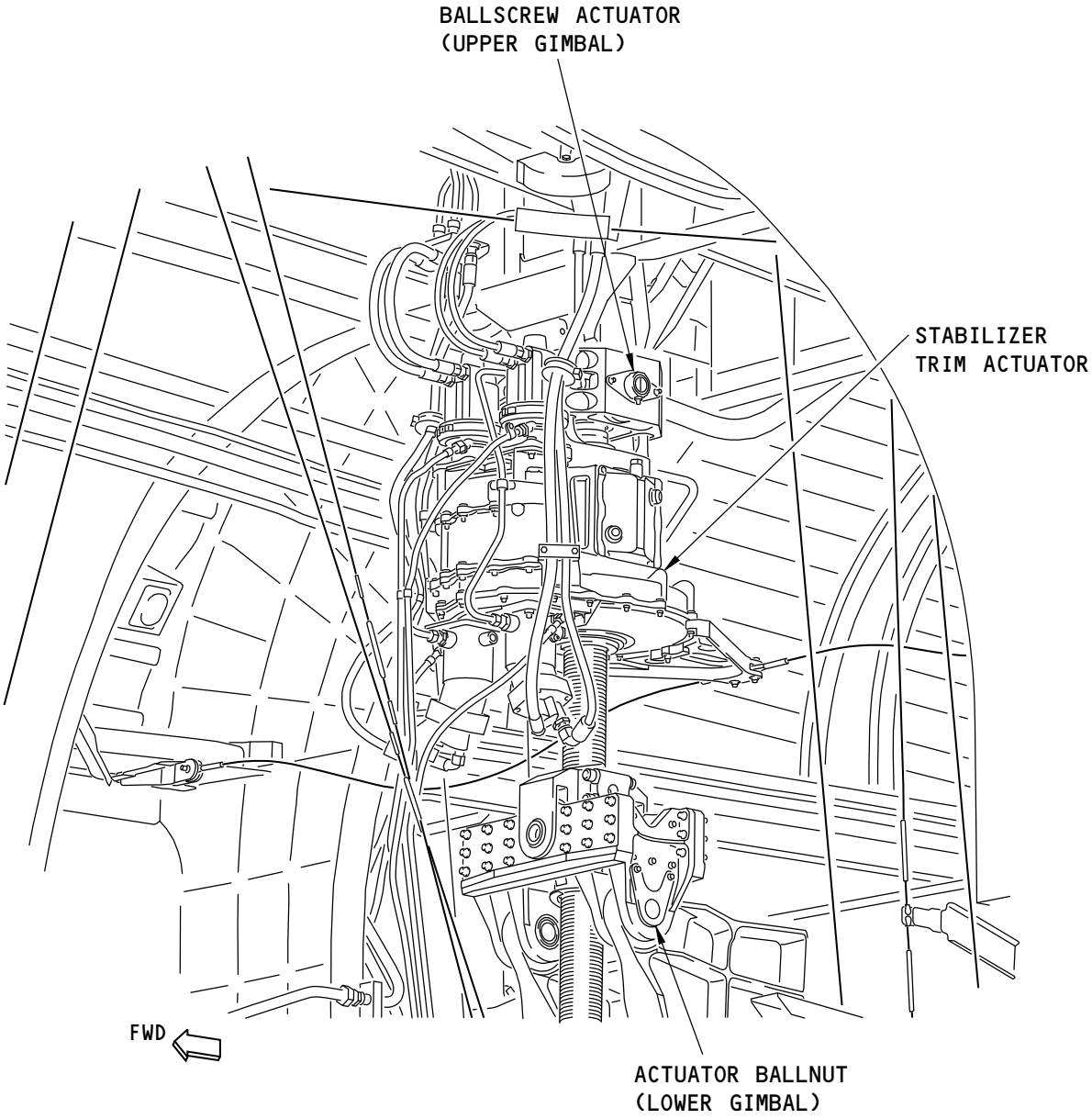
SUBTASK 27-41-13-410-005

(10) Close this access panel:

Number	Name/Location
311BL	Service Access Door

——— END OF TASK ———

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K20577 S0006413372_V1

Horizontal Stabilizer Trim Actuator - Gimbal Fitting Detailed Visual Inspection
Figure 604/27-41-13-990-810

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HORIZONTAL STABILIZER POSITION INDICATION - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) Horizontal Stabilizer Position Module and Travel Limiter Adjustment - Use this procedure to adjust the three stabilizer position modules. Also use this procedure to adjust the travel limiter.

(2) Horizontal Stabilizer Position Indicator Test - Use this procedure to make sure the stabilizer position indicators operate correctly.

(3) Horizontal Stabilizer Position Module Test - Use this procedure to make sure the stabilizer position modules operate correctly.

TASK 27-48-00-820-801

2. Horizontal Stabilizer Position Module and Travel Limiter Adjustment

(Figure 501)

A. General

(1) Use this procedure to adjust the three stabilizer position modules. The position modules are connected to the horizontal stabilizer by cables that are adjustable.

(2) Also use this procedure to adjust the travel limiter. The travel limiter is operated by the same cables as the left of the three position modules. It is found near the stabilizer trim control modules (STCMs).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1553	Tensiometer - Cable, Low Tension (200 lbs and below) Part #: 102-03108 Supplier: 21844 Part #: 102-03120 Supplier: 21844 Part #: ACX-250 Supplier: 13331 Part #: T60-1001-C8-1A Supplier: 0N8U4 Opt Part #: 102-03110 Supplier: 21844 Opt Part #: ACM-200 Supplier: 13331
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III

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(Continued)

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G01505	Lockwire - Safety And Lock	NASM20995

E. Location Zones

Zone	Area
211	Flight Compartment, Left
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Adjust the Position Modules

SUBTASK 27-48-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-48-00-010-001

(2) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-48-00-480-001

(3) Install the ladder equipment, SPL-2011.

SUBTASK 27-48-00-860-002

(4) Do these steps to put the horizontal stabilizer accurately in the 4-unit position.

NOTE: The horizontal stabilizer must be in the 4-unit position to adjust the stabilizer position modules correctly.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the center, or right hydraulic system, do this task: Supply Electrical Power, TASK 24-22-00-860-805

NOTE: The stabilizer gets its power from the center and right hydraulic systems. We recommend you have only one of these hydraulic systems on. This will cause the stabilizer to move slower than if the two hydraulic systems are on. It will be easier to get the stabilizer in the correct position when it moves slowly.

It is not important if the left hydraulic power is on or off.

(b) Do one of these steps to move the horizontal stabilizer until Dimension B is 8.54 ±0.01 inch, View C (Figure 501).

1) Move the ALTN PITCH TRIM levers that are on the control stand in the flight compartment.

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2) Move the linkage (levers or rods) at the stabilizer trim control modules (STCMs) which are above and forward of the stabilizer ballscrew, View G (Figure 501).

NOTE: Move the top levers or rods to the right, and the bottom levers or rods to the left to move the leading edge of the stabilizer down. Move them in the opposite direction to move the stabilizer up. You must move both the top and bottom linkage to move the stabilizer.

CAUTION DO NOT USE PLIERS OR CLAMPS ON THE CABLES. ONLY HOLD THE CABLES WITH YOUR HANDS. PLIERS OR CLAMPS CAN CAUSE DAMAGE TO THE CABLES.

3) Move the cables that go up to the STCMs, View G (Figure 501).

NOTE: Move the cables so the rods move as described in the note above.

(c) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-48-00-200-001

(5) Examine the shear-out supports for all three stabilizer position module cables, View I (Figure 501). If the shear-out support is loose or a 0.0625 in. (1.59 mm) drill rod cannot be inserted through the inspection hole, repair the shear-out supports.

NOTE: The brackets which connect the stabilizer position module cables to the horizontal stabilizer have shear-out supports. The shear-out support rivets break if the force to move the cables becomes too large.

SUBTASK 27-48-00-860-003

(6) Adjust the turnbuckles for each of the three transducers, View F (Figure 501), until you get these two conditions:

NOTE: To obtain correct tension in the cables, the airplane must not be on Jacks during final rigging and adjustment of control cables. A Jack or Tail stand at the Tail Jack Point is permissible provided load on the Jack Point does not exceed 2000 pounds.

(a) Use the low tension cable tensiometer, COM-1553 to measure the tension in the cables.

NOTE: Use this 50 pound tension for all airplane temperatures.

1) The tension in the cables should be 50 ±5 lb (23 ±3 kg).

(b) The rig pins No. 5, 6, and 7 (from the rigging pin set, SPL-2532) install easily in the stabilizer position module, View E, (Figure 501).

SUBTASK 27-48-00-620-001

(7) Apply grease, D00633, or compound, C00528 to all the exposed threads of the turnbuckles.

SUBTASK 27-48-00-480-004

(8) Install clip locks on the turnbuckles.

SUBTASK 27-48-00-080-003

(9) Remove all rig pins (No. 5, 6, 7).

H. Adjust the Travel Limiter

NOTE: You must adjust the travel limiter if you adjusted the cables that control it during the above procedure.

NOTE: When the travel limiter is adjusted correctly, it will stop the stabilizer ballscrew approximately 0.25 units from the end of its travel.

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SUBTASK 27-48-00-860-004

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For the center or the right hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The stabilizer gets its power from the center and right hydraulic systems. We recommend you have only one of these hydraulic systems on. This will cause the stabilizer to move slower than if the two hydraulic systems are on. It will be easier to get the stabilizer in the correct position when it moves slowly. It is not important if the left hydraulic power is on or off.

SUBTASK 27-48-00-820-001

CAUTION STOP THE STABILIZER BALLSCREW BEFORE IT GETS TO THE END OF ITS TRAVEL. THEN, MOVE IT A SMALL DISTANCE AT A TIME UNTIL IT IS FULLY UP. IF THE BALLSCREW HITS THE END OF ITS TRAVEL TOO FAST, IT CAN CAUSE DAMAGE TO THE BALLSCREW.

(2) Use the linkage (levers or rods) at the STCMs, View G, to move the stabilizer ballscrew fully up (horizontal stabilizer leading edge up).

NOTE: Move the top levers or rods to the left, and the bottom levers or rods to the right to move the leading edge of the stabilizer up. Move them in the opposite direction to move the stabilizer down. You must move both the top and bottom linkage to move the stabilizer.

(a) Do these steps until the up position of the travel limiter is adjusted correctly (the travel limiter is adjusted correctly when the ballscrew stops at the Dimension B specified below):

1) Measure Dimension B, View C (Figure 501).

2) If Dimension B, View C, is less than 0.47 inch (11.9 millimeters), turn the adjustment screw, View H, on the travel limiter ring to make the head end of the screw longer.

NOTE: 0.47 inch (11.9 millimeters) is equal to the stops of the ballscrew being 1/6 of a turn from the stops on the ballnut.

3) If Dimension B, View C, is more than 0.75 inch (19.1 millimeters), turn the adjustment screw, View H, on the travel limiter ring to make the head end of the screw shorter.

NOTE: 0.75 inch (19.1 millimeters) is equal to the stops of the ballscrew being 3/5 of a turn from the stops on the ballnut.

4) Move the stabilizer ballscrew down approximately 1.0 inch (25 millimeters) and back up and measure Dimension B again.

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SUBTASK 27-48-00-820-002

CAUTION

STOP THE STABILIZER BALLSCREW BEFORE IT GETS TO THE END OF ITS TRAVEL. THEN, MOVE IT A SMALL DISTANCE AT A TIME UNTIL IT IS FULLY DOWN. IF THE BALLSCREW HITS THE END OF ITS TRAVEL TOO FAST, IT CAN CAUSE DAMAGE TO THE BALLSCREW.

(3) Use the linkage (levers or rods) at the STCMs, View G, to move the stabilizer ballscrew fully down (horizontal stabilizer leading edge down).

NOTE: Move the top levers or rods to the right, and the bottom levers or rods to the left to move the leading edge of the stabilizer down. Move them in the opposite direction to move the stabilizer up. You must move both the top and bottom linkage to move the stabilizer.

(a) Do these steps until the down position of the travel limiter is adjusted correctly:

NOTE: One turn of the ballnut is equivalent to 0.625 inches (15.88 millimeters) of axial movement along the ballscrew.

1) Measure Dimension C, View D.

2) If Dimension C, View D, is less than 0.47 in. (11.94 mm), turn the adjustment screw, View H, on the travel limiter ring to make the head end of the screw longer.

NOTE: 0.47 in. (11.94 mm) is equal to the stops of the ballscrew being 1/6 of a turn from the stops on the ballnut.

3) If Dimension C, View D, is more than 0.75 in. (19.05 mm), turn the adjustment screw, View H, on the travel limiter ring to make the head end of the screw shorter.

NOTE: 0.75 in. (19.05 mm) is equal to the stops of the ballscrew being 3/5 of a turn from the stops on the ballnut.

4) Move the stabilizer ballscrew up approximately 1.0 inch (25 millimeters) and back down and measure Dimension C again.

SUBTASK 27-48-00-420-001

(4) Install lockwire, G01505, on the adjustment screws.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-48-00-080-001

(1) Remove the ladder equipment, SPL-2011.

SUBTASK 27-48-00-410-001

(2) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-48-00-860-005

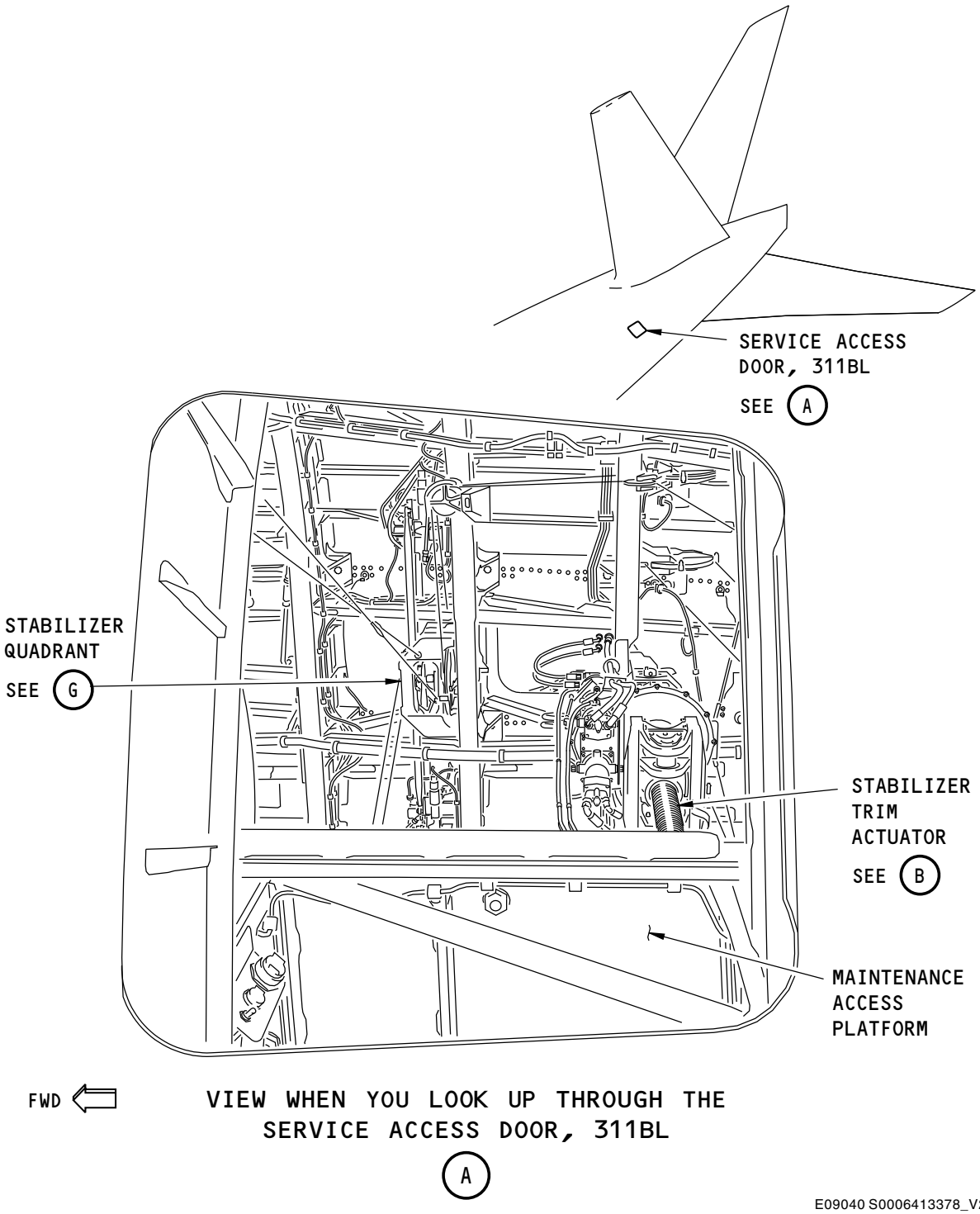
(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-48-00-860-026

(4) Prior to releasing the airplane for flight, do this task: Horizontal Stabilizer Position Module Test, TASK 27-48-00-700-802.

END OF TASK

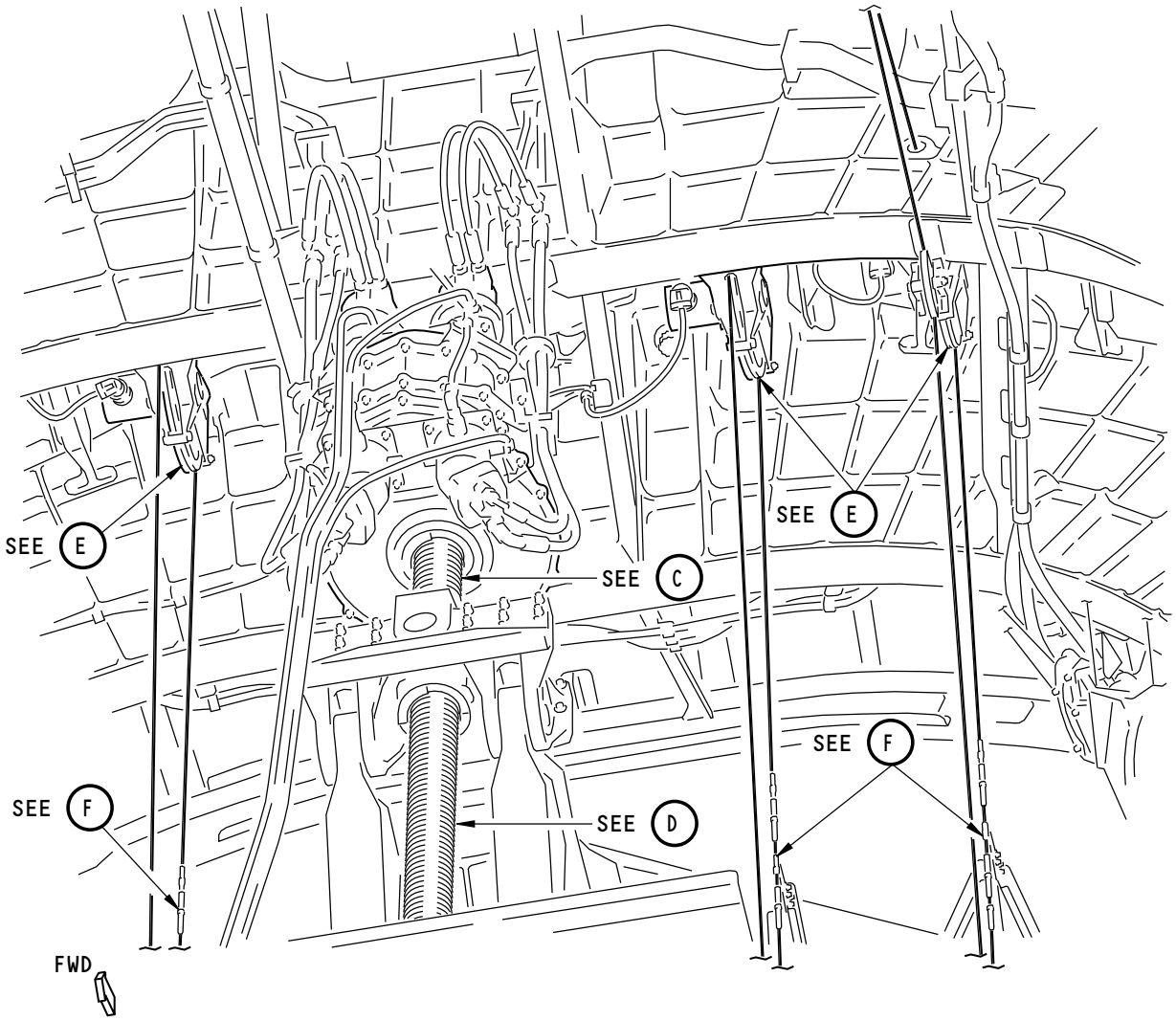
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E09040 S0006413378_V2

Stabilizer Position Indication Adjustment
Figure 501/27-48-00-990-801 (Sheet 1 of 7)

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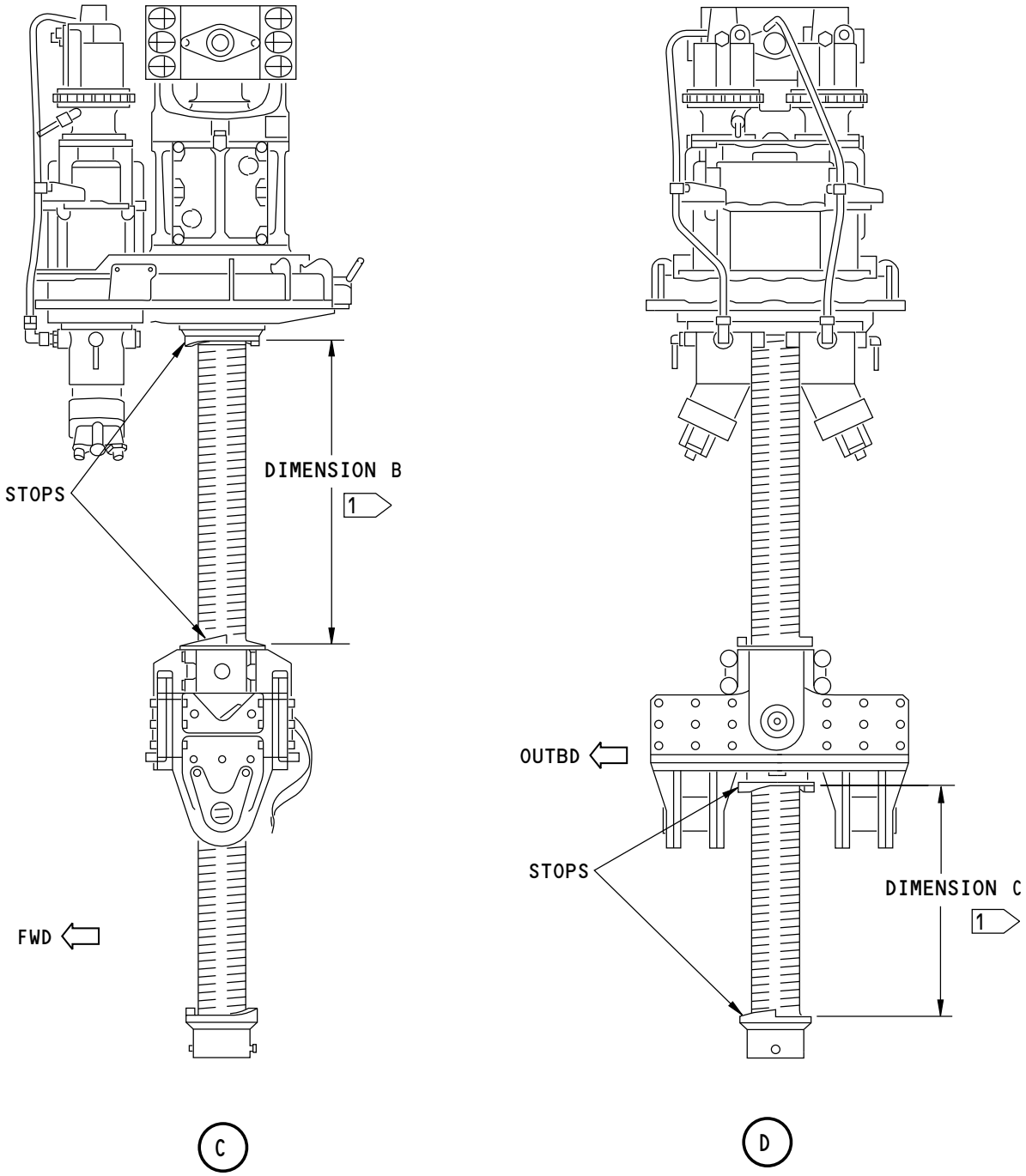
STABILIZER TRIM ACTUATOR

B

E09047 S0006413379_V1

Stabilizer Position Indication Adjustment
Figure 501/27-48-00-990-801 (Sheet 2 of 7)

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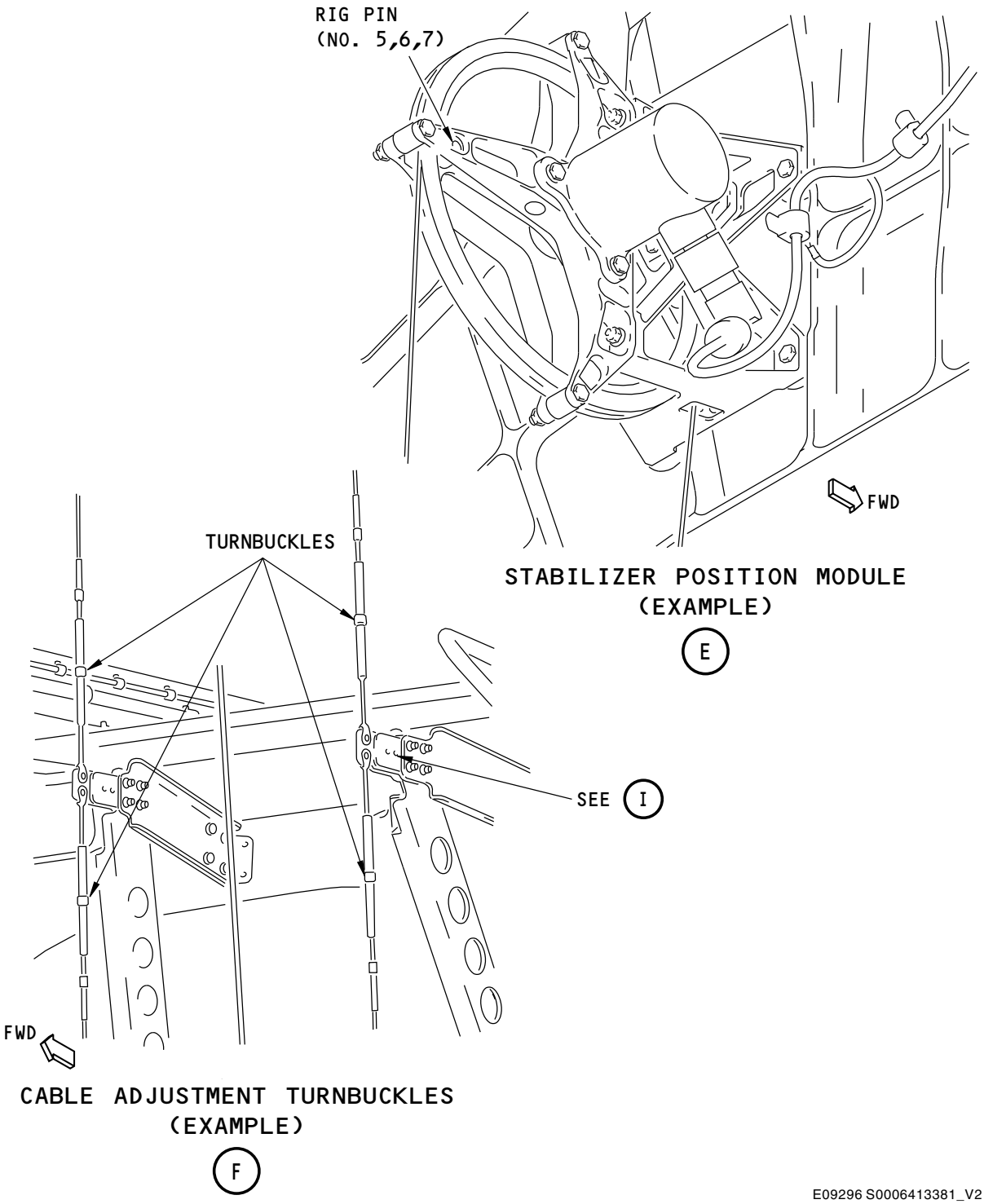


1 MEASURE FROM THE FLAT SURFACES AT THE BASE OF THE STOPS, NOT FROM THE TOP OF THE STOPS.

E09050 S0006413380_V1

Stabilizer Position Indication Adjustment
Figure 501/27-48-00-990-801 (Sheet 3 of 7)

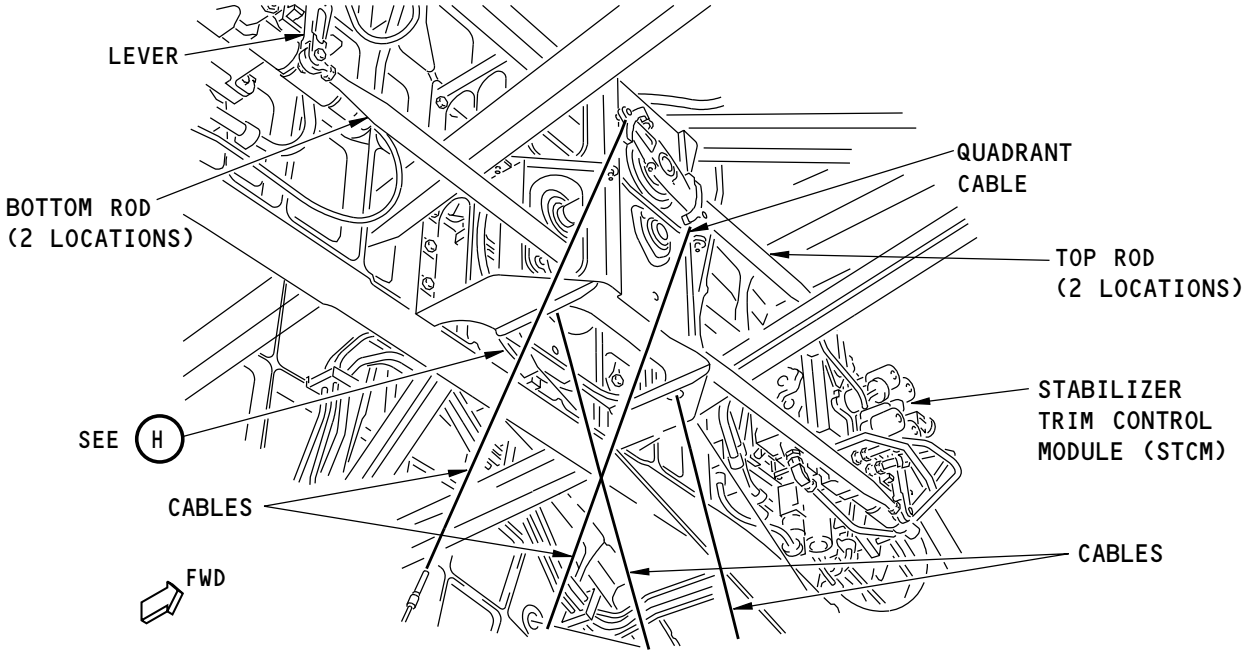
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Stabilizer Position Indication Adjustment
Figure 501/27-48-00-990-801 (Sheet 4 of 7)

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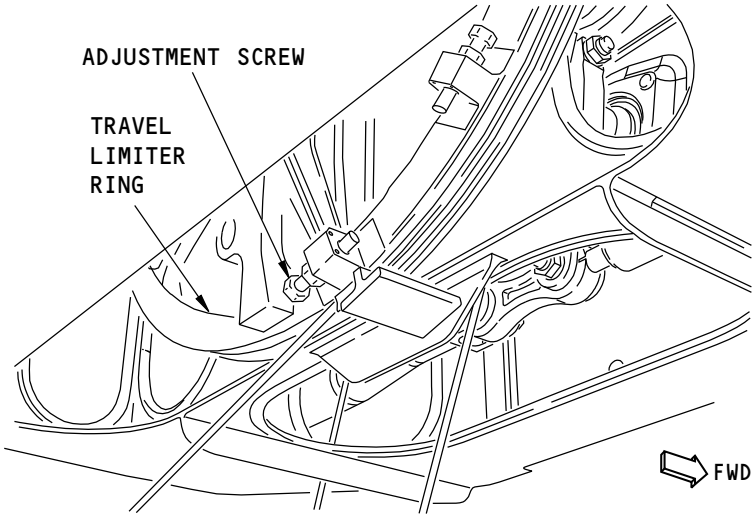
STABILIZER QUADRANT

G

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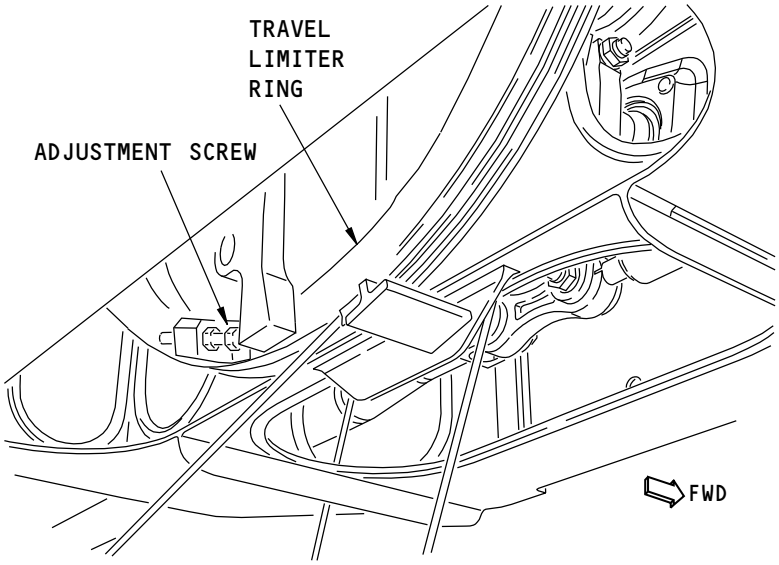
Stabilizer Position Indication Adjustment
Figure 501/27-48-00-990-801 (Sheet 5 of 7)

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STABILIZER QUADRANT TRAVEL LIMITER
(BALLSCREW FULLY UP)

H



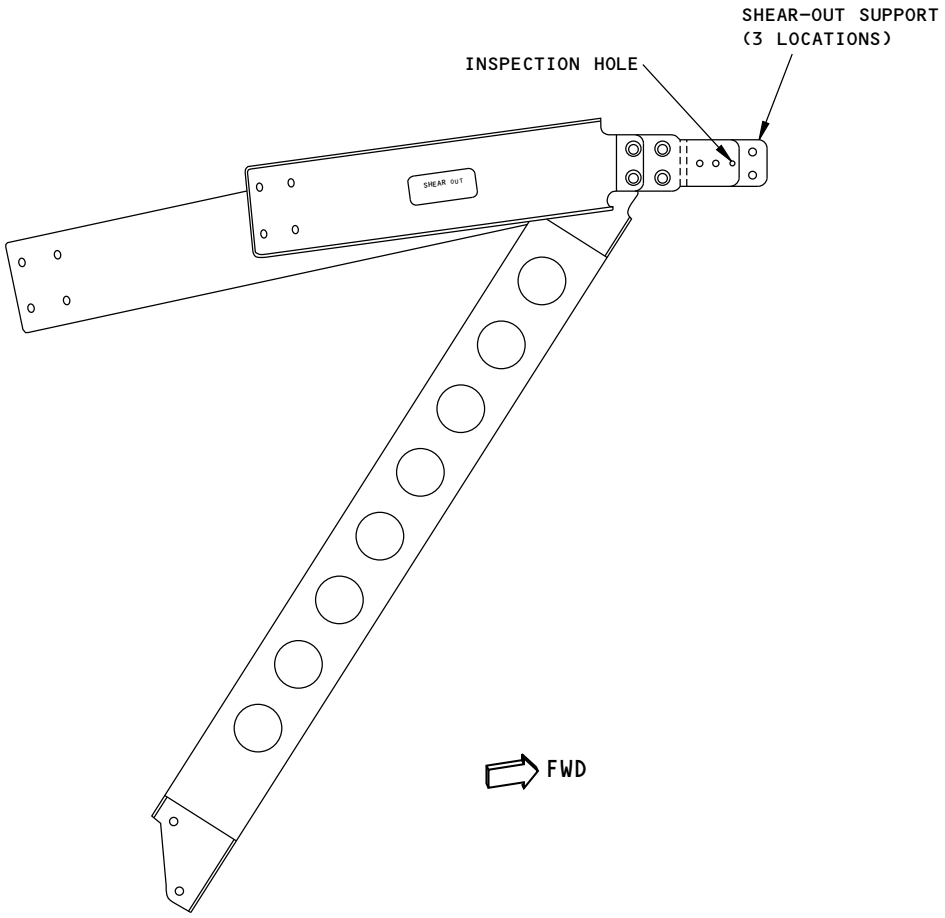
STABILIZER QUADRANT TRAVEL LIMITER
(BALLSCREW FULLY DOWN)

H

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Stabilizer Position Indication Adjustment
Figure 501/27-48-00-990-801 (Sheet 6 of 7)

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2121838 S0000456890_V1

Stabilizer Position Indication Adjustment
Figure 501/27-48-00-990-801 (Sheet 7 of 7)

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TASK 27-48-00-700-801

3. Horizontal Stabilizer Position Indicator Test

(Figure 502)

A. General

(1) Use this procedure to make sure the stabilizer position indicators operate correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-815	Showing Scheduled Maintenance Tasks (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-48-00-860-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-48-00-860-007

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-48-00-860-008

(3) Set the R and C STAB CUTOUT switch, located on the P10 control stand to the NORM position.

SUBTASK 27-48-00-860-025

(4) Put the PRIMARY FLIGHT COMPUTERS DISCONNECT SWITCH, on the P5 overhead panel, in the DISC position.

SUBTASK 27-48-00-210-002

(5) Look at page 2 of the maintenance pages for the flight controls and do this task, do this task: Showing Scheduled Maintenance Tasks, TASK 31-61-00-800-815.

SUBTASK 27-48-00-860-009

(6) Move the stabilizer until the two stabilizer trim position indicators, on the P10 control stand, show 0.45 to 0.55 units of trim.

NOTE: You can move the stabilizer with the CAPTAIN'S or the FIRST OFFICER'S control wheel PITCH TRIM switches or the ALTN PITCH trim levers on the P10 control stand.

(a) Make sure that the middle value of the three stabilizer position indication readings on the flight controls maintenance page shows 145.4 to 135.4.

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SUBTASK 27-48-00-860-010

(7) Move the airplane to nose up (stabilizer leading edge down) until the two stabilizer trim position indicators show 3.95 to 4.05 units of trim.

NOTE: You can move the stabilizer with the CAPTAIN'S or the FIRST OFFICER'S control wheel PITCH TRIM switches or the ALTN PITCH trim levers on the P10 control stand.

(a) Make sure that the middle value of the three stabilizer position indication readings on the flight controls maintenance page 2 shows 74.8 to 64.8.

SUBTASK 27-48-00-860-012

(8) Move the airplane to nose up (stabilizer leading edge down) until the two stabilizer trim position indicators read 9.45 to 9.55 units of trim.

NOTE: You can move the stabilizer with the CAPTAIN'S or the FIRST OFFICER'S control wheel PITCH TRIM switches or the ALTN PITCH trim levers on the P10 control stand.

(a) Make sure that the middle value of the three stabilizer position indication readings on the flight controls maintenance page 2 shows -36.1 to -46.1.

SUBTASK 27-48-00-220-002

(9) Move the airplane to nose up (stabilizer leading edge down) until the two stabilizer trim position indicators read 14.45 to 14.55 units of trim.

NOTE: You can move the stabilizer with the CAPTAIN'S or the FIRST OFFICER'S control wheel PITCH TRIM switches or the ALTN PITCH trim levers on the P10 control stand.

(a) Make sure that the middle value of the three stabilizer position indication readings on the flight controls maintenance page 2 shows -136.2 to -146.2.

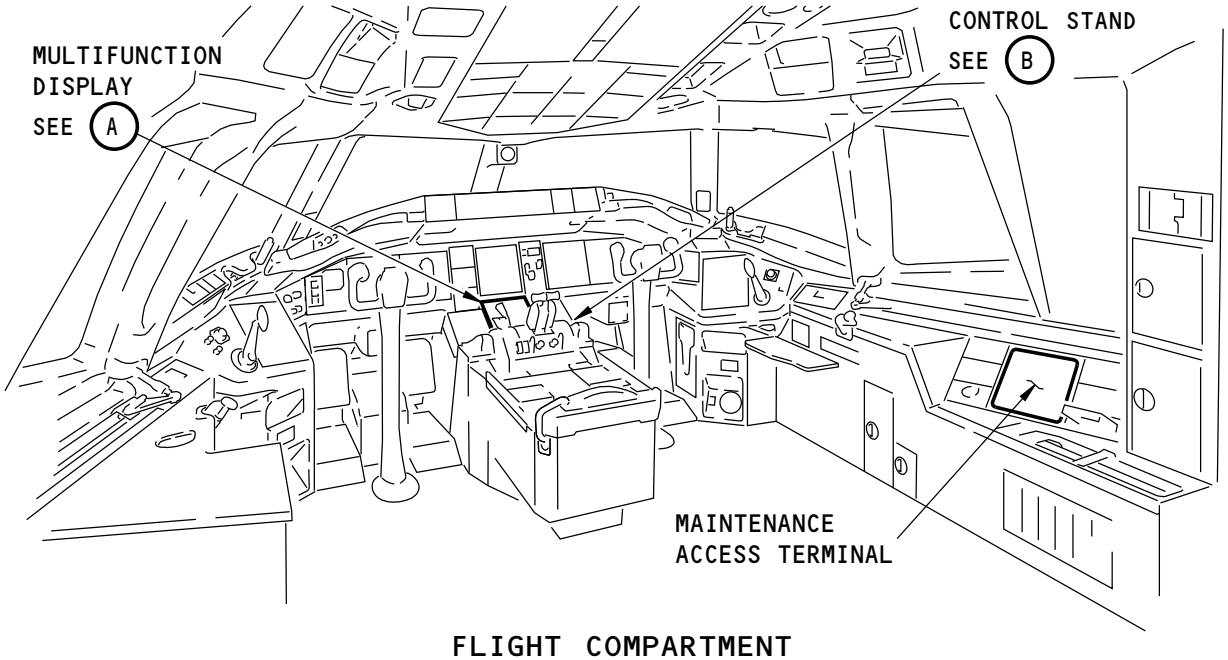
E. Put the Airplane Back to its Usual Condition

SUBTASK 27-48-00-860-011

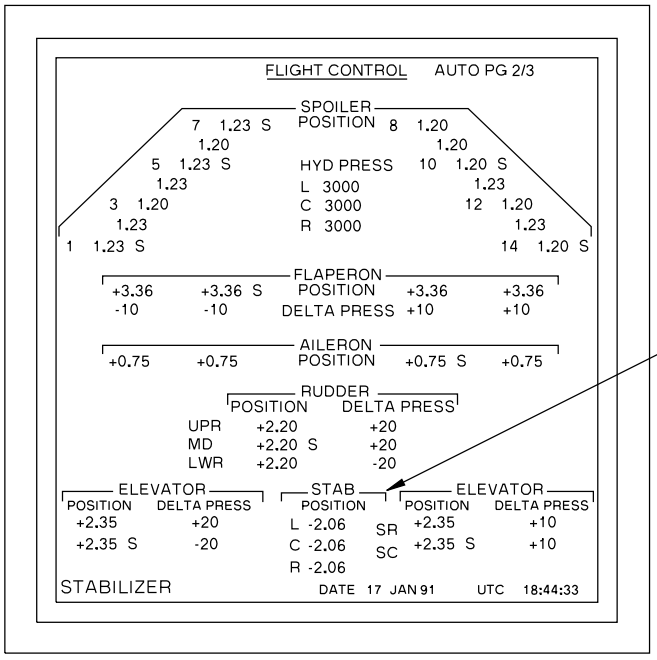
(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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FLIGHT COMPARTMENT



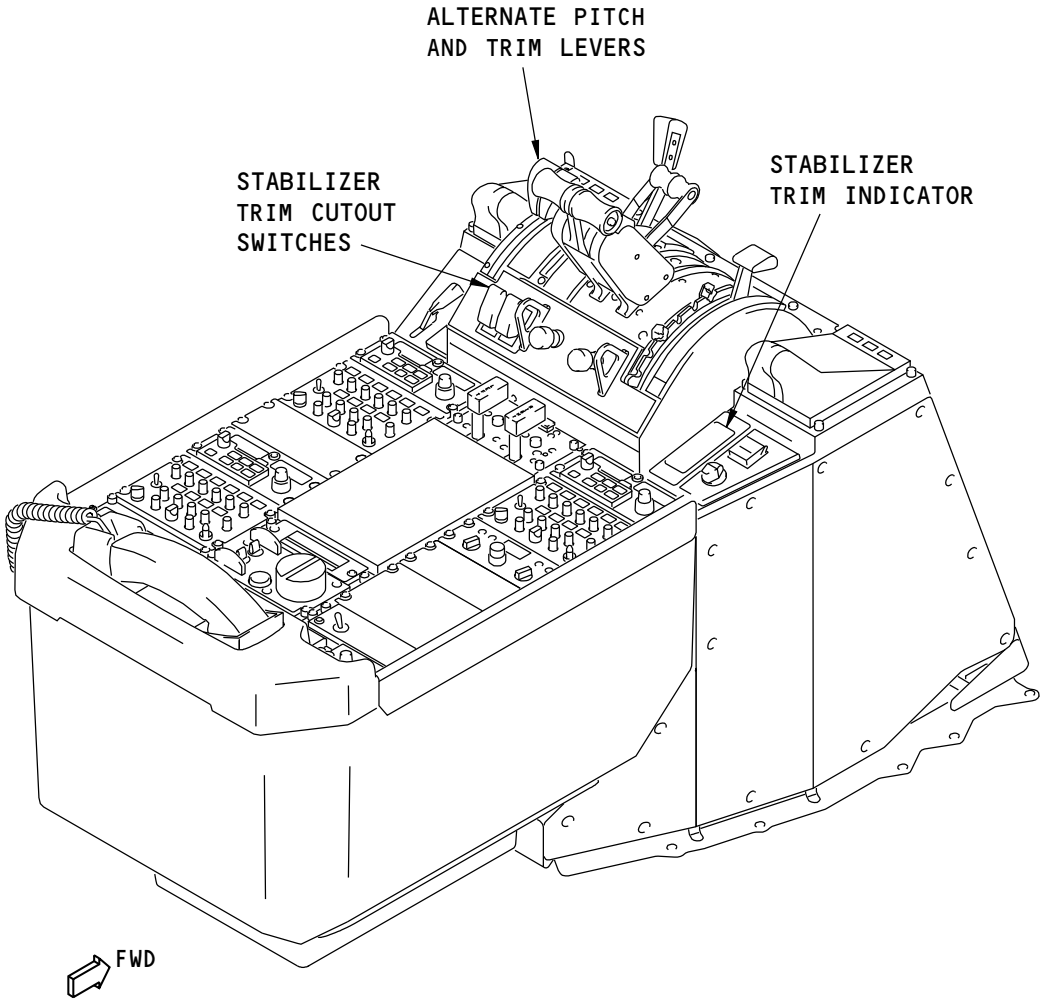
MULTIFUNCTION DISPLAY PANEL

A

E09469 S0006413385_V2

Stabilizer Position Indication Test
Figure 502/27-48-00-990-802 (Sheet 1 of 2)

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E09558 S0006413386_V1

Stabilizer Position Indication Test
Figure 502/27-48-00-990-802 (Sheet 2 of 2)

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TASK 27-48-00-700-802

4. Horizontal Stabilizer Position Module Test

A. General

(1) Use this procedure to make sure the stabilizer position modules operate correctly.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

E. Access Panels

Number	Name/Location
311BL	Service Access Door

F. Procedure

SUBTASK 27-48-00-860-013

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-48-00-860-014

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-48-00-860-015

(3) Put the PRIMARY FLIGHT COMPUTERS DISCONNECT SWITCH, on the P5 overhead panel, in the DISC position.

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SUBTASK 27-48-00-010-002

(4) Open this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-48-00-480-003

(5) Install the ladder equipment, SPL-2011.

SUBTASK 27-48-00-860-016

(6) Set the C STAB CUTOUT switch, on the P10 control stand, to NORM.

SUBTASK 27-48-00-860-017

(7) Set the R STAB CUTOUT switch, on the P10 control stand, to CUTOUT.

SUBTASK 27-48-00-840-001

(8) Use the CAPTAIN'S PITCH TRIM switch to move the stabilizer to 4 to 11 units of trim.

SUBTASK 27-48-00-720-001

(9) Push the PITCH TRIM switches, on the CAPTAIN'S control wheel, to the UP position and hold (airplane nose down) until the stabilizer stops.

(a) Set the C STAB CUTOUT switch to CUTOUT.

(b) Make sure that dimension "B", View C (Figure 501), is 0.62 to 1.23 inches (15.7 to 31.2 millimeters).

(c) Make sure indications for STAB POSITION L, C, and R, on Flight Controls Maintenance Page 2, are 135.55 to 154.36.

SUBTASK 27-48-00-860-018

(10) Set the C STAB CUTOUT switch to NORM.

SUBTASK 27-48-00-720-002

(11) Push the PITCH TRIM switches, on the CAPTAIN'S control wheel, to the DOWN position and hold (airplane nose up) until the stabilizer stops.

(a) Set the C STAB CUTOUT switch to CUTOUT.

(b) Make sure that the dimension "B", View C (Figure 501), is 30.04 to 30.66 inches (763.0 to 778.8 millimeters).

(c) Make sure the indications for STAB POSITION L, C, and R, on Flight Controls Maintenance Page 2, are -136.50 to -155.43.

SUBTASK 27-48-00-860-019

(12) Set the R STAB CUTOUT switch, on the P10 control stand, to NORM.

SUBTASK 27-48-00-720-003

(13) Push the PITCH TRIM switches, on the FIRST OFFICER'S control wheel, to the UP position and hold (airplane nose down) until the stabilizer stops.

(a) Set the R STAB CUTOUT switch to CUTOUT.

(b) Make sure the dimension "B", View C (Figure 501), is 0.62 to 1.23 inches (15.7 to 31.2 millimeters).

(c) Make sure the indications for STAB POSITION L, C, and R, on Flight Controls Maintenance Page 2, are 135.55 to 154.36.

SUBTASK 27-48-00-860-020

(14) Set the R STAB CUTOUT switch to NORM.

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SUBTASK 27-48-00-720-004

(15) Push the PITCH TRIM switches, on the FIRST OFFICER'S control wheel, to the DOWN position and hold (airplane nose up) until the stabilizer stops.

(a) Set the R STAB CUTOUT switch to CUTOUT.

(b) Make sure the dimension "B", View C (Figure 501), is 30.04 to 30.66 inches (763.0 to 778.8 millimeters).

(c) Make sure the indications for STAB POSITION L, C, and R, on Flight Controls Maintenance Page 2, are -136.50 to -155.43.

SUBTASK 27-48-00-860-021

(16) Set one STAB CUTOUT switch to NORM.

SUBTASK 27-48-00-860-022

(17) Set the other STAB CUTOUT switch to CUTOUT.

SUBTASK 27-48-00-720-005

(18) Use the alternate pitch trim levers to move the stabilizer in an airplane nose down direction until the stabilizer "B", View C (Figure 501), dimension is 8.55 to 8.53 inches (217.2 to 216.7 millimeters).

NOTE: Finer adjustments of the "B" dimension can be made at the stabilizer trim control modules (STCM's) through their input levers, View G (Figure 501).

(a) Make sure indications for STAB POSITION L, C, and R, on Flight Controls Maintenance Page 2, are from 63.34 to 76.26.

SUBTASK 27-48-00-720-006

(19) Use the alternate pitch trim levers to move the stabilizer in an airplane nose UP direction until the stabilizer "B" dimension, View C (Figure 501), is 19.78 to 19.76 inches (502.4 to 501.9 millimeters).

NOTE: Finer adjustments of the actuator "B" dimension can be made at the stabilizer trim control modules (STCM's), through their input levers, View G (Figure 501).

(a) Make sure the indications for STAB POSITION L, C, and R, on Flight Controls Maintenance Page 2, are -34.82 to -47.64.

G. Put the Airplane Back to its Usual Condition

SUBTASK 27-48-00-410-002

(1) Close this access panel:

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-48-00-860-023

(2) Put the PRIMARY FLIGHT COMPUTERS DISCONNECT SWITCH, on the P5 overhead panel, in the AUTO position.

SUBTASK 27-48-00-860-024

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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STABILIZER POSITION MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

NOTE: The stabilizer position modules are referred to as transmitters [3] in this procedure. You may also find them referred to as transducers or RVDTs.

(1) A removal of the stabilizer position module

(2) An installation of the stabilizer position module.

TASK 27-48-01-000-801

2. Stabilizer Position Module - Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

C. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

D. Access Panels

Number	Name/Location
311BL	Service Access Door

E. Prepare for the Removal

SUBTASK 27-48-01-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-48-01-860-013

(2) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-48-01-860-002

(3) Put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the SHUT OFF position and attach DO-NOT-OPERATE tags.

NOTE: The FLT CONTROL HYD VALVE POWER switches are found on the P61, Aft Overhead Maintenance Panel.

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SUBTASK 27-48-01-860-003

(4) Put the STAB CUTOUT switches (on the Control Stand) in the CUTOFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-48-01-860-004

(5) Attach DO-NOT-OPERATE tags to the Alternate Pitch and Trim levers, on the Control Stand.

SUBTASK 27-48-01-860-005

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R
K	28	C27608	ACE-L2 PWR

(a) On the left power supply assembly (PSA-L) in the E1-6 RACK:

1) A1 ACE PWR
2) B2 STAB TRIM
3) D8, PFC BATT INTLK
4) D2, PFC LANE 1
5) D4, PFC LANE 2
6) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1 ACE PWR
2) B2 STAB TRIM
3) D8, PFC BATT INTLK
4) D2, PFC LANE 1
5) D4, PFC LANE 2
6) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1 ACE PWR
2) B2 STAB TRIM
3) D8, PFC BATT INTLK
4) D2, PFC LANE 1
5) D4, PFC LANE 2
6) D6, PFC LANE 3

SUBTASK 27-48-01-010-001

(7) Open this access panel, to get access to the position module

Number	Name/Location
311BL	Service Access Door

SUBTASK 27-48-01-480-001

(8) Install the ladder equipment, SPL-2011.

SUBTASK 27-48-01-480-002

(9) Install the service access door barrier, SPL-1976.

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F. Stabilizer Position Module Removal

SUBTASK 27-48-01-020-001

(1) Do these steps to remove the stabilizer position module from the airplane:

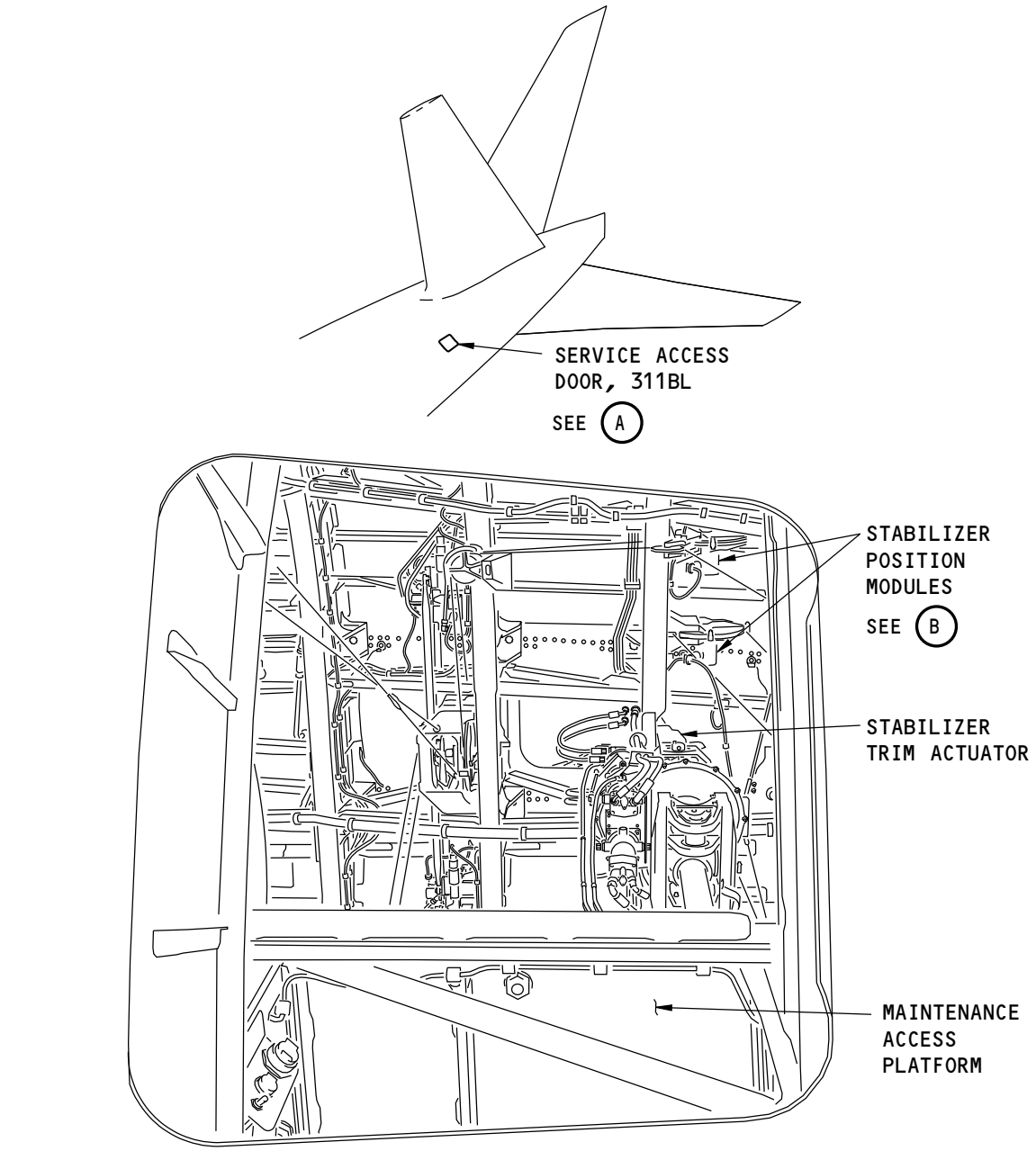
(a) Disconnect the electrical connector [4].

(b) Remove the bolts [2] and washers [1] (3 locations) that connect the transmitter [3] to the structure.

(c) Pull the transmitter [3] away from the structure.

——— END OF TASK ———

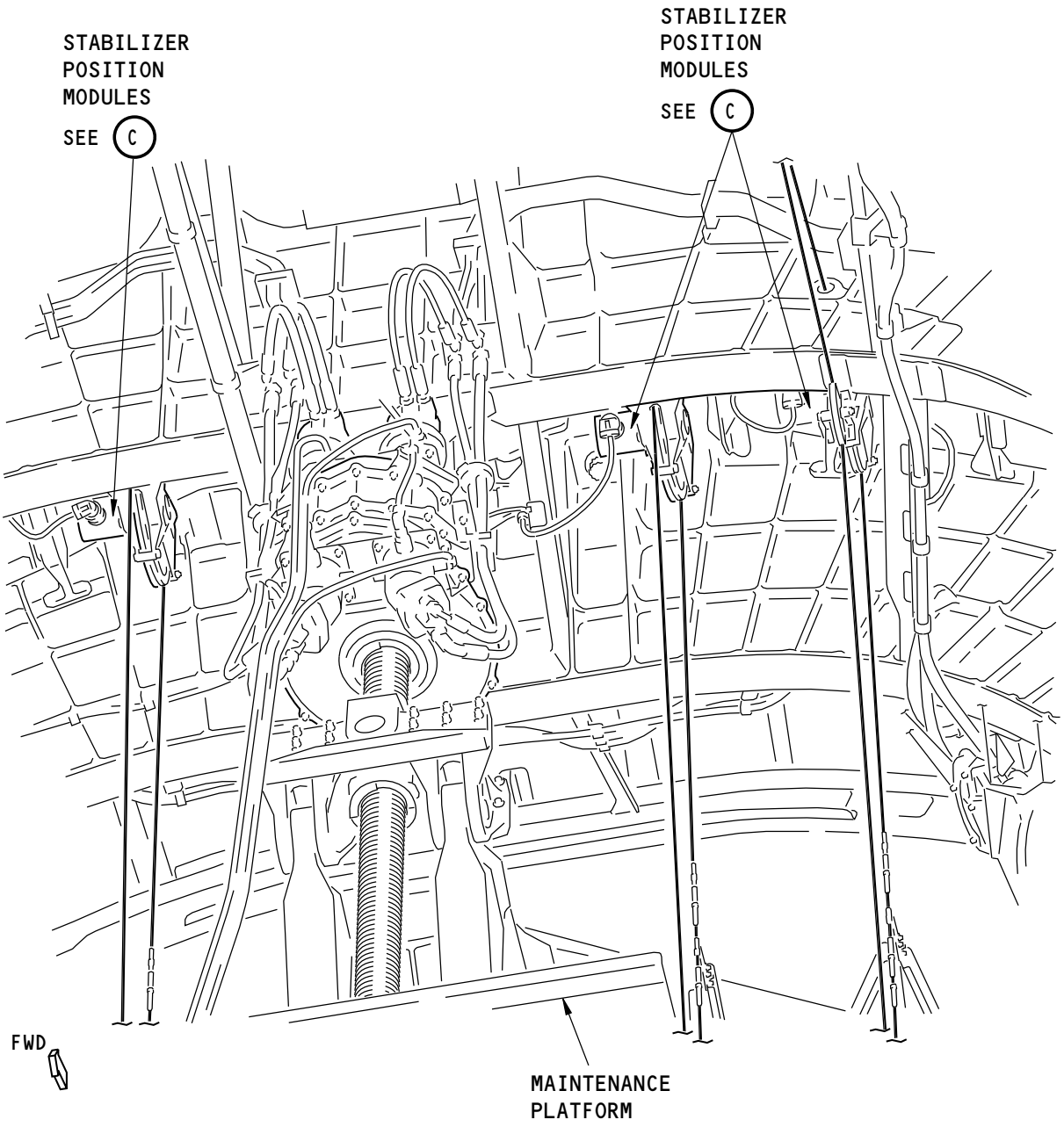
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E07058 S0006413391_V1

Stabilizer Position Module Installation
Figure 401/27-48-01-990-801 (Sheet 1 of 3)

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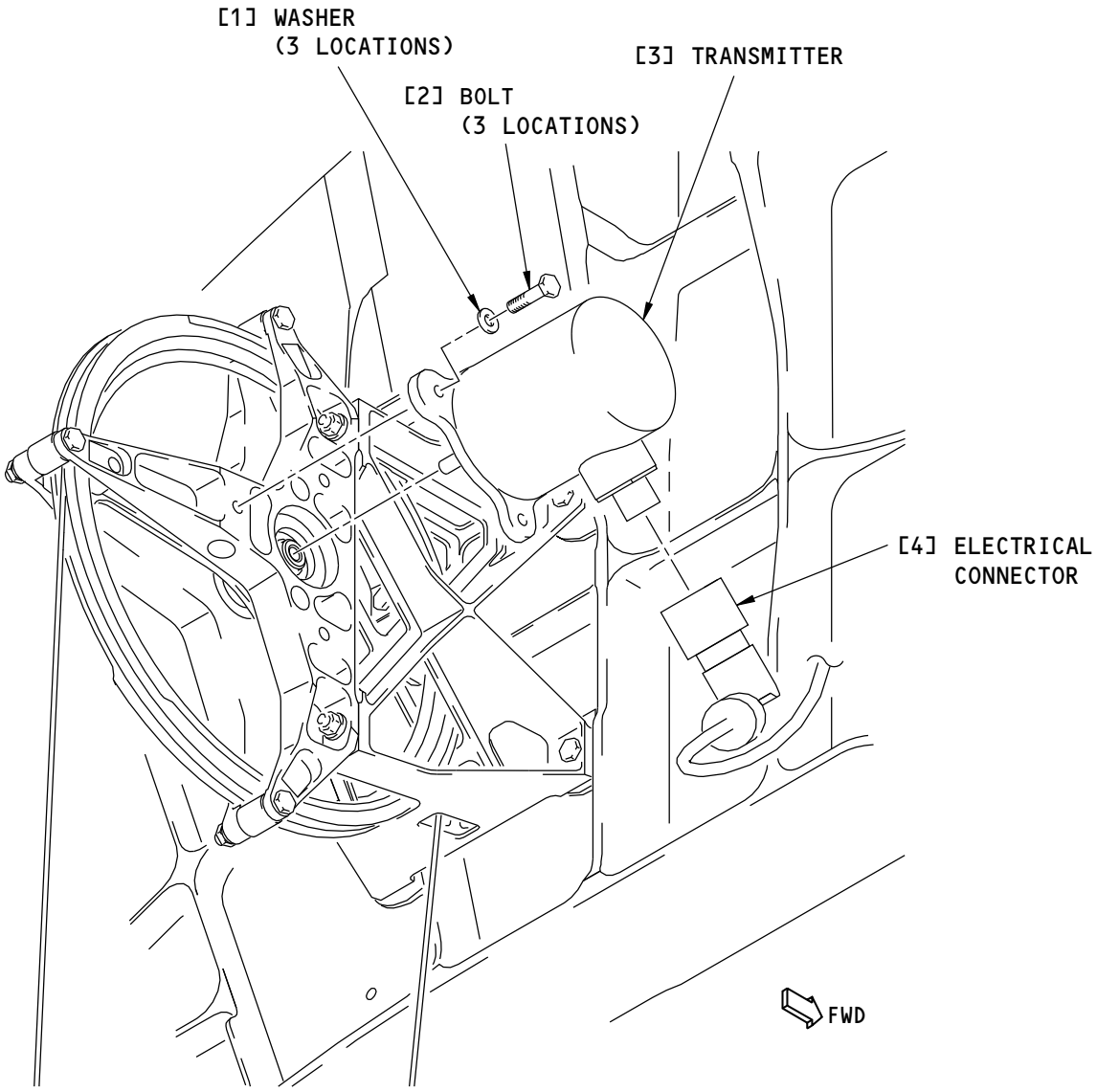
STABILIZER POSITION MODULES

B

E07063 S0006413392_V1

Stabilizer Position Module Installation
Figure 401/27-48-01-990-801 (Sheet 2 of 3)

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STABILIZER POSITION MODULE
(EXAMPLE)

C

E07068 S0006413393_V1

Stabilizer Position Module Installation
Figure 401/27-48-01-990-801 (Sheet 3 of 3)

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TASK 27-48-01-400-801

3. Stabilizer Position Module - Installation

(Figure 401)

A. References

Reference	Title
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1976	Barrier - Service Access Door, Section 48 Part #: J51001-1 Supplier: 81205
SPL-2011	Ladder Equipment - Vertical Fin and Empennage Access Part #: J53001-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Transmitter	27-48-01-10-025	ARO ALL

E. Location Zones

Zone	Area
311	Area Aft of Bulkhead, Left
312	Area Aft of Bulkhead, Right

F. Access Panels

Number	Name/Location
311BL	Service Access Door

G. Install the Stabilizer Position Module

SUBTASK 27-48-01-640-001

(1) Apply grease, D00633 or grease, D00013, to the shaft of the transmitter [3] and in the hole for the shaft.

SUBTASK 27-48-01-420-001

(2) Align the splines and put the transmitter [3] in its position.

SUBTASK 27-48-01-420-002

(3) Install the washers [1] and bolts [2] (3 locations).

SUBTASK 27-48-01-420-003

(4) Connect the electrical connector [4].

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-48-01-860-006

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	24	C27612	STAB TRIM ARM-R
K	28	C27608	ACE-L2 PWR

NOTE: For the circuit breakers on the three panels, close the PFC circuit breakers last.

(a) On the left power supply assembly (PSA-L) in the E1-6 rack:

1) A1 ACE PWR
2) B2 STAB TRIM
3) D8, PFC BATT INTLK
4) D2, PFC LANE 1
5) D4, PFC LANE 2
6) D6, PFC LANE 3

(b) On the center power supply assembly (PSA-C) in the E2-6 rack:

1) A1 ACE PWR
2) B2 STAB TRIM
3) D8, PFC BATT INTLK
4) D2, PFC LANE 1
5) D4, PFC LANE 2
6) D6, PFC LANE 3

(c) On the right power supply assembly (PSA-R) in the E5-1 rack:

1) A1 ACE PWR
2) B2 STAB TRIM
3) D8, PFC BATT INTLK
4) D2, PFC LANE 1
5) D4, PFC LANE 2
6) D6, PFC LANE 3

SUBTASK 27-48-01-860-007

(2) Remove the DO-NOT-OPERATE tags on the Alternate Pitch and Trim levers, on the Control Stand.

SUBTASK 27-48-01-860-008

(3) Remove the DO-NOT-OPERATE tags and put the STAB CUTOUT switches (on the control stand) in the NORMAL position.

SUBTASK 27-48-01-860-009

(4) Remove the DO-NOT-CLOSE tags and put the three FLT CONTROL HYD VALVE POWER switches for the TAIL in the NORMAL position.

NOTE: The FLT CONTROL HYD VALVE POWER switches are found on the P61, Aft Overhead Maintenance Panel.

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SUBTASK 27-48-01-080-001

(5) Remove the service access door barrier, SPL-1976.

SUBTASK 27-48-01-080-002

(6) Remove the ladder equipment, SPL-2011.

SUBTASK 27-48-01-410-001

(7) Close this access panel:

Number	Name/Location
311BL	Service Access Door

I. Test the Stabilizer Position Module

SUBTASK 27-48-01-700-001

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For the left, center, and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-48-01-710-001

(2) Monitor the EICAS display for EICAS messages while you do these steps to operate the stabilizer.

(a) Use the ALTN PITCH TRIM levers to move the stabilizer to its fully nose up position.

(b) Use the pitch trim switches (on the captain's or first officer's control wheel) to move the stabilizer to its fully nose down position.

(c) Use the pitch trim switches to move the stabilizer back to its fully nose up position.

SUBTASK 27-48-01-710-002

(3) Make sure no primary flight control or stabilizer EICAS messages show.

SUBTASK 27-48-01-860-012

(4) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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STABILIZER POSITION INDICATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the stabilizer position indicator

(2) An installation of the stabilizer position indicator.

TASK 27-48-02-000-801

2. Stabilizer Position Indicator Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Prepare for the Removal

SUBTASK 27-48-02-040-001

(1) If you will remove the left stabilizer position indicator, do the steps that follow:

(a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L
N	23	C33613	MASTER BRT CTRL & MASTER BRT OVRD RLY

SUBTASK 27-48-02-040-002

(2) If you will remove the right stabilizer position indicator, do the steps that follow:

(a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
N	23	C33613	MASTER BRT CTRL & MASTER BRT OVRD RLY

Right Power Management Panel, P210

Row	Col	Number	Name
K	10	C27634	STAB POS IND-R

SUBTASK 27-48-02-010-001

(3) Do these steps to remove the side panel [1].

(a) Turn the quick-release fasteners [2].

(b) Remove the side panel [1].

C. Stabilizer Position Indicator Removal

SUBTASK 27-48-02-020-003

(1) Disconnect the electrical connector from the indicator [3].

(a) Put a protective cover on the electrical connector.

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SUBTASK 27-48-02-020-001

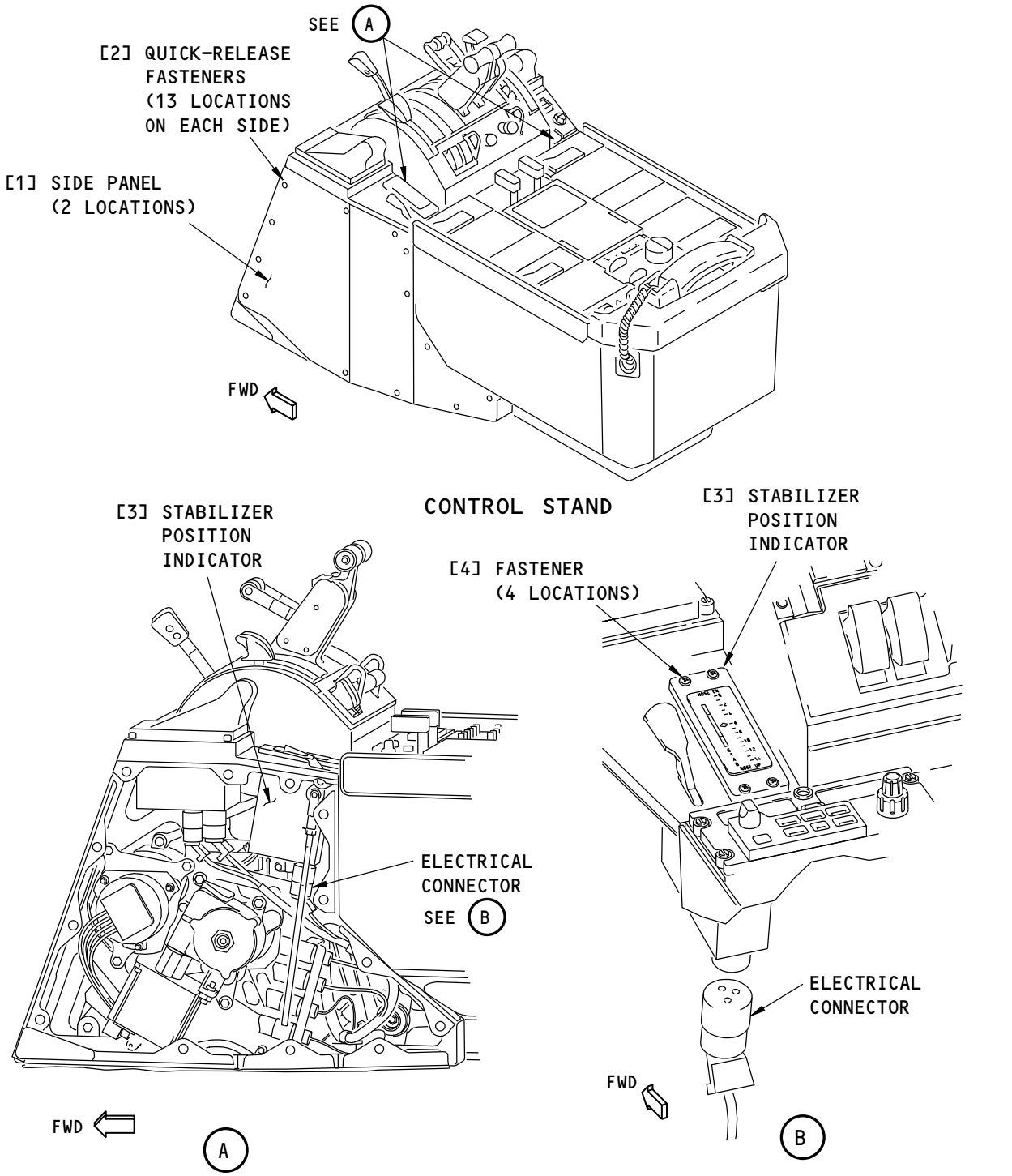
(2) Remove the fasteners [4] that attach the indicator [3] to the control stand.

SUBTASK 27-48-02-020-002

(3) Remove the indicator [3] from the airplane.

——— END OF TASK ———

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Stabilizer Position Indicator Installation
Figure 401/27-48-02-990-801

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TASK 27-48-02-400-801

3. Stabilizer Position Indicator Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-48-00-700-801	Horizontal Stabilizer Position Indicator Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Indicator	27-48-02-01-055	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Stabilizer Position Indicator Installation

SUBTASK 27-48-02-420-001

(1) Put the indicator [3] in its position.

SUBTASK 27-48-02-420-003

(2) Remove the protective cover from the electrical connector and connect the electrical connector to the indicator [3].

SUBTASK 27-48-02-420-002

(3) Install the fasteners [4] to attach the indicator [3] to the control stand.

SUBTASK 27-48-02-410-001

(4) Do these steps to install the side panel [1] on the control stand:

(a) Put the side panel [1] in its position.

(b) Turn the quick-release fasteners [2] to hold the side panel [1].

SUBTASK 27-48-02-440-001

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L
N	23	C33613	MASTER BRT CTRL & MASTER BRT OVRD RLY

Right Power Management Panel, P210

Row	Col	Number	Name
K	10	C27634	STAB POS IND-R

E. Stabilizer Position Indicator Installation Test

SUBTASK 27-48-02-840-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-48-02-710-001

(2) Do this task: Horizontal Stabilizer Position Indicator Test, TASK 27-48-00-700-801.

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F. Put the Airplane Back to Its Usual Condition

——— END OF TASK ———

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NOSE GEAR PRESSURE TRANSDUCER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the nose gear pressure transducer.

(2) An installation of the nose gear pressure transducer.

(3) A removal of the nose gear pressure transducer assembly.

(4) An installation of the nose gear pressure transducer assembly.

TASK 27-48-07-000-803

2. Nose Gear Pressure Transducer Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2537	Pin - Rig (J20003-6 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205

C. Location Zones

Zone	Area
711	Nose Landing Gear

D. Prepare for the Removal

SUBTASK 27-48-07-480-006

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-48-07-410-007

WARNING OBEY THE INSTALL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-48-07-860-005

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-48-07-020-002

WARNING RELEASE THE PRESSURE FROM THE MANIFOLD BEFORE YOU REMOVE THE PRESSURE TRANSDUCER. THE AIR PRESSURE CAN BLOW THE PRESSURE TRANSDUCER OUT AND CAUSE INJURY TO PERSONS.

(4) Do these steps to release the pressure from the manifold:

(a) Set the shutoff valve [2] to the fully closed position.

(b) Install a rig pin (Included in Kit J20003-34), SPL-2537, in the rig pin hole [3] to hold the shutoff valve [2] in the closed position.

(c) Slowly loosen the bleeder screw [6] to release the pressure in the manifold [25].

SUBTASK 27-48-07-040-004

(5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

Row	Col	Number	Name
C	8	C31653	WEU L1
C	9	C31655	WEU L2

E. Nose Gear Pressure Transducer Removal

SUBTASK 27-48-07-020-003

(1) Disconnect the electrical connector [7] from the pressure transducer [8] and install a cap.

SUBTASK 27-48-07-020-004

(2) Remove the lockwire from the pressure transducer [8] base.

SUBTASK 27-48-07-020-005

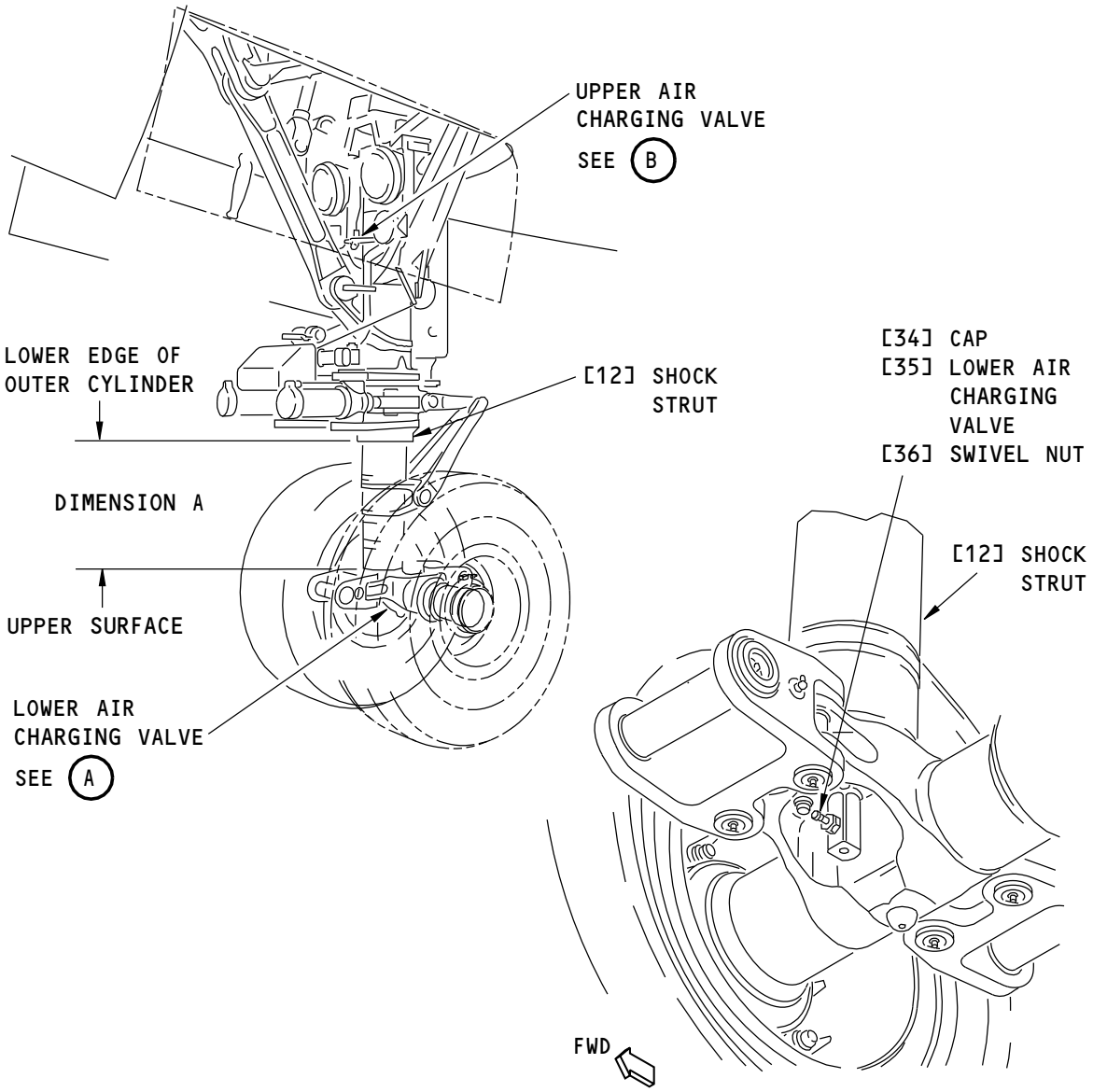
(3) Remove the pressure transducer [8].

SUBTASK 27-48-07-020-006

(4) Discard the old packing [24].

END OF TASK

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1 LOCKWIRE USING DOUBLE-TWIST METHOD

2 IMMERSE THE PACKING IN MIL-H-5606 BEFORE INSTALLATION.

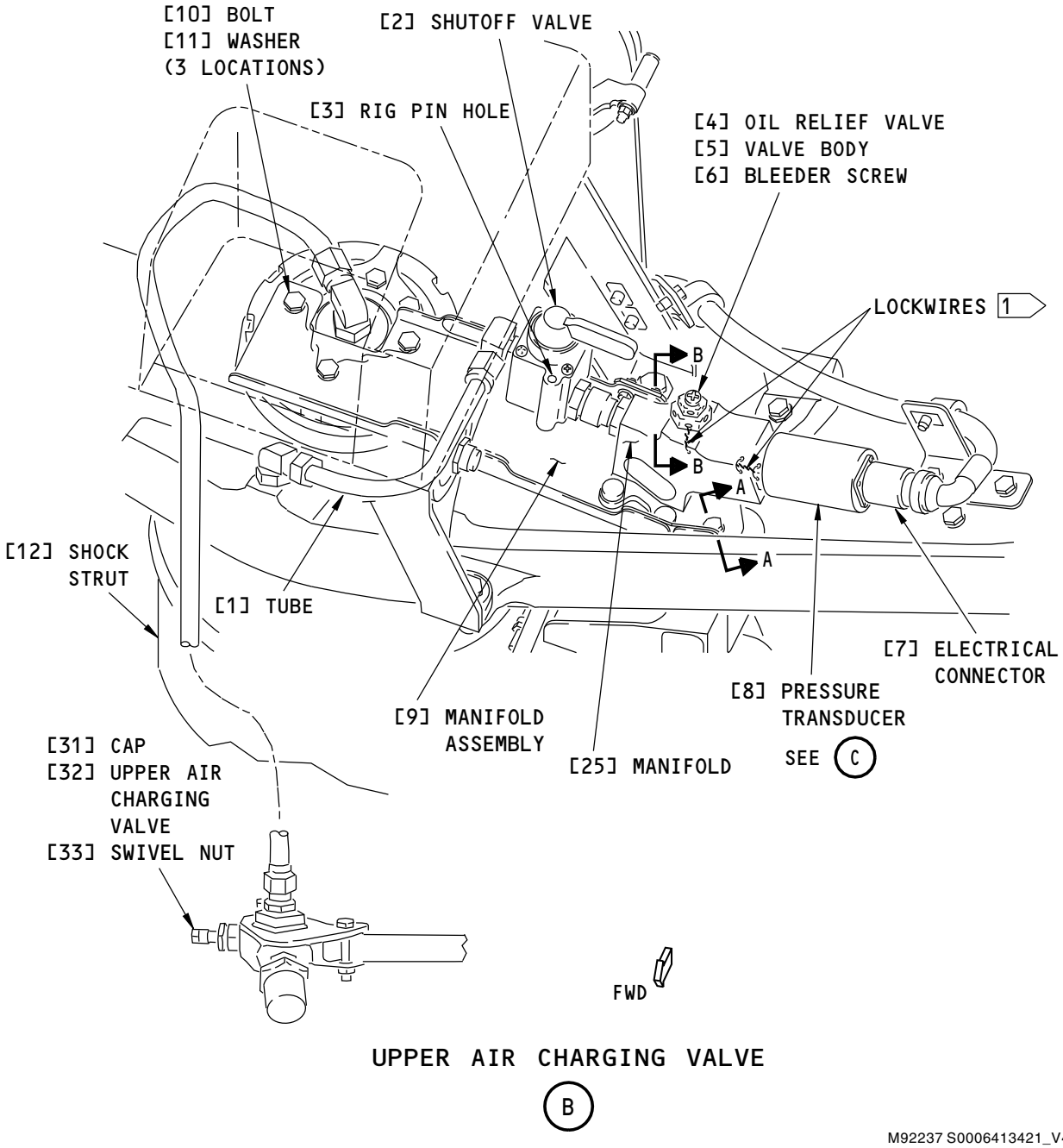
3 VALVE BODY SEATING TORQUE = 150 ±40 POUND-INCHES (17.0 ±4.5 NEWTON-METERS)

4 OIL RELIEF VALVE SEATING TORQUE = 60 ±20 POUND-INCHES (6.8 ±2.3 NEWTON-METERS)

M92236 S0006413420_V2

Nose Gear Pressure Transducer Installation
Figure 401/27-48-07-990-802 (Sheet 1 of 3)

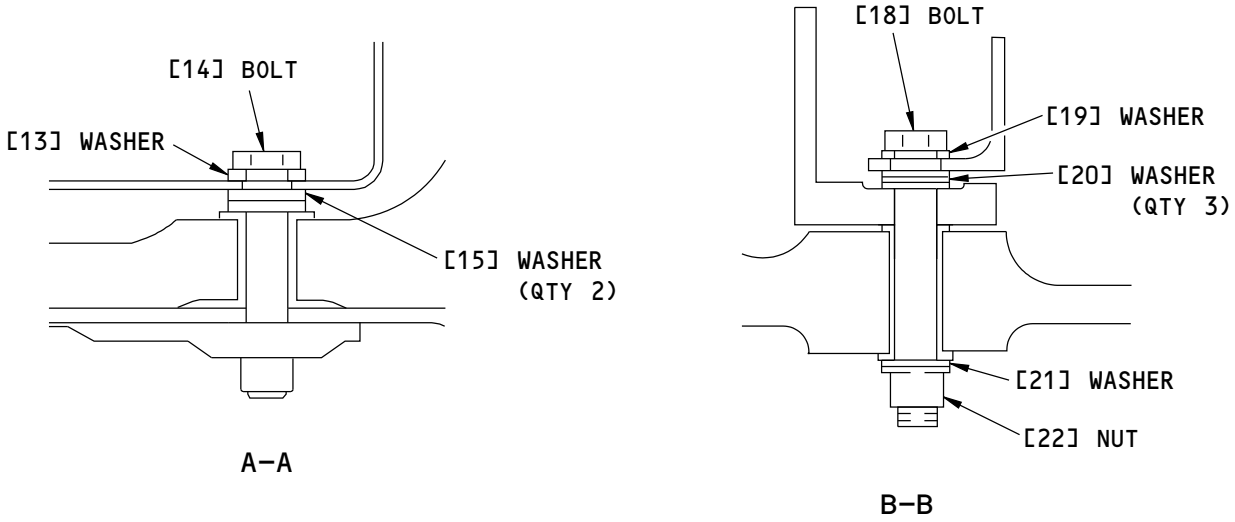
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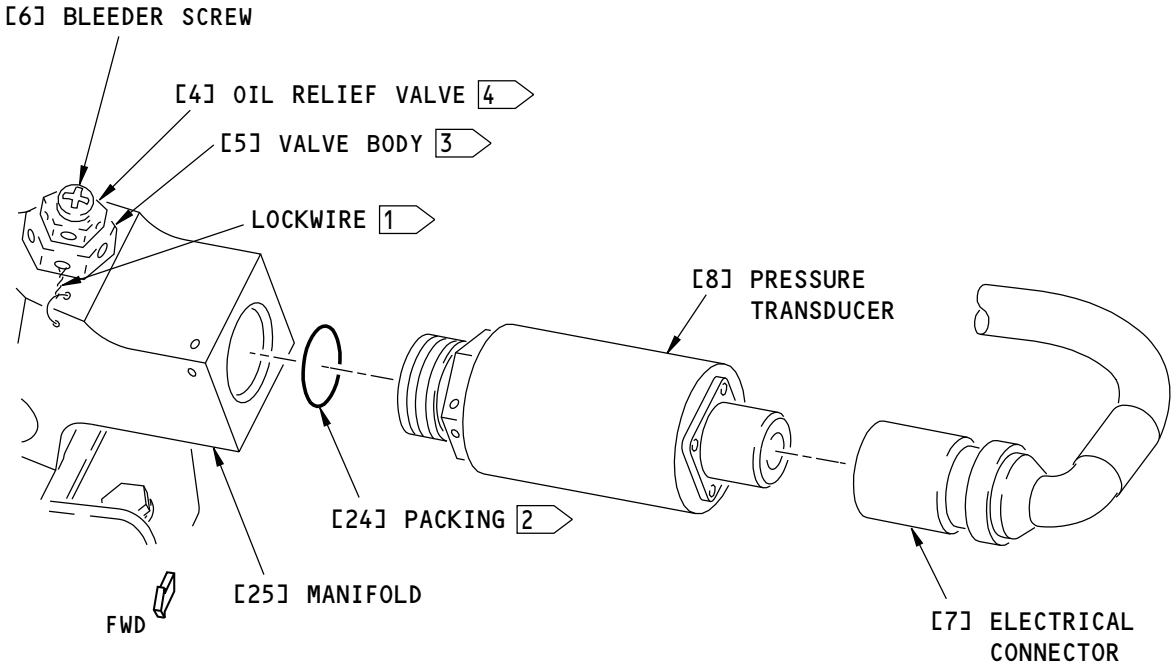


M92237 S0006413421_V4

Nose Gear Pressure Transducer Installation
Figure 401/27-48-07-990-802 (Sheet 2 of 3)

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W09851 S0000129151_V2

Nose Gear Pressure Transducer Installation
Figure 401/27-48-07-990-802 (Sheet 3 of 3)

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TASK 27-48-07-400-801

3. Nose Gear Pressure Transducer Installation

(Figure 401)

A. References

Reference	Title
12-15-02-610-809-002	Nose Landing Gear Shock Strut Check (In-Service) (P/B 301)
27-48-07-000-801	Nose Gear Pressure Transducer - Functional Test (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
A00226	Compound - Tamper-Proof Putty	BMS8-45
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Location Zones

Zone	Area
711	Nose Landing Gear

D. Nose Gear Pressure Transducer Installation

SUBTASK 27-48-07-640-001

(1) Immerse a new packing [24] in fluid, D00070 before installation.

SUBTASK 27-48-07-420-009

(2) Wipe fluid, D00070 on the base of the pressure transducer [8] and then install the packing [24] on the transducer [8].

SUBTASK 27-48-07-390-001

(3) Apply compound, A00226 on the mating surfaces of the transducer [8] and the manifold [25].

SUBTASK 27-48-07-420-010

(4) Install the transducer [8] in the manifold [25] on the nose gear shock strut [12] and tighten it to 153 - 187 pound-inches or 12.8 - 15.6 pound-feet (17.1 - 21.1 newton-meters).

SUBTASK 27-48-07-420-011

(5) Install MS20995C32 lockwire, G01048 on the base of the pressure transducer [8].

SUBTASK 27-48-07-080-002

(6) Remove the cap from the electrical connector [7].

SUBTASK 27-48-07-400-001

(7) Re-connect the electrical connector [7] to the transducer [8].

SUBTASK 27-48-07-700-001

(8) Do a functional test of the nose gear pressure transducer. To test the transducer, do this task: Nose Gear Pressure Transducer - Functional Test, TASK 27-48-07-000-801.

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E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-48-07-420-013

(1) Adjust the pressure in the nose gear shock strut to the correct pressure. To adjust the pressure, do this tasks: Nose Landing Gear Shock Strut Check (In-Service), TASK 12-15-02-610-809-002.

SUBTASK 27-48-07-040-005

(2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

Row	Col	Number	Name
C	8	C31653	WEU L1
C	9	C31655	WEU L2

SUBTASK 27-48-07-410-008

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-48-07-410-009

(4) Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

SUBTASK 27-48-07-860-006

(5) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-48-07-000-804

4. Nose Gear Pressure Transducer Manifold Assembly Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
711	Nose Landing Gear

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C. Prepare for the Removal

SUBTASK 27-48-07-480-008

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-48-07-410-010

WARNING OBEY THE INSTALL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-48-07-860-007

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-48-07-020-017

WARNING MAKE SURE THAT PERSONNEL AND EQUIPMENT ARE AWAY FROM THE AREA BELOW THE NOSE BEFORE YOU DEFLATE THE SHOCK STRUT. WHEN YOU DEFLATE THE SHOCK STRUT, THE NOSE CAN MOVE DOWN. THIS CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(4) Do these steps to deflate the shock strut for the nose landing gear:

(a) Remove the cap [31] from the upper air charging valve [32].

NOTE: Leave the shutoff valve [2] for the pressure transducer [8] in the OPEN position.

(b) Loosen the swivel nut [33], for the upper air charging valve [32], a maximum of two turns.

NOTE: Fluid in the shock strut [12] will have bubbles when you release the pressure. Deflate the shock strut slowly to prevent the leakage of the fluid through the air valve [32].

(c) Loosen the air valve swivel nut [33] fully after all of the pressure in the shock strut [12] is released.

(d) Slowly loosen the bleeder screw [6] to release the pressure in the manifold [25].

SUBTASK 27-48-07-040-006

(5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

Row	Col	Number	Name
C	8	C31653	WEU L1
C	9	C31655	WEU L2

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D. Nose Gear Pressure Transducer Manifold Assembly Removal

SUBTASK 27-48-07-020-008

(1) Disconnect the electrical connector [7] from the transducer [8] and install a cap.

SUBTASK 27-48-07-020-009

(2) Disconnect the tube assembly [1] from the manifold assembly [9], and install a cap.

SUBTASK 27-48-07-020-011

(3) Remove bolt [14], washer [13] and washers [15].

SUBTASK 27-48-07-020-012

(4) Remove bolt [18], washer [19], washers [20], washer [21], and nut [22].

SUBTASK 27-48-07-020-013

(5) Remove lockwire.

SUBTASK 27-48-07-020-014

(6) Remove bolts [10] and washers [11] from the manifold assembly [9].

SUBTASK 27-48-07-020-015

(7) Remove the manifold assembly [9] from the airplane.

——— END OF TASK ———

TASK 27-48-07-400-802

5. Nose Gear Pressure Transducer Manifold Assembly Installation

(Figure 401)

A. References

Reference	Title
12-15-02-610-805-002	Nose Landing Gear Shock Strut Servicing (P/B 301)
12-15-02-610-809-002	Nose Landing Gear Shock Strut Check (In-Service) (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-48-07-000-802	Nose Gear Pressure Transducer Manifold Pressure Proof - Test (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Location Zones

Zone	Area
711	Nose Landing Gear

D. Nose Gear Pressure Transducer Manifold Assembly Installation

SUBTASK 27-48-07-420-016

(1) Hold the manifold assembly [9] in its position on the nose gear shock strut [12].

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SUBTASK 27-48-07-420-017

(2) Install the bolts [10], and the washer [11] at the top attachment.

SUBTASK 27-48-07-420-018

(3) Install MS20995C32 lockwire, G01048 on the bolts [10].

SUBTASK 27-48-07-420-019

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the bolt [14], the washer [13], and the washers [15], on all mating surfaces.

SUBTASK 27-48-07-420-020

(5) Install the bolt [14], the washer [13], and the washers [15]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-48-07-420-022

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the bolt [18], the washer [19], the washers [20], the washer [21], and the nut [22], on all mating surfaces.

SUBTASK 27-48-07-420-023

(7) Install the bolt [18], the washer [19], the washers [20], the washer [21], and the nut [22]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

NOTE: Use the number of washers [20] that match the clearance between the manifold assembly [9] and the mounting surface. The usual number of washers [20] is three. If you have extra washers [20], put them under the bolt head.

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SUBTASK 27-48-07-020-016

(8) Remove the cap from the tube assembly [1].

SUBTASK 27-48-07-420-024

(9) Re-connect the tube assembly [1] to the manifold assembly [9].

SUBTASK 27-48-07-420-032

(10) Install bleeder screw [6] into the manifold [25].

SUBTASK 27-48-07-420-031

(11) Re-connect the electrical connector [7] to the pressure transducer [8].

E. Nose Gear Shock Strut Servicing

SUBTASK 27-48-07-600-001

(1) Do this tasks:

(a) Nose Landing Gear Shock Strut Check (In-Service), TASK 12-15-02-610-809-002 OR

(b) Nose Landing Gear Shock Strut Servicing, TASK 12-15-02-610-805-002

SUBTASK 27-48-07-700-002

(2) Do a pressure proof test of the manifold assembly. To test the manifold assembly, do this task: Nose Gear Pressure Transducer Manifold Pressure Proof - Test, TASK 27-48-07-000-802.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-48-07-040-007

(1) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

Row	Col	Number	Name
C	8	C31653	WEU L1
C	9	C31655	WEU L2

SUBTASK 27-48-07-410-011



WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-48-07-410-012

(3) Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

SUBTASK 27-48-07-860-008

(4) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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NOSE GEAR PRESSURE TRANSDUCER - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A functional test of the nose landing gear (NLG) pressure transducer using the maintenance access terminal (MAT) or PMAT. This test verifies that the pressure transducer will send the correct signal to airplane systems when the strut is at the proper pressure. This test also verifies that the transducer functions properly in the correct range of pressure.

(2) A pressure proof test of the nose gear pressure transducer. This test verifies that there are no leaks in the nose landing gear manifold assembly.

TASK 27-48-07-000-801

2. Nose Gear Pressure Transducer - Functional Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

(2) A maintenance access terminal (MAT or PMAT) is necessary for this procedure. For instructions on how to use the MAT, do this task: How to Operate the MAT in the Flight Compartment, TASK 45-10-00-910-810.

B. References

Reference	Title
12-15-02-610-805-002	Nose Landing Gear Shock Strut Servicing (P/B 301)
12-15-02-610-809-002	Nose Landing Gear Shock Strut Check (In-Service) (P/B 301)
29-11-00-710-804	Hydraulic Interface Module (HYDIM) - Operational Test (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)
45-10-00-910-810	How to Operate the MAT in the Flight Compartment (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1526	Inflator - Strut, Landing Gear Part #: F70200-35 Supplier: 81205 Opt Part #: F70200-14 Supplier: 81205 Opt Part #: F70200-18 Supplier: 81205

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(Continued)

Reference	Description
SPL-2537	Pin - Rig (J20003-6 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205
SPL-7860	Test Assy - Pressure Transducer, Nose Gear (Applicable to 777 L/N 423, 429, 454 and ON) Part #: J27076-11 Supplier: 81205 Opt Part #: J27076-5 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
G00018	Nitrogen - Gaseous, Pressurizing, 99.5 Percent Pure	A-A-59503 Type I Grade B, MIL-PRF-27401 Type I Grade A

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
13	Packing	27-48-07-01-205	ARO ALL
14	Packing	27-48-07-01-200	ARO ALL

F. Location Zones

Zone	Area
711	Nose Landing Gear

G. Prepare for the Test

SUBTASK 27-48-07-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-48-07-410-001

WARNING OBEY THE INSTALL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-48-07-860-001

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-48-07-860-002

(4) If the transducer has been removed or the seal has been broken, do this task: Nose Gear Pressure Transducer Manifold Pressure Proof - Test, TASK 27-48-07-000-802.

H. Nose Gear Pressure Transducer Functional Test

SUBTASK 27-48-07-420-001

(1) Move the shutoff valve [2] to the fully closed position.

SUBTASK 27-48-07-480-002

(2) Install the rig pin (Included in Kit J20003-34), SPL-2537, in the rig pin hole [3].

SUBTASK 27-48-07-610-004

(3) Connect the pressurized source of nitrogen.

(a) Slowly loosen the bleeder screw [6] to release the pressure in the manifold [10].

(b) Remove the bleeder screw [6] and the oil relief valve [4] from the valve body [5].

(c) Install the pressure transducer test assembly, SPL-7860 on the valve body [5].

(d) Use the landing gear strut inflator, SPL-1526, to connect the pressurized source ofnitrogen, G00018, to the pressure transducer test assembly, SPL-7860.

SUBTASK 27-48-07-780-002

(4) Slowly adjust the pressure in the nose gear to between 500 and 600 psi.

SUBTASK 27-48-07-200-001

(5) Do a check of the system wiring and verify the nose gear (NG) pressure transducer operating pressure.

(a) For the following tests, to show the status of word 9 using the MAT or PMAT, select the following menu options in this order:

1) ONBOARD MAINTENANCE

2) OTHER FUNCTIONS

3) INPUT MONITORING

4) GENERAL INPUT

5) CONTINUE

6) Enter the following word strings in the top two General Input boxes:

a) For the left channel, use the keyboard to enter the following word string in the first (top) General Input box where it shows “^/^^^”:

L/629/SYS L/F83/2/9-9

<1> UNITS

<2> ENGINEERING

<3> Enter the following values at the parameter prompts:

PARAMETER	VALUE
LWR BND	-4095
UPR BND	4095
SIGN BIT	15
MSB	14
LSB	3

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(Continued)

PARAMETER	VALUE
UNITS	PSI

<4> CONTINUE

b) For the right channel, use the keyboard to enter the following word string in the second General Input box where it shows “^/^^^”:

L/629/SYS R/F83/2/9-9

<1> UNITS

<2> ENGINEERING

<3> Enter the following values at the parameter prompts:

PARAMETER	VALUE
LWR BND	-4095
UPR BND	4095
SIGN BIT	15
MSB	14
LSB	3
UNITS	PSI

<4> CONTINUE

7) RUN ALL

a) Verify the status of word 9 for this signal L/629/SYS L/F83/2/9-9 is between 400 and 700 psi.

b) Verify the status of word 9 for this signal L/629/SYS R/F83/2/9-9 is between 400 and 700 psi.

SUBTASK 27-48-07-780-003

(6) Slowly adjust the pressure in the nose gear to between 1000 and 1100 psi.

SUBTASK 27-48-07-200-004

(7) Do a check of the system wiring and verify the nose gear (NG) pressure transducer operating pressure.

(a) For the following tests, to show the status of word 9 using the MAT or PMAT, select the following menu options in this order:

1) ONBOARD MAINTENANCE

2) OTHER FUNCTIONS

3) INPUT MONITORING

4) GENERAL INPUT

5) CONTINUE

6) Enter the following word strings in the top two General Input boxes:

a) For the left channel, use the keyboard to enter the following word string in the first (top) General Input box where it shows “^/^^^”:

L/629/SYS L/F83/2/9-9

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<1> UNITS

<2> ENGINEERING

<3> Enter the following values at the parameter prompts:

PARAMETER	VALUE
LWR BND	-4095
UPR BND	4095
SIGN BIT	15
MSB	14
LSB	3
UNITS	PSI

<4> CONTINUE

b) For the right channel, use the keyboard to enter the following word string in the second General Input box where it shows “^/^^^”:

L/629/SYS R/F83/2/9-9

<1> UNITS

<2> ENGINEERING

<3> Enter the following values at the parameter prompts:

PARAMETER	VALUE
LWR BND	-4095
UPR BND	4095
SIGN BIT	15
MSB	14
LSB	3
UNITS	PSI

<4> CONTINUE

7) RUN ALL

a) Verify the status of word 9 for this signal L/629/SYS L/F83/2/9-9 is between 900 and 1200 psi.

b) Verify the status of word 9 for this signal L/629/SYS R/F83/2/9-9 is between 900 and 1200 psi.

SUBTASK 27-48-07-420-002

(8) Make sure that there are no leaks around the pressure transducer [8].

SUBTASK 27-48-07-710-001

(9) Do an operational test of the Hydraulic Interface Module Right (HYDIM R) Hydraulic Interface Module (HYDIM) - Operational Test, TASK 29-11-00-710-804

NOTE: The functional check of the Nose Gear Pressure Transducer and the HYDIM (R), is done to verify the transmission of NGPT pressure data onto the Left and Right System ARINC 629 data buses.

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-48-07-080-004

(1) Remove the pressurized source of nitrogen.

(a) Remove slowly, all pressure from the nitrogen cart.

(b) Remove the landing gear strut inflator, SPL-1526, and the source of nitrogen, G00018, from the pressure transducer test assembly, SPL-7860.

(c) Remove the pressure transducer test assembly, SPL-7860 from the valve body [5].

(d) Install the bleeder screw [6] and the oil relief valve [4] with new packing [13] and packing [14] on the valve body [5] (Figure 501 (Sheet 1)).

NOTE: Before you install packing on the bleeder screw [6] and the oil relief valve [4], immerse it in fluid, D00070. Coat all mating surfaces with fluid, D00070 before installing the bleeder screw [6] and the oil relief valve [4] on the valve body [5].

SUBTASK 27-48-07-480-003

(2) Remove the rig pin (Included in Kit J20003-34), SPL-2537, from the rig pin hole [3].

SUBTASK 27-48-07-420-005

(3) Move the shutoff valve [2] to the fully open position.

SUBTASK 27-48-07-200-002

(4) Verify that there are no leaks around the bleeder screw [6] and the oil relief valve [4].

SUBTASK 27-48-07-420-028

(5) Adjust the pressure in the nose gear shock strut to the correct pressure if necessary. To adjust the pressure, do these tasks:

(a) Nose Landing Gear Shock Strut Check (In-Service), TASK 12-15-02-610-809-002 OR

(b) Nose Landing Gear Shock Strut Servicing, TASK 12-15-02-610-805-002

SUBTASK 27-48-07-410-002

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

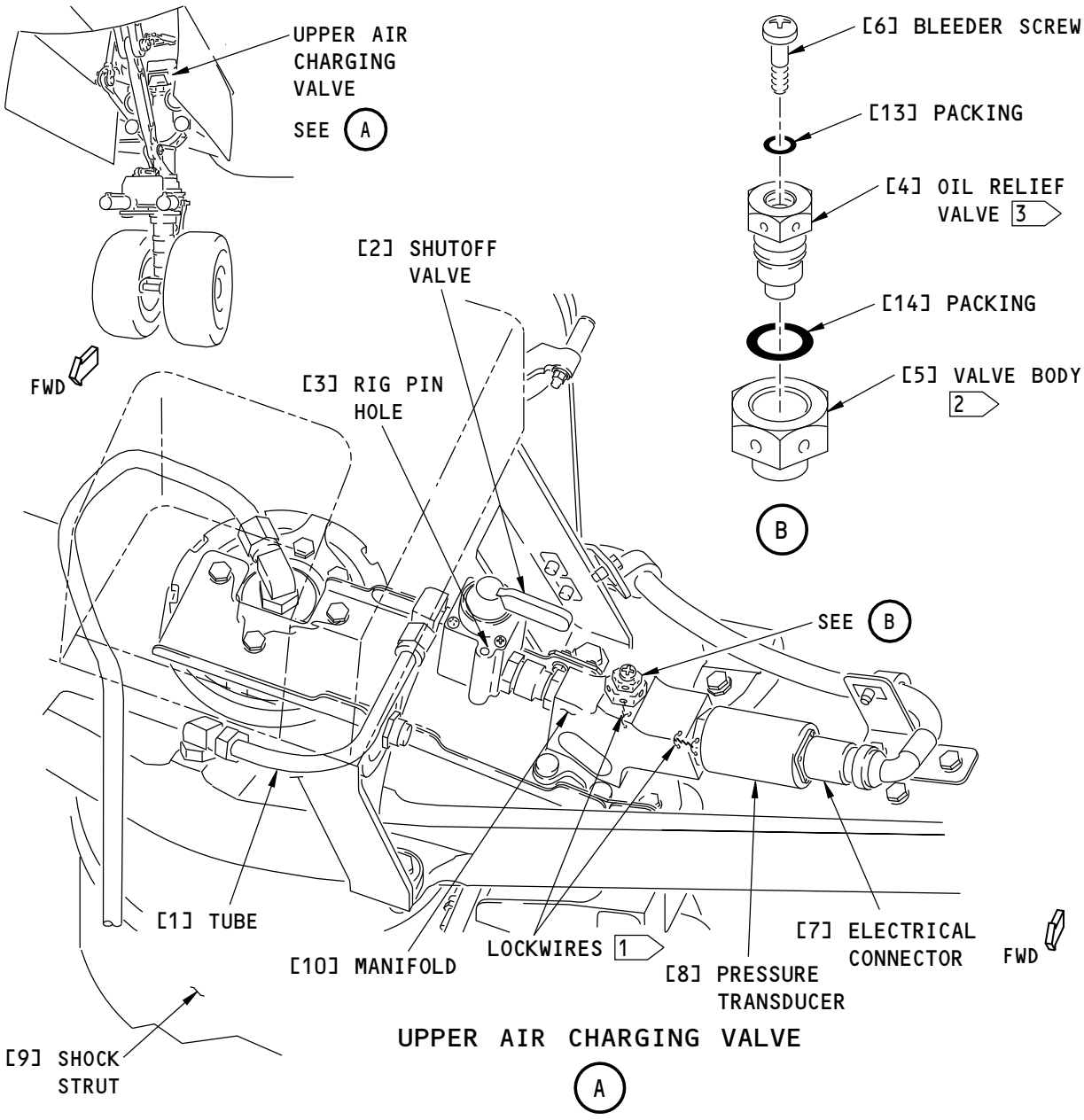
(6) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-48-07-410-003

(7) Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

——— END OF TASK ———

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1 LOCKWIRE USING DOUBLE-TWIST METHOD

2 VALVE BODY SEATING TORQUE = 150 ±40 POUND-INCHES (17.0 ±4.5 NEWTON-METERS)

3 OIL RELIEF VALVE SEATING TORQUE = 60 ±20 POUND-INCHES (6.8 ±2.3 NEWTON-METERS)

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Nose Gear Pressure Transducer Test
Figure 501/27-48-07-990-801

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TASK 27-48-07-000-802

3. Nose Gear Pressure Transducer Manifold Pressure Proof - Test

(Figure 501)

A. References

Reference	Title
12-15-02-610-809-002	Nose Landing Gear Shock Strut Check (In-Service) (P/B 301)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1526	Inflator - Strut, Landing Gear Part #: F70200-35 Supplier: 81205 Opt Part #: F70200-14 Supplier: 81205 Opt Part #: F70200-18 Supplier: 81205
SPL-2537	Pin - Rig (J20003-6 Assembly Included in Kit J20003-34) Part #: J20003-34 Supplier: 81205
SPL-7860	Test Assy - Pressure Transducer, Nose Gear (Applicable to 777 L/N 423, 429, 454 and ON) Part #: J27076-11 Supplier: 81205 Opt Part #: J27076-5 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
G00018	Nitrogen - Gaseous, Pressurizing, 99.5 Percent Pure	A-A-59503 Type I Grade B, MIL-PRF-27401 Type I Grade A

D. Location Zones

Zone	Area
711	Nose Landing Gear

E. Prepare for the Test

SUBTASK 27-48-07-480-004

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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SUBTASK 27-48-07-410-004

WARNING OBEY THE INSTALL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-48-07-860-004

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-48-07-943-001

(4) Make sure the airplane is on the ground during the test.

F. Nose Gear Pressure Transducer Manifold Pressure Proof Test

SUBTASK 27-48-07-020-001

(1) Do these steps to isolate the manifold pressure to the pressure transducer:

NOTE: Do not set the shutoff valve [2] to the fully closed position if you broke the seal at the tube [1] connections. This will allow you to check the tube [1] connections for leaks.

(a) Set the shutoff valve [2] to the fully closed position.

(b) Install a rig pin (Included in Kit J20003-34), SPL-2537, in the rig pin hole [3] to hold the shutoff valve [2] in the closed position.

SUBTASK 27-48-07-610-005

(2) Connect the pressurized source of nitrogen.

(a) Slowly loosen the bleeder screw [6] to release the pressure in the manifold [10].

(b) Remove the bleeder screw [6] and the oil relief valve [4] from the valve body [5].

(c) Install thepressure transducer test assembly, SPL-7860 on the valve body [5].

(d) Use the landing gear strut inflator, SPL-1526, to connect the pressurized source of nitrogen, G00018, to the pressure transducer test assembly, SPL-7860.

SUBTASK 27-48-07-780-001

(3) Slowly increase the pressure in the manifold assembly until the pressure reaches 1500 psi (10,340 kPa).

SUBTASK 27-48-07-420-006

(4) Make sure that there are no leaks around the manifold assembly, the shutoff valve [2], and the pressure transducer [8].

SUBTASK 27-48-07-420-033

(5) Remove the pressurized source of nitrogen.

(a) Slowly remove all pressure from the nitrogen cart.

(b) Remove the landing gear strut inflator, SPL-1526, and the source of nitrogen, G00018, from the pressure transducer test assembly, SPL-7860.

(c) Remove the pressure transducer test assembly, SPL-7860 from the valve body [5].

(d) Install the bleeder screw [6] and the oil relief valve [4] with new packings on the valve body [5].

NOTE: Before you install the packing the bleeder screw [6] and the oil relief valve [4], immerse it in fluid, D00070. Coat all mating surfaces with fluid, D00070 before installing the bleeder screw [6] and the oil relief valve [4] on the valve body [5]

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-48-07-480-005

(1) Remove the rig pin (Included in Kit J20003-34), SPL-2537, from the rig pin hole [3].

SUBTASK 27-48-07-420-007

(2) Move the shutoff valve [2] to the fully open position.

SUBTASK 27-48-07-200-003

(3) Make sure that there are no leaks around the bleeder screw [6] and the oil relief valve [4].

SUBTASK 27-48-07-420-008

(4) Do this task: Nose Landing Gear Shock Strut Check (In-Service), TASK 12-15-02-610-809-002.

SUBTASK 27-48-07-410-005

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-48-07-410-006

(6) Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

——— END OF TASK ———

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NOSE GEAR PRESSURE TRANSDUCER SHUTOFF VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Removal of the nose gear pressure transducer shutoff valve.

(2) Installation of the nose gear pressure transducer shutoff valve.

TASK 27-48-08-000-801

2. Nose Gear Pressure Transducer Shutoff Valve Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
711	Nose Landing Gear

C. Prepare for the Removal

SUBTASK 27-48-08-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-48-08-410-001

WARNING OBEY THE INSTALL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-48-08-860-001

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-48-08-020-006

WARNING MAKE SURE THAT THE AREA IS CLEAR OF ALL PERSONNEL AND EQUIPMENT BEFORE YOU DEFLATE THE SHOCK STRUT. THE NOSE OF THE AIRPLANE WILL MOVE DOWN. THIS CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(4) Do these steps to deflate the shock strut for the nose landing gear:

(a) Remove the cap [43] from the upper air charging valve [44].

NOTE: Leave the shutoff valve [2] for the pressure transducer [8] in the OPEN position.

(b) Loosen the swivel nut [45], for the upper air charging valve [44], a maximum of two turns.

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(c) Loosen the air valve swivel nut [45] fully after all of the pressure in the shock strut [12] is released.

(d) Slowly loosen the bleeder screw [6] to release the pressure in the manifold [11].

SUBTASK 27-48-08-040-001

(5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

Row	Col	Number	Name
C	8	C31653	WEU L1
C	9	C31655	WEU L2

D. Nose Gear Pressure Transducer Shutoff Valve Removal

SUBTASK 27-48-08-020-002

(1) Disconnect the tube assy [1] from the elbow [17].

SUBTASK 27-48-08-020-003

(2) Remove the elbow [17] from the valve [2] by loosening the nut [16] and removing the retainer [32] and the retainer [13].

SUBTASK 27-48-08-020-004

(3) Remove the Shutoff Valve Adapter [10] from the valve [2]:

(a) Hold the shutoff valve adapter [10] while turning the valve [2] to loosen it from the assembly.

(b) Remove the retainer [13] from the valve [2].

(c) Hold the adapter [14] with a wrench while loosening the adapter [10].

(d) Remove the adapter [14], the retainer [13], the ring [31], and the packing [30] from the manifold [11].

SUBTASK 27-48-08-020-005

(4) Remove the shutoff valve [2] from the airplane and install a cap in the shutoff valve [2] and in the manifold [11].

——— END OF TASK ———

TASK 27-48-08-400-801

3. Nose Gear Pressure Transducer Shutoff Valve Installation

(Figure 401)

A. References

Reference	Title
12-15-02-610-805-002	Nose Landing Gear Shock Strut Servicing (P/B 301)
27-48-07-000-801	Nose Gear Pressure Transducer - Functional Test (P/B 501)
27-48-07-000-802	Nose Gear Pressure Transducer Manifold Pressure Proof - Test (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

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(Continued)

Reference	Title
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)

C. Location Zones

Zone	Area
711	Nose Landing Gear

D. Nose Gear Pressure Transducer Shutoff Valve Installation

SUBTASK 27-48-08-420-001

(1) Remove the caps from the adapters and from the Shutoff Valve [2].

SUBTASK 27-48-08-420-002

(2) Install the Shutoff Valve [2] on the manifold [11]:

NOTE: Immerse all packings and retainer rings in fluid, D00070 before installing them on the assembly. Lubricate the mating surfaces of all parts with fluid, D00070 before installing them on the assembly.

(a) Install a new packing [30], retainer ring [31], and packing [13] onto the manifold adapter [14] and install the manifold adapter [14] in the manifold [11].

1) Tighten the manifold adapter [14] to 161 - 179 pound-inches or 13.5 - 15.6 pound-feet (18.2 - 20.2 newton-meters).

(b) Install the body of the shutoff valve adapter [10] onto the Shutoff Valve [2].

1) Tighten the body of the shutoff valve adapter [10] to 161 - 179 pound-inches or 13.5 - 15.6 pound-feet (18.2 - 20.2 newton-meters).

(c) Attach the swivel nut of the shutoff valve adapter [10] to the manifold adapter [14].

1) Tighten the swivel nut of the shutoff valve adapter [10] to 256.5 - 283.5 pound-inches or 21.4 - 23.6 pound-feet (29.0 - 32.0 newton-meters).

SUBTASK 27-48-08-420-003

(3) Install the elbow [17] to the Shutoff Valve [2]:

(a) Install the nut [16] onto the elbow [17].

(b) Put the packing [13] and the retainer ring [32] on the elbow [17].

(c) Attach the elbow [17] to the Shutoff Valve [2] at the approximate angle shown in Figure 401.

1) Tighten the lock nut [16] on the elbow [17] to 256.5 - 283.5 pound-inches or 21.4 - 23.6 pound-feet (29.0 - 32.0 newton-meters).

(d) Remove the cap from the tube assembly [1] and attach the tube assembly [1] to the elbow [17].

SUBTASK 27-48-08-700-001

(4) Do a pressure proof test of the nose gear shutoff valve assembly. To test the assembly, do this task: Nose Gear Pressure Transducer Manifold Pressure Proof - Test, TASK 27-48-07-000-802.

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SUBTASK 27-48-08-700-002

(5) If the nose gear pressure transducer or the pressure transducer connector was disturbed while doing maintenance on the shutoff valve, do a functional test of the nose gear pressure transducer. To test the transducer, do this task: Nose Gear Pressure Transducer - Functional Test, TASK 27-48-07-000-801.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-48-08-420-004

(1) Do this task: Nose Landing Gear Shock Strut Servicing, TASK 12-15-02-610-805-002.

SUBTASK 27-48-08-040-002

(2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

Row	Col	Number	Name
C	8	C31653	WEU L1
C	9	C31655	WEU L2

SUBTASK 27-48-08-410-002

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-48-08-410-003

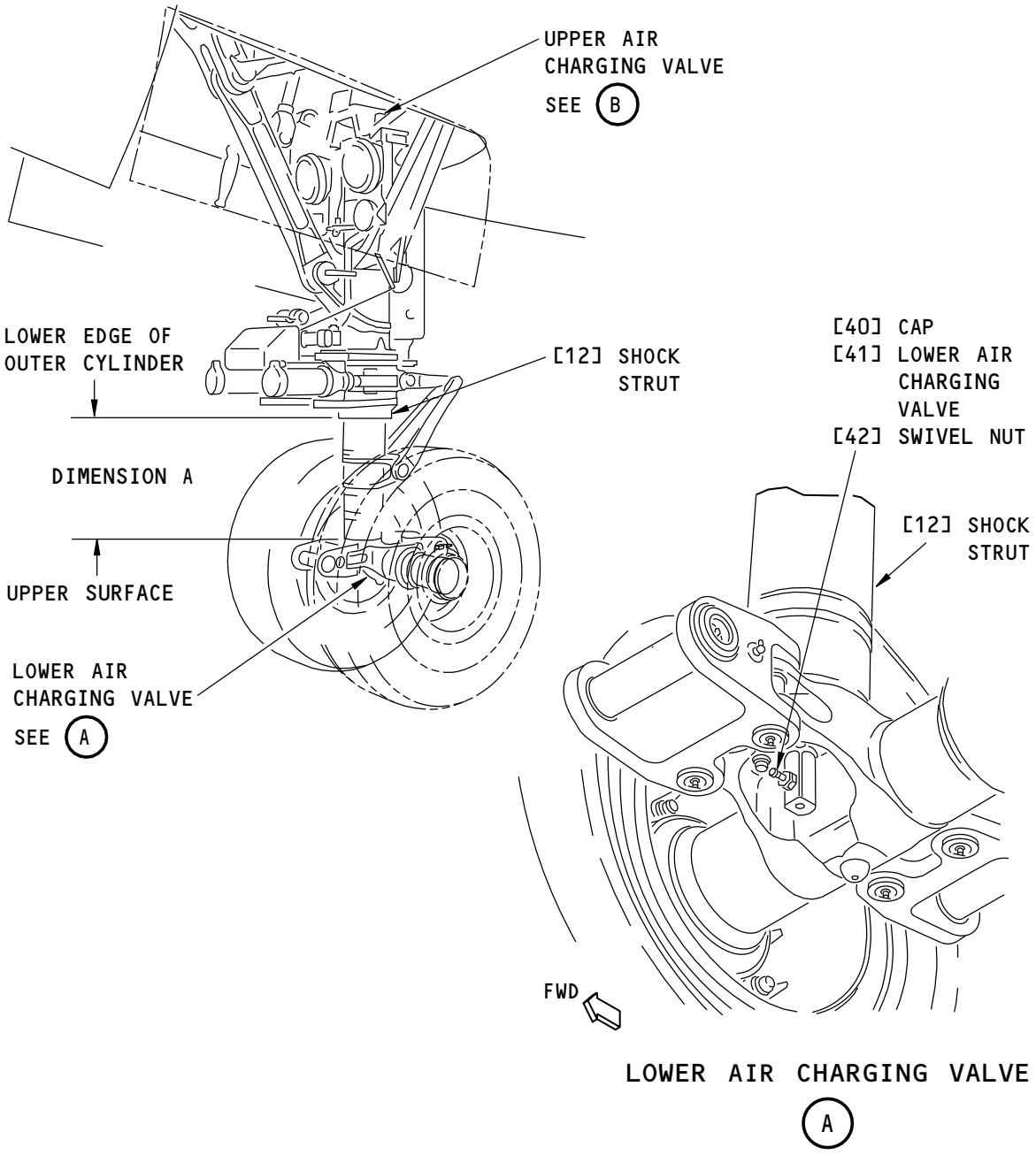
(4) Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

SUBTASK 27-48-08-860-002

(5) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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1 IMMERSE IN MIL-H-5606 BEFORE INSTALLATION

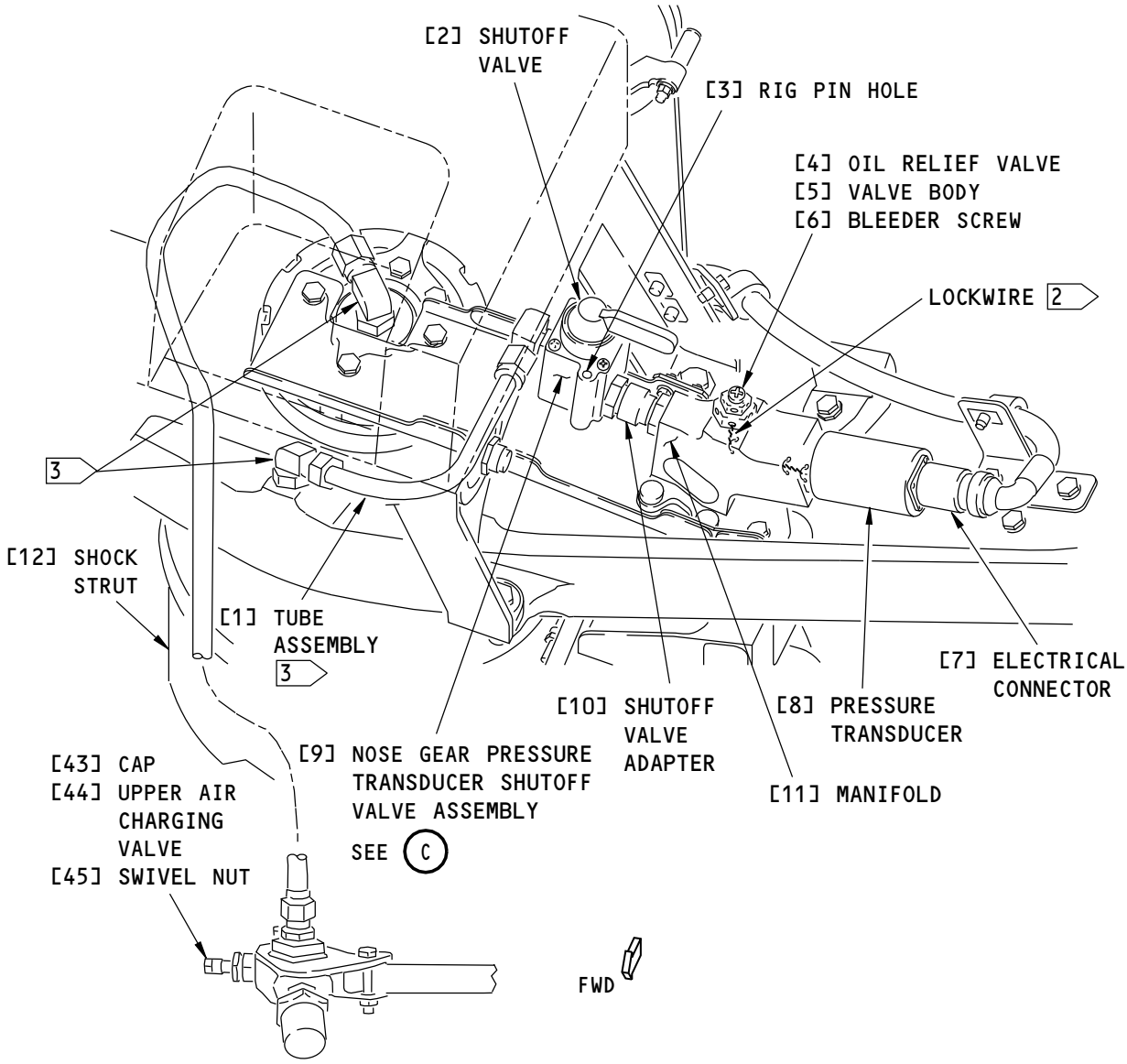
2 LOCKWIRE USING THE DOUBLE-TWIST METHOD

3 INSTALL ELBOWS IN THE APPROXIMATE ANGULAR ORIENTATION SHOWN.

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Nose Gear Pressure Transducer Shutoff Valve Installation
Figure 401/27-48-08-990-801 (Sheet 1 of 3)

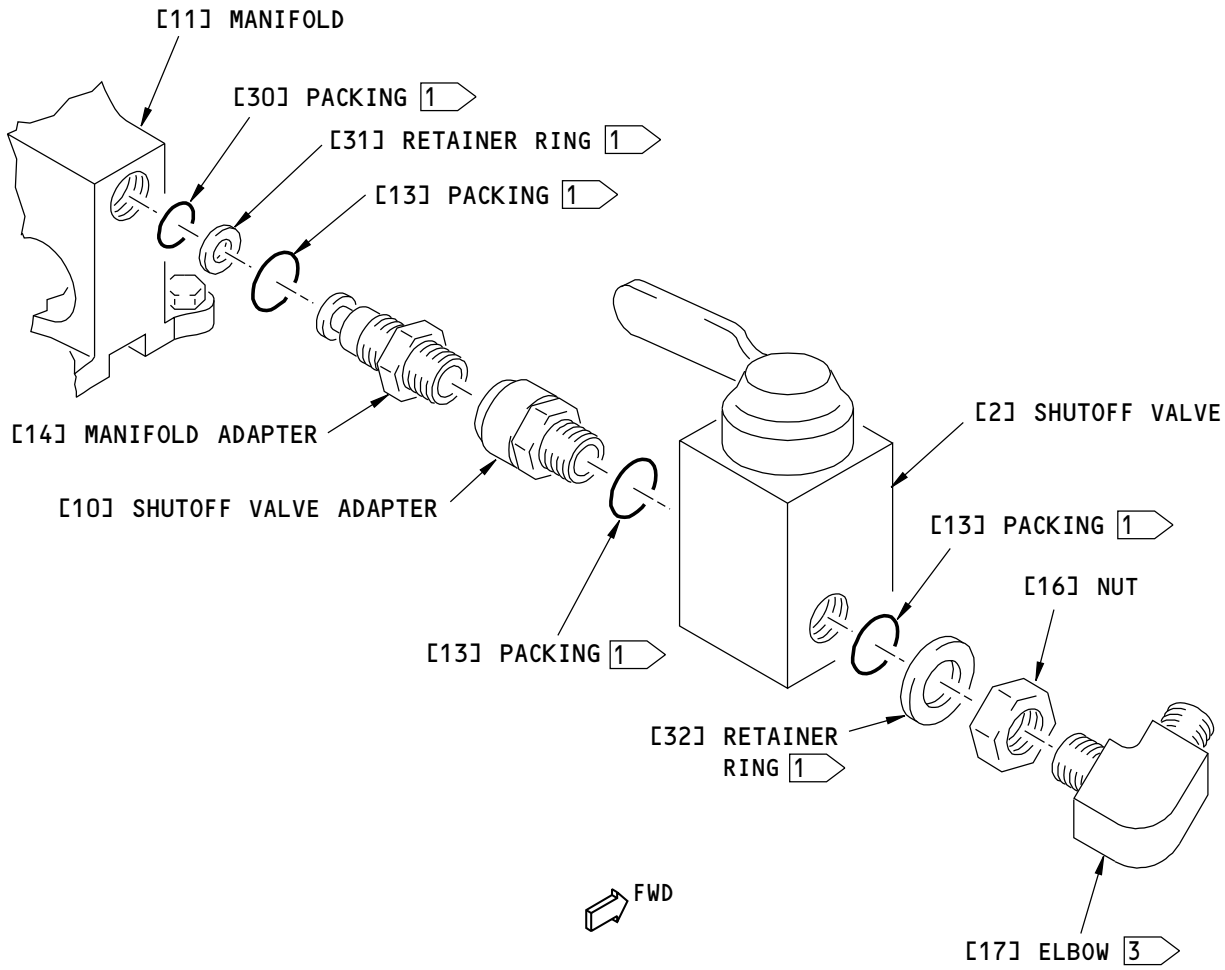
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Nose Gear Pressure Transducer Shutoff Valve Installation
Figure 401/27-48-08-990-801 (Sheet 2 of 3)

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NOSE GEAR PRESSURE TRANSDUCER
SHUTOFF VALVE ASSEMBLY

C

W10536 S0000129153_V1

Nose Gear Pressure Transducer Shutoff Valve Installation
Figure 401/27-48-08-990-801 (Sheet 3 of 3)

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TRAILING EDGE FLAP SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks for the trailing edge flap system:

(1) A task to deactivate the trailing edge flaps

(2) A task to activate the trailing edge flaps

(3) A task to operate the system with primary control

(4) A task to operate the system with secondary control

(5) A task to operate the system with alternate control

(6) A task to manually operate the system without airplane power

(7) A task to extend the trailing edge flaps with the leading edge slats retracted and disabled

(8) A task to extend the trailing edge flaps

(9) A task to retract the trailing edge flaps.

TASK 27-51-00-040-801

2. Trailing Edge Flap Deactivation

(Figure 201)

A. General

(1) Use this task to deactivate the trailing edge flap system.

(2) There are two procedures in this task to deactivate the flap:

(a) If you will not do maintenance on the trailing edge flap system, it is only necessary to do the Flap Deactivation procedure.

(b) If you will do maintenance on the trailing edge flap system, do the Flap Deactivation procedure and the Deactivation for Flap Maintenance procedure.

B. References

Reference	Title
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
144	Main Landing Gear Wheel Well, Right

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(Continued)

Zone	Area
212	Flight Compartment, Right

E. Flap Deactivation

SUBTASK 27-51-00-860-072

(1) Open these circuit breakers and install safety locks:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1

SUBTASK 27-51-00-480-012

(2) Put DO NOT OPERATE tag, STD-858 on the flap control lever and the ALTN FLAPS switches.

F. Deactivation for Flap Maintenance

NOTE: It is necessary to do the Flap Deactivation before you do the Deactivation for Flap Maintenance.

SUBTASK 27-51-00-040-006

(1) If you will do work on the trailing edge flap system, do these steps:

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

(c) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors for the trailing edge flaps:

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1) Disconnect the electrical connectors from the flap primary control valve (Figure 201).

   NOTE: The flap primary control valve is installed in the right main wheel well.

2) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors on the primary control valve and the connector plugs.

   NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

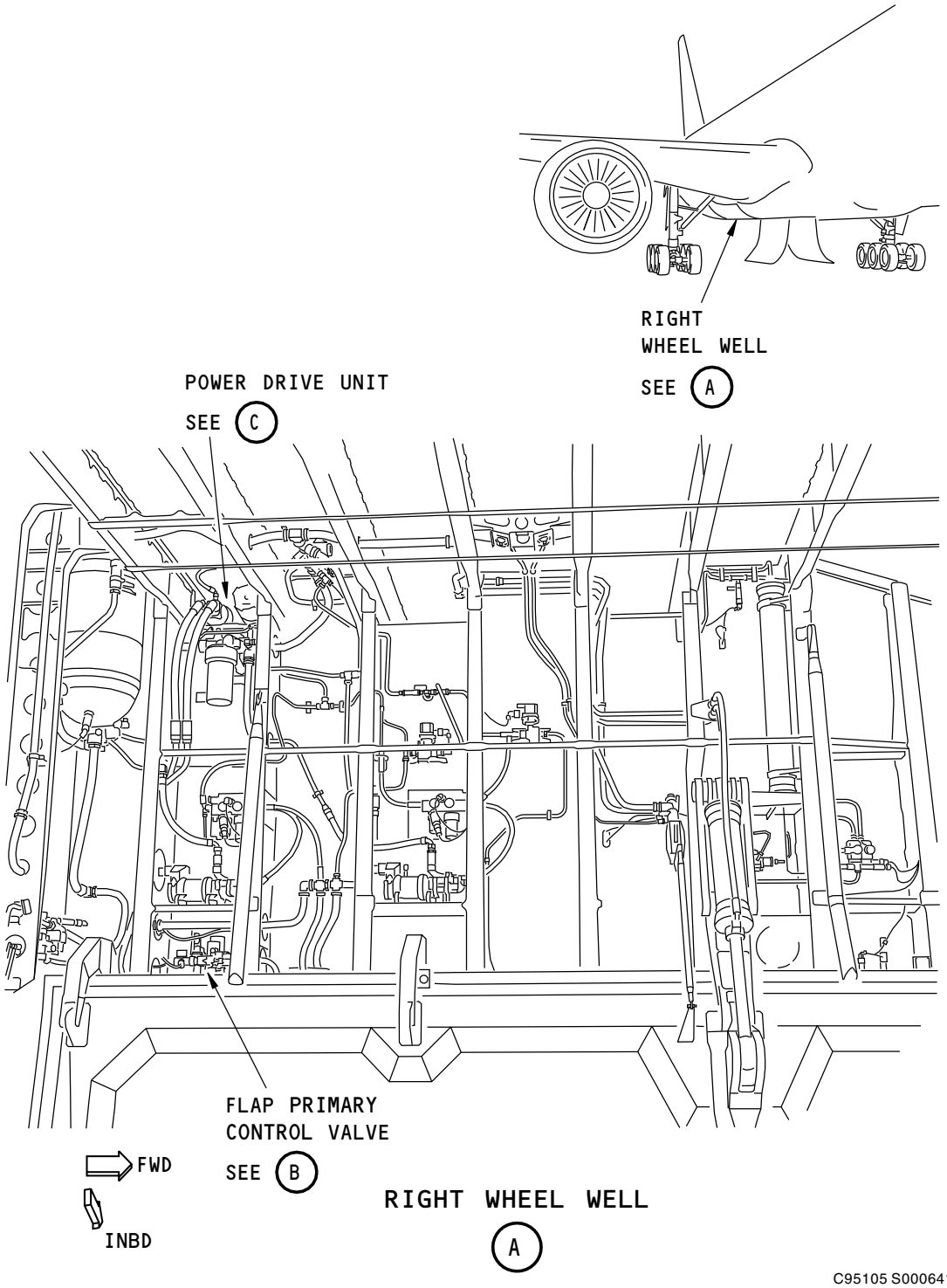
3) Disconnect the electrical connector from the flap electric motor (Figure 201).

4) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connector on the electric motor and the connector plug.

   NOTE: The cover for the electric motor is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

——— END OF TASK ———

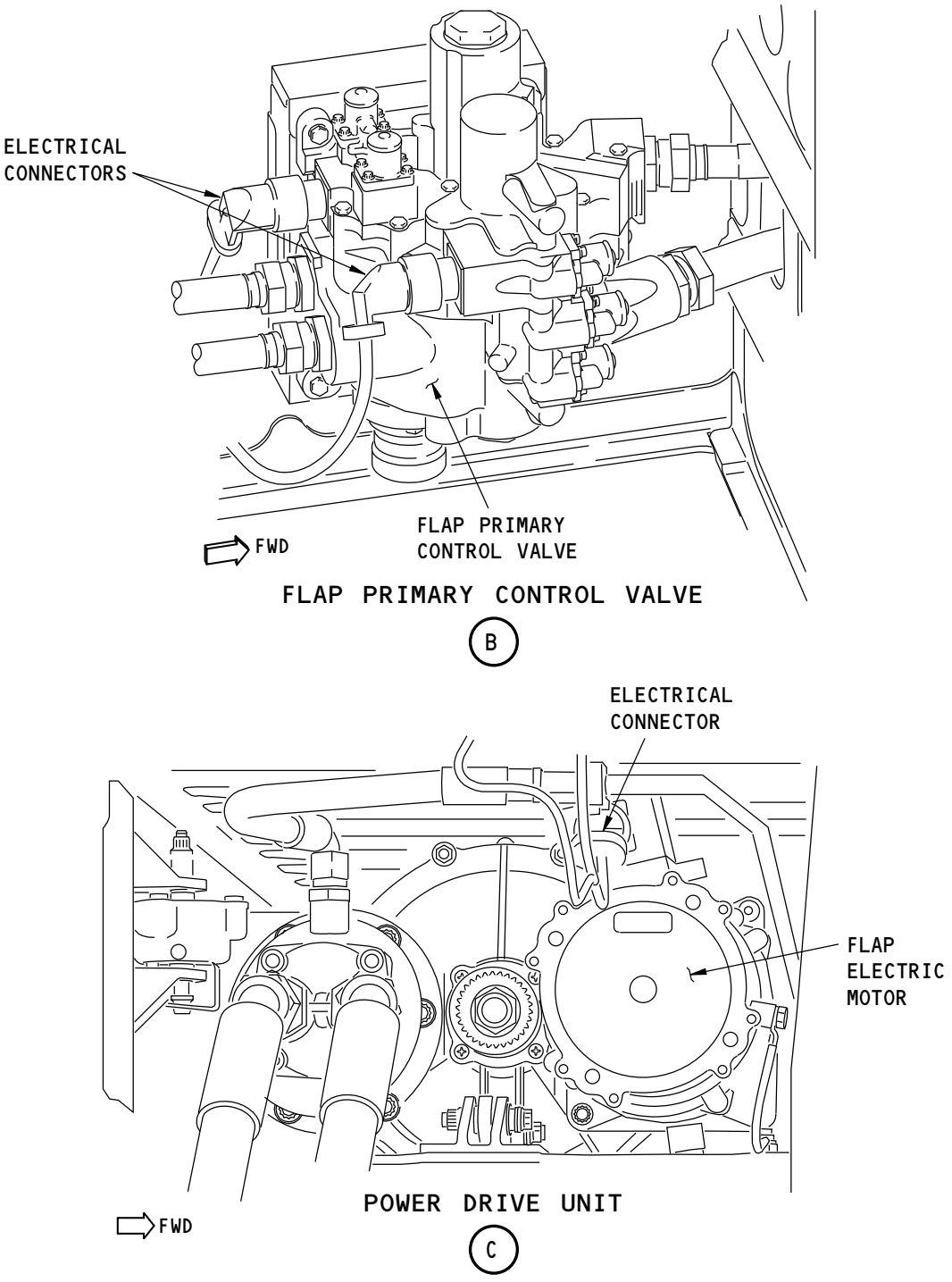
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Trailing Edge Flap Deactivation
Figure 201/27-51-00-990-801 (Sheet 1 of 2)

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Trailing Edge Flap Deactivation
Figure 201/27-51-00-990-801 (Sheet 2 of 2)

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TASK 27-51-00-440-801

3. Trailing Edge Flap Reactivation

(Figure 201)

A. General

(1) Use this procedure to reactivate the trailing edge flap system.

(2) It is necessary to do a test of the flap primary control valve and the flap electric motor during this procedure if the electrical connectors were disconnected.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-05-740-801	Flap Primary Control Valve Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
144	Main Landing Gear Wheel Well, Right
212	Flight Compartment, Right

E. Procedure

SUBTASK 27-51-00-440-004

(1) If the electrical connectors for the flap primary control valve and the electric motor were disconnected, do these steps:

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

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(c) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connectors for the trailing edge flaps:

1) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connector for the flap electric motor.

NOTE: The cover for the electric motor is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

2) Connect the electrical connector to the electric motor.

3) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connectors for the flap primary control valve.

NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

4) Connect the two electrical connectors to the flap primary control valve.

SUBTASK 27-51-00-860-002

(2) Remove the safety locks and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1

SUBTASK 27-51-00-080-006

(3) Remove the DO NOT OPERATE tag, STD-858 from the flap control lever and the ALTN FLAPS switches.

SUBTASK 27-51-00-710-003

(4) If you connected the electrical connectors for the flap primary control valve and the electric motor, do these tests of the flap drive system:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Make sure the thrust reverser cowls are closed.

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CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(c) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(d) Do this task: Flap Primary Control Valve Test, TASK 27-51-05-740-801.

(e) Make sure the flap electric motor operates:

1) Use the alternate control system to electrically extend the flaps for a minimum of two seconds.

2) Use the alternate control system to electrically retract the flaps.

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(f) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

TASK 27-51-00-860-801

4. Trailing Edge Flap System Operation With Primary Control

A. General

(1) The primary control system uses the center hydraulic system to move the flaps.

(2) The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps at their usual rate. With the ACMPs only, the system will operate at approximately 1/5 the usual rate. To operate at the usual rate you must use the Air Driven Pumps (ADPs) or a hydraulic service cart to supply hydraulic power.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-00-860-027

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-210-001

(2) Make sure the covers are not installed on the electrical connectors for the flap primary control valve (Figure 201).

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SUBTASK 27-51-00-210-018

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-008

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-860-028

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps at their usual rate. With the ACMPs only, the system will operate at approximately 1/5 the usual rate. To operate at the usual rate you must use the Air Driven Pumps (ADPs) or a hydraulic service cart to supply hydraulic power.

SUBTASK 27-51-00-860-003

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAP TORQUE TUBES, SLAT TORQUE TUBES, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Move the flap control lever to the applicable detent position (Figure 202).

NOTE: The flaps will move to the retracted position when the flap control lever is in the 1-unit position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-004

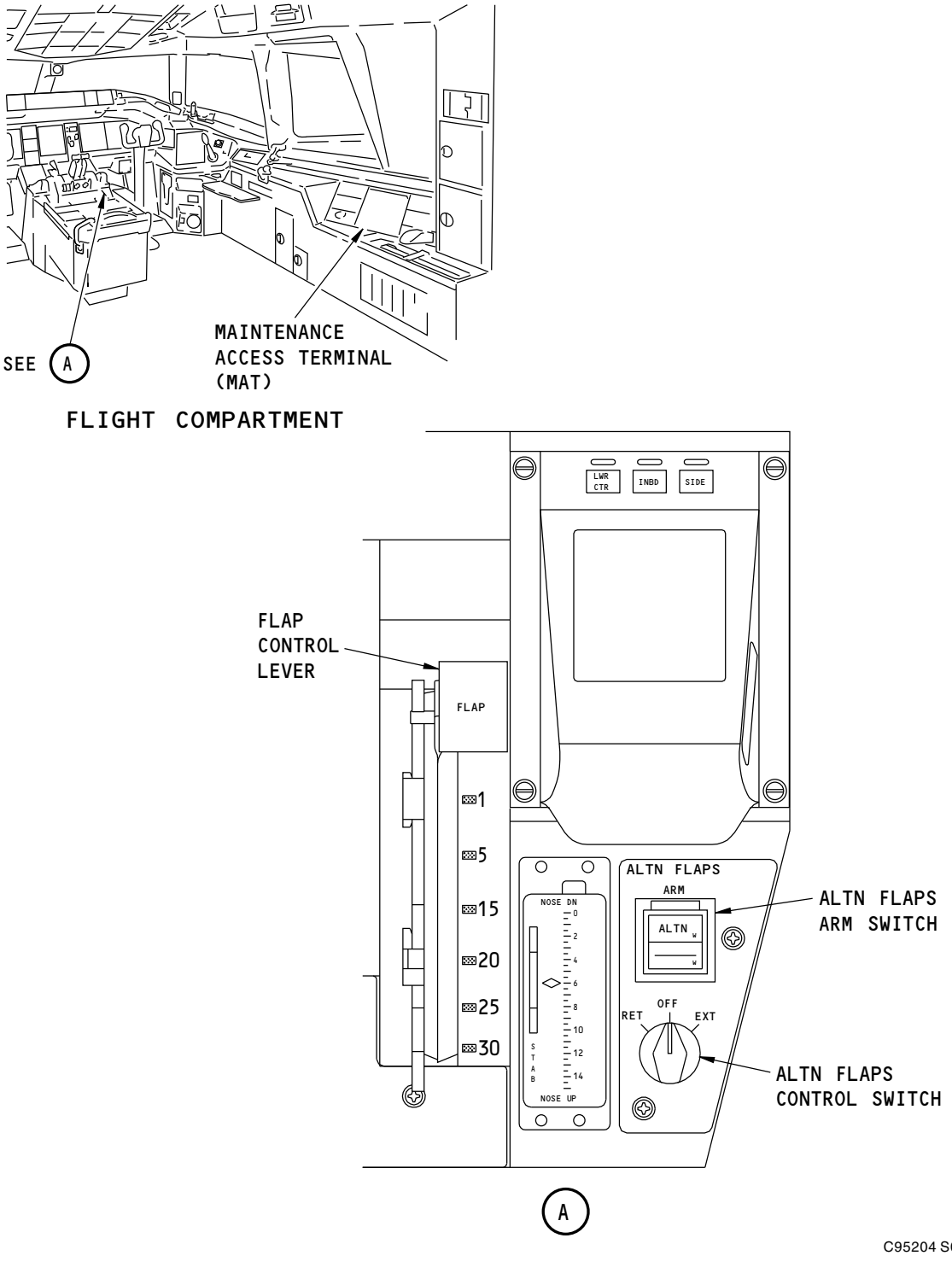
(1) Move the flap control lever to the UP position to retract the flaps and slats.

SUBTASK 27-51-00-860-029

(2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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Trailing Edge Flap System Operation
Figure 202/27-51-00-990-802

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TASK 27-51-00-860-803

5. Trailing Edge Flap System Operation With Secondary Control

A. General

(1) The secondary control system uses electrical power to move the flaps.

(2) It is necessary to override the secondary mode inhibit on the Maintenance Access Terminal (MAT) before you operate the system. For instructions on how to use a MAT, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(3) When you override the secondary mode inhibit, the flaps will operate with the electric motor.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-00-860-031

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-210-002

(2) Make sure the covers are not installed on the electrical connectors for the flap primary control valve or the flap electric motor (Figure 201).

SUBTASK 27-51-00-210-020

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-009

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-860-005

(5) Use a maintenance access terminal (MAT) to override the secondary mode inhibit:

(a) Make these selections on the MAT:

1) OTHER FUNCTIONS
2) SPECIAL FUNCTIONS
3) 27 HIGH LIFT SYSTEM
4) SECONDARY INHIBIT OVERRIDE-FSEU 1 or SECONDARY INHIBIT OVERRIDE-FSEU 2

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5) CONTINUE
6) CONTINUE
7) START FUNCTION
8) CONTINUE

SUBTASK 27-51-00-860-006

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAP TORQUE TUBES, SLAT TORQUE TUBES, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Move the flap control lever to the applicable detent position (Figure 202).

NOTE: After you override the secondary mode inhibit, you have 15 seconds to move the flap control lever. It will be necessary to override the secondary mode inhibit again before you can move the flaps to a different position.

If there has been a fault with the primary system, the secondary display mode will show.

If there has not been a fault with the primary system, the primary display mode will show.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-007

(1) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-51-00-860-008

(2) Move the flap control lever to the UP position to retract the flaps.

——— END OF TASK ———

TASK 27-51-00-860-802

6. Trailing Edge Flap System Operation With Alternate Control

A. General

(1) The alternate control system uses electrical power to move the flaps.

(2) The flaps will not extend past the 20-unit position during alternate system operation.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-00-860-033

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-210-003

(2) Make sure the covers are not installed on the electrical connectors for the flap primary control valve or the flap electric motor (Figure 201).

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SUBTASK 27-51-00-210-022

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-010

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-860-009

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAP TORQUE TUBES AND SLAT TORQUE TUBES. THE FLAPS, SLATS AND TORQUE TUBES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system (Figure 202).

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-51-00-860-010

(6) Move the ALTN FLAPS control switch to EXT or RET to extend or retract the flaps and slats as it is necessary.

SUBTASK 27-51-00-860-011

(7) Move the ALTN FLAPS control switch to OFF.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-012

WARNING MAKE SURE THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPERONS. THE FLAPERONS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Move the ALTN FLAPS control switch until the flaps are in the same position as the flap control lever or move the flap control lever to the position of the flaps (Table 201).

Table 201/27-51-00-993-807 Flap Positions

Flap Lever Position	Dimension X Ballscrew 4 or 5	EICAS Maintenance Page Indication
UP	0.80 ±0.09	8.97 to 12.03

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Table 201/27-51-00-993-807 Flap Positions (Continued)

Flap Lever Position	Dimension X Ballscrew 4 or 5	EICAS Maintenance Page Indication
5	12.32 ±0.25	163.19 to 171.34
15	15.06 ±0.25	200.53 to 208.67
20	17.86 ±0.25	238.78 to 246.92
25	22.26 ±0.25	298.84 to 306.99
30	25.58 ±0.25	344.13 to 353.07

SUBTASK 27-51-00-860-013

(2) Move the ALTN FLAPS control switch to OFF.

SUBTASK 27-51-00-860-014

(3) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

SUBTASK 27-51-00-210-004

(4) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

——— END OF TASK ———

TASK 27-51-00-980-801

7. Trailing Edge Flap System Manual Operation

(Figure 203)

A. General

(1) Use this task to manually operate the trailing edge flap system without airplane power.

B. References

Reference	Title
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1736	Nutrunner - Angle, Pneumatic Drive, Reversible Part #: 55RNAL-3T-4 Supplier: 65LN0

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
212	Flight Compartment, Right

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E. Procedure

SUBTASK 27-51-00-210-011

> **CAUTION** MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-480-006

> **WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-00-480-007

> **WARNING** OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-00-040-001

> **WARNING** DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-00-010-001

(5) Remove the coverplate from the manual drive on the one of the position sensor gearboxes.

SUBTASK 27-51-00-980-001

> **WARNING** MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS AND THE FLAP TORQUE TUBES. THE FLAPS AND TORQUE TUBES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

> **CAUTION** DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

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(CAUTION PRECEDES)

CAUTION

DO NOT LET THE BALLSCREW NUTS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE POSITION SENSOR GEARBOX.

(6) Turn the manual drive on the position sensor gearbox to extend or retract the trailing edge flaps to the applicable position (Table 201).

NOTE: The maximum torque necessary to turn the drive system in the retract direction is 1000 pound-inches. The maximum torque necessary to turn the drive system in the extend direction is 620 pound-inches. You can use a pneumatic nutrunner, COM-1736 to turn the manual drive. Refer to the placard above the position sensor gearbox for the correct direction to turn the manual drive. Look at the number 4 or 5 ballscrew or the EICAS maintenance page to find the position of the flaps.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-980-002

WARNING

MAKE SURE THE POSITION OF THE FLAPS AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER THE FLAPS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Turn the manual drive until the flaps are in a position which agrees with the flap control lever.

SUBTASK 27-51-00-410-001

(2) Install the coverplate on the flap position sensor gearbox.

SUBTASK 27-51-00-440-001

(3) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-00-080-003

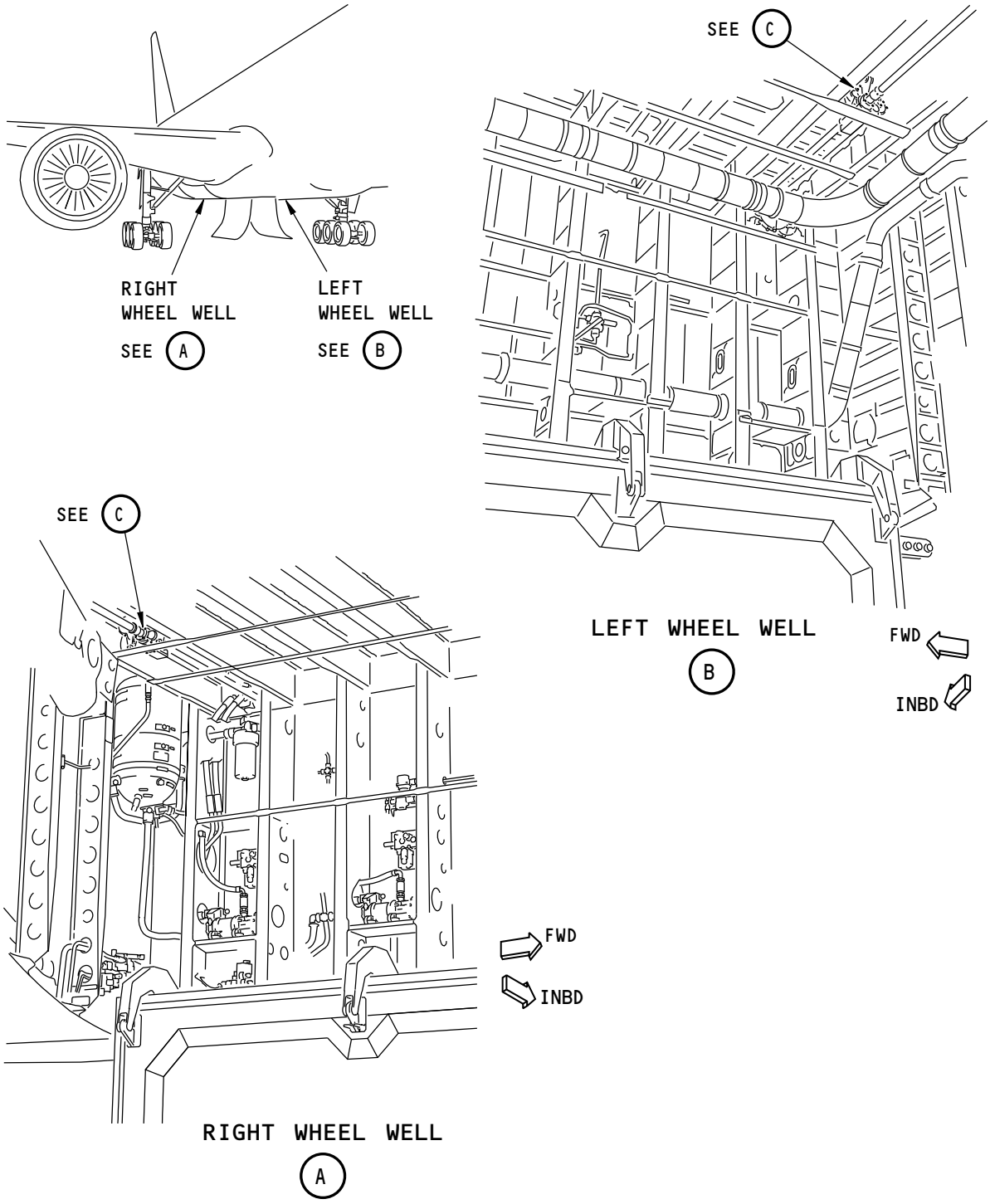
WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

——— END OF TASK ———

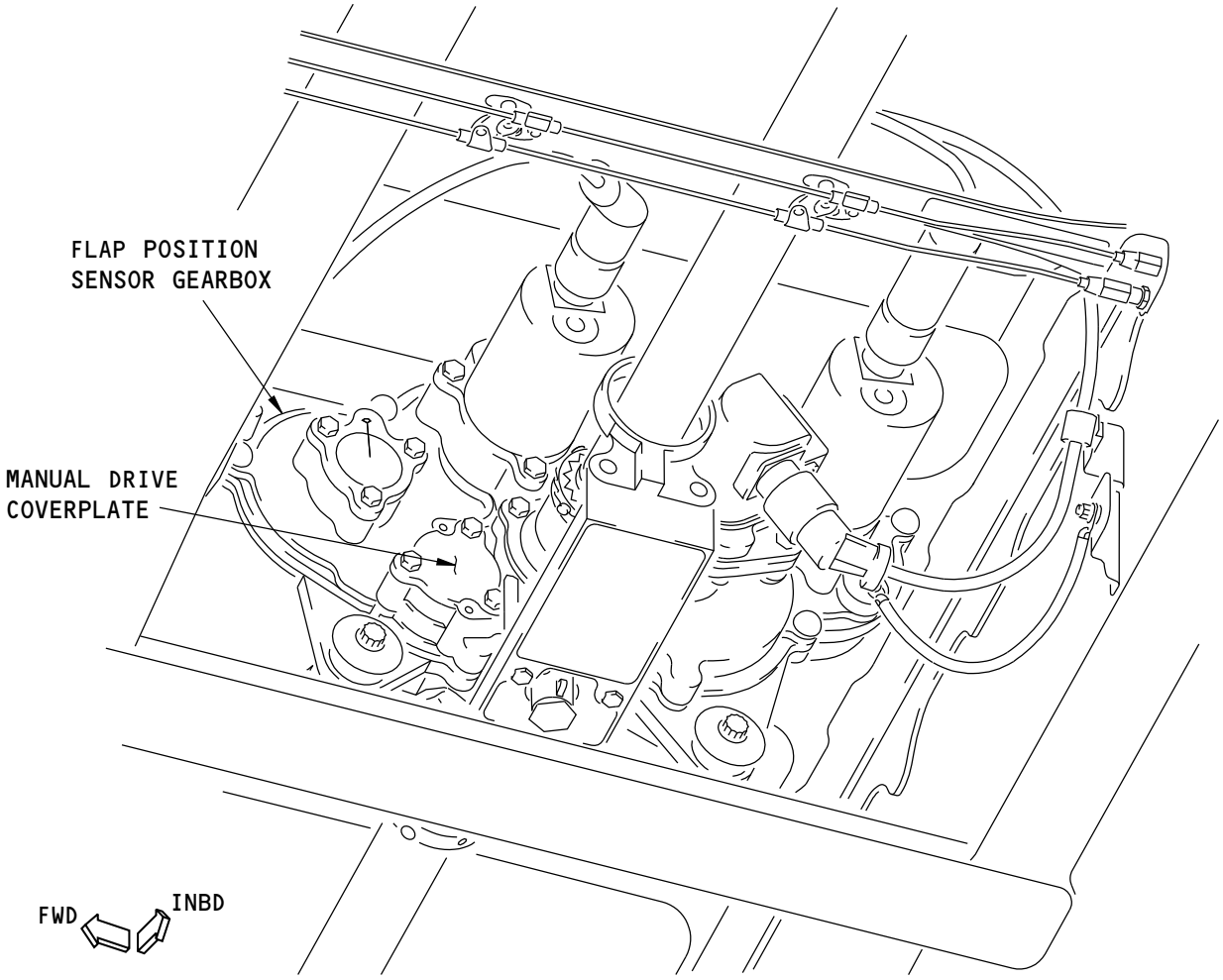
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Trailing Edge Flap System Manual Operation
Figure 203/27-51-00-990-803 (Sheet 1 of 3)

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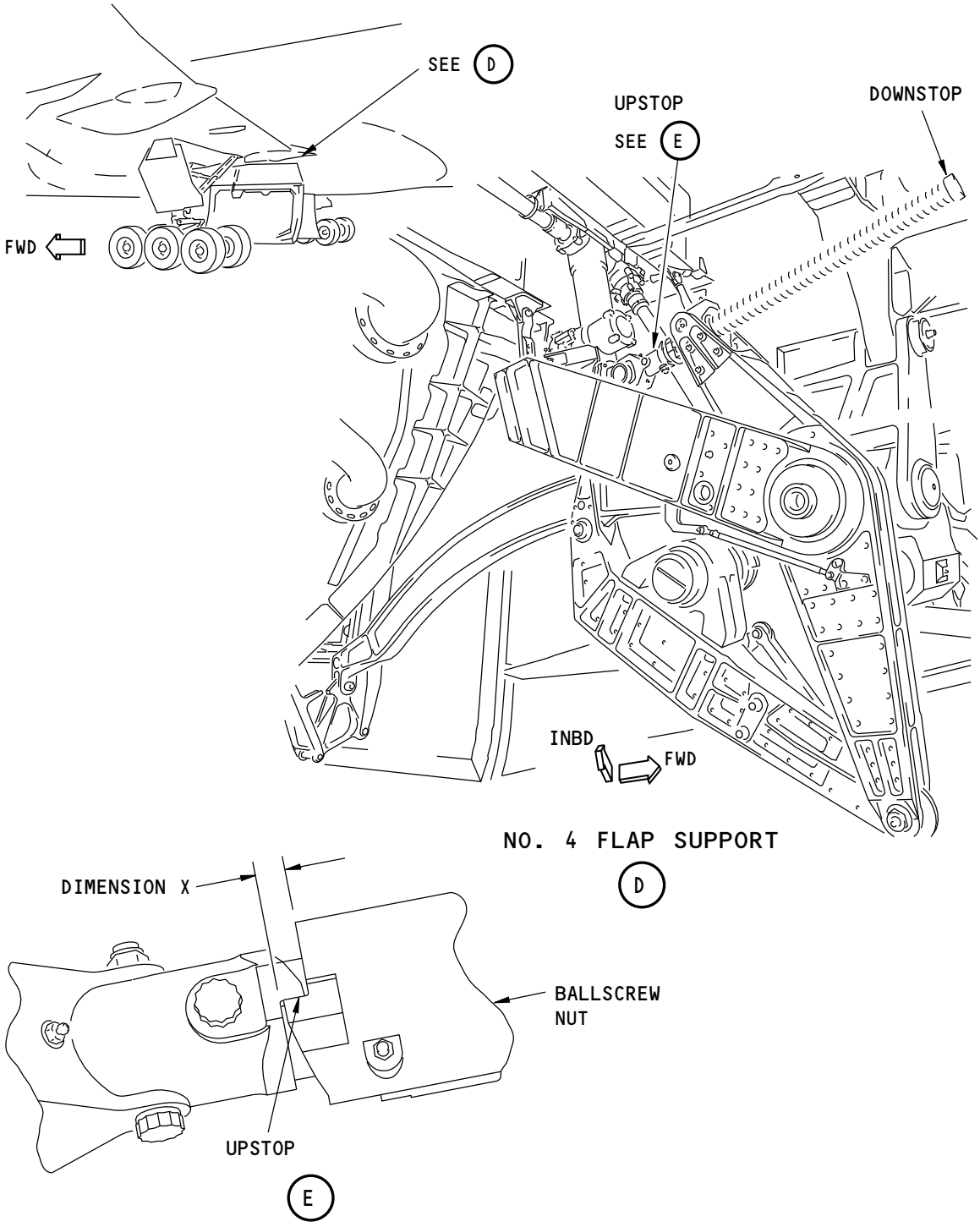
FLAP POSITION SENSOR GEARBOX
(RIGHT GEARBOX SHOWN, LEFT GEARBOX EQUIVALENT)

C

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Trailing Edge Flap System Manual Operation
Figure 203/27-51-00-990-803 (Sheet 2 of 3)

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Trailing Edge Flap System Manual Operation
Figure 203/27-51-00-990-803 (Sheet 3 of 3)

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TASK 27-51-00-980-802

8. Trailing Edge Flap System Extension With Leading Edge Slats Retracted and Disabled

A. General

(1) Use this task to extend the flaps to the 30-unit position when the leading edge slats are in the retracted position and disabled.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1736	Nutrunner - Angle, Pneumatic Drive, Reversible Part #: 55RNAL-3T-4 Supplier: 65LN0

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
212	Flight Compartment, Right

E. Procedure

SUBTASK 27-51-00-860-035

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-210-005

(2) Make sure the flap control lever is in the UP position.

SUBTASK 27-51-00-210-012



CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-51-00-480-008

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-00-480-009

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-00-040-002

(6) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-51-00-210-006

(7) Make sure the covers are not installed on the electrical connectors for the flap primary control valve or the flap electric motor (Figure 201).

SUBTASK 27-51-00-860-015

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS AND THE FLAP TORQUE TUBES. THE FLAPS AND TORQUE TUBES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system (Figure 202).

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-51-00-860-016

(9) Move the ALTN FLAPS control switch to EXT to extend the flaps to the 20-unit position.

SUBTASK 27-51-00-860-017

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPERONS. THE FLAPERONS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(10) Move the ALTN FLAPS control switch to OFF.

SUBTASK 27-51-00-860-018

(11) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

(a) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL is off.

SUBTASK 27-51-00-040-003

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(12) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-00-010-002

(13) Remove the coverplate from the manual drive on one of the position sensor gearboxes (Figure 203).

SUBTASK 27-51-00-980-003

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAP WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

CAUTION DO NOT LET THE BALLSCREW NUTS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE POSITION SENSOR GEARBOX.

(14) Turn the manual drive on the position sensor gearbox to extend the trailing edge flaps to the 30-unit position:

NOTE: Turn the manual drive until the distance between the ballscrew nut and the downstop on the number 4 or 5 ballscrew is approximately 3/4 inch. The maximum torque necessary to turn the drive system in the extend direction is 620 pound-inches. You can use a pneumatic nutrunner, COM-1736 to turn the manual drive. Refer to the placard above the position sensor gearbox for the correct direction to turn the manual drive.

SUBTASK 27-51-00-410-002

(15) Install the coverplate on the position sensor gearbox.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-440-002

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-00-860-019

(2) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system (Figure 202).

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-51-00-860-020

(3) Move the ALTN FLAPS control switch to RET to retract the flaps to the UP position.

SUBTASK 27-51-00-860-021

(4) Move the ALTN FLAPS control switch to OFF.

SUBTASK 27-51-00-860-022

(5) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

(a) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL is off.

SUBTASK 27-51-00-440-003

(6) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-51-00-080-004

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

——— END OF TASK ———

TASK 27-51-00-860-804

9. Extend the Trailing Edge Flaps

(Figure 204)

A. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
212	Flight Compartment, Right

B. Procedure

SUBTASK 27-51-00-210-024

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-013

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-860-037

(3) Do one of these tasks to extend the trailing edge flaps:

(a) To extend the flaps with hydraulic power, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(b) To extend the flaps with electrical power in secondary mode, do this task: Trailing Edge Flap System Operation With Secondary Control, TASK 27-51-00-860-803.

(c) To extend the flaps with electrical power in alternate mode, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802.

NOTE: You can only extend the flaps to the 20-unit position in alternate mode.

(d) To manually extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

(e) To extend the flaps with the slats retracted, do this task: Trailing Edge Flap System Extension With Leading Edge Slats Retracted and Disabled, TASK 27-51-00-980-802.

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(f) Make sure no trip indicators on the flap transmisions are released (Figure 204).

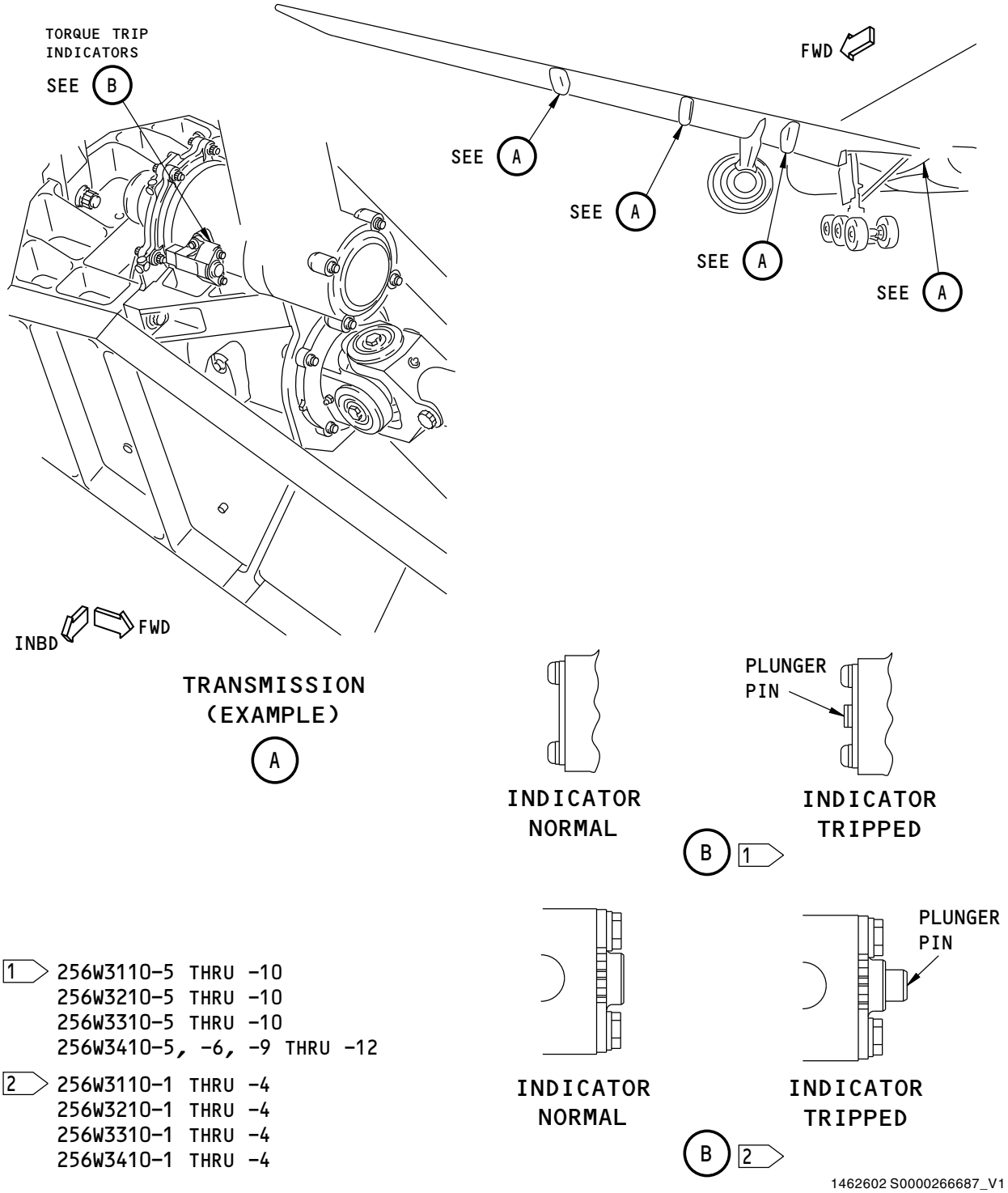
NOTE: If a trip indicator is above the adjacent surface, the trip indicator was released. If there is no history of a TE FLAP DISAGREE message on EICAS, then you do not need to remove or replace the flap transmission.

1) Manually reset the torque trip indicator.

a) Push the pin in until the end stays aligned with the housing.

——— END OF TASK ———

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Torque Trip Indicators
Figure 204/27-51-00-990-807

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TASK 27-51-00-860-805

10. Retract the Trailing Edge Flaps

(Figure 204)

A. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
212	Flight Compartment, Right

B. Procedure

SUBTASK 27-51-00-210-026

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-014

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-860-038

(3) Do one of these tasks to retract the trailing edge flaps:

(a) To retract the flaps with hydraulic power, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(b) To retract the flaps with electrical power in secondary mode, do this task: Trailing Edge Flap System Operation With Secondary Control, TASK 27-51-00-860-803.

(c) To retract the flaps with electrical power in alternate mode, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802.

(d) To manually retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

(e) Make sure no trip indicators on the flap transmissions are released (Figure 204).

NOTE: If a trip indicator is above the adjacent surface, the trip indicator was released. If there is no history of a TE FLAP DISAGREE message on EICAS, then you do not need to remove or replace the flap transmission.

1) Manually reset the torque trip indicator.

a) Push the pin in until the end stays aligned with the housing.

END OF TASK

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TRAILING EDGE FLAP SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An adjustment of the drive system for the trailing edge flaps

(2) A test of the flap control lever

(3) Self tests of the Flap/Slat Electronic Units (FSEUs)

(4) An automatic test of the primary flap control system

(5) An automatic test of the secondary flap control system

(6) A test of the alternate flap control system.

(7) An operational test of the alternate flap control switches

(8) A software configuration check of the Flap/Slat Electronics Units (FSEUs).

(9) An operational test of the flap transmission no-back brake.

TASK 27-51-00-820-801

2. Trailing Edge Flap Drive System Adjustment

A. General

(1) This task includes the adjustment of the drive system for the trailing edge flaps.

(2) The procedure to adjust the inboard flaps is in (TASK 27-51-11-820-801).

(3) The flaps must be in the retracted position to do this task.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
27-59-00-720-801	Flap Skew Sensor - Rigging Check (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1736	Nutrunner - Angle, Pneumatic Drive, Reversible Part #: 55RNAL-3T-4 Supplier: 65LN0
COM-4534	Phase Angle Voltmeter Part #: 2250A-N0 Supplier: 0VGU1 Opt Part #: 2250 Supplier: 0VGU1 Opt Part #: 2250-F1 Supplier: 0VGU1
SPL-1704	Adapter - Drive, T.E. Flap Torque Tube Coupling Part #: J27021-1 Supplier: 81205
SPL-12897	Adapter Cable - Tester, Flap Skew Sensor Part #: J27083-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
212	Flight Compartment, Right
550	Subzone 550 - Wing Trailing Edge - Aft of Rear Spar
560	Subzone 560 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon
650	Subzone 650 - Wing Trailing Edge - Aft of Rear Spar
660	Subzone 660 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon

F. Prepare for the Adjustment

SUBTASK 27-51-00-480-010

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-00-480-011

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-00-010-007

(3) For the outboard fairing for the inboard flaps, do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-00-010-003

(4) For the outboard fairing for the inboard flaps, do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

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SUBTASK 27-51-00-010-004

(5) For the flap support fairings on the outboard flaps, do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-00-860-069

(6) Retract the trailing edge flaps to the UP position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

G. Trailing Edge Flap Drive System Adjustment

SUBTASK 27-51-00-040-004

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-00-010-005

(2) Remove the coverplate from the manual drive on one of the position sensor gearboxes (Figure 501).

SUBTASK 27-51-00-980-004

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAP WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

(3) Carefully use the manual drive on the position sensor gearbox to move the flap drive system in the retract direction until one of the ballscrew nuts touches the upstop.

NOTE: If necessary, remove the deflection control fitting rub pads.

NOTE: Refer to the placard above the position sensor gearbox for the correct direction to turn the manual drive. Look at the number 4 or 5 ballscrew while you move the flaps. You can use a pneumatic nutrunner, COM-1736 to move the flap drive system.

SUBTASK 27-51-00-980-005

(4) Hold the flap drive system with the ballscrew nuts in contact with the upstops with 900-1100 pound-inches torque.

NOTE: If you do not hold the flap drive system in this position, the flaps will move down.

SUBTASK 27-51-00-210-027

(5) Do a check of the clearance between the ballscrew nuts and the upstops on the yokes for all of the transmissions for the trailing edge flaps (Figure 502).

(a) Make sure a minimum of one yoke touches the ballscrew nut and the clearances at the other transmissions are a maximum of 0.40 inches.

SUBTASK 27-51-00-820-001

(6) If the clearance between the ballscrew nuts and the upstops was not in the limit, adjust the position of the ballscrew nuts:

(a) Release the torque from the flap drive system.

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(b) Disconnect the adjustable couplings for the torque tubes [1] inboard and outboard of the applicable transmission:

1) Remove the screws [4] that attach the coupling sleeve [3] to the splined coupling [5].

2) Remove the coupling sleeve [3] from the splined coupling [5].

(c) Use a T.E. flap torque tube coupling drive adapter, SPL-1704 to manually turn the torque tubes [1] until the ballscrew nuts are against the upstops.

(d) Connect the adjustable couplings for the torque tubes [1] inboard and outboard of the applicable transmission:

1) Apply grease, D00633 to the coupling sleeves [3].

2) Put the splined couplings [5] in the coupling sleeves [3].

NOTE: If the couplings do not align, turn one of the torque tubes in the extend direction one spline tooth.

3) Install the screws [4].

4) Tighten the screws [4].

NOTE: Do not over tighten the screws [4].

5) Install the lockwire on the screws [4].

(e) Retract the flap drive system and hold it with the ballscrew nuts in contact with the upstops with 900-1100 pound-inches torque.

(f) Make sure the clearance between the ballscrew nuts and the upstops is in the limit.

SUBTASK 27-51-00-210-032

(7) With the transmission upstops in contact, make sure the rig indicators on the two position sensor gearboxes are 180 ±20 degrees from the rig mark on the gearbox (Figure 501).

SUBTASK 27-51-00-820-002

(8) If the rig indicators are not 180 ±20 degrees from the rig mark, adjust the position sensor gearboxes [7] (Figure 502):

(a) Disconnect the adjustable couplings on the outboard side of the two position sensor gearboxes [7] and on the left side of the flap power drive unit (PDU) [6].

1) Remove the screws [4] that attach the coupling sleeve [3] to the splined coupling [5].

2) Remove the coupling sleeve [3] from the splined coupling [5].

(b) Manually turn the position sensor gearboxes [7] in the extend direction until the rig indicators align with the rig mark.

(c) Connect the adjustable coupling on the left side of the PDU [6] to connect the position sensor gearboxes [7].

1) Apply grease, D00633 to the coupling sleeve [3].

2) Put the splined coupling [5] in the coupling sleeve [3].

NOTE: If the couplings do not align, turn one of the torque tubes in the extend one spline tooth.

3) Install the screws [4].

4) Tighten the screws [4].

NOTE: Do not over tighten the screws [4].

5) Install the lockwire on the screws [4].

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(d) Retract the flap drive system for the left and right wings and hold it with the ballscrew nuts in contact with the upstops with 900-1100 pound-inches torque.

(e) Manually turn the flap drive system for the left and right wings to turn the torque tubes four turns ±30 degrees in the extend direction.

(f) Connect the adjustable couplings for the torque tubes [1] on the outboard side of each position sensor gearbox [7].

1) Apply grease, D00633 to the coupling sleeves [3].

2) Put the splined couplings [5] in the coupling sleeves [3].

3) Install the screws [4].

4) Tighten the screws [4].

NOTE: Do not over tighten the screws [4].

5) Install lockwire on the screws [4].

SUBTASK 27-51-00-980-006

(9) Retract the flap drive system for the left and right wings and hold it with the ballscrew nuts in contact with the upstops with 900-1100 pound-inches torque.

SUBTASK 27-51-00-210-033

(10) Make sure the rig indicators on the two flap position sensor gearboxes are 180 ±20 degrees off the rig mark.

SUBTASK 27-51-00-980-007

(11) Manually turn the position sensor gearbox [7] in the extend direction four turns of the torque tube.

SUBTASK 27-51-00-210-046

(12) Make sure the rig indicators on the two flap position sensor gearboxes are aligned.

SUBTASK 27-51-00-980-008

(13) Reset the torque brake trip indicators on transmissions 1 through 8, if they have been tripped, by fully depressing the plunger until it locks Figure 502.

SUBTASK 27-51-00-860-073

(14) Extend the trailing edge flaps to the 30-unit position, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-00-820-003

(15) Do the following steps to rig the RVT flap skew sensor at each position (1 through 8):

(a) Disconnect the two electrical connectors from the RVT flap skew sensor.

(b) Attach a phase angle voltmeter, COM-4534 and adapter cable, SPL-12897 to the two electrical connectors and apply power.

1) Attach the phase angle voltmeter, COM-4534 to 115 VAC.

2) Set the reference voltage to 28 VAC +/- 0.2 VAC.

3) Set the reference frequency to 400 Hz +/- 1.0 Hz.

4) Set mode switch to LVDT/RVDT.

5) Set the unit switch to be in Phase VAC.

6) Set the LVDT/RVDT load switch to 10K ohms.

7) Turn the phase angle voltmeter, COM-4534 to OFF or to STBY.

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8) Attach the phase angle voltmeter, COM-4534 to the two RVDT electrical connectors as follows:
   a) Attach the RVT Pin 1 to excitation HI.
   b) Attach Pin 3 to excitation LO.
   c) Attach Pin 6 to LVDT/RVDT input HI.
   d) Attach Pin 5 to LVDT/RVDT input LO.
9) Turn the phase angle voltmeter, COM-4534 on.

(c) Verify that the phase angle voltmeter, COM-4534 reads 8.45 - 8.55 volts on both channels.

NOTE: For sensors at positions 1, 2, 4, and 6 the signal should be positive. For sensors at positions 3, 5, 7, and 8 the signal should be negative.

(d) Do the following steps if the voltage is outside the range:
1) Loosen the adjustment nuts on the control rod and adjust the adjustment sleeve until the target voltage is obtained on both channels.
2) Tighten the larger adjustment nut on the control rod to 80 ±2 in-lb (9.0 ±0.3 N·m) and install lockwire.
3) Tighten the smaller adjustment nut on the control rod to 19 ±1 in-lb (2.1 ±0.2 N·m) and install lockwire.

(e) Disconnect the phase angle voltmeter, COM-4534 and adapter cable, SPL-12897 and re-attach the electrical connectors.

(f) Retract the trailing edge flaps to the UP position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-00-010-006

NOTE: If deflection control fitting rub pads were removed, reinstall them.

(16) Install the coverplate on the manual drive for the position sensor gearbox.

SUBTASK 27-51-00-210-028

(17) Make sure the rig indicators on the four flap position indicators align.

SUBTASK 27-51-00-210-029

(18) Make sure the rig indicator on the flap limit switch aligns.

NOTE: The flap limit switch is installed on the right flap position sensor gearbox.

SUBTASK 27-51-00-040-007

(19) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-00-720-015

(20) Do this task to verify that the flap skew sensors were rigged correctly: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-51-00-740-002

(21) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-040-008

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-00-410-003

(2) Do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-00-410-004

(3) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-00-010-008

(4) Do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804.

SUBTASK 27-51-00-040-005

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

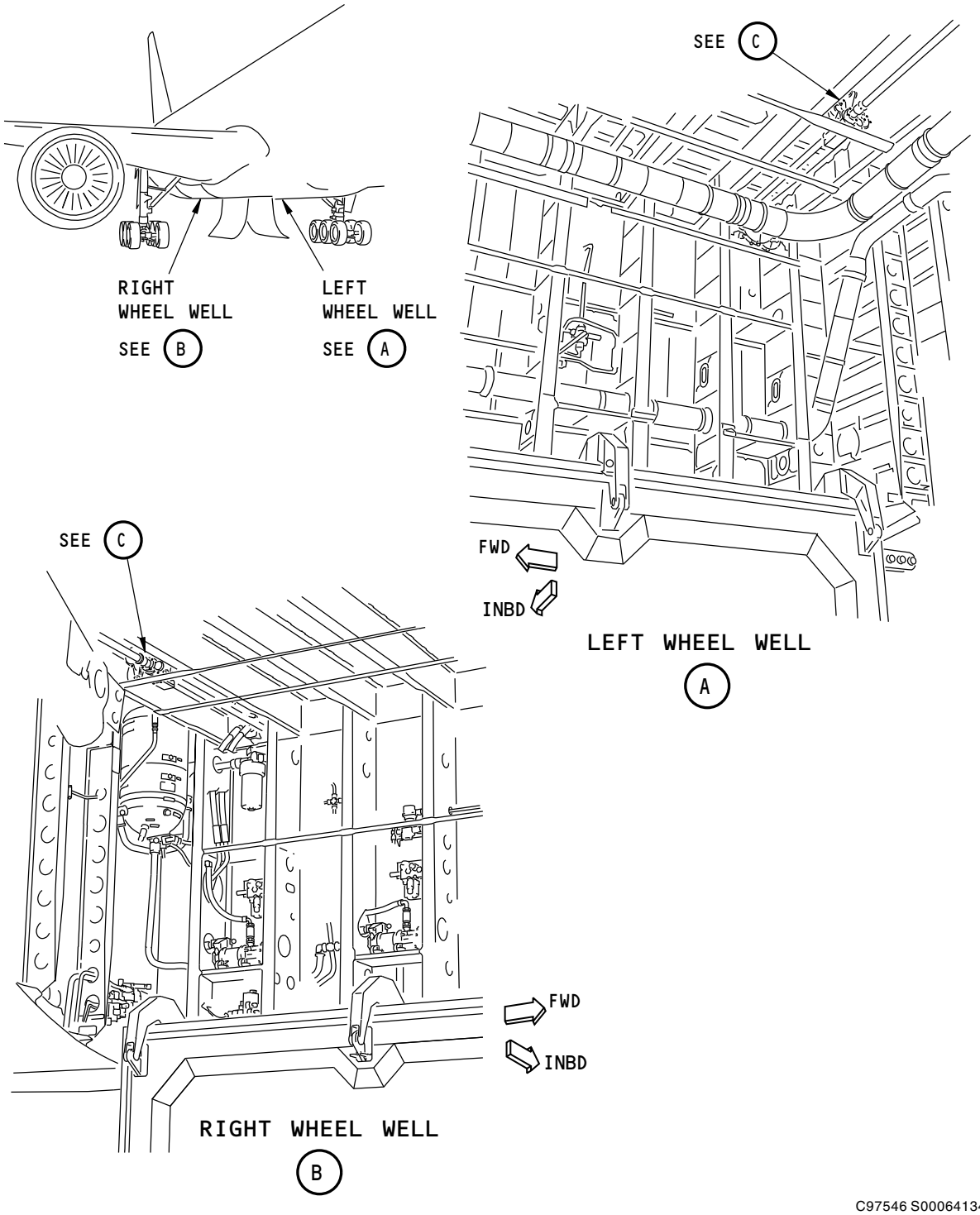
SUBTASK 27-51-00-080-005

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

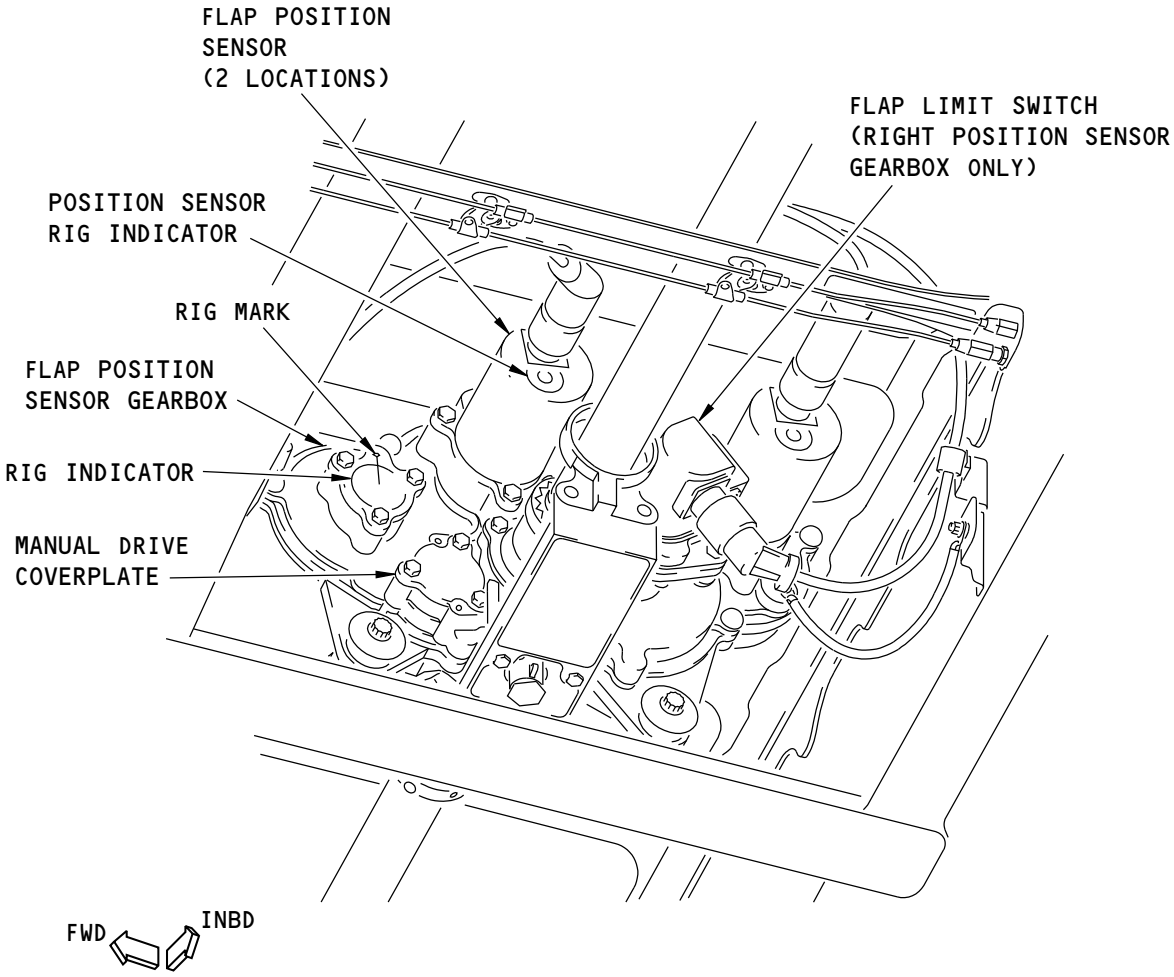
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Flap Position Sensor Gearbox
Figure 501/27-51-00-990-804 (Sheet 1 of 2)

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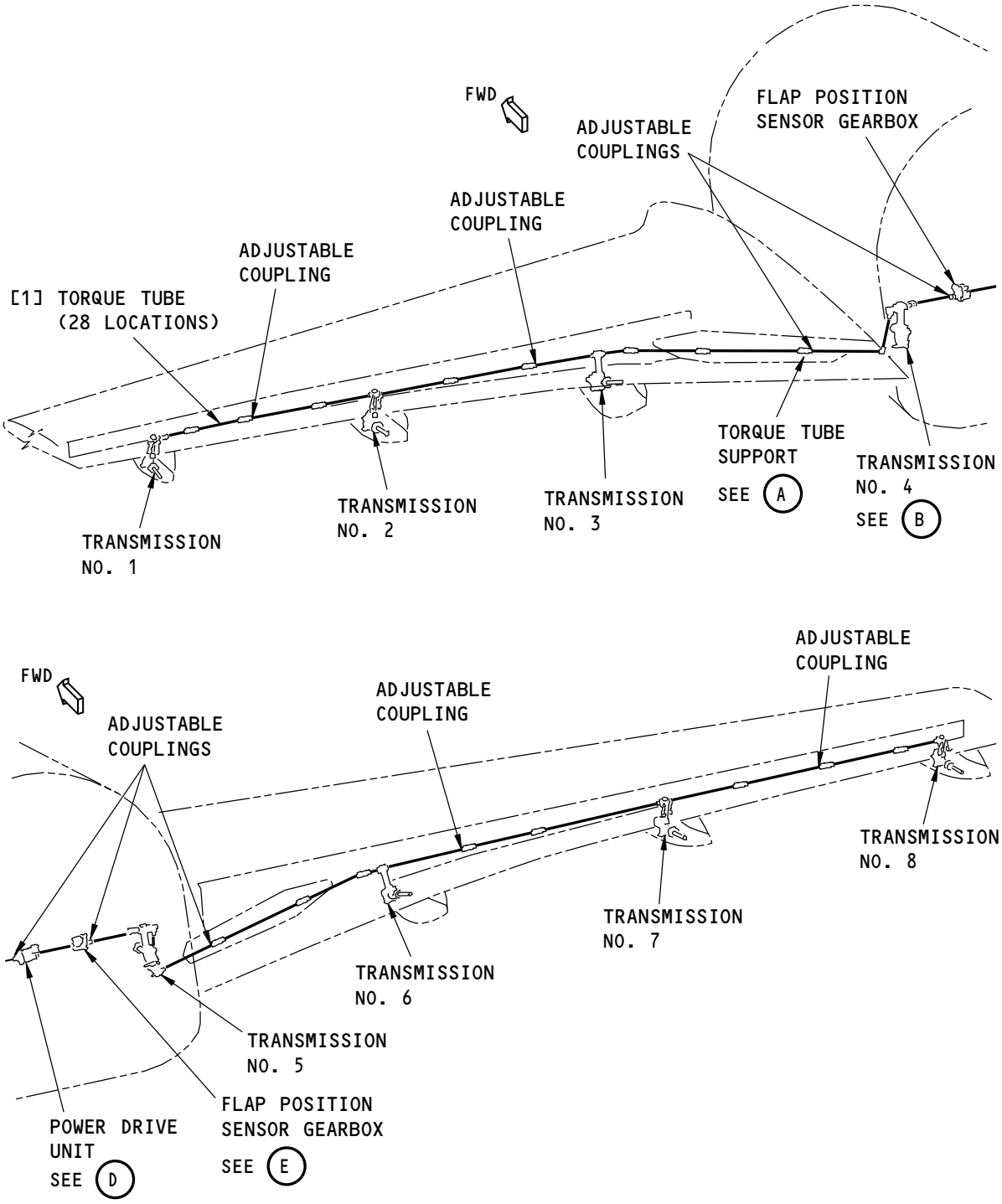
RIGHT POSITION SENSOR GEARBOX IS SHOWN
(LEFT GEARBOX IS EQUIVALENT)

C

C97563 S0006413456_V1

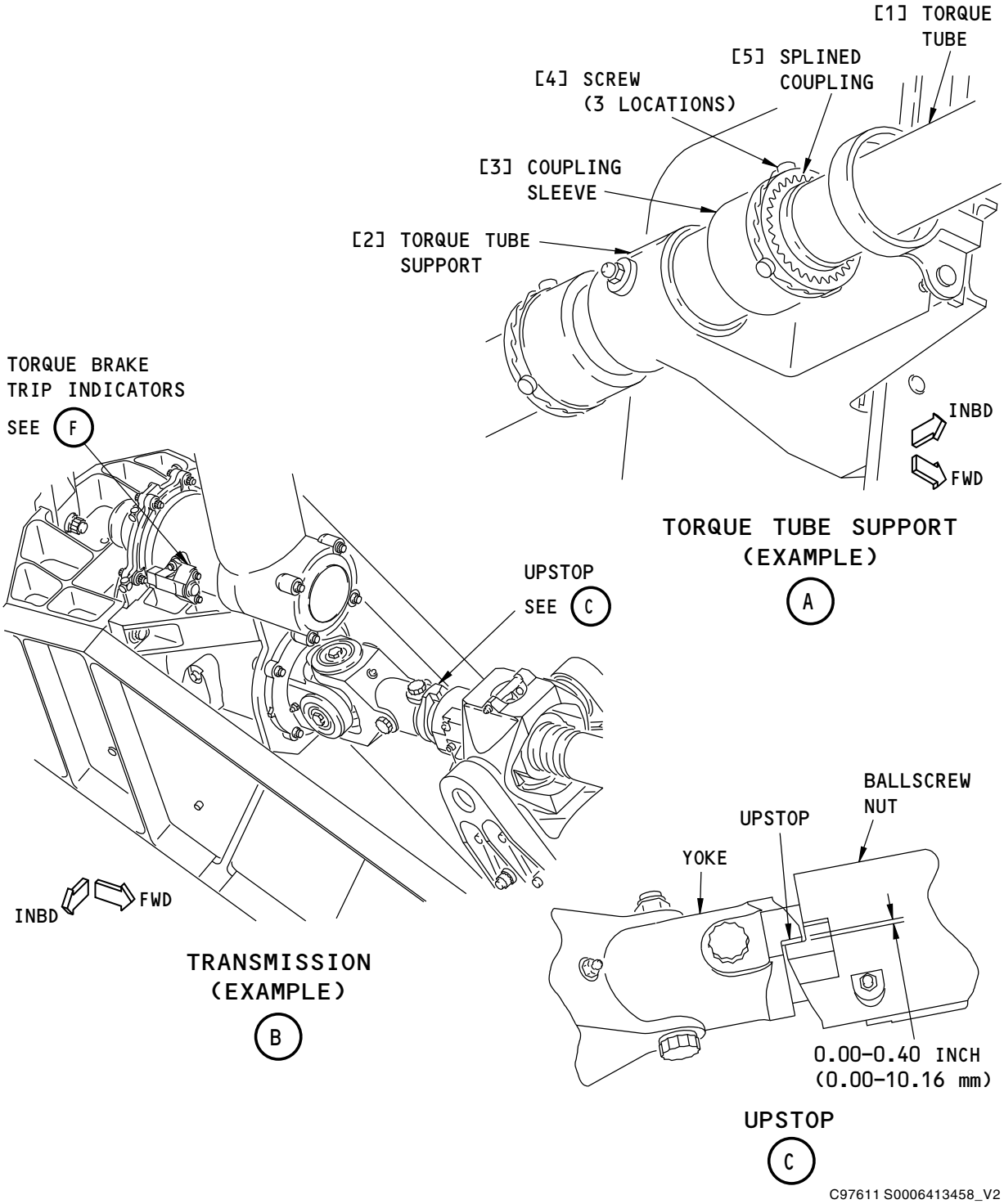
Flap Position Sensor Gearbox
Figure 501/27-51-00-990-804 (Sheet 2 of 2)

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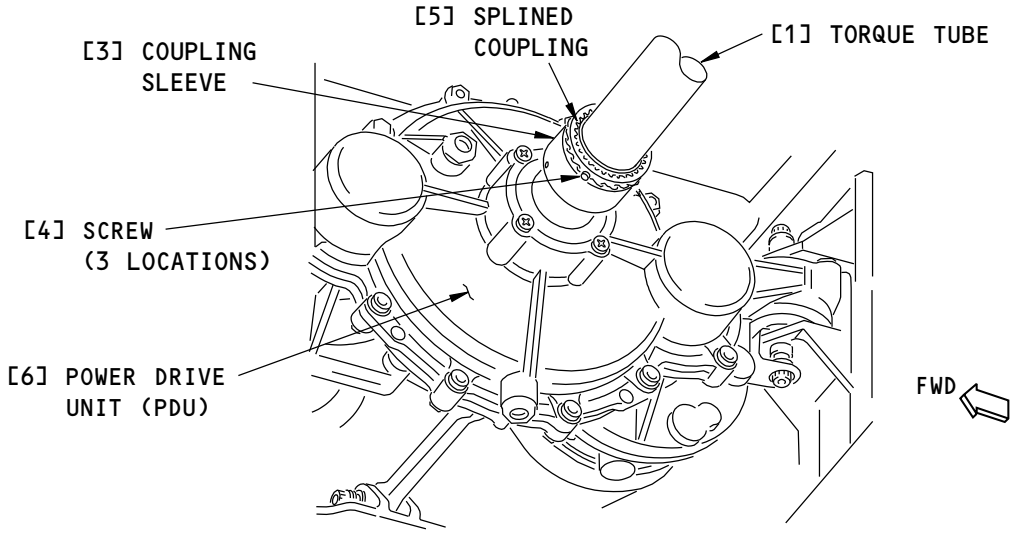
Flap Drive System Adjustment
Figure 502/27-51-00-990-805 (Sheet 1 of 4)

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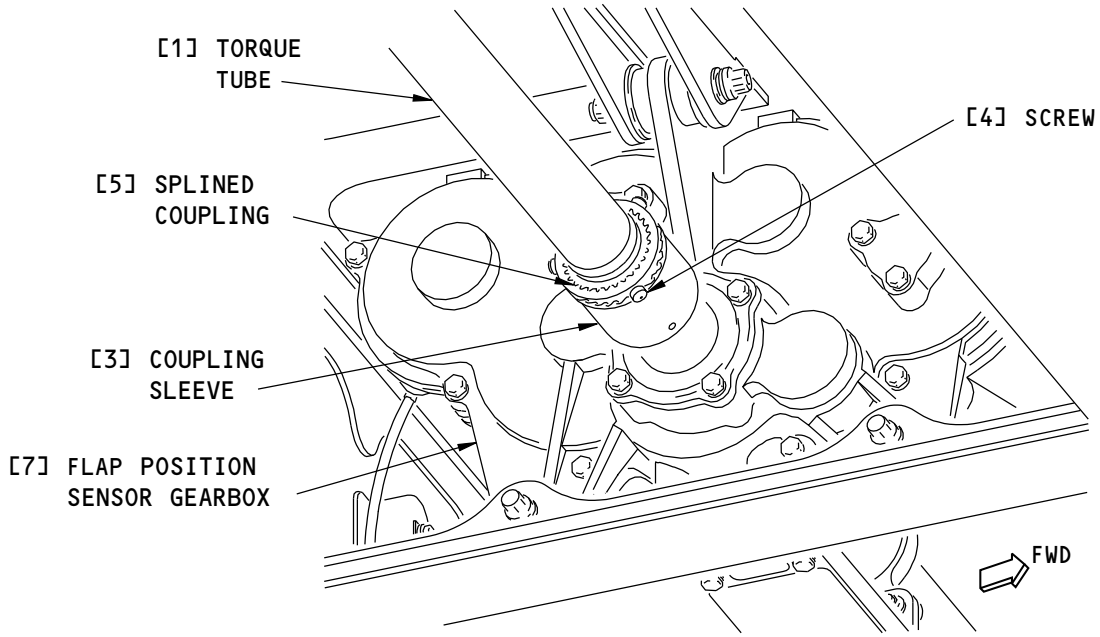
Flap Drive System Adjustment
Figure 502/27-51-00-990-805 (Sheet 2 of 4)

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POWER DRIVE UNIT (PDU)
(LEFT SIDE)

D



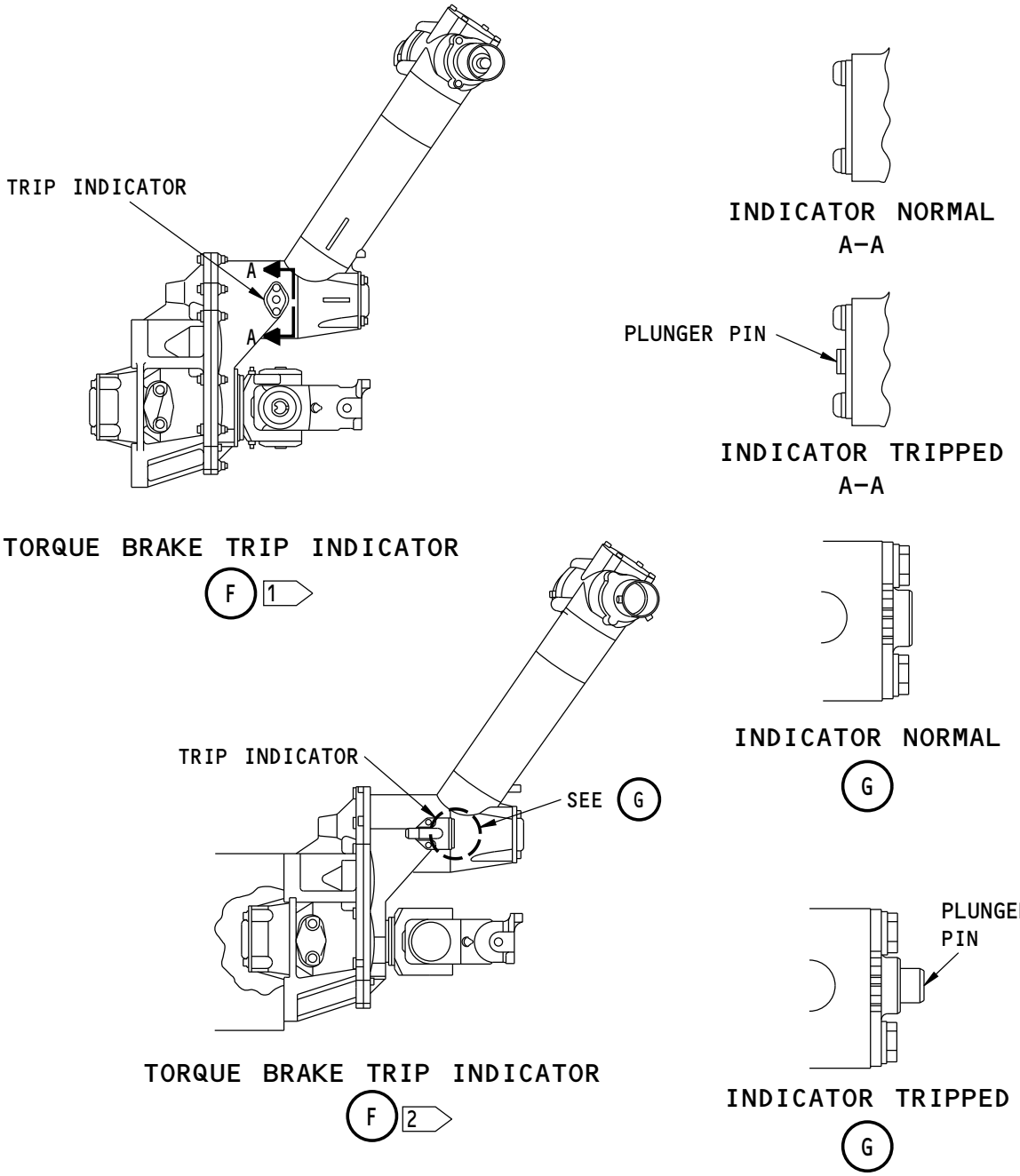
FLAP POSITION SENSOR GEARBOX

E

C99158 S0006413459_V1

Flap Drive System Adjustment
Figure 502/27-51-00-990-805 (Sheet 3 of 4)

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1 256W3110-5 THRU -10
256W3210-5 THRU -10
256W3310-5 THRU -10
256W3410-5, -6, -9 THRU -12

2 256W3110-1 THRU -4
256W3210-1 THRU -4
256W3310-1 THRU -4
256W3410-1 THRU -4

U44557 S0000195986_V2

Flap Drive System Adjustment
Figure 502/27-51-00-990-805 (Sheet 4 of 4)

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TASK 27-51-00-720-801

3. Flap Control Lever Test

(Figure 503)

A. General

(1) This procedure does a test of the flap control lever, the lever brake and the flap control lever position sensor.

(2) It is not necessary to move the flaps during this test. With power removed from the center hydraulic system, the flaps will not move during this test.

(3) These EICAS CAUTION messages can show during this test:

(a) FLAPS PRIMARY FAIL

(b) SLATS PRIMARY FAIL.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force Part #: DG-200 Supplier: 92456 Part #: FDIX 100 Supplier: 0BFD9 Part #: FDIX 50 Supplier: 0BFD9 Part #: LG-010 Supplier: 92456 Part #: LG-050 Supplier: 92456 Part #: LG-100 Supplier: 92456 Opt Part #: DPP-500G Supplier: 92456 Opt Part #: DPPH-150 Supplier: 92456 Opt Part #: DPPH-200 Supplier: 92456 Opt Part #: DPPH-50 Supplier: 92456 Opt Part #: FDI 100 Supplier: 0BFD9 Opt Part #: FDI 50 Supplier: 0BFD9 Opt Part #: FDV 100 Supplier: 0BFD9 Opt Part #: FDV 50 Supplier: 0BFD9

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 27-51-00-860-039

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-00-860-040

WARNING MAKE SURE HYDRAULIC POWER IS REMOVED FROM THE CENTER HYDRAULIC SYSTEM. IF HYDRAULIC POWER IS SUPPLIED TO THE CENTER SYSTEM, THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) If hydraulic power is supplied to the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-00-720-001

(3) Make sure the flap control lever is in the UP position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are more than 9.44, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 27-51-00-720-002

(4) Measure the force necessary to move the flap control lever to the 1-unit position:

(a) Move the flap control lever to a position between the UP and the 1-unit position.

(b) Put the force gauge, COM-1557 on the end of the flap control lever.

(c) Use the force gauge, COM-1557 to move the flap control lever to the 1-unit position.

NOTE: Make sure the force gauge, COM-1557 is perpendicular to the flap control lever when you measure the force.

(d) Make sure the force necessary to move the flap control lever is less than 5 pounds.

(e) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 8.24 and 8.94.

(f) Remove the force gauge, COM-1557 from the flap control lever.

SUBTASK 27-51-00-720-003

(5) Move the flap control lever to the 5-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 7.05 and 7.75.

SUBTASK 27-51-00-720-004

(6) Move the flap control lever to the 15-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 5.82 and 6.52.

SUBTASK 27-51-00-720-005

(7) Move the flap control lever to the 20-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 4.59 and 5.29.

SUBTASK 27-51-00-720-006

(8) Move the flap control lever to the 25-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 3.37 and 4.07.

SUBTASK 27-51-00-720-007

(9) Measure the force necessary to move the flap control lever to the 30-unit position:

(a) Move the flap control lever to a position between the 25 and the 30-unit positions.

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(b) Put the force gauge, COM-1557 on the end of the flap control lever.

(c) Use the force gauge, COM-1557 to move the flap control lever to the 30-unit position.

NOTE: Make sure the force gauge, COM-1557 is perpendicular to the flap control lever when you measure the force.

(d) Make sure the force necessary to move the flap control lever is less than 5 pounds.

(e) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are less than 2.87.

(f) Remove the force gauge, COM-1557 from the flap control lever.

SUBTASK 27-51-00-720-008

(10) Measure the force necessary to move the flap control lever to the 25-unit position:

(a) Move the flap control lever to a position between the 25 and the 30-unit positions.

(b) Put the force gauge, COM-1557 on the end of the flap control lever.

(c) Use the force gauge, COM-1557 to move the flap control lever to the 25-unit position.

NOTE: Make sure the force gauge, COM-1557 is perpendicular to the flap control lever when you measure the force.

(d) Make sure the force necessary to move the flap control lever is less than 5 pounds.

(e) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 3.37 and 4.07.

(f) Remove the force gauge, COM-1557 from the flap control lever.

SUBTASK 27-51-00-720-009

(11) Move the flap control lever to the 20-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 4.59 and 5.29.

SUBTASK 27-51-00-720-010

(12) Move the flap control lever to the 15-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 5.82 and 6.52.

SUBTASK 27-51-00-720-011

(13) Move the flap control lever to the 5-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 7.05 and 7.75.

SUBTASK 27-51-00-720-012

(14) Move the flap control lever to the 1-unit position.

(a) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are between 8.24 and 8.94.

SUBTASK 27-51-00-720-013

(15) Measure the force necessary to move the flap control lever to the UP position:

(a) Move the flap control lever to a position between the UP and the 1-unit position.

(b) Put the force gauge, COM-1557 on the end of the flap control lever.

(c) Use the force gauge, COM-1557 to move the flap control lever to the UP position.

NOTE: Make sure the force gauge, COM-1557 is perpendicular to the flap control lever when you measure the force.

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(d) Make sure the force necessary to move the flap control lever is less than 5 pounds.

(e) Make sure the four values shown for the FLAP LEVER position indication, on the EICAS maintenance page, are more than 9.44.

(f) Remove the force gauge, COM-1557 from the flap control lever.

SUBTASK 27-51-00-860-041

WARNING MAKE SURE THE POSITION OF THE FLAP CONTROL LEVER AGREES WITH THE POSITION OF THE FLAPS. THE FLAPS WILL MOVE WHEN YOU SUPPLY HYDRAULIC POWER IF THE POSITIONS DO NOT AGREE. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(16) Move the flap control lever to the detent that agrees with the position of the flaps.

SUBTASK 27-51-00-860-042

(17) Do these steps to remove the EICAS caution messages:

(a) Make sure the ALT FLAPS control switch is in the OFF position.

(b) Push the ALT FLAPS ARM switch to arm the alternate flap system.

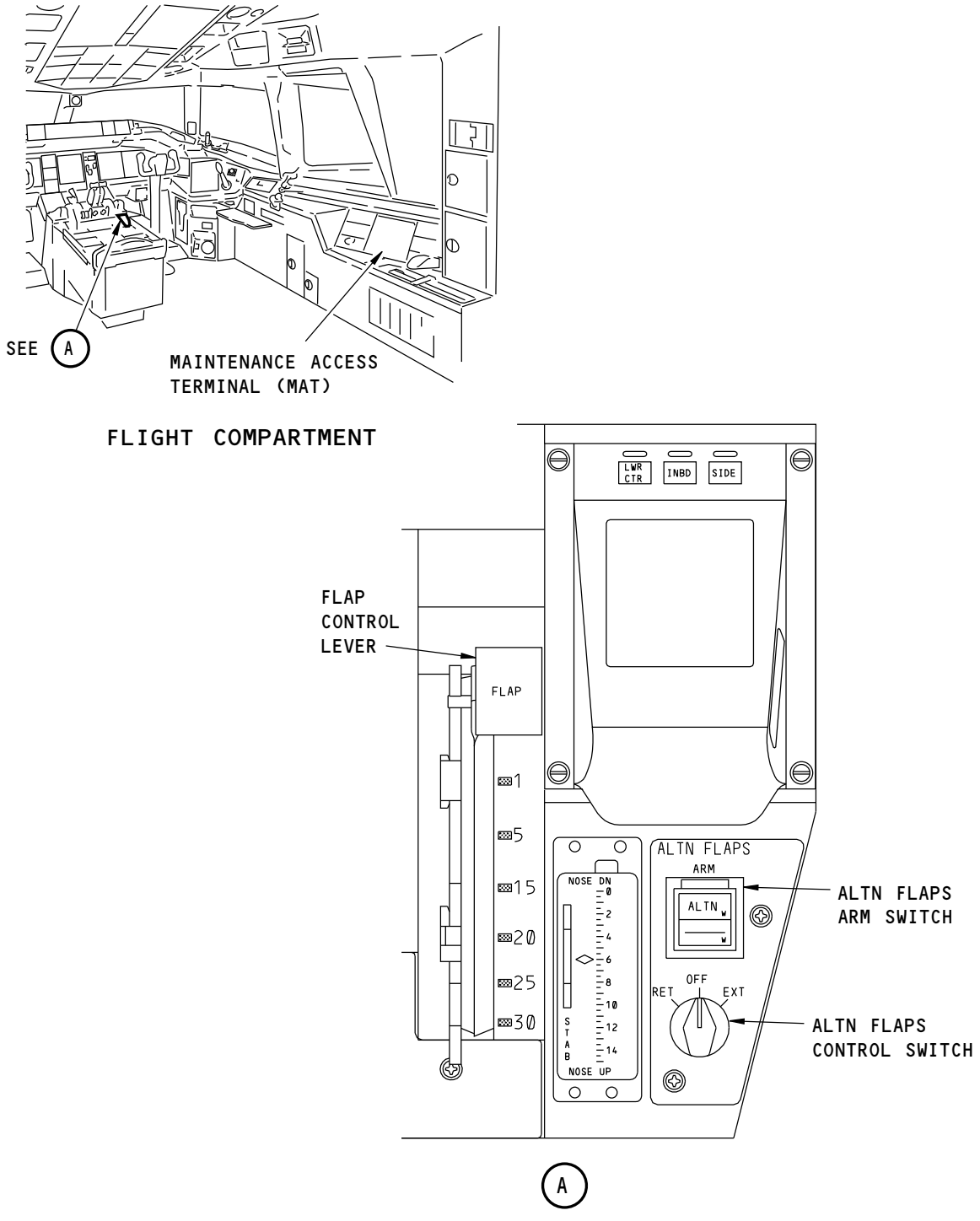
NOTE: The EICAS CAUTION message FLAP/SLAT CONTROL will show.

(c) Push the ALT FLAPS ARM switch to disarm the alternate flap system.

(d) Make sure the EICAS CAUTION messages FLAPS PRIMARY FAIL, SLATS PRIMARY FAIL and FLAP/SLAT CONTROL do not show.

END OF TASK

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Flap System Controls
Figure 503/27-51-00-990-806

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TASK 27-51-00-740-801

4. Flap/Slat Electronics Unit (FSEU) Self Test

(Figure 503)

A. General

(1) Use this test to make sure the Flap/Slat Electronic Units (FSEUs) are serviceable. In this test each FSEU makes sure its internal circuits and interfaces operate correctly.

(2) During this test you must select which FSEU will be tested. The same sequence of steps can be used for FSEU 1 or FSEU 2.

(3) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(4) These EICAS CAUTION messages can show during this test:

(a) FLAP/SLAT CONTROL

(b) NO AUTOLAND

(5) These EICAS STATUS messages can show during this test:

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

(c) NO AUTOLAND

(d) FLIGHT CONTROL SYS

(e) PFC INTERFACE

(6) This EICAS ADVISORY message can show during this test:

(a) NO AUTOLAND

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-00-860-044

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-860-045

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-51-00-860-046

(3) Make sure the flap control lever is in the UP position.

SUBTASK 27-51-00-740-003

(4) Use a maintenance access terminal (MAT) to do the LRU replacement test of FSEU 1 or FSEU 2:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

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2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 HIGH LIFT SYSTEM
5) LRU REPLACEMENT TESTS
6) FSEU 1 (FSEU 2)
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:
1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

——— END OF TASK ———

TASK 27-51-00-740-802

5. Flap System Primary Control Test

(Figure 503)

A. General

(1) To do a full test of the primary control system, you must do this test with FSEU 1 and FSEU 2. The same sequence of steps can be used for FSEU 1 or FSEU 2.

(2) Use this test to make sure the hydraulic operation of the flaps and slats is correct. In this procedure, you can do a test of the trailing edge flaps, the leading edge slats or the two systems.

(3) In this procedure it is necessary to move the flap control lever before the test will start. The sequence of operation for the flaps and slats will not be the same as usual.

(4) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT, or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(5) These EICAS CAUTION messages can show during this test:
(a) FLAP/SLAT CONTROL
(b) NO AUTOLAND

(6) These EICAS STATUS messages can show during this test:
(a) FLAP/SLAT CONTROL 1
(b) FLAP/SLAT CONTROL 2
(c) NO AUTOLAND
(d) FLIGHT CONTROL SYS
(e) PFC INTERFACE

(7) This EICAS ADVISORY message can show during this test:
(a) NO AUTOLAND

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B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-00-860-048

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-860-049

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-51-00-860-050

(3) Make sure the flap control lever is in the UP position.

SUBTASK 27-51-00-210-039

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-034

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-860-051

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must use the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

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SUBTASK 27-51-00-740-004

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Use a maintenance access terminal (MAT) to do the system test of the high lift system primary controls:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 HIGH LIFT SYSTEM
5) SYSTEM TEST
6) Primary System Test-FSEU 1 (Primary System Test-FSEU 2)

NOTE: To do a full test of the primary control system you must do the test with FSEU 1 and FSEU 2.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST
3) Test of slats and flaps (Test of flaps only, Test of slats only)

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-51-00-740-005

(8) Do the system test of the high lift system primary controls with the MAT again with the other FSEU.

SUBTASK 27-51-00-860-053

(9) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-51-00-740-803

6. Flap System Secondary Control Test

(Figure 503)

A. General

(1) To do a full test of the secondary control system, you must do this test with FSEU 1 and FSEU 2. The same sequence of steps can be used for FSEU 1 or FSEU 2.

(2) Use this test to make sure the secondary operation of the flaps and slats is correct. In this procedure, you can do a test of the trailing edge flaps, the leading edge slats or the two systems.

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(3) In this procedure it is necessary to move the flap control lever before the test will start. The sequence of operation for the flaps and slats will not be the same as usual.

(4) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(5) These EICAS CAUTION messages can show during this test:

(a) FLAP/SLAT CONTROL

(b) NO AUTOLAND

(6) These EICAS STATUS messages can show during this test:

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

(c) NO AUTOLAND

(d) FLIGHT CONTROL SYS

(e) PFC INTERFACE

(7) This EICAS ADVISORY message can show during this test:

(a) NO AUTOLAND

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-00-860-055

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-860-056

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-51-00-860-057

(3) Make sure the flap control lever is in the UP position.

SUBTASK 27-51-00-210-041

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

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SUBTASK 27-51-00-210-035

CAUTION	MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-740-006

WARNING	MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Use a maintenance access terminal (MAT) to do the system test of the high lift system secondary controls:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 HIGH LIFT SYSTEM
5) SYSTEM TEST
6) Secondary System Test-FSEU 1 (Secondary System Test-FSEU 2)

NOTE: To do a full test of the secondary control system you must do the test with FSEU 1 and FSEU 2.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST
3) Test of slats and flaps (Test of slats only, Test of flaps only)

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-51-00-740-007

(7) Do the system test of the high lift system secondary controls with the MAT again with the other FSEU.

END OF TASK

TASK 27-51-00-720-802

7. Flap System Alternate Control Test

(Figure 503)

A. General

(1) This procedure does a test of the alternate control system for the trailing edge flaps.

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B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-51-00-860-059

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-860-060

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-51-00-860-061

(3) Make sure the flap control lever is in the UP position.

SUBTASK 27-51-00-210-043

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-036

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-00-860-062

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: It is not necessary to use the Air-Driven Pumps for this test. Hydraulic power is supplied to make sure the bypass valve in the primary control valve operates correctly with alternate control.

E. Alternate Control System Test

SUBTASK 27-51-00-210-030

(1) Make sure the ALTN FLAPS control switch is in the OFF position.

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SUBTASK 27-51-00-720-014

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS DURING THIS TEST. THE FLAPS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do the test of the alternate control system:

(a) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

(b) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL shows.

(c) Make sure the flaps and slats do not move.

(d) Move the ALTN FLAPS control switch to EXT to extend the flaps.

1) Make sure the flaps stop at the 20-unit position.

2) Make sure the four values shown for the FLAP POS indication, on the EICAS maintenance page, are between 235.0 and 246.92 (TASK 31-61-00-800-804).

(e) Move the ALTN FLAPS control switch to RET to retract the flaps.

1) Make sure the flaps stop at the retracted position.

2) Make sure the four values shown for the FLAP POS indication on the EICAS maintenance page, are less than 12.5.

(f) Move the ALTN FLAPS control switch to the OFF position.

WARNING MAKE SURE THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(g) Push the ALTN FLAPS ARM switch to disarm the alternate control system.

(h) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-063

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-51-00-710-801

8. Alternate Control Switches Operational Test

(Figure 503)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure does a test of the switches for the alternate control system.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

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C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-51-00-860-065

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-860-066

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-51-00-860-067

(3) Make sure the flap control lever is in the UP position.

SUBTASK 27-51-00-210-045

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-037

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

E. Alternate Control Switches Operational Test

SUBTASK 27-51-00-210-031

(1) Make sure the ALTN FLAPS control switch is in the OFF position.

SUBTASK 27-51-00-710-002

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do the test of the alternate control switches:

(a) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

(b) Make sure the flaps and slats do not move.

(c) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL shows.

(d) Move the ALTN FLAPS control switch to EXT to extend the flaps and slats.

1) Make sure the flaps and slats extend.

(e) Move the ALTN FLAPS control switch to RET to retract the flaps and slats.

1) Make sure the flaps and slats retract.

(f) Move the ALTN FLAPS control switch to the OFF position.

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WARNING

MAKE SURE THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(g) Push the ALTN FLAPS ARM switch to disarm the alternate control system.

(h) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

F. Put the Airplane Back to Its Usual Condition

——— END OF TASK ———

TASK 27-51-00-400-801

9. Flap/Slat Electronics Unit (FSEU) Software Configuration Check

(Figure 503)

A. General

(1) The FSEU configuration check makes sure that the FSEU has correct software in the control channel and the monitor channel.

(2) The configuration check will show a failure if the operational program software (OPS) is not installed for the control channel and the monitor channel.

(3) This check is applicable to the two FSEUs.

(4) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-01-400-802	Flap/Slat Electronics Unit (FSEU) Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. FSEU Software Configuration Check

SUBTASK 27-51-00-860-070

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-00-750-001

(2) Use a maintenance access terminal (MAT) to do a software configuration check of the FSEU 1 or FSEU 2:

NOTE: Make sure you know the correct software part number for the FSEU when you look at the software part number on the display. For the FSEU to be an approved installation, the correct software part number must be installed in each channel of the FSEU.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

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2) LINE MAINTENANCE

3) SYSTEM CONFIGURATION

4) 27 HIGH LIFT SYSTEM

5) CONTINUE

(b) Find FSEU 1 or FSEU 2 on the display and make sure that the software part numbers are correct for the control channel and the monitor channel.

NOTE: The configuration check will show a failure if the operational program software (OPS) is not installed in each channel.

(c) Select GO BACK to remove the configuration display.

SUBTASK 27-51-00-470-001

(3) If the part numbers are incorrect, do this task: Flap/Slat Electronics Unit (FSEU) Software Installation, TASK 27-51-01-400-802.

——— END OF TASK ———

TASK 27-51-00-710-802

10. Flap Transmission No-Back Brake - Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) During this operational test, you make sure the no-back brakes in the transmissions operate.

(2) This test involves listening for a ratchet sound from the transmissions while the flaps extend.

(3) A minimum of two people are necessary to do this test.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-00-860-802	Trailing Edge Flap System Operation With Alternate Control (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1797	Stethoscope - Mechanics, 12 Inch Probe Part #: GA111D Supplier: 55719 Opt Part #: GA111C Supplier: 55719
SPL-14483	Test Equipment - T.E. Flap Transmission, No-Back Brake Operational Test (Used with Customer Furnished Weight Assembly, 275-300 lbs) Part #: J27084-72 Supplier: 81205
STD-14718	Weight - 275 to 300 pounds

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
571	Flap Support Fairing No. 4
573	Flap Support Fairing No. 3
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
671	Flap Support Fairing No. 5
673	Flap Support Fairing No. 6
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

E. Prepare for the Operational Test

SUBTASK 27-51-00-480-013

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-00-020-001

(2) Remove the aft fairings as necessary on the trailing edge flaps.

(a) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802

(b) Do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

(c) Do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-00-860-074

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-00-860-075

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-00-210-048

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-00-210-049

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

F. Flap Transmission No-Back Brake - Operational Test

NOTE: This test is applicable to all of the transmissions for the trailing edge flaps.

SUBTASK 27-51-00-860-076

(1) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-00-710-004

(2) Do a test of the no-back brake in the transmissions:

(a) Extend the flaps to the 1-unit position and stop.

(b) Place personnel next to the applicable transmission to listen for a ratchet sound.

(c) Extend the flaps to the 15 unit position and listen for a ratchet sound from the transmissions. To extend the trailing edge flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804 or Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802 (Alternate Method).

NOTE: Some mechanics were unable to hear the ratchet sound because of the hydraulics when using the task Extend the Trailing Edge Flaps, TASK 27-51-00-860-804. It may be preferable to use task Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802 (Alternate Method), the task operates electrically and makes less noise.

NOTE: The ratchet sound is the no-back brake inside the transmission. It is necessary to do the test again for the additional transmissions, or have additional people listen to the transmissions.

The ratchet sound is a steady click noise with a duration of 1 to 2 seconds and can only be heard during the initial stage of flap extension.

1) If necessary, use a stethoscope, COM-1797, to listen for the ratchet sound:

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a) Place the stethoscope, COM-1797 on the no-back pawl on the transmission (Figure 504).

2) If the ratchet sound can not be heard, install test equipment, SPL-14483 and weight, STD-14718.

a) Perform the test again.

(d) If it is necessary to do this test on another transmission, retract the flaps to the 1-unit position.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-080-007

(1) Remove test equipment, SPL-14483 and weight, STD-14718 if they were installed.

SUBTASK 27-51-00-420-001

(2) Install the aft fairings as necessary on the trailing edge flaps.

(a) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802

(b) Do this task:Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804

(c) Do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-00-860-077

(3) Use the primary system to retract the flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801

SUBTASK 27-51-00-860-078

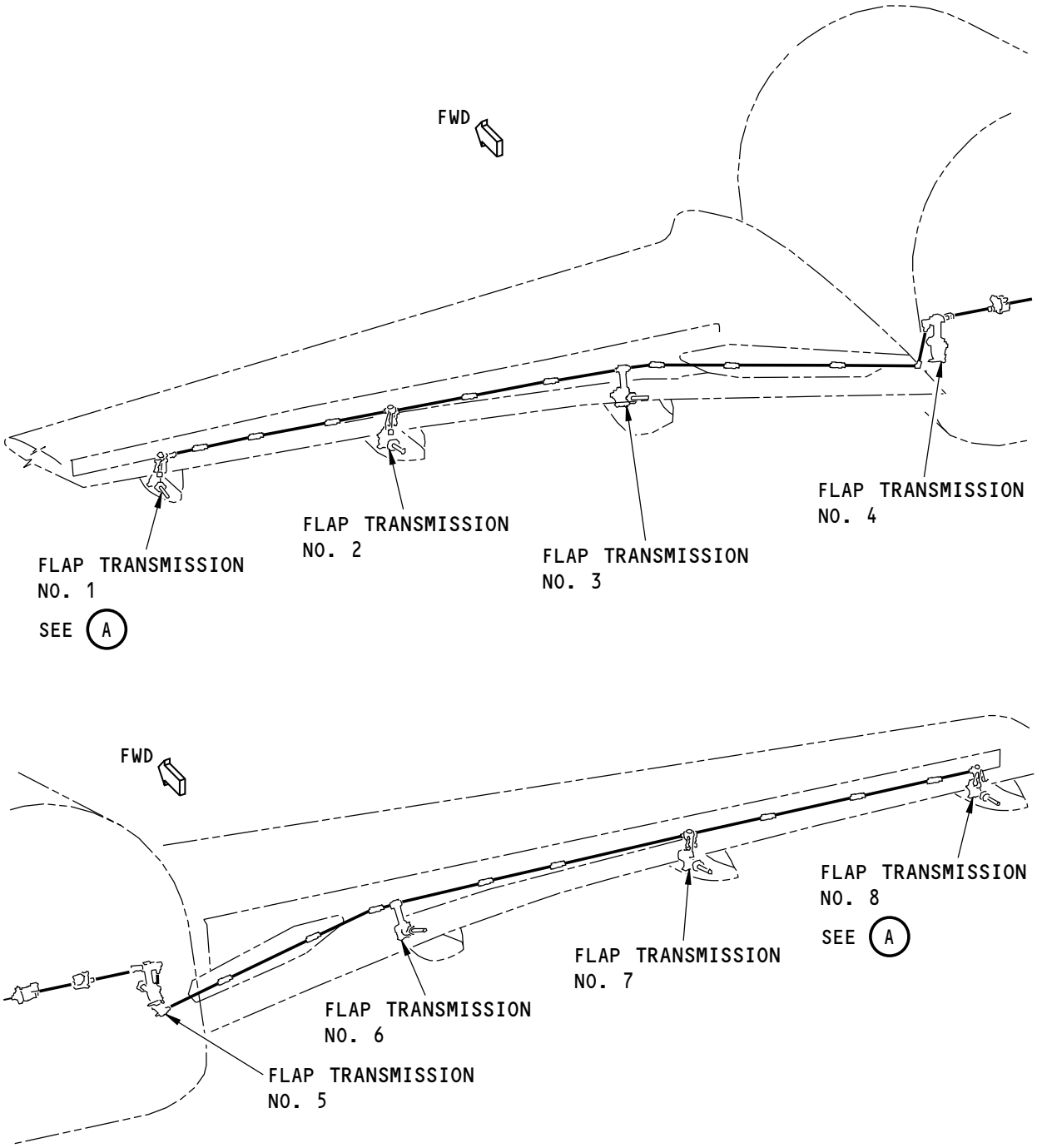
(4) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808

SUBTASK 27-51-00-860-079

(5) If necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-806.

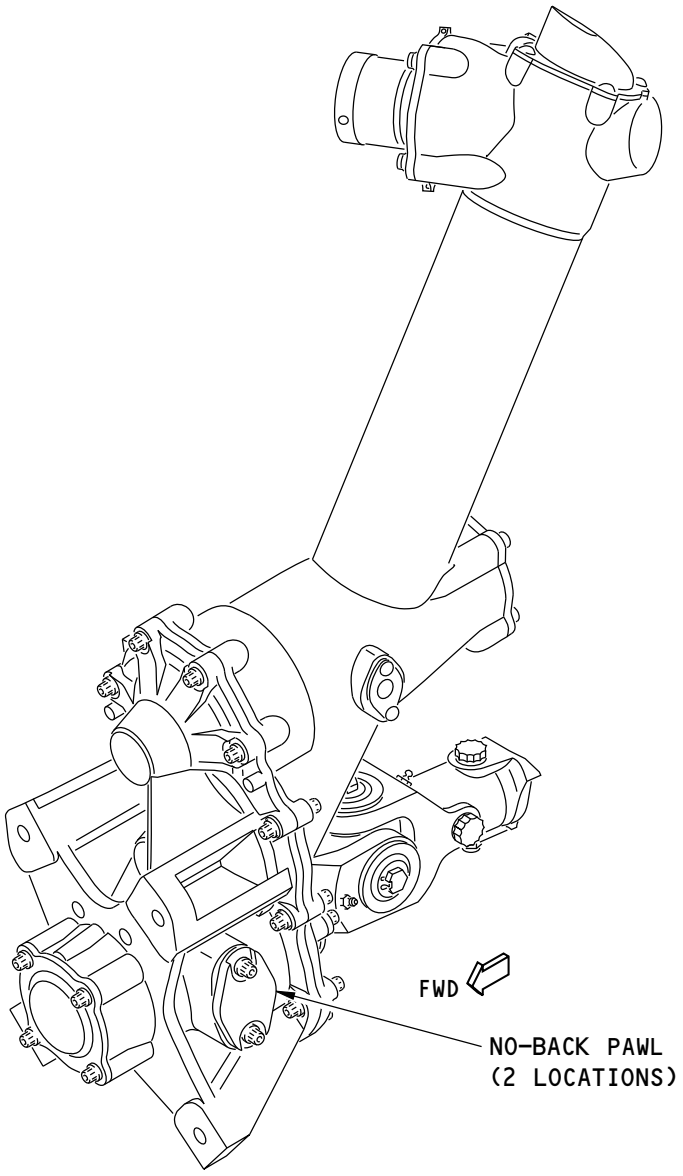
——— END OF TASK ———

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Flap Transmission No-Back Brake - Operational Test
Figure 504/27-51-00-990-808 (Sheet 1 of 2)

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FLAP TRANSMISSION 1 AND 8 ARE SHOWN
(FLAP TRANSMISSIONS 2, 3, 4, 5, 6, AND 7 ARE EQUIVALENT)

A

2359246 S0000539114_V1

Flap Transmission No-Back Brake - Operational Test
Figure 504/27-51-00-990-808 (Sheet 2 of 2)

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TASK 27-51-01-400-802

1. Flap/Slat Electronics Unit (FSEU) Software Installation

A. General

(1) This procedure tells you how to install software in the Flap/Slat Electronics Unit (FSEU). The FSEU must contain these pieces of software:

(a) Operational Program Software (OPS control).

(b) Operational Program Software (OPS monitor).

(2) The FSEUs must contain the Operational Program Software (OPS) in the control channel and the monitor channel.

(3) The configuration check will show a failure if the OPS is not installed.

(4) The software must be installed in each channel of each FSEU. There are different software part numbers for the control channel and the monitor channel.

(5) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(6) If you do not know if the FSEU needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Flap/Slat Electronics Unit (FSEU) Installation, TASK 27-51-01-400-801.

(7) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the Portable Maintenance Access Terminal (PMAT) in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

(8) You can install the software from disks, the Maintenance Access Terminal (MAT) hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the FSEU, the load process first erases the old software and then installs the new software. If you install software directly to the FSEU from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the FSEU.

(a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.

ARO 014-999

(9) You can also install the software from the Onboard Network System (ONS) Mass Storage Device (MSD). To install new software on the ONS MSD, do this task: Mass Storage Device Software Part Installation, TASK 46-13-00-470-802.

(a) It is recommended that you remove old software part numbers from the ONS MSD after new software is installed. To remove software from the ONS MSD, do this task: Mass Storage Device Software Removal, TASK 46-13-00-070-801.

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(10) The airplane must be on the ground with the engines off before you can install software.

(11) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-01-400-801	Flap/Slat Electronics Unit (FSEU) Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (P/B 201)
46-13-00-070-801	Mass Storage Device Software Removal (P/B 201)
46-13-00-470-802	Mass Storage Device Software Part Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 27-51-01-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-01-420-002

(2) Use a MAT to install software in FSEU 1 or FSEU 2:

NOTE: Make sure you know the correct software part number for the FSEU before you select the software part number on the display. For the FSEU to be an approved installation, the correct software part number must be installed in each channel.

(a) If the software is on a disk, put the correct disk in the disk drive.

(b) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) EXTENDED MAINTENANCE

3) DATA LOAD

(c) Make these selections to select the component that will receive the software:

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1) SELECT DESTINATION
2) 27 HIGH LIFT SYSTEM
3) FSEU 1 Control Channel, FSEU 1 Monitor Channel, FSEU 2 Control Channel or FSEU 2 Monitor Channel
4) CONTINUE

(d) Make these selections to select the source of the software:

1) SELECT SOURCE
2) Select the source of the software (if Disk Drive is the only selection, it is automatically selected).
3) Select the correct software part number from the display.

NOTE: If only one part number is shown, it will automatically be selected.

4) CONTINUE

(e) Select START to start the software installation.

(f) Select CONTINUE when the conditions shown on the precondition screen are done.

(g) When the software installation is completed, make sure the correct software part number shows on the display.

(h) Select CONTINUE to remove the configuration display.

SUBTASK 27-51-01-420-003

(3) Install the software in the other channel if it is necessary.

NOTE: For the FSEU to be an approved installation, the correct software part number must be installed in each channel.

SUBTASK 27-51-01-860-004

(4) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

SUBTASK 27-51-01-860-005

(5) Push the ALTN FLAPS ARM switch on the control stand again to disarm the alternate control system.

NOTE: This step will clear any Engine Indication and Crew Alerting System (EICAS) messages generated during the software installation. This step will also cause the FSEU to do a self test.

END OF TASK

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FLAP/SLAT ELECTRONICS UNIT (FSEU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap/slat electronics unit (FSEU).

(2) An installation of the flap/slat electronics unit (FSEU).

B. The FSEUs are installed in the main equipment center. FSEU 1 is installed on the E1-6 rack. FSEU 2 is installed on the E4-1 rack.

TASK 27-51-01-000-801

2. Flap/Slat Electronics Unit (FSEU) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-10-01-000-801	E/E Box Removal (P/B 401)

B. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Procedure

NOTE: Open the applicable circuit breakers for the affected FSEU.

SUBTASK 27-51-01-865-001

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-51-01-010-002

(2) Open this access panel, to the main equipment center:

Number	Name/Location
117AL	Main Equipment Center Access Door

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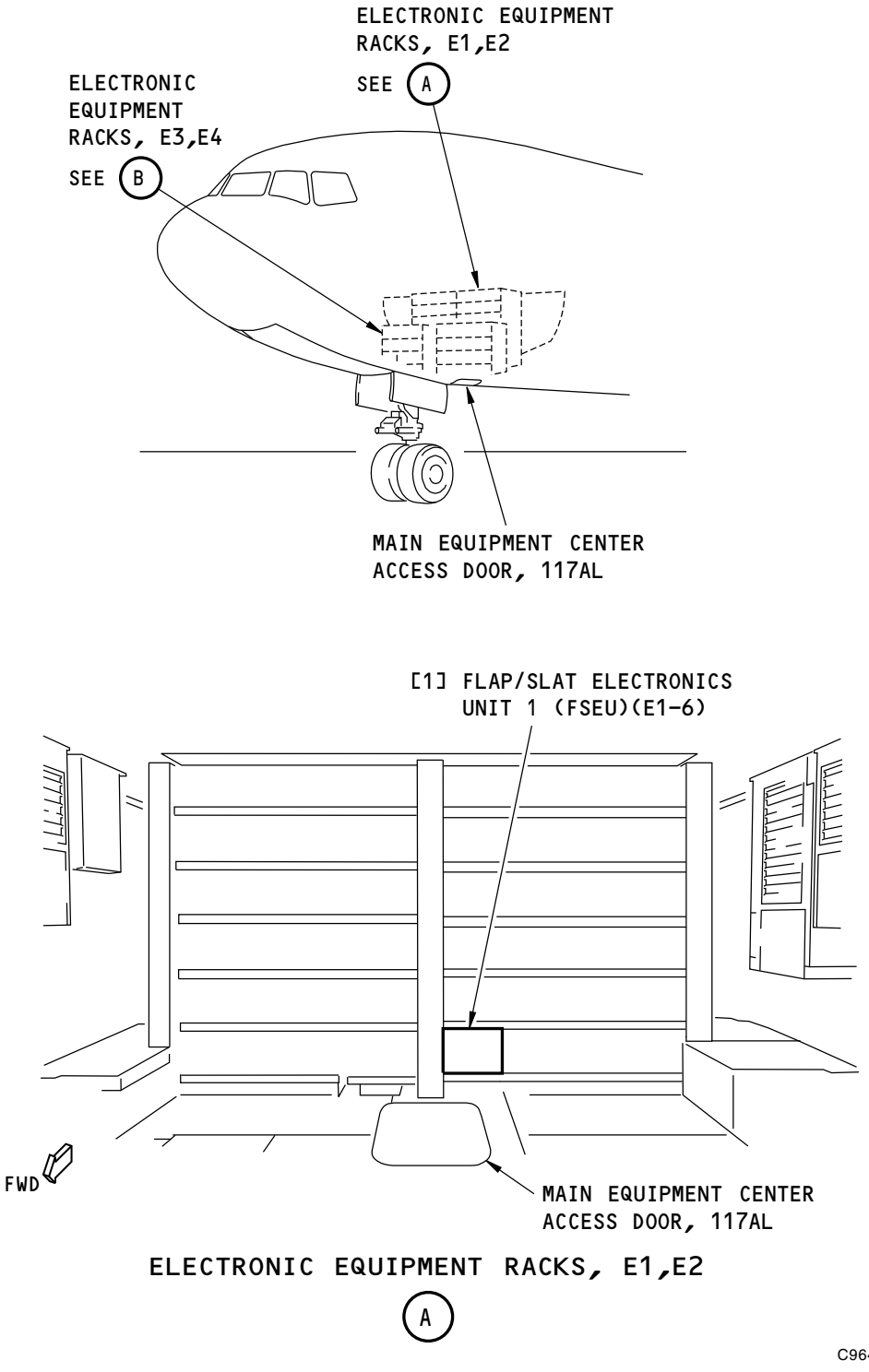
SUBTASK 27-51-01-020-002

(3) Remove the module assembly [1], (TASK 20-10-01-000-801).

NOTE: FSEU 1 is installed on the E1-6 rack. FSEU 2 is installed on the E4-1 rack.

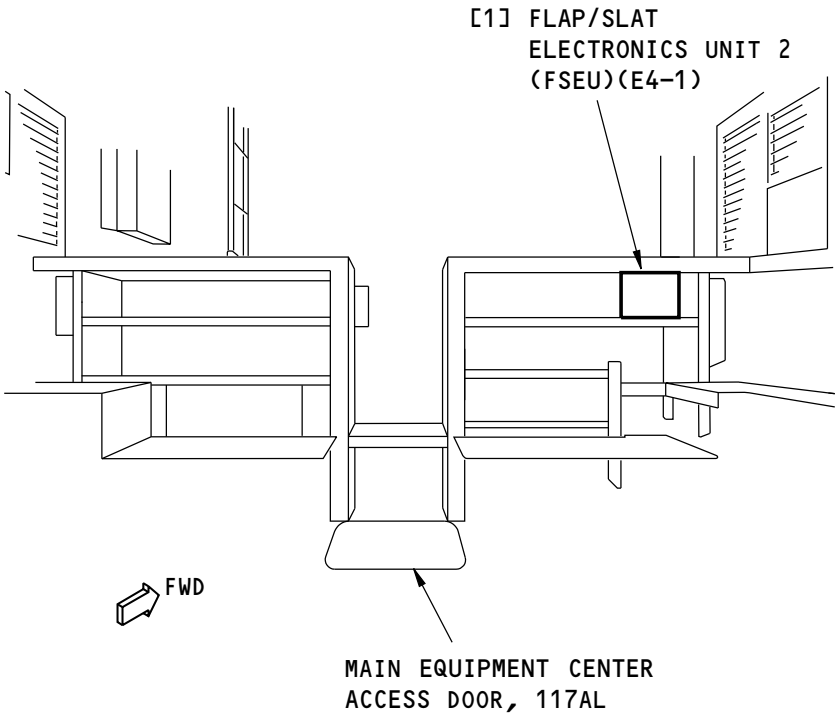
——— END OF TASK ———

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Flap/Slat Electronics Unit (FSEU) Installation
Figure 401/27-51-01-990-802 (Sheet 1 of 2)

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ELECTRONIC EQUIPMENT RACKS, E3,E4

B

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Flap/Slat Electronics Unit (FSEU) Installation
Figure 401/27-51-01-990-802 (Sheet 2 of 2)

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TASK 27-51-01-400-801

3. Flap/Slat Electronics Unit (FSEU) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-10-01-400-801	E/E Box Installation (P/B 401)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-740-801	Flap/Slat Electronics Unit (FSEU) Self Test (P/B 501)
27-51-01-400-802	Flap/Slat Electronics Unit (FSEU) Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module assembly	27-51-01-01-010	ARO 001-010
		27-51-01-02-005	ARO ALL

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
212	Flight Compartment, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. FSEU Installation

SUBTASK 27-51-01-420-001

(1) Install the module assembly [1], (TASK 20-10-01-400-801).

NOTE: FSEU 1 is installed on the E1-6 rack. FSEU 2 is installed on the E4-1 rack.

SUBTASK 27-51-01-860-002

NOTE: Close the applicable circuit breakers for the affected FSEU.

(2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	9	C27632	FLAPS PRI DR CTRL 2

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Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-51-01-860-007

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-01-420-004

(4) If it is necessary, do this task: Flap/Slat Electronics Unit (FSEU) Software Installation, TASK 27-51-01-400-802.

SUBTASK 27-51-01-750-001

(5) Use a maintenance access terminal (MAT) to do a software configuration check of the FSEU 1 or FSEU 2:

NOTE: Make sure you know the correct software part number for the FSEU when you look at the software part number on the display. For the FSEU to be an approved installation, the correct software part number must be installed in each channel of the FSEU.

The FSEU configuration check makes sure that the FSEU has correct software.

The configuration check will show a failure if the operational program software (OPS) is not installed for the control channel and the monitor channel.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) SYSTEM CONFIGURATION
4) 27 HIGH LIFT SYSTEM
5) CONTINUE

(b) Find FSEU 1 or FSEU 2 on the display and make sure that the software part numbers are correct for the control channel and the monitor channel.

NOTE: The configuration check will show a failure if the operational program software (OPS) is not installed in each channel.

(c) Select GO BACK to remove the configuration display.

(6) If the part numbers are incorrect, do this task: Flap/Slat Electronics Unit (FSEU) Software Installation, TASK 27-51-01-400-802.

G. FSEU Installation Test

SUBTASK 27-51-01-740-001

(1) Do this task: Flap/Slat Electronics Unit (FSEU) Self Test, TASK 27-51-00-740-801.

SUBTASK 27-51-01-740-002

(2) Make sure the EICAS status message FLAP/SLAT CONTROL 1 or FLAP/SLAT CONTROL 2 do not show.

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SUBTASK 27-51-01-410-001

(3) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

——— END OF TASK ———

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FLAP CONTROL LEVER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap control lever

(2) An installation of the flap control lever.

TASK 27-51-02-000-801

2. Flap Control Lever Removal

(Figure 401)

A. References

Reference	Title
76-11-10-000-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal (P/B 401)

B. Location Zones

Zone	Area
212	Flight Compartment, Right

C. Procedure

SUBTASK 27-51-02-860-001

WARNING REMOVE ELECTRICAL POWER FROM THE FIRST OFFICER'S SEAT. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-51-02-860-002

(2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-51-02-860-003

(3) Move the flap control lever to the UP position.

SUBTASK 27-51-02-010-001

(4) Remove the right side cover from the control stand.

SUBTASK 27-51-02-010-002

(5) Remove the cover, light plate and seals for the lever assembly [1]. To remove them, do this task: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal, TASK 76-11-10-000-805-H00.

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SUBTASK 27-51-02-010-003

(6) Remove the detent plate [3] from the control stand:

(a) Remove the bolts [4] and washers [5] that hold the detent plate [3].

(b) Remove the detent plate [3].

SUBTASK 27-51-02-020-001

(7) Remove the lever assembly [1]:

(a) Remove the nut [12], washer [11] and bolt [10] that connect the link assembly [2] to the lever assembly [1].

NOTE: Do not turn the rod ends on the link assembly [2]. If you turn the rod ends, it will be necessary to do adjustments.

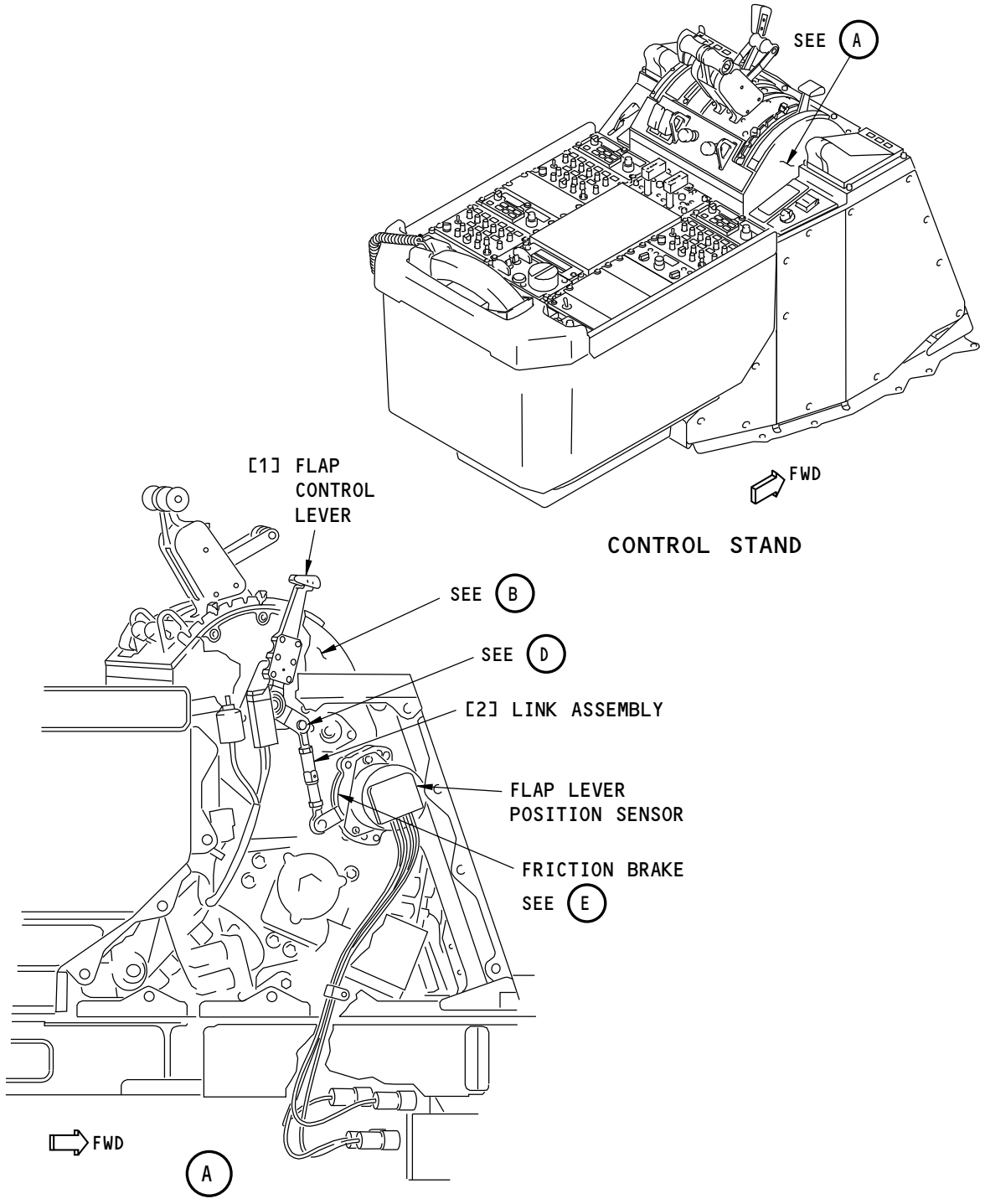
(b) Remove the bolts [7] and washers [8] that attach the lever assembly [1] to the control stand.

NOTE: It is necessary to move the lever assembly [1] aft to get access to one of the bolts [7].

(c) To remove the lever assembly [1], move it forward and up through the top of the control stand.

——— END OF TASK ———

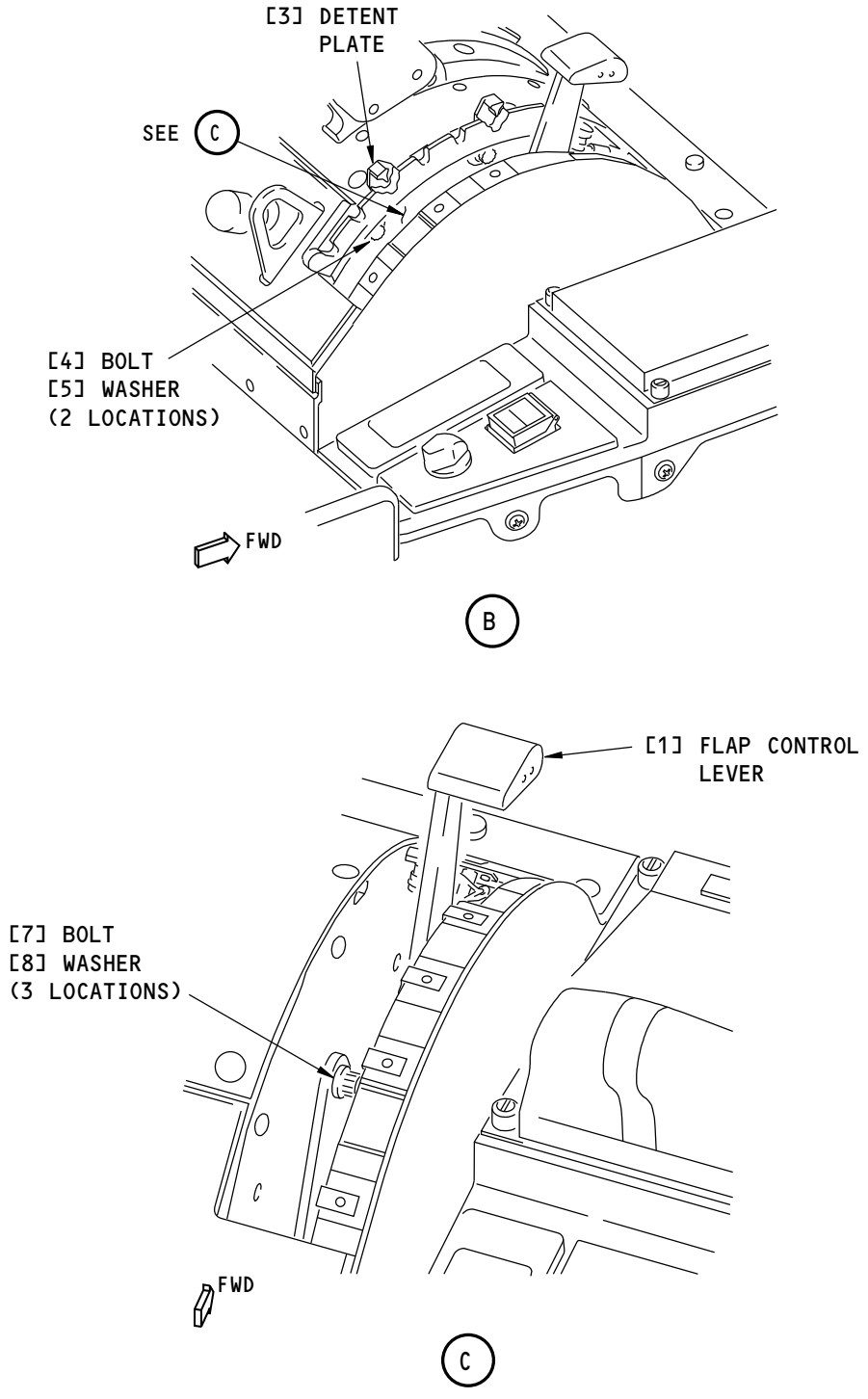
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Flap Control Lever Installation
Figure 401/27-51-02-990-801 (Sheet 1 of 3)

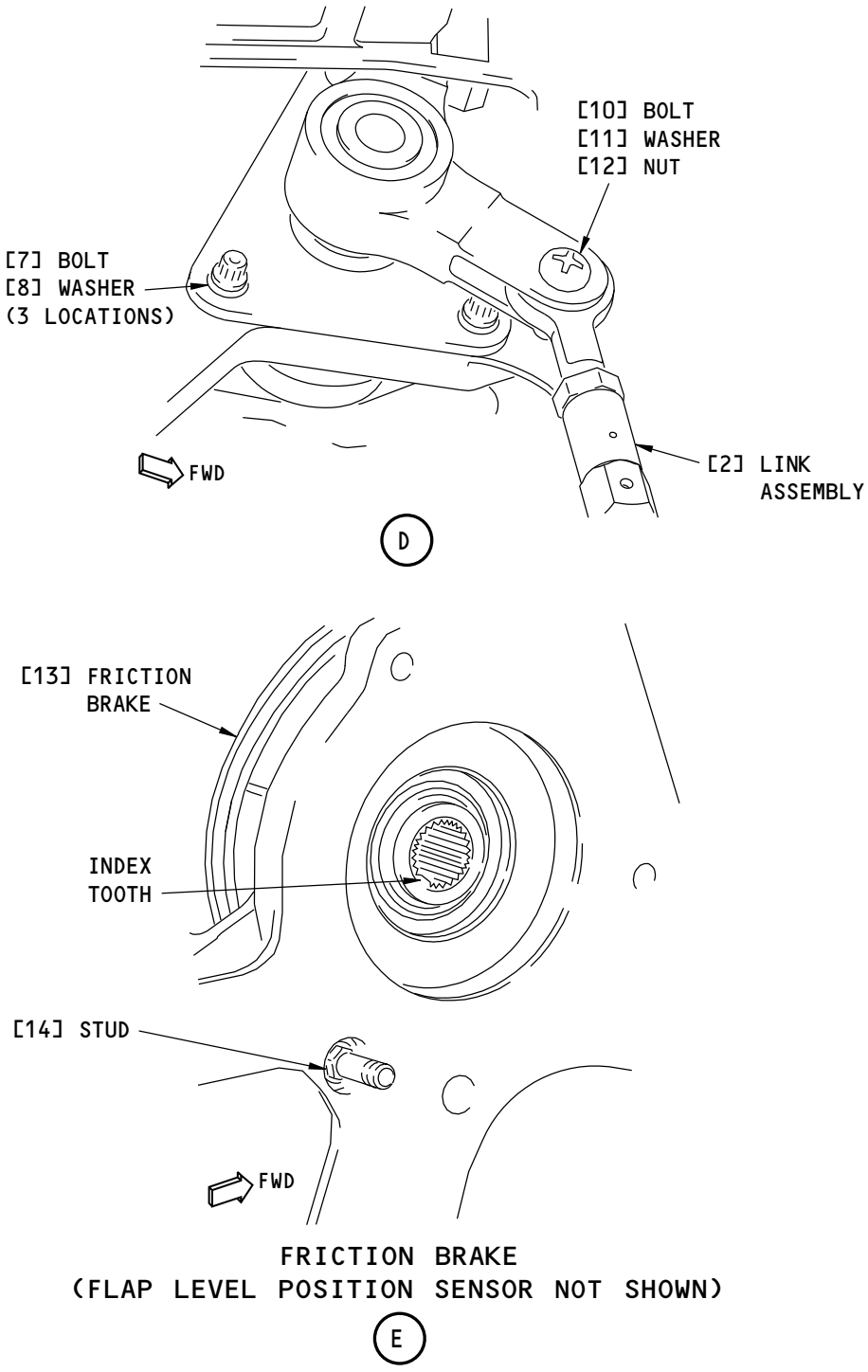
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Flap Control Lever Installation
Figure 401/27-51-02-990-801 (Sheet 2 of 3)

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Flap Control Lever Installation
Figure 401/27-51-02-990-801 (Sheet 3 of 3)

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TASK 27-51-02-400-801

3. Flap Control Lever Installation

(Figure 401)

A. References

Reference	Title
27-51-00-720-801	Flap Control Lever Test (P/B 501)
27-51-03-000-801	Flap Lever Position Sensor Removal (P/B 401)
27-51-03-400-801	Flap Lever Position Sensor Installation (P/B 401)
76-11-10-400-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Lever assembly	27-51-02-05-105	ARO ALL

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 27-51-02-420-001

(1) Install the lever assembly [1]:

(a) Put the lever assembly [1] in its position through the top of the control stand.

(b) Install the bolts [7] and washers [8] that attach the lever assembly [1].

SUBTASK 27-51-02-410-001

(2) Install the bolts [4] and washers [5] to connect the detent plate [3] to the control stand.

SUBTASK 27-51-02-420-002

(3) Connect the link assembly [2] to the lever assembly [1]:

(a) Move the lever assembly [1] to the UP position.

(b) If you turned the link assembly [2] when it was disconnected, adjust the length of the link assembly [2]:

1) Do this task: Flap Lever Position Sensor Removal, TASK 27-51-03-000-801.

2) Make sure the lever assembly [1] is in the UP detent on the detent plate [3].

3) Make sure the index tooth on the spline for the friction brake [13] aligns with the stud [14] for the flap lever position sensor in the limit of 0.25 degrees.

4) Adjust the length of the link assembly [2] until you can install the bolt [10].

5) Tighten the nuts on the link assembly [2].

6) Install MS20995NC40 lockwire, G02436 on the nuts.

7) Do this task: Flap Lever Position Sensor Installation, TASK 27-51-03-400-801.

(c) Install the bolt [10] to attach the link assembly [2] to the lever assembly [1].

(d) Install the washer [11] and nut [12] on the bolt [10].

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(e) Tighten the nut [12] to 50-80 pound-inches.

SUBTASK 27-51-02-410-002

(4) Install the cover, light plate and seals for the lever assembly [1]. To install them, do this task: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation, TASK 76-11-10-400-805-H00.

SUBTASK 27-51-02-410-003

(5) Install the right side cover on the control stand.

SUBTASK 27-51-02-860-004

(6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-51-02-720-001

(7) Do this task: Flap Control Lever Test, TASK 27-51-00-720-801.

SUBTASK 27-51-02-860-005

(8) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

END OF TASK

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FLAP LEVER POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap lever position sensor.

(2) An installation of the flap lever position sensor.

TASK 27-51-03-000-801

2. Flap Lever Position Sensor Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Procedure

SUBTASK 27-51-03-860-001

WARNING REMOVE ELECTRICAL POWER FROM THE FIRST OFFICER'S SEAT. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-51-03-860-002

(2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-51-03-860-003

(3) Make sure the flap control lever [1] is in the UP position.

SUBTASK 27-51-03-010-001

(4) Remove the right side cover from the control stand.

SUBTASK 27-51-03-020-001

(5) Remove the sensor [5] for the flap lever position:

(a) Disconnect the four electrical connectors [2] for the sensor [5].

NOTE: The electrical connectors are DM27037A, DM27037B, DM27037C and DM27037D.

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(b) Remove the screw [9], washer [10] and clamp [8] that hold the electrical wires.

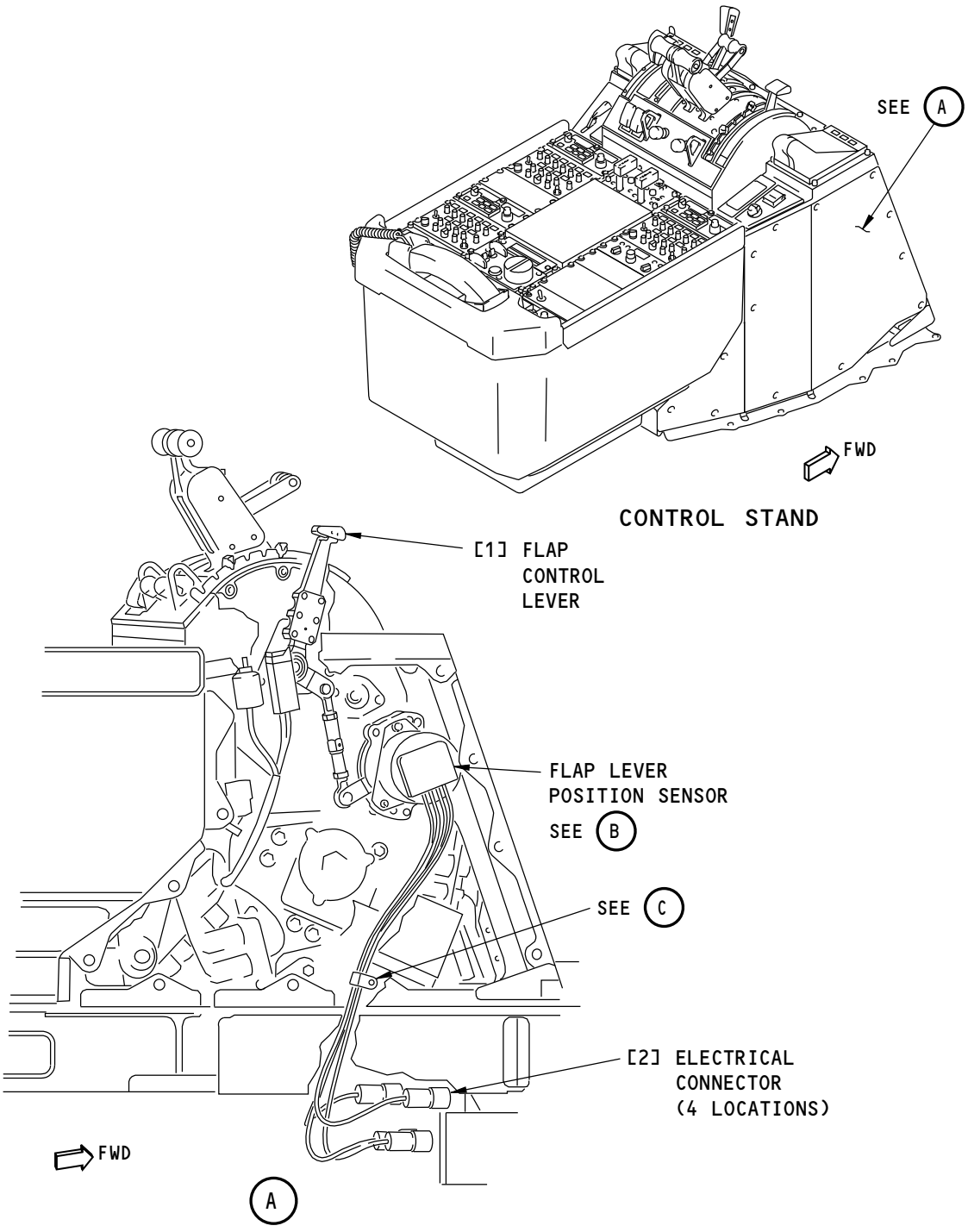
(c) Remove the nut [6] and washer [7] that attach the sensor [5] to the stud on the friction brake.

(d) Remove the bolts [4] and washers [3] that attach the sensor [5] to the friction brake.

(e) Remove the sensor [5] through the side of the control stand.

——— END OF TASK ———

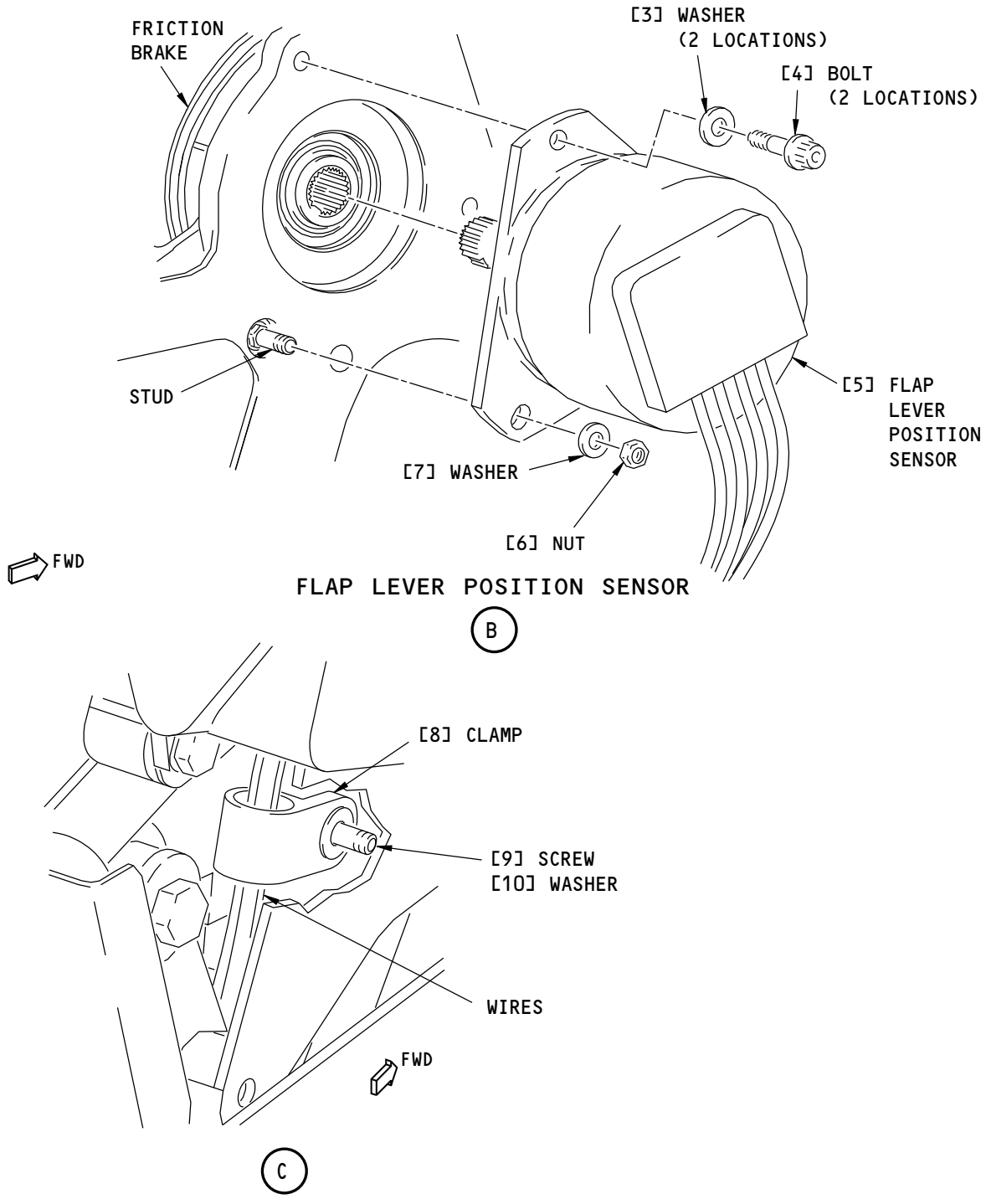
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Flap Lever Position Sensor Installation
Figure 401/27-51-03-990-801 (Sheet 1 of 2)

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Flap Lever Position Sensor Installation
Figure 401/27-51-03-990-801 (Sheet 2 of 2)

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TASK 27-51-03-400-801

3. Flap Lever Position Sensor Installation

(Figure 401)

A. References

Reference	Title
27-51-00-720-801	Flap Control Lever Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Sensor	27-51-03-05-045	ARO ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-03-860-006

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-51-03-210-001

(2) Make sure the flap control lever [1] is in the UP position.

SUBTASK 27-51-03-420-001

(3) Install the sensor [5] for the flap lever position:

(a) Put the sensor [5] in its position on the control stand with the indexing splines aligned.

(b) Loosely install the bolts [4] and washers [3] that attach the sensor [5] to the control stand.

(c) Loosely install the nut [6] and washer [7] that attach the sensor [5] to the stud on the friction brake.

(d) Tighten the bolts [4] to 90-110 pound-inches.

(e) Tighten the nut [6] to 65-100 pound-inches.

(f) Install the clamp [8], screw [9] and washer [10] to attach the electrical wires.

(g) Connect the four electrical connectors [2] for the sensor [5].

SUBTASK 27-51-03-860-004

(4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

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Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-51-03-410-001

(5) Install the right side cover on the control stand.

SUBTASK 27-51-03-720-001

(6) Do this task: Flap Control Lever Test, TASK 27-51-00-720-801.

SUBTASK 27-51-03-860-005

(7) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

END OF TASK

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FLAP PRIMARY CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the primary control valve for the trailing edge flaps

(2) An installation of the primary control valve for the trailing edge flaps.

(3) A removal of the solenoids from the primary control valve.

(4) An installation of the solenoids on the primary control valve.

B. There are five solenoids installed on the primary control valve. It is not necessary to remove the solenoids to remove the primary control valve.

(1) The solenoids are as follows:

(a) Shutoff solenoid

(b) Extend solenoid

(c) Low speed solenoid

(d) Retract solenoid

(e) Bypass solenoid

TASK 27-51-05-000-801

2. Flap Primary Control Valve Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-51-05-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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SUBTASK 27-51-05-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-05-860-001

(3) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

D. Remove the Primary Control Valve

SUBTASK 27-51-05-860-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1

SUBTASK 27-51-05-020-001

(2) Disconnect the electrical connectors [7] and [12] from the valve assembly [3].

SUBTASK 27-51-05-020-002

(3) Disconnect the hydraulic tubes [4], [6], [10] and [11] from the valve assembly [3].

SUBTASK 27-51-05-020-003

WARNING BE CAREFUL WHEN YOU MOVE THE COMPONENT. THE COMPONENT IS HEAVY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Remove the bolts [8] and washers [9] and remove the valve assembly [3] from the bracket [2].

SUBTASK 27-51-05-480-005

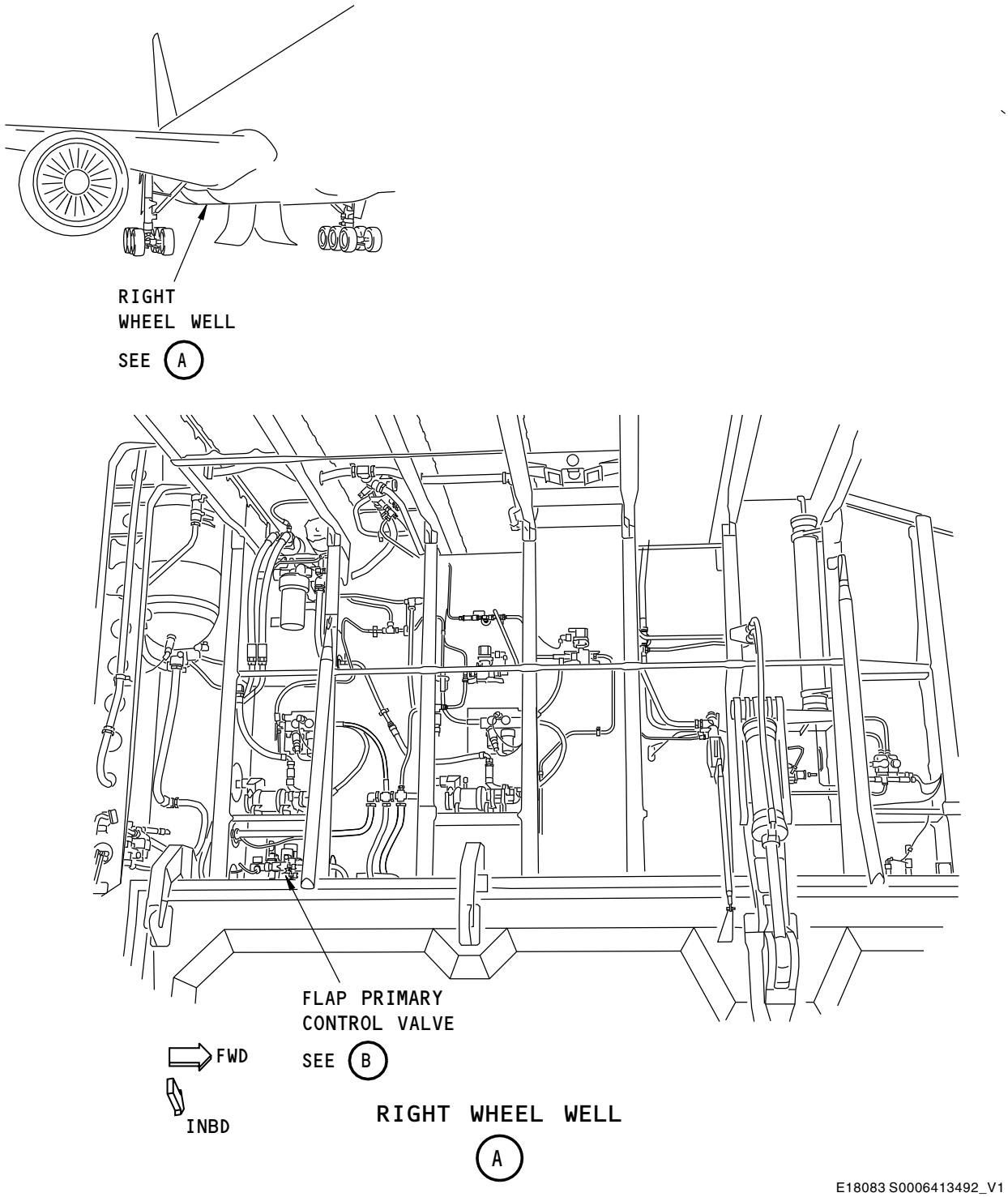
(5) Install caps on the hydraulic tubes [4], [6], [10] and [11].

SUBTASK 27-51-05-480-006

(6) Install plugs in the hydraulic ports on the valve assembly [3].

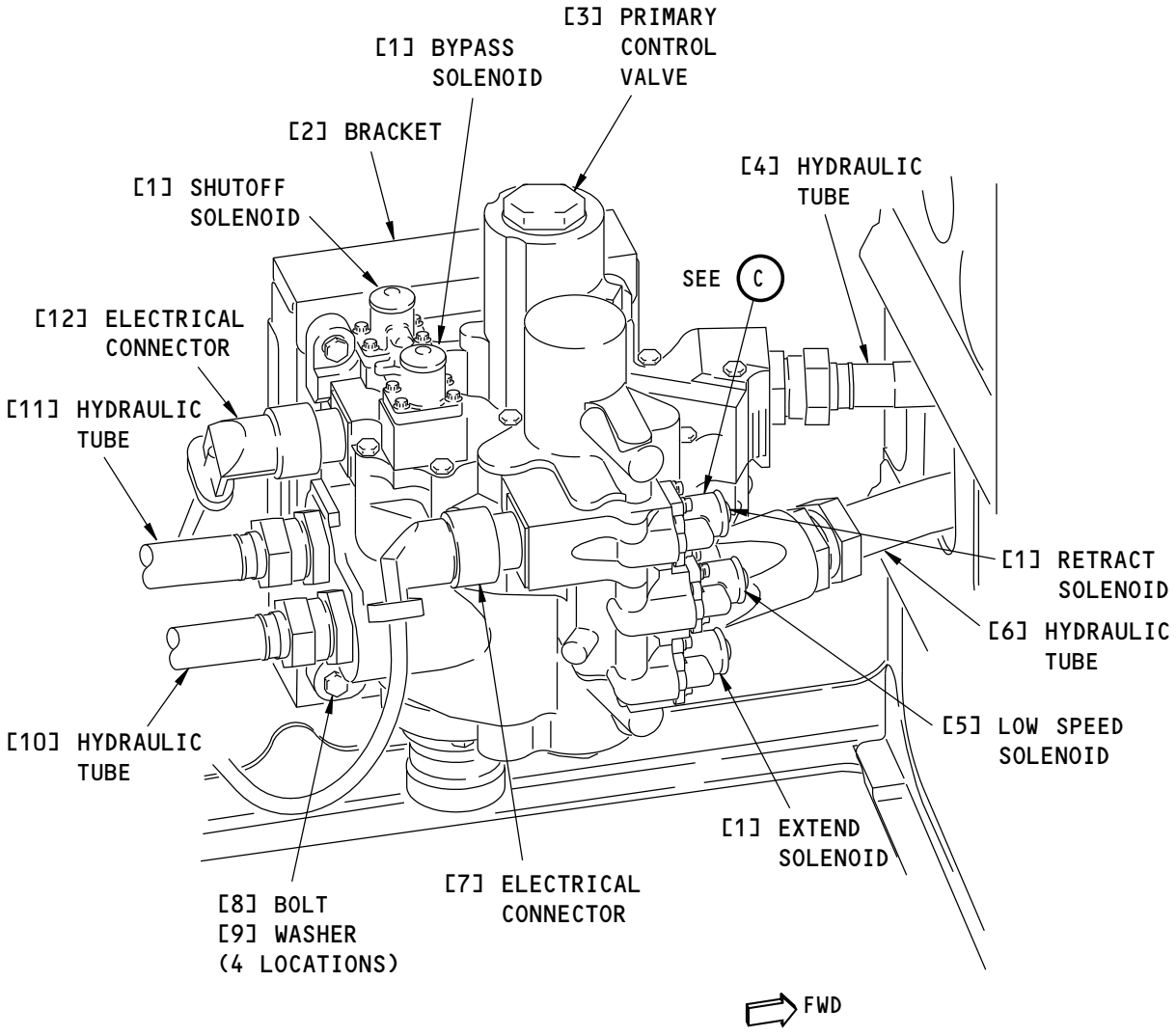
END OF TASK

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Flap Primary Control Valve Installation
Figure 401/27-51-05-990-801 (Sheet 1 of 3)

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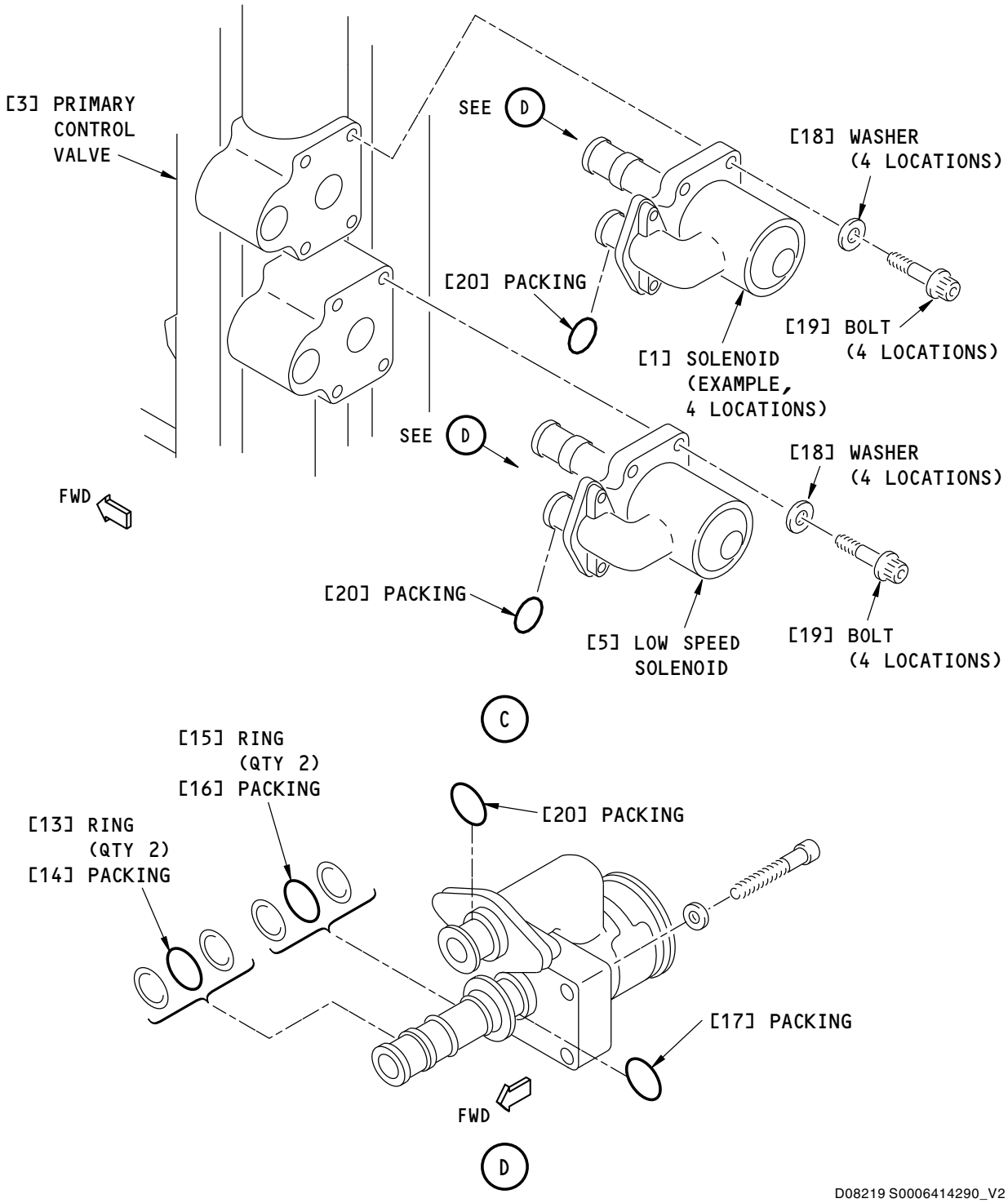
FLAP PRIMARY CONTROL VALVE

B

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Flap Primary Control Valve Installation
Figure 401/27-51-05-990-801 (Sheet 2 of 3)

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Flap Primary Control Valve Installation
Figure 401/27-51-05-990-801 (Sheet 3 of 3)

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TASK 27-51-05-400-801

3. Flap Primary Control Valve Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-01-610-803	Hydraulic Reservoir Filling - Manual Procedure (P/B 301)
27-51-05-740-801	Flap Primary Control Valve Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00767	Sealant - Fuel Tank	BMS5-45

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Valve assembly	27-51-05-10-010	ARO ALL

E. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

F. Procedure

SUBTASK 27-51-05-420-001

(1) Install the valve assembly [3]:

(a) Make sure the mating surface of the valve assembly [3] and the bracket [2] are clean.

(b) Remove the caps and plugs from the hydraulic tubes [4], [6], [10] and [11] and the valve assembly [3].

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WARNING BE CAREFUL WHEN YOU MOVE THE COMPONENT. THE COMPONENT IS HEAVY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(c) Put the valve assembly [3] in its position on the bracket [2].

(d) Install the bolts [8] and washer [9] that attach the valve assembly [3].

(e) Apply a fillet seal of sealant, A00767 or sealant, A00247 around the mating surfaces of the valve assembly [3].

(f) With the intrinsically safe approved bonding meter, COM-1550, make sure the bonding resistance between the valve assembly [3] and the structure is less than 0.008 ohms (WDM D6-54446).

SUBTASK 27-51-05-420-002

(2) Connect the hydraulic tubes [4], [6], [10] and [11] to the valve assembly [3].

SUBTASK 27-51-05-420-003

(3) Connect the electrical connectors [7] and [12] to the valve assembly [3].

SUBTASK 27-51-05-860-003

(4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1

SUBTASK 27-51-05-610-001

(5) For the center hydraulic system, do this task: Hydraulic Reservoir Filling - Manual Procedure, TASK 12-12-01-610-803.

SUBTASK 27-51-05-740-001

(6) Do this task: Flap Primary Control Valve Test, TASK 27-51-05-740-801.

SUBTASK 27-51-05-210-001

(7) Make sure there are no hydraulic fluid leaks at the valve assembly [3].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-05-080-001

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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TASK 27-51-05-000-802

4. Primary Control Valve Solenoid Removal

(Figure 401)

A. General

(1) This procedure is applicable to all of the solenoids [1] or solenoid [5] installed on the primary control valve.

B. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

D. Prepare for the Removal

SUBTASK 27-51-05-480-003

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-05-480-004

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-05-860-004

(3) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

E. Primary Control Valve Solenoid Removal

SUBTASK 27-51-05-860-005

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1

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SUBTASK 27-51-05-020-004

(2) Remove the solenoid [1] or solenoid [5] from the valve assembly [3]:

(a) Remove the bolts [19] and washers [18] that attach the solenoid [1] or solenoid [5].

(b) Pull the solenoid [1] or solenoid [5] straight out of the valve assembly [3].

(c) Remove the rings [13], packing [14], rings [15], packing [16], packing [17] and packing [20] from the solenoid [1] or solenoid [5].

——— END OF TASK ———

TASK 27-51-05-400-802

5. Primary Control Valve Solenoid Installation

(Figure 401)

A. General

(1) This procedure is applicable to all of the solenoids [1] or solenoid [5] installed on the primary control valve.

B. References

Reference	Title
12-12-01-610-803	Hydraulic Reservoir Filling - Manual Procedure (P/B 301)
27-51-05-740-801	Flap Primary Control Valve Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00436	Sealant - Fuel Tank	BMS5-45 (Supersedes BMS5-26)
D00571	Grease - BATCO X8401-2	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
16	Packing	27-41-07-50-300	ARO ALL
		27-51-05-10-050	ARO ALL
		27-51-05-10-055	ARO ALL

E. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

F. Procedure

SUBTASK 27-51-05-420-004

(1) Install the solenoid [1] or solenoid [5] in the valve assembly [3]:

(a) Install new packing [20], packing [17], rings [15], packing [16], rings [13], and packing [14] on the solenoid [1] or solenoid [5].

(b) Apply a bead of sealant, A00436 to the mating surface of the solenoid [1] or solenoid [5].

NOTE: Do not get the sealant on the flange of the solenoid.

(c) Put the solenoid [1] or solenoid [5] in its position on the valve assembly [3].

(d) Apply a layer of sealant, A00436, to the bottom surface of the washers [18].

(e) Apply a layer of BATCO X8401-2 grease, D00571, to the shank and threads of the bolts [19].

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(f) Install the bolts [19] and washers [18] that attach the solenoid [1] or solenoid [5] to the valve assembly [3].

(g) Tighten the bolts [19] to 32-37 pound-inches.

(h) Install lockwire on the bolts [19].

SUBTASK 27-51-05-860-006

(2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1

SUBTASK 27-51-05-610-002

(3) For the center hydraulic system, do this task: Hydraulic Reservoir Filling - Manual Procedure, TASK 12-12-01-610-803.

SUBTASK 27-51-05-740-002

(4) Do this task: Flap Primary Control Valve Test, TASK 27-51-05-740-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-05-080-002

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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FLAP PRIMARY CONTROL VALVE - ADJUSTMENT/TEST

1. General

A. This procedure includes an automatic test of the flap primary control valve.

TASK 27-51-05-740-801

2. Flap Primary Control Valve Test

(Figure 501)

A. General

(1) Use this test to make sure the flap primary control valve and the solenoids in the primary control valve operate correctly.

(2) In this procedure it is necessary to move the flap control lever before the test will start. The sequence of operation for the flaps and slats will not be the same as usual.

(3) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT, or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(4) These EICAS CAUTION messages can show during this test:

(a) FLAP/SLAT CONTROL

(b) NO AUTOLAND

(5) These EICAS STATUS messages can show during this test:

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

(c) NO AUTOLAND

(d) FLIGHT CONTROL SYS

(e) PFCS INTERFACE

(6) This EICAS ADVISORY message can show during this test:

(a) NO AUTOLAND

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-51-05-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-05-860-008

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must use the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

SUBTASK 27-51-05-860-009

(3) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-51-05-210-004

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-05-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR FULLY CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-51-05-860-010

(6) If you installed a new flap primary control valve, extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

NOTE: This is necessary to bleed air from the primary control valve.

SUBTASK 27-51-05-860-011

(7) Make sure the flap control lever is in the UP position.

SUBTASK 27-51-05-740-003

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Use a maintenance access terminal (MAT) to do the LRU replacement test of the flap primary control valve:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

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3) GROUND TESTS

4) 27 HIGH LIFT SYSTEM

5) LRU REPLACEMENT TEST

6) FLAPS PRIMARY CONTROL VALVE TEST-FSEU 1 (FLAPS PRIMARY CONTROL VALVE TEST- FSEU 2)

NOTE: To do a full test of the primary control valve, you must do the test with FSEU 1 and FSEU 2.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-51-05-740-004

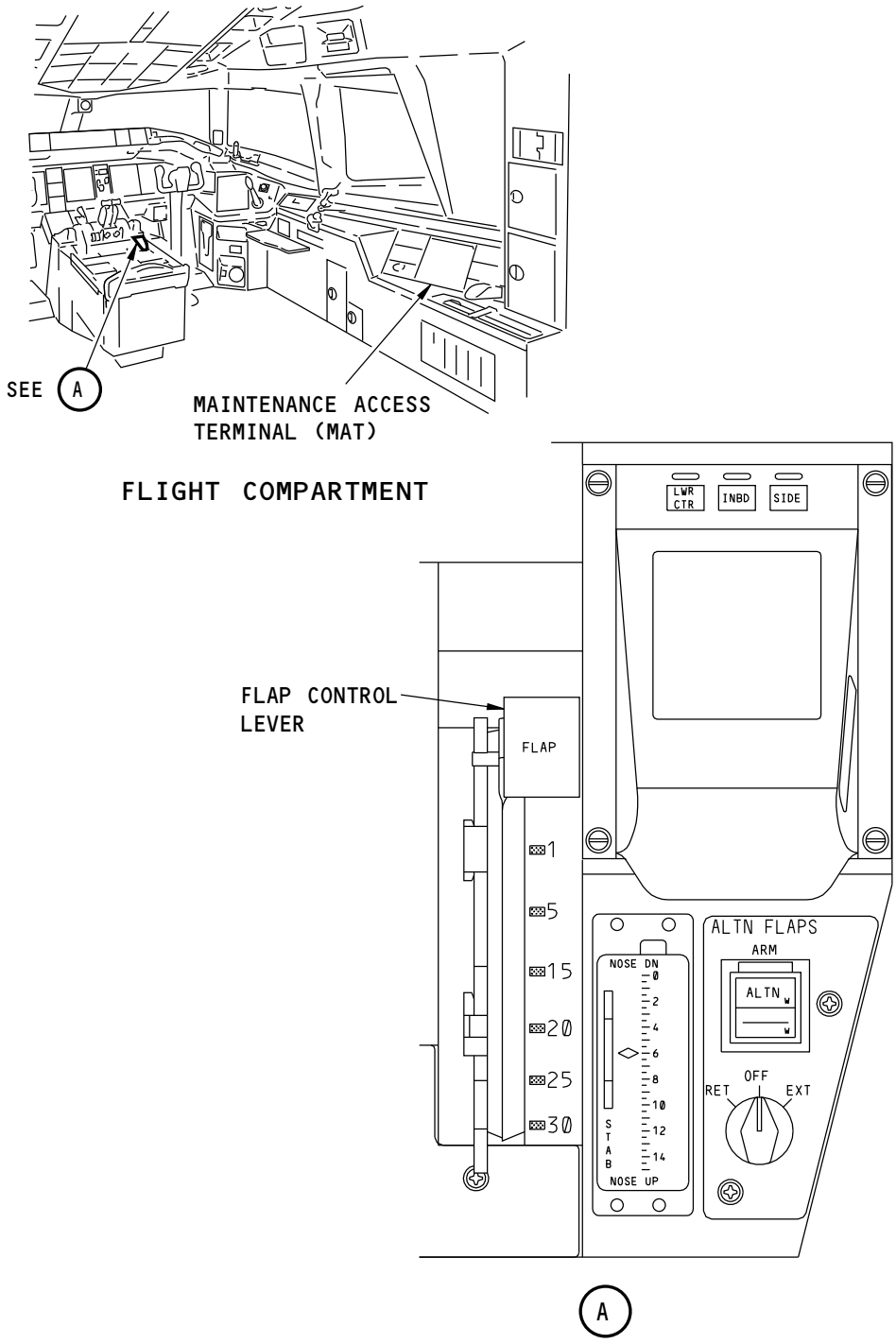
(9) Do the flap primary control valve test again with the other FSEU.

SUBTASK 27-51-05-860-012

(10) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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E17608 S0006413500_V1

Flap Primary Control Valve Test
Figure 501/27-51-05-990-802

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FLAP/SLAT PRIORITY VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap/slat priority valve

(2) An installation of the flap/slat priority valve.

TASK 27-51-06-000-801

2. Flap/Slat Priority Valve Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-51-06-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-06-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

D. Flap/Slat Priority Valve Removal

SUBTASK 27-51-06-860-001

(1) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-51-06-020-001

(2) Remove the priority valve [9]:

(a) Get access to the priority valve [9] in the right main wheel well.

(b) Disconnect the hydraulic lines [5] and [8] from the tee [6].

(c) Disconnect the hydraulic lines [3] and [7] from the priority valve [9].

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(d) Install caps on the hydraulic lines [3], [5], [7] and [8].

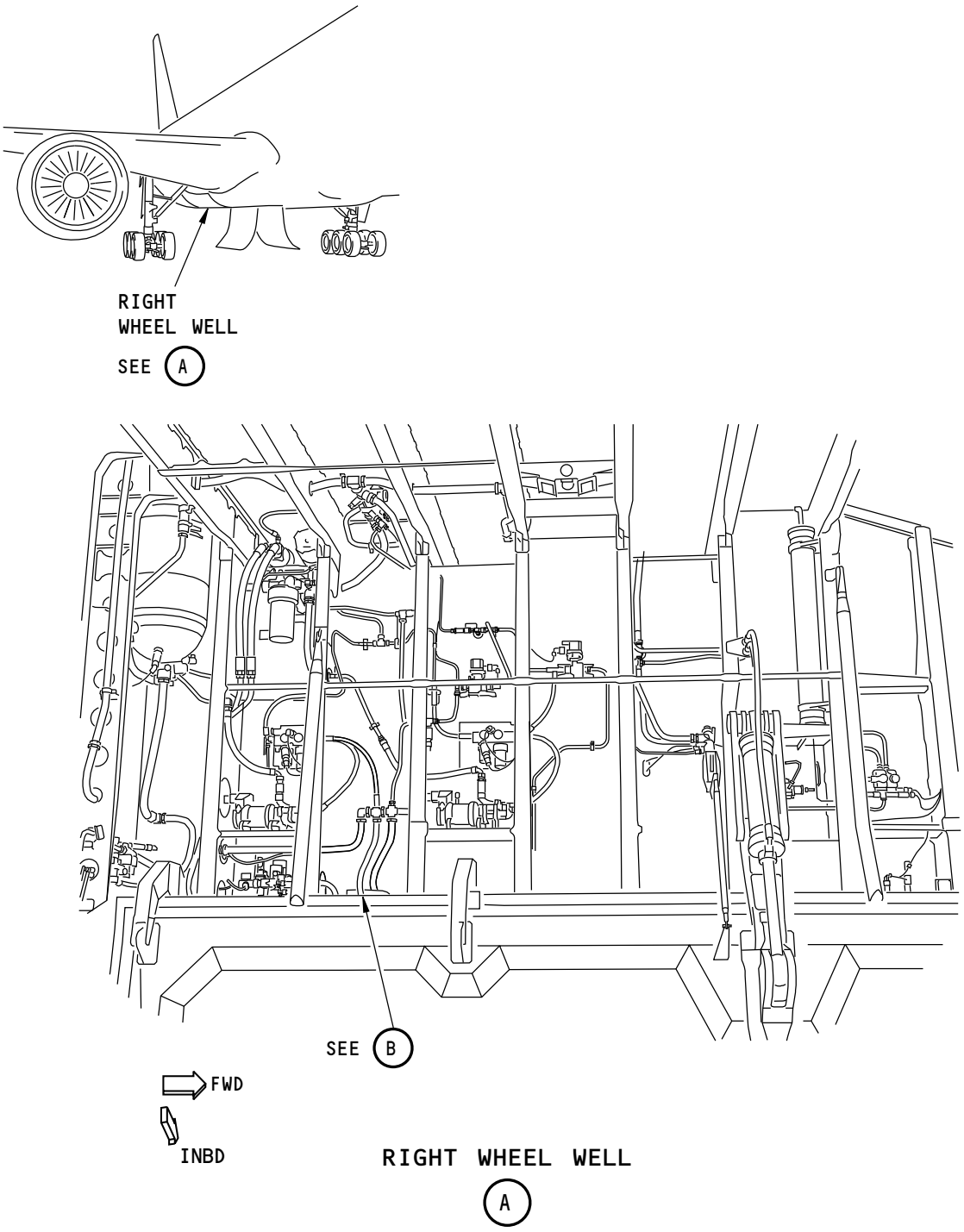
(e) Remove the bolt [1] and bolts [4] and washers [2] and remove the priority valve [9].

(f) If it is necessary, remove the tee [6] from the priority valve [9].

(g) Install caps on the fittings of the priority valve [9].

——— END OF TASK ———

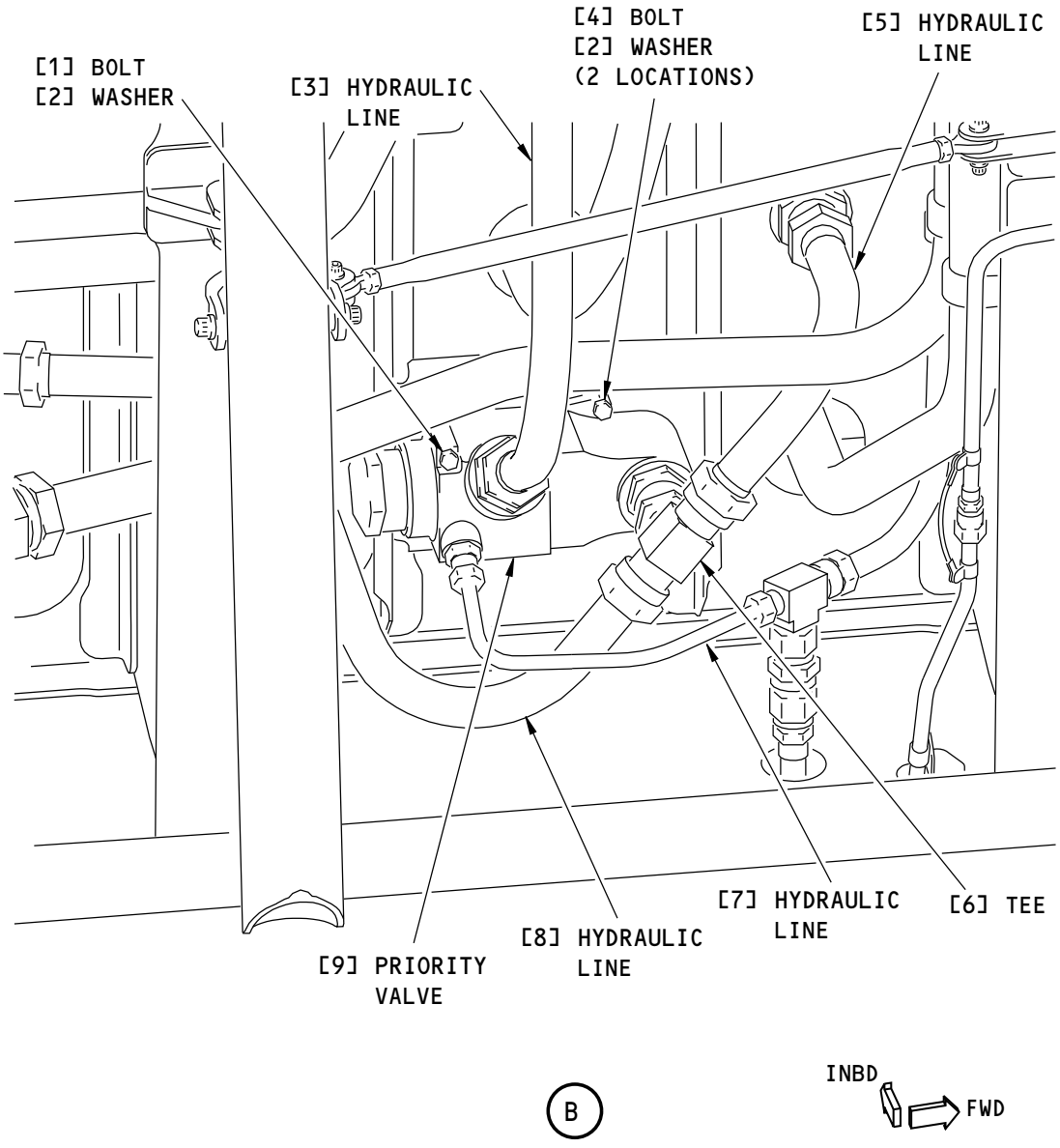
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E56464 S0006413504_V1

Flap/Slat Priority Valve Installation
Figure 401/27-51-06-990-801 (Sheet 1 of 2)

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E56465 S0006413505_V1

Flap/Slat Priority Valve Installation
Figure 401/27-51-06-990-801 (Sheet 2 of 2)

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TASK 27-51-06-400-801

3. Flap/Slat Priority Valve Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Priority valve	27-51-06-01-005	ARO ALL

C. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

D. Flap/Slat Priority Valve Installation

SUBTASK 27-51-06-420-001

(1) Install the priority valve [9]:

(a) Remove the caps from the fittings of the priority valve [9].

(b) If it is not installed, install the tee [6] on the priority valve [9].

1) Tighten the B-nut on the tee [6] to 1200 ±60 in-lb (136 ±7 N·m).

(c) Put the priority valve [9] in its location in the right main wheel well.

(d) Install the bolt [1] and bolts [4] and washers [2].

NOTE: Install the washers [2] with the countersunk surface towards the head of the bolt [1] and bolts [4].

(e) Remove the caps from the hydraulic line [3], hydraulic line [5], hydraulic line [7] and hydraulic line [8].

(f) Connect the hydraulic line [3] and hydraulic line [7] to the priority valve [9].

1) Tighten the B-nut on the hydraulic line [3] to 1200 ±60 in-lb (136 ±7 N·m).

2) Tighten the B-nut on the hydraulic line [7] to 170 ±9 in-lb (19 ±1 N·m).

(g) Connect the hydraulic line [5] and hydraulic line [8] to the tee [6].

1) Tighten the B-nuts on the hydraulic line [5] and hydraulic line [8] to 1200 ±60 in-lb (136 ±7 N·m).

SUBTASK 27-51-06-610-001

(2) If it is necessary, fill the reservoir for the center hydraulic system, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

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SUBTASK 27-51-06-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-06-710-001

(4) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

SUBTASK 27-51-06-790-001

(5) Make sure there are no hydraulic leaks from the priority valve [9].

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-06-860-003

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-06-080-001

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

——— END OF TASK ———

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INBOARD TRAILING EDGE FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard trailing edge flap

(2) An installation of the inboard trailing edge flap.

(3) An alternate method of removing the inboard trailing edge flap.

(4) An alternate method of installing the inboard trailing edge flap.

B. This procedure includes the removal and installation of the aft flap with the main flap. For procedures to remove and install the aft flap only, refer to (TASK 27-51-12-400-801).

C. The main flap and aft flap together weigh approximately 880 pounds. The main flap alone weighs approximately 660 pounds.

D. The alternate method removes and installs the inboard trailing edge flap with the outboard carrier beam attached.

TASK 27-51-11-000-801

2. Inboard Trailing Edge Flap Removal

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-18-000-801	Inboard Flap Support Fairing Removal (P/B 401)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
27-61-00-040-802	Spoiler Deactivation (With the Spoilers Up) (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2547	Equipment - Restraint, Aft to Main Segment Inboard Flap (L/N 39 and on) Part #: J27026-50 Supplier: 81205

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(Continued)

Reference	Description
SPL-7728	Sling - Main (J27011-24 Main Sling Assy is included in J27011-23 Sling Eqpt) Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
572	Inboard Flap Center Track Fairing - Left Wing
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5
672	Inboard Flap Center Track Fairing - Right Wing
673	Flap Support Fairing No. 6

D. Access Panels

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

E. Prepare for the Removal

SUBTASK 27-51-11-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-11-010-001

(2) Do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-11-480-006

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-11-480-007

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

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SUBTASK 27-51-11-860-007

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-11-210-003

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-11-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(7) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-11-860-002

(8) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-11-480-001

(9) For the inboard spoilers 6 and 7 (left wing) or 8 and 9 (right wing), do this task: Spoiler Deactivation (With the Spoilers Up), TASK 27-61-00-040-802.

SUBTASK 27-51-11-860-008

(10) For the left, right and center hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-11-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(11) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-020-006

(12) Do this task: Inboard Flap Support Fairing Removal, TASK 27-51-18-000-801.

SUBTASK 27-51-11-020-001

(13) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

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F. Inboard Trailing Edge Flap Removal

SUBTASK 27-51-11-020-007

(1) Remove the aft three bolts on the outboard carrier beam [11] (View D-D) (Figure 401):

NOTE: It is necessary to remove these bolts from the flap assembly [1] before you move the aft flap [2] to the retracted position.

(a) Remove the nut [23], washer [20], washer [21], washer [22] and bolt [24].

(b) Remove the nut [30], washer [27], washer [28], washer [29] and bolt [26].

(c) Remove the nut [35], washer [32], washer [33], washer [34] and bolt [31].

SUBTASK 27-51-11-020-002

(2) Move the aft flap [2], to the retracted position:

(a) Remove the applicable access panels, from the outboard end of the flap assembly [1]:

(TASK 06-30-00-800-806)

Number	Name/Location
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

(b) Remove the nut [9], washer [6], washer [8] and bolt [5] that attach the rod assembly [4] to the aft flap [2].

(c) Remove the nut [9], washers [6]] washers [8] and bolt [5] that attach the rod assembly [4] to the bellcrank [3].

(d) Remove the rod assembly [4].

(e) Remove the bushing [7] and bushing [10] from the fitting on the aft flap [2] and the bellcrank [3].

(f) At the inboard end of the flap assembly [1], remove the nut [75], washer [68], washer [74] and bolt [72] that attach the rod assembly [66] to the aft flap [2] (Figure 402).

(g) Remove the nut [71], washer [68], washer [70] and bolt [67] that attach the rod assembly [66] to the drive crank [60].

(h) Remove the rod assembly [66].

(i) Remove the bushing [69] and bushing [73] from the fittings.

(j) Carefully move the aft flap [2] forward until it is in the retracted position.

SUBTASK 27-51-11-480-002

(3) Install the aft to main segment inboard flap restraint equipment, SPL-2547 to hold the aft flap [2] in the retracted position (Figure 404).

(a) Use the restraint part numbers J27026-51 (left) and the J27026-52 (right) on the outboard side of the flap assembly [1].

SUBTASK 27-51-11-020-008

(4) Remove the remaining bolt [26] (View C-C) (Figure 401):

NOTE: With the flaps extended, the aft flap linkage blocks access to the bolt.

(a) Manually retract the flaps until you can get access to the bolt [26]. To retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: You can get access to the bolt with the flaps approximately in the 20-unit position.

(b) Remove the nut [30], washer [27], washer [28], washer [29] and bolt [26].

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(c) Manually extend the flaps to the 30-unit position. To extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-11-480-003

(5) Install the main sling, SPL-7728 [93], to hold the flap assembly [1] (Figure 403):

(a) Find the bolts [95] and bolts [97] on the flap assembly [1] to attach the main sling, SPL-7728 [93].

NOTE: The bolts [95] are along the front spar, above the snubber pad. The bolts [97] are along the rear spar.

(b) Remove the bolts [95] and bolts [97] from the top surface of the flap assembly [1].

(c) Install the forward sling fitting [94] and the aft sling fittings [96] on the flap assembly [1].

1) Install the bolts [95] or bolts [97] to attach each sling fitting to the flap assembly [1].

(d) Attach the main sling, SPL-7728 [93] to the forward sling fitting [94] and aft sling fittings [96].

(e) Connect an overhead crane to the primary support ring [91] on the main sling, SPL-7728 [93].

(f) Use the main sling, SPL-7728 [93] to hold the flap assembly [1].

SUBTASK 27-51-11-020-009

(6) Disconnect the flap assembly [1] from the aft end of the carrier beam [11] (Figure 401):

(a) Remove the nut [23], washer [20], washer [21], washer [22] and bolt [19].

(b) Remove the nut [35], washer [32], washer [33], washer [34] and bolt [36].

SUBTASK 27-51-11-020-003

(7) Disconnect the flap assembly [1] from the forward end of the carrier beam [11]:

(a) Remove the nuts [16], washers [13], washers [14], washers [15] and bolts [12].

(b) Remove the nuts [41], washers [38], washers [39], washers [40] and bolts [37].

(c) Remove the nuts [46], washers [43], washers [44], washers [45] and bolts [42].

SUBTASK 27-51-11-020-004

(8) Disconnect the flap assembly [1] from the inboard support mechanism (Figure 402):

(a) Move the applicable access panels, to the open position and connect it to the fixed structure with a rope or wire:

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door

(b) Remove the nut [65], washer [62], washer [64] and bolt [61] that attach the forward rod [59] to the drive crank [60].

(c) Remove the bushing [63] from the drive crank [60].

(d) Remove the nuts [56], washers [53], washers [54], washers [55] and bolts [52] that attach the torque tube fitting [51] to the inboard carrier beam [57].

SUBTASK 27-51-11-020-005

(9) Remove the flap assembly [1]:

NOTE: The main flap and aft flap together weigh approximately 880 pounds. The main flap alone weighs approximately 660 pounds.

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(a) Use the main sling, SPL-7728 [93] to carefully lift the flap until the bellcrank [3], is clear of the flap assembly [1] and the drive crank [60], is clear of the inboard carrier beam [57] (Figure 401, Figure 402).

(b) Pull on the secondary support ring [92], to lift the trailing edge of the flap assembly [1] until it is level (Figure 403).

(c) Lower the flap assembly [1].

(d) Remove the shim [17], shim [18] and shim [25] from the outboard end of the flap assembly [1] (Figure 401).

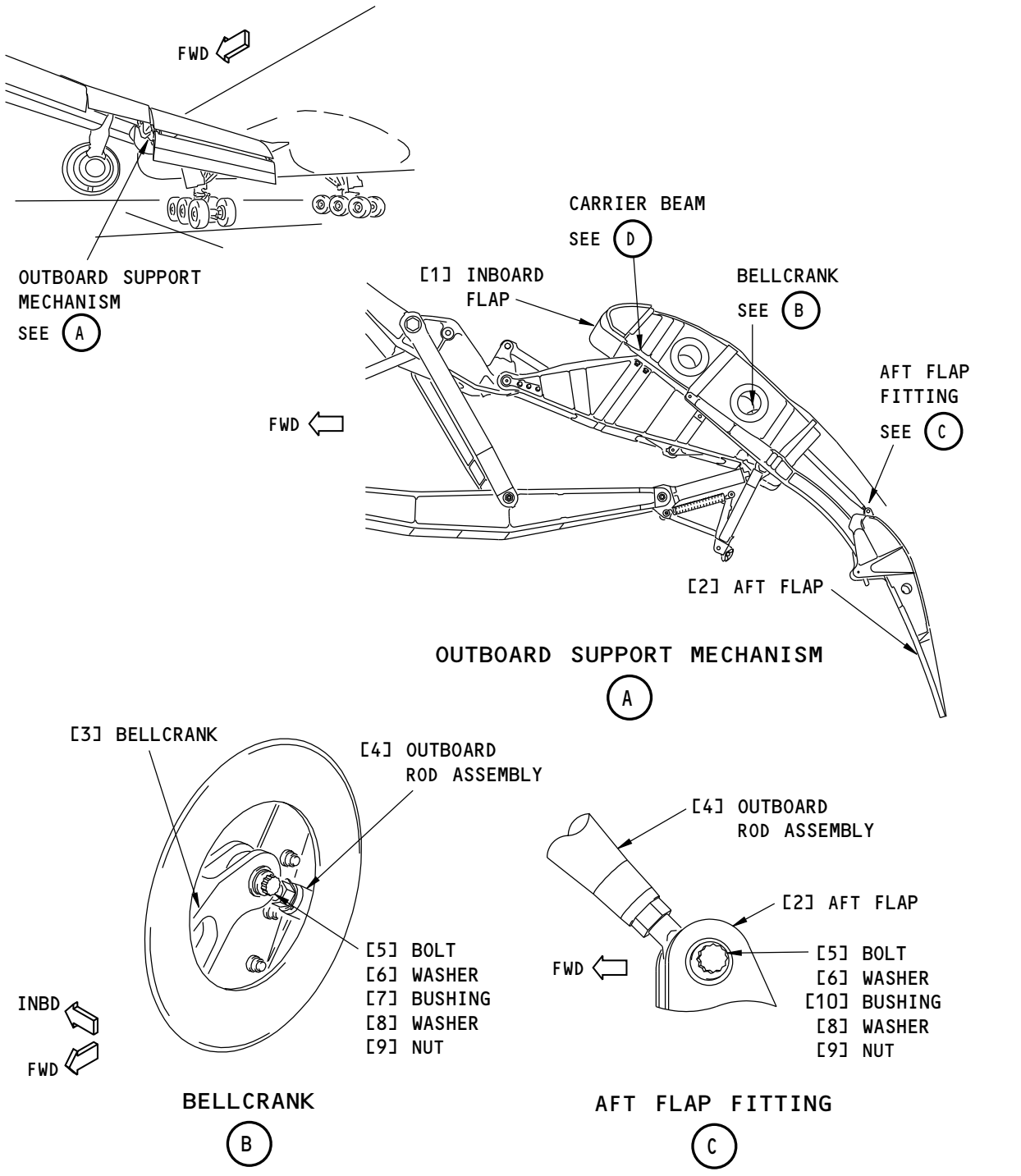
(e) Remove the shims [58] from the inboard end of the flap assembly [1] (Figure 402).

(f) Make a record of the position and thickness of the shims [58].

NOTE: Keep the shims to use during the flap installation.

——— END OF TASK ———

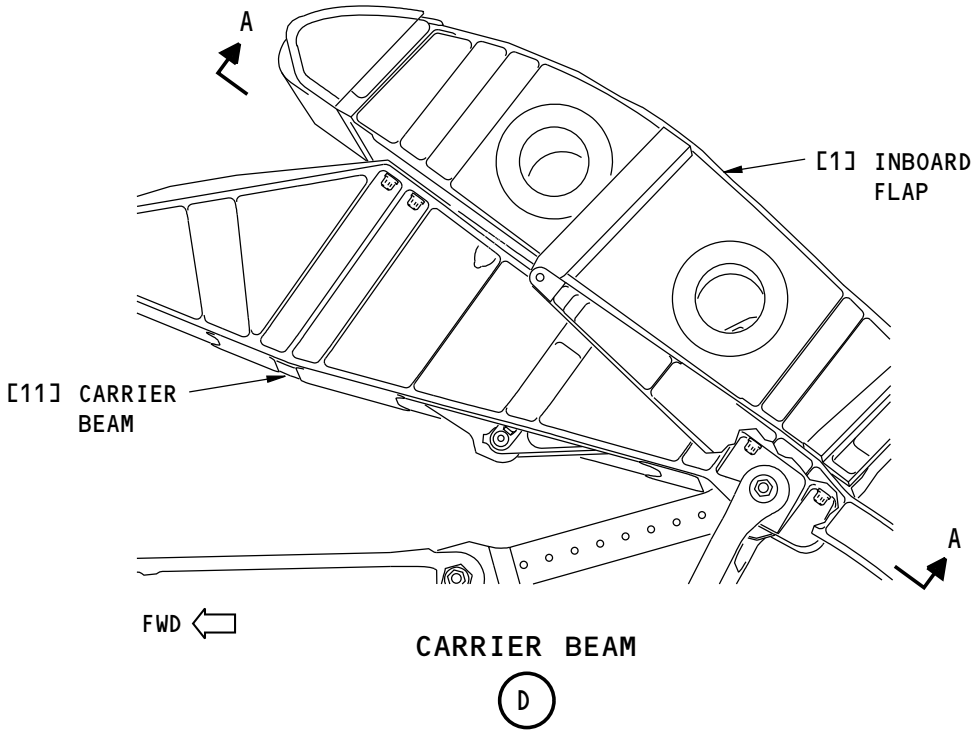
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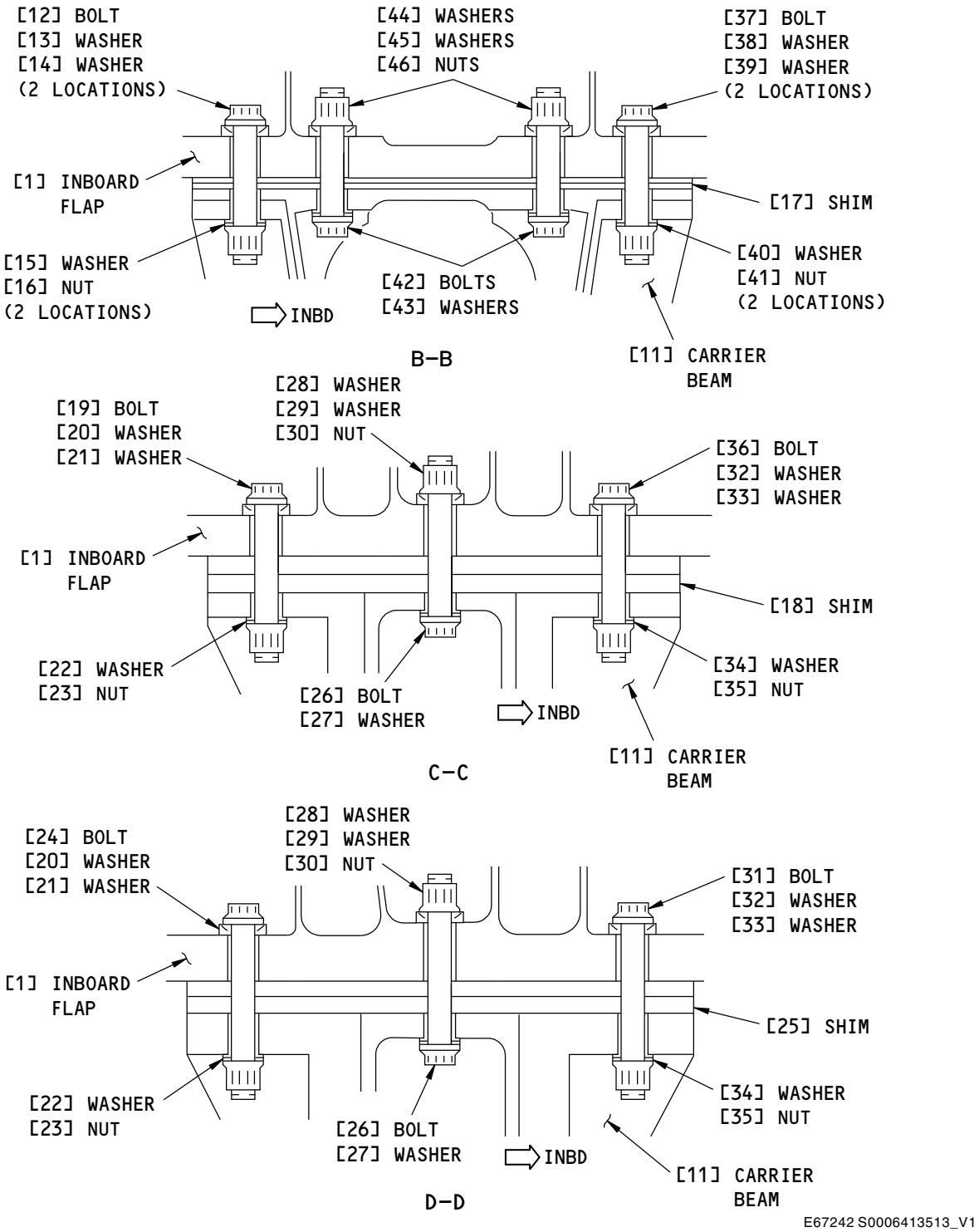
Inboard Trailing Edge Flap - Outboard End
Figure 401/27-51-11-990-801 (Sheet 1 of 3)

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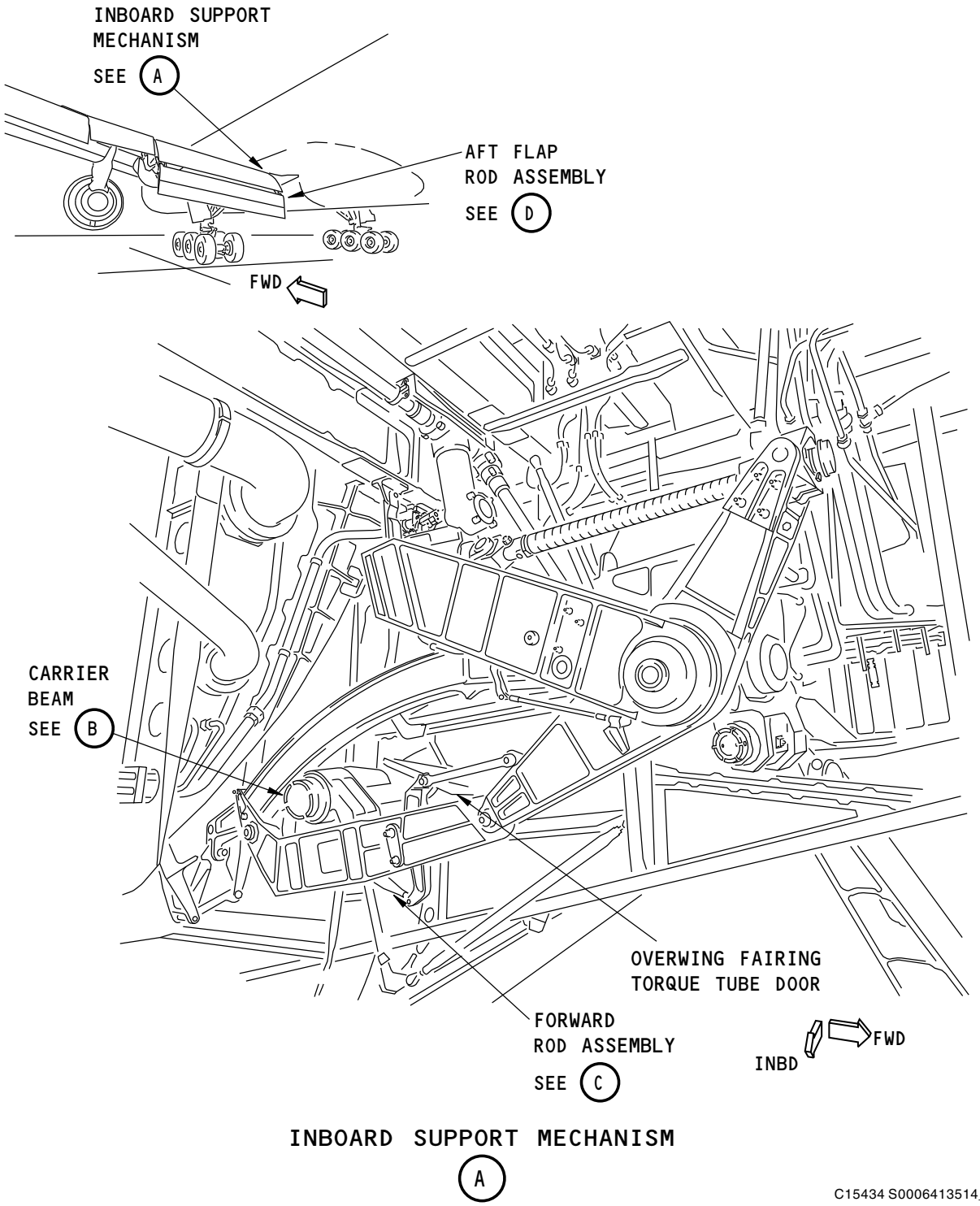
Inboard Trailing Edge Flap - Outboard End
Figure 401/27-51-11-990-801 (Sheet 2 of 3)

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Inboard Trailing Edge Flap - Outboard End
Figure 401/27-51-11-990-801 (Sheet 3 of 3)

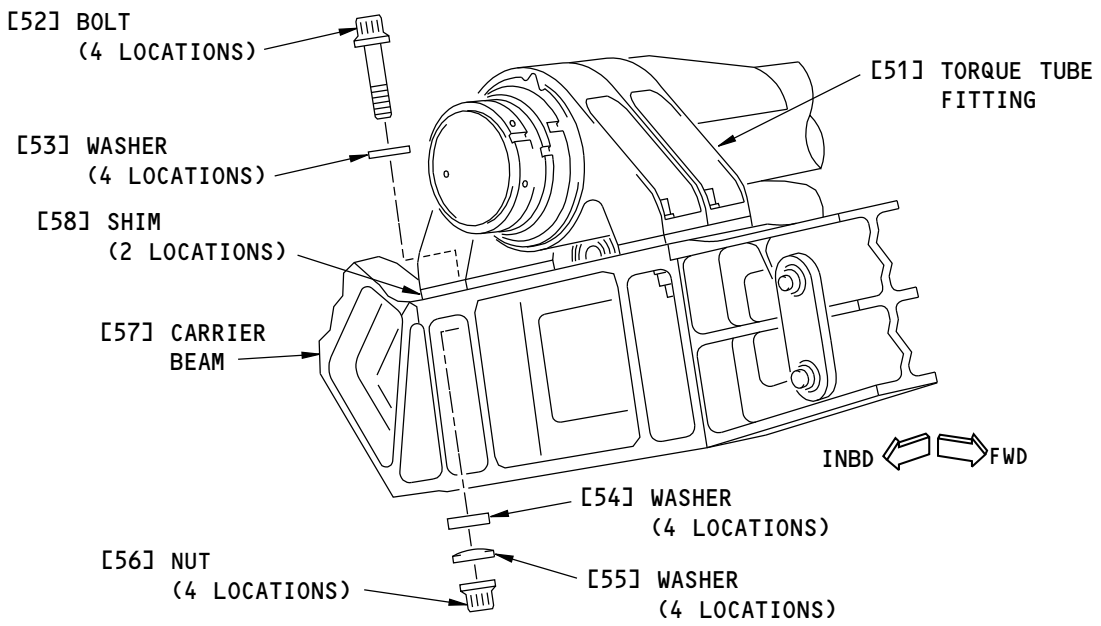
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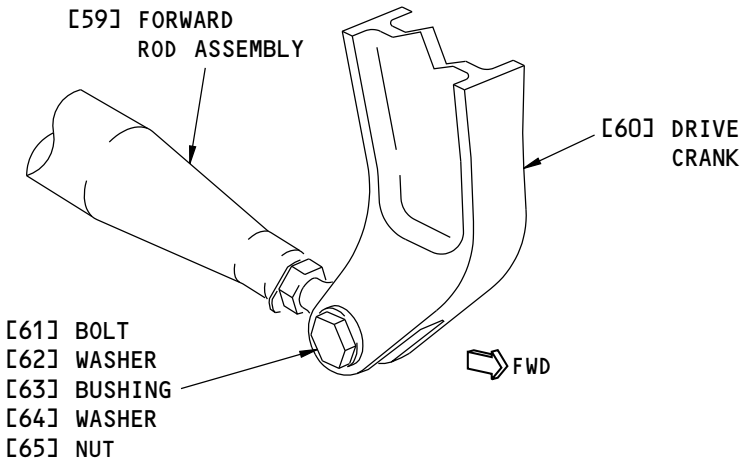
Inboard Trailing Edge Flap - Inboard End
Figure 402/27-51-11-990-802 (Sheet 1 of 3)

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CARRIER BEAM

B



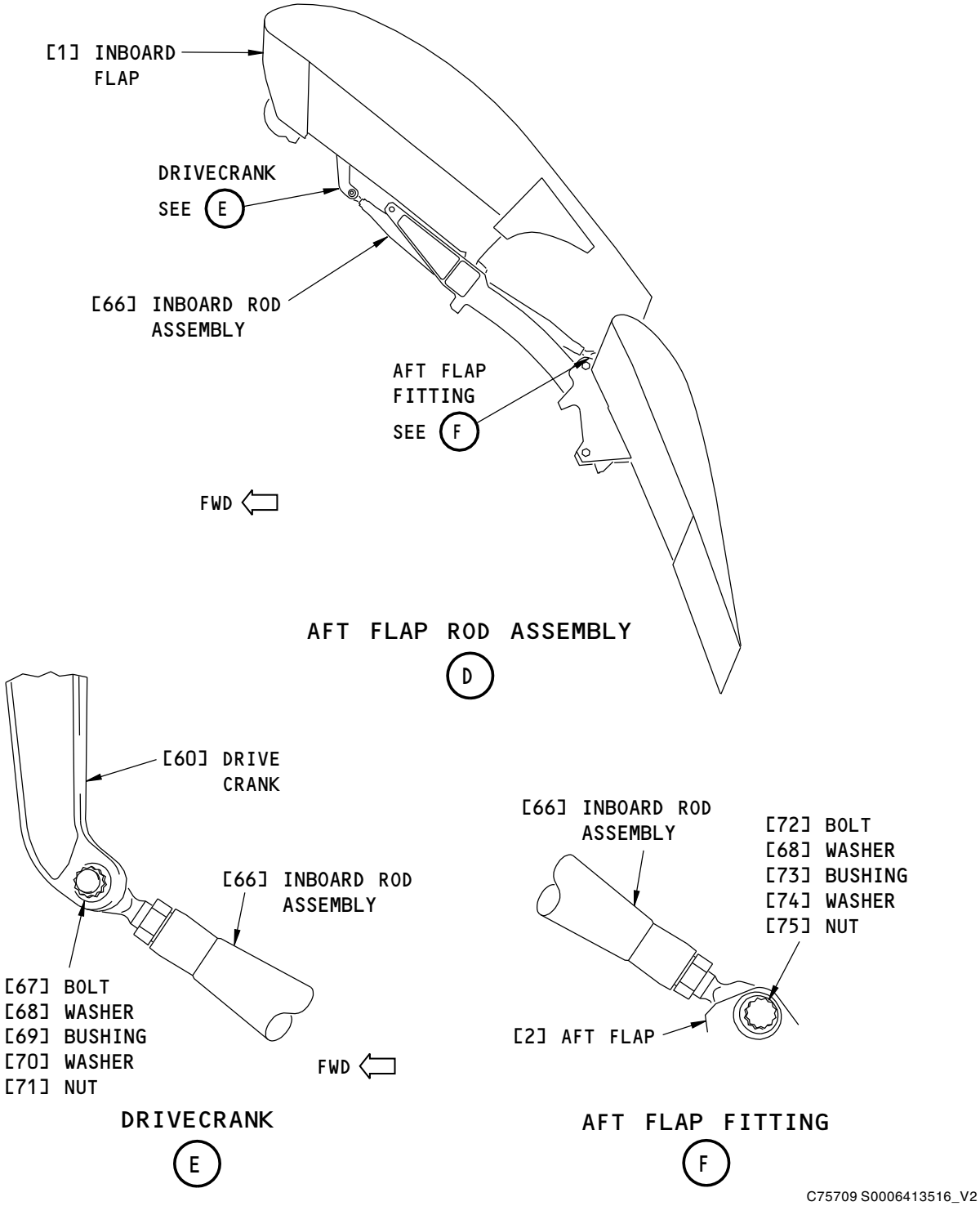
FORWARD ROD ASSEMBLY

C

C18979 S0006413515_V1

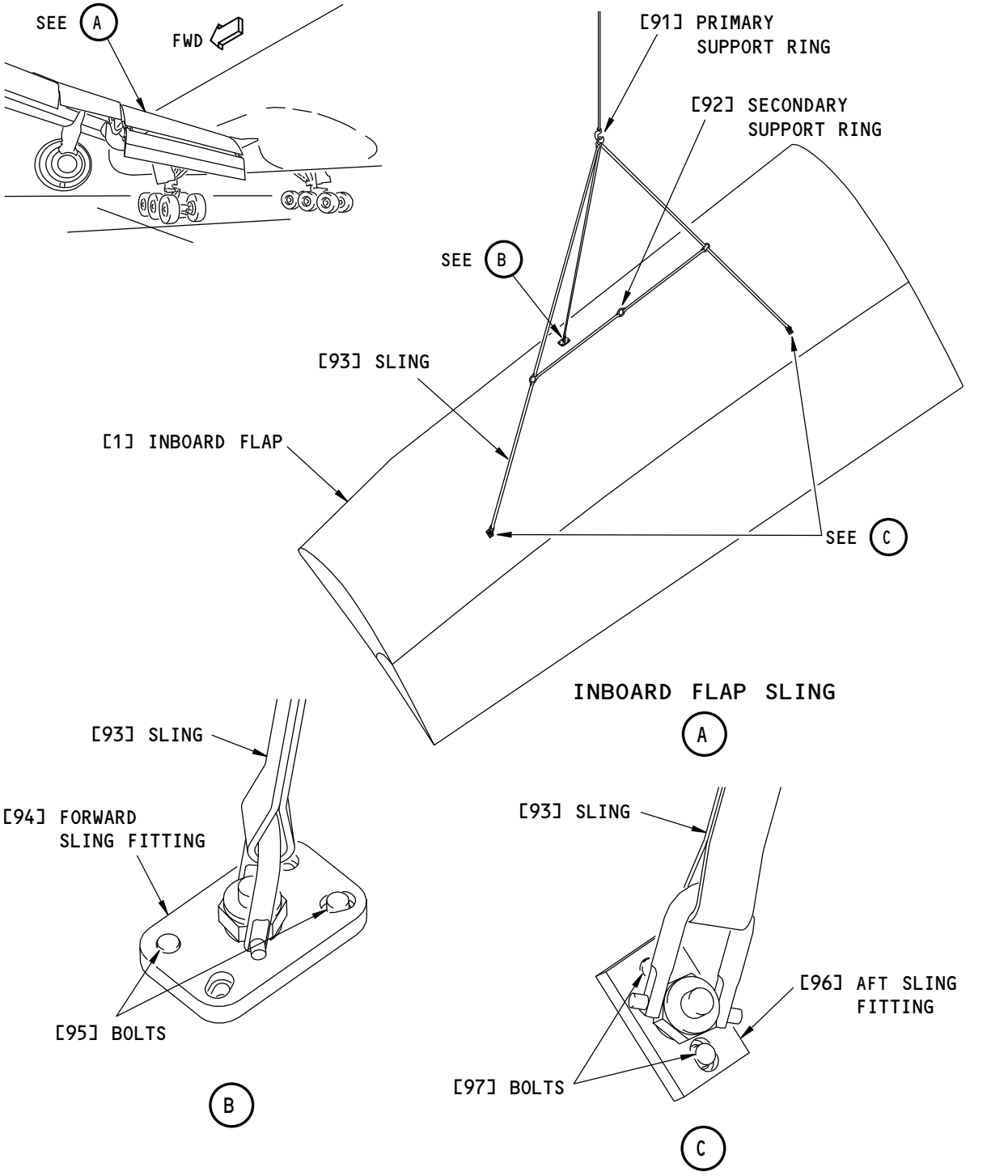
Inboard Trailing Edge Flap - Inboard End
Figure 402/27-51-11-990-802 (Sheet 2 of 3)

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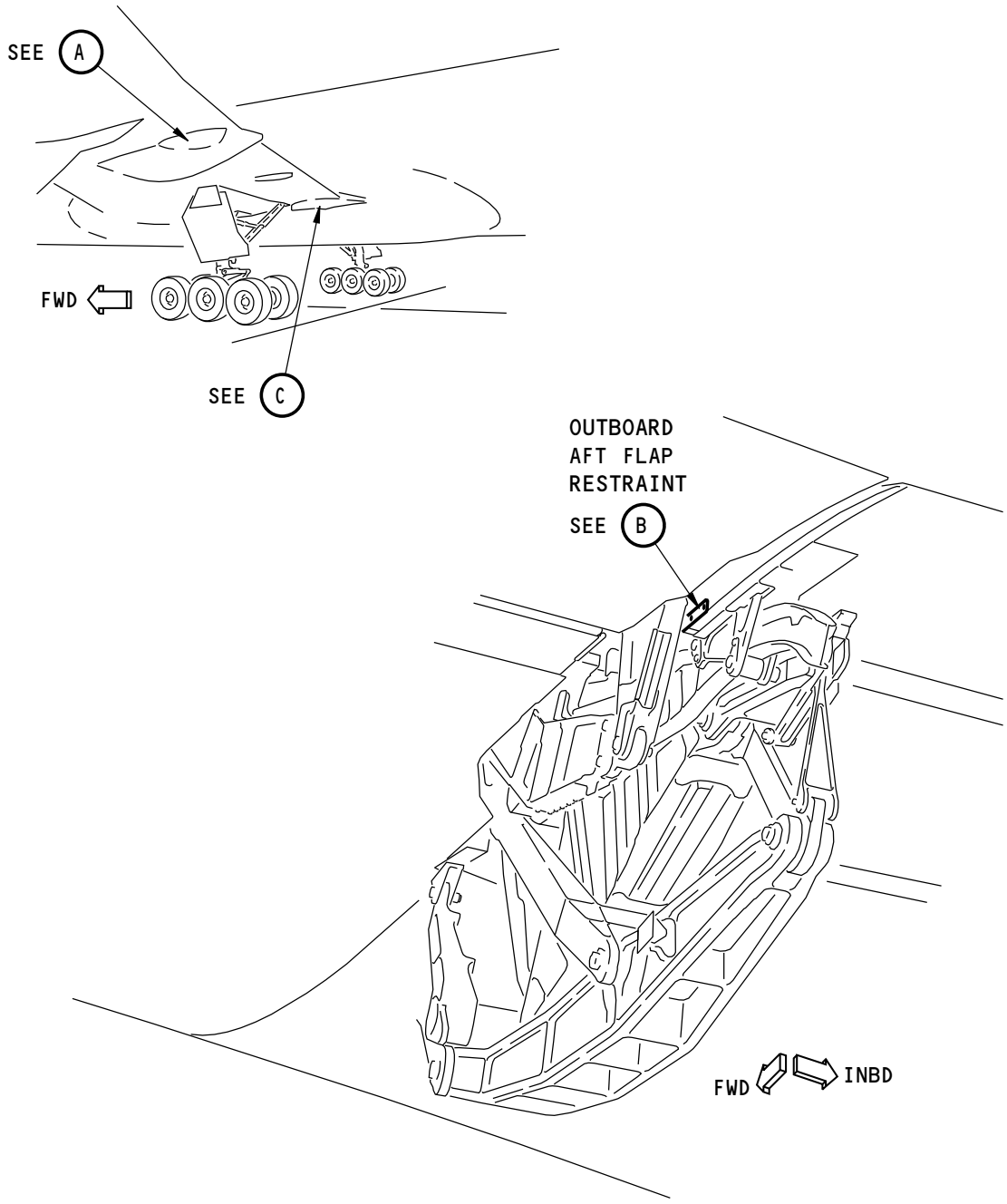
Inboard Trailing Edge Flap - Inboard End
Figure 402/27-51-11-990-802 (Sheet 3 of 3)

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Inboard Flap Sling
Figure 403/27-51-11-990-803

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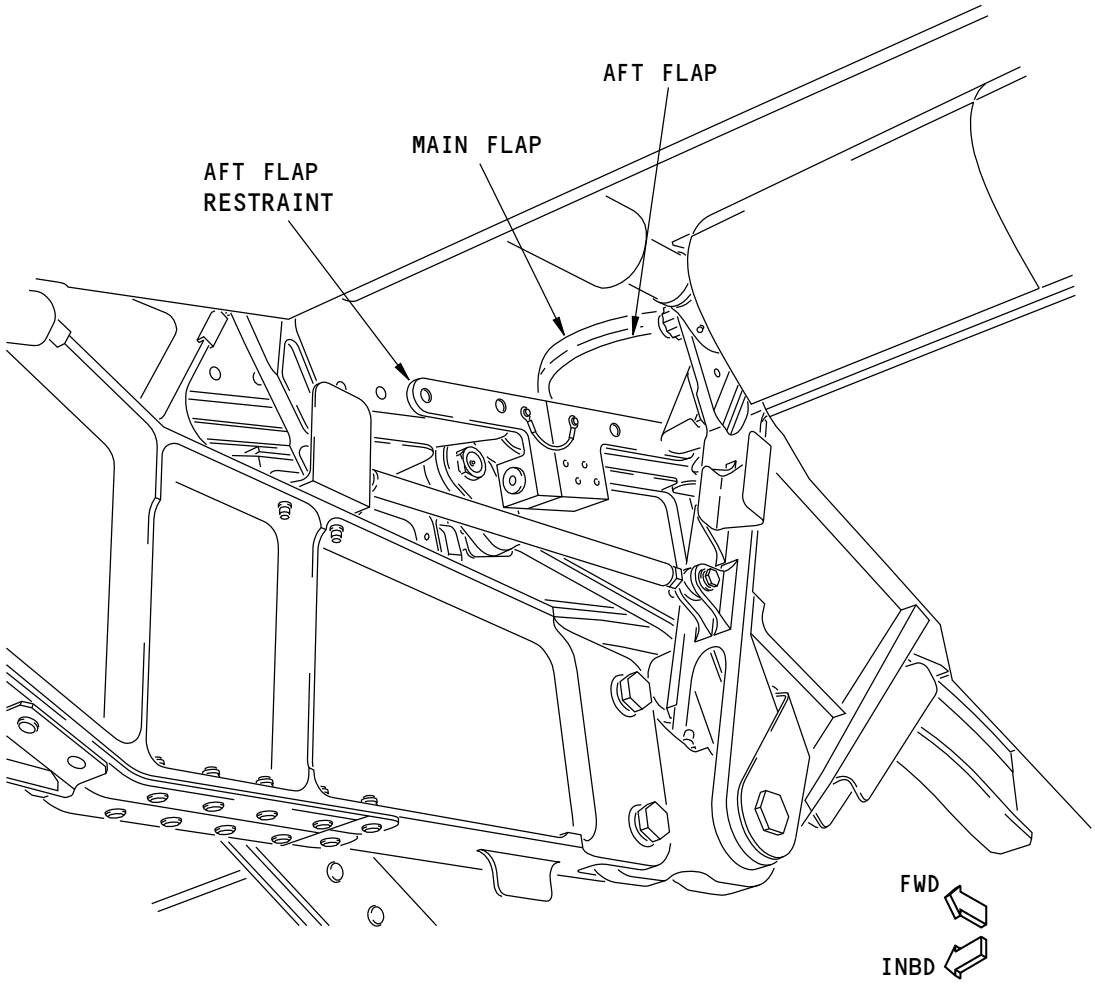
OUTBOARD FLAP SUPPORT MECHANISM

A

E67949 S0006413518_V1

Inboard Aft Flap Restraint Installation
Figure 404/27-51-11-990-804 (Sheet 1 of 3)

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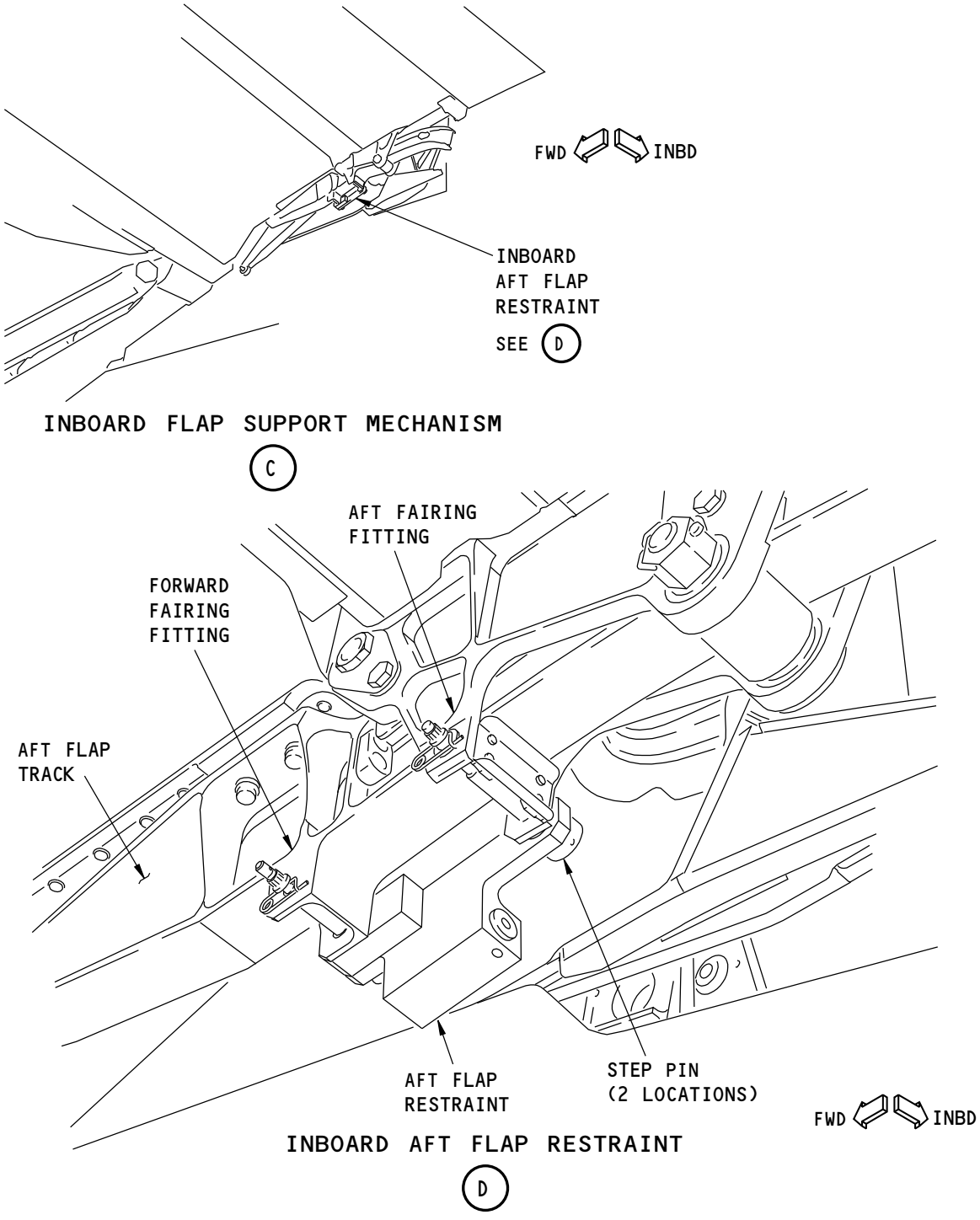
OUTBOARD AFT FLAP RESTRAINT

B

E67961 S0006413519_V1

Inboard Aft Flap Restraint Installation
Figure 404/27-51-11-990-804 (Sheet 2 of 3)

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Inboard Aft Flap Restraint Installation
Figure 404/27-51-11-990-804 (Sheet 3 of 3)

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TASK 27-51-11-400-801

3. Inboard Trailing Edge Flap Installation

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
12-21-09-640-809	Inboard Aft Flap Roller Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-18-400-801	Inboard Flap Support Fairing Installation (P/B 401)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
27-61-00-440-801	Spoiler Activation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1722	Bolt - Drive, Flap Attach Bolt Installation Part #: J27047-1 Supplier: 81205
SPL-2547	Equipment - Restraint, Aft to Main Segment Inboard Flap (L/N 39 and on) Part #: J27026-50 Supplier: 81205
SPL-7728	Sling - Main (J27011-24 Main Sling Assy is included in J27011-23 Sling Eqpt) Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Flap assembly	27-51-11-05-335	ARO ALL
		27-51-11-05-340	ARO ALL
		27-51-11-05-380	ARO ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
1 (cont.)		27-51-11-05-385	ARO ALL
		27-51-12-10-156	ARO ALL

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
572	Inboard Flap Center Track Fairing - Left Wing
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5
672	Inboard Flap Center Track Fairing - Right Wing
673	Flap Support Fairing No. 6

F. Access Panels

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

G. Inboard Trailing Edge Flap Installation

SUBTASK 27-51-11-480-004

(1) Make sure the aft to main segment inboard flap restraint equipment, SPL-2547 are installed to hold the aft flap [2] in the retracted position (Figure 404).

(a) Use the restraint part numbers J27026-51 (left) and the J27026-52 (right) on the outboard side of the flap assembly [1].

SUBTASK 27-51-11-480-005

(2) Make sure the main sling, SPL-7728 [93] is installed on the flap assembly [1] (Figure 403).

SUBTASK 27-51-11-420-001

(3) Use the main sling, SPL-7728 [93] to lift the flap assembly [1] with the aft flap [2] into its position:

(a) Use the primary and secondary support rings [91] and [92] on the main sling, SPL-7728 [93] to lift the flap assembly [1] and the aft flap [2] until they are clear of the ground.

(b) Release the tension on the secondary support ring [92] to permit the flap assembly [1] to turn until it is in the correct position.

SUBTASK 27-51-11-420-002

(4) Connect the flap assembly [1] to the inboard carrier beam [57] (Figure 402):

(a) Install the shims [58] between the carrier beam [57] and the torque tube fitting [51]:

NOTE: Use shims [58] that are the same thickness as the shims you removed.

1) Apply PR-1405-G sealant, A00723 to the shims [58] and the mating surfaces on the torque tube fitting [51] and the carrier beam [57].

2) Put the shims [58] in their position.

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(b) Apply PR-1405-G sealant, A00723 to the bolts [52] and washers [53].

(c) Install the bolts [52] and washers [53] to attach the torque tube fitting [51] to the carrier beam [57].

NOTE: Install the bolts [52] with the heads up.

(d) Install the nuts [56], washers [54] and washers [55] on the bolts [52].

(e) Tighten the bolts [52] to 3150 in-lb (356 N·m) to 3850 in-lb (435 N·m).

(f) Wait a minimum of 20 minutes and tighten the bolts [52] again.

NOTE: Make sure the bolts extend a minimum full chamfer and a maximum of three threads past the nuts.

SUBTASK 27-51-11-420-003

(5) Attach the flap assembly [1] to the outboard carrier beam [11] (Figure 401):

(a) Install the shim [17], shim [18] and shim [25] between the carrier beam [11] and the flap assembly [1]:

NOTE: Use shims that are the same thickness as the shims you removed. With the shims installed, make sure there is no clearance between the shims and the flap or the carrier beam.

1) Apply PR-1405-G sealant, A00723 to the shim [17], shim [18] and shim [25], the mating surfaces on the flap assembly [1] and the carrier beam [11].

2) Put the shim [17], shim [18] and shim [25] in their position.

(b) Connect the flap assembly [1] to the forward end of the carrier beam [11]:

1) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolts [12], bolts [37], bolts [42], washers [13], washers [14], washers [38], washers [39] and washers [43].

2) Install the bolts [12] with washers [13] and washers [14] through the flap assembly [1] and the carrier beam [11].

NOTE: Install the bolts [12] with the heads up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

3) Install the washers [15] and nuts [16] on the bolts [12].

4) Install the bolts [37] with washers [38] and washers [39] through the flap assembly [1] and the carrier beam [11].

NOTE: Install the bolts [37] with the heads up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

5) Install the washers [40] and nuts [41] on the bolts [37].

6) Install the bolts [42] and washers [43] through the carrier beam [11] and the flap assembly [1].

NOTE: Install the bolts [42] with the heads down.

7) Install the washers [44], washers [45] and nuts [46] on the bolts [42].

8) Tighten the nuts [16] and nuts [41] to 1400 in-lb (158 N·m) to 1900 in-lb (215 N·m).

9) Tighten the bolts [42] to 1710 in-lb (193 N·m) to 2090 in-lb (236 N·m).

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10) Wait a minimum of 20 minutes and tighten nuts [16], nuts [41] and bolts [42] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts. You may use one additional washer, under the nut only, if proper grip length bolt is not available.

(c) Connect the flap assembly [1] to the aft end of the carrier beam [11]:

1) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [19] and bolt [36] and to the washer [20], washer [21], washer [32] and washer [33].

2) Install the bolt [19], washer [20] and washer [21] through the flap assembly [1] and the carrier beam [11].

NOTE: Install the bolt [19] with the head up.

If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

3) Install the washer [22] and nut [23] on the bolt [19].

4) Install the bolt [36], washer [32] and washer [33] through the flap assembly [1] and the carrier beam [11].

NOTE: Install bolt [36] with the head up.

If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

5) Install the washer [34] and nut [35] on the bolt [36].

6) Tighten the nut [23] and nut [35] to 630 in-lb (71 N·m) to 1070 in-lb (121 N·m).

7) Wait a minimum of 20 minutes and tighten nut [23] and nut [35] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts.

SUBTASK 27-51-11-420-004

(6) Remove the main sling, SPL-7728 [93] from the flap assembly [1] (Figure 403):

(a) Remove the main sling, SPL-7728 [93] from the forward sling fitting [94] and aft sling fittings [96].

(b) Remove the bolts [95] and remove the forward sling fitting [94] from the flap assembly [1].

(c) Remove the bolts [97] and remove the aft sling fittings [96] from the flap assembly [1].

(d) Apply sealant, A00247 to the bolts [95] and bolts [97].

(e) Install bolts [95] and bolts [97] in the top surface of the flap assembly [1].

SUBTASK 27-51-11-420-008

(7) Install the forward bolts [26] to connect the flap assembly [1] to the carrier beam [11] (View C-C) (Figure 401):

NOTE: With the flaps extended, the aft flap linkage blocks access to the bolt hole.

(a) Manually retract the flaps until you can get access to the bolt hole for bolt [26]. To retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: You can get access to the bolt hole with the flaps approximately in the 20-unit position.

(b) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [26] and washer [27].

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(c) Install the bolt [26] and washer [27] through the carrier beam [11] and the flap assembly [1].

NOTE: Install the bolt [26] with the heads down.

(d) Install the washer [28], washer [29] and nut [30] on the bolt [26].

(e) Tighten the bolt [26] to 963 in-lb (109 N·m) to 1177 in-lb (133 N·m).

(f) Wait a minimum of 20 minutes and tighten the bolt [26] again.

NOTE: Make sure the bolt extends a minimum of one and a maximum of three threads past the nut. You may use one additional washer, under the nut only, if proper grip length bolt is not available.

(g) Manually extend the flaps to the 30-unit position. To extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-11-420-005

(8) Connect the forward rod [59] to the drive crank [60] (Figure 402):

(a) Align the end of the forward rod [59] with the drive crank [60].

(b) Apply a layer of grease, D00633 to the inside and outside of the bushing [63] and the bolt [61].

(c) Install the bushing [63] in the drive crank [60].

(d) Install the bolt [61], washer [62], washer [64] and nut [65] to attach the forward rod [59] to the drive crank [60].

(e) Tighten the nut [65] to 150 in-lb (17 N·m) to 200 in-lb (23 N·m).

(f) Remove the rope or wire and let the applicable access door move to the usual position:

These are the panels:

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door

SUBTASK 27-51-11-080-001

(9) Remove the aft to main segment inboard flap restraint equipment, SPL-2547 from the flap assembly [1] and aft flap [2].

SUBTASK 27-51-11-980-001

(10) Carefully move the aft flap [2] aft to the extended position.

SUBTASK 27-51-11-420-009

(11) Install the aft three bolts on the outboard carrier beam [11] (View D-D) (Figure 401):

NOTE: It is necessary to install these bolts after you move the aft flap [2] to the extended position.

(a) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [24], bolt [26] and bolt [31] and to the washer [20], washer [21], washer [27], washer [32] and washer [33].

(b) Install the bolt [24], washer [20] and washer [21] through the flap assembly [1] and the carrier beam [11].

NOTE: Install the bolt [24] with the head up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

(c) Install the washer [22] and nut [23] on bolt [24].

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(d) Install the bolt [26] and washer [27] through the carrier beam [11] and the flap assembly [1].

NOTE: Install the bolt [26] with the head down.

(e) Install the washer [28], washer [29] and nut [30] on the bolt [26].

1) Install the bolt [31], washer [32] and washer [33] through the flap assembly [1] and the carrier beam [11].

NOTE: Install bolt [31] with the head up.

If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

2) Install the washer [34] and nut [35] on the bolt [31].

3) Tighten the nut [23] and nut [35] to 630 in-lb (71 N·m) to 1070 in-lb (121 N·m).

4) Tighten the bolt [26] to 963 in-lb (109 N·m) to 1177 in-lb (133 N·m).

5) Wait a minimum of 20 minutes and tighten nut [23], nut [35] and bolt [26] again.

NOTE: Make sure the bolt extends a minimum of one and a maximum of three threads past the nut. You may use one additional washer, under the nut only, if proper grip length bolt is not available.

SUBTASK 27-51-11-420-006

(12) At the inboard end of the flap assembly [1], install the rod assembly [66]:

(a) Put the rod assembly [66] in its position between the drive crank [60] and the aft flap [2].

(b) Apply a layer of grease, D00633 to the inside and outside of the bushing [69] and bushing [73] and the bolt [67] and bolt [72].

(c) Install the bushing [69] in the drive crank [60].

(d) Install the bolt [67], washer [68], washer [70] and nut [71] that attach the rod assembly [66] to the drive crank [60].

(e) Install the bushing [73] in the fitting on the aft flap [2].

(f) Install the bolt [72], washer [68], washer [74] and nut [75] that attach the rod assembly [66] to the aft flap [2].

(g) Tighten nut [71] and nut [75] to 194 in-lb (22 N·m) to 206 in-lb (23 N·m).

SUBTASK 27-51-11-420-007

(13) At the outboard end of the flap assembly [1] install the rod assembly [4] (Figure 401):

(a) Put the rod assembly [4] in its position between the bellcrank [3] and the aft flap [2].

(b) Apply a layer of grease, D00633 to the inside and outside of the bushing [7] and bushing [10] and the bolts [5].

(c) Install the bushing [7] in the bellcrank [3].

(d) Install the bolt [5], washer [6], washer [8] and nut [9] to connect the rod assembly [4] to the bellcrank [3].

(e) Install the bushing [10] in the fitting on the aft flap [2].

(f) Install the bolt [5], washer [6], washer [8] and nut [9] to connect the rod assembly [4] to the aft flap [2].

(g) Tighten the nuts [9] to 194 in-lb (22 N·m) to 206 in-lb (23 N·m).

(h) On the outboard end of the flap assembly [1] (TASK 06-30-00-800-806), do this step:

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Install these access panels:

Number	Name/Location
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

SUBTASK 27-51-11-640-001

(14) Do this task: Inboard Aft Flap Roller Lubrication, TASK 12-21-09-640-809.

SUBTASK 27-51-11-440-001

(15) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-11-080-003

(16) For the inboard spoilers, do this task: Spoiler Activation, TASK 27-61-00-440-801.

SUBTASK 27-51-11-860-003

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(17) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-11-860-004

(18) Retract the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-11-860-005

(19) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-11-820-001

(20) Do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

SUBTASK 27-51-11-410-001

(21) Do this task: Inboard Flap Support Fairing Installation, TASK 27-51-18-400-801.

SUBTASK 27-51-11-410-002

(22) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-11-010-002

(23) Do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-11-080-002

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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TASK 27-51-11-000-802

4. Inboard Trailing Edge Flap - Removal (Alternate Method)

(Figure 401, Figure 402, Figure 403, Figure 404)

A. General

(1) This task provides an alternate method to remove the inboard trailing edge flap. This alternate method is accomplished by removing the trailing edge flap with the outboard carrier beam attached.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-14-020-801	Pivot Link, Fairing Links and Spring Removal (P/B 401)
27-51-14-020-802	Carrier Beam Removal (P/B 401)
27-51-18-000-801	Inboard Flap Support Fairing Removal (P/B 401)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
27-61-00-040-802	Spoiler Deactivation (With the Spoilers Up) (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2547	Equipment - Restraint, Aft to Main Segment Inboard Flap (L/N 39 and on) Part #: J27026-50 Supplier: 81205
SPL-7728	Sling - Main (J27011-24 Main Sling Assy is included in J27011-23 Sling Eqpt) Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
572	Inboard Flap Center Track Fairing - Left Wing
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap

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(Continued)

Zone	Area
671	Flap Support Fairing No. 5
672	Inboard Flap Center Track Fairing - Right Wing
673	Flap Support Fairing No. 6

E. Access Panels

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

F. Prepare for the Removal

SUBTASK 27-51-11-860-025

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-11-010-004

(2) Do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-11-480-021



WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-11-480-022



WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-11-860-026



WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-11-210-012

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-11-210-013

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(7) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-11-860-027

(8) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-11-480-023

(9) For the inboard spoilers 6 and 7 (left wing) or 8 and 9 (right wing), do this task: Spoiler Deactivation (With the Spoilers Up), TASK 27-61-00-040-802.

SUBTASK 27-51-11-860-028

(10) For the left, right and center hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-11-040-004

WARNING DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(11) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-020-010

(12) Do this task: Inboard Flap Support Fairing Removal, TASK 27-51-18-000-801.

SUBTASK 27-51-11-020-011

(13) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

G. Inboard Trailing Edge Flap Removal (Alternate Method)

SUBTASK 27-51-11-020-012

(1) Move the aft flap [2], to the retracted position:

(a) Remove the applicable access panels, from the outboard end of the flap assembly [1]:

(TASK 06-30-00-800-806)

Number	Name/Location
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

(b) Remove the nut [9], washer [6], washer [8] and bolt [5] that attach the rod assembly [4] to the aft flap [2].

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(c) Remove the nut [9], washers [6]] washers [8] and bolt [5] that attach the rod assembly [4] to the bellcrank [3].

(d) Remove the rod assembly [4].

(e) Remove the bushing [7] and bushing [10] from the fitting on the aft flap [2] and the bellcrank [3].

(f) At the inboard end of the flap assembly [1], remove the nut [75], washer [68], washer [74] and bolt [72] that attach the rod assembly [66] to the aft flap [2] (Figure 402).

(g) Remove the nut [71], washer [68], washer [70] and bolt [67] that attach the rod assembly [66] to the drive crank [60].

(h) Remove the rod assembly [66].

(i) Remove the bushing [69] and bushing [73] from the fittings.

(j) Carefully move the aft flap [2] forward until it is in the retracted position.

SUBTASK 27-51-11-480-024

(2) Install the aft to main segment inboard flap restraint equipment, SPL-2547 to hold the aft flap [2] in the retracted position (Figure 404).

(a) Use the restraint part numbers J27026-51 (left) and the J27026-52 (right) on the outboard side of the flap assembly [1].

SUBTASK 27-51-11-480-025

(3) Install the main sling, SPL-7728 [93], to hold the flap assembly [1] (Figure 403):

(a) Find the bolts [95] and bolts [97] on the flap assembly [1] to attach the main sling, SPL-7728 [93].

NOTE: The bolts [95] are along the front spar, above the snubber pad. The bolts [97] are along the rear spar.

(b) Remove the bolts [95] and bolts [97] from the top surface of the flap assembly [1].

(c) Install the forward sling fitting [94] and the aft sling fittings [96] on the flap assembly [1].

1) Install the bolts [95] or bolts [97] to attach each sling fitting to the flap assembly [1].

(d) Attach the main sling, SPL-7728 [93] to the forward sling fitting [94] and aft sling fittings [96].

(e) Connect an overhead crane to the primary support ring [91] on the main sling, SPL-7728 [93].

(f) Use the main sling, SPL-7728 [93] to hold the flap assembly [1].

SUBTASK 27-51-11-020-013

(4) Do the necessary steps in the following task to disconnect the aft end of the carrier beam [11] (Joint 3C (6C) or 3D(6D)) from the flap support mechanism: Pivot Link, Fairing Links and Spring Removal, TASK 27-51-14-020-801.

NOTE: It is not necessary to remove the inboard flap assembly [1] as instructed during the prepare for the removal task.

SUBTASK 27-51-11-020-014

(5) Do the necessary steps in the following task to disconnect the forward end of the carrier beam [11] (Joints 3L (6L) and 3B (6B)) from the drive arm: Carrier Beam Removal, TASK 27-51-14-020-802.

NOTE: It is not necessary to remove the inboard flap assembly [1] as instructed during the prepare for the removal task.

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SUBTASK 27-51-11-020-015

(6) Disconnect the flap assembly [1] from the inboard support mechanism (Figure 402):

(a) Move the applicable access panels, to the open position and connect it to the fixed structure with a rope or wire:

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door

(b) Remove the nut [65], washer [62], washer [64] and bolt [61] that attach the forward rod [59] to the drive crank [60].

(c) Remove the bushing [63] from the drive crank [60].

(d) Remove the nuts [56], washers [53], washers [54], washers [55] and bolts [52] that attach the torque tube fitting [51] to the inboard carrier beam [57].

SUBTASK 27-51-11-020-016

(7) Remove the flap assembly [1]:

NOTE: The main flap and aft flap together weigh approximately 880 pounds. The main flap alone weighs approximately 660 pounds.

(a) Use the main sling, SPL-7728 [93] to carefully lift the flap until the bellcrank [3], is clear of the flap assembly [1] and the drive crank [60], is clear of the inboard carrier beam [57] (Figure 401, Figure 402).

(b) Pull on the secondary support ring [92], to lift the trailing edge of the flap assembly [1] until it is level (Figure 403).

(c) Lower the flap assembly [1] and carrier beam [11].

(d) Remove the shims [58] from the inboard end of the flap assembly [1] (Figure 402).

(e) Make a record of the position and thickness of the shims [58].

NOTE: Keep the shims to use during the flap installation.

——— END OF TASK ———

TASK 27-51-11-400-802

5. Inboard Trailing Edge Flap - Installation (Alternate Method)

A. General

(1) This task provides an alternate method to install the inboard trailing edge flap. This alternate method is accomplished by installing the trailing edge flap with the outboard carrier beam attached.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
12-21-09-640-809	Inboard Aft Flap Roller Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-14-420-804	Carrier Beam Installation (P/B 401)
27-51-14-420-805	Pivot Link, Fairing Links and Spring Installation (P/B 401)
27-51-18-400-801	Inboard Flap Support Fairing Installation (P/B 401)

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Reference	Title
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
27-61-00-440-801	Spoiler Activation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2547	Equipment - Restraint, Aft to Main Segment Inboard Flap (L/N 39 and on) Part #: J27026-50 Supplier: 81205
SPL-7728	Sling - Main (J27011-24 Main Sling Assy is included in J27011-23 Sling Eqpt) Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Flap assembly	27-51-11-05-335	ARO ALL
		27-51-11-05-340	ARO ALL
		27-51-11-05-380	ARO ALL
		27-51-11-05-385	ARO ALL
		27-51-12-10-156	ARO ALL

F. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
572	Inboard Flap Center Track Fairing - Left Wing
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5

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Zone	Area
672	Inboard Flap Center Track Fairing - Right Wing
673	Flap Support Fairing No. 6

G. Access Panels

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

H. Inboard Trailing Edge Flap Installation (Alternate Method)

SUBTASK 27-51-11-480-026

(1) Make sure the aft to main segment inboard flap restraint equipment, SPL-2547 are installed to hold the aft flap [2] in the retracted position (Figure 404).

(a) Use the restraint part numbers J27026-51 (left) and the J27026-52 (right) on the outboard side of the flap assembly [1].

SUBTASK 27-51-11-420-010

(2) Make sure the main sling, SPL-7728 [93] is installed on the flap assembly [1] (Figure 403).

SUBTASK 27-51-11-420-011

(3) Use the main sling, SPL-7728 [93] to lift the flap assembly [1] with the aft flap [2] and carrier beam [11] into its position:

(a) Use the primary and secondary support rings [91] and [92] on the main sling, SPL-7728 [93] to lift the flap assembly [1] and the aft flap [2] until they are clear of the ground.

(b) Release the tension on the secondary support ring [92] to permit the flap assembly [1] to turn until it is in the correct position.

SUBTASK 27-51-11-420-012

(4) Connect the flap assembly [1] to the inboard carrier beam [57] (Figure 402):

(a) Install the shims [58] between the carrier beam [57] and the torque tube fitting [51]:

NOTE: Use shims [58] that are the same thickness as the shims you removed.

1) Apply PR-1405-G sealant, A00723 to the shims [58] and the mating surfaces on the torque tube fitting [51] and the carrier beam [57].

2) Put the shims [58] in their position.

(b) Apply PR-1405-G sealant, A00723 to the bolts [52] and washers [53].

(c) Install the bolts [52] and washers [53] to attach the torque tube fitting [51] to the carrier beam [57].

NOTE: Install the bolts [52] with the heads up.

(d) Install the nuts [56], washers [54] and washers [55] on the bolts [52].

(e) Tighten the bolts [52] to 3150 in-lb (356 N·m) to 3850 in-lb (435 N·m).

(f) Wait a minimum of 20 minutes and tighten the bolts [52] again.

NOTE: Make sure the bolts extend a minimum full chamfer and a maximum of three threads past the nuts.

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SUBTASK 27-51-11-420-013

(5) Do the necessary steps in the following task to attach the forward end of the outboard carrier beam [11] (Joints 3L (6L) and 3B (6B)) to the flap support mechanism: Carrier Beam Installation, TASK 27-51-14-420-804.

SUBTASK 27-51-11-420-014

(6) Do the necessary steps in the following task to attach the aft end of the outboard carrier beam [11] (Joint 3C (6C) or 3D(6D)) to the flap support mechanism: Pivot Link, Fairing Links and Spring Installation, TASK 27-51-14-420-805.

SUBTASK 27-51-11-080-009

(7) Remove the main sling, SPL-7728 [93] from the flap assembly [1] (Figure 403):

(a) Remove the main sling, SPL-7728 [93] from the forward sling fitting [94] and aft sling fittings [96].

(b) Remove the bolts [95] and remove the forward sling fitting [94] from the flap assembly [1].

(c) Remove the bolts [97] and remove the aft sling fittings [96] from the flap assembly [1].

(d) Apply sealant, A00247 to the bolts [95] and bolts [97].

(e) Install bolts [95] and bolts [97] in the top surface of the flap assembly [1].

SUBTASK 27-51-11-420-015

(8) Connect the forward rod [59] to the drive crank [60] (Figure 402):

(a) Align the end of the forward rod [59] with the drive crank [60].

(b) Apply a layer of grease, D00633 to the inside and outside of the bushing [63] and the bolt [61].

(c) Install the bushing [63] in the drive crank [60].

(d) Install the bolt [61], washer [62], washer [64] and nut [65] to attach the forward rod [59] to the drive crank [60].

(e) Tighten the nut [65] to 150 in-lb (17 N·m) to 200 in-lb (23 N·m).

(f) Remove the rope or wire and let the applicable access door move to the usual position:

These are the panels:

Number	Name/Location
193JL	Overwing Fairing Torque Tube Door
194JR	Overwing Fairing Torque Tube Door

SUBTASK 27-51-11-080-010

(9) Remove the aft to main segment inboard flap restraint equipment, SPL-2547 from the flap assembly [1] and aft flap [2].

SUBTASK 27-51-11-980-003

(10) Carefully move the aft flap [2] aft to the extended position.

SUBTASK 27-51-11-420-016

(11) At the inboard end of the flap assembly [1], install the rod assembly [66]:

(a) Put the rod assembly [66] in its position between the drive crank [60] and the aft flap [2].

(b) Apply a layer of grease, D00633 to the inside and outside of the bushing [69] and bushing [73] and the bolt [67] and bolt [72].

(c) Install the bushing [69] in the drive crank [60].

(d) Install the bolt [67], washer [68], washer [70] and nut [71] that attach the rod assembly [66] to the drive crank [60].

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(e) Install the bushing [73] in the fitting on the aft flap [2].

(f) Install the bolt [72], washer [68], washer [74] and nut [75] that attach the rod assembly [66] to the aft flap [2].

(g) Tighten nut [71] and nut [75] to 196 in-lb (22 N·m) to 204 in-lb (23 N·m).

SUBTASK 27-51-11-420-017

(12) At the outboard end of the flap assembly [1] install the rod assembly [4] (Figure 401):

(a) Put the rod assembly [4] in its position between the bellcrank [3] and the aft flap [2].

(b) Apply a layer of grease, D00633 to the inside and outside of the bushing [7] and bushing [10] and the bolts [5].

(c) Install the bushing [7] in the bellcrank [3].

(d) Install the bolt [5], washer [6], washer [8] and nut [9] to connect the rod assembly [4] to the bellcrank [3].

(e) Install the bushing [10] in the fitting on the aft flap [2].

(f) Install the bolt [5], washer [6], washer [8] and nut [9] to connect the rod assembly [4] to the aft flap [2].

(g) Tighten the nuts [9] to 196 in-lb (22 N·m) to 204 in-lb (23 N·m).

(h) On the outboard end of the flap assembly [1] (TASK 06-30-00-800-806), do this step:

Install these access panels:

Number	Name/Location
555EL	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

SUBTASK 27-51-11-640-004

(13) Do this task: Inboard Aft Flap Roller Lubrication, TASK 12-21-09-640-809.

SUBTASK 27-51-11-440-005

(14) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-11-080-011

(15) For the inboard spoilers, do this task: Spoiler Activation, TASK 27-61-00-440-801.

SUBTASK 27-51-11-860-029

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(16) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-11-860-030

(17) Retract the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-11-860-031

(18) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-11-820-006

(19) Do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

NOTE: Inboard flap adjustment is not required if the carrier beam was not removed and that the same shims are used on the inboard end.

SUBTASK 27-51-11-410-004

(20) Do this task: Inboard Flap Support Fairing Installation, TASK 27-51-18-400-801.

SUBTASK 27-51-11-410-005

(21) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-11-010-005

(22) Do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-11-080-012

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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INBOARD TRAILING EDGE FLAP - ADJUSTMENT/TEST

1. General

A. This procedure has an adjustment of the inboard trailing edge flaps.

B. This procedure has dimensions for the adjustment of the inboard flaps in these load conditions:

(1) On body and wing jacks

NOTE: This is the most accurate condition for adjustment.

(2) On body and wing jacks with the landing gear drag brace not down and locked, or with the landing gear removed

(3) On the body jacks only

(4) On the landing gear with no fuel

(5) On the landing gear with 100,000 pounds (100K) of fuel.

NOTE: If the airplane has a different amount of fuel, you can interpolate between the no-fuel and 100K fuel conditions.

C. The two tables regarding Clearances in the task below have the nominal dimensions for all of the adjustments in all of the configurations. To use the tables, find the load condition of the airplane and follow that column to the applicable nominal dimension.

TASK 27-51-11-820-801

2. Inboard Trailing Edge Flap Adjustment

A. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-61-00-820-802	Spoiler PCU Adjustment (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1701	Equipment - Sling, Inboard T. E. Flap Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205
SPL-1722	Bolt - Drive, Flap Attach Bolt Installation Part #: J27047-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
G02020	Clay, Modeling	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Flap assembly	27-51-11-05-335	ARO ALL
		27-51-11-05-340	ARO ALL
		27-51-11-05-380	ARO ALL
		27-51-12-10-156	ARO ALL
		27-51-12-10-161	ARO ALL

E. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
572	Inboard Flap Center Track Fairing - Left Wing
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5
672	Inboard Flap Center Track Fairing - Right Wing
673	Flap Support Fairing No. 6

F. Prepare for the Adjustment

SUBTASK 27-51-11-580-001

(1) If you will do the adjustment with the airplane on the landing gear, do this step to remove any lateral or torsional loads in the landing gear:

(a) Tow the airplane forward and aft in a straight line, a minimum of 20 feet. To tow the airplane, do this task: Maintenance Towing, TASK 09-11-00-580-801.

SUBTASK 27-51-11-860-009

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-11-480-008

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-11-480-009

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-11-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-980-002

(6) Make sure the trailing edge flaps are in the retracted position (Figure 501):

NOTE: The correct position of the ballscrew nuts when the flaps are retracted is four torque tube turns away from the upstops.

(a) Remove the coverplate from the manual drive on one of the flap position sensor gearboxes.

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAP WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

(b) Use the manual drive on the position sensor gearbox to retract the flaps until the ballscrew nuts touch the upstops.

NOTE: The maximum torque necessary to turn the drive system in the retract direction is 1000 pound-inches.

Refer to the placard above the position sensor gearbox for the correct direction to turn the manual drive.

Look at the number 4 or 5 ballscrew while you move the flaps.

(c) If the two ballscrew nuts for the applicable flap do not touch the upstops, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

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(d) Use the manual drive on the position sensor gearbox to extend the flaps four turns of the torque tubes.

NOTE: The maximum torque necessary to turn the drive system in the extend direction is 620 pound-inches.

(e) Install the coverplate on the manual drive on the position sensor gearbox.

G. Adjustment of the Outboard End of the Inboard Flap

SUBTASK 27-51-11-220-001

(1) Do a check of the position of the outboard end of the flap assembly [1] (Figure 502):

(a) Measure and record the mismatch between the top surface of the flap and the top surface of the fixed panel forward of the flaperon (View A-A).

NOTE: Measure the mismatch at the aft edge of the spoiler.

(b) Measure and record the mismatch between the outboard lower surface of the flap and the lower fixed panel (View D-D).

SUBTASK 27-51-11-970-001

(2) If the top surface clearance, or the lower surface mismatch is not in the limits shown in (Table 501), then find the applicable shim thickness change (Table 502):

NOTE: The (Table 501) shows the nominal dimensions for the different airplane load conditions.

Table 501/27-51-11-993-812 Inboard Flap Nominal Clearances

	Load Condition				
DIMENSION (Figure 502)	**On Wing and Body Jacks**	**On Wing and Body Jacks, Drag Brace Unlocked**	**On Body Jacks Only**	**On Gear, No Fuel**	**On Gear, 100K Fuel**
Outboard End Top Surface (View A-A)	0.51 ± 0.04	0.51 ± 0.04	0.49 ± 0.04	0.47 ± 0.04	0.45 ± 0.04
Upper Fixed Panel, Trailing Edge (View B-B)	0.24 ± 0.04	0.24 ± 0.04	0.28 ± 0.04	0.38 ± 0.04	0.44 ± 0.04
Upper Fixed Panel, Trailing Edge (View C-C)	0.24 ± 0.04	0.24 ± 0.04	0.27 ± 0.04	0.29 ± 0.04	0.31 ± 0.04
Inboard End Lower Surface Mismatch (View C-C)	0.00 ± 0.03	0.00 ± 0.03	-0.02 ± 0.03	0.17 ± 0.03	0.22 ± 0.03
ARO 001-011, 013-999					
Outboard End Lower Surface Mismatch (View D-D)	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.03 ± 0.03	0.04 ± 0.03
ARO 012					
Outboard End Lower Surface Mismatch (View D-D)	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.03 +0.04/-0.03	0.04 ± 0.03

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ARO 012 (Continued)

Table 501/27-51-11-993-812 Inboard Flap Nominal Clearances (Continued)

	Load Condition				
DIMENSION (Figure 502)	**On Wing and Body Jacks**	**On Wing and Body Jacks, Drag Brace Unlocked**	**On Body Jacks Only**	**On Gear, No Fuel**	**On Gear, 100K Fuel**
ARO ALL					
Inboard End Lower Surface Mismatch (View E-E)	0.05 ± 0.03	0.00 ± 0.03	-0.03 ± 0.03	0.22 ± 0.03	0.29 ± 0.03
Inboard End Lower Surface Mismatch (View F-F)	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.12 ± 0.03	0.15 ± 0.03
NOTE: All Load Conditions Are Either With or Without Engines. All Clearances are in Inches. A negative (-) mismatch is when the flap is higher than the lower fixed panel. A positive (+) mismatch is when the flap is in the airstream.					

(a) Use the value for the top surface mismatch and the lower surface mismatch to find the applicable shim thickness change for shim [9].

(b) Use the value for the top surface mismatch to find the applicable shim thickness change for shim [17].

NOTE: You will find the thickness change for shim [10] after the other shims are installed.

Table 502/27-51-11-993-810 Outboard Flap Support Shim Thickness Change

Outboard End Lower Surface Mismatch (View D-D)	**Top Surface Mismatch (View A-A)**								
	Nom. + 0.25	**Nom. + 0.19**	**Nom. + 0.12**	**Nom. + 0.06**	**Nominal**	**Nom. - 0.06**	**Nom. - 0.12**	**Nom. - 0.19**	**Nom. - 0.25**
	Shim [9] Thickness Change (Inches)								
Nominal - 0.18	0.196	0.182	0.166	0.152	0.138	0.124	0.110	0.095	0.081
Nominal - 0.15	0.173	0.159	0.143	0.129	0.115	0.101	0.087	0.072	0.058
Nominal - 0.12	0.150	0.136	0.120	0.106	0.092	0.078	0.064	0.049	0.035
Nominal - 0.09	0.127	0.113	0.097	0.083	0.069	0.055	0.041	0.026	0.012
Nominal - 0.06	0.104	0.090	0.074	0.060	0.046	0.032	0.018	0.003	-0.011
Nominal - 0.03	0.081	0.067	0.051	0.037	0.023	0.009	-0.005	-0.020	-0.034
Nominal	0.058	0.044	0.028	0.014	0	-0.014	-0.028	-0.043	-0.057
Nominal + 0.03	0.035	0.021	0.005	-0.009	-0.023	-0.037	-0.051	-0.066	-0.080
Nominal + 0.06	0.012	-0.002	-0.018	-0.032	-0.046	-0.060	-0.074	-0.089	-0.103
Nominal + 0.09	-0.011	-0.025	-0.041	-0.055	-0.069	-0.083	-0.097	-0.112	-0.126
Nominal + 0.12	-0.034	-0.048	-0.064	-0.078	-0.092	-0.106	-0.120	-0.135	-0.149

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Table 502/27-51-11-993-810 Outboard Flap Support Shim Thickness Change (Continued)

Outboard End Lower Surface Mismatch (View D-D)	Top Surface Mismatch (View A-A)								
	Nom. + 0.25	Nom. + 0.19	Nom. + 0.12	Nom. + 0.06	Nominal	Nom. - 0.06	Nom. - 0.12	Nom. - 0.19	Nom. - 0.25
	Shim [9] Thickness Change (Inches)								
Nominal + 0.15	-0.057	-0.071	-0.087	-0.101	-0.115	-0.129	-0.143	-0.158	-0.172
Nominal + 0.18	-0.080	-0.094	-0.110	-0.124	-0.138	-0.152	-0.166	-0.181	-0.195
	Shim [17] Thickness Change (Inches)								
	0.25	0.18	0.12	0.06	0	-0.06	-0.12	-0.18	-0.25
NOTE: See Table 501 for the Nominal Values									

SUBTASK 27-51-11-820-002

(3) If it is necessary, change the thickness of the shims [9], shims [10] or shims [17] between the flap assembly [1] and the carrier beam [2] (Figure 503):

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure the thrust reverser cowls are closed.

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(d) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(e) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(f) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(g) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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(h) If the outboard fairing for the inboard flap is installed, do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

(i) Install the inboard T. E. flap sling equipment, SPL-1701 to hold the flap assembly [1] when it is disconnected.

(j) Do these steps if it is necessary to change the shims [9] at the forward end of the carrier beam [2]:

1) Remove the nuts [8], washers [5], washers [6], washers [7] and bolts [4].

2) Remove the nuts [33], washers [30], washers [31], washers [32] and bolts [29].

3) Remove the nuts [38], washers [35], washers [36], washers [37] and bolts [34].

(k) Do these steps if it is necessary to change the shims [10] and shims [17] at the aft end of the carrier beam [2]:

1) Remove the bolt [18] in the center of the shims [10] (View C-C):

NOTE: With the flaps extended, the aft flap linkage blocks access to the bolt.

a) Manually retract the flaps until you can get access to the bolt [18]. To retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: You can get access to the bolt with the flaps approximately in the 20-unit position.

b) Remove the nut [22], washer [19], washer [20], washer [21] and bolt [18].

c) Manually extend the flaps to the 30-unit position. To extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

2) Remove the nut [15], washer [12], washer [13], washer [14] and bolt [11].

3) Remove the nut [27], washer [24], washer [25], washer [26] and bolt [28].

4) Remove the nut [15], washer [12], washer [13], washer [14] and bolt [16] (View D-D).

5) Remove the nut [22], washer [19], washer [20], washer [21] and bolt [18].

6) Remove the nut [27], washer [24], washer [25], washer [26] and bolt [23].

(l) Remove the shim [10] between the carrier beam [2] and the flap assembly [1].

(m) Install the applicable shims [9] or shims [17] between the carrier beam [2] and the flap assembly [1] (Table 502):

NOTE: You will install shims [10] after the other shims are installed. The maximum permitted thickness of the aft shims [17] is 0.600 inch. The maximum permitted thickness of the forward shims [9] is 0.400 inch.

1) Apply PR-1405-G sealant, A00723 to the shims [9] and shims [17], the mating surfaces on the flap assembly [1] and the carrier beam [2].

2) Put the shims [9] and shims [17] in their position.

(n) Connect the flap assembly [1] to the forward end of the carrier beam [2]:

1) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolts [4], bolts [29] and bolts [34] and to the washers [5], washers [6], washers [30], washers [31] and washers [35].

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2) Install the bolts [4] with washers [5] and washers [6] through the flap assembly [1] and the carrier beam [2].

NOTE: Install the bolts [4] with the heads up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

3) Install the washers [7] and nuts [8] on the bolts [4].

4) Install the bolts [29] with washers [30] and washers [31] through the flap assembly [1] and the carrier beam [2].

NOTE: Install the bolts [29] with the heads up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

5) Install the washers [32] and nuts [33] on the bolts [29].

6) Install the bolts [34] with washers [35] through the carrier beam [2] and the flap assembly [1].

NOTE: Install the bolts [34] with the heads down.

7) Install the washers [36], washers [37] and nuts [38] on the bolts [34].

8) Tighten the nuts [8] and nuts [33] to 1400-1900 pound-inches.

9) Tighten the bolts [34] to 1710-2090 pound-inches.

10) Wait a minimum of 20 minutes and tighten nuts [8], nuts [33] and bolts [34] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts.

(o) Connect the flap assembly [1] to the aft end of the carrier beam [2] (View D-D):

1) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [16], bolt [18] and bolt [23] and to the washer [12], washer [13], washer [19], washer [24] and washer [25].

2) Install the bolt [16] with the washer [12] and washer [13] through the flap assembly [1] and the carrier beam [2].

NOTE: Install the bolt [16] with the head up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

3) Install the washer [14] and nut [15] on the bolt [16].

4) Install the bolt [18] with the washer [19] through the carrier beam [2] and the flap assembly [1].

NOTE: Install the bolt [18] with the head down.

5) Install the washer [20], washer [21] and nut [22] on the bolt [18].

6) Install the bolt [23] with the washer [24] and washer [25] through the flap assembly [1] and the carrier beam [2].

NOTE: Install the bolt [23] with the head up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

7) Install the washer [26] and nut [27] on the bolt [23].

8) Tighten the nut [15] and nut [27] to 630-1070 pound-inches.

9) Tighten the bolt [18] to 963-1177 pound-inches.

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10) Wait a minimum of 20 minutes and tighten nut [15], nut [27] and bolt [18] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts.

(p) Remove the inboard T. E. flap sling equipment, SPL-1701 from the flap.

(q) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(r) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(s) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(t) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(u) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(v) Make sure the mismatch between the top surface of the flap and the top surface of the fixed panel forward of the flaperon is in the limits shown in (Table 501) (View A-A) (Figure 502).

(w) Make sure the mismatch between the outboard lower surface of the flap and the lower fixed panel is in the limits shown in (Table 501) (View D-D).

(x) Connect the flap assembly [1] to the center of the carrier beam [2] (View C-C) (Figure 503):

1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

2) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

4) Measure the clearance between the carrier beam [2] and the flap assembly [1] at the position of the shim [10].

5) Install the applicable thickness of shims [10] between the carrier beam [2] and the flap assembly [1]:

NOTE: Use a thickness of shims [10] to fill the clearance between the carrier beam [2] and the flap assembly [1].

NOTE: The maximum permitted thickness of the shims [10] is 0.600 inch.

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a) Apply PR-1405-G sealant, A00723 to the shims [10], the mating surfaces on the flap assembly [1] and the carrier beam [2].

b) Put the shims [10] in their position.

6) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [11] and bolt [28] and to the washer [12], washer [13], washer [24] and washer [25].

7) Install the bolt [11] with the washer [12] and washer [13] through the flap assembly [1] and the carrier beam [2].

NOTE: Install the bolt [11] with the head up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

8) Install the washer [14] and nut [15] on the bolt [11].

9) Install the bolt [28] with the washer [24] and washer [25] through the flap assembly [1] and the carrier beam [2].

NOTE: Install bolt [28] with the head up. If it is necessary, use the flap attach bolt installation drive bolt, SPL-1722 to pull the bolt through the flap and the carrier beam.

10) Install the washer [26] and nut [27] on the bolt [28].

11) Tighten the nut [15] and nut [27] to 630-1070 pound-inches.

12) Wait a minimum of 20 minutes and tighten nut [15] and nut [27] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts.

(y) Install the bolt [18] in the center of the shims [10] to connect the flap assembly [1] to the carrier beam [2] (View C-C):

NOTE: With the flaps extended, the aft flap linkage blocks access to the bolt hole.

1) Manually retract the flaps until you can get access to the bolt hole for bolt [18]. To retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: You can get access to the bolt hole with the flaps approximately in the 20-unit position.

2) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [18] and washer [19].

3) Install the bolt [18] with the washer [19] through the carrier beam [2] and the flap assembly [1].

NOTE: Install the bolt [18] with the head down.

4) Install the washer [20], washer [21] and nut [22] on the bolt [18].

5) Tighten the bolt [18] to 963-1177 pound-inches.

6) Wait a minimum of 20 minutes and tighten the bolt [18] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts.

(z) Install the outboard fairing for the inboard flap if it was removed, do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

(4) Do a check of the clearances between the flap and the inboard spoilers. To do the check, do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802

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H. Adjustment of the Inboard End of the Inboard Flap

NOTE: If you changed the shims at the outboard end of the flap, it is necessary to do a check of the inboard end of the flap.

SUBTASK 27-51-11-220-002

(1) Measure and record the mismatch between the lower surface of the flap and the fixed lower panel (View E-E) (Figure 502).

NOTE: Make sure the clearances at the outboard end of the flap are in the limits before you measure this mismatch. Measure the clearance at the inboard end of the spoiler beam.

SUBTASK 27-51-11-970-002

(2) If the mismatch is not in the limit shown in (Table 501), then use the lower surface mismatch to find the thickness change for the shims [39] (Table 503).

NOTE: The (Table 501) shows the nominal dimensions for the different airplane load conditions. A negative (-) mismatch is when the flap is higher than the fixed lower panel. A positive (+) mismatch is when the flap is in the airstream.

Table 503/27-51-11-993-811 Inboard Flap Support Shim Thickness Change

Lower Surface Mismatch (View E-E)	Shim [39] Thickness Change (Inches)
Nominal - 0.18	0.270
Nominal - 0.15	0.225
Nominal - 0.12	0.180
Nominal - 0.09	0.135
Nominal - 0.06	0.090
Nominal - 0.03	0.045
Nominal	0
Nominal + 0.03	-0.045
Nominal + 0.06	-0.090
Nominal + 0.09	-0.135
Nominal + 0.12	-0.180
Nominal + 0.15	-0.225
Nominal + 0.18	-0.270
NOTE: See Table 501 for the Nominal Values	

SUBTASK 27-51-11-820-003

(3) If it is necessary, change the thickness of the shims [39] between the torque tube fitting [40] and the carrier beam [41] (Figure 503):

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure the thrust reverser cowls are closed.

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(d) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(e) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(f) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(g) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(h) Install the inboard T. E. flap sling equipment, SPL-1701 to hold the flap assembly [1] when it is disconnected.

(i) Remove the nuts [46], washers [43], washers [44], washers [45] and bolts [42] that attach the torque tube fitting [40] to the inboard carrier beam [41].

(j) Remove the shims [39] from the torque tube fitting [40].

(k) Install the applicable forward shim [39] between the carrier beam [41] and the torque tube fitting [40] (Table 503):

NOTE: You will install the aft shims [39] after the you install the forward shims [39]. The maximum permitted thickness of the shims [39] is 0.600 inch.

1) Apply PR-1405-G sealant, A00723 to the shim [39] and the mating surfaces on the torque tube fitting [40] and the carrier beam [41].

2) Put the shim [39] in its position.

(l) Apply PR-1405-G sealant, A00723 to the bolts [42] and washers [43].

(m) Install the bolts [42] and washers [43] to attach the forward side of the torque tube fitting [40] to the carrier beam [41].

NOTE: Install the bolts [42] with the heads up.

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(n) Install the nuts [46], washers [44] and washers [45] on the bolts [42].

(o) Tighten the bolts [42] to 3150-3850 pound-inches.

(p) Remove the inboard T. E. flap sling equipment, SPL-1701 from the flap.

(q) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(r) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(s) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(t) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(u) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(v) Make sure the mismatch between the inboard lower surface of the flap and the lower fixed panel is in the limits shown in (Table 501) (View E-E) (Figure 502).

(w) Install the aft shim [39] between the carrier beam [41] and the torque tube fitting [40] (Figure 503):

NOTE: The maximum permitted thickness of the shims [39] is 0.600 inch.

1) Measure the clearance between the torque tube fitting [40] and the carrier beam [41] to find the correct thickness of the aft shim [39].

2) Apply PR-1405-G sealant, A00723 to the shim [39] and the mating surfaces on the torque tube fitting [40] and the carrier beam [41].

3) Put the shim [39] in its position.

(x) Apply PR-1405-G sealant, A00723 to the bolts [42] and washers [43].

(y) Install the bolts [42] and washers [43] to attach the aft side of the torque tube fitting [40] to the carrier beam [41].

NOTE: Install the bolts [42] with the heads up.

(z) Install the nuts [46], washers [44] and washers [45] on the bolts [42].

(aa) Tighten the bolts [42] to 3150-3850 pound-inches.

(ab) Wait a minimum of 20 minutes and tighten all of the bolts [42] again.

NOTE: Make sure the bolts extend a minimum full chamfer and a maximum of three threads past the nuts.

(ac) Make sure the mismatch between the inboard lower surface of the flap and the lower fixed panel is in the limits shown in (Table 501) (View E-E) (Figure 502).

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(4) Do a check of the clearances between the flap and the inboard spoilers. To do the check, do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802

I. Adjustment of the Fixed Panels

SUBTASK 27-51-11-220-003

(1) Make sure the clearance between the top surface of the flap and the inboard upper fixed panel is in the limits shown in (Table 501) (Views B-B and C-C) (Figure 502).

NOTE: If the clearance is not in the tolerance, make a record of the clearance and adjust the applicable rods for the upper fixed panel. To change the clearance shown in View B-B, adjust rod [78]. To change the clearance shown in View C-C, adjust rods [66] and [76].

SUBTASK 27-51-11-220-004

(2) Make sure the mismatch between the lower fixed panels and the lower surface of the flap is in the limits shown in (Table 501) (Views C-C and F-F).

NOTE: If the mismatch is not in the tolerance, make a record of the mismatch and adjust the applicable rods for the lower panels. To change the mismatch shown in View C-C, adjust rod [68]. To change the mismatch shown in View F-F, adjust rod [62].

SUBTASK 27-51-11-820-004

(3) If the upper or lower panels are not in the limits, adjust the rods:

NOTE: When you adjust the rods, if it is possible, turn the rods to permit the maximum drainage from the drain hole in the limits of the adjustment.

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure the thrust reverser cowls are closed.

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(d) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(e) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(f) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(g) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801

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(h) If the clearance between the flap and the outboard end of the fixed upper panel was not in the tolerance, adjust the rod (View B-B) (Figure 502):

1) Loosen the nuts [79] and adjust the length of the rod [78] (View B) (Figure 504).

NOTE: Make sure you can see the threads through the inspection holes in the rod.

2) Tighten the nuts [79] on the rod [78].

3) Install lockwire on the nuts [79].

(i) If the clearance between the flap and the middle of the fixed upper panel was not in the tolerance, adjust the rods (View C-C) (Figure 502):

1) Loosen the nuts [67] and [75] and adjust the length of the rod [66] and rod [76] (View B) (Figure 504).

NOTE: Make sure you can see the threads through the inspection holes in the rod.

2) Tighten the nuts [67] and [75] on rod [66] and rod [76].

3) Install lockwire on the nuts [67] and [75].

(j) If the clearance between the flap and the inboard end of the fixed lower panel is not in the tolerance, adjust the rod (View F-F) (Figure 502):

1) Loosen the nuts [61] and adjust the length of the rod [62] (View A) (Figure 504).

NOTE: Make sure you can see the threads through the inspection holes in the rod.

2) Tighten the nuts [61] on the rod [62].

3) Install lockwire on the nuts [61].

(k) If the clearance between the flap and the middle of the fixed lower panel is not in the tolerance, adjust the rod (View C-C) (Figure 502):

1) Remove the nut [74], washer [71], washer [73], bolt [70] and bushing [72] that attach the rod assembly [68] to the fixed lower panel (View B) (Figure 504).

2) Loosen the nut [69] and adjust the length of the rod assembly [68].

NOTE: Make sure you can see the threads through the inspection holes in the rod.

3) Install the bushing [72], bolt [70], washer [71], washer [73] and nut [74] to attach the rod assembly [68] to the fixed lower panel.

4) Tighten the nut [74] to 50-80 pound-inches.

5) Tighten the nut [69] on the rod assembly [68].

6) Install lockwire on the nut [69].

(l) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(m) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(n) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(o) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(p) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(q) Make sure the clearance between the top surface of the flap and the inboard upper fixed panel is in the limits shown in (Table 501) (Views B-B and C-C) (Figure 502).

(r) Make sure the mismatch between the fixed lower panels and the lower surface of the flap is in the limits shown in (Table 501) (Views C-C and F-F).

J. Adjustment of the Deflection Control Fitting

SUBTASK 27-51-11-210-004

(1) Measure the clearance between the inboard flap and the deflection control fitting (Figure 505):

NOTE: The clearance must be in the limits shown in (Table 504).

Table 504/27-51-11-993-813 Deflection Control Fitting Clearances

	Load Condition				
DIMENSION (Figure 504)	**On Wing and Body Jacks**	**On Wing and Body Jacks, Drag Brace Unlocked**	**On Body Jacks Only**	**On Gear, No Fuel**	**On Gear, 100K Fuel**
Deflection Control Fitting (View B)	0.02 ±0.015	0.02 ±0.015	0.05 ±0.015	0.19 ±0.015	0.31 ±0.015
NOTE: All Load Conditions Are Either With or Without Engines. All Clearances are in Inches.					

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure the thrust reverser cowls are closed.

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(d) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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(e) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(f) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(g) Put clay, G02020 on the deflection control fitting.

(h) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING

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(i) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(j) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(k) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(l) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(m) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-820-005

(2) If the thickness of the clay is not in the limit shown in (Table 504), adjust the shim [124] for the pad [125]:

(a) Remove the nuts [123], washers [122] and bolts [121] and remove the shim [124] from the pad [125].

(b) Change the thickness of the shim [124] on the pad [125] to get the clearance in the tolerance.

NOTE: The maximum permitted thickness of the shim [124] is 0.250 inch.

(c) Apply a layer of sealant, A00247 to the surfaces of the shim [124] and the pad [125].

(d) Install the bolts [121], washers [122] and nuts [123] to attach the shim [124] to the pad [125].

K. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-11-440-002

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-11-860-010

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-11-860-011

(3) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-11-080-004

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

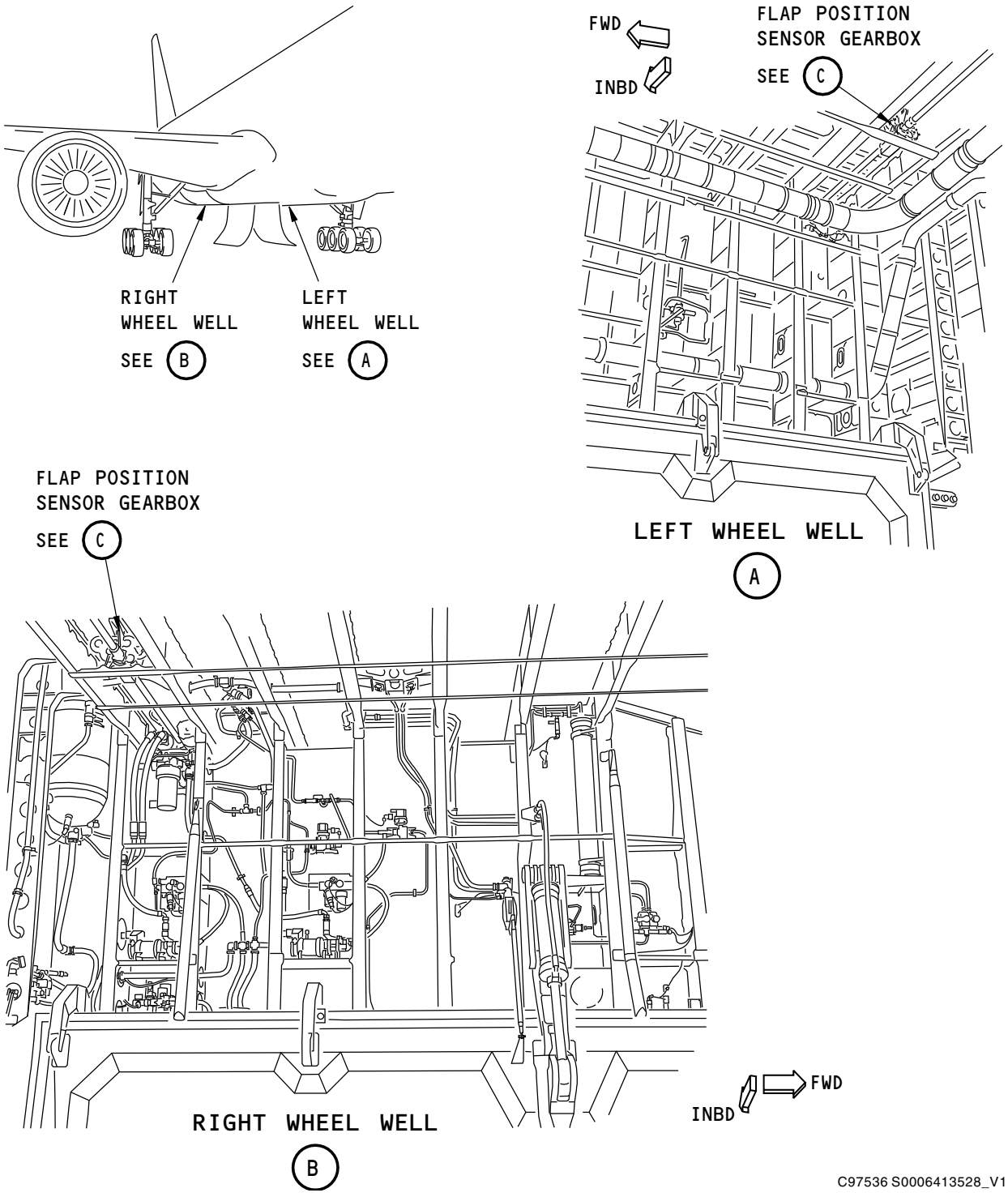
(4) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-51-11-860-012

(5) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

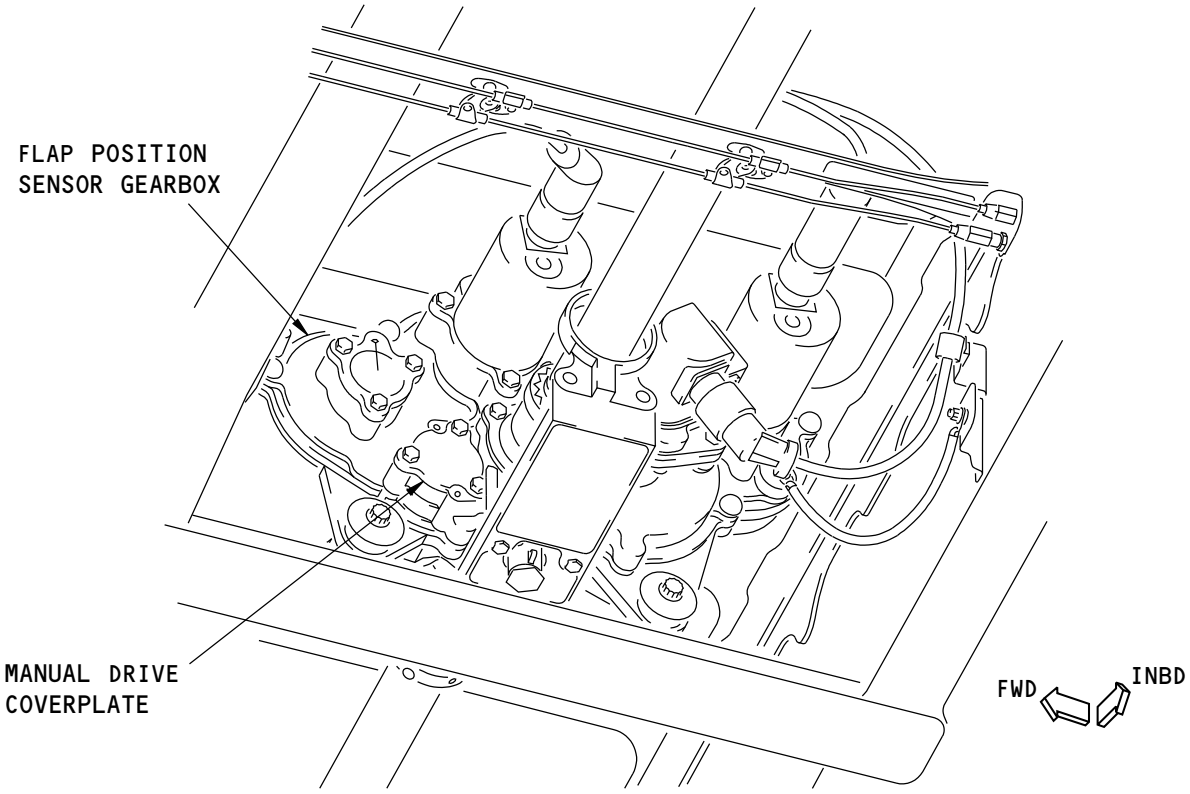
END OF TASK

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Trailing Edge Flap System Manual Operation
Figure 501/27-51-11-990-805 (Sheet 1 of 3)

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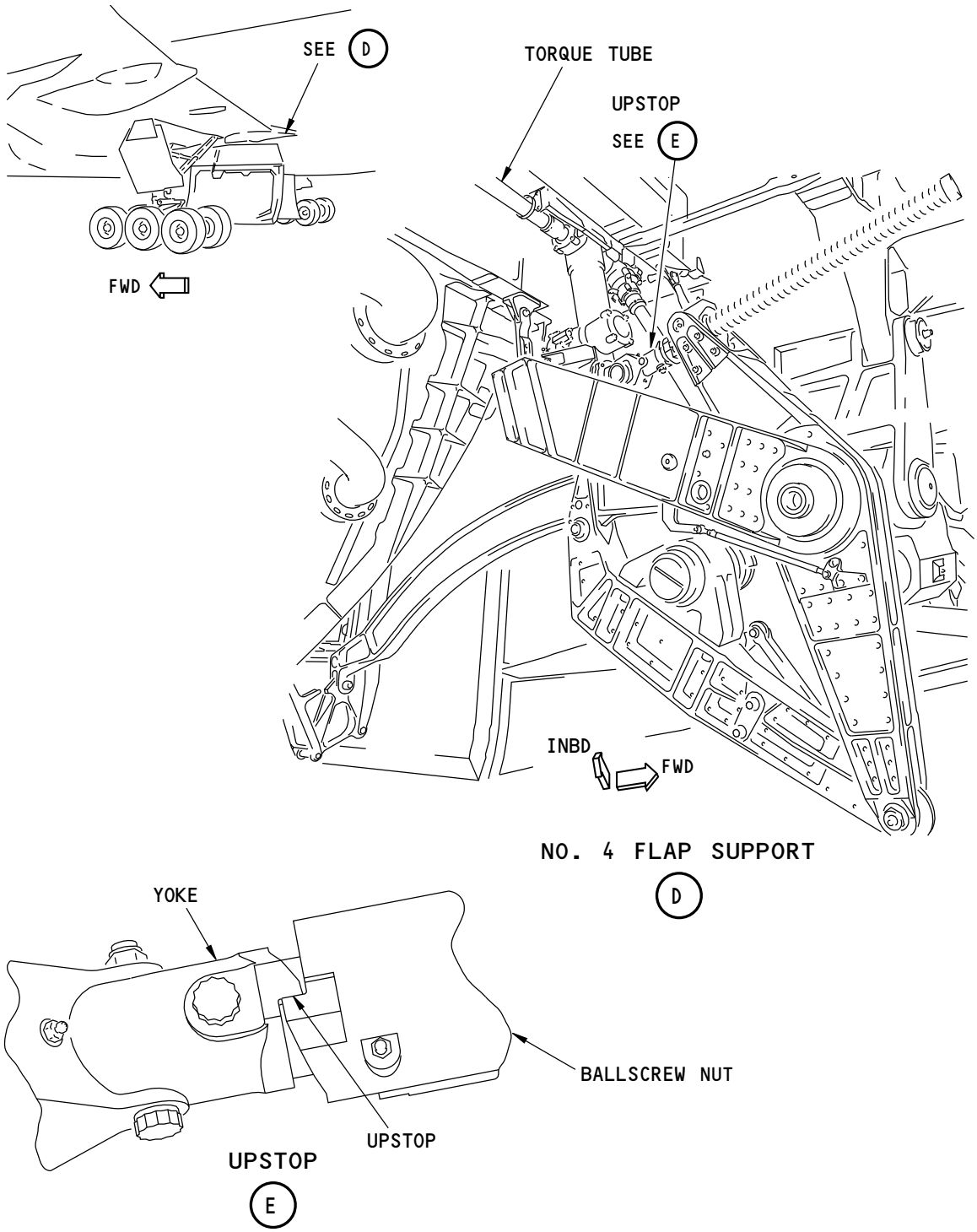
FLAP POSITION SENSOR GEARBOX
(RIGHT GEARBOX SHOWN, LEFT GEARBOX EQUIVALENT)

C

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Trailing Edge Flap System Manual Operation
Figure 501/27-51-11-990-805 (Sheet 2 of 3)

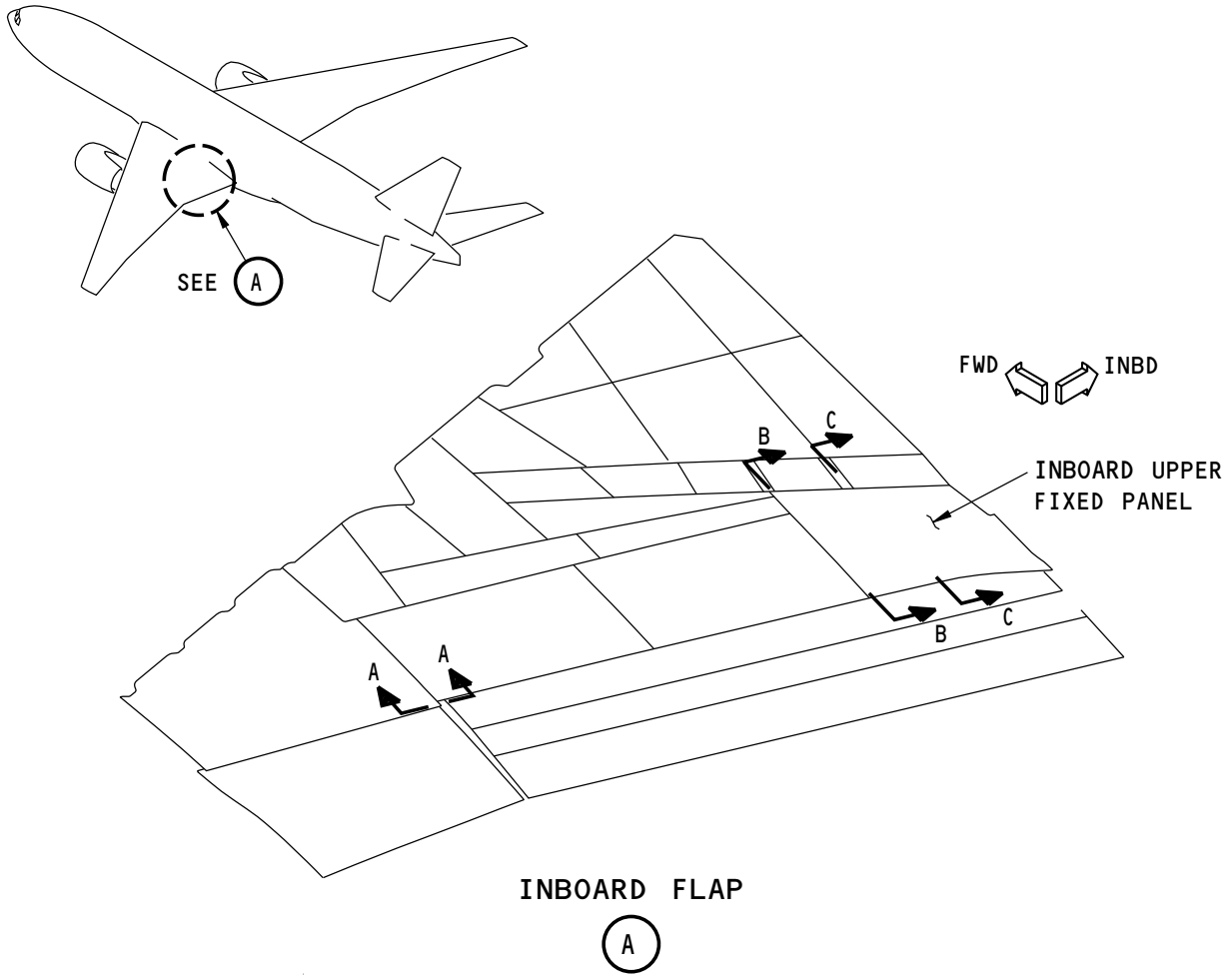
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Trailing Edge Flap System Manual Operation
Figure 501/27-51-11-990-805 (Sheet 3 of 3)

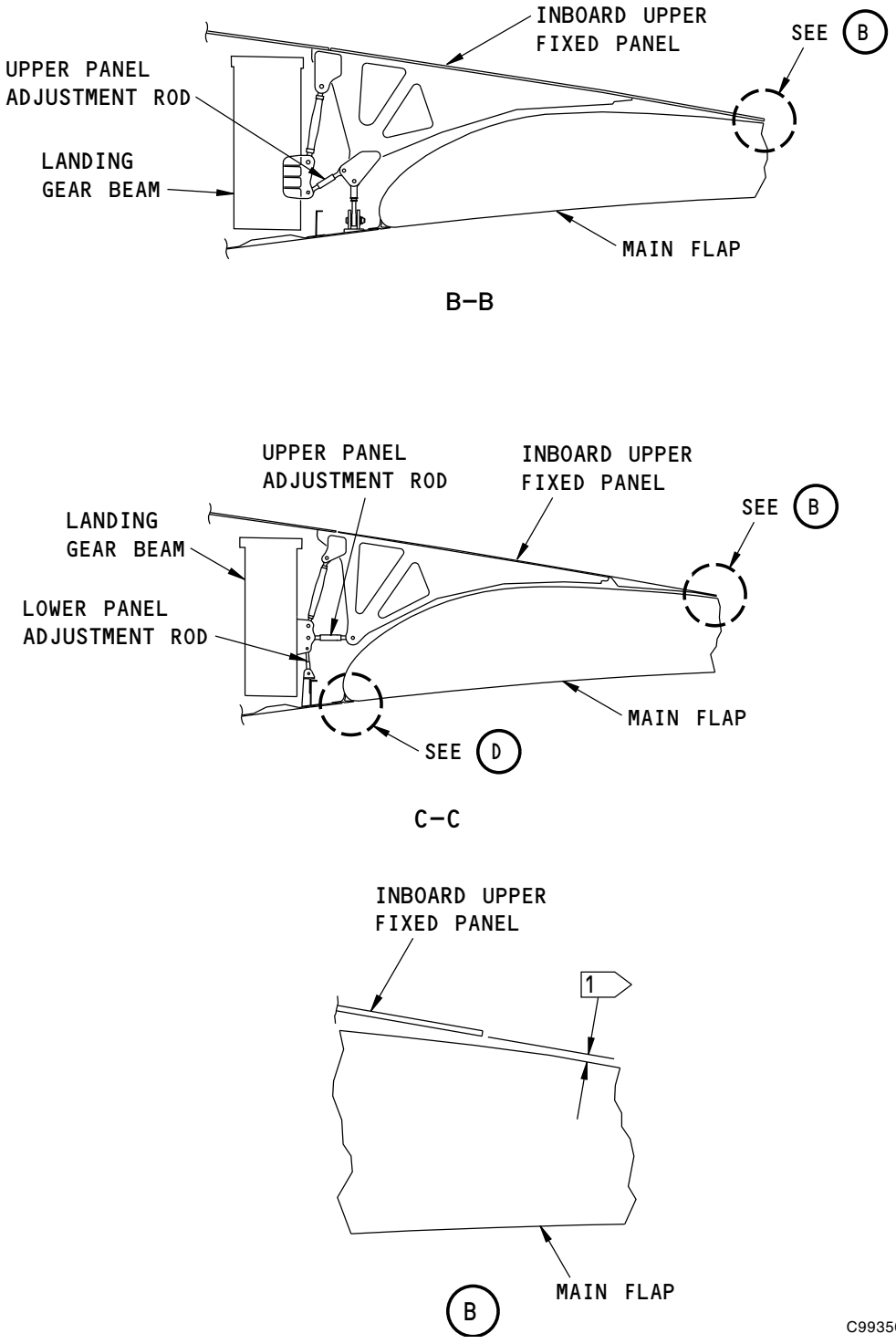
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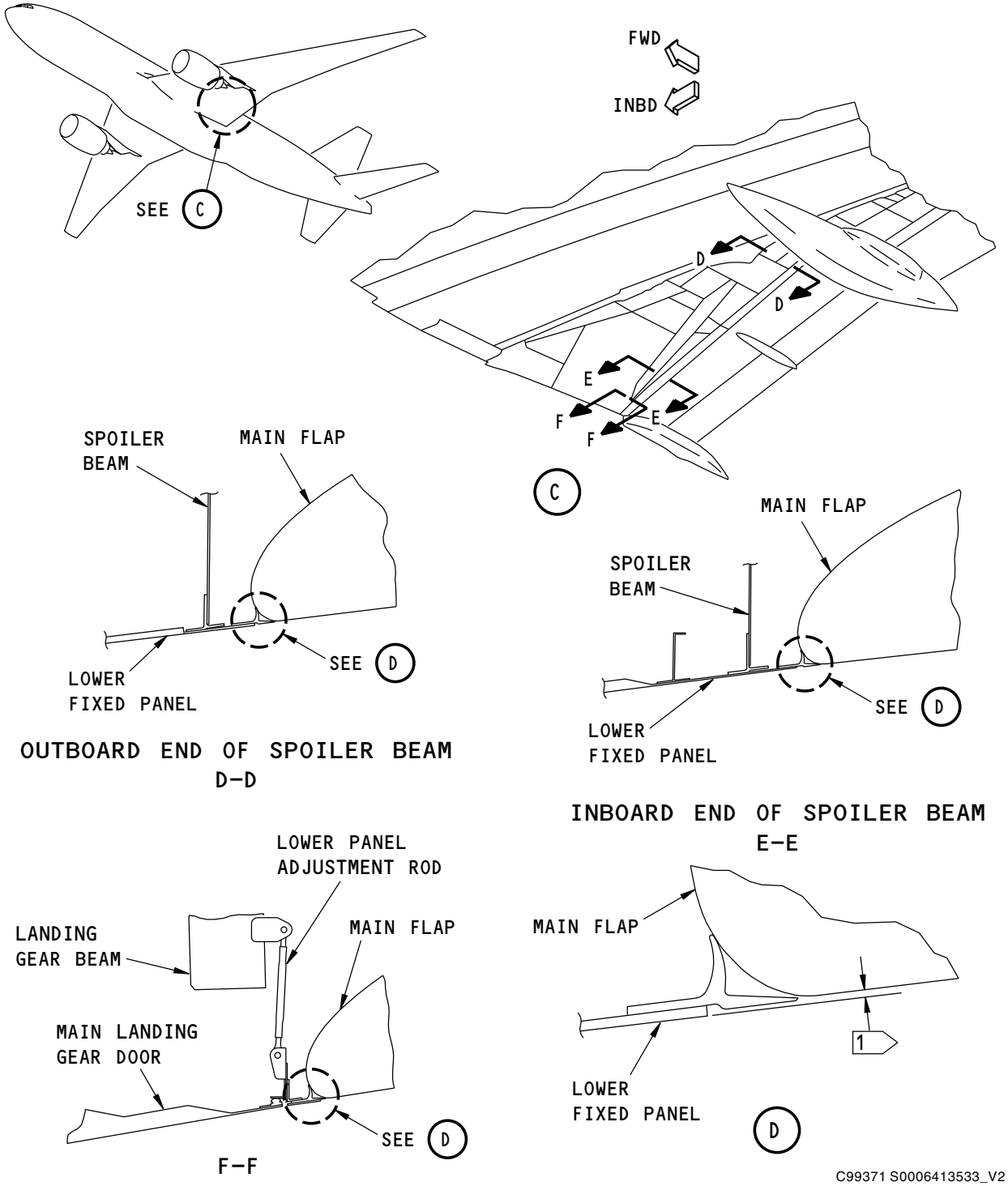
Inboard Flap Clearances
Figure 502/27-51-11-990-806 (Sheet 1 of 3)

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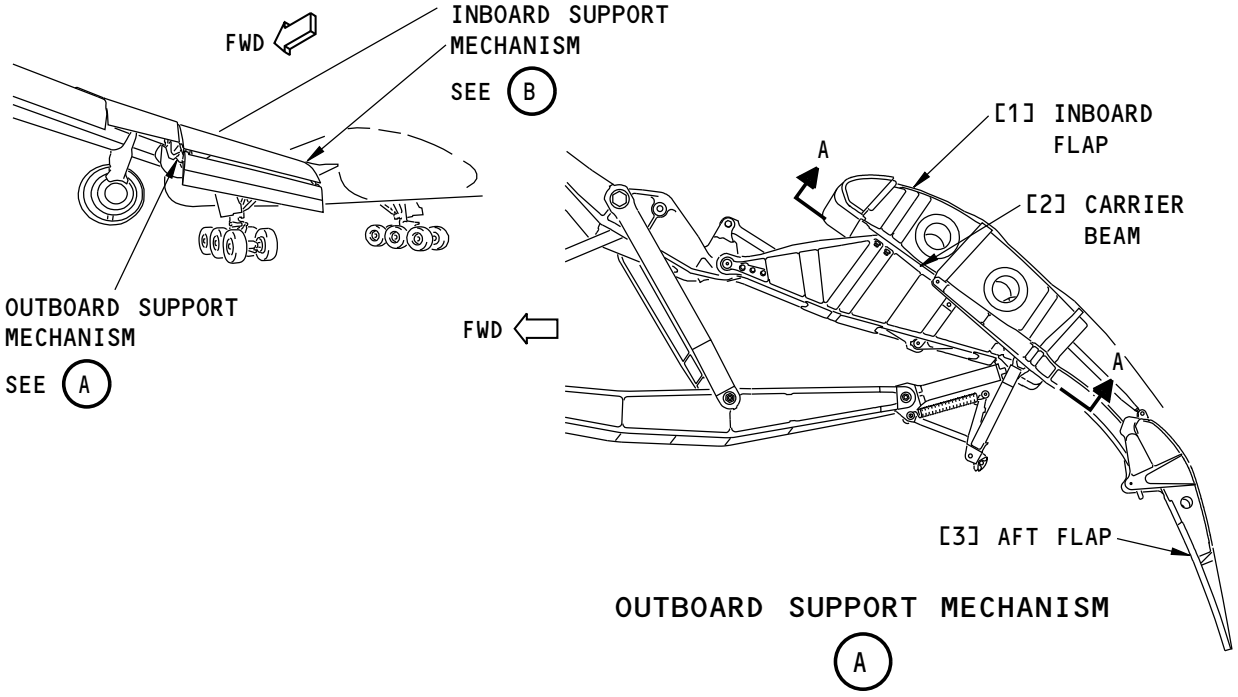
Inboard Flap Clearances
Figure 502/27-51-11-990-806 (Sheet 2 of 3)

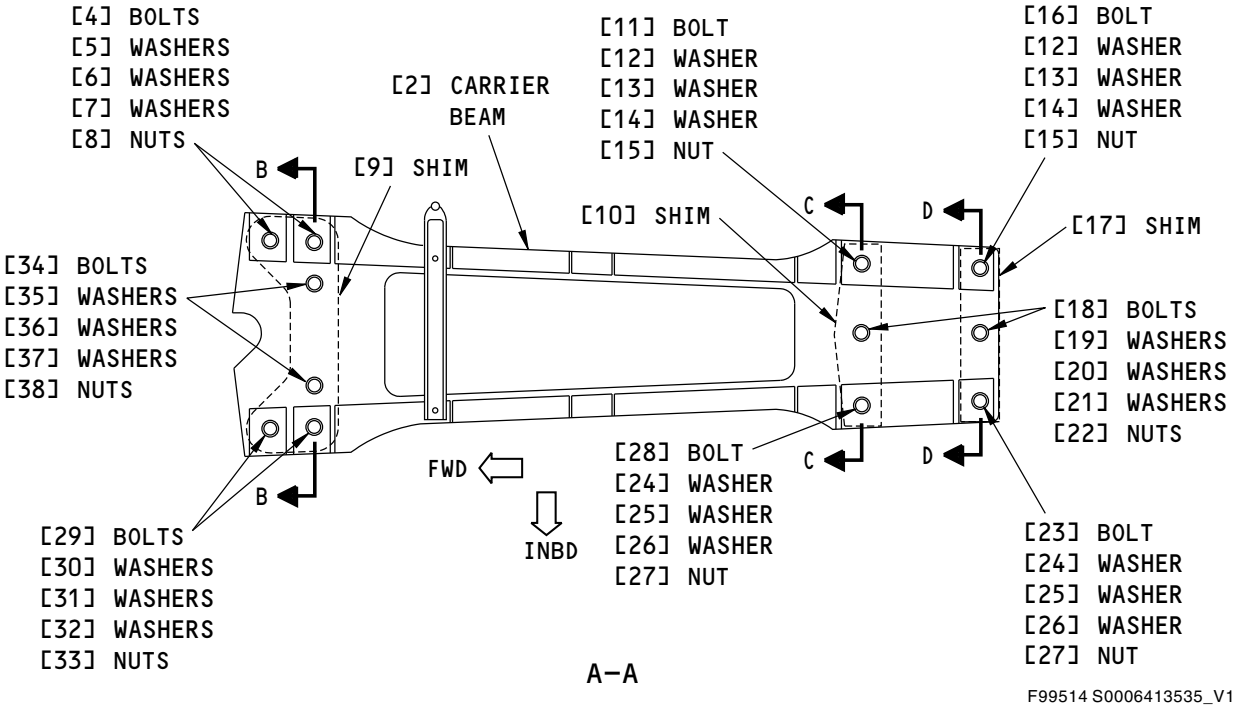
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Inboard Flap Clearances
Figure 502/27-51-11-990-806 (Sheet 3 of 3)

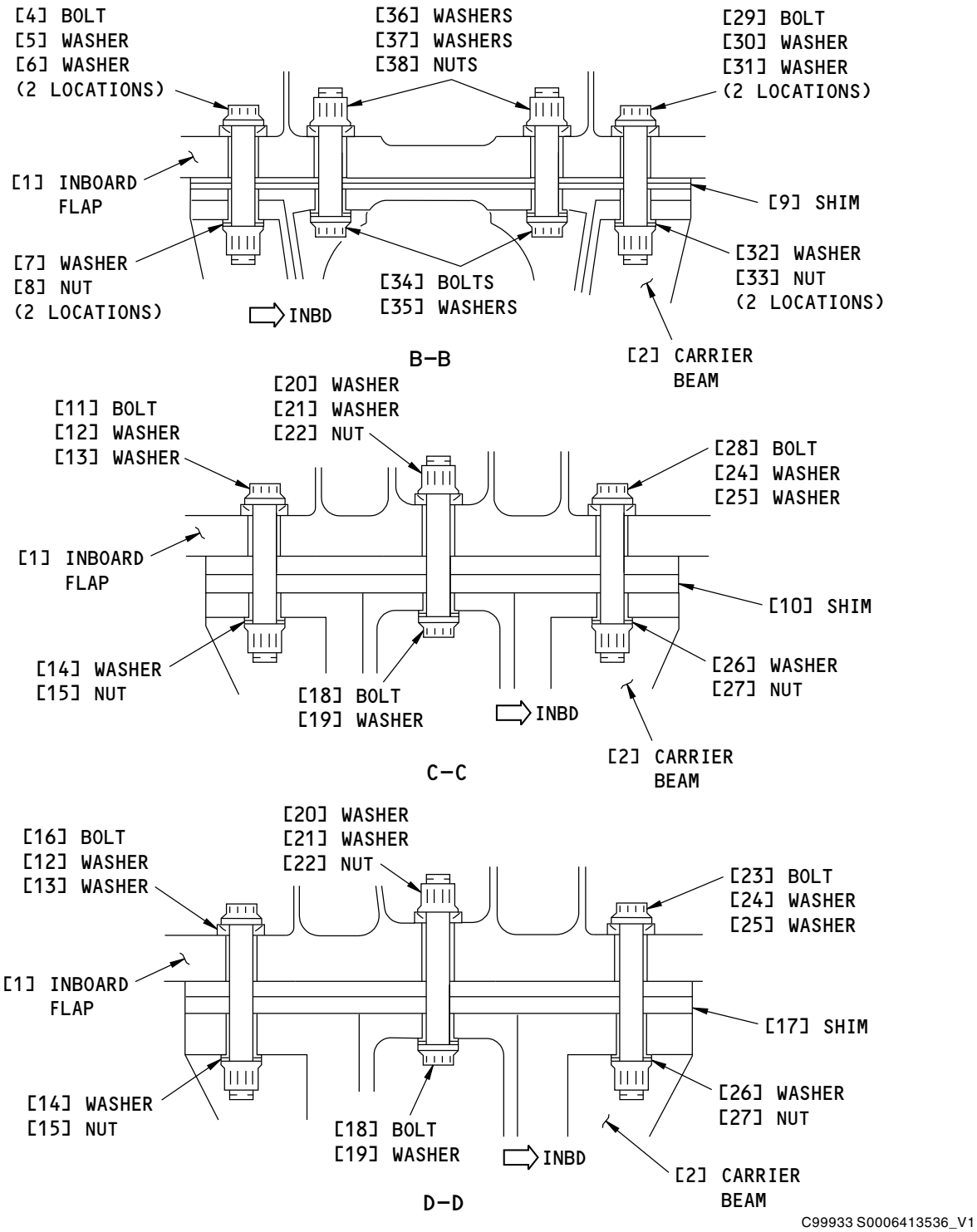
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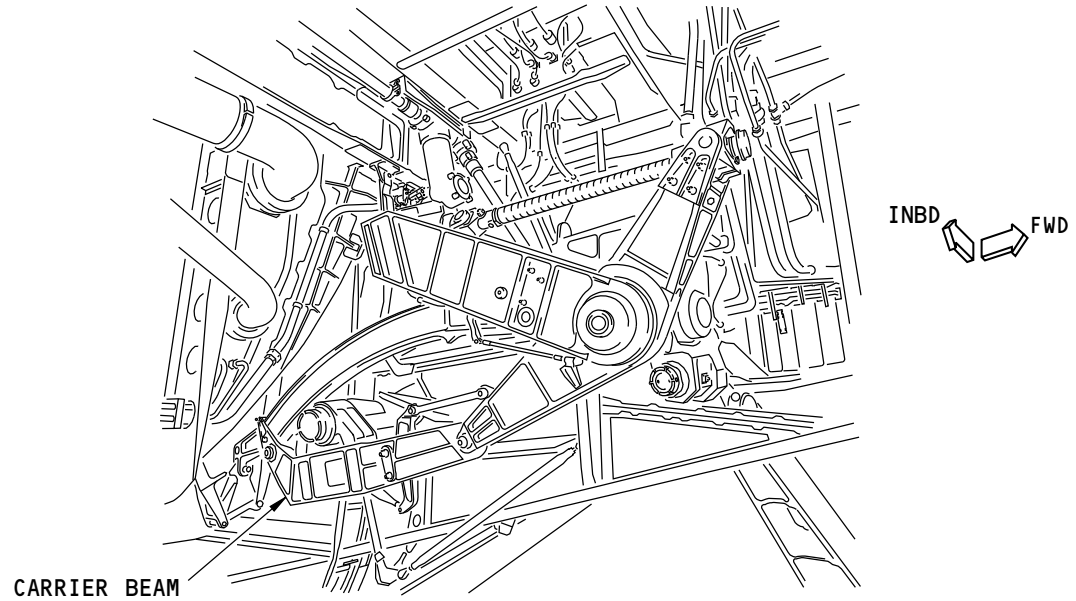
Inboard Trailing Edge Flap Attachments
Figure 503/27-51-11-990-807 (Sheet 1 of 3)

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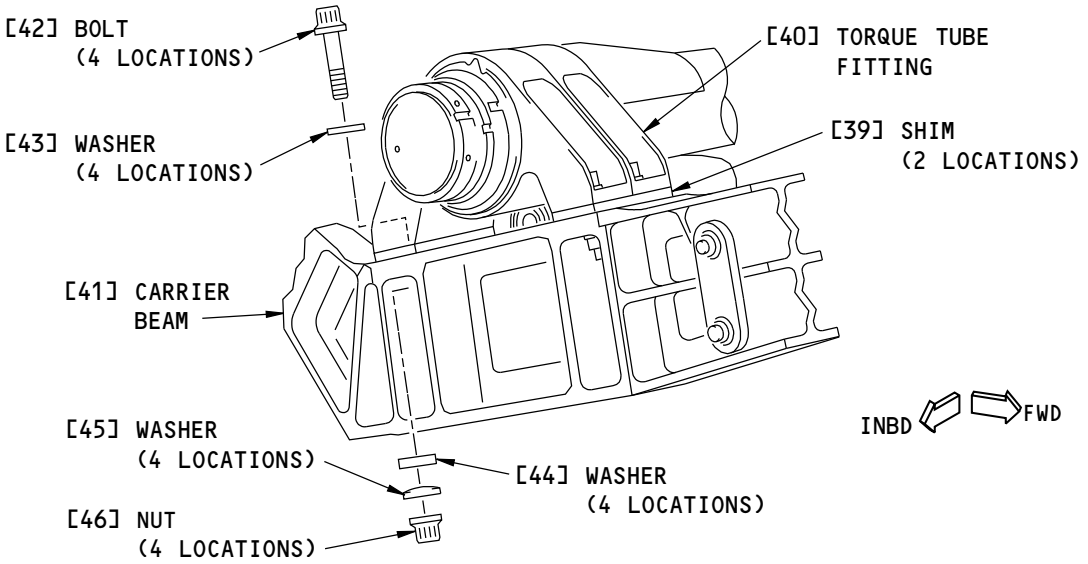


Inboard Trailing Edge Flap Attachments
Figure 503/27-51-11-990-807 (Sheet 2 of 3)

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INBOARD SUPPORT MECHANISM
B

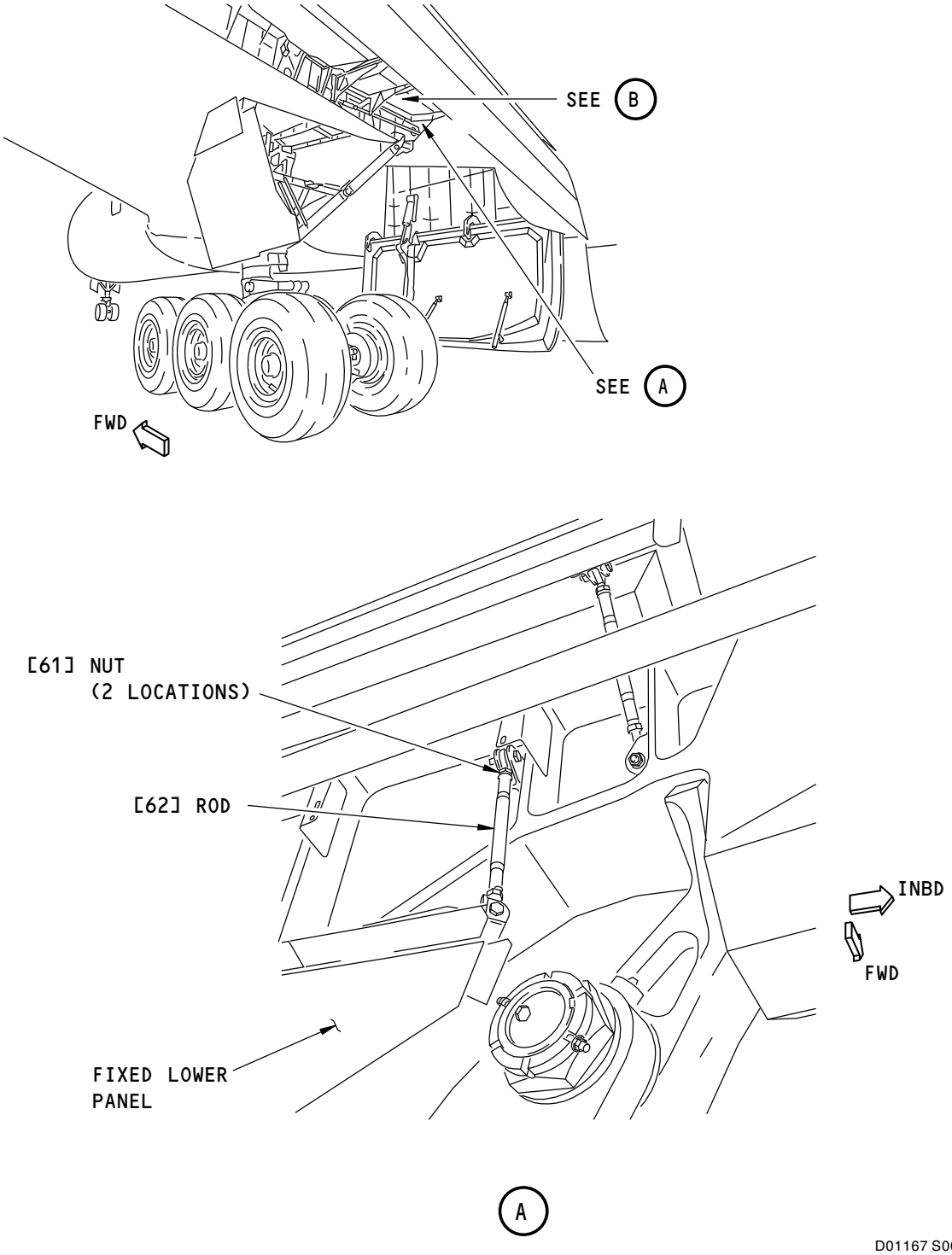


CARRIER BEAM
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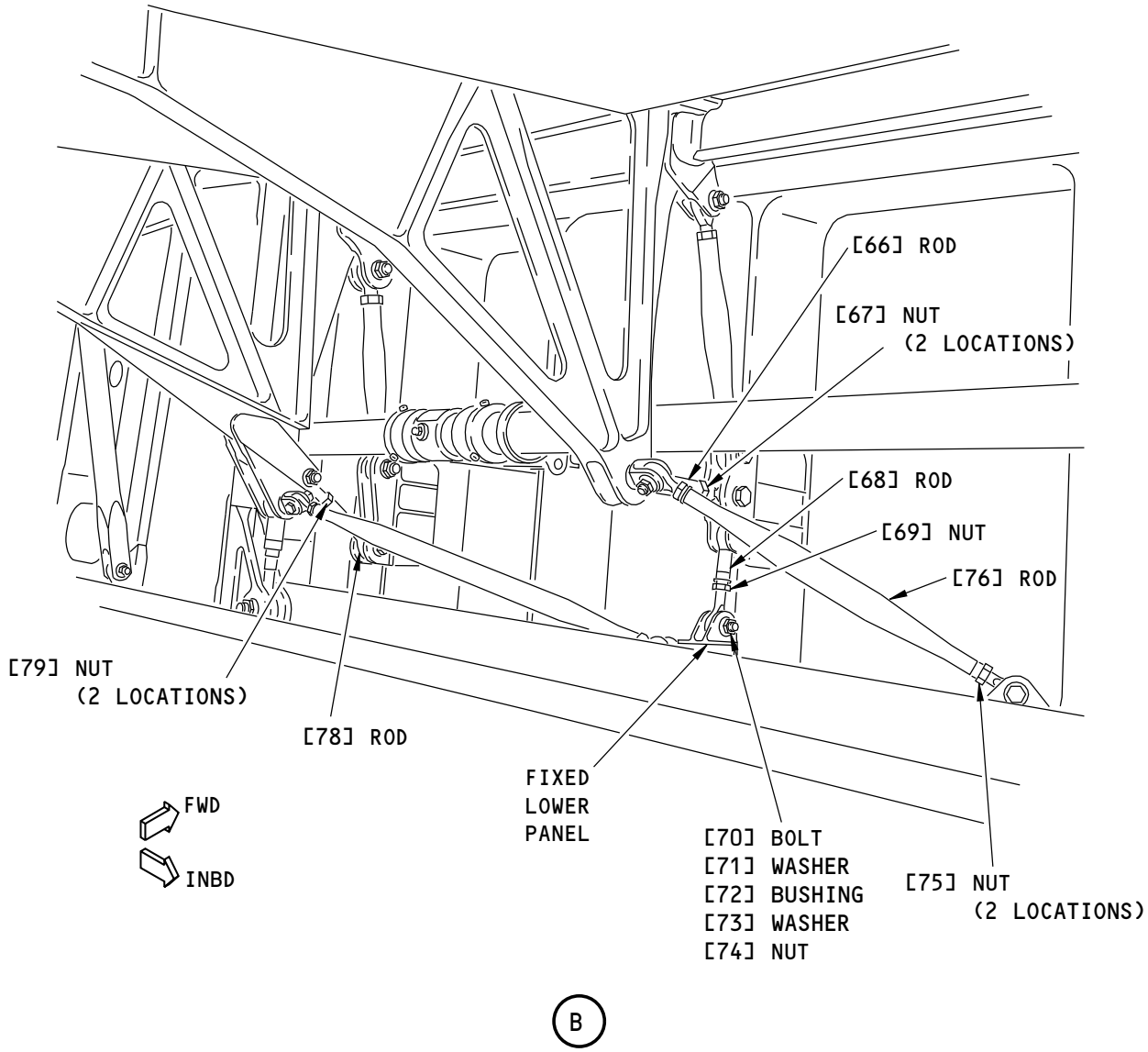
Inboard Trailing Edge Flap Attachments
Figure 503/27-51-11-990-807 (Sheet 3 of 3)

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Inboard Flap Panel Linkage Adjustments
Figure 504/27-51-11-990-808 (Sheet 1 of 2)

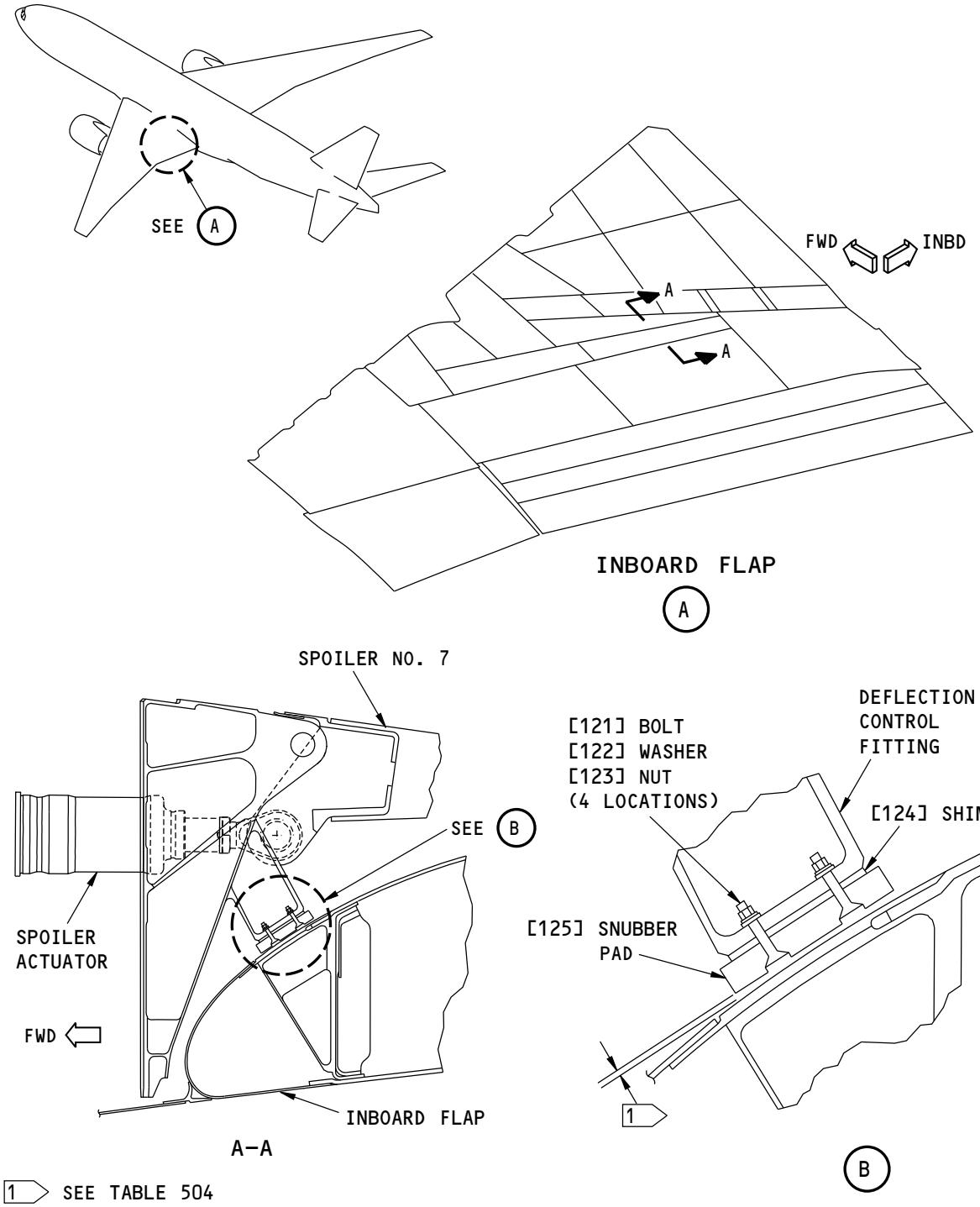
ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details



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Inboard Flap Panel Linkage Adjustments
Figure 504/27-51-11-990-808 (Sheet 2 of 2)

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Inboard Flap Deflection Control Clearance
Figure 505/27-51-11-990-809

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INBOARD TRAILING EDGE FLAP - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has two tasks:

(1) A task to inspect the fasteners that attach the inboard flap to the flap supports.

(a) The inspection does a check of the torque preload on the fasteners.

(2) A task to conduct a freeplay inspection on the inboard flap support bearings.

TASK 27-51-11-200-801

2. Inboard Trailing Edge Flap Attach Fastener Inspection

(Figure 601)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-61-00-040-802	Spoiler Deactivation (With the Spoilers Up) (P/B 201)
27-61-00-440-801	Spoiler Activation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Bolt	27-51-11-05-170	ARO ALL
5	Bolt	27-51-11-05-212	ARO ALL
		27-51-11-05-218	ARO ALL
		27-51-11-05-254	ARO ALL
		27-51-11-05-257	ARO ALL
7	Bolt	27-51-11-05-236	ARO ALL
9	Bolt	27-51-11-05-194	ARO ALL
11	Bolt	27-51-38-10-011	ARO ALL

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
573	Flap Support Fairing No. 3

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(Continued)

Zone	Area
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5
673	Flap Support Fairing No. 6

D. Access Panels

Number	Name/Location
555DL	Inboard Main Flap Panel
555EL	Inboard Main Flap Panel
655DR	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

E. Prepare for the Inspection

SUBTASK 27-51-11-860-013

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-11-480-010

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-11-480-011

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-11-860-014

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-11-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

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SUBTASK 27-51-11-210-007

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-11-860-015

(7) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-11-480-012

(8) If it is necessary for access, deactivate the inboard spoilers 6 and 7 (left wing) or 8 and 9 (right wing). To deactivate the spoilers, do this task: Spoiler Deactivation (With the Spoilers Up), TASK 27-61-00-040-802.

SUBTASK 27-51-11-860-016

(9) For the left, right and center hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-11-040-003

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(10) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-010-003

(11) Open the applicable panels, from the outboard end of the inboard flap:

(TASK 06-30-00-800-806)

Number	Name/Location
555DL	Inboard Main Flap Panel
555EL	Inboard Main Flap Panel
655DR	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

F. Inboard Trailing Edge Flap Fastener Inspection

SUBTASK 27-51-11-280-003

(1) Inspect the fasteners on the inboard support mechanism:

(a) Hold the nuts [13] and apply a torque of 2835 in-lb (320 N·m) - 3150 in-lb (356 N·m) to the bolts [11].

1) Make sure the bolts [11] do not turn.

(b) Tighten the bolts [11] to 3150 in-lb (356 N·m) - 3850 in-lb (435 N·m).

(c) Apply a torque of 1277 in-lb (144 N·m) - 1559 in-lb (176 N·m) to the heads of the bolts [11], and make sure the bolts [11] do not turn.

(d) If any of the bolts [11] turn, replace all of the bolts [11] on the torque tube fitting [12] and the inboard carrier beam [14].

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SUBTASK 27-51-11-280-001

(2) Inspect the fasteners on the outboard support mechanism:

NOTE: A wrench with a curved handle can make access to some of these fasteners easier.

(a) If it is necessary, manually move the flaperon to get access to the fasteners.

(b) Hold the head of the bolts [5] and apply a torque of 567 in-lb (64 N·m) - 630 in-lb (71 N·m) to the nuts [6].

1) Make sure the nuts [6] do not turn.

(c) Hold the aft nuts [8] and apply a torque of 867 in-lb (98 N·m) - 963 in-lb (109 N·m) to the aft bolts [7].

1) Make sure the bolts [7] do not turn.

(d) Hold the head of the bolts [3] and apply a torque of 1260 in-lb (142 N·m) - 1400 in-lb (158 N·m) to the nuts [4].

1) Make sure the nuts [4] do not turn.

(e) Hold the nuts [10] and apply a torque of 1539 in-lb (174 N·m) - 1710 in-lb (193 N·m) to the bolts [9].

1) Make sure the bolts [9] do not turn.

(f) Tighten the nuts [6] to 630 in-lb (71 N·m) - 1070 in-lb (121 N·m).

(g) Tighten the aft bolts [7] to 963 in-lb (109 N·m) - 1177 in-lb (133 N·m).

(h) Tighten the nuts [4] to 1400 in-lb (158 N·m) - 1900 in-lb (215 N·m).

(i) Tighten the bolts [9] to 1710 in-lb (193 N·m) - 2090 in-lb (236 N·m).

(j) Apply a torque of 256 in-lb (29 N·m) - 312 in-lb (35 N·m) to the nuts [6], and make sure the bolts [5] do not turn.

(k) Apply a torque of 256 in-lb (29 N·m) - 312 in-lb (35 N·m) to the heads of the bolts [7], and make sure the bolts [7] do not turn.

(l) Apply a torque of 567 in-lb (64 N·m) - 693 in-lb (78 N·m) to the nuts [4], and make sure the bolts [3] do not turn.

(m) Apply a torque of 567 in-lb (64 N·m) - 693 in-lb (78 N·m) to the heads of the bolts [9], and make sure the bolts [9] do not turn.

(n) Manually retract the flaps until you can get access to the forward bolts [7]. To retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: With the flaps extended, the aft flap linkage blocks access to the forward bolt [7].

NOTE: You can get access to the bolt with the flaps approximately in the 20-unit position.

(o) Hold the forward nuts [8] and apply a torque of 867 in-lb (98 N·m) - 963 in-lb (109 N·m) to the forward bolts [7].

1) Make sure the bolts [7] do not turn.

(p) Tighten the forward bolts [7] to 963 in-lb (109 N·m) - 1177 in-lb (133 N·m).

(q) Apply a torque of 256 in-lb (29 N·m) - 312 in-lb (35 N·m) to the heads of the bolts [7], and make sure the bolts [7] do not turn.

(r) If any of the bolts [3], bolts [5], bolts [7], or bolts [9] turn, replace the all of the flap attach bolts on the outboard carrier beam [2].

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-11-410-003

(1) Install the applicable access panels, on the outboard end of the inboard flap:

(TASK 06-30-00-800-806)

Number	Name/Location
555DL	Inboard Main Flap Panel
555EL	Inboard Main Flap Panel
655DR	Inboard Main Flap Panel
655ER	Inboard Main Flap Panel

SUBTASK 27-51-11-080-005

(2) If you deactivated the inboard spoilers, do this task: Spoiler Activation, TASK 27-61-00-440-801.

SUBTASK 27-51-11-440-003

(3) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-11-860-017

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-11-860-018

(5) Retract the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-11-860-019

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-11-080-006

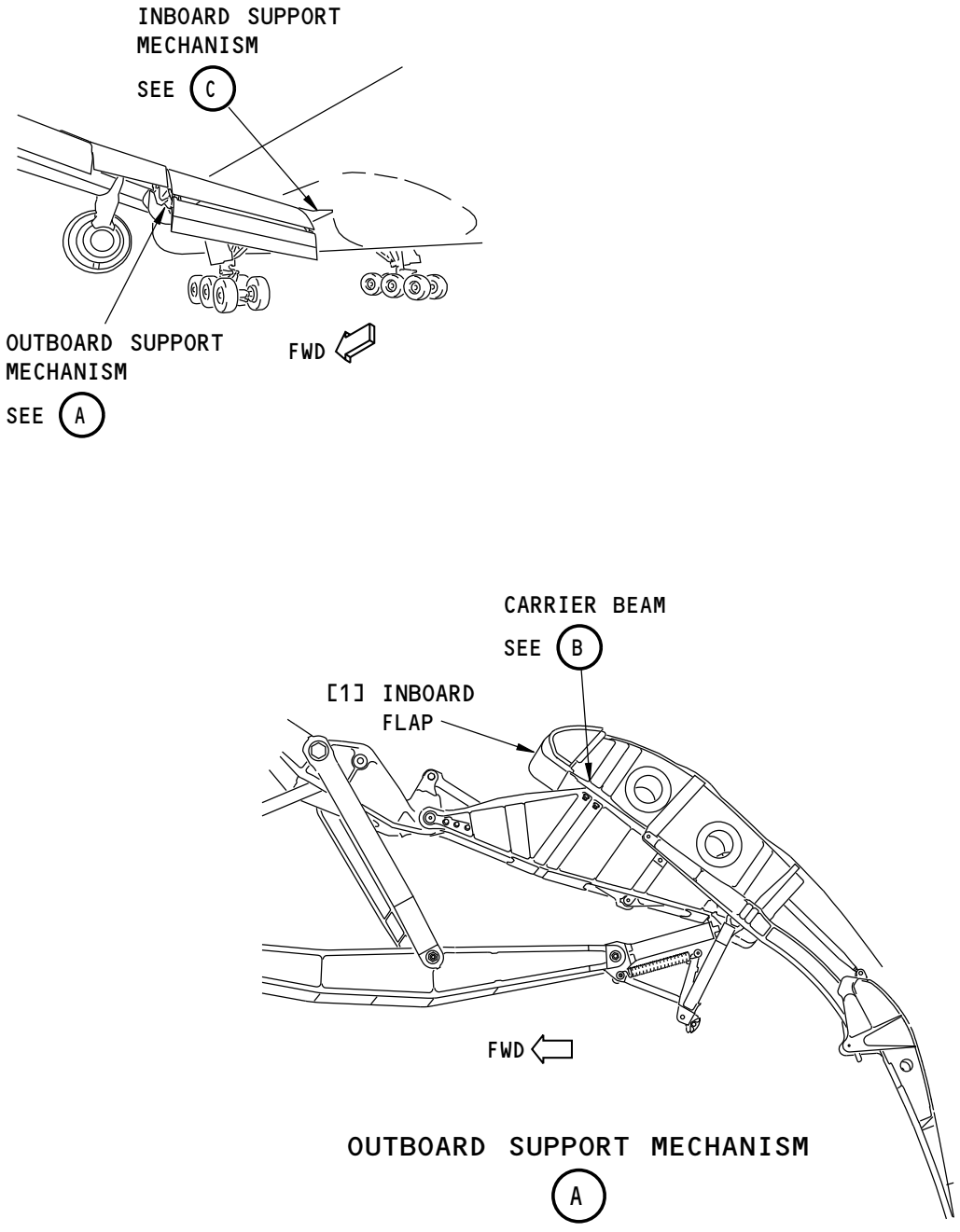
WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

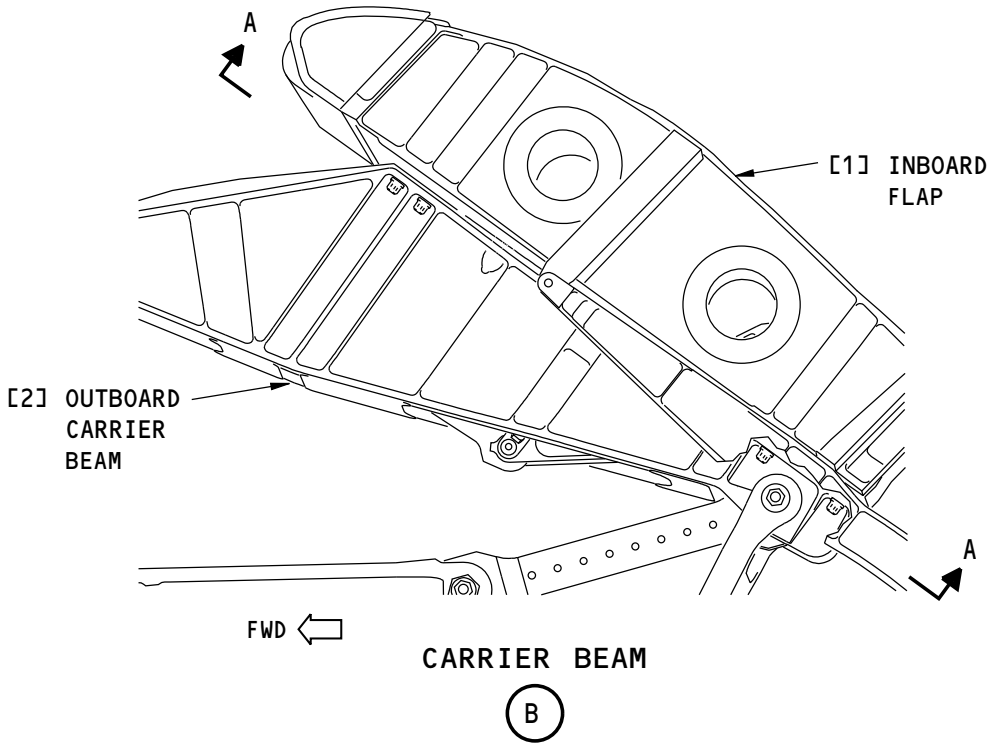
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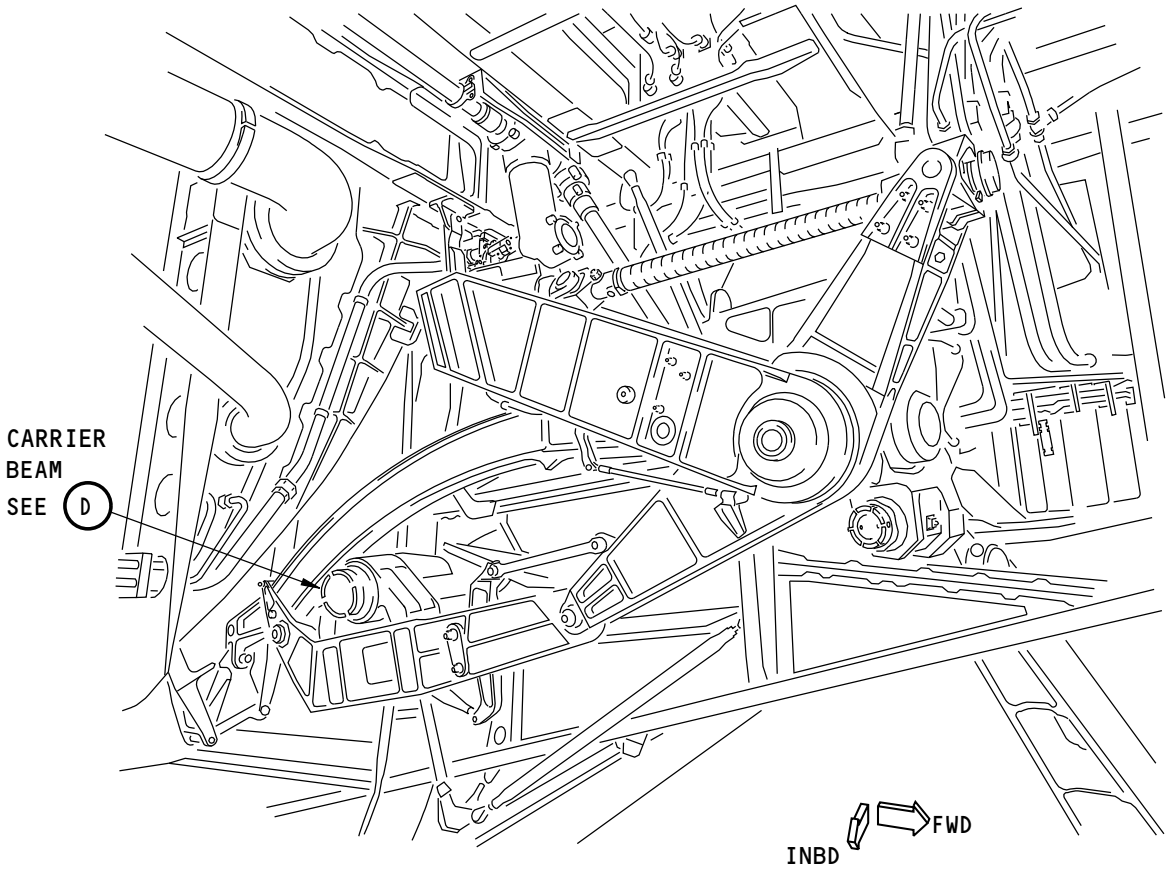
Inboard Trailing Edge Flap Inspection
Figure 601/27-51-11-990-814 (Sheet 1 of 4)

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Inboard Trailing Edge Flap Inspection
Figure 601/27-51-11-990-814 (Sheet 2 of 4)

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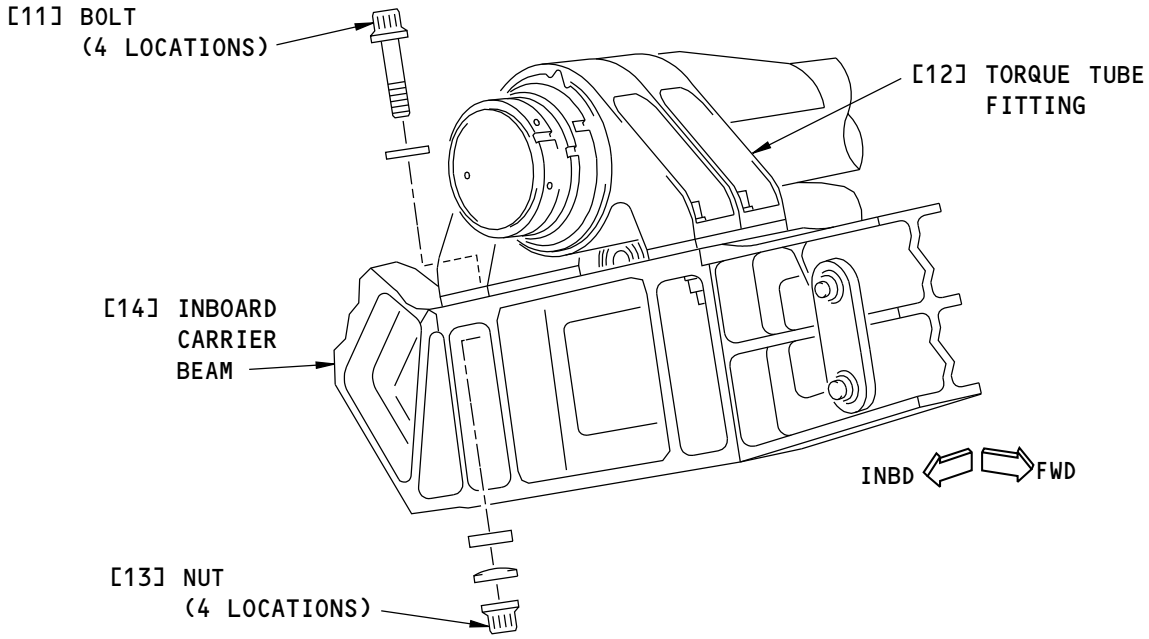


INBOARD SUPPORT MECHANISM
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Inboard Trailing Edge Flap Inspection
Figure 601/27-51-11-990-814 (Sheet 3 of 4)

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CARRIER BEAM

D

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Inboard Trailing Edge Flap Inspection
Figure 601/27-51-11-990-814 (Sheet 4 of 4)

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TASK 27-51-11-211-801

3. Inboard Flap Support Bearing Freeplay Inspection

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-21-09-640-803	Inboard Flap, Inboard Support Mechanism Lubrication (P/B 301)
12-21-09-640-808	Inboard Flap, Outboard Support Mechanism Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-13-200-801	Inboard Flap Inboard Support Inspection (P/B 601)
27-51-14-200-806	Inboard Flap Outboard Support Inspection (P/B 601)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1701	Equipment - Sling, Inboard T. E. Flap Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205
STD-1238	Indicator - Dial
STD-6111	Load Measuring Device - 0-1000 lb Capacity, +/- 2% Accuracy

C. Consumable Materials

Reference	Description	Specification
G02485	Tape - Double Adhesive, 2-3/8 inches (60mm)	

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5
673	Flap Support Fairing No. 6

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E. Prepare for the Freeplay Inspection

SUBTASK 27-51-11-860-020

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-11-480-013

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-11-480-014

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the door safety pins are not installed on the main and nose landing gear doors, do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-11-860-021

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-11-210-009

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-11-210-010

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-11-860-022

(7) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-51-11-860-023

(8) For the left, right and center hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-11-480-015

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Inboard Flap Support #3 / #6 Bearing Freeplay Inspection

NOTE: The steps below apply to the left inboard trailing edge flap #3 support. The procedure also applies to the right inboard trailing edge flap #6 support. If the airline has four dial indicators, then do Method 1. If the airline does not have four dial indicators, then do Method 2.

SUBTASK 27-51-11-211-001

(1) Method 1:

Table 601/27-51-11-993-814 Inboard Trailing Edge Flap Bearing Freeplay

Flap Support	Pin	Fixture	Lifting Load	Freeplay
Inboard Flap Support #3	A	A	700 +100 / -0 lbf (3114 +445 / -0 N)	0.020 in. (0.508 mm)
	B	C		
	C	A		
	D	A		
Inboard Flap Support #6	A	A	700 +100 / -0 lbf (3114 +445 / -0 N)	0.020 in. (0.508 mm)
	B	C		
	C	A		
	D	A		
Inboard Flap Support #4	B	B	500 +100 / -0 lbf (2224 +445 / -0 N)	0.020 in. (0.508 mm)
Inboard Flap Support #5	B	B	500 +100 / -0 lbf (2224 +445 / -0 N)	0.020 in. (0.508 mm)

(a) Prepare to measure the freeplay at Pin A:

1) Attach the dial indicator, STD-1238, to the drive arm by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the drive arm (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

(b) Prepare to measure the freeplay at Pin B:

1) Attach the dial indicator, STD-1238, to the drive arm by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture C (Figure 602) and attach Fixture C to the drive arm (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

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(c) Prepare to measure the freeplay at Pin C:

1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the pivot link (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

(d) Prepare to measure the freeplay at Pin D:

1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the pivot link (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

(e) Measure the freeplay at Pins A, B, C and D:

CAUTION DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

1) Lift the inboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:

a) Manual Method: Use five airline personnel to lift the inboard trailing edge flap.

b) Mechanical Method: Install the inboard T. E. flap sling equipment, SPL-1701, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the outboard aft GSE fitting only (Figure 603) and lift the inboard trailing edge flap.

2) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pins A, B, C and D (Table 601).

(f) If any of the freeplay measurements at Pins A, B, C or D exceed 0.020 in. (0.508 mm), do the following task: Inboard Flap Outboard Support Inspection, TASK 27-51-14-200-806

SUBTASK 27-51-11-211-002

(2) Method 2:

(a) Measure the freeplay at Pin A:

1) Attach a dial indicator, STD-1238, to the drive arm by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the drive arm (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

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CAUTION

DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the inboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the inboard trailing edge flap.
   b) Mechanical Method: Install the inboard T. E. flap sling equipment, SPL-1701, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the outboard aft GSE fitting only (Figure 603) and lift the inboard trailing edge flap.
4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin A (Table 601).

(b) Measure the freeplay at Pin B:
1) Attach a dial indicator, STD-1238, to the drive arm by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture C (Figure 602) and attach Fixture C to the drive arm (Figure 604).
2) Adjust the dial indicator, STD-1238, to zero.

CAUTION

DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the inboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the inboard trailing edge flap.
   b) Mechanical Method: Install the inboard T. E. flap sling equipment, SPL-1701, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the outboard aft GSE fitting only (Figure 603) and lift the inboard trailing edge flap.
4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin B (Table 601).

(c) Measure the freeplay at Pin C:
1) Attach a dial indicator, STD-1238, to the pivot link by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the pivot link (Figure 604).
2) Adjust the dial indicator, STD-1238, to zero.

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CAUTION: DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the inboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the inboard trailing edge flap.
   b) Mechanical Method: Install the inboard T. E. flap sling equipment, SPL-1701, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the outboard aft GSE fitting only (Figure 603) and lift the inboard trailing edge flap.
4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin C (Table 601).

(d) Measure the freeplay at Pin D:
1) Attach a dial indicator, STD-1238, to the pivot link by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the pivot link (Figure 604).
2) Adjust the dial indicator, STD-1238, to zero.

CAUTION: DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the inboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the inboard trailing edge flap.
   b) Mechanical Method: Install the inboard T. E. flap sling equipment, SPL-1701, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the outboard aft GSE fitting only (Figure 603) and lift the inboard trailing edge flap.
4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin D (Table 601).

(e) If any of the freeplay measurements at Pins A, B, C or D exceed 0.020 in. (0.508 mm), do this task: Inboard Flap Outboard Support Inspection, TASK 27-51-14-200-806

G. Inboard Flap Support #4 / #5 Bearing Freeplay Inspection

NOTE: The steps below apply to the left inboard trailing edge flap #4 support. The procedure also applies to the right inboard trailing edge flap #5 support.

SUBTASK 27-51-11-211-003

(1) Measure the freeplay at Pin B:
(a) Attach the dial indicator, STD-1238, to the carrier beam by one of the following methods:
1) Use tape, G02485, to attach the dial indicator, STD-1238, to the carrier beam (Figure 604).

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2) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture B and attach Fixture B to the carrier beam (Figure 604).

(b) Adjust the dial indicator, STD-1238, to zero.

CAUTION DO NOT LIFT THE FLAP WITH MORE THAN600 LBF (2669 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

(c) Lift the inboard trailing edge flap with a vertical load of 500 +100 / -0 lbf (2224 +445 / -0 N) to remove freeplay from the bearings by one of these methods:

1) Manual Method: Use five airline personnel to lift the inboard trailing edge flap.

2) Mechanical Method: Install the inboard T. E. flap sling equipment, SPL-1701, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the inboard aft GSE fitting only (Figure 603) and lift the inboard trailing edge flap.

(d) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin B (Table 601).

(e) If the freeplay measurements at Pin B exceed 0.020 in. (0.508 mm), do this task: Inboard Flap Inboard Support Inspection, TASK 27-51-13-200-801

H. Post-Inspection Lubrication

SUBTASK 27-51-11-640-002

(1) Accomplish lubrication of the inboard trailing edge flap #3/#6 support per Inboard Flap, Inboard Support Mechanism Lubrication, TASK 12-21-09-640-803.

SUBTASK 27-51-11-640-003

(2) Accomplish lubrication of the inboard trailing edge flap #4/#5 support per Inboard Flap, Outboard Support Mechanism Lubrication, TASK 12-21-09-640-808.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-11-440-004

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-11-863-001

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-11-981-001

(3) Retract the trailing edge flaps to the full up position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-11-860-024

(4) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-11-080-007

(5) Remove the door safety pins on the main and nose landing gear doors per Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-51-11-080-008

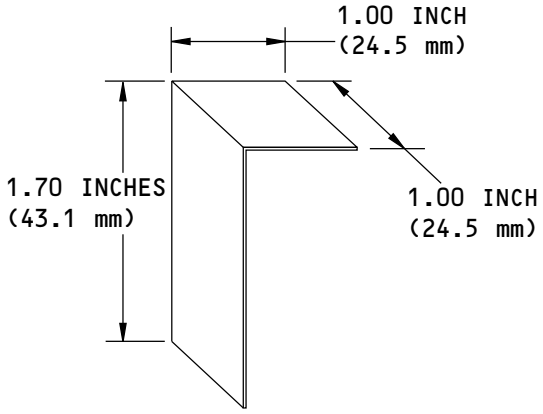
(6) Remove the downlock pins on the main and nose landing gear per Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

SUBTASK 27-51-11-862-001

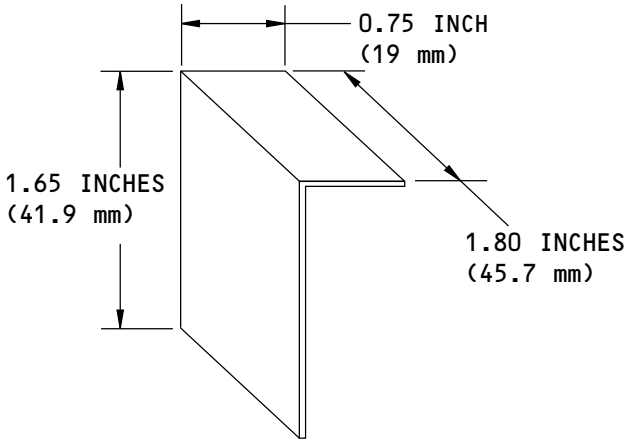
(7) Remove electrical power if it is not necessary Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

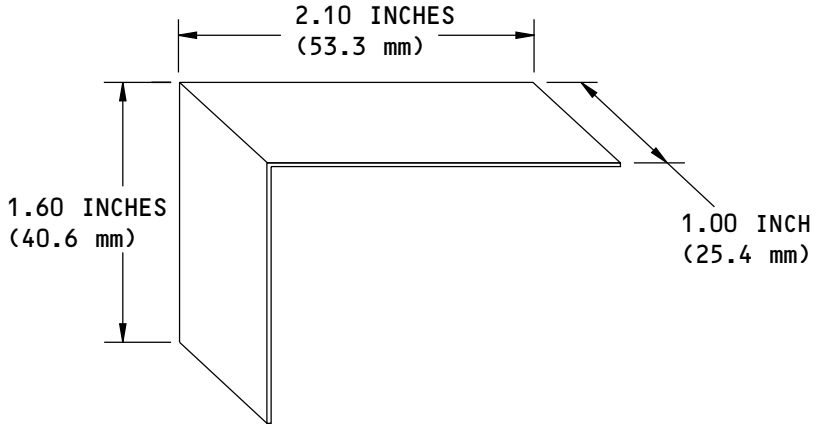
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FIXTURE A



FIXTURE B



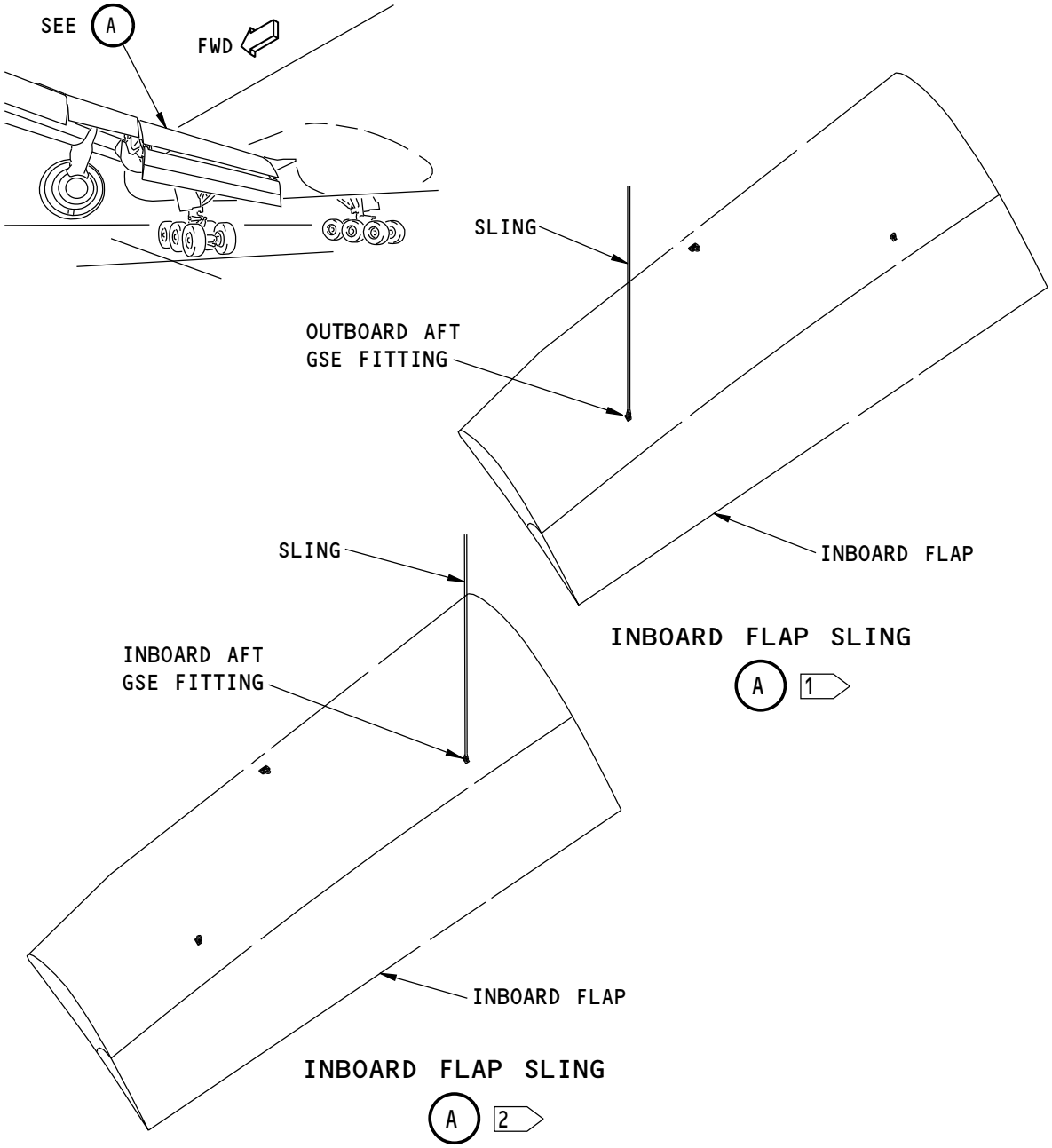
FIXTURE C

NOTE: SUGGESTED MATERIAL FOR THE FIXTURES IS ANY ALUMINUM ALLOY WITH A MINIMUM THICKNESS OF 0.080 INCH (2.03 mm).

486839 S0000144457_V4

Inboard Trailing Edge Flap Bearing Freeplay Inspection Fixtures
Figure 602/27-51-11-990-815

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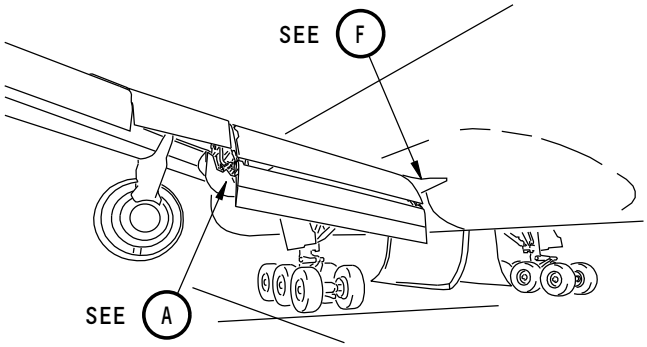
1 ATTACH THE SLING TO THE OUTBOARD AFT GSE FITTING TO MEASURE THE FREEPLAY AT THE NO. 3 AND NO. 6 SUPPORT JOINTS.

2 ATTACH THE SLING TO THE INBOARD AFT GSE FITTING TO MEASURE THE FREEPLAY AT THE NO. 4 AND NO. 5 SUPPORT JOINTS.

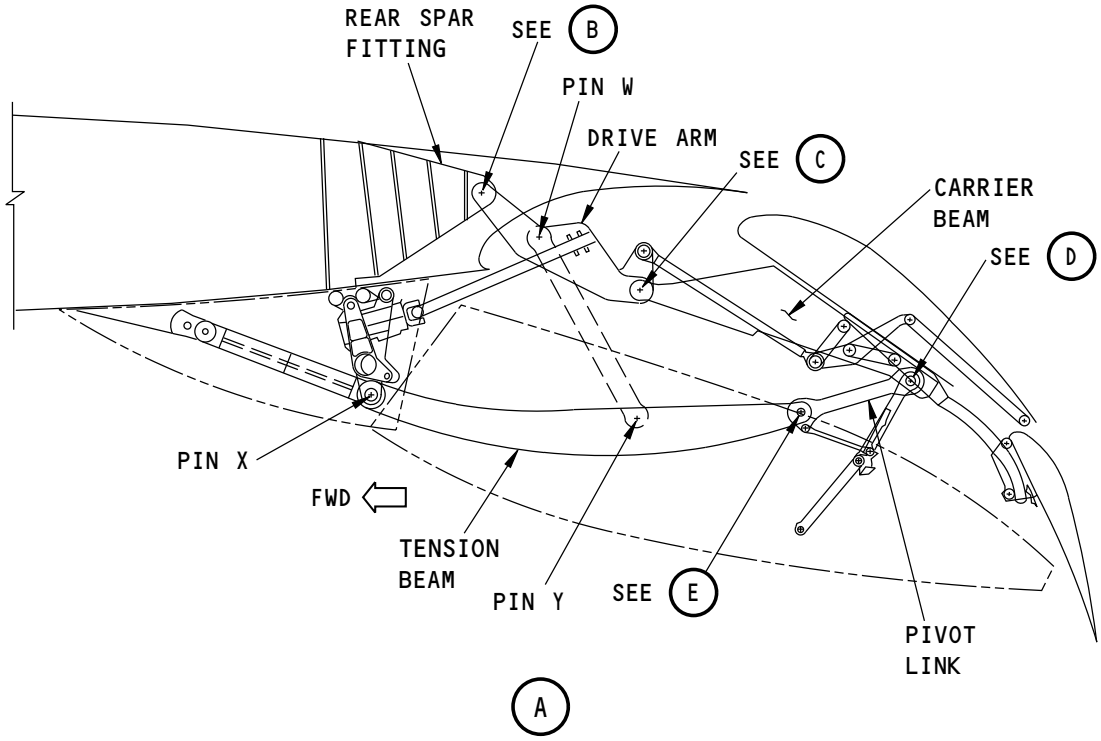
U52525 S0000201725_V2

Inboard Trailing Edge Flap Bearing Freeplay Inspection Sling
Figure 603/27-51-11-990-818

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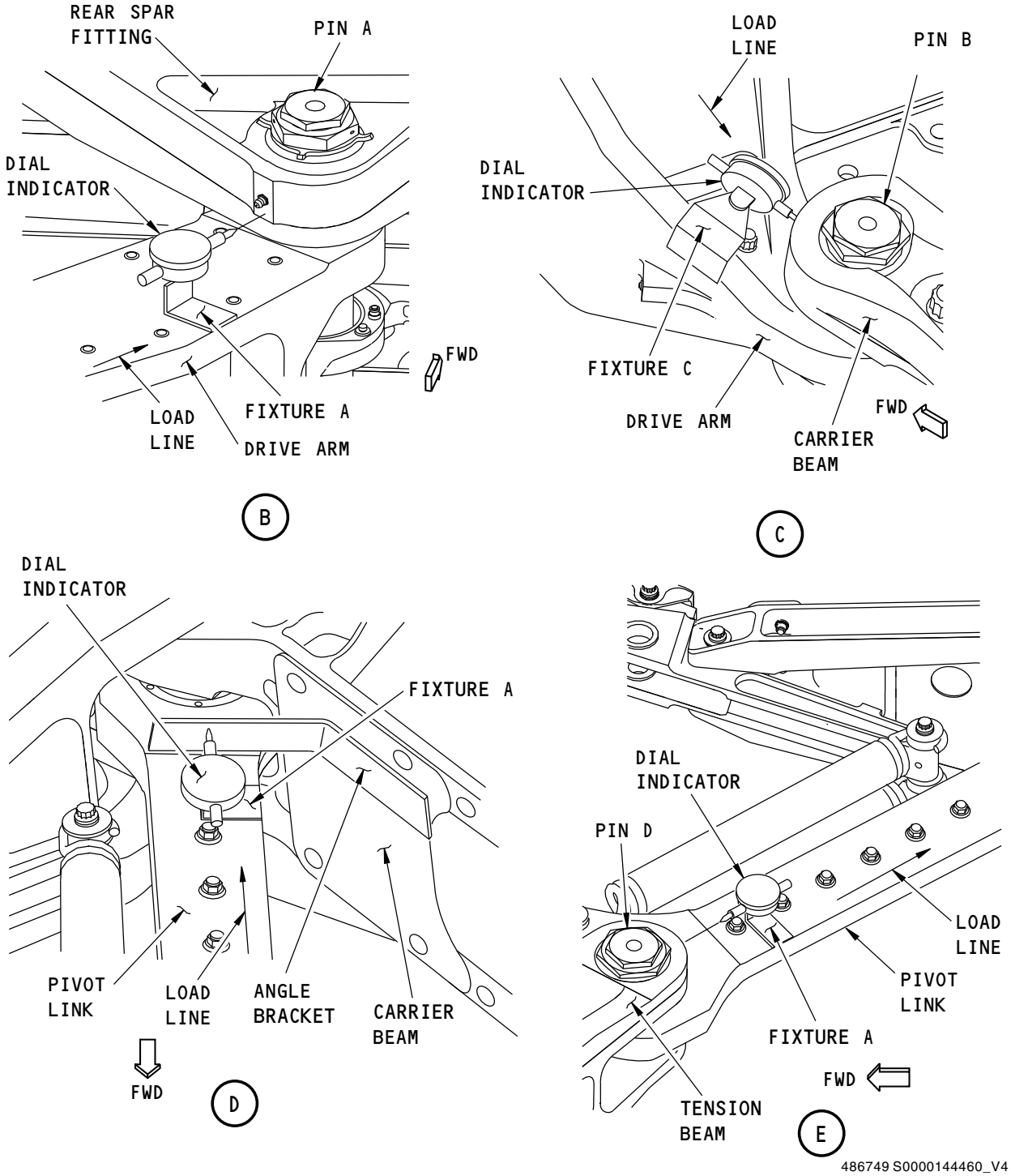
INBOARD TRAILING EDGE
FLAP SUPPORTS



486735 S0000144458_V3

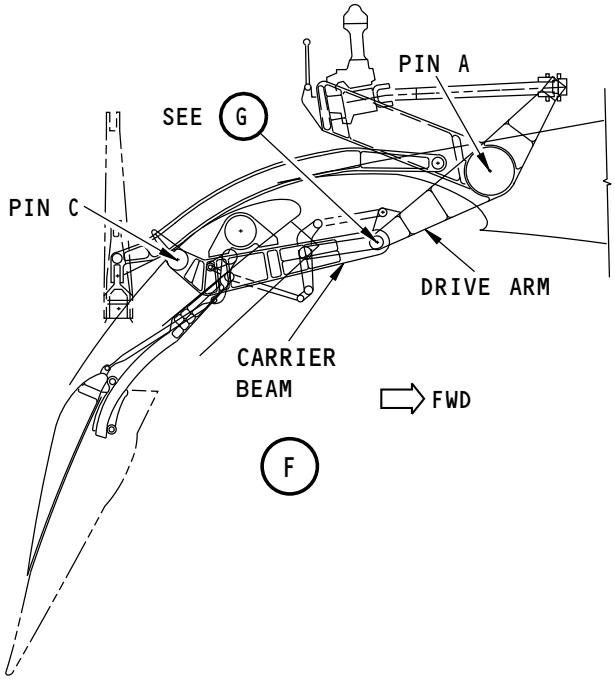
Inboard Trailing Edge Flap Bearing Freeplay Inspection
Figure 604/27-51-11-990-819 (Sheet 1 of 3)

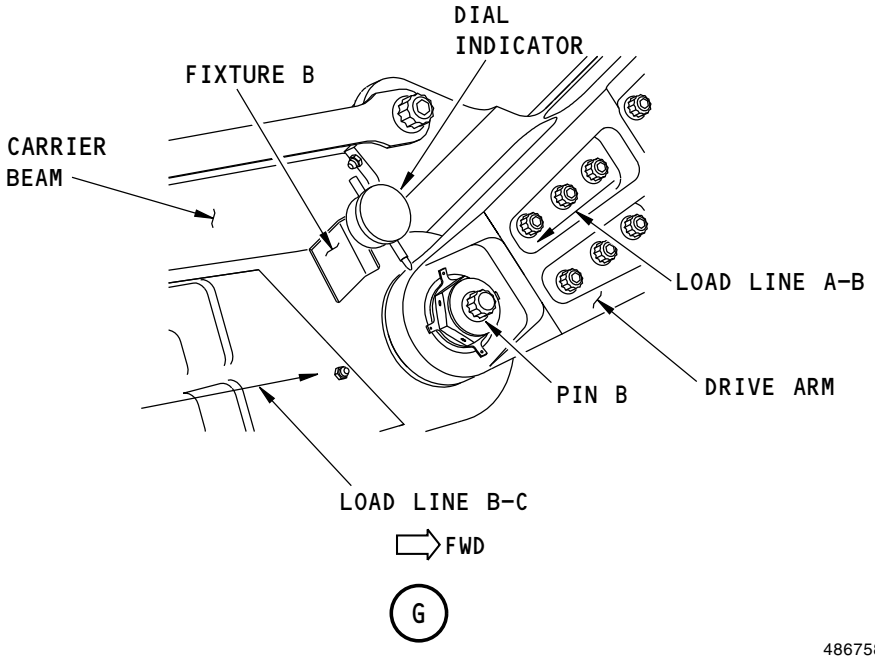
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Inboard Trailing Edge Flap Bearing Freeplay Inspection
Figure 604/27-51-11-990-819 (Sheet 2 of 3)

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Inboard Trailing Edge Flap Bearing Freeplay Inspection
Figure 604/27-51-11-990-819 (Sheet 3 of 3)

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INBOARD TRAILING EDGE AFT FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard trailing edge aft flap.

(2) An installation of the inboard trailing edge aft flap.

B. This procedure includes the removal and installation of the aft flap with the main flap installed.

TASK 27-51-12-000-801

2. Inboard Trailing Edge Aft Flap Removal

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-18-000-801	Inboard Flap Support Fairing Removal (P/B 401)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-000-803	Center Track Fairing Removal (P/B 401)
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-7729	Sling - Aft (J27011-21 Aft Sling Assy is included in J27011-23 Sling Eqpt) Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
572	Inboard Flap Center Track Fairing - Left Wing
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5
672	Inboard Flap Center Track Fairing - Right Wing
673	Flap Support Fairing No. 6

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D. Prepare for the Removal

SUBTASK 27-51-12-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-12-480-003

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-12-480-004

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-12-210-003

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-12-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-12-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-12-010-001

(7) Do this task: Inboard Flap Support Fairing Removal, TASK 27-51-18-000-801.

SUBTASK 27-51-12-010-002

(8) Do this task: Center Track Fairing Removal, TASK 27-51-18-000-803.

SUBTASK 27-51-12-010-004

(9) Do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-12-010-003

(10) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

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E. Inboard Trailing Edge Aft Flap Removal

SUBTASK 27-51-12-020-001

(1) Remove the nuts [7], washers [5], washers [6] and bolts [4] that attach the stops [3] to the inboard and outboard aft flap tracks [2] (Figure 401).

SUBTASK 27-51-12-440-001

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-12-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-12-860-003

(4) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-12-860-004

(5) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-12-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-12-480-001

(7) Install the aft sling, SPL-7729 [17], on the aft flap [1] (Figure 402):

NOTE: The aft flap [1] weighs approximately 220 pounds.

(a) Find the bolts [19] and bolts [20] on the aft flap [1] to attach the sling fittings [18] and [21].

NOTE: The bolts [19] are along the front spar. The bolts [20] are along the rear spar.

(b) Remove the bolts [19] and bolts [20] from the top surface of the aft flap [1].

(c) Install the sling fittings [18] and [21] on the aft flap [1].

1) Use two bolts [19] to attach the forward each sling fitting [18] to the aft flap [1].

2) Use two bolts [20] to attach the two aft sling fittings [21] to the aft flap [1].

(d) Attach the aft sling, SPL-7729 [17] to the forward sling fitting [18] and the aft sling fittings [21].

(e) Connect an overhead crane to the primary support ring [15] on the aft sling, SPL-7729 [17].

(f) Use the [17] to hold the aft flap [1].

SUBTASK 27-51-12-020-002

(8) Disconnect the aft flap pushrods [25] and [31] from the aft flap [1] (Figure 403).

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(a) At the inboard end of the aft flap [1], remove the nut [30], washer [27], washer [29] and bolt [26] that attach the aft flap pushrod [25].

(b) Remove the bushing [28] from the fitting on the aft flap [1].

(c) At the outboard end of the aft flap [1], remove the nut [36], washer [33], washer [35] and bolt [32] that attach the aft flap pushrod [31].

(d) Remove the bushing [34] from the fitting on the aft flap [1].

SUBTASK 27-51-12-020-003

(9) Remove the aft flap [1] (Figure 402):

CAUTION

WHEN YOU LIFT THE AFT FLAP, DO NOT HIT THE MAIN FLAP WITH THE FORWARD SLING FITTING. IF IT HITS THE MAIN FLAP, IT CAN CAUSE DAMAGE TO THE MAIN FLAP.

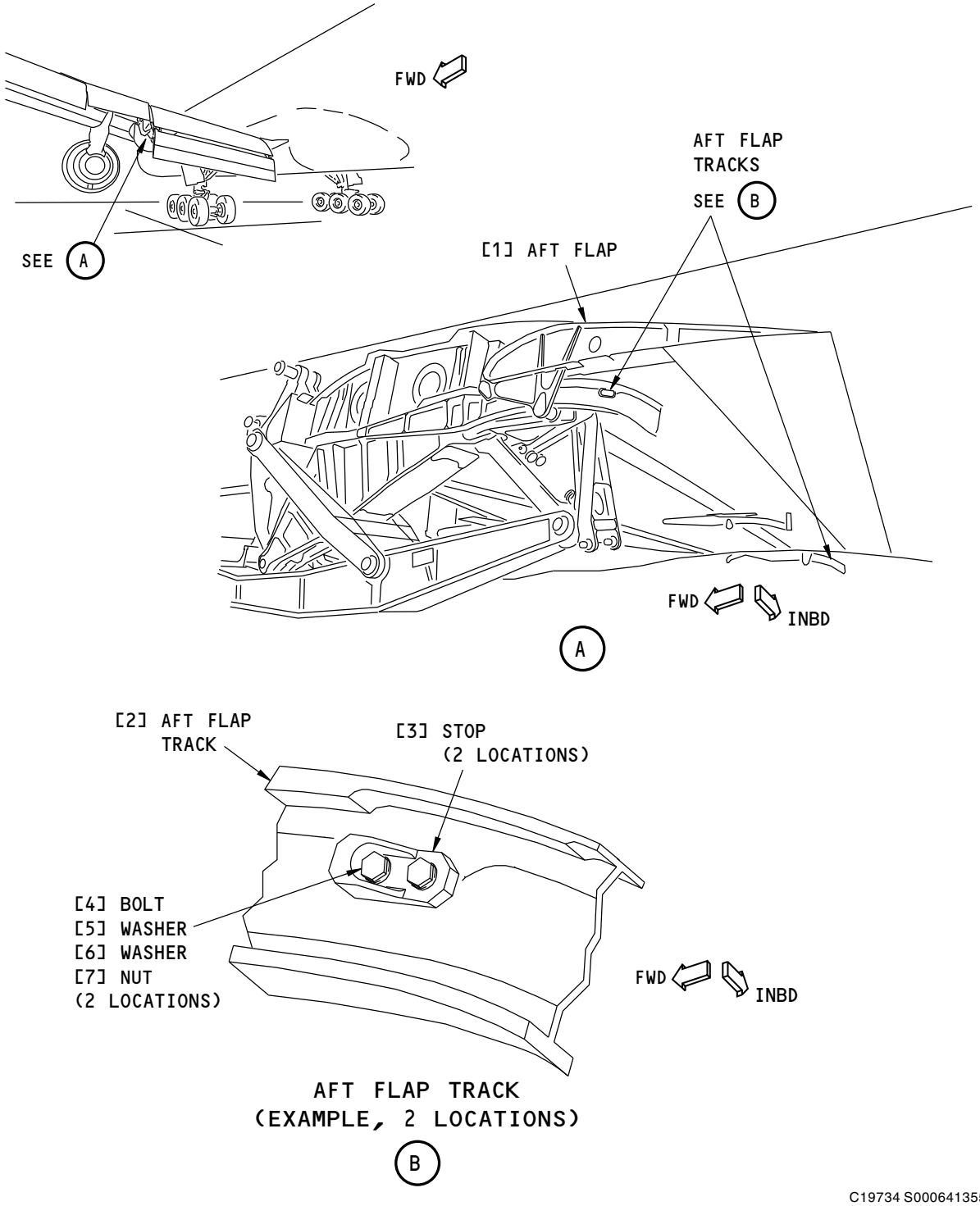
(a) Use the aft sling, SPL-7729 [17] to carefully move the aft flap [1] aft and down until the rollers are clear of the tracks.

(b) Pull on the secondary support ring [16] to lift the trailing edge of the aft flap [1] until it is level.

(c) Lower the aft flap [1].

END OF TASK

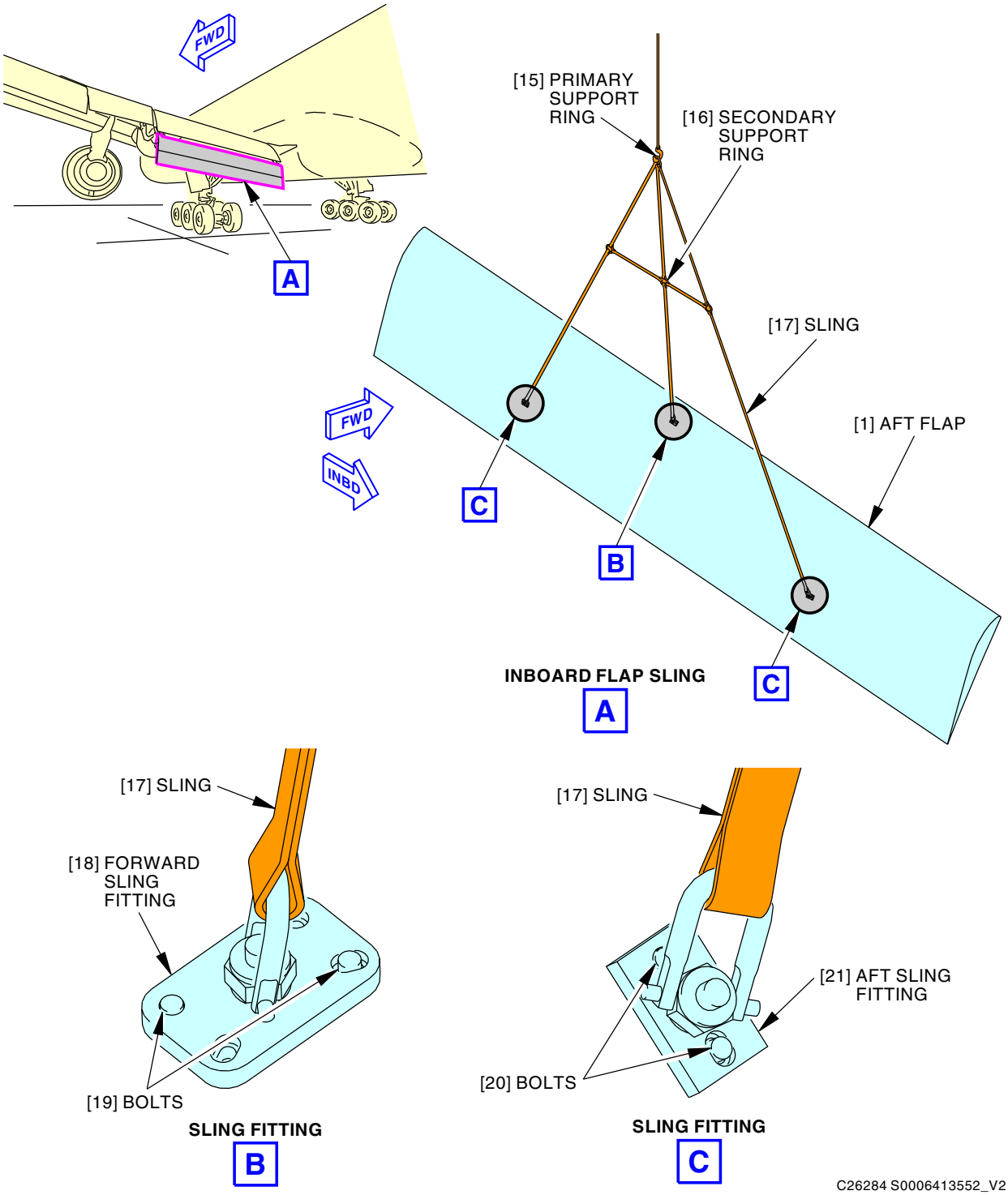
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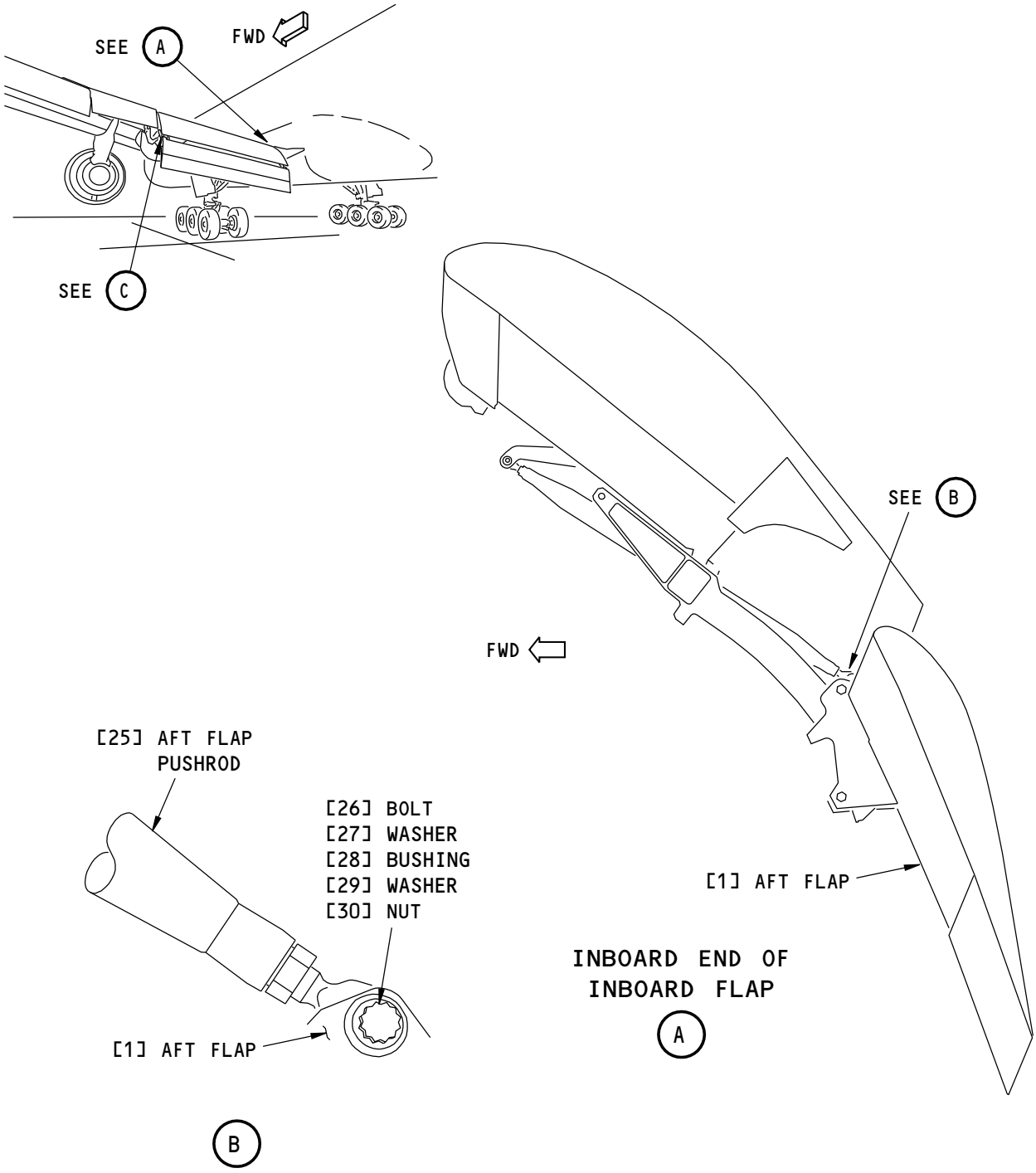
Aft Flap Stop Installation
Figure 401/27-51-12-990-801

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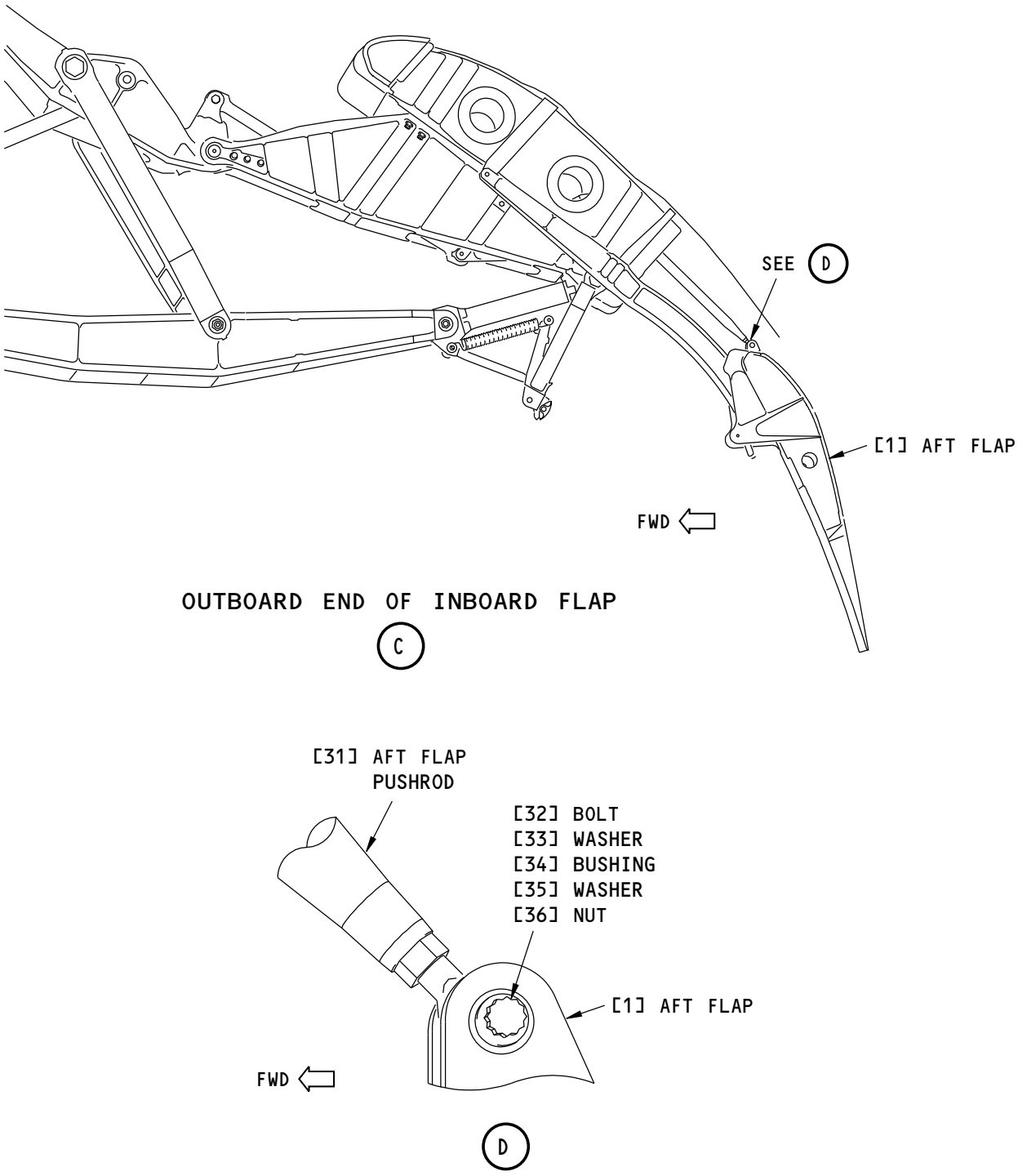
Aft Flap Sling
Figure 402/27-51-12-990-802

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Aft Flap Pushrod Installation
Figure 403/27-51-12-990-803 (Sheet 1 of 2)

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Aft Flap Pushrod Installation
Figure 403/27-51-12-990-803 (Sheet 2 of 2)

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TASK 27-51-12-400-801

3. Inboard Trailing Edge Aft Flap Installation

A. References

Reference	Title
12-21-09-640-809	Inboard Aft Flap Roller Lubrication (P/B 301)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-12-820-801	Inboard Trailing Edge Aft Flap Adjustment (P/B 501)
27-51-18-400-801	Inboard Flap Support Fairing Installation (P/B 401)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-803	Center Track Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-7729	Sling - Aft (J27011-21 Aft Sling Assy is included in J27011-23 Sling Eqpt) Part #: J27011-39 Supplier: 81205 Opt Part #: J27011-23 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
572	Inboard Flap Center Track Fairing - Left Wing
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5
672	Inboard Flap Center Track Fairing - Right Wing
673	Flap Support Fairing No. 6

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E. Inboard Trailing Edge Aft Flap Installation

SUBTASK 27-51-12-480-002

(1) Make sure the aft sling, SPL-7729 [17], is installed on the aft flap [1] (Figure 402).

SUBTASK 27-51-12-420-001

(2) Use the aft sling, SPL-7729 [17] to lift the aft flap [1] into its position:

CAUTION WHEN YOU LIFT THE AFT FLAP, DO NOT HIT THE MAIN FLAP WITH THE FORWARD SLING FITTING. IF IT HITS THE MAIN FLAP, IT CAN CAUSE DAMAGE TO THE MAIN FLAP.

(a) Use the two rings [15] and [16] to lift the aft flap [1] until it is clear of the ground.

(b) Release the tension on the secondary support ring [16] to permit the aft flap [1] to turn until it is in the correct position.

(c) Engage the rollers on the aft flap [1] with the aft flap tracks [2] (Figure 401).

(d) Use the sling to move the aft flap [1] up on the aft flap tracks [2].

WARNING MAKE SURE THAT ALL AFT FLAP ROLLERS ENGAGE WITH THE AFT FLAP TRACK BEFORE YOU REMOVE THE SLING FROM THE FORWARD FITTING. IF THE ROLLERS DO NOT ENGAGE WITH THE FLAP TRACK, IT CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(3) Remove forward fitting of the aft sling, SPL-7729 to prevent it from contacting the main flap.

SUBTASK 27-51-12-420-005

(4) Install the stops [3] on the inboard and outboard tracks [2] (Figure 401):

(a) Put the stops [3] in their position on the tracks [2].

(b) Install the bolts [4], washers [5], washers [6] and nuts [7] that attach the stops [3].

SUBTASK 27-51-12-420-002

(5) Connect the aft flap pushrods [25] and [31] to the aft flap [1] (Figure 403).

(a) Apply a layer of grease, D00633 to the inside and outside of the bushing [28] and bushing [34] and the bolt [26] and bolt [32].

(b) At the inboard end of the aft flap [1], install the bushing [28] in the fitting on the aft flap [1].

(c) Install the bolt [26], washer [27], washer [29] and nut [30] to attach the pushrod [25].

(d) Tighten the nut [30] to 194 in-lb (22 N·m) to 206 in-lb (23 N·m).

(e) At the outboard end of the aft flap [1], install the bushing [34] in the fitting on the aft flap [1].

(f) Install the bolt [32], washer [33], washer [35] and nut [36] to attach the pushrod [31].

(g) Tighten the nut [36] to 194 in-lb (22 N·m) to 206 in-lb (23 N·m).

SUBTASK 27-51-12-080-001

(6) Remove the aft sling, SPL-7729 [17], from the aft flap [1] (Figure 402):

(a) Remove the aft sling, SPL-7729 [17] from the forward sling fitting [18] and the aft sling fittings [21].

(b) Remove the bolts [19] and remove the forward sling fitting [18] from the aft flap [1].

(c) Remove the bolts [20] and remove the aft sling fitting [20] from the aft flap [1].

(d) Apply PR-1405-G sealant, A00723 to the bolts [19] and bolts [20].

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(e) Install the bolts [19] and bolts [20] in the top surface of the aft flap [1].

SUBTASK 27-51-12-440-002

(7) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-12-860-005

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-12-860-006

(9) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-12-860-007

(10) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-12-040-003

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(11) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-12-640-001

(12) Do this task: Inboard Aft Flap Roller Lubrication, TASK 12-21-09-640-809.

SUBTASK 27-51-12-820-001

(13) Do this task: Inboard Trailing Edge Aft Flap Adjustment, TASK 27-51-12-820-801.

SUBTASK 27-51-12-410-001

(14) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-12-410-002

(15) Do this task: Center Track Fairing Installation, TASK 27-51-18-400-803.

SUBTASK 27-51-12-410-003

(16) Do this task: Inboard Flap Support Fairing Installation, TASK 27-51-18-400-801.

SUBTASK 27-51-12-010-005

(17) Do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804.

SUBTASK 27-51-12-440-003

(18) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-12-080-002

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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INBOARD TRAILING EDGE AFT FLAP - ADJUSTMENT/TEST

1. General

A. This procedure has an adjustment of the aft flap for the inboard trailing edge flap.

TASK 27-51-12-820-801

2. Inboard Trailing Edge Aft Flap Adjustment

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-18-000-801	Inboard Flap Support Fairing Removal (P/B 401)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-400-801	Inboard Flap Support Fairing Installation (P/B 401)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2547	Equipment - Restraint, Aft to Main Segment Inboard Flap (L/N 39 and on) Part #: J27026-50 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5
673	Flap Support Fairing No. 6

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E. Access Panels

Number	Name/Location
555DL	Inboard Main Flap Panel
655DR	Inboard Main Flap Panel

F. Prepare for the Adjustment

SUBTASK 27-51-12-480-006

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-12-480-007

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-12-040-004

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-12-010-007

(4) Do this task: Inboard Flap Support Fairing Removal, TASK 27-51-18-000-801.

SUBTASK 27-51-12-010-006

(5) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-12-980-001

(6) Make sure the trailing edge flaps are in the retracted position (Figure 501):

NOTE: The correct position of the ballscrew nuts when the flaps are retracted is four torque tube turns away from the upstops.

(a) Remove the coverplate from the manual drive on one of the position sensor gearboxes.

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAP WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

(b) Use the manual drive on the position sensor gearbox to retract the flaps until the ballscrew nuts touch the upstops.

NOTE: The maximum torque necessary to turn the drive system in the retract direction is 1000 pound-inches.

Refer to the placard above the position sensor gearbox for the correct direction to turn the manual drive.

Look at the number 4 or 5 ballscrew while you move the flaps.

(c) If the two ballscrew nuts for the applicable flap do not touch the upstops, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

(d) Use the manual drive on the position sensor gearbox to extend the flaps four turns of the torque tubes.

NOTE: The maximum torque necessary to turn the drive system in the extend direction is 620 pound-inches.

(e) Install the coverplate on the manual drive on the position sensor gearbox.

(f) Make a note of the position of the upstops on the ballscrews and make marks on the torque tubes so you can find the retracted position again.

G. Aft Flap Adjustment

SUBTASK 27-51-12-480-005

(1) Do a check of the adjustment of the aft flap (Figure 502):

(a) At the inboard and outboard ends of the aft flap, measure the clearance between the stop block on the track and the track guide on the aft flap.

(b) At the outboard end of the aft flap, make sure the clearance is in the limit of 0.160 ±0.030 inch.

(c) At the inboard end of the aft flap, make sure the clearance is in the limit of 0.350 ±0.030 inch.

SUBTASK 27-51-12-820-002

(2) If the clearances are not in the limit, then adjust the pushrods [4] and [10] for the aft flap [2] (Figure 503):

(a) Open the applicable access panels, on the outboard end of the flap [1] to get access to the forward end of the outboard pushrod [4];

Number	Name/Location
555DL	Inboard Main Flap Panel
655DR	Inboard Main Flap Panel

(b) Extend the flap to relieve the load on the pushrods [4] and [10]. To extend the flap, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

NOTE: It will be necessary to retract the flap to the retracted position. Extend the flap to approximately the 15 unit position.

(c) Adjust the length of the pushrods [4] and [10]:

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1) Hold the aft flap [2] while you disconnect the pushrods [4] and [10].
2) Remove the nut [9], washer [6], washer [8], bolt [5] and bushing [7] to disconnect the outboard pushrod [4] from the bellcrank [3].
3) Remove the nut [16], washer [13], washer [15], bolt [12] and bushing [14] to disconnect the inboard pushrod [10] from the drive crank [11].
4) Turn the rod ends on the pushrods [4] and [10].
5) Apply a layer of grease, D00633 to the inside and outside of the bushing [7] and bushing [14] and the bolt [5] and bolt [12].
6) Install the bushing [7], bolt [5], washer [6], washer [8] and nut [9] to connect the outboard pushrod [4] to the bellcrank [3].
7) Install the bushing [14], bolt [12], washer [13], washer [15] and nut [16] to connect the inboard pushrod [10] to the drive crank [11].

(d) Retract the flap to the retracted position. To retract the flap, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

NOTE: Make sure the flap is in the same position as it was previously.

(e) Make sure the clearances at the inboard and outboard ends of the aft flap are in the limits (Figure 502).
1) If the clearances are not in the limits, then do the steps above to adjust the pushrods [4] and [10] again.

(f) Make sure you can install the aft to main segment inboard flap restraint equipment, SPL-2547 for the aft flap [2].
1) If you cannot install the aft to main segment inboard flap restraint equipment, SPL-2547, do the steps above to adjust the pushrods [4] and [10] again.

(g) Make sure you can install the aft to main segment inboard flap restraint equipment, SPL-2547 for the aft flap [2].
1) If you cannot install the aft to main segment inboard flap restraint equipment, SPL-2547, do the steps above to adjust the pushrods [4] and [10] again.

(h) Tighten the nuts on the pushrods [4] and [10] and install lockwire.

(i) Tighten the nut [9] to 200 in-lb (23 N·m) - 250 in-lb (28 N·m).

(j) Tighten the nut [16] to 150 in-lb (17 N·m) - 200 in-lb (23 N·m).

(k) Close the applicable access panels, on the outboard end of the flap [1]:

Number	Name/Location
555DL	Inboard Main Flap Panel
655DR	Inboard Main Flap Panel

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-12-410-005

(1) Do this task: Inboard Flap Support Fairing Installation, TASK 27-51-18-400-801.

SUBTASK 27-51-12-410-004

(2) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-12-440-004

(3) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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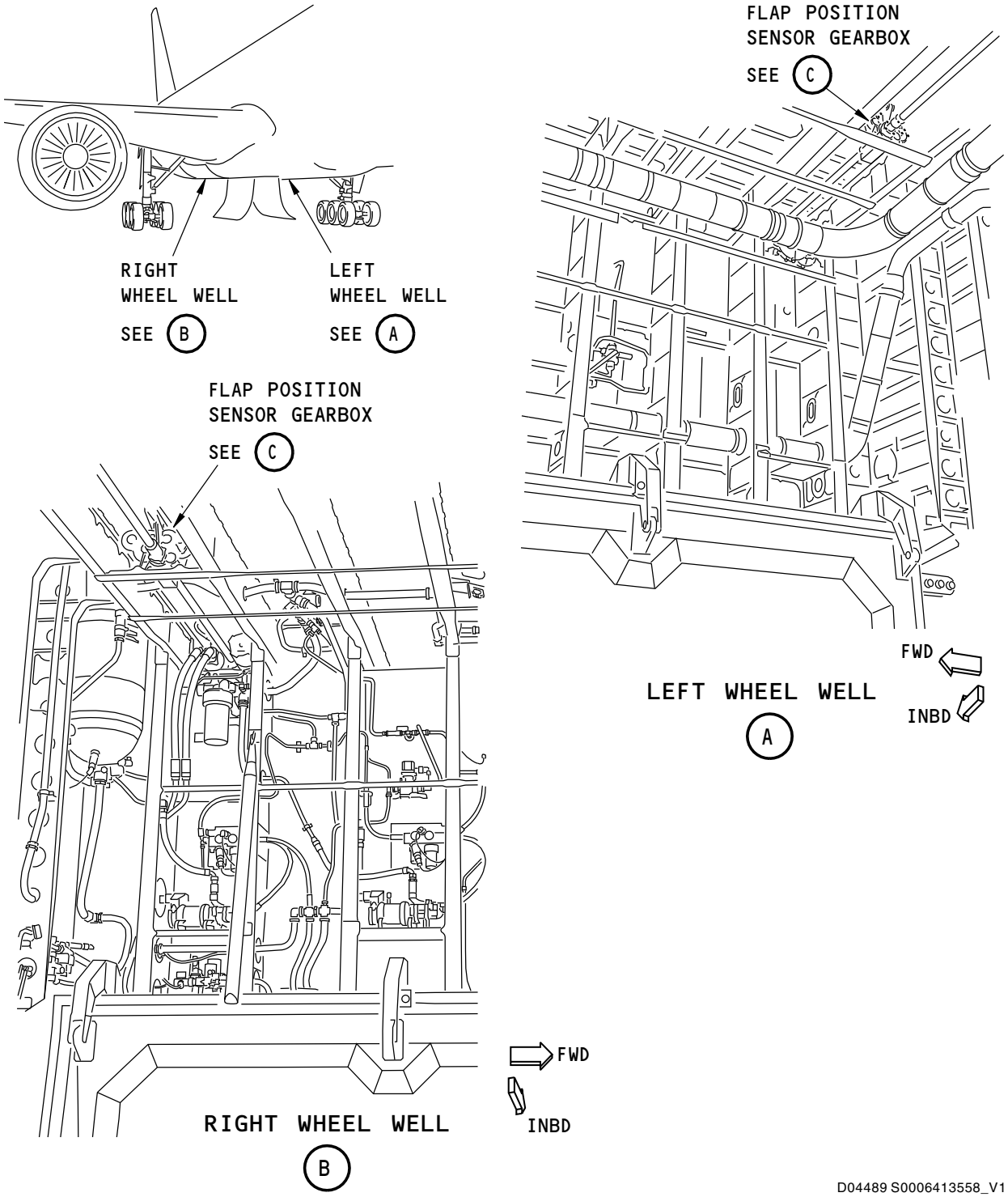
SUBTASK 27-51-12-080-004

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

——— END OF TASK ———

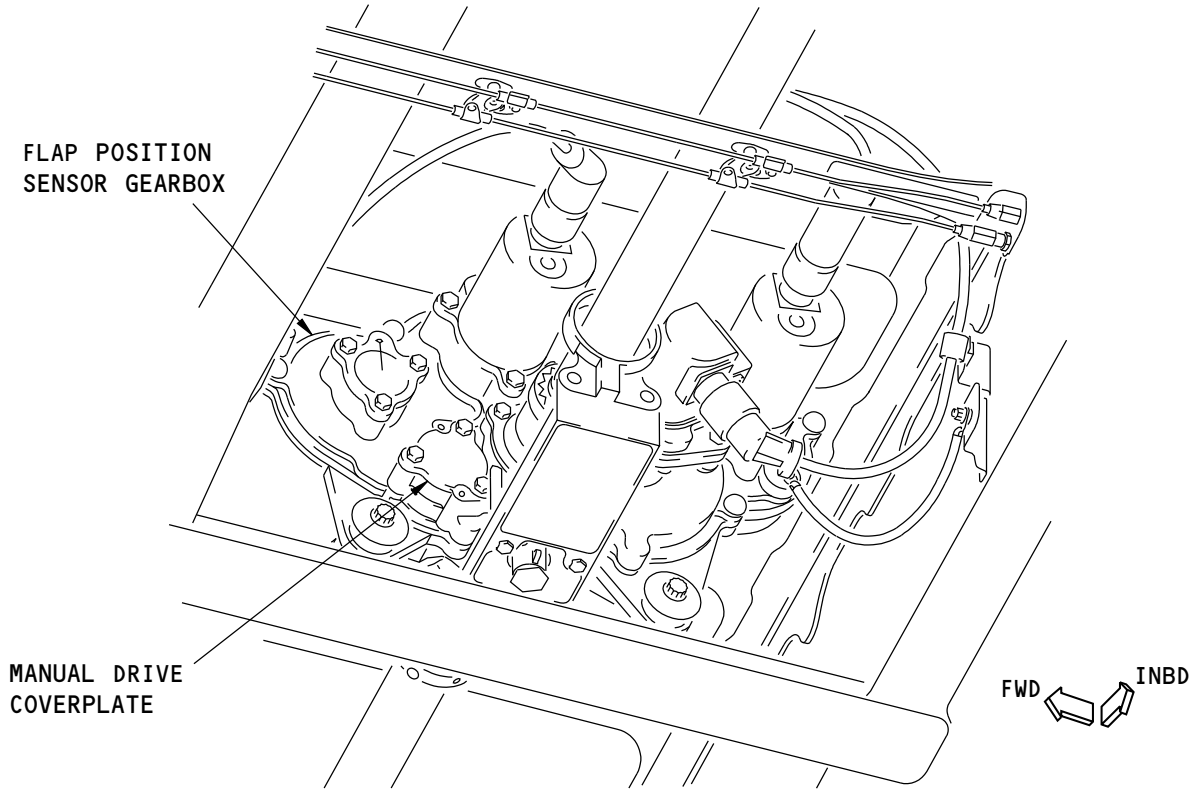
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Trailing Edge Flap System Manual Operation
Figure 501/27-51-12-990-804 (Sheet 1 of 3)

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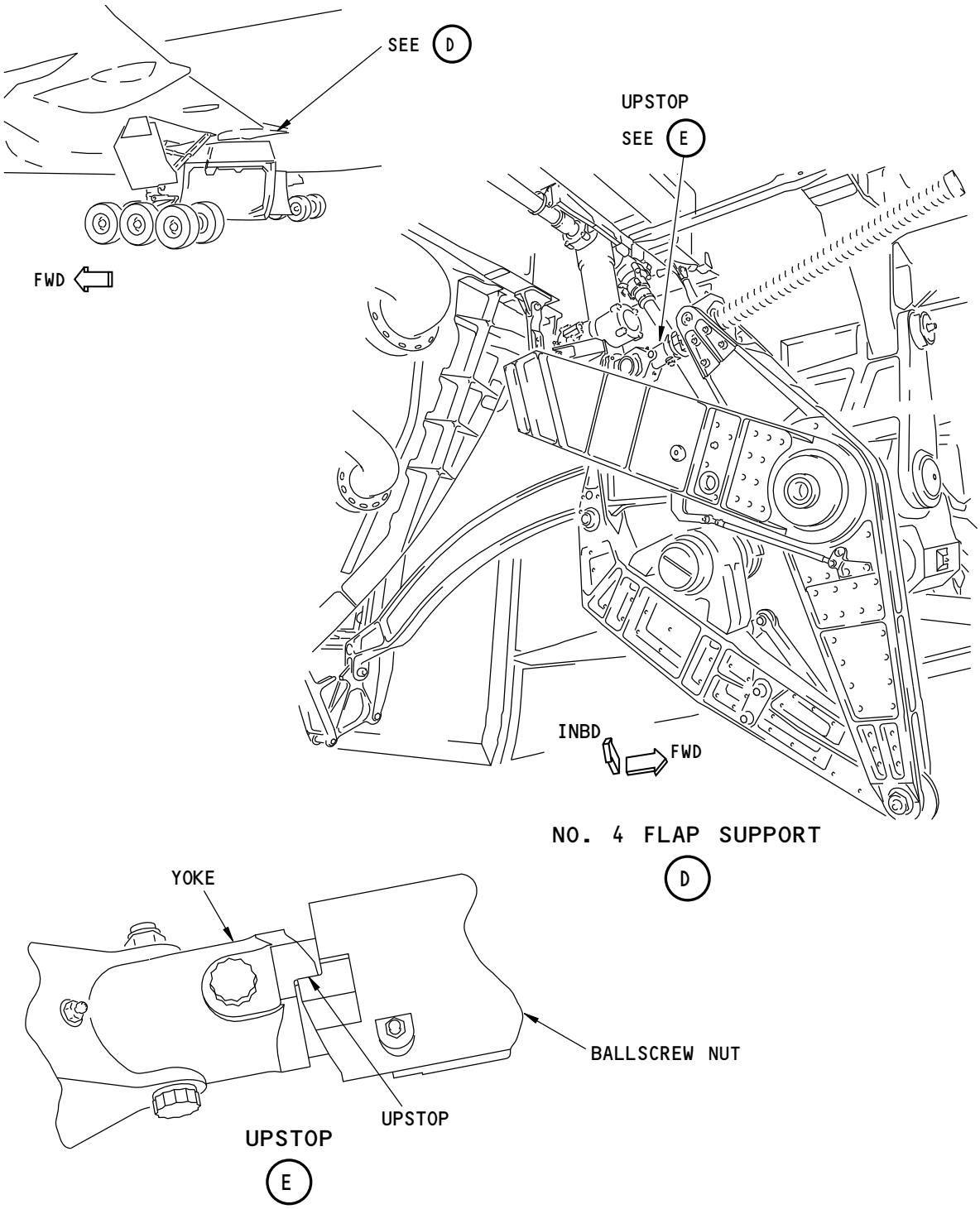
FLAP POSITION SENSOR GEARBOX
(RIGHT GEARBOX SHOWN, LEFT GEARBOX EQUIVALENT)

C

D04493 S0006413559_V1

Trailing Edge Flap System Manual Operation
Figure 501/27-51-12-990-804 (Sheet 2 of 3)

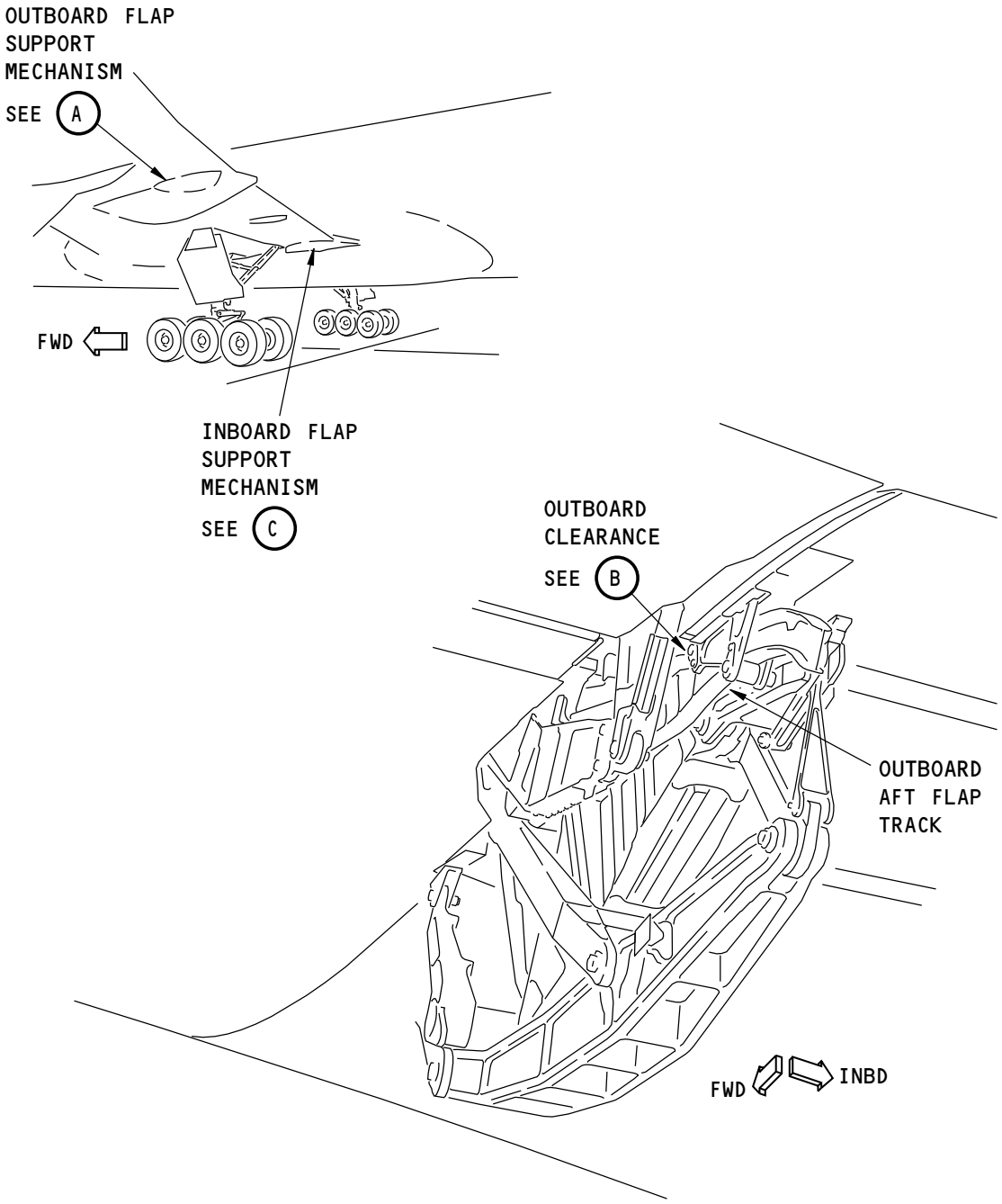
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Trailing Edge Flap System Manual Operation
Figure 501/27-51-12-990-804 (Sheet 3 of 3)

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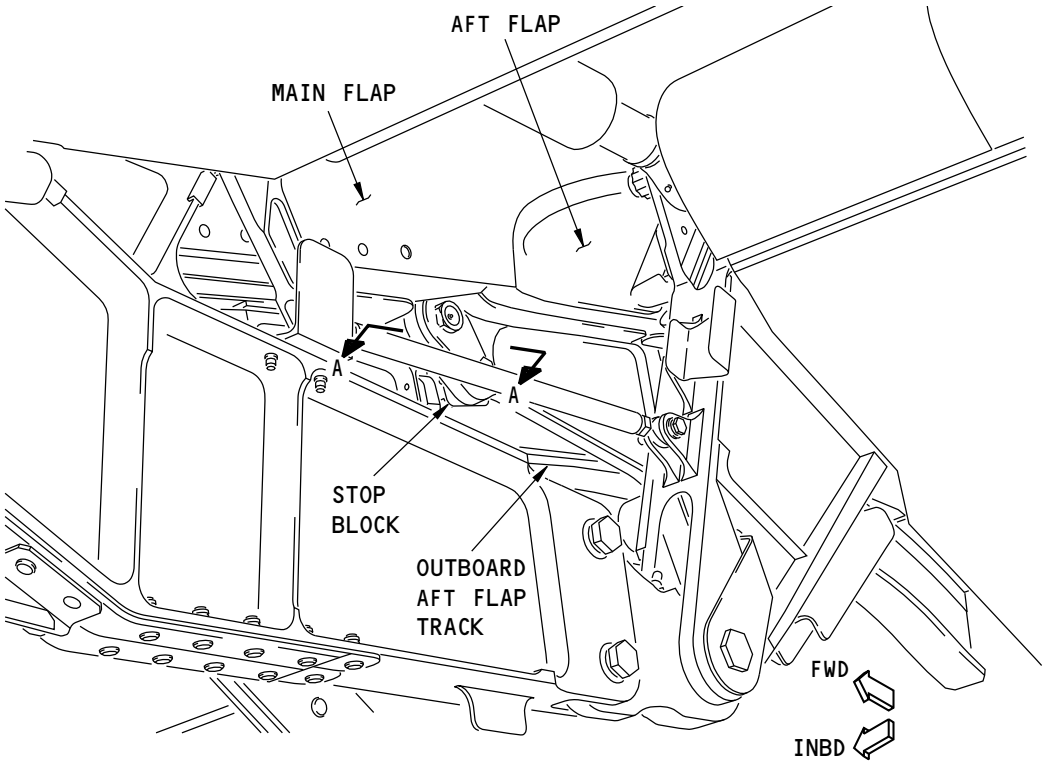
OUTBOARD FLAP SUPPORT MECHANISM

A

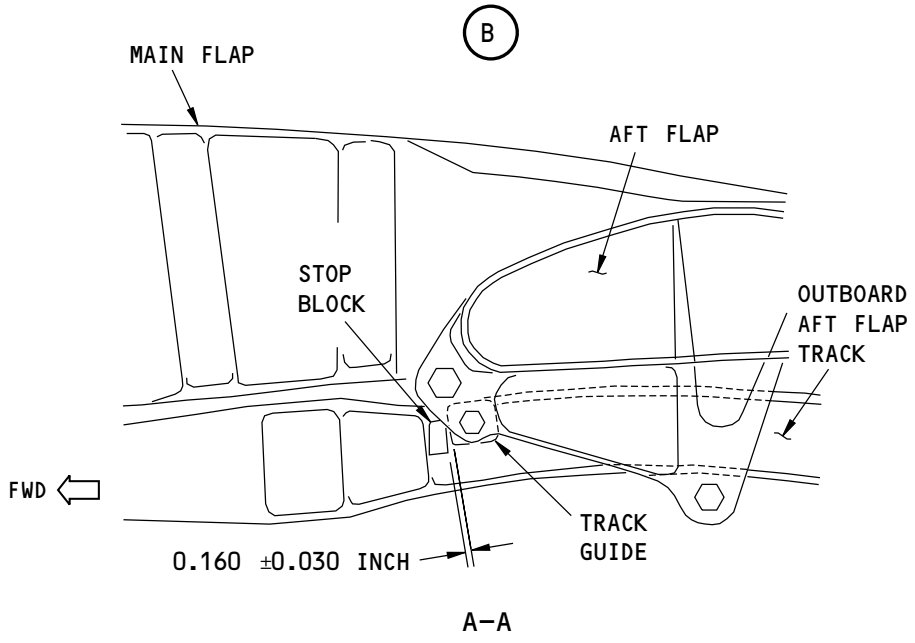
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Inboard Aft Flap Adjustment Clearances
Figure 502/27-51-12-990-805 (Sheet 1 of 3)

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OUTBOARD CLEARANCE

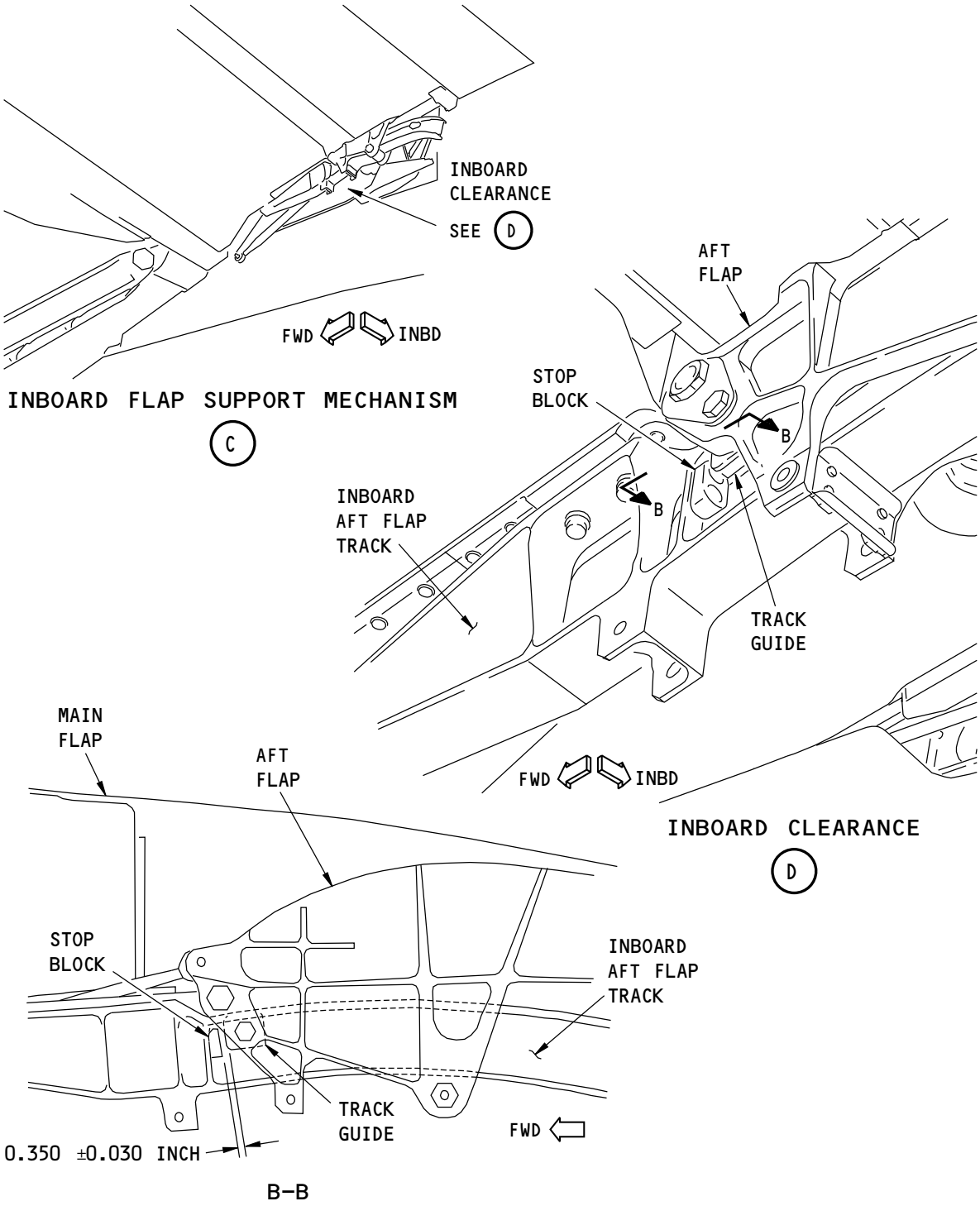


A–A

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Inboard Aft Flap Adjustment Clearances
Figure 502/27-51-12-990-805 (Sheet 2 of 3)

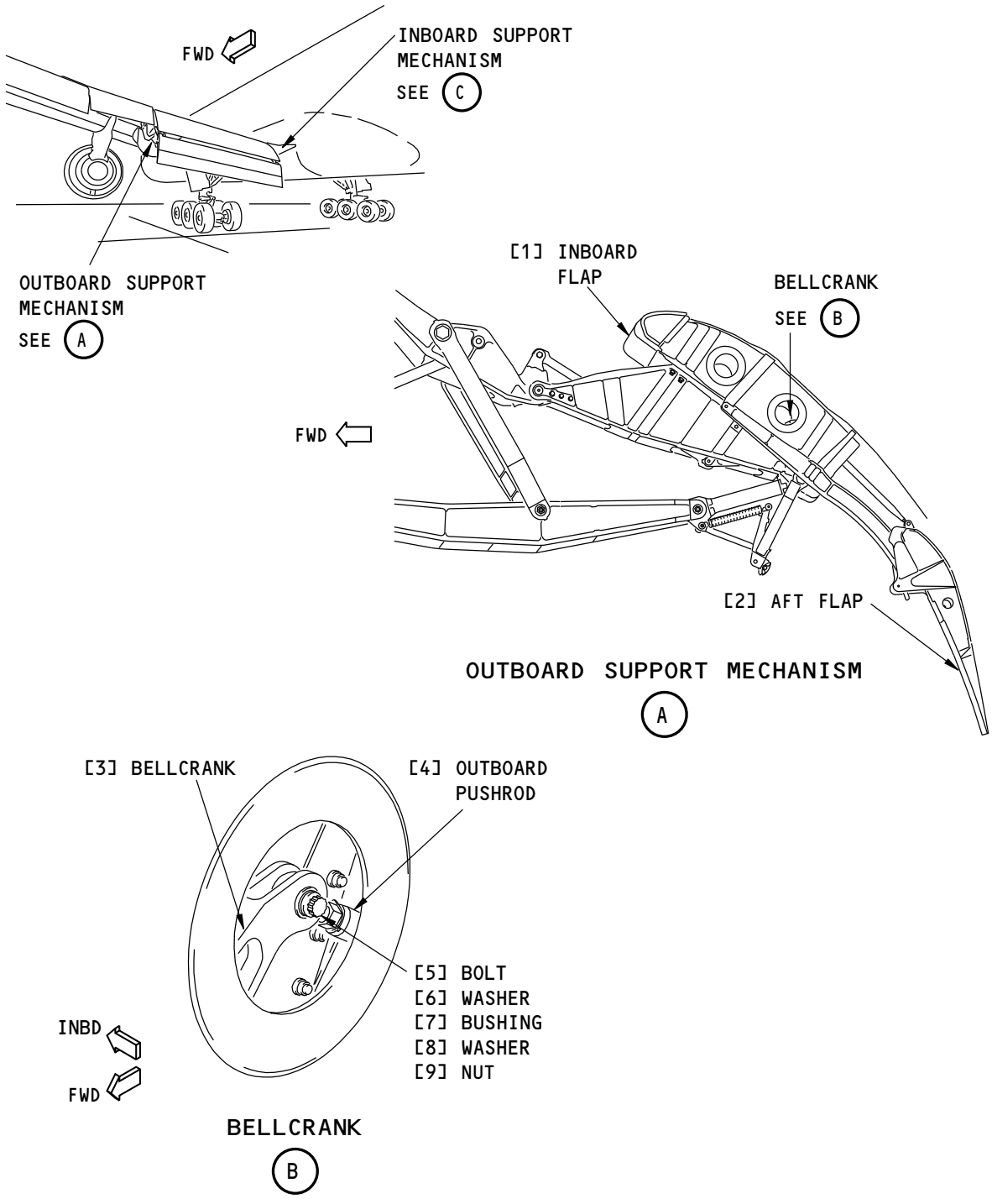
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Inboard Aft Flap Adjustment Clearances
Figure 502/27-51-12-990-805 (Sheet 3 of 3)

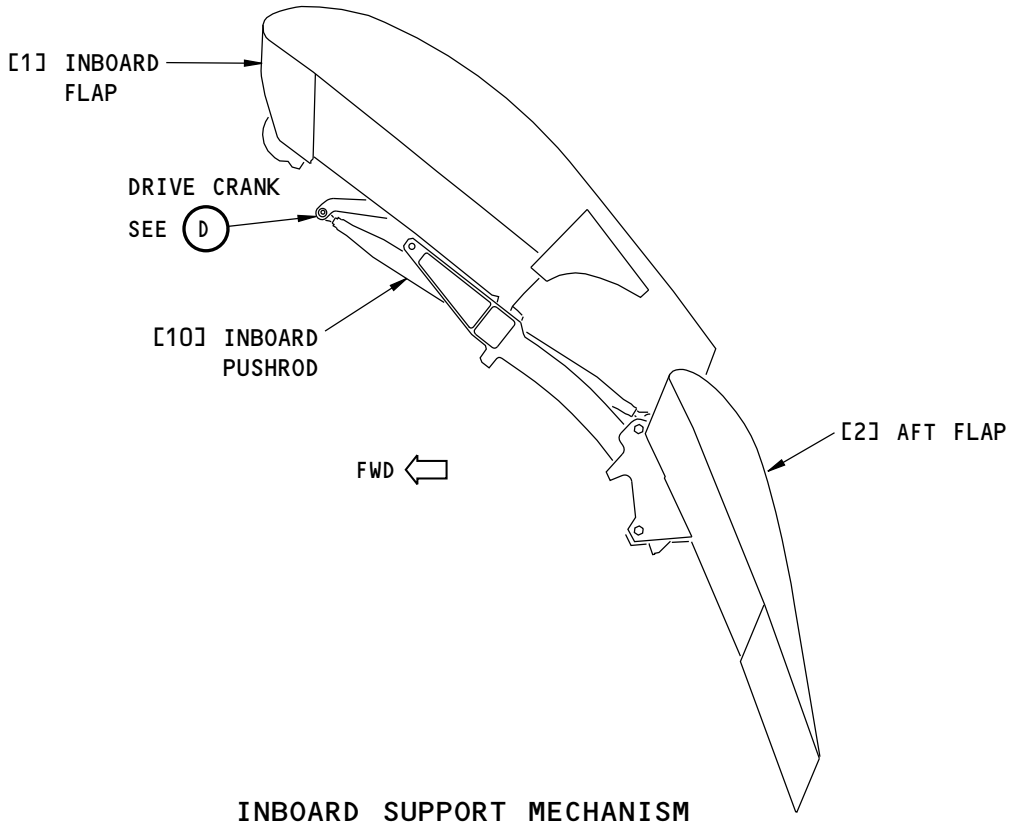
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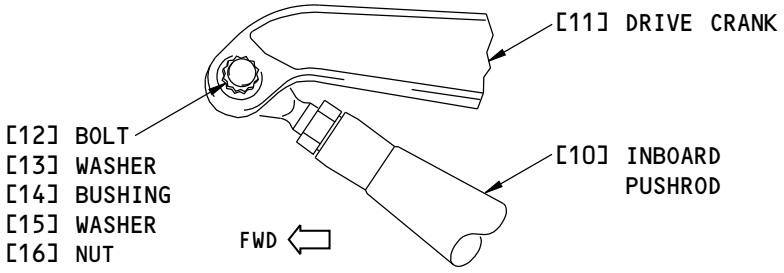
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Inboard Aft Flap Adjustment
Figure 503/27-51-12-990-806 (Sheet 1 of 2)

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INBOARD SUPPORT MECHANISM
C



DRIVE CRANK
D

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Inboard Aft Flap Adjustment
Figure 503/27-51-12-990-806 (Sheet 2 of 2)

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INBOARD FLAP, INBOARD SUPPORT MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A task to prepare for the removal

(2) A removal of the bellcrank and drive links

(3) A removal of the carrier beam and track

(4) A removal of the track support assembly

(5) A removal of the actuator support and drive arm

(6) A removal of the support torque tube

(7) An installation of the actuator support and drive arm

(8) An installation of the track support assembly

(9) An installation of the carrier beam and track

(10) An installation of the bellcrank and drive links

(11) An installation of the support torque tube

(12) A task to put the airplane back to its usual condition.

B. Before you do a removal task, it is necessary to do the task "Prepare for the Removal". After you do an installation task, it is necessary to the task "Put the Airplane Back to Its Usual Condition".

TASK 27-51-13-860-801

2. Prepare for the Removal

A. General

(1) It is necessary to do this task before you do a removal procedure for the components on the inboard support mechanism for the inboard flap.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-11-000-801	Inboard Trailing Edge Flap Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

D. Procedure

SUBTASK 27-51-13-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-13-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-13-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-13-210-004

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-13-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-13-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-13-860-003

(7) Extend the trailing edge flaps to the 30-unit position, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-13-860-004

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-13-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-13-020-001

(10) Do this task: Inboard Trailing Edge Flap Removal, TASK 27-51-11-000-801.

(a) For the alternative method of removing the trailing edge flap with the flap carrier beam assembly attached do this:

NOTE: The alternative method for the trailing edge flap removal will save time.

1) Disconnect pins at joints 4B and 4C or 5B and 5C as applicable, instead of removing the flap carriage bolts and remove the trailing edge flap with the flap carrier beam assembly.

——— END OF TASK ———

TASK 27-51-13-000-801

3. Bellcrank and Drive Links Removal

(Figure 401)

A. General

(1) This task includes the removal of the bellcrank assembly [3], carrier link [4], reaction link [6] and tension link [2].

(2) This task removes parts at joints 4B, 4G, 4L, 4M, 5B, 5G, 5L and 5M on the inboard flap support mechanism.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

C. Procedure

SUBTASK 27-51-13-860-005

(1) Do this task: Prepare for the Removal, TASK 27-51-13-860-801.

SUBTASK 27-51-13-020-002

(2) At joint 4M or 5M as applicable, disconnect the tension link [2] from the bellcrank assembly [3]:

(a) Remove the nut [13], washer [11], washer [12] and bolt [10] that attach the tension link [2] to the bellcrank assembly [3].

(b) Move the tension link [2] away from the bellcrank assembly [3].

(c) Remove the bushing [14] from the tension link [2].

SUBTASK 27-51-13-020-003

(3) At joint 4L or 5L as applicable, disconnect the tension link [2] from the drive arm [1]:

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(a) Remove the nut [9], washer [7] and pin [8] that attach the tension link [2] to the drive arm [1].

(b) Remove the tension link [2].

SUBTASK 27-51-13-020-004

(4) At joint 4B or 5B as applicable, disconnect the reaction link [6]:

(a) Remove the nut [19] and washer [17] that attach the reaction link [6] to the pin [18].

SUBTASK 27-51-13-020-005

(5) At joint 4G or 5G as applicable, disconnect the reaction link [6], bellcrank assembly [3] and carrier link [4] from the carrier beam [5]:

(a) Remove the nut [28], washers [24], washer [25], washer [29] and bolt [26] that attach the reaction link [6], bellcrank assembly [3] and carrier link [4] to the carrier beam [5].

(b) Move the reaction link [6] and the bellcrank assembly [3] off the carrier beam [5].

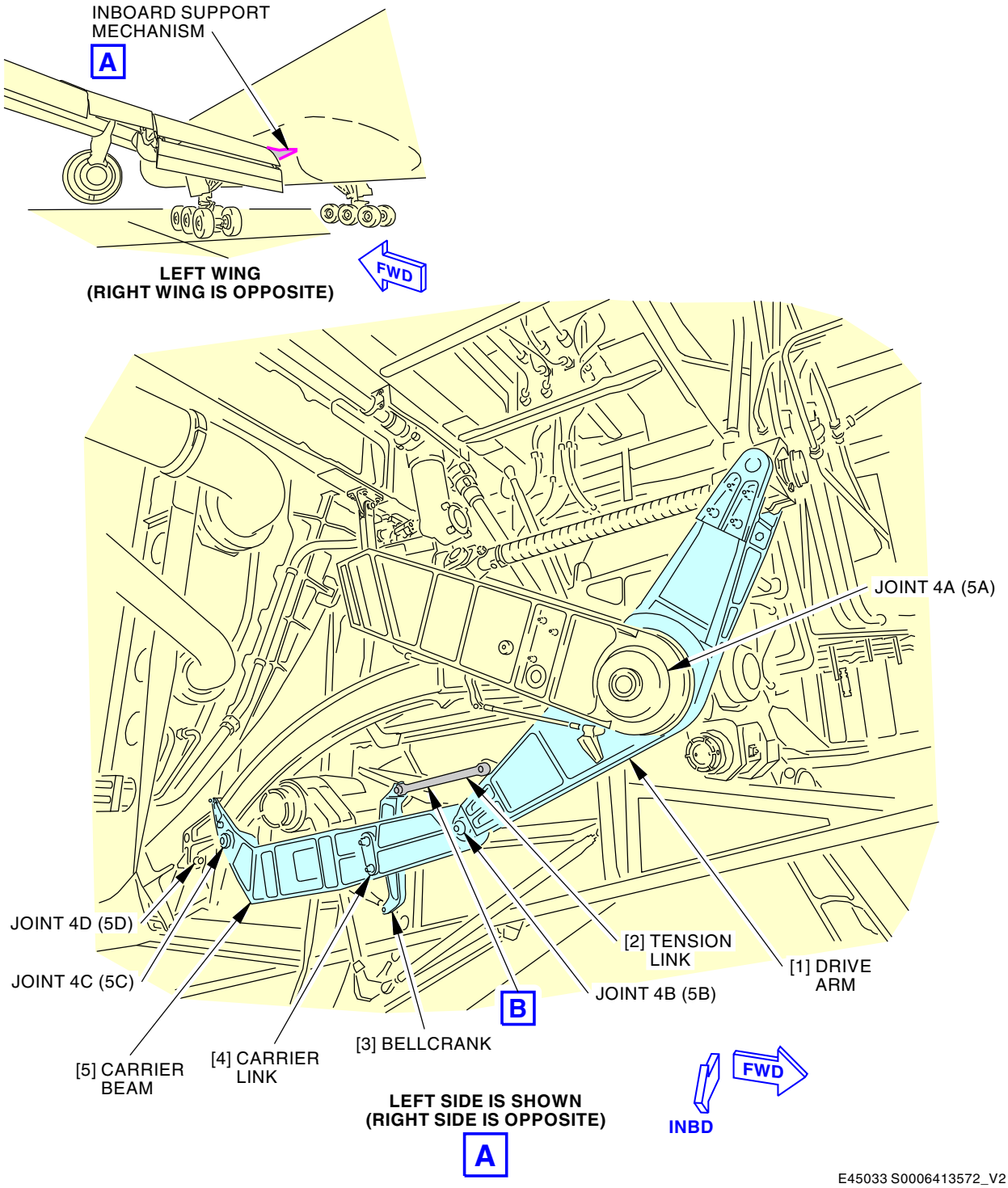
(c) Remove the bushing [23] from between the carrier beam [5] and the carrier link [4].

(d) Remove the nut [32], washer [30], washer [33] and bolt [31] that attach the carrier link [4] to the carrier beam [5].

(e) Remove the bushing [27] from the bellcrank assembly [3].

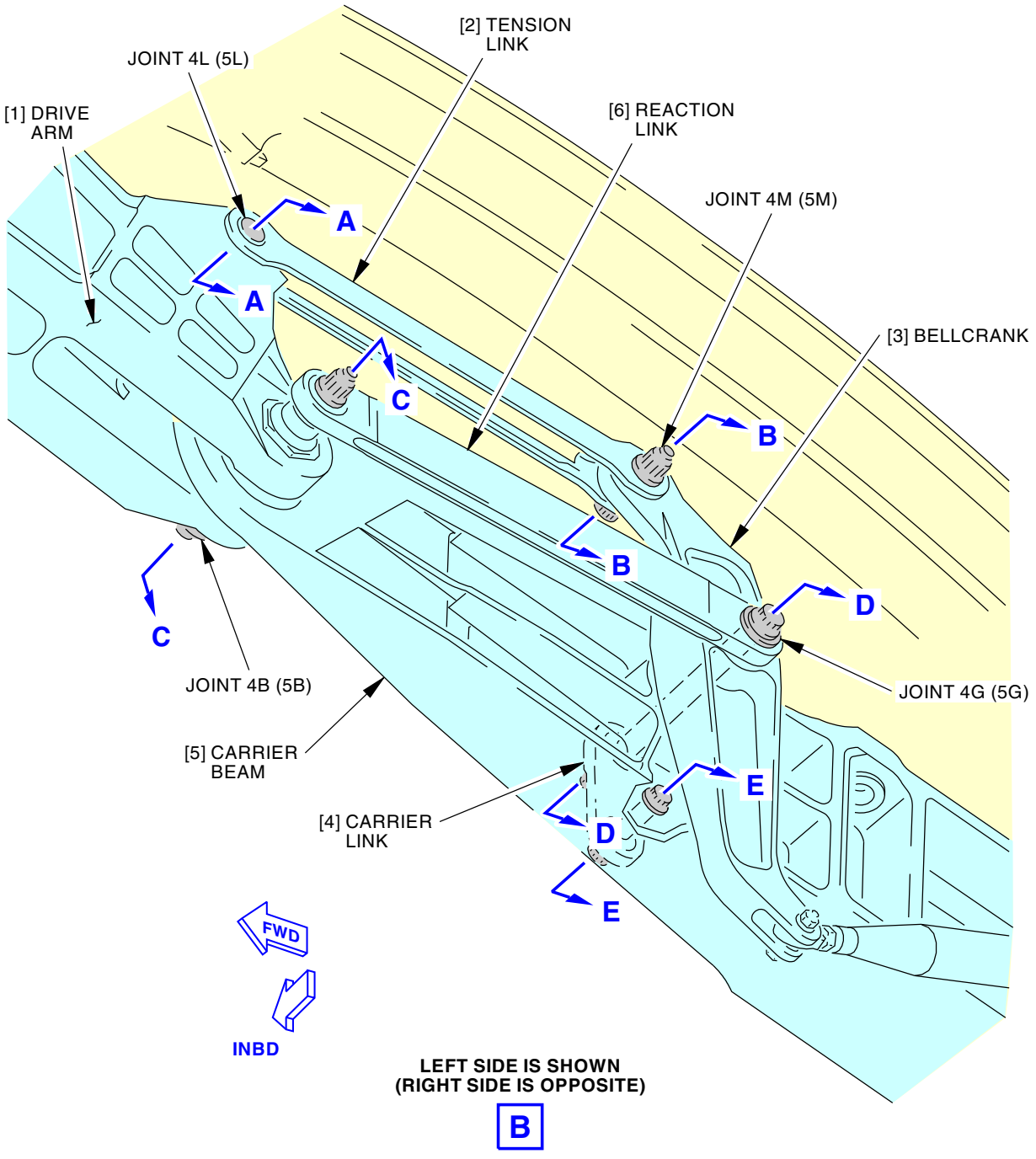
——— END OF TASK ———

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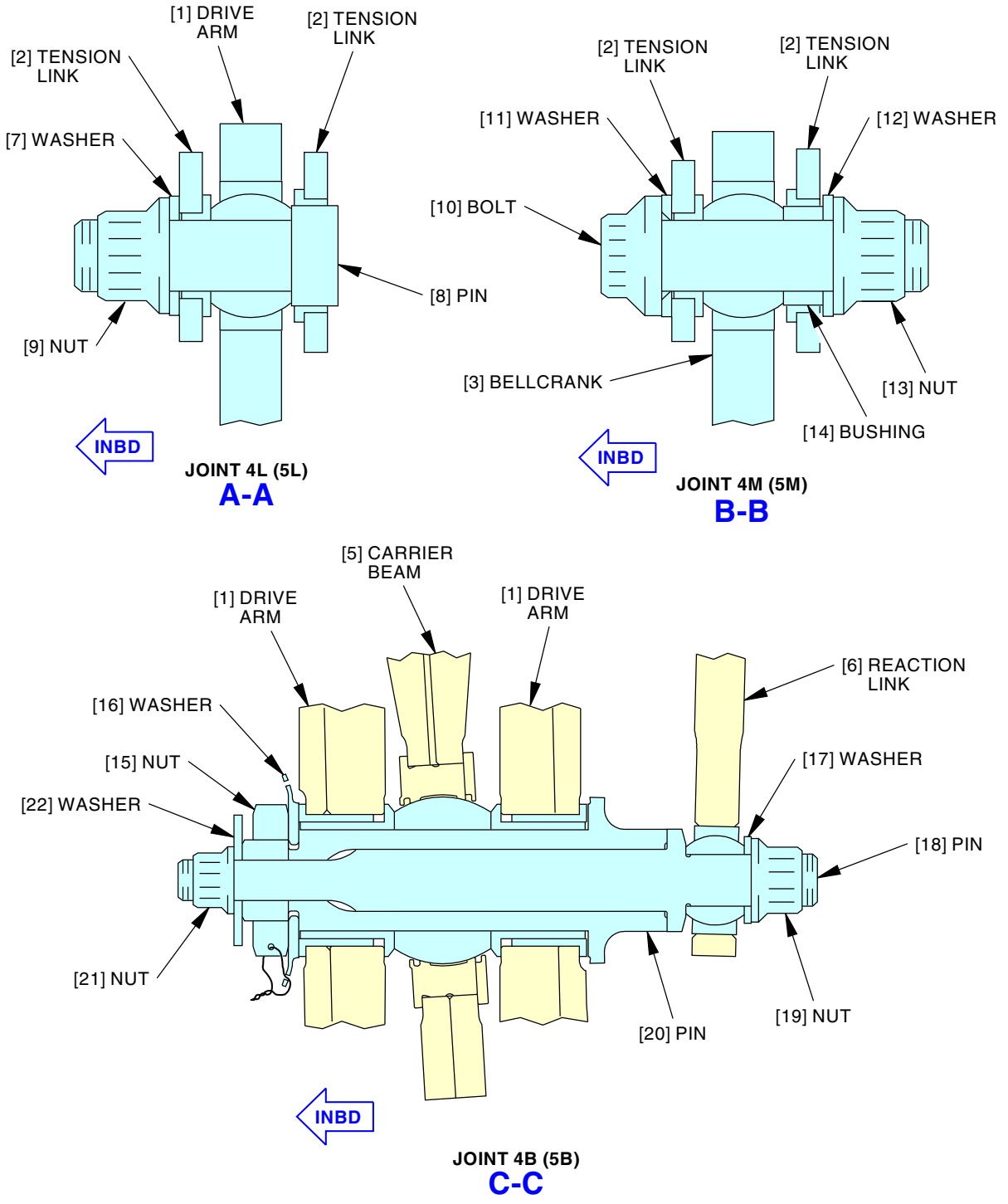
Inboard Flap Inboard Bellcrank and Drive Links Installation
Figure 401/27-51-13-990-801 (Sheet 1 of 4)

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Inboard Flap Inboard Bellcrank and Drive Links Installation
Figure 401/27-51-13-990-801 (Sheet 2 of 4)

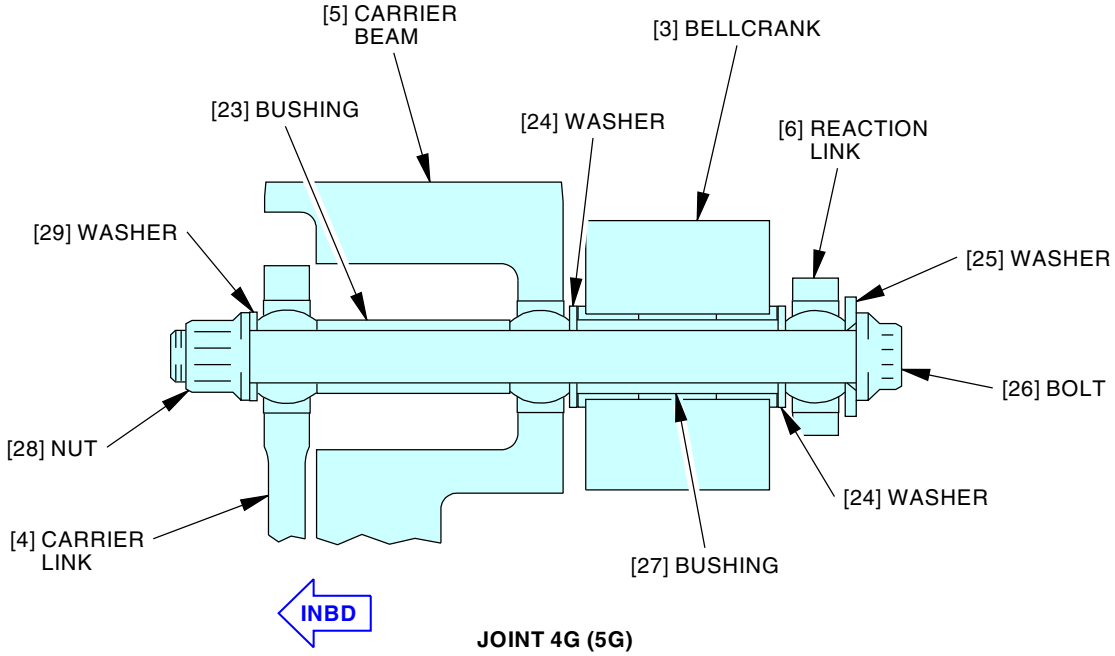
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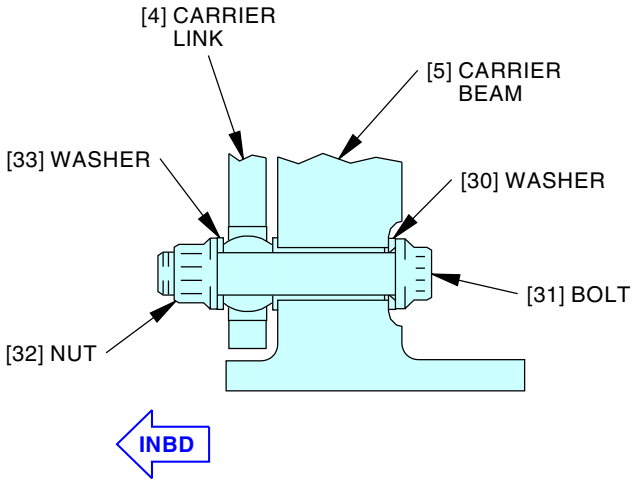
Inboard Flap Inboard Bellcrank and Drive Links Installation
Figure 401/27-51-13-990-801 (Sheet 3 of 4)

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JOINT 4G (5G)

D-D



JOINT 4G (5G)

E-E

E45876 S0006413575_V2

Inboard Flap Inboard Bellcrank and Drive Links Installation
Figure 401/27-51-13-990-801 (Sheet 4 of 4)

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TASK 27-51-13-000-802

4. Carrier Beam and Track Removal

A. General

(1) This task includes the removal of the carrier beam [5] and the track assembly [42].

(2) This task removes parts at joints 4B, 4C, 4D, 4V, 5B, 5C, 5D and 5V on the inboard flap support mechanism.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1551	Wrench - Spanner, Adapter for BACN10RF Nuts. (See ST2580-267 Drawing for correct dash number) Part #: ST2580-267 Supplier: 81205

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

D. Procedure

SUBTASK 27-51-13-860-006

(1) Do this task: Prepare for the Removal, TASK 27-51-13-860-801.

SUBTASK 27-51-13-020-006

(2) Do this task: Bellcrank and Drive Links Removal, TASK 27-51-13-000-801.

SUBTASK 27-51-13-020-007

(3) At joint 4B or 5B as applicable, disconnect the carrier beam [5] from the drive arm [1] (Figure 401):

(a) Remove the nut [21] and washer [22] from the pin [18].

(b) Remove the pin [18] from the pin [20].

(c) Remove the nut [15] and washer [16] from the pin [20].

(d) Remove the pin [20] from joint 4B or 5B as applicable, to disconnect the carrier beam [5] from the drive arm [1].

SUBTASK 27-51-13-020-008

(4) At joint 4V or 5V as applicable, disconnect the track assembly [42] from the actuator support [41] (Figure 402):

(a) Remove the nut [46], washer [44], washer [45] and bolt [48] that attach the track assembly [42] to the actuator support [41].

(b) Remove the track assembly [42] from the actuator support [41].

(c) Remove the bushing [47] from the actuator support [41].

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SUBTASK 27-51-13-020-009

(5) At joint 4D or 5D as applicable, disconnect the track assembly [42] from the track support fitting [71] (Figure 403):

(a) Remove the nut [75], washer [74], washer [77] and bolt [78] that attach the track assembly [42] to the track support fitting [71].

(b) Remove the track assembly [42] with the carrier beam [5].

(c) Remove the bushing [76] from the track assembly [42].

SUBTASK 27-51-13-020-010

(6) At joint 4C or 5C as applicable, if it is necessary, disconnect the carrier beam [5] from the track assembly [42]:

(a) Remove the nuts [94], washers [95] and bearings [96] from the pins [98] in the carrier beam [5].

(b) Remove the pins [98] and washers [99] from the carrier beam [5].

(c) Remove the nut [93], washers [91], washer [100], bolt [101] and bushing [92] from the carrier beam [5].

(d) Remove the carrier beam [5] from the track assembly [42].

SUBTASK 27-51-13-030-002

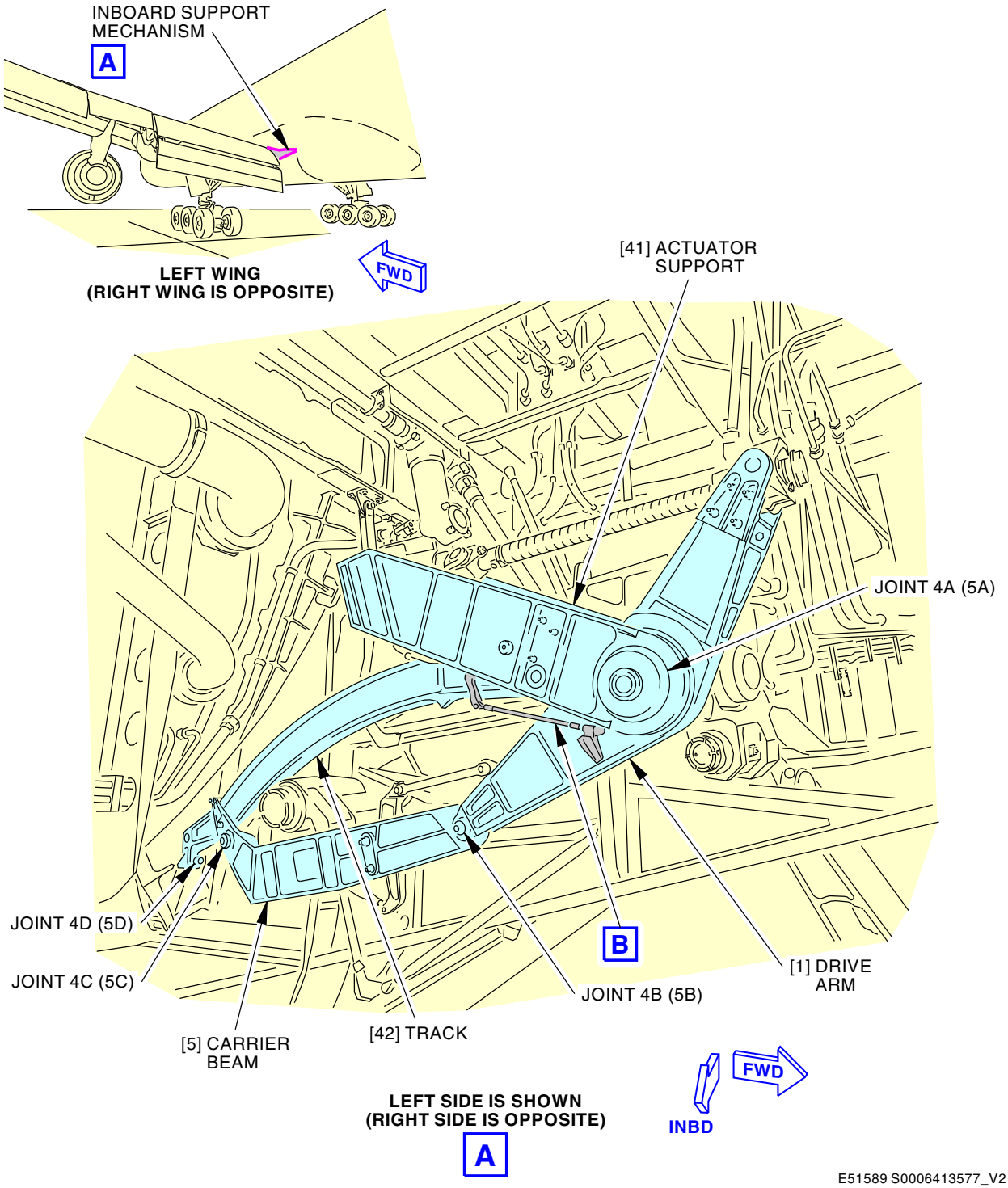
(7) At joint 4C or 5C as applicable, if it is necessary, remove the bearing [164] from the carrier beam [5]:

(a) Use a spanner wrench, SPL-1551 (where -XX is -24) to remove the nut [163].

(b) Remove the washer [162], pin [160], washer [161] and bearing [164] from the carrier beam [5].

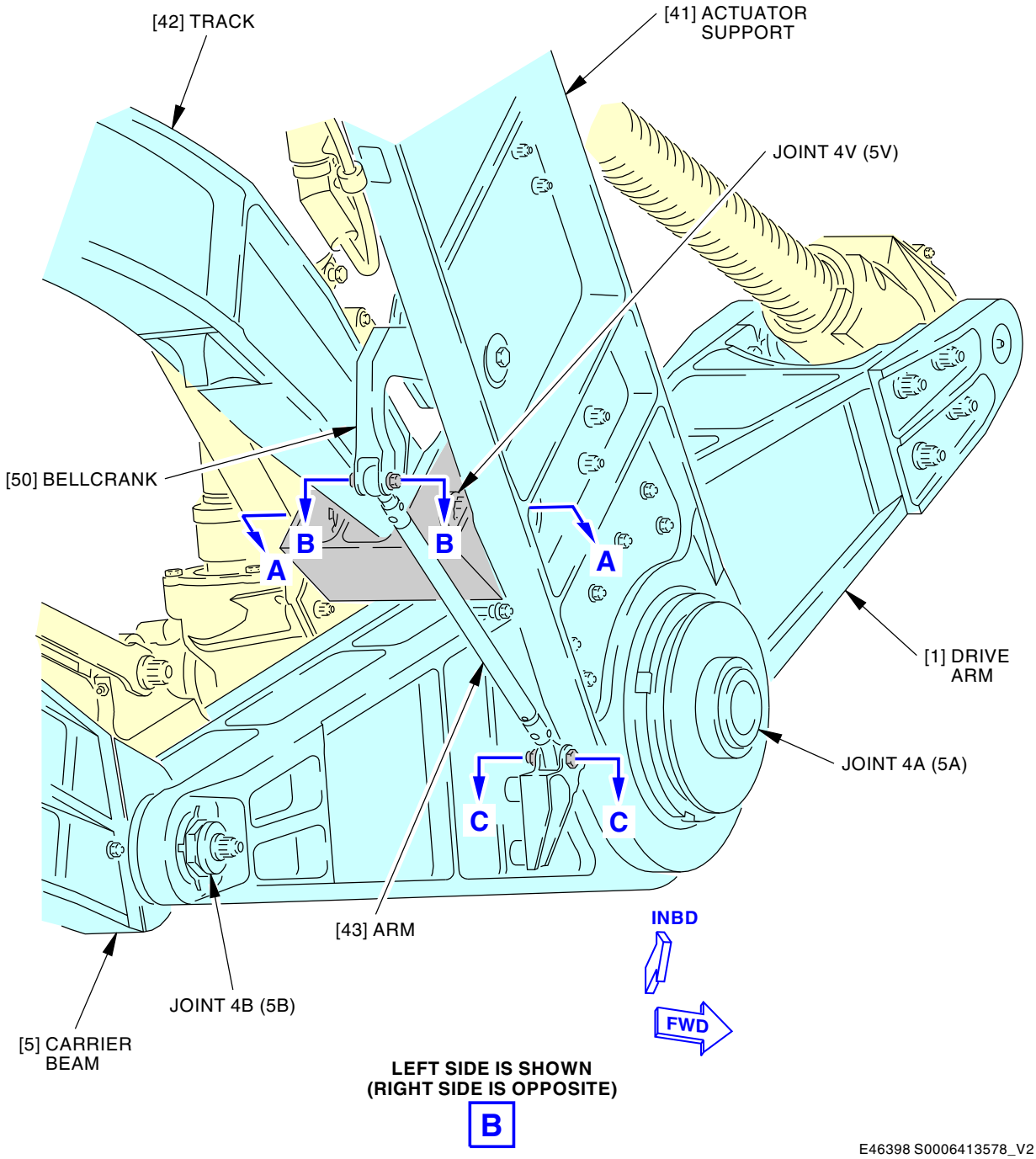
——— END OF TASK ———

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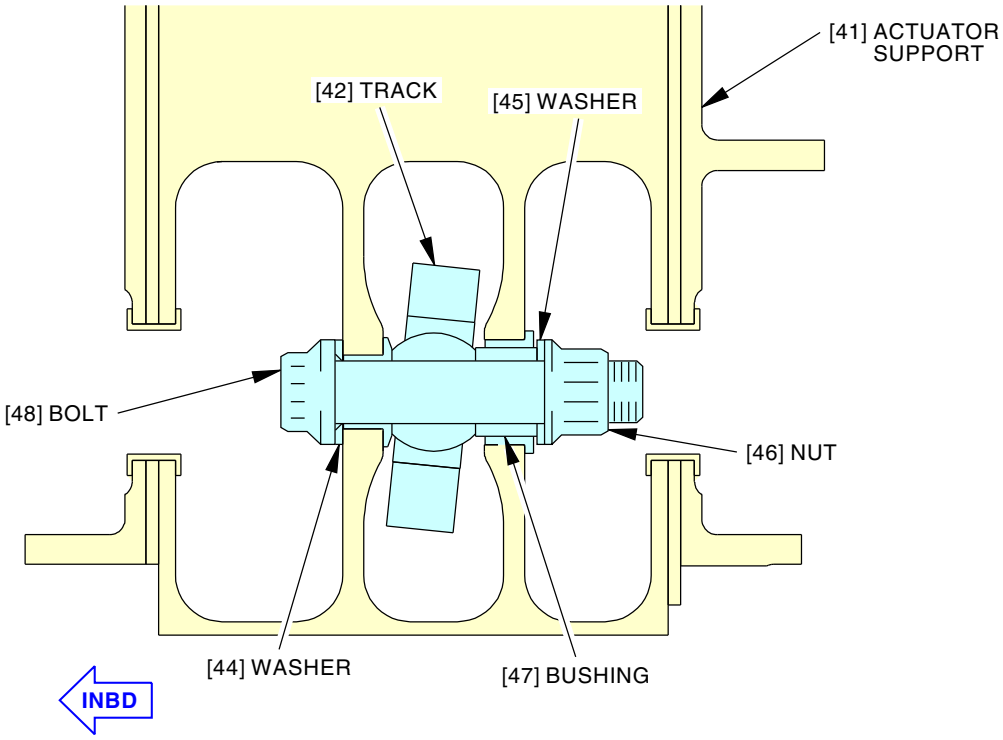
Inboard Flap Inboard Drive Arm and Track Installation
Figure 402/27-51-13-990-802 (Sheet 1 of 3)

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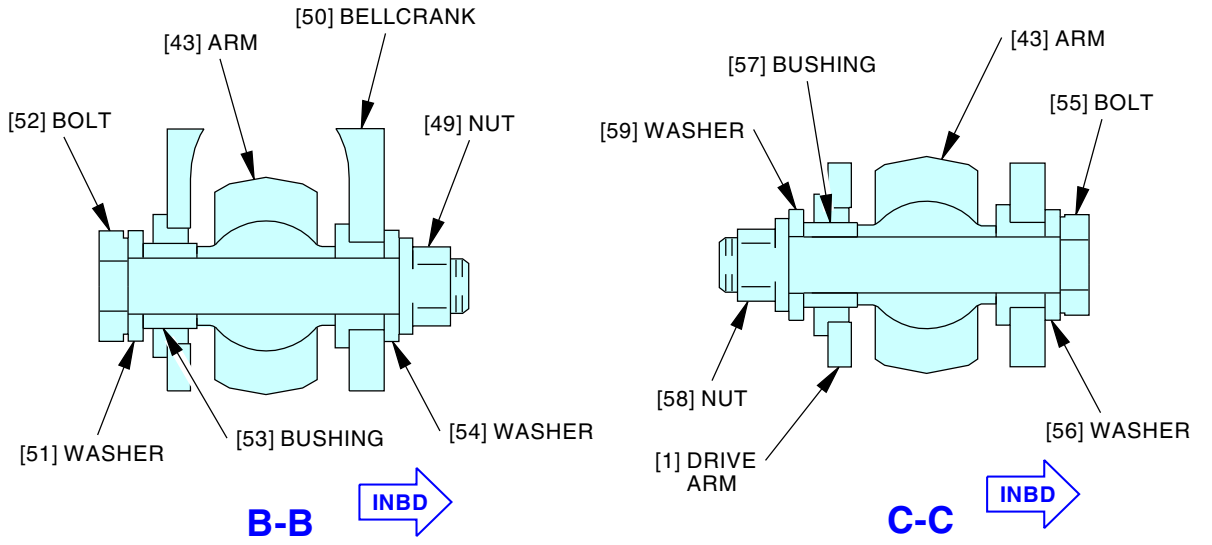


Inboard Flap Inboard Drive Arm and Track Installation
Figure 402/27-51-13-990-802 (Sheet 2 of 3)

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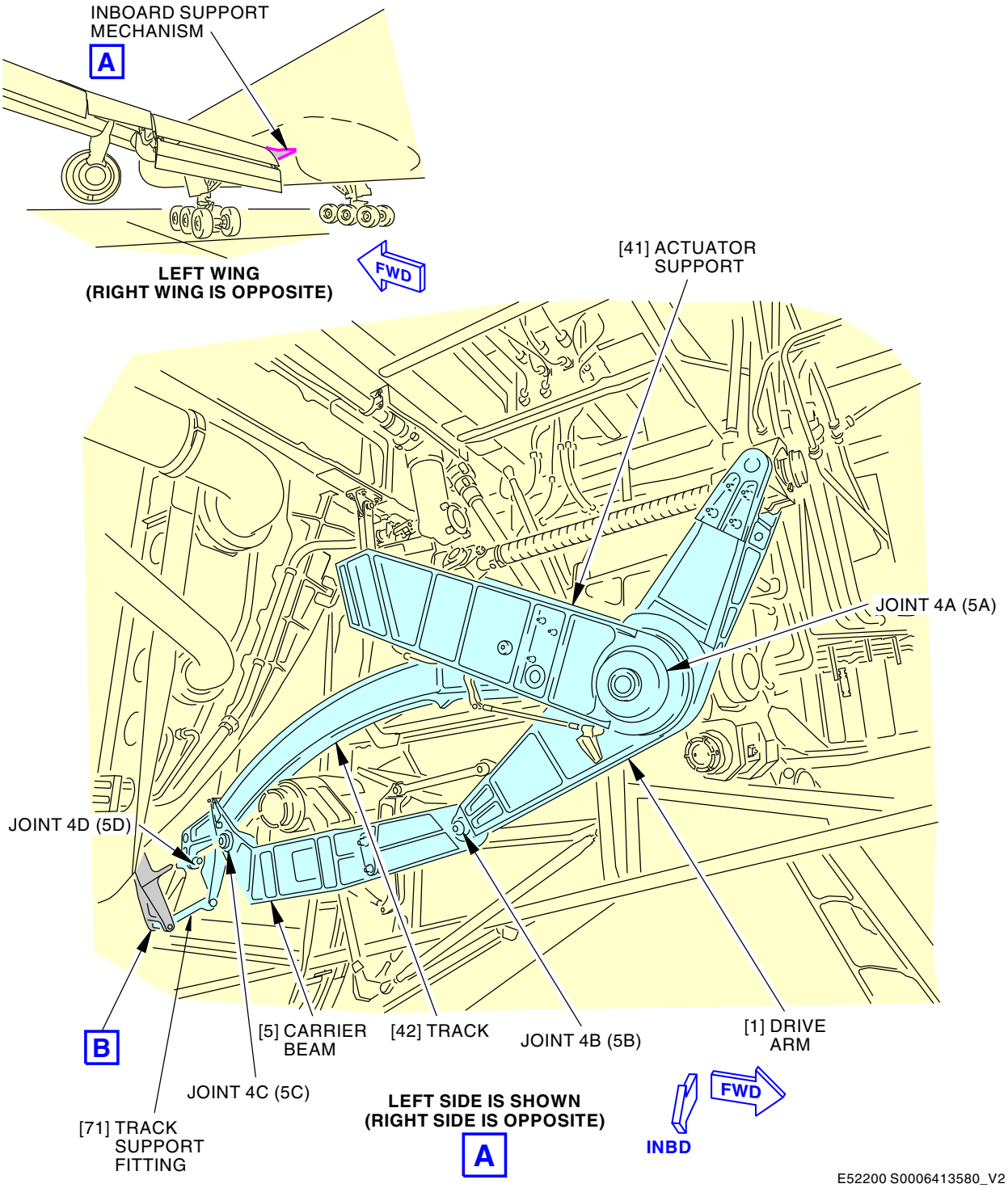


JOINT 4V (5V)
A-A



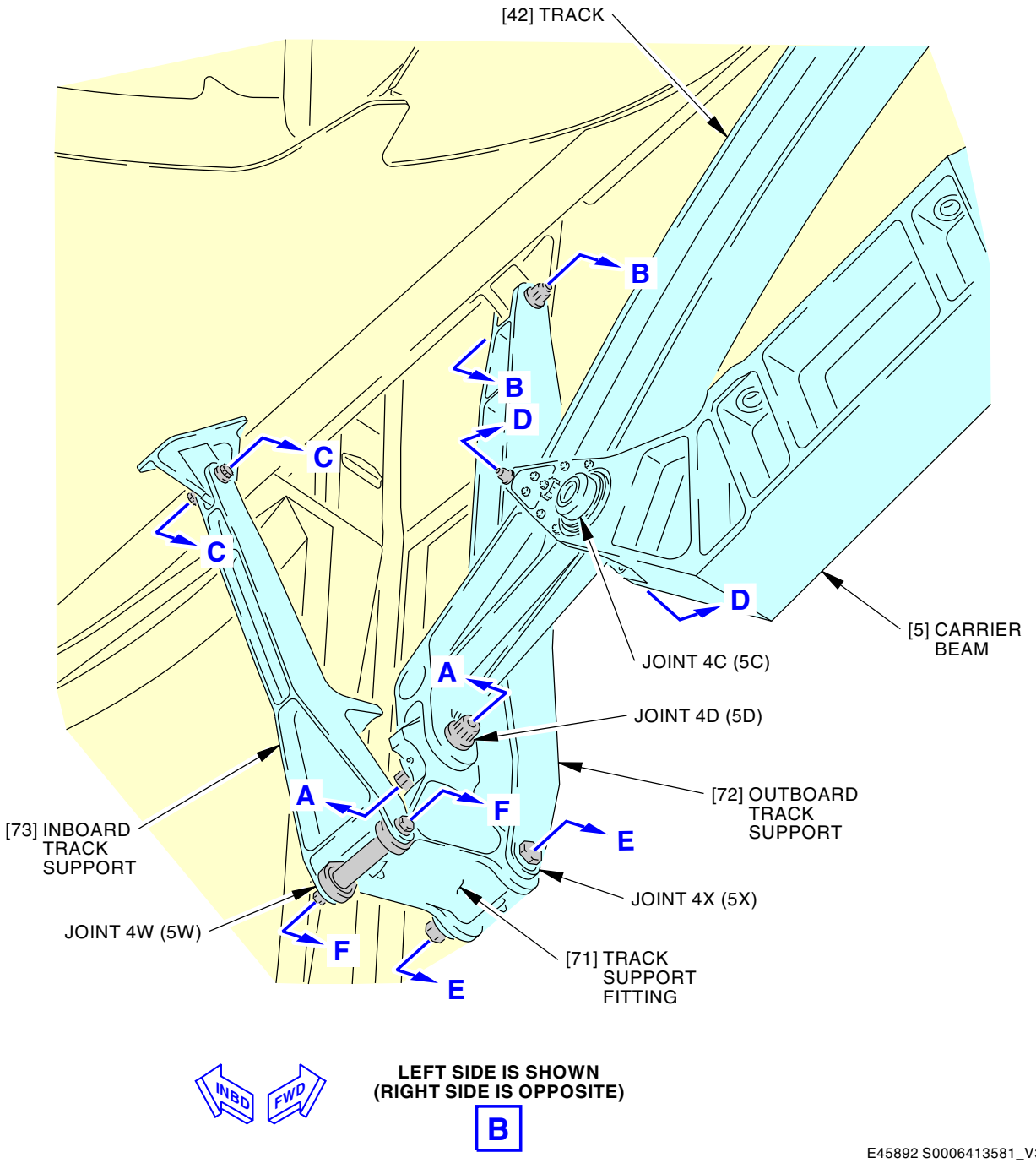
Inboard Flap Inboard Drive Arm and Track Installation
Figure 402/27-51-13-990-802 (Sheet 3 of 3)

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Inboard Flap Inboard Track Support Installation
Figure 403/27-51-13-990-803 (Sheet 1 of 5)

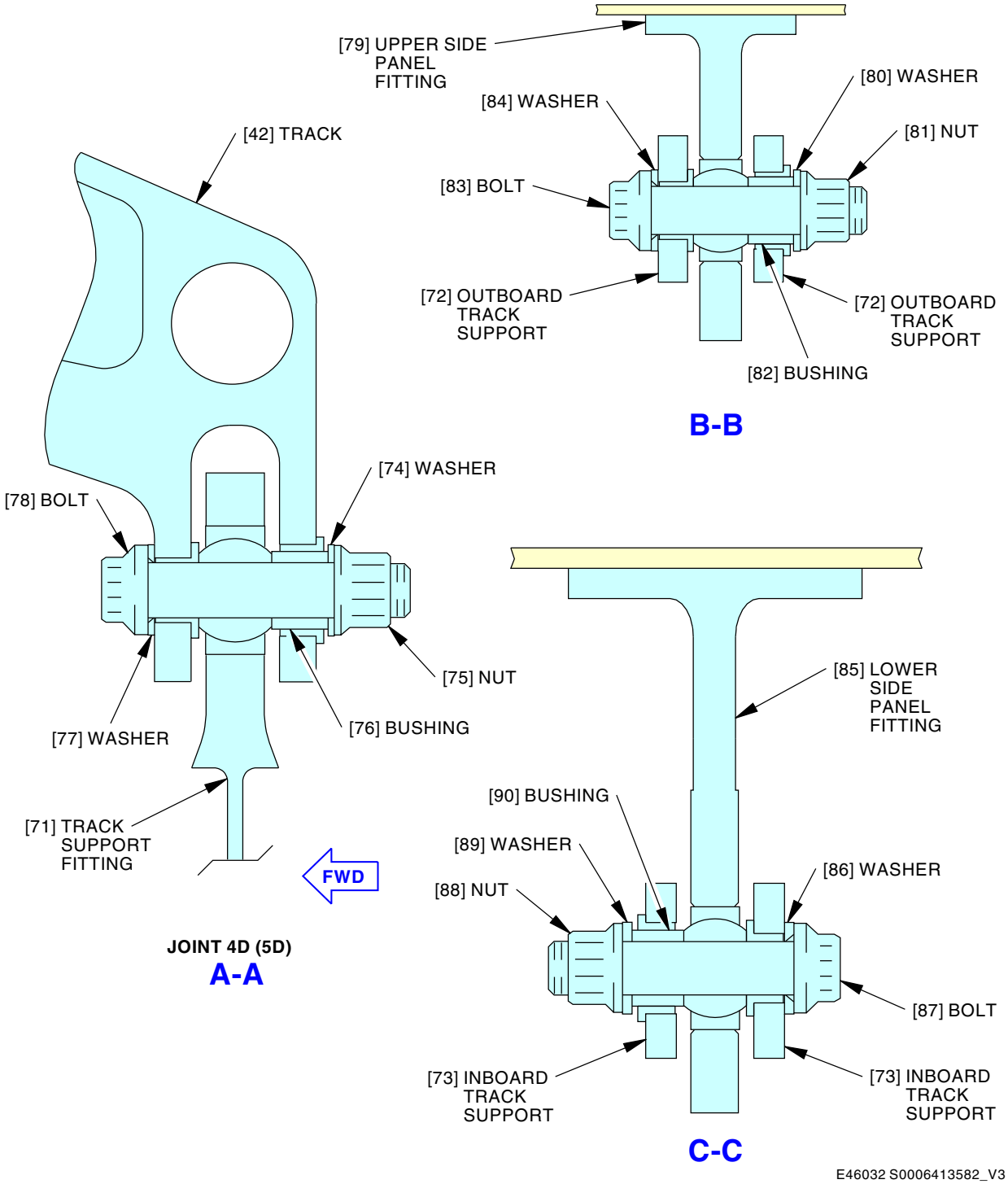
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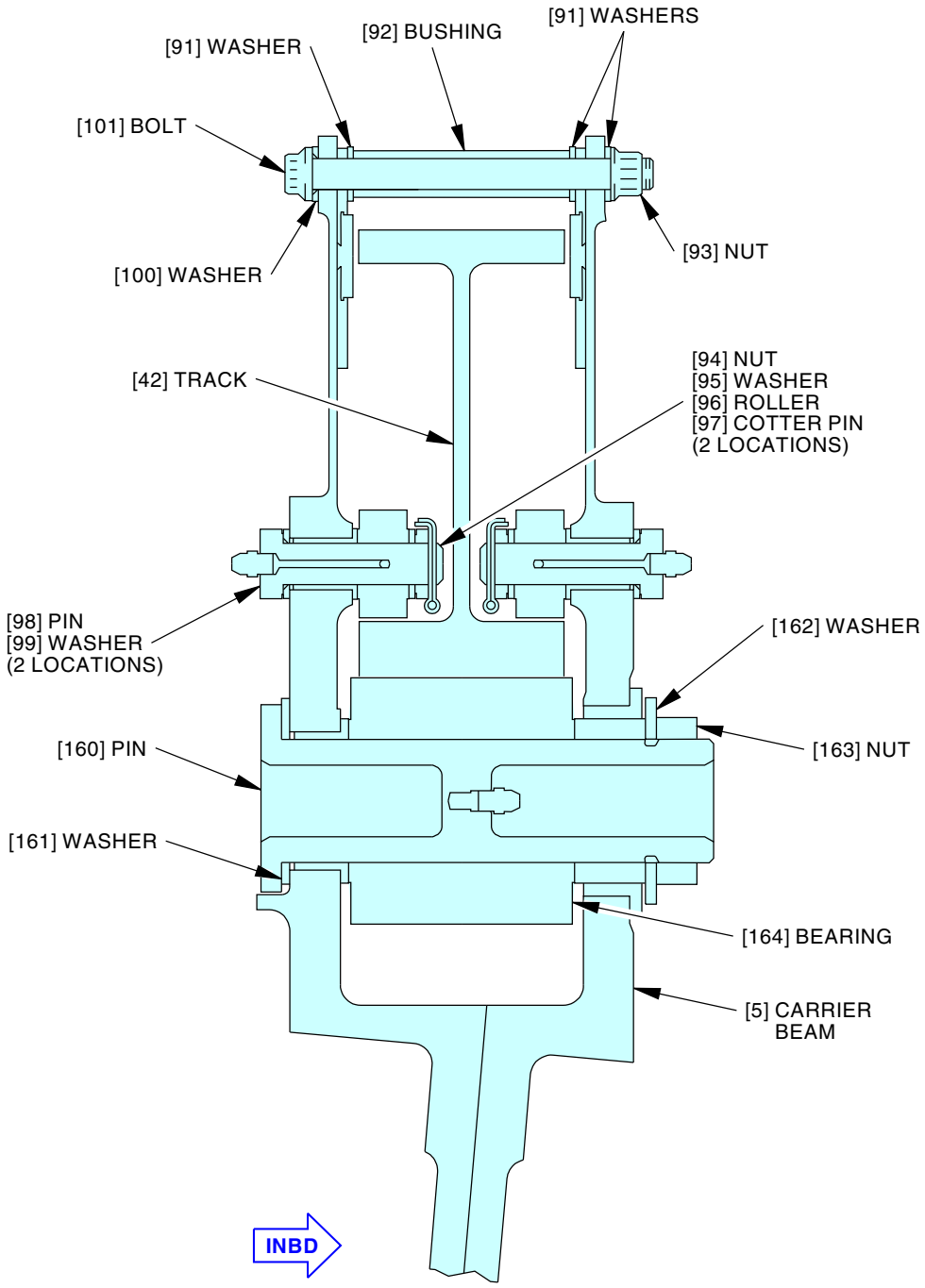
Inboard Flap Inboard Track Support Installation
Figure 403/27-51-13-990-803 (Sheet 2 of 5)

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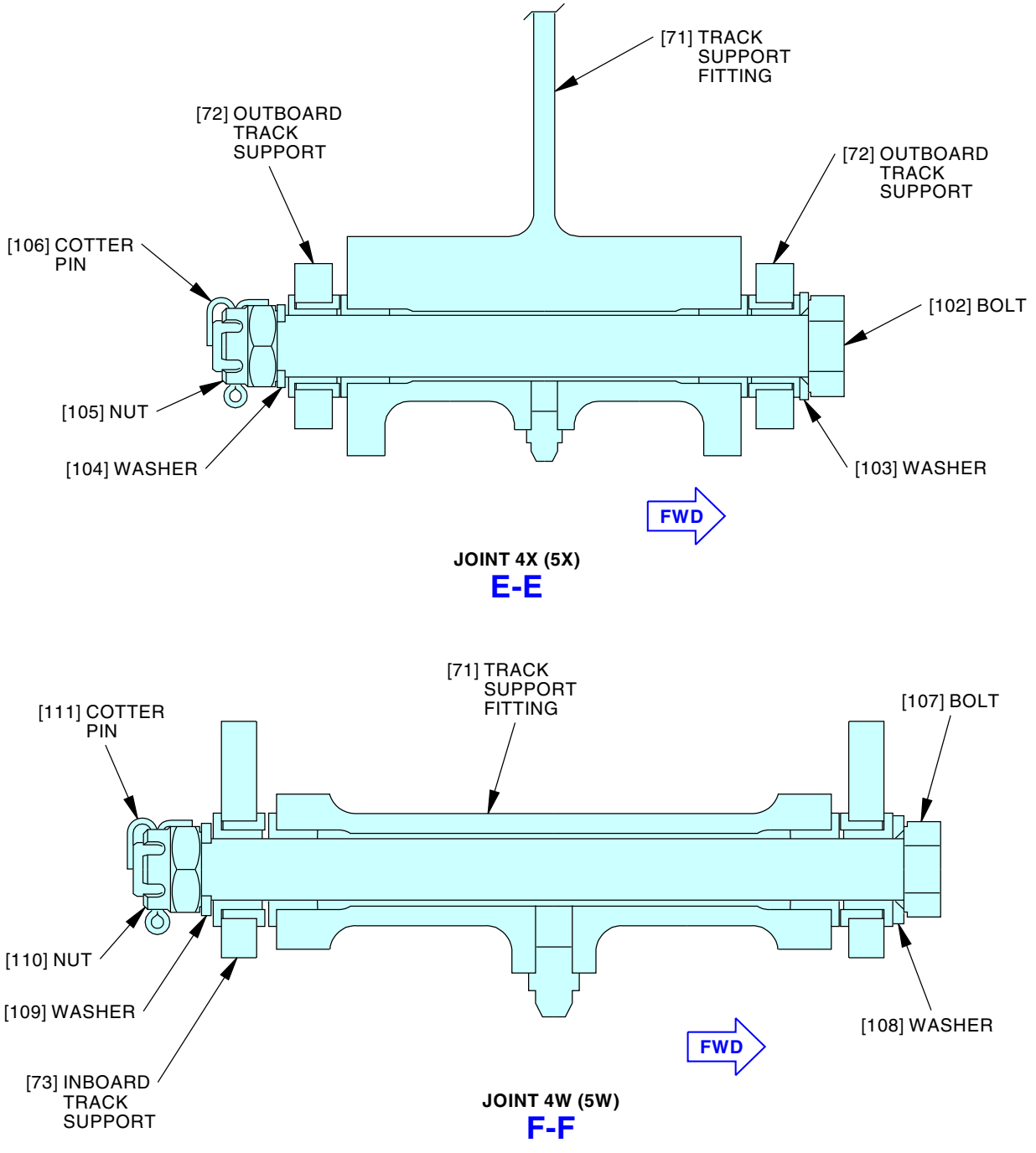
Inboard Flap Inboard Track Support Installation
Figure 403/27-51-13-990-803 (Sheet 3 of 5)

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Inboard Flap Inboard Track Support Installation
Figure 403/27-51-13-990-803 (Sheet 4 of 5)

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Inboard Flap Inboard Track Support Installation
Figure 403/27-51-13-990-803 (Sheet 5 of 5)

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TASK 27-51-13-000-803

5. Track Support Assembly Removal

(Figure 403)

A. General

(1) This task includes the removal of the track support assembly for the inboard flap support mechanism. The track support assembly includes the inboard track support [73], the outboard track support [72] and the track support fitting [71].

(2) This task removes parts at joints 4D, 4W, 4X, 5D, 5W, 5X and the side panel fittings for the inboard flap support mechanism.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

C. Procedure

SUBTASK 27-51-13-860-007

(1) Do this task: Prepare for the Removal, TASK 27-51-13-860-801.

SUBTASK 27-51-13-020-011

(2) At joint 4D or 5D as applicable, disconnect the track assembly [42] from the track support fitting [71]:

(a) Remove the nut [75], washer [74], washer [77] and bolt [78] that attach the track assembly [42] to the track support fitting [71].

(b) Remove the track assembly [42] with the carrier beam [5].

(c) Remove the bushing [76] from the track assembly [42].

SUBTASK 27-51-13-020-012

(3) Remove the outboard track support [72] from the upper side panel fitting [79]:

(a) Remove the nut [81], washer [80], washer [84] and bolt [83] and remove the outboard track support [72] from the upper side panel fitting [79].

(b) Remove the bushing [82] from the outboard track support [72].

SUBTASK 27-51-13-020-013

(4) Remove the inboard track support [73] from the lower side panel fitting [85]:

(a) Remove the nut [88], washer [86], washer [89] and bolt [87] and remove the inboard track support [73] from the lower side panel fitting [85].

(b) Move the bushing [90] from the inboard track support [73].

SUBTASK 27-51-13-020-014

(5) If it is necessary, remove the inboard track support [73] and the outboard track support [72] from the track support fitting [71]:

(a) At joint 4X or 5X as applicable, remove the nut [105], washer [103], washer [104] and bolt [102] and remove the outboard track support [72] from the track support fitting [71].

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(b) At joint 4W or 5W as applicable, remove the nut [110], washer [108], washer [109] and bolt [107] and remove the inboard track support [73] from the track support fitting [71].

——— END OF TASK ———

TASK 27-51-13-000-804

6. Actuator Support and Drive Arm Removal

A. General

(1) This task includes the removal of the actuator support [41], drive arm [1], floor beam link [121], landing gear beam extension [131] and failsafe spindle [132].

(2) This task removes parts at joints 4A, 4B, 4AA, 4BB, 5A, 5B, 5AA and 5BB for the inboard flap support mechanism.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. References

Reference	Title
27-51-15-000-801	Inboard Flap Inboard Transmission Removal (P/B 401)
27-51-35-000-801	TE Flap Side of Body Angle Gearbox Removal (P/B 401)
27-59-01-000-809-002	Inboard Flap Inboard Skew Sensor - Removal (P/B 401)

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

D. Procedure

SUBTASK 27-51-13-860-008

(1) Do this task: Prepare for the Removal, TASK 27-51-13-860-801.

SUBTASK 27-51-13-020-015

(2) Do this task: Inboard Flap Inboard Skew Sensor - Removal, TASK 27-59-01-000-809-002.

SUBTASK 27-51-13-020-016

(3) Do this task: Inboard Flap Inboard Transmission Removal, TASK 27-51-15-000-801.

SUBTASK 27-51-13-020-017

(4) Do this task: TE Flap Side of Body Angle Gearbox Removal, TASK 27-51-35-000-801.

SUBTASK 27-51-13-020-018

(5) Do this task: Carrier Beam and Track Removal, TASK 27-51-13-000-802.

SUBTASK 27-51-13-020-019

(6) Remove the rod assembly [43] for the flap skew sensors (Figure 402):

(a) Remove the nut [49], washer [51], washer [54] and bolt [52] to disconnect the rod assembly [43] from the bellcrank [50].

(b) Remove the bushing [53] from the bellcrank [50].

(c) Remove the nut [58], washer [56], washer [59] and bolt [55] to disconnect the rod assembly [43] from the drive arm [1].

(d) Remove the bushing [57] from the drive arm [1].

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SUBTASK 27-51-13-020-020

(7) Remove the floor beam link [121] (Figure 404):

(a) At joint 4AA or 5AA as applicable, remove the nut [128], washer [124], washer [129] and bolt [123] to disconnect the floor beam link [121] from the fitting assembly [153].

(b) At joint 4BB or 5BB as applicable, remove the nut [128], washer [124], washer [129] and bolt [123] to disconnect the floor beam link [121] from the actuator support [41].

(c) Remove the bushings [127] from the floor beam link [121].

SUBTASK 27-51-13-020-021

(8) At joint 4A or 5A as applicable, disconnect the landing gear beam extension [131] and the failsafe spindle [132] from the landing gear beam [130]:

(a) Remove the nuts [140], retainers [136], retainers [139] and bolts [135] from the pins [134].

(b) Remove the nuts [138] and washer [141] from the pins [134].

(c) Remove the pins [134], washers [133] and the sleeves [137] from the landing gear beam [130].

(d) Remove the landing gear beam extension [131] and the failsafe spindle [132] with the drive arm [1] and the actuator support [41].

SUBTASK 27-51-13-020-022

(9) At joint 4A or 5A as applicable, if it is necessary, remove the failsafe spindle [132], actuator support [41] and drive arm [1] from the landing gear beam extension [131]:

(a) Remove the nut [142] and washer [143] and remove the failsafe spindle [132] from the landing gear beam extension [131].

(b) Remove the nut [144] and washer [145] from the landing gear beam extension [131].

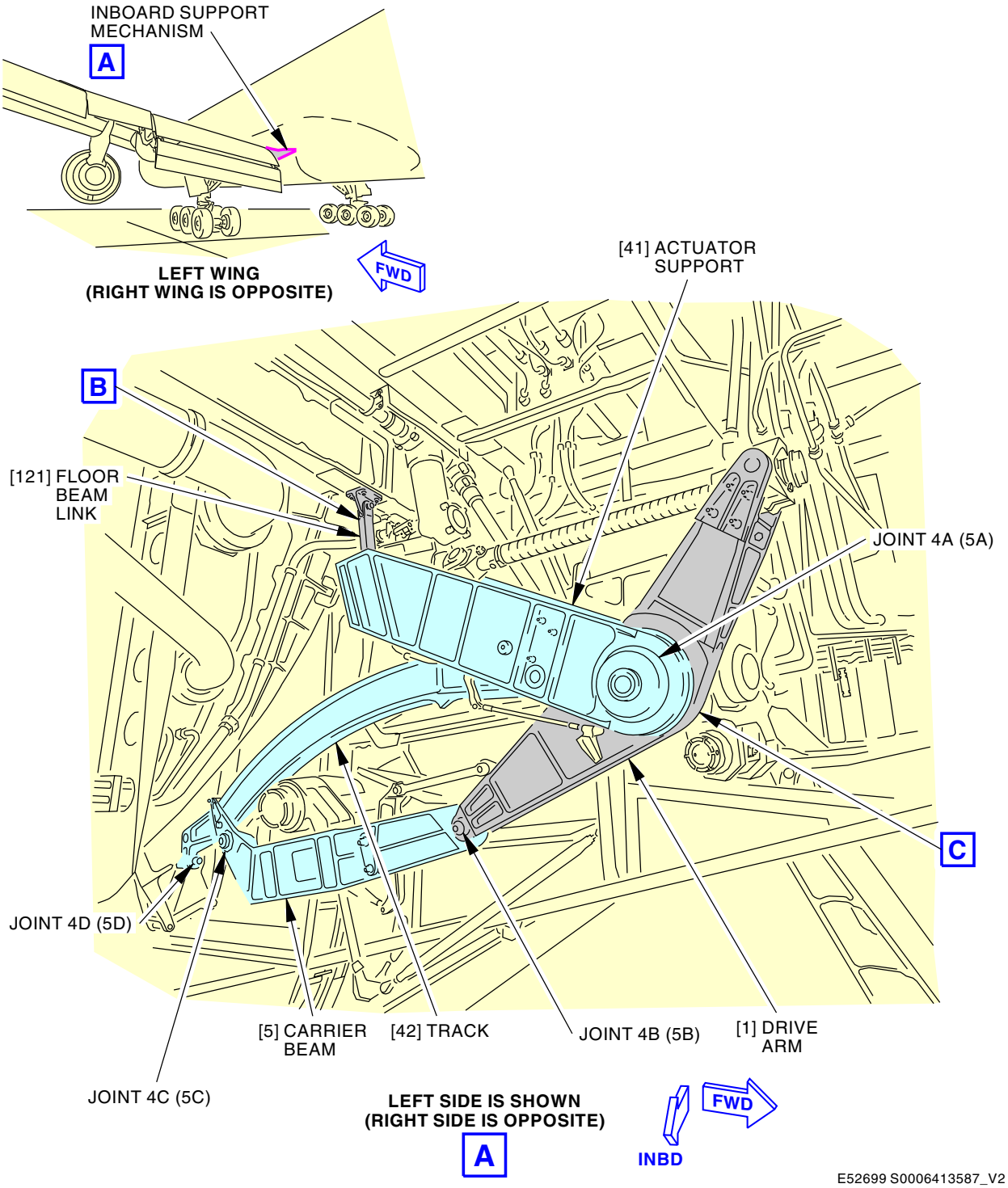
(c) Remove the actuator support [41], drive arm [1] and washers [146] from the landing gear beam extension [131].

(d) Remove the bushing [148] and bushing [152] from the actuator support [41].

(e) Remove the bearings [150] and bushing [147] and bushing [151] from the drive arm [1].

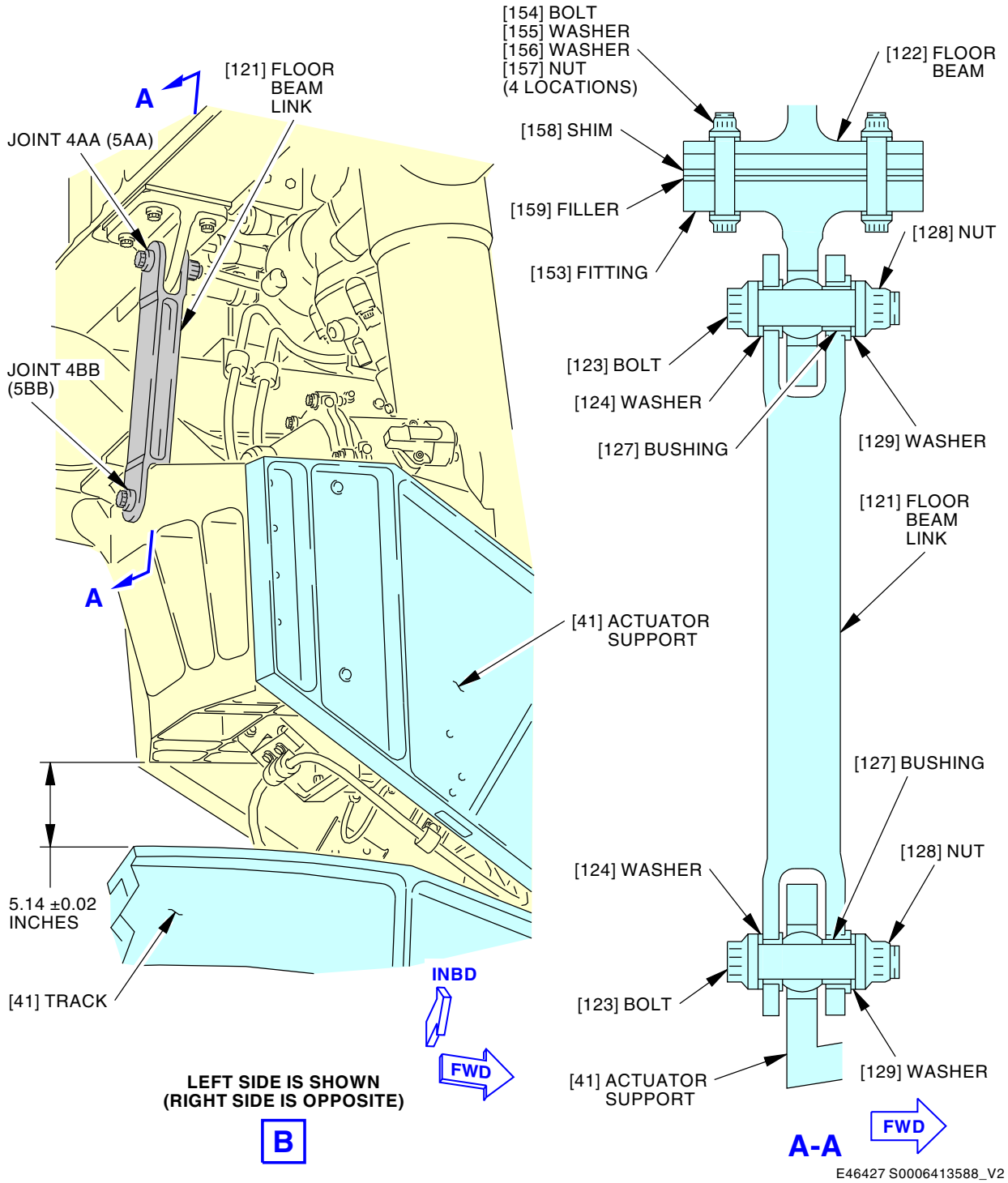
——— END OF TASK ———

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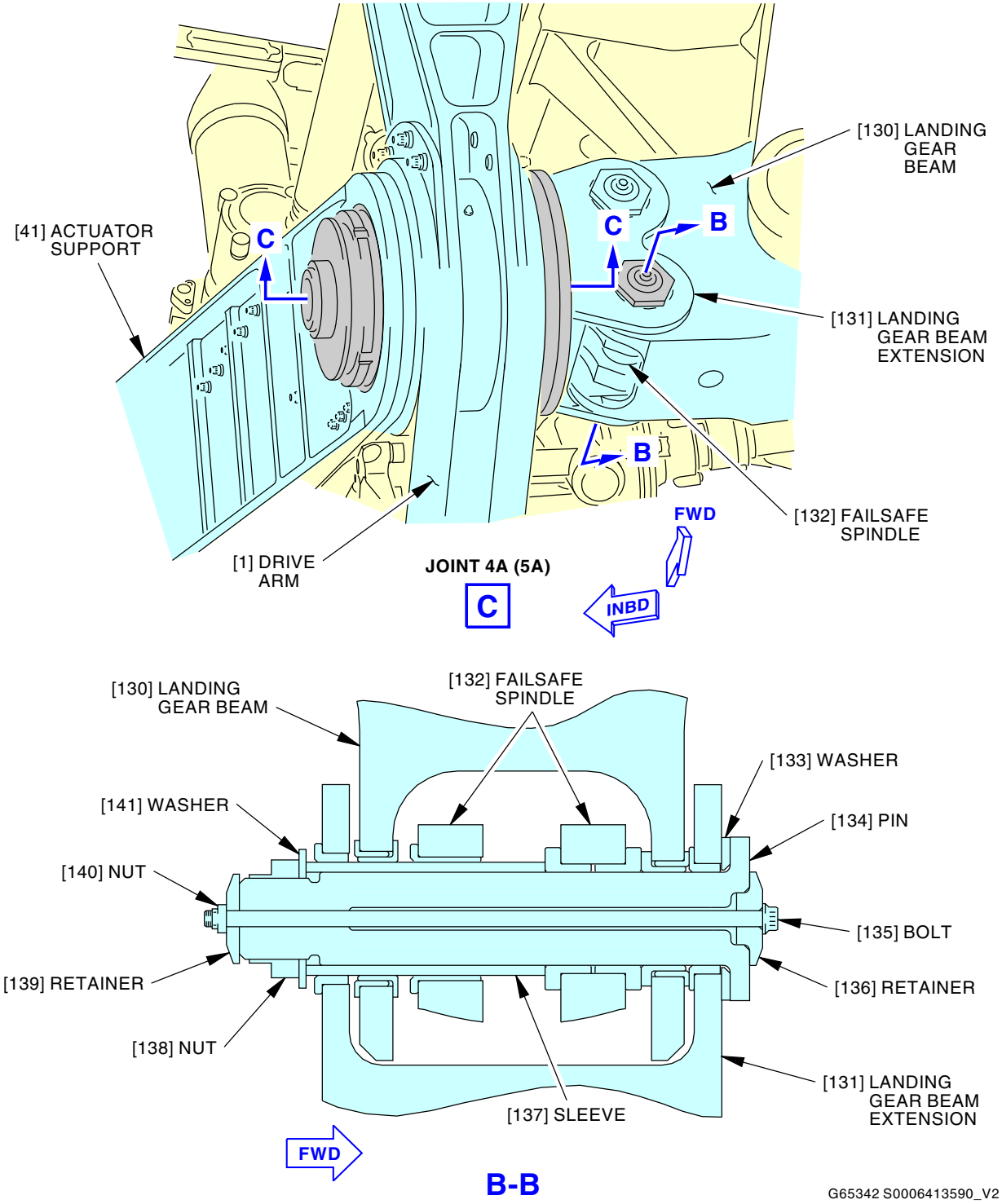
Inboard Flap Inboard Actuator Support Installation
Figure 404/27-51-13-990-804 (Sheet 1 of 4)

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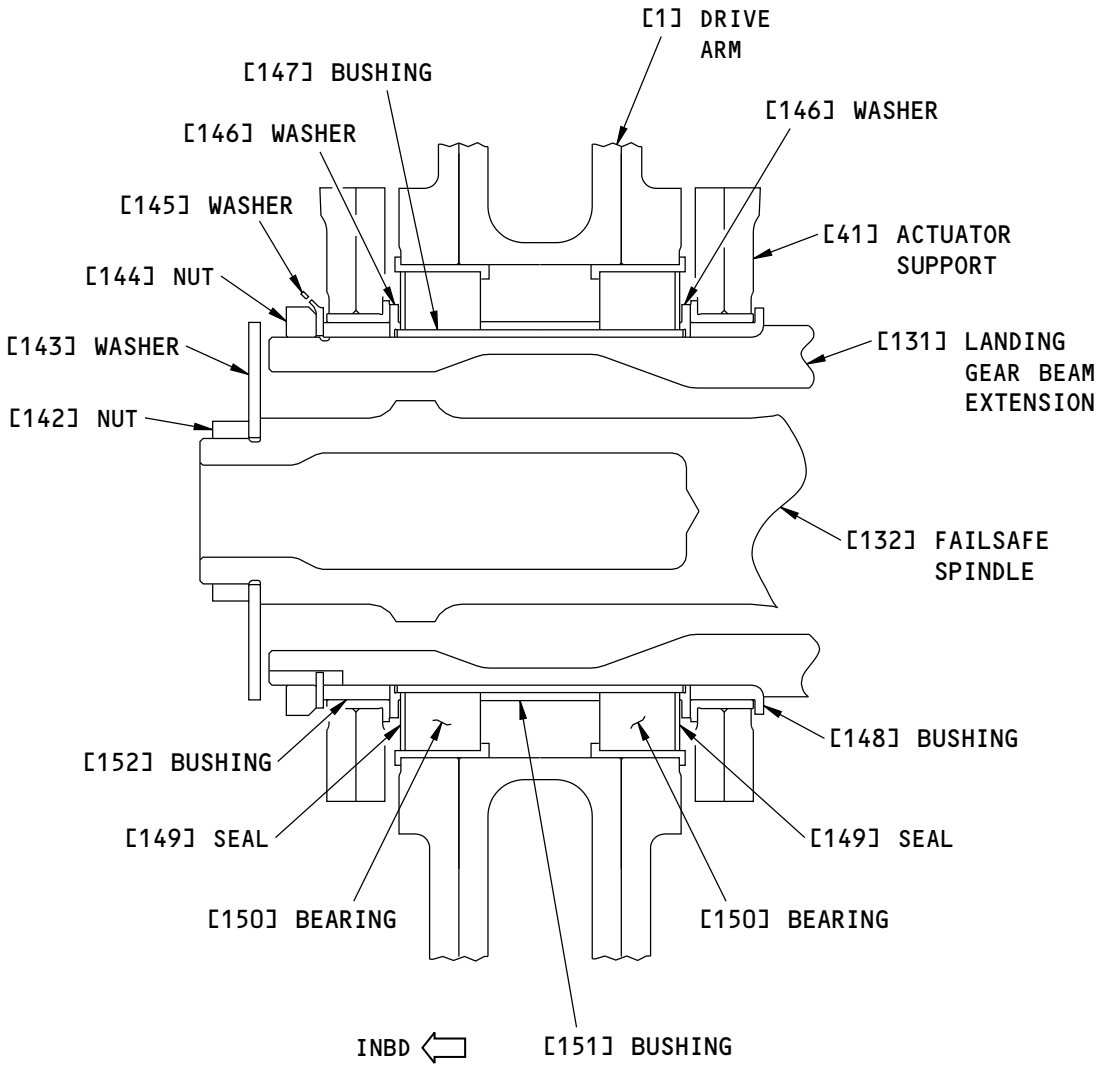
Inboard Flap Inboard Actuator Support Installation
Figure 404/27-51-13-990-804 (Sheet 2 of 4)

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Inboard Flap Inboard Actuator Support Installation
Figure 404/27-51-13-990-804 (Sheet 3 of 4)

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Inboard Flap Inboard Actuator Support Installation
Figure 404/27-51-13-990-804 (Sheet 4 of 4)

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TASK 27-51-13-000-805

7. Support Torque Tube Removal

(Figure 405)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task includes the removal of the support torque tube [165].

B. References

Reference	Title
20-10-23-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-14111	Spanner Wrench - Torque Tube, Inboard Main Flap Part #: J27074-1 Supplier: 81205

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

E. Access Panels

Number	Name/Location
555AT	Inboard Main Flap Leading Edge Panel
655AT	Inboard Main Flap Leading Edge Panel

F. Procedure

SUBTASK 27-51-13-860-016

(1) Do this task: Prepare for the Removal, TASK 27-51-13-860-801.

SUBTASK 27-51-13-010-001

(2) Open these access panels:

Number	Name/Location
555AT	Inboard Main Flap Leading Edge Panel
655AT	Inboard Main Flap Leading Edge Panel

SUBTASK 27-51-13-020-024

(3) Remove the two bolts [166], four washers [167] and two nuts [168] OR remove the bolt [196], washer [197] and nut [198] as applicable.

(a) Remove the lockwire [194] (Lockwire, Cotter Pins, and Lockrings - Removal, TASK 20-10-23-000-801).

NOTE: There should not be lockwire [194] on the twin bolt set up; if there is, discard the lockwire [194] and do not re-apply on installation of the twin bolt set up. The single bolt set up should have lockwire [194] installed as per Figure 405.

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SUBTASK 27-51-13-020-033

(4) Remove the nut [192], washer [191], washer [190] and cross bolt [189] from the drive crank [181].

(a) Remove the lockwire [194] (Lockwire, Cotter Pins, and Lockrings - Removal, TASK 20-10-23-000-801).

SUBTASK 27-51-13-020-025

(5) Remove the nut [169], washer [170], packing [171], nut [172], spacer [173], washer [174] and seal [175] from the support torque tube [165] with spanner wrench, SPL-14111.

(a) Remove the lockwire [194] (Lockwire, Cotter Pins, and Lockrings - Removal, TASK 20-10-23-000-801).

SUBTASK 27-51-13-020-026

(6) Remove the two carrier beam fittings [176] from the support torque tube [165].

SUBTASK 27-51-13-020-027

(7) Remove the drive crank support [179] and packing [180] from the support torque tube [165].

NOTE: The drive crank support [179] part number 113W2154-9/113W2154-10 includes the washer [177] in the design, and does not require the installation of the strap [178].

(a) For drive crank support [179] part number 113W2154-5 /113W2154-6: Remove the strap [178] and washer [177] from the support torque tube [165].

(b) For drive crank support [179] part number 113W2154–1/113W2154–2: Remove the strap [178] and the washer [177] from the support torque tube [165].

SUBTASK 27-51-13-020-028

(8) Remove the drive crank [181].

SUBTASK 27-51-13-020-029

(9) Remove the two bolts [182], two washers [183], two washers [184] and two nuts [185] from the retainer fitting [186].

NOTE: The two nuts [185] can be accessed through an opening after access panel 555AT (655AT) has been removed.

SUBTASK 27-51-13-020-030

(10) Remove the retainer fitting [186].

(a) Remove the seal [187] and packing [195].

(b) Remove the shim [188].

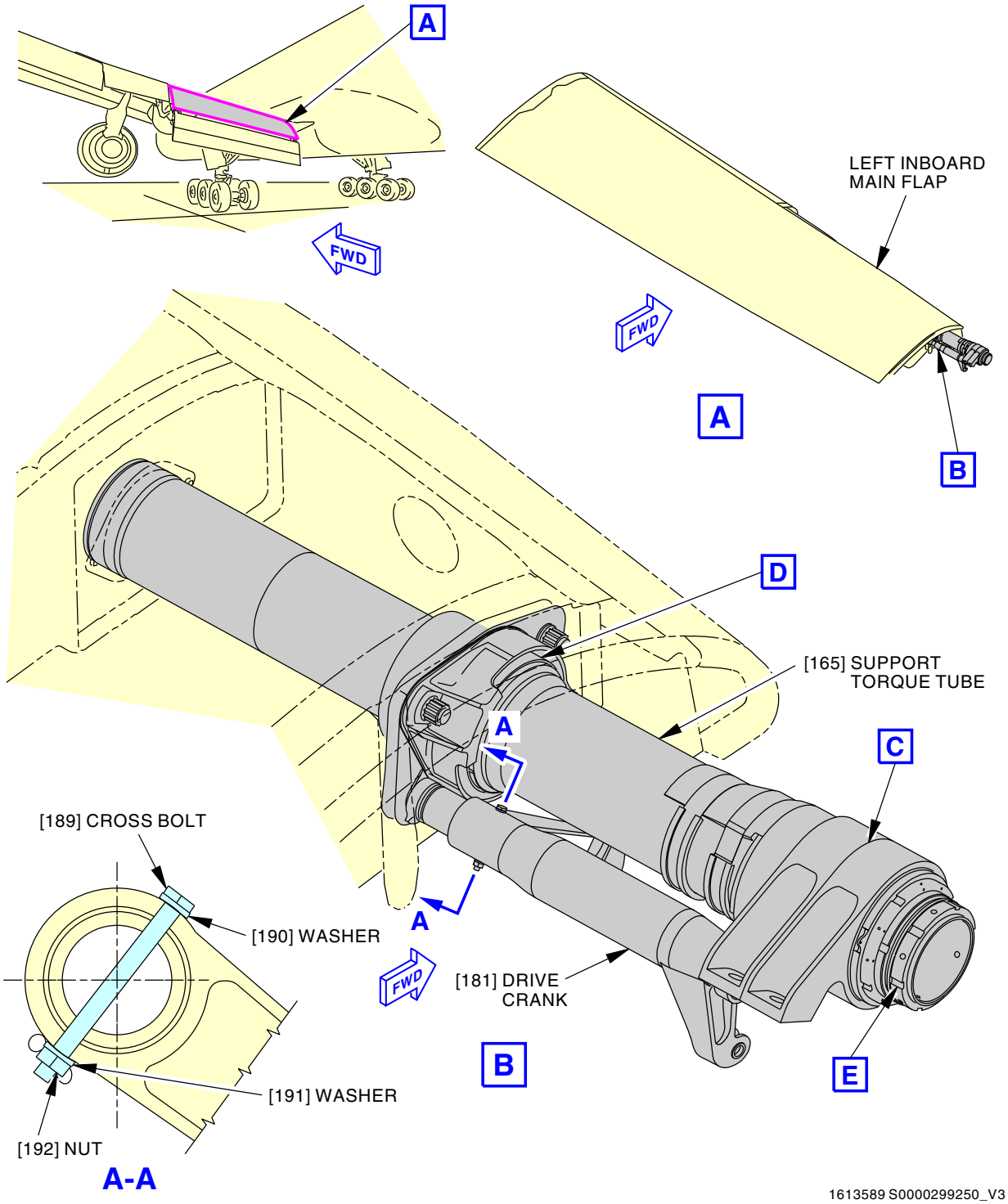
SUBTASK 27-51-13-020-031

(11) Remove the support torque tube [165].

NOTE: Slide the torque tube off of the shear tube.

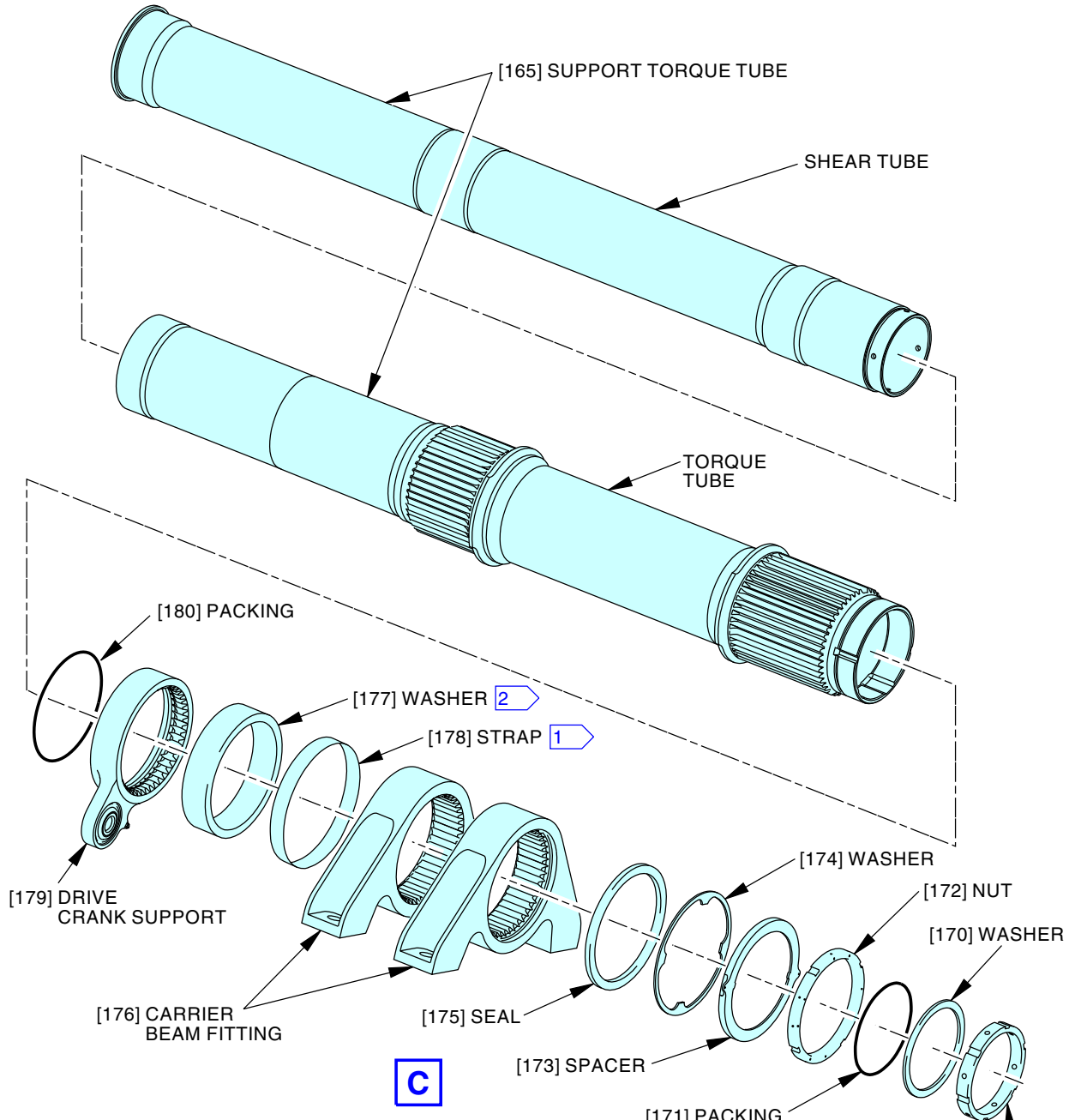
END OF TASK

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Support Torque Tube Installation
Figure 405/27-51-13-990-807 (Sheet 1 of 4)

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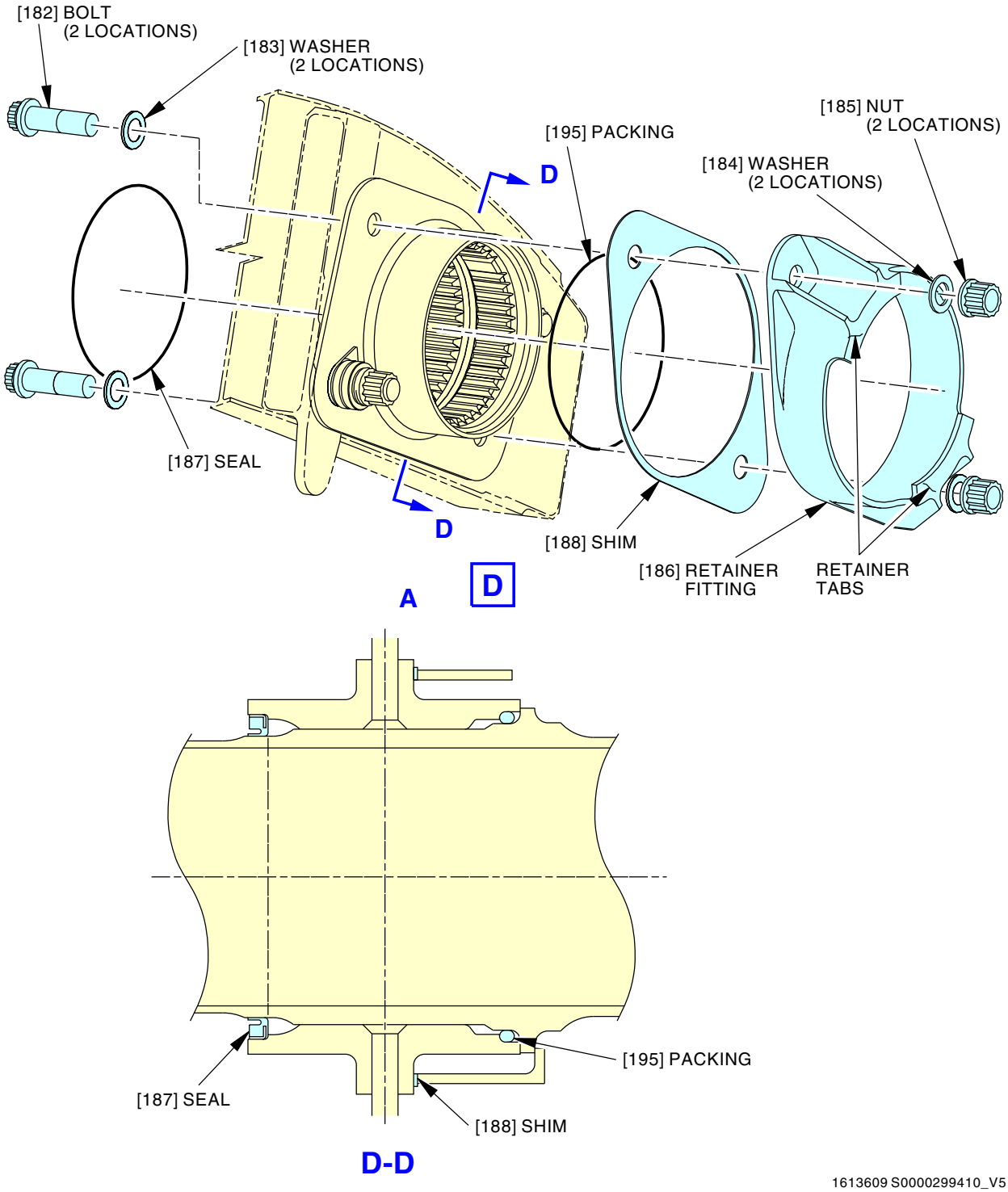
NOTE:

1. DO NOT USE WITH DRIVE CRANK SUPPORT P/N 113W2154-9/113W2154-10.
2. USE WITH DRIVE CRANK SUPPORT P/N 113W2154-1/113W2154-2 AND 113W2154-5/ 113W2154-6.

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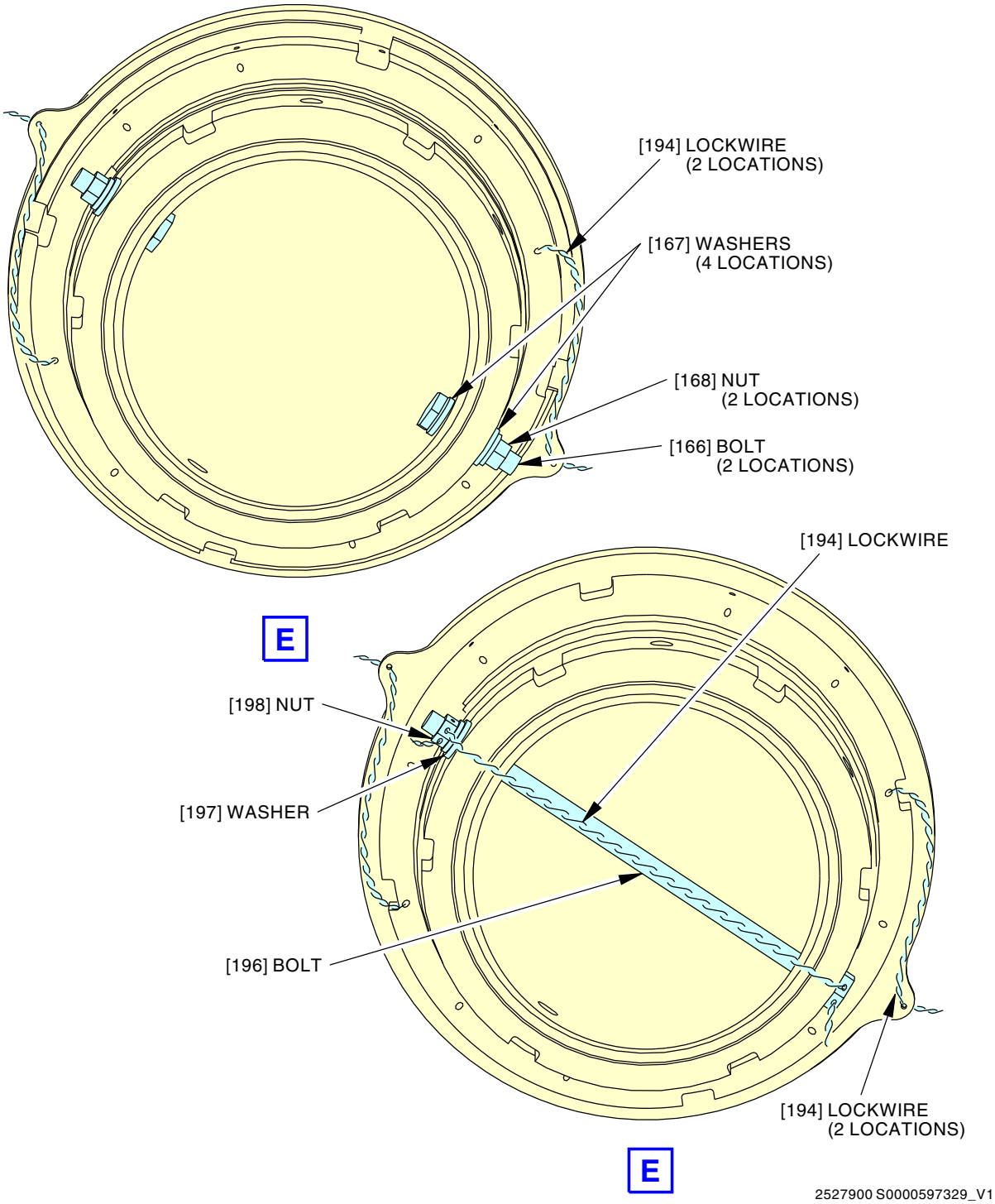
Support Torque Tube Installation
Figure 405/27-51-13-990-807 (Sheet 2 of 4)

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Support Torque Tube Installation
Figure 405/27-51-13-990-807 (Sheet 3 of 4)

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Support Torque Tube Installation
Figure 405/27-51-13-990-807 (Sheet 4 of 4)

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TASK 27-51-13-400-805

8. Support Torque Tube Installation

(Figure 405)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task includes the installation of the support torque tube [165].

B. References

Reference	Title
20-10-23-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-14111	Spanner Wrench - Torque Tube, Inboard Main Flap Part #: J27074-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00633	Grease - Aircraft General Purpose	BMS3-33
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
171	Packing	27-51-38-10-182	ARO ALL
175	Seal	27-51-38-10-205	ARO ALL
180	Packing	27-51-38-10-250	ARO ALL
187	Seal	27-51-38-10-154	ARO ALL
195	Packing	27-51-38-10-157	ARO ALL

F. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

G. Access Panels

Number	Name/Location
555AT	Inboard Main Flap Leading Edge Panel
655AT	Inboard Main Flap Leading Edge Panel

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H. Procedure

SUBTASK 27-51-13-210-012

(1) Do a check of the seal [187] and packing [195]. Make sure that the seal [187] and the packing [195] are not damaged.

(a) If the seal [187] or the packing [195] is damaged, then replace with a new seal [187] or a new packing [195].

SUBTASK 27-51-13-610-003

(2) Apply a coat of corrosion inhibiting material, G50136 to the seal [187], packing [195] and the shim [188].

SUBTASK 27-51-13-420-027

(3) Install the support torque tube [165].

NOTE: Install the torque tube with the shear tube installed.

(a) Apply a coat of the corrosion inhibiting material, G50136 on the splined area of the shear tube before you install it on the torque tube.

NOTE: Carefully slide the support torque tube [165] into the closeout rib fitting assembly and into the outboard support rib.

SUBTASK 27-51-13-420-028

(4) Install the retainer fitting [186].

(a) Install the two bolts [182], two washers [183], two washers [184] and the two nuts [185].

NOTE: The two bolts [182] are accessible through access panel 555AT (655AT).

1) Apply a corrosion inhibiting coating of corrosion inhibiting material, G50136 to the mating surfaces of the retainer fitting [186] and the support torque tube [165].

2) Apply a corrosion inhibiting coating of corrosion inhibiting material, G50136 to the holes, bolt [182], washer [183] and nut [185], prior to installation.

3) Tighten the nut [185] to 1925 ±225 in-lb (217 ±25 N·m)

(b) Apply the corrosion inhibiting material, G50136 around the retainer tabs and splines.

SUBTASK 27-51-13-610-001

(5) Apply the grease, D00633 to each end of the drive crank [181].

SUBTASK 27-51-13-420-029

(6) Put the drive crank [181] in its position.

SUBTASK 27-51-13-210-009

(7) Do a check of the packing [180]. Make sure that the packing [180] is not damaged.

(a) If the packing [180] is damaged, then replace with a new packing [180].

SUBTASK 27-51-13-610-004

(8) Apply a coat of corrosion inhibiting material, G50136 to the packing [180].

SUBTASK 27-51-13-420-038

(9) Install the packing [180] and the drive crank support [179].

NOTE: The drive crank support [179] part number113W2154-9/113W2154-10 includes the washer [177] in the design, and does not require installation of the strap [178].

(a) Apply a corrosion inhibiting coating of corrosion inhibiting material, G50136 to the packing [180], washer [177] and strap [178], prior to installation.

(b) For the drive crank support [179] part number 113W2154-5 /113W2154-6 Install the washer [177] and strap [178] to the support torque tube [165].

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(c) For the drive crank support [179] part number 113W2154–1/113W2154–2: Install the washer [177] and the strap [178] to the support torque tube [165].

SUBTASK 27-51-13-210-010

(10) Do a check of the seal [175]. Make sure that the seal [175] is not damaged.

(a) If the seal [175] is damaged then replace with a new seal [175].

SUBTASK 27-51-13-610-002

(11) Apply a coat of corrosion inhibiting material, G50136 to the seal [175].

SUBTASK 27-51-13-420-030

(12) Install the two carrier beam fittings [176], seal [175], washer [174], spacer [173] and nut [172] with spanner wrench, SPL-14111.

(a) Apply a coat of Never-Seez NSBT compound, D00006 to the threaded portion of the nut [172].

1) Apply a corrosion inhibiting coating of corrosion inhibiting material, G50136 to the seal [175], washer [174] and spacer [173], prior to installation.

2) Apply a corrosion inhibiting coating of corrosion inhibiting material, G50136 to the splines of support torque tube [165], drive crank support [179] and carrier beam fitting [176].

NOTE: Fill all cavities with the compound to allow squeeze-out during installation.

3) Tighten the nut [172] to 5000 ±500 in-lb (565 ±56 N·m).

(b) Install lockwire [194] to nut [172] and spacer [173] (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801).

SUBTASK 27-51-13-210-011

(13) Do a check of the packing [171]. Make sure that the packing [171] is not damaged.

(a) If the packing [171] is damaged then replace with a new packing [171].

SUBTASK 27-51-13-420-031

(14) Install the packing [171], washer [170] and nut [169].

(a) Apply a coat of the corrosion inhibiting material, G50136 on the packing [171] and washer [170].

(b) Apply a coat of Never-Seez NSBT compound, D00006 to the threaded portion of the nut [169].

1) Tighten the nut [169] slowly until the gap between the nut [169] and washer [170] is 0.012 ±0.002 in. (0.305 ±0.051 mm).

(c) Make sure the holes on the nut [169] align with the slots on the support torque tube [165].

SUBTASK 27-51-13-420-033

(15) Install the cross bolt [189], washer [190], washer [191] and nut [192] to the drive crank [181].

(a) Install the nut [192] finger tight plus 1/8 turn.

(b) Install the lockwire [194] to the cross bolt [189] and nut [192] (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801).

SUBTASK 27-51-13-420-032

(16) Install the two bolts [166], four washers [167] and two nuts [168] OR install the bolt [196], washer [197] and nut [198].

(a) Tighten the nuts [168] or nut [198] to 55 ±5 in-lb (6 ±1 N·m).

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(b) Install the lockwire [194] to the nut [198] and bolt [196] (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801).

NOTE: The two bolt set up does not have lockwire [194]. The single bolt set up does have lockwire [194]; refer to Figure 405.

SUBTASK 27-51-13-410-001

(17) Close these access panels:

Number	Name/Location
555AT	Inboard Main Flap Leading Edge Panel
655AT	Inboard Main Flap Leading Edge Panel

SUBTASK 27-51-13-860-017

(18) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-13-860-802.

——— END OF TASK ———

TASK 27-51-13-400-801

9. Actuator Support and Drive Arm Installation

A. General

(1) This task includes the installation of the actuator support [41], drive arm [1], floor beam link [121], landing gear beam extension [131] and failsafe spindle [132].

(2) This task installs parts at joints 4A, 4B, 4AA, 4BB, 5A, 5B, 5AA and 5BB for the inboard flap support mechanism.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. References

Reference	Title
27-51-11-400-801	Inboard Trailing Edge Flap Installation (P/B 401)
27-51-35-400-801	TE Flap Side of Body Angle Gearbox Installation (P/B 401)
27-59-01-400-809-002	Inboard Flap Inboard Skew Sensor - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1551	Wrench - Spanner, Adapter for BACN10RF Nuts. (See ST2580-267 Drawing for correct dash number) Part #: ST2580-267 Supplier: 81205
SPL-1737	Wrench - Nut, Wing Trailing Edge Flap Support Part #: J27051-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
D00633	Grease - Aircraft General Purpose	BMS3-33

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(Continued)

Reference	Description	Specification
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Drive arm	27-51-13-15A-490	ARO ALL
41	Actuator support	27-51-13-15A-500	ARO ALL
		27-51-13-15A-505	ARO ALL
121	Floor beam link	27-51-13-10A-140	ARO ALL
131	Landing gear beam extension	27-51-13-15A-520	ARO ALL
132	Failsafe spindle	27-51-13-10A-075	ARO ALL

F. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

G. Procedure

SUBTASK 27-51-13-420-001

(1) At joint 4A or 5A as applicable, install the failsafe spindle [132], actuator support [41] and drive arm [1] on the landing gear beam extension [131] if you removed them (Figure 404):

(a) Apply grease, D00633, to the bearings [150] and bushing [147] and bushing [151].

(b) Install the bearings [150] and bushing [151] on the drive arm [1].

NOTE: Install the bearings [150] with the seals [149] away from the bushing [151].

(c) Install the bushing [147] on the drive arm [1].

(d) Apply grease, D00633, to the bushing [148] and bushing [152].

(e) Install the bushing [148] and bushing [152] on the actuator support [41].

(f) Apply grease, D00633, to the outside of the landing gear beam extension [131] and the washers [146].

(g) Install the actuator support [41], drive arm [1] and washers [146] on the landing gear beam extension [131].

(h) Apply grease, D00633, to the nut [144] and washer [145].

(i) Install the nut [144] and washer [145] to hold the actuator support [41] and drive arm [1] on the landing gear beam extension [131].

(j) Use a trailing edge flap support nut wrench, SPL-1737 to tighten the nut [144] to 1080 in-lb (122 N·m)-1320 in-lb (149 N·m).

(k) Install MS20995NC40 lockwire, G02436 on the nut [144] and washer [145].

(l) Put the failsafe spindle [132] in the landing gear beam extension [131].

(m) Apply grease, D00633, to the nut [142] and washer [143].

(n) Install the nut [142] and washer [143] to hold the failsafe spindle [132] on the landing gear beam extension [131].

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(o) Use a spanner wrench, SPL-1551, (where -XX is -40) to tighten the nut [142] to 1000 in-lb (113 N·m) plus run-on torque.

SUBTASK 27-51-13-420-002

(2) At joint 4A or 5A as applicable, connect the landing gear beam extension [131] and the failsafe spindle [132] to the landing gear beam [130]:

(a) Put the landing gear beam extension [131] and the failsafe spindle [132] with the actuator support [41] and drive arm [1] in their position on the landing gear beam [130].

(b) Apply grease, D00633, to the pins [134], sleeves [137], washers [133], washers [141] and nuts [138].

(c) Install the pins [134], washers [133] and sleeves [137] in the landing gear beam [130].

NOTE: Install the pins [134] with the heads on the forward side of the landing gear beam [130].

(d) Install the washers [141] and nuts [138] on the pins [134].

(e) Tighten the nuts [138] to 1000 in-lb (113 N·m) plus run-on torque.

(f) Apply grease, D00633, to the bolts [135], retainers [136], retainers [139] and nuts [140].

(g) Install the bolts [135], retainers [136], retainers [139] and nuts [140] on the pins [134].

SUBTASK 27-51-13-420-003

(3) If it is not installed, do this task: Track Support Assembly Installation, TASK 27-51-13-400-802.

SUBTASK 27-51-13-420-004

(4) Do this task: Carrier Beam and Track Installation, TASK 27-51-13-400-803.

SUBTASK 27-51-13-420-005

(5) Install the floor beam link [121]:

(a) If you will install a new floor beam link [121], remove the fitting assembly [153] from the floor beam [122]:

1) Remove the bolts [154], washers [155], washers [156] and nuts [157].

2) Remove the fitting assembly [153] with the shim [158] and filler [159].

(b) Apply grease, D00633, to the bushings [127], bolts [123], washers [124], washers [129] and nuts [128].

(c) Install the bushings [127] in the floor beam link [121].

(d) At joint 4AA or 5AA as applicable, install the bolt [123], washer [124], washer [129] and nut [128] to connect the floor beam link [121] to the fitting assembly [153].

NOTE: Install the bolt [123] with the head aft.

(e) At joint 4BB or 5BB as applicable, install the bolt [123], washer [124], washer [129] and nut [128] to connect the floor beam link [121] to the fitting assembly [153].

NOTE: Install the bolt [123] with the head aft.

(f) If you installed a new floor beam link [121], connect the fitting assembly [153] to the floor beam [122]:

1) Move the actuator support [41] until the clearance between the aft end of the actuator support [41] and the track assembly [42] is 5.1444 ±0.0200 in. (130.67 ±0.51 mm).

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2) Use the correct thickness of shim [158] and filler [159] to fill the clearance between the fitting assembly [153] and the floor beam [122] in the limit of ±0.005 inch.

NOTE: Remove laminations from the shim [158] to get the correct thickness. The maximum thickness of the shim [158] is 0.25 in. (6.35 mm).

3) Apply primer, C00259, to the mating surfaces of the shim [158] and the filler [159].

4) Apply sealant, A00247, to the mating surfaces of the fitting assembly [153], shim [158], filler [159] and the floor beam [122].

5) Put the shim [158] and filler [159] in their location on the fitting assembly [153].

6) Apply sealant, A00247, to the shank and threads of the bolts [154].

7) Install the bolts [154], washers [155], washers [156] and nuts [157] to connect the fitting assembly [153] to the floor beam [122].

(g) Tighten the nuts [128] to 440 in-lb (50 N·m)-650 in-lb (73 N·m).

SUBTASK 27-51-13-420-006

(6) Connect the rod assembly [43] for the flap skew sensors (Figure 402):

(a) Apply grease, D00633, to the bushing [53], bushing [57], bolt [52], bolt [55], washer [51], washer [51], washer [54], washer [56], washer [59], nut [49] and nut [58].

(b) Install the bushing [53] in the bellcrank [50].

(c) Install the bushing [57] in the drive arm [1].

(d) Put the rod assembly [43] in its position between the bellcrank [50] and the drive arm [1].

(e) Install the bolt [52], washer [51], washer [54] and nut [49] to connect the rod assembly [43] to the bellcrank [50].

(f) Install the bolt [55], washer [56], washer [59] and nut [58] to connect the rod assembly [43] to the drive arm [1].

(g) Tighten the nut [49] and nut [58] to 50 in-lb (6 N·m)-80 in-lb (9 N·m).

SUBTASK 27-51-13-420-007

(7) Do this task: Inboard Trailing Edge Flap Installation, TASK 27-51-11-400-801.

SUBTASK 27-51-13-420-008

(8) Do this task: TE Flap Side of Body Angle Gearbox Installation, TASK 27-51-35-400-801.

SUBTASK 27-51-13-420-009

(9) Do this task: Inboard Flap Inboard Skew Sensor - Installation, TASK 27-59-01-400-809-002.

SUBTASK 27-51-13-860-009

(10) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-13-860-802.

——— END OF TASK ———

TASK 27-51-13-400-802

10. Track Support Assembly Installation

(Figure 403)

A. General

(1) This task includes the installation of the track support assembly for the inboard flap support mechanism. The track support assembly includes the inboard track support [73], the outboard track support [72] and the track support fitting [71].

(2) This task installs parts at joints 4D, 4W, 4X, 5D, 5W, 5X and the side panel fittings for the inboard flap support mechanism.

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(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
71	Track support fitting	27-51-13-10A-390	ARO ALL
72	Outboard track support	27-51-13-10A-365	ARO ALL
73	Inboard track support	27-51-13-10A-320	ARO ALL

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

E. Procedure

SUBTASK 27-51-13-420-010

(1) Connect the inboard track support [73] and outboard track support [72] to the track support fitting [71]:

(a) Put the outboard track support [72] in its position on the track support fitting [71].

(b) Apply grease, D00633, to the bolt [102], washer [103], washer [104] and nut [105].

(c) At joint 4X or 5X as applicable, install the bolt [102], washer [103], washer [104] and nut [105] that attach the outboard track support [72] to the track support fitting [71].

(d) Install the pin [106] in the nut [105].

(e) Put the inboard track support [73] in its position on the track support fitting [71].

(f) Apply grease, D00633, to the bolt [107], washer [108], washer [109] and nut [110].

(g) At joint 4W or 5W as applicable, install the bolt [107], washer [108], washer [109] and nut [110] that attach the inboard track support [73] to the track support fitting [71].

(h) Install the pin [111] in the nut [110].

SUBTASK 27-51-13-420-011

(2) Connect the inboard track support [73] to the lower side panel fitting [85]:

(a) Put the inboard track support [73] in its position on the lower side panel fitting [85].

(b) Apply grease, D00633, to the bushing [90], bolt [87], washer [86], washer [89] and nut [88].

(c) Install the bushing [90], bolt [87], washer [86], washer [89] and nut [88] that connect the inboard track support [73] to the lower side panel fitting [85].

NOTE: For the left inboard track support [73] install the bolt [87] with the head forward. For the right inboard track support [73] install the bolt [87] with the head aft.

(d) Tighten the nut [88] to 260 in-lb (29 N·m)-425 in-lb (48 N·m).

SUBTASK 27-51-13-420-012

(3) Connect the outboard track support [72] to the upper side panel fitting [79]:

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(a) Put the outboard track support [72] in its position on the upper side panel fitting [79].

(b) Apply grease, D00633, to the bushing [82], bolt [83], washer [80], washer [84] and nut [81].

(c) Install the bushing [82], bolt [83], washer [80], washer [84] and nut [81] to connect the outboard track support [72] to the upper side panel fitting [79].

NOTE: For the left outboard track support [72] install the bolt [83] with the head aft. For the right outboard track support [72] install the bolt [83] with the head forward.

(d) Tighten the nut [81] to 1000 in-lb (113 N·m)-1200 in-lb (136 N·m).

SUBTASK 27-51-13-420-013

(4) At joint 4D or 5D as applicable, connect the track support fitting [71] to the track assembly [42]:

(a) Apply grease, D00633, to the bushing [76], bolt [78], washer [74], washer [77] and nut [75].

(b) Install the bushing [76] in the track assembly [42].

(c) Put the track support fitting [71] in its position on the track assembly [42].

(d) Install the bolt [78], washer [74], washer [77] and nut [75] to connect the track support fitting [71] to the track assembly [42].

(e) Tighten the nut [75] to 1700 in-lb (192 N·m)-2150 in-lb (243 N·m).

SUBTASK 27-51-13-860-010

(5) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-13-860-802.

——— END OF TASK ———

TASK 27-51-13-400-803

11. Carrier Beam and Track Installation

A. General

(1) This task includes the installation of the carrier beam [5] and track assembly [42].

(2) This task installs parts at joints 4B, 4C, 4D, 4V, 5B, 5C, 5D and 5V on the inboard flap support mechanism.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. References

Reference	Title
20-10-22-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1551	Wrench - Spanner, Adapter for BACN10RF Nuts. (See ST2580-267 Drawing for correct dash number) Part #: ST2580-267 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

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(Continued)

Reference	Description	Specification
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Carrier beam	27-51-13-15A-370	ARO ALL
		27-51-13-15A-375	ARO ALL
42	Track assembly	27-51-13-10A-210	ARO ALL

F. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

G. Procedure

SUBTASK 27-51-13-420-025

(1) At joint 4C or 5C as applicable, if it is necessary, connect the bearing [164] to the carrier beam [5]:

(a) Put the bearing [164] in its position in the carrier beam [5].

(b) Install the washer [161], pin [160], washer [162], and nut [163] to connect the bearing [164] in the carrier beam [5].

(c) Use a spanner wrench, SPL-1551 to tighten the nut [163] to 1250 in-lb (141 N·m)-1625 in-lb (184 N·m) plus run on torque.

(d) Apply grease, D00633 to the bearing [164] at the grease fitting inside the pin [160].

SUBTASK 27-51-13-420-014

(2) At joint 4C or 5C as applicable, if it is necessary, connect the carrier beam [5] to the track assembly [42] (Figure 403):

(a) Put the carrier beam [5] in its position on the track assembly [42].

(b) Apply grease, D00633, to the pins [98], washers [95], washers [99], nuts [94] and bearings [96].

(c) Put the pins [98] and washers [99] in the carrier beam [5].

(d) Install the bearings [96], washers [95] and nuts [94] on the pins [98].

(e) Tighten the nuts [94] to 75 in-lb (8 N·m)-125 in-lb (14 N·m).

(f) Install the pins [97] on the nuts [94].

1) Make sure the ends of the pins [97] do not extend past the end of the pins [98].

(g) Apply grease, D00633, to the nut [93], washers [91], washer [100], bolt [101] and bushing [92].

(h) Install the bushing [92], bolt [101], washers [91], washer [100] and nut [93] on the carrier beam [5].

(i) Tighten the nut [93] to 150 in-lb (17 N·m)-250 in-lb (28 N·m).

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SUBTASK 27-51-13-420-015

(3) At joint 4V or 5V as applicable, connect the track assembly [42] to the actuator support [41] (Figure 402):

(a) Apply grease, D00633, to the bushing [47], bolt [48], washer [44], washer [45] and nut [46].

(b) Install the bushing [47] in the actuator support [41].

(c) Put the track assembly [42] in its position on the actuator support [41].

(d) Install the bolt [48], washer [44], washer [45] and nut [46] that attach the track assembly [42] to the actuator support [41].

(e) Tighten the nut [46] to 1700 in-lb (192 N·m)-2150 in-lb (243 N·m).

SUBTASK 27-51-13-420-016

(4) At joint 4B or 5B as applicable, connect the carrier beam [5] to the drive arm [1] (Figure 401):

(a) Put the carrier beam [5] in its location on the drive arm [1].

(b) Apply grease, D00633, to the pin [20], washer [16] and nut [15].

(c) Install the pin [20] to connect the carrier beam [5] to the drive arm [1].

(d) Install the washer [16] and nut [15] on the pin [20].

(e) Tighten the nut [15] to 823 in-lb (93 N·m)-1005 in-lb (114 N·m).

(f) Install MS20995NC40 lockwire, G02436 on the nut [15] and washer [16].

(g) Apply grease, D00633, to the pin [18], washer [22] and nut [21].

(h) Install the pin [18] in the pin [20].

(i) Install the washer [22] and nut [21] on the pin [18].

(j) Tighten the nut [21] to 150 in-lb (17 N·m)-174 in-lb (20 N·m).

SUBTASK 27-51-13-420-017

(5) At joint 4D or 5D as applicable, connect the track assembly [42] to the track support fitting [71] (Figure 403):

(a) Apply grease, D00633, to the bushing [76], bolt [78], washer [74], washer [77] and nut [75].

(b) Install the bushing [76] in the track assembly [42].

(c) Put the track assembly [42] in its position in the track support fitting [71].

(d) Install the bolt [78], washer [74], washer [77] and nut [75] to connect the track assembly [42] to the track support fitting [71].

(e) Tighten the nut [75] to 1700 in-lb (192 N·m)-2150 in-lb (243 N·m).

SUBTASK 27-51-13-640-002

(6) Clean the upper and lower surface of the track assembly [42] to remove unwanted grease (Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-22-110-802).

NOTE: Grease or oil on the track assembly [42] can attract dirt and debris. This causes the bearing [164] to bind and damages the surface of the track assembly [42].

SUBTASK 27-51-13-420-018

(7) Do this task: Bellcrank and Drive Links Installation, TASK 27-51-13-400-804.

SUBTASK 27-51-13-860-011

(8) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-13-860-802.

END OF TASK

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TASK 27-51-13-400-804

12. Bellcrank and Drive Links Installation

(Figure 401)

A. General

(1) This task includes the installation of the bellcrank assembly [3], carrier link [4], reaction link [6] and tension link [2].

(2) This task installs parts at joints 4B, 4G, 4L, 4M, 5B, 5G, 5L and 5M on the inboard flap support mechanism.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Tension link	27-51-13-15A-185	ARO ALL
3	Bellcrank assembly	27-51-13-15A-200	ARO ALL
4	Carrier link	27-51-13-15A-425	ARO ALL
6	Reaction link	27-51-13-15A-150	ARO ALL

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

E. Procedure

SUBTASK 27-51-13-420-019

(1) At joint 4G or 5G as applicable, connect the bellcrank assembly [3], carrier link [4] and reaction link [6] to the carrier beam [5]:

(a) Apply grease, D00633, to the bolt [31], washer [30], washer [33] and nut [32].

(b) Put the carrier link [4] in its position on the carrier beam [5].

(c) Loosely install the bolt [31], washer [30], washer [33] and nut [32] that attach the carrier link [4].

(d) Apply grease, D00633, to the bushing [23], bushing [27], bolt [26], washers [24], washer [25], washer [29] and nut [28].

(e) Install the bushing [27] in the bellcrank assembly [3].

(f) Put the bushing [23] in its location between the carrier link [4] and the carrier beam [5].

(g) Put the bellcrank assembly [3], reaction link [6], and washers [24] in their location on the carrier beam [5].

(h) Install the bolt [26], washer [25], washer [29] and nut [28] that attach the reaction link [6], bellcrank assembly [3] and carrier link [4] to the carrier beam [5].

(i) Tighten the nut [28] to 1000 in-lb (113 N·m)-1200 in-lb (136 N·m).

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(j) Tighten the nut [32] to 440 in-lb (50 N·m)-650 in-lb (73 N·m).

SUBTASK 27-51-13-420-020

(2) At joint 4B or 5B as applicable, connect the reaction link [6] to the carrier beam [5]:

(a) Apply grease, D00633, to the pin [18], washer [17] and nut [19].

(b) Install the washer [17] and nut [19] that attach the reaction link [6] to the pin [18].

(c) Tighten the nut [19] to 311 in-lb (35 N·m)-380 in-lb (43 N·m).

SUBTASK 27-51-13-420-021

(3) At joint 4L or 5L as applicable, connect the tension link [2] to the drive arm [1]:

(a) Apply grease, D00633, to the pin [8], washer [7] and nut [9].

(b) Put the tension link [2] in its location on the drive arm [1].

(c) Install the pin [8], washer [7] and nut [9] that attach the tension link [2] to the drive arm [1].

(d) Tighten the nut [9] to 316 in-lb (36 N·m)-386 in-lb (44 N·m).

SUBTASK 27-51-13-420-022

(4) At joint 4M or 5M as applicable, connect the tension link [2] to the bellcrank assembly [3]:

(a) Apply grease, D00633 to the bushing [14], bolt [10], washer [11], washer [12] and nut [13].

(b) Install the bushing [14] in the tension link [2].

(c) Align the tension link [2] with the bellcrank assembly [3].

(d) Install the bolt [10], washer [11], washer [12] and nut [13] that attach the tension link [2] to the bellcrank assembly [3].

NOTE: Install the nut [13] on the same side of the tension link [2] as the bushing [14].

(e) Tighten the nut [13] to 1000 in-lb (113 N·m)-1200 in-lb (136 N·m).

SUBTASK 27-51-13-860-012

(5) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-13-860-802.

——— END OF TASK ———

TASK 27-51-13-860-802

13. Put the Airplane Back to Its Usual Condition

A. General

(1) It is necessary to do this task after you do an installation procedure for the components on the inboard support mechanism for the inboard flap.

B. References

Reference	Title
12-21-09-640-803	Inboard Flap, Inboard Support Mechanism Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-400-801	Inboard Trailing Edge Flap Installation (P/B 401)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

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C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

D. Procedure

SUBTASK 27-51-13-420-023

(1) Do this task: Inboard Trailing Edge Flap Installation, TASK 27-51-11-400-801.

SUBTASK 27-51-13-820-001

(2) Do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

SUBTASK 27-51-13-640-001

(3) For the inboard support mechanism, do this task: Inboard Flap, Inboard Support Mechanism Lubrication, TASK 12-21-09-640-803.

SUBTASK 27-51-13-440-001

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-13-210-002

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-13-860-013

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-13-860-014

(7) Retract the trailing edge flaps to the UP position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-13-860-015

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-13-080-001

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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INBOARD FLAP, INBOARD SUPPORT MECHANISM - INSPECTION/CHECK

1. General

A. This procedure has these tasks:

(1) A task to do an inspection of the inboard support mechanism for the inboard trailing edge flaps.

TASK 27-51-13-200-801

2. Inboard Flap Inboard Support Inspection

A. General

(1) This task is applicable to flap support mechanism No. 4 and No. 5.

B. References

Reference	Title
27-51-13-000-801	Bellcrank and Drive Links Removal (P/B 401)
27-51-13-000-802	Carrier Beam and Track Removal (P/B 401)
27-51-13-400-803	Carrier Beam and Track Installation (P/B 401)
27-51-13-400-804	Bellcrank and Drive Links Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1097	Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
555	Left Wing Inboard Main Flap
655	Right Wing Inboard Main Flap

E. Procedure

SUBTASK 27-51-13-020-023

(1) Do this task: Bellcrank and Drive Links Removal, TASK 27-51-13-000-801.

SUBTASK 27-51-13-030-001

(2) Do this task: Carrier Beam and Track Removal, TASK 27-51-13-000-802.

SUBTASK 27-51-13-211-001

(3) Use this tool to do a check for wear on the part of the inboard flap inboard support mechanism:

(a) vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097

SUBTASK 27-51-13-211-002

(4) Inspect components lubrication paths for potential blockage; clear lubrication paths as necessary.

SUBTASK 27-51-13-220-001

(5) Examine the parts of the inboard flap inboard support mechanism:

(a) Remove the parts that you will measure.

(b) Measure the parts with a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

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(d) If the parts are not in tolerance, replace or repair the parts.

NOTE: The surface finish of all bearing surfaces of mating parts must be 32 micro inches or better.

INBOARD FLAP INBOARD SUPPORT MECHANISM WEAR LIMITS

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMIT		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
PIN [8]	O.D.	1.2479 in 31.697 mm	1.2485 in 31.712 mm	1.2470 in 31.674 mm	
BUSHING [9]	I. D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2558 in 31.897 mm	0.0073 in 0.1854 mm
BEARING [10]	I. D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2558 in 31.897 mm	0.0073 in 0.1854 mm
PIN [11]	O.D.	1.4975 in 38.036 mm	1.4983 in 38.058 mm	1.4967 in 38.016 mm	
BUSHING [12]	I. D.	1.4995 in 38.087 mm	1.5005 in 38.113 m	1.5067 in 38.270 mm	0.0084 in 0.213 mm
BEARING [13]	I. D.	1.4995 in 38.087 mm	1.5005 in 38.113 mm	1.5067 in 38.270 mm	0.0084 in 0.213 mm
BUSHING [14]	I. D.	1.4995 in 38.087 mm	1.5005 in 38.113 mm	1.5067 in 38.270 mm	0.0084 in 0.213 mm

SUBTASK 27-51-13-420-024

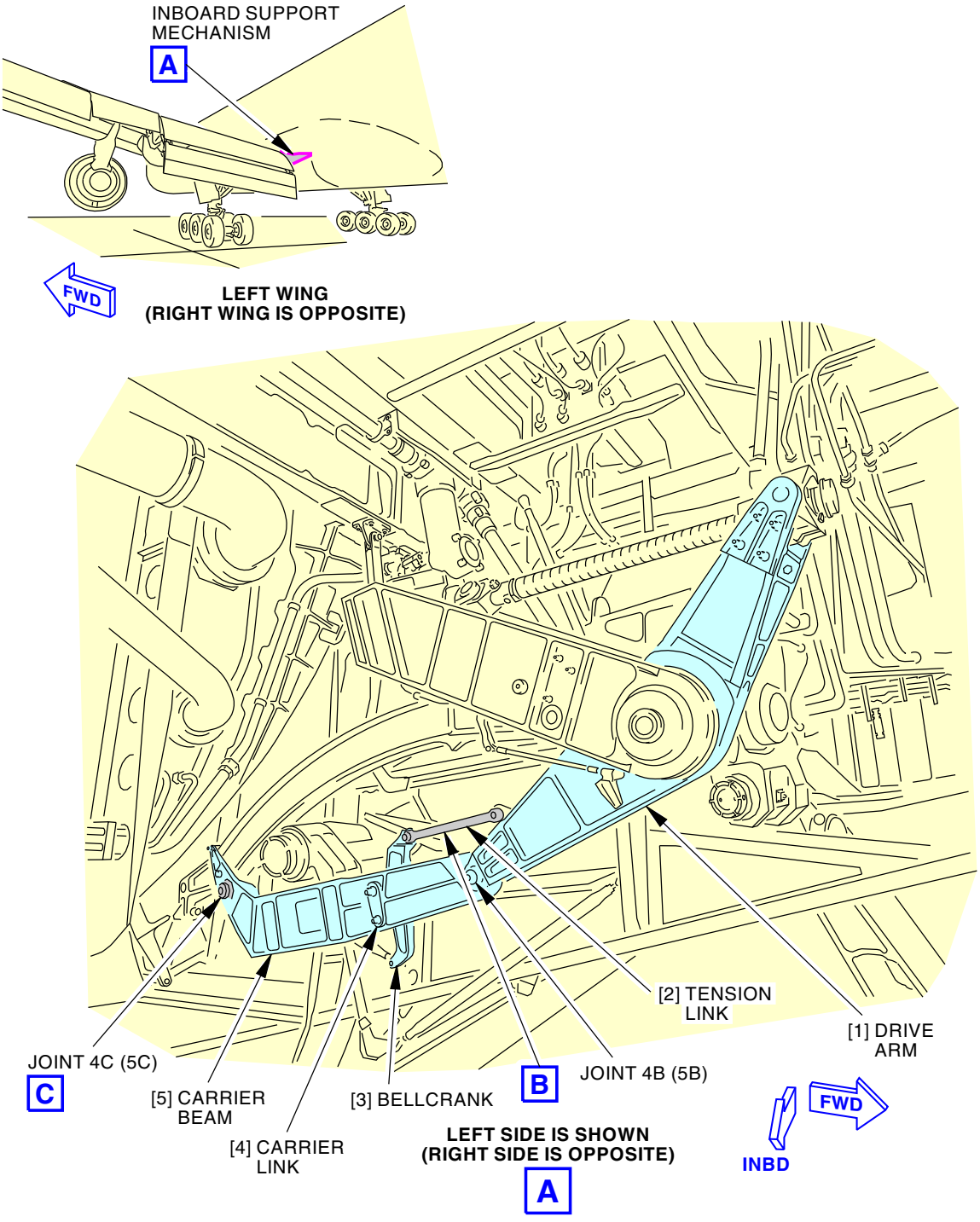
(6) Do this task:Bellcrank and Drive Links Installation, TASK 27-51-13-400-804.

SUBTASK 27-51-13-430-001

(7) Do this task:Carrier Beam and Track Installation, TASK 27-51-13-400-803.

——— END OF TASK ———

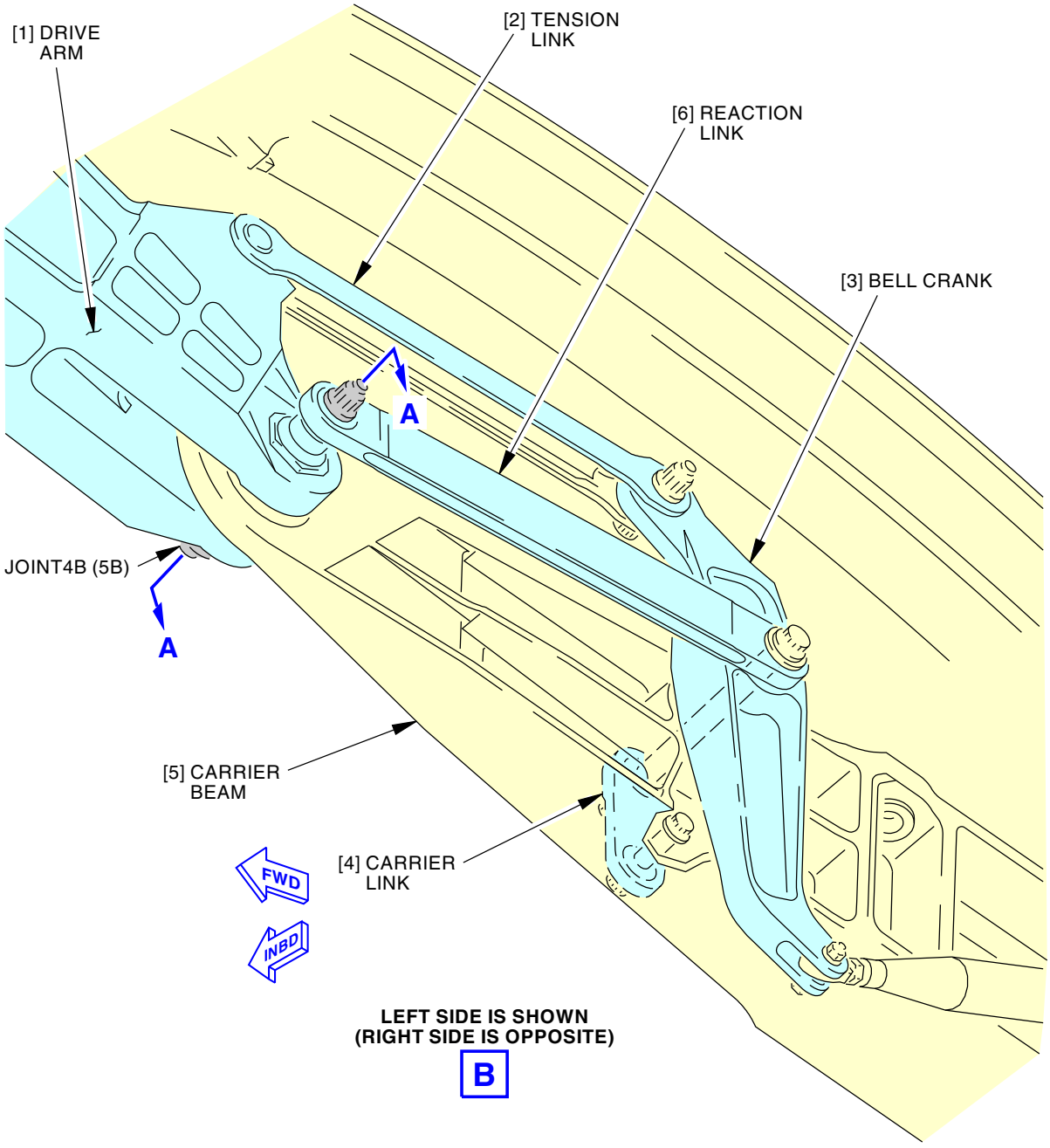
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Inboard Flap Inboard Support Mechanism Wear Limits
Figure 601/27-51-13-990-806 (Sheet 1 of 5)

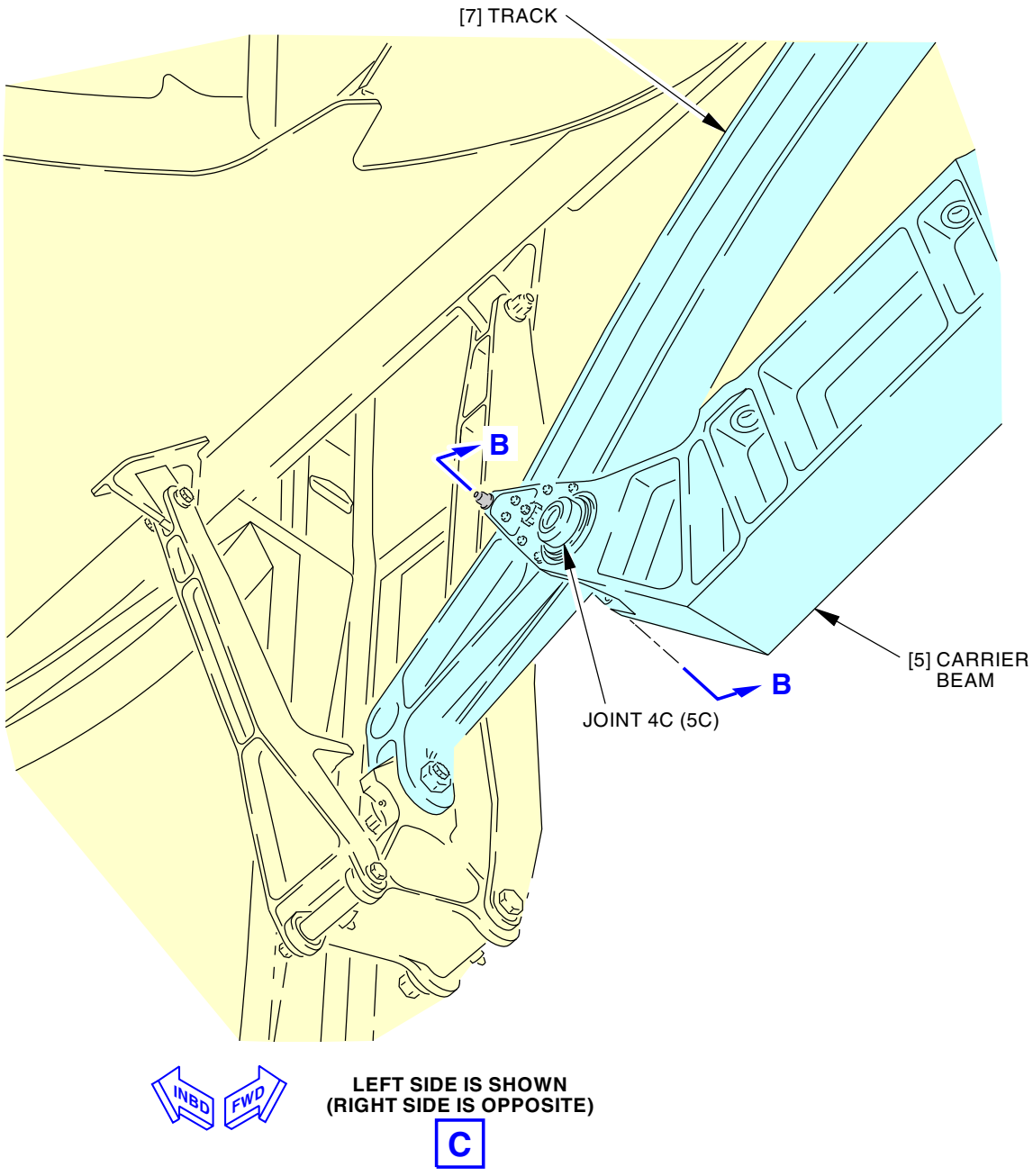
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Inboard Flap Inboard Support Mechanism Wear Limits
Figure 601/27-51-13-990-806 (Sheet 2 of 5)

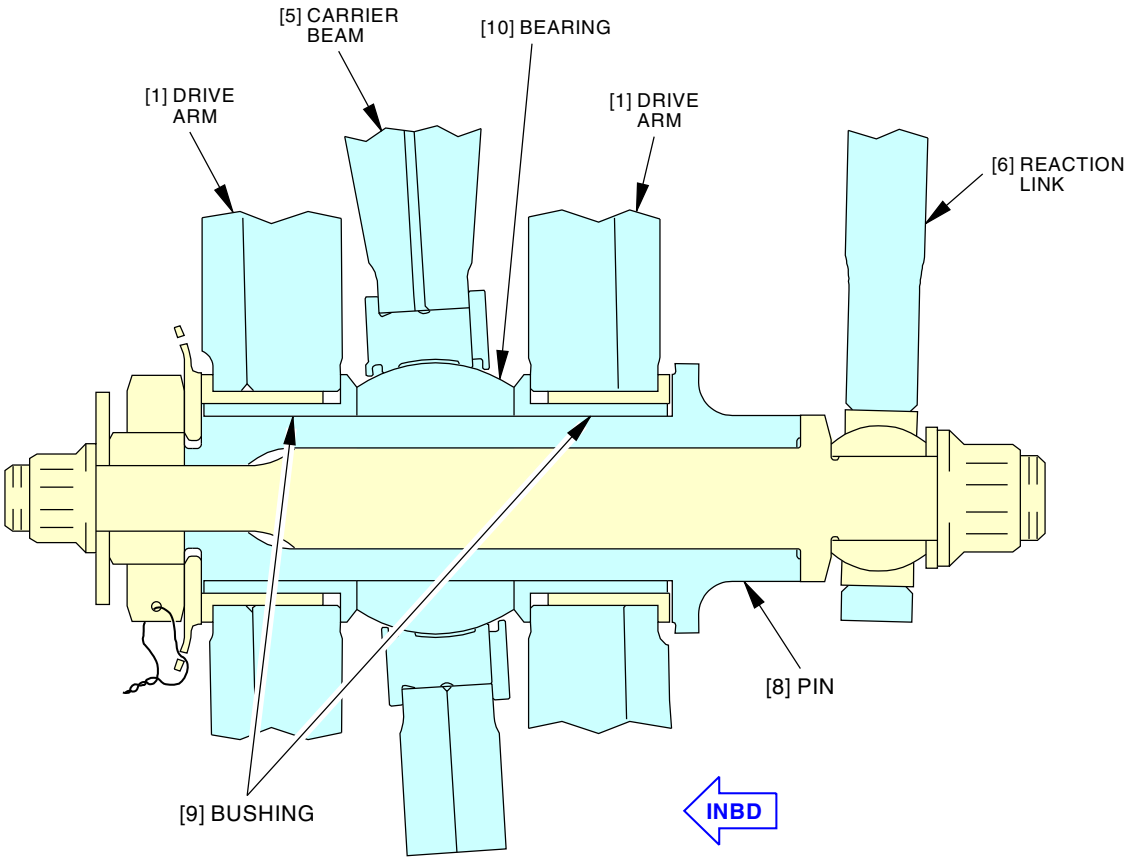
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Inboard Flap Inboard Support Mechanism Wear Limits
Figure 601/27-51-13-990-806 (Sheet 3 of 5)

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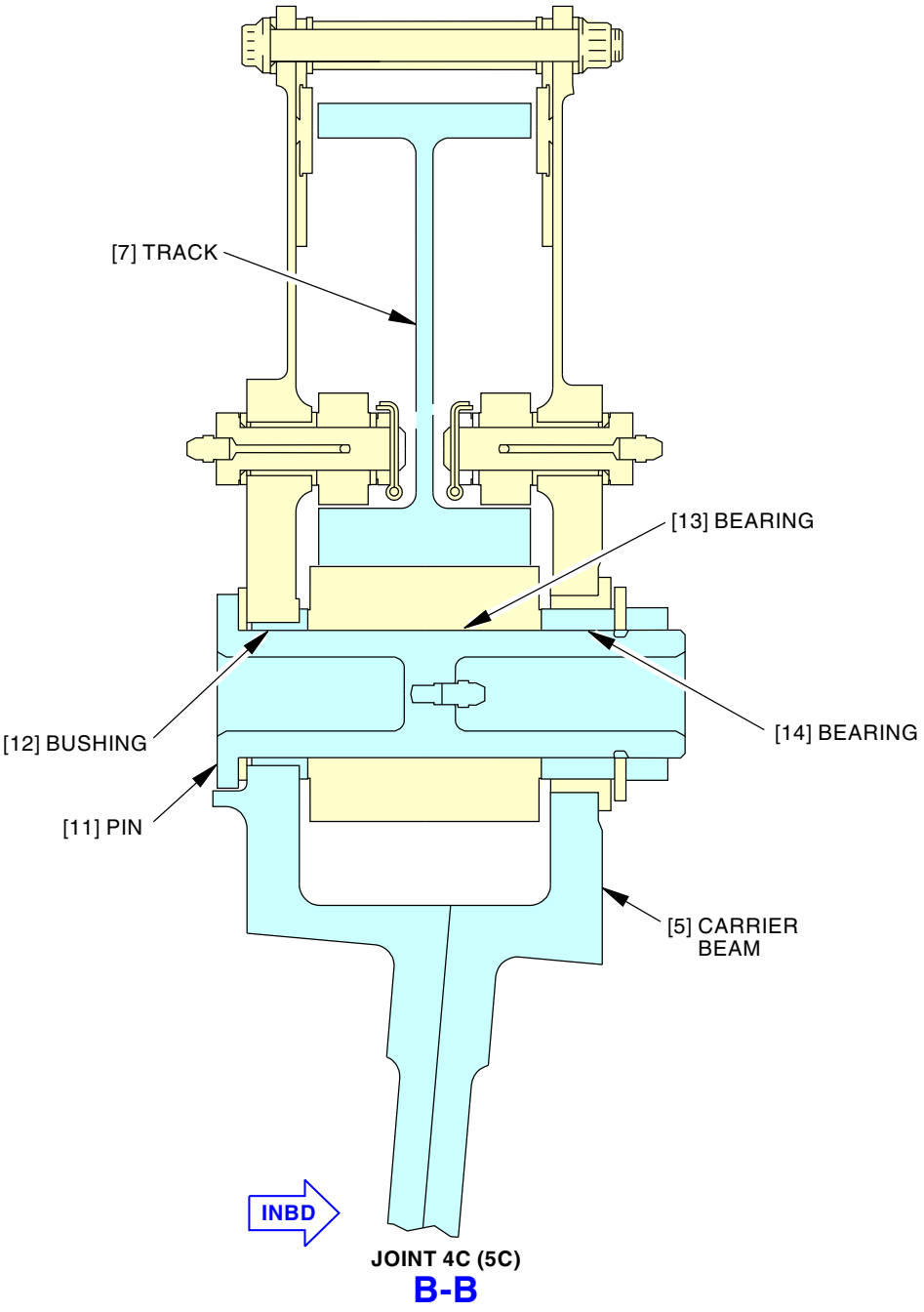


JOINT 4B (5B)
A-A

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Inboard Flap Inboard Support Mechanism Wear Limits
Figure 601/27-51-13-990-806 (Sheet 4 of 5)

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Inboard Flap Inboard Support Mechanism Wear Limits
Figure 601/27-51-13-990-806 (Sheet 5 of 5)

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INBOARD FLAP, OUTBOARD SUPPORT MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A task to prepare for the removal

(2) A removal of the pivot link, fairing links and springs

(3) A removal of the carrier beam

(4) A removal of the compression strut

(5) A removal of the fuse pins

(6) A removal of the aft tension beam, forward tension link and actuator support

NOTE: This task includes the standard procedure for the removal of the actuator support.

(7) A removal of the actuator support without the removal of the trailing edge flap

NOTE: This task is an alternative procedure for the removal of the actuator support.

(8) A removal of the drive arm

(9) An installation of the drive arm

(10) An installation of the aft tension beam, forward tension link and actuator support

NOTE: This task includes the standard procedure for the installation of the actuator support.

(11) An installation of the actuator support without the removal of the trailing edge flap

NOTE: This task is an alternative procedure for the installation of the actuator support.

(12) An installation of the fuse pins

(13) An installation of the compression strut

(14) An installation of the carrier beam

(15) An installation of the pivot link, fairing links and spring

(16) A task to put the airplane back to its usual condition.

B. Before you do a removal task, it is necessary to do the task "Prepare for the Removal". After you do an installation task, it is necessary to do the task "Put the Airplane Back to Its Usual Condition".

TASK 27-51-14-860-801

2. Prepare for the Removal

A. General

(1) It is necessary to do this task before you do a removal procedure for the components on the outboard support mechanism for the inboard flap.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-11-000-801	Inboard Trailing Edge Flap Removal (P/B 401)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)

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(Continued)

Reference	Title
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Prepare for the Removal

SUBTASK 27-51-14-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-14-010-002

(2) Do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-14-210-004

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-14-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-14-440-002

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-14-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-14-860-003

(7) Extend the trailing edge flaps to the 30-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-51-14-860-004

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-14-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-14-010-001

(10) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-14-020-001

(11) If you will not do the alternative removal task for the actuator support, then do this step:

(a) Do this task: Inboard Trailing Edge Flap Removal, TASK 27-51-11-000-801.

NOTE: Do not remove the trailing edge flap if you will do the alternative removal task for the actuator support.

(b) For the alternative method of removing the trailing edge flap with the flap carrier beam assembly attached do this:

NOTE: The alternative method for the trailing edge flap removal will save time.

1) Disconnect pins at joints 3B and 3C or 6B and 6C as applicable, instead of removing the flap carriage bolts and remove the trailing edge flap with the flap carrier beam assembly.

SUBTASK 27-51-14-860-023

(12) If you will do the alternative removal task for the actuator support, then do this step:

(a) Retract the trailing edge flaps to the 0-unit position. To retract the trailing edge flaps, do one of these steps:

1) Retract the trailing edge flaps manually. Do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

2) Retract the trailing edge flaps hydraulically or electrically. Do these steps:

a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

b) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

c) If you retracted the trailing edge flaps hydraulically, then do this step:

<1> For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

d) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

END OF TASK

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TASK 27-51-14-020-801

3. Pivot Link, Fairing Links and Spring Removal

(Figure 401)

A. General

(1) This task includes the removal of the pivot link [3], fairing link [4], spring link [6], fairing link brace [7], spring [8] and spring [39].

(2) This task removes parts at joints 3C, 3D, 3CA, 3CB, 3DA, 6C, 6D, 6CA, 6CB and 6DA as applicable.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-4981	Equipment - Removal/Installation, No. 3 and No. 6 Flap Fairing Spring Part #: J27048-14 Supplier: 81205

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-51-14-860-005

(1) Do this task: Prepare for the Removal, TASK 27-51-14-860-801.

SUBTASK 27-51-14-020-028

(2) Remove the damper assembly [40] from the spring [8] and spring [39]:

(a) Remove the nuts [44], washers [43], washers [42] and bolts [41] from the damper assembly [40].

(b) Remove the damper assembly [40] from the spring [8] and spring [39].

SUBTASK 27-51-14-020-002

(3) Remove the spring [8] and spring [39] at joints 3CB and 3DA or 6CB and 6DA as applicable:

(a) Install the removal / installation equipment, SPL-4981 on the spring link [6] through the hole in the fairing link [4]:

1) Put the L-plate assembly through the spring link [6].

2) Put the detent pin through the L-plate assembly to hold it on the spring link [6].

3) Put the plate assembly and rod assembly in their location on the fairing link [4].

4) Install the pin to connect the L-plate assembly to the rod assembly.

5) Use the removal / installation equipment, SPL-4981 to move the spring link [6] away from the stop plate [34].

(b) Remove the bolts [35], washers [36], washers [37] and nuts [38] and remove the stop plate [34] from the fairing link [4].

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(c) Use the removal / installation equipment, SPL-4981 to release the tension on the spring [8] and spring [39].

(d) Remove the spring [8] and spring [39] from the spools [10].

SUBTASK 27-51-14-020-003

(4) At joint 3DA or 6DA as applicable, disconnect the fairing link brace [7] from the pivot link [3]:

(a) Remove the nut [13], washer [12], bushing [11] and bolt [14].

(b) Remove the bushing [9] to disconnect the fairing link brace [7] and spools [10] from the pivot link [3].

SUBTASK 27-51-14-020-004

(5) At joint 3CA or 6CA as applicable, disconnect the fairing link brace [7] and the spring link [6] from the fairing link [4]:

(a) Remove the nut [18], washer [16], washer [17] and bolt [15] and remove the fairing link brace [7].

(b) Remove the bushings [19] and remove the spring link [6] from the fairing link [4].

SUBTASK 27-51-14-020-005

(6) At joint 3C or 6C as applicable, disconnect the fairing link [4] and the pivot link [3] from the carrier beam [2]:

(a) Remove the nut [25], washer [24] and pin [20].

(b) Remove the nut [23], washer [22] and pin [21] to disconnect the fairing link [4] and the pivot link [3] from the carrier beam [2].

SUBTASK 27-51-14-020-006

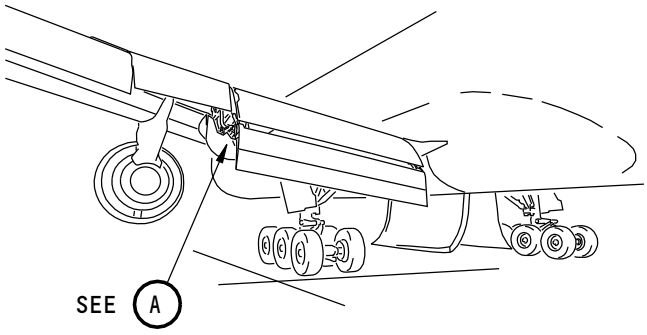
(7) At joint 3D or 6D as applicable, disconnect the pivot link [3] from the aft tension beam [5]:

(a) Remove the nut [30], washer [29] and pin [27].

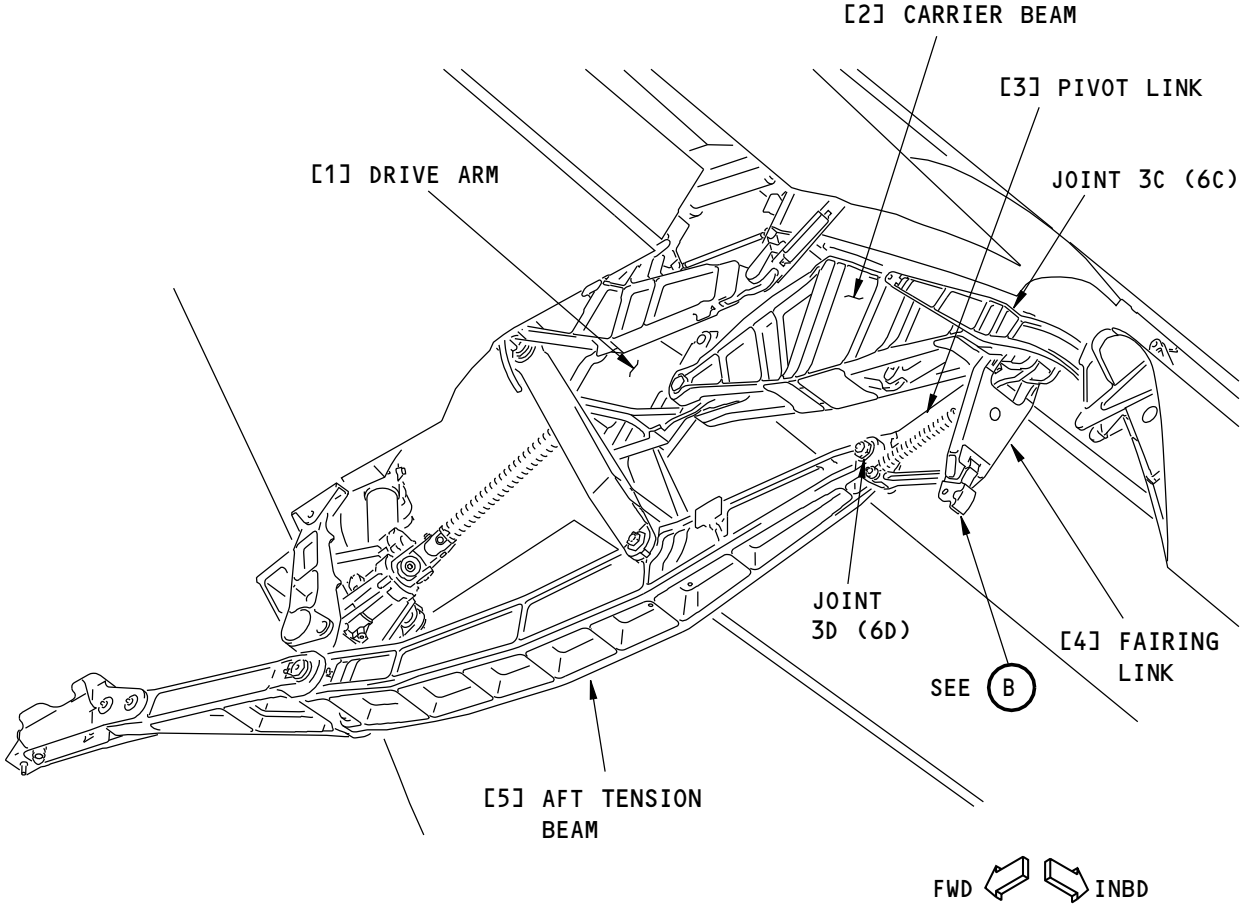
(b) Remove the nut [32], washer [33] and pin [28] and remove the pivot link [3] from the aft tension beam [5].

——— END OF TASK ———

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LEFT WING
(RIGHT WING IS OPPOSITE)



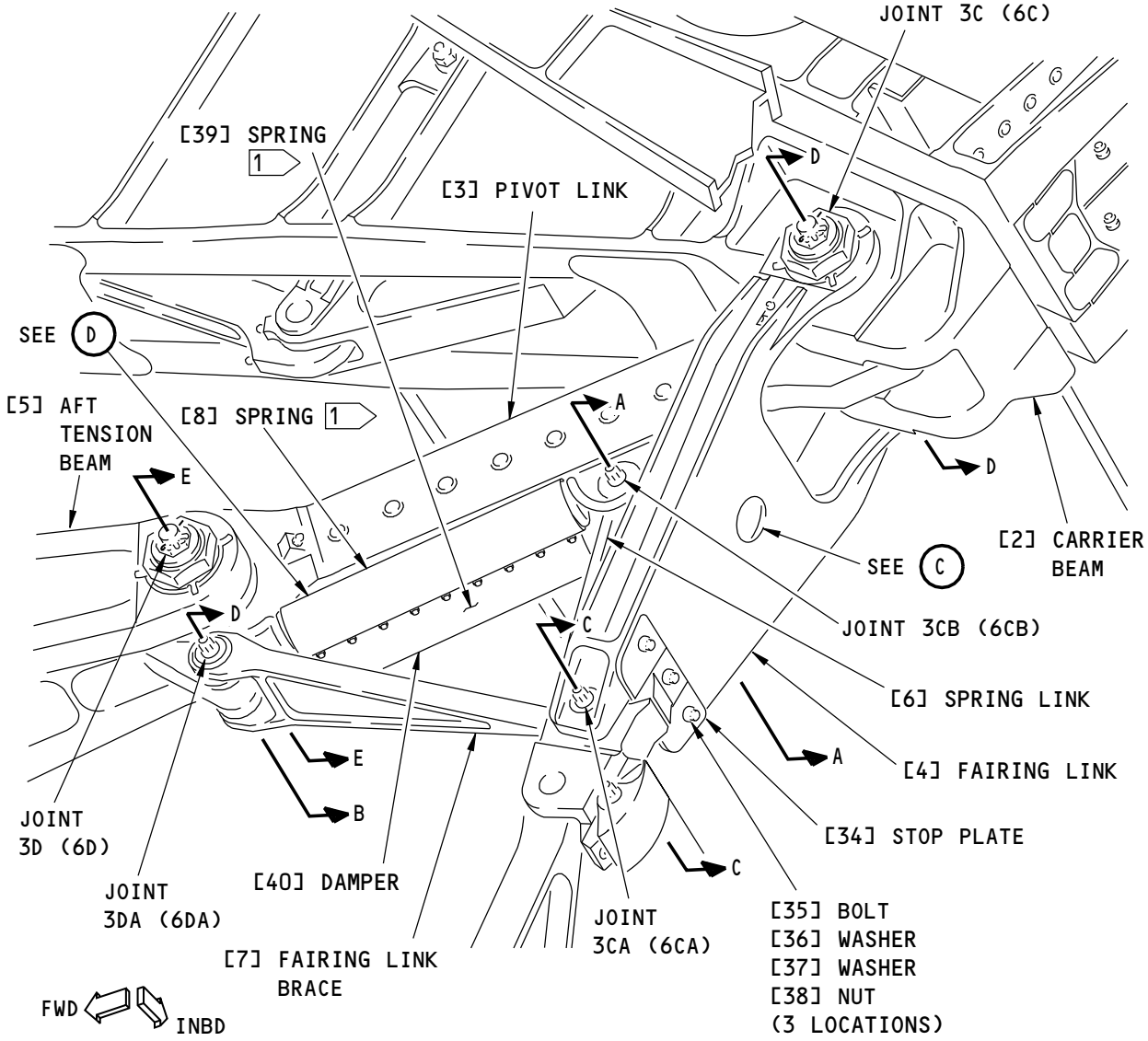
FLAP SUPPORT MECHANISM
LEFT SIDE IS SHOWN (RIGHT SIDE IS OPPOSITE)

A

E47841 S0006413606_V2

Inboard Flap Outboard Support Pivot and Fairing Links Installation
Figure 401/27-51-14-990-801 (Sheet 1 of 6)

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LEFT SIDE IS SHOWN
(RIGHT SIDE IS OPPOSITE)

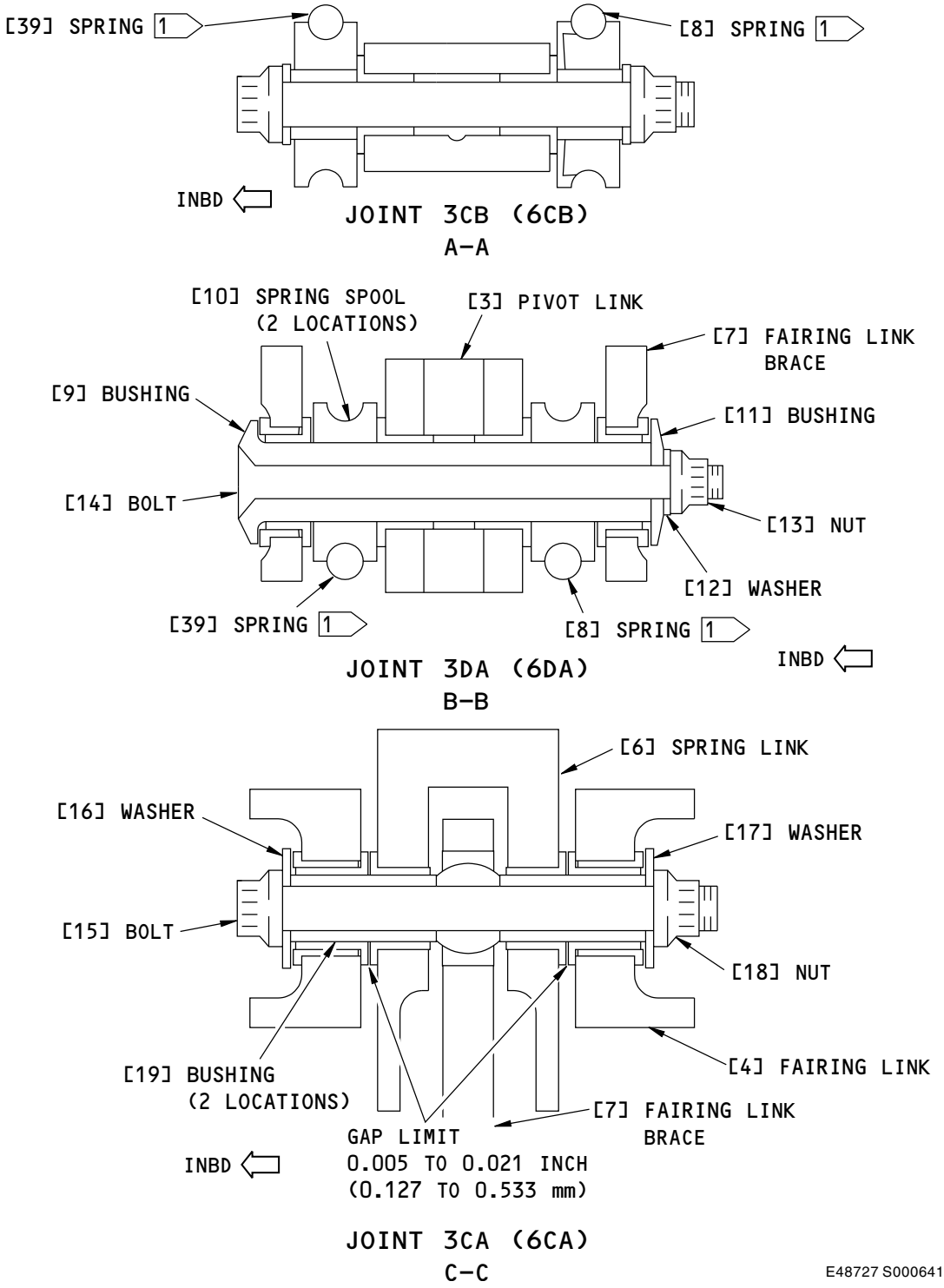
B

1 FOR THE LEFT AND RIGHT WINGS, INSTALL SPRING [8] ON THE LEFT SIDE AND SPRING [39] ON THE RIGHT SIDE OF THE FLAP SUPPORT.

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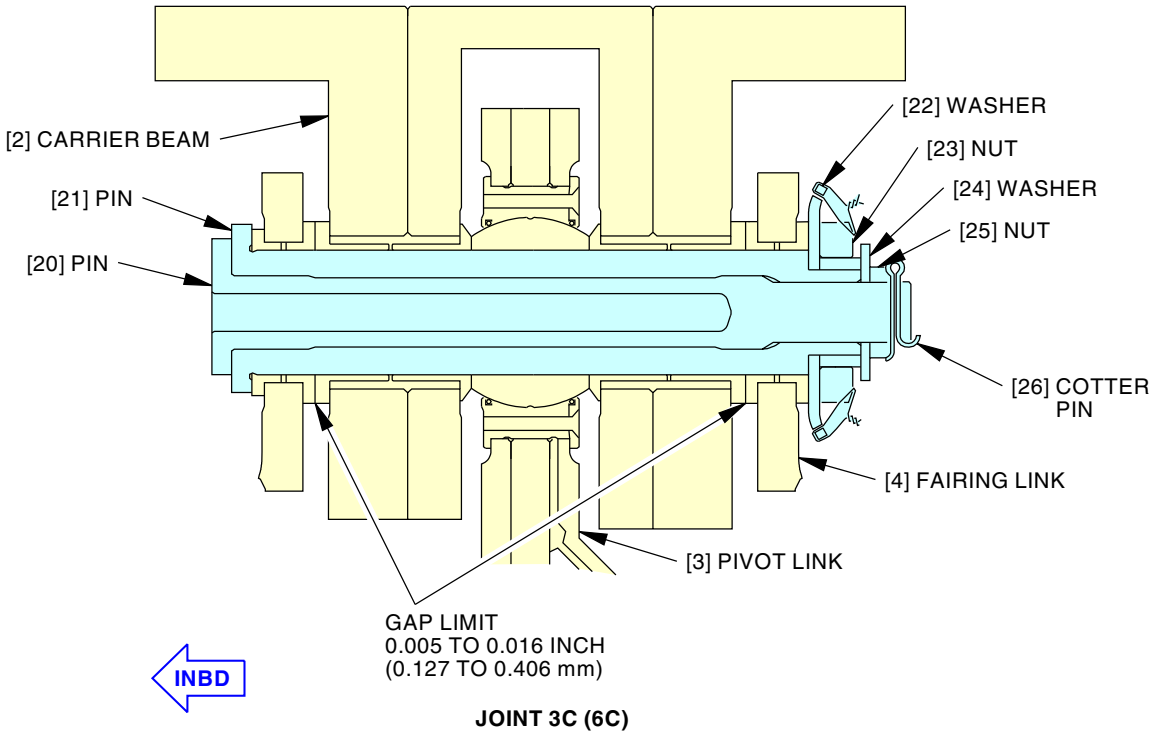
Inboard Flap Outboard Support Pivot and Fairing Links Installation
Figure 401/27-51-14-990-801 (Sheet 2 of 6)

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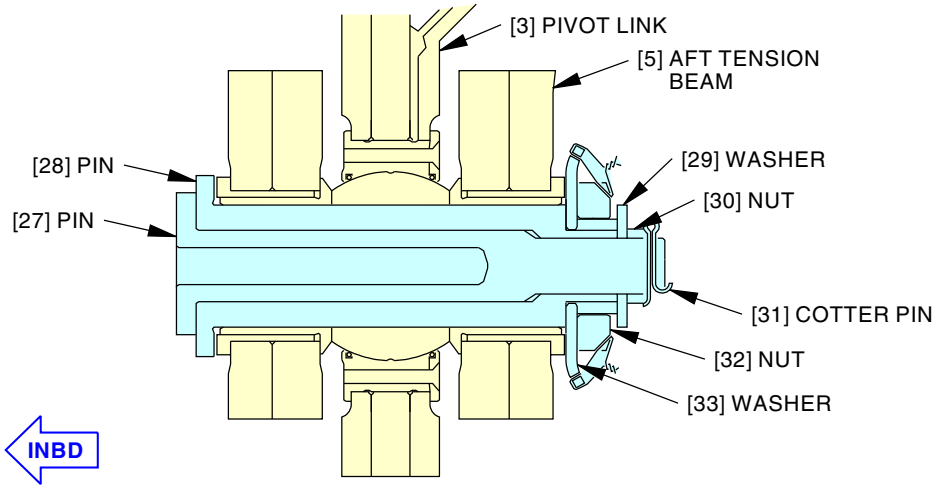
Inboard Flap Outboard Support Pivot and Fairing Links Installation
Figure 401/27-51-14-990-801 (Sheet 3 of 6)

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JOINT 3C (6C)

D-D



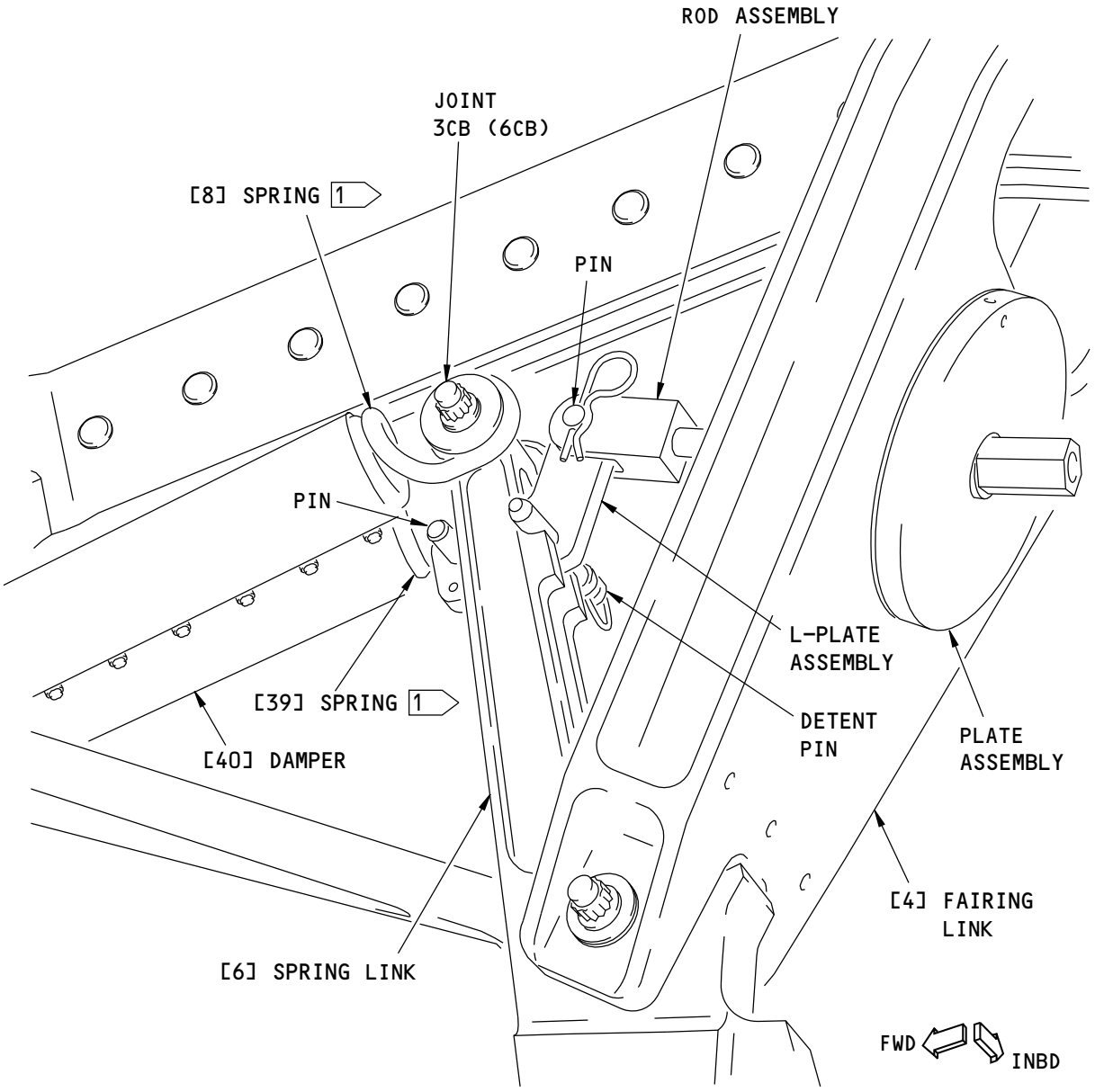
JOINT 3D (6D)

E-E

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Inboard Flap Outboard Support Pivot and Fairing Links Installation
Figure 401/27-51-14-990-801 (Sheet 4 of 6)

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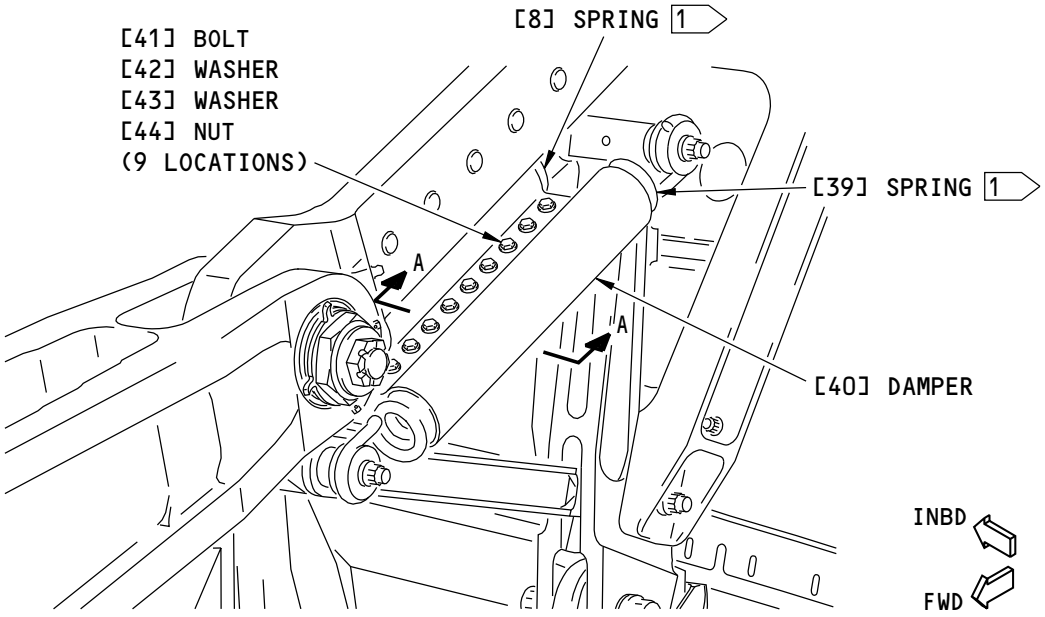
SPRING COMPRESSION TOOL
LEFT SIDE IS SHOWN (RIGHT SIDE IS OPPOSITE)

C

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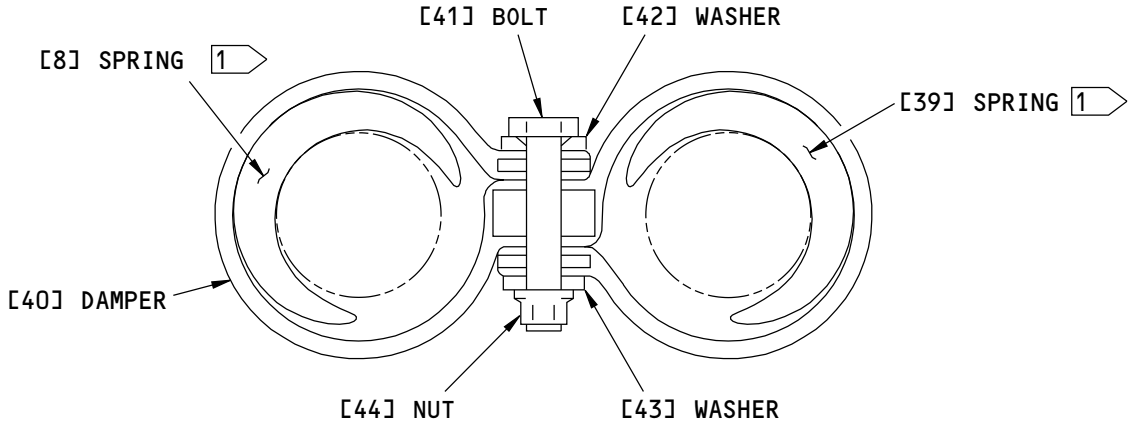
Inboard Flap Outboard Support Pivot and Fairing Links Installation
Figure 401/27-51-14-990-801 (Sheet 5 of 6)

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LEFT SIDE IS SHOWN
(RIGHT SIDE IS OPPOSITE)

D



LEFT SIDE IS SHOWN
(RIGHT SIDE IS OPPOSITE)
F–F

G79452 S0006413611_V2

Inboard Flap Outboard Support Pivot and Fairing Links Installation
Figure 401/27-51-14-990-801 (Sheet 6 of 6)

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TASK 27-51-14-020-802

4. Carrier Beam Removal

(Figure 402)

A. General

(1) This task includes the removal of the carrier beam [2], bellcrank assembly [52], forward PI link [64], aft PI link [69] and carrier beam rod [51].

(2) This task removes parts at joints 3B, 3C, 3G, 3L, 3M, 3N, 3P, 6B, 6C, 6G, 6L, 6M, 6N and 6P.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

C. Procedure

SUBTASK 27-51-14-860-006

(1) Do this task: Prepare for the Removal, TASK 27-51-14-860-801.

SUBTASK 27-51-14-020-007

(2) Do this task: Pivot Link, Fairing Links and Spring Removal, TASK 27-51-14-020-801.

SUBTASK 27-51-14-020-008

(3) At joint 3B or 6B as applicable, disconnect the carrier beam [2] from the drive arm [1]:

(a) Remove the nut [56], washer [55] and pin [54].

(b) Remove the nut [58], washer [59] and pin [53] and remove the carrier beam [2] from the drive arm [1].

SUBTASK 27-51-14-020-009

(4) At joint 3L or 6L as applicable, disconnect the carrier beam rod [51] from the drive arm [1]:

(a) Remove the pin [60], washer [61] and pin [62] and remove the carrier beam rod [51] from the drive arm [1].

(b) Remove the carrier beam [2] with the carrier beam rod [51], bellcrank assembly [52], forward PI link [64] and aft PI link [69] from the flap support mechanism.

SUBTASK 27-51-14-020-010

(5) If it is necessary, remove the carrier beam rod [51], bellcrank assembly [52], forward PI link [64] and aft PI link [69] from the carrier beam [2]:

(a) At joint 3M or 6M as applicable, remove the pin [67], washer [68] and pin [65] and disconnect the carrier beam rod [51] and bellcrank assembly [52] from the forward PI link [64].

(b) At joint 3N or 6N as applicable, disconnect the forward PI link [64] from the carrier beam [2]:

1) Remove the nut [70], washer [71], washer [77], bushing [78] and bolt [76] from the carrier beam [2].

2) Remove the nut [73], washer [72], washer [74] and bolt [75] and remove the forward PI link [64] from the carrier beam [2].

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(c) At joint 3G or 6G as applicable, remove the pin [79], washer [80] and pin [81] and disconnect the bellcrank assembly [52] from the aft PI link [69].

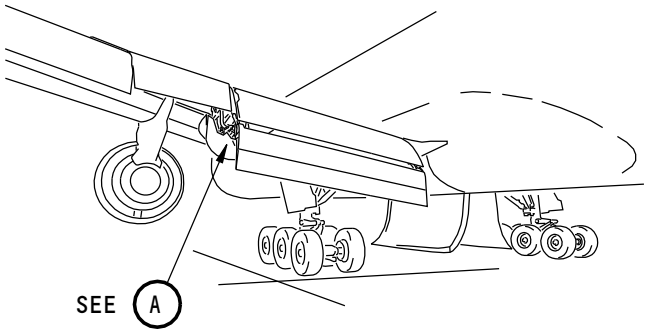
(d) At joint 3P or 6P as applicable, disconnect the aft PI link [69] from the carrier beam [2]:

1) Remove the nut [83], washer [84], washer [90], bushing [91] and bolt [89] from the carrier beam [2].

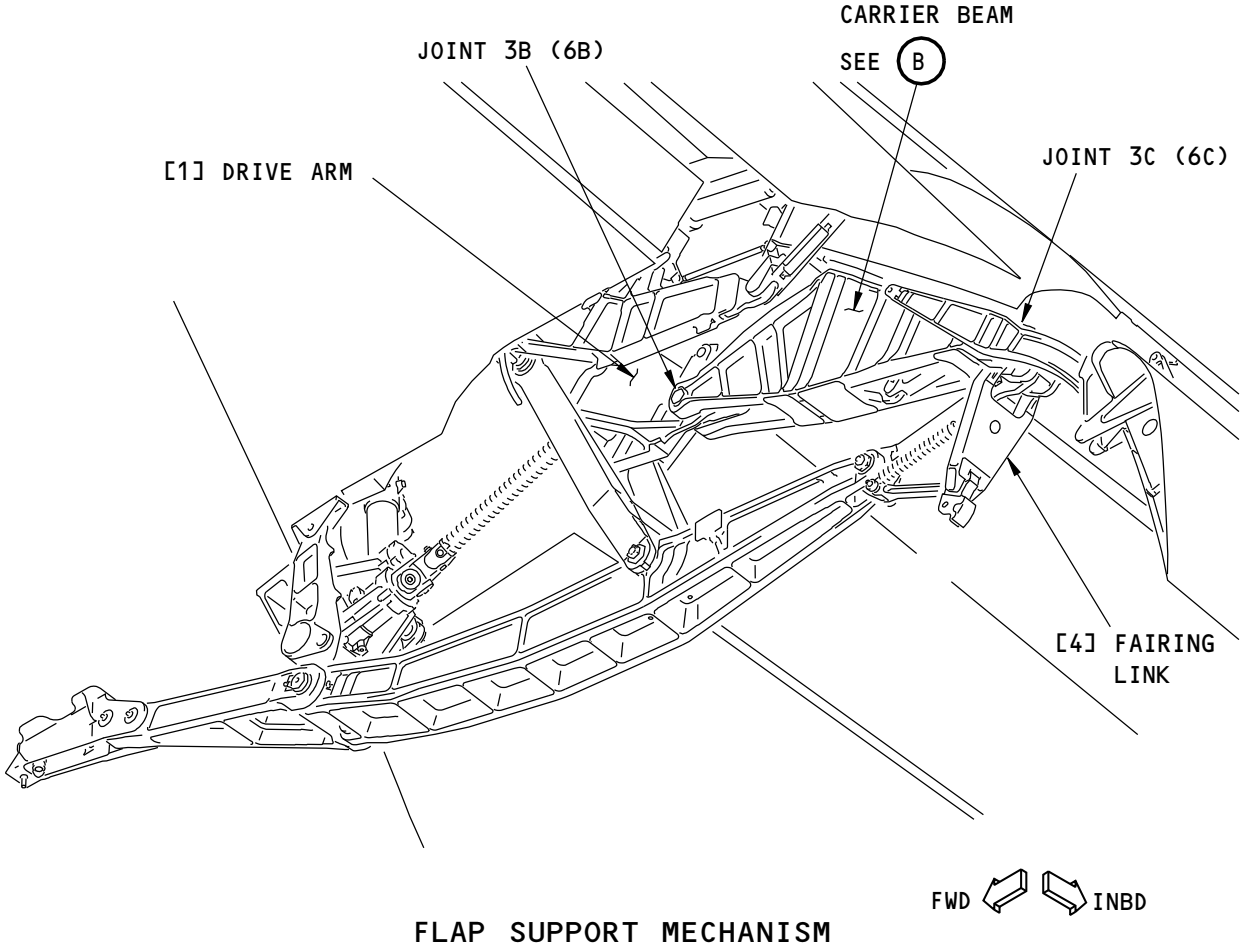
2) Remove the nut [85], washer [86], washer [87] and bolt [88] and remove the aft PI link [69] from the carrier beam [2].

——— END OF TASK ———

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LEFT WING
(RIGHT WING IS OPPOSITE)



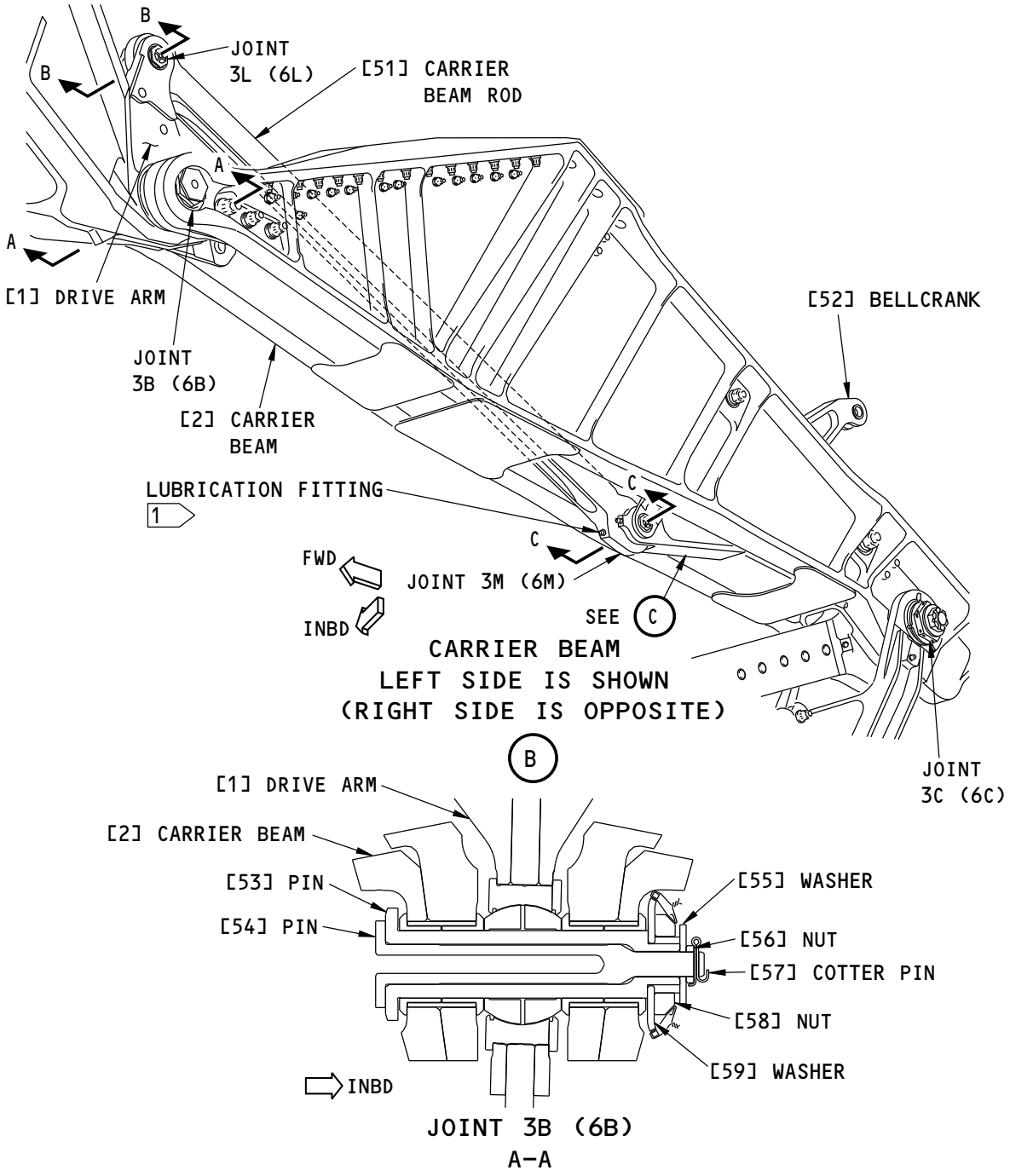
FLAP SUPPORT MECHANISM
LEFT SIDE IS SHOWN (RIGHT SIDE IS OPPOSITE)

A

E52557 S0006413613_V2

Inboard Flap Outboard Carrier Beam Installation
Figure 402/27-51-14-990-802 (Sheet 1 of 5)

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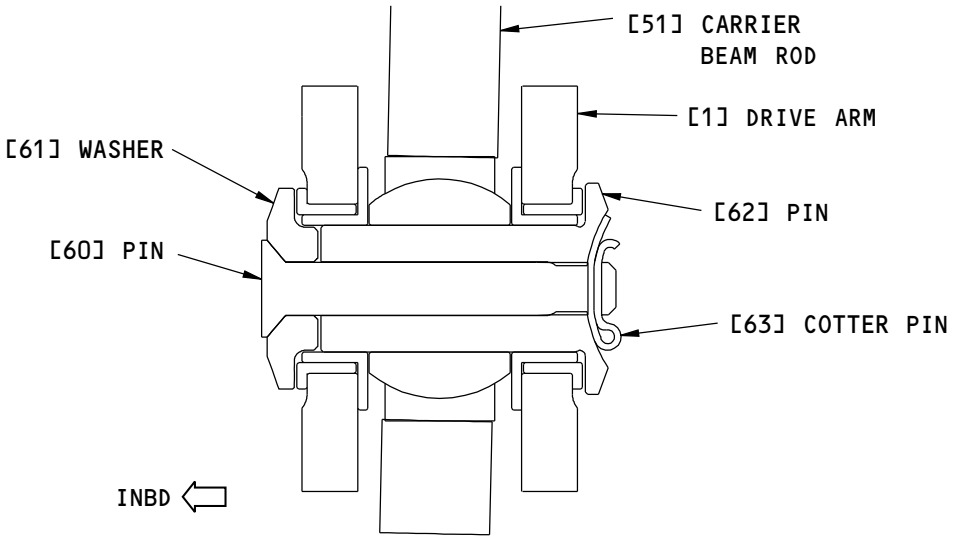


1 INSTALL THE CARRIER BEAM ROD WITH THE LUBRICATION FITTING POINTING IN THE DOWN DIRECTION.

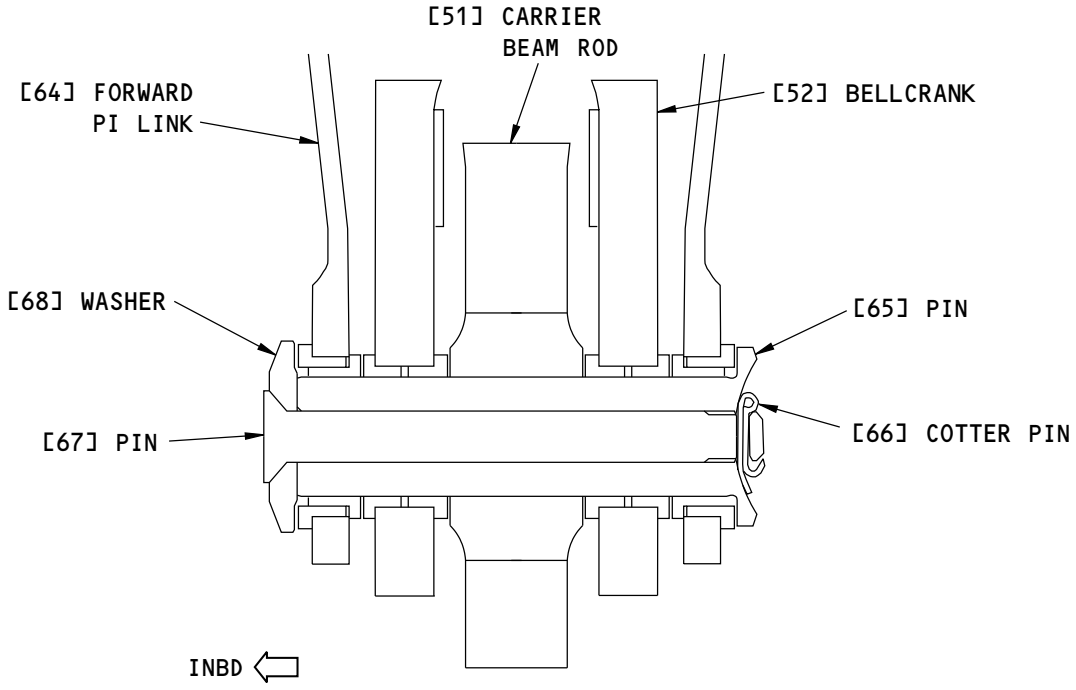
E48783 S0006413614_V3

Inboard Flap Outboard Carrier Beam Installation
Figure 402/27-51-14-990-802 (Sheet 2 of 5)

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JOINT 3L (6L)
B–B

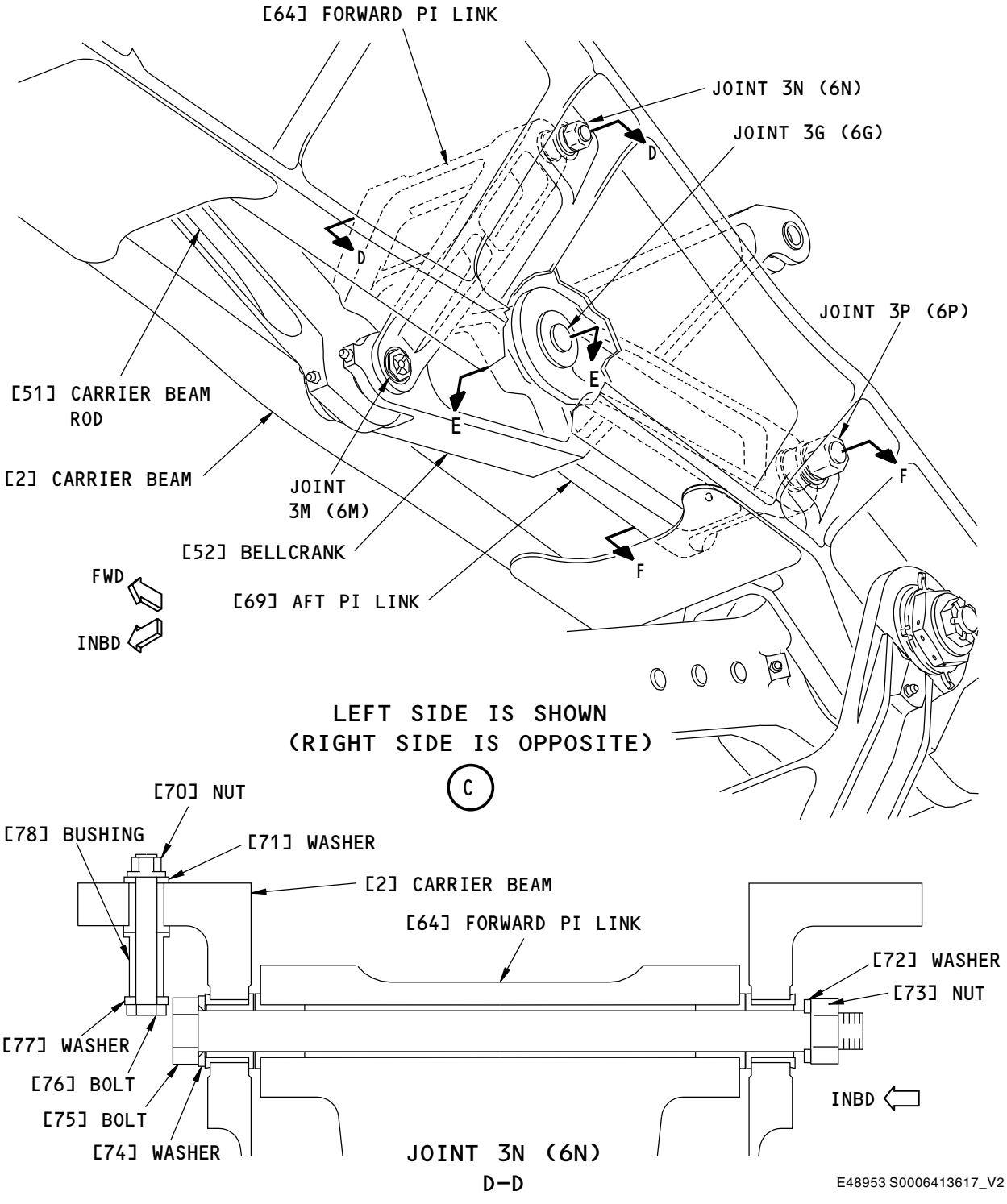


JOINT 3M (6M)
C–C

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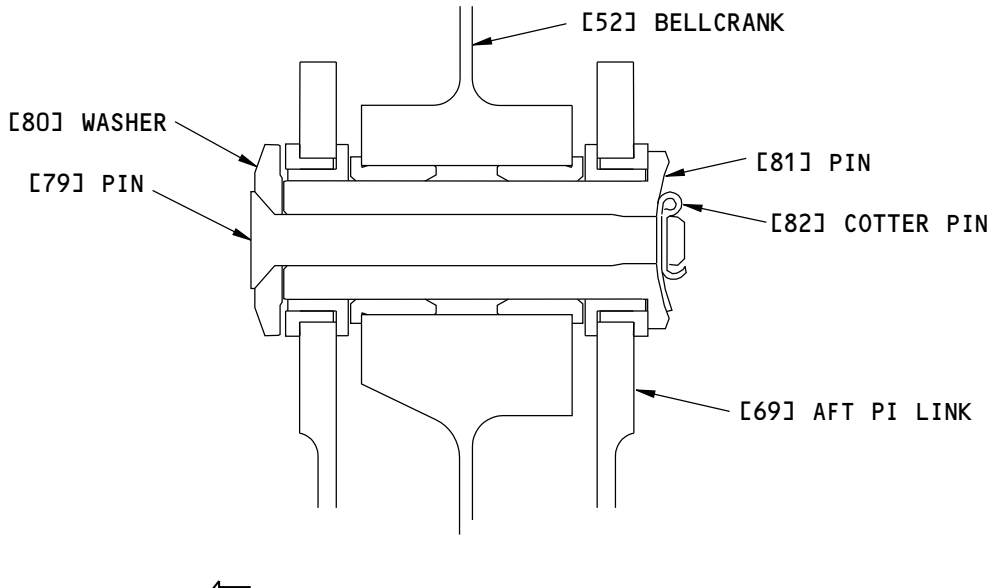
Inboard Flap Outboard Carrier Beam Installation
Figure 402/27-51-14-990-802 (Sheet 3 of 5)

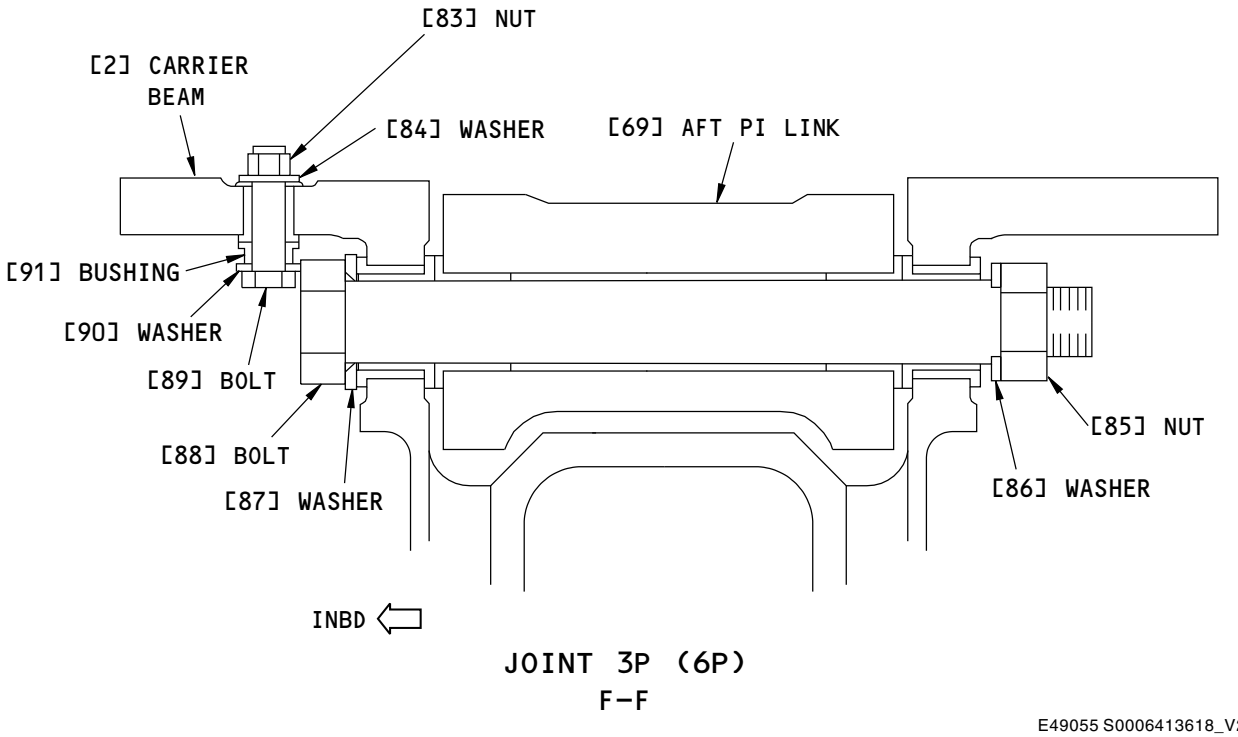
ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details



Inboard Flap Outboard Carrier Beam Installation
Figure 402/27-51-14-990-802 (Sheet 4 of 5)

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details





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Inboard Flap Outboard Carrier Beam Installation
Figure 402/27-51-14-990-802 (Sheet 5 of 5)

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TASK 27-51-14-020-803

5. Compression Strut Removal

(Figure 403)

A. General

(1) This task includes the removal of the compression strut [112].

(2) This task removes parts at joints 3W, 3Y, 6W and 6Y.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

C. Procedure

SUBTASK 27-51-14-860-007

(1) Do this task: Prepare for the Removal, TASK 27-51-14-860-801.

SUBTASK 27-51-14-020-012

(2) At joint 3Y or 6Y as applicable, disconnect the compression strut [112] from the aft tension beam [5]:

(a) Remove the nut [118], washer [119] and pin [113].

(b) Remove the nut [114], washer [115] and pin [116] to disconnect the compression strut [112] from the aft tension beam [5].

SUBTASK 27-51-14-020-013

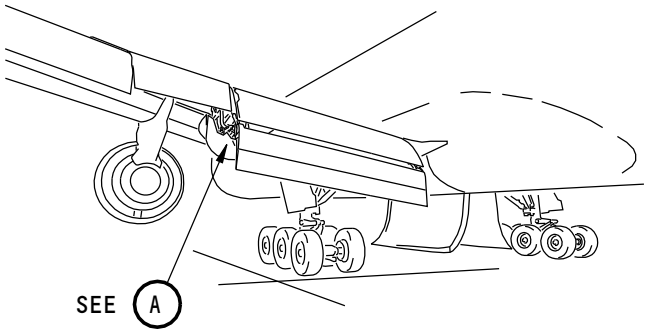
(3) At joint 3W or 6W as applicable, disconnect the compression strut [112] from the drive arm [1]:

(a) Remove the nut [125], washer [126] and pin [120].

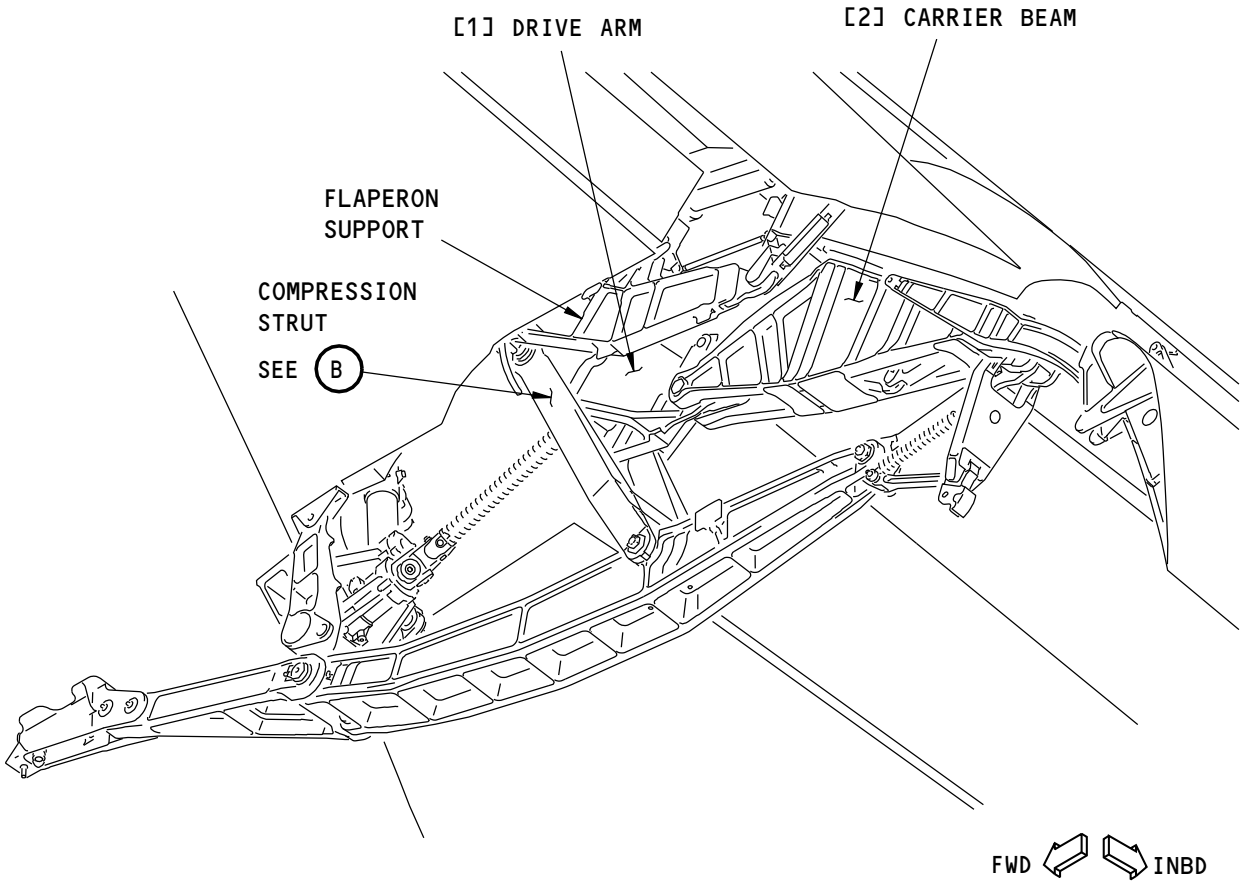
(b) Remove the nut [123], washer [122] and pin [121] to disconnect the compression strut [112] from the drive arm [1].

——— END OF TASK ———

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LEFT WING
(RIGHT WING IS OPPOSITE)



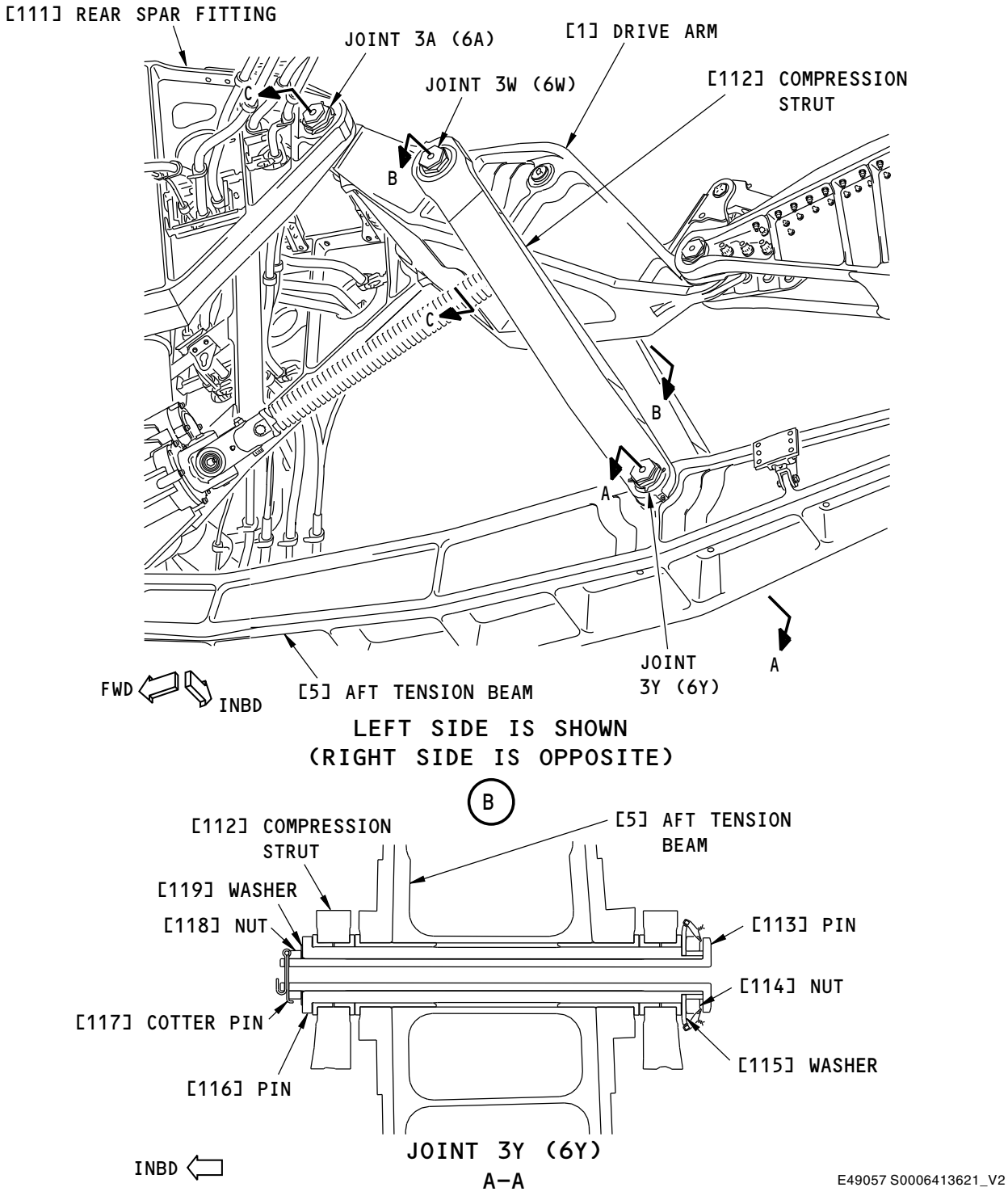
FLAP SUPPORT MECHANISM
LEFT SIDE IS SHOWN (RIGHT SIDE IS OPPOSITE)

A

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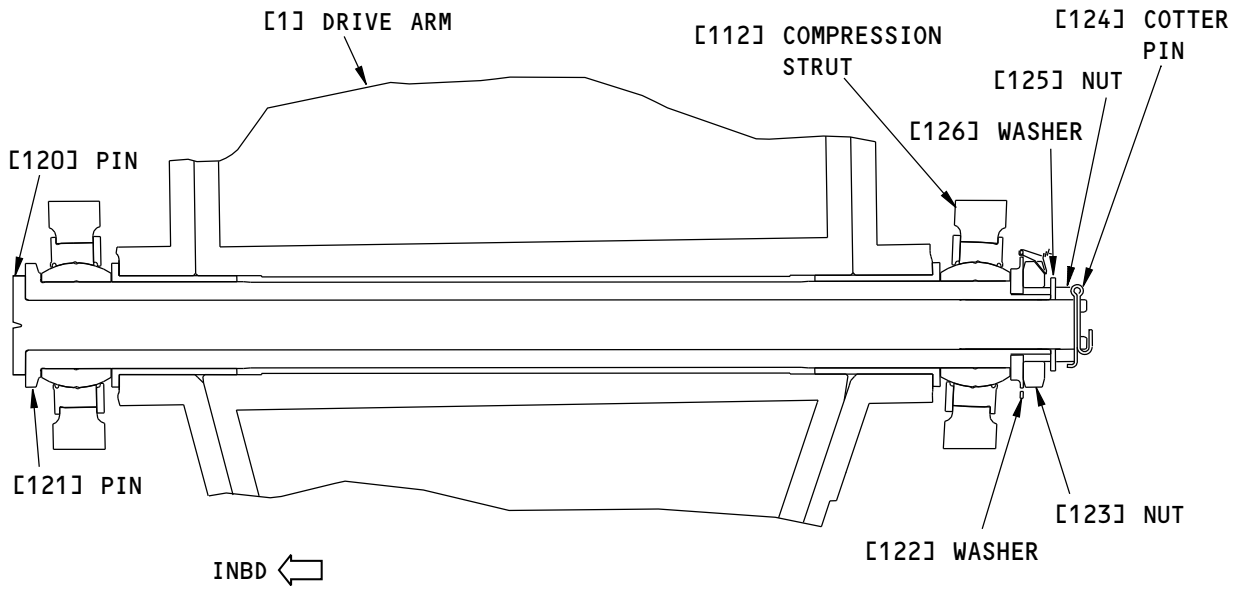
Inboard Flap Outboard Drive Arm Installation
Figure 403/27-51-14-990-803 (Sheet 1 of 3)

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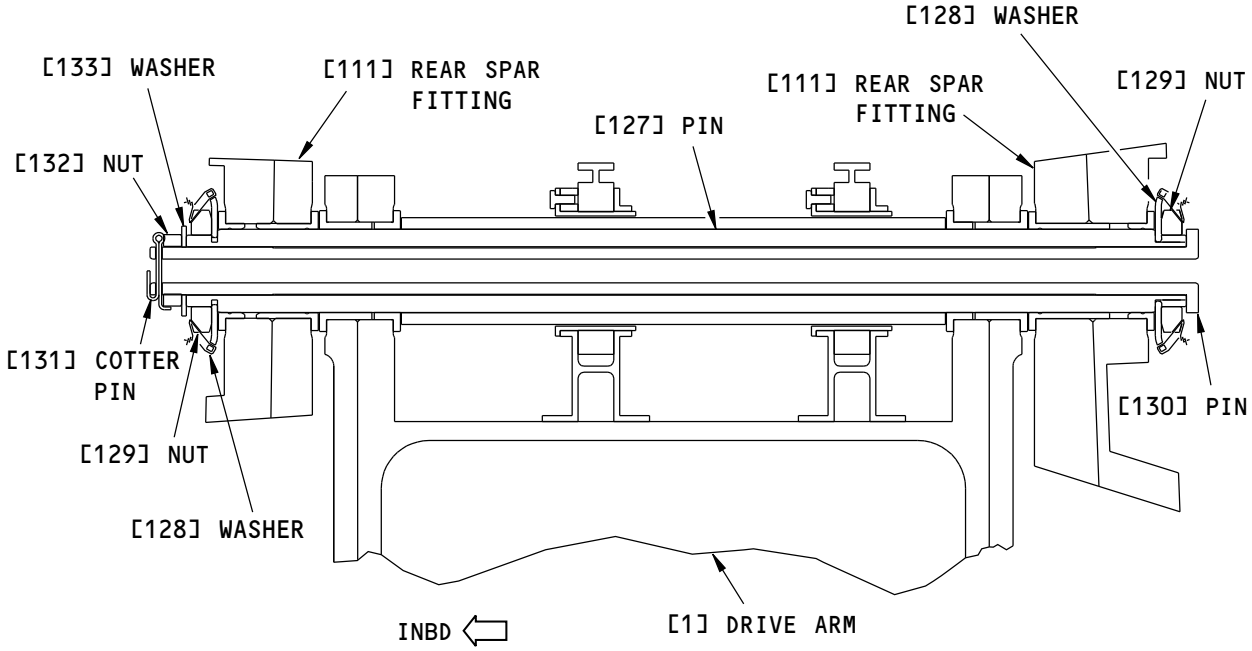


Inboard Flap Outboard Drive Arm Installation
Figure 403/27-51-14-990-803 (Sheet 2 of 3)

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JOINT 3W (6W)
B–B



JOINT 3A (6A)
C–C

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Inboard Flap Outboard Drive Arm Installation
Figure 403/27-51-14-990-803 (Sheet 3 of 3)

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TASK 27-51-14-020-806

6. Fuse Pin Removal

(Figure 404)

A. General

(1) This task includes the removal of the fuse pins [174].

(2) This task removes parts at joints 3Z, 3ZA, 6Z and 6ZA.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

C. Procedure

SUBTASK 27-51-14-860-019

(1) Do this task: Prepare for the Removal, TASK 27-51-14-860-801.

SUBTASK 27-51-14-020-026

(2) At joints 3Z and 3ZA or 6Z and 6ZA as applicable, remove the fuse pins [174] that attach the forward tension link [151] to the forward underwing fitting [154]:

NOTE: The inboard flap can move a small distance when you remove the fuse pins [174].

(a) Remove the nuts [178], washers [177], washers [179], link [153] and bolts [176] from the fuse pins [174].

(b) Remove the bushings [175] and bushing [180] from the ends of the fuse pins [174].

(c) Remove the fuse pins [174] from the forward tension link [151] and the forward underwing fitting [154].

——— END OF TASK ———

TASK 27-51-14-020-804

7. Aft Tension Beam, Forward Tension Link and Actuator Support Removal

(Figure 404)

A. General

(1) This task includes the removal of the aft tension beam [5], forward tension link [151] and the actuator support [152].

(2) This task removes parts at joints 3D, 3X, 3Z, 3ZA, 6D, 6X, 6Z and 6ZA.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. References

Reference	Title
27-51-15-000-802	Inboard Flap Outboard Transmission Removal (P/B 401)
27-59-01-000-808-002	Inboard Flap Outboard Skew Sensor - Removal (P/B 401)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap

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(Continued)

Zone	Area
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-51-14-860-008

(1) Do this task: Prepare for the Removal, TASK 27-51-14-860-801.

SUBTASK 27-51-14-020-014

(2) Do this task: Inboard Flap Outboard Skew Sensor - Removal, TASK 27-59-01-000-808-002.

SUBTASK 27-51-14-020-015

(3) Do this task: Inboard Flap Outboard Transmission Removal, TASK 27-51-15-000-802.

SUBTASK 27-51-14-020-016

(4) If you will remove the aft tension beam [5], do these steps:

(a) Do this task: Pivot Link, Fairing Links and Spring Removal, TASK 27-51-14-020-801.

(b) Do this task: Compression Strut Removal, TASK 27-51-14-020-803.

SUBTASK 27-51-14-020-017

(5) At joint 3X or 6X as applicable, disconnect the actuator support [152], the aft tension beam [5] and the forward tension link [151]:

(a) Remove the nut [172], washer [173] and pin [169].

(b) Remove the nut [168], washer [167] and pin [170] to disconnect the actuator support [152], the aft tension beam [5] and the forward tension link [151].

SUBTASK 27-51-14-020-018

(6) Disconnect the actuator support [152] from the underwing fitting [155] and the underwing fitting [161]:

(a) At the outboard end of the actuator support [152], remove the nut [160], washer [157], washer [159], bolt [156] and bushing [158].

(b) At the inboard end of the actuator support [152], remove the nuts [166], washers [163], washers [165], bolts [162] and bushings [164].

(c) Remove the actuator support [152] from the underwing fitting [155] and the underwing fitting [161].

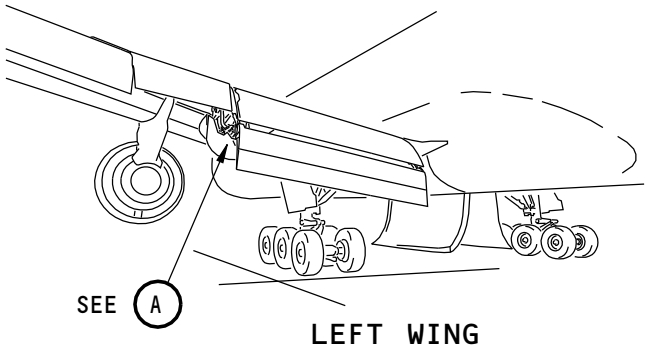
SUBTASK 27-51-14-020-019

(7) At joints 3Z and 3ZA or 6Z and 6ZA as applicable, disconnect the forward tension link [151] from the forward underwing fitting [154]:

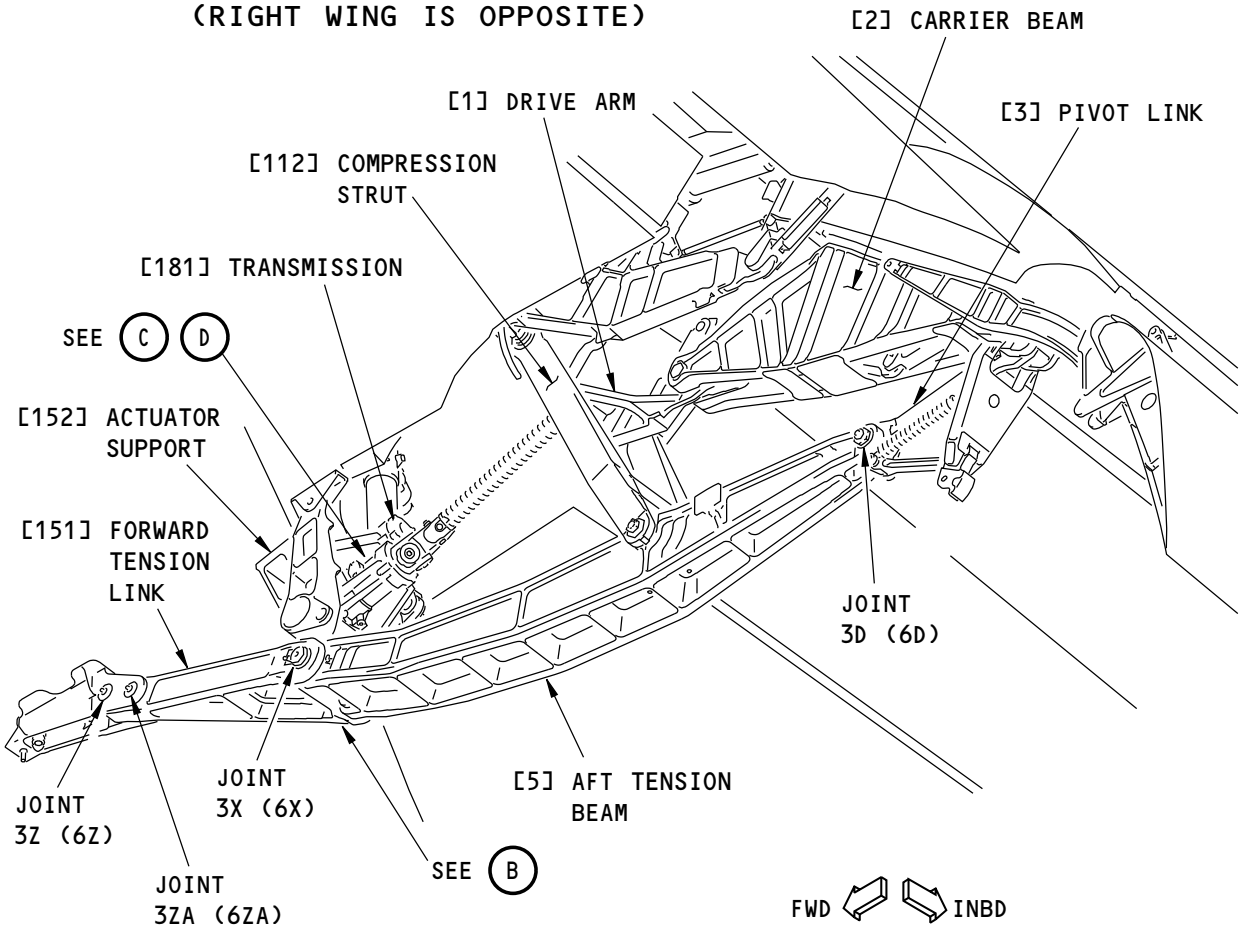
(a) Do this task: Fuse Pin Removal, TASK 27-51-14-020-806.

——— END OF TASK ———

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LEFT WING
(RIGHT WING IS OPPOSITE)



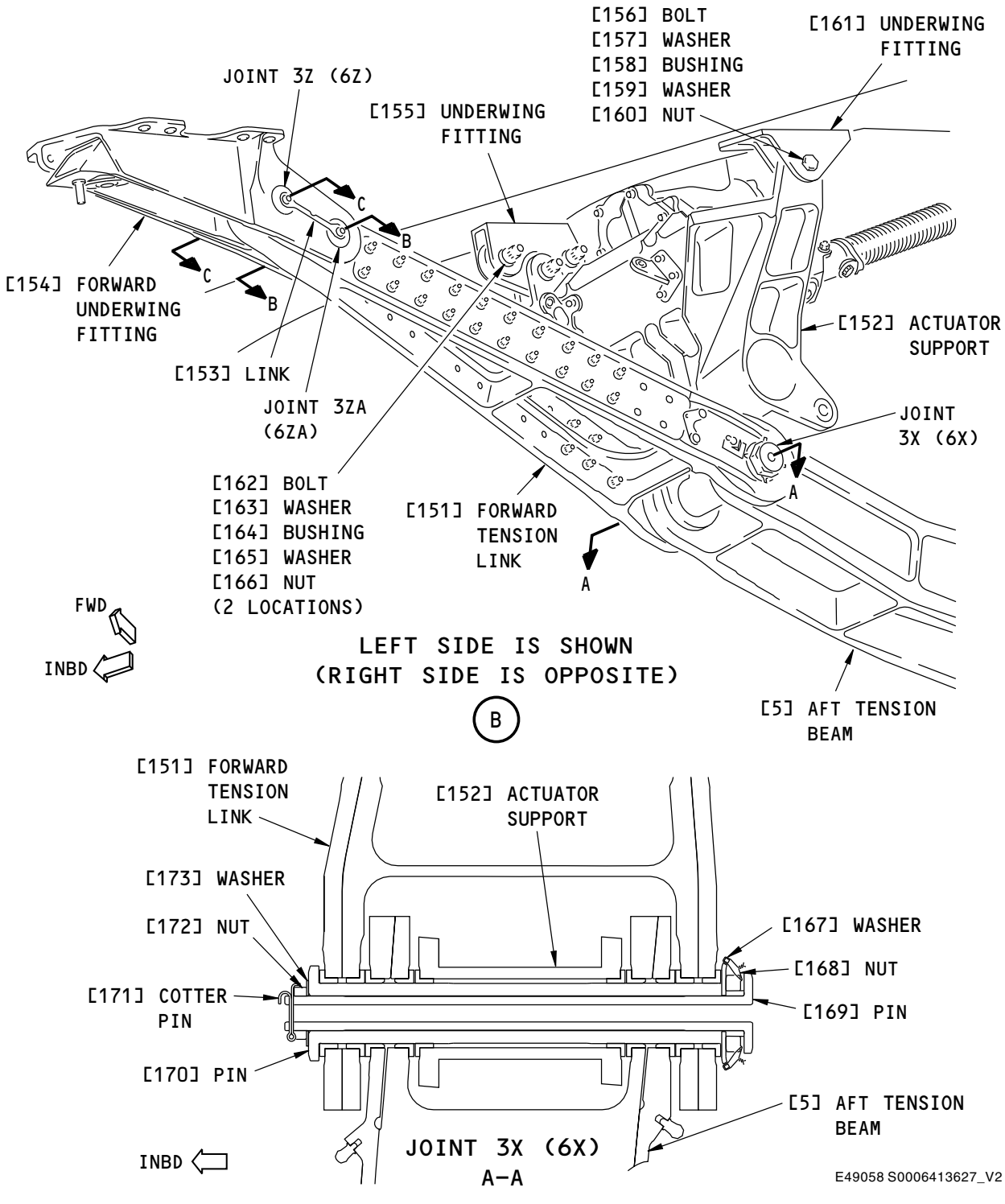
LEFT FLAP SUPPORT MECHANISM
(RIGHT FLAP SUPPORT MECHANISM IS OPPOSITE)

A

E54501 S0006413626_V4

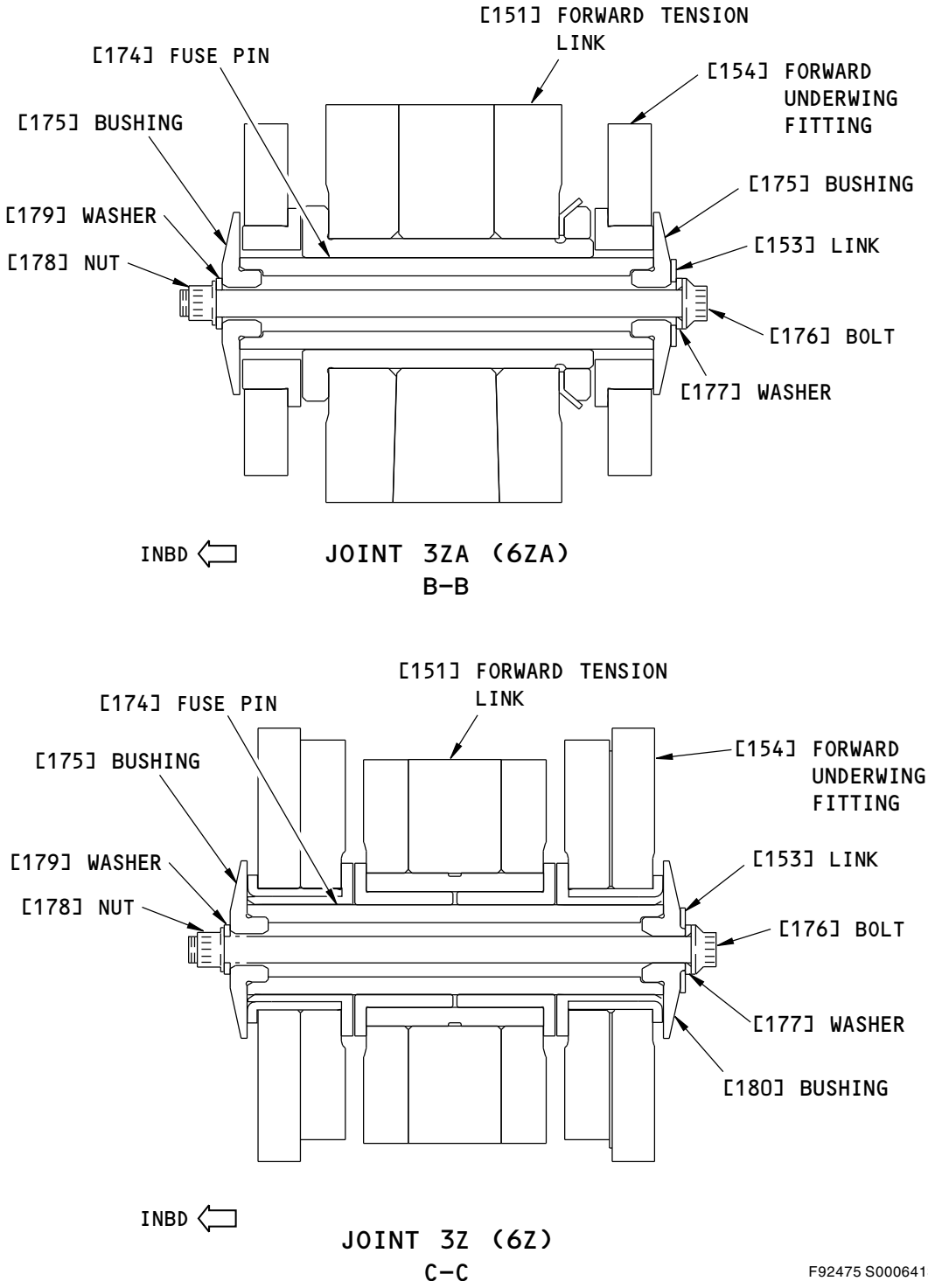
Inboard Flap Outboard Actuator Support Installation
Figure 404/27-51-14-990-804 (Sheet 1 of 4)

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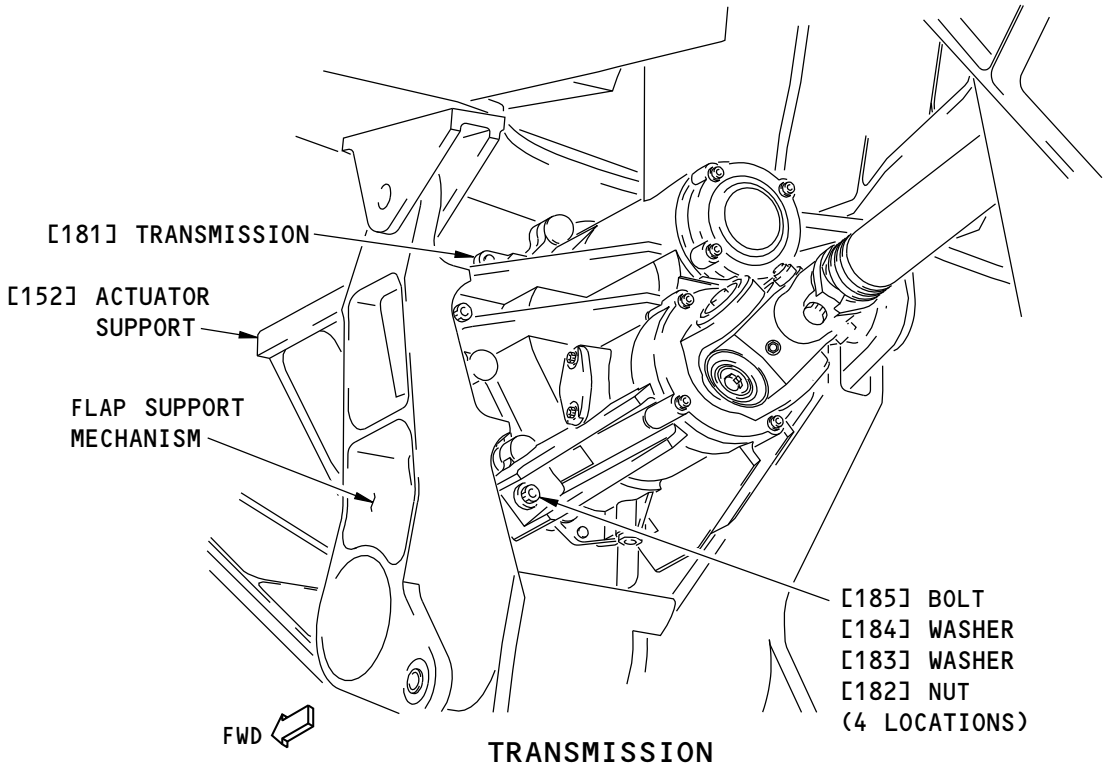
Inboard Flap Outboard Actuator Support Installation
Figure 404/27-51-14-990-804 (Sheet 2 of 4)

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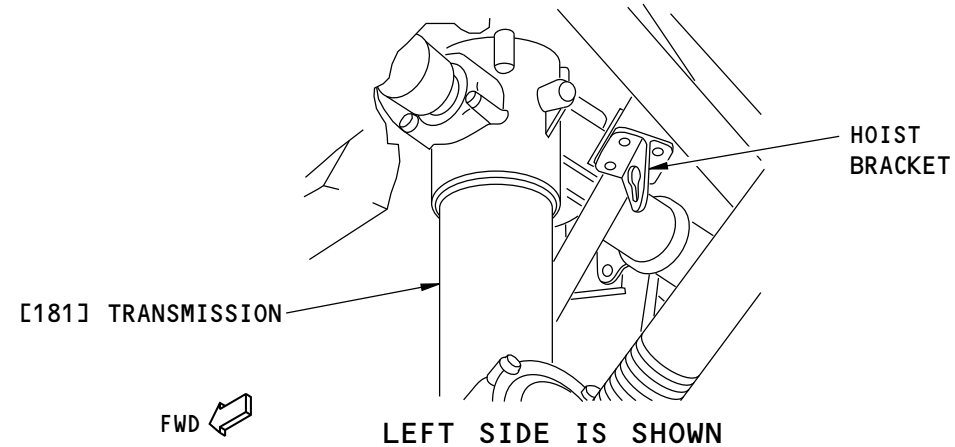
Inboard Flap Outboard Actuator Support Installation
Figure 404/27-51-14-990-804 (Sheet 3 of 4)

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TRANSMISSION
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

C



LEFT SIDE IS SHOWN
(RIGHT SIDE IS OPPOSITE)

D

U51353 S0000203137_V3

Inboard Flap Outboard Actuator Support Installation
Figure 404/27-51-14-990-804 (Sheet 4 of 4)

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TASK 27-51-14-020-808

8. Actuator Support Removal without the Removal of the Trailing Edge Flap

(Figure 404)

A. General

(1) This task contains the steps to remove the actuator support without removing the trailing edge flap.

(a) To remove the actuator support with the trailing edge flap removed, do this task: Aft Tension Beam, Forward Tension Link and Actuator Support Removal, TASK 27-51-14-020-804.

(2) This task removes parts at joints 3X, 3Z, 3ZA, 6X, 6Z, and 6ZA.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1525	Platform - Work, General Purpose Part #: 1190-8000 Supplier: 00994 Opt Part #: 8601-010 Supplier: 00994 Opt Part #: AM-2849 Supplier: 9M323 Opt Part #: MODEL 137 Supplier: 2S363
STD-6389	Straps - Tie-down

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-51-14-860-021

(1) Do this task: Prepare for the Removal, TASK 27-51-14-860-801.

SUBTASK 27-51-14-480-001

(2) Prevent the forward movement of the aft tension beam [5]. Do these steps:

(a) Put a work platform, COM-1525, below the aft tension beam [5] to give support to the structure.

(b) Install the straps, STD-6389, to the forward clevis end of the aft tension beam [5] and to the work platform, COM-1525.

1) The straps must prevent the forward movement of the aft tension beam [5].

2) The straps must hold a minimum load of 2000 lb (907 kg).

SUBTASK 27-51-14-480-002

(3) Prevent the movement of the drive arm [1] and the carrier beam [2]. Do these steps:

(a) Install the straps, STD-6389, to the attach point of the drive arm [1] and the carrier beam [2].

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1) The straps must hold a minimum load of 2000 lb (907 kg).

(b) Install the straps, STD-6389, to the aft tension beam [5].

SUBTASK 27-51-14-480-003

(4) Prevent the forward movement of the transmission [181]. Do this step:

(a) Install the straps, STD-6389, to the transmission [181] and to the hoist bracket.

1) The straps must hold a minimum load of 2000 lb (907 kg).

SUBTASK 27-51-14-020-043

(5) Disconnect the actuator support [152] from the transmission [181]. Do this step:

(a) Remove the four nuts [182], the four washers [183], the four washers [184], and the four bolts [185].

SUBTASK 27-51-14-020-044

(6) At joints 3Z and 3ZA or 6Z and 6ZA as applicable, disconnect the forward tension link [151] from the forward underwing fitting [154]. Do this step:

(a) Do this task: Fuse Pin Removal, TASK 27-51-14-020-806.

SUBTASK 27-51-14-020-045

(7) At joint 3X or 6X as applicable, disconnect the actuator support [152], the aft tension beam [5] and the forward tension link [151]. Do these steps:

(a) Remove the cotter pin [171].

1) Discard the cotter pin [171].

2) Replace the old cotter pin [171] with a new cotter pin [171].

(b) Remove the nut [172], the washer [173], and the pin [169].

(c) Remove the nut [168], the washer [167], and the pin [170].

SUBTASK 27-51-14-020-047

(8) Remove the forward tension link [151].

SUBTASK 27-51-14-020-046

(9) Disconnect the actuator support [152] from the underwing fitting [155] and the underwing fitting [161]. Do these steps:

(a) At the outboard end of the actuator support [152], remove the nut [160], the washer [157], the washer [159], the bolt [156], and the bushing [158].

(b) At the inboard end of the actuator support [152], remove the two nuts [166], the two washers [163], the two washers [165], the two bolts [162], and the two bushings [164].

(c) Remove the actuator support [152] from the underwing fitting [155] and the underwing fitting [161].

SUBTASK 27-51-14-020-048

(10) Remove the actuator support [152].

END OF TASK

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TASK 27-51-14-020-805

9. Drive Arm Removal

(Figure 403)

A. General

(1) This task includes the removal of the drive arm [1].

(2) This task removes parts at joint 3A and 6A.

(3) It is necessary to do the task "Prepare for the Removal" before you do this task.

B. References

Reference	Title
27-51-15-000-802	Inboard Flap Outboard Transmission Removal (P/B 401)
27-59-01-000-808-002	Inboard Flap Outboard Skew Sensor - Removal (P/B 401)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-51-14-860-009

(1) Do this task: Prepare for the Removal, TASK 27-51-14-860-801.

SUBTASK 27-51-14-020-020

(2) Do this task: Inboard Flap Outboard Skew Sensor - Removal, TASK 27-59-01-000-808-002.

SUBTASK 27-51-14-020-021

(3) Do this task: Inboard Flap Outboard Transmission Removal, TASK 27-51-15-000-802.

SUBTASK 27-51-14-020-022

(4) Do this task: Carrier Beam Removal, TASK 27-51-14-020-802.

SUBTASK 27-51-14-020-023

(5) Do this task: Compression Strut Removal, TASK 27-51-14-020-803.

SUBTASK 27-51-14-020-024

(6) At joint 3A or 6A as applicable, disconnect the drive arm [1] from the rear spar fittings [111]:

(a) Remove the nut [132], washer [133] and pin [130].

(b) Remove the nuts [129] and washers [128] from the pin [127].

(c) Remove the pin [127] to disconnect the drive arm [1] from the rear spar fittings [111].

——— END OF TASK ———

TASK 27-51-14-420-801

10. Drive Arm Installation

(Figure 403)

A. General

(1) This task includes the installation of the drive arm [1].

(2) This task installs parts at joint 3A and 6A.

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(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. References

Reference	Title
27-51-15-400-802	Inboard Flap Outboard Transmission Installation (P/B 401)
27-59-01-400-808-002	Inboard Flap Outboard Skew Sensor - Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Drive arm	27-51-14-16-650	ARO 001-014
		27-51-14-16-655	ARO 001-014

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

F. Procedure

SUBTASK 27-51-14-420-001

(1) At joint 3A or 6A as applicable, connect the drive arm [1] to the rear spar fittings [111]:

(a) Apply grease, D00633, to the pin [127], pin [130], washers [128], washer [133], nuts [129] and nut [132].

(b) Put the drive arm [1] in its location on the rear spar fittings [111].

(c) Install the pin [127] to connect the drive arm [1] to the rear spar fittings [111].

NOTE: Install the pin [127] through the access hole in the flaperon support.

(d) Install the washers [128] and nuts [129] on the pin [127].

(e) Tighten the nuts [129] to 1600-1850 pound-inches.

(f) Install MS20995NC40 lockwire, G02436 between the nuts [129] and washers [128] in two locations on each nut.

(g) Install the pin [130].

(h) Install the washer [133] and nut [132] on the pin [130].

(i) Tighten the nut [132] to 520-640 pound-inches.

(j) Install the pin [131] in the nut [132].

SUBTASK 27-51-14-420-002

(2) Do this task: Compression Strut Installation, TASK 27-51-14-420-803.

SUBTASK 27-51-14-420-003

(3) Do this task: Carrier Beam Installation, TASK 27-51-14-420-804.

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SUBTASK 27-51-14-420-004

(4) Do this task: Inboard Flap Outboard Transmission Installation, TASK 27-51-15-400-802.

SUBTASK 27-51-14-420-005

(5) Do this task: Inboard Flap Outboard Skew Sensor - Installation, TASK 27-59-01-400-808-002.

SUBTASK 27-51-14-860-010

(6) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-14-860-802.

——— END OF TASK ———

TASK 27-51-14-420-802

11. Aft Tension Beam, Forward Tension Link and Actuator Support Installation

(Figure 404)

A. General

(1) This task includes the installation of the aft tension beam [5], forward tension link [151] and the actuator support [152].

(2) This task installs parts at joints 3D, 3X, 3Z, 3ZA, 6D, 6X, 6Z and 6ZA.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. References

Reference	Title
27-51-15-400-802	Inboard Flap Outboard Transmission Installation (P/B 401)
27-59-01-400-808-002	Inboard Flap Outboard Skew Sensor - Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
152	Actuator support	27-51-14-16-550	ARO 001-014
		27-51-14-16-555	ARO 001-014

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

F. Procedure

SUBTASK 27-51-14-420-006

(1) At joints 3Z and 3ZA or 6Z and 6ZA as applicable, connect the forward tension link [151] to the forward underwing fitting [154]:

(a) Do this task: Fuse Pin Installation, TASK 27-51-14-420-806.

SUBTASK 27-51-14-420-007

(2) Connect the actuator support [152] to the underwing fittings [155] and [161]:

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(a) Put the actuator support [152] in its location on the underwing fittings [155] and [161].

(b) Apply grease, D00633, to the bushing [158], washer [157], washer [159], nut [160], bushings [164], washers [163], washers [165] and nuts [166].

(c) Install the bushing [158] in the underwing fitting [155].

(d) Install the bushings [164] in the underwing fitting [161].

(e) At the inboard end of the actuator support [152], install the bolts [162], washers [163], washers [165] and nuts [166].

(f) Tighten the nuts [166] to 1700-2150 pound-inches.

(g) At the outboard end of the actuator support [152], install the bolt [156], washer [157], washer [159], nut [160].

(h) Tighten the nut [160] to 1700-2150 pound-inches.

SUBTASK 27-51-14-420-008

(3) At joint 3X or 6X as applicable, connect the aft tension beam [5], forward tension link [151] and the actuator support [152]:

(a) Apply grease, D00633, to the pin [169], pin [170], washer [167], washer [173], nut [168] and nut [172].

(b) Put the aft tension beam [5] in its location, aligned with the forward tension link [151] and the actuator support [152].

(c) Install the pin [170] to connect the aft tension beam [5], forward tension link [151] and the actuator support [152].

(d) Install the washer [167] and nut [168] on the pin [170].

(e) Tighten the nut [168] to 1600-1850 pound-inches.

(f) Install MS20995NC40 lockwire, G02436 on the nut [168] and washer [167] in two locations.

(g) Install the pin [169], washer [173] and nut [172].

(h) Tighten the nut [172] to 450-550 pound-inches.

(i) Install the cotter pin [171] in the nut [172].

SUBTASK 27-51-14-420-009

(4) If you installed the aft tension beam [5], do these steps:

(a) Do this task: Compression Strut Installation, TASK 27-51-14-420-803.

(b) Do this task: Pivot Link, Fairing Links and Spring Installation, TASK 27-51-14-420-805.

SUBTASK 27-51-14-420-010

(5) Do this task: Inboard Flap Outboard Transmission Installation, TASK 27-51-15-400-802.

SUBTASK 27-51-14-420-011

(6) Do this task: Inboard Flap Outboard Skew Sensor - Installation, TASK 27-59-01-400-808-002.

SUBTASK 27-51-14-860-011

(7) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-14-860-802.

——— END OF TASK ———

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TASK 27-51-14-420-808

12. Actuator Support Installation without the Removal of the Trailing Edge Flap

(Figure 404)

A. General

(1) This task contains the steps to install the actuator support without removing the trailing edge flap.

(a) This task is used to install the actuator support only if the actuator support was removed using this task: Actuator Support Removal without the Removal of the Trailing Edge Flap, TASK 27-51-14-020-808.

(b) To install the actuator support with the trailing edge flap removed, do this task: Aft Tension Beam, Forward Tension Link and Actuator Support Installation, TASK 27-51-14-420-802.

(2) This task installs parts at joints 3X, 3Z, 3ZA, 6X, 6Z, and 6ZA.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1525	Platform - Work, General Purpose Part #: 1190-8000 Supplier: 00994 Opt Part #: 8601-010 Supplier: 00994 Opt Part #: AM-2849 Supplier: 9M323 Opt Part #: MODEL 137 Supplier: 2S363
STD-6389	Straps - Tie-down

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
152	Actuator support	27-51-14-16-550	ARO 001-014
		27-51-14-16-555	ARO 001-014

F. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3

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(Continued)

Zone	Area
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

G. Procedure

SUBTASK 27-51-14-420-032

(1) Connect the actuator support [152] to the underwing fitting [155] and to the underwing fitting [161]. Do these steps:

(a) Put the actuator support [152] in its position on the underwing fitting [155] and on the underwing fitting [161].

(b) Apply the grease, D00633, to the bushing [158], the washer [157], the washer [159], the nut [160], the two bushings [164], the two washers [163], the two washers [165], and the two nuts [166].

(c) Install the two bushings [164] in the underwing fitting [155].

(d) Install the bushing [158] in the underwing fitting [161].

(e) At the inboard end of the actuator support [152], install the two bolts [162], the two washers [163], the two washers [165], and the two nuts [166].

1) Tighten the two nuts [166] from 1700 in-lb (192 N·m) to 2150 in-lb (243 N·m).

(f) At the outboard end of the actuator support [152], install the bolt [156], the washer [157], the washer [159], and the nut [160]. The bolt head must be installed at the outboard side.

1) Tighten the nut [160] from 1700 in-lb (192 N·m) to 2150 in-lb (243 N·m).

SUBTASK 27-51-14-420-033

(2) At joint 3X or 6X as applicable, connect the aft tension beam [5], the forward tension link [151] and the actuator support [152]. Do these steps:

(a) Apply the grease, D00633, to the pin [169], the pin [170], the washer [167], the washer [173], the nut [168], and the nut [172].

(b) Put the forward tension link [151] in its position, aligned with the aft tension beam [5] and the actuator support [152].

(c) Install the pin [170] to connect the aft tension beam [5], the forward tension link [151], and the actuator support [152].

(d) Install the washer [167] and the nut [168] on the pin [170].

1) Tighten the nut [168] from 1600 in-lb (181 N·m) to 1850 in-lb (209 N·m).

2) Install the lockwire on the nut [168] and the washer [167] in two locations.

(e) Install the pin [169].

(f) Install the washer [173] and nut [172] on the pin [169].

1) Tighten the nut [172] from 450 in-lb (51 N·m) to 550 in-lb (62 N·m).

2) Install the new cotter pin [171] in the nut [172].

SUBTASK 27-51-14-420-034

(3) At joints 3Z and 3ZA or 6Z and 6ZA as applicable, connect the forward tension link [151] to the forward underwing fitting [154]. Do this step:

(a) Do this task: Fuse Pin Installation, TASK 27-51-14-420-806.

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SUBTASK 27-51-14-420-035

WARNING	USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING	DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Connect the actuator support [152] to the transmission [181]. Do these steps:

(a) Apply a thin layer of the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the mating surfaces of the actuator support [152] and the transmission [181].

(b) Apply the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the shanks and to the threads of the four bolts [185].

(c) Install the four bolts [185], the four washers [184], the four washers [183], and the four nuts [182].

NOTE: Install the four bolts [185] with the heads aft.

1) Tighten the four nuts [182]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-51-14-080-001

(5) Remove all of the straps, STD-6389.

SUBTASK 27-51-14-080-002

(6) Remove the work platform, COM-1525.

SUBTASK 27-51-14-860-022

(7) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-14-860-802.

END OF TASK

TASK 27-51-14-420-806

13. Fuse Pin Installation

(Figure 404)

A. General

(1) This task includes the installation of the fuse pins [174].

(2) This task installs parts at joints 3Z, 3ZA, 6Z and 6ZA.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

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(Continued)

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
153	Link	27-51-14-16-475	ARO 001-014

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

E. Procedure

SUBTASK 27-51-14-420-025

(1) At joints 3Z and 3ZA or 6Z and 6ZA as applicable, install the fuse pins [174] to connect the forward tension link [151] to the forward underwing fitting [154]:

(a) Apply grease, D00633, to the fuse pins [174].

(b) Put the forward tension link [151] in its position on the forward underwing fitting [154].

(c) Install the fuse pins [174] to hold the forward tension link [151] in the forward underwing fitting [154].

(d) Apply sealant, A00247, on the mating surface of the bushings [175] and bushing [180] and the forward underwing fitting [154].

(e) Install the bushings [175] and bushing [180] in the ends of the fuse pins [174].

NOTE: Install the bushing [180] in the outboard end of the forward fuse pin [174].

(f) Hold the link [153] in its position on the bushing [175] and bushing [180] outboard of the fuse pins [174].

(g) Install the bolts [176], washers [177], washers [179] and nuts [178] in the fuse pins [174].

(h) Tighten the nuts [178] to 60-85 pound-inches.

SUBTASK 27-51-14-860-020

(2) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-14-860-802.

——— END OF TASK ———

TASK 27-51-14-420-803

14. Compression Strut Installation

(Figure 403)

A. General

(1) This task includes the installation of the compression strut [112].

(2) This task installs parts at joints 3W, 3Y, 6W and 6Y.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

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B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-51-14-420-012

(1) At joint 3W or 6W as applicable, connect the compression strut [112] to the drive arm [1]:

(a) Apply grease, D00633, to the pin [120], pin [121], washer [122], washer [126], nut [123] and nut [125].

(b) Put the compression strut [112] in its location on the drive arm [1].

(c) Install the pin [121] to connect the compression strut [112] to the drive arm [1].

(d) Install the washer [122] and nut [123] on the pin [121].

(e) Tighten the nut [123] to 1600-1850 pound-inches.

(f) Install lockwire in two locations on the nut [123] and washer [122].

(g) Install the pin [120], washer [126] and nut [125].

(h) Tighten the nut [125] to 450-550 pound-inches.

(i) Install the pin [124] in the nut [125].

SUBTASK 27-51-14-420-013

(2) At joint 3Y or 6Y as applicable, connect the compression strut [112] to the aft tension beam [5]:

(a) Apply grease, D00633, to the pin [113], pin [116], washer [115], washer [119], nut [114] and nut [118].

(b) Align the compression strut [112] with the aft tension beam [5].

(c) Install the pin [116] to connect the compression strut [112] to the aft tension beam [5].

(d) Install the washer [115] and nut [114] on the pin [116].

(e) Tighten the nut [114] to 1600-1850 pound-inches.

(f) Install MS20995NC40 lockwire, G02436 in two locations on the nut [114] and washer [115].

(g) Install the pin [113], washer [119] and nut [118].

(h) Tighten the nut [118] to 450-550 pound-inches.

(i) Install the pin [117] in the nut [118].

SUBTASK 27-51-14-420-014

(3) Do this task: Carrier Beam Installation, TASK 27-51-14-420-804.

SUBTASK 27-51-14-860-012

(4) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-14-860-802.

——— END OF TASK ———

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TASK 27-51-14-420-804

15. Carrier Beam Installation

(Figure 402)

A. General

(1) This task includes the installation of the carrier beam [2], bellcrank assembly [52], forward PI link [64], aft PI link [69] and carrier beam rod [51].

(2) This task installs parts at joints 3B, 3C, 3G, 3L, 3M, 3N, 3P, 6B, 6C, 6G, 6L, 6M, 6N and 6P.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Carrier beam	27-51-14-16-190	ARO 001-014
		27-51-14-16-195	ARO 001-014

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

E. Procedure

SUBTASK 27-51-14-420-015

(1) If they are not installed, install carrier beam rod [51], bellcrank assembly [52], aft PI link [69] and forward PI link [64] on the carrier beam [2]:

(a) Make sure to install the carrier beam rod [51] with the lubrication fitting pointing in the down direction. (Figure 402)

(b) At joint 3P or 6P as applicable, connect the aft PI link [69] to the carrier beam [2]:

1) Apply grease, D00633, to the bolt [88].

2) Put the aft PI link [69] in its location on the carrier beam [2].

3) Install the bolt [88], washer [86], washer [87] and nut [85] that attach the aft PI link [69] to the carrier beam [2].

4) Install the bolt [89], bushing [91], washer [84], washer [90] and nut [83] in the carrier beam [2].

(c) At joint 3G or 6G as applicable, connect the bellcrank assembly [52] to the aft PI link [69]:

1) Apply grease, D00633, to the pin [79], washer [80] and pin [81].

2) Put the bellcrank assembly [52] in its location on the aft PI link [69].

3) Install the pin [81] and the washer [80] that attach the bellcrank assembly [52] to the aft PI link [69].

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4) Install the pin [79] that attaches the washer [80] and pin [81].

5) Tighten the pin [79] to 260-425 pound-inches.

6) Install the pin [82].

7) Trim or cut the ends of the pin [82] as required.

NOTE: Make sure the ends of the pin [82] do not extend past the pin [79].

(d) At joint 3N or 6N as applicable, connect the forward PI link [64] to the carrier beam [2]:

1) Apply grease, D00633, to the bolt [75].

2) Put the forward PI link [64] in its location on the carrier beam [2].

3) Install the bolt [75], washer [72], washer [74] and nut [73] that attach the forward PI link [64] to the carrier beam [2].

4) Install the bolt [76], bushing [78], washer [71], washer [77] and nut [70] in the carrier beam [2].

(e) At joint 3M or 6M as applicable, connect the carrier beam rod [51] and the bellcrank assembly [52] to the forward PI link [64]:

1) Apply grease, D00633 to the pin [65], pin [67] and washer [68].

2) Put the carrier beam rod [51] and the bellcrank assembly [52] in their location on the forward PI link [64].

3) Install the pin [65] and washer [68] that attach the carrier beam rod [51] and bellcrank assembly [52] to the forward PI link [64].

4) Install the pin [67] that attaches the washer [68] and pin [65].

5) Tighten the pin [67] to 90-125 pound-inches.

6) Install the pin [66].

7) Trim or cut the ends of the pin [66] as required.

NOTE: Make sure the ends of the pin [66] do not extend past the pin [67].

SUBTASK 27-51-14-420-016

(2) Put the carrier beam [2] with the carrier beam rod [51], bellcrank assembly [52], forward PI link [64] and aft PI link [69] in its location on the flap support mechanism.

SUBTASK 27-51-14-420-017

(3) At joint 3L or 6L as applicable, connect the carrier beam rod [51] to the drive arm [1]:

(a) Apply grease, D00633 to the pin [60], washer [61] and pin [62].

(b) Put the carrier beam rod [51] in its location on the drive arm [1].

(c) Install the pin [62] and washer [61] that attach the carrier beam rod [51] to the drive arm [1].

(d) Install the pin [60] that attach the washer [61] and pin [62].

(e) Tighten the pin [60] to 48 pound-inches.

(f) Continue to tighten the pin [60], until you can install the pin [63].

(g) Install the pin [63].

(h) Trim or cut the ends of the pin [63] as required.

NOTE: Make sure the ends of the pin [63] do not extend past the pin [60].

SUBTASK 27-51-14-420-018

(4) At joint 3B or 6B as applicable, connect the carrier beam [2] to the drive arm [1]:

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(a) Apply grease, D00633, to the pin [53], pin [54], washer [55], washer [59], nut [56] and nut [58].

(b) Install the pin [53] that attach the carrier beam [2] to the drive arm [1].

(c) Install the washer [59] and nut [58] on the pin [53].

(d) Tighten the nut [58] to 925-1150 pound-inches.

(e) Install MS20995NC40 lockwire, G02436 on the nut [58] and washer [59] in two locations.

(f) Install the pin [54].

(g) Install the washer [55] and nut [56] on the pin [54].

(h) Tighten the nut [56] to 90-125 pound-inches.

(i) Install the pin [57] on the nut [56].

SUBTASK 27-51-14-420-019

(5) Do this task: Pivot Link, Fairing Links and Spring Installation, TASK 27-51-14-420-805.

SUBTASK 27-51-14-860-013

(6) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-14-860-802.

——— END OF TASK ———

TASK 27-51-14-420-805

16. Pivot Link, Fairing Links and Spring Installation

(Figure 401)

A. General

(1) This task includes the installation of the pivot link [3], fairing link [4], spring link [6], fairing link brace [7], spring [8] and spring [39].

(2) This task installs parts at joints 3C, 3D, 3CA, 3CB, 3DA, 6C, 6D, 6CA, 6CB and 6DA.

(3) It is necessary to do the task "Put the Airplane Back to Its Usual Condition" after you complete this task.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-4981	Equipment - Removal/Installation, No. 3 and No. 6 Flap Fairing Spring Part #: J27048-14 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Fairing link brace	27-51-14-16-415	ARO 001-014

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Spring	27-51-14-16-365	ARO 001-014
10	Spool	27-51-14-16-375	ARO 001-014
40	Damper assembly	27-51-14-16-460	ARO 001-014

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

F. Procedure

SUBTASK 27-51-14-420-020

(1) At joint 3D or 6D as applicable, connect the pivot link [3] to the aft tension beam [5]:

(a) Apply grease, D00633, to the pin [27], pin [28], washer [29], washer [33], nut [30] and nut [32].

(b) Put the pivot link [3] in its location on the aft tension beam [5].

(c) Install the pin [28], washer [33] and nut [32] to connect the pivot link [3] to the aft tension beam [5].

(d) Tighten the nut [32] to 1550-1825 pound-inches.

(e) Install MS20995NC40 lockwire, G02436 between the nut [32] and washer [33] in two locations.

(f) Install the pin [27], washer [29] and nut [30].

(g) Tighten the nut [30] to 340-425 pound-inches.

(h) Install the pin [31].

SUBTASK 27-51-14-420-021

(2) At joint 3C or 6C as applicable, connect the fairing link [4] and the pivot link [3] to the carrier beam [2]:

(a) Apply grease, D00633, to the pin [20], pin [21], washer [22], washer [24], nut [23] and nut [25].

(b) Put the fairing link [4] and the pivot link [3] in their location on the carrier beam [2].

(c) Install the pin [21], washer [22] and nut [23] to connect the fairing link [4] and the pivot link [3] to the carrier beam [2].

(d) Check the gap between the fairing link bushing and the carrier beam bushing as follows:

1) Push the fairing link [4] to one side.

2) Measure the gap between the fairing link bushing and the carrier beam bushing.

NOTE: The gap limit is 0.005 in. (0.127 mm) to 0.016 in. (0.406 mm).

3) If the gap is greater than 0.016 in. (0.406 mm), do as follows:

a) Remove the pin [21], washer [22] and nut [23].

b) Install one or two washers (Part No. NAS1149C2616R) between the fairing link bushing and the carrier beam bushing to get the necessary gap.

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<1> If one washer is added, it can be added to the inboard or outboard side between the fairing link bushing and the carrier beam bushing.

<2> If two washers are added, then one washer should be added to the inboard side and one washer should be added to the outboard side between the fairing link bushing and the carrier beam bushing.

c) Install the pin [21], washer [22] and nut [23].

(e) Tighten the nut [23] to 1550-1825 pound-inches.

(f) Install MS20995NC40 lockwire, G02436 between the nut [23] and washer [22] in two locations.

(g) Install the pin [20], washer [24] and nut [25].

(h) Tighten the nut [25] to 340-425 pound-inches.

(i) Install the pin [26].

SUBTASK 27-51-14-420-022

(3) At joint 3CA or 6CA as applicable, connect the fairing link brace [7] and the spring link [6] to the fairing link [4]:

(a) Apply grease, D00633, to the bushings [19] and bolt [15].

(b) Put the fairing link brace [7] and the spring link [6] in their location on the fairing link [4].

(c) Install the bushings [19] to connect the spring link [6] to the fairing link [4].

(d) Install the bolt [15], washer [16], washer [17] and nut [18] that attach the fairing link brace [7].

(e) Check the gap between the fairing link bushing and the spring link bushing as follows:

1) Push the fairing link [4] to one side.

2) Measure the gap between the fairing link bushing and the spring link bushing.

NOTE: The gap limit is 0.005 in. (0.127 mm) to 0.021 in. (0.533 mm).

3) If the gap is greater than 0.021 in. (0.533 mm), do as follows:

a) Remove the bolt [15], washer [16], washer [17] and nut [18].

b) Install one or two washers (Part No. 113W1025–59) between the fairing link bushing and the spring link bushing to get the necessary gap.

<1> If one washer is added, it can be added to the inboard or outboard side between the fairing link bushing and the spring link bushing.

<2> If two washers are added, then one washer should be added to the inboard side and one washer should be added to the outboard side between the fairing link bushing and the spring link bushing.

c) Install the bolt [15], washer [16], washer [17] and nut [18].

(f) Tighten the nut [18] to 150-250 pound-inches.

SUBTASK 27-51-14-420-023

(4) At joint 3DA or 6DA as applicable, connect the fairing link brace [7] to the pivot link [3]:

(a) Apply grease, D00633, to the bushing [9], bushing [11], spools [10], bolt [14] and nut [13].

(b) Install the bushing [9] to connect the fairing link brace [7] and spools [10] to the pivot link [3].

(c) Install the bolt [14], bushing [11], washer [12] and nut [13].

(d) Tighten the nut [13] to 100-125 pound-inches plus run-on torque.

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SUBTASK 27-51-14-020-025

(5) Install the spring [8] and spring [39] at joints 3CB and 3DA:

(a) Install the removal / installation equipment, SPL-4981 on the spring link [6] through the hole in the fairing link [4]:

1) Put the L-plate assembly through the spring link [6].

2) Put the detent pin through the L-plate assembly to hold it on the spring link [6].

3) Put the plate assembly and rod assembly in their location on the fairing link [4].

4) Install the pin to connect the L-plate assembly to the rod assembly.

CAUTION

MAKE SURE YOU INSTALL THE SPRINGS ON THE CORRECT SIDE OF THE FLAP SUPPORT. THERE CAN BE AN INTERFERENCE WITH OTHER PARTS IF THE SPRINGS ARE NOT ON THE CORRECT SIDE. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Put the spring [8] and spring [39] in their location on the spools [10].

NOTE: For the left and right wings, put the spring [8] on the left side of the flap support and spring [39] on the right side of the flap support.

(c) Use the removal / installation equipment, SPL-4981 to extend the spring [8] and spring [39] and move the spring link [6] until you can install the stop plate [34].

(d) Apply sealant, A00247 to the shank and threads of the bolts [35].

(e) Apply sealant, A00247 to the mating surface of the stop plate [34].

(f) Put the stop plate [34] in its location on the fairing link [4].

(g) Install the bolts [35], washers [36], washers [37] and nuts [38] that attach the stop plate [34].

(h) Remove the removal / installation equipment, SPL-4981 from the spring link [6] and the fairing link [4].

SUBTASK 27-51-14-420-027

(6) Install the damper assembly [40] on the spring [8] and spring [39]:

(a) Wrap the damper assembly [40] around the spring [8] and spring [39].

(b) Install the bolts [41], washers [42], washers [43], and nuts [44] to hold the damper assembly [40] around the spring [8] and spring [39].

SUBTASK 27-51-14-860-014

(7) Do this task: Put the Airplane Back to Its Usual Condition, TASK 27-51-14-860-802.

——— END OF TASK ———

TASK 27-51-14-860-802

17. Put the Airplane Back to Its Usual Condition

A. General

(1) It is necessary to do this task after you do an installation procedure for the components on the outboard support mechanism for the inboard flap.

B. References

Reference	Title
12-21-09-640-803	Inboard Flap, Inboard Support Mechanism Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)

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(Continued)

Reference	Title
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-400-801	Inboard Trailing Edge Flap Installation (P/B 401)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Procedure

SUBTASK 27-51-14-420-024

(1) Do this task: Inboard Trailing Edge Flap Installation, TASK 27-51-11-400-801.

SUBTASK 27-51-14-820-001

(2) Do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

SUBTASK 27-51-14-640-001

(3) For the outboard support mechanism, do this task: Inboard Flap, Inboard Support Mechanism Lubrication, TASK 12-21-09-640-803.

SUBTASK 27-51-14-410-001

(4) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-14-440-001

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-14-210-002

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-14-860-015

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-14-860-016

(8) Retract the trailing edge flaps to the UP position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-14-860-017

(9) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-14-010-003

(10) Do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804.

——— END OF TASK ———

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INBOARD FLAP, OUTBOARD SUPPORT MECHANISM - INSPECTION/CHECK

1. General

A. This procedure contains the following task:

(1) A task to do an inspection of the outboard support mechanism for the inboard trailing edge flaps.

TASK 27-51-14-200-806

2. Inboard Flap Outboard Support Inspection

A. General

(1) This task is applicable to flap support mechanism No. 3 and No. 6.

B. References

Reference	Title
27-51-14-020-801	Pivot Link, Fairing Links and Spring Removal (P/B 401)
27-51-14-020-802	Carrier Beam Removal (P/B 401)
27-51-14-020-803	Compression Strut Removal (P/B 401)
27-51-14-020-804	Aft Tension Beam, Forward Tension Link and Actuator Support Removal (P/B 401)
27-51-14-420-802	Aft Tension Beam, Forward Tension Link and Actuator Support Installation (P/B 401)
27-51-14-420-803	Compression Strut Installation (P/B 401)
27-51-14-420-804	Carrier Beam Installation (P/B 401)
27-51-14-420-805	Pivot Link, Fairing Links and Spring Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1097	Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

E. Procedure

SUBTASK 27-51-14-020-039

(1) Do this task: Pivot Link, Fairing Links and Spring Removal, TASK 27-51-14-020-801.

SUBTASK 27-51-14-020-040

(2) Do this task: Compression Strut Removal, TASK 27-51-14-020-803.

SUBTASK 27-51-14-020-041

(3) Do this task: Carrier Beam Removal, TASK 27-51-14-020-802.

SUBTASK 27-51-14-020-042

(4) Do this task: Aft Tension Beam, Forward Tension Link and Actuator Support Removal, TASK 27-51-14-020-804.

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SUBTASK 27-51-14-211-001

(5) Use this tool to do a check for wear on the part of the inboard flap outboard support mechanism:

(a) vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097

SUBTASK 27-51-14-211-002

(6) Inspect components lubrication paths for potential blockage; clear lubrication paths as necessary.

SUBTASK 27-51-14-220-011

(7) Examine the parts of the inboard flap outboard support mechanism:

(a) Remove the parts that you will measure.

(b) Measure the parts with a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

NOTE: The surface finish of all bearing surfaces of mating parts must be 32 micro inches or better.

INBOARD FLAP OUTBOARD SUPPORT MECHANISM WEAR LIMITS

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMIT		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
PIN [7]	O..D.	1.7476 in 44.389 mm	1.7485 in 44.412 mm	1.7470 in 44.374 mm	
BUSHING [8]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
BUSHING [9]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
PIN [10]	O. D.	1.7476 in 44.389 mm	1.7485 in 44.412 mm	1.7470 in 44.374 mm	
BUSHING [11]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
BEARING [12]	I.D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
PIN [14]	O. D.	1.7476 in 44.389 mm	1.7485 in 44.412 mm	1.7470 in 44.374 mm	
BUSHING [15]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm

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INBOARD FLAP OUTBOARD SUPPORT MECHANISM WEAR LIMITS (Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMIT		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
BUSHING [16]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
BUSHING [17]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
BUSHING [18]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
BUSHING [19]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm
PIN [20]	O. D.	1.6227 in 41.217 mm	1.6235 in 41.237 mm	1.6220 in 41.199 mm	
BUSHING [21]	I. D.	1.6245 in 41.262 mm	1.6255 in 41.289 mm	1.6324 in 41.463 mm	0.0089 in 0.2261 mm
BUSHING [22]	I. D.	1.6245 in 41.262 mm	1.6255 in 41.289 mm	1.6324 in 41.463 mm	0.0089 in 0.2261 mm
PIN [24]	O. D.	1.6227 in 41.217 mm	1.6235 in 41.237 mm	1.6220 in 41.199 mm	
BUSHING [25]	I. D.	1.6245 in 41.262 mm	1.6255 in 41.289 mm	1.6324 in 41.463 mm	0.0089 in 0.2261 mm
BEARING [26]	I. D.	1.6245 in 41.262 mm	1.6255 in 41.289 mm	1.6324 in 41.463 mm	0.0089 in 0.2261 mm
PIN [27]	O. D.	1.3728 in 34.869 mm	1.3735 in 34.887 mm	1.3710 in 34.823 mm	
BUSHING [28]	I. D.	1.3745 in 34.912 mm	1.3755 in 34.938 mm	1.3813 in 35.085 mm	0.0078 in 0.1981 mm
BEARING [29]	I. D.	1.3745 in 34.912 mm	1.3755 in 34.938 mm	1.3813 in 35.085 mm	0.0078 in 0.1981 mm

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INBOARD FLAP OUTBOARD SUPPORT MECHANISM WEAR LIMITS (Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMIT		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
PIN [30]	O. D.	1.7476 in 44.389 mm	1.7485 in 44.412 mm	1.7470 in 44.374 mm	
BUSHING [31]	I. D.	1.7495 in 44.437 mm	1.7505 in 44.463 mm	1.7580 in 44.653 mm	0.0095 in 0.2413 mm

SUBTASK 27-51-14-420-028

(8) Do this task: Aft Tension Beam, Forward Tension Link and Actuator Support Installation, TASK 27-51-14-420-802.

SUBTASK 27-51-14-420-029

(9) Do this task: Carrier Beam Installation, TASK 27-51-14-420-804.

SUBTASK 27-51-14-420-030

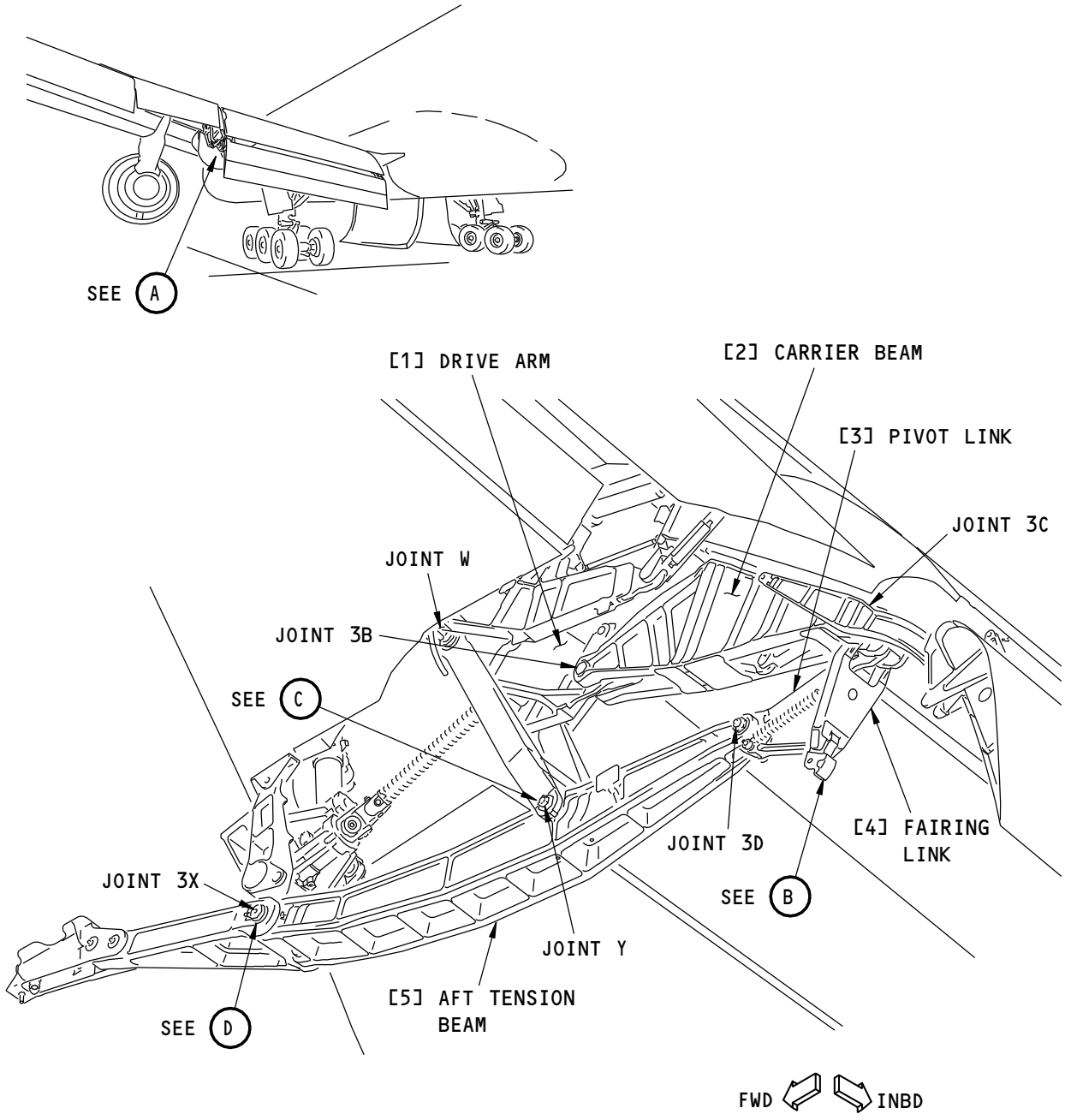
(10) Do this task: Compression Strut Installation, TASK 27-51-14-420-803.

SUBTASK 27-51-14-420-031

(11) Do this task: Pivot Link, Fairing Links and Spring Installation, TASK 27-51-14-420-805.

——— END OF TASK ———

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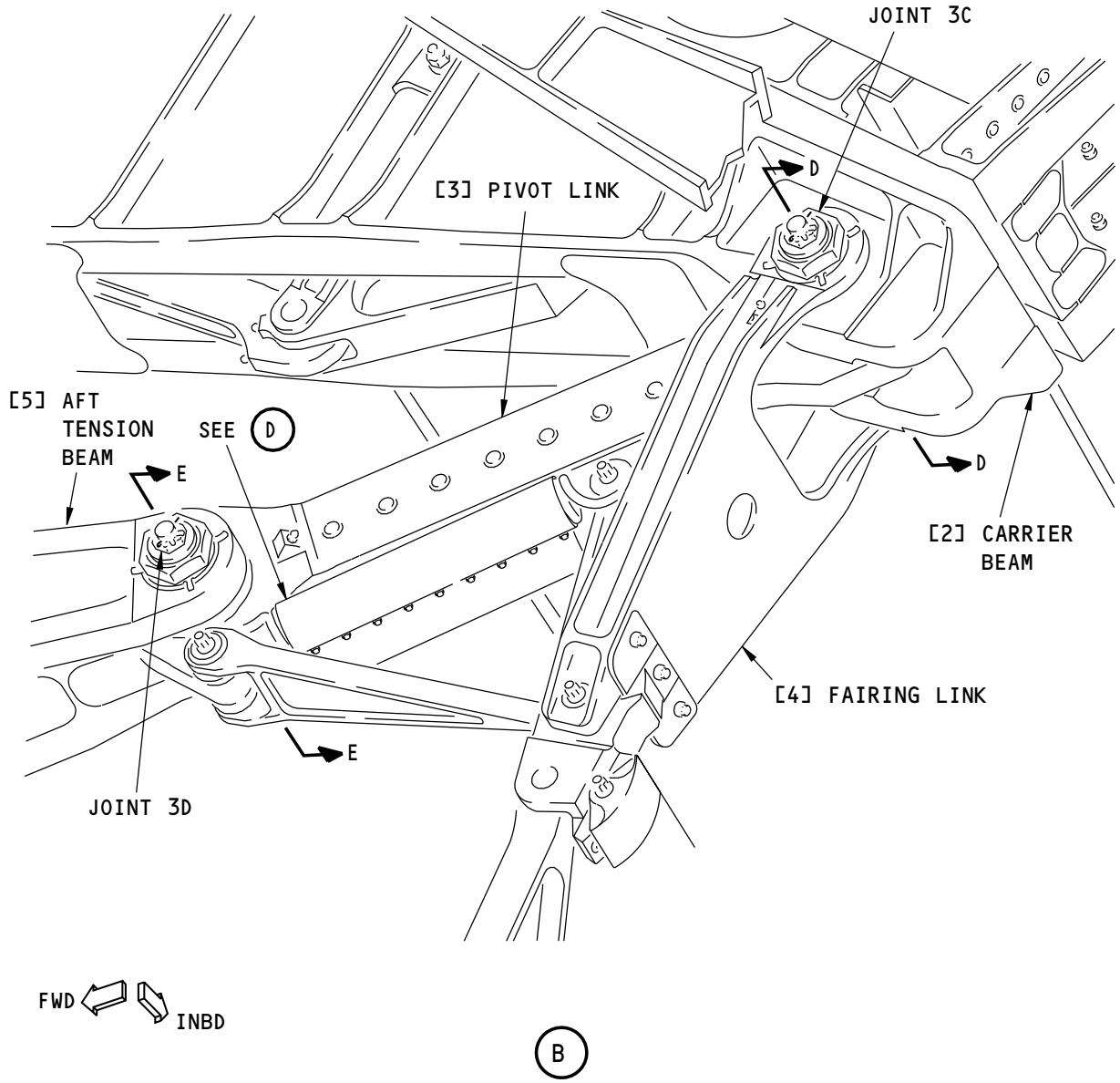
FLAP SUPPORT MECHANISM

A

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Inboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-14-990-809 (Sheet 1 of 7)

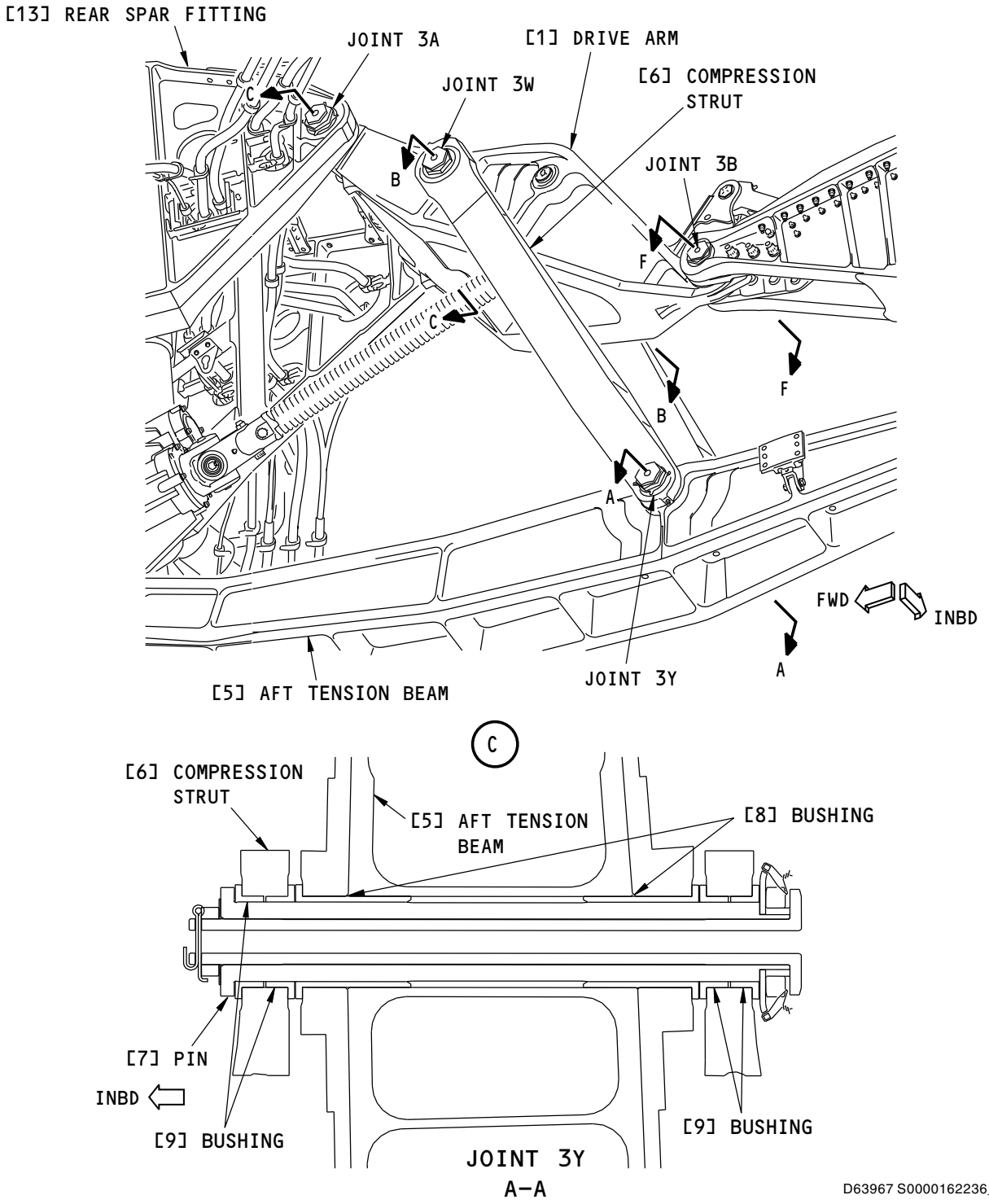
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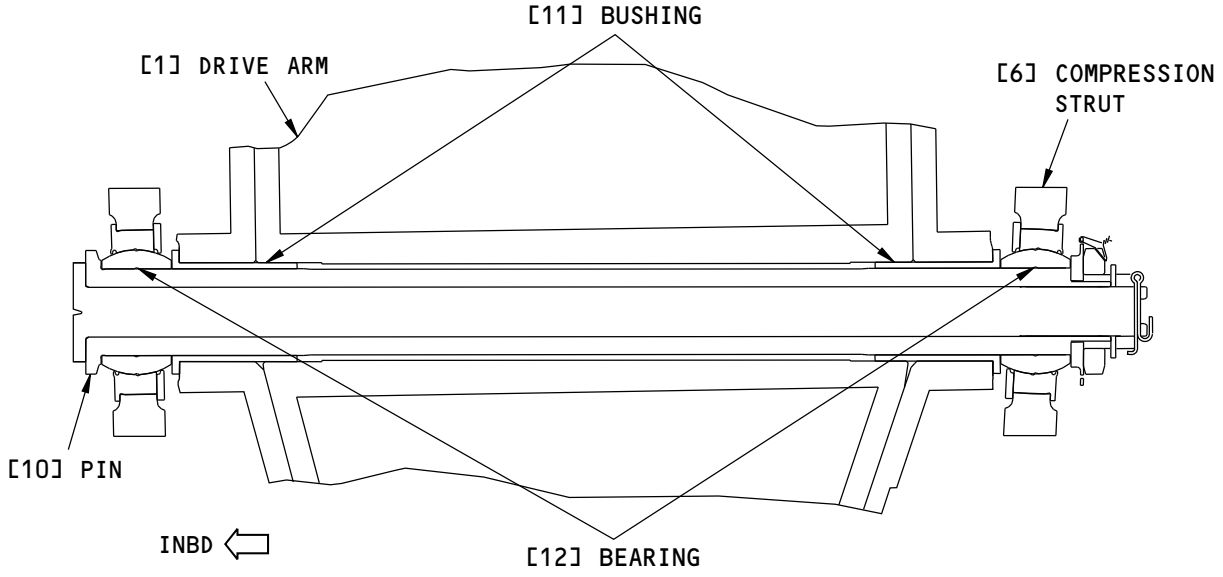
Inboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-14-990-809 (Sheet 2 of 7)

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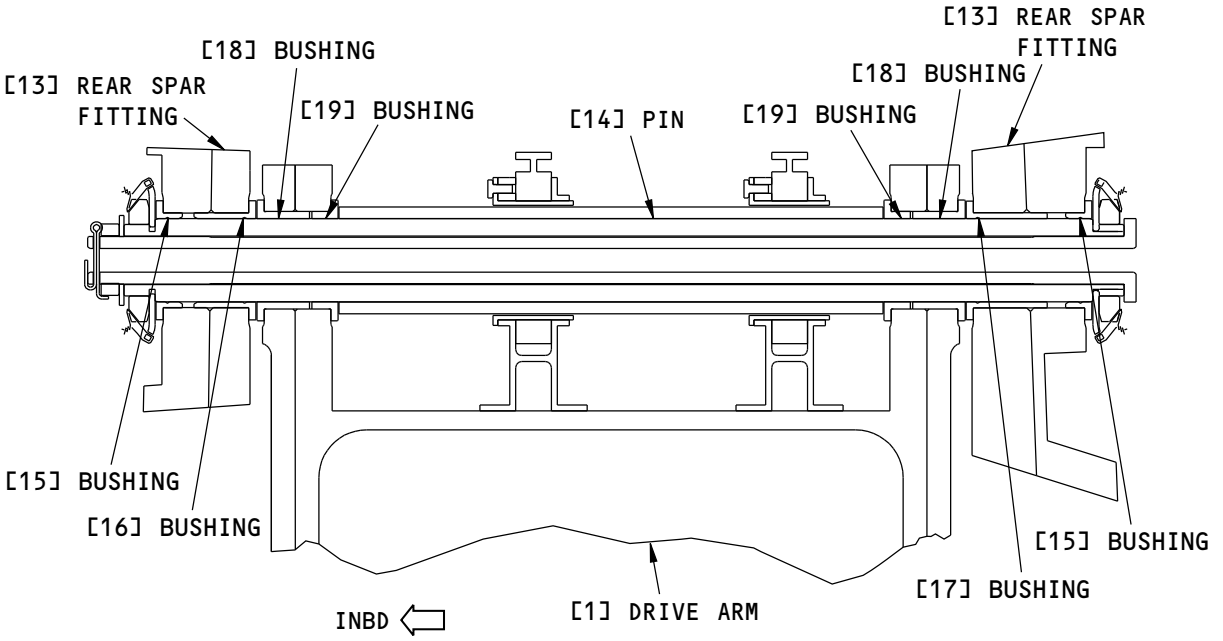


Inboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-14-990-809 (Sheet 3 of 7)

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JOINT 3W
B–B

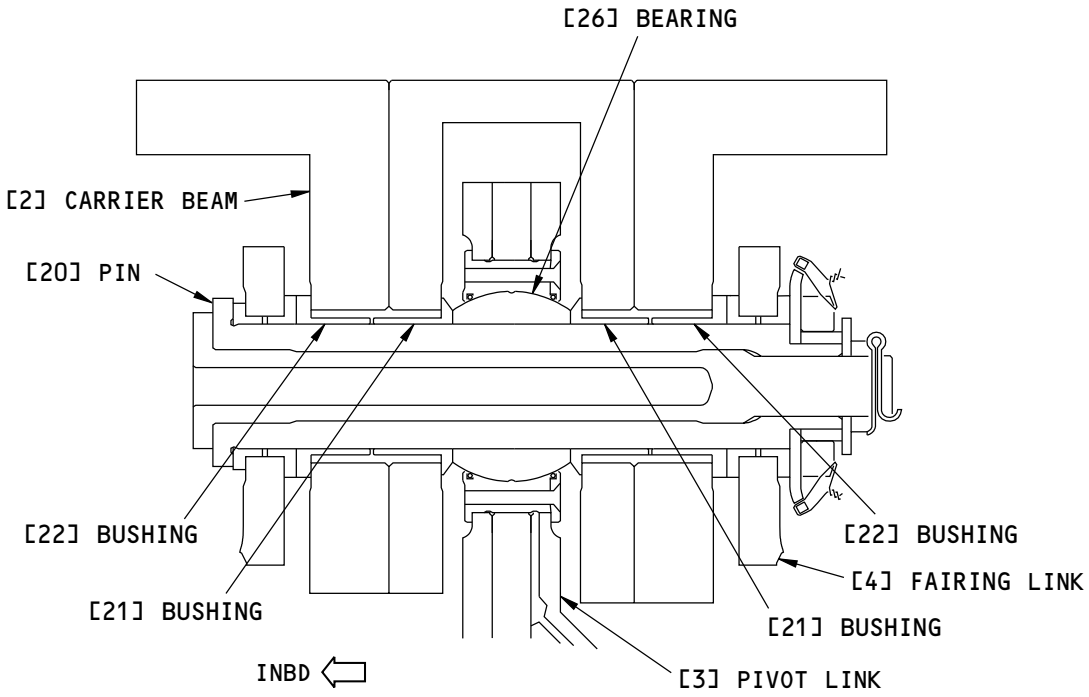


JOINT 3A
C–C

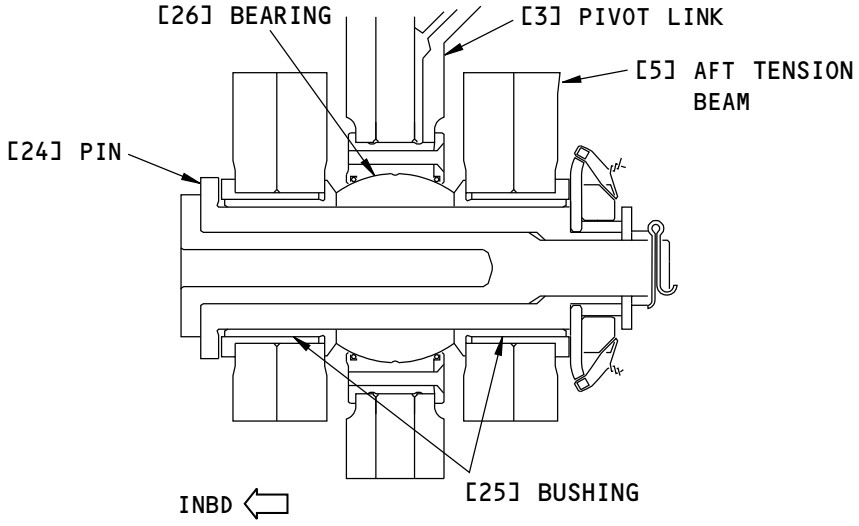
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Inboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-14-990-809 (Sheet 4 of 7)

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JOINT 3C
D–D

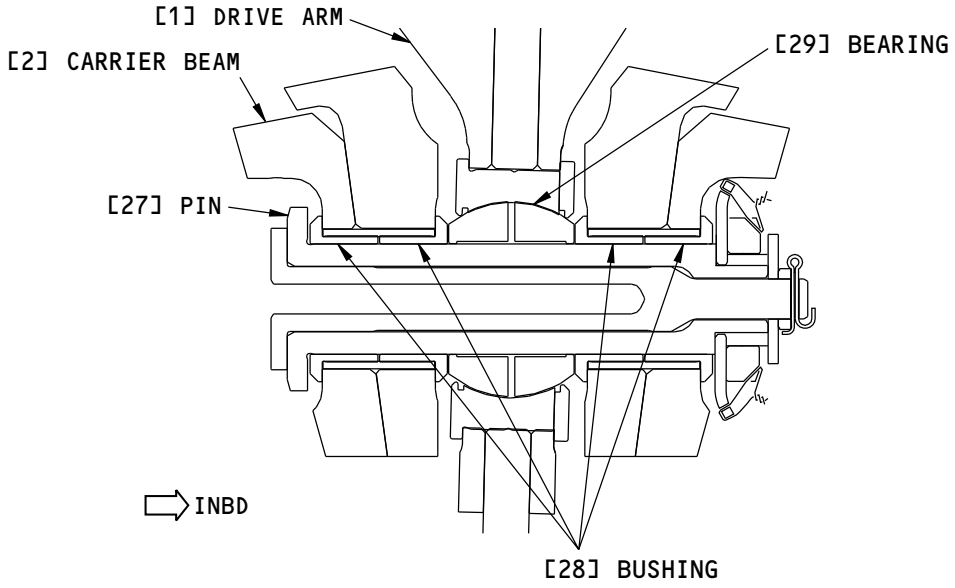


JOINT 3D
E–E

D64021 S0000162238_V1

Inboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-14-990-809 (Sheet 5 of 7)

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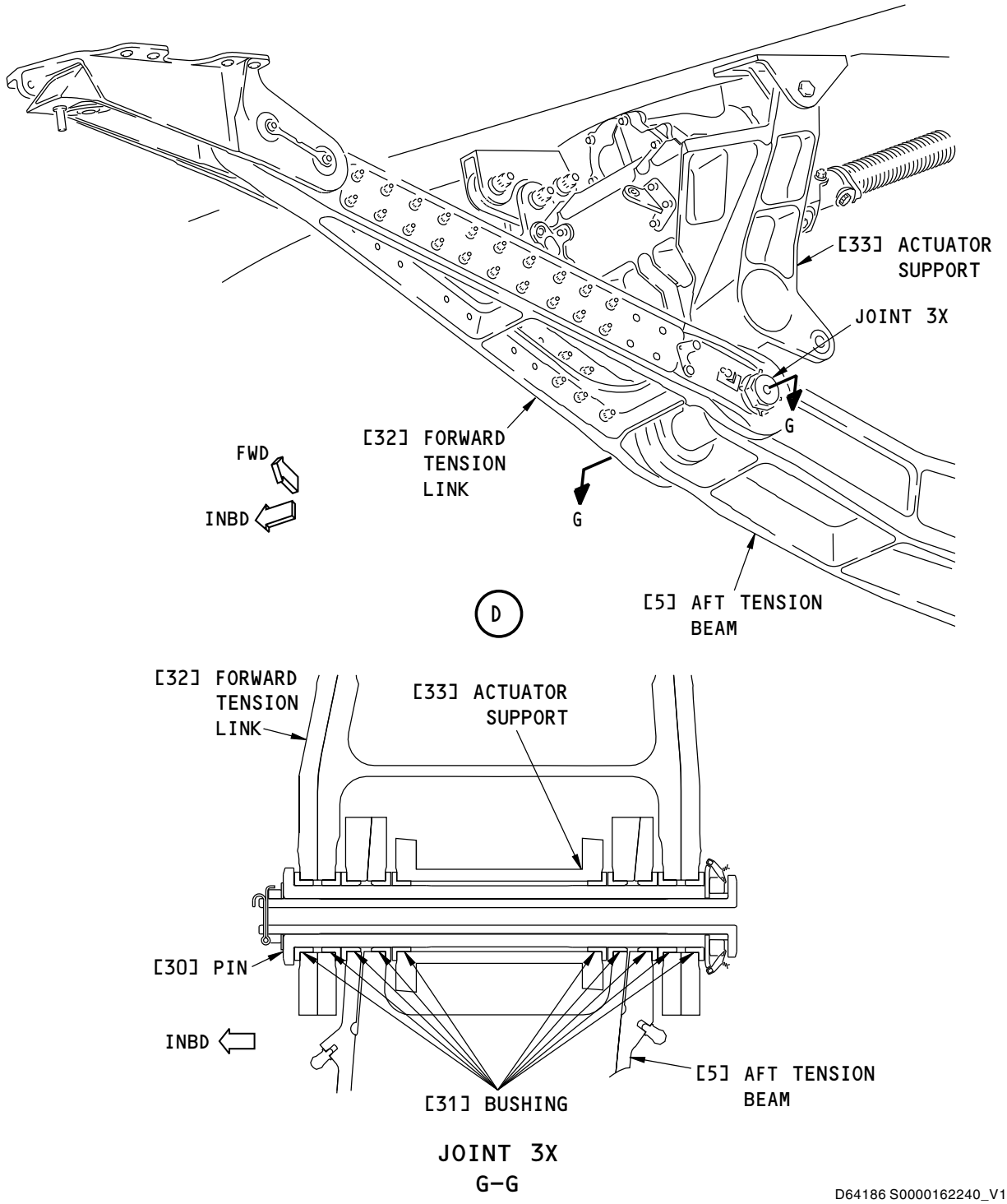


JOINT 3B
F–F

D64139 S0000162239_V1

Inboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-14-990-809 (Sheet 6 of 7)

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Inboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-14-990-809 (Sheet 7 of 7)

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INBOARD FLAP TRANSMISSION - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the inboard transmission for the inboard flaps

(2) An installation of the inboard transmission for the inboard flaps

(3) A removal of the outboard transmission for the inboard flaps

(4) An installation of the outboard transmission for the inboard flaps.

TASK 27-51-15-000-801

2. Inboard Flap Inboard Transmission Removal

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

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D. Prepare for the Removal

SUBTASK 27-51-15-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-15-480-004

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-15-480-005

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-15-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-15-210-004

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-15-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-15-860-003

(7) Extend the trailing edge flaps to the 30-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-15-860-004

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-15-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-15-480-001

(10) Install the trailing edge flap (with transmission removed) lock, SPL-1757, on the flap support mechanism to hold the flap when you remove the transmission.

E. Inboard Flap Inboard Transmission Removal

SUBTASK 27-51-15-020-001

(1) Disconnect the torque tubes [2] from the transmission and gearbox [3] (Figure 401):

(a) Install a T.E. flap drive shaft clamp equipment, SPL-1706, to hold the torque tube [2] outboard of the transmission and gearbox [3].

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction.

As you look outboard, the torque tubes outboard of the transmissions will turn counterclockwise for the left and right wings.

(b) Disconnect the torque tube [2] outboard of the transmission and gearbox [3]:

1) Remove the screws [5] that attach the coupling sleeve [4] to the splined coupling [6].

2) Move the coupling sleeve [4] off the splined coupling [6].

3) Apply tape to the splined coupling [6].

(c) Remove the torque tube [2] inboard of the transmission and gearbox [3]:

1) Remove the screws [5] that attach the coupling sleeves [4] to the splined couplings [6] on the two ends of the torque tube [2].

2) Move the coupling sleeves [4] off the splined couplings [6].

3) Remove the torque tube [2].

4) Apply tape to the splined coupling [6].

SUBTASK 27-51-15-020-009

(2) Disconnect the ballscrew assembly [17] from the yoke [20] on the transmission and gearbox [3]:

(a) Remove the nuts [21], washers [22], washers [23] and bolts [24] that attach the ballscrew assembly [17] to the yoke [20].

(b) Remove the ballscrew assembly [17] from the yoke [20].

SUBTASK 27-51-15-020-002

(3) Disconnect the gimbal [8] from the drive arm [13]:

(a) Remove the nuts [12], washers [11], washers [15] and bolts [16] that attach the retainer [10] and retainer [14] to the drive arm [13].

(b) Remove the retainer [10] and retainer [14] and with the seals [30] from the drive arm [13].

(c) Remove the gimbal [8] from the drive arm [13].

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SUBTASK 27-51-15-480-002

(4) Attach the transmission clamp which is part of the trailing edge flap transmission equipment, SPL-1724, and a fishpole hoist, COM-1582, to the transmission and gearbox [3] (Figure 402):

(a) Install the transmission clamp on the transmission and gearbox [3].

(b) Connect two fishpole hoist, COM-1582, to the hoist brackets above the transmission and gearbox [3].

(c) Connect the cables from the fishpole hoist, COM-1582, to the transmission clamp.

SUBTASK 27-51-15-020-004

(5) Remove the transmission and gearbox [3]:

(a) Remove the nuts [28], washers [18], washers [26] and bolts [25] that attach the transmission and gearbox [3] to the actuator support [19] (Figure 401).

(b) Carefully use the fishpole hoist, COM-1582, to move the transmission and gearbox [3] out of the flap support mechanism (Figure 402):

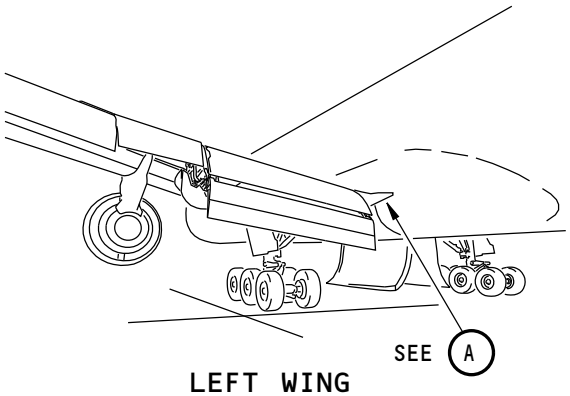
1) Use the forward fishpole hoist, COM-1582, to move the bottom of the transmission and gearbox [3] until it is clear of the flap support mechanism.

2) Use the two fishpole hoist, COM-1582, to lower the transmission and gearbox [3] until it is clear of the structure above it.

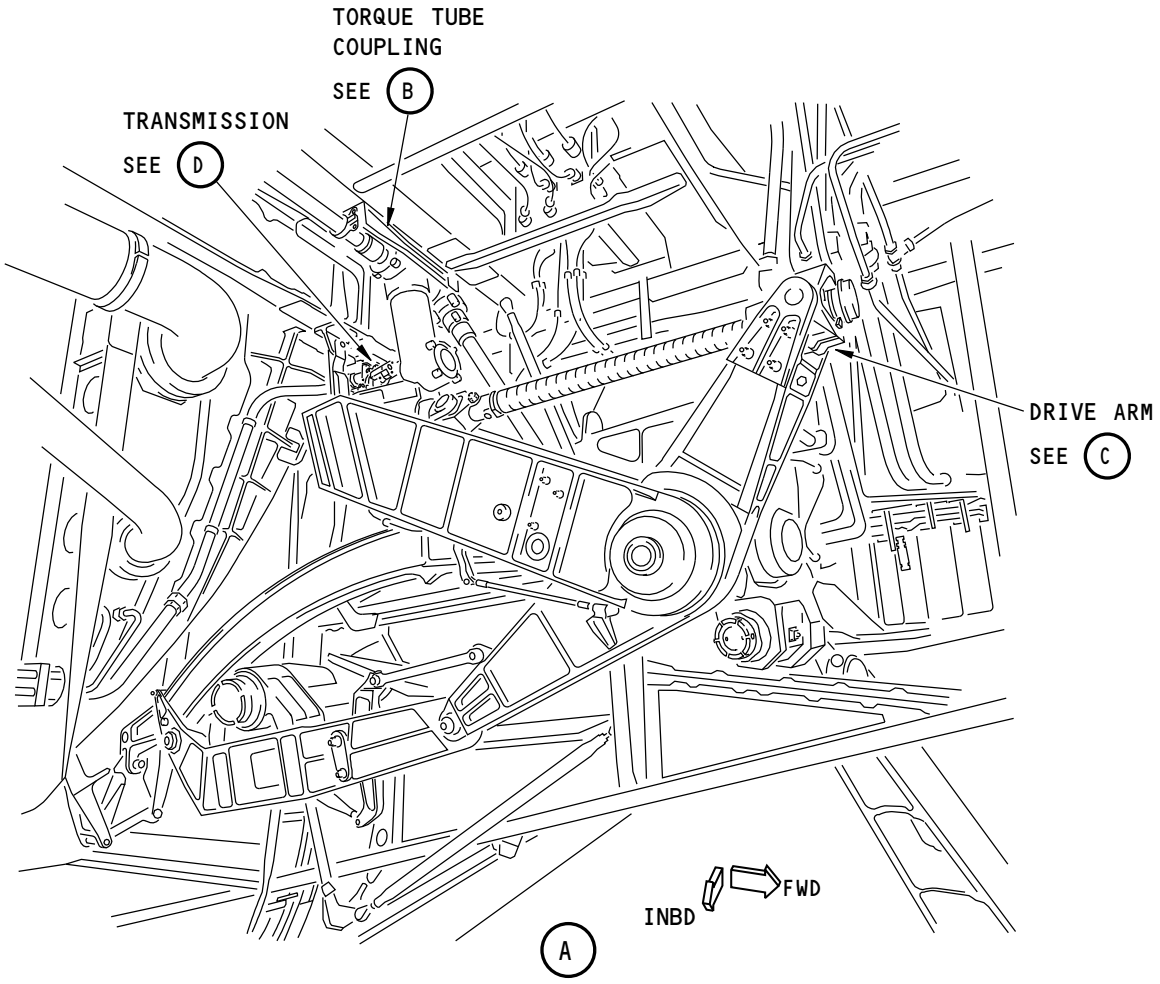
3) Use the fishpole hoist, COM-1582, to lower the transmission and gearbox [3].

——— END OF TASK ———

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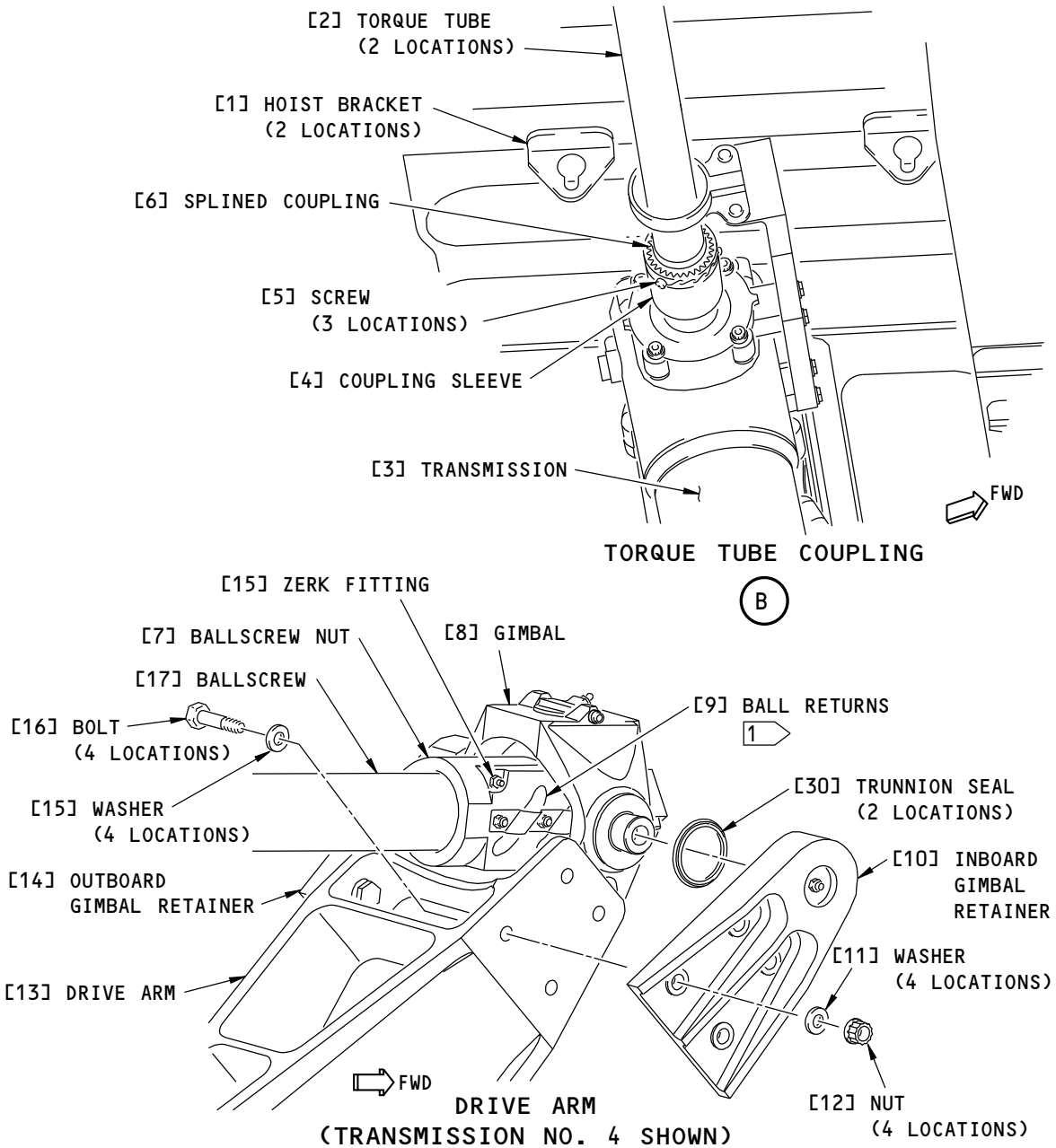
LEFT WING
(RIGHT WING IS EQUIVALENT)



C65373 S0006413670_V1

Inboard Flap Inboard Transmission Installation
Figure 401/27-51-15-990-801 (Sheet 1 of 3)

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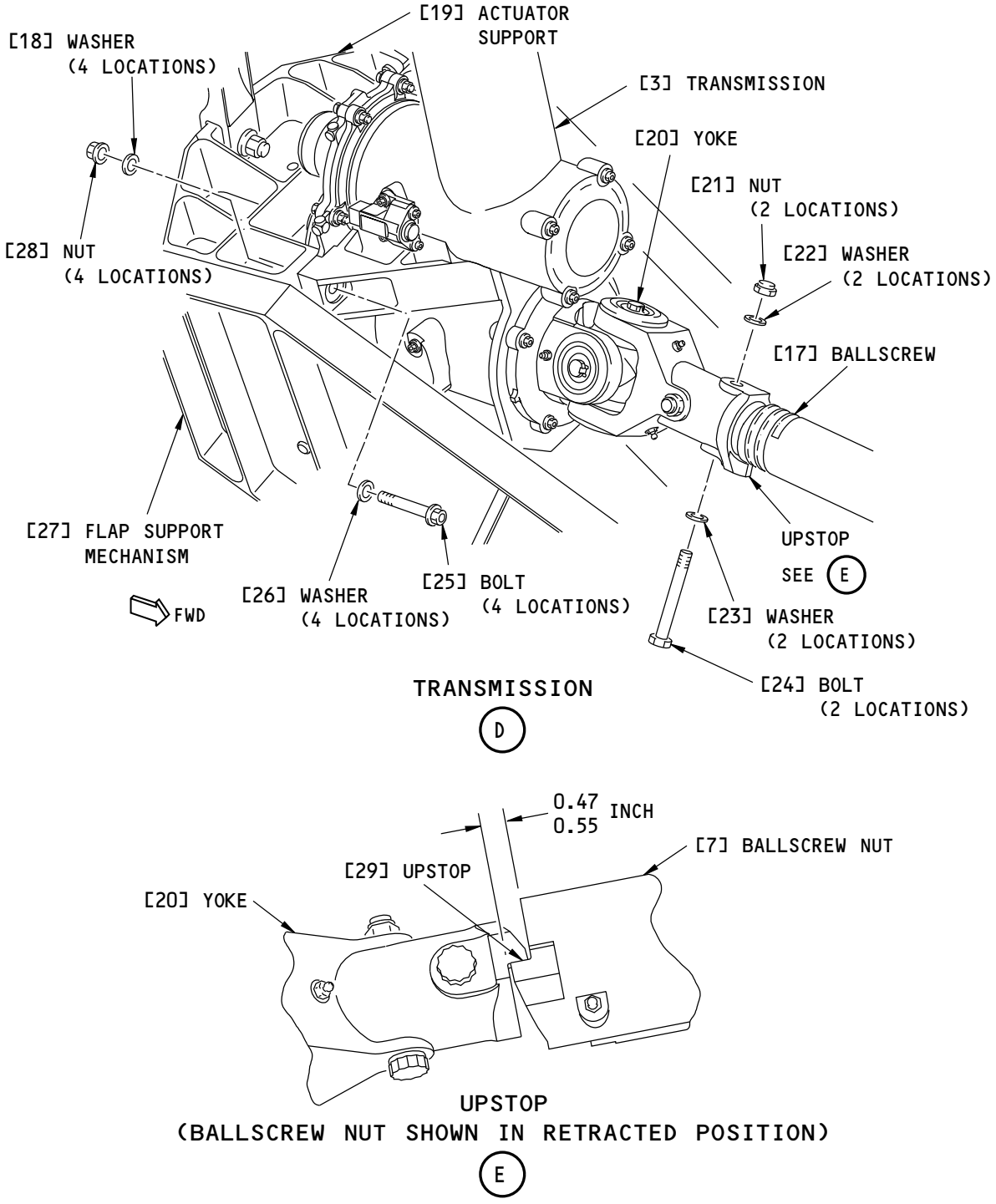


1 MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 4 ARE INBOARD.
MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 5 ARE OUTBOARD

C65688 S0006413671_V1

Inboard Flap Inboard Transmission Installation
Figure 401/27-51-15-990-801 (Sheet 2 of 3)

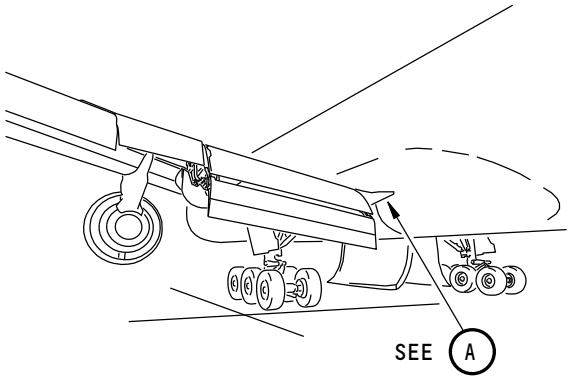
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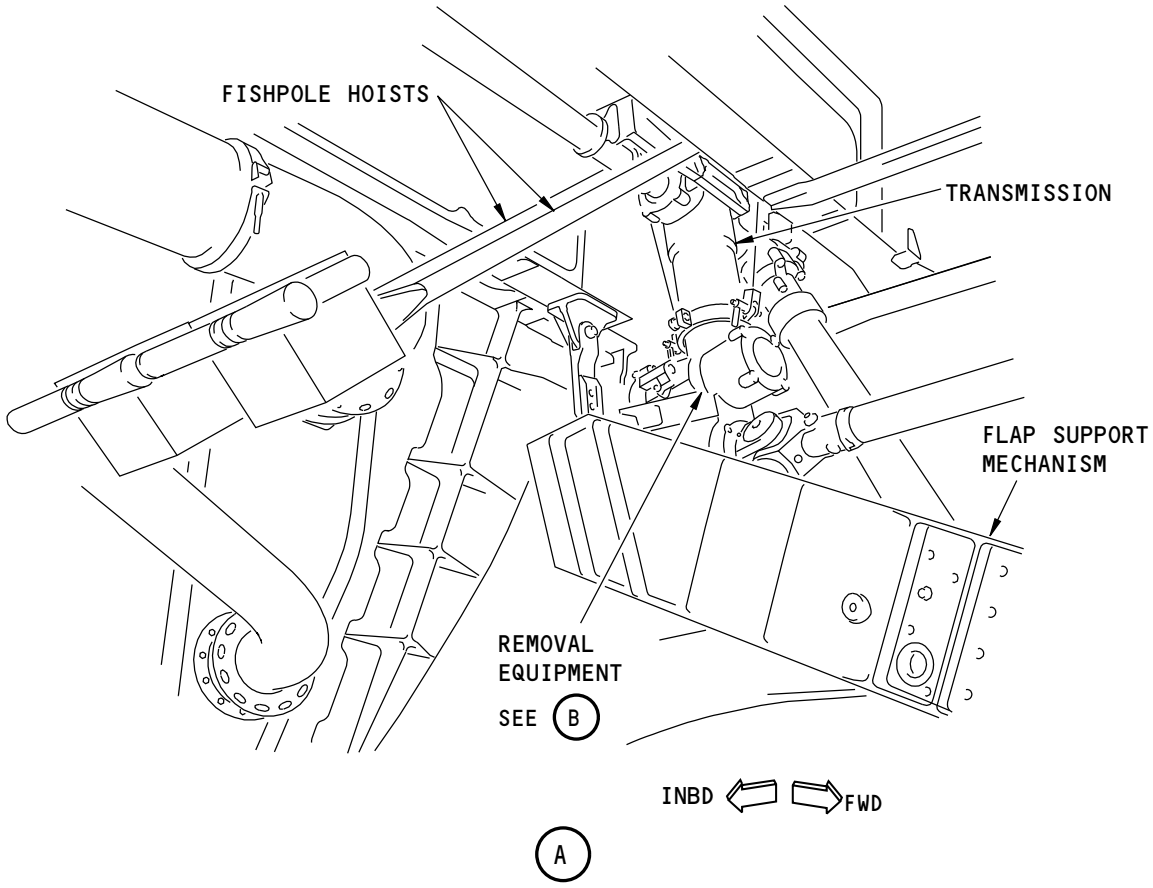
C65703 S0006413672_V1

Inboard Flap Inboard Transmission Installation
Figure 401/27-51-15-990-801 (Sheet 3 of 3)

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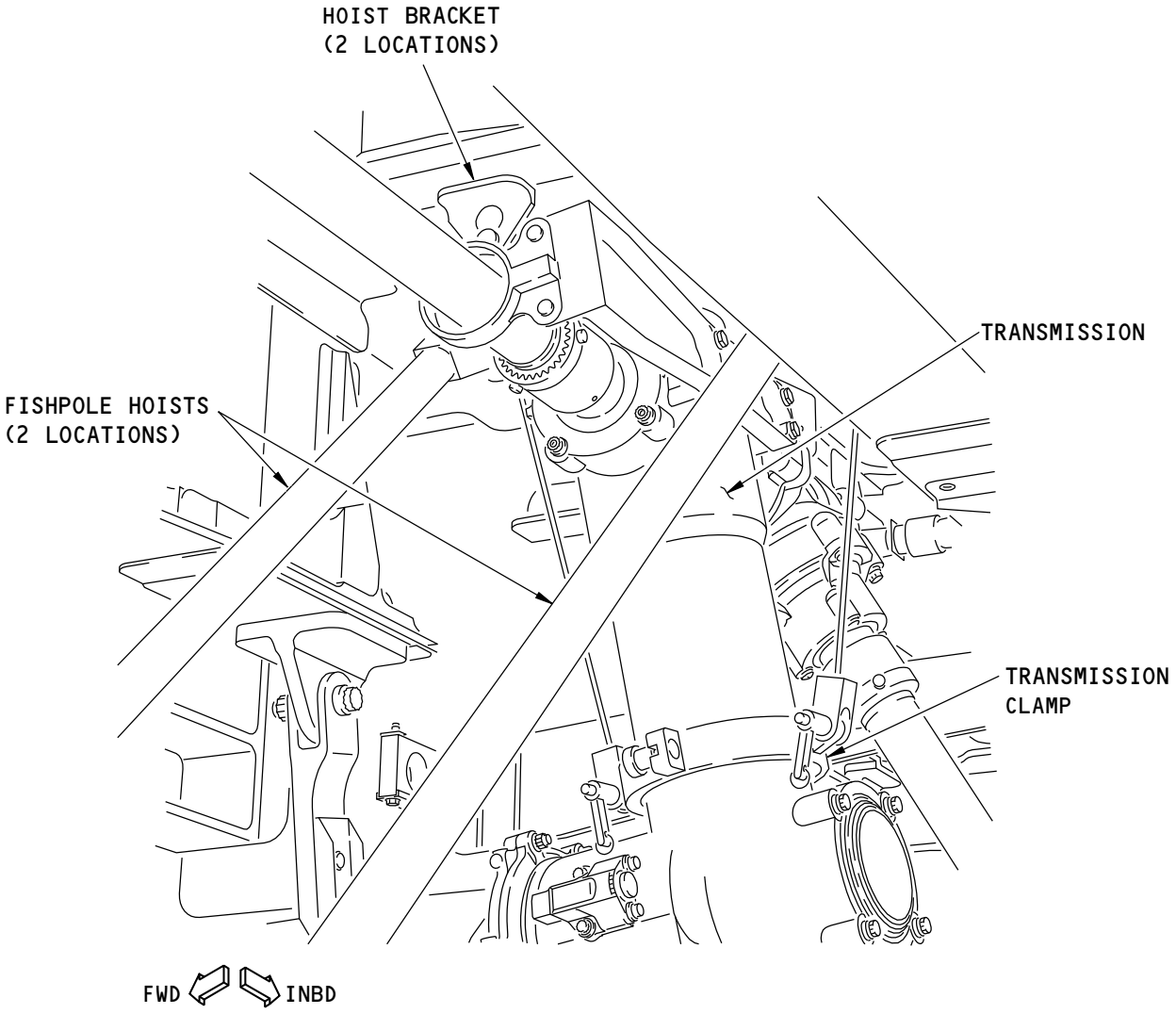
LEFT WING
(RIGHT WING IS EQUIVALENT)



E54212 S0006413673_V1

Inboard Flap Inboard Transmission Removal Equipment
Figure 402/27-51-15-990-802 (Sheet 1 of 2)

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Inboard Flap Inboard Transmission Removal Equipment
Figure 402/27-51-15-990-802 (Sheet 2 of 2)

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TASK 27-51-15-400-801

3. Inboard Flap Inboard Transmission Installation

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-13-09-610-802	Flap Transmission Servicing (P/B 301)
12-21-09-640-802	Inboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

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D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Torque tube	27-51-38-01-105	ARO ALL
		27-51-38-01-110	ARO ALL
3	Transmission and gearbox	27-51-15-17-095	ARO ALL
		27-51-15-17-100	ARO ALL
17	Ballscrew assembly	27-51-16-17-065	ARO ALL
		27-51-26-73-080	ARO ALL

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

F. Inboard Flap Inboard Transmission Installation

SUBTASK 27-51-15-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the transmission and gearbox [3] (Figure 401):

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the mating surfaces of the transmission and gearbox [3] and the actuator support [19].

(b) Use the fishpole hoist, COM-1582, and the transmission clamp which is part of the trailing edge flap transmission equipment, SPL-1724, to lift the transmission and gearbox [3] to its position in the flap support mechanism (Figure 402):

1) Use the fishpole hoist, COM-1582, to lift the transmission and gearbox [3] to the flap support mechanism.

2) Use the forward fishpole hoist, COM-1582, to move the bottom of the transmission and gearbox [3] until it is in its position on the actuator support.

(c) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the shank and threads of the bolts [25] (Figure 401).

(d) Install the bolts [25], washers [26], washers [18] and nuts [28] that attach the transmission and gearbox [3] to the actuator support [19].

NOTE: Install the bolts [25] with the heads forward.

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(e) Tighten the nuts [28]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-51-15-080-001

(2) Remove the fishpole hoist, COM-1582, and the transmission clamp from the transmission and gearbox [3].

SUBTASK 27-51-15-420-002

CAUTION

MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU CONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(3) Connect the ballscrew assembly [17] to the yoke [20] on the transmission and gearbox [3]:

(a) Put the ballscrew assembly [17] into the yoke [20].

(b) Install the bolts [24], washers [22], washers [23] and nuts [21] that attach the ballscrew assembly [17] to the yoke [20].

(c) Turn the ballscrew nut [7] until it is at the upstop [29] on the yoke [20].

(d) Make sure the ballscrew assembly [17] is installed correctly in the yoke [20]:

1) Move the ballscrew nut [7] until the upstops [29] touch.

2) Make sure the distance between the yoke [20] and the ballscrew nut [7] is 0.47 in. (11.94 mm) - 0.55 in. (13.97 mm) (View E).

3) If the distance is not in the limits, change the distance:

a) Remove the nuts [21], washers [22], washers [23] and bolts [24].

b) Turn the ballscrew assembly [17] 180 degrees in the yoke [20].

c) Re-install the bolts [24], washers [22], washers [23] and nuts [21].

(e) Tighten the nuts [21].

SUBTASK 27-51-15-420-003

(4) Connect the gimbal [8] to the drive arm [13]:

(a) Move the gimbal [8] forward on the ballscrew assembly [17] until it aligns with the drive arm [13].

(b) On transmission No. 4, make sure the ball returns [9] on the ballscrew nut [7] are inboard.

(c) On transmission No. 5, make sure the ball returns [9] on the ballscrew nut [7] are outboard.

(d) Make sure the zerk fitting [15] are on the upper side of the ballscrew nut [7].

(e) Apply grease, D00013, to the seals [30].

(f) Put the seals [30] in their location on the gimbal [8].

(g) Apply grease, D00013, to the mating surfaces of the retainer [10] and retainer [14] and the gimbal [8].

(h) Put the gimbal [8] in its position in the drive arm [13].

(i) Install the retainer [10] and retainer [14]:

1) Install the bolts [16] and washers [15] in the drive arm [13].

NOTE: Install the bolts [16] with the heads to the center of the drive arm [13].

2) Apply a layer of PR-1405-G sealant, A00723, to the mating surfaces of the retainer [10], retainer [14] and the drive arm [13].

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3) Put the retainer [10] and retainer [14] in their position on the drive arm [13] and the gimbal [8].

4) Install the washers [11] and nuts [12] on the bolts [16].

5) Tighten the nuts [12] to 370 in-lb (42 N·m) - 690 in-lb (78 N·m).

SUBTASK 27-51-15-420-004

(5) Connect the torque tube [2]to the transmission and gearbox [3]:

(a) Remove the tape from the splined coupling [6].

(b) Install the torque tube [2] inboard of the transmission and gearbox [3]:

1) Apply grease, D00633, to the splined coupling [6].

2) Put the torque tube [2] in its position.

3) Put the splined coupling [6] in the coupling sleeve [4].

4) Install the screws [5] that attach the torque tube [2].

5) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

6) Install MS20995C20 lockwire, G50225 on the screws [5].

(c) Connect the torque tube [2] outboard of the transmission and gearbox [3]:

1) Apply grease, D00633, to the splined coupling [6].

2) Put the splined coupling [6] in the coupling sleeve [4].

3) Install the screws [5] to attach the torque tube [2] to the transmission and gearbox [3].

4) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

5) Install MS20995C20 lockwire, G50225 on the screws [5].

(d) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tube [2] outboard of the transmission.

SUBTASK 27-51-15-080-002

(6) Remove the trailing edge flap (with transmission removed) lock, SPL-1757, from the flap support mechanism.

SUBTASK 27-51-15-640-003

(7) Do this task: Flap Transmission Servicing, TASK 12-13-09-610-802.

SUBTASK 27-51-15-640-001

(8) Do this task: Inboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-802.

SUBTASK 27-51-15-440-001

(9) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-15-860-005

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-15-860-006

(11) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-15-860-007

(12) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-15-820-001

(13) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-15-080-005

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

TASK 27-51-15-000-802

4. Inboard Flap Outboard Transmission Removal

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Prepare for the Removal

SUBTASK 27-51-15-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-15-010-002

(2) Do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-15-860-010

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-15-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-15-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-51-15-860-011

(6) Extend the trailing edge flaps to the 30-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-15-860-012

(7) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-15-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-15-010-001

(9) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-15-480-006

(10) Install the trailing edge flap (with transmission removed) lock, SPL-1757, on the flap support mechanism to hold the flap when you remove the transmission.

E. Inboard Flap Outboard Transmission Removal

SUBTASK 27-51-15-020-005

(1) Disconnect the torque tubes [35] from the transmission assembly [38] (Figure 403):

(a) Install the T.E. flap drive shaft clamp equipment, SPL-1706, inboard and outboard of the transmission assembly [38] to hold the torque tubes [35].

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. As you look outboard, the torque tubes outboard of the transmissions will turn counterclockwise for the left and right wings.

(b) Remove the screws [36] that attach the coupling sleeves [39] to the splined couplings [40].

(c) Move the coupling sleeves [39] off the splined couplings [40].

(d) Apply tape to the splined couplings [40].

SUBTASK 27-51-15-020-006

CAUTION MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Disconnect the gimbal [50] from the drive arm [49]:

(a) Remove the washer [44] from the inboard end of the drive arm [49]:

1) Remove the nut [46] and washer [45] from the bolt [47] that attaches the washer [44] to the drive arm [49].

2) Remove the washer [44].

(b) Remove the gimbal assembly [43] and washer [42] from the inboard end of the drive arm [49].

(c) Move the gimbal [50] inboard until it is clear of the outboard gimbal mount [41].

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(d) Remove the seals [66] from the gimbal [50].

SUBTASK 27-51-15-020-007

(3) Disconnect the ballscrew assembly [52] from the yoke [58] on the transmission assembly [38]:

(a) Remove the nuts [57], washers [55], washers [56] and bolts [54] that attach the ballscrew assembly [52] to the yoke [58].

(b) Remove the ballscrew assembly [52] from the yoke [58].

SUBTASK 27-51-15-480-003

(4) Attach the transmission clamp which is part of the trailing edge flap transmission equipment, SPL-1724 and a fishpole hoist, COM-1582, to the transmission assembly [38] (Figure 404):

(a) Install the transmission clamp on the transmission assembly [38].

(b) Connect the fishpole hoist, COM-1582, to the hoist bracket.

(c) Connect the cable from the fishpole hoist, COM-1582, to the transmission clamp.

SUBTASK 27-51-15-020-008

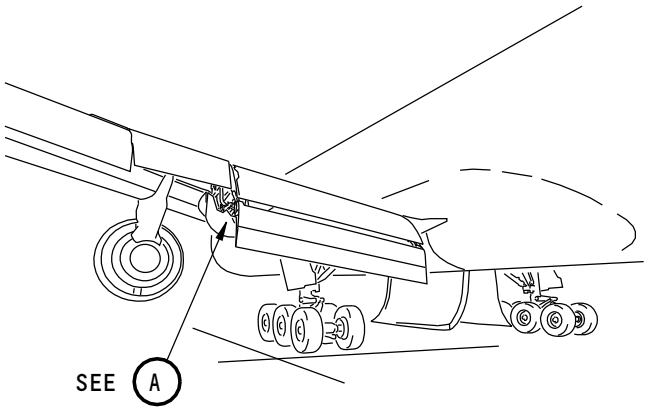
(5) Remove the transmission assembly [38] (Figure 403):

(a) Remove the nuts [62], washers [60], washers [61] and bolts [59] that attach the transmission assembly [38] to the actuator support [64].

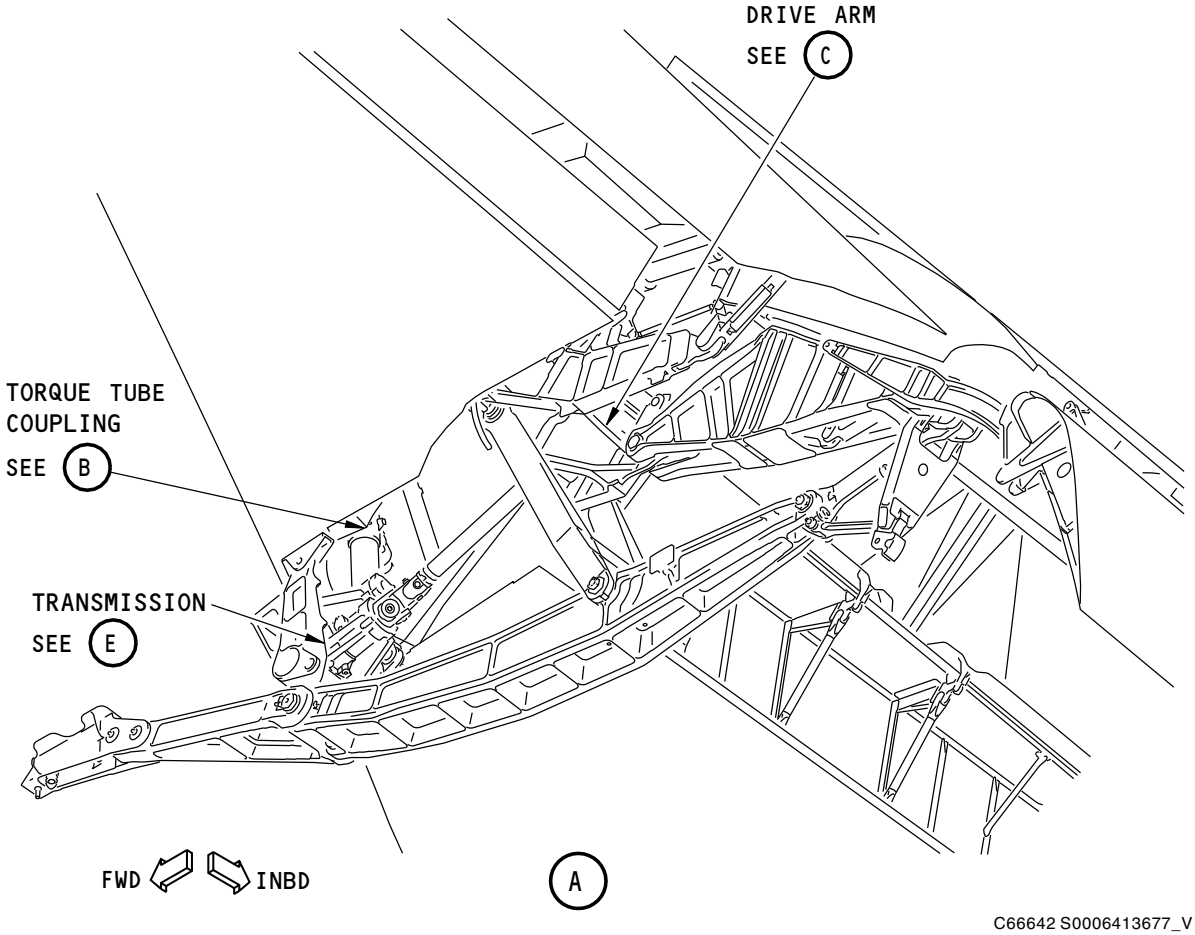
(b) Use the fishpole hoist, COM-1582, to carefully move the transmission assembly [38] out of the flap support mechanism [63].

——— END OF TASK ———

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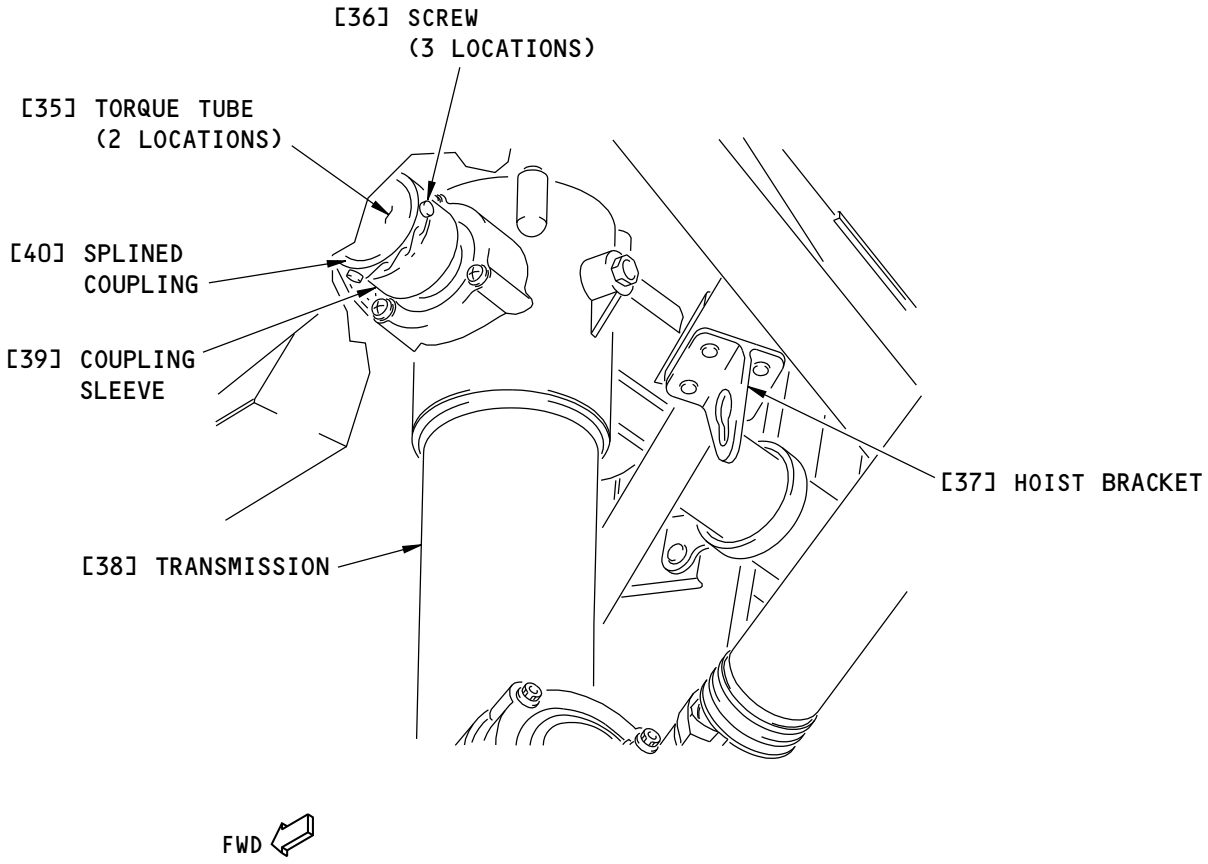
LEFT WING
(RIGHT WING IS EQUIVALENT)



C66642 S0006413677_V1

Inboard Flap Outboard Transmission Installation
Figure 403/27-51-15-990-803 (Sheet 1 of 4)

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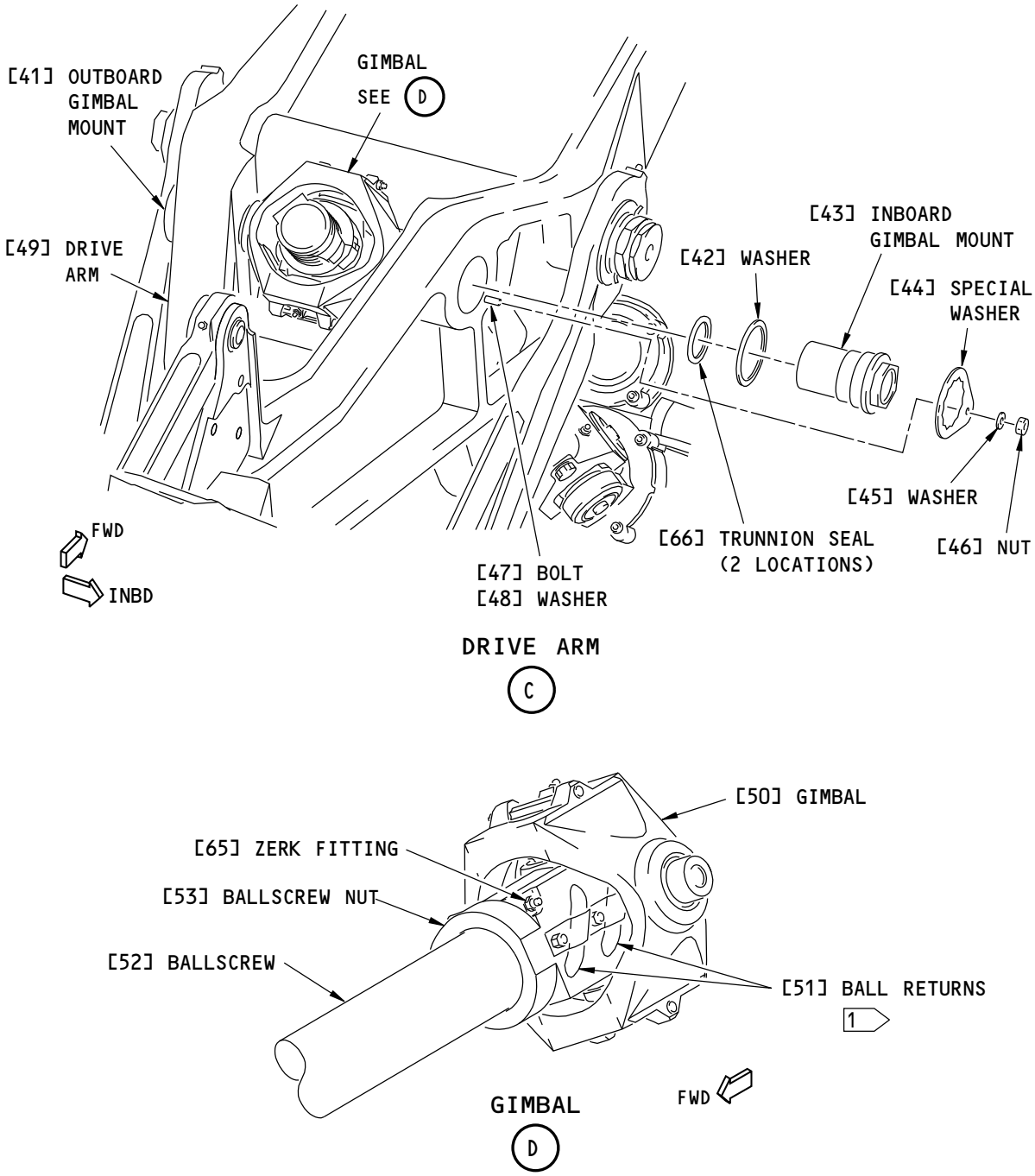


TORQUE TUBE COUPLING
B

C72183 S0006413678_V1

Inboard Flap Outboard Transmission Installation
Figure 403/27-51-15-990-803 (Sheet 2 of 4)

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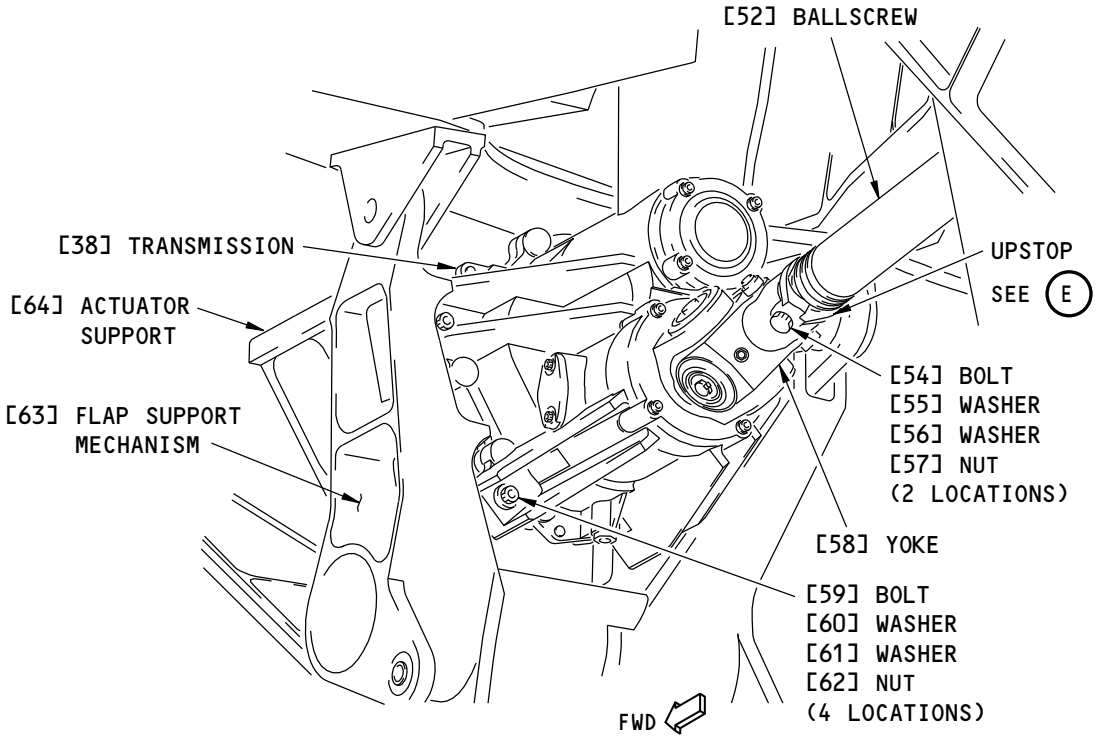


1 MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 3 ARE OUTBOARD.
MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 6 ARE INBOARD

C74508 S0006413679_V1

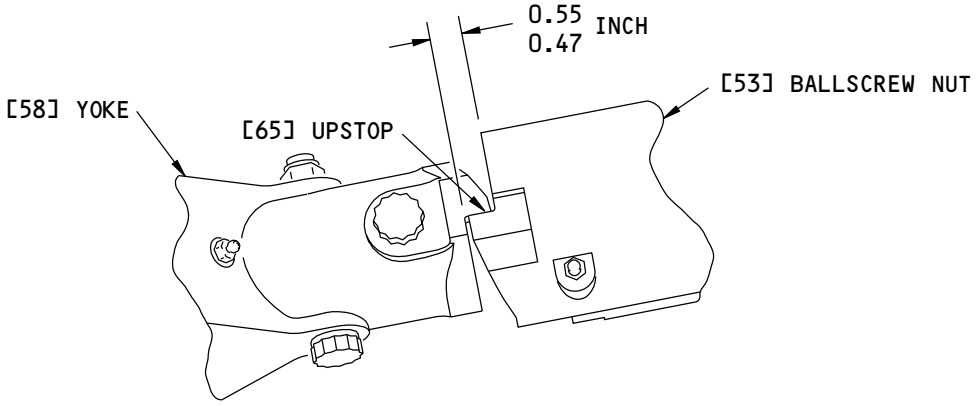
Inboard Flap Outboard Transmission Installation
Figure 403/27-51-15-990-803 (Sheet 3 of 4)

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TRANSMISSION

E



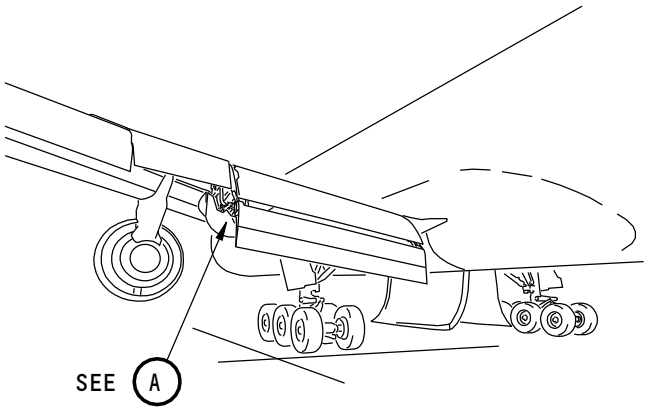
UPSTOP
(BALLSCREW NUT SHOWN IN RETRACTED POSITION)

G

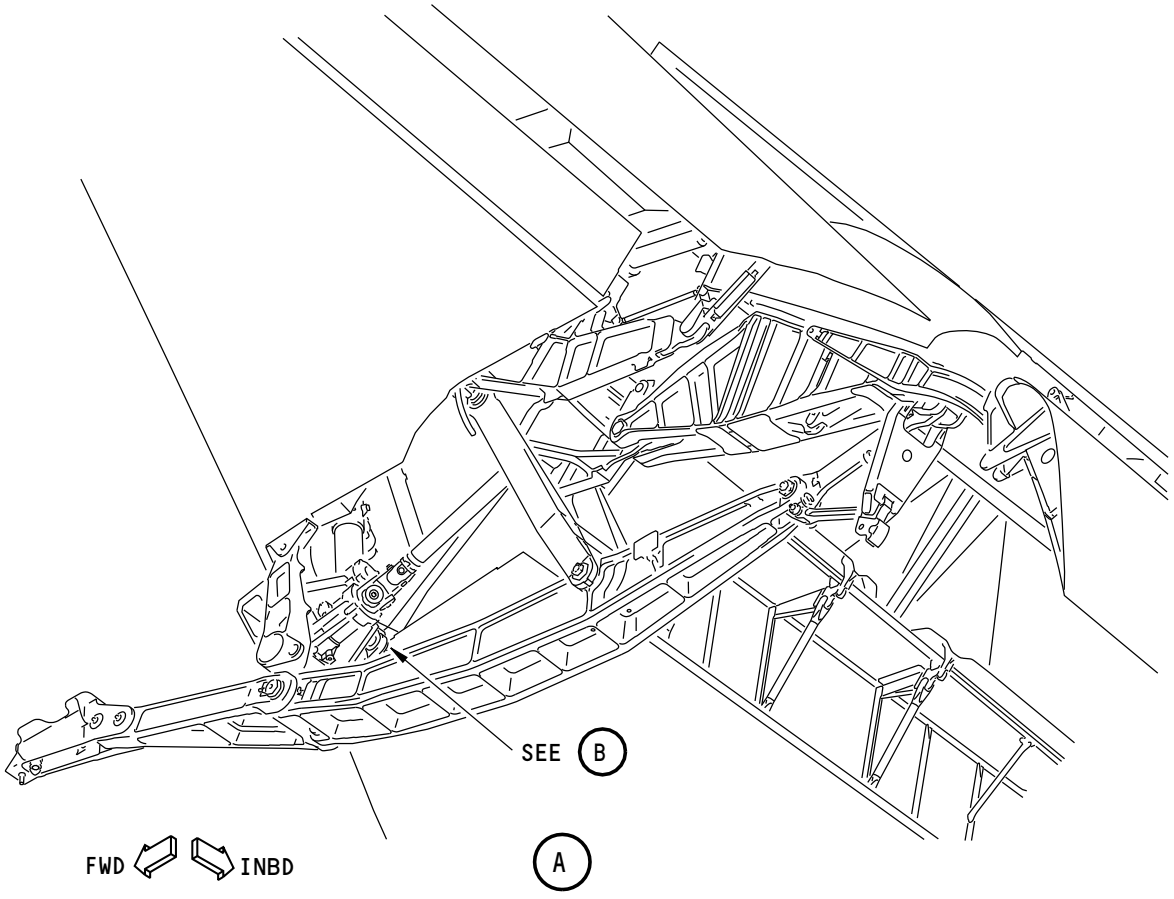
C72184 S0006413680_V1

Inboard Flap Outboard Transmission Installation
Figure 403/27-51-15-990-803 (Sheet 4 of 4)

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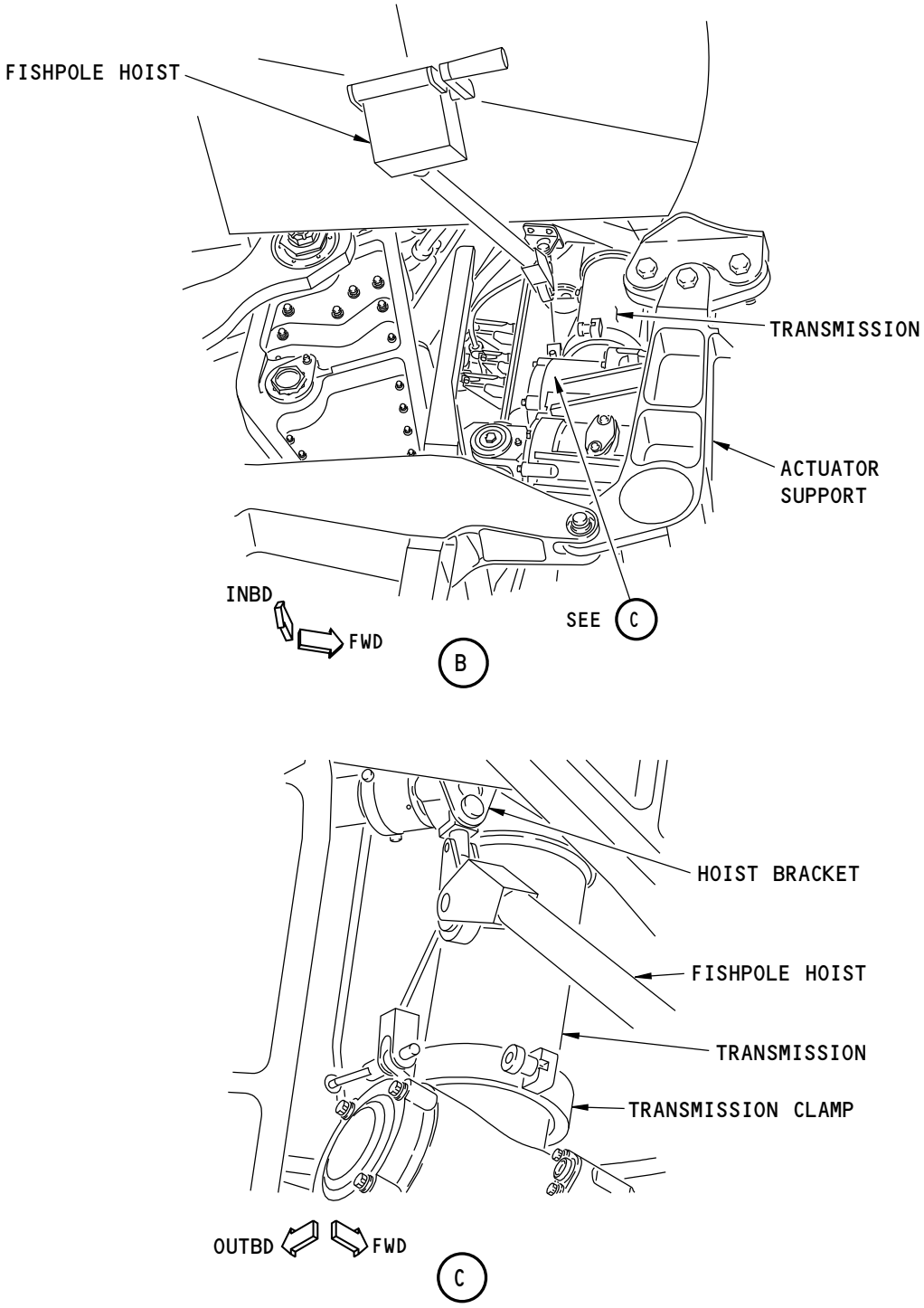
LEFT WING
(RIGHT WING IS EQUIVALENT)



E54353 S0006413681_V1

Inboard Flap Outboard Transmission Removal Equipment
Figure 404/27-51-15-990-804 (Sheet 1 of 2)

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E54356 S0006413682_V1

Inboard Flap Outboard Transmission Removal Equipment
Figure 404/27-51-15-990-804 (Sheet 2 of 2)

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TASK 27-51-15-400-802

5. Inboard Flap Outboard Transmission Installation

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-13-09-610-802	Flap Transmission Servicing (P/B 301)
12-21-09-640-807	Inboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

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D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
38	Transmission assembly	27-51-15-36-070	ARO 001-014
		27-51-15-36-075	ARO 001-014
		27-51-25-70-055	ARO ALL

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

F. Inboard Flap Outboard Transmission Installation

SUBTASK 27-51-15-420-005

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the transmission assembly [38] (Figure 403):

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the mating surfaces of the transmission assembly [38] and the actuator support [64].

(b) Use the fishpole hoist, COM-1582, and the transmission clamp (part of the trailing edge flap transmission equipment, SPL-1724) to lift the transmission assembly [38] to its position on the actuator support [64].

(c) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the shank and threads of the bolts [59].

(d) Install the bolts [59], washers [60], washers [61] and nuts [62].

NOTE: Install the bolts [59] with the heads aft.

(e) Tighten the nuts [62]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-51-15-080-003

(2) Remove the fishpole hoist, COM-1582, and the transmission clamp from the transmission assembly [38] (Figure 404).

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SUBTASK 27-51-15-420-006

CAUTION

MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU CONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(3) Connect the ballscrew assembly [52] to the yoke [58] on the transmission assembly [38] (Figure 403):

(a) Turn the ballscrew nut [53] until it is at the forward end of the ballscrew assembly [52].

(b) Put the ballscrew assembly [52] into the yoke [58].

(c) Install the bolts [54], washers [55], washers [56] and nuts [57] that attach the ballscrew assembly [52] to the yoke [58].

(d) Make sure the ballscrew assembly [52] is installed correctly in the yoke [58]:

1) Move the ballscrew nut [53] until the upstop [65] touches the upstop [65] on the yoke [58].

2) Make sure the distance between the yoke [58] and the ballscrew nut [53] is 0.47 in. (11.94 mm) - 0.55 in. (13.97 mm) (View G).

3) If the distance is not in the limits, change the distance:

a) Remove the nuts [57], washers [55], washers [56] and bolts [54] that attach the ballscrew assembly [52] to the yoke [58].

b) Turn the ballscrew assembly [52] 180 degrees in the yoke [58].

c) Re-install the bolts [54], washers [55], washers [56] and nuts [57].

(e) Tighten the nuts [57].

SUBTASK 27-51-15-420-007

(4) Connect the gimbal [50] to the drive arm [49]:

(a) If you will install a new gimbal assembly [43], then do these steps:

1) Temporarily put the gimbal assembly [43] in its position in the drive arm [49].

NOTE: Make sure you can install the gimbal assembly [43] with your hand.

2) Remove the gimbal assembly [43] from the drive arm [49].

(b) Move the gimbal [50]aft on the ballscrew assembly [52] until it aligns with the outboard gimbal mount [41].

(c) On transmission No. 3, make sure the ball returns [51] on the ballscrew nut [53] are outboard.

(d) On transmission No. 6, make sure the ball returns [51] on the ballscrew nut [53] are inboard.

(e) Make sure the zerk fittings [65] are on the upper side of the ballscrew nut [53].

(f) Apply grease, D00013, to the seals [66].

(g) Put the seals [66] in their location on the gimbal [50].

(h) Apply grease, D00013, to the mating surface of the gimbal assembly [43], the outboard gimbal mount [41] and the gimbal [50].

(i) Put the gimbal [50] in its position in the outboard gimbal mount [41].

(j) Install the gimbal assembly [43]:

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1) If the bolt [47] and washer [48] for the washer [44] are not installed in the drive arm [49], then do these steps:
   a) Apply sealant, A00247 to the shank of the bolt [47].
   b) Install the bolt [47] and washer [48] in the drive arm [49].
2) Put the washer [42] and the gimbal assembly [43] in their position in the drive arm [49].
3) Put the inboard end of the gimbal [50] in the gimbal assembly [43].
4) Tighten the gimbal assembly [43] to a minimum of 500 in-lb (56 N·m).
5) Put the washer [44] on the gimbal assembly [43].
6) Continue to tighten the gimbal assembly [43] to a maximum of 1000 in-lb (113 N·m), so that you can install the washer [44].
7) Install the washer [45] and nut [46] that hold the washer [44] to the drive arm [49].

SUBTASK 27-51-15-420-008

(5) Connect the torque tubes [35] to the transmission assembly [38]:
   (a) Remove the tape from the splined couplings [40].
   (b) Apply grease, D00633 to the coupling sleeves [39].
   (c) Put the splined couplings [40] in the coupling sleeves [39] on the transmission assembly [38].
   (d) Install the screws [36] to attach the torque tubes [35] to the transmission assembly [38].
   (e) Tighten the screws [36].

   NOTE: Do not over tighten the screws [36].

   (f) Install the MS20995C20 lockwire, G50225 on the screws [36].
   (g) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tubes [35].

SUBTASK 27-51-15-080-004

(6) Remove the trailing edge flap (with transmission removed) lock, SPL-1757, from the flap support mechanism.

SUBTASK 27-51-15-640-004

(7) Do this task: Flap Transmission Servicing, TASK 12-13-09-610-802.

SUBTASK 27-51-15-640-002

(8) Do this task: Inboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-807.

SUBTASK 27-51-15-410-001

(9) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-15-440-002

(10) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-15-860-013

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-15-860-014

(12) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-15-860-015

(13) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-15-820-002

(14) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-15-410-002

(1) Do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804.

END OF TASK

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INBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard ballscrew and gimbal for the inboard flap

(2) An installation of the inboard ballscrew and gimbal for the inboard flap

(3) A removal of the outboard ballscrew and gimbal for the inboard flap

(4) An installation of the outboard ballscrew and gimbal for the inboard flap.

TASK 27-51-16-000-801

2. Inboard Flap Inboard Ballscrew and Gimbal Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 4 and 5.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

E. Prepare for the Removal

SUBTASK 27-51-16-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-16-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-16-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-16-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-16-210-004

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-16-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-16-860-003

(7) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-16-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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F. Inboard Flap Inboard Ballscrew and Gimbal Removal

SUBTASK 27-51-16-480-003

(1) Install the trailing edge flap (with transmission removed) lock, SPL-1757 to hold the flap in the extended position.

SUBTASK 27-51-16-020-001

CAUTION

MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Disconnect the gimbal [4] from the drive arm [14]:

(a) Remove the nuts [11], washers [12], washers [15] and bolts [16] that attach the retainers [10] to the drive arm [14].

(b) Remove the retainers [10] and the seals [9] from the drive arm [14].

SUBTASK 27-51-16-020-002

(3) Disconnect the ballscrew assembly [1] from the yoke [18] on the transmission [17]:

(a) Remove the nuts [19], washers [20], washers [21] and bolts [22] that attach the ballscrew assembly [1] to the yoke [18].

(b) Remove the ballscrew assembly [1] from the yoke [18].

SUBTASK 27-51-16-020-003

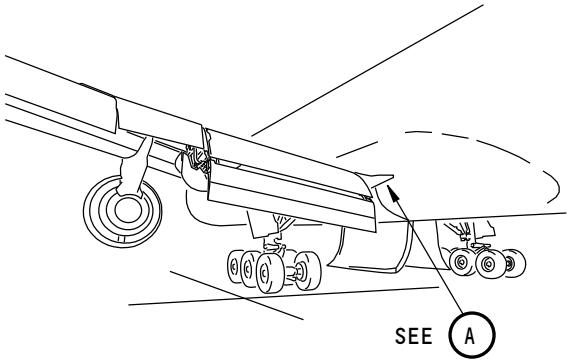
(4) If it is necessary, remove the gimbal [4] from the ballscrew nut [2]:

(a) Remove the bolts [5] and collars [8] that attach the bushing assemblies [6] to the gimbal [4].

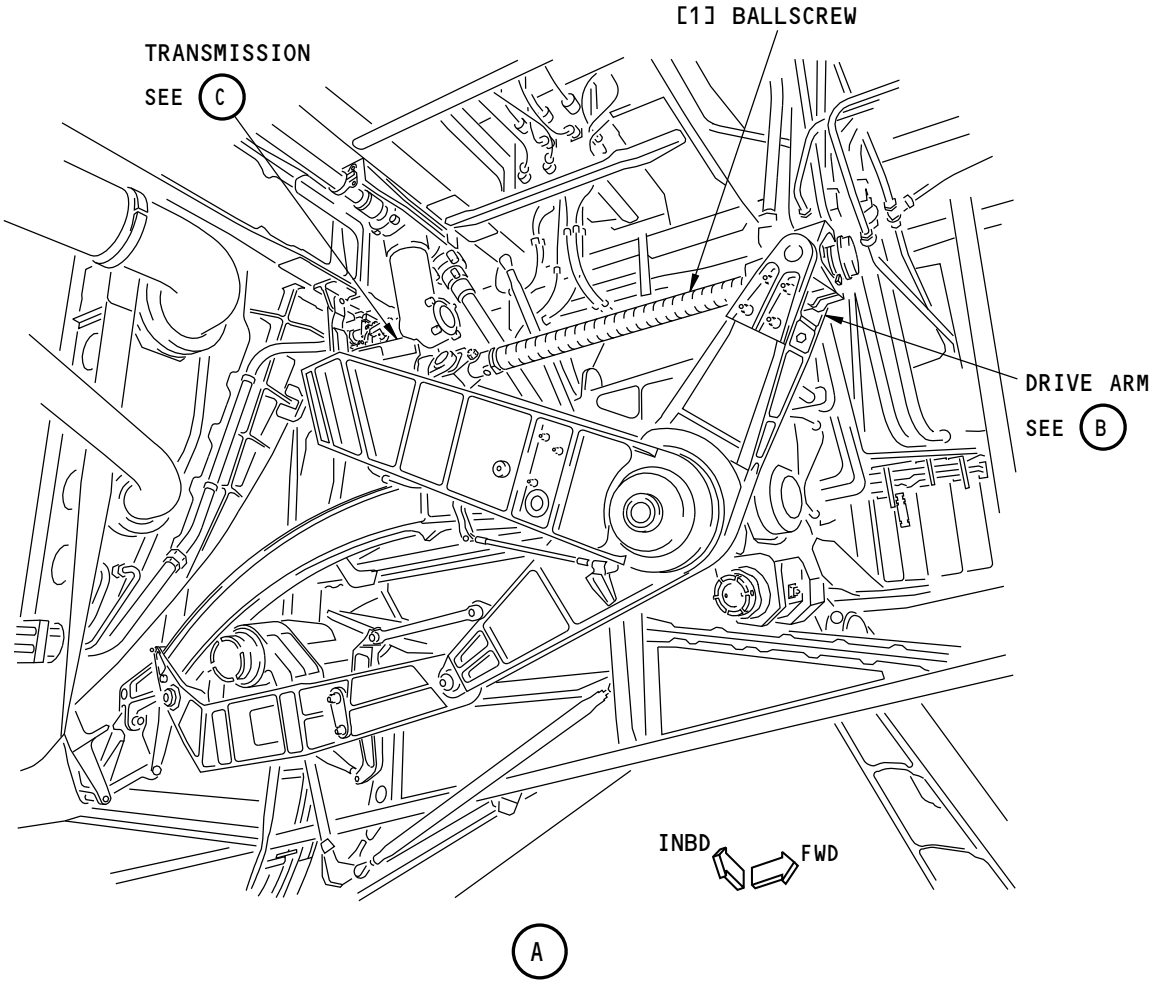
(b) Remove the bushing assemblies [6] with the seals [7] from the ballscrew nut [2].

END OF TASK

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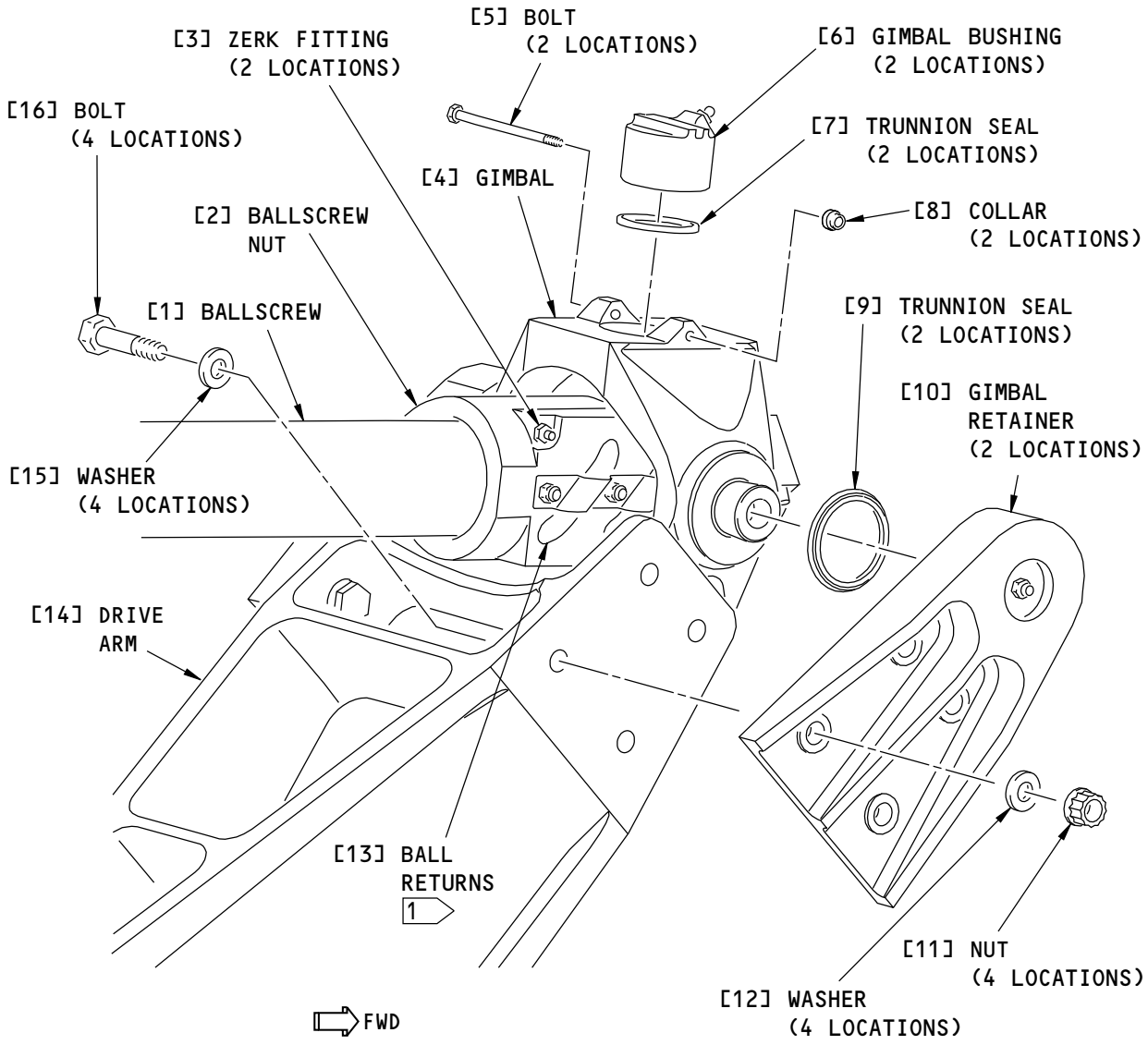
LEFT WING
(RIGHT WING IS EQUIVALENT)



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Inboard Flap Inboard Ballscrew and Gimbal Installation
Figure 401/27-51-16-990-801 (Sheet 1 of 3)

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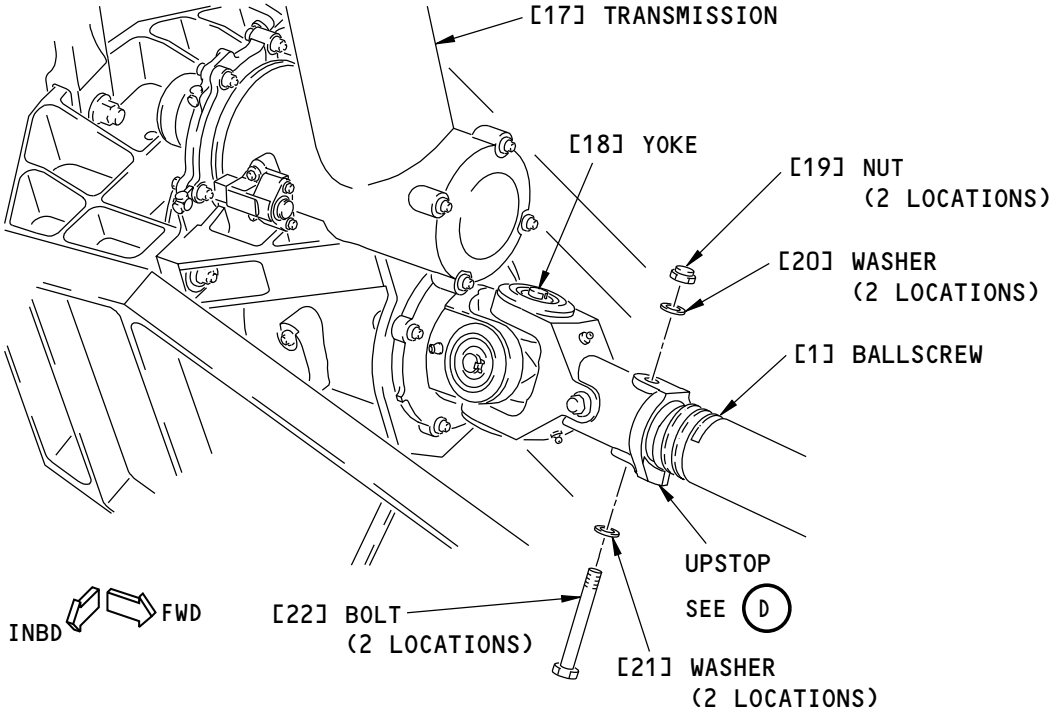
DRIVE ARM
B

1 MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 4 ARE INBOARD.
MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 5 ARE OUTBOARD.

E34665 S0006413688_V3

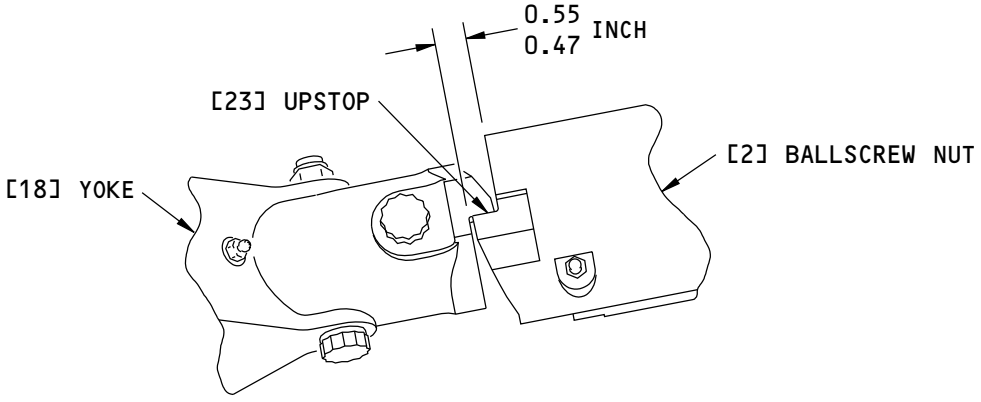
Inboard Flap Inboard Ballscrew and Gimbal Installation
Figure 401/27-51-16-990-801 (Sheet 2 of 3)

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TRANSMISSION

C



UPSTOP
(BALLSCREW NUT SHOWN IN RETRACTED POSITION)

D

E34984 S0006413689_V1

Inboard Flap Inboard Ballscrew and Gimbal Installation
Figure 401/27-51-16-990-801 (Sheet 3 of 3)

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TASK 27-51-16-400-801

3. Inboard Flap Inboard Ballscrew and Gimbal Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 4 and 5.

B. References

Reference	Title
12-21-09-640-802	Inboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Ballscrew assembly	27-51-16-17-065	ARO ALL
		27-51-26-70-075	ARO ALL
4	Gimbal	27-51-16-17-060	ARO ALL
		27-51-22-74A-365	ARO ALL

F. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

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G. Inboard Flap Inboard Ballscrew and Gimbal Installation

SUBTASK 27-51-16-420-001

(1) If you removed it, install the gimbal [4] on the ballscrew nut [2]:

(a) Apply grease, D00013 to the seals [7].

(b) Put the seals [7] on the ballscrew nut [2].

(c) Put the gimbal [4] in its location on the ballscrew nut [2].

(d) Apply grease, D00013 to the inner surface of the bushing assemblies [6].

(e) Install the bushing assemblies [6] through the gimbal [4] on the ballscrew nut [2].

(f) Install the bolts [5] and collars [8] that attach the bushing assemblies [6] to the gimbal [4].

SUBTASK 27-51-16-420-002

CAUTION MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU CONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Connect the ballscrew assembly [1] to the yoke [18] on the transmission [17]:

(a) Put the ballscrew assembly [1] in the yoke [18].

(b) Install the bolts [22], washers [20], washers [21] and nuts [19] that attach the ballscrew assembly [1] to the yoke [18].

(c) Turn the ballscrew nut [2] until it is at the upstop [23] on the yoke [18].

(d) Make sure the ballscrew assembly [1] is installed correctly in the yoke [18]:

1) Move the ballscrew nut [2] until the upstops touch the yoke [18].

2) Make sure the distance between the yoke [18] and the ballscrew nut [2] is 0.47 to 0.55 inch (View D).

3) If the distance is not in the limit, adjust the distance:

a) Remove the nuts [19], washers [20], washers [21] and bolts [22].

b) Turn the ballscrew assembly [1] 180 ° in the yoke [18].

c) Install the bolts [22], washers [20], washers [21] and nuts [19].

(e) Tighten the nuts [19].

SUBTASK 27-51-16-420-003

(3) Connect the gimbal [4] to the drive arm [14]:

(a) Move the gimbal [4] forward on the ballscrew assembly [1] until it aligns with the drive arm [14].

(b) On transmission No. 4, make sure the ball returns [13] on the ballscrew nut [2] are inboard.

(c) On transmission No. 5, make sure the ball returns [13] on the ballscrew nut [2] are outboard.

(d) Make sure the zerk fittings [3] are on the upper side of the ballscrew nut [2].

(e) Apply grease, D00013 to the seals [9] for the retainers [10].

(f) Put the seals [9] in their location on the gimbal [4].

(g) Apply grease, D00013 to the mating surfaces of the retainers [10] and the gimbal [4].

(h) Put the gimbal [4] in its position in the drive arm [14}.

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(i) Install the retainer [10]:

1) Install the bolts [16] and washers [15] in the drive arm [14].

NOTE: Install the bolts [16] with the heads to the center of the drive arm.

2) Apply a layer of PR-1405-G sealant, A00723 to the mating surfaces of the retainers [10] and the drive arm [14].

3) Put the end of the gimbal [4] in the retainers [10].

4) Install the washers [12] and nuts [11] on the bolts [16].

5) Tighten the nuts [11] to 370-690 pound-inches.

SUBTASK 27-51-16-080-001

(4) Remove the trailing edge flap (with transmission removed) lock, SPL-1757 from the flap.

SUBTASK 27-51-16-640-001

(5) For the ballscrew and gimbal, do this task: Inboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-802.

SUBTASK 27-51-16-820-001

(6) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-16-440-001

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-16-860-004

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-16-860-005

(3) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-16-860-006

(4) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-16-080-002

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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TASK 27-51-16-000-802

4. Inboard Flap Outboard Ballscrew and Gimbal Removal

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 3 and 6.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-000-804	Outboard Flap Support Forward Fairing Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

E. Prepare for the Removal

SUBTASK 27-51-16-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-16-010-002

(2) Do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-16-860-009

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-16-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-16-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-16-860-010

(6) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-16-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-16-010-001

(8) Do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

F. Inboard Flap Outboard Ballscrew and Gimbal Removal

SUBTASK 27-51-16-480-004

(1) Install the trailing edge flap (with transmission removed) lock, SPL-1757 to hold the flap in the extended position.

SUBTASK 27-51-16-020-004

CAUTION MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Disconnect the gimbal [54] from the drive arm [51]:

(a) Remove the washer [46] from the inboard end of the drive arm [51]:

1) Remove the nut [48] and washer [47] from the bolt [49] that attaches the washer [46] to the drive arm [51].

2) Remove the washer [46].

(b) Remove the gimbal assembly [45] and the washer [44] from the inboard end of the drive arm [51].

(c) Move the gimbal [54] inboard until it is clear of the outboard gimbal mount [52].

(d) Remove the seals [43] from the gimbal [54].

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SUBTASK 27-51-16-020-005

(3) Disconnect the ballscrew assembly [41] from the yoke [65] on the transmission [60]:

(a) Remove the nuts [64], washers [62], washers [63] and bolts [61] that attach the ballscrew assembly [41] to the yoke [65].

(b) Remove the ballscrew assembly [41] from the yoke [65].

SUBTASK 27-51-16-020-006

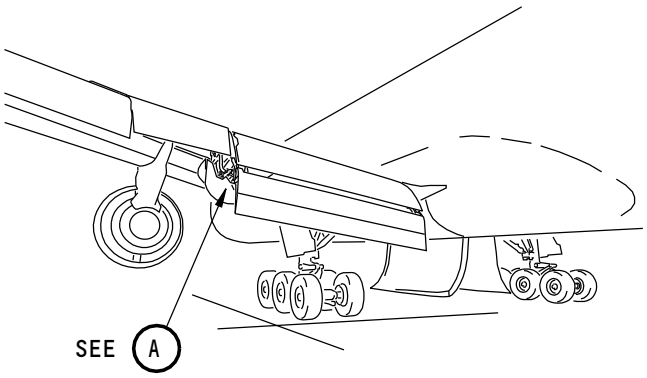
(4) If it is necessary, remove the gimbal [54] from the ballscrew nut [42]:

(a) Remove the bolts [57] and collars [53] that attach the bushing assemblies [59] to the gimbal [54].

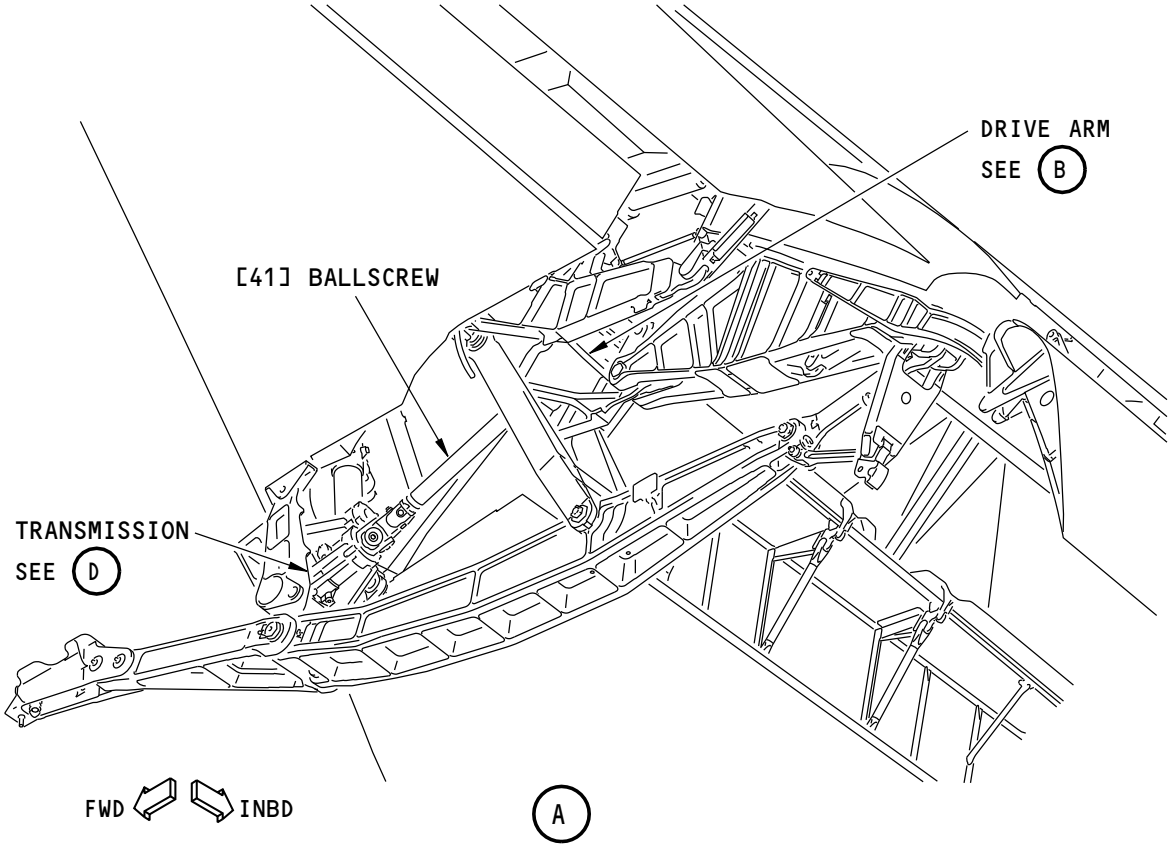
(b) Remove the bushing assemblies [59] with the seals [58] from the ballscrew nut [42].

——— END OF TASK ———

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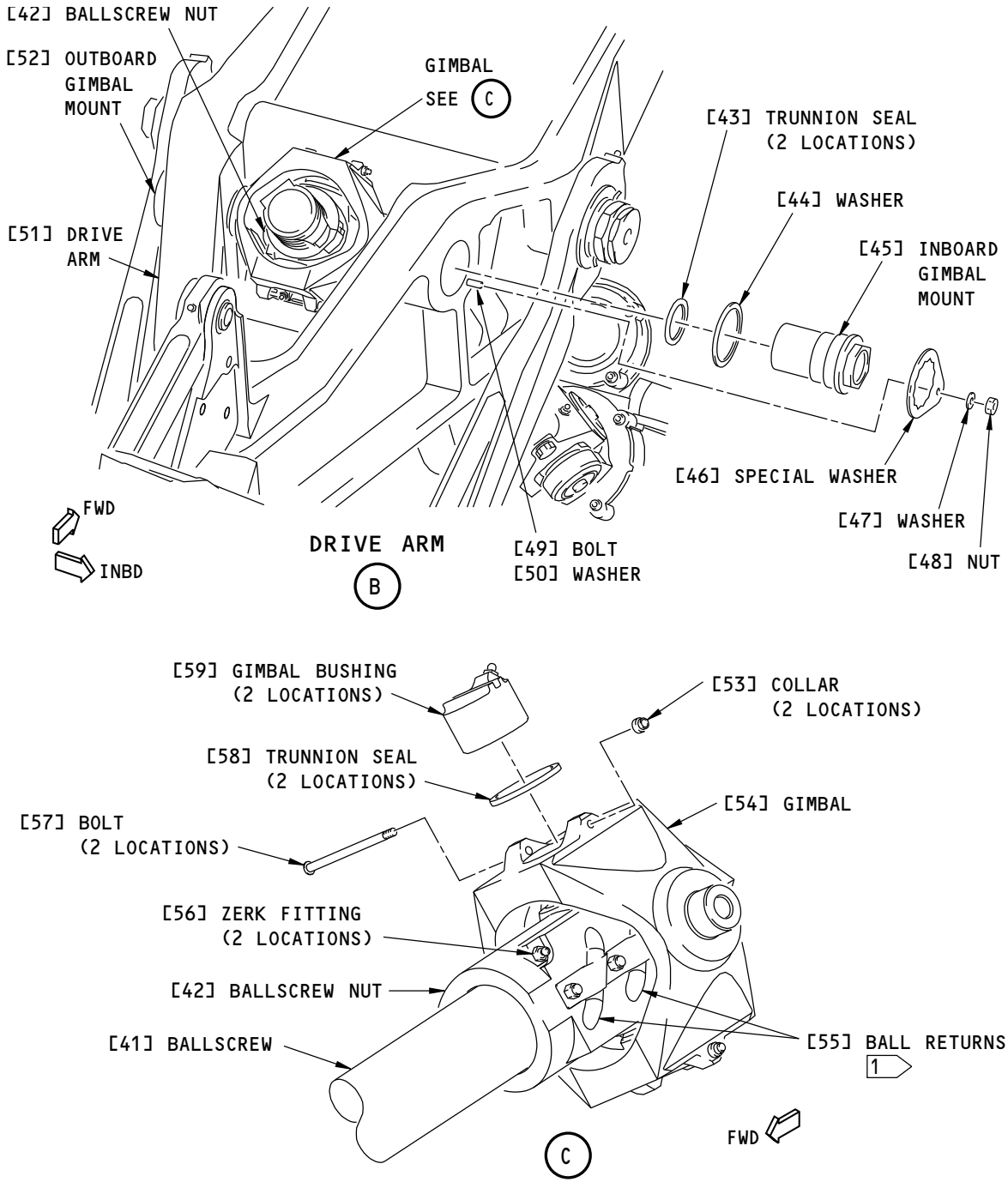
LEFT WING
(RIGHT WING IS EQUIVALENT)



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Inboard Flap Outboard Ballscrew and Gimbal Installation
Figure 402/27-51-16-990-802 (Sheet 1 of 3)

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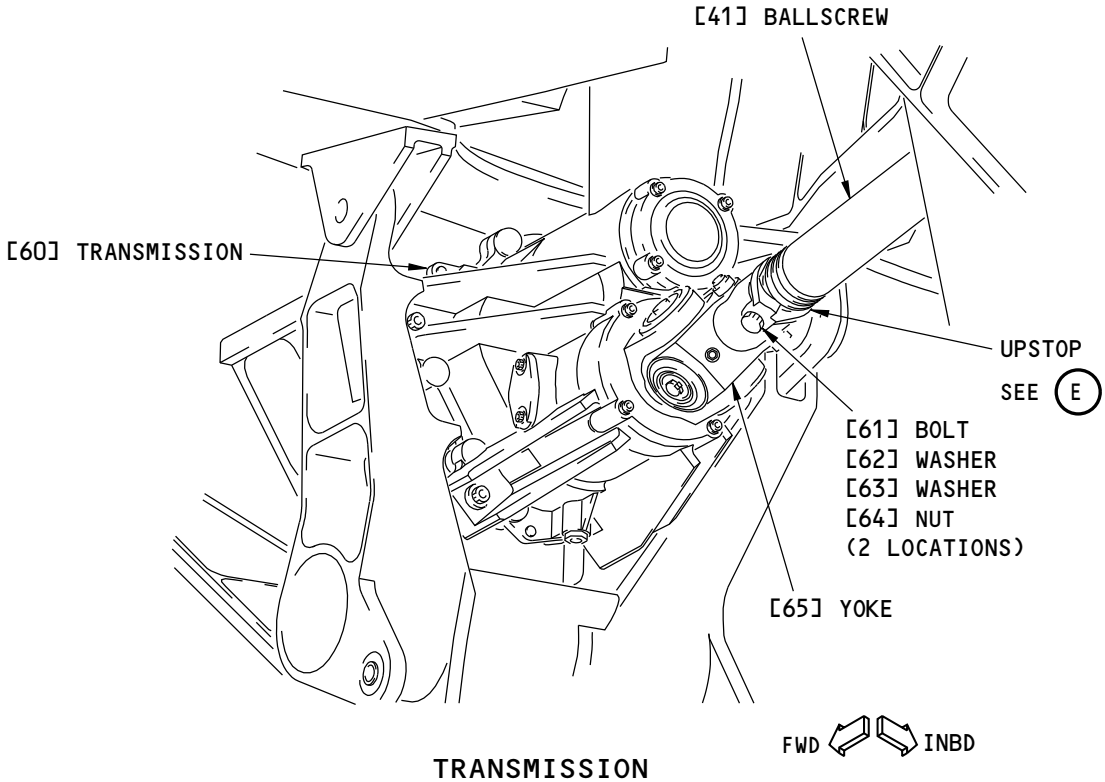


1 MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 3 ARE OUTBOARD.
MAKE SURE THE BALL RETURNS FOR TRANSMISSION NO. 6 ARE INBOARD

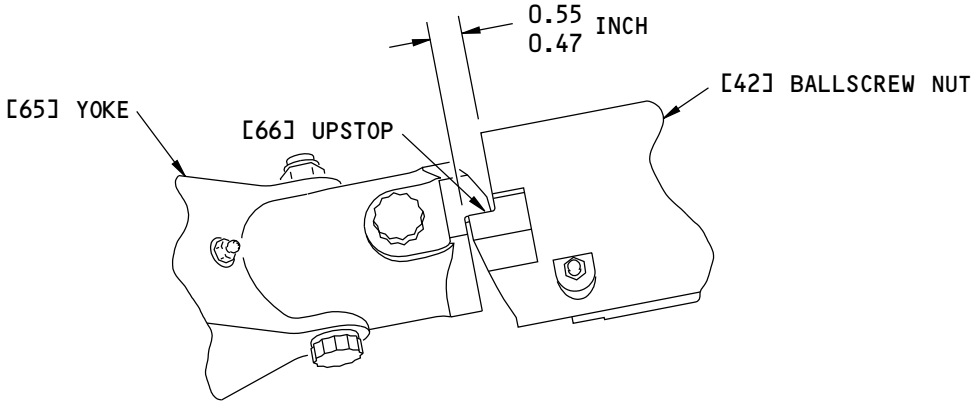
E35039 S0006413693_V1

Inboard Flap Outboard Ballscrew and Gimbal Installation
Figure 402/27-51-16-990-802 (Sheet 2 of 3)

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TRANSMISSION
(D)



UPSTOP
(BALLSCREW NUT SHOWN IN RETRACTED POSITION)
(E)

E35042 S0006413694_V1

Inboard Flap Outboard Ballscrew and Gimbal Installation
Figure 402/27-51-16-990-802 (Sheet 3 of 3)

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TASK 27-51-16-400-802

5. Inboard Flap Outboard Ballscrew and Gimbal Installation

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 3 and 6.

B. References

Reference	Title
12-21-09-640-807	Inboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)
27-51-18-400-804	Outboard Flap Support Forward Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

F. Inboard Flap Outboard Ballscrew and Gimbal Installation

SUBTASK 27-51-16-420-004

(1) If you removed it, install the gimbal [54] on the ballscrew nut [42]:

(a) Apply grease, D00013 to the seals [58].

(b) Put the seals [58] on the ballscrew nut [42].

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(c) Put the gimbal [54] in its location on the ballscrew nut [42].

(d) Apply grease, D00013 to the inner surface of the bushing assemblies [59].

(e) Install the bushing assemblies [59] through the gimbal [54] on the ballscrew nut [42].

(f) Install the bolts [57] and collars [53] that attach the bushing assemblies [59] to the gimbal [54].

SUBTASK 27-51-16-420-005

CAUTION

MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU CONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Connect the ballscrew assembly [41] to the yoke [65] on the transmission [60]:

(a) Put the ballscrew assembly [41] in the yoke [65].

(b) Install the bolts [61], washers [62], washers [63] and nuts [64] that attach the ballscrew assembly [41] to the yoke [65].

(c) Turn the ballscrew nut [42] until it is at the upstop [66] on the yoke [65].

(d) Make sure the ballscrew assembly [41] is installed correctly in the yoke [65]:

1) Move the ballscrew nut [42] until the upstops touch the yoke [65].

2) Make sure the distance between the yoke [65] and the ballscrew nut [42] is 0.47 to 0.55 inch (View E).

3) If the distance is not in the limit, adjust the distance:

a) Remove the nuts [64], washers [62], washers [63] and bolts [61].

b) Turn the ballscrew assembly [41] 180 ° in the yoke [65].

c) Install the bolts [61], washers [62], washers [63] and nuts [64].

(e) Tighten the nuts [64].

SUBTASK 27-51-16-420-006

(3) Connect the gimbal [54] to the drive arm [51]:

(a) If you will install a new gimbal assembly [45], then do these steps:

1) Temporarily put the gimbal assembly [45] in its position in the drive arm [51].

NOTE: Make sure you can install the gimbal assembly [45] with your hand.

2) Remove the gimbal assembly [45] from the drive arm [51].

(b) Move the gimbal [54] aft on the ballscrew assembly [41] until it aligns with the outboard gimbal mount [52].

(c) On transmission No. 3, make sure the ball returns [55] on the ballscrew nut [42] are outboard.

(d) On transmission No. 6, make sure the ball returns [55] on the ballscrew nut [42] are inboard.

(e) Make sure the zerk fittings [56] are on the upper side of the ballscrew nut [42].

(f) Apply grease, D00013 to the seals [43] for the gimbal assembly [45] and the outboard gimbal mount [52].

(g) Put the seals [43] in their location on the gimbal [54].

(h) Apply grease, D00013 to the mating surface of the gimbal assembly [45] and the outboard gimbal mount [52].

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(i) Put the gimbal [54] in its position in the outboard gimbal mount [52].

(j) Install the gimbal assembly [45]:

1) If the bolt [49] and washer [50] for the washer [46] are not installed in the drive arm [51], then do these steps:

a) Apply sealant, A00247 to the shank of the bolt [49].

b) Install the bolt [49] and washer [50] in the drive arm [51].

2) Put the washer [44] and the gimbal assembly [45] in their position in the drive arm [51].

3) Tighten the gimbal assembly [45] to a minimum of 500 pound-inches.

4) Continue to tighten the gimbal assembly [45] to a maximum of 1000 pound-inches, until you can install the washer [46].

5) Put the washer [46] on the gimbal assembly [45].

6) Install the washer [47] and nut [48] to hold the washer [46] to the drive arm [51].

SUBTASK 27-51-16-080-003

(4) Remove the trailing edge flap (with transmission removed) lock, SPL-1757 from the flap.

SUBTASK 27-51-16-640-002

(5) For the ballscrew and gimbal, do this task: Inboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-807.

SUBTASK 27-51-16-820-002

(6) Do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-16-440-003

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-16-410-001

(2) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-16-860-011

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-16-860-012

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-16-860-013

(5) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-16-010-003

(6) Do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804.

END OF TASK

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INBOARD FLAP BALLSCREW - INSPECTION/CHECK

1. General

A. This procedure contains the following tasks:

(1) A detailed lubrication inspection of the inboard ballscrew for the inboard flap.

(2) A detailed lubrication inspection of the outboard ballscrew for the inboard flap.

TASK 27-51-16-200-803

2. Inboard Flap Inboard Ballscrew Detailed Lubrication Inspection

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-16 P/B 401	INBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G01043	Cloth - Lint-free	

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

D. Prepare for the Lubrication Inspection

SUBTASK 27-51-16-040-003

(1) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Flap Inboard Ballscrew Lubrication Inspection

(Table 601)

SUBTASK 27-51-16-640-003

(1) This table supplies data for the subsequent lubrication and inspection steps:

Table 601/27-51-16-993-802 Inboard Flap Inboard Ballscrew Servicing

Item No.	Nomenclature	Lubricant	Method of Application	Number of Locations
-	No. 4 Ballscrew Nut (No. 5 Ballscrew Nut is Equivalent)	grease, D00633	Zerk	1

SUBTASK 27-51-16-640-004

(2) Do these steps for the ballscrew nut lubrication and inspection:

(a) Remove the old grease and dirt on and around the ballscrew nut and grease vent with a lint-free cloth, G01043 or equivalent.

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CAUTION

DO NOT USE A PNEUMATIC GREASE GUN TO SERVICE THE BALLSCREWS, EXCESSIVE GREASE GUN NOZZLE PRESSURE AND FLOW RATE CAN DAMAGE THE SEALS.

(b) Lubricate the ballscrew nut with grease, D00633.

NOTE: The ballscrew nut has two grease fittings. It is only necessary to lubricate one of them.

1) Make sure that clean grease comes out from the grease vent.

NOTE: Used grease is flushed out when clean grease comes out through the grease vent.

a) If clean grease does not come out from the vent, then replace the ballscrew assembly on or before the next interval inspection (INBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION, PAGEBLOCK 27-51-16/401).

2) Make sure that grease does not freely come out through the ballscrew nut seal.

NOTE: It is acceptable for seepage or blistering of grease to come out through the ballscrew nut seal.

NOTE: It is unacceptable for grease to come out of the seal in a ribbon.

a) If the grease freely comes through the ballscrew nut seal, then replace the ballscrew assembly on or before the next interval inspection (INBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION, PAGEBLOCK 27-51-16/401).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-16-440-004

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

——— END OF TASK ———

TASK 27-51-16-200-804

3. Inboard Flap Outboard Ballscrew Detailed Lubrication Inspection

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-16 P/B 401	INBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G01043	Cloth - Lint-free	

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C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Prepare for the Lubrication Inspection

SUBTASK 27-51-16-860-027

(1) Extend the trailing edge flaps to the 30-unit position, refer to TASK 27-51-00-860-804.

SUBTASK 27-51-16-040-004

(2) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Flap Outboard Ballscrew and Gimbal Lubrication

(Table 602)

SUBTASK 27-51-16-640-005

(1) This table supplies data for the subsequent lubrication and inspection step:

Table 602/27-51-16-993-803 Inboard Flap Outboard Ballscrew Servicing

Item No.	Nomenclature	Lubricant	Method of Application	Number of Locations
-	No. 3 Ballscrew Nut (No. 6 Ballscrew Nut is Equivalent)	grease, D00633	Zerk	1

SUBTASK 27-51-16-640-006

(2) Do these steps for the ballscrew nut lubrication and inspection:

(a) Remove the old grease and dirt on and around the ballscrew nut and grease vent with a lint-free cloth, G01043 or equivalent.

CAUTION DO NOT USE A PNEUMATIC GREASE GUN TO SERVICE THE BALLSCREWS, EXCESSIVE GREASE GUN NOZZLE PRESSURE AND FLOW RATE CAN DAMAGE THE SEALS.

(b) Lubricate the ballscrew nut with grease, D00633.

NOTE: The ballscrew nut has two grease fittings. It is only necessary to lubricate one of them.

1) Make sure that clean grease comes out from the grease vent.

NOTE: Used grease is flushed out when clean grease comes out through the grease vent.

a) If clean grease does not come out from the vent, then replace the ballscrew assembly on or before the next interval inspection (INBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION, PAGEBLOCK 27-51-16/401).

2) Make sure that grease does not freely come out through the ballscrew nut seal.

NOTE: It is acceptable for seepage or blistering of grease to come out through the ballscrew nut seal.

NOTE: It is unacceptable for grease to come out of the seal in a ribbon.

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a) If the grease freely comes through the ballscrew nut seal, then replace the ballscrew assembly on or before the next interval inspection (INBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION, PAGEBLOCK 27-51-16/401).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-16-440-005

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-16-860-028

(2) Retract the trailing edge flaps to the UP position, refer to TASK 27-51-00-860-805.

——— END OF TASK ———

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INBOARD FLAP FAIRINGS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard flap support fairing for the inboard flap.

(2) An installation of the inboard flap support fairing for the inboard flap.

(3) A removal of the forward fairing on the outboard flap support for the inboard flap.

(4) An installation of the forward fairing on the outboard flap support for the inboard flap.

(5) A removal of the aft fairing on the outboard flap support for the inboard flap.

(6) An installation of the aft fairing on the outboard flap support for the inboard flap.

(7) A removal of the fairing for the center track on the inboard flap.

(8) An installation of the fairing for the center track on the inboard flap.

TASK 27-51-18-000-801

2. Inboard Flap Support Fairing Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5

C. Prepare for the Removal

SUBTASK 27-51-18-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-18-480-003

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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SUBTASK 27-51-18-480-004

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-18-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-18-210-009

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-18-210-004

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-18-860-003

(7) Extend the trailing edge flaps to the 30-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-18-860-004

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-18-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

D. Inboard Flap Support Fairing Removal

SUBTASK 27-51-18-020-001

(1) Remove the fairing assembly [3]:

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(a) Remove the bolts [5] and washers [6] that attach the forward end of the fairing assembly [3] to the main flap [2].

(b) Remove the bushings [7] from the fairing assembly [3].

(c) Remove the nut [8], washer [9], washer [11] and bolt [12] that attach the fairing assembly [3] to the aft flap track [10].

(d) Remove the bushing [13] and remove the fairing assembly [3].

SUBTASK 27-51-18-020-002

(2) Remove the fairing assembly [4]:

(a) Remove the nut [15], washer [16], washer [18] and bolt [17] that attach the fairing assembly [4] to the forward fitting [14] on the aft flap [1].

(b) Remove the bushing [19] from the forward fitting [14].

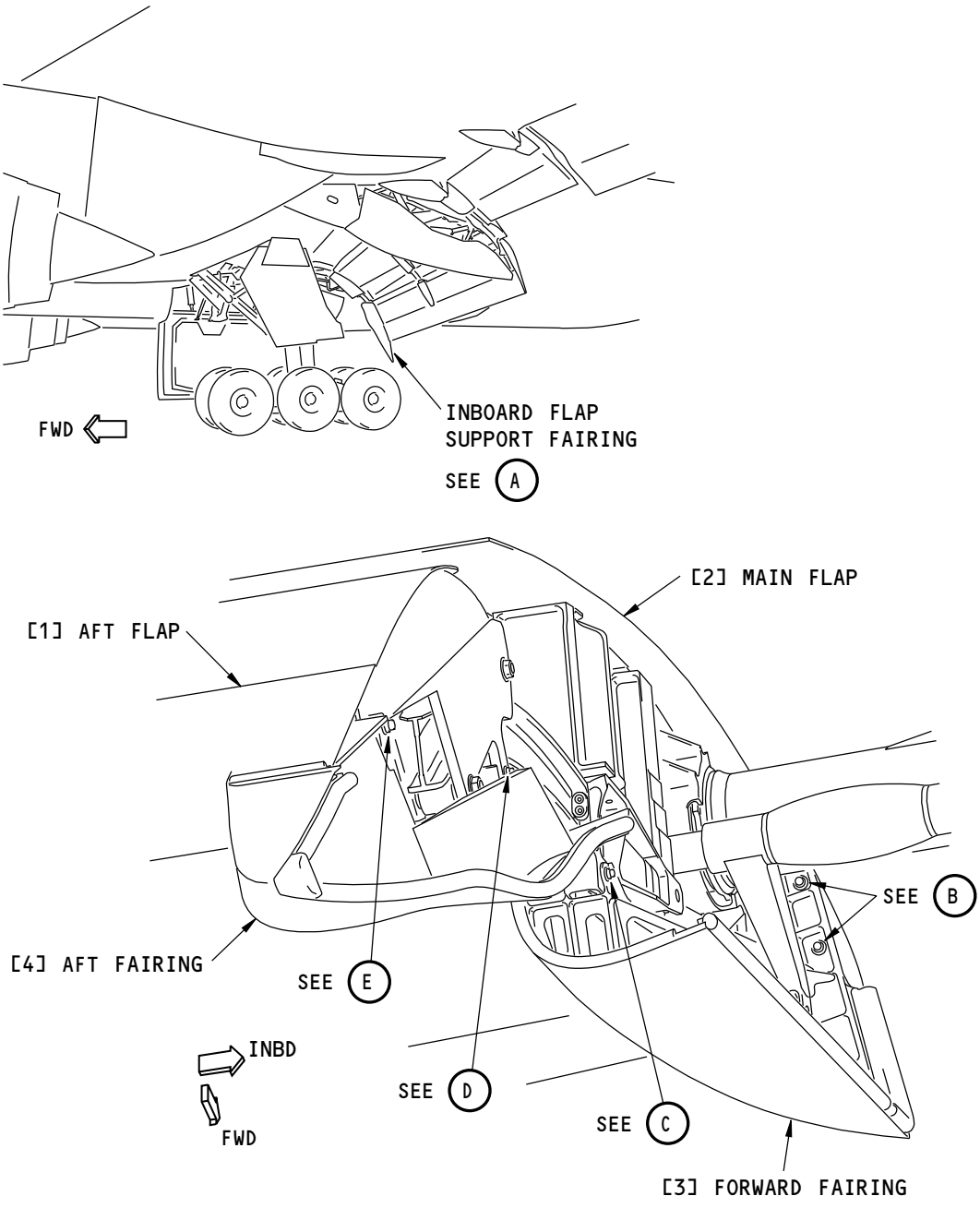
(c) Remove the nut [21], washer [22], washer [24] and bolt [23] that attach the fairing assembly [4] to the aft fitting [20] on the aft flap [1].

(d) Remove the bushing [25] from the aft fitting [20].

(e) Remove the fairing assembly [4].

——— END OF TASK ———

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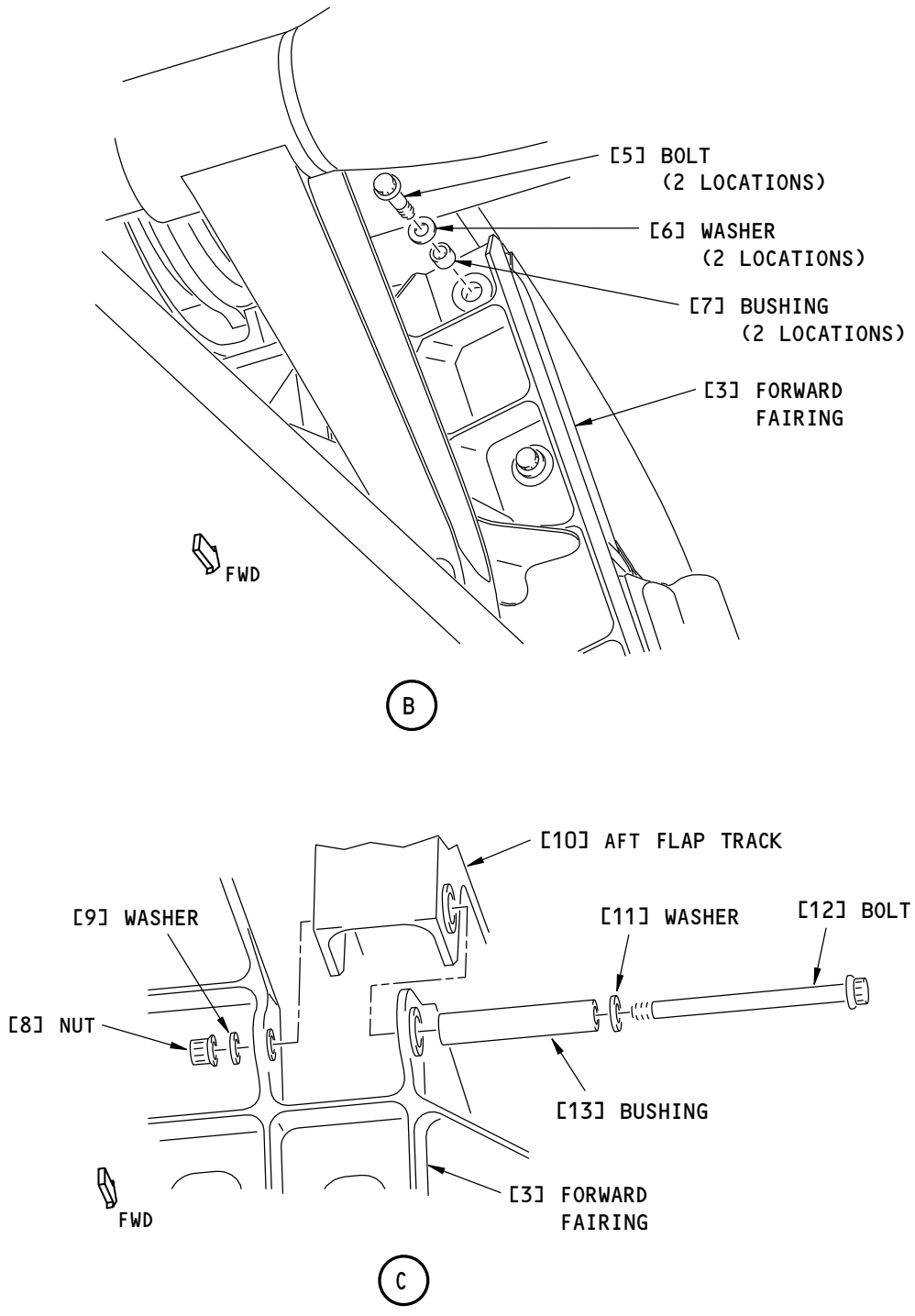
INBOARD FLAP SUPPORT FAIRING
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

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Inboard Flap Support Fairing Installation
Figure 401/27-51-18-990-801 (Sheet 1 of 3)

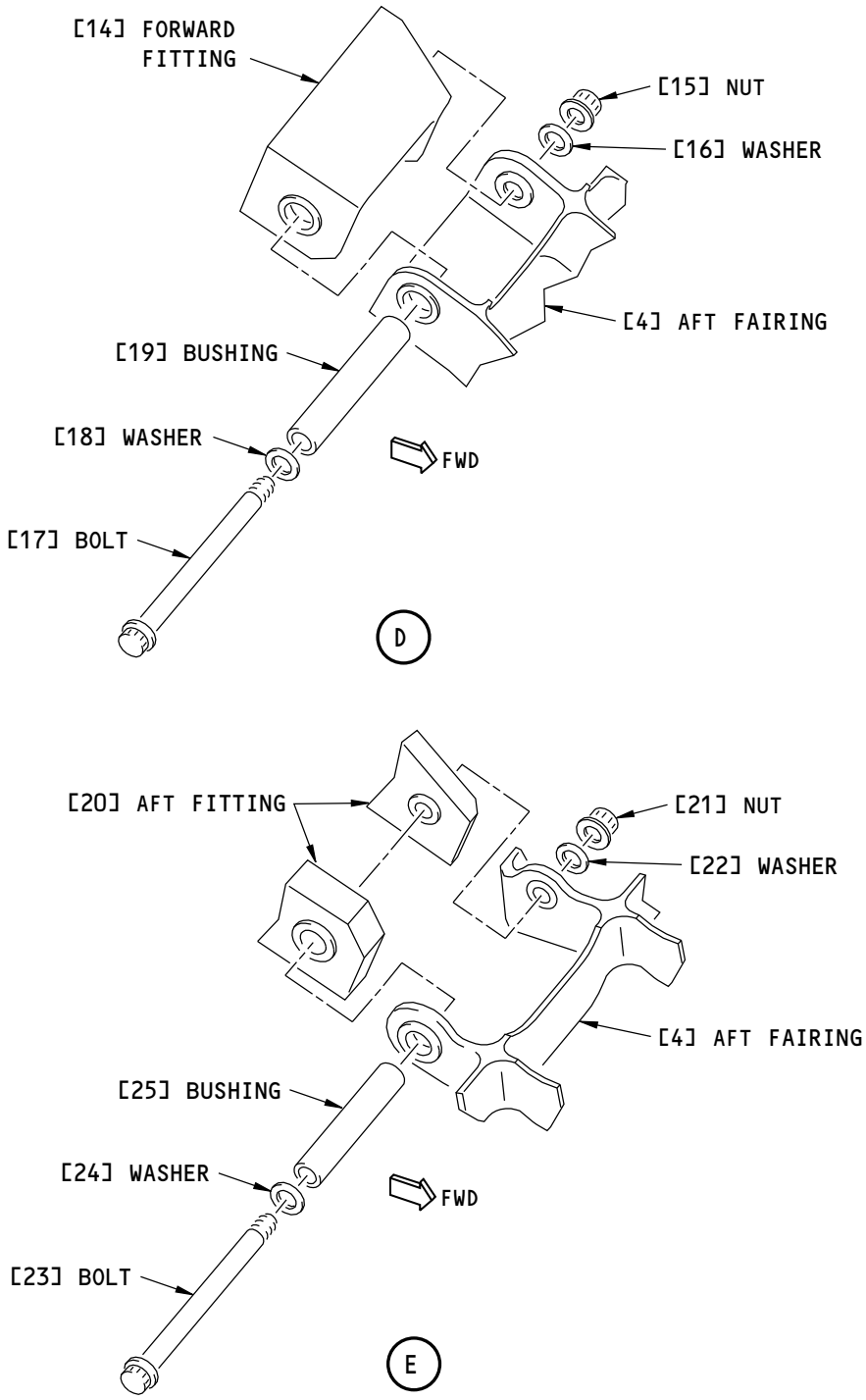
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Inboard Flap Support Fairing Installation
Figure 401/27-51-18-990-801 (Sheet 2 of 3)

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Inboard Flap Support Fairing Installation
Figure 401/27-51-18-990-801 (Sheet 3 of 3)

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TASK 27-51-18-400-801

3. Inboard Flap Support Fairing Installation

(Figure 401)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Fairing assembly	27-51-18-15-050	ARO ALL
		27-51-18-15-055	ARO ALL
4	Fairing assembly	27-51-18-15-250	ARO ALL
		27-51-18-15-255	ARO ALL

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
671	Flap Support Fairing No. 5

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F. Inboard Flap Support Fairing Installation

SUBTASK 27-51-18-210-001

(1) Make sure the flaps are in the extended position.

SUBTASK 27-51-18-420-001

(2) Install the fairing assembly [4]:

(a) Put the fairing assembly [4] in its position.

(b) Install the bushing [25] in the aft fitting [20] on the aft flap [1].

(c) Apply a layer of corrosion preventive compound, C00308 to the bolt [23].

(d) Install the bolt [23], washer [22], washer [24] and nut [21] that attach the fairing assembly [4] to the aft fitting [20].

(e) Install the bushing [19] in the forward fitting [14] on the aft flap [1].

(f) Apply a layer of corrosion preventive compound, C00308 to the bolt [17].

(g) Install the bolt [17], washer [16], washer [18] and nut [15] that attach the fairing assembly [4] to the forward fitting [14].

(h) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance from the fairing assembly [4] to the aft flap [1] across the bolt [23] is less than 1 ohm (WDM D6-54446).

SUBTASK 27-51-18-420-002

(3) Install the fairing assembly [3]:

(a) Put the fairing assembly [3] in its position.

(b) Apply a layer of corrosion preventive compound, C00308 to the bolts [5].

(c) Install the bolts [5], washers [6] and bushings [7] that attach the forward end of the fairing assembly [3] to the main flap [2].

NOTE: Tighten the bolts [5] with your hand.

(d) Install the bushing [13] in the aft fitting for the fairing assembly [3].

(e) Apply a layer of corrosion preventive compound, C00308 to the bolt [12].

(f) Install the nut [8], washer [9], washer [11] and bolt [12] that attach the fairing assembly [3] to the aft flap track [10].

(g) Tighten the bolts [5] and nut [8].

(h) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance from the fairing assembly [3] to the main flap [2] across the bolt [12] is less than 1 ohm (WDM D6-54446).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-440-001

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-18-860-005

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-18-210-005

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-18-860-006

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-18-080-001

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-51-18-860-007

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-51-18-000-804

4. Outboard Flap Support Forward Fairing Removal

(Figure 402)

A. General

(1) This task is applicable to the forward fairing on the number 3 and 6 flap supports.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
573	Flap Support Fairing No. 3

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(Continued)

Zone	Area
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
673	Flap Support Fairing No. 6

D. Access Panels

Number	Name/Location
573BB	Flap Support Fairing No. 3 Panel
573CL	Flap Support Fairing No. 3 Panel
573CR	Flap Support Fairing No. 3 Panel
673BB	Flap Support Fairing No. 6 Panel
673CL	Flap Support Fairing No. 6 Panel
673CR	Flap Support Fairing No. 6 Panel

E. Prepare for the Removal

SUBTASK 27-51-18-860-028

(1) Make sure the flap is in the retracted position.

NOTE: The aft fairing [42] will interfere with the forward fairing [41] if the flap is extended.

(a) If the flap is not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-18-040-005

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Outboard Flap Support Forward Fairing Removal

SUBTASK 27-51-18-010-001

(1) To get access to the forward fasteners for the forward fairing [41], do this step: (TASK 06-30-00-800-806)

Remove this access panel:

Number	Name/Location
573BB	Flap Support Fairing No. 3 Panel

or open this access panel:

Number	Name/Location
673BB	Flap Support Fairing No. 6 Panel

SUBTASK 27-51-18-010-002

(2) To get access to the aft fasteners for the forward fairing [41], do this step(TASK 06-30-00-800-806).

Remove these access panels:

Number	Name/Location
573CL	Flap Support Fairing No. 3 Panel
573CR	Flap Support Fairing No. 3 Panel

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or open these access panels:

Number	Name/Location
673CL	Flap Support Fairing No. 6 Panel
673CR	Flap Support Fairing No. 6 Panel

NOTE: The access doors 573CL and 673CR are attached to the flap support mechanism with a cable. It is not necessary to disconnect the cable when you remove the access door. Set the access door in the flap support mechanism so it does not hang from the cable. If you will install the same forward fairing [41], do not adjust the length of the cable. These access doors are referred to as Warning Doors, because they give a warning if the flap support fuse pin is broken.

SUBTASK 27-51-18-020-007

(3) Remove the forward fairing [41]:

(a) Do these steps to remove the cross tie [69]:

1) Remove the bolts [59], washers [60], washers [61] and nuts [62].

2) Remove the cross tie [69].

(b) Remove the nuts [58], washers [56], washers [57] and bolts [55] that attach the link assemblies [54] to the forward fairing [41].

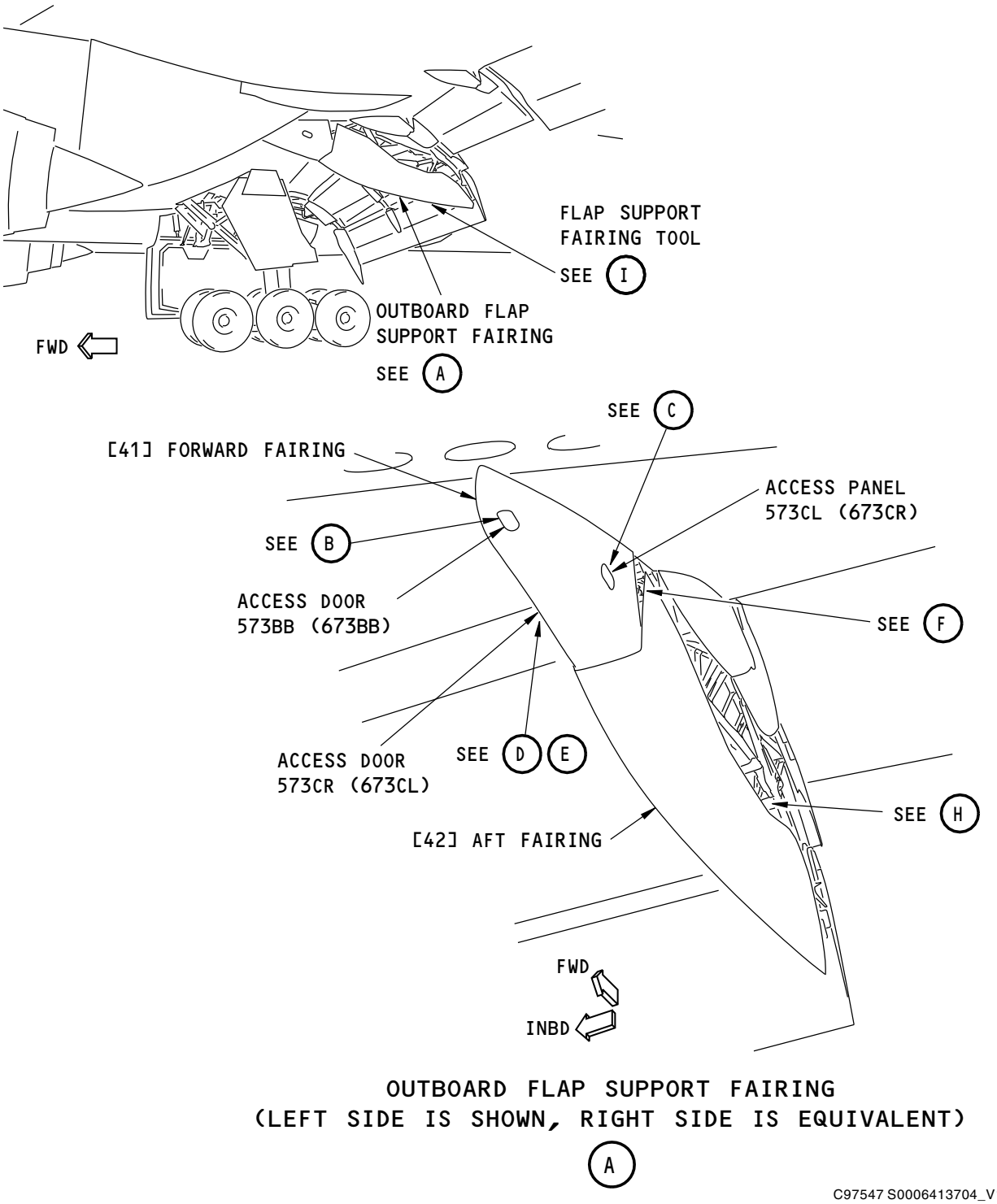
(c) Remove the nut [45] and washer [46] that attach the forward fairing [41] to the underwing fitting [43].

(d) Remove the bolt [47] and washer [48] that attach the cable assembly [49] to the forward fairing [41].

(e) If you will replace the cable assembly [49], remove the nut [53], washer [51], washer [52] and bolt [50].

——— END OF TASK ———

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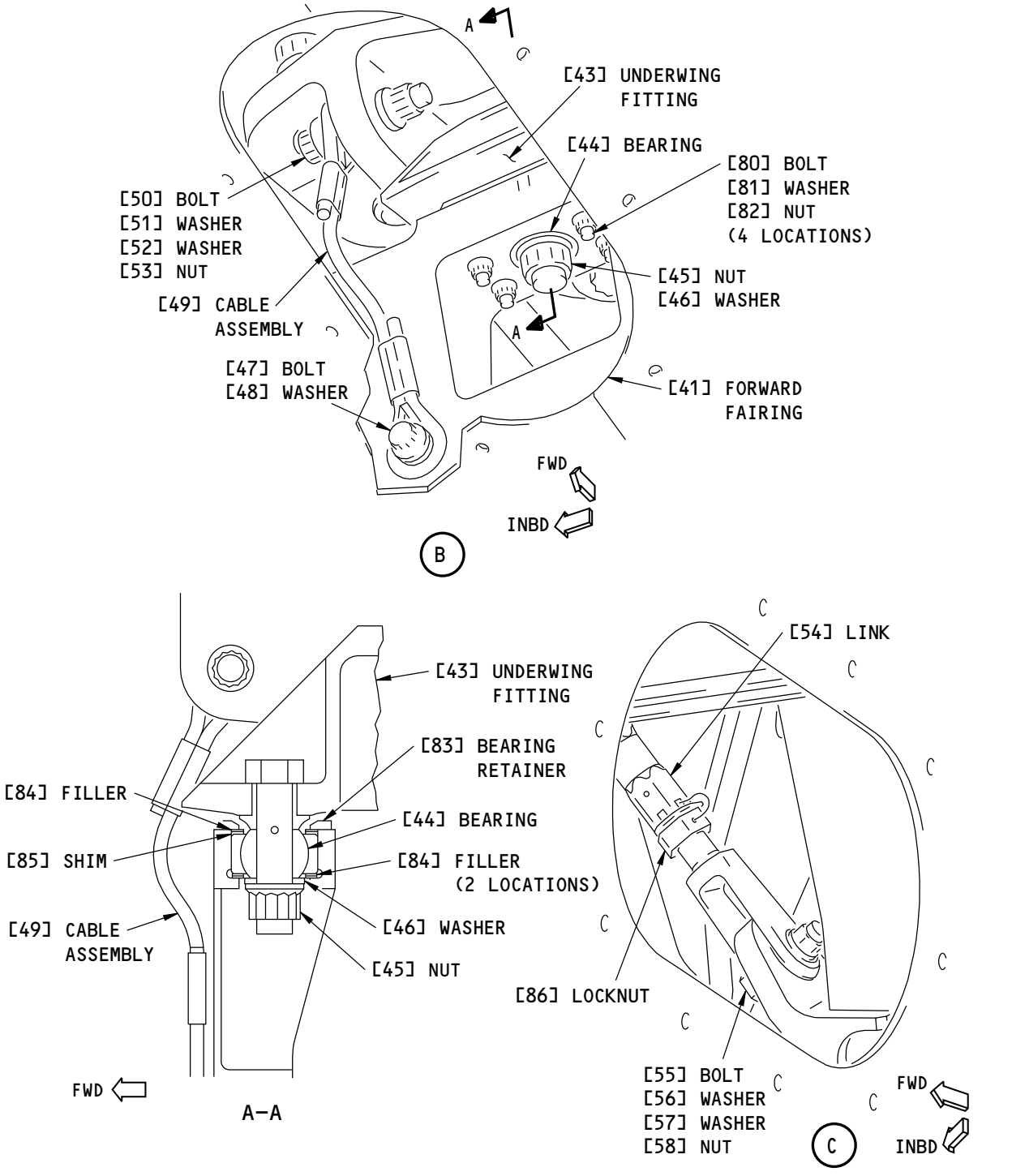
OUTBOARD FLAP SUPPORT FAIRING
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

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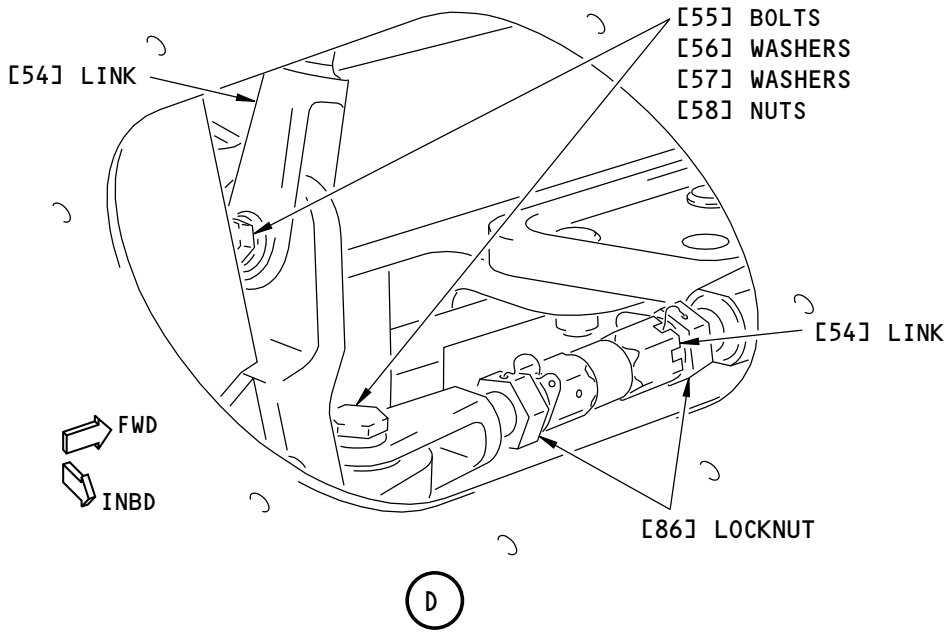
Outboard Flap Support Fairing Installation
Figure 402/27-51-18-990-802 (Sheet 1 of 5)

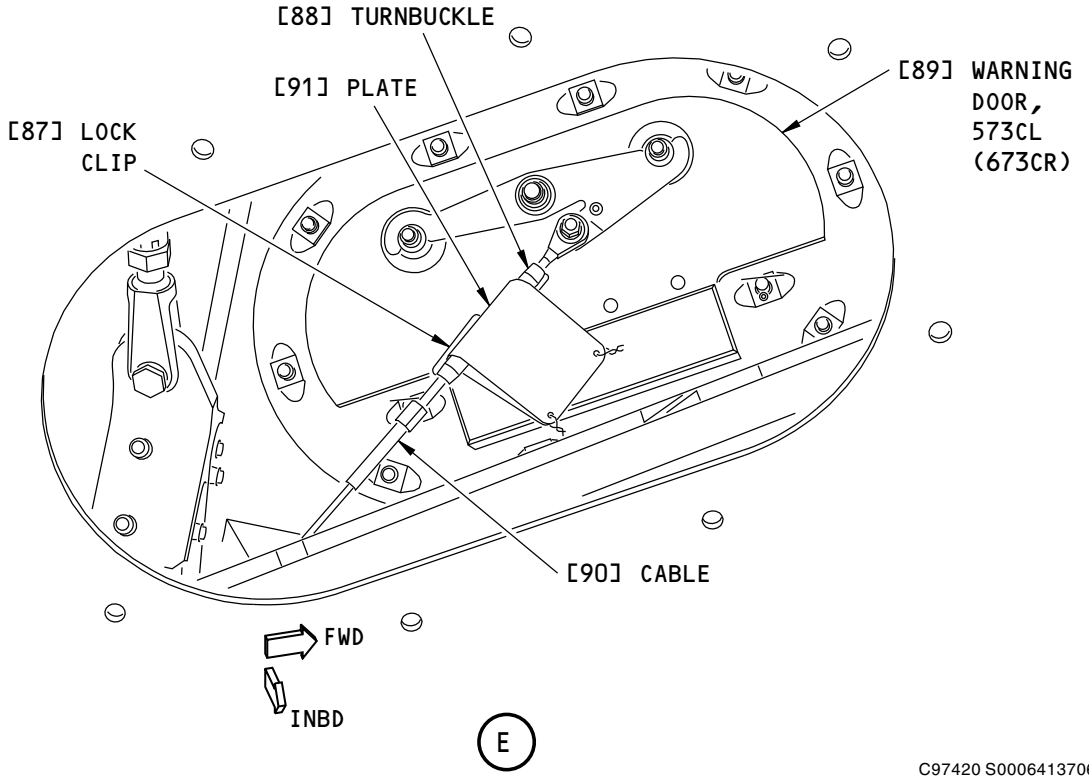
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Outboard Flap Support Fairing Installation
Figure 402/27-51-18-990-802 (Sheet 2 of 5)

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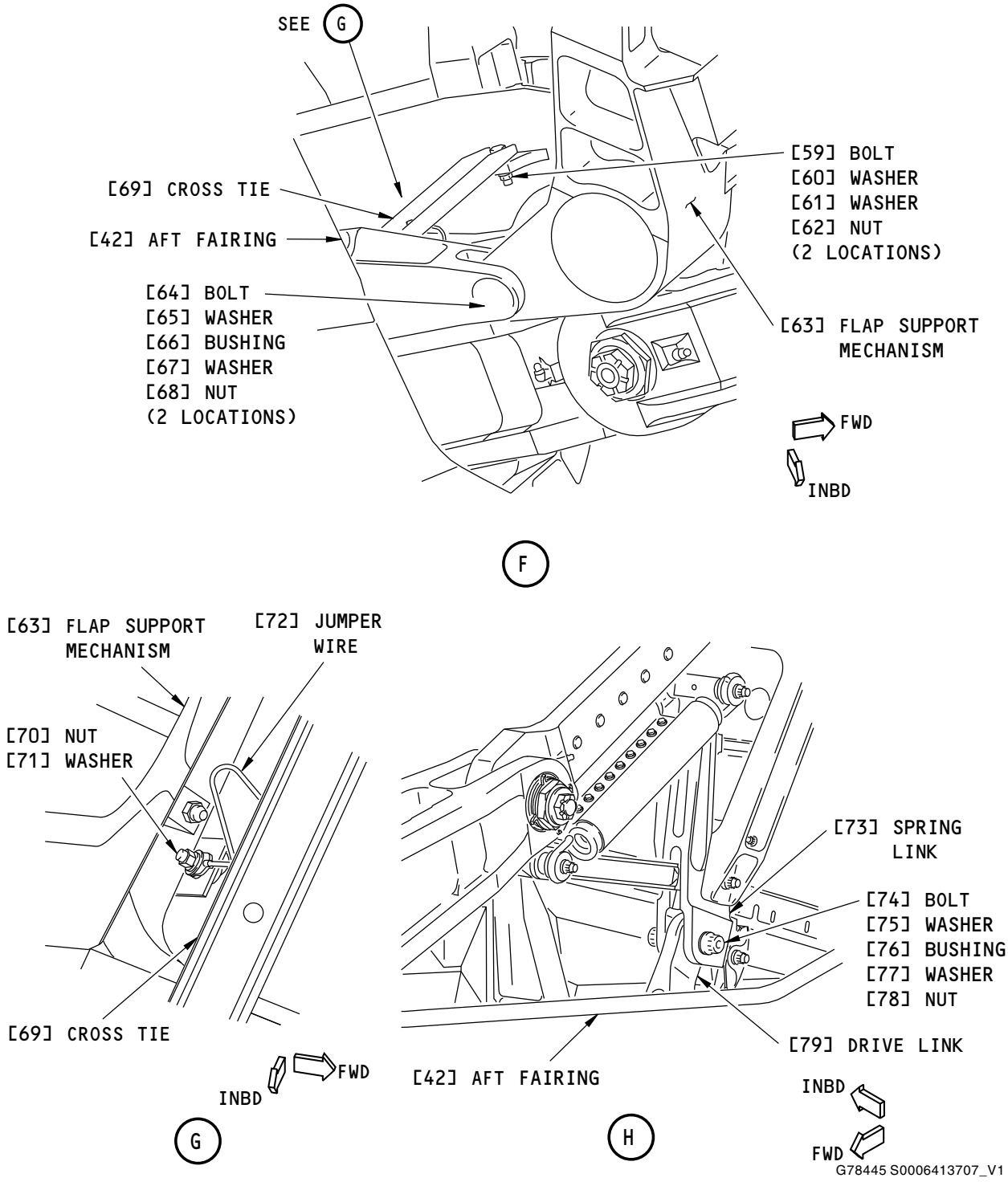




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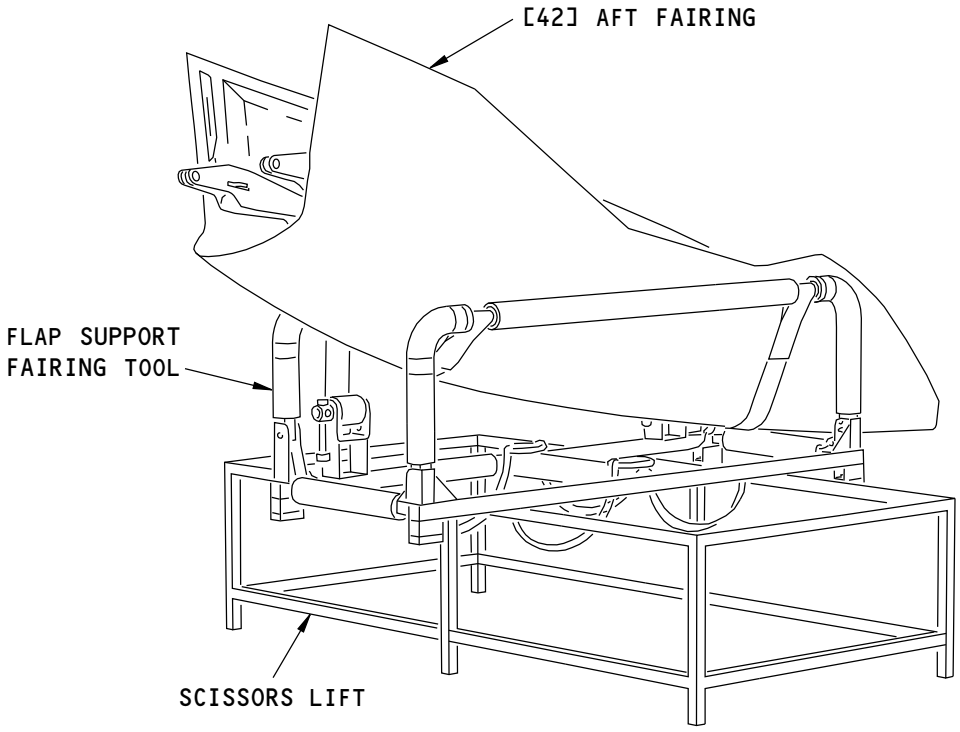
Outboard Flap Support Fairing Installation
Figure 402/27-51-18-990-802 (Sheet 3 of 5)

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Outboard Flap Support Fairing Installation
Figure 402/27-51-18-990-802 (Sheet 4 of 5)

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FLAP SUPPORT FAIRING TOOL

I

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Outboard Flap Support Fairing Installation
Figure 402/27-51-18-990-802 (Sheet 5 of 5)

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TASK 27-51-18-400-804

5. Outboard Flap Support Forward Fairing Installation

A. General

(1) This task is applicable to the forward fairing on the number 3 and 6 flap supports.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
41	Forward fairing	27-51-18-10-336	ARO 001-014
		27-51-18-10-341	ARO 001-014

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
673	Flap Support Fairing No. 6

F. Access Panels

Number	Name/Location
573BB	Flap Support Fairing No. 3 Panel
573CL	Flap Support Fairing No. 3 Panel
573CR	Flap Support Fairing No. 3 Panel
673BB	Flap Support Fairing No. 6 Panel
673CL	Flap Support Fairing No. 6 Panel
673CR	Flap Support Fairing No. 6 Panel

G. Procedure

SUBTASK 27-51-18-420-006

(1) If it is not installed, install the aft fairing [42]. To install it, do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-18-420-007

(2) Install the forward fairing [41] (Figure 402):

(a) If the cable assembly [49] is not installed on the underwing fitting [43], install the bolt [50], washer [51], washer [52] and nut [53] that attach the cable assembly [49].

(b) Apply grease, D00633 to the bearing [44] at the forward end of the forward fairing [41].

(c) Make sure you can move the bearing [44] in the fitting.

(d) Lift the forward fairing [41] to its position.

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(e) Install the bolt [47] and washer [48] that attach the cable assembly [49] to the forward fairing [41].

(f) Install the washer [46] and nut [45] that attach the forward fairing [41] to the underwing fitting [43].

(g) Tighten the nut [45] to 440-550 pound-inches.

(h) At the aft end of the forward fairing [41], install the bolts [55], washers [56], washers [57] and nuts [58] to attach the link assemblies [54] to the forward fairing [41].

(i) Tighten the nuts [58] to 50-75 pound-inches.

(j) Do these steps to install the cross tie [69] to the forward fairing [41].

1) Install the cross tie [69] with the bolts [59], washers [60], washers [61] and nuts [62].

2) Tighten the nuts [62] to 110 in-lb (12 N·m) to 125 in-lb (14 N·m).

SUBTASK 27-51-18-220-003

(3) Measure the mismatch between the forward fairing [41] and the aft fairing [42] (Figure 403):

(a) Measure the mismatch on the sides of the forward fairing [41], View C-C.

NOTE: Measure the clearance approximately 3.5 inches below the top edge of the fairing.

1) If the mismatch along the sides is not in the limit of 0.00 +0.06/-0.12 inch, adjust the link assemblies [54] for the forward fairing [41].

(b) Measure the mismatch on the bottom of the forward fairing [41], View D-D.

ARO 001-014, 016-999

1) If the mismatch along the bottom is not in the limit of 0.00 to 0.06 inch, adjust the link assemblies [54] for the forward fairing [41].

ARO 015

2) For flap support fairing No. 3, if the mismatch along the bottom is not in the limit of -0.08 in. (-2.03 mm) to -0.06 in. (-1.52 mm), adjust the link assemblies [54] for the forward fairing [41].

For flap support fairing No. 6, if the mismatch along the bottom is not in the limit of -0.10 in. (-2.54 mm) to -0.06 in. (-1.52 mm), adjust the link assemblies [54] for the forward fairing [41].

ARO ALL

SUBTASK 27-51-18-820-003

(4) If the mismatch between the forward fairing [41] and the aft fairing [42] is not in the limits, adjust the link assemblies [54] (Figure 402):

(a) Loosen the locknuts [86] on the link assemblies [54].

(b) Adjust the length of the link assemblies [54] to get the mismatch in the limit.

(c) Tighten the locknuts [86] and install lockwire on the link assemblies [54].

SUBTASK 27-51-18-220-004

(5) Measure the clearance between the forward edge of the forward fairing [41] and the lower surface of the wing (Figure 403), View E-E.

SUBTASK 27-51-18-820-004

(6) If the clearance is not in the limit of 0.1116 to 0.2016 inch, change the thickness and location of the shim [85] and fillers [84] on the bearing [44] (Figure 402):

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(a) Remove the forward fairing [41].

(b) Remove the nuts [82], washers [81] and bolts [80] that attach the retainer [83].

(c) Remove the bearing [44] with the fillers [84] and shim [85].

(d) Change the location of the fillers [84] or the thickness of the shim [85] to adjust the clearance.

(e) Put the bearing [44], fillers [84] and shim [85] in their location.

(f) Apply sealant, A00247 to the shank and threads of the bolts [80].

(g) Install the bolts [80], washers [81] and nuts [82] to attach the retainer [83] to the forward fairing [41].

(h) Install the forward fairing [41].

(i) Make sure the clearance between the forward fairing [41] and the lower surface of the wing is in the limit.

SUBTASK 27-51-18-220-005

(7) Make sure the bulb seals [95] on the inboard and outboard sides of the forward fairing [41] are compressed against the lower surface of the wing (Figure 403).

SUBTASK 27-51-18-820-006

(8) If the bulb seals [95] are not compressed, change the adjustment of the bulb seals [95]:

(a) Remove the forward fairing [41].

(b) Loosen the nuts that attach hold the seal retainers.

(c) Move the bulb seals [95] and the seal retainers.

(d) Tighten the nuts on the seal retainers.

(e) Install the forward fairing [41].

(f) Make sure the bulb seals [95] are compressed against the lower surface of the wing.

H. Warning Door Cable Adjustment

SUBTASK 27-51-18-820-005

(1) If you installed a new forward fairing [41] or adjusted the link assembly [54] adjust the cables [90] and [89], do this step: (Figure 402)

(a) Adjust the cable [90] for this access panel:

Number	Name/Location
573CL	Flap Support Fairing No. 3 Panel

(b) Adjust the cable [89] for this access panel:

Number	Name/Location
673CR	Flap Support Fairing No. 6 Panel

NOTE: The warning doors [89] are attached to the flap support mechanism with a cable. When the warning doors are installed, the cable is not tight.

(c) Install the warning door [89] in the forward fairing [41].

NOTE: Check for proper orientation of the warning door [89]. (Figure 402), sheet 3, view E.

(d) Tighten the turnbuckle [88] on the cable [90] with your hand.

NOTE: It is necessary to reach through access door 573CR or 673CL in the forward fairing [41] to get access to the turnbuckle [88].

(e) Loosen the turnbuckle [88] 3 ±0.25 turns.

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(f) Remove the warning door [89] from the forward fairing [41].

(g) Install the plate [91] and the clips [87] on the turnbuckle [88].

NOTE: Make sure one of the clips [87] is over the plate [91].

(h) Install lockwire through the holes in the plate [91].

SUBTASK 27-51-18-410-001

(2) Install the following panels on the forward fairing [41], do this step:

Install these access panel:

Number	Name/Location
573CL	Flap Support Fairing No. 3 Panel
673CR	Flap Support Fairing No. 6 Panel

NOTE: When the warning door is installed, the cable [90] is not tight.

SUBTASK 27-51-18-410-002

(3) Install the following panels on the forward fairing [41], do this step:

Install these access panel:

Number	Name/Location
573BB	Flap Support Fairing No. 3 Panel
573CR	Flap Support Fairing No. 3 Panel

or close these access panels:

Number	Name/Location
673BB	Flap Support Fairing No. 6 Panel
673CL	Flap Support Fairing No. 6 Panel

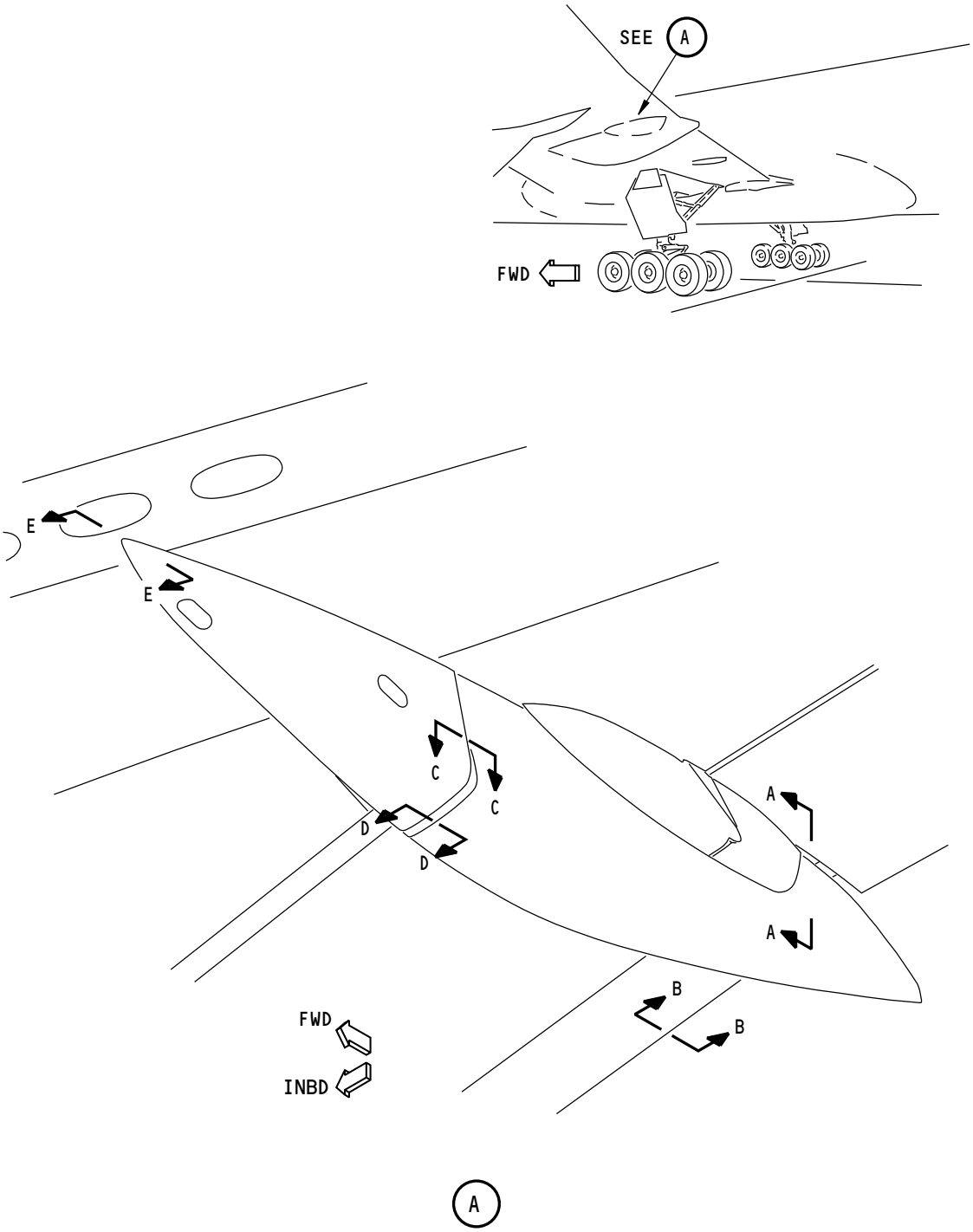
I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-440-004

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

——— END OF TASK ———

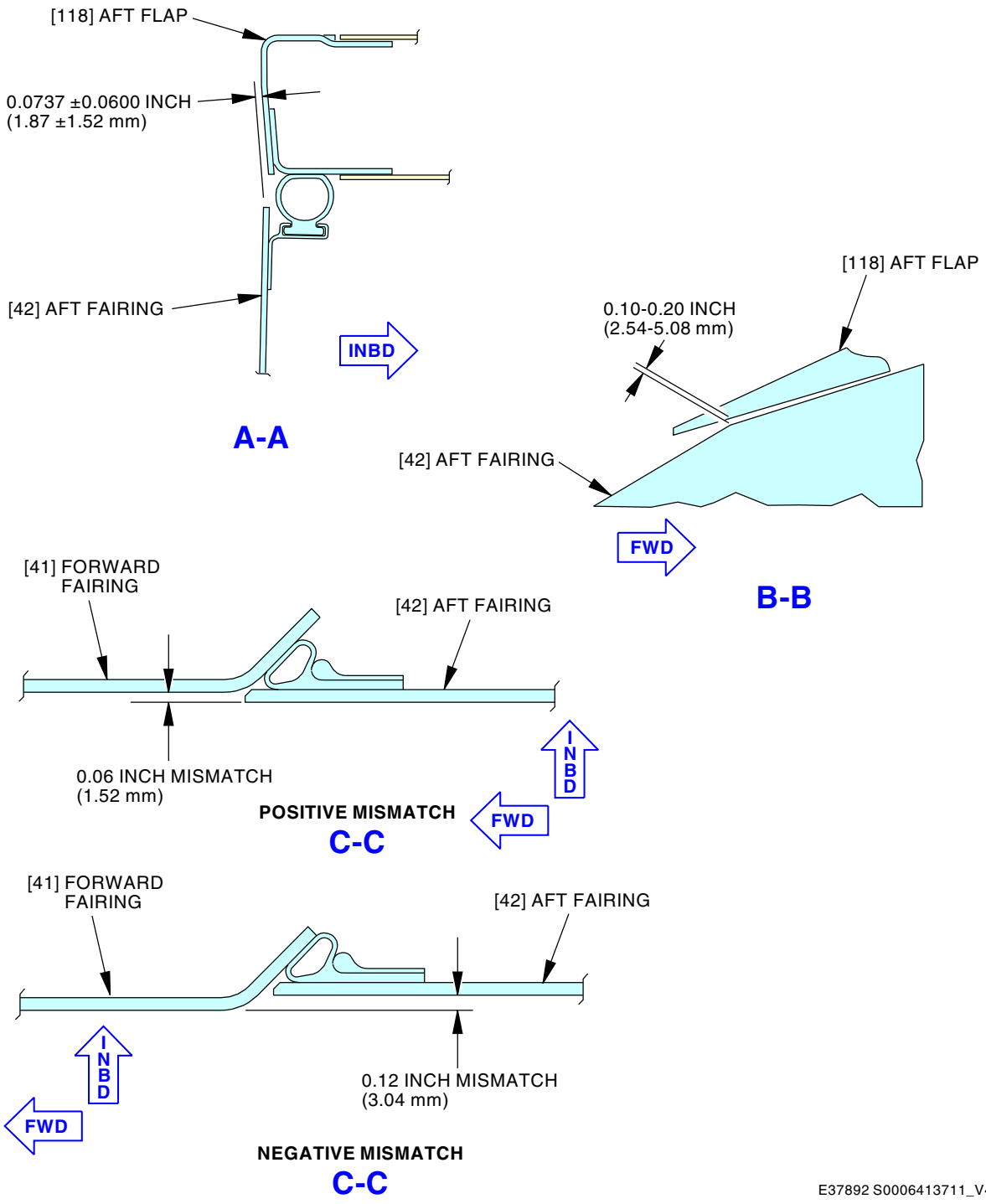
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Outboard Flap Support Fairing Clearances
Figure 403/27-51-18-990-803 (Sheet 1 of 4)

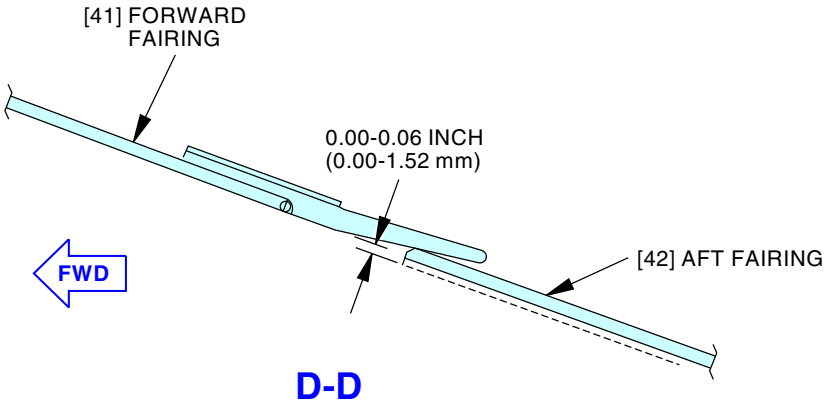
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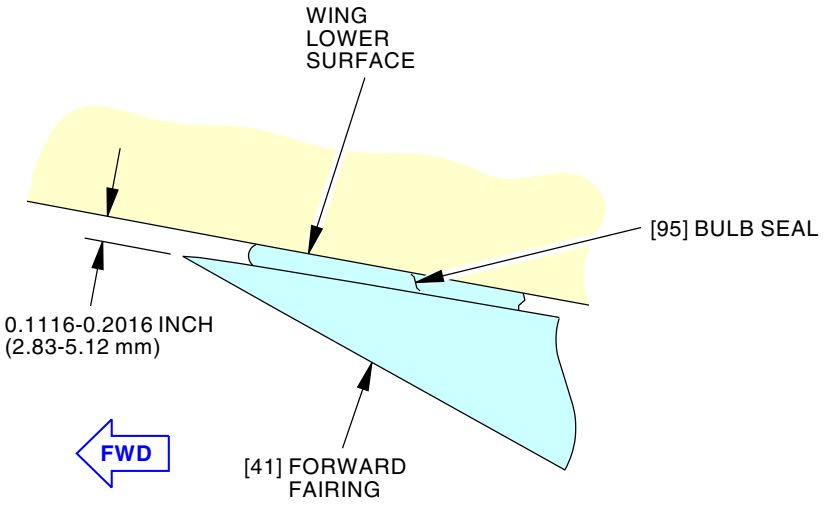
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Outboard Flap Support Fairing Clearances
Figure 403/27-51-18-990-803 (Sheet 2 of 4)

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D-D

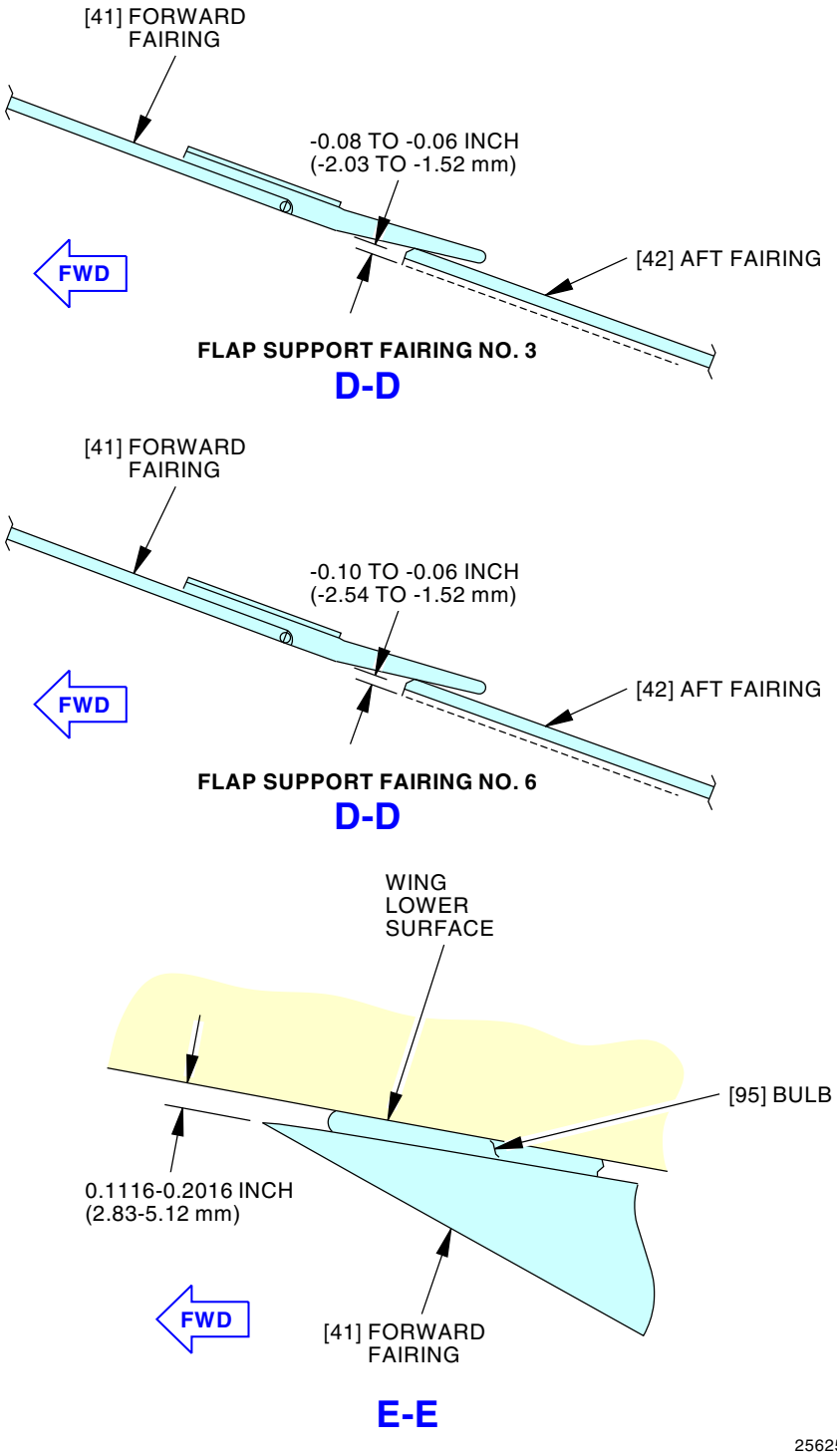


E-E

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Outboard Flap Support Fairing Clearances
Figure 403/27-51-18-990-803 (Sheet 3 of 4)

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Outboard Flap Support Fairing Clearances
Figure 403/27-51-18-990-803 (Sheet 4 of 4)

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TASK 27-51-18-000-802

6. Outboard Flap Support Aft Fairing Removal

(Figure 402)

A. General

(1) This task is applicable to the aft fairing on the number 3 and 6 flap supports.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1758	Cradle - Removal & Installation, Flap Track Fairing Part #: J27036-53 Supplier: 81205

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
673	Flap Support Fairing No. 6

E. Prepare for the Removal

SUBTASK 27-51-18-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-18-860-010

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-18-210-011

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-18-210-006

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-51-18-860-011

(5) Extend the trailing edge flaps to the 20-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-18-860-012

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-18-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Outboard Flap Support Aft Fairing Removal

SUBTASK 27-51-18-480-001

(1) Install the flap track fairing cradle, SPL-1758 to hold the aft fairing [42]:

(a) Attach the flap track fairing cradle, SPL-1758 to the top of a scissors lift.

(b) Move the flap track fairing cradle, SPL-1758 to a position below the aft fairing [42].

SUBTASK 27-51-18-020-009

(2) If it is necessary, do this task, do this task: Outboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-804.

SUBTASK 27-51-18-020-003

(3) Remove the aft fairing [42]:

(a) At the forward end of the aft fairing [42], remove the nut [70] and washer [71] that attach the jumper wire [72] to the flap support mechanism [63].

(b) Remove the nuts [62], washers [60], washers [61] and bolts [59] and remove the cross tie [69] from the aft fairing [42].

(c) Remove the nuts [68], washers [65], washers [67] and bolts [64] that attach the aft fairing [42] to the flap support mechanism [63].

(d) Remove the bushings [66] from the forward fittings on the aft fairing [42].

NOTE: There are two bushings [66] installed in the inboard fitting.

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(e) At the aft end of the aft fairing [42], remove the nut [78], washer [75], washer [77] and bolt [74] that attach the drive link [79] to the spring link [73].

(f) Use the flap track fairing cradle, SPL-1758 to lower the aft fairing [42].

(g) Remove the bushing [76] from the spring link [73].

——— END OF TASK ———

TASK 27-51-18-400-802

7. Outboard Flap Support Aft Fairing Installation

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-802	Trailing Edge Flap System Operation With Alternate Control (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1758	Cradle - Removal & Installation, Flap Track Fairing Part #: J27036-53 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796
D00633	Grease - Aircraft General Purpose	BMS3-33
G02020	Clay, Modeling	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
42	Aft fairing	27-51-18-10-501	ARO 001-014

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
42 (cont.)		27-51-18-10-506	ARO 001-014
		27-51-18-15-050	ARO ALL

E. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
673	Flap Support Fairing No. 6

F. Outboard Flap Support Aft Fairing Installation

SUBTASK 27-51-18-210-002

(1) Make sure the flaps are in the 20-unit position.

SUBTASK 27-51-18-020-006

CAUTION IF A NEW AFT FAIRING IS INSTALLED, MAKE SURE THAT THE SHIMS ARE REMOVED. IF THE SHIMS ARE NOT THE CORRECT THICKNESS, DAMAGE TO THE FAIRING CAN OCCUR.

(2) Install a new aft fairing [42], remove the shims [113] from the snubber pads [111] (Figure 404):

(a) Remove the nuts [117], washers [115], washers [116] and bolts [114] to remove the pads [112] and shims [113] from the snubber pads [111].

(b) Temporarily install the pads [112] on the snubber pads [111].

(c) Install the bolts [114], washers [115], washers [116] and nuts [117].

SUBTASK 27-51-18-480-002

(3) Install the flap track fairing cradle, SPL-1758 on the aft fairing [42]:

(a) Attach the flap track fairing cradle, SPL-1758 to the top of a scissors lift.

(b) Put the aft fairing [42] in the flap track fairing cradle, SPL-1758.

SUBTASK 27-51-18-420-003

(4) Install the aft fairing [42] (Figure 402):

(a) Use the flap track fairing cradle, SPL-1758 and the scissors lift to lift the aft fairing [42] until the forward fittings align with the flap support mechanism [63].

(b) Apply a thin layer of grease, D00633 to the bushings [66] and the shank of the bolts [64].

(c) Install the bushings [66] in the forward fittings of the aft fairing [42].

NOTE: Install two bushings [66] in the inboard fitting.

(d) Install the bolts [64], washers [65], washers [67] and nuts [68] that attach the aft fairing [42] to the flap support mechanism [63].

NOTE: Install the bolts [64] with the heads to the center of the aft fairing [42].

(e) Tighten the bolts [64] to 800-1000 in-lb (90.2-113 N-m).

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(f) If a new aft fairing [42] is installed, install the correct thickness of shim [113] on the snubber pads [111] (Figure 404):

NOTE: To find the correct thickness of the shim [113], it is necessary to measure the clearance between the pad [112] and the aft fairing [42]. You can measure the clearance directly, or you can use clay, G02020 to find the clearance.

1) To measure the clearance directly, do these step:

CAUTION SUPPORT THE AFT FAIRING WHILE THE DRIVE LINK IS DISCONNECTED. WITHOUT SUPPORT, DAMAGE TO THE AFT FAIRING CAN OCCUR.

a) Retract the trailing edge flaps to the UP position using alternate power. To retract the flaps, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802.

NOTE: The flaps may be initially positioned to the 5-unit position if this is necessary to gain access to the snubber pad location.

b) Lift the aft end of the aft fairing [42] until it is less than 2 in. (51 mm) from the trailing edge of the aft flap.

c) Measure and make a record of the clearance between the pad [112] and the aft fairing [42].

d) Lower the aft end of the aft fairing [42] to get access to the snubber pads [111].

2) To measure the clearance using clay, G02020, do these step:

CAUTION SUPPORT THE AFT FAIRING WHILE THE DRIVE LINK IS DISCONNECTED. WITHOUT SUPPORT, DAMAGE TO THE AFT FAIRING CAN OCCUR.

a) Retract the trailing edge flaps to the UP position using alternate power. To retract the flaps, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802.

NOTE: The flaps may be initially positioned to the 5-unit position if this is necessary to gain access to the snubber pad location.

b) Apply clay, G02020 to the pad [112].

c) Lift the aft end of the aft fairing [42] until it is less than 2 in. (51 mm) from the trailing edge of the aft flap.

d) Lower the aft end of the aft fairing [42].

e) Measure and make a record of the thickness of the clay, G02020.

NOTE: The thickness of the clay, G02020 is the same as the clearance between the pad [112] and the aft fairing [42].

3) Remove the nuts [117], washers [115], washers [116] and bolts [114] to remove the pad [112] from the snubber pads [111].

4) Calculate the correct thickness of shim [113] to make the clearance between the pad [112] and the aft fairing [42] 0.0 in. (0 mm) to 0.030 in. (0.762 mm) on the two sides.

5) Apply sealant, A00247 to the mating surfaces of the shims [113] and the snubber pads [111].

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6) Install the bolts [114], washers [115], washers [116] and nuts [117] to attach the shims [113] and pads [112] to the snubber pads [111].

(g) Install the bushing [76] in the drive link [79] (Figure 402).

(h) Lift the aft fairing [42] until the drive link [79] and the spring link [73] align.

(i) Install the bolt [74], washer [75], washer [77] and nut [78] to attach the drive link [79] to the spring link [73].

NOTE: Install the bolt [74] with the head outboard.

1) Tighten the nut [78] to 1000 in-lb (113 N·m) to 1500 in-lb (169 N·m) or the bolt [74] to 1500 in-lb (169 N·m) to 2100 in-lb (237 N·m).

(j) Remove the flap track fairing cradle, SPL-1758 from below the aft fairing [42].

(k) Apply corrosion preventive compound, C00308 to the holes in the cross tie [69] and the bolts [59].

(l) Install the cross tie [69] in the aft fairing [42] with the bolts [59], washers [60], washers [61] and nuts [62].

(m) Put the jumper wire [72] on the stud and install the nut [70] and washer [71].

(n) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [72] is less than 0.001 ohms (WDM D6-54446).

SUBTASK 27-51-18-410-004

(5) Do this task, do this task: Outboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-804if the forward fairing is removed.

SUBTASK 27-51-18-440-002

(6) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-18-860-013

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-18-860-014

(8) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-18-860-015

(9) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-18-040-003

WARNING

DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(10) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-18-220-001

(11) Measure the mismatch between the outboard end of the aft fairing [42] and the outboard end of the aft flap [118] (Figure 403), View A-A.

NOTE: Measure the mismatch 14.04 ±1.50 in. (356.62 ±38.10 mm) inches forward of the aft edge of the aft flap.

SUBTASK 27-51-18-820-001

(12) If the mismatch is not in the limit of 0.0737 ±0.0600 in. (1.8720 ±1.5240 mm), change the location of the washers [123] on the drive link [79] (Figure 404):

NOTE: If the mismatch is at the upper limit, make sure all of the washers are on the inboard side of the drive link.

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 20-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(d) Remove the nuts [124], washers [123], washers [125] and washers [128], bolts [127] and bushings [126] that attach the drive link [79] to the aft fairing [42].

(e) Change the location or number of washers [123] to adjust the mismatch.

NOTE: You can install one to three washers on each side of the drive link.

(f) Install the bushings [126], bolts [127], washers [125], washers [128] and nuts [124] to attach the drive link [79] to the aft fairing [42].

(g) Make sure the clearance between the washers [123] and the bushing on the inboard side of the drive link [79] is 0.005 in. (0.127 mm) to 0.037 in. (0.940 mm).

1) If the clearance is not in the limit, change the number of washers [123].

NOTE: Make sure you install a minimum of one washer [123].

(h) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

(i) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(j) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-18-220-002

(13) Measure the clearance between the trailing edge of the aft flap [118] and the top of the aft fairing [42] (Figure 403), View B-B.

SUBTASK 27-51-18-820-002

(14) If the clearance is not in the limit of 0.1000 in. (2.540 mm) to 0.2000 in. (5.080 mm), change the thickness of the shim [121] on the pad assembly [122] (Figure 404):

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 20-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(d) Remove the bolts [119] and washers [120] that attach the pad assembly [122] to the aft flap [118].

(e) Change the thickness of the shim [121] on the pad assembly [122].

(f) Apply sealant, A00247 to the mating surfaces on the shim [121].

(g) Apply sealant, A00247 to the shank and threads of the bolts [119].

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(h) Install the shim [121] and the pad assembly [122] with the bolts [119] and washers [120].

(i) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

(j) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(k) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-860-016

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-18-860-017

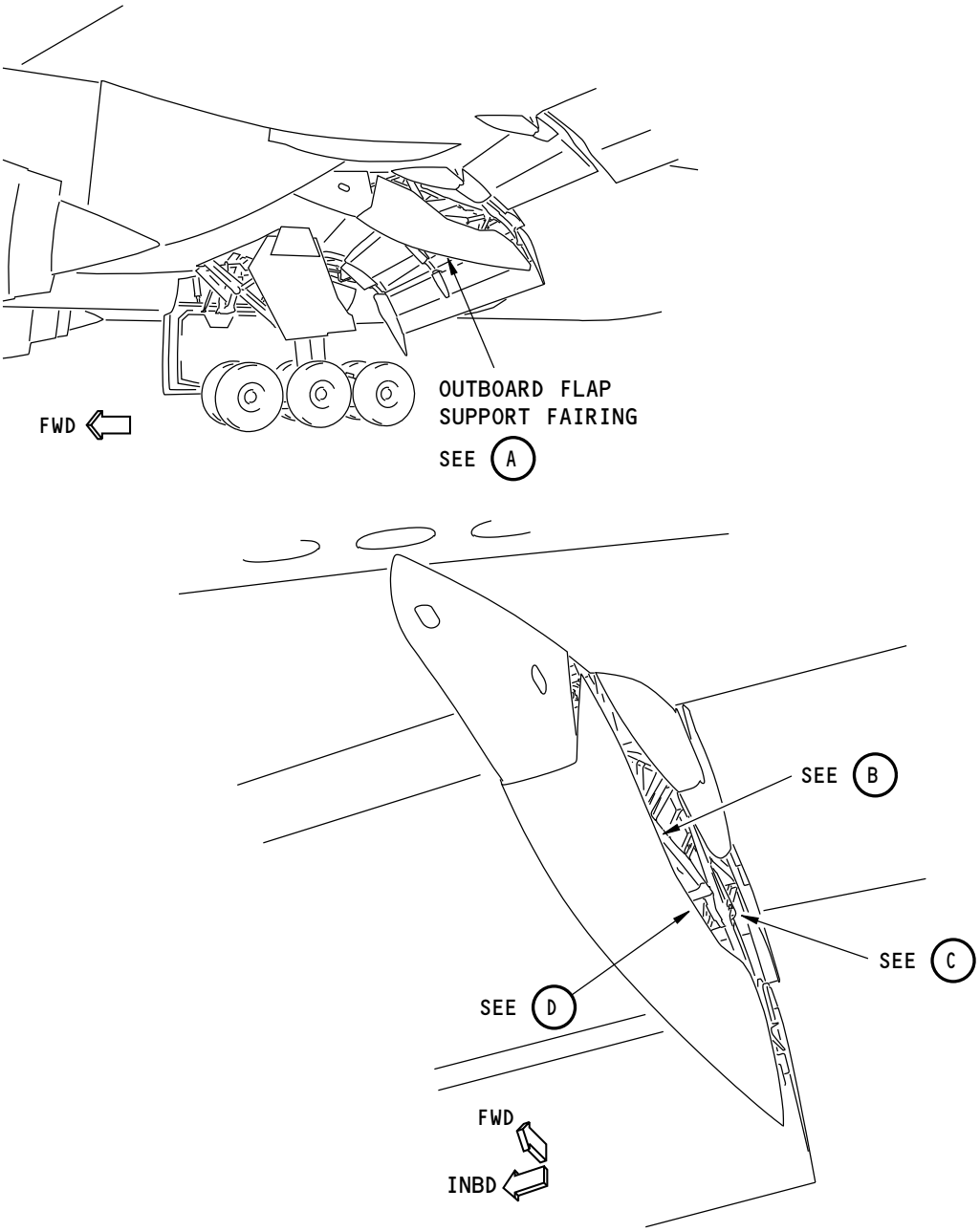
(2) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-18-860-018

(3) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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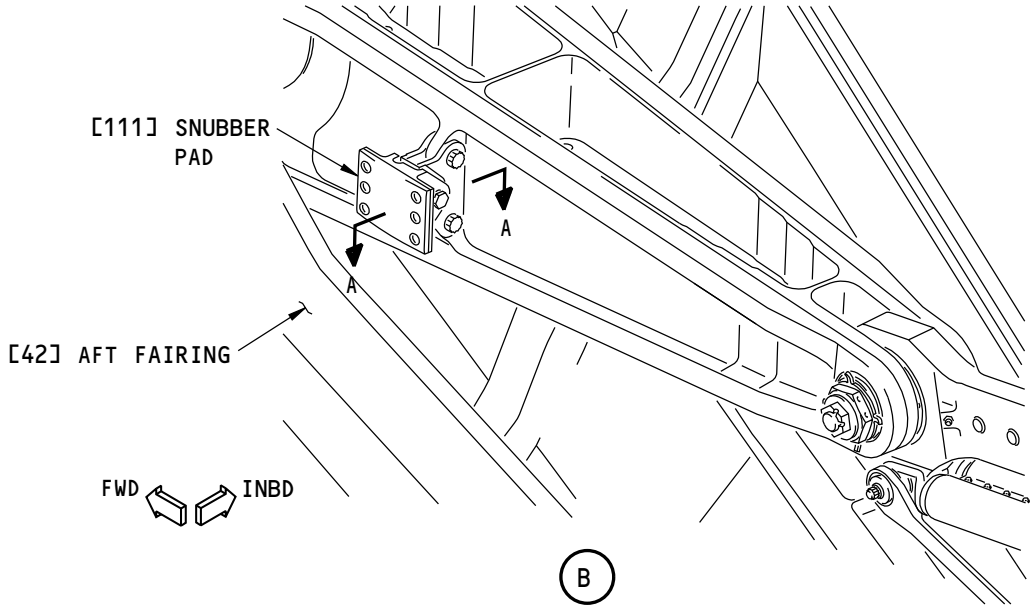


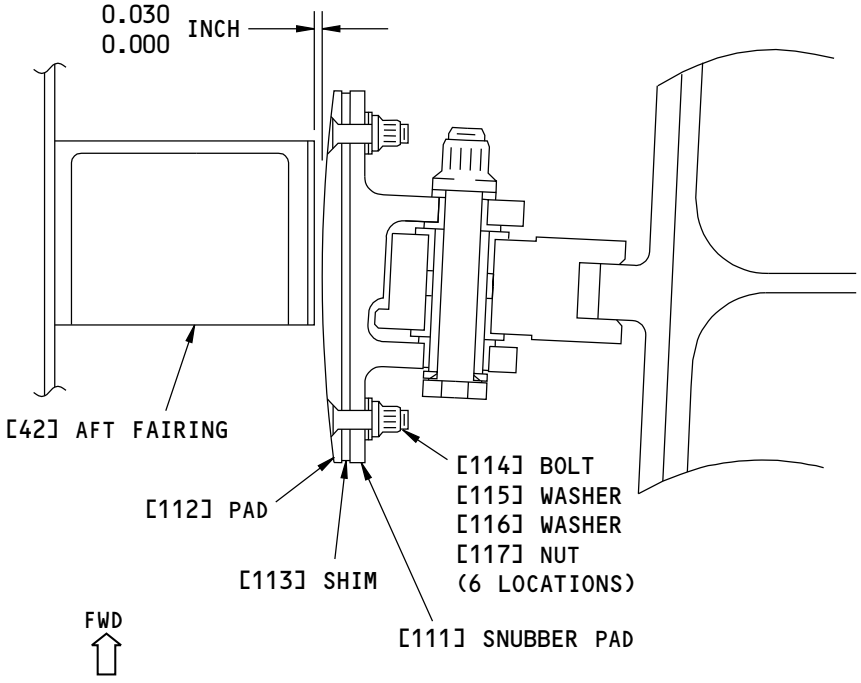
OUTBOARD FLAP SUPPORT FAIRING
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
A

E37369 S0006413716_V1

Outboard Flap Support Fairing Adjustment
Figure 404/27-51-18-990-804 (Sheet 1 of 4)

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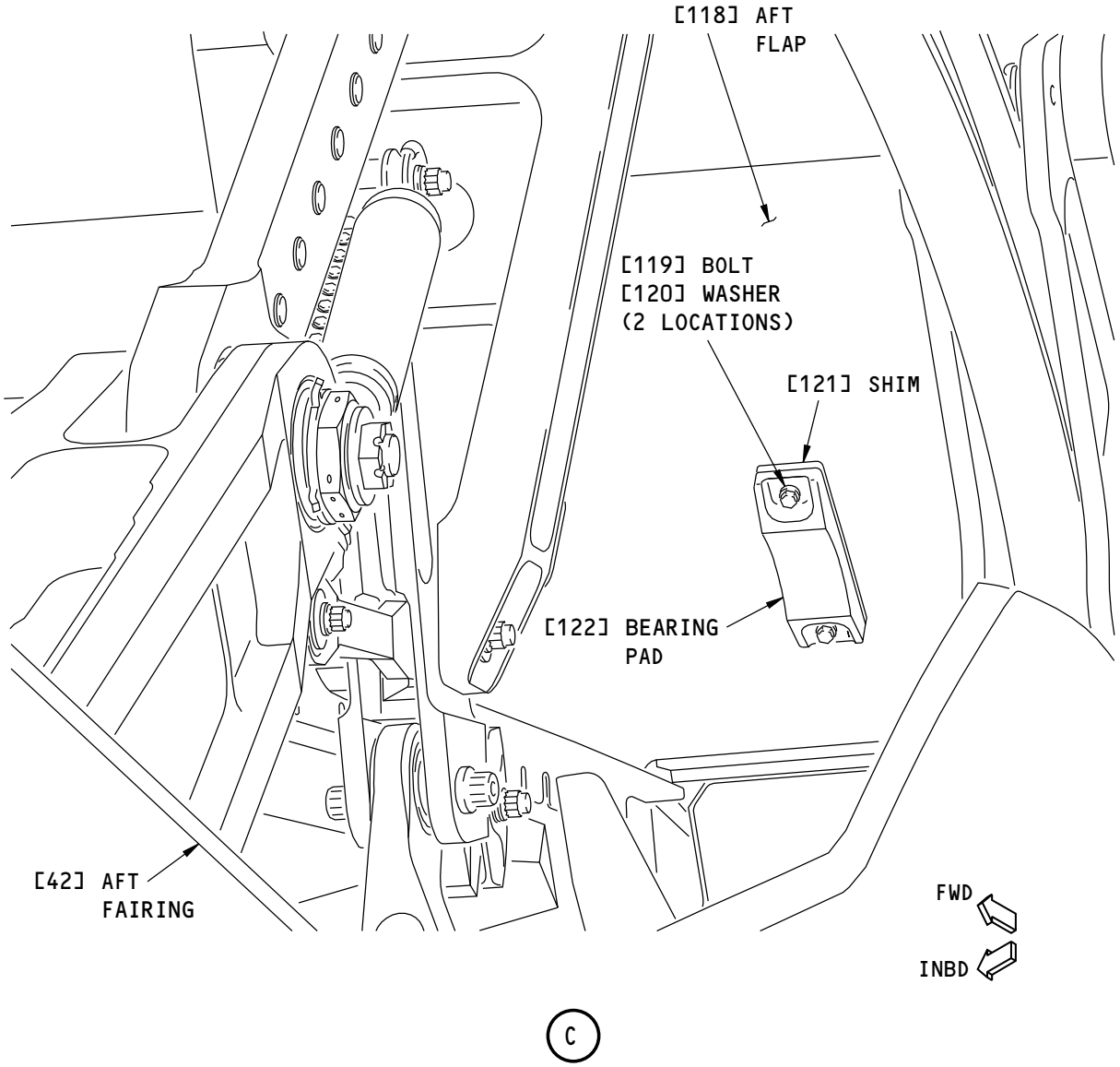




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Outboard Flap Support Fairing Adjustment
Figure 404/27-51-18-990-804 (Sheet 2 of 4)

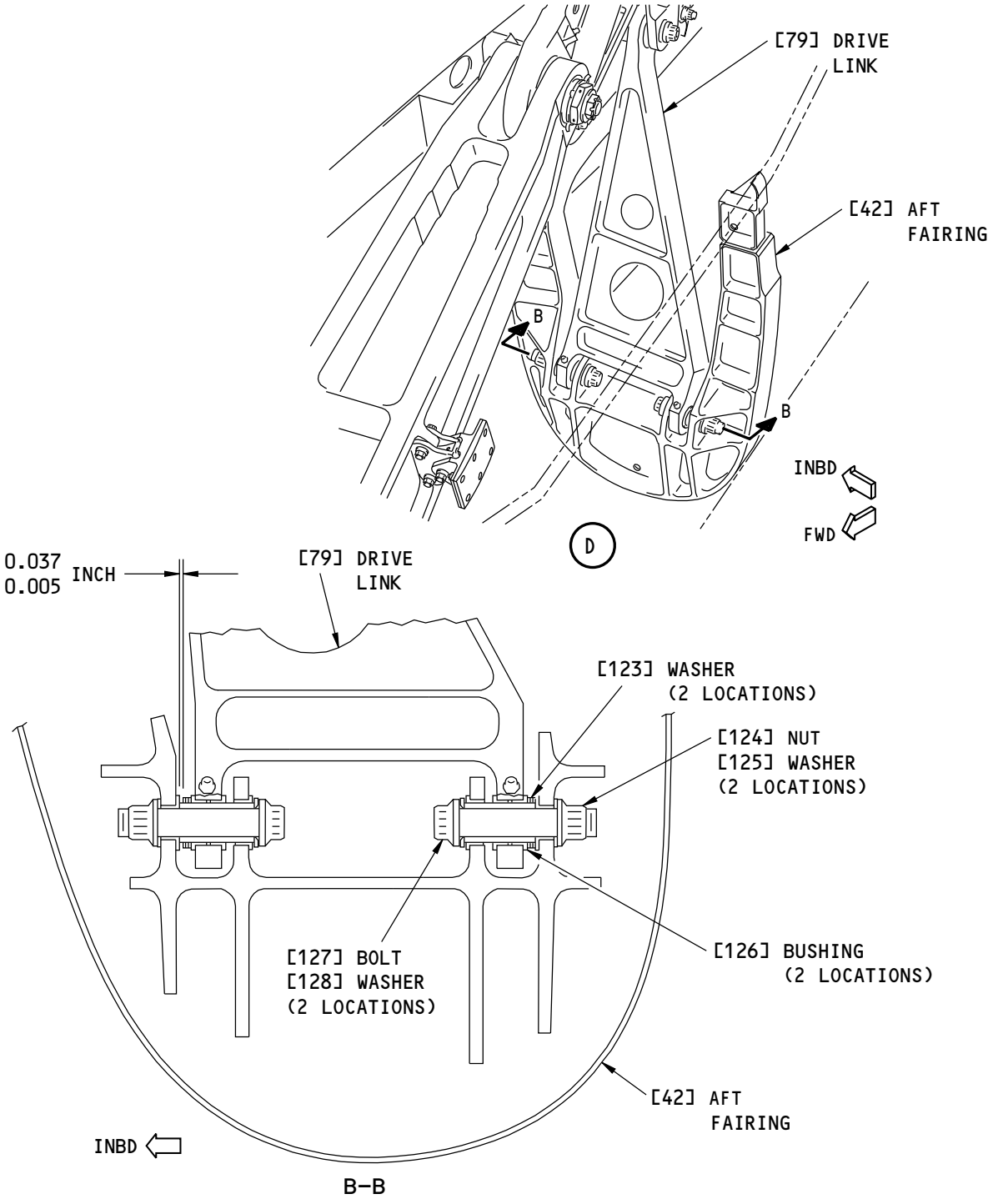
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Outboard Flap Support Fairing Adjustment
Figure 404/27-51-18-990-804 (Sheet 3 of 4)

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Outboard Flap Support Fairing Adjustment
Figure 404/27-51-18-990-804 (Sheet 4 of 4)

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TASK 27-51-18-000-803

8. Center Track Fairing Removal

(Figure 405)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
572	Inboard Flap Center Track Fairing - Left Wing
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
672	Inboard Flap Center Track Fairing - Right Wing

C. Prepare for the Removal

SUBTASK 27-51-18-860-020

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-18-860-021

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-18-210-013

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-18-210-007

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

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SUBTASK 27-51-18-860-022

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-18-860-023

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-18-040-004

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

D. Center Track Fairing Removal

SUBTASK 27-51-18-020-004

(1) Remove the forward fairing assembly [141]:

(a) Remove the bolts [143] that attach the forward end of the forward fairing assembly [141].

(b) Remove the bolts [145], washers [146] and bushings [147] that attach the forward fairing assembly [141] to the aft flap track [144].

(c) Remove the forward fairing assembly [141].

SUBTASK 27-51-18-020-005

(2) Remove the aft fairing assembly [142]:

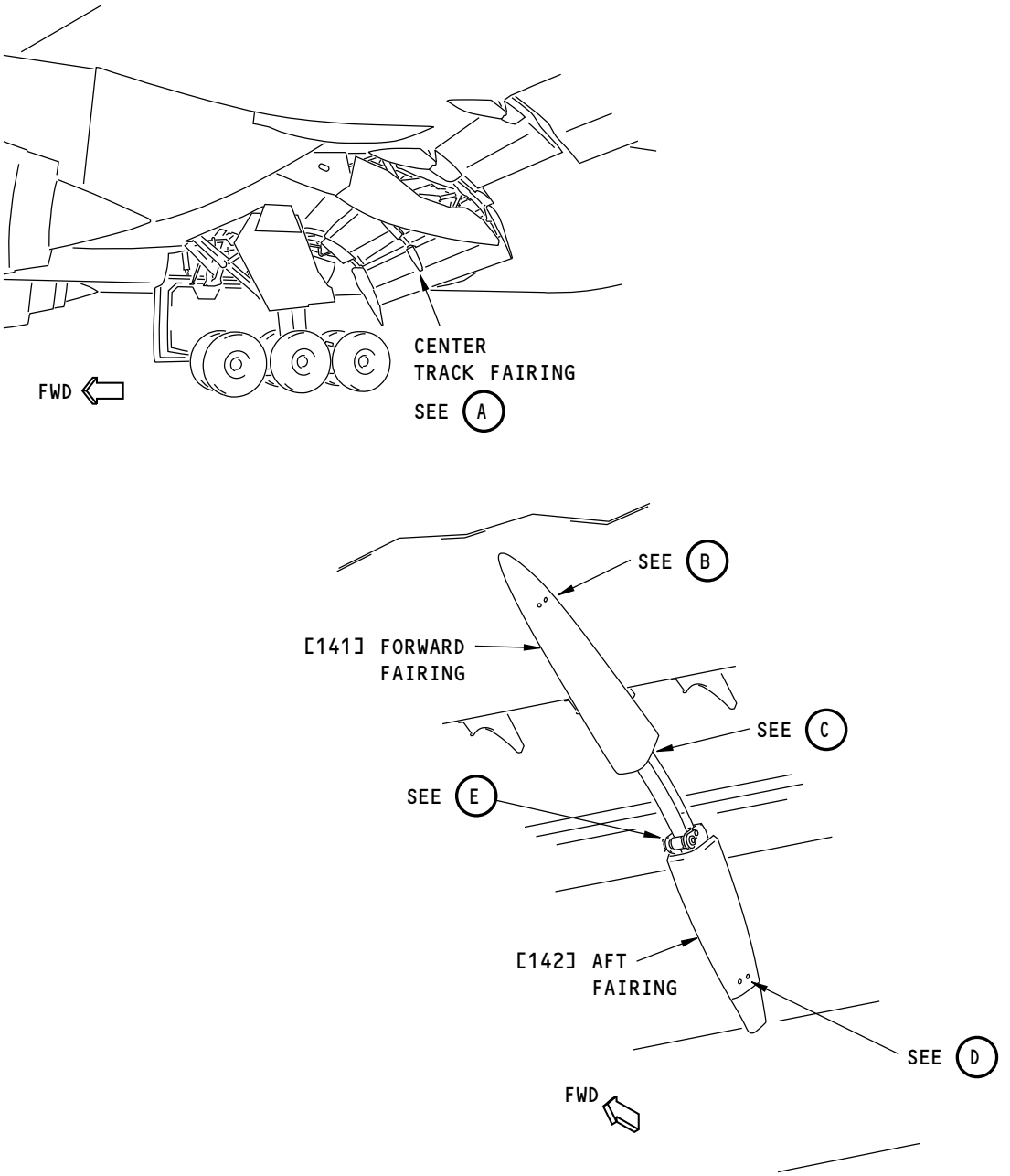
(a) Remove the bolts [148] that attach the aft end of the aft fairing assembly [142].

(b) Remove the bolts [150], washers [151] and bushings [152] that attach the aft fairing assembly [142] to the aft flap fitting [149].

(c) Remove the aft fairing assembly [142].

END OF TASK

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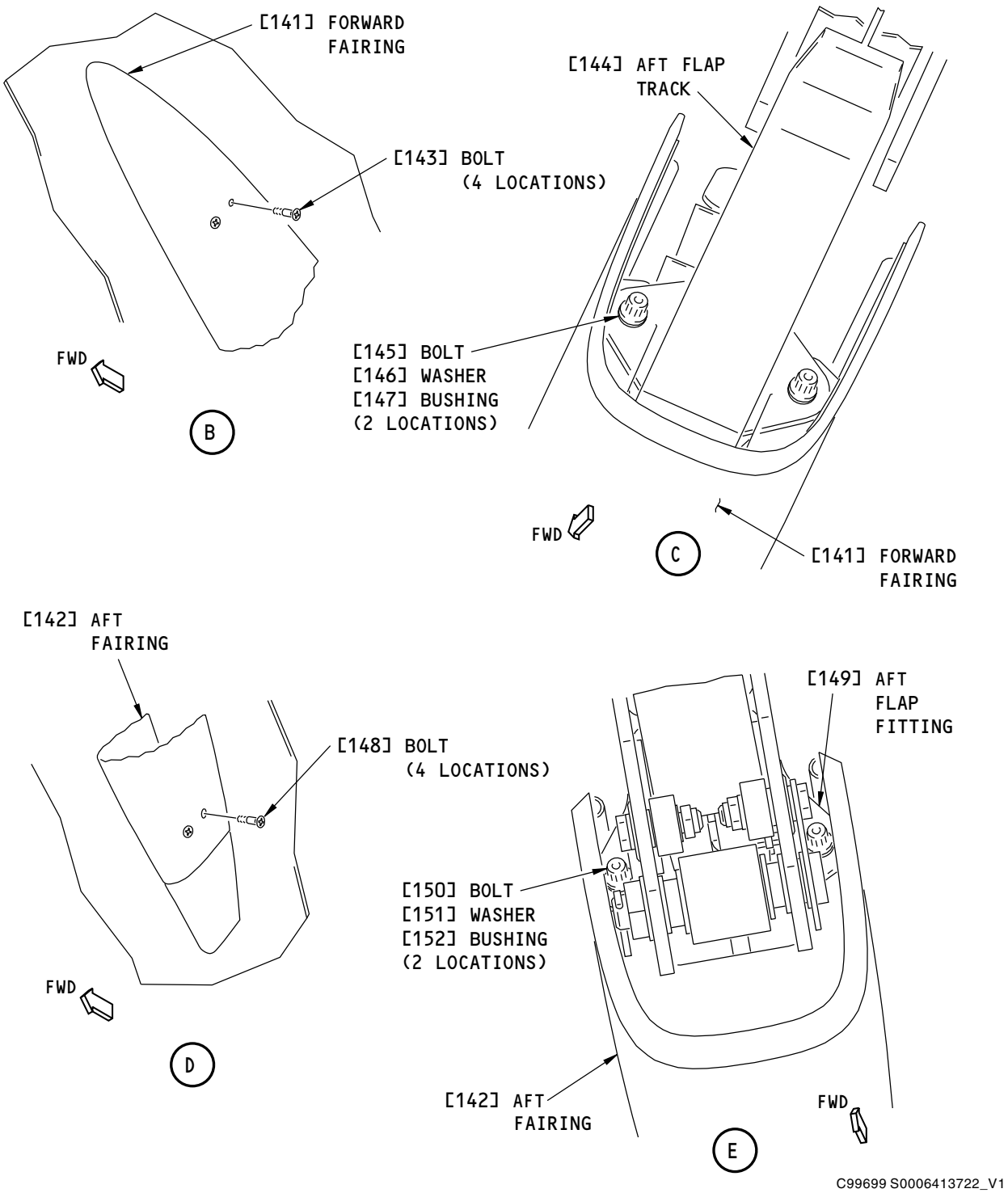


CENTER TRACK FAIRING
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
A

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Center Track Fairing Installation
Figure 405/27-51-18-990-805 (Sheet 1 of 2)

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Center Track Fairing Installation
Figure 405/27-51-18-990-805 (Sheet 2 of 2)

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TASK 27-51-18-400-803

9. Center Track Fairing Installation

(Figure 405)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
141	Fairing assembly	27-51-18-01-025	ARO ALL
142	Fairing assembly	27-51-18-01-105	ARO ALL

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
556	Left Wing Inboard Aft Flap
572	Inboard Flap Center Track Fairing - Left Wing
655	Right Wing Inboard Main Flap
656	Right Wing Inboard Aft Flap
672	Inboard Flap Center Track Fairing - Right Wing

E. Center Track Fairing Installation

SUBTASK 27-51-18-210-003

(1) Make sure the flaps are in the extended position.

SUBTASK 27-51-18-420-004

(2) Install the aft fairing assembly [142]:

(a) Apply a layer of corrosion preventive compound, C00308 to the holes in the aft flap fitting [149] and the fitting on the aft flap.

(b) Apply a layer of corrosion preventive compound, C00308 on the bolts [148], bolts [150].

(c) Put the aft fairing assembly [142] in its position.

(d) Install the bushings [152], bolts [150] and washers [151] that attach the aft fairing assembly [142] to the aft flap fitting [149].

(e) Install the bolts [148] that attach the aft end of the aft fairing assembly [142].

SUBTASK 27-51-18-420-005

(3) Install the forward fairing assembly [141]:

(a) Apply a layer of corrosion preventive compound, C00308 to the holes in the aft flap track [144] and the fitting on the main flap.

(b) Apply a layer of corrosion preventive compound, C00308 on the bolts [143], bolts [145].

(c) Put the forward fairing assembly [141] in its position.

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(d) Install the bushings [147], bolts [145] and washers [146] that attach the forward fairing assembly [141] to the aft flap track [144].

(e) Install the bolts [143] that attach the forward end of the forward fairing assembly [141].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-440-003

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-18-860-024

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-18-860-025

(3) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-18-860-026

(4) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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INBOARD FLAP FAIRINGS - INSPECTION/CHECK

1. General

A. This procedure has this task:

(1) A task to inspect the bearings and bushings at the support fittings for the outboard fairing on the inboard flap.

TASK 27-51-18-210-801

2. Inboard Flap Outboard Fairing Bushing and Bearing Inspection

(Figure 601)

A. General

(1) This task does an inspection of the bushings and the bearings at the forward attach fitting for the outboard fairing of the inboard flap.

B. References

Reference	Title
27-51-18-000-802	Outboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-400-802	Outboard Flap Support Aft Fairing Installation (P/B 401)

C. Location Zones

Zone	Area
573	Flap Support Fairing No. 3
673	Flap Support Fairing No. 6

D. Prepare for the Inspection

SUBTASK 27-51-18-020-008

(1) Remove the outboard aft fairing for the inboard flap. To remove the fairing, do this task: Outboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

E. Inboard Flap Outboard Fairing Bushing and Bearing Inspection

SUBTASK 27-51-18-210-014

(1) Do a detailed visual inspection of the attachment fitting at the forward end of the aft fairing:

(a) Examine the bushings to see if they have migrated or rotated in the attachment fitting of the aft fairing.

NOTE: If the bushings have migrated, then there will be a visible clearance between the bushing flange and the attachment fitting on the fairing.

1) If the bushings have migrated or rotated, replace the fairing, do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

(b) Examine the attachment fitting on the aft fairing for damage or cracks.

SUBTASK 27-51-18-210-015

(2) Do a detailed visual inspection of the support fitting bearings:

(a) Examine the bearings to see if they have migrated or rotated on the support fitting.

1) If the bearings have migrated or rotated, replace the fairing, do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

(b) Examine the support fitting for damage or cracks.

SUBTASK 27-51-18-210-016

(3) Do a detailed visual inspection of the these parts of the flap support structure for damage:

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(a) Forward Tension Link

(b) Aft Tension Beam

(c) Compression Strut

(d) Drive Arm

(e) Carrier Beam

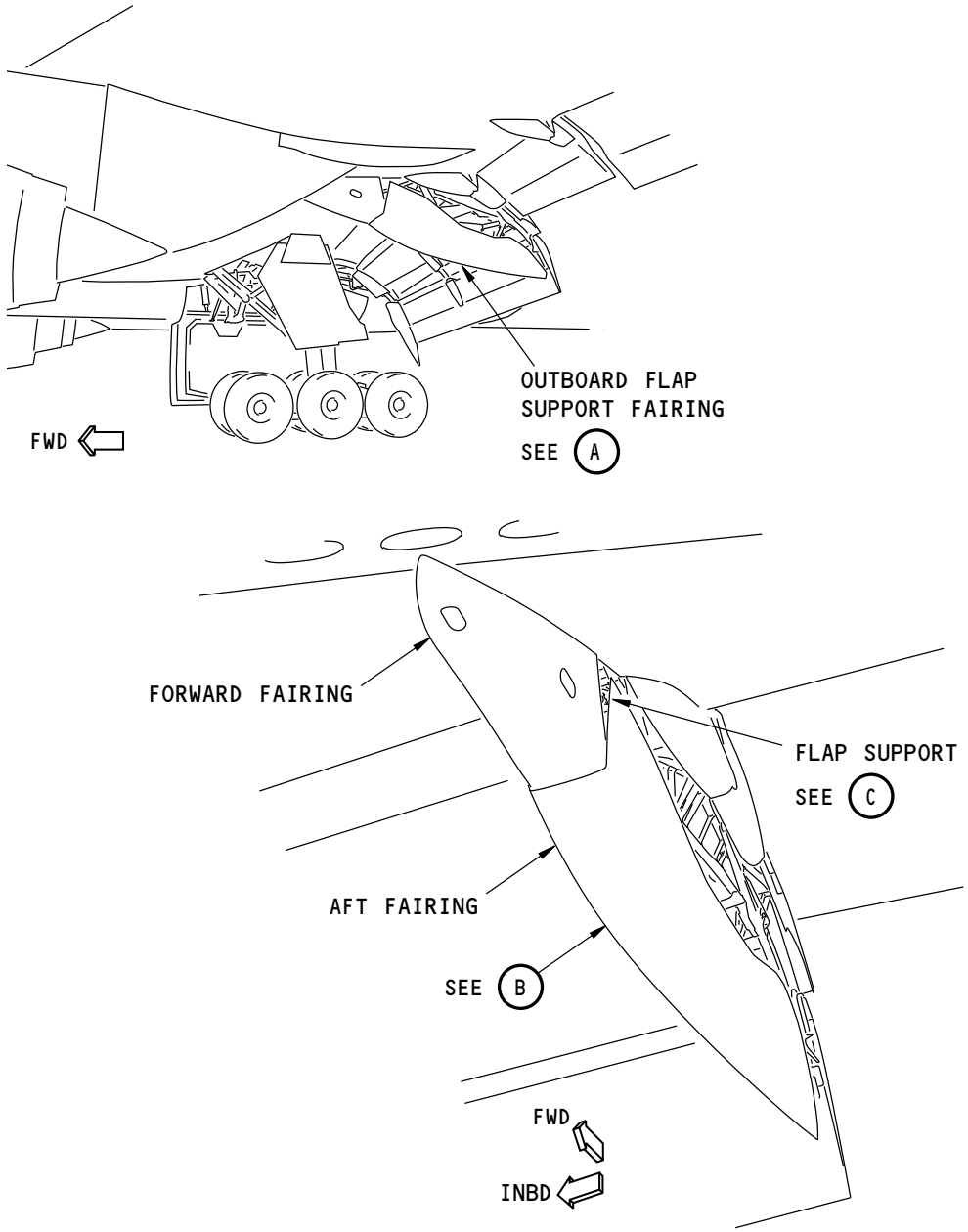
F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-420-010

(1) Install the inboard flap outboard fairing. To install the fairing, do this task: Outboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

——— END OF TASK ———

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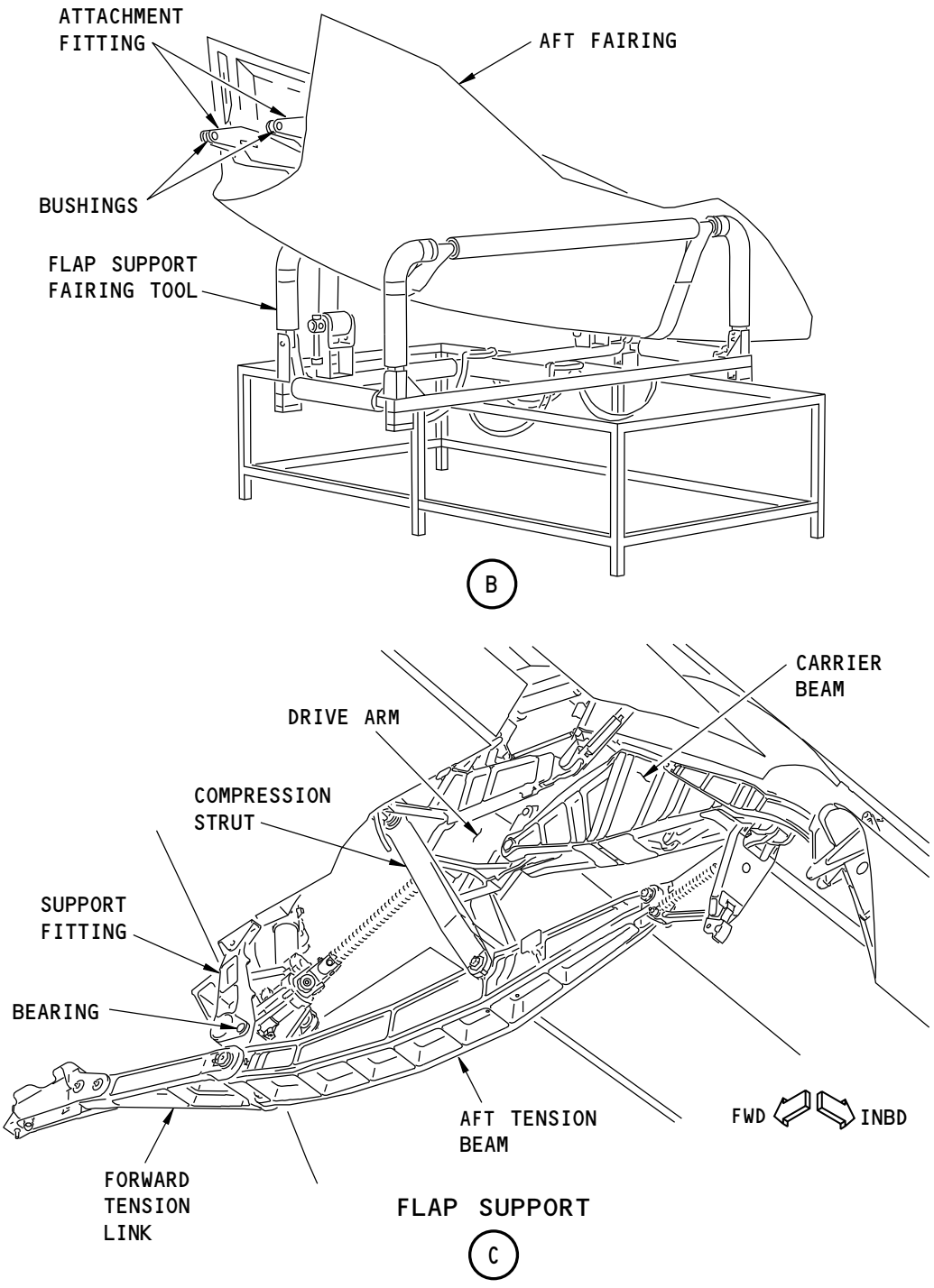


OUTBOARD FLAP SUPPORT FAIRING
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
A

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Outboard Flap Support Fairing Inspection
Figure 601/27-51-18-990-807 (Sheet 1 of 2)

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Outboard Flap Support Fairing Inspection
Figure 601/27-51-18-990-807 (Sheet 2 of 2)

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OUTBOARD TRAILING EDGE FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard trailing edge flap

(2) An installation of the outboard trailing edge flap.

B. The outboard trailing edge flaps weigh approximately 640 pounds.

TASK 27-51-21-000-801

2. Outboard Trailing Edge Flap Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-22-000-801	Outboard Flap Outboard Support Mechanism Removal (P/B 401)
27-51-22-000-802	Outboard Flap Inboard Support Mechanism Removal (P/B 401)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-51-28-000-802	Outboard Auxiliary Support Fairing Removal (P/B 401)
27-61-00-040-802	Spoiler Deactivation (With the Spoilers Up) (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1698	Sling - Flap, Outboard Trailing Edge Part #: J27006-43 Supplier: 81205 Opt Part #: J27006-20 Supplier: 81205
STD-12395	Load Cell Equipment

C. Location Zones

Zone	Area
567	Left Wing Outboard Flap
575	Outboard Flaperon Support Fairing - Left Wing
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
578	Outboard Auxiliary Support Fairing - Left Wing
667	Right Wing Outboard Flap
675	Outboard Flaperon Support Fairing - Right Wing
676	Flap Support Fairing No. 7

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(Continued)

Zone	Area
677	Flap Support Fairing No. 8
678	Outboard Auxiliary Support Fairing - Right Wing

D. Access Panels

Number	Name/Location
567AB	Outboard Flap Frangible Panel
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel
667AB	Outboard Flap Frangible Panel
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

E. Prepare for the Removal

SUBTASK 27-51-21-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-21-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-21-210-006

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

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SUBTASK 27-51-21-210-002

CAUTION: MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-21-860-003

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-21-040-002

WARNING: DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-21-040-001

(7) Extend the outboard spoilers 1 thru 5 (left wing) or 10 thru 14 (right wing) and install the locks on the spoiler actuators. To extend and lock the spoilers, do this task: Spoiler Deactivation (With the Spoilers Up), TASK 27-61-00-040-802.

SUBTASK 27-51-21-860-004

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-21-010-003

(9) Remove the inboard and outboard flap support fairings on the outboard flap. To remove them, do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-21-010-001

(10) Do this task: Outboard Auxiliary Support Fairing Removal, TASK 27-51-28-000-802.

F. Outboard Trailing Edge Flap Removal

SUBTASK 27-51-21-480-001

(1) Install the outboard flap sling, SPL-1698 [43], on the flap assembly [1] (Figure 402):

(a) Find the bolts [45] on the flap for the sling fittings [44].

NOTE: The bolts are identified with 0.6-inch black circles. The forward bolts are along the front spar, above the inboard and outboard carrier beams. The aft bolts are along the rear spar, aft of the deflection control fitting.

(b) Remove the bolts [45] from the top surface of the flap assembly [1].

(c) Install the sling fittings [44] on the flap assembly [1].

(d) Attach the outboard flap sling, SPL-1698 [43] to the sling fittings [44].

(e) Connect a load cell, STD-12395 to the primary support ring [46] on the outboard flap sling, SPL-1698 [43].

(f) Connect an overhead crane to the load cell, STD-12395.

(g) Use the outboard flap sling, SPL-1698 [43] to hold the flap assembly [1].

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SUBTASK 27-51-21-010-002

(2) To get access to the inboard auxiliary support track [4] (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807), do this step:

Remove this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

or open this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-21-020-001

(3) Remove the nut [10], washer [8], washer [9], bolt [7] and bolt [11] to remove the stop [6] and stop assembly [31] from the outboard auxiliary support track [2] (Figure 401).

NOTE: If you cannot get access to the fasteners for the stops, manually retract the flaps until you can get access.

SUBTASK 27-51-21-020-005

(4) Remove the nut [10], washer [8], washer [9], bolt [7] and bolt [32] to remove the stop [6] and stop assembly [31] from the inboard auxiliary support track [4].

NOTE: If you cannot get access to the fasteners for the stops, manually retract the flaps until you can get access.

SUBTASK 27-51-21-020-002

(5) Disconnect the flap assembly [1] from the outboard carrier beam [12]:

(a) Remove the nut [25] to disconnect the jumper wire [27] from the outboard carrier beam [12].

(b) To gain access on the left wing, lower surface of the flap assembly [1], do this step (TASK 06-30-00-800-806):

Open these access panels:

Number	Name/Location
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel

(c) To gain access on the right wing, lower surface of the flap assembly [1], do this step (TASK 06-30-00-800-807):

Open these access panels:

Number	Name/Location
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

(d) Remove the nuts [15], washers [14], washers [33], washer [34], bolts [13], bolts [17], bolt [29] and bolt [30] that attach the flap assembly [1] to the outboard carrier beam [12].

SUBTASK 27-51-21-020-003

(6) Disconnect the flap assembly [1] from the inboard carrier beam [24]:

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(a) Remove the nut [25] to disconnect the jumper wire [27] from the inboard carrier beam [24].

(b) To gain access on the left wing, lower surface of the flap assembly [1], do this step (TASK 06-30-00-800-806):

On the left wing, open these access panels:

Number	Name/Location
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel

(c) To gain access on the right wing, lower surface of the flap assembly [1], do this step (TASK 06-30-00-800-807):

Open these access panels:

Number	Name/Location
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel

(d) Remove the nuts [20], washers [19], washers [35], bolts [18], bolts [22] and bolts [23] that attach the flap assembly [1] to the inboard carrier beam [24].

SUBTASK 27-51-21-020-004

(7) Remove the flap assembly [1]:

NOTE: The flap assembly [1] weighs approximately 640 pounds.

(a) Use the outboard flap sling, SPL-1698 to carefully move the flap assembly [1] aft and down until the outboard auxiliary support carriage [3] and inboard auxiliary support carriage [5] are clear of the outboard auxiliary support track [2] and inboard auxiliary support track [4].

(b) Pull on the secondary support ring [47], to lift the trailing edge of the flap assembly [1] until it is level (Figure 402).

(c) Lower the flap assembly [1] (Figure 401).

(d) Remove the shims [16] and shims [21] from the lower surface of the flap assembly [1].

(e) Make a record of the location and thickness of the shims [16] and shims [21].

NOTE: Keep the shims to use during the flap installation.

G. Outboard Trailing Edge Flap Removal Procedure- Alternate Method

NOTE: This procedure details an alternate method to take out the TE flaps by removing the TE flap and carrier beam together as a unit. Use this alternate method when you don't need to disturb the carrier beam attachments.

SUBTASK 27-51-21-480-019

(1) Install the outboard flap sling, SPL-1698 on the flap assembly [1] (View A) Figure 402:

(a) Find the bolts [45] on the flap for the sling fittings [44].

NOTE: The bolts are identified with 0.6-inch black circles. The forward bolts are along the front spar, above the inboard and outboard carrier beams. The aft bolts are along the rear spar, aft of the deflection control fitting.

(b) Remove the bolts [45] from the top surface of the sling fitting [44] flap assembly [1].

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(c) Install the sling fitting [44] on the flap assembly [1].

(d) Attach the outboard flap sling, SPL-1698 to the sling fittings [44].

(e) Connect a load cell, STD-12395 to the primary support ring [46] on the outboard flap sling, SPL-1698 [43].

(f) Connect an overhead crane to the load cell, STD-12395.

(g) Use the outboard flap sling, SPL-1698 to hold the flap assembly [1].

NOTE: The outboard flap and carrier beams weigh approximately 830 pounds.

SUBTASK 27-51-21-010-006

(2) Remove the applicable (left or right) outboard flap frangible panel.

Number	Name/Location
567AB	Outboard Flap Frangible Panel

Remove this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-21-020-006

(3) Remove the outboard stop, stop assembly, fastener, and bolt.

NOTE: If you cannot get access to the fasteners for the stops, manually retract the flaps until you can get access.

SUBTASK 27-51-21-020-007

(4) Remove the inboard stop, stop assembly, fastener, and bolt.

NOTE: If you cannot get access to the fasteners for the stops, manually retract the flaps until you can get access.

SUBTASK 27-51-21-020-008

(5) For the left outboard trailing edge flap, disconnect the carrier beam joints.

(a) Do this Task: “Disconnect Joint 1B”, which connects the flap outboard carrier beam to the drive arm. Outboard Flap Outboard Support Mechanism Removal, TASK 27-51-22-000-801

WARNING WHEN YOU REMOVE THE OUTBOARD FLAP, MAKE SURE THAT THE DISCONNECTED END OF EACH PIVOT LINK CANNOT FALL QUICKLY. DAMAGE TO PERSONS OR EQUIPMENT CAN OCCUR IF A PIVOT LINK FALLS QUICKLY AWAY FROM THE FLAP CARRIER BEAM.

(b) Do this Task: “Disconnect Joint 1C”, which connects the pivot link to the flap outboard carrier beam Outboard Flap Outboard Support Mechanism Removal, TASK 27-51-22-000-801.

(c) Do this Task: “Disconnect joint 2B”, which connects the flap inboard carrier beam to the drive arm. Outboard Flap Inboard Support Mechanism Removal, TASK 27-51-22-000-802

WARNING WHEN YOU REMOVE THE OUTBOARD FLAP, MAKE SURE THAT THE DISCONNECTED END OF EACH PIVOT LINK CANNOT FALL QUICKLY. DAMAGE TO PERSONS OR EQUIPMENT CAN OCCUR IF A PIVOT LINK FALLS QUICKLY AWAY FROM THE FLAP CARRIER BEAM.

(d) Do this Task: “Disconnect joint 2C”, which connects the pivot link to the flap inboard carrier beam. Outboard Flap Inboard Support Mechanism Removal, TASK 27-51-22-000-802

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(e) Keep all the parts that you remove.

SUBTASK 27-51-21-020-014

(6) Remove the left outboard flap with the carrier beams attached.

SUBTASK 27-51-21-020-011

(7) For the right outboard trailing edge flap, disconnect the carrier beam joints.

(a) Do this Task: “Disconnect Joint 8B”, which connects the flap outboard carrier beam to the drive arm. Outboard Flap Outboard Support Mechanism Removal, TASK 27-51-22-000-801

WARNING WHEN YOU REMOVE THE OUTBOARD FLAP, MAKE SURE THAT THE DISCONNECTED END OF EACH PIVOT LINK CANNOT FALL QUICKLY. DAMAGE TO PERSONS OR EQUIPMENT CAN OCCUR IF A PIVOT LINK FALLS QUICKLY AWAY FROM THE FLAP CARRIER BEAM.

(b) Do this Task: “Disconnect Joint 8C”, which connects the pivot link to the flap outboard carrier beam Outboard Flap Outboard Support Mechanism Removal, TASK 27-51-22-000-801.

(c) Do this Task: “Disconnect joint 7B”, which connects the flap carrier beam to the drive arm. Outboard Flap Inboard Support Mechanism Removal, TASK 27-51-22-000-802

WARNING WHEN YOU REMOVE THE OUTBOARD FLAP, MAKE SURE THAT THE DISCONNECTED END OF EACH PIVOT LINK CANNOT FALL QUICKLY. DAMAGE TO PERSONS OR EQUIPMENT CAN OCCUR IF A PIVOT LINK FALLS QUICKLY AWAY FROM THE FLAP CARRIER BEAM.

(d) Do this Task: “Disconnect joint 7C”, which connects the pivot link to the flap carrier beam. Outboard Flap Inboard Support Mechanism Removal, TASK 27-51-22-000-802

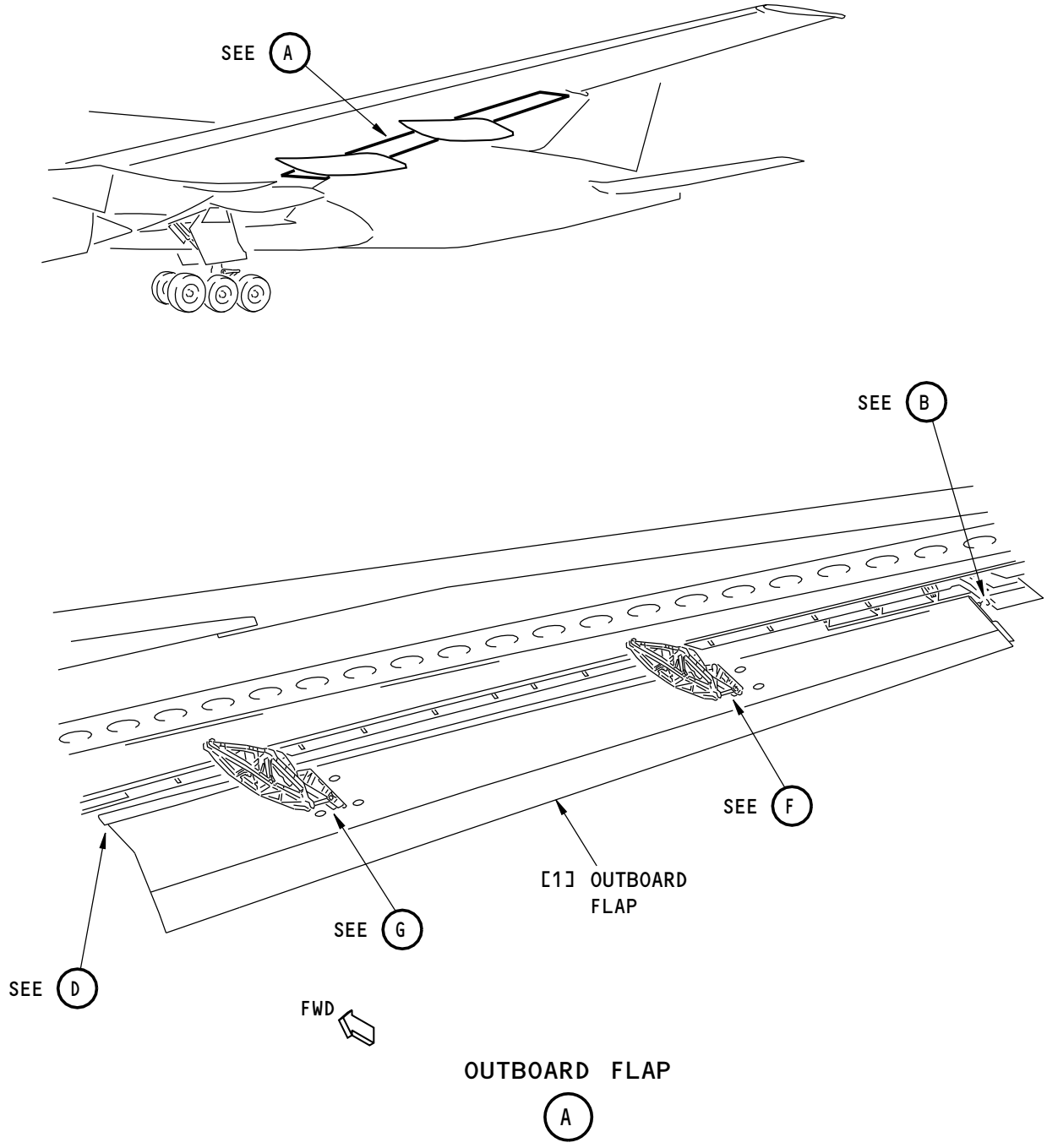
(e) Keep all the parts that you remove.

SUBTASK 27-51-21-020-013

(8) Remove the right outboard flap with the carrier beams attached.

END OF TASK

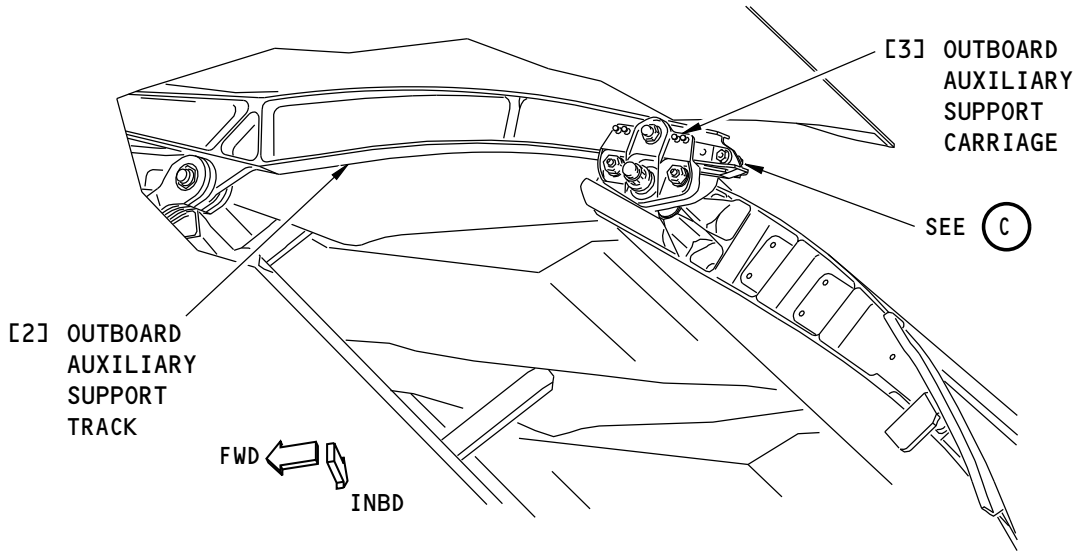
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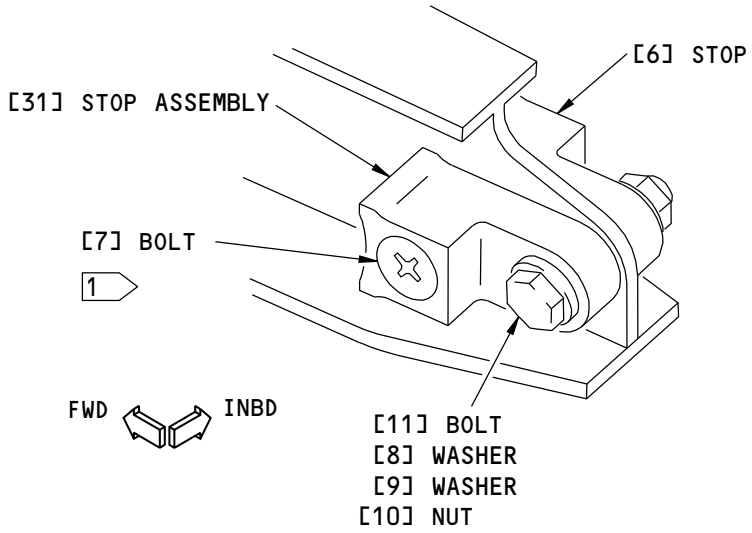
Outboard Trailing Edge Flap Installation
Figure 401/27-51-21-990-801 (Sheet 1 of 5)

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OUTBOARD AUXILIARY SUPPORT TRACK

B



OUTBOARD STOP FITTING

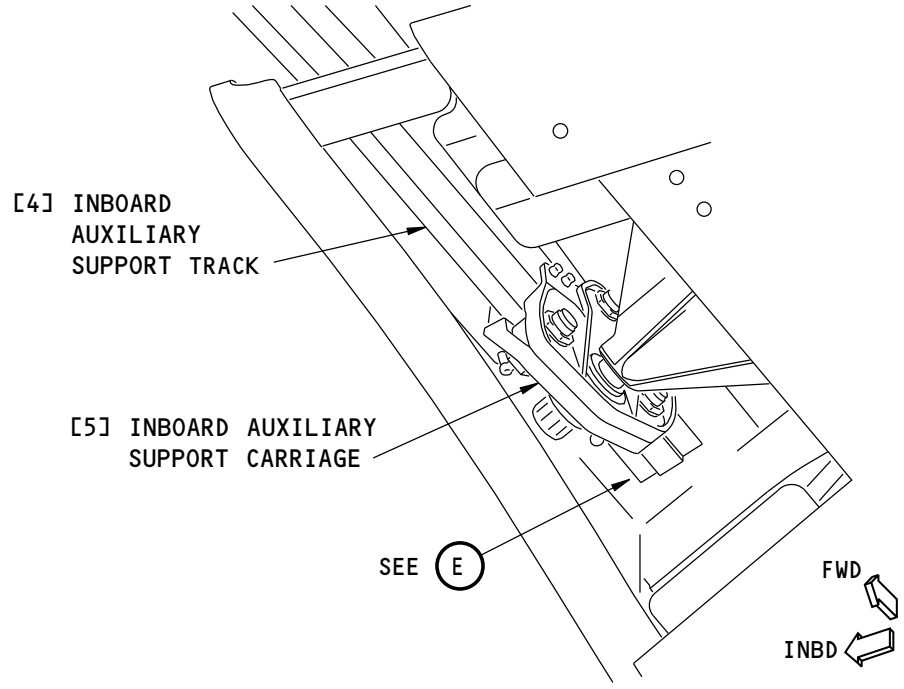
C

1 DIRECTION SHOWN IS PREFERRED, OPPOSITE DIRECTION OPTIONAL.

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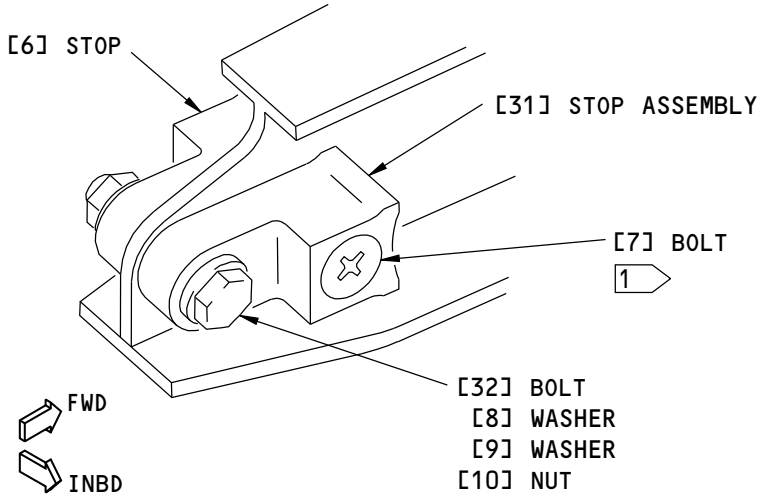
Outboard Trailing Edge Flap Installation
Figure 401/27-51-21-990-801 (Sheet 2 of 5)

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INBOARD AUXILIARY SUPPORT TRACK

D



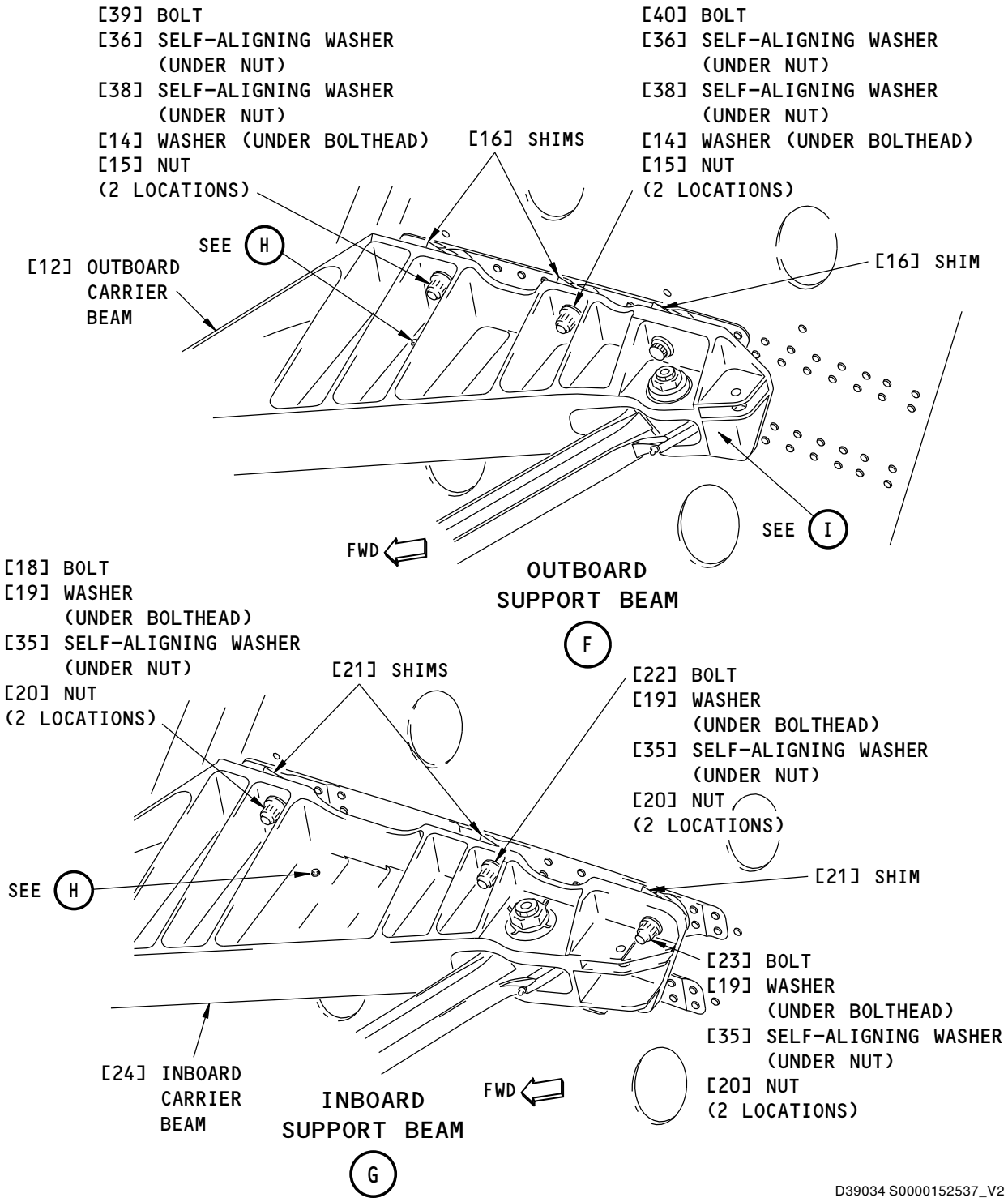
INBOARD STOP FITTING

E

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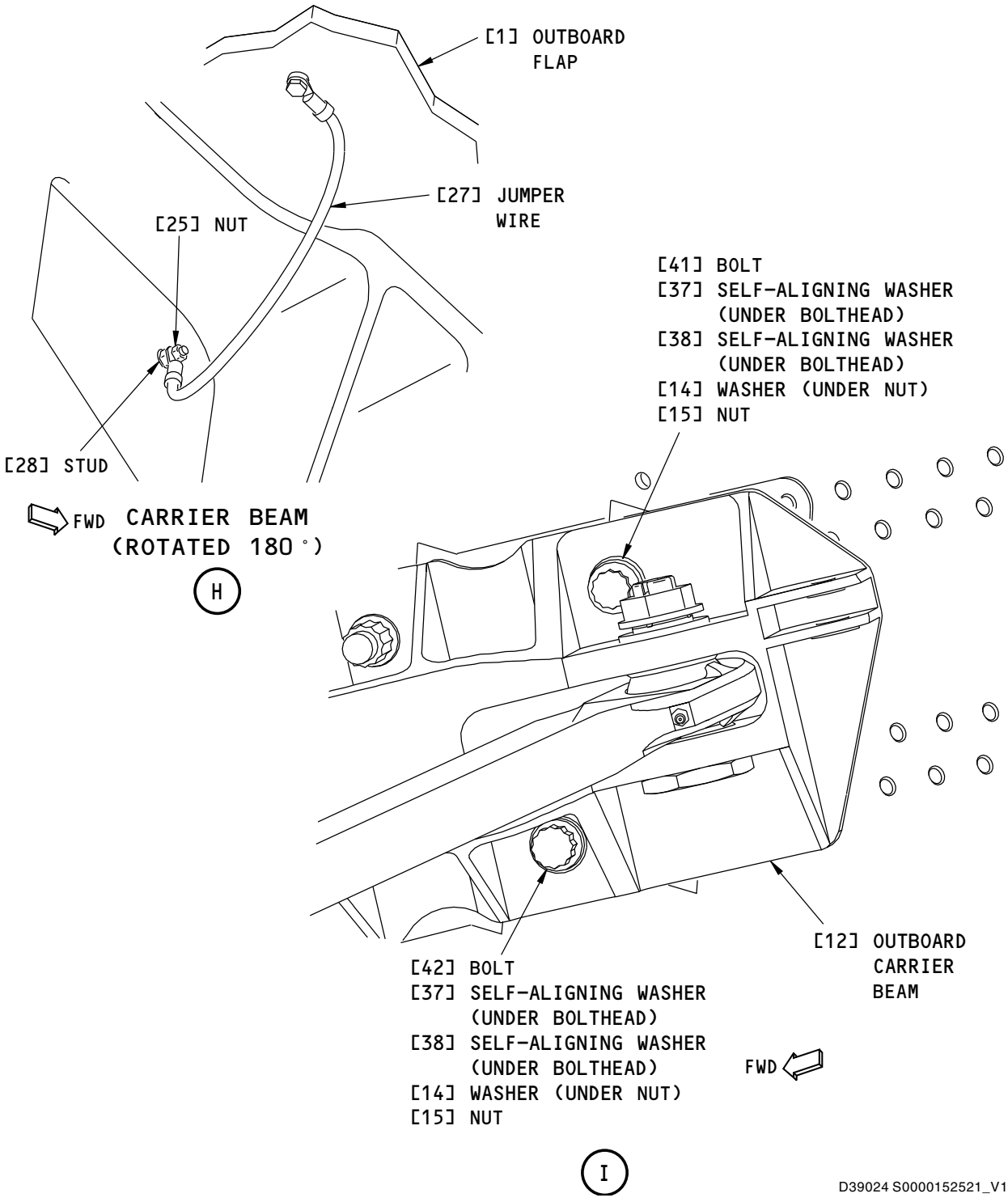
Outboard Trailing Edge Flap Installation
Figure 401/27-51-21-990-801 (Sheet 3 of 5)

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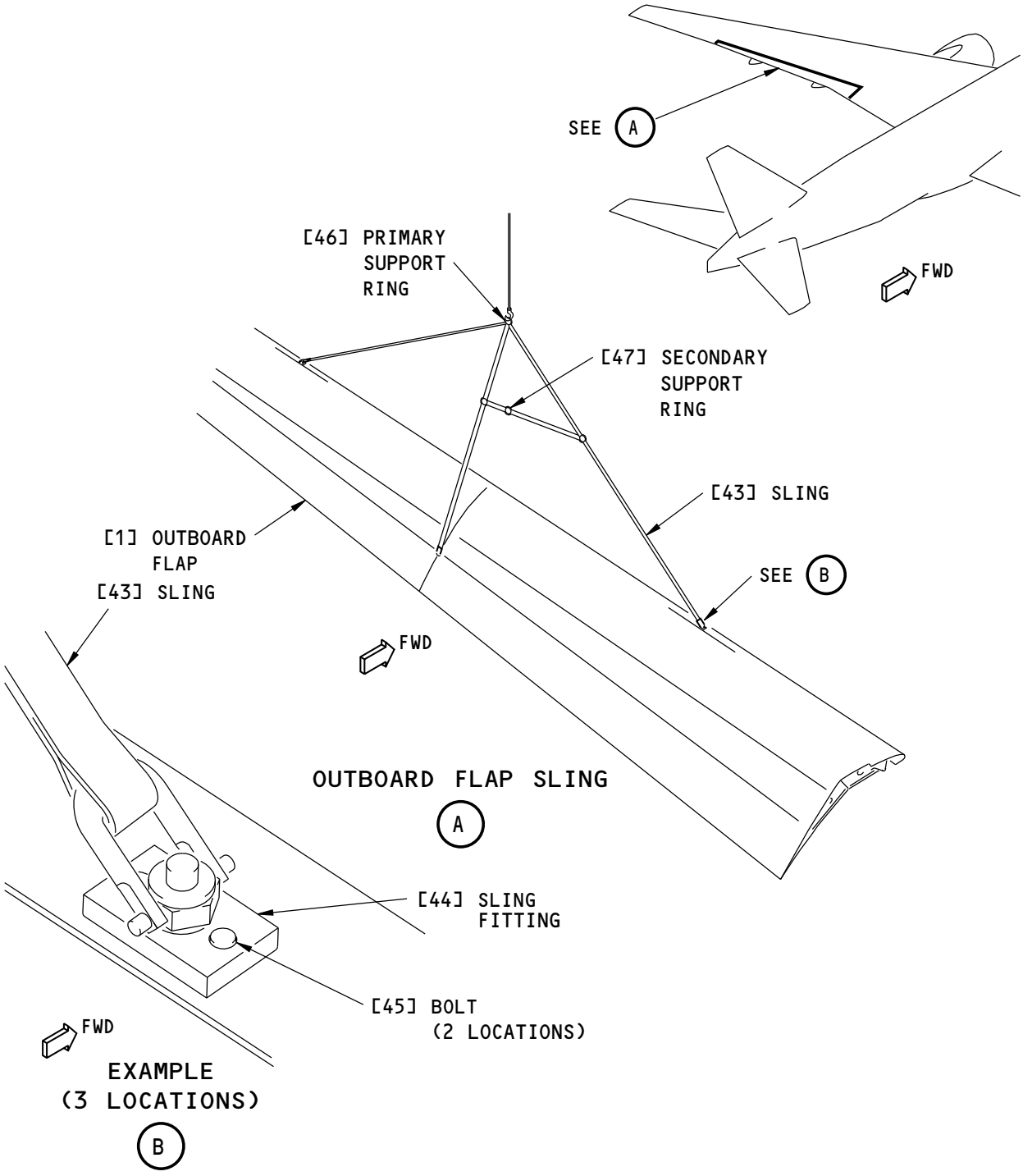
Outboard Trailing Edge Flap Installation
Figure 401/27-51-21-990-801 (Sheet 4 of 5)

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Outboard Trailing Edge Flap Installation
Figure 401/27-51-21-990-801 (Sheet 5 of 5)

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Outboard Trailing Edge Flap Sling
Figure 402/27-51-21-990-802

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TASK 27-51-21-400-801

3. Outboard Trailing Edge Flap Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-09-640-805	Outboard Flap Outboard Support Mechanism Lubrication (P/B 301)
12-21-09-640-811	Outboard Flap Inboard Support Mechanism Lubrication (P/B 301)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-22-400-801	Outboard Flap Outboard Support Mechanism - Installation (P/B 401)
27-51-22-400-802	Outboard Flap Inboard Support Mechanism - Installation (P/B 401)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
27-51-28-400-802	Outboard Auxiliary Support Fairing Installation (P/B 401)
27-61-00-440-801	Spoiler Activation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 260 Supplier: 55026 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536

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(Continued)

Reference	Description
SPL-1698	Sling - Flap, Outboard Trailing Edge Part #: J27006-43 Supplier: 81205 Opt Part #: J27006-20 Supplier: 81205
SPL-1722	Bolt - Drive, Flap Attach Bolt Installation Part #: J27047-1 Supplier: 81205
STD-12395	Load Cell Equipment

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Flap assembly	27-51-21-01A-850	ARO ALL
		27-51-21-01A-855	ARO ALL

E. Location Zones

Zone	Area
567	Left Wing Outboard Flap
575	Outboard Flaperon Support Fairing - Left Wing
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
578	Outboard Auxiliary Support Fairing - Left Wing
667	Right Wing Outboard Flap
675	Outboard Flaperon Support Fairing - Right Wing
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8
678	Outboard Auxiliary Support Fairing - Right Wing

F. Access Panels

Number	Name/Location
567AB	Outboard Flap Frangible Panel
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel

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(Continued)

Number	Name/Location
567PB	Outboard Flap Lower Panel
667AB	Outboard Flap Frangible Panel
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

G. Outboard Trailing Edge Flap Installation

SUBTASK 27-51-21-210-001

(1) Make sure the outboard auxiliary support carriage [3] and inboard auxiliary support carriage [5] are installed on the inboard and outboard ends of the flap assembly [1] (Figure 401).

SUBTASK 27-51-21-210-004

(2) Examine the bolt holes in the flap for alodine.

(a) If the alodine is not present, apply coating, C00064 to the bolt holes in the flap assembly [1].

SUBTASK 27-51-21-480-002

(3) Install a protective cover on the top surface of the outboard carrier beam [12] and inboard carrier beam [24] to protect the lower surface of the flap assembly [1].

SUBTASK 27-51-21-480-003

(4) Install the outboard flap sling, SPL-1698, [43], and a load cell, STD-12395 on the flap assembly [1] (Figure 402).

SUBTASK 27-51-21-420-001

(5) Lift the flap assembly [1] to its position:

(a) Use the primary support ring [46] and secondary support ring [47] on the outboard flap sling, SPL-1698, [43] to lift the flap assembly [1] until it is clear of the ground.

(b) Release the tension on the secondary support ring [47] to permit the flap assembly [1] to turn until it is in the correct position.

(c) Lift the flap assembly [1] until the outboard auxiliary support carriage [3] and inboard auxiliary support carriage [5] align with outboard auxiliary support track [2] and inboard auxiliary support track [4] (Figure 401).

(d) Engage the outboard auxiliary support carriage [3] and inboard auxiliary support carriage [5] with the outboard auxiliary support track [2] and inboard auxiliary support track [4].

(e) Use the outboard flap sling, SPL-1698 to move the flap forward and up on the outboard auxiliary support track [2] and inboard auxiliary support track [4] until the flap assembly [1] aligns with the outboard carrier beam [12] and inboard carrier beam [24].

SUBTASK 27-51-21-420-002

(6) Connect the flap assembly [1] to the inboard carrier beam [24]:

(a) Remove the protective cover from the inboard carrier beam [24].

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(b) Install the shims [21] between the inboard carrier beam [24] and the flap assembly [1]:

NOTE: Use shims that are the same thickness as the shims you removed.

NOTE: Tapered shims oriented with thick end forward.

1) Apply PR-1405-G sealant, A00723 to the shims [21] and the mating surfaces on the flap assembly [1] and the inboard carrier beam [24].

2) Put the shims [21] in their position.

(c) Put the washers [19] on the bolts [18], bolts [22] and bolts [23].

(d) Apply PR-1405-G sealant, A00723 to the bolts [18], bolts [22], bolts [23] and washers [19].

(e) Install the bolts [18], bolts [22], bolts [23] and washers [19] that attach the flap assembly [1] to the inboard carrier beam [24].

NOTE: Install the bolts with the heads up. If it is necessary, use a flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

(f) Loosely install the washers [35] and nuts [20] on the bolts [18], bolts [22] and bolts [23].

SUBTASK 27-51-21-420-003

(7) Connect the flap assembly [1] to the outboard carrier beam [12]:

(a) Remove the protective cover from the outboard carrier beam [12].

(b) Install the shims [16] between the outboard carrier beam [12] and the flap assembly [1]:

NOTE: Use shims that are the same thickness as the shims you removed.

NOTE: Tapered shims oriented with thick end forward.

1) Apply PR-1405-G sealant, A00723 to the shims [16] and the mating surfaces on the flap assembly [1] and the outboard carrier beam [12].

2) Put the shims [16] in their position.

(c) Put the self-aligning washers [36], self-aligning washers [37], self-aligning washers [38], and washers [14] on the bolts [39], bolts [40], bolt [41]and bolt [42].

(d) Apply PR-1405-G sealant, A00723 to the bolts [39], bolts [40], bolt [41], bolt [42], self-aligning washers [36], self-aligning washers [37], self-aligning washers [38]and washers [14].

(e) Install the bolts [39], bolts [40], bolt [41]and bolt [42]and the self-aligning washers [36], self-aligning washers [37], self-aligning washers [38], and washers [14] that attach the flap assembly [1] to the outboard carrier beam [12].

NOTE: Install the aft inboard bolt [41] and aft outboard bolt [42] with its head down. Install the remaining bolts with the heads up. If it is necessary, use a flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

(f) Loosely install washers [14] and nuts [15] on the aft inboard bolt [41] and aft outboard bolt [42].

(g) Loosely install the washers [33], self-aligning washers [36], self-aligning washers [38]and nuts [15] on the bolts [39], and bolts [40].

SUBTASK 27-51-21-420-009

(8) Tighten the nuts [15], nuts [20], bolt [41] and bolt [42]:

(a) Tighten the nuts [20] on the inboard carrier beam to 2700-2900 pound-inches.

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(b) Tighten the aft outboard bolt [41] and the aft inboard bolt [42] on the outboard carrier beam [12] to 1530-1870 pound-inches.

(c) Tighten the remaining nuts [15] on the outboard carrier beam [12] to 1250-1450 pound-inches.

(d) Wait a minimum of 20 minutes and tighten all of the nuts [15] and nuts [20] and the aft outboard bolt [41] and aft inboard bolt [42] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts. You may use one additional washer [14], under the nut only, if proper grip length bolt is not available.

SUBTASK 27-51-21-390-001

(9) Apply PR-1405-G sealant, A00723 to the bolts [13], bolts [17], bolts [18], bolts [22], bolts [23], bolt [29], bolt [30], washers [14], washers [19], nuts [15] and nuts [20].

SUBTASK 27-51-21-420-005

(10) Install the nuts [25] to attach the jumper wires [27] to the outboard carrier beam [12] and the inboard carrier beam [24].

(a) With the digital/analog multimeter, COM-1793, make sure the resistance between the flap assembly [1] and the outboard carrier beam [12] and the inboard carrier beam [24] is less than 100 ohms (WDM D6-54446).

(b) Apply sealant, A00247 to the nuts [25].

SUBTASK 27-51-21-080-001

(11) Remove the outboard flap sling, SPL-1698, [43] and load cell, STD-12395 from the flap assembly [1] (Figure 402):

(a) Remove the load cell, STD-12395 from the outboard flap sling, SPL-1698.

(b) Remove the outboard flap sling, SPL-1698, [43] from the sling fittings [44].

(c) Remove the sling fittings [44] from the flap assembly [1].

(d) Apply PR-1405-G sealant, A00723 to the bolts [45].

(e) Install the bolts [45] in the top surface of the flap assembly [1].

SUBTASK 27-51-21-420-007

(12) Install the stop [6] and stop assembly [31] on the inboard auxiliary support track [4] with the bolt [7], bolt [32], washer [8], washer [9] and nut [10].

SUBTASK 27-51-21-420-006

(13) Install the stop [6] and stop assembly [31] on the outboard auxiliary support track [2] with the bolt [7], bolt [11], washer [8], washer [9] and nut [10].

SUBTASK 27-51-21-640-001

(14) Do this task: Outboard Flap Inboard Support Mechanism Lubrication, TASK 12-21-09-640-811.

SUBTASK 27-51-21-640-002

(15) Do this task: Outboard Flap Outboard Support Mechanism Lubrication, TASK 12-21-09-640-805.

SUBTASK 27-51-21-410-001

(16) Close the access panel at the inboard end of the flap, do this step(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

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Install this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

or install this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

(a) Apply corrosion preventive compound, C00308 to the fasteners on the access cover.

SUBTASK 27-51-21-410-007

(17) If you manually retracted the flaps to remove the stops, manually extend the flaps back to the 30-unit position.

SUBTASK 27-51-21-440-002

(18) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-21-860-005

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(19) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-21-210-003

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(20) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-21-860-006

(21) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-21-440-001

(22) Remove the locks from the spoiler actuators and lower the outboard spoilers. To remove the locks, do this task: Spoiler Activation, TASK 27-61-00-440-801.

SUBTASK 27-51-21-860-007

(23) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-21-040-003

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(24) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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H. Outboard Trailing Edge Flap Installation – Alternate Method

NOTE: This procedure details an alternate method to install the TE flaps when the TE flap and carrier beam were removed as a unit.

SUBTASK 27-51-21-420-014

(1) Install the applicable (left or right) outboard stop, stop assembly, fastener, and bolt.

SUBTASK 27-51-21-420-015

(2) Install the applicable (left or right) inboard stop, stop assembly, fastener, and bolt.

SUBTASK 27-51-21-420-010

(3) For the left inboard trailing edge flap number two joints:

(a) Make sure that the pivot link is in its correct location to attach to the carrier beam.

(b) Do this Task: “Connect Joint 2B” to connect the flap carrier beam to the drive arm (Outboard Flap Inboard Support Mechanism - Installation, TASK 27-51-22-400-802).

(c) Do this Task: “Connect Joint 2C” to connect the pivot link to the flap carrier beam (Outboard Flap Inboard Support Mechanism - Installation, TASK 27-51-22-400-802).

SUBTASK 27-51-21-420-011

(4) For the left outboard trailing edge flap number one joints:

(a) Make sure the pivot link is in its correct location to attach to the carrier beam.

(b) Do this Task: “Connect Joint 1B” to connect the flap carrier beam to the drive arm (Outboard Flap Outboard Support Mechanism - Installation, TASK 27-51-22-400-801).

(c) Do this Task: “Connect Joint 1C” to connect the pivot link to the flap carrier beam (Outboard Flap Outboard Support Mechanism - Installation, TASK 27-51-22-400-801).

SUBTASK 27-51-21-420-012

(5) For the right inboard trailing edge flap number seven joints:

(a) Make sure that the pivot link is in its correct location to attach to the carrier beam.

(b) Do this Task: “Connect Joint 7B” to connect the flap carrier beam to the drive arm (Outboard Flap Inboard Support Mechanism - Installation, TASK 27-51-22-400-802).

(c) Do this Task: “Connect Joint 7C” to connect the pivot link to the flap carrier beam (Outboard Flap Inboard Support Mechanism - Installation, TASK 27-51-22-400-802).

SUBTASK 27-51-21-420-013

(6) For the right outboard trailing edge flap number eight joints:

(a) Make sure that the pivot link is in its correct location to attach to the carrier beam.

(b) Do this Task: “Connect Joint 8B” to connect the flap carrier beam to the drive arm (Outboard Flap Outboard Support Mechanism - Installation, TASK 27-51-22-400-801).

(c) Do this Task: “Connect Joint 8C” to connect the pivot link to the flap carrier beam (Outboard Flap Outboard Support Mechanism - Installation, TASK 27-51-22-400-801).

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-21-410-002

(1) Close the access on the lower surface of the flap, do this step (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

Install these access panels:

Number	Name/Location
567FB	Outboard Flap Lower Panel

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(Continued)

Number	Name/Location
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel

or close these access panels:

Number	Name/Location
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

(a) Apply corrosion preventive compound, C00308 to the fasteners for the panels.

SUBTASK 27-51-21-410-003

(2) Do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-21-410-004

(3) Do this task: Outboard Auxiliary Support Fairing Installation, TASK 27-51-28-400-802.

SUBTASK 27-51-21-420-016

(4) If removed, install the applicable (left or right) outboard flap frangible panel.

(5) Install this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

Install this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-21-440-003

(6) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

END OF TASK

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OUTBOARD TRAILING EDGE FLAP - ADJUSTMENT/TEST

1. General

A. This procedure has an adjustment of the outboard trailing edge flaps.

B. The load condition of the airplane (fuel quantity, on or off jacks, engines installed or not installed) has no effect on the adjustment dimensions in this procedure.

TASK 27-51-21-820-801

2. Outboard Trailing Edge Flap Adjustment

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-51-28-000-802	Outboard Auxiliary Support Fairing Removal (P/B 401)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
27-51-28-400-802	Outboard Auxiliary Support Fairing Installation (P/B 401)
27-61-00-820-802	Spoiler PCU Adjustment (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 260 Supplier: 55026 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
SPL-1698	Sling - Flap, Outboard Trailing Edge Part #: J27006-43 Supplier: 81205 Opt Part #: J27006-20 Supplier: 81205
SPL-1722	Bolt - Drive, Flap Attach Bolt Installation Part #: J27047-1 Supplier: 81205
SPL-9128	Gage - Go/No Go (J27081-6 Assy included in J27081-1 Rigging Equipment - Outboard Trailing Edge Flaps) Part #: J27081-1 Supplier: 81205
SPL-9138	Rigging Equipment - Outboard Trailing Edge Flaps (for use on 777-200LR, -300ER, and -F airplanes) Part #: J27081-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
G02020	Clay, Modeling	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Outboard flap	27-51-21-01A-850	ARO ALL
		27-51-21-01A-855	ARO ALL

E. Location Zones

Zone	Area
567	Left Wing Outboard Flap
575	Outboard Flaperon Support Fairing - Left Wing
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
578	Outboard Auxiliary Support Fairing - Left Wing
667	Right Wing Outboard Flap

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Zone	Area
675	Outboard Flaperon Support Fairing - Right Wing
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8
678	Outboard Auxiliary Support Fairing - Right Wing

F. Access Panels

Number	Name/Location
567AB	Outboard Flap Frangible Panel
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel
667AB	Outboard Flap Frangible Panel
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

G. Prepare for the Adjustment

SUBTASK 27-51-21-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-21-480-004

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-21-480-005

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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SUBTASK 27-51-21-480-006

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-21-980-001

(5) Make sure the trailing edge flaps are in the retracted position (Figure 501):

NOTE: The correct position of the ballscrew nuts when the flaps are retracted is four torque tube turns away from the upstops.

(a) Remove the coverplate from the manual drive on one of the position sensor gearboxes.

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAP WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

(b) Use the manual drive on the position sensor gearbox to retract the flaps until the ballscrew nuts touch the upstops.

NOTE: The maximum torque necessary to turn the drive system in the retract direction is 1000 pound-inches.

Refer to the placard above the position sensor gearbox for the correct direction to turn the manual drive.

Look at the number 4 or 5 ballscrew while you move the flaps.

(c) If the two ballscrew nuts for the applicable flap do not touch the upstops, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

(d) Use the manual drive on the position sensor gearbox to extend the flaps four turns of the torque tubes.

NOTE: The maximum torque necessary to turn the drive system in the extend direction is 620 pound-inches.

H. Outboard Trailing Edge Flap Adjustment

ARO ALL; 777-200LR AND 777-300ER

SUBTASK 27-51-21-930-005

(1) Find the locations on the outboard upper surface of the flap for the outboard trailing edge flaps rigging equipment, SPL-9138 (View D) (Figure 502):

NOTE: These points will be referred to as Point A and Point B.

There should be paint marks on the fasteners on the upper surface of the wing to use with the outboard trailing edge flaps rigging equipment, SPL-9138. Refer to the usage placard J27081-46 on the outboard trailing edge flaps rigging equipment, SPL-9138.

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ARO ALL; 777-200LR AND 777-300ER (Continued)

(a) Outboard of the outboard edge of spoiler number 2, approximately 4.05 in. (102.87 mm), the mark should be on a fastener in the row of fasteners forward of the spoiler leading edge.

NOTE: This mark is referred to as Point A.

The fastener is approximately 3.2 in. (81.28 mm) forward of the leading edge of spoiler number 1.

(b) The other mark should be 14.64 in. (371.86 mm) inboard of Point A, approximately parallel to the leading edge of the spoilers.

NOTE: This mark is referred to as Point B.

Point B is approximately 4.59 in. (116.59 mm) forward of the leading edge of spoiler number 2.

(c) Put two 20 pound sand bags on the forward end of the rigging bar to hold it in place.

SUBTASK 27-51-21-930-006

(2) Find the locations on the inboard upper surface of the flap for the outboard trailing edge flaps rigging equipment, SPL-9138 (View C) (Figure 502):

NOTE: These points will be referred to as Point C and Point D.

There should be paint marks on the fasteners on the upper surface of the wing to use with the outboard trailing edge flaps rigging equipment, SPL-9138. Refer to the usage placard J27081-46 on the outboard trailing edge flaps rigging equipment, SPL-9138.

(a) Outboard of the outboard edge of spoiler number 5, approximately 5.37 in. (136.40 mm), the mark should be on a rear spar fastener.

NOTE: This mark is referred to as Point C.

The fastener is approximately 7.9 in. (200.66 mm) forward of the leading edge of spoiler number 4.

(b) The other mark should be 14.05 in. (356.87 mm) inboard of Point C, approximately parallel to the leading edge of the spoilers.

NOTE: This mark is referred to as Point D.

Point D is approximately 9.41 in. (239.01 mm) forward of the leading edge of spoiler number 5.

(c) Put two 20 lb (9 kg) sand bags on the forward end of the rigging bar to hold it in place.

SUBTASK 27-51-21-220-030

(3) Do a check of the position of the outboard flap at the outboard flap support:

(a) Use the Go/No-Go step gauge, go/no go gage, SPL-9128, to measure sure the clearance between the rigging bar and the flap.

(b) Make sure the clearances are in the limit of 0.50 ±0.02 in. (12.70 ±0.51 mm).

SUBTASK 27-51-21-200-001

(4) Do a check of the position of the outboard flap at the inboard flap support:

(a) Use the go/no go gage, SPL-9128, to measure sure the clearance between the rigging bar and the flap.

(b) Make sure the clearances are in the limit of 0.50 ±0.02 in. (12.70 ±0.51 mm).

ARO ALL

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SUBTASK 27-51-21-820-002

(5) If the clearances between the rigging bars and the outboard flap [1] are not in the limits, change the thickness of the shims at the flap supports (Figure 503):

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure the thrust reverser cowls are closed.

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(d) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(e) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(f) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(g) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(h) For the applicable fairing, do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

(i) Install the outboard flap sling, SPL-1698 to hold the outboard flap [1] when it is disconnected.

(j) If the clearances at the outboard flap support are not in the limit, change the thickness of the shims [6] between the outboard flap [1] and the outboard carrier beam [2]:

1) Remove the nut [15] to disconnect the jumper wire [16] from the stud [17].

2) Open the panels on the left wing and on the lower surface of the outboard flap [1], do this step (TASK 06-30-00-800-806):

Open these access panels:

Number	Name/Location
567LB	Outboard Flap Lower Panel

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(Continued)

Number	Name/Location
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel

3) Open the panels on the right wing and on the lower surface of the outboard flap [1], do this step (TASK 06-30-00-800-807):

   On the right wing, open these access panels:

Number	Name/Location
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

4) Remove the nuts [5], washers [4], washers [20], washer [21], bolts [3], bolts [7], bolt [18] and bolt [19] that attach the outboard flap [1] to the outboard carrier beam [2].

5) Remove the applicable shims [6].

6) Install the correct thickness of shims [6] between the carrier beam [2] and the outboard flap [1]:

   NOTE: The maximum permitted thickness of the shims is 0.44 in. (11.18 mm). The nominal shim thickness of the shims is 0.19 in. (4.83 mm).

   The maximum difference between the forward and aft shims is 0.125 in. (3.18 mm).

   a) Apply PR-1405-G sealant, A00723 to the shims [6] and the mating surfaces on the outboard flap [1] and the carrier beam [2].

   b) Put the shims [6] in their position.

7) Put the washers [4] on the bolts [3], bolts [7], bolt [18] and bolt [19].

8) Apply PR-1405-G sealant, A00723 to the bolts [3], bolts [7], bolt [18], bolt [19] and washers [4].

9) Install the bolts [3], bolts [7], bolt [18], bolt [19] and washers [4] to attach the outboard flap [1] to the carrier beam [2].

   NOTE: Install the aft outboard bolt [18] with its head down.

   Install the bolts [3], bolts [7] and bolt [19] with the heads up.

   If it is necessary, use a flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

10) Loosely install a washer [21] and a nut [5] on the aft outboard bolt [18].

11) Loosely install the washers [20] and nuts [5] on the bolts [3], bolts [7] and bolt [19].

12) Tighten the aft outboard bolt [18] 1530 in-lb (173 N·m) - 1870 in-lb (211 N·m).

13) Tighten the remaining nuts [5] 1250 in-lb (141 N·m) - 1450 in-lb (164 N·m).

14) Wait a minimum of 20 minutes and tighten the nuts [5] and bolt [18] again.

   NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts.

15) Close access on the lower surface of the outboard flap [1], do this step:

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Install these access panel:

Number	Name/Location
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel

or close these access panels:

Number	Name/Location
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

16) Install the nut [15] to attach the jumper wire [16] to the stud [17].

a) With the digital/analog multimeter, COM-1793, make sure the resistance between the outboard flap [1] and the carrier beam [2] is less than 100 ohms (WDM D6-54446).

b) Apply sealant, A00247 to the nut [15].

(k) If the clearances at the inboard flap support are not in the limit, change the thickness of the shims [11] between the outboard flap [1] and the inboard carrier beam [14]:

1) Remove the nut [15] to disconnect the jumper wire [16] from the stud [17].

2) Gain Access to the lower surface of the outboard flap [1], do this step:

Open these access panels:

Number	Name/Location
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel

or open these access panels:

Number	Name/Location
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel

3) Remove the nuts [10], washers [9], washers [22], bolts [8], bolts [12] and bolts [13] that attach the outboard flap [1] to the carrier beam [14].

4) Remove the shims [11] from the lower surface of the outboard flap [1].

5) Install the correct thickness of shims [11] between the carrier beam [14] and the outboard flap [1]:

NOTE: The maximum permitted shim thickness is 0.500 inch.

The nominal thickness of the aft shims is 0.250 inch.

The nominal thickness of the forward shims is 0.135 inch.

The thickness of the aft shims can be a maximum of 0.365 inch more than the forward shims.

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a) Apply PR-1405-G sealant, A00723 to the shims [11] and the mating surfaces on the outboard flap [1] and the carrier beam [14].

b) Put the shims [11] in their position.

6) Put the washers [9] on the bolts [8], bolts [12] and bolts [13].

7) Apply PR-1405-G sealant, A00723 to the bolts [8], bolts [12], bolts [13] and washers [9].

8) Install the bolts [8], bolts [12], bolts [13] and the washers [9] to attach the outboard flap [1] to the carrier beam [14].

NOTE: Install the bolts with the heads up.

If it is necessary, use a flap attach bolt installation drive bolt, SPL-1722 to pull the bolts through the flap and the carrier beam.

9) Loosely install the washers [22] and nuts [10] on the bolts [8], bolts [12], bolts [13].

10) Tighten the nuts [10] to 2700-2900 pound-inches.

11) Wait a minimum of 20 minutes and tighten the nuts [10] again.

NOTE: Make sure the bolts extend a minimum of one and a maximum of three threads past the nuts.

12) Close access to the lower surface of the outboard flap [1], do this step:

Install these access panel:

Number	Name/Location
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel

or close these access panels:

Number	Name/Location
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel

13) Install the nut [15] to attach the jumper wire [16] to the stud [17].

a) With the digital/analog multimeter, COM-1793, make sure the resistance between the outboard flap [1] and the carrier beam [14] is less than 100 ohms (WDM D6-54446).

b) Apply sealant, A00247 to the nut [15].

(l) Remove the outboard flap sling, SPL-1698 from the flap.

(m) For the applicable fairing, do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

(n) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(o) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(p) Retract the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(q) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(r) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-21-220-003

(6) At the inboard end of the outboard flap [1], measure the clearance between the top surface of the flap and the lower surface of the upper panel (Figure 504):

(a) Manually push up on the lower surface of the outboard flap [1] near the inboard auxiliary support carriage [31] until the two lower rollers touch the auxiliary track (View C).

(b) Measure the clearance between the top surface of the flap and the lower surface of the upper panel (View A-A, Dimension C). (Table 501)

Table 501/27-51-21-993-802

Dimension B (Figure 504)	Dimension C (Figure 504)	Dimension D (Figure 504)	Dimension E (Figure 505)	Dimension F (Figure 505)	Dimension G (Figure 506)
ARO 001-003, 005-999					
2.1982 ±0.0300 in. (55.834 ±0.76 mm)	0.2046 ±0.0400 in. (5.197 ±1.016 mm)	0.1482 +0.300 /-0.0982 in. (3.764 +7.620/-2.495 mm)	0.020 ±0.015 in. (0.508 ±0.381 mm)	0.015 ±0.015 in. (0.381 ±0.381 mm)	0.03 ±0.03 in. (0.76 ±0.76 mm)
ARO 004					
2.1982 ±0.0300 in. (55.834 ±0.76 mm)	0.2046 +0.0554 /-0.0700 in. (5.197 +1.407 /-1.778 mm)	0.1482 +0.300 /-0.0982 in. (3.764 +7.620 /-2.495 mm)	0.020 ±0.015 in. (0.508 ±0.381 mm)	0.015 ±0.015 in. (0.381 ±0.381 mm)	0.03 ±0.03 in. (0.76 ±0.76 mm)
ARO ALL					

SUBTASK 27-51-21-820-003

(7) If the clearance between the flap and the upper panel is not in the limit of Dimension C (Table 501), adjust the inboard auxiliary support carriage [31] (View C):

(a) To get access to the inboard auxiliary support carriage [31], do this step:

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Remove this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

or open this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

(b) Loosen the nut [34] to disengage the washer [33] that holds the auxiliary support carriage [31].

(c) Turn the eccentric bearing [32] to adjust the position of the auxiliary support carriage [31].

(d) Engage the washer [33] with the eccentric bearing [32].

(e) Tighten the nut [34] to 1800-2200 pound-inches.

(f) Make sure the clearance between the top surface of the outboard flap [1] and the upper panel is in the limits.

(g) Close access below the auxiliary support carriage [31], do this step:

Install this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

or close this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-21-220-004

(8) At the outboard end of the outboard flap [1], measure the clearance between the top surface of the flap and the lower surface of the upper panel:

(a) Manually push up on the lower surface of the outboard flap [1] near the outboard auxiliary carriage [35] until the two lower rollers touch the auxiliary track (View E).

(b) Measure the clearance between the top surface of the flap and the lower surface of the upper panel (View B-B, Dimension D) (Table 501).

SUBTASK 27-51-21-820-004

(9) If the clearance between the flap and the upper panel is not in the limit of Dimension D, adjust the outboard auxiliary support carriage [35] (View E): (Table 501)

(a) Do this task: Outboard Auxiliary Support Fairing Removal, TASK 27-51-28-000-802.

(b) Loosen the nut [37] to disengage the nut [37] that holds the auxiliary support carriage [35].

(c) Turn the eccentric bearing [38] to adjust the position of the auxiliary support carriage [35].

(d) Engage the washer [36] with the eccentric bearing [38].

(e) Tighten the nut [37] to 550-700 pound-inches.

(f) Make sure the clearance between the top surface of the outboard flap [1] and the upper panel is in the limits.

(g) Do this task: Outboard Auxiliary Support Fairing Installation, TASK 27-51-28-400-802.

SUBTASK 27-51-21-210-007

(10) Measure the clearance between the flap and the deflection control fitting (Figure 505):

NOTE: The clearance must be in the limits of Dimension E. (Table 501)

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(a) Extend the trailing edge flaps to get access to the deflection control fitting. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(b) Put clay, G02020 on the pad [51].

(c) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(e) Retract the trailing edge flaps to the UP position to compress the clay, G02020. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(f) Extend the trailing edge flaps to get access to the deflection control fitting. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-21-820-005

(11) If the thickness of the clay, G02020 is not Dimension E, adjust the thickness of the spacers [53] for the deflection control fitting: (Table 501)

(a) Remove the bolts [52] and remove the spacers [53] from the pad [51].

(b) Change the thickness of the spacers [53] to get the clearance in the tolerance.

NOTE: The maximum thickness of the spacers [53] is 0.315 inch.

(c) Apply sealant, A00247 to the spacers [53] and the bolts [52].

(d) Install the bolts [52] to attach the spacers [53] and pad [51] to the deflection control fitting.

SUBTASK 27-51-21-440-004

(12) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-21-860-011

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(13) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-21-860-010

(14) Retract the trailing edge flap to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-21-860-012

(15) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-21-040-004

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(16) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-21-220-005

(17) Do a check of the clearances between the flap and the outboard spoilers. To do the check, do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802.

SUBTASK 27-51-21-220-006

(18) Make sure the mismatch between the fixed lower panels and the lower surface of the outboard flap [1] is Dimension F. (Table 501) (Figure 505)

SUBTASK 27-51-21-820-006

(19) If the mismatch is not in the tolerance, adjust the links for the lower panels (Figure 506):

(a) Extend the trailing edge flaps to get access to the links for the fixed lower panels. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(b) Adjust the applicable links [74] for the trailing edge panels [75]:

1) Remove the nut [77], washer [78], washer [79], washer [80] and bolt [81] that attach the clevis [82] to the trailing edge panel [75].

2) Loosen the nuts [76] and adjust the length of the links [74].

NOTE: Make sure you can see the threads through the inspection hole in the links.

3) Install the bolt [81], washer [78], washer [79], washer [80] and nut [77] to attach the clevis [82] to the trailing edge panel [75].

4) Tighten the nut [77].

5) Tighten the nuts [76] on the links [74].

(c) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(d) Make sure the mismatch between the fixed lower panels and the lower surface of the outboard flap [1] is Dimension F. (Table 501) (Figure 505):

SUBTASK 27-51-21-980-002

CAUTION DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

(20) Use the manual drive on the position sensor gearbox to extend the flaps six turns of the torque tubes (Figure 501):

NOTE: The maximum torque necessary to turn the drive system in the extend direction is 620 pound-inches.

SUBTASK 27-51-21-220-007

(21) Measure the clearance between the leading edge of the outboard flap [1] and the seals [73] on the lower panels (View A-A, Dimension G) (Table 501) (Figure 506).

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SUBTASK 27-51-21-820-007

(22) If the clearances are not in the limit of Dimension G, adjust the position of the seals [73]: (Table 501)

(a) Extend the flaps to get access to the seal retainers [72]. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(b) Loosen the nuts [71] that attach the seal retainers [72] to the lower panel.

(c) Move the seal retainer [72] to adjust the clearance between the seal [73] and the outboard flap [1].

(d) Tighten the nuts [71].

(e) Use the manual drive on the position sensor gearbox to retract the flaps until the ballscrew nuts touch (Figure 501).

(f) Use the manual drive on the position sensor gearbox to extend the flaps ten turns of the torque tubes.

NOTE: This will extend the flaps six torque tube turns from the UP position.

(g) Make sure the clearances between the seals and the flap are in the limit of Dimension G (Table 501) (Figure 506).

(h) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-21-410-005

(23) Install the coverplate on the manual drive on the position sensor gearbox (Figure 501).

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-21-440-005

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

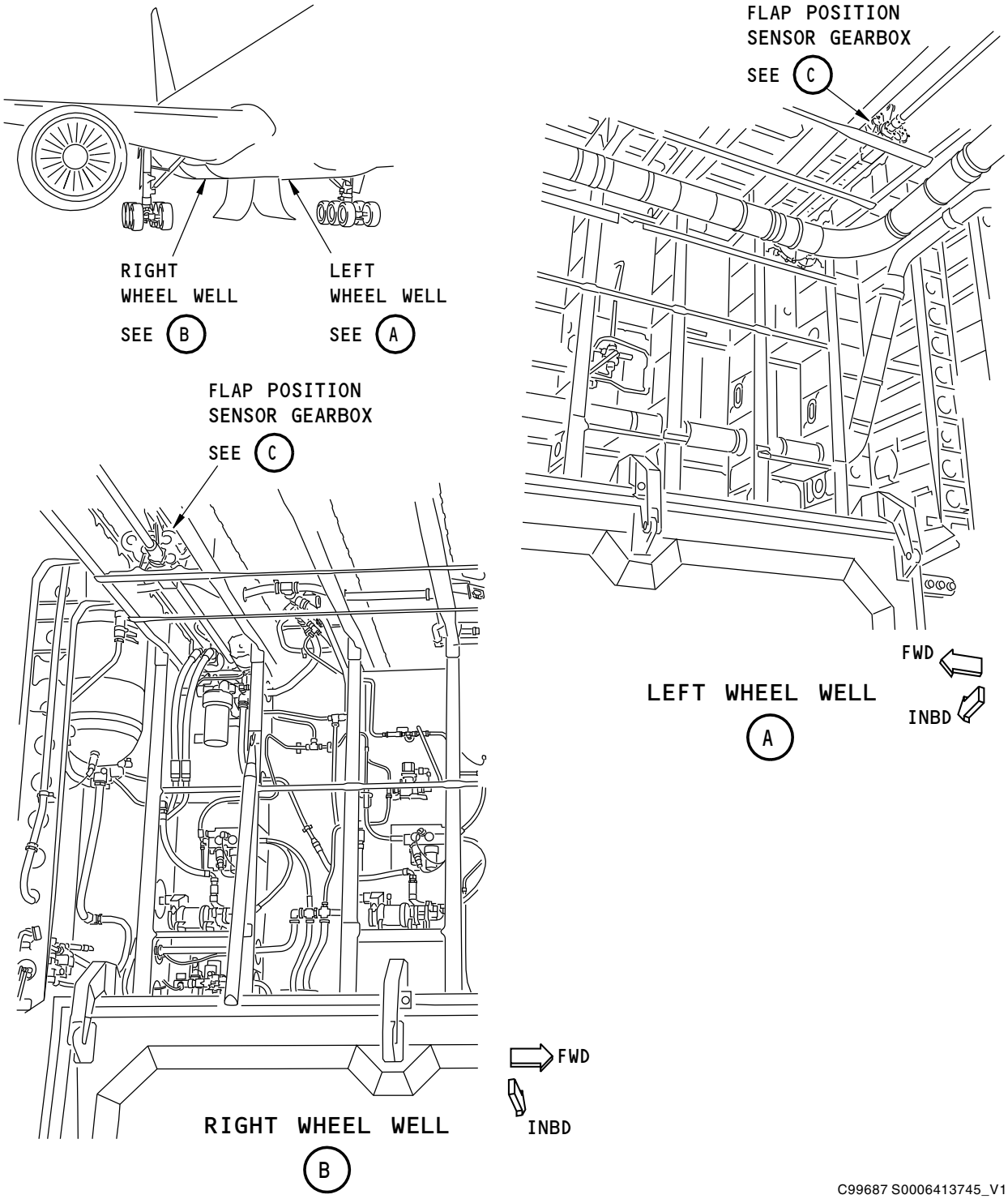
SUBTASK 27-51-21-080-002

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

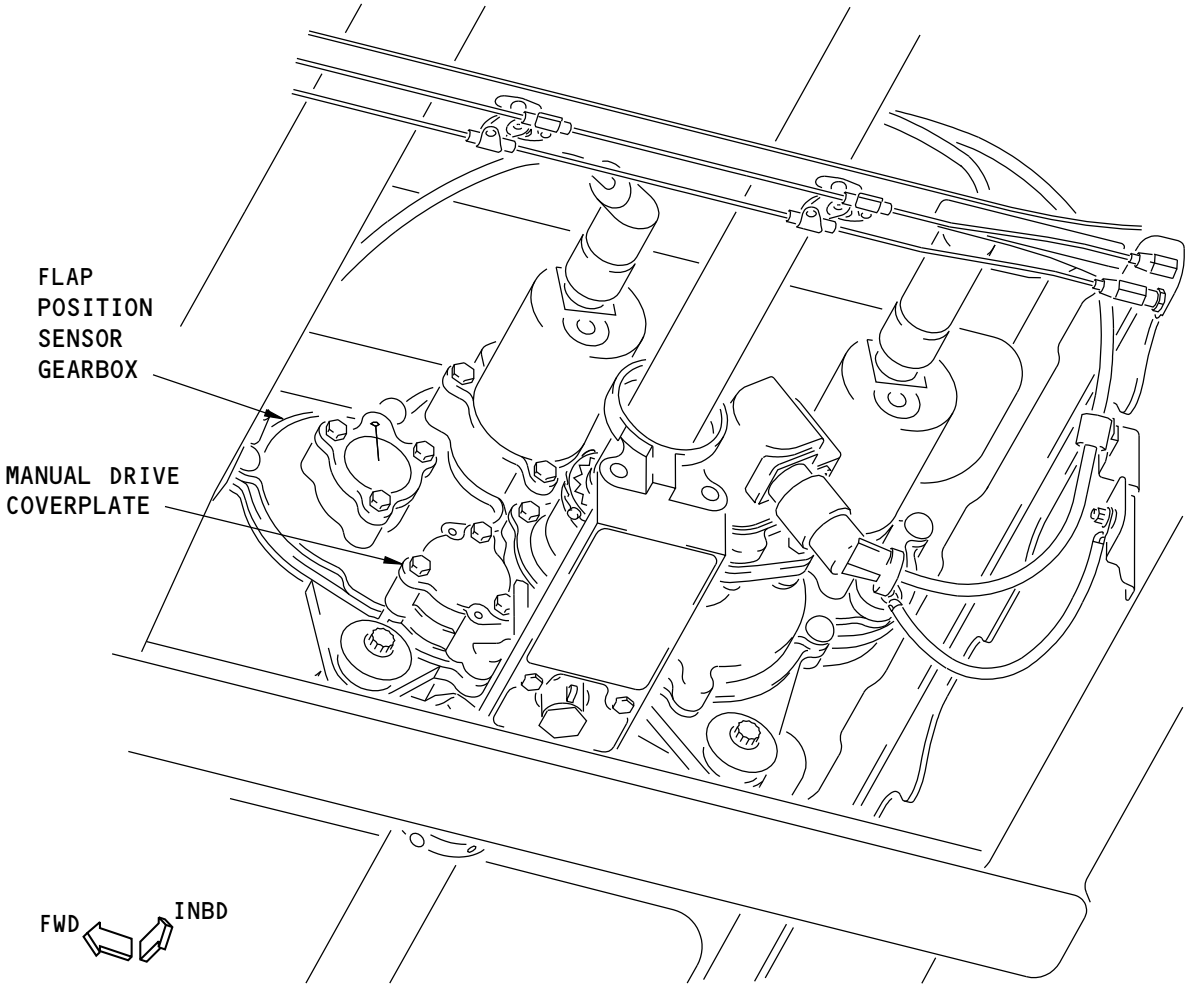
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C99687 S0006413745_V1

Trailing Edge Flap System Manual Operation
Figure 501/27-51-21-990-803 (Sheet 1 of 3)

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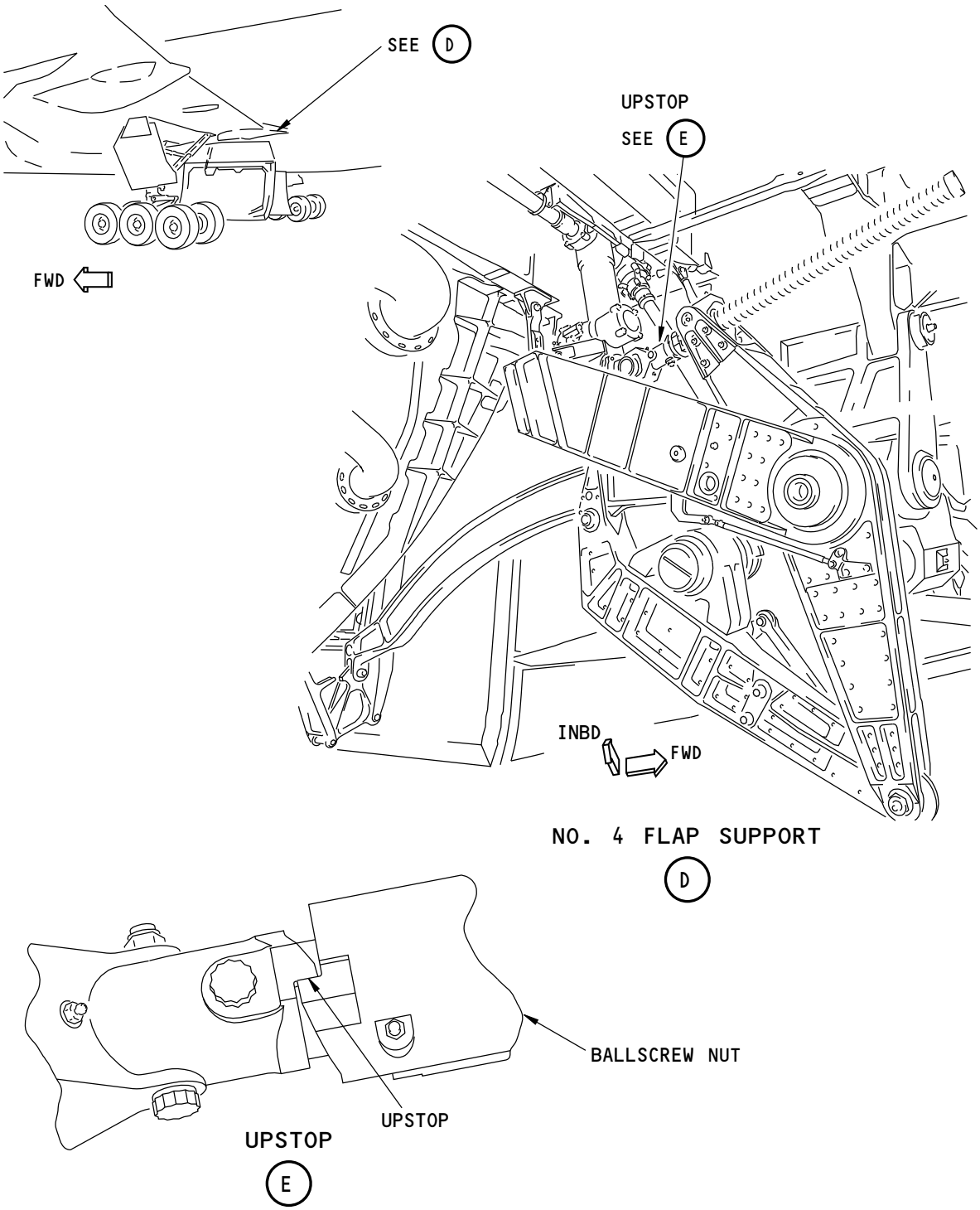
FLAP POSITION SENSOR GEARBOX
(RIGHT GEARBOX SHOWN, LEFT GEARBOX EQUIVALENT)

C

C99689 S0006413746_V1

Trailing Edge Flap System Manual Operation
Figure 501/27-51-21-990-803 (Sheet 2 of 3)

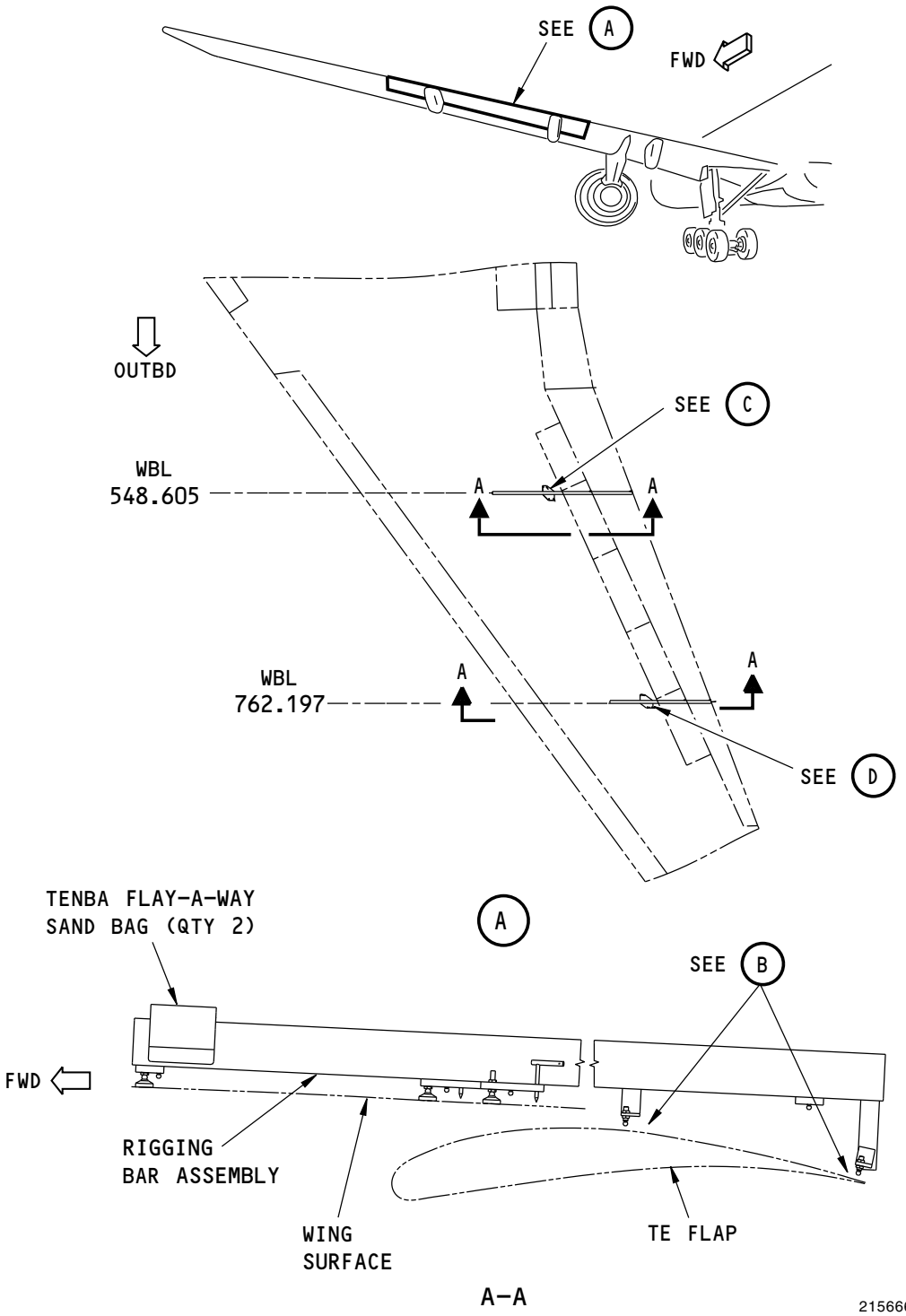
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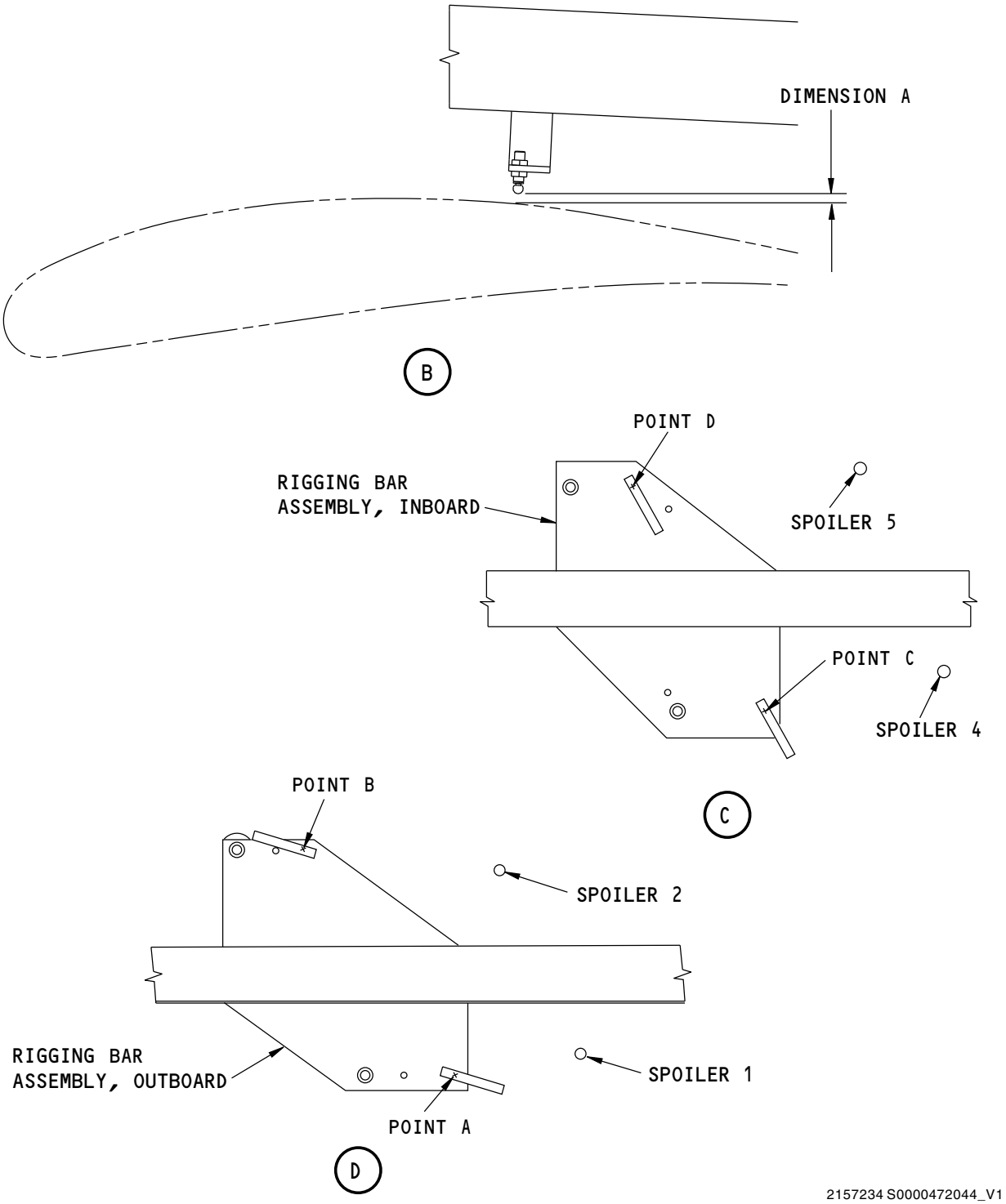
Trailing Edge Flap System Manual Operation
Figure 501/27-51-21-990-803 (Sheet 3 of 3)

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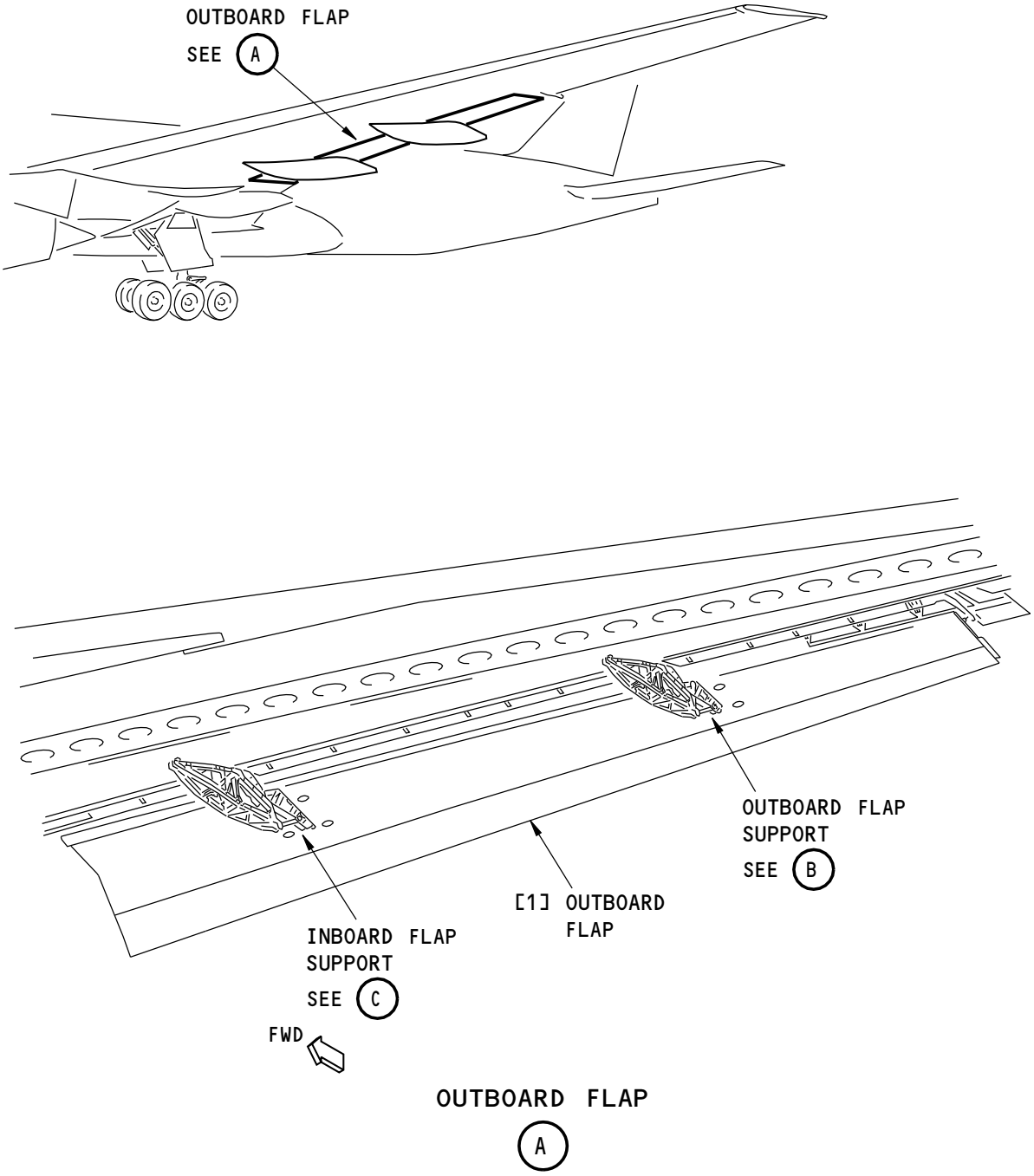
Outboard Trailing Edge Flap Rigging Bar
Figure 502/27-51-21-990-814 (Sheet 1 of 2)

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Outboard Trailing Edge Flap Rigging Bar
Figure 502/27-51-21-990-814 (Sheet 2 of 2)

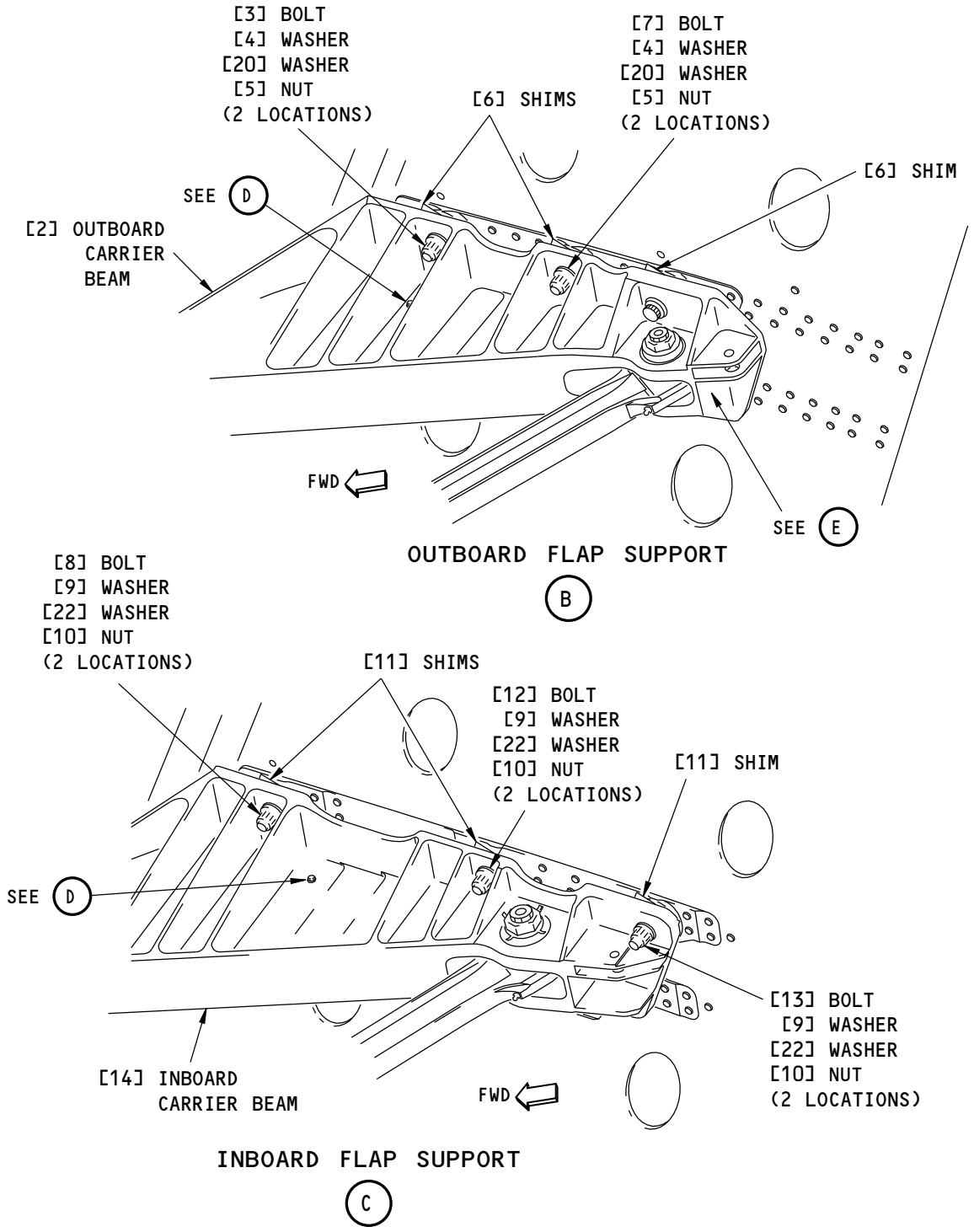
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C99694 S0006413751_V1

Outboard Flap Shim Replacement
Figure 503/27-51-21-990-805 (Sheet 1 of 3)

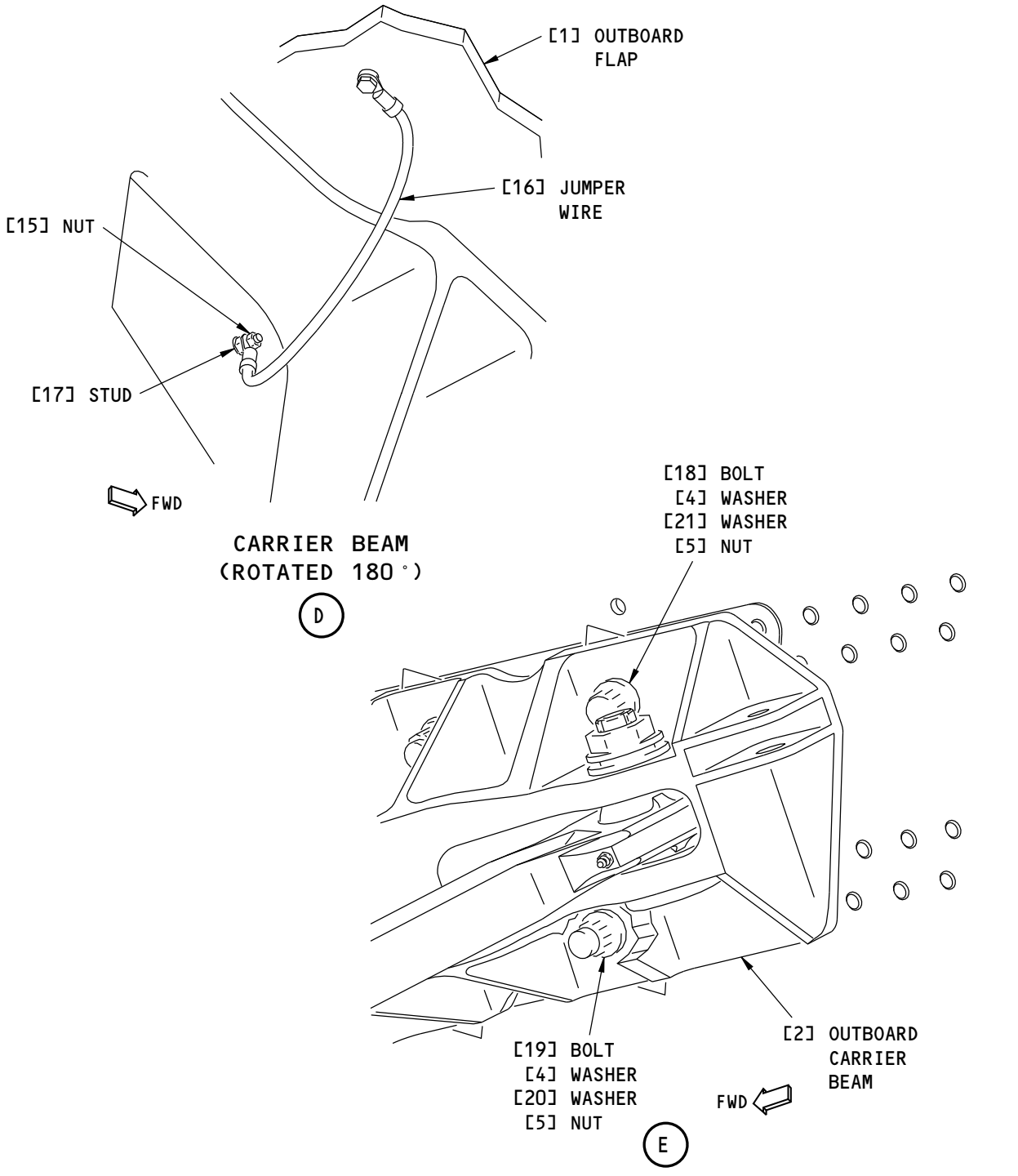
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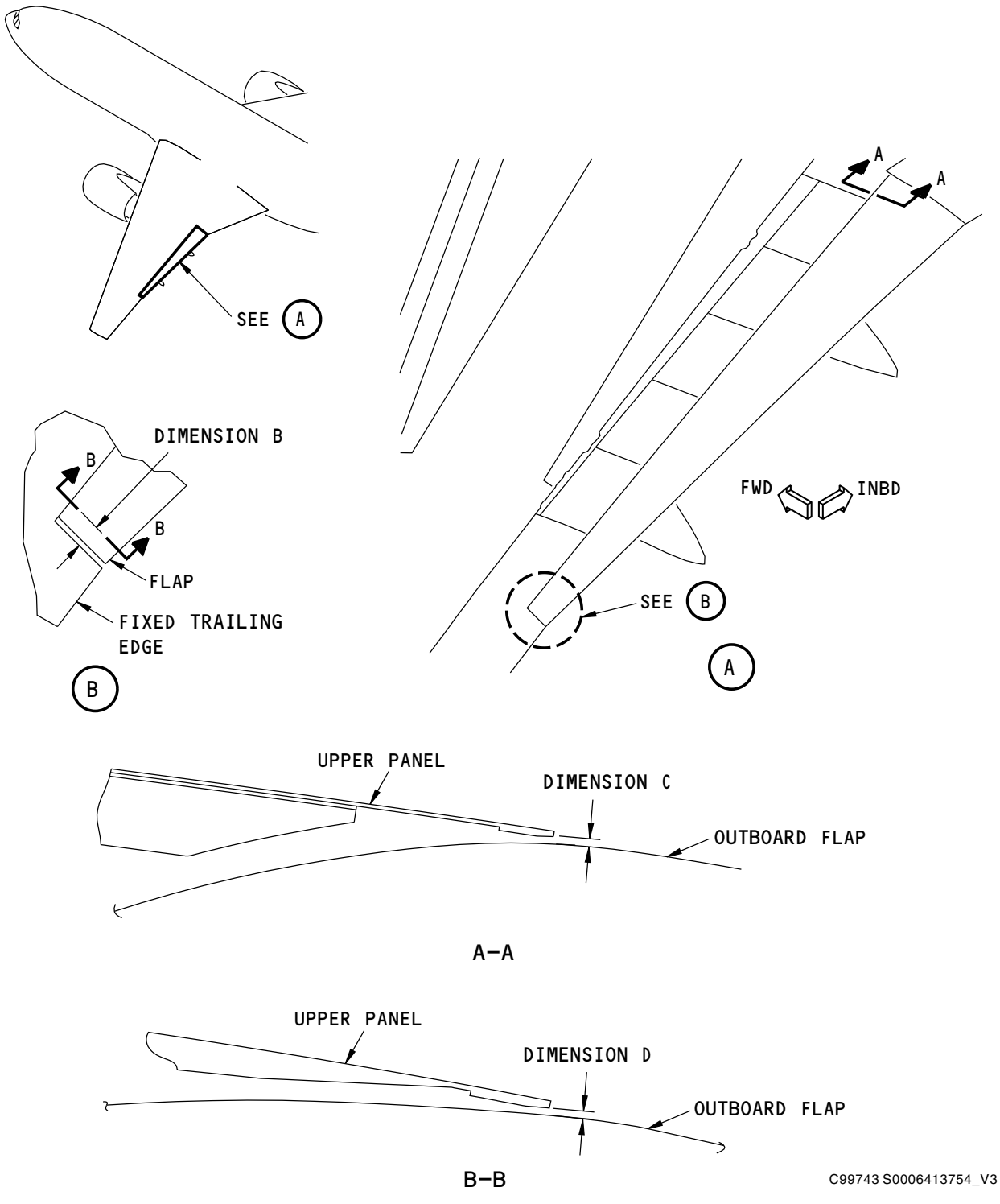
Outboard Flap Shim Replacement
Figure 503/27-51-21-990-805 (Sheet 2 of 3)

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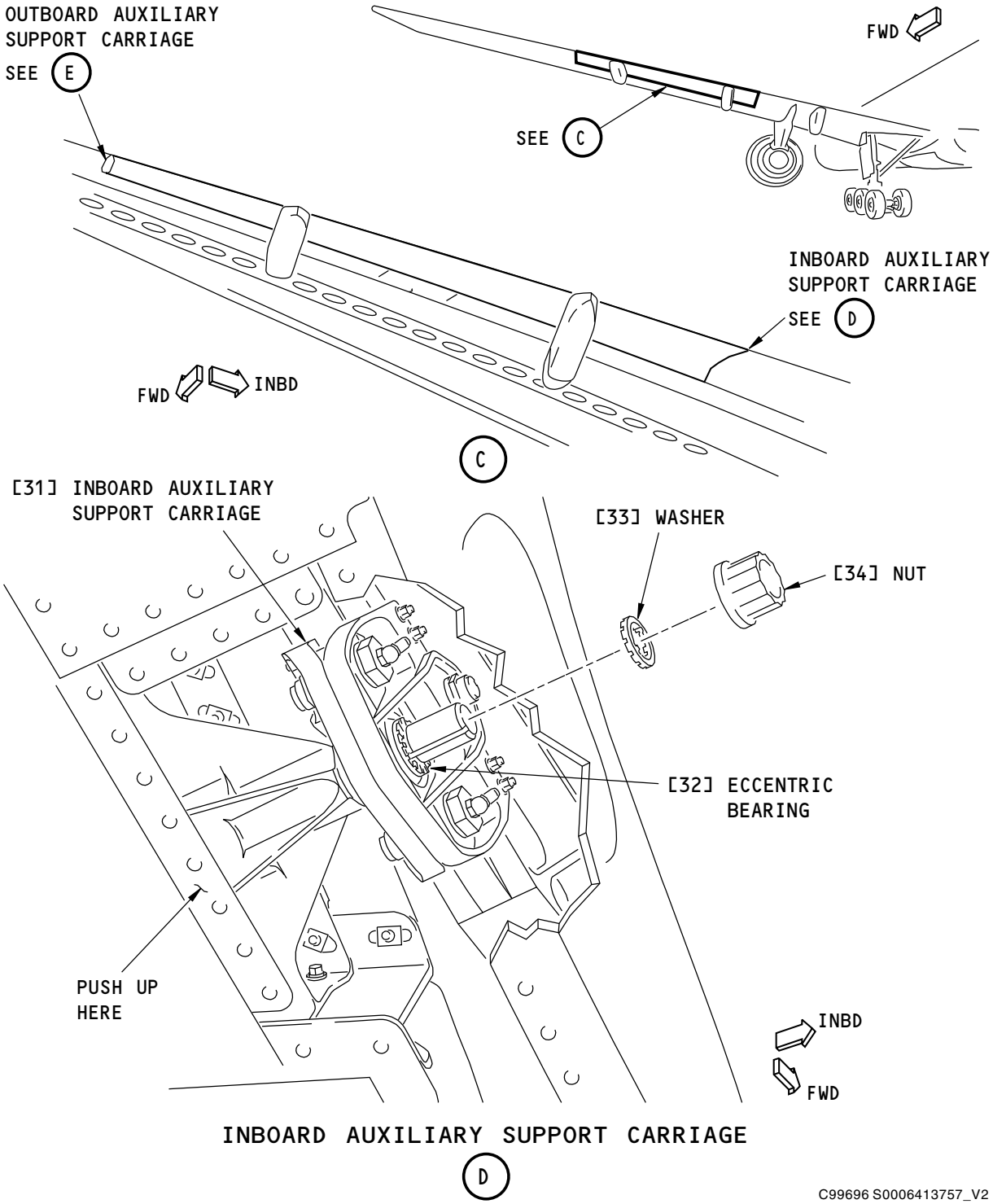
Outboard Flap Shim Replacement
Figure 503/27-51-21-990-805 (Sheet 3 of 3)

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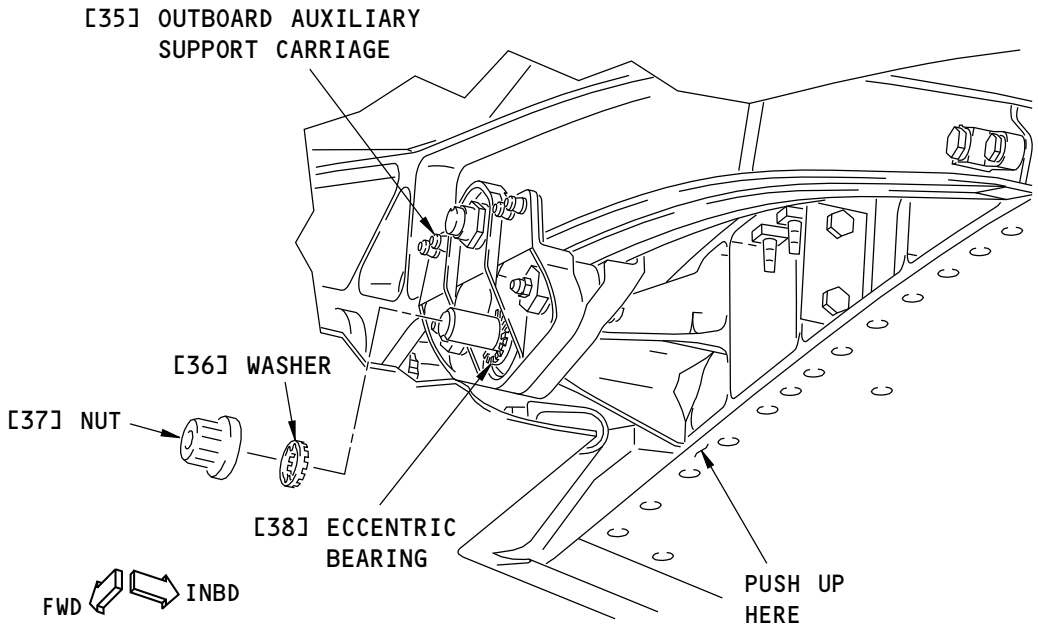
Outboard Flap Auxiliary Support Adjustment
Figure 504/27-51-21-990-806 (Sheet 1 of 3)

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Outboard Flap Auxiliary Support Adjustment
Figure 504/27-51-21-990-806 (Sheet 2 of 3)

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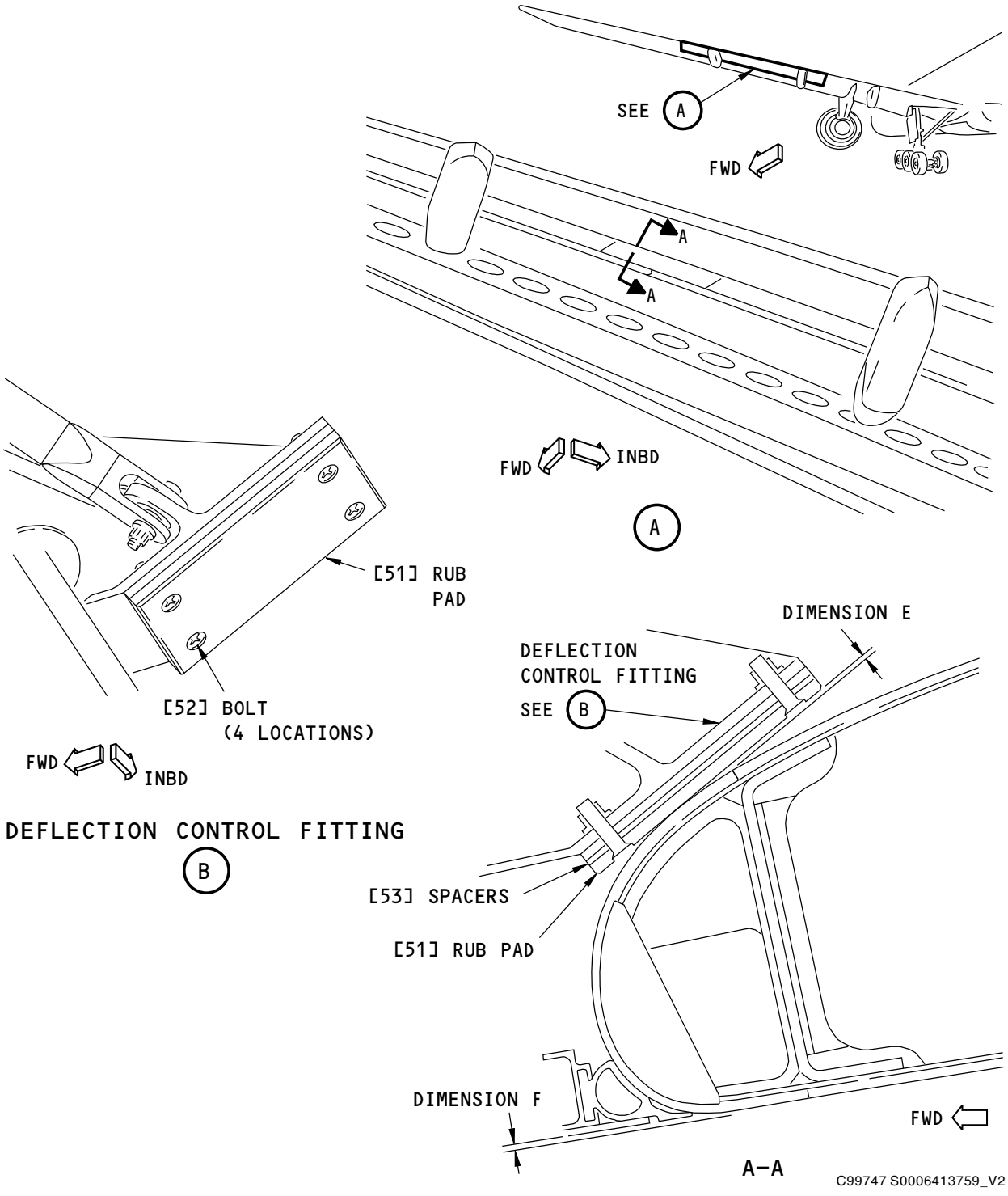
OUTBOARD AUXILIARY SUPPORT CARRIAGE

E

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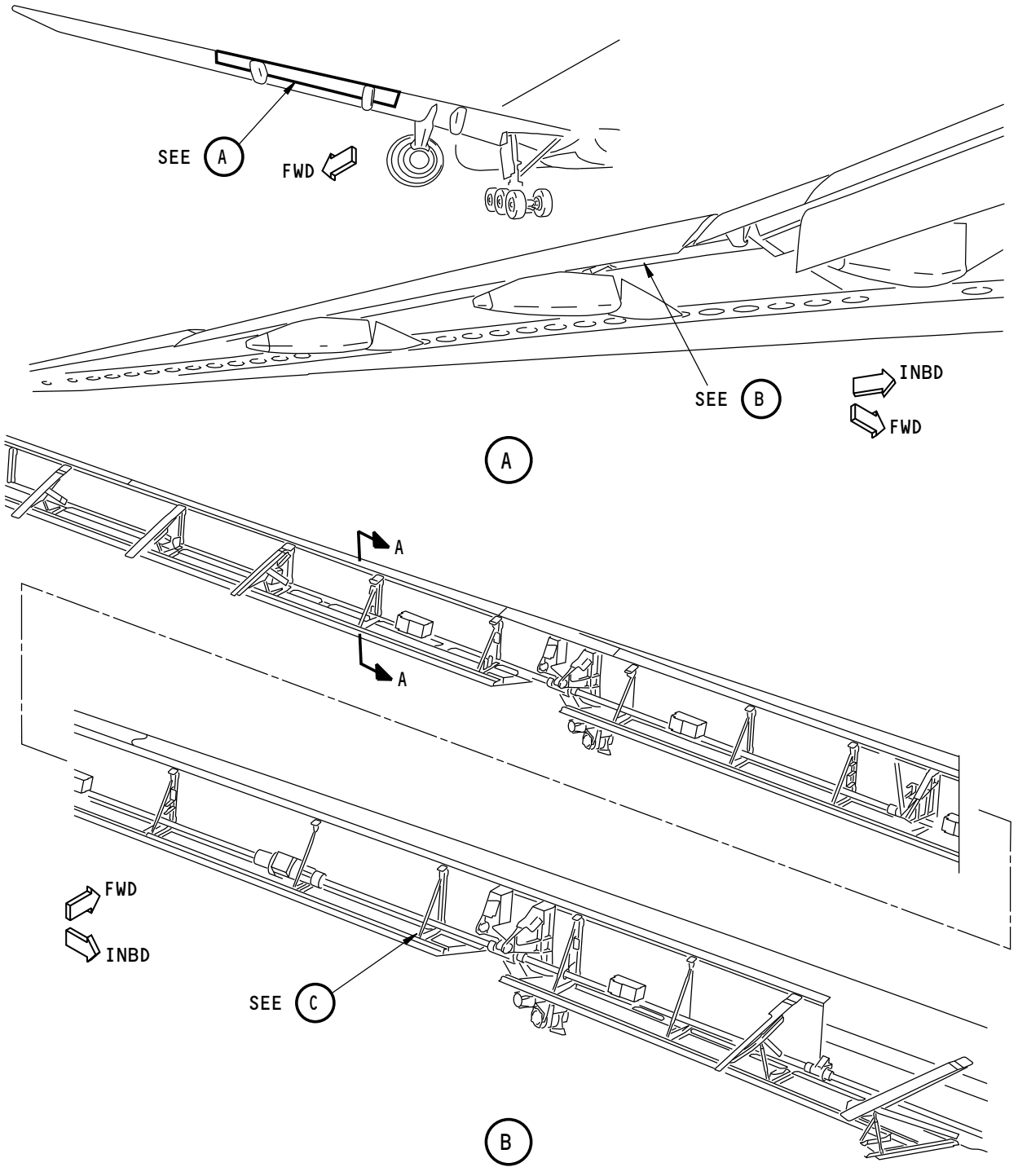
Outboard Flap Auxiliary Support Adjustment
Figure 504/27-51-21-990-806 (Sheet 3 of 3)

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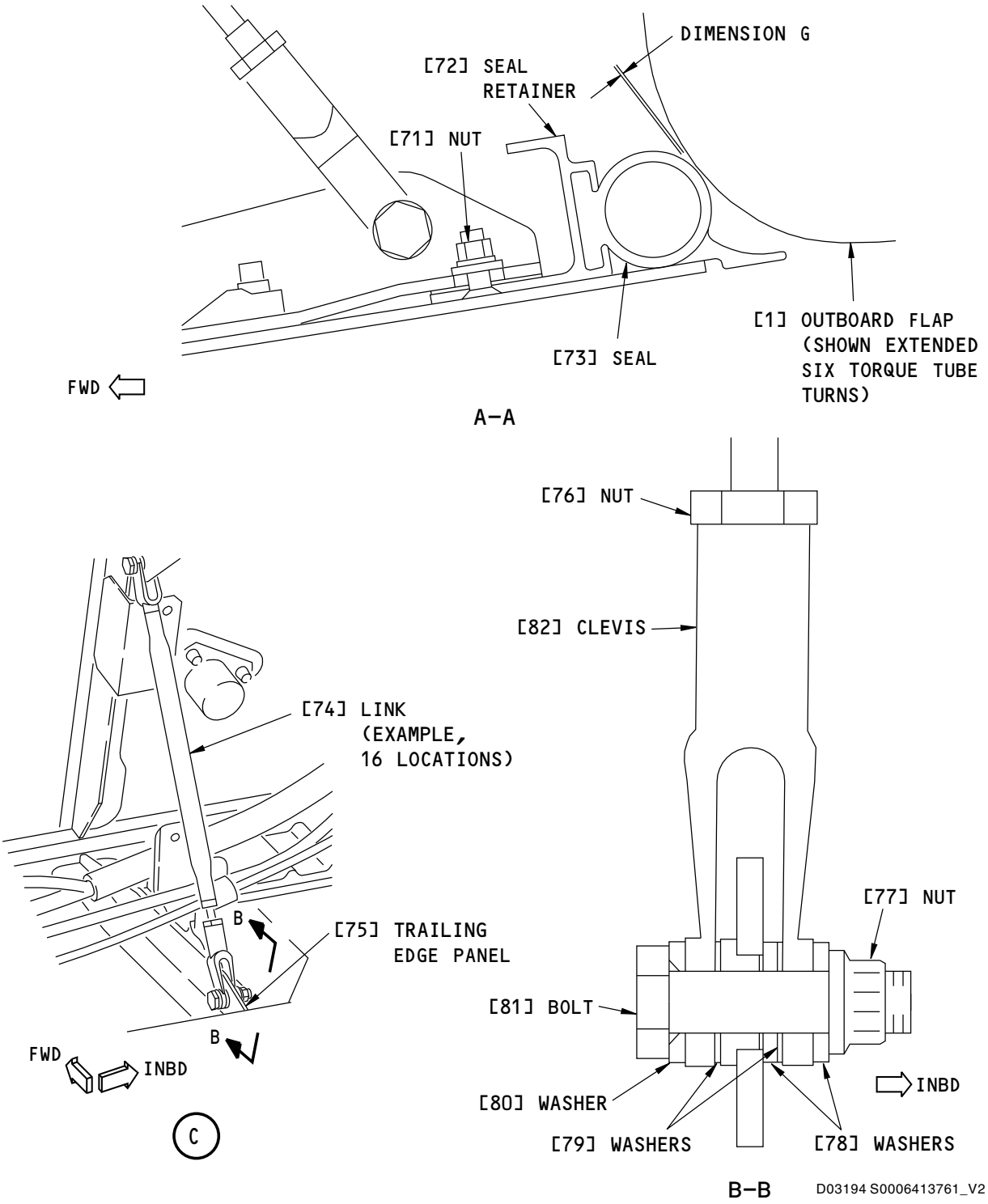
Outboard Flap Deflection Control Adjustment
Figure 505/27-51-21-990-807

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Outboard Flap Lower Panel Adjustment
Figure 506/27-51-21-990-808 (Sheet 1 of 2)

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Outboard Flap Lower Panel Adjustment
Figure 506/27-51-21-990-808 (Sheet 2 of 2)

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OUTBOARD TRAILING EDGE FLAP - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has a task to inspect the fasteners that attach the outboard flap to the flap supports.

C. The inspection does a check of the torque preload on the fasteners.

TASK 27-51-21-200-801

2. Outboard Trailing Edge Flap Attach Fastener Inspection

(Figure 601)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-040-802	Spoiler Deactivation (With the Spoilers Up) (P/B 201)
27-61-00-440-801	Spoiler Activation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Bolt	27-51-21-01A-050	ARO ALL
		27-51-21-01A-055	ARO 001-003, 005-010
		27-51-21-01A-060	ARO 001-010
		27-51-21-01A-065	ARO ALL
		27-51-21-01A-070	ARO ALL
		27-51-21-01A-080	ARO ALL
		27-51-21-01A-085	ARO 001-003, 005-010
		27-51-21-01A-090	ARO ALL
		27-51-21-01A-095	ARO ALL
		27-51-21-01A-100	ARO ALL
		27-51-21-01A-140	ARO ALL
		27-51-21-01A-145	ARO ALL
		27-51-21-01A-150	ARO ALL
		27-51-21-01A-155	ARO ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
3 (cont.)		27-51-21-01A-160	ARO ALL
		27-51-21-01A-180	ARO ALL
		27-51-21-01A-185	ARO ALL
		27-51-21-01A-190	ARO ALL
		27-51-21-01A-195	ARO ALL
		27-51-21-01A-200	ARO ALL
5	Bolt	27-51-21-01A-500	ARO ALL
		27-51-21-01A-505	ARO ALL
		27-51-21-01A-510	ARO ALL
		27-51-21-01A-515	ARO ALL
		27-51-21-01A-530	ARO ALL
		27-51-21-01A-535	ARO ALL
		27-51-21-01A-540	ARO ALL
		27-51-21-01A-545	ARO ALL
		27-51-21-01A-560	ARO ALL
		27-51-21-01A-565	ARO ALL
		27-51-21-01A-570	ARO ALL
		27-51-21-01A-575	ARO ALL
		27-51-21-01A-590	ARO ALL
		27-51-21-01A-595	ARO ALL
		27-51-21-01A-600	ARO ALL
		27-51-21-01A-605	ARO ALL
		27-51-21-01A-620	ARO ALL
		27-51-21-01A-625	ARO ALL
		27-51-21-01A-630	ARO ALL
		27-51-21-01A-635	ARO ALL
		27-51-21-01A-650	ARO ALL
		27-51-21-01A-655	ARO ALL
		27-51-21-01A-660	ARO ALL
		27-51-21-01A-665	ARO ALL
8	Bolt	27-51-21-01A-110	ARO ALL
		27-51-21-01A-115	ARO 001-003, 005-010
		27-51-21-01A-120	ARO ALL
		27-51-21-01A-125	ARO ALL
		27-51-21-01A-130	ARO ALL
		27-51-21-01A-210	ARO ALL
		27-51-21-01A-215	ARO ALL
		27-51-21-01A-220	ARO ALL
		27-51-21-01A-225	ARO ALL
		27-51-21-01A-230	ARO ALL

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D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

E. Access Panels

Number	Name/Location
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

F. Prepare for the Inspection

SUBTASK 27-51-21-860-014

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-21-860-015

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-21-210-009

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

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SUBTASK 27-51-21-210-010

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-21-860-016

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-21-040-005

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-21-040-006

(7) Extend the outboard spoilers 1 thru 5 (left wing) or 10 thru 14 (right wing) and install the locks on the spoiler actuators. To extend and lock the spoilers, do this task: Spoiler Deactivation (With the Spoilers Up), TASK 27-61-00-040-802.

SUBTASK 27-51-21-860-017

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-21-010-004

(9) Remove the access panels from the lower surface of the outboard flap [1]:

(a) To gain access on the left wing and from the lower surface of the flap , do this step (TASK 06-30-00-800-806):

Open these access panels:

Number	Name/Location
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel

(b) To gain access on the right wing and from the lower surface of the flap , do this step (TASK 06-30-00-800-807):

Open these access panels:

Number	Name/Location
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel

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(Continued)

Number	Name/Location
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

G. Outboard Trailing Edge Flap Fastener Inspection

SUBTASK 27-51-21-280-001

(1) Inspect the fasteners on the outboard support beam:

(a) Hold the head of the bolts [3] and apply a torque of 1125 in-lb (127 N·m) - 1250 in-lb (141 N·m) to the nuts [4].

1) Make sure the nuts [4] do not turn.

(b) Hold the nut [9] and apply a torque of 1377 in-lb (156 N·m) - 1530 in-lb (173 N·m) to the bolt [8].

1) Make sure the bolts [8] do not turn.

(c) Tighten the nuts [4] to 1250 in-lb (141 N·m) - 1450 in-lb (164 N·m).

(d) Tighten the bolt [8] to 1530 in-lb (173 N·m) - 1870 in-lb (211 N·m).

(e) Apply a torque of 507 in-lb (57 N·m) - 619 in-lb (70 N·m) to the heads of the bolts [3], and make sure the bolts [3] do not turn.

(f) Apply a torque of 507 in-lb (57 N·m) - 619 in-lb (70 N·m) to the heads of the bolts [8], and make sure the bolts [8] do not turn.

(g) If any of the bolts [3], or bolts [8] turn, replace the all of the flap attach bolts on the outboard carrier beam [2].

SUBTASK 27-51-21-280-003

(2) Inspect the fasteners on the inboard support beam:

(a) Hold the head of the bolts [5] and apply a torque of 2430 in-lb (275 N·m) - 2700 in-lb (305 N·m) to the nuts [6].

1) Make sure the nuts [6] do not turn.

(b) Tighten the nuts [6] to 2700 in-lb (305 N·m) - 2900 in-lb (328 N·m).

(c) Apply a torque of 1094 in-lb (124 N·m) - 1336 in-lb (151 N·m) to the nuts [6], and make sure the nuts [6] do not turn.

(d) If any of the bolts [5], or nuts [6] turn, replace the all of the flap attach bolts on the inboard carrier beam [7].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-21-410-006

(1) Install the access panels on the lower surface of the outboard flap [1]:

(a) To close access to the left wing and on the lower surface of the flap, do this step (TASK 06-30-00-800-806):

Install these access panels:

Number	Name/Location
567FB	Outboard Flap Lower Panel
567GB	Outboard Flap Lower Panel

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(Continued)

Number	Name/Location
567HB	Outboard Flap Lower Panel
567JB	Outboard Flap Lower Panel
567LB	Outboard Flap Lower Panel
567MB	Outboard Flap Lower Panel
567NB	Outboard Flap Lower Panel
567PB	Outboard Flap Lower Panel

(b) To close access to the right wing and on the lower surface of the flap, do this step (TASK 06-30-00-800-807):

On the right wing, install these access panels:

Number	Name/Location
667FB	Outboard Flap Lower Panel
667GB	Outboard Flap Lower Panel
667HB	Outboard Flap Lower Panel
667JB	Outboard Flap Lower Panel
667LB	Outboard Flap Lower Panel
667MB	Outboard Flap Lower Panel
667NB	Outboard Flap Lower Panel
667PB	Outboard Flap Lower Panel

(c) Apply corrosion preventive compound, C00308 to the fasteners for the panels.

SUBTASK 27-51-21-440-006

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-21-860-018

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-21-210-011

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-21-860-019

(5) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-21-440-007

(6) Remove the locks from the spoiler actuators and lower the outboard spoilers. To remove the locks, do this task: Spoiler Activation, TASK 27-61-00-440-801.

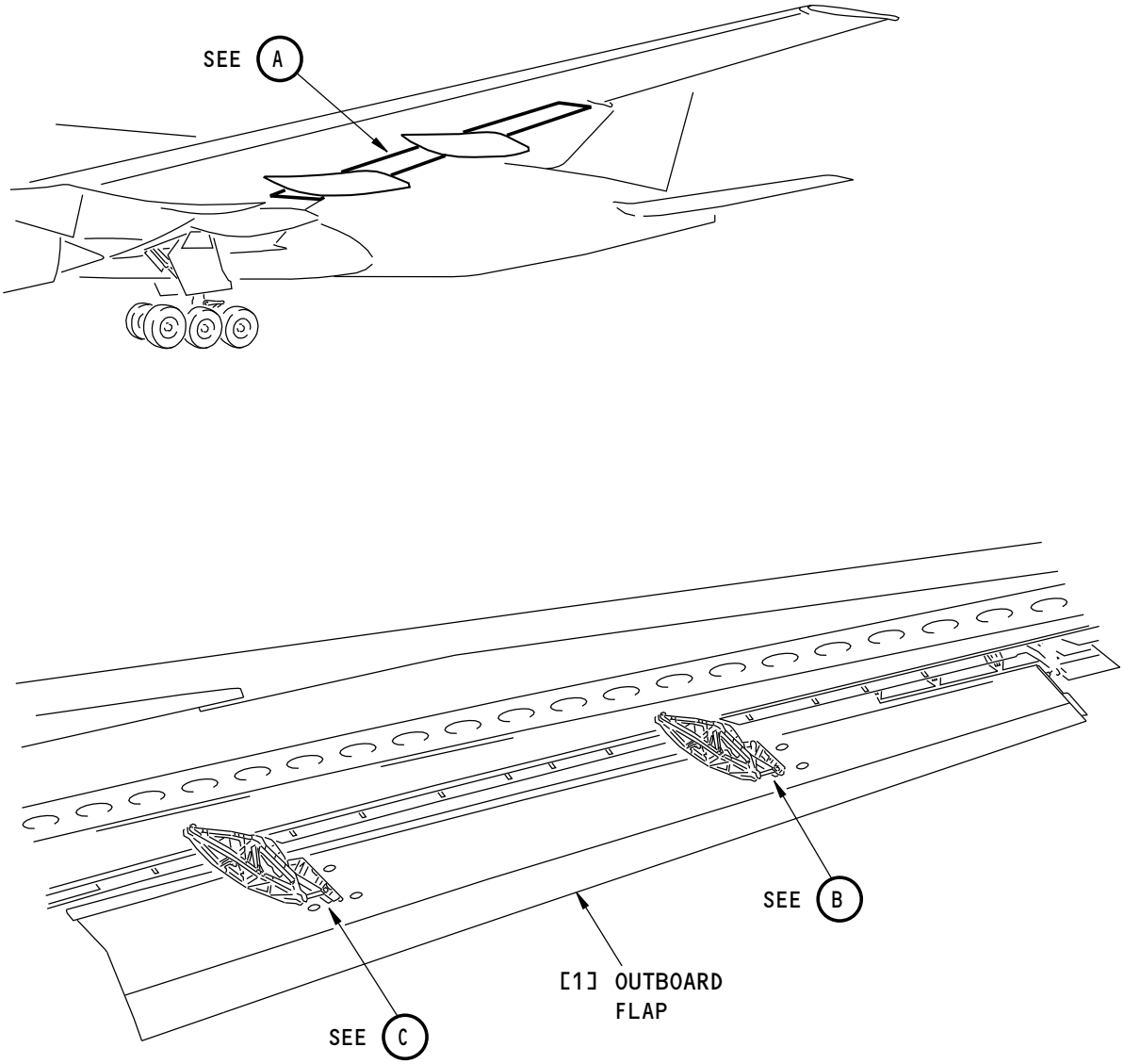
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SUBTASK 27-51-21-860-020

(7) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

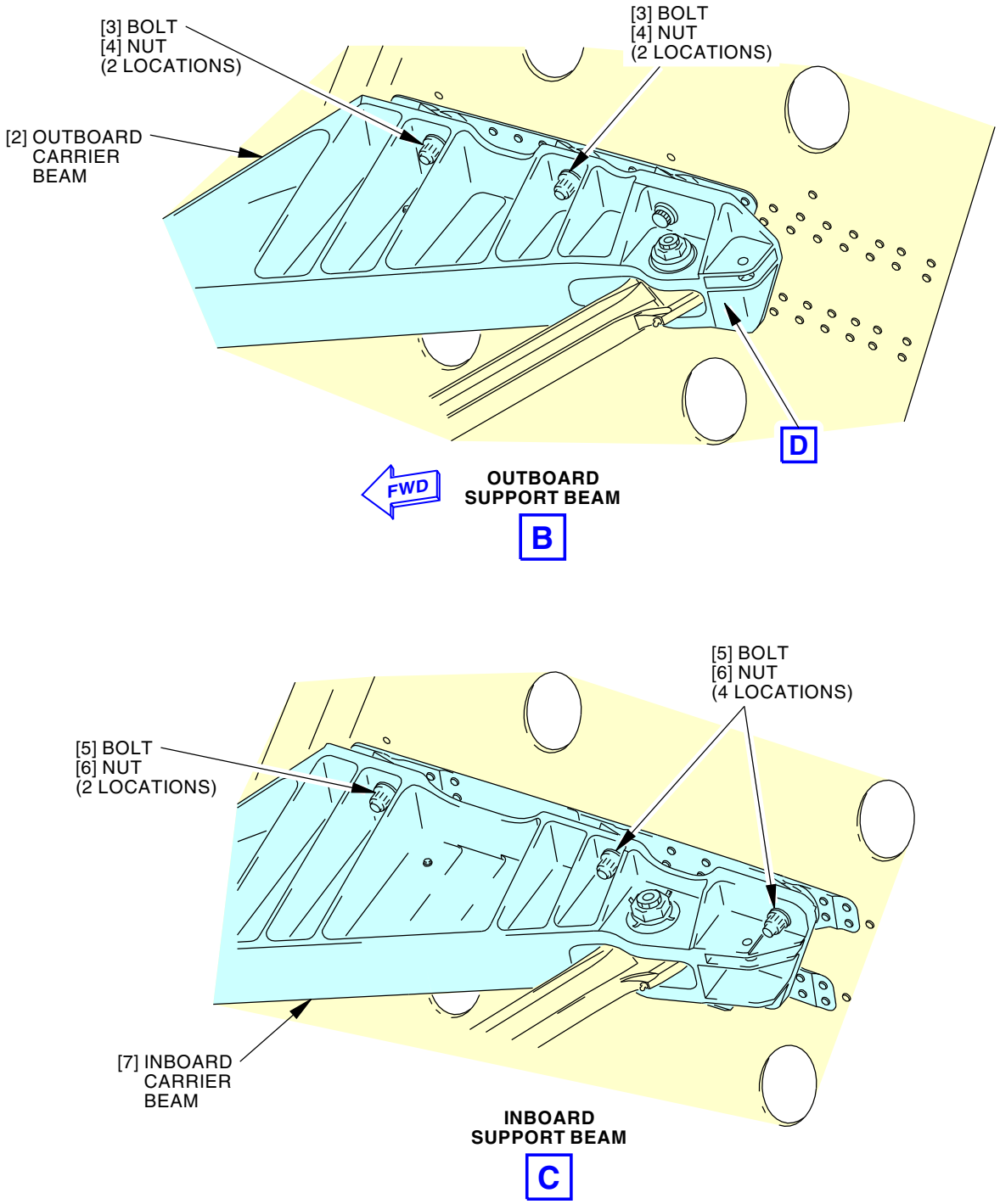
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Outboard Trailing Edge Flap Inspection
Figure 601/27-51-21-990-809 (Sheet 1 of 3)

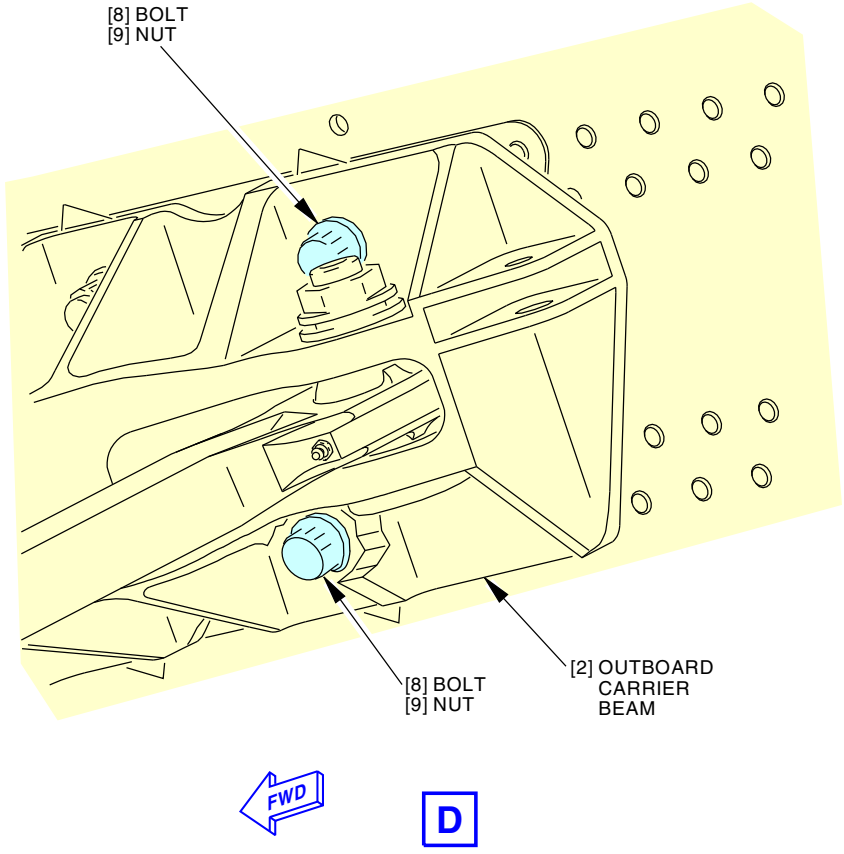
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Outboard Trailing Edge Flap Inspection
Figure 601/27-51-21-990-809 (Sheet 2 of 3)

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Outboard Trailing Edge Flap Inspection
Figure 601/27-51-21-990-809 (Sheet 3 of 3)

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TASK 27-51-21-211-801

3. Outboard Flap Support Bearing Freeplay Inspection

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-21-09-640-805	Outboard Flap Outboard Support Mechanism Lubrication (P/B 301)
12-21-09-640-811	Outboard Flap Inboard Support Mechanism Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-22-200-801	Outboard Flap Outboard Support Inspection (P/B 601)
27-51-22-200-802	Outboard Flap Inboard Support Inspection (P/B 601)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1698	Sling - Flap, Outboard Trailing Edge Part #: J27006-43 Supplier: 81205 Opt Part #: J27006-20 Supplier: 81205
STD-1238	Indicator - Dial
STD-6111	Load Measuring Device - 0-1000 lb Capacity, +/- 2% Accuracy

C. Consumable Materials

Reference	Description	Specification
G02485	Tape - Double Adhesive, 2-3/8 inches (60mm)	

D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

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E. Prepare for the Freeplay Inspection

SUBTASK 27-51-21-860-021

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-21-480-007

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-21-480-008

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the door safety pins are not installed on the main and nose landing gear doors, do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-21-860-022

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-21-210-013

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-21-210-014

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-21-860-023

(7) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-51-21-860-024

(8) For the left, right and center hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-21-480-009

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Outboard Flap Support #1 / #8 Bearing Freeplay Inspection

NOTE: The steps below apply to the left outboard trailing edge flap #1 support. The procedure also applies to the right outboard trailing edge flap #8 support. If the airline has four dial indicators, then do Method 1. If the airline does not have four dial indicators, then do Method 2.

SUBTASK 27-51-21-211-001

(1) Method 1:

Table 601/27-51-21-993-801 Outboard Trailing Edge Flap Bearing Freeplay Inspection

Flap Support	Pin	Fixture	Lifting Load	Freeplay
Outboard Flap Support #1	A	A	700 +100 / -0 lbf (3114 +445 / -0 N)	0.020 in. (0.508 mm)
	B	B		
	C	D		
	D	D		
Outboard Flap Support #8	A	A	700 +100 / -0 lbf (3114 +445 / -0 N)	0.020 in. (0.508 mm)
	B	B		
	C	D		
	D	D		
Outboard Flap Support #2	A	C	700 +100 / -0 lbf (3114 +445 / -0 N)	0.020 in. (0.508 mm)
	B	C		
	C	D		
	D	D		
Outboard Flap Support #7	A	C	700 +100 / -0 lbf (3114 +445 / -0 N)	0.020 in. (0.508 mm)
	B	C		
	C	D		
	D	D		

(a) Prepare to measure the freeplay at Pin A:

1) Attach the dial indicator, STD-1238, to the drive arm by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the drive arm (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

(b) Prepare to measure the freeplay at Pin B:

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1) Attach the dial indicator, STD-1238, to the carrier beam by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the carrier beam (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture B (Figure 602) and attach Fixture B to the carrier beam (Figure 604).
2) Adjust the dial indicator, STD-1238, to zero.

(c) Prepare to measure the freeplay at Pin C:
1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).
2) Use tape, G02485, to attach a 90 degree angle bracket to provide a rigid surface perpendicular to the load line (Figure 604).
3) Adjust the dial indicator, STD-1238, to zero.

(d) Prepare to measure the freeplay at Pin D:
1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).
2) Adjust the dial indicator, STD-1238, to zero.

(e) Measure the freeplay at Pins A, B, C and D:

CAUTION

DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

1) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.
   b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.
2) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pins A, B, C and D (Table 601).

(f) If any of the freeplay measurements at Pins A, B, C or D exceed 0.020 in. (0.508 mm), then do this task: Outboard Flap Outboard Support Inspection, TASK 27-51-22-200-801

SUBTASK 27-51-21-211-002

(2) Method 2:

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(a) Measure the freeplay at Pin A:

1) Attach the dial indicator, STD-1238, to the drive arm by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture A (Figure 602) and attach Fixture A to the drive arm (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

CAUTION

DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:

a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.

b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.

4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin A (Table 601).

(b) Measure the freeplay at Pin B:

1) Attach the dial indicator, STD-1238, to the carrier beam by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the carrier beam (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture B (Figure 602) and attach Fixture B to the carrier beam (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

CAUTION

DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:

a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.

b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.

4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin B (Table 601).

(c) Measure the freeplay at Pin C:

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1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).
2) Use tape, G02485, to attach a 90 degree angle bracket to provide a rigid surface perpendicular to the load line (Figure 604).
3) Adjust the dial indicator, STD-1238, to zero.

CAUTION DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

4) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.
   b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.
5) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin C (Table 601).

(d) Measure the freeplay at Pin D:
1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).
2) Adjust the dial indicator, STD-1238, to zero.

CAUTION DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.
   b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.
4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin D (Table 601).

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(e) If any of the freeplay measurements at Pins A, B, C or D exceed 0.020 in. (0.508 mm), do this task: Outboard Flap Outboard Support Inspection, TASK 27-51-22-200-801

G. Outboard Flap Support #2 / #7 Bearing Freeplay Inspection

NOTE: The steps below apply to the left outboard trailing edge flap #2 support. The procedure also applies to the right outboard trailing edge flap #7 support. If the airline has four dial indicators, then do Method 1. If the airline does not have four dial indicators, then do Method 2.

SUBTASK 27-51-21-211-003

(1) Method 1:

(a) Prepare to measure the freeplay at Pin A:

1) Attach the dial indicator, STD-1238, to the drive arm by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture C (Figure 602) and attach Fixture C to the drive arm (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

(b) Prepare to measure the freeplay at Pin B:

1) Attach the dial indicator, STD-1238, to the carrier beam by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the carrier beam (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture C (Figure 602) and attach Fixture C to the carrier beam (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

(c) Prepare to measure the freeplay at Pin C:

1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).

2) Use tape, G02485, to attach a 90 degree angle bracket to provide a rigid surface perpendicular to the load line (Figure 604).

3) Adjust the dial indicator, STD-1238, to zero.

(d) Prepare to measure the freeplay at Pin D:

1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

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(e) Measure the freeplay at Pins A, B, C and D:

CAUTION: DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

1) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.
   b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.
2) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pins A, B, C and D (Table 601).

(f) If any of the freeplay measurements at Pins A, B, C or D exceed 0.020 in. (0.508 mm), then do this task: Outboard Flap Inboard Support Inspection, TASK 27-51-22-200-802

SUBTASK 27-51-21-211-004

(2) Method 2:

(a) Measure the freeplay at Pin A:

1) Attach the dial indicator, STD-1238, to the drive arm by one of the following methods:
   a) Use tape, G02485, to attach the dial indicator, STD-1238, to the drive arm (Figure 604).
   b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture C (Figure 602) and attach Fixture C to the drive arm (Figure 604).
2) Adjust the dial indicator, STD-1238, to zero.

CAUTION: DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:
   a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.
   b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.
4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin A (Table 601).

(b) Measure the freeplay at Pin B:

1) Attach the dial indicator, STD-1238, to the carrier beam by one of the following methods:

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a) Use tape, G02485, to attach the dial indicator, STD-1238, to the carrier beam (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture C (Figure 602) and attach Fixture C to the carrier beam (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

CAUTION DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:

a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.

b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.

4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin B (Table 601).

(c) Measure the freeplay at Pin C:

1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:

a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).

2) Use tape, G02485, to attach a 90 degree angle bracket to provide a rigid surface perpendicular to the load line (Figure 604).

3) Adjust the dial indicator, STD-1238, to zero.

CAUTION DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

4) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:

a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.

b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.

5) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin C (Table 601).

(d) Measure the freeplay at Pin D:

1) Attach the dial indicator, STD-1238, to the pivot link by one of the following methods:

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a) Use tape, G02485, to attach the dial indicator, STD-1238, to the pivot link (Figure 604).

b) Use tape, G02485, to attach the dial indicator, STD-1238, to Fixture D (Figure 602) and attach Fixture D to the pivot link (Figure 604).

2) Adjust the dial indicator, STD-1238, to zero.

CAUTION

DO NOT LIFT THE FLAP WITH MORE THAN 800 LBF (3559 N) OF FORCE. APPLY THE FORCE VERTICALLY. IF YOU LIFT THE FLAP WITH TOO MUCH FORCE OR AT AN INCORRECT ANGLE, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Lift the outboard trailing edge flap with a vertical load of 700 +100 / -0 lbf (3114 +445 / -0 N) to remove freeplay from the bearings by one of these methods:

a) Manual Method: Use five airline personnel to lift the outboard trailing edge flap.

b) Mechanical Method: Install the outboard flap sling, SPL-1698, with the 0-1000 lb capacity, +/- 2% accuracy, load measuring device, STD-6111, at the aft GSE fitting only (Figure 603) and lift the outboard trailing edge flap.

4) Read the indication shown on the dial indicator, STD-1238, and record the freeplay at Pin D (Table 601).

(e) If any of the freeplay measurements at Pins A, B, C or D exceed 0.020 in. (0.508 mm), do this task: Outboard Flap Inboard Support Inspection, TASK 27-51-22-200-802

H. Post-Inspection Lubrication

SUBTASK 27-51-21-640-003

(1) Accomplish lubrication of the outboard trailing edge flap #1/#8 support per Outboard Flap Outboard Support Mechanism Lubrication, TASK 12-21-09-640-805.

SUBTASK 27-51-21-640-004

(2) Accomplish lubrication of the inboard trailing edge flap #2/#7 support per Outboard Flap Inboard Support Mechanism Lubrication, TASK 12-21-09-640-811.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-21-440-008

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-21-863-001

WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-21-981-001

(3) Retract the trailing edge flaps to the full up position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

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SUBTASK 27-51-21-860-025

(4) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-21-080-003

(5) Remove the door safety pins on the main and nose landing gear doors per Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-51-21-080-004

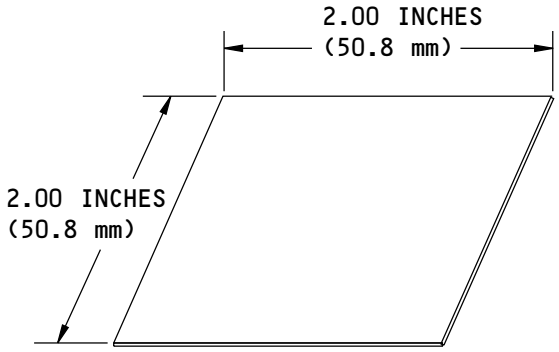
(6) Remove the downlock pins on the main and nose landing gear per Landing Gear Downlock Pins Removal, TASK 32-00-30-080-801.

SUBTASK 27-51-21-862-001

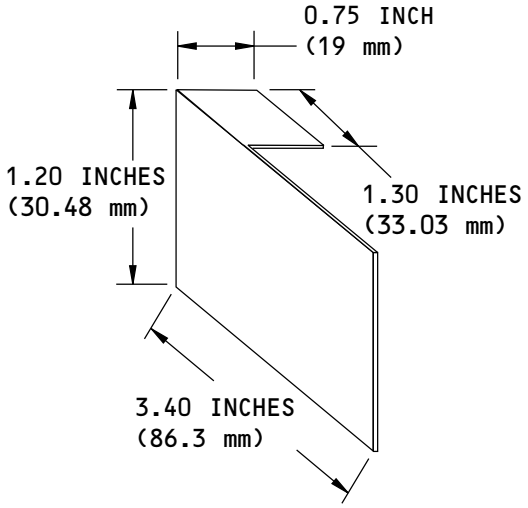
(7) Remove electrical power if it is not necessary Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

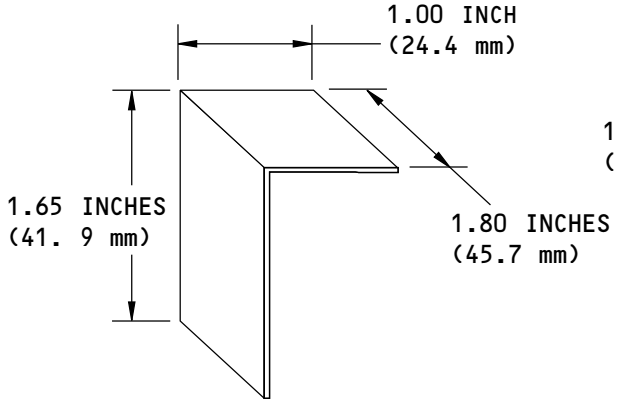
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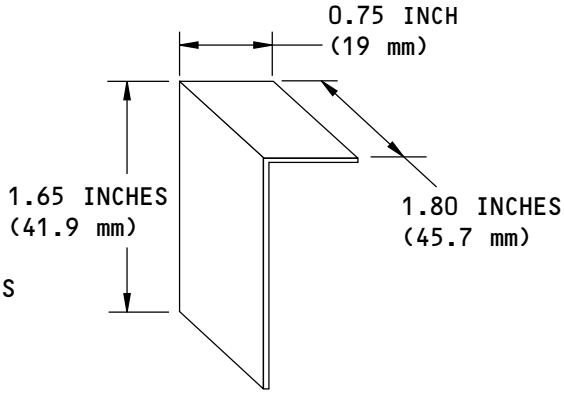
FIXTURE A



FIXTURE B



FIXTURE C



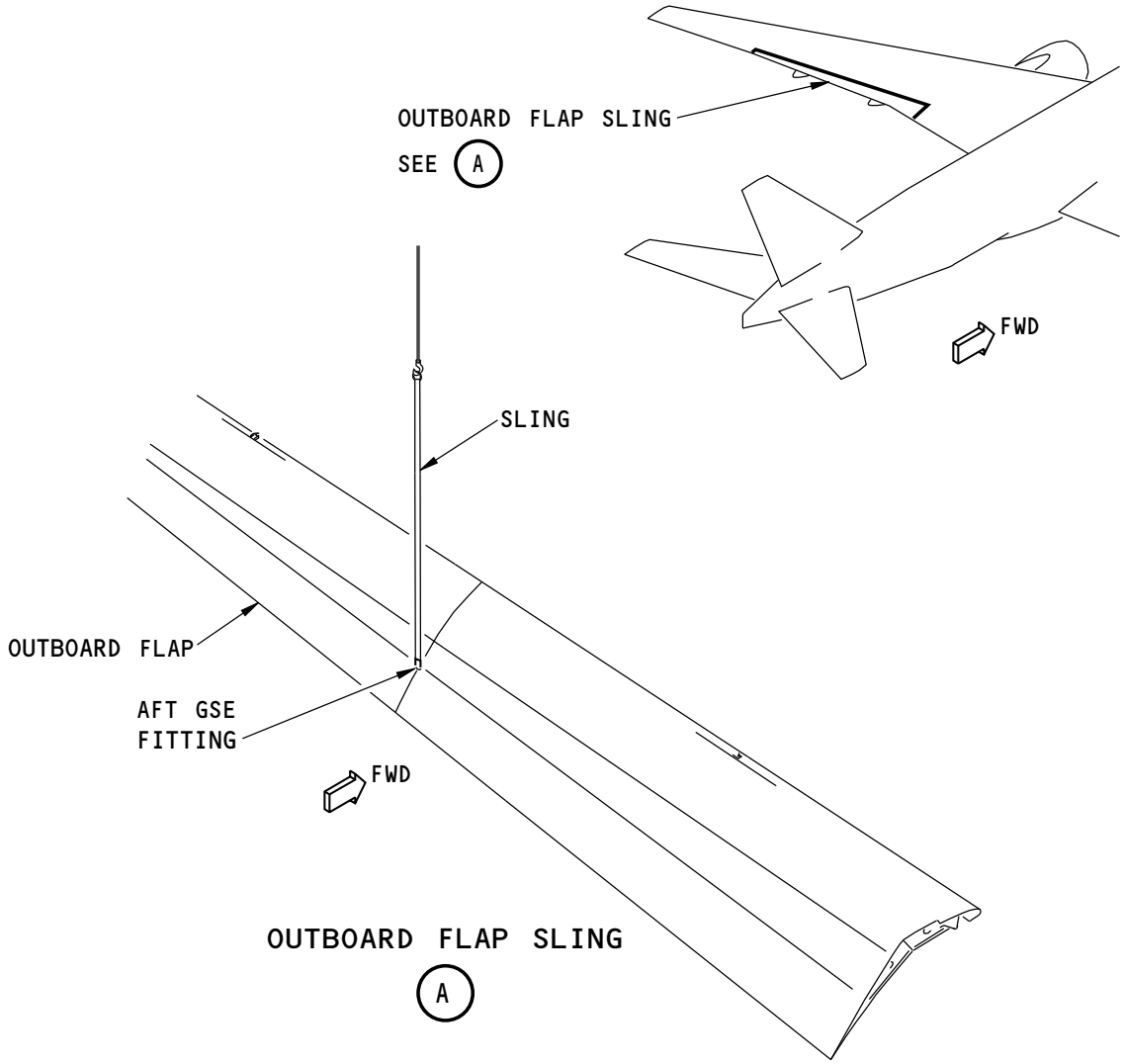
FIXTURE D

NOTE: SUGGESTED MATERIAL FOR THE FIXTURES IS ANY ALUMINUM ALLOY WITH A MINIMUM THICKNESS OF 0.080 INCH (2.03 mm).

486728 S0000144925_V3

Outboard Trailing Edge Flap Bearing Freeplay Inspection Fixtures
Figure 602/27-51-21-990-810

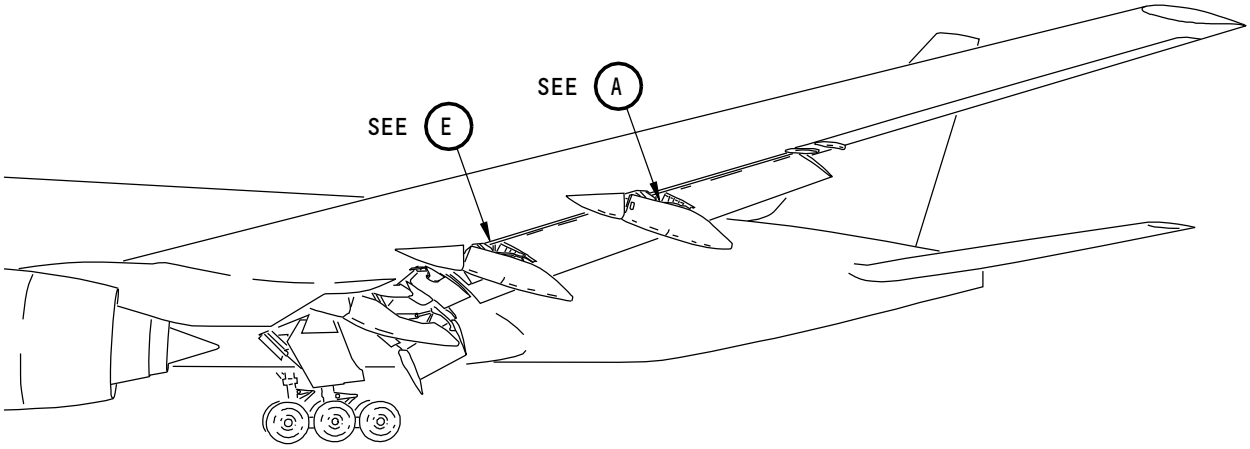
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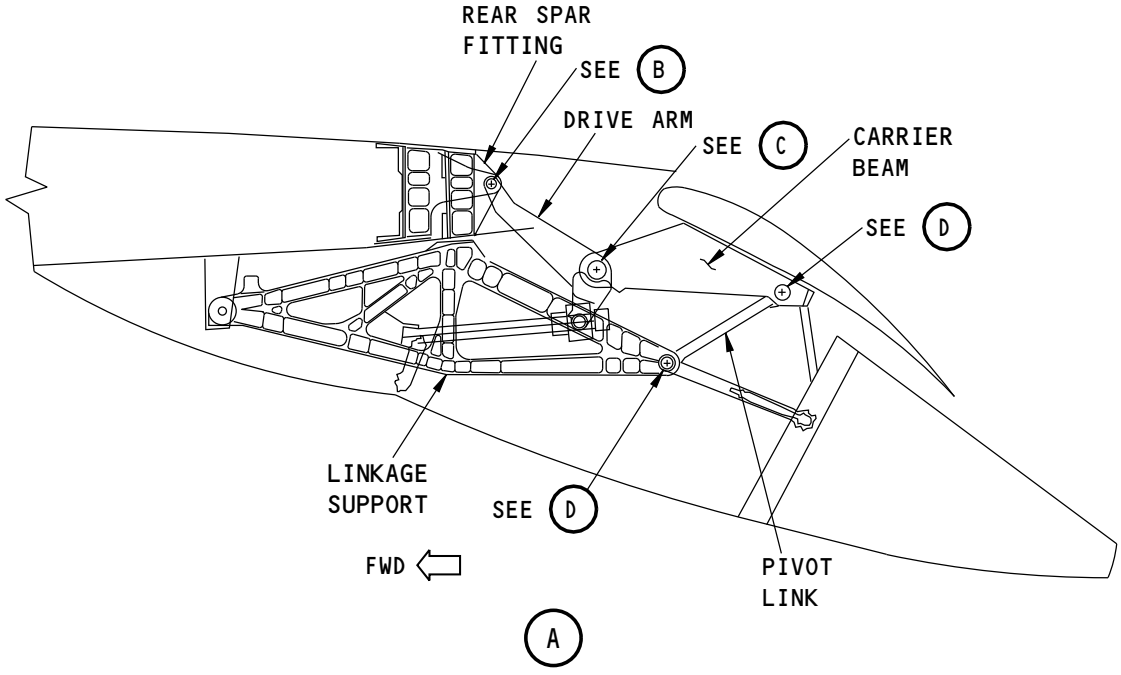
U53141 S0000204183_V2

Outboard Trailing Edge Flap Bearing Freeplay Inspection Sling
Figure 603/27-51-21-990-812

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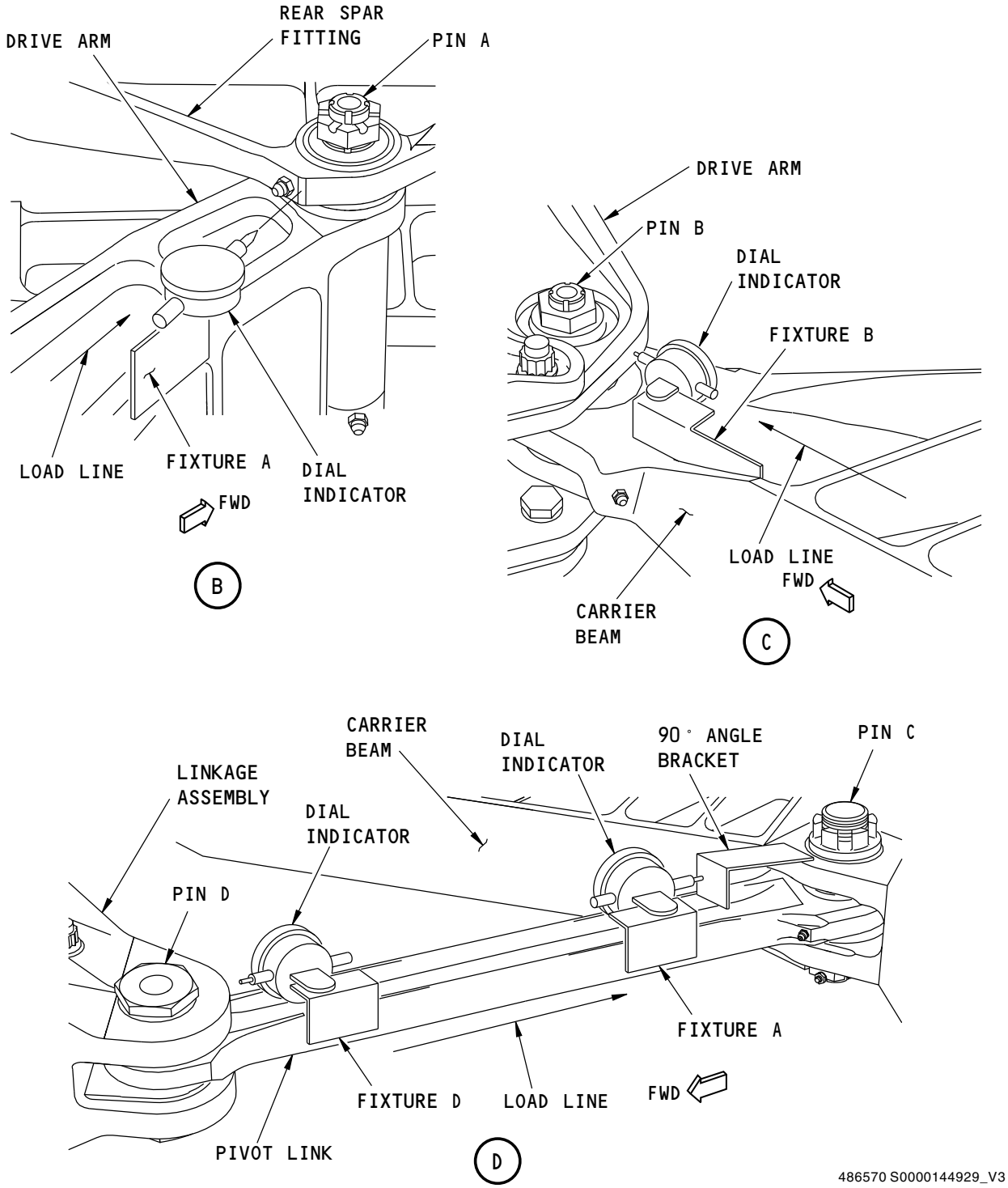
OUTBOARD TRAILING EDGE
FLAP SUPPORT



486557 S0000144928_V1

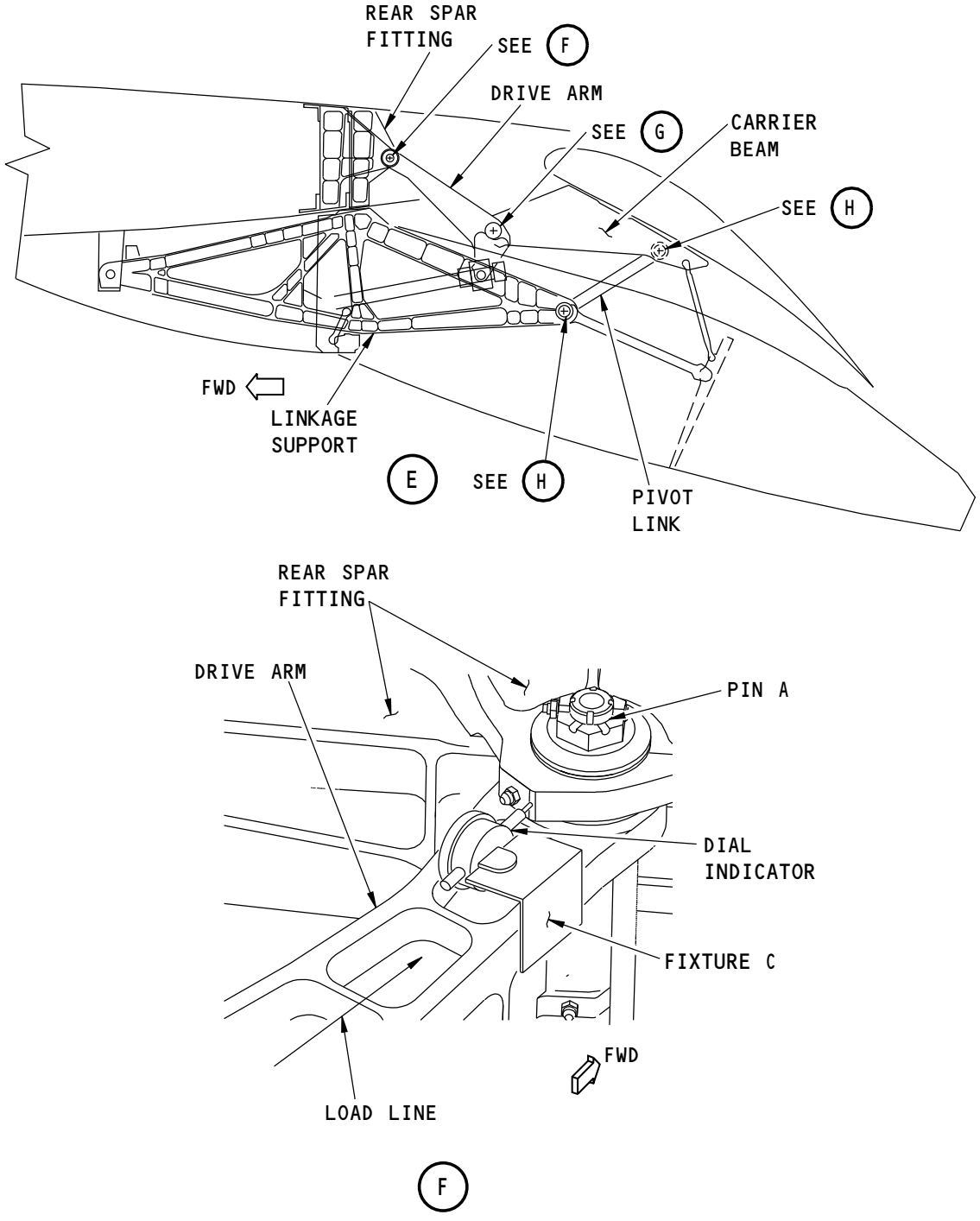
Outboard Trailing Edge Flap Bearing Freeplay Inspection
Figure 604/27-51-21-990-811 (Sheet 1 of 4)

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Outboard Trailing Edge Flap Bearing Freeplay Inspection
Figure 604/27-51-21-990-811 (Sheet 2 of 4)

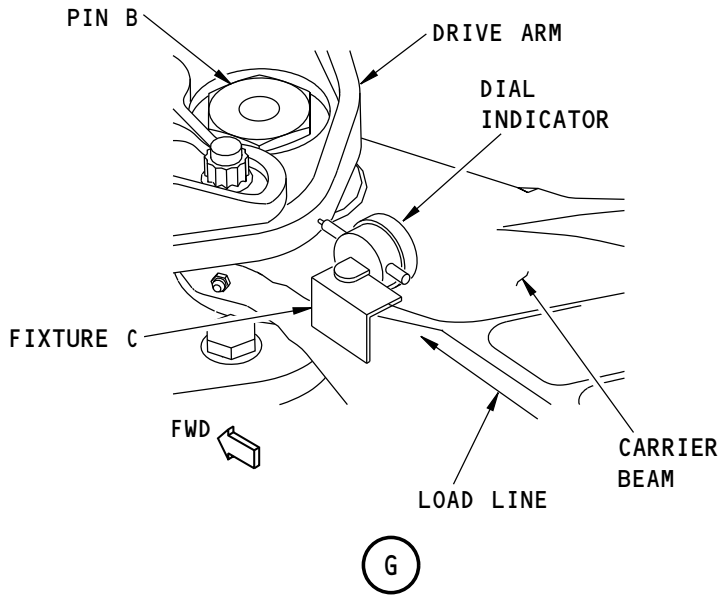
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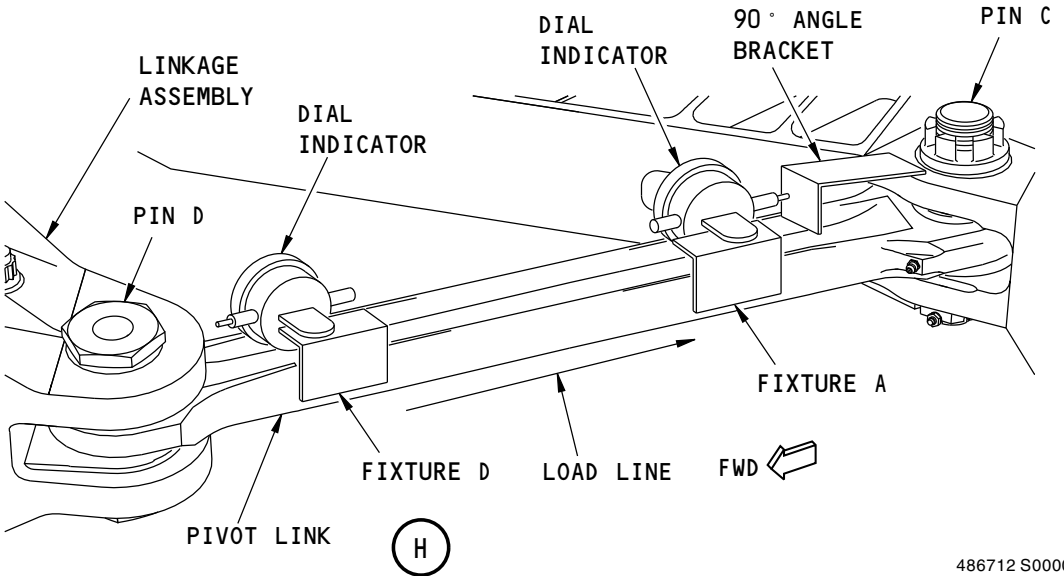


486705 S0000144931_V3

Outboard Trailing Edge Flap Bearing Freeplay Inspection
Figure 604/27-51-21-990-811 (Sheet 3 of 4)

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Outboard Trailing Edge Flap Bearing Freeplay Inspection
Figure 604/27-51-21-990-811 (Sheet 4 of 4)

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OUTBOARD FLAP SUPPORT MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A task to remove the outboard support mechanism for the outboard flap

(2) A task to install the outboard support mechanism for the outboard flap

(3) A task to remove the inboard support mechanism for the outboard flap

(4) A task to install the inboard support mechanism for the outboard flap:

(5) These tasks include the removal and installation of these components on the flap support mechanisms:

(a) The Fairing Support Link

(b) The Pivot Link

(c) The Flap Carrier Beam

(d) The Drive Arm

(e) The Underwing Link

(f) The Flap Support Linkage

TASK 27-51-22-000-801

2. Outboard Flap Outboard Support Mechanism Removal

(Figure 401)

A. General

(1) This task is applicable to flap support mechanism No. 1 and No. 8.

(2) To remove a specific component, it is only necessary to disconnect the applicable joints on the flap support mechanism. The components and the joints necessary to remove them are as follows:

(a) The Drive Arm

1) Joints 1A and 1B for the left outboard flap

2) Joints 8A and 8B for the right outboard flap

(b) The Fairing Support Link

1) Joint 1D for the left outboard flap

2) Joint 8D for the right outboard flap

(c) The Flap Carrier Beam

1) Joints 1B and 1C for the left outboard flap

2) Joints 8B and 8C for the right outboard flap

(d) The Pivot Link

1) Joints 1C and 1D for the left outboard flap

2) Joints 8C and 8D for the right outboard flap

(e) The Support Linkage

1) Disconnect the support linkage from the rear spar fittings and Joint 1W for the left outboard flap

2) Disconnect the support linkage from the rear spar fittings and Joint 8W for the right outboard flap

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(f) The Underwing Link

1) Joints 1V and 1W for the left outboard flap

2) Joints 8V and 8W for the right outboard flap

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-21-000-801	Outboard Trailing Edge Flap Removal (P/B 401)
27-51-25-000-802	Outboard Flap Outboard Transmission Removal (P/B 401)
27-51-26-000-801	Outboard Flap Outboard Ballscrew and Gimbal Removal (P/B 401)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-59-01-000-807-002	Outboard Flap Skew Sensor - Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
567	Left Wing Outboard Flap
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
677	Flap Support Fairing No. 8

D. Prepare for the Removal

SUBTASK 27-51-22-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-22-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-22-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-51-22-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-22-860-003

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-22-860-004

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-22-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-22-010-001

(8) Do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-22-020-001

(9) Do this task: Outboard Trailing Edge Flap Removal, TASK 27-51-21-000-801.

(a) For the alternative method of removing the trailing edge flap with the flap carrier beam assembly attached do this:

NOTE: The alternative method for the trailing edge flap removal will save time.

1) Disconnect pin [23] and pin [27] at joints 1B and 1C instead of removing the flap carriage bolts and remove the trailing edge flap with the flap carrier beam assembly.

SUBTASK 27-51-22-020-002

(10) If you will remove the drive arm [3], support linkage [2] or underwing link [1], do these steps:

(a) Do this task: Outboard Flap Skew Sensor - Removal, TASK 27-59-01-000-807-002.

(b) For the drive arm [3], do this task: Outboard Flap Outboard Ballscrew and Gimbal Removal, TASK 27-51-26-000-801.

(c) For the support linkage [2] or the underwing link [1], do this task: Outboard Flap Outboard Transmission Removal, TASK 27-51-25-000-802.

E. Disconnect Joint 1D

NOTE: Joint 1D connects the fairing support link [6] and the pivot link [5] to the support linkage [2].

NOTE: Procedure to disconnect joint 8D for the right outboard flap is the same.

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SUBTASK 27-51-22-020-003

CAUTION: MAKE SURE YOU HOLD THE AFT END OF THE CARRIER BEAM WHEN YOU DISCONNECT THE PIVOT LINK. THE AFT END OF THE CARRIER BEAM WILL MOVE DOWN WHEN YOU DISCONNECT THE PIVOT LINK. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Remove the fairing support link [6] from the support linkage [2]:

(a) Remove the nut [16], washer [8], washer [14], washer [15] and pin [7] that attach the fairing support link [6].

(b) Remove the seals [13], seals [20], bushing [9] and bushing [17] from the fairing support link [6].

SUBTASK 27-51-22-020-004

(2) Remove the lower end of the pivot link [5] from the support linkage [2]:

(a) Remove the nut [18], washer [12] and washer [19] from the pin [10] that attaches the pivot link [5].

(b) Remove the pin [10] to disconnect the pivot link [5] from the support linkage [2].

F. Disconnect Joint 1C

NOTE: Joint 1C connects the pivot link [5] to the flap carrier beam [4].

NOTE: Procedure to disconnect joint 8C for the right outboard flap is the same.

SUBTASK 27-51-22-020-005

CAUTION: MAKE SURE YOU HOLD THE AFT END OF THE CARRIER BEAM WHEN YOU DISCONNECT THE PIVOT LINK. THE AFT END OF THE CARRIER BEAM WILL MOVE DOWN WHEN YOU DISCONNECT THE PIVOT LINK. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Disconnect the pivot link [5] from the flap carrier beam [4]:

(a) Remove the nut [25], washer [26] and bolt [21] from the nut [22].

(b) Remove the nut [22] and washer [24] from the pin [23].

(c) Remove the pin [23] to remove the pivot link [5] from the flap carrier beam [4].

G. Disconnect Joint 1B

NOTE: Joint 1B connects the flap carrier beam [4] to the drive arm [3].

NOTE: Procedure to disconnect joint 8B for the right outboard flap is the same.

SUBTASK 27-51-22-020-006

(1) Disconnect the flap carrier beam [4] from the drive arm [3]:

(a) Remove the nut [31], washer [32] and bolt [33] from the nut [34].

(b) Remove the nut [34] and washer [28], washer [29] and washer [30] from the pin [27].

(c) Remove the pin [27] to remove the flap carrier beam [4] from the drive arm [3].

H. Disconnect Joint 1A

NOTE: Joint 1A connects the drive arm [3] to the rear spar fittings [35].

NOTE: Procedure to disconnect joint 8A for the right outboard flap is the same.

SUBTASK 27-51-22-020-007

(1) Disconnect the drive arm [3] from the rear spar fittings [35]:

(a) Remove the nut [45], washer [46] and bolt [36] from the nut [37].

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(b) Remove the nut [37], washer [38], washer [39] and washer [40] from the pin [43].

(c) Remove the pin [43] and washer [44] to remove the drive arm [3] from the rear spar fittings [35].

(d) Remove the seals [41] from the rear spar fittings [35].

I. Disconnect the Support Linkage From the Rear Spar Fittings

SUBTASK 27-51-22-020-029

(1) Disconnect the wire bundle [80] for the landing gear illumination light from the support linkage [2]:

(a) Remove the screws [84] and nuts [85] that attach the electrical connector [83] to the bracket on the support linkage [2].

(b) Remove the screws [82] and clamps [81] that attach the wire bundle [80] to the support linkage [2].

SUBTASK 27-51-22-020-030

(2) Disconnect the wire bundle [75] and wire bundle [79] for the flap skew sensors from the support linkage [2]:

(a) Remove the nuts [78] that attach the wires to the grounding studs.

(b) Remove the screws [74] and clamps [86] that attach the wire bundle [75] and wire bundle [79] to the support linkage [2].

(c) Remove the screws [77] and clamp [76] that attach the wire bundle [75] and wire bundle [79] to the support linkage [2].

SUBTASK 27-51-22-480-001

(3) Put a support below the support linkage [2] to hold the linkage when you disconnect it from the rear spar fittings [35].

SUBTASK 27-51-22-020-008

(4) Disconnect the support linkage [2] from the rear spar fittings [35]:

(a) Remove the nuts [50] and washers [49] from the bolts [47].

(b) Lower the support linkage [2] away from the rear spar fittings [35].

(c) Remove the bolts [47] and washers [48] from the rear spar fittings [35].

J. Disconnect Joint 1V

NOTE: Joint 1V connects the underwing link [1] to the flap support fitting [51] on the wing.

NOTE: Procedure to disconnect joint 8V for the right outboard flap is the same.

SUBTASK 27-51-22-480-002

(1) Put a support below the support linkage [2].

SUBTASK 27-51-22-020-009

(2) Disconnect the underwing link [1] from the flap support fitting [51]:

(a) Remove the nut [59], washer [60] and bolt [52] from the nut [53].

(b) Remove the nut [53] and washer [54] from the pin [58].

(c) Remove the pin [58] and washers [55] and washers [56] to remove the underwing link [1] from the flap support fitting [51].

SUBTASK 27-51-22-020-010

(3) Move the support linkage [2] aft, out of the flap support fitting [51].

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K. Disconnect Joint 1W

NOTE: Joint 1W connects the underwing link [1] to the support linkage [2].

NOTE: Procedure to disconnect joint 8W for the right outboard flap is the same.

SUBTASK 27-51-22-020-011

(1) Disconnect the support linkage [2] from the underwing link [1]:

(a) Remove the nut [64], washer [65] and bolt [66] from the nut [63].

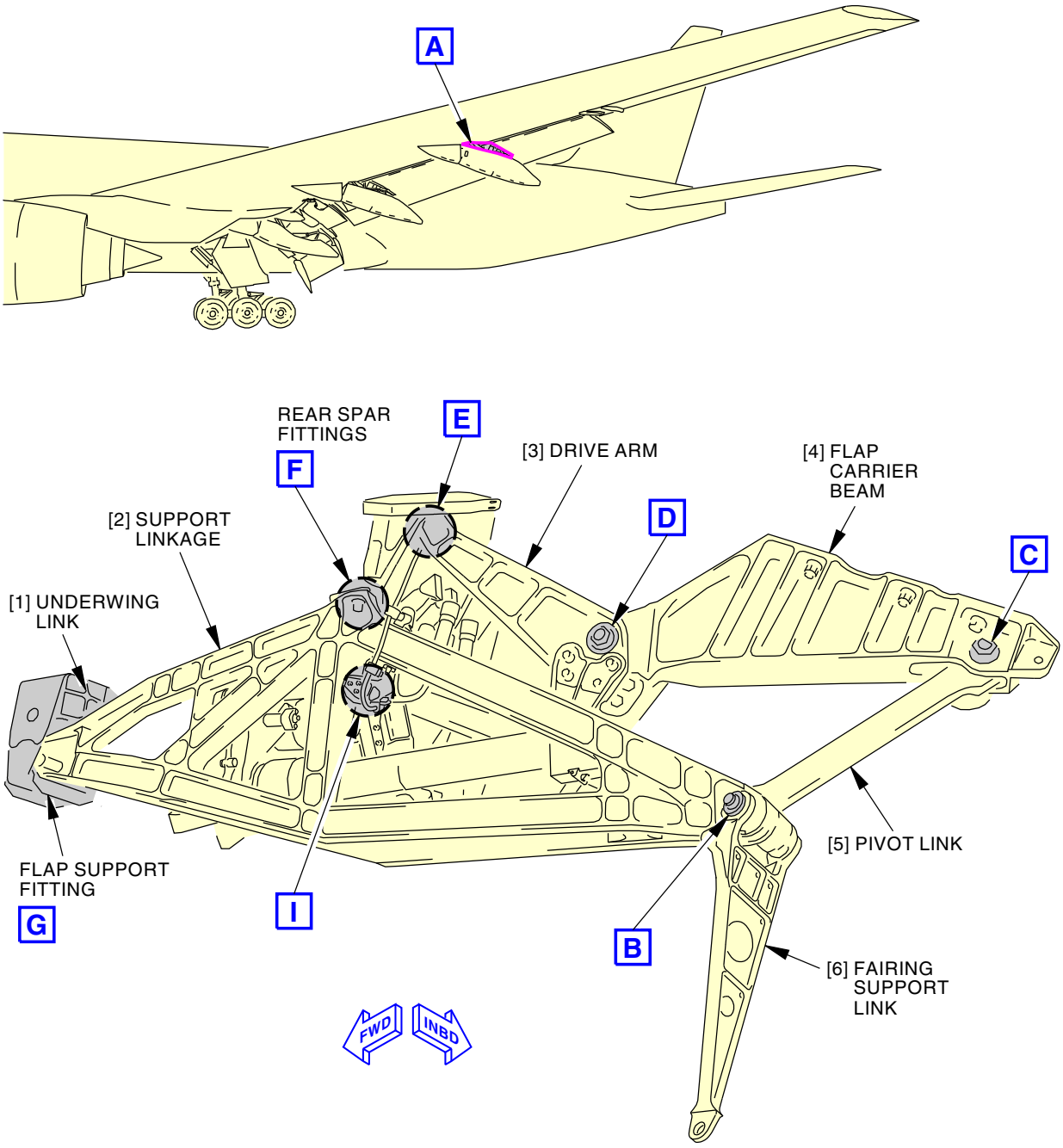
(b) Remove the nut [63] and washer [67] from the fuse pin [61].

(c) Remove the fuse pin [61] to remove the underwing link [1] from the support linkage [2].

(d) If it is necessary, remove the bushings [62] from the support linkage [2].

——— END OF TASK ———

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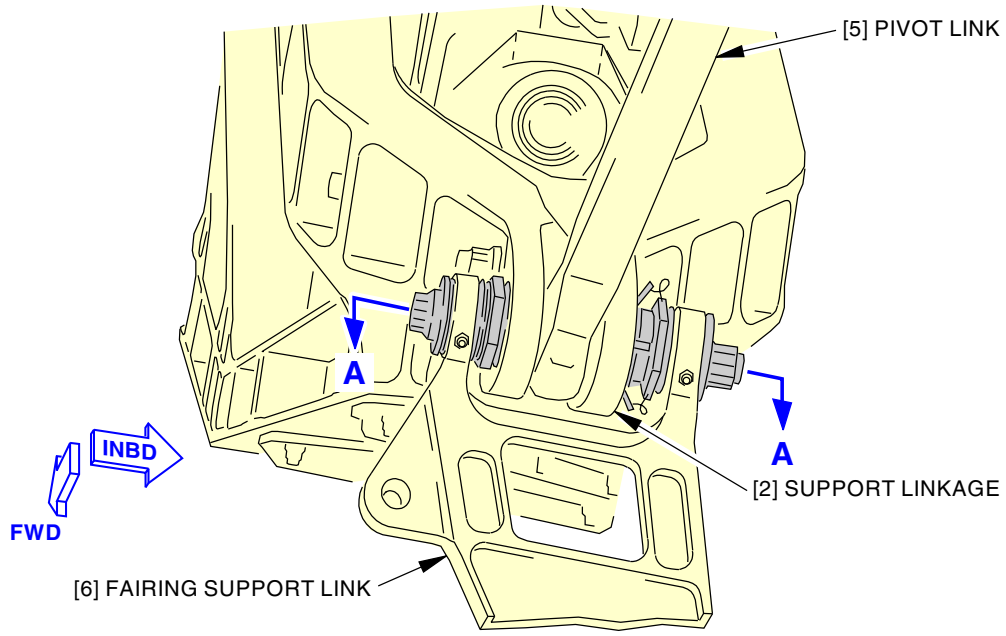
LEFT WING OUTBOARD FLAP OUTBOARD SUPPORT MECHANISM
(RIGHT WING OUTBOARD FLAP OUTBOARD SUPPORT MECHANISM IS EQUIVALENT)

A

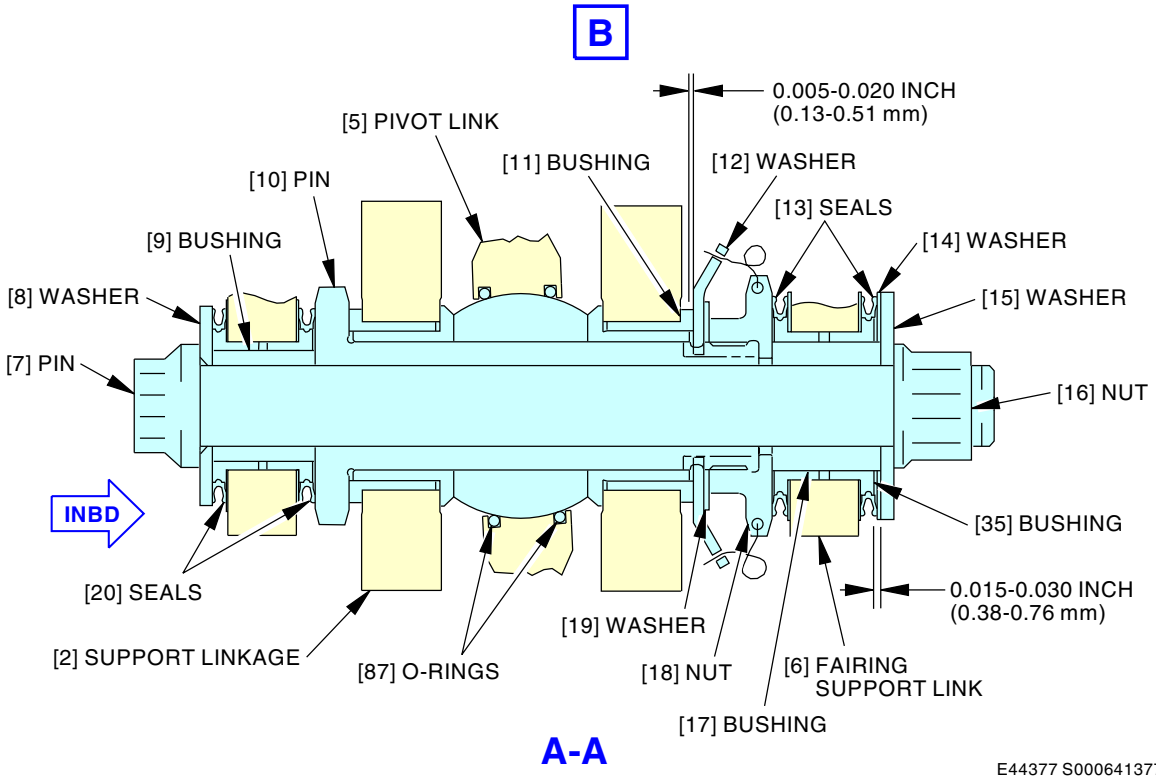
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Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 1 of 10)

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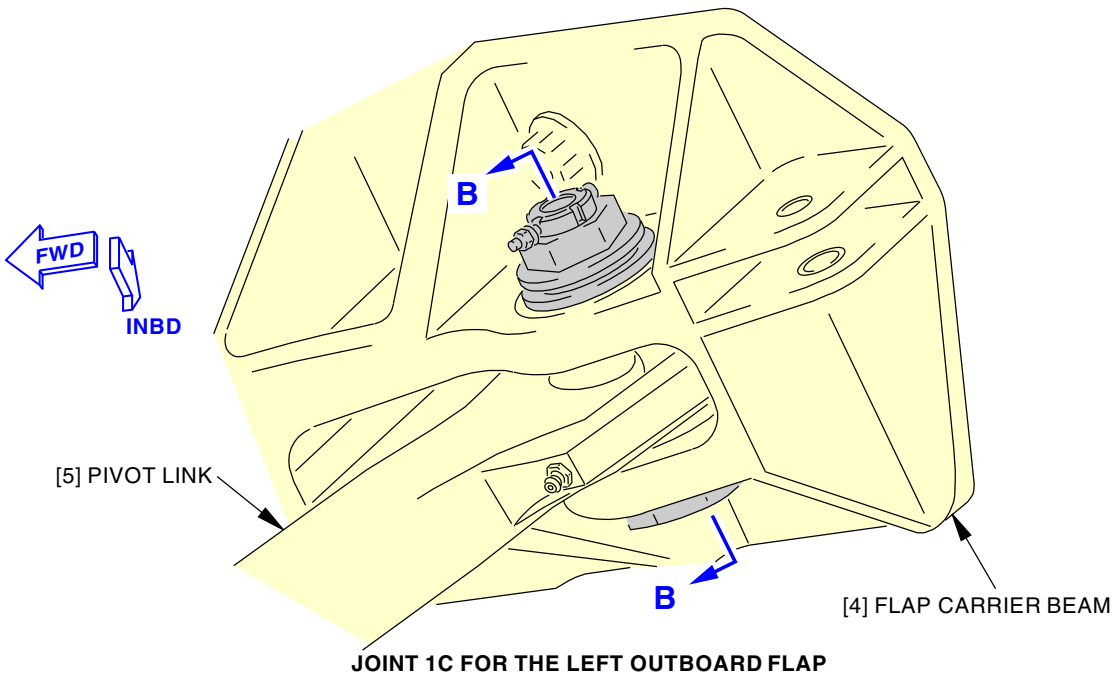
JOINT 1D FOR THE LEFT OUTBOARD FLAP
(JOINT 8D FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)



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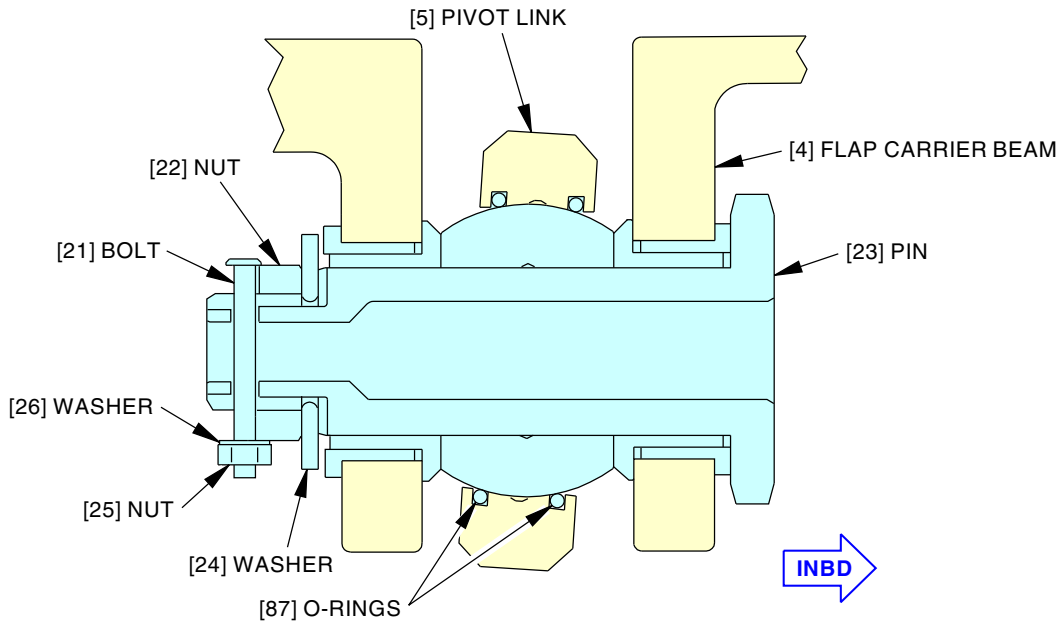
Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 2 of 10)

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JOINT 1C FOR THE LEFT OUTBOARD FLAP
(JOINT 8C FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

C

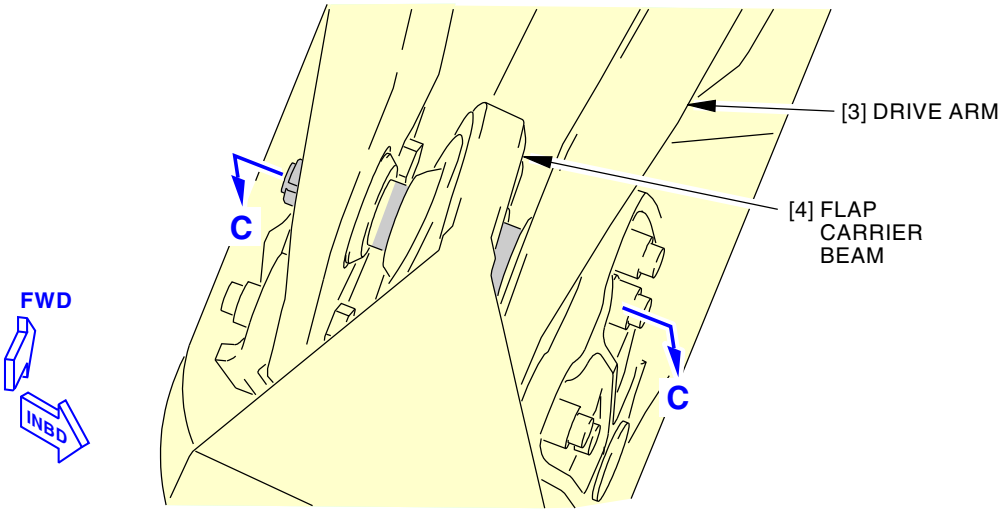


B-B

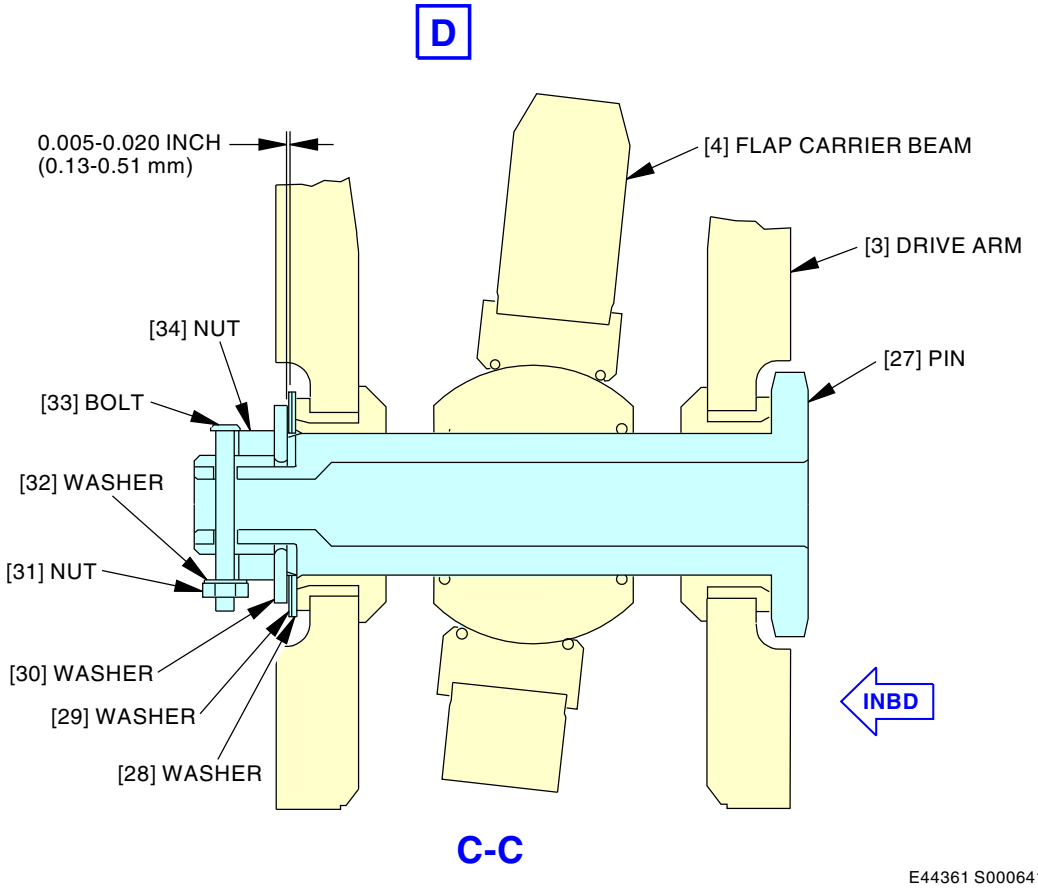
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Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 3 of 10)

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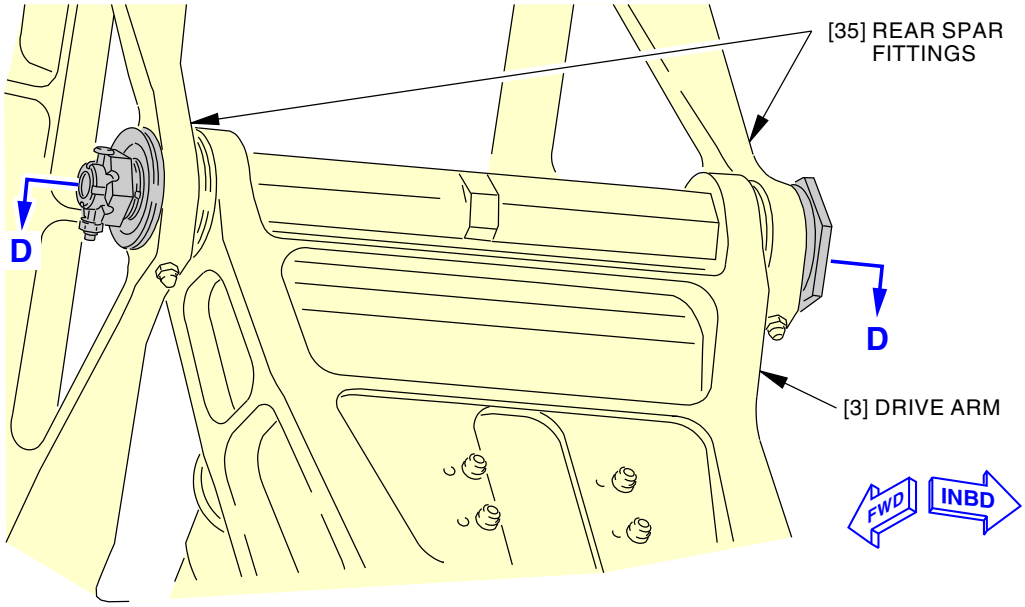


JOINT 1B FOR THE LEFT OUTBOARD FLAP
(JOINT 8B FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

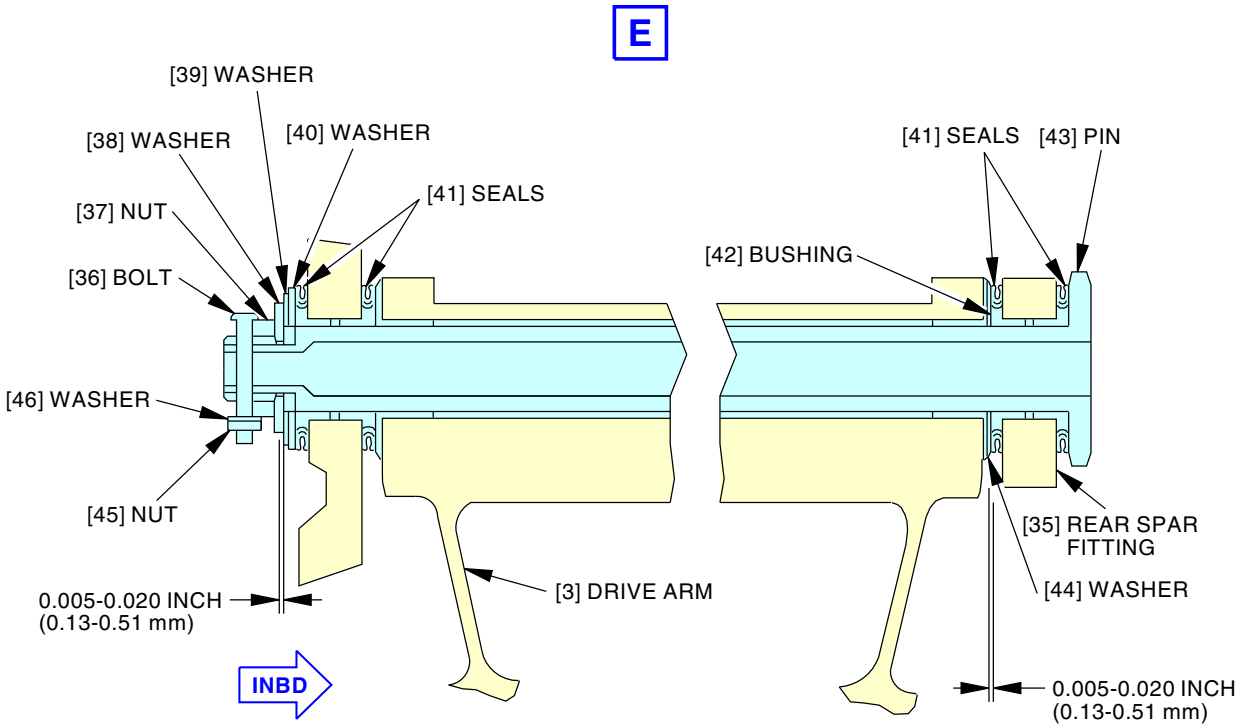


Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 4 of 10)

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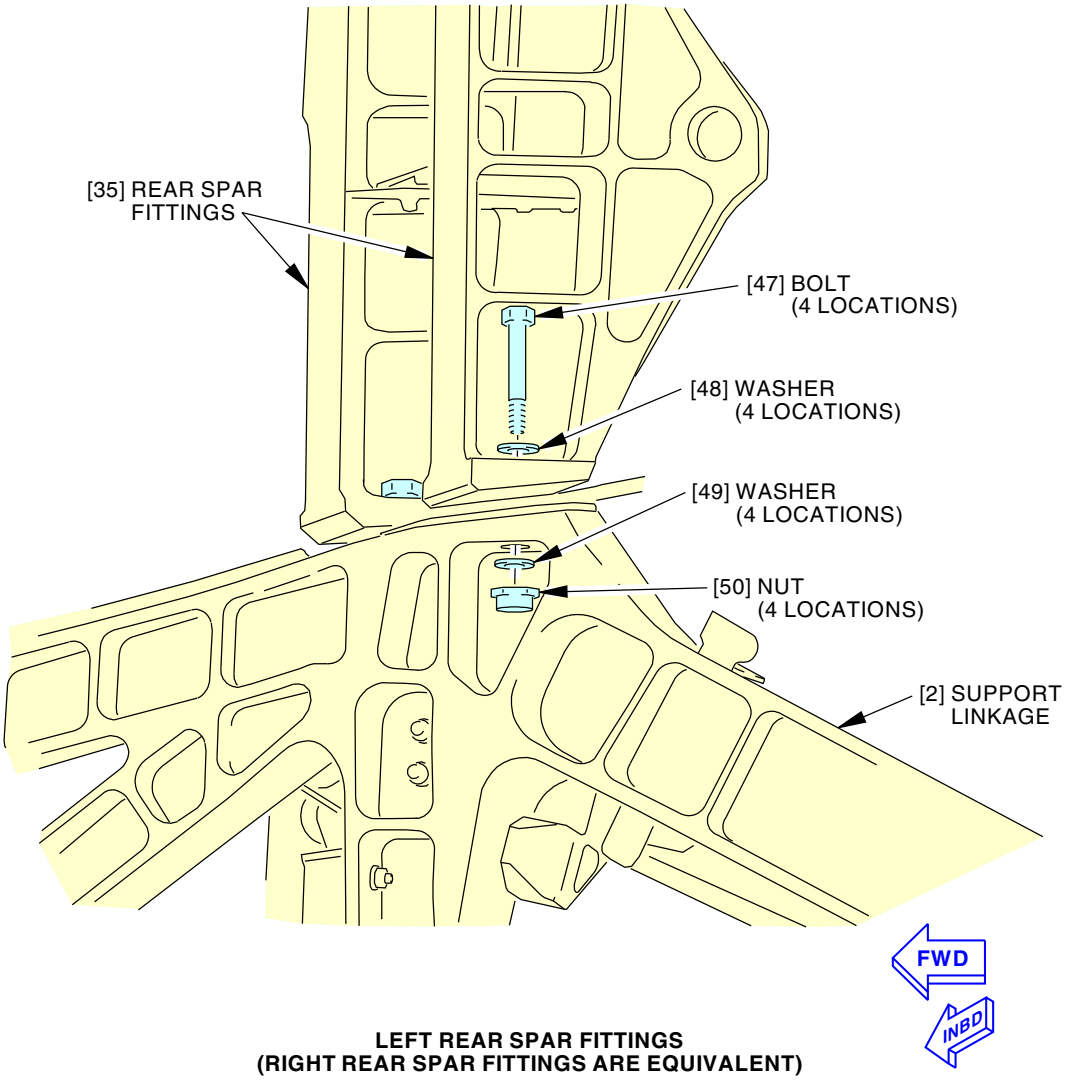
JOINT 1A FOR THE LEFT OUTBOARD FLAP
(JOINT 8A FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)



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Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 5 of 10)

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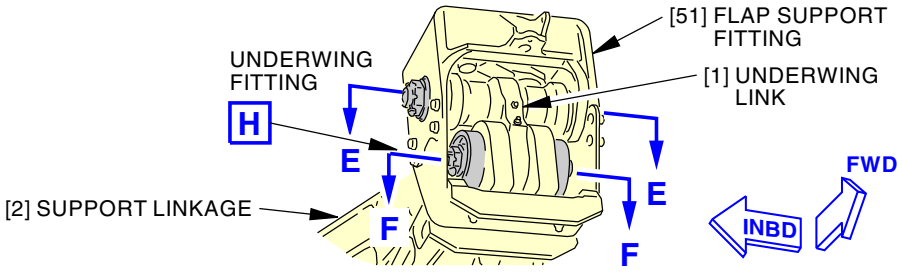
LEFT REAR SPAR FITTINGS
(RIGHT REAR SPAR FITTINGS ARE EQUIVALENT)

F

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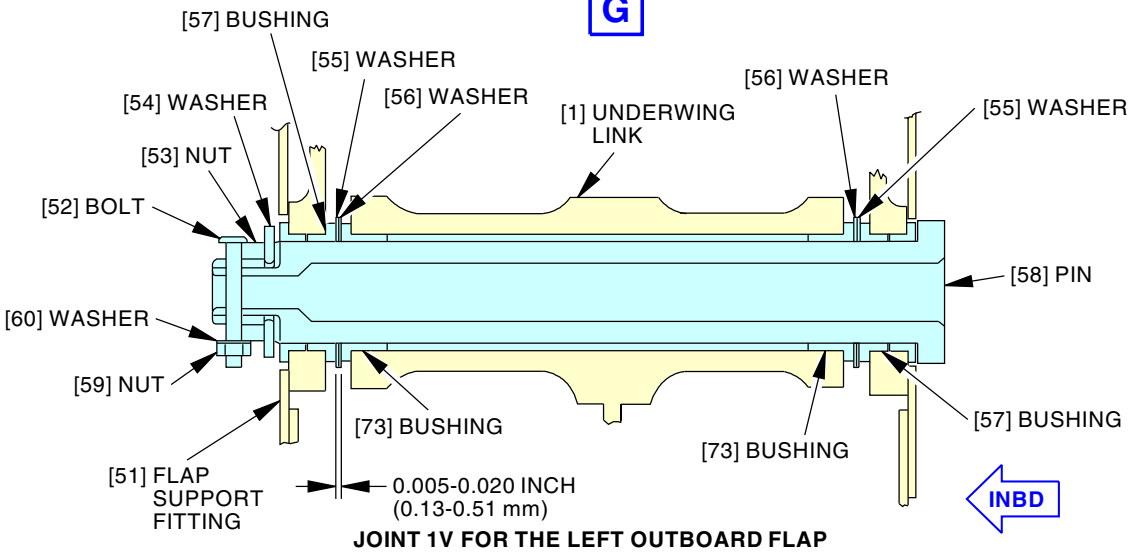
Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 6 of 10)

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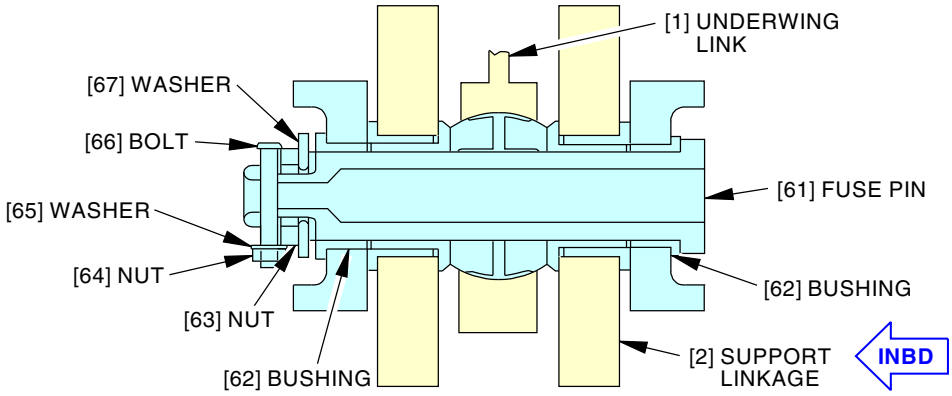
LEFT FLAP SUPPORT FITTING
(RIGHT FLAP SUPPORT FITTING IS EQUIVALENT)

G



JOINT 1V FOR THE LEFT OUTBOARD FLAP
(JOINT 8V FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

E-E



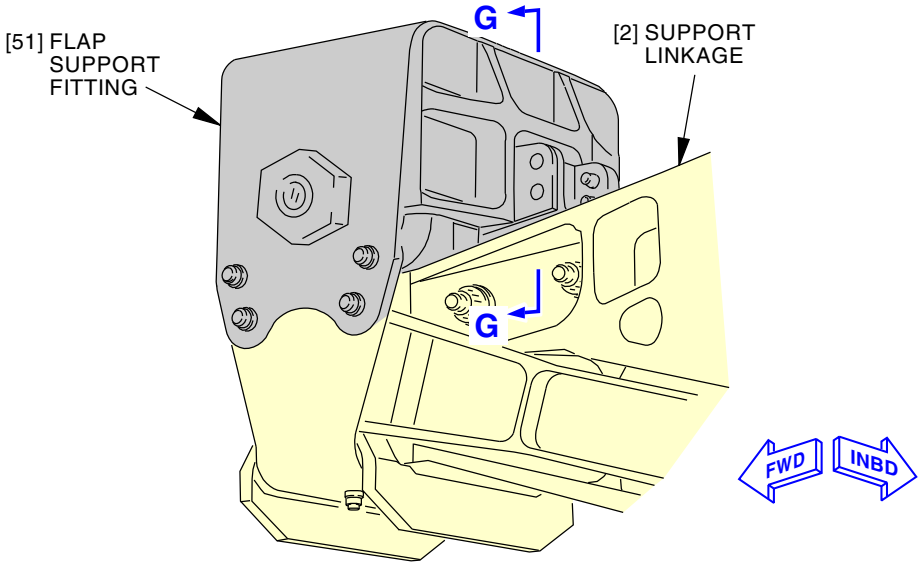
JOINT 1W FOR THE LEFT OUTBOARD FLAP
(JOINT 8W FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

F-F

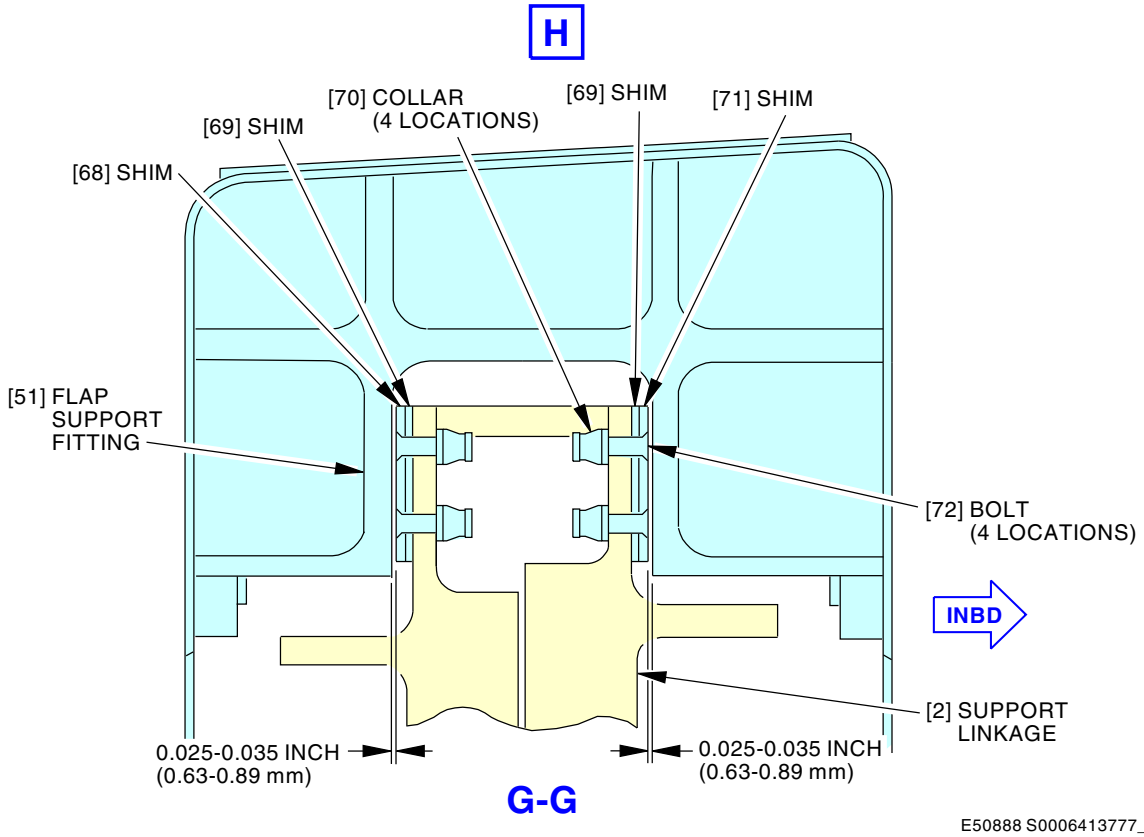
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Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 7 of 10)

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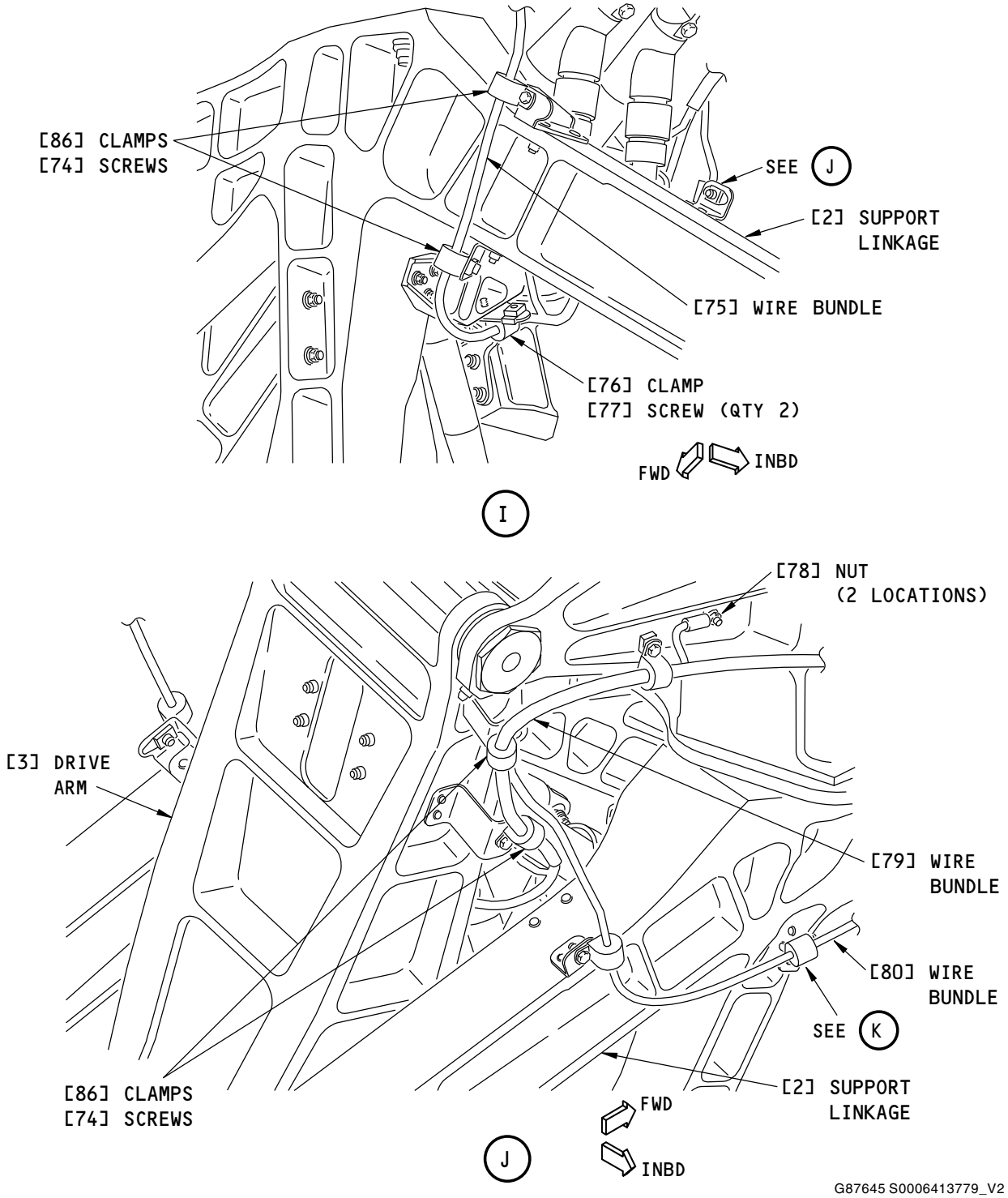
LEFT UNDERWING FITTING
(RIGHT UNDERWING FITTING IS EQUIVALENT)



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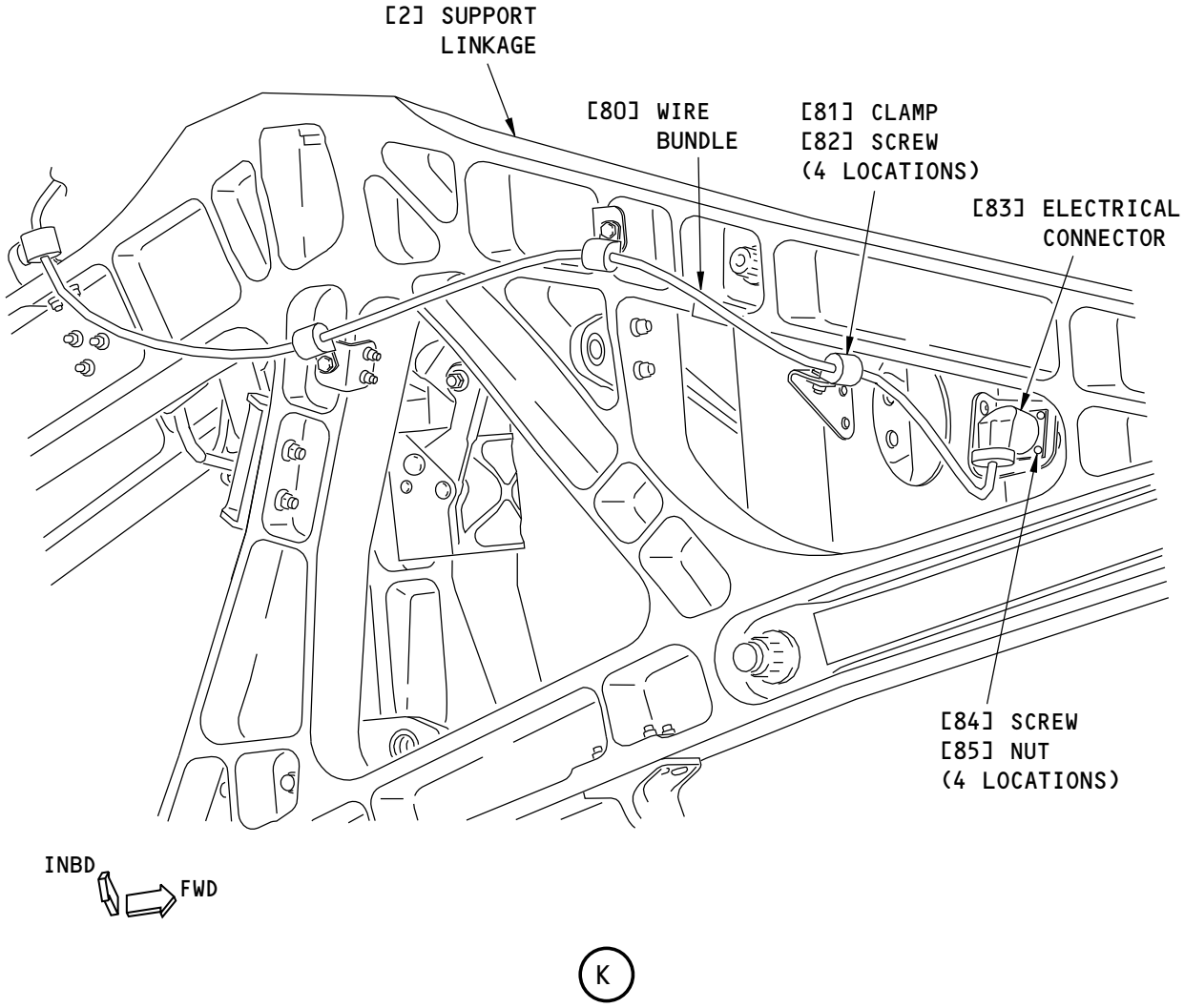
Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 8 of 10)

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Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 9 of 10)

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Outboard Flap Outboard Support Mechanism Installation
Figure 401/27-51-22-990-801 (Sheet 10 of 10)

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TASK 27-51-22-400-801

3. Outboard Flap Outboard Support Mechanism - Installation

(Figure 401)

A. General

(1) This task is applicable to flap support mechanism No. 1 and No. 8.

(2) To install a specific component, it is only necessary to connect the applicable joints on the flap support mechanism. The components and the joints necessary to remove them are as follows:

(a) The Drive Arm

1) Joints 1A and 1B for the left outboard flap

2) Joints 8A and 8B for the right outboard flap

(b) The Fairing Support Link

1) Joint 1D for the left outboard flap

2) Joint 8D for the right outboard flap

(c) The Flap Carrier Beam

1) Joints 1B and 1C for the left outboard flap

2) Joints 8B and 8C for the right outboard flap

(d) The Pivot Link

1) Joints 1C and 1D for the left outboard flap

2) Joints 8C and 8D for the right outboard flap

(e) The Support Linkage

1) Connect the support linkage to the rear spar fittings and Joint 1W for the left outboard flap

2) Connect the support linkage to the rear spar fittings and Joint 8W for the right outboard flap

(f) The Underwing Link

1) Joints 1V and 1W for the left outboard flap

2) Joints 8V and 8W for the right outboard flap

B. References

Reference	Title
12-21-09-640-805	Outboard Flap Outboard Support Mechanism Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-21-400-801	Outboard Trailing Edge Flap Installation (P/B 401)
27-51-25-400-802	Outboard Flap Outboard Transmission Installation (P/B 401)
27-51-26-400-801	Outboard Flap Outboard Ballscrew and Gimbal Installation (P/B 401)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
27-59-01-400-807-002	Outboard Flap Skew Sensor - Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

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C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Underwing link	27-51-22-70A-555	ARO ALL
		27-51-22-70A-560	ARO ALL
3	Drive arm	27-51-22-70A-050	ARO ALL
		27-51-22-70A-055	ARO ALL
5	Pivot link	27-51-22-70A-495	ARO 001-004
		27-51-22-70A-850	ARO ALL
13	Seal	27-51-28-03-375	ARO ALL
20	Seal	27-51-28-03-380	ARO ALL
41	Seal	27-51-22-70-110	ARO ALL
87	O-ring	27-51-22-70A-855	ARO ALL

E. Location Zones

Zone	Area
567	Left Wing Outboard Flap
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
677	Flap Support Fairing No. 8

F. Connect Joint 1W

NOTE: Joint 1W connects the underwing link [1] to the support linkage [2].

NOTE: Procedure to connect joint 8W for the right outboard flap is the same.

SUBTASK 27-51-22-420-001

(1) Connect the underwing link [1] to the support linkage [2]:

(a) If you removed the bushings [62] from the support linkage [2], then do these steps:

1) Apply grease, D00633, to the bushings [62].

2) Install the bushings [62] in the support linkage [2].

(b) Put the underwing link [1] in its position in the support linkage [2].

(c) Apply grease, D00633, to the nut [63], washer [67] and fuse pin [61].

(d) Install the fuse pin [61] that attaches the underwing link [1] to the support linkage [2].

(e) Install the washer [67] and nut [63] on the fuse pin [61].

(f) Tighten the nut [63] to 100 in-lb (11 N·m) to 200 in-lb (23 N·m) plus run-on torque.

(g) Loosen the nut [63] until you can install the bolt [66].

(h) Install the bolt [66], washer [65] and nut [64] on the nut [63].

(i) Tighten the nut [64] until a minimum of two threads extend past the nut.

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G. Connect Joint 1V

NOTE: Joint 1V connects the underwing link [1] to the flap support fitting [51] on the wing.

NOTE: Procedure to connect joint 8V for the right outboard flap is the same.

SUBTASK 27-51-22-420-002

(1) Move the support linkage [2] with the underwing link [1] forward, in the flap support fitting [51].

SUBTASK 27-51-22-420-003

(2) Connect the underwing link [1] to the flap support fitting [51]:

(a) Apply a layer of grease, D00633, to the pin [58], washer [54], washers [55], washers [56] and nut [53].

(b) Install the pin [58], washers [55] and washers [56] to connect the underwing link [1] to the flap support fitting [51].

NOTE: Install the pin [58] with the head outboard.

(c) Install the washer [54] and nut [53] on the pin [58].

(d) Tighten the nut [53] to 100 in-lb (11 N·m) to 200 in-lb (23 N·m) plus run-on torque.

(e) Measure the clearance between the bushing [57] and the bushing [73].

(f) If the clearance is not in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm), change the thickness of the washers [55] and washers [56]:

1) Remove the nut [53] and washer [54] from the pin [58].

2) Remove the pin [58], washers [55] and washers [56].

3) Change the number and location of the washers [56].

4) Install the pin [58], washers [55] and washers [56].

5) Install the washer [54] and nut [53] on the pin [58].

6) Tighten the nut [53] to 100 in-lb (11 N·m) to 200 in-lb (23 N·m) plus run-on torque.

7) Make sure the clearance between the bushing [57] and the bushing [73] is in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

SUBTASK 27-51-22-220-001

(3) At the aft end of the flap support fitting [51], measure the clearance between the shim [68] and shim [71] on the support linkage [2] and the flap support fitting [51].

SUBTASK 27-51-22-820-001

(4) If the clearance is not in the limit of 0.025 in. (0.635 mm) to 0.035 in. (0.889 mm) on both sides of the support linkage [2], then change the thickness of the shims [69]:

(a) Remove the support linkage [2] from the flap support fitting [51]:

1) Remove the nut [53] and washer [54] from the pin [58].

2) Remove the pin [58], washers [55] and washers [56].

(b) Change the thickness of the shims [69] on the support linkage [2]:

1) Remove the bolts [72] and collars [70] from the support linkage [2].

2) Remove the shim [68], shims [69] and shim [71].

3) Change the thickness of the shims [69].

NOTE: If it is necessary to get the clearance, you can install a maximum of two shims [69] on each side of the support linkage [2]. You can also install the shim [68] and shim [71] without shims [69]. If it is necessary, you can remove laminations from shims [69].

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4) Apply sealant, A00247, to the mating surfaces of the shim [68], shims [69] and shim [71].

5) Put the shim [68], shims [69] and shim [71] on the support linkage [2].

6) Apply sealant, A00247, to the bolts [72].

7) Install the bolts [72] and collars [70] that attach the shim [68], shims [69] and shim [71].

(c) Install the support linkage [2] on the flap support fitting [51]:

1) Install the pin [58], washers [55] and washers [56].

2) Install the washer [54] and nut [53] on the pin [58].

3) Tighten the nut [53] to 100 in-lb (11 N·m) to 200 in-lb (23 N·m) plus run-on torque.

SUBTASK 27-51-22-420-004

(5) Install the bolt [52] through the nut [53]:

(a) Loosen the nut [53] until you can install the bolt [52].

(b) Install the bolt [52], washer [60] and nut [59] through the nut [53].

(c) Tighten the nut [59] until a minimum of two threads extend past the nut.

H. Connect the Support Linkage To the Rear Spar Fittings

SUBTASK 27-51-22-020-012

(1) Connect the support linkage [2] to the rear spar fittings [35]:

(a) Apply sealant, A00247, to the mating surfaces of the support linkage [2] and the rear spar fittings [35].

(b) Put the support linkage [2] in its position on the rear spar fittings [35].

(c) Apply sealant, A00247, to the shank and threads of the bolts [47].

(d) Install the bolts [47], washers [48], washers [49] and nuts [50].

(e) Tighten the nuts [50] to 290 in-lb (33 N·m) to 510 in-lb (58 N·m).

SUBTASK 27-51-22-080-001

(2) Remove the support from below the support linkage [2].

SUBTASK 27-51-22-420-025

(3) Connect the wire bundle [80] for the landing gear illumination light to the support linkage [2]:

(a) Attach the electrical connector [83] to the bracket on the support linkage [2] with the screws [84] and nuts [85].

(b) Install the clamps [81] and screws [82] to attach the wire bundle [80] to the support linkage [2]

SUBTASK 27-51-22-420-026

(4) Connect the wire bundle [75] and wire bundle [79] for the flap skew sensors to the support linkage [2]:

(a) Install the clamps [73] and screws [74] to attach the wire bundle [75] and wire bundle [79] to the support linkage [2].

(b) Install the screws [77] and clamp [76] to attach the wire bundle [75] and wire bundle [79] to the support linkage [2].

(c) Install the nuts [78] that attach the wires to the grounding studs.

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I. Connect Joint 1A

NOTE: Joint 1A connects the drive arm [3] to the rear spar fittings [35].

NOTE: Procedure to connect joint 8A for the right outboard flap is the same.

SUBTASK 27-51-22-020-013

(1) Connect the drive arm [3] to the rear spar fittings [35]:

(a) Apply a layer of grease, D00633, to the pin [43], washer [38], washer [39], washer [40], washer [44] and nut [37].

(b) Install the seals [41] on the rear spar fittings [35].

(c) Put the drive arm [3] in its position between the rear spar fittings [35].

(d) Install the pin [43] and washer [44] that attach the drive arm [3] to the rear spar fittings [35].

(e) Install the washer [38], washer [39], washer [40] and nut [37] on the pin [43].

(f) Tighten the nut [37] to 100 in-lb (11 N·m) to 200 in-lb (23 N·m) plus run-on torque.

SUBTASK 27-51-22-220-002

(2) On the outboard end of the pin [43], measure the clearance between the washer [38] and washer [39].

(a) If the clearance between the washer [38] and washer [39] is not in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm), change number and locations of the washer [39].

SUBTASK 27-51-22-220-003

(3) On the inboard end of the pin [43], measure the clearance between the washer [44] and the bushing [42].

(a) If the clearance between the washer [44] and the bushing [42] is not in the limit of 0.005 in. (0.127 mm) 0.020 in. (0.508 mm), change the thickness of the washer [44].

SUBTASK 27-51-22-820-002

(4) If the clearances are not in the limits, change the thickness of the washers:

(a) Remove the nut [37], washer [38], washer [39], washer [40] and washer [44] from the pin [43].

(b) Change the thickness of the washer [39] and washer [44].

(c) Install the washer [38], washer [39], washer [40], washer [44] and nut [37].

(d) Tighten the nut [37] to 100 in-lb (11 N·m) to 200 in-lb (23 N·m) plus run-on torque.

(e) Make sure the clearances between the washer [38] and washer [39] and the washer [44] and the bushing [42] are in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

SUBTASK 27-51-22-420-005

(5) Install the bolt [36] through the nut [37]:

(a) Loosen the nut [37] until you can install the bolt [36].

(b) Install the bolt [36], washer [46] and nut [45] through the nut [37].

(c) Tighten the nut [45] until a minimum of two threads extend past the nut.

J. Connect Joint 1B

NOTE: Joint 1B connects the flap carrier beam [4] to the drive arm [3].

NOTE: Procedure to connect joint 8B for the right outboard flap is the same.

SUBTASK 27-51-22-420-006

(1) Connect the flap carrier beam [4] to the drive arm [3]:

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(a) Put the flap carrier beam [4] in its position on the drive arm [3].

(b) Apply grease, D00633, to the pin [27], washer [28], washer [29], washer [30] and nut [34].

(c) Install the pin [27] that attaches the flap carrier beam [4] to the drive arm [3].

(d) Install the washer [28], washer [29], washer [30] and nut [34] on the pin [27].

(e) Tighten the nut [34] to 120 in-lb (14 N·m) to 300 in-lb (34 N·m) plus run-on torque.

SUBTASK 27-51-22-220-004

(2) Measure the clearance between the washer [29] and washer [30].

SUBTASK 27-51-22-820-003

(3) If the clearance between the washer [29] and washer [30] is not in the limit of 0.005 in. (0.127 mm) 0.020 in. (0.508 mm), change the number and location of the washer [28] and washer [29]:

(a) Remove the nut [34], washer [28], washer [29] and washer [30] from the pin [27].

(b) Change the number and location of the washer [28] and washer [29].

(c) Install the washer [28], washer [29], washer [30] and nut [34].

(d) Tighten the nut [34] to 120 in-lb (14 N·m) to 300 in-lb (34 N·m) plus run-on torque.

SUBTASK 27-51-22-420-007

(4) Install the bolt [33] through the nut [34]:

(a) Loosen the nut [34] until you can install the bolt [33].

(b) Install the bolt [33], washer [32] and nut [31] through the nut [34].

(c) Tighten the nut [31] until a minimum of two threads extend past the nut.

K. Connect Joint 1C

NOTE: Joint 1C connects the pivot link [5] to the flap carrier beam [4].

NOTE: Procedure to connect joint 8C for the right outboard flap is the same.

SUBTASK 27-51-22-420-008

(1) Connect the pivot link [5] to the flap carrier beam [4]:

(a) Install two new O-rings [87] around the ball set inside the pivot link [5] at Joint 1C.

(b) Put the pivot link [5] in its location on the flap carrier beam [4].

(c) Apply grease, D00633 to the pin [23], washer [24] and nut [22].

(d) Install the pin [23] that attaches the pivot link [5] to the flap carrier beam [4].

(e) Install the washer [24] and nut [22] on the pin [23].

(f) Tighten the nut [22]:

1) Tighten the nut [22] to 120 in-lb (14 N·m) to 300 in-lb (34 N·m) plus run-on torque.

2) Loosen the nut [22] until you can install the bolt [21].

SUBTASK 27-51-22-420-009

(2) Install the bolt [21] through the nut [22]:

(a) Install the bolt [21], washer [26] and nut [25] through the nut [22].

(b) Tighten the nut [25] until a minimum of two threads extend past the nut.

L. Connect Joint 1D

NOTE: Joint 1D connects the fairing support link [6] and the pivot link [5] to the support linkage [2].

NOTE: Procedure to connect joint 8D for the right outboard flap is the same.

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SUBTASK 27-51-22-420-010

(1) Connect the lower end of the pivot link [5] to the support linkage [2]:

(a) Install two new O-rings [87] around the ball set inside the pivot link [5] at Joint 1D.

(b) Apply grease, D00633 to the pin [10], washer [12], washer [19] and nut [18].

(c) Put the pivot link [5] in its position, aligned with the support linkage [2].

(d) Install the pin [10] that attaches the pivot link [5] to the support linkage [2].

(e) Install the washer [12], washer [19] and nut [18] on the pin [10].

(f) Tighten the nut [18] to 250 in-lb (28.2 N·m) to 300 in-lb (33.9 N·m).

SUBTASK 27-51-22-220-005

(2) Measure the clearance between the washer [12] and the bushing [11].

SUBTASK 27-51-22-820-004

(3) If the clearance is not in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm), change the thickness of the washer [19]:

(a) Remove the nut [18], washer [12] and washer [19].

(b) Change the number and location of the washer [19].

(c) Install the washer [12], washer [19] and nut [18] on the pin [10].

(d) Tighten the nut [18] to 250 in-lb (28.2 N·m) to 300 in-lb (33.9 N·m).

(e) Make sure the clearance between the washer [12] and the bushing [11] is in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

SUBTASK 27-51-22-420-011

(4) Install MS20995NC40 lockwire, G02436 in two locations on the nut [18] and washer [12].

SUBTASK 27-51-22-420-012

(5) Install the fairing support link [6] on the support linkage [2]:

(a) Install the bushing [9], bushing [17], seals [13] and seals [20] on the fairing support link [6].

(b) Install the pin [7], washer [8], washer [14], washer [15] and nut [16] to attach the fairing support link [6].

NOTE: Install the pin [7] with the head outboard.

(c) Tighten the nut [16] to 1700 in-lb (192 N·m) to 1900 in-lb (215 N·m).

SUBTASK 27-51-22-220-006

(6) Measure the clearance between the washer [14] and the rear spar fitting [35].

SUBTASK 27-51-22-820-005

(7) If the clearance is not in the limit of 0.015 in. (0.381 mm) to 0.030 in. (0.762 mm), change the thickness of the washer [14]:

(a) Remove the nut [16], washer [14] and washer [15].

(b) Change the number of the washer [14].

(c) Install the washer [14], washer [15] and nut [16].

(d) Tighten the nut [16] to 1700 in-lb (192 N·m) to 1900 in-lb (215 N·m).

(e) Make sure the clearance between the washer [14] and the rear spar fitting [35] is in the limit of 0.015 in. (0.381 mm) to 0.030 in. (0.762 mm).

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M. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-22-020-014

(1) If you installed the drive arm [3], support linkage [2] or underwing link [1], do these steps:

(a) For the support linkage [2] or the underwing link [1], do this task: Outboard Flap Outboard Transmission Installation, TASK 27-51-25-400-802.

(b) For the drive arm [3], do this task: Outboard Flap Outboard Ballscrew and Gimbal Installation, TASK 27-51-26-400-801.

(c) Do this task: Outboard Flap Skew Sensor - Installation, TASK 27-59-01-400-807-002.

SUBTASK 27-51-22-410-001

(2) Do this task: Outboard Trailing Edge Flap Installation, TASK 27-51-21-400-801.

SUBTASK 27-51-22-640-001

(3) For the applicable flap support, do this task: Outboard Flap Outboard Support Mechanism Lubrication, TASK 12-21-09-640-805.

SUBTASK 27-51-22-410-002

(4) Do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-22-440-001

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-22-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-22-860-005

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-22-860-006

(8) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-22-860-007

(9) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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TASK 27-51-22-000-802

4. Outboard Flap Inboard Support Mechanism Removal

(Figure 402)

A. General

(1) This task is applicable to flap support mechanism No. 2 and No. 7.

(2) To remove a specific component, it is only necessary to disconnect the applicable joints on the flap support mechanism. The components and the joints necessary to remove them are as follows:

(a) The Drive Arm

1) Joints 2A and 2B for the left outboard flap

2) Joints 7A and 7B for the right outboard flap

(b) The Fairing Support Link

1) Joint 2D for the left outboard flap

2) Joint 7D for the right outboard flap

(c) The Flap Carrier Beam

1) Joints 2B and 2C for the left outboard flap

2) Joints 7B and 7C for the right outboard flap

(d) The Pivot Link

1) Joints 2C and 2D for the left outboard flap

2) Joints 7C and 7D for the right outboard flap

(e) The Support Linkage

1) Disconnect the support linkage from the rear spar fittings and Joint 2W for the left outboard flap

2) Disconnect the support linkage from the rear spar fittings and Joint 7W for the right outboard flap

(f) The Underwing Link

1) Joints 2V and 2W for the left outboard flap

2) Joints 7V and 7W for the right outboard flap

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-21-000-801	Outboard Trailing Edge Flap Removal (P/B 401)
27-51-25-000-801	Outboard Flap Inboard Transmission Removal (P/B 401)
27-51-26-000-802	Outboard Flap Inboard Ballscrew and Gimbal Removal (P/B 401)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-59-01-000-807-002	Outboard Flap Skew Sensor - Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

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C. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7

D. Prepare for the Removal

SUBTASK 27-51-22-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-22-210-008

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-22-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-22-860-010

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-22-860-011

(5) Extend the trailing edge flaps to the 30-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-22-860-012

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-22-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-22-010-002

(8) Do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-22-020-015

(9) Do this task: Outboard Trailing Edge Flap Removal, TASK 27-51-21-000-801.

(a) For the alternative method of removing the trailing edge flap with the flap carrier beam assembly attached do this:

NOTE: The alternative method for the trailing edge flap removal will save time.

1) Disconnect pin [112] and pin [117] at joints 2B and 2C instead of removing the flap carriage bolts and remove the trailing edge flap with the flap carrier beam assembly.

SUBTASK 27-51-22-020-016

(10) If you will remove the drive arm [93], support linkage [92] or underwing link [91], do these steps:

(a) Do this task: Outboard Flap Skew Sensor - Removal, TASK 27-59-01-000-807-002.

(b) For the drive arm [93], do this task: Outboard Flap Inboard Ballscrew and Gimbal Removal, TASK 27-51-26-000-802.

(c) For the support linkage [92] or the underwing link [91], do this task: Outboard Flap Inboard Transmission Removal, TASK 27-51-25-000-801.

E. Disconnect Joint 2D

NOTE: Joint 2D connects the fairing support link [96] and the pivot link [95] to the support linkage [92].

NOTE: Procedure to disconnect joint 7D for the right outboard flap is the same.

SUBTASK 27-51-22-020-017

(1) Remove the fairing support link [96] from the support linkage [92]:

(a) Remove the nut [105], washer [104], washer [103], washer [97] and pin [110] that attach the fairing support link [96].

(b) Remove the seals [102], seals [109], bushing [98] and bushing [106] from the fairing support link [96].

SUBTASK 27-51-22-020-018

CAUTION

MAKE SURE YOU HOLD THE AFT END OF THE CARRIER BEAM WHEN YOU DISCONNECT THE PIVOT LINK. THE AFT END OF THE CARRIER BEAM WILL MOVE DOWN WHEN YOU DISCONNECT THE PIVOT LINK. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Remove the lower end of the pivot link [95] from the support linkage [92]:

(a) Remove the nut [107], washer [100] and washer [101] from the pin [99] that attaches the pivot link [95].

(b) Remove the pin [99] to disconnect the pivot link [95] from the support linkage [92].

F. Disconnect Joint 2C

NOTE: Joint 2C connects the pivot link [95] to the flap carrier beam [94].

NOTE: Procedure to disconnect joint 7C for the right outboard flap is the same.

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SUBTASK 27-51-22-020-019

CAUTION

MAKE SURE YOU HOLD THE AFT END OF THE FLAP CARRIER BEAM WHEN YOU DISCONNECT THE PIVOT LINK. THE AFT END OF THE CARRIER BEAM WILL MOVE DOWN WHEN YOU DISCONNECT THE PIVOT LINK. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Disconnect the pivot link [95] from the flap carrier beam [94]:

(a) Remove the nut [114], washer [115] and bolt [116] from the nut [111].

(b) Remove the nut [111] and washer [113] from the pin [112].

(c) Remove the pin [112] to remove the pivot link [95] from the flap carrier beam [94].

G. Disconnect Joint 2B

NOTE: Joint 2B connects the flap carrier beam [94] to the drive arm [93].

NOTE: Procedure to disconnect joint 7B for the right outboard flap is the same.

SUBTASK 27-51-22-020-020

(1) Disconnect the flap carrier beam [94] from the drive arm [93]:

(a) Remove the nut [121], washer [122] and bolt [123] from the nut [124].

(b) Remove the nut [124] and washer [118], washer [119] and washer [120] from the pin [117].

(c) Remove the pin [117] to remove the flap carrier beam [94] from the drive arm [93].

H. Disconnect Joint 2A

NOTE: Joint 2A connects the drive arm [93] to the rear spar fittings [125].

NOTE: Procedure to disconnect joint 7A for the right outboard flap is the same.

SUBTASK 27-51-22-020-021

(1) Disconnect the drive arm [93] from the rear spar fittings [125]:

(a) Remove the nut [133], washer [134] and bolt [135] from the nut [126].

(b) Remove the nut [126] and washer [127], washer [128] and washer [129] from the pin [131].

(c) Remove the pin [131] and washer [132] to remove the drive arm [93] from the rear spar fittings [125].

(d) Remove the seals [130] from the rear spar fittings [125].

I. Disconnect the Support Linkage From the Rear Spar Fittings

SUBTASK 27-51-22-020-031

(1) Disconnect the wire bundle [164] and wire bundle [168] for the flap skew sensors from the support linkage [92]:

(a) Remove the nuts [167] that attach the wires to the grounding studs.

(b) Remove the screws [166] and clamp [165] that attach the wire bundle [164] and wire bundle [168] to the support linkage [92].

(c) Remove the screws [163] and clamp [169] that attach the wire bundle [164] and wire bundle [168] to the support linkage [92].

SUBTASK 27-51-22-480-003

(2) Put a support below the support linkage [92] to hold the linkage when you disconnect it from the rear spar fittings.

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SUBTASK 27-51-22-020-022

(3) Disconnect the support linkage [92] from the rear spar fittings [125]2

(a) Remove the nuts [139] and washers [138] from the bolts [136].

(b) Lower the support linkage [92] away from the rear spar fittings [125].

(c) Remove the bolts [136] and washers [137] from the rear spar fittings [125].

J. Disconnect Joint 2V

NOTE: Joint 2V connects the underwing link [91] to the flap support fitting [140] on the wing.

NOTE: Procedure to disconnect joint 7V for the right outboard flap is the same.

SUBTASK 27-51-22-480-004

(1) Put a support below the support linkage [92].

SUBTASK 27-51-22-020-023

(2) Disconnect the underwing link [91] from the flap support fitting [140]:

(a) Remove the nut [147], washer [148] and bolt [149] from the nut [141].

(b) Remove the nut [141] and washer [142] from the pin [146].

(c) Remove the pin [146], washers [143] and washer [144] to remove the underwing link [91] from the flap support fitting [140].

SUBTASK 27-51-22-020-024

(3) Move the support linkage [92] aft, out of the flap support fitting [140].

K. Disconnect Joint 2W

NOTE: Joint 2W connects the underwing link [91] to the support linkage [92].

NOTE: Procedure to disconnect joint 7W for the right outboard flap is the same.

SUBTASK 27-51-22-020-025

(1) Disconnect the support linkage [92] from the underwing link [91]:

(a) Remove the nut [153], washer [154] and bolt [155] from the nut [152].

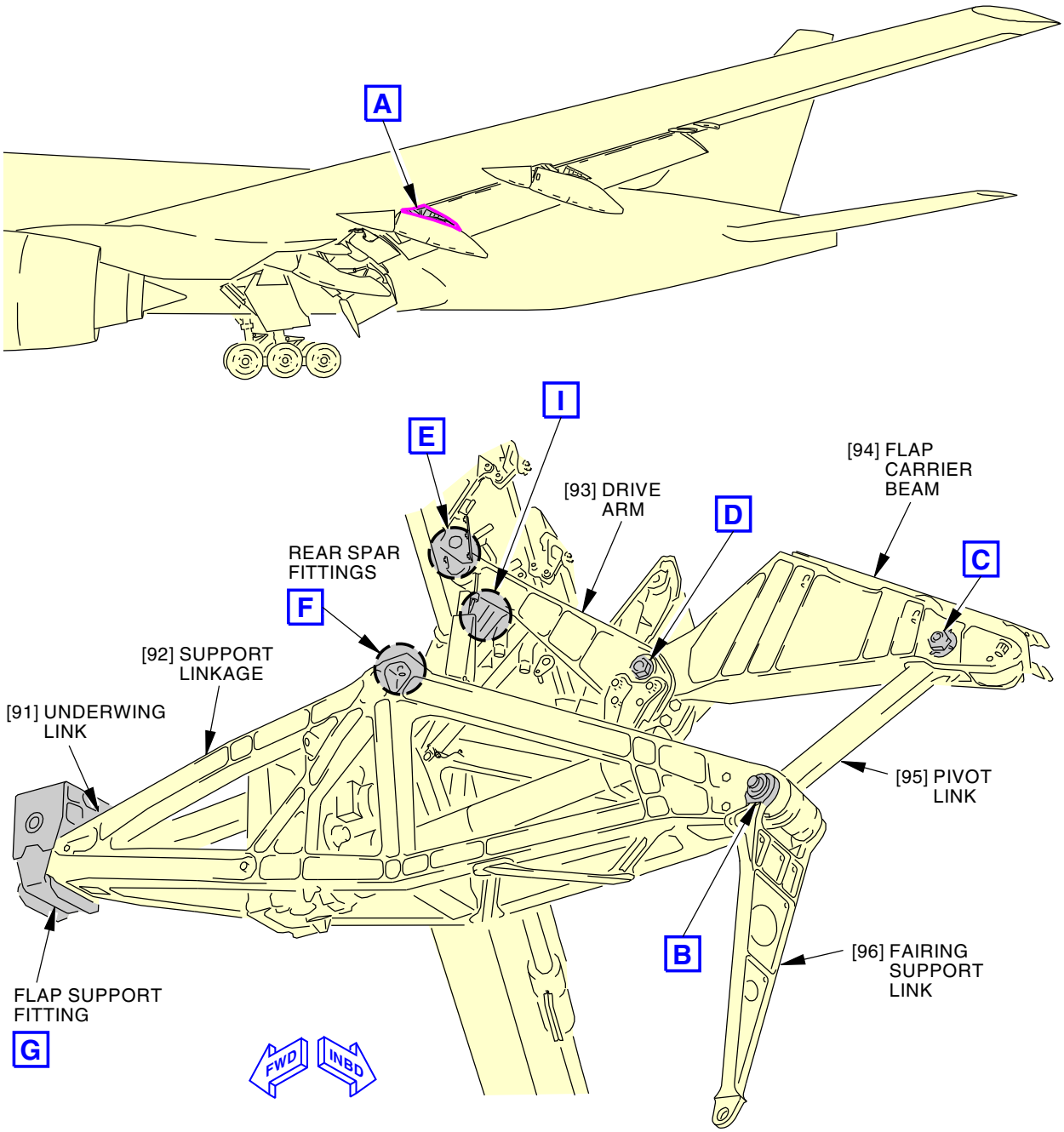
(b) Remove the nut [152] and washer [156] from the fuse pin [150].

(c) Remove the fuse pin [150] to remove the underwing link [91] from the support linkage [92].

(d) If it is necessary, remove the bushings [151] from the support linkage [92].

——— END OF TASK ———

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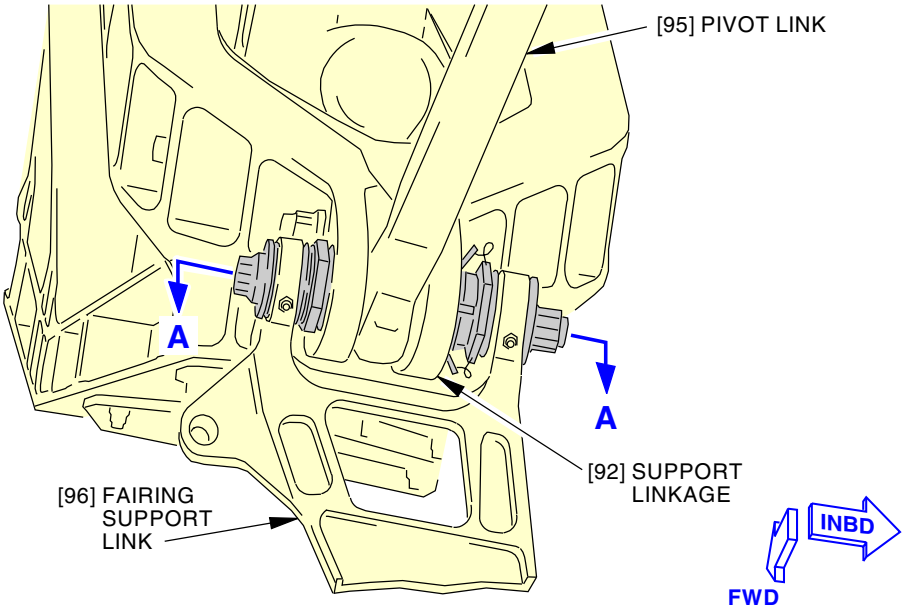
LEFT WING OUTBOARD FLAP INBOARD SUPPORT MECHANISM
(RIGHT WING OUTBOARD FLAP INBOARD SUPPORT MECHANISM IS EQUIVALENT)

A

E40109 S0006413783_V2

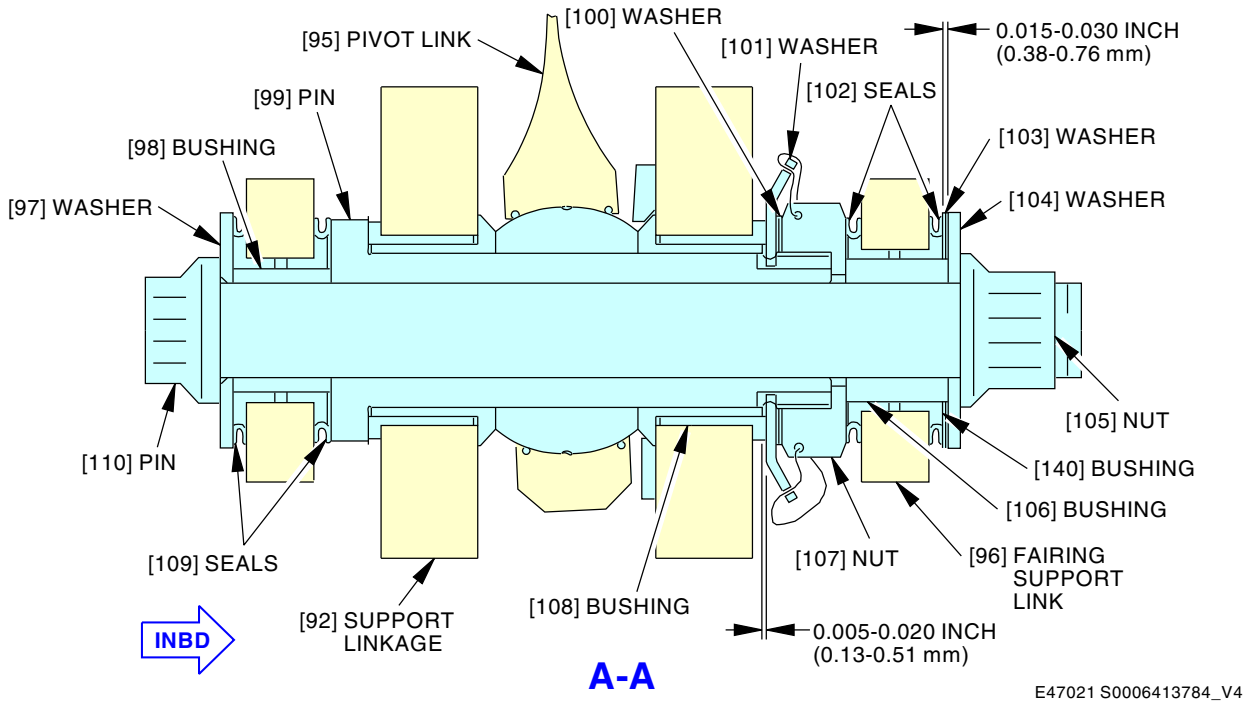
Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 1 of 10)

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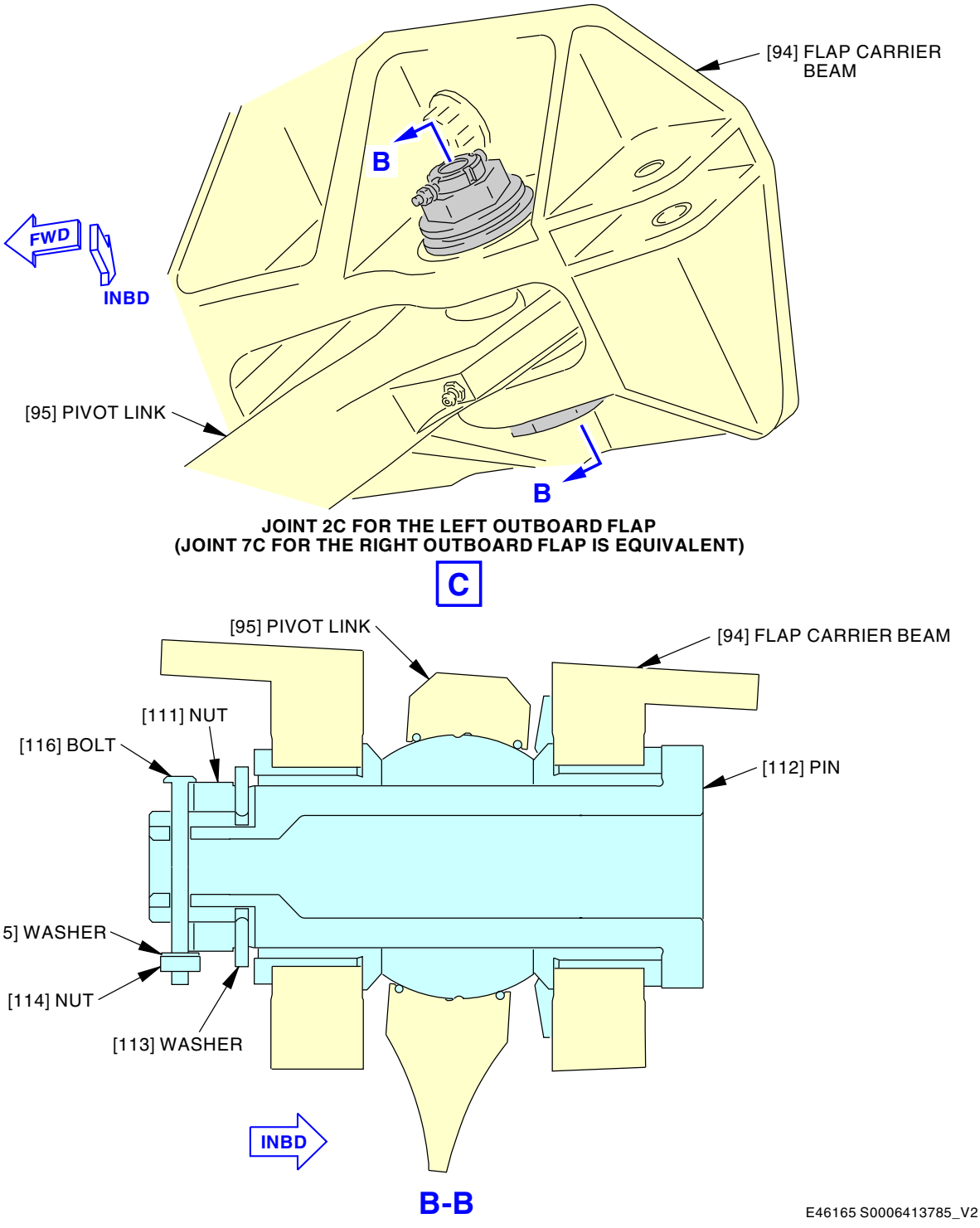
JOINT 2D FOR THE LEFT OUTBOARD FLAP
(JOINT 7D FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

B



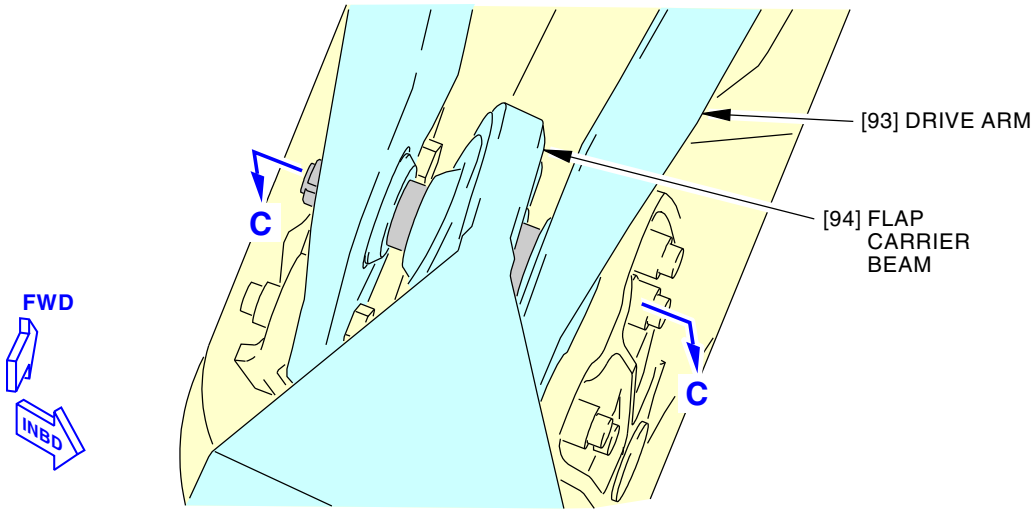
Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 2 of 10)

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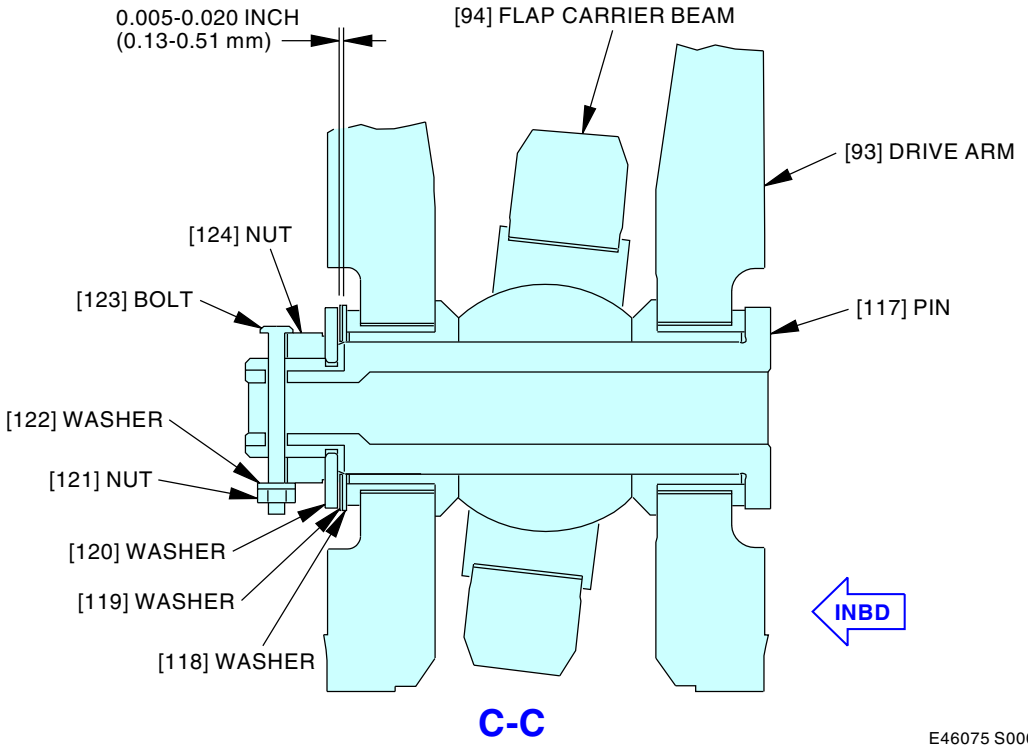
Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 3 of 10)

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JOINT 2B FOR THE LEFT OUTBOARD FLAP
(JOINT 7B FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

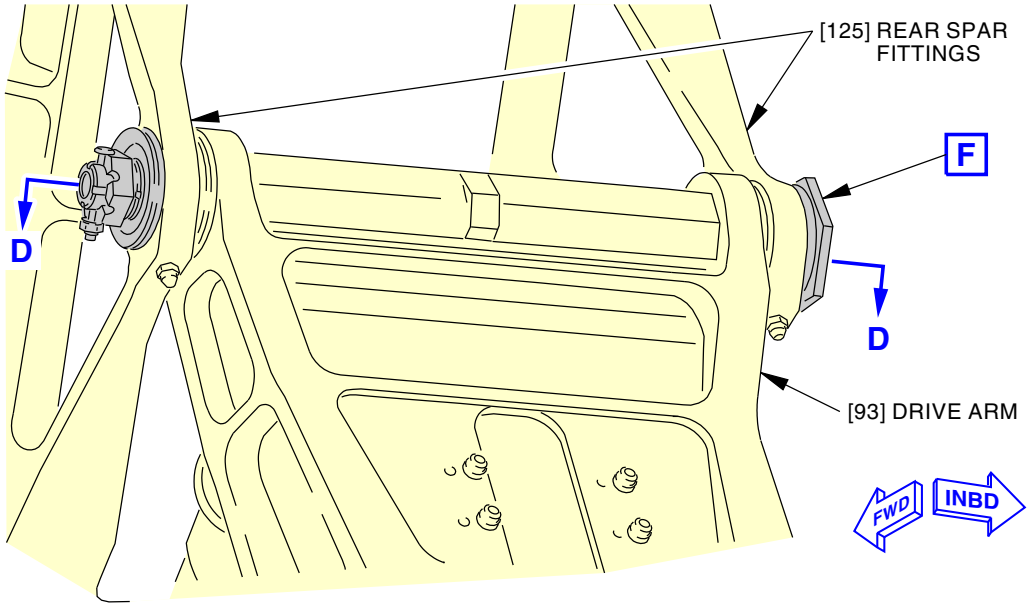
D



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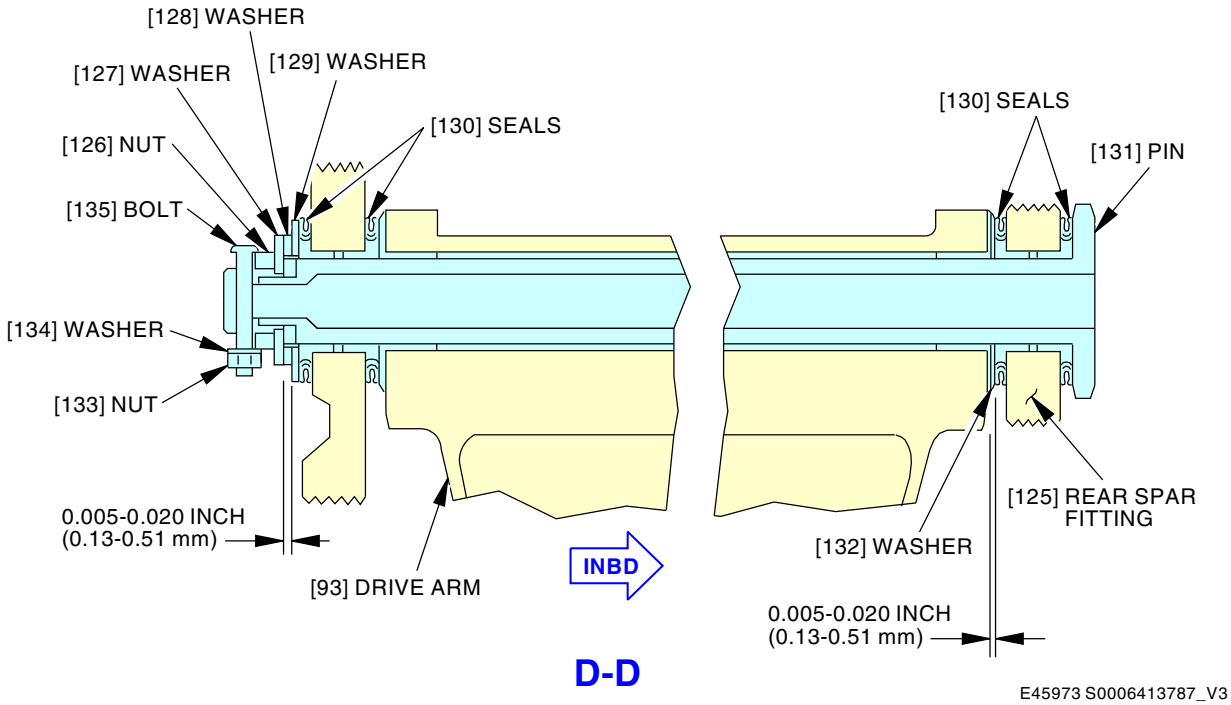
Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 4 of 10)

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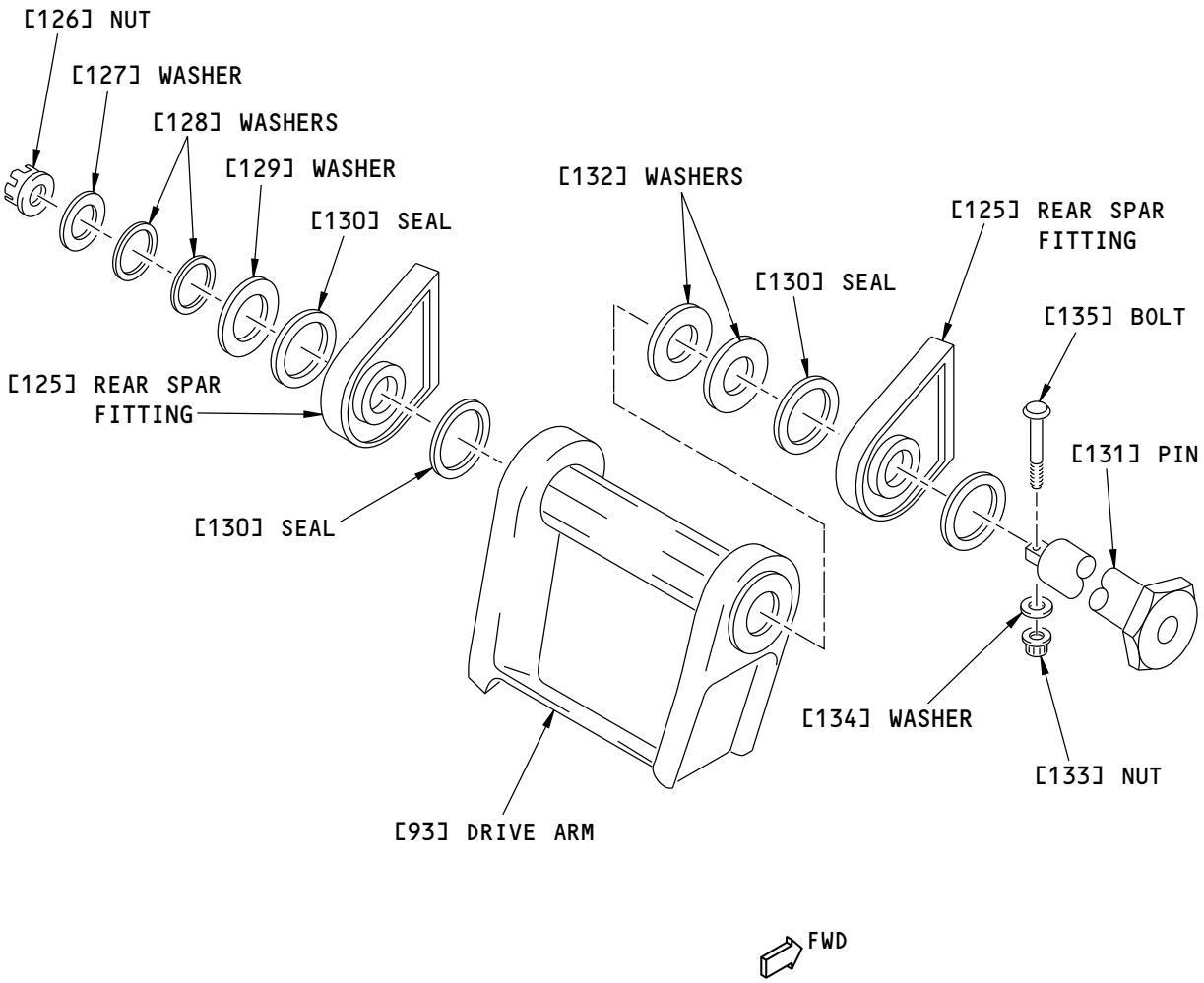
JOINT 2A FOR THE LEFT OUTBOARD FLAP
(JOINT 7A FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

E



Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 5 of 10)

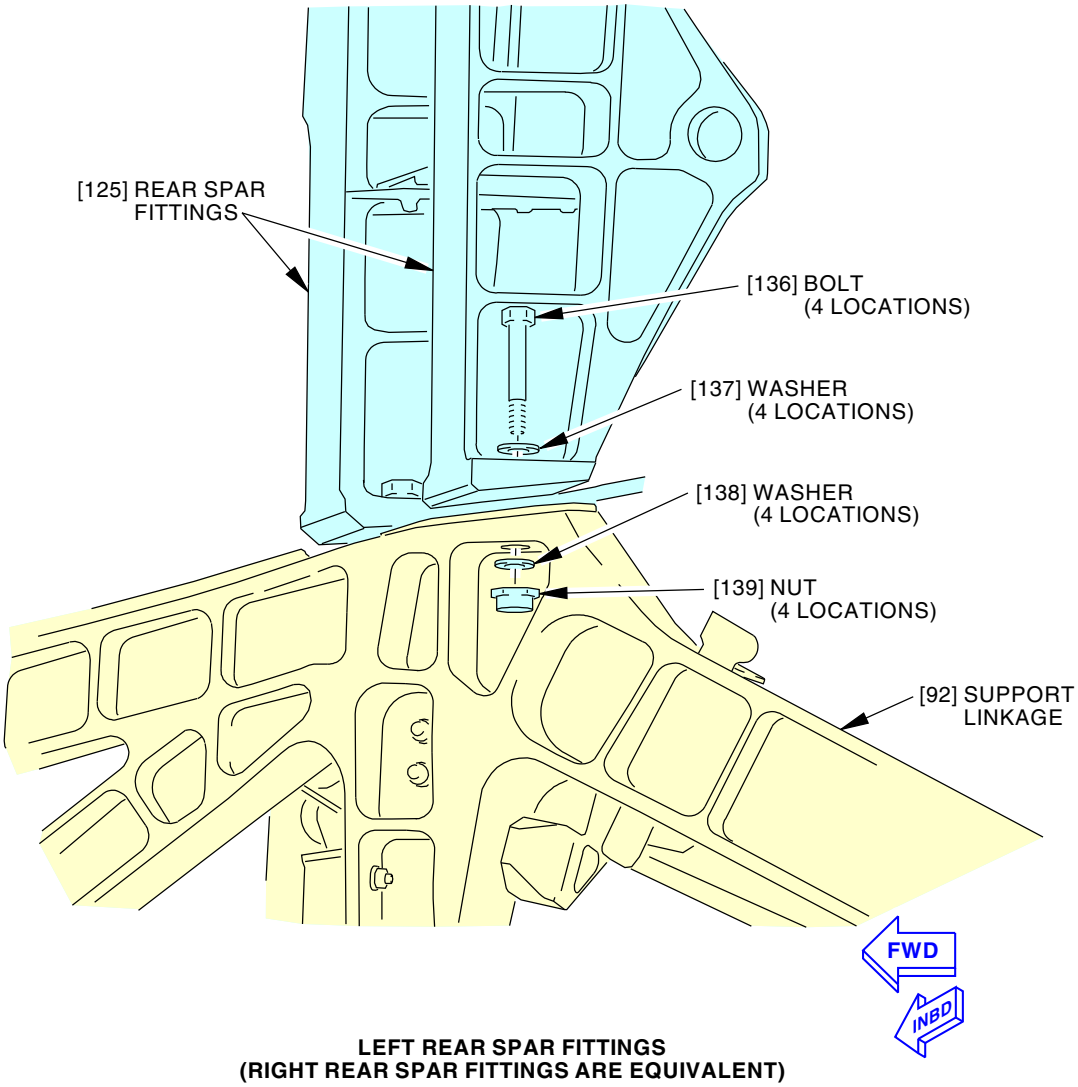
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Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 6 of 10)

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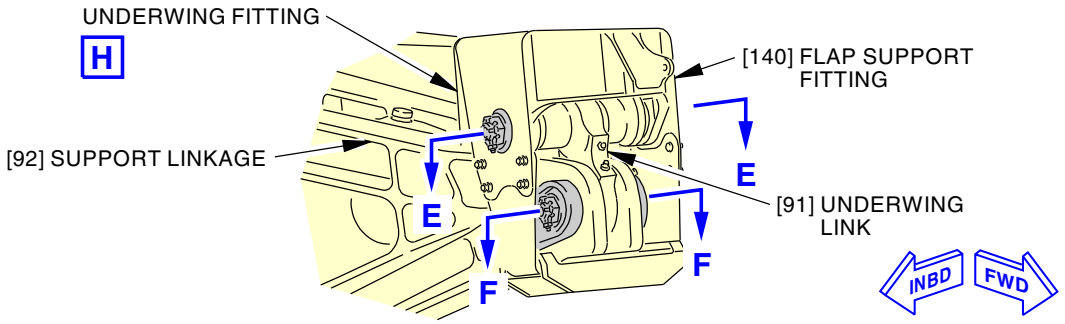
LEFT REAR SPAR FITTINGS
(RIGHT REAR SPAR FITTINGS ARE EQUIVALENT)

F

E46270 S0006413788_V2

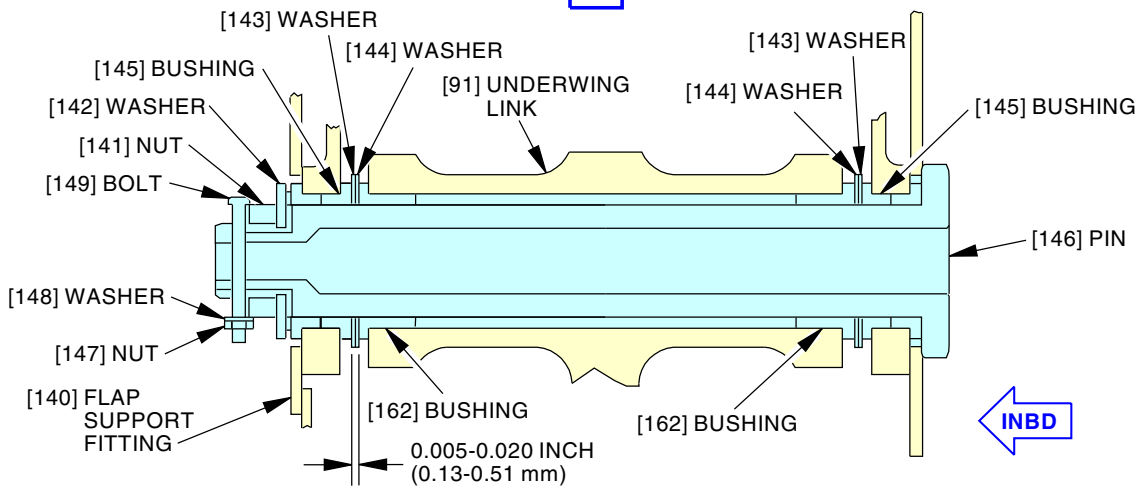
Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 7 of 10)

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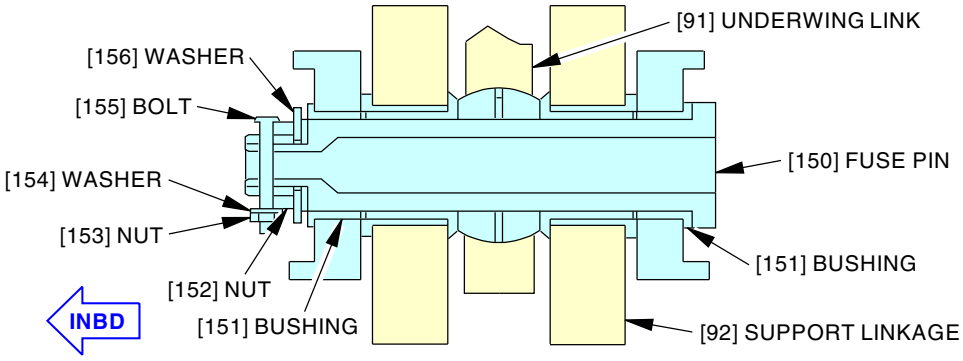
LEFT FLAP SUPPORT FITTING
(RIGHT FLAP SUPPORT FITTING IS EQUIVALENT)

G



JOINT 2V FOR THE LEFT OUTBOARD FLAP
(JOINT 7V FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

E-E



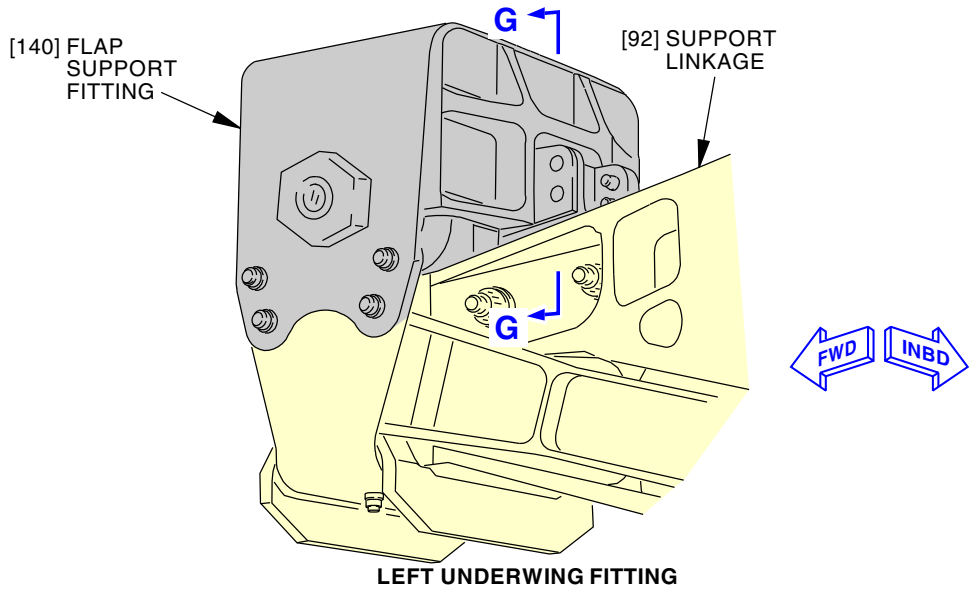
JOINT 2W FOR THE LEFT OUTBOARD FLAP
(JOINT 7W FOR THE RIGHT OUTBOARD FLAP IS EQUIVALENT)

F-F

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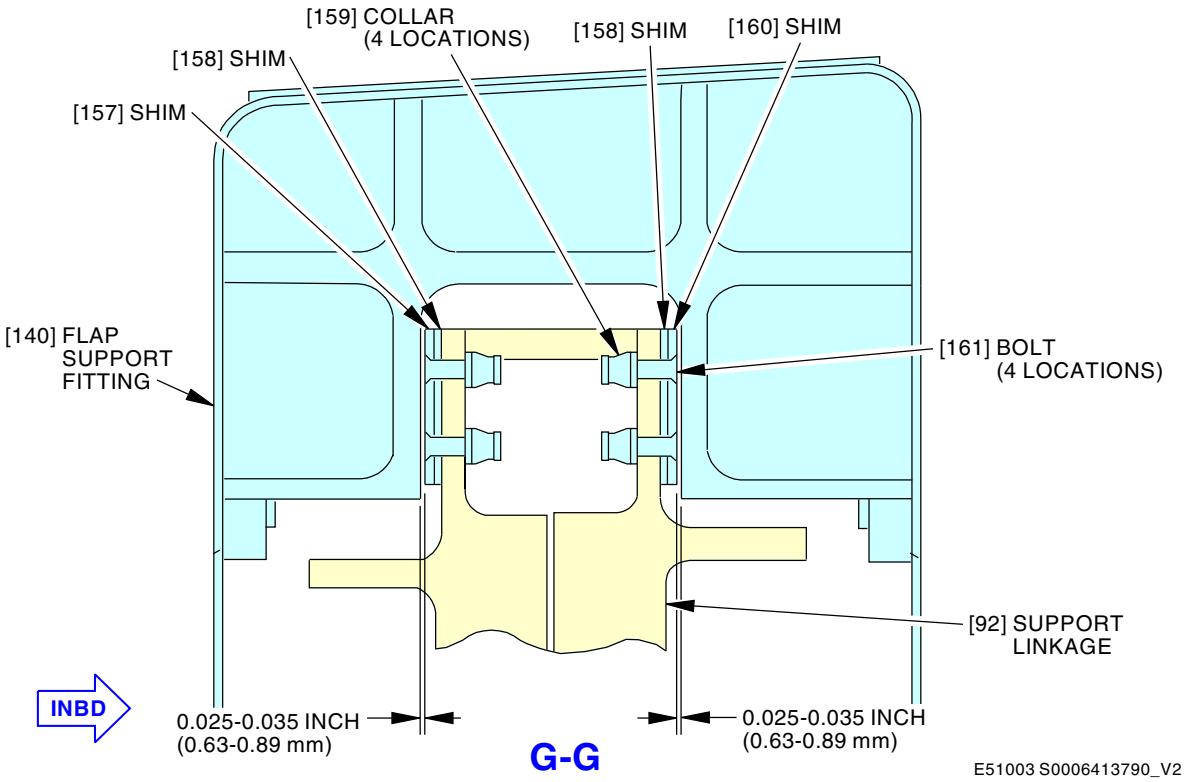
Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 8 of 10)

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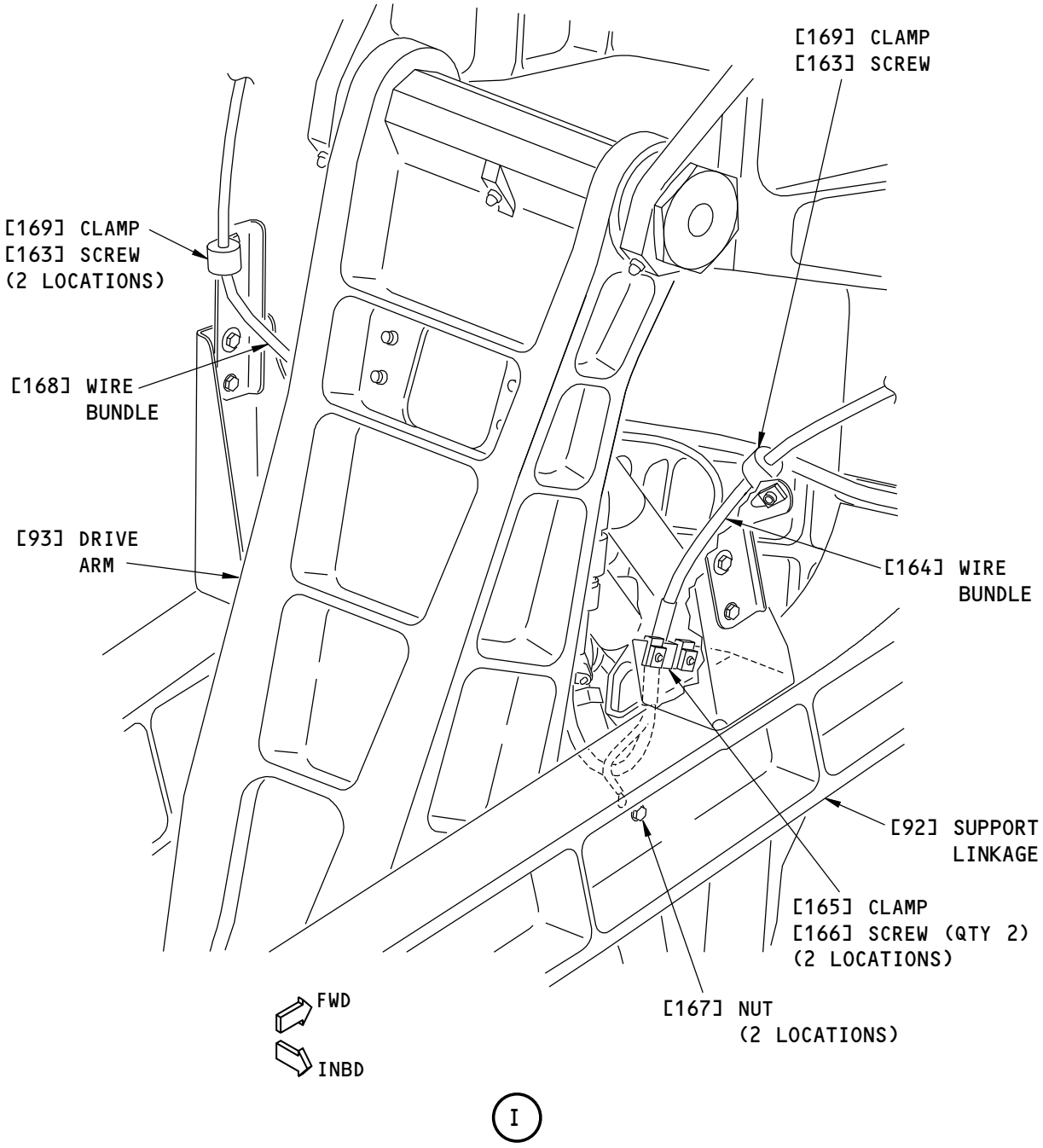
LEFT UNDERWING FITTING
(RIGHT UNDERWING FITTING IS EQUIVALENT)

H



Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 9 of 10)

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Outboard Flap Inboard Support Mechanism Installation
Figure 402/27-51-22-990-802 (Sheet 10 of 10)

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TASK 27-51-22-400-802

5. Outboard Flap Inboard Support Mechanism - Installation

(Figure 402)

A. General

(1) This task is applicable to flap support mechanism No. 2 and No. 7.

(2) To install a specific component, it is only necessary to connect the applicable joints on the flap support mechanism. The components and the joints necessary to remove them are as follows:

(a) The Drive Arm

1) Joints 2A and 2B for the left outboard flap

2) Joints 7A and 7B for the right outboard flap

(b) The Fairing Support Link

1) Joint 2D for the left outboard flap

2) Joint 7D for the right outboard flap

(c) The Flap Carrier Beam

1) Joints 2B and 2C for the left outboard flap

2) Joints 7B and 7C for the right outboard flap

(d) The Pivot Link

1) Joints 2C and 2D for the left outboard flap

2) Joints 7C and 7D for the right outboard flap

(e) The Support Linkage

1) Connect the support linkage to the rear spar fittings and Joint 2W for the left outboard flap

2) Connect the support linkage to the rear spar fittings and Joint 7W for the right outboard flap

(f) The Underwing Link

1) Joints 2V and 2W for the left outboard flap

2) Joints 7V and 7W for the right outboard flap

B. References

Reference	Title
12-21-09-640-811	Outboard Flap Inboard Support Mechanism Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-21-400-801	Outboard Trailing Edge Flap Installation (P/B 401)
27-51-25-400-801	Outboard Flap Inboard Transmission Installation (P/B 401)
27-51-26-400-802	Outboard Flap Inboard Ballscrew and Gimbal Installation (P/B 401)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
27-59-01-400-807-002	Outboard Flap Skew Sensor - Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

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C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33
G02436	Lockwire - MS20995NC40, Monel - 0.040 Inch (1.016 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
91	Underwing link	27-51-22-74A-085	ARO ALL
92	Support linkage	27-51-22-74A-100	ARO ALL
		27-51-22-74A-105	ARO ALL
93	Drive arm	27-51-22-74A-250	ARO ALL
		27-51-22-74A-255	ARO ALL
94	Flap carrier beam	27-51-22-74A-150	ARO ALL
		27-51-22-74A-155	ARO ALL
95	Pivot link	27-51-22-74A-500	ARO ALL
96	Fairing support link	27-51-28-11-355	ARO ALL
102	Seal	27-51-28-11-240	ARO ALL
109	Seal	27-51-28-11-240	ARO ALL
130	Seal	27-51-22-74-185	ARO ALL

E. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7

F. Connect Joint 2W

NOTE: Joint 2W connects the underwing link [91] to the support linkage [92].

NOTE: Procedure to connect Joint 7W for the right outboard flap is the same.

SUBTASK 27-51-22-420-013

(1) Connect the underwing link [91] to the support linkage [92]:

(a) If you removed the bushings [151] from the support linkage [92], then do these steps:

1) Apply grease, D00633, to the bushings [151].

2) Install the bushings [151] in the support linkage [92].

(b) Put the underwing link [91] in its position in the support linkage [92].

(c) Apply grease, D00633, to the fuse pin [150], washer [156] and nut [152].

(d) Install the fuse pin [150] that attaches the underwing link [91] to the support linkage [92].

(e) Install the washer [156] and nut [152] on the fuse pin [150].

(f) Tighten the nut [152]:

1) Tighten the nut [152] to 150 in-lb (17 N·m) to 200 in-lb (23 N·m) plus run-on torque.

2) Loosen the nut [152] until you can install the bolt [155].

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(g) Install the bolt [155], washer [154] and nut [153] on the nut [152].

(h) Tighten the nut [153] until a minimum of two threads extend past the nut.

G. Connect Joint 2V

NOTE: Joint 2V connects the underwing link [91] to the flap support fitting [140] on the wing.

NOTE: Procedure to connect Joint 7V for the right outboard flap is the same.

SUBTASK 27-51-22-420-014

(1) Move the support linkage [92] with the underwing link [91] forward, in the flap support fitting [140].

SUBTASK 27-51-22-420-015

(2) Connect the underwing link [91] to the flap support fitting [140]:

(a) Apply a layer of grease, D00633, to the pin [146], washer [142], washers [143], washers [144] and nut [141].

(b) Install the pin [146], washers [143] and washers [144] to connect the underwing link [91] to the flap support fitting [140].

NOTE: Install the pin [146] with the head outboard.

(c) Install the washer [142] and nut [141] on the pin [146].

(d) Tighten the nut [141] to 200 in-lb (23 N·m) to 400 in-lb (45 N·m) plus run-on torque.

(e) Measure the clearance between the bushing [145] and the bushing [162].

(f) If the clearance is not in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm), change the thickness of the washers [143] and washers [144]:

1) Remove the nut [141] and washer [142] from the pin [146].

2) Remove the pin [146] and washers [143] and washers [144].

3) Change the number and location of the washers [144].

4) Install the pin [146] and washers [143] and washers [144].

5) Install the washer [142] and nut [141] on the pin [146].

6) Tighten the nut [141] to 200 in-lb (23 N·m) to 400 in-lb (45 N·m) plus run-on torque.

7) Make sure the clearance between the bushing [145] and the bushing [162] is in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

SUBTASK 27-51-22-220-007

(3) At the aft end of the flap support fitting [140], measure the clearance between the shim [157] and shim [160] on the support linkage [92] and the flap support fitting [140].

SUBTASK 27-51-22-820-007

(4) If the clearance is not in the limit of 0.025 in. (0.635 mm) to 0.035 in. (0.889 mm) on both sides of the support linkage [92], then change the thickness of the shim [158]:

(a) Remove the support linkage [92] from the flap support fitting [140]:

1) Remove the nut [141] and washer [142] from the pin [146].

2) Remove the pin [146] and washers [143] and washers [144].

(b) Change the thickness of the shim [158] on the support linkage [92]:

1) Remove the bolts [161] and collars [159] from the support linkage [92].

2) Remove the shim [157], shims [158] and shim [160].

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3) Change the thickness of the shims [158].

NOTE: If it is necessary to get the clearance, you can install a maximum of two shims [158] on each side of the support linkage. You can also install the shim [157] and shim [160] without shims [158]. If it is necessary, you can remove laminations from shims [158].

4) Apply sealant, A00247, to the mating surfaces of shim [157], shims [158] and shim [160].

5) Put the shim [157], shims [158] and shim [160] on the support linkage [92].

6) Apply sealant, A00247, to the bolts [161].

7) Install the bolts [161] and collars [159] that attach the shim [157], shims [158] and shim [160].

(c) Install the support linkage [92] on the flap support fitting [140]:

1) Install the pin [146] and washers [143] and washers [144].

2) Install the washer [142] and nut [141] on the pin [146].

3) Tighten the nut [141] to 200 in-lb (23 N·m) to 400 in-lb (45 N·m) plus run-on torque.

SUBTASK 27-51-22-420-016

(5) Install the bolt [149] through the nut [141]:

(a) Loosen the nut [141] until you can install the bolt [149].

(b) Install the bolt [149], washer [148] and nut [147] through the nut [141].

(c) Tighten the nut [147] until a minimum of two threads extend past the nut.

H. Connect the Support Linkage To the Rear Spar Fittings

SUBTASK 27-51-22-020-026

(1) Connect the support linkage [92] to the rear spar fittings [125]:

(a) Apply sealant, A00247, to the mating surfaces of the support linkage [92] and the rear spar fittings [125].

(b) Lift the support linkage [92] up to its position on the rear spar fittings [125].

(c) Apply sealant, A00247, to the shank and threads of the bolts [136].

(d) Install the bolts [136], washers [137], washers [138] and nuts [139].

(e) Tighten the nuts [139] to 480 in-lb (54 N·m) to 850 in-lb (96 N·m).

SUBTASK 27-51-22-080-002

(2) Remove the support from below the support linkage [92].

SUBTASK 27-51-22-420-027

(3) Connect the wire bundle [164] and wire bundle [168] for the flap skew sensors to the support linkage [92]:

(a) Install the clamps [165] and screws [166] to attach the wire bundle [164] and wire bundle [168] to the support linkage [92].

(b) Install the screws [163] and clamp [169] to attach the wire bundle [164] and wire bundle [164] to the support linkage [92].

(c) Install the nuts [167] that attach the wires to the grounding studs.

I. Connect Joint 2A

NOTE: Joint 2A connects the drive arm [93] to therear spar fittings [125].

NOTE: Procedure to connect Joint 7A for the right outboard flap is the same.

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SUBTASK 27-51-22-020-027

(1) Connect the drive arm [93] to the rear spar fittings [125]:

(a) Apply a layer of grease, D00633, to the pin [131], and bushing faces on the drive arm [93] and rear spar fittings [125].

(b) Install the seals [130] on the bushings on the rear spar fittings [125].

(c) Put the drive arm [93] in its position between the rear spar fittings [125].

(d) Install the pin [131] and washer [132] that attaches the drive arm [93] to the rear spar fittings [125].

(e) Install the washer [129], washer [127], and nut [126] on the pin [131].

(f) Tighten the nut [126] to 120 in-lb (14 N·m) to 300 in-lb (34 N·m) plus run-on torque.

SUBTASK 27-51-22-220-008

(2) On the inboard end of the pin [131], measure the clearance between the bushing in the drive arm [93] and the bushing on the rear spar fitting [125]. Make sure the bushing at the inboard end of the drive arm [93] touches the bushing in the inboard rear spar fitting [125].

(a) Add the minimum number of washers [132] needed to get a clearance of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm) between the bushing at the inboard end of the drive arm [93] and the bushing in the rear spar fitting [125].

NOTE: Washer [132] is optional and is used to adjust the clearance. Add one washer or combine washers of different thicknesses when necessary.

SUBTASK 27-51-22-220-009

(3) On the outboard end of the pin, measure the clearance between the washer [129] and washer [127].

(a) Add the minimum number of washers [128] needed to get a clearance of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

NOTE: Washer [128] is optional and is used to adjust the clearance. Add one washer or combine washers of different thicknesses when necessary.

SUBTASK 27-51-22-820-008

(4) After all the clearances are in the limits:

(a) Temporarily remove the nut [126], washer [127], washers [128] (if needed), washer [129], and washers [132] (if needed) from the pin [131].

(b) Apply a layer of grease, D00633 to the mating surfaces of the pin, washers, and nut including threads before installation.

(c) Install the washers [132] (if needed), washer [129], washers [128] (if needed), washer [127] and nut [126] in the sequence and number necessary for clearances.

(d) Tighten the nut [126] to 120 in-lb (14 N·m) to 300 in-lb (34 N·m) plus run-on torque.

(e) Make sure the clearance between the bushing at the inboard end of the drive arm [93] and the washer [132] or the bushing in the rear spar fitting [125] is in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

(f) Make sure the clearance between the washer [127] and washer [128] or washer [129] is in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

SUBTASK 27-51-22-420-017

(5) Install the bolt [135] through the nut [126]:

(a) Loosen the nut [126] until you can install the bolt [135].

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(b) Install the bolt [135], washer [134], and nut [133] through the nut [126].

(c) Tighten the nut [126] until a minimum of two threads extend past the nut.

J. Connect Joint 2B

NOTE: Joint 2B connects the flap carrier beam [94] to the drive arm [93].

NOTE: Procedure to connect Joint 7B for the right outboard flap is the same.

SUBTASK 27-51-22-420-018

(1) Connect the flap carrier beam [94] to the drive arm [93]:

(a) Put the flap carrier beam [94] in its position on the drive arm [93].

(b) Apply grease, D00633, to the pin [117], washer [118], washer [119], washer [120] and nut [124].

(c) Install the pin [117] that attaches the flap carrier beam [94] to the drive arm [93].

(d) Install the washer [118], washer [119], washer [120] and nut [124] on the pin [117].

(e) Tighten the nut [124] to 200 in-lb (23 N·m) to 400 in-lb (45 N·m) plus run-on torque.

SUBTASK 27-51-22-220-010

(2) Measure the clearance between the washer [119] and washer [120].

SUBTASK 27-51-22-820-009

(3) If the clearance between the washer [119] and washer [120] is not in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm), change the number and location of the washer [118] and the washer [119]

(a) Remove the nut [124], washer [118], day washer [119] and washer [120] from the pin [117].

(b) Change the number and location of the washer [118] and washer [119].

(c) Install the washer [118], washer [119], washer [120] and nut [124].

(d) Tighten the nut [124] to 200 in-lb (23 N·m) to 400 in-lb (45 N·m) plus run-on torque.

(e) Make sure the clearances between the washer [119] and washer [120] is in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

SUBTASK 27-51-22-420-019

(4) Install the bolt [123] through the nut [124]:

(a) Loosen the nut [124] until you can install the bolt [123].

(b) Install the bolt [123], washer [122] and nut [121] through the nut [124].

(c) Tighten the nut [121] until a minimum of two threads extend past the nut.

K. Connect Joint 2C

NOTE: Joint 2C connects the pivot link [95] to the flap carrier beam [94].

NOTE: Procedure to connect Joint 7C for the right outboard flap is the same.

SUBTASK 27-51-22-420-020

(1) Connect the pivot link [95] to the flap carrier beam [94]:

(a) Put the pivot link [95] in its location on the flap carrier beam [94].

(b) Apply grease, D00633, to the pin [112], washer [113] and nut [111].

(c) Install the pin [112] that attaches the pivot link [95] to the flap carrier beam [94].

(d) Install the washer [113] and nut [111] on the pin [112].

(e) Tighten the nut [111] to 250 in-lb (28 N·m) to 450 in-lb (51 N·m) plus run-on torque.

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SUBTASK 27-51-22-420-021

(2) Install the bolt [116] through the nut [111]:

(a) Loosen the nut [111] until you can install the bolt [116].

(b) Install the bolt [116], washer [115] and nut [114] through the nut [111].

(c) Tighten the nut [114] until a minimum of two threads extend past the nut.

L. Connect Joint 2D

NOTE: Joint 2D connects the fairing support link [96] and the pivot link [95] to the support linkage [92].

NOTE: Procedure to connect Joint 7D for the right outboard flap is the same.

SUBTASK 27-51-22-420-022

(1) Connect the lower end of the pivot link [95] to the support linkage [92]:

(a) Apply grease, D00633, to the pin [99], washer [100], washer [101] and nut [107].

(b) Put the pivot link [95] in its position, aligned with the support linkage [92].

(c) Install the pin [99] that attaches the pivot link [95] to the support linkage [92].

(d) Install the washer [101], washer [100] and nut [107] on the pin [99].

(e) Tighten the nut [107] to 400 in-lb (45.2 N·m) to 450 in-lb (50.8 N·m).

SUBTASK 27-51-22-220-011

(2) Measure the clearance between the washer [101] and bushing [108].

SUBTASK 27-51-22-820-010

(3) If the clearance is not in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm), change the thickness of the washer [100]:

(a) Remove the nut [107], washer [100] and washer [101].

(b) Change the location and thickness of the washer [100].

(c) Install the nut [107], washer [100] and washer [101] on the pin [99].

(d) Tighten the nut [107] to 400 in-lb (45.2 N·m) to 450 in-lb (50.8 N·m).

(e) Make sure the clearance is in the limit of 0.005 in. (0.127 mm) to 0.020 in. (0.508 mm).

SUBTASK 27-51-22-420-023

(4) Install MS20995NC40 lockwire, G02436 in two locations on the nut [107] and washer [101].

SUBTASK 27-51-22-420-024

(5) Install the fairing support link [96] on the support linkage [92]:

(a) Install the bushing [98] and bushing [106] and seals [102] and seals [109] on the fairing support link [96].

(b) Install the pin [110], washer [97], washer [103], washer [104] and nut [105] to attach the fairing support link [96].

NOTE: Install the pin [110] with the head outboard.

(c) Tighten the nut [105] to 2200 in-lb (249 N·m) to 2500 in-lb (282 N·m).

SUBTASK 27-51-22-220-012

(6) Measure the clearance between the washer [103] and the flap support fitting [140].

SUBTASK 27-51-22-820-011

(7) If the clearance is not in the limit of 0.015 in. (0.381 mm) to 0.030 in. (0.762 mm), change the thickness of the washers [103]:

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(a) Remove the nut [105], washers [103] and washer [104].

(b) Change the number of the washers [103].

(c) Install the washers [103], washer [104] and nut [105].

(d) Tighten the nut [105] to 2200 in-lb (249 N·m) to 2500 in-lb (282 N·m).

(e) Make sure the clearance between the washer [103] and the flap support fitting [140] is in the limit of 0.015 in. (0.381 mm) to 0.030 in. (0.762 mm).

SUBTASK 27-51-22-020-028

(8) If you installed the drive arm [93], support linkage [92] or the underwing link [91], do these steps:

(a) For the support linkage [92] or the underwing link [91], do this task: Outboard Flap Inboard Transmission Installation, TASK 27-51-25-400-801.

(b) For the drive arm [93], do this task: Outboard Flap Inboard Ballscrew and Gimbal Installation, TASK 27-51-26-400-802.

(c) Do this task: Outboard Flap Skew Sensor - Installation, TASK 27-59-01-400-807-002.

SUBTASK 27-51-22-410-003

(9) Do this task: Outboard Trailing Edge Flap Installation, TASK 27-51-21-400-801.

SUBTASK 27-51-22-640-002

(10) For the applicable flap support, do this task: Outboard Flap Inboard Support Mechanism Lubrication, TASK 12-21-09-640-811.

SUBTASK 27-51-22-410-004

(11) Do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-22-440-002

(12) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-22-210-004

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(13) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-22-860-013

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(14) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-22-860-014

(15) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

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SUBTASK 27-51-22-860-015

(16) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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OUTBOARD FLAP SUPPORT MECHANISM - INSPECTION/CHECK

1. General

A. This procedure contains the following tasks:

(1) A task to do an inspection of the inboard support mechanism for the outboard trailing edge flaps.

(2) A task to do an inspection of the outboard support mechanism for the outboard trailing edge flaps.

TASK 27-51-22-200-801

2. Outboard Flap Outboard Support Inspection

A. General

(1) This task is applicable to flap support mechanism No. 1 and No. 8.

B. References

Reference	Title
27-51-22-000-801	Outboard Flap Outboard Support Mechanism Removal (P/B 401)
27-51-22-400-801	Outboard Flap Outboard Support Mechanism - Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1097	Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch

D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
677	Flap Support Fairing No. 8

E. Procedure

SUBTASK 27-51-22-020-032

(1) Do this task: Outboard Flap Outboard Support Mechanism Removal, TASK 27-51-22-000-801.

SUBTASK 27-51-22-211-001

(2) Use this tool to do a check for wear on the part of the outboard flap outboard support mechanism:

(a) vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097

SUBTASK 27-51-22-211-003

(3) Inspect components lubrication paths for potential blockage; clear lubrication paths as necessary.

SUBTASK 27-51-22-220-013

(4) Examine the parts of the outboard flap outboard support mechanism:

(a) Remove the parts that you will measure.

(b) Measure the parts with a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

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(d) If the parts are not in tolerance, replace or repair the parts.

NOTE: The surface finish of all bearing surfaces of mating parts must be 32 micro inches or better.

OUTBOARD FLAP OUTBOARD SUPPORT MECHANISM WEAR LIMITS

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMIT		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
PIN [8]	O..D.	0.9979 in 25.347 mm	0.9985 in 25.362 mm	0.9970 in 25.324 mm	
BUSHING [9]	I. D.	0.9995 in 25.387 mm	1.0003 in 25.408 mm	1.0047 in 25.519 mm	0.0062 in 0.1575 mm
BUSHING [10]	I. D.	0.9995 in 25.387 mm	1.0003 in 25.408 mm	1.0047 in 25.519 mm	0.0062 in 0.1575 mm
PIN [11]	O. D.	1.2479 in 31.697 mm	1.2485 in 31.712 mm	1.2470 in 31.674 mm	
BUSHING [12]	I. D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2558 in 31.897 mm	0.0073 in 0.1854 mm
BEARING [13]	I.D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2558 in 31.897 mm	0.0073 in 0.1854 mm
PIN [14]	O. D.	1.2479 in 31.697 mm	1.2485 in 31.712 mm	1.2470 in 31.674 mm	
BUSHING [15]	I. D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2558 in 31.897 mm	0.0073 in 0.1854 mm
BEARING [16]	I. D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2558 in 31.897 mm	0.0073 in 0.1854 mm
PIN [17]	O. D.	1.2479 in 31.697 mm	1.2485 in 31.712 mm	1.2470 in 31.674 mm	
BUSHING [18]	I. D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2558 31.897 mm	0.0073 in 0.1854 mm
PIN [19]	O. D.	1.1854 in 30.109 mm	1.1860 in 30.124 mm	1.1845 in 30.086 mm	

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OUTBOARD FLAP OUTBOARD SUPPORT MECHANISM WEAR LIMITS (Continued)

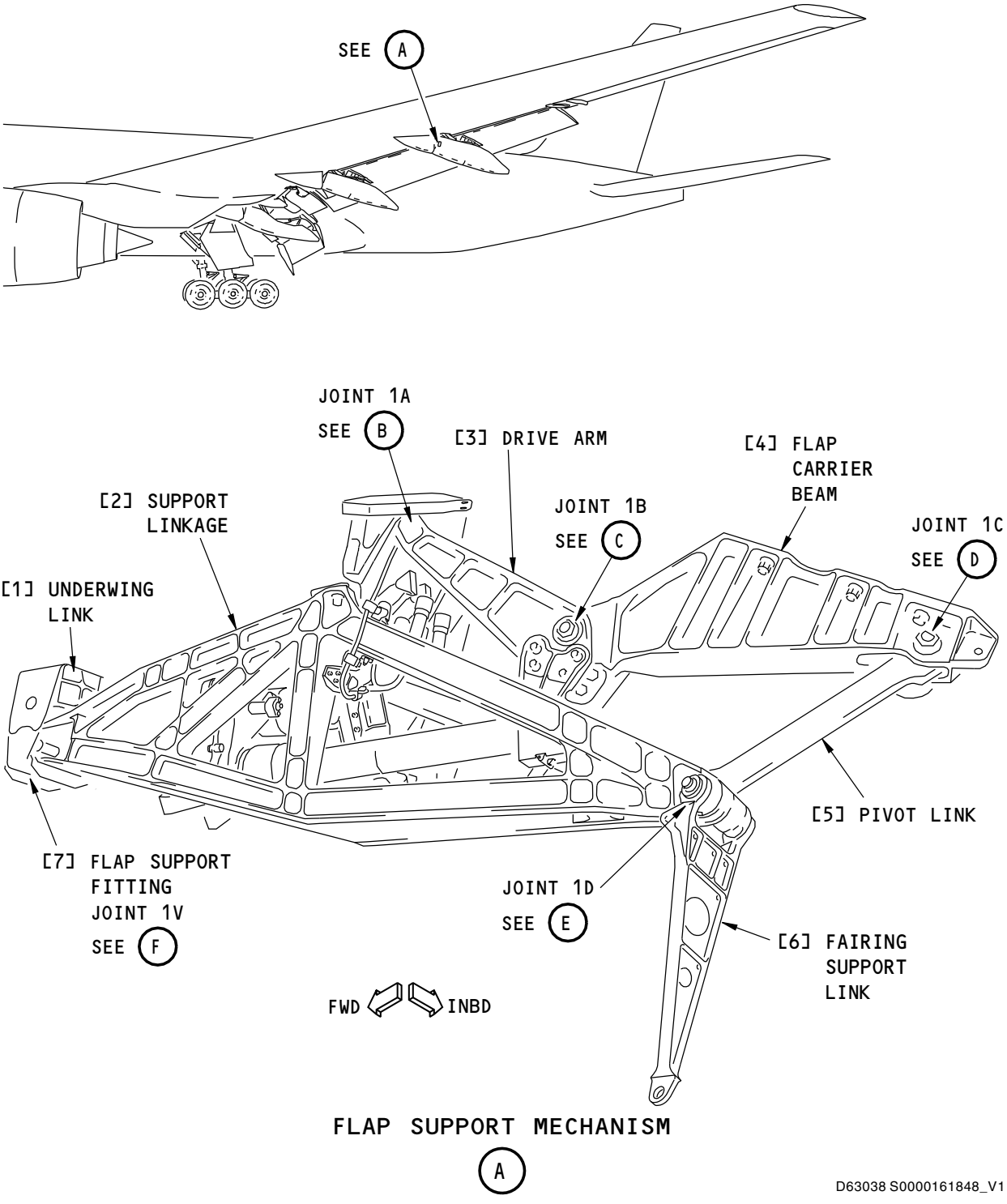
NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMIT		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
BUSHING [20]	I. D.	1.1870 in 30.145 mm	1.1878 in 30.170 mm	1.1938 in 30.322 mm	0.0078 in 0.1981mm
BUSHING [21]	I. D.	1.1870 in 30.145 mm	1.1878 in 30.170 mm	1.1938 in 30.322 mm	0.0078 in 0.1981mm

SUBTASK 27-51-22-420-028

(5) Do this task: Outboard Flap Outboard Support Mechanism - Installation, TASK 27-51-22-400-801

——— END OF TASK ———

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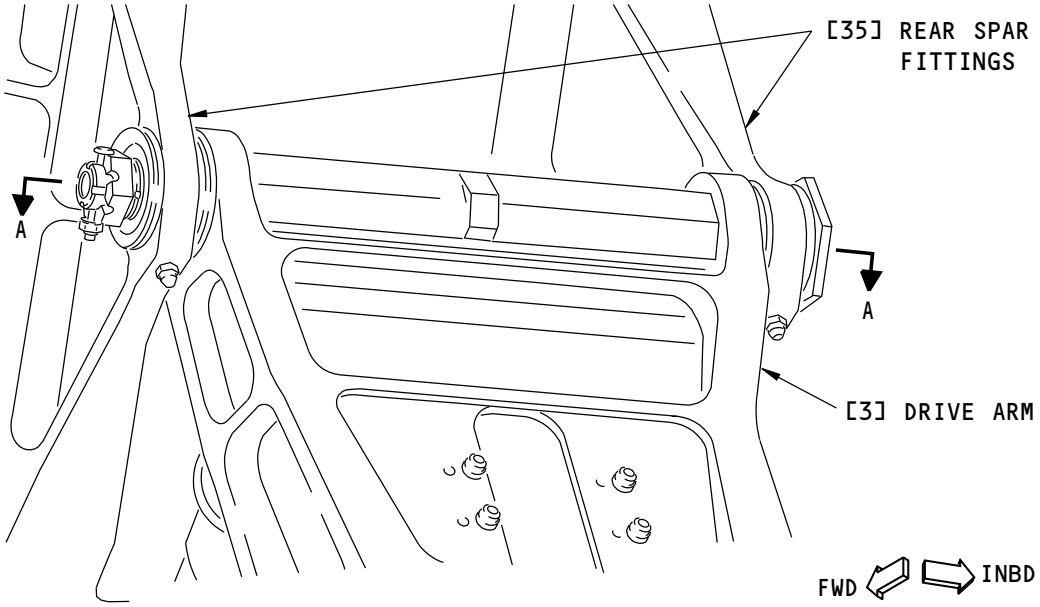
FLAP SUPPORT MECHANISM

A

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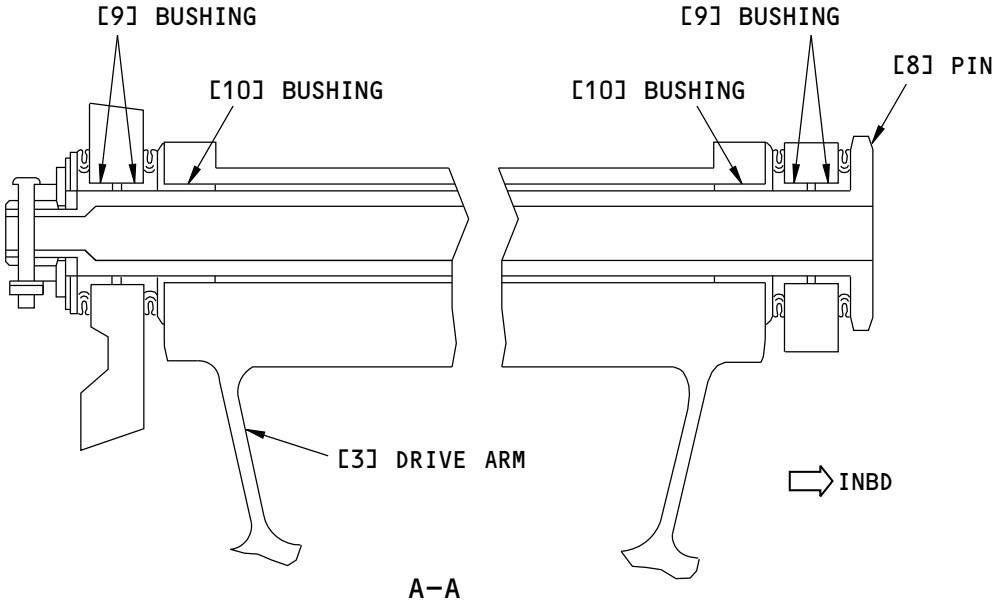
Outboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-22-990-803 (Sheet 1 of 6)

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JOINT 1A

B

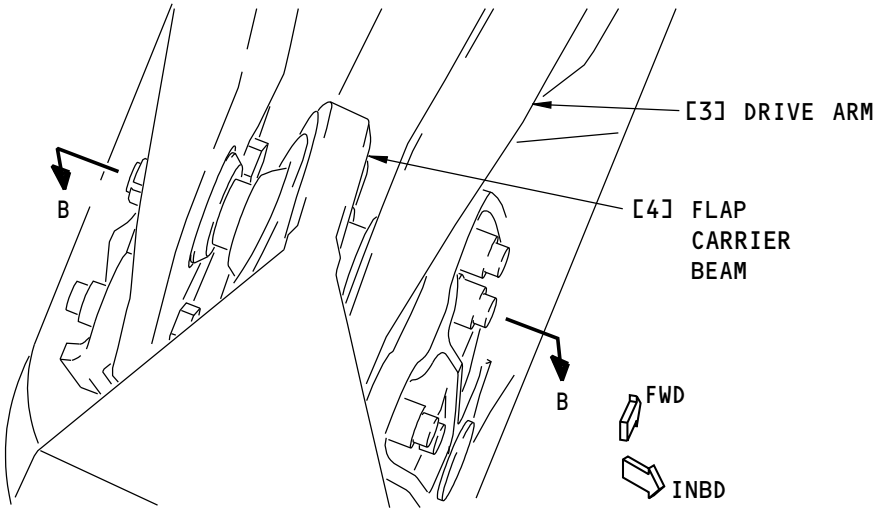


A–A

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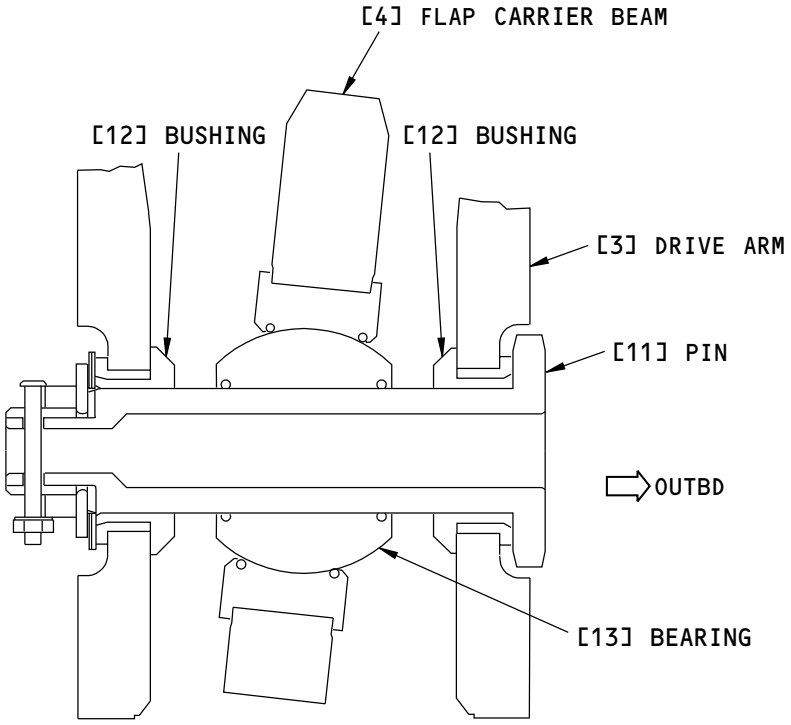
Outboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-22-990-803 (Sheet 2 of 6)

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JOINT 1B

C

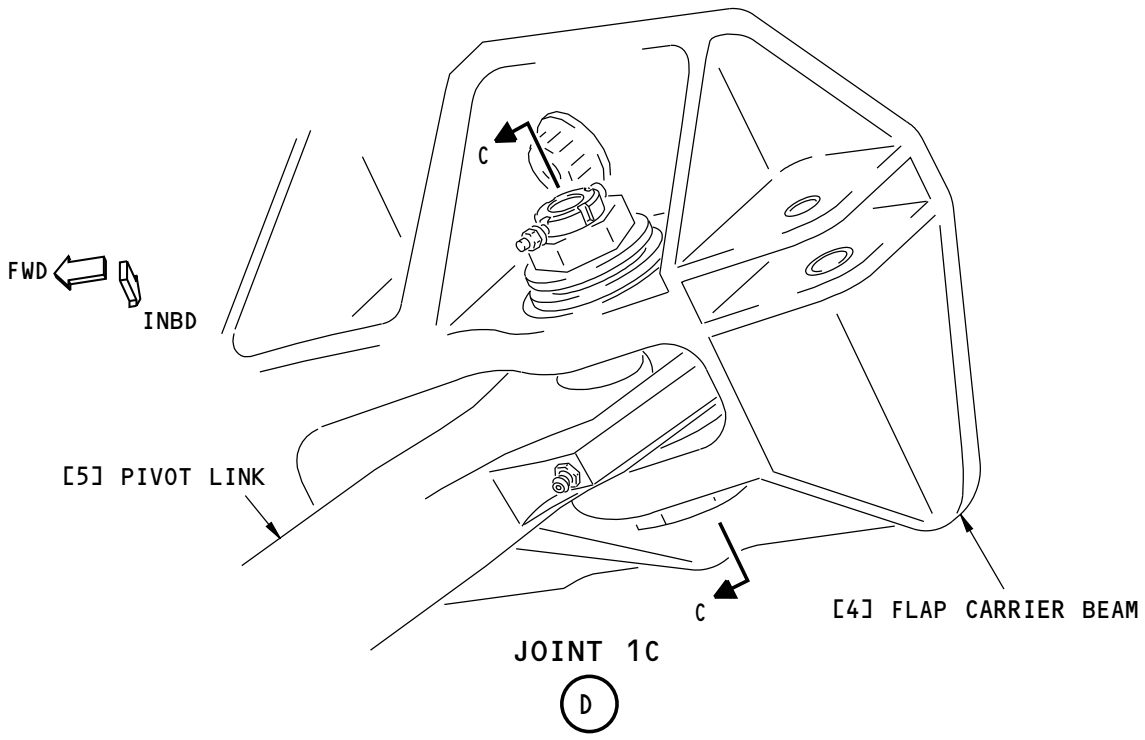


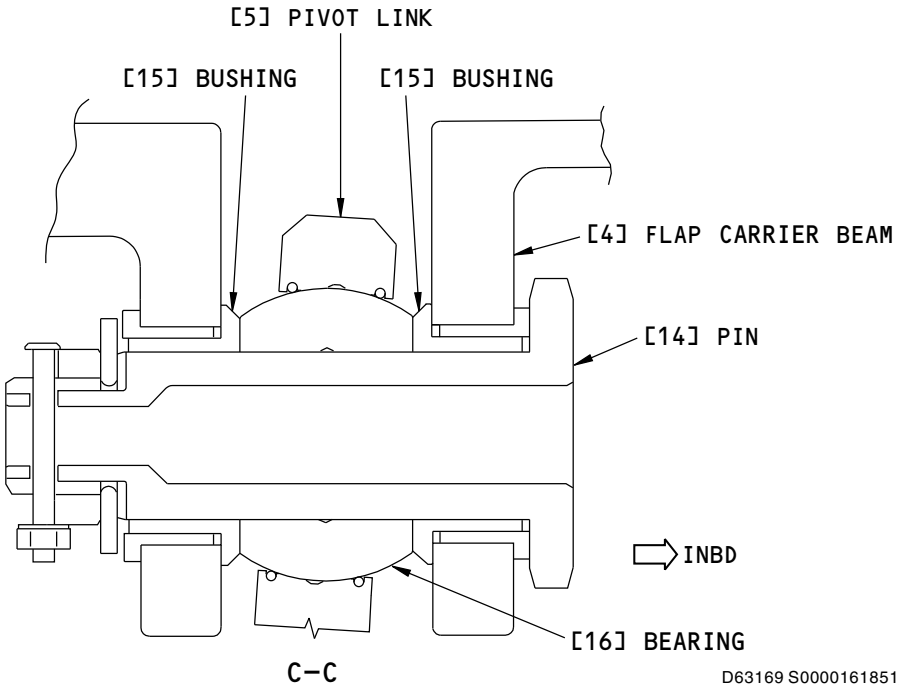
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Outboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-22-990-803 (Sheet 3 of 6)

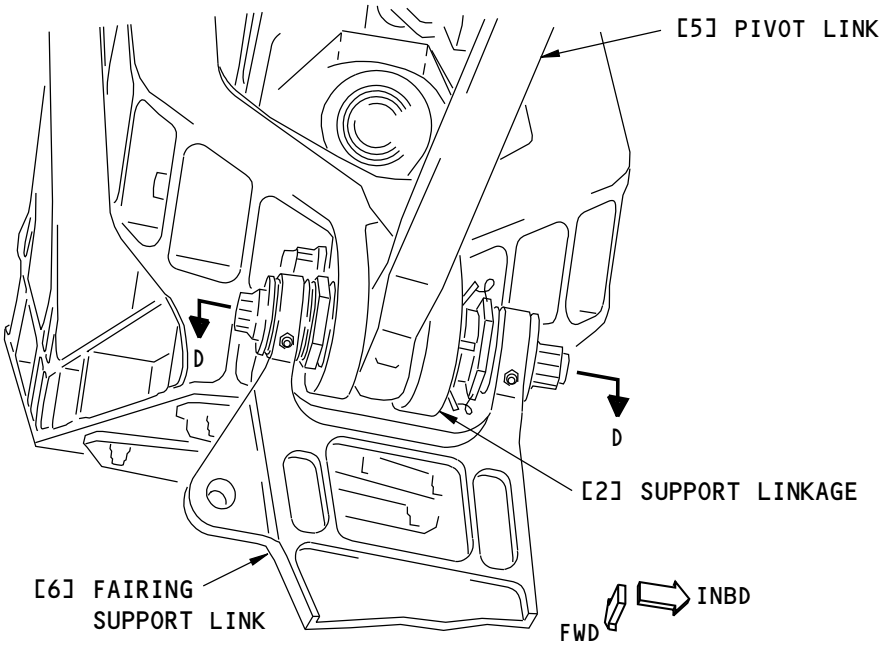
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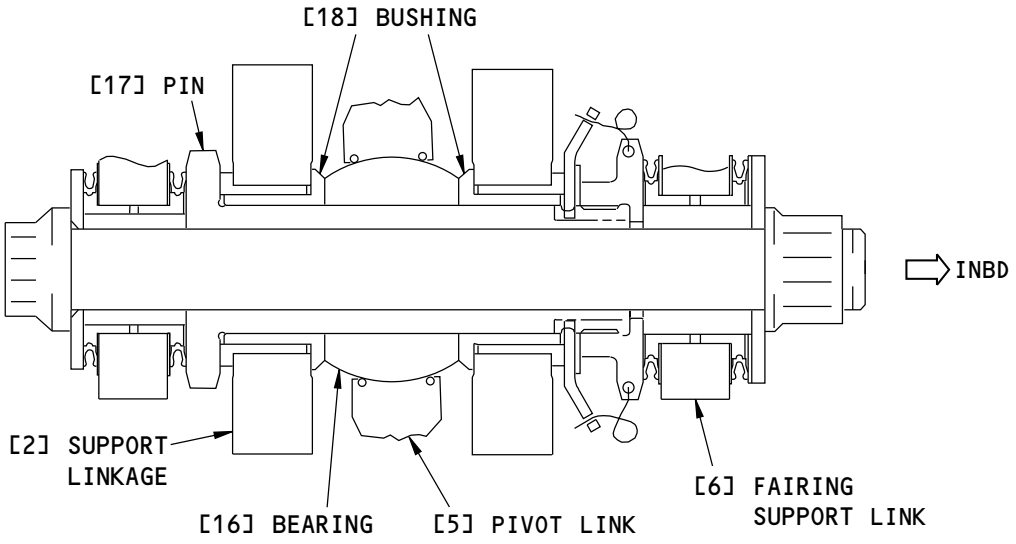
Outboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-22-990-803 (Sheet 4 of 6)

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JOINT 1D

E

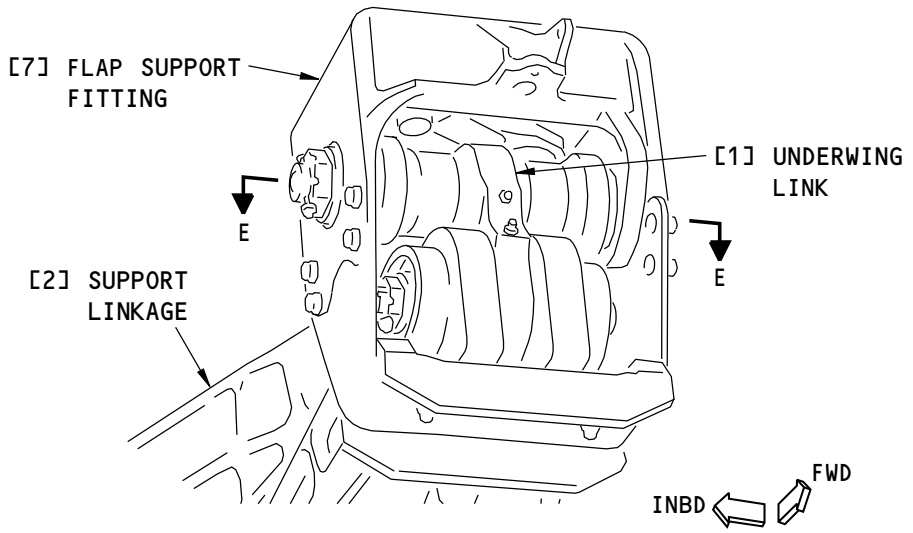


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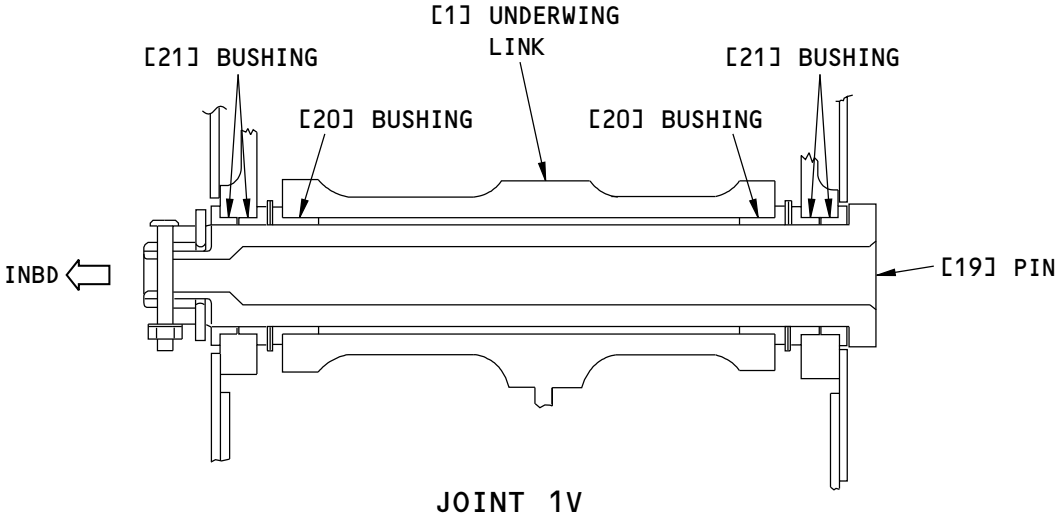
Outboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-22-990-803 (Sheet 5 of 6)

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FLAP SUPPORT FITTING

F



JOINT 1V
E-E

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Outboard Flap Outboard Support Mechanism Wear Limits
Figure 601/27-51-22-990-803 (Sheet 6 of 6)

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TASK 27-51-22-200-802

3. Outboard Flap Inboard Support Inspection

A. General

(1) This task is applicable to flap support mechanism No. 2 and No. 7.

B. References

Reference	Title
27-51-22-000-802	Outboard Flap Inboard Support Mechanism Removal (P/B 401)
27-51-22-400-802	Outboard Flap Inboard Support Mechanism - Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1097	Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch

D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7

E. Procedure

SUBTASK 27-51-22-020-033

(1) Do this task: Outboard Flap Inboard Support Mechanism Removal, TASK 27-51-22-000-802.

SUBTASK 27-51-22-211-002

(2) Use this tool to do a check for wear on the part of the outboard flap outboard support mechanism:

(a) vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097

SUBTASK 27-51-22-211-004

(3) Inspect components lubrication paths for potential blockage; clear lubrication paths as necessary.

SUBTASK 27-51-22-220-014

(4) Examine the parts of the outboard flap inboard support mechanism:

(a) Remove the parts that you will measure.

(b) Measure the parts with a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

NOTE: The surface finish of all bearing surfaces of mating parts must be 32 micro inches or better.

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OUTBOARD FLAP INBOARD SUPPORT MECHANISM WEAR LIMITS

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMIT		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
PIN [29]	O..D.	1.3729 in 34.871 mm	1.3735 in 34.887 mm	1.3720 in 34.849 mm	
BUSHING [30]	I. D.	1.3745 in 34.912 mm	1.3755 in 34.938 mm	1.3813 in 35.085 mm	0.0078 in 0.1981 mm
BUSHING [31]	I. D.	1.3745 in 34.912 mm	1.3755 in 34.938 mm	1.3813 in 35.085 mm	0.0078 in 0.1981 mm
PIN [32]	O. D.	1.3104 in 33.284 mm	1.3110 in 33.299 mm	1.3095 in 33.261 mm	
BUSHING [33]	I. D	1.3120 in 33.325 mm	1.3130 in 33.350 mm	1.3186 in 33.492 mm	0.0076 in 0.1930 mm
BEARING [34]	I.D.	1.3120 in 33.325 mm	1.3130 in 33.350 mm	1.3186 in 33.492 mm	0.0076 in 0.1930 mm
PIN [35]	O. D.	1.6229 in 41.222 mm	1.6235 in 41.288 mm	1.6220 in 41.199mm	
BUSHING [36]	I. D.	1.6245 in 41.262 mm	1.6255 in 41.288 mm	1.6324 in 41.463 mm	0.0089 in 0.2261 mm
BEARING [37]	I. D.	1.6245 in 41.262 mm	1.6255 in 41.288 mm	1.6324 in 41.463 mm	0.0089 in 0.2261 mm
PIN [38]	O. D.	1.62299 in 41.222 mm	1.6235 in 41.288 mm	1.6220 in 41.199 mm	
BUSHING [39]	I. D.	1.6245 in 41.262 mm	1.6255 in 41.288 mm	1.6324 in. 41.463 mm	0.0089 in 0.2261 mm
PIN [41]	O. D.	1.4979 in 38.047mm	1.4985 in 38.062 mm	1.4970 in 38.024 mm	
BUSHING [42]	I. D.	1.4995 in 38.087 mm	1.5005 in 38.113 mm	1.5081 in 38.306 mm	0.0096 in 0.2438mm
BUSHING [43]	I. D.	1.4995 in 38.087 mm	1.5005 in 38.113 mm	1.5081 in 38.306 mm	0.0096 in 0.2438 mm

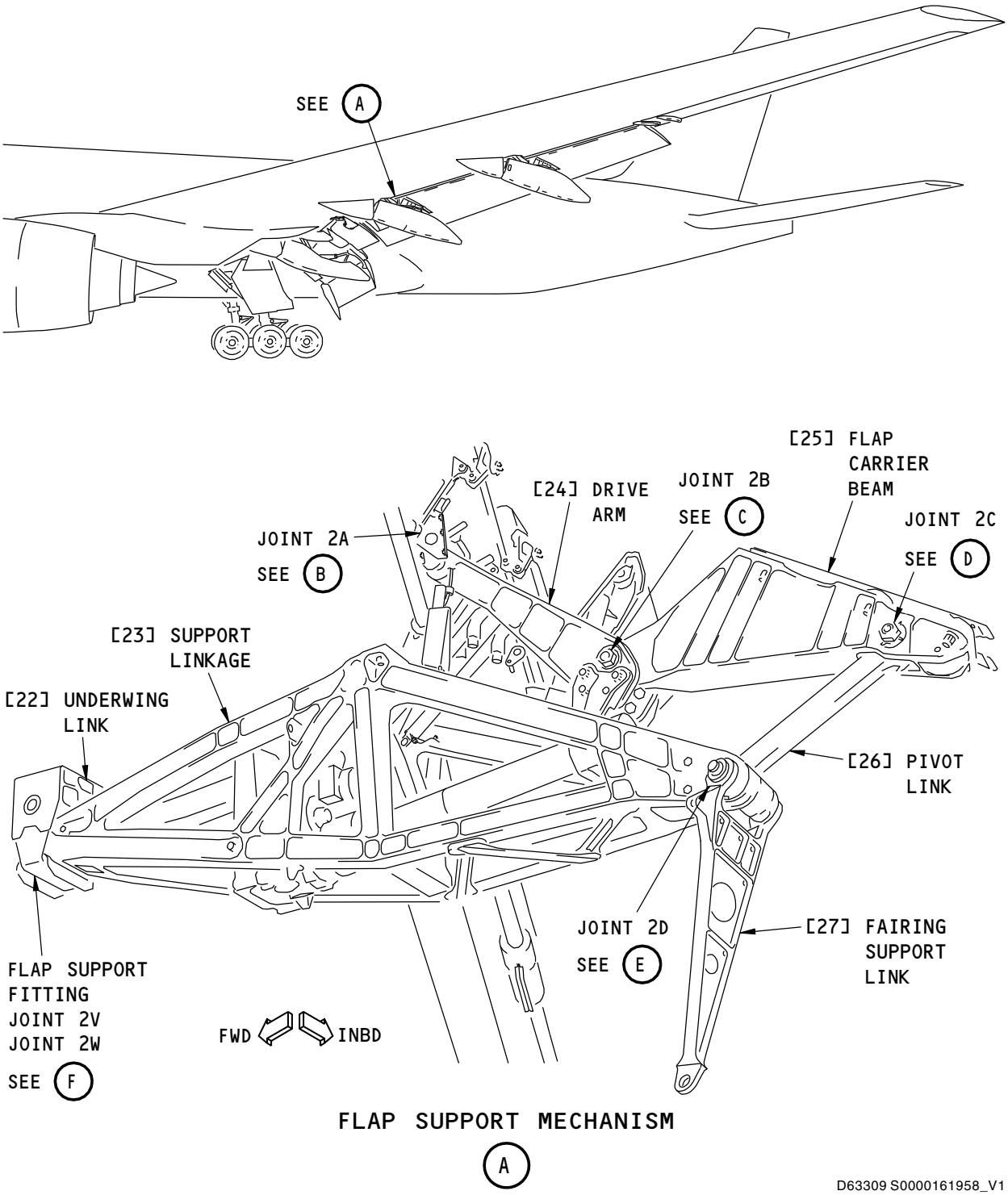
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SUBTASK 27-51-22-420-029

(5) Do this task: Outboard Flap Inboard Support Mechanism - Installation, TASK 27-51-22-400-802

——— END OF TASK ———

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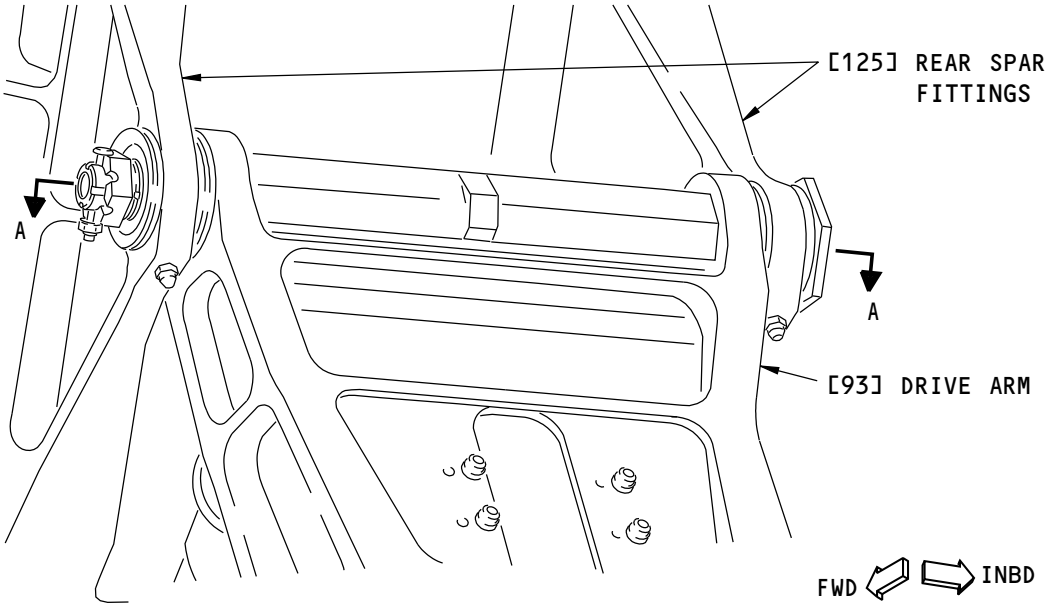
FLAP SUPPORT MECHANISM

A

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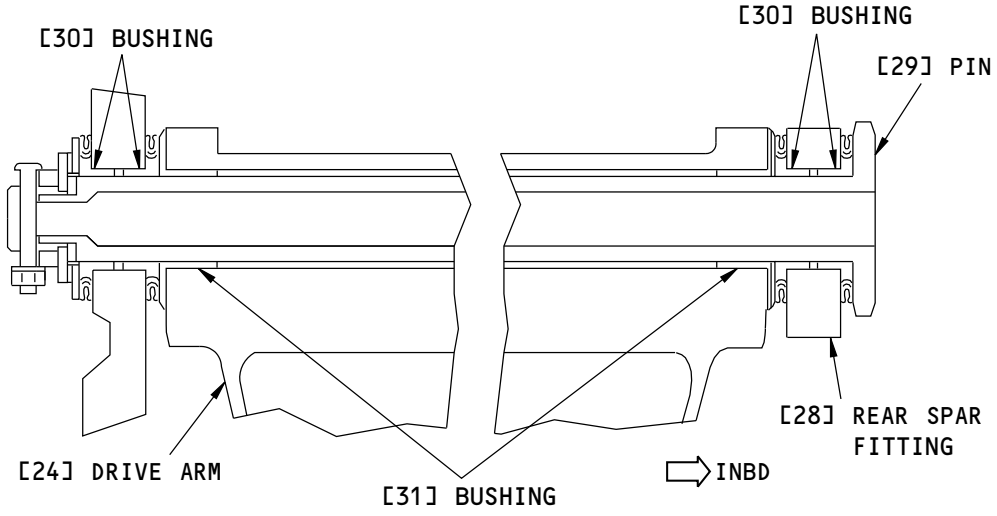
Outboard Flap Inboard Support Mechanism Wear Limits
Figure 602/27-51-22-990-804 (Sheet 1 of 6)

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JOINT 2A

B

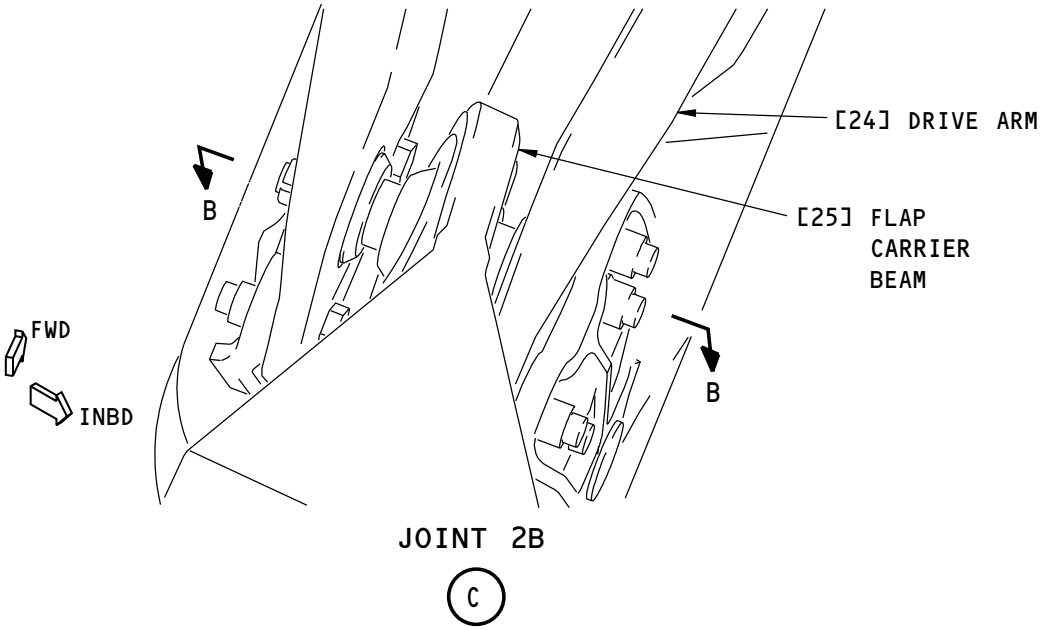


A–A

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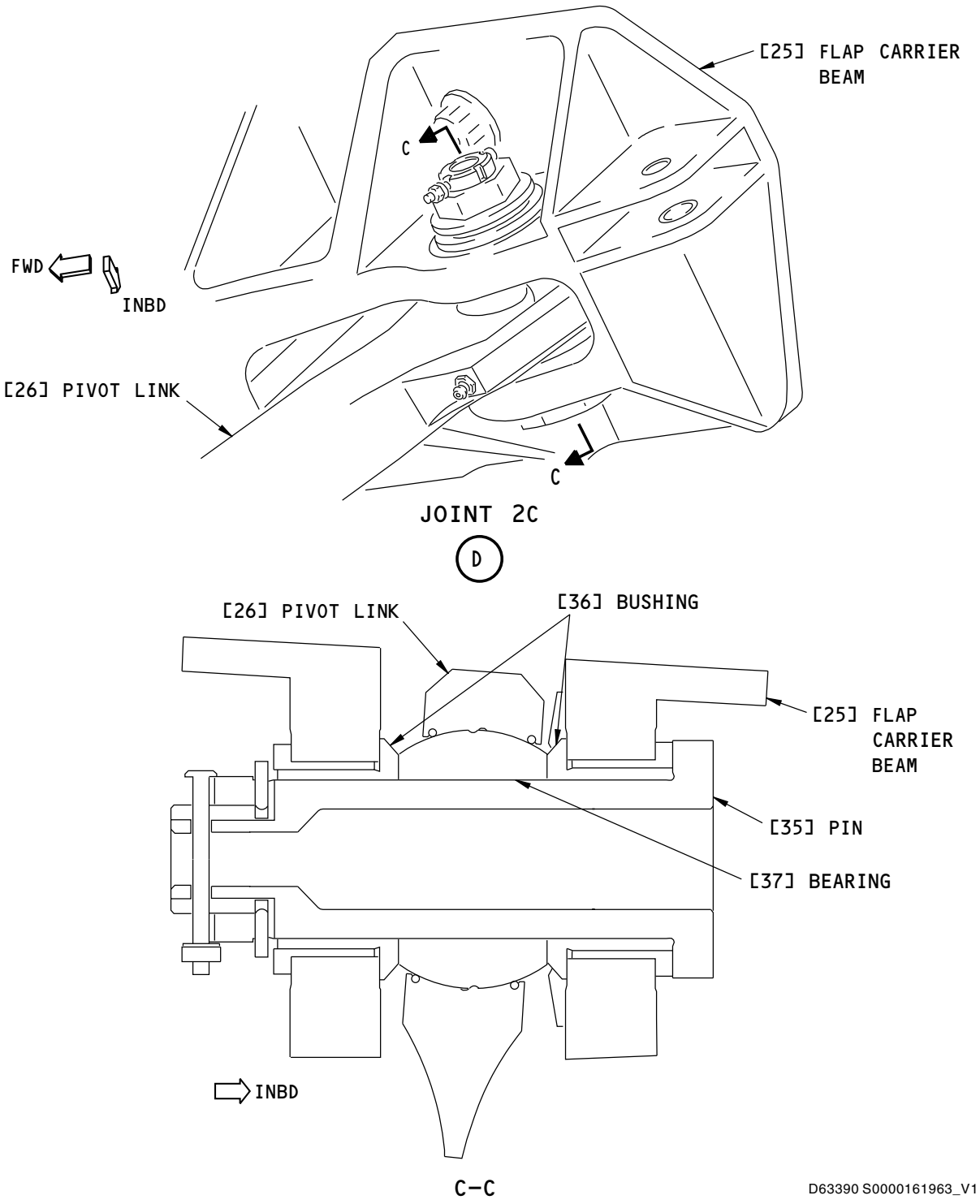
Outboard Flap Inboard Support Mechanism Wear Limits
Figure 602/27-51-22-990-804 (Sheet 2 of 6)

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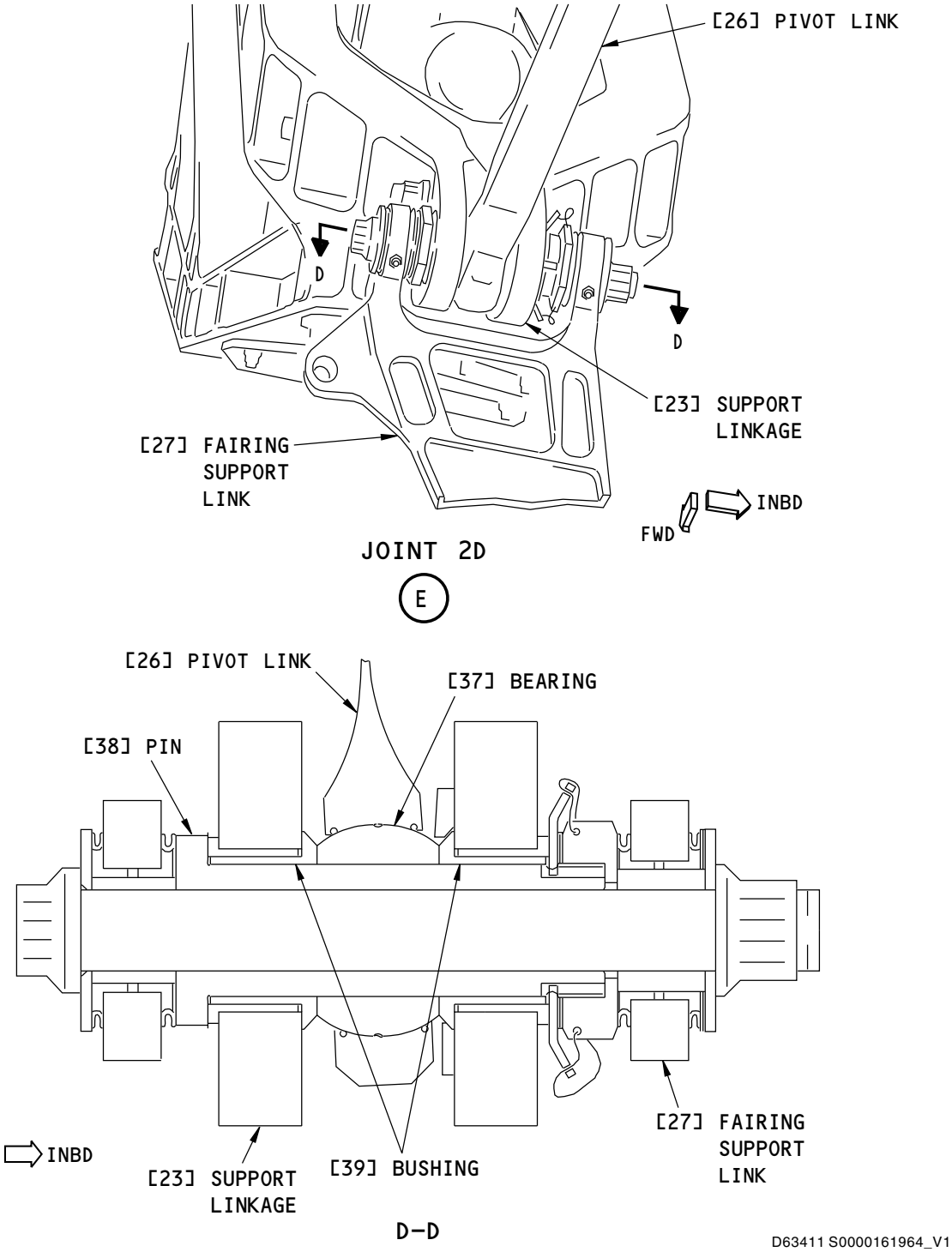
Outboard Flap Inboard Support Mechanism Wear Limits
Figure 602/27-51-22-990-804 (Sheet 3 of 6)

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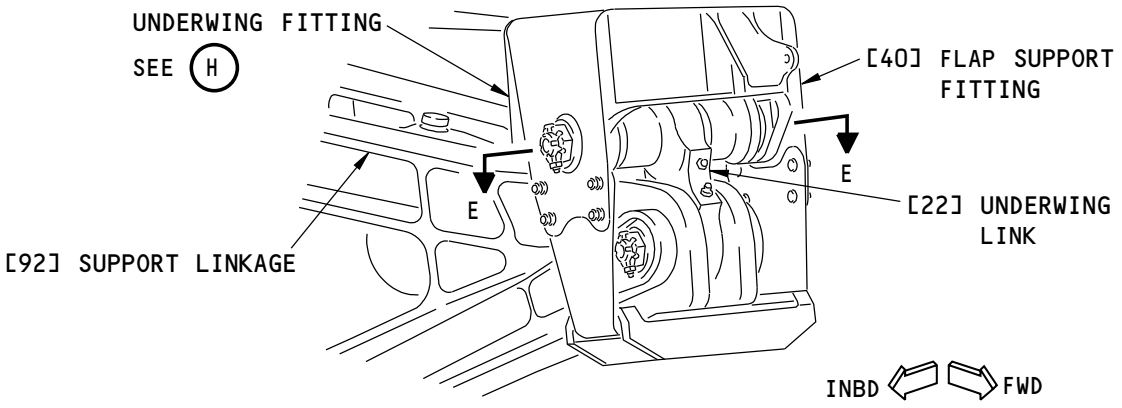
Outboard Flap Inboard Support Mechanism Wear Limits
Figure 602/27-51-22-990-804 (Sheet 4 of 6)

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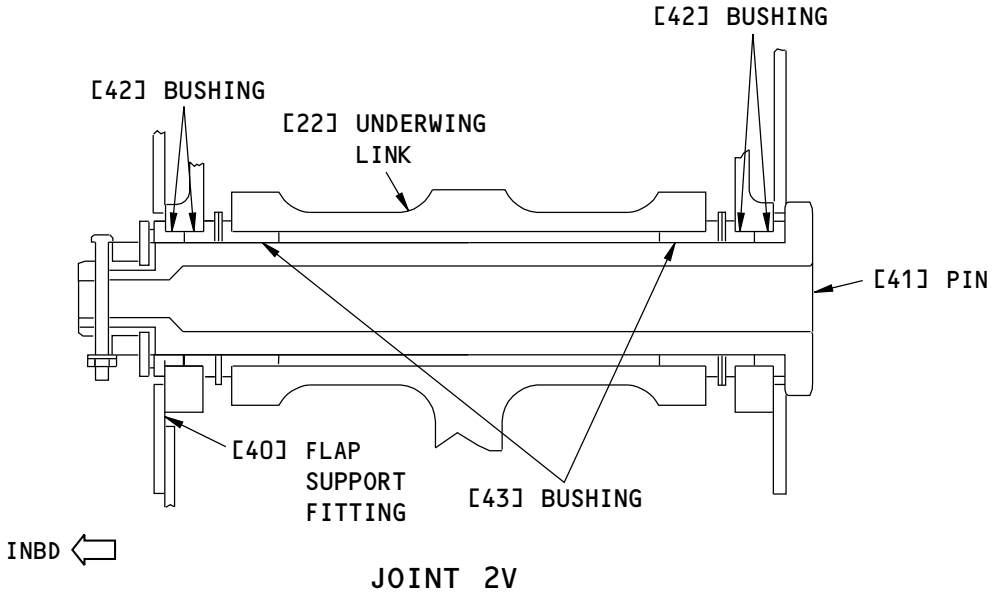


Outboard Flap Inboard Support Mechanism Wear Limits
Figure 602/27-51-22-990-804 (Sheet 5 of 6)

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FLAP SUPPORT FITTING
F



JOINT 2V
E-E

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Outboard Flap Inboard Support Mechanism Wear Limits
Figure 602/27-51-22-990-804 (Sheet 6 of 6)

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OUTBOARD FLAP AUXILIARY SUPPORT TRACK - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard auxiliary support track for the outboard flaps.

(2) An installation of the inboard auxiliary support track for the outboard flaps.

B. It is necessary to remove and install the outboard auxiliary support track as an assembly with the outboard auxiliary support carriage. This procedure is in (TASK 27-51-24-000-802).

TASK 27-51-23-000-801

2. Inboard Auxiliary Support Track Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
567	Left Wing Outboard Flap
575	Outboard Flaperon Support Fairing - Left Wing
667	Right Wing Outboard Flap
675	Outboard Flaperon Support Fairing - Right Wing

C. Access Panels

Number	Name/Location
567AB	Outboard Flap Frangible Panel
667AB	Outboard Flap Frangible Panel

D. Prepare for the Removal

SUBTASK 27-51-23-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-23-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

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SUBTASK 27-51-23-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-23-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-23-860-003

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-23-860-004

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-23-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Auxiliary Support Track Removal

SUBTASK 27-51-23-010-001

(1) To gain access from the lower surface of the flap, do this step (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

Remove this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

or open this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-23-010-004

(2) Remove the bolts [32] and the stiffener [31] from the lower surface of the flap.

SUBTASK 27-51-23-020-001

(3) Remove the stop [7] and stop assembly [8] from the aft end of the auxiliary support track [1]:

(a) Remove the nut [12], washer [10], washer [11], bolt [9] and bolt [13] that attach the stop [7] and stop assembly [8] to the auxiliary support track [1].

SUBTASK 27-51-23-020-002

(4) Remove the auxiliary support track [1] with the link assembly [24]:

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(a) Remove the nut [30], washer [29], washer [27], bolt [26] and bushing [28] that attach the link assembly [24] to the rear spar [25].

(b) Remove the nut [18], washer [15], washer [17], bolt [14] and bushing [16] that attach the auxiliary support track [1] to the rear spar [25].

(c) Carefully move the auxiliary support track [1] down and forward until it is out of the auxiliary support carriage [6].

(d) If you cannot remove the auxiliary support track [1] from the auxiliary support carriage [6], then remove the rollers [33] from the carriage [6]:

1) Remove the nuts [35] and washers [34] from the rollers [33].

2) Remove the rollers [33] from the auxiliary support carriage [6].

(e) Remove the auxiliary support track [1] and the link assembly [24].

SUBTASK 27-51-23-020-003

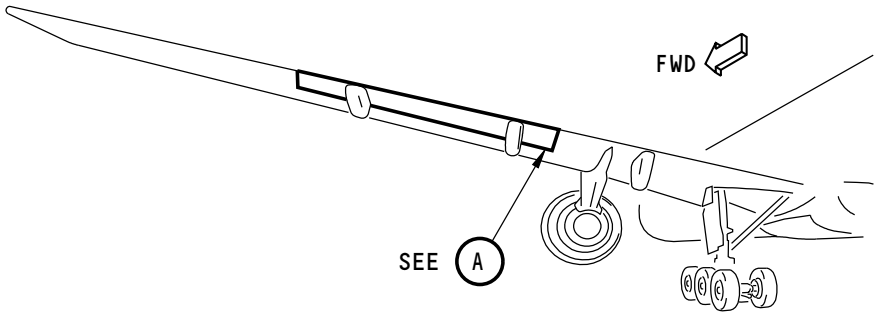
(5) If it is necessary, remove the link assembly [24] from the auxiliary support track [1]:

(a) Remove the nut [23], washer [20], washer [22], bolt [19] and bushing [21] that attach the link assembly [24] to the auxiliary support track [1].

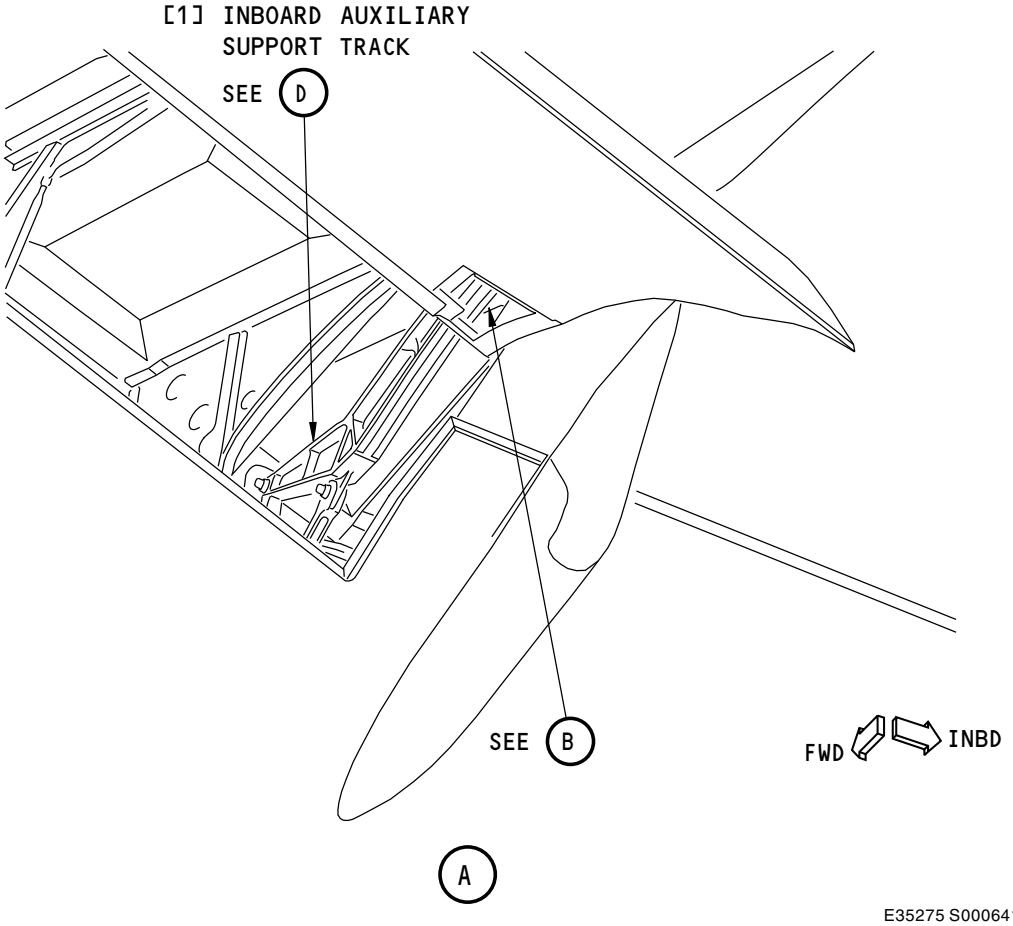
(b) Remove the link assembly [24] from the auxiliary support track [1].

——— END OF TASK ———

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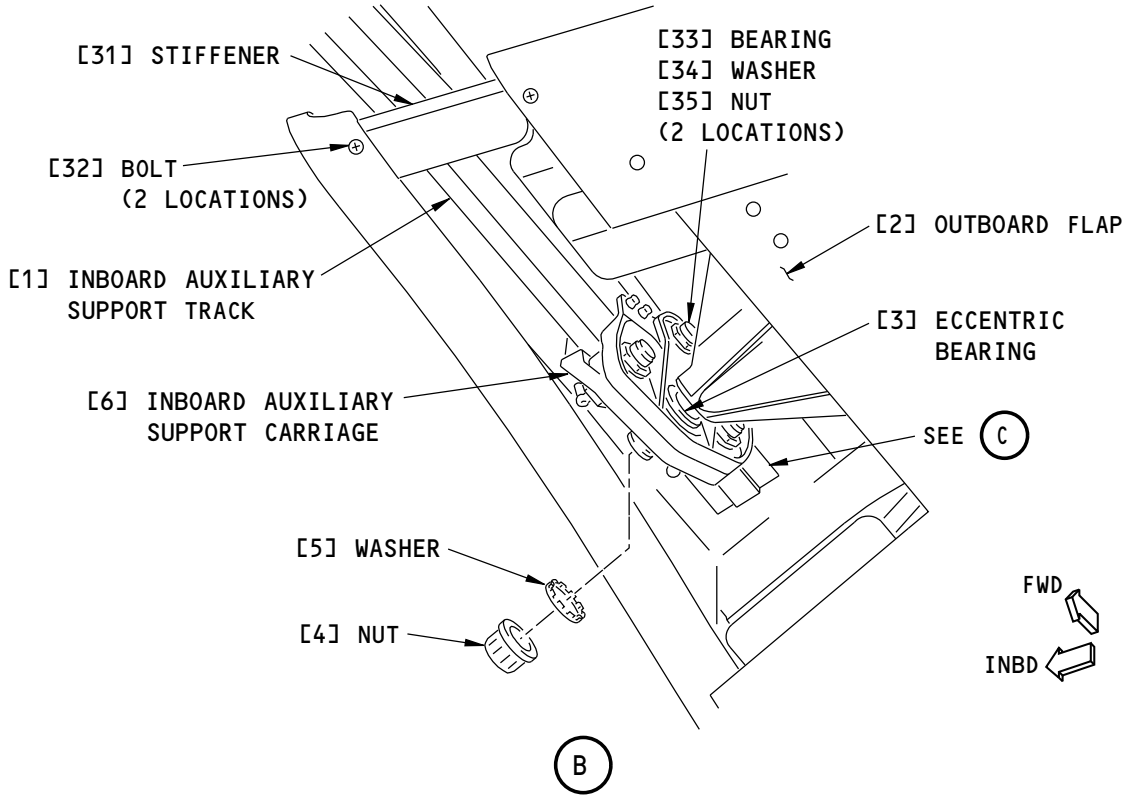
LEFT WING
(RIGHT WING IS EQUIVALENT)

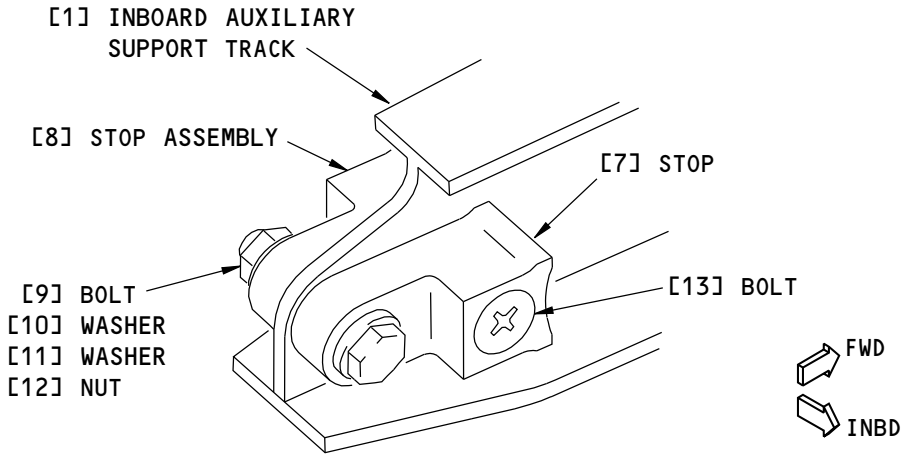


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Inboard Auxiliary Support Track Installation
Figure 401/27-51-23-990-801 (Sheet 1 of 5)

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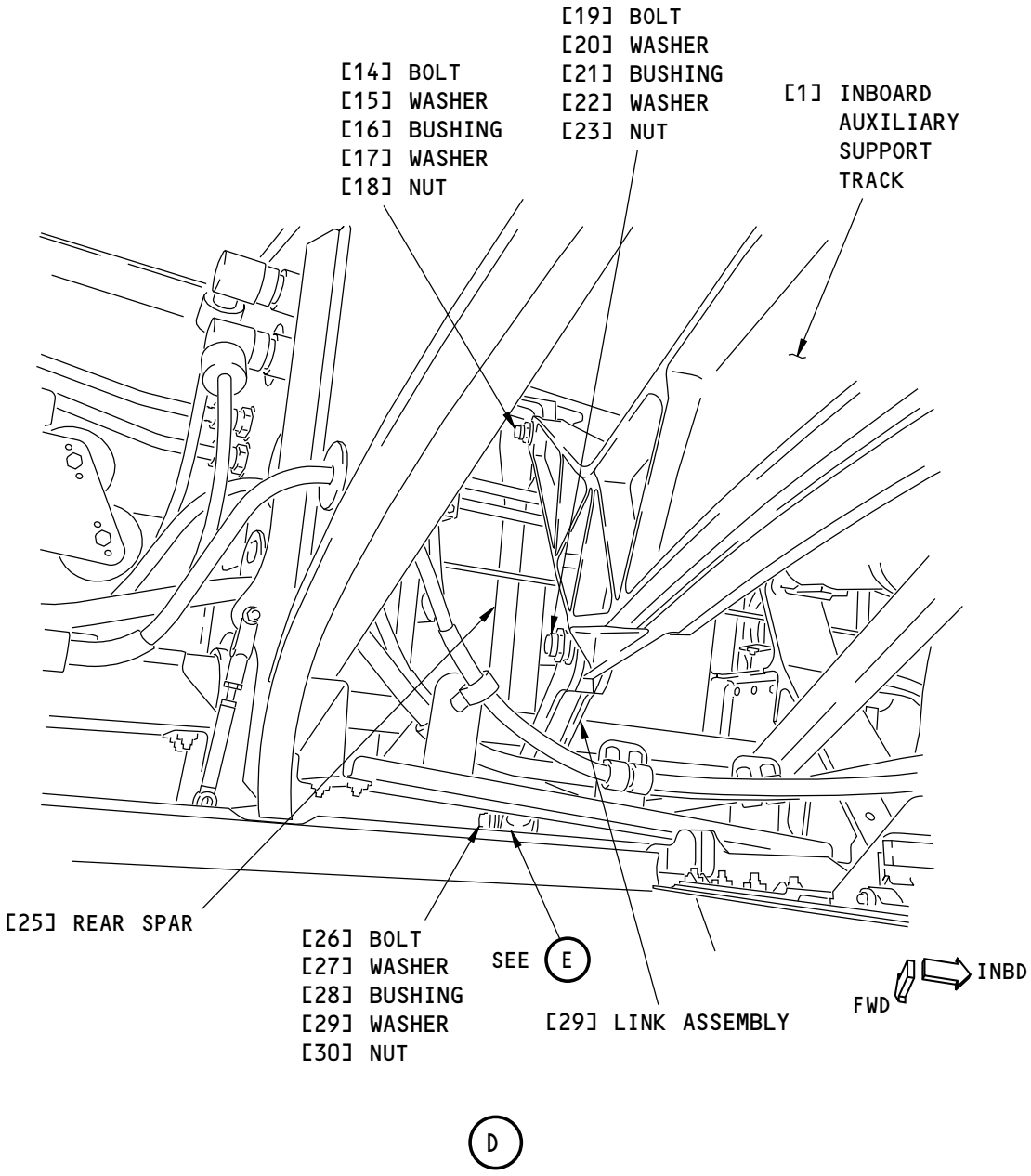




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Inboard Auxiliary Support Track Installation
Figure 401/27-51-23-990-801 (Sheet 2 of 5)

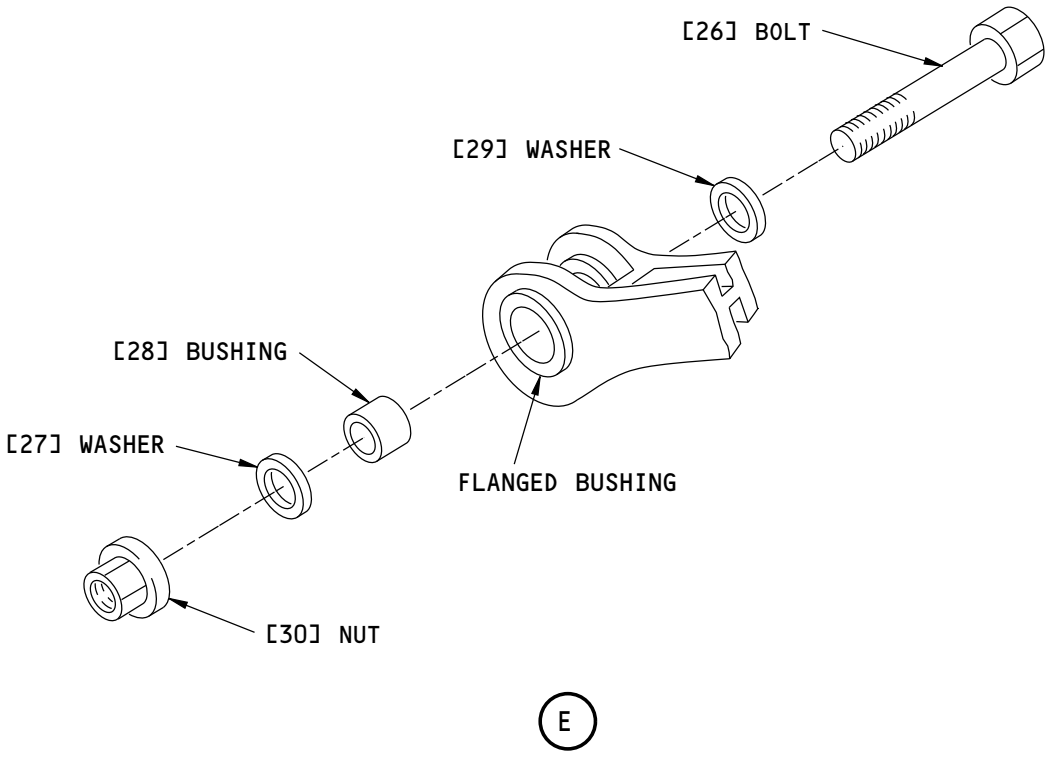
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Inboard Auxiliary Support Track Installation
Figure 401/27-51-23-990-801 (Sheet 3 of 5)

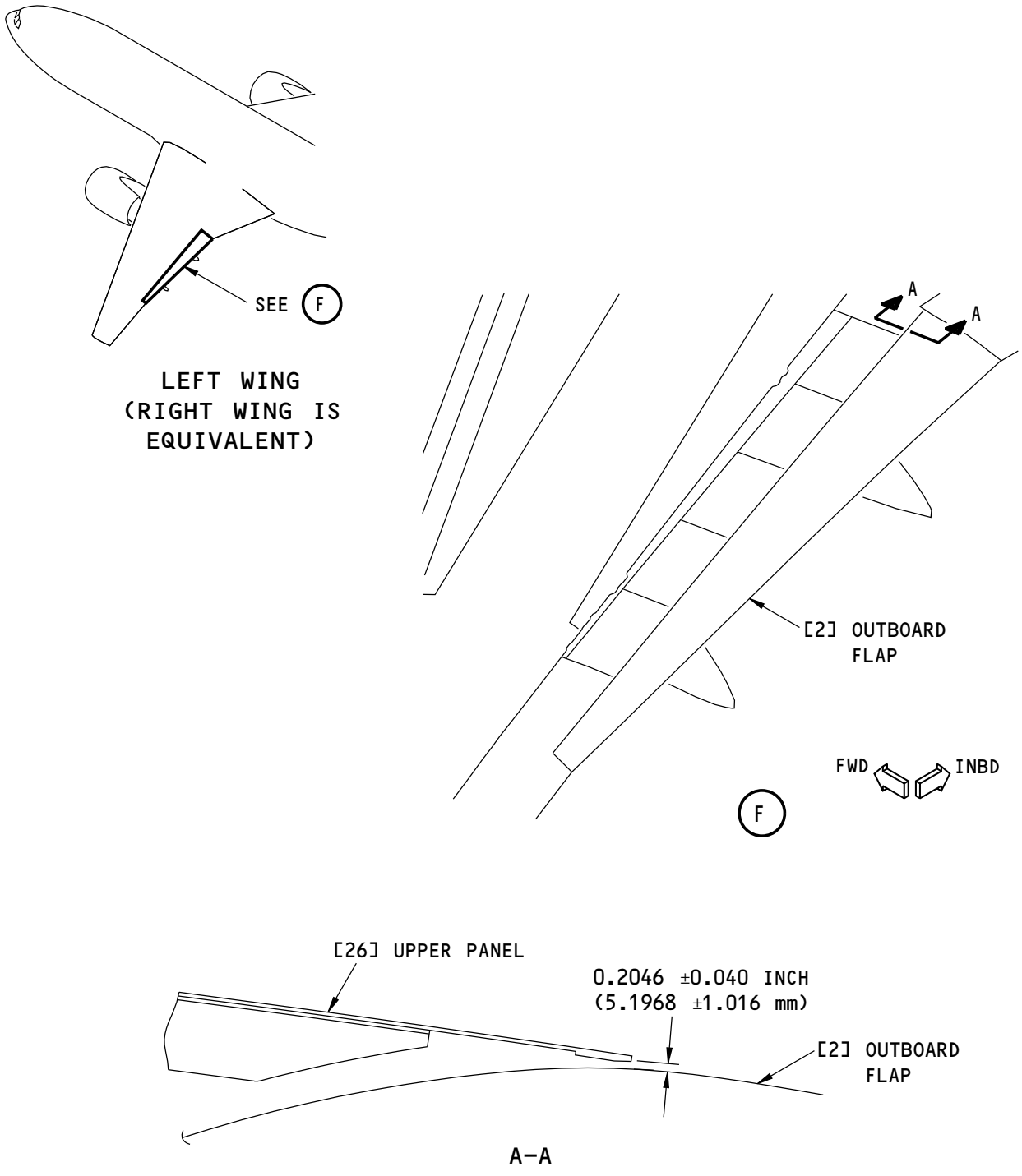
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Inboard Auxiliary Support Track Installation
Figure 401/27-51-23-990-801 (Sheet 4 of 5)

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Inboard Auxiliary Support Track Installation
Figure 401/27-51-23-990-801 (Sheet 5 of 5)

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TASK 27-51-23-400-801

3. Inboard Auxiliary Support Track Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-09-640-812	Inboard Auxiliary Support Track and Carriage Lubrication (P/B 301)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Auxiliary support track	27-51-23-01A-150	ARO ALL

D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
575	Outboard Flaperon Support Fairing - Left Wing
667	Right Wing Outboard Flap
675	Outboard Flaperon Support Fairing - Right Wing

E. Access Panels

Number	Name/Location
567AB	Outboard Flap Frangible Panel
667AB	Outboard Flap Frangible Panel

F. Inboard Auxiliary Support Track Installation

SUBTASK 27-51-23-420-001

(1) Install the link assembly [24] on the auxiliary support track [1] if it is not installed:

(a) Apply a layer of grease, D00633 to the bolt [19] and the outside of the bushing [21].

(b) Install the bushing [21], bolt [19], washer [20], washer [22] and nut [23] to attach the link assembly [24] to the auxiliary support track [1].

SUBTASK 27-51-23-420-002

(2) Install the auxiliary support track [1] with the link assembly [24]:

(a) Move the auxiliary support track [1] up and aft, through the rollers on the carriage [6].

(b) Align the auxiliary support track [1] and the link assembly [24] with the fittings on the rear spar [25].

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(c) Apply a layer of grease, D00633 to the bolt [14] and bolt [26] and the outside of the bushing [16] and bushing [28].

(d) Install the bushing [16], bolt [14], washer [15], washer [17] and nut [18] that attach the auxiliary support track [1] to the fittings.

(e) Install the bushing [28], bolt [26], washer [27], washer [29] and nut [30] that attach the link assembly [24] to the fittings.

(f) Tighten the nut [18] and nut [30] to 480-530 pound-inches.

(g) If the rollers [33] are not installed on the auxiliary support carriage [6], then install the rollers [33]:

1) Put the rollers [33] in their location on the auxiliary support carriage [6].

2) Install the washers [34] and nuts [35] on the rollers [33].

3) Tighten the nuts [35] to 220-300 pound-inches.

SUBTASK 27-51-23-420-003

(3) Tighten the nut [23] to 480-530 pound-inches.

SUBTASK 27-51-23-420-004

(4) Install the stop [7] and stop assembly [8] on the aft end of the :

(a) Install bolt [9], bolt [13], washer [10], washer [11] and nut [12] to attach the stop [7] and stop assembly [8] to the aft end of the auxiliary support track [1].

SUBTASK 27-51-23-410-002

(5) Install the stiffener [31] on the lower surface of the flap:

(a) Put the stiffener [31] in its location on the flap.

(b) Install the bolts [32] to attach the stiffener [31].

SUBTASK 27-51-23-640-001

(6) Do this task: Inboard Auxiliary Support Track and Carriage Lubrication, TASK 12-21-09-640-812.

SUBTASK 27-51-23-440-001

(7) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-23-860-005

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-23-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(9) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-51-23-860-006

(10) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-23-860-007

(11) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-23-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(12) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-23-220-001

(13) At the inboard end of the outboard flap [2], measure the clearance between the top surface of the flap and the lower surface of the upper panel [26]:

(a) Manually push up on the lower surface of the flap [2] near the auxiliary support carriage [6] until the two lower rollers touch the auxiliary support track [1].

(b) Measure the clearance between the top surface of the flap [2] and the lower surface of the upper panel [26].

SUBTASK 27-51-23-820-001

(14) If the clearance between the outboard flap [2] and the upper panel is not in the limit of 0.2046 ±0.040 inch, adjust the inboard auxiliary support carriage [6]:

(a) Loosen the nut [4] to disengage the washer [5] that holds the auxiliary support carriage [6].

(b) Turn the eccentric bearing [3] to adjust the position of the auxiliary support carriage [6].

(c) Engage the washer [5] with the eccentric bearing [3].

(d) Tighten the nut [4] to 1800-2200 pound-inches.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-23-440-002

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-23-710-001

(2) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(a) Make sure the carriage moves freely on the track.

SUBTASK 27-51-23-410-001

(3) To close access on the lower surface of the flap, do this step(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

Install this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

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or close this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-23-860-008

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(a) Make sure the carriage moves freely on the track.

——— END OF TASK ———

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OUTBOARD FLAP AUXILIARY SUPPORT CARRIAGE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard auxiliary support carriage for the outboard flap.

(2) An installation of the inboard auxiliary support carriage for the outboard flap.

(3) A removal of the outboard auxiliary support carriage and track for the outboard flap.

(4) An installation of the outboard auxiliary support carriage and track for the outboard flap.

TASK 27-51-24-000-801

2. Inboard Auxiliary Support Carriage Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-23-000-801	Inboard Auxiliary Support Track Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
567	Left Wing Outboard Flap
575	Outboard Flaperon Support Fairing - Left Wing
667	Right Wing Outboard Flap
675	Outboard Flaperon Support Fairing - Right Wing

C. Access Panels

Number	Name/Location
567AB	Outboard Flap Frangible Panel
667AB	Outboard Flap Frangible Panel

D. Prepare for the Removal

SUBTASK 27-51-24-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-24-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

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SUBTASK 27-51-24-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-24-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-24-860-003

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-24-860-004

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-24-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Auxiliary Support Carriage Removal

SUBTASK 27-51-24-010-001

(1) To gain access to the lower surface of the flap, do this step (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

Remove this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

or open this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-24-010-004

(2) Remove the access panel [7] from the seal pan on the inboard end of the flap.

NOTE: You can manually move the flaperon to get access to the access panel [7].

SUBTASK 27-51-24-020-001

(3) Do this task: Inboard Auxiliary Support Track Removal, TASK 27-51-23-000-801.

SUBTASK 27-51-24-020-002

(4) Remove the carriage assembly [5] from the outboard flap [1]:

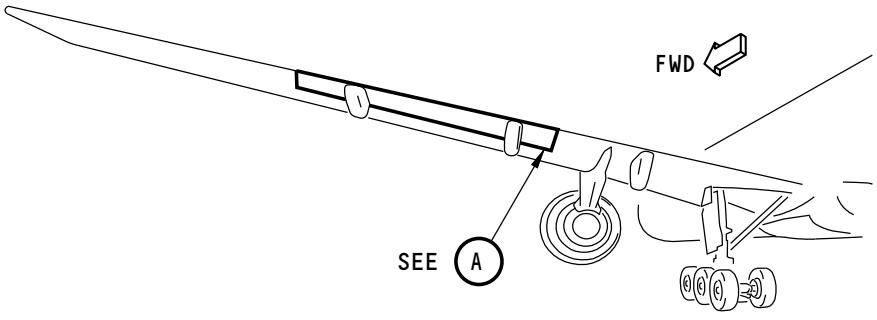
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(a) Remove the nut [3] and washer [4] that attach the carriage assembly [5] to the outboard flap [1].

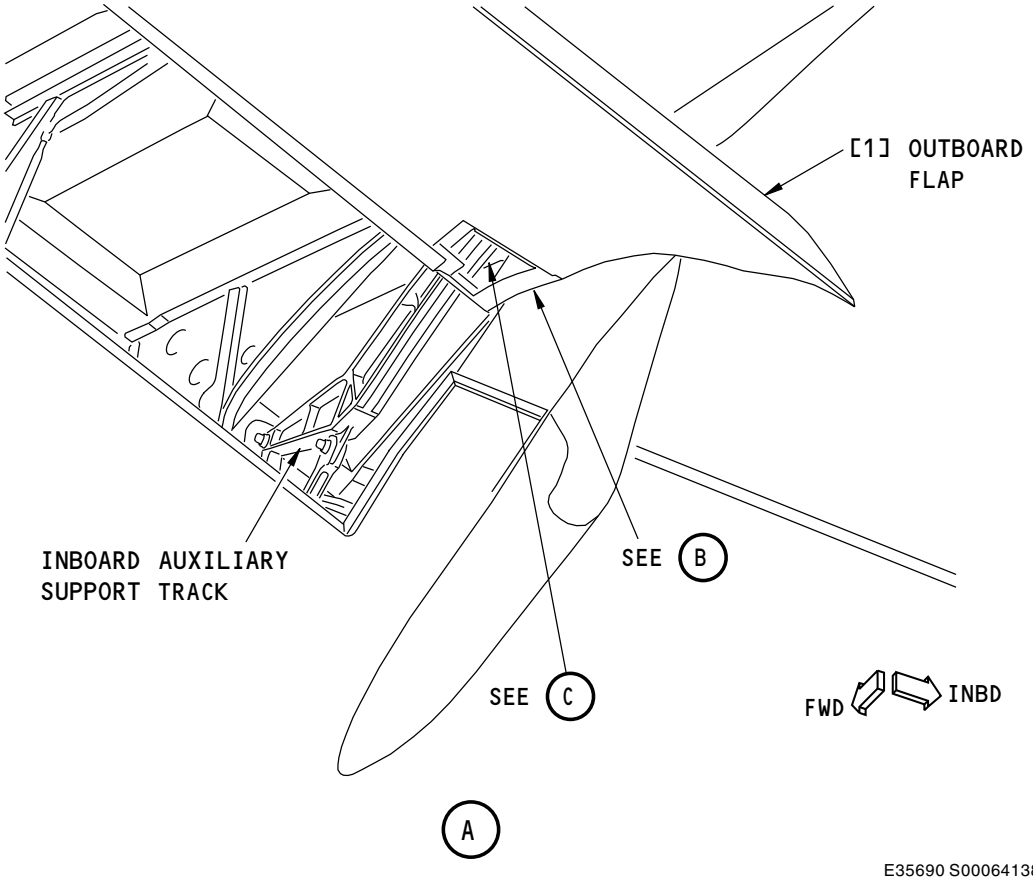
(b) Remove the carriage assembly [5] from the outboard flap [1].

——— END OF TASK ———

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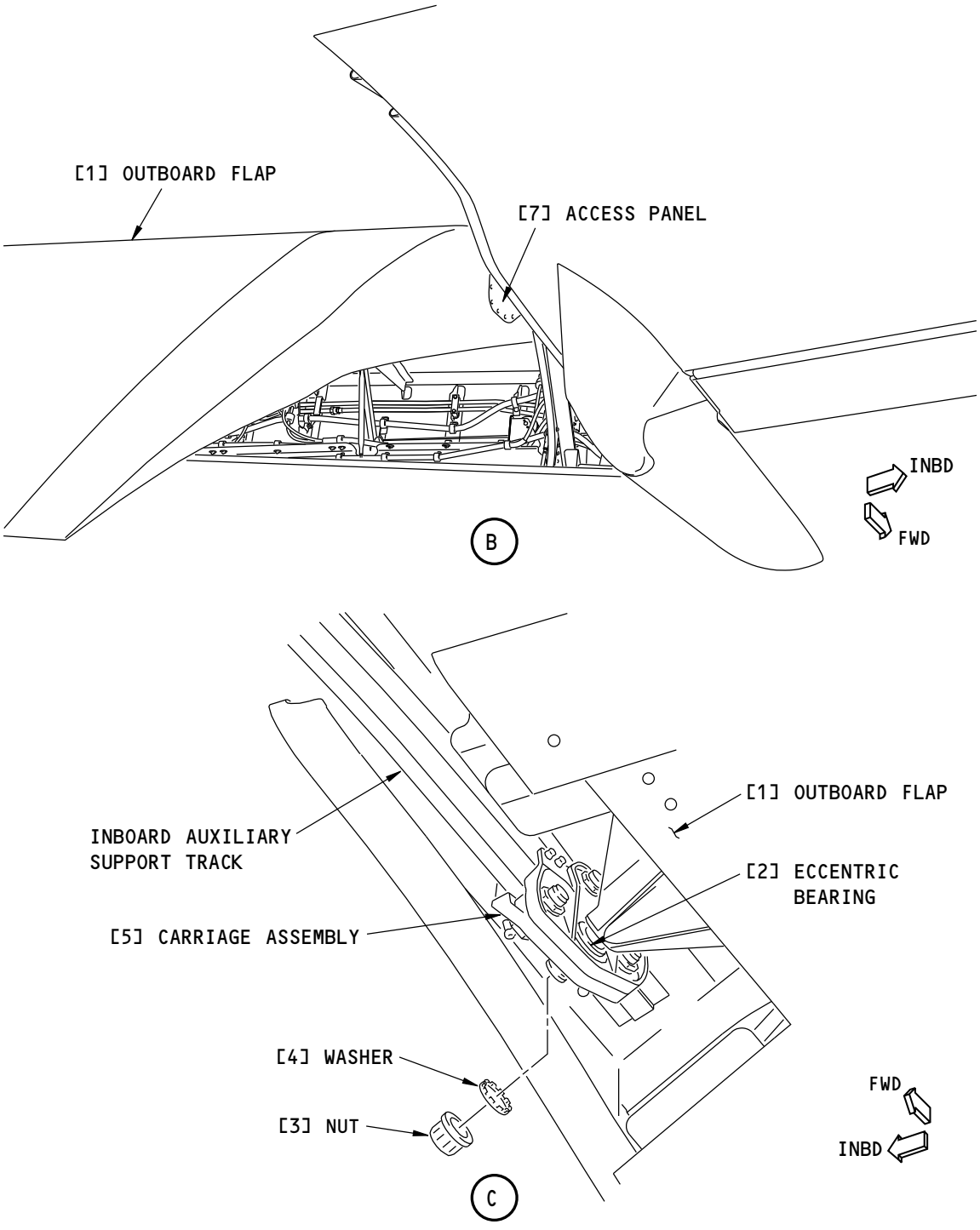
LEFT WING
(RIGHT WING IS EQUIVALENT)



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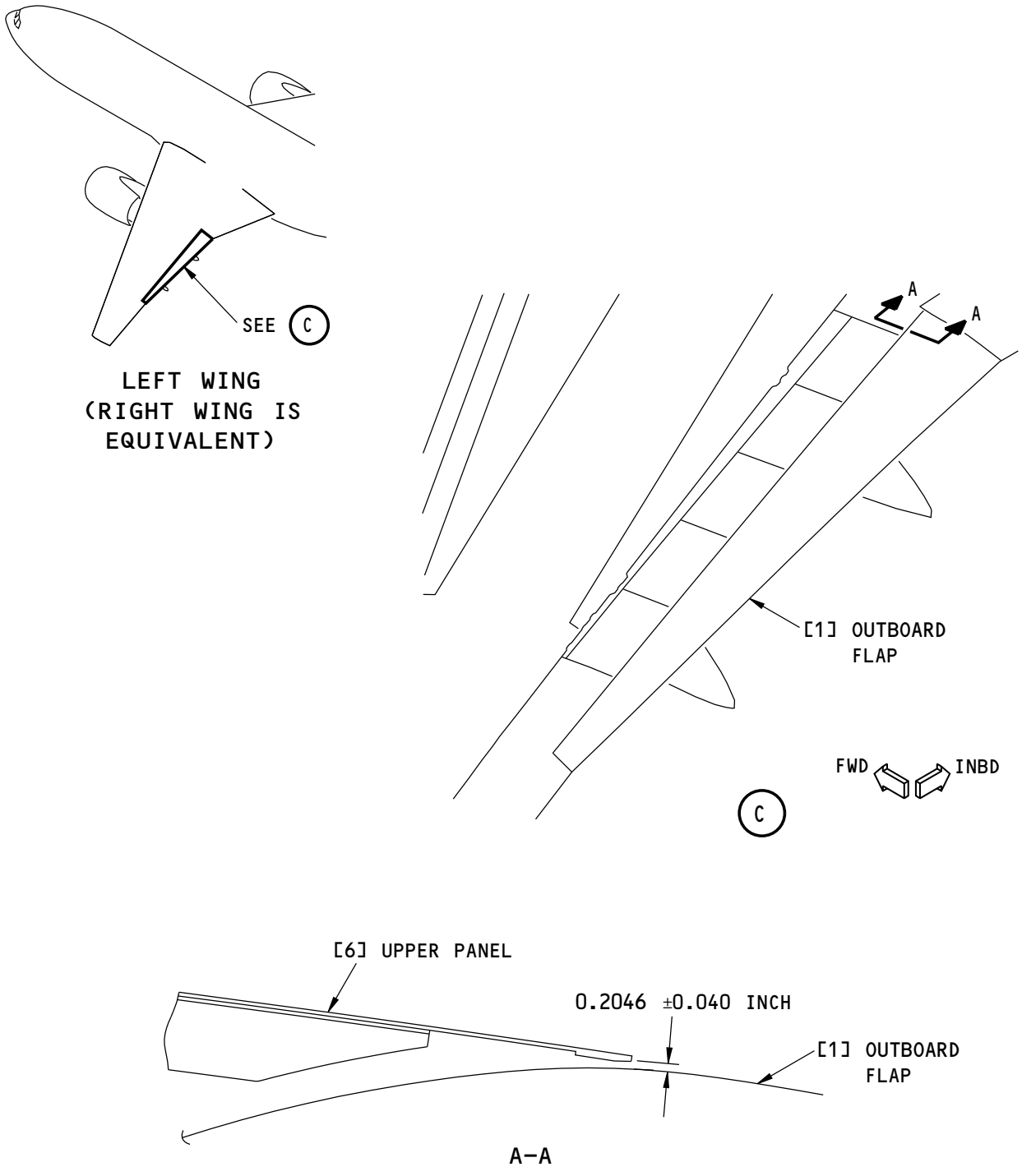
Inboard Auxiliary Support Carriage Installation
Figure 401/27-51-24-990-801 (Sheet 1 of 3)

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Inboard Auxiliary Support Carriage Installation
Figure 401/27-51-24-990-801 (Sheet 2 of 3)

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Inboard Auxiliary Support Carriage Installation
Figure 401/27-51-24-990-801 (Sheet 3 of 3)

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TASK 27-51-24-400-801

3. Inboard Auxiliary Support Carriage Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-09-640-812	Inboard Auxiliary Support Track and Carriage Lubrication (P/B 301)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-23-400-801	Inboard Auxiliary Support Track Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Carriage assembly	27-51-24-01-140	ARO ALL

C. Location Zones

Zone	Area
567	Left Wing Outboard Flap
575	Outboard Flaperon Support Fairing - Left Wing
667	Right Wing Outboard Flap
675	Outboard Flaperon Support Fairing - Right Wing

D. Access Panels

Number	Name/Location
567AB	Outboard Flap Frangible Panel
667AB	Outboard Flap Frangible Panel

E. Inboard Auxiliary Support Carriage Installation

SUBTASK 27-51-24-420-001

(1) Install the carriage assembly [5] on the outboard flap [1]:

(a) Put the carriage assembly [5] on the outboard flap [1].

(b) Install the washer [4] and nut [3] that attach the carriage assembly [5].

SUBTASK 27-51-24-020-003

(2) Do this task: Inboard Auxiliary Support Track Installation, TASK 27-51-23-400-801.

SUBTASK 27-51-24-640-001

(3) Do this task: Inboard Auxiliary Support Track and Carriage Lubrication, TASK 12-21-09-640-812.

SUBTASK 27-51-24-410-002

(4) Install the access panel [7] on the seal pan on the inboard end of the flap.

SUBTASK 27-51-24-440-001

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-24-860-005

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-24-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(7) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-24-860-006

(8) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-24-860-007

(9) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-24-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(10) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-24-220-001

(11) At the inboard end of the flap [1], measure the clearance between the top surface of the flap and the lower surface of the upper panel [6]:

(a) Manually push up on the lower surface of the flap [1] near the carriage assembly [5] until the two lower rollers touch the auxiliary track.

(b) Measure the clearance between the top surface of the flap [1] and the lower surface of the upper panel [6].

SUBTASK 27-51-24-820-001

(12) If the clearance between the flap [1] and the upper panel [6] is not in the limit of 0.2046 ±0.040 inch, adjust the carriage assembly [5]:

(a) Loosen the nut [3] to disengage the washer [4] that holds the carriage assembly [5].

(b) Turn the eccentric bearing [2] to adjust the position of the carriage assembly [5].

(c) Engage the washer [4] with the eccentric bearing [2].

SUBTASK 27-51-24-420-002

(13) Tighten the nut [3] to 1800-2200 pound-inches.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-24-440-002

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-24-710-001

(2) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(a) Make sure the carriage moves freely on the track.

SUBTASK 27-51-24-410-001

(3) To close access to the lower surface of the flap, do this step (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

Install this access panel:

Number	Name/Location
567AB	Outboard Flap Frangible Panel

or close this access panel:

Number	Name/Location
667AB	Outboard Flap Frangible Panel

SUBTASK 27-51-24-860-008

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(a) Make sure the carriage moves freely on the track.

——— END OF TASK ———

TASK 27-51-24-000-802

4. Outboard Auxiliary Support Carriage and Track Removal

(Figure 402)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-28-000-802	Outboard Auxiliary Support Fairing Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
567	Left Wing Outboard Flap
578	Outboard Auxiliary Support Fairing - Left Wing
667	Right Wing Outboard Flap
678	Outboard Auxiliary Support Fairing - Right Wing

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C. Access Panels

Number	Name/Location
561HB	Midspan Fixed Trailing Edge Panel
661HB	Midspan Fixed Trailing Edge Panel

D. Prepare for the Removal

SUBTASK 27-51-24-860-010

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-24-860-011

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-24-210-008

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-24-210-003

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-24-860-012

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-24-860-013

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-24-040-003

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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E. Outboard Auxiliary Support Carriage and Track Removal

SUBTASK 27-51-24-010-005

(1) To gain access to the lower surface of the wing, do this step (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

Remove this access panel:

Number	Name/Location
561HB	Midspan Fixed Trailing Edge Panel

or open this access panel:

Number	Name/Location
661HB	Midspan Fixed Trailing Edge Panel

SUBTASK 27-51-24-010-002

(2) Do this task: Outboard Auxiliary Support Fairing Removal, TASK 27-51-28-000-802.

SUBTASK 27-51-24-020-005

(3) Remove the carriage assembly [21] and the auxiliary support track [49]:

(a) Remove the nut [35], washer [32], washer [34], bolt [31] and bushing [33] that attach the link assembly [29] to the fitting on the rear spar [30].

(b) Remove the nut [45], washer [42], washer [44], bolt [41] and bushing [43] that attach the auxiliary support track [49] to the fitting on the rear spar [30].

(c) Remove the nut [48] and washer [47] that attach the carriage assembly [21] to the outboard flap [1].

(d) Move the carriage assembly [21] with the auxiliary support track [49] away from the outboard flap [1].

(e) Remove the carriage assembly [21] with the auxiliary support track [49] and the link assembly [29].

SUBTASK 27-51-24-020-007

(4) If it is necessary, remove the link assembly [29] from the auxiliary support track [49]:

(a) Remove the nut [40], washer [37], washer [37], bolt [36] and bushing [38] that attach the link assembly [29] to the auxiliary support track [49].

(b) Remove the link assembly [29] from the auxiliary support track [49].

SUBTASK 27-51-24-020-008

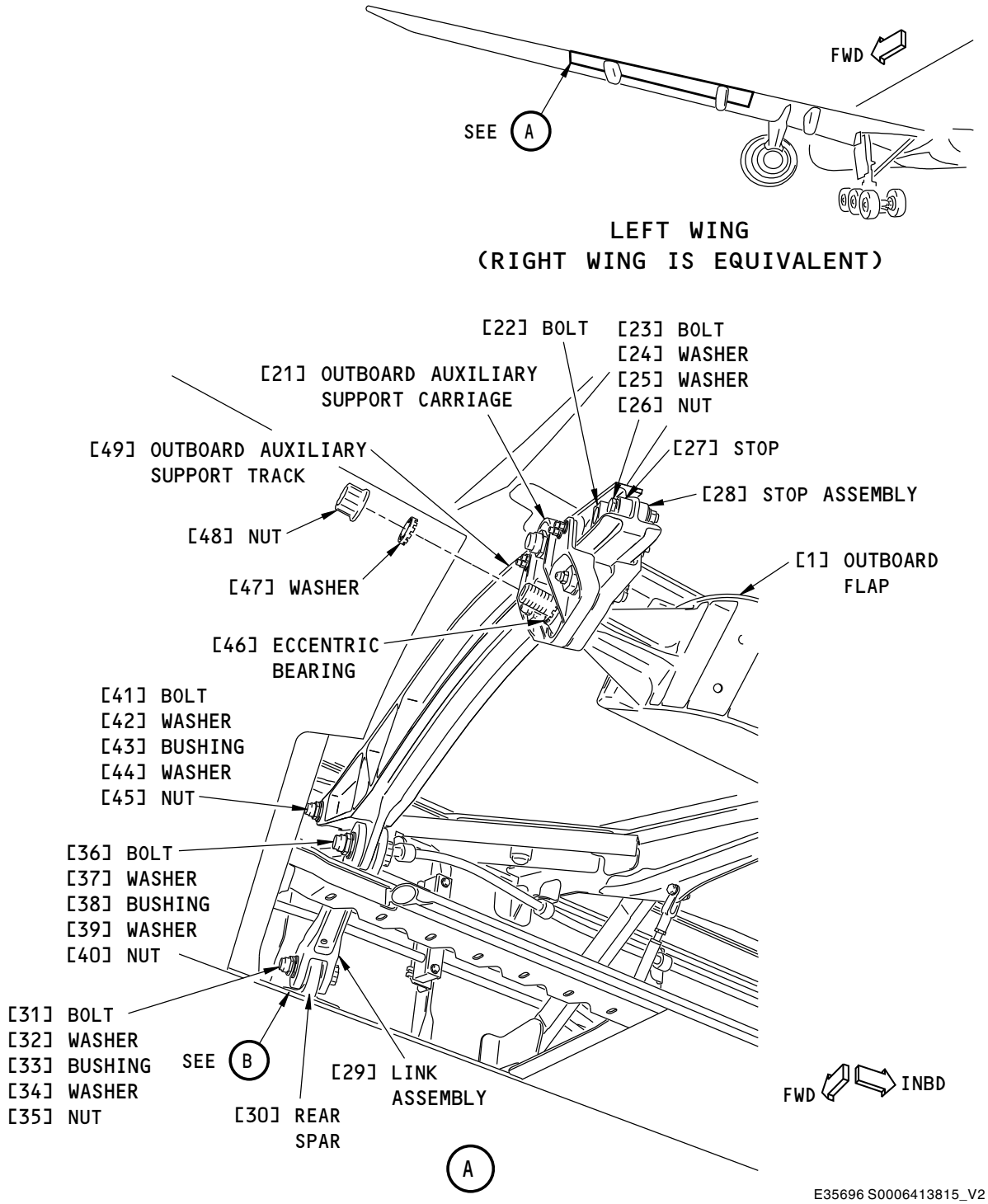
(5) If it is necessary, remove the carriage assembly [21] from the auxiliary support track [49]:

(a) Remove the nut [26], washer [25], washer [24], bolt [23] and bolt [22] that attach the stop [27] and stop assembly [28] to the auxiliary support track [49].

(b) Move the carriage assembly [21] off the auxiliary support track [49].

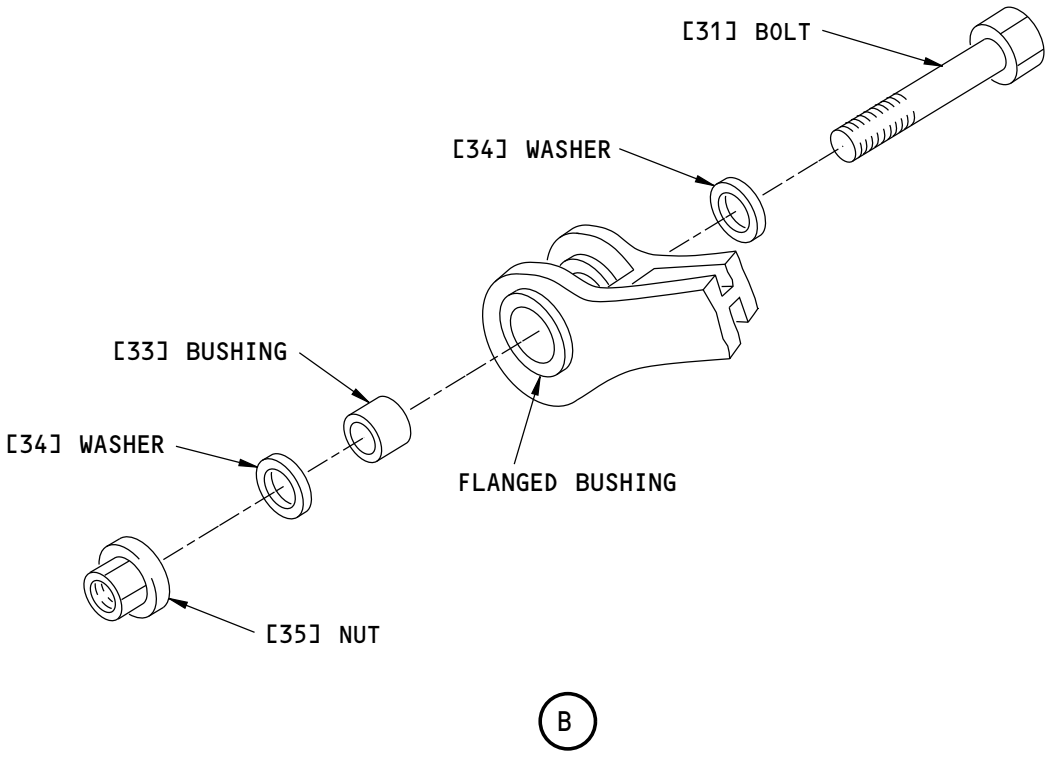
——— END OF TASK ———

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Outboard Auxiliary Support Carriage Installation
Figure 402/27-51-24-990-802 (Sheet 1 of 3)

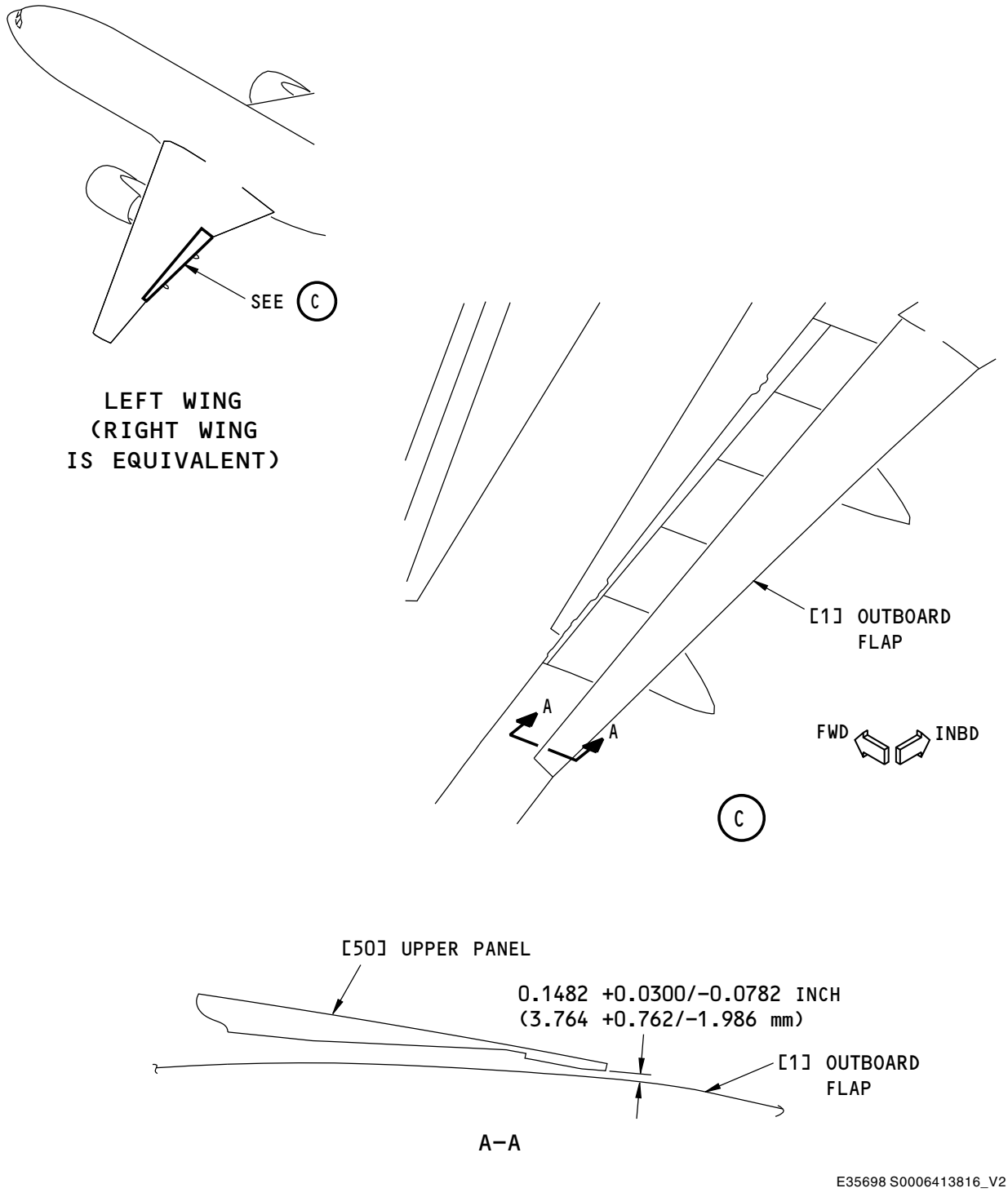
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Outboard Auxiliary Support Carriage Installation
Figure 402/27-51-24-990-802 (Sheet 2 of 3)

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Outboard Auxiliary Support Carriage Installation
Figure 402/27-51-24-990-802 (Sheet 3 of 3)

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TASK 27-51-24-400-802

5. Outboard Auxiliary Support Carriage and Track Installation

(Figure 402)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-09-640-806	Outboard Auxiliary Support Track and Carriage Lubrication (P/B 301)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-400-802	Outboard Auxiliary Support Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
21	Carriage assembly	27-51-24-01-065	ARO ALL
29	Link assembly	27-51-23-05A-135	ARO ALL
49	Auxiliary support track	27-51-23-05A-170	ARO ALL

D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
578	Outboard Auxiliary Support Fairing - Left Wing
667	Right Wing Outboard Flap
678	Outboard Auxiliary Support Fairing - Right Wing

E. Access Panels

Number	Name/Location
561HB	Midspan Fixed Trailing Edge Panel
661HB	Midspan Fixed Trailing Edge Panel

F. Outboard Auxiliary Support Carriage and Track Installation

SUBTASK 27-51-24-420-005

(1) Install the link assembly [29] on the auxiliary support track [49] if it is not installed:

(a) Apply a layer of grease, D00633 to the bolt [36] and the outside of the bushing [38].

(b) Install the bushing [38], bolt [36], washer [37], washer [39] and nut [40] to attach the link assembly [29] to the auxiliary support track [49].

SUBTASK 27-51-24-420-006

(2) If it is not installed, install the carriage assembly [21] on the auxiliary support track [49].

(a) Move the auxiliary support track [49], through the rollers on the carriage assembly [21].

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SUBTASK 27-51-24-420-003

(3) Install the carriage assembly [21] and the auxiliary support track [49]:

(a) Put the carriage assembly [21] and the auxiliary support track [49] in their position on the wing.

(b) Put the carriage assembly [21] in its position on the outboard flap [1].

(c) Install the washer [47] and nut [48] that attach the carriage assembly [21].

(d) Align the auxiliary support track [49] and the link assembly [29] with the fittings on the rear spar [30].

(e) Apply a layer of grease, D00633 to the bolt [31] and bolt [41] and the outside of the bushing [33] and bushing [43].

(f) Install the bushing [33], bolt [31], washer [32], washer [34] and nut [35] that attach the link assembly [29] to the fitting on the rear spar [30].

(g) Install the bushing [43], bolt [41], washer [42], washer [44] and nut [45] that attach the auxiliary support track [49] to the fitting on the rear spar [30].

(h) Tighten the nut [35] and nut [45] to 290-320 pound-inches.

SUBTASK 27-51-24-420-007

(4) Tighten the nut [40] to 480-530 pound-inches.

SUBTASK 27-51-24-420-008

(5) If they are not installed, install the stop [27] and stop assembly [28] on the aft end of the auxiliary support track [49]:

(a) Install the bolt [22], bolt [23], washer [24], washer [25] and nut [26] to attach the stop [27] and stop assembly [28] to the aft end of the auxiliary support track [49].

SUBTASK 27-51-24-640-002

(6) Do this task: Outboard Auxiliary Support Track and Carriage Lubrication, TASK 12-21-09-640-806.

SUBTASK 27-51-24-440-003

(7) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-24-860-014

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801

SUBTASK 27-51-24-210-004

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(9) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-51-24-860-015

(10) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-24-860-016

(11) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-24-040-004

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(12) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-24-220-002

(13) At the outboard end of the outboard flap [1], measure the clearance between the top surface of the flap and the lower surface of the upper panel [50]:

(a) Manually push up on the lower surface of the flap [1] near the carriage assembly [21] until the two lower rollers touch the auxiliary support track [49].

(b) Measure the clearance between the top surface of the flap [1] and the lower surface of the upper panel [50].

SUBTASK 27-51-24-820-002

(14) If the clearance between the flap [1] and the upper panel is not in the limit of 0.1482 +0.0300/-0.0782 inch, adjust the carriage assembly [21]:

(a) Loosen the nut [48] to disengage the washer [47] that holds the carriage assembly [21].

(b) Turn the eccentric bearing [22] to adjust the position of the carriage assembly [21].

(c) Engage the washer [47] with the eccentric bearing [46].

SUBTASK 27-51-24-420-004

(15) Tighten the nut [48] to 550-700 pound-inches.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-24-440-004

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-24-710-002

(2) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(a) Make sure the carriage moves freely on the track.

SUBTASK 27-51-24-010-003

(3) Do this task: Outboard Auxiliary Support Fairing Installation, TASK 27-51-28-400-802.

SUBTASK 27-51-24-410-003

(4) To close access to the lower surface of the wing, do this step (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

Install this access panel:

Number	Name/Location
561HB	Midspan Fixed Trailing Edge Panel

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or close this access panel:

Number	Name/Location
661HB	Midspan Fixed Trailing Edge Panel

SUBTASK 27-51-24-860-017

(5) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(a) Make sure the carriage moves freely on the track.

——— END OF TASK ———

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OUTBOARD FLAP TRANSMISSION - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard transmission for the outboard flaps

(2) An installation of the inboard transmission for the outboard flaps

(3) A removal of the outboard transmission for the outboard flaps

(4) An installation of the outboard transmission for the outboard flaps.

TASK 27-51-25-000-801

2. Outboard Flap Inboard Transmission Removal

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the transmission on flap supports No. 2 and 7.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-59-01-000-807-002	Outboard Flap Skew Sensor - Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

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D. Location Zones

Zone	Area
576	Flap Support Fairing No. 2
676	Flap Support Fairing No. 7

E. Prepare for the Removal

SUBTASK 27-51-25-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-25-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-25-210-004

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-25-210-001

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-25-860-003

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-25-860-004

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-25-040-001

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-25-010-002

(8) Do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

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SUBTASK 27-51-25-480-002

CAUTION

MAKE SURE YOU INSTALL THE FLAP LOCK ON THE FLAP SUPPORT MECHANISM BEFORE YOU REMOVE THE TRANSMISSION. WITHOUT THE FLAP LOCK THE FLAP SUPPORT WILL NOT STOP THE FLAP FROM EXTENDING PAST ITS USUAL POSITION. THIS CAN CAUSE DAMAGE TO THE FLAP.

(9) Install the trailing edge flap (with transmission removed) lock, SPL-1757 on the flap support mechanism to hold the flap when you remove the transmission.

F. Outboard Flap Inboard Transmission Removal

SUBTASK 27-51-25-010-001

(1) Do this task: Outboard Flap Skew Sensor - Removal, TASK 27-59-01-000-807-002.

SUBTASK 27-51-25-010-005

(2) Remove the forward link [35] for the aft fairing from the flap support mechanism (Figure 401):

(a) Remove the nut [40], washers [37], washers [39] and bolts [36] that attach the forward link [35] to the flap support mechanism.

(b) Remove the bushing [38] from the flap support mechanism.

SUBTASK 27-51-25-010-006

(3) Remove the bracket assy [48] from the flap support mechanism:

(a) Remove the bolt [45], washer [46] and nut [47] that attach the bracket assy [48] to the flap support mechanism.

(b) Remove the bracket assy [48].

SUBTASK 27-51-25-010-007

(4) Remove the bracket [49] from the flap support mechanism:

(a) Remove the bolt [50], washer [51] and nut [52] that attach the bracket [49] to the flap support mechanism.

(b) Remove the bracket [49].

SUBTASK 27-51-25-010-008

(5) Remove the fitting assy [34] from the outboard side of the flap support mechanism:

(a) Remove the nut [44], washer [42], washer [43] and bolt [41] that attach the fitting assy [34] to the flap support mechanism.

(b) Remove the fitting assy [34] from the flap support mechanism.

SUBTASK 27-51-25-020-001

(6) Disconnect the torque tubes [2] from the transmission assy [7]:

(a) Install an T.E. flap drive shaft clamp equipment, SPL-1706 to hold the torque tube [2] outboard of the transmission assy [7].

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. As you look outboard, the torque tubes outboard of the transmission will turn counterclockwise for the left and right wings.

(b) Remove the screw [4] that attach the coupling sleeves [5] to the splined couplings [3] on the torque tubes [2].

(c) Move the coupling sleeves [5] off the splined couplings [3].

(d) Apply tape to the coupling sleeves [5].

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SUBTASK 27-51-25-020-002

(7) Remove the brace assy [8] that is aft of the transmission assy [7]:

(a) Remove the nut [17], washer [14], washer [16], bolt [13] and bushing [15] that attach the brace assy [8] to the fittings.

(b) Remove the brace assy [8].

SUBTASK 27-51-25-020-003

CAUTION MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(8) Disconnect the gimbal [26] with the ballscrew assy [24] from the drive arm [1]:

(a) Remove the nut [21], washer [20] and bolt [19] that attach the plate assy [22] to the drive arm [1].

(b) Remove the plate assy [22] with the shim [18] and the seal [32] from the gimbal [26].

(c) Make a record of the thickness and location of the shim [18].

SUBTASK 27-51-25-020-004

(9) Disconnect the ballscrew assy [24] from the yoke [31] on the transmission assy [7]:

(a) Remove the nut [30], washer [28], washer [29] and bolt [27] that attach the ballscrew assy [24] to the yoke [31].

(b) Remove the ballscrew assy [24] from the yoke [31].

NOTE: You can turn the ballscrew assy [24] and the gimbal [26] to get clearance to remove the ballscrew.

SUBTASK 27-51-25-480-001

(10) If you will use the trailing edge flap transmission equipment, SPL-1724, attach the sling to the transmission assy [7] (Figure 403):

(a) Connect the fishpole hoist, COM-1582 to the hoist bracket above the transmission assy [70].

NOTE: You can put a bolt in the hoist bracket above the fishpole hoist, COM-1582 to make sure it does not come out of the hoist bracket.

(b) Put the sling on the transmission assy [7].

(c) Connect the cable fishpole hoist, COM-1563 to the sling.

SUBTASK 27-51-25-020-005

(11) Remove the transmission assembly [7] (Figure 401):

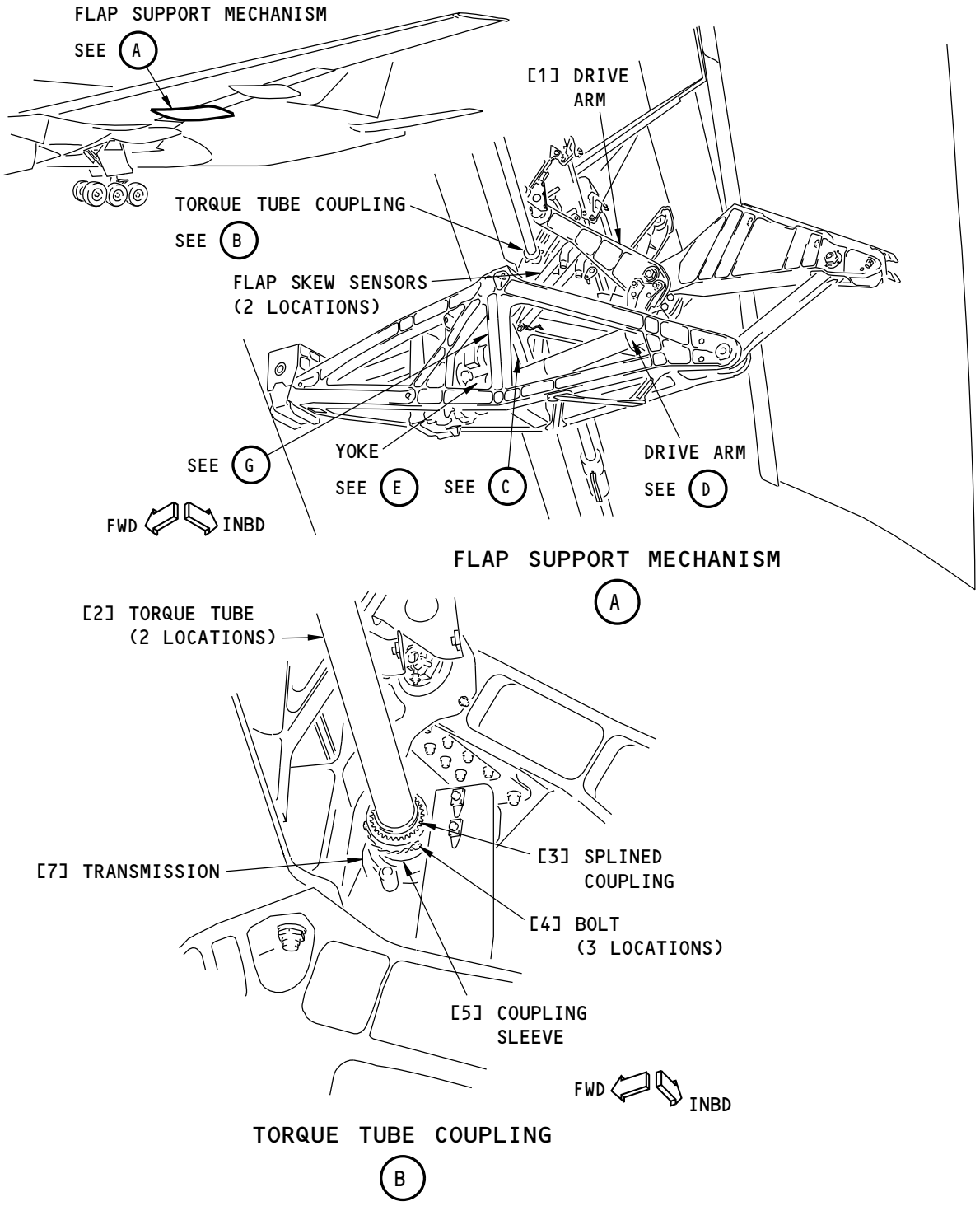
(a) Use the fishpole hoist, COM-1582 to hold the transmission assy [7].

(b) Remove the nut [12], washer [10], washer [11] and bolt [9] that attach the transmission assy [7] to the flap support mechanism.

(c) Carefully move the transmission assy [7] down and forward, away from the flap support mechanism.

END OF TASK

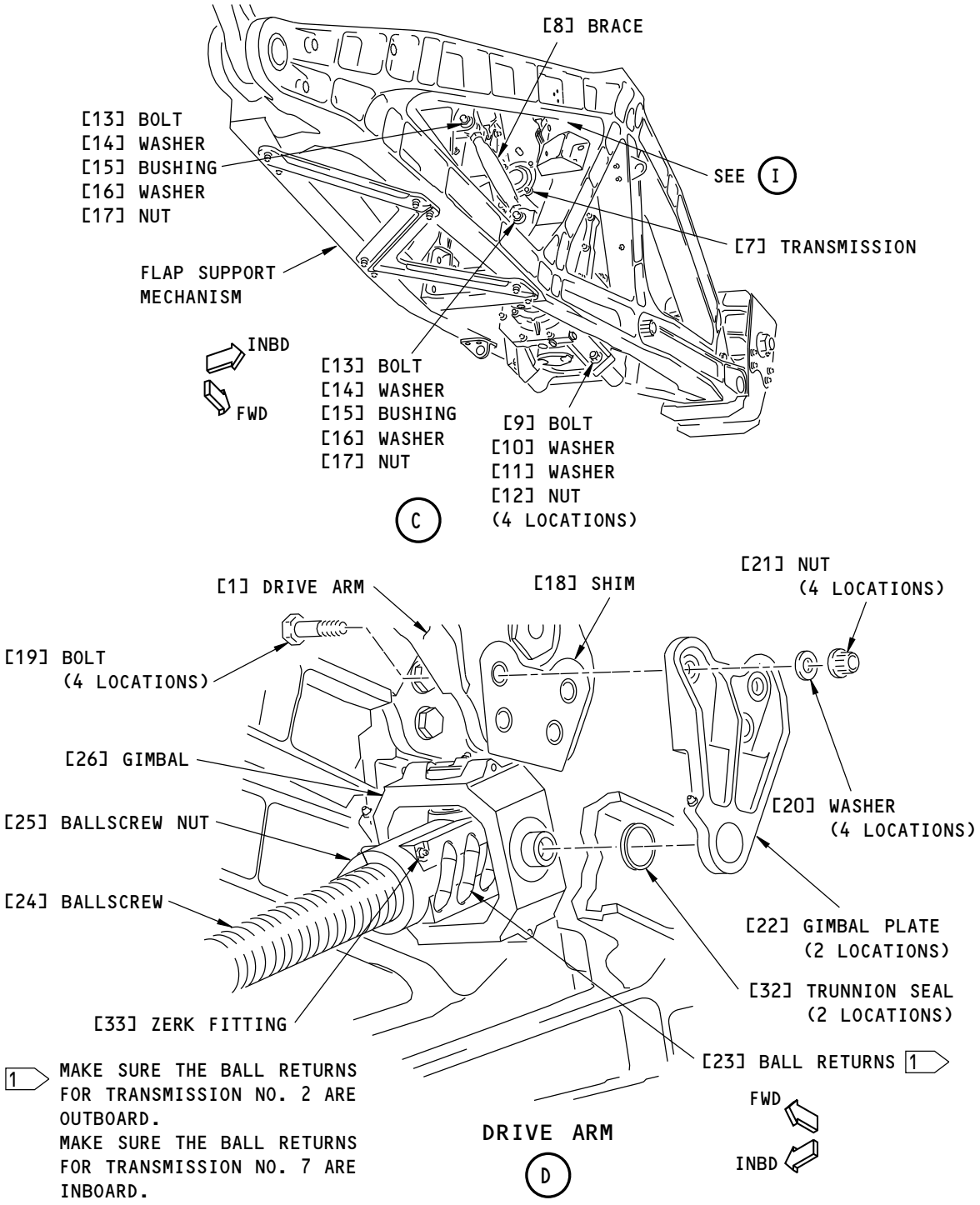
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C94896 S0006413822_V1

Outboard Flap Inboard Transmission Installation
Figure 401/27-51-25-990-801 (Sheet 1 of 4)

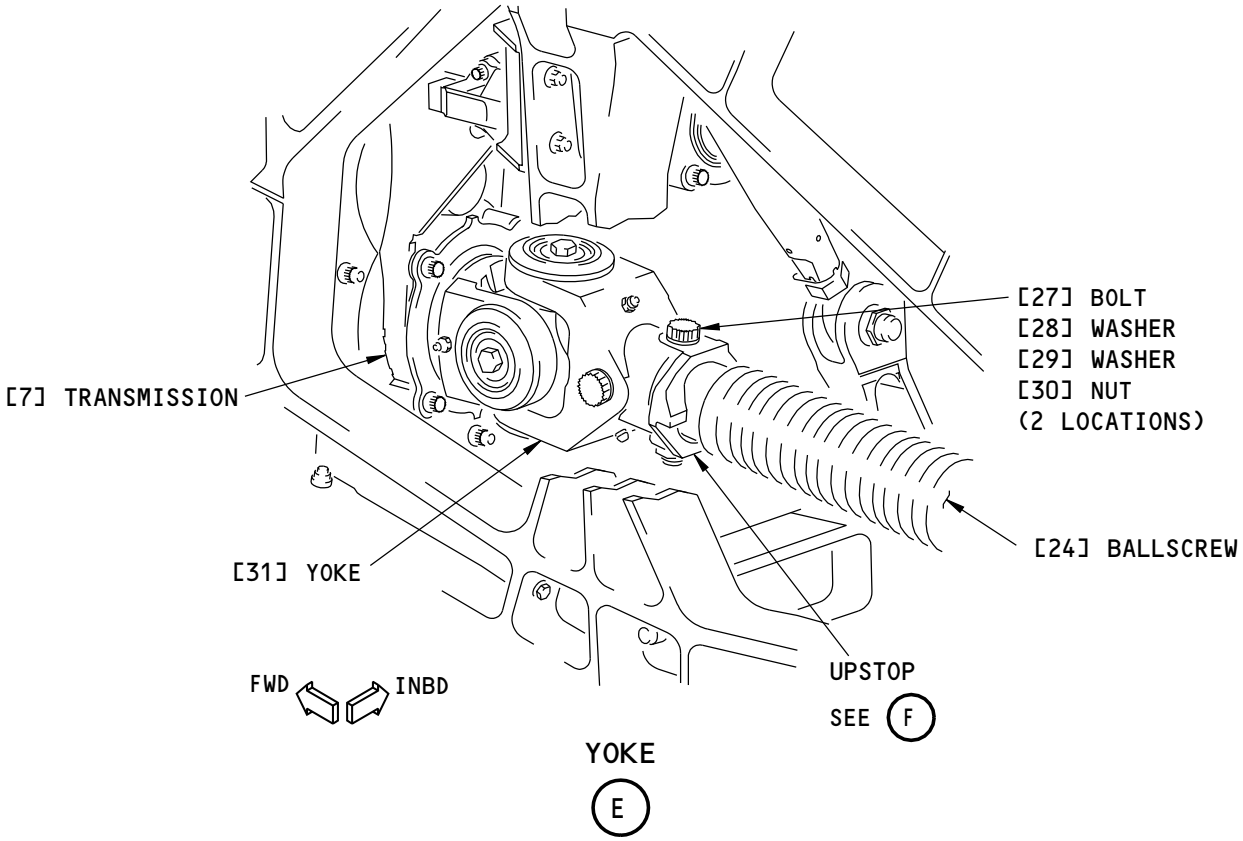
ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details



C95162 S0006413823_V1

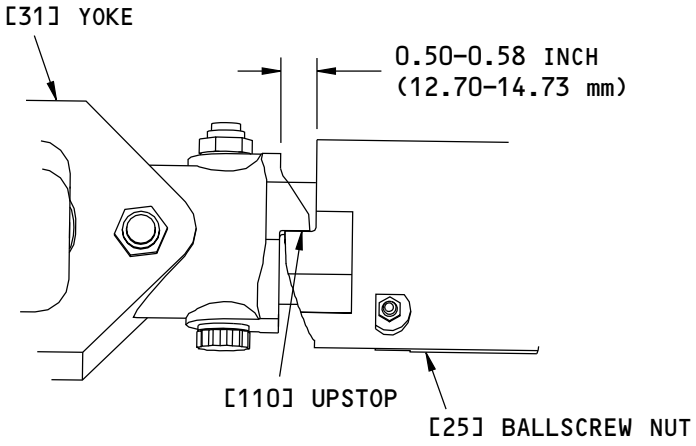
Outboard Flap Inboard Transmission Installation
Figure 401/27-51-25-990-801 (Sheet 2 of 4)

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YOKE

E



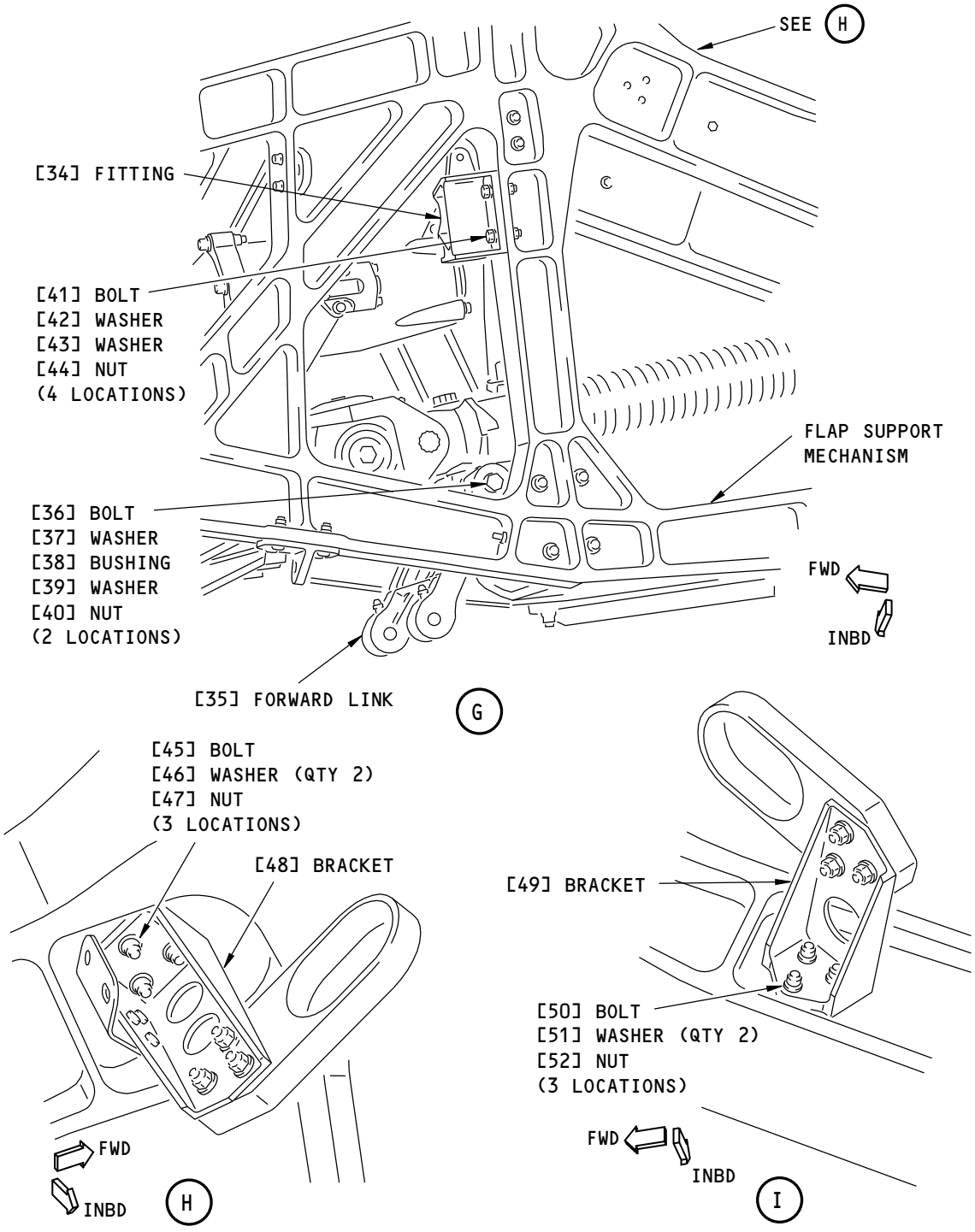
UPSTOP
(BALLSCREW NUT SHOWN WITH UPSTOPS IN CONTACT)

F

C95165 S0006413824_V1

Outboard Flap Inboard Transmission Installation
Figure 401/27-51-25-990-801 (Sheet 3 of 4)

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E90431 S0006413825_V1

Outboard Flap Inboard Transmission Installation
Figure 401/27-51-25-990-801 (Sheet 4 of 4)

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TASK 27-51-25-400-801

3. Outboard Flap Inboard Transmission Installation

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the transmission on flap supports No. 2 and 7.

B. References

Reference	Title
12-13-09-610-802	Flap Transmission Servicing (P/B 301)
12-21-09-640-810	Outboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
27-59-01-400-807-002	Outboard Flap Skew Sensor - Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

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(Continued)

Reference	Description	Specification
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Transmission assembly	Not Specified	

F. Location Zones

Zone	Area
576	Flap Support Fairing No. 2
676	Flap Support Fairing No. 7

G. Outboard Flap Inboard Transmission Installation

SUBTASK 27-51-25-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the transmission assembly [7] (Figure 401):

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the transmission assembly [7] and the flap support mechanism.

(b) If you will use the fishpole hoist, COM-1582 and the sling, which is part of the trailing edge flap transmission equipment, SPL-1724, install them on the transmission assembly [7] and the hoist bracket.

(c) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolt [9].

(d) Lift the transmission assembly [7] to its position.

(e) Install the bolt [9], washer [10], washer [11] and nut [12] with the bolt heads forward.

(f) Tighten the nut [12]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-51-25-080-001

(2) Remove the fishpole hoist, COM-1582 and the sling from the transmission assembly [7] (Figure 403).

SUBTASK 27-51-25-420-002

(3) Connect the ballscrew [24] to the yoke [31] on the transmission assembly [7] (Figure 401):

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(a) Turn the ballscrew nut [25] until it is at the forward end of the ballscrew [24].

(b) Put the ballscrew [24] into the yoke [31].

(c) Install the bolt [27], washer [28], washer [29] and nut [30] that attach the ballscrew [24] to the yoke [31].

(d) Make sure the ballscrew [24] is installed correctly in the yoke [31]:

1) Move the ballscrew nut [25] until the upstop [110] touches the upstop on the yoke [31].

2) Make sure the distance between the yoke [31] and the ballscrew nut [25] is 0.50 in. (12.70 mm) – 0.58 in. (14.73 mm).

3) If the distance is not in the limits, change the distance:

a) Remove the nut [30], washer [28], washer [29] and bolt [27] that attach the ballscrew [24] to the yoke [31].

b) Turn the ballscrew [24] 180 degrees in the yoke [31].

c) Install the bolt [27], washer [28], washer [29] and nut [30].

(e) Tighten the nut [30].

SUBTASK 27-51-25-420-003

(4) Connect the gimbal [26] on the ballscrew [24] to the drive arm [1]:

(a) Move the gimbal [26] aft on the ballscrew [24] until it aligns with the drive arm [1].

(b) On transmission No. 2, make sure the ball returns [23]on the ballscrew nut [25] are outboard.

(c) On transmission No. 7, make sure the ball returns [23] on the ballscrew nut [25] are inboard.

(d) Make sure the zerk fitting [33] are on the upper side of the ballscrew nut [25].

(e) Apply grease, D00013 to the trunnion seal [32].

(f) Apply a layer of PR-1405-G sealant, A00723 to the mating surfaces of the gimbal plate [22] and the drive arm [1].

(g) Put the trunnion seal [32] in their location on the gimbal [26].

(h) Put the gimbal plate [22] and the shim [18] on the drive arm [1].

NOTE: Make sure you install the same thickness of shim [18] as you removed.

(i) Install the bolt [19], washer [20] and nut [21] that attach the gimbal plate [22] to the drive arm [1].

(j) Tighten the nut [21] to 1000 in-lb (113 N·m) - 1200 in-lb (136 N·m).

(k) Apply a bead of PR-1405-G sealant, A00723 around the gimbal plate [22].

SUBTASK 27-51-25-420-009

(5) Connect the torque tubes [2] to the transmission assembly [7]:

(a) Remove the tape from the splined coupling [3].

(b) Apply grease, D00633 to the coupling sleeve [5].

(c) Put the splined coupling [3] in the coupling sleeve [5] on the transmission assembly [7].

(d) Install the screw [4] to attach the torque tubes [2] to the transmission assembly [7].

(e) Tighten the screw [4].

NOTE: Do not over tighten the screw [4].

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(f) Install the MS20995C20 lockwire, G50225 on the screw [4].

(g) Remove the T.E. flap drive shaft clamp equipment, SPL-1706 from the torque tube [2] outboard of the transmission assembly [7].

SUBTASK 27-51-25-080-003

(6) Remove the trailing edge flap (with transmission removed) lock, SPL-1757 from the flap support mechanism.

SUBTASK 27-51-25-010-009

(7) Install the bracket [49] on the flap support mechanism:

(a) Apply PR-1405-G sealant, A00723 to the mating surface on the bracket [49] and flap support mechanism.

(b) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [50].

(c) Install the bolt [50], bolt [50] and nut [52] to attach the bracket [49] to the inboard side of the flap support mechanism.

SUBTASK 27-51-25-010-010

(8) Install the bracket [48] on the flap support mechanism:

(a) Apply PR-1405-G sealant, A00723 to the mating surface on the bracket [48] and flap support mechanism.

(b) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [45].

(c) Install the bolt [45], washer [46] and nut [47] to attach the bracket [48] to the outboard side of the flap support mechanism.

SUBTASK 27-51-25-010-011

(9) Install the fitting [34] on the outboard side of the flap support mechanism:

(a) Apply PR-1405-G sealant, A00723 to the mating surface on the fitting [34] and flap support mechanism.

(b) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [41].

(c) Install the bolt [41], washer [42], washer [43] and nut [44] to attach the fitting [34] to the flap support mechanism.

(d) Tighten the nut [44] to 50 in-lb (6 N·m) - 75 in-lb (8 N·m).

SUBTASK 27-51-25-010-012

(10) Install the forward link [35] for the aft fairing on the flap support mechanism:

(a) Install the bushing [38], bolt [36], washer [37], washer [39] and nut [40] to attach the forward link [35] to the flap support mechanism.

(b) Tighten the nut [40] to 180 in-lb (20 N·m) - 200 in-lb (23 N·m).

SUBTASK 27-51-25-420-004

CAUTION

MAKE SURE THAT YOU INSTALL THE BRACE CORRECTLY. YOU CAN CAUSE DAMAGE TO THE AIRPLANE IF YOU DO NOT INSTALL THE DIAGONAL BRACE CORRECTLY.

(11) Install the brace [8] aft of the transmission assembly [7]:

(a) Put the brace [8] in its location between the fittings.

(b) Apply layer of grease, D00633 to the bushing [15] and bolt [13].

(c) Install the bushing [15] in the fittings.

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(d) Install the bolt [13] and the washer [14].

NOTE: Install the bolt [13] with the heads forward.

1) If you cannot install the bolt [13], adjust the length of the brace [8].

(e) Install the washer [16] and the nut [17] on the bolt [13].

(f) Tighten the nut [17] to 290 in-lb (33 N·m) - 320 in-lb (36 N·m).

SUBTASK 27-51-25-410-001

(12) Do this task: Outboard Flap Skew Sensor - Installation, TASK 27-59-01-400-807-002.

SUBTASK 27-51-25-640-001

(13) Do this task: Outboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-810.

SUBTASK 27-51-25-640-003

(14) Do this task: Flap Transmission Servicing, TASK 12-13-09-610-802.

SUBTASK 27-51-25-820-001

(15) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-25-410-002

(1) Do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-25-440-001

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-25-860-005

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-25-860-006

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-25-740-001

(5) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: It is only necessary to do the test of the flaps.

SUBTASK 27-51-25-860-007

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-51-25-000-802

4. Outboard Flap Outboard Transmission Removal

NOTE: This procedure is a scheduled maintenance task.

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A. General

(1) This task is applicable to the transmission on flap supports No. 1 and 8.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
27-59-01-000-807-002	Outboard Flap Skew Sensor - Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Location Zones

Zone	Area
577	Flap Support Fairing No. 1
677	Flap Support Fairing No. 8

E. Prepare for the Removal

SUBTASK 27-51-25-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-25-860-010

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-25-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-25-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-25-860-011

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-25-860-012

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-25-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-25-010-003

(8) Do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-25-480-003

CAUTION MAKE SURE YOU INSTALL THE FLAP LOCK ON THE FLAP SUPPORT MECHANISM BEFORE YOU REMOVE THE TRANSMISSION. WITHOUT THE FLAP LOCK THE FLAP SUPPORT WILL NOT STOP THE FLAP FROM EXTENDING PAST ITS USUAL POSITION. THIS CAN CAUSE DAMAGE TO THE FLAP.

(9) Install the trailing edge flap (with transmission removed) lock, SPL-1757 on the flap support mechanism to hold the flap when you remove the transmission.

F. Outboard Flap Outboard Transmission Removal

SUBTASK 27-51-25-010-004

(1) Do this task: Outboard Flap Skew Sensor - Removal, TASK 27-59-01-000-807-002.

SUBTASK 27-51-25-010-013

(2) Remove the forward link [95] for the aft fairing from the flap support mechanism (Figure 402):

(a) Remove the nut [100], washer [97], washer [99] and bolt [96] that attach the forward link [95] to the flap support mechanism.

(b) Remove the bushing [98] from the flap support mechanism.

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SUBTASK 27-51-25-010-014

(3) Remove the bracket assy [91] from the flap support mechanism:

(a) Remove the bolt [92], washer [93] and nut [94] that attach the bracket assy [91] to the flap support mechanism.

(b) Remove the bracket assy [91].

SUBTASK 27-51-25-010-015

(4) Remove the bracket assy [91] from the flap support mechanism:

(a) Remove the bolt [106], washer [107] and nut [108] that attach the bracket [109] to the flap support mechanism.

(b) Remove the bracket [109].

SUBTASK 27-51-25-010-016

(5) Remove the fitting assy [105] from the outboard side of the flap support mechanism:

(a) Remove the nut [104], washer [102], washer [103] and bolt [101] that attach the fitting assy [105] to the flap support mechanism.

(b) Remove the fitting assy [105] from the flap support mechanism.

SUBTASK 27-51-25-020-006

(6) Disconnect the torque tube [53] from the transmission assy [57] (Figure 402):

(a) Remove the screw [55] that attach the coupling sleeve [56] to the splined coupling [54] on the torque tube [53].

(b) Move the coupling sleeve [56] off the splined coupling [54].

(c) Apply tape to the splined coupling [54].

SUBTASK 27-51-25-020-007

(7) Remove the brace assy [71] which is aft of the transmission assy [57]:

(a) Remove the nut [62], washer [59], washer [61], bolt [58] and bushing [60] that attach the brace assy [71] to the top fitting.

(b) Remove the nut [62], washer [59], washer [70], bolt [68] and bushing [69] that attach the brace assy [71] to the bottom fitting.

(c) Remove the brace assy [71].

SUBTASK 27-51-25-020-008

CAUTION

MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(8) Disconnect the ballscrew assy [80] with the gimbal [82] from the drive arm [111]:

(a) Remove the nut [77], washer [75], washer [76] and bolt [74] that attach the plate assy [78] to the drive arm [51].

(b) Remove the plate assy [78] with the shim [73] and the seal [89] from the gimbal [82].

(c) Make a record of the thickness and location of the shim [73].

SUBTASK 27-51-25-020-009

(9) Disconnect the ballscrew assy [80] from the yoke [83] on the transmission assy [57]:

(a) Remove the nut [87], washer [85], washer [86] and bolt [84] that attach the ballscrew assy [80] to the yoke [83].

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(b) Remove the ballscrew assy [80] from the yoke [83].

NOTE: You can turn the ballscrew assy [80] and the gimbal [82] to get clearance to remove the ballscrew.

SUBTASK 27-51-25-480-004

(10) If you will use the trailing edge flap transmission equipment, SPL-1724, attach the sling to the transmission assy [57] (Figure 403):

(a) Connect the fishpole hoist, COM-1582 to the hoist bracket above the transmission assy [57].

NOTE: You can put a bolt in the hoist bracket above the fishpole hoist, COM-1582 to make sure it does not come out of the hoist bracket.

(b) Put the sling on the transmission assy [57].

(c) Connect the fishpole hoist, COM-1582 to the sling.

SUBTASK 27-51-25-020-010

(11) Remove the transmission assy [57] (Figure 402):

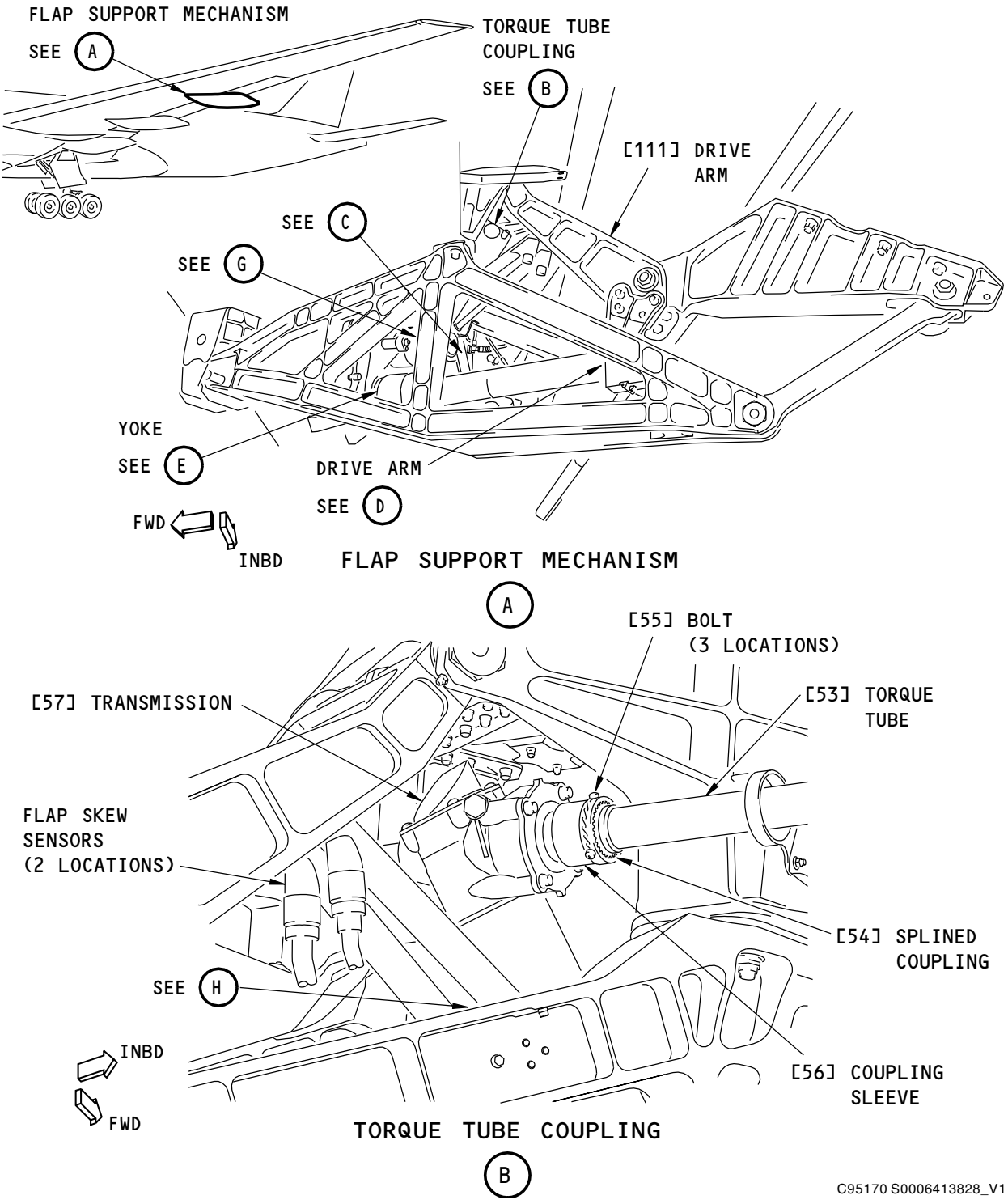
(a) Use the fishpole hoist, COM-1582 to hold the transmission assy [57].

(b) Remove the nut [67], washer [65], washer [66] and bolt [64] that attach the transmission assy [57] to the flap support mechanism [63].

(c) Carefully move the transmission assy [57] down and forward, away from the flap support mechanism [63].

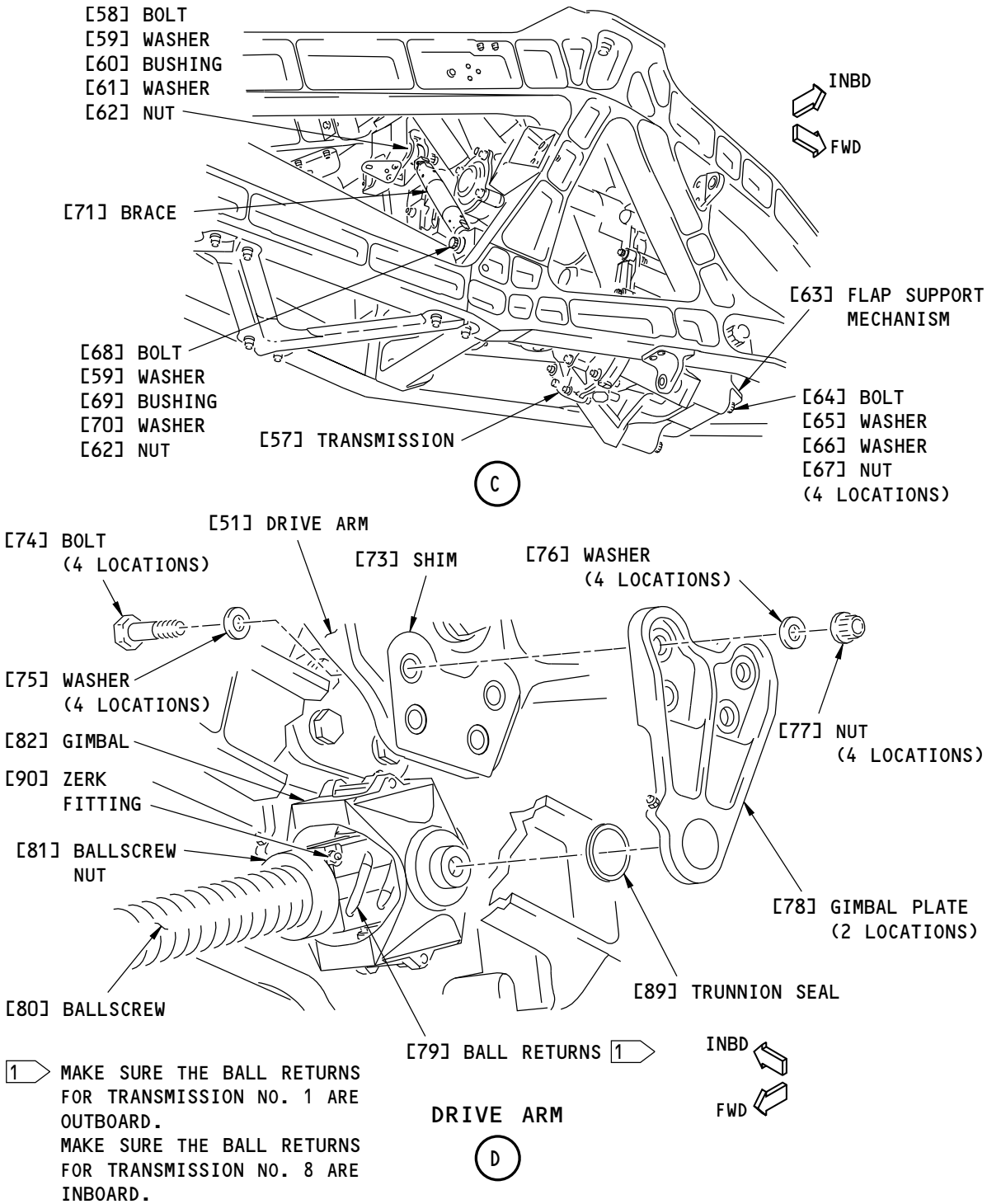
——— END OF TASK ———

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Outboard Flap Outboard Transmission Installation
Figure 402/27-51-25-990-802 (Sheet 1 of 4)

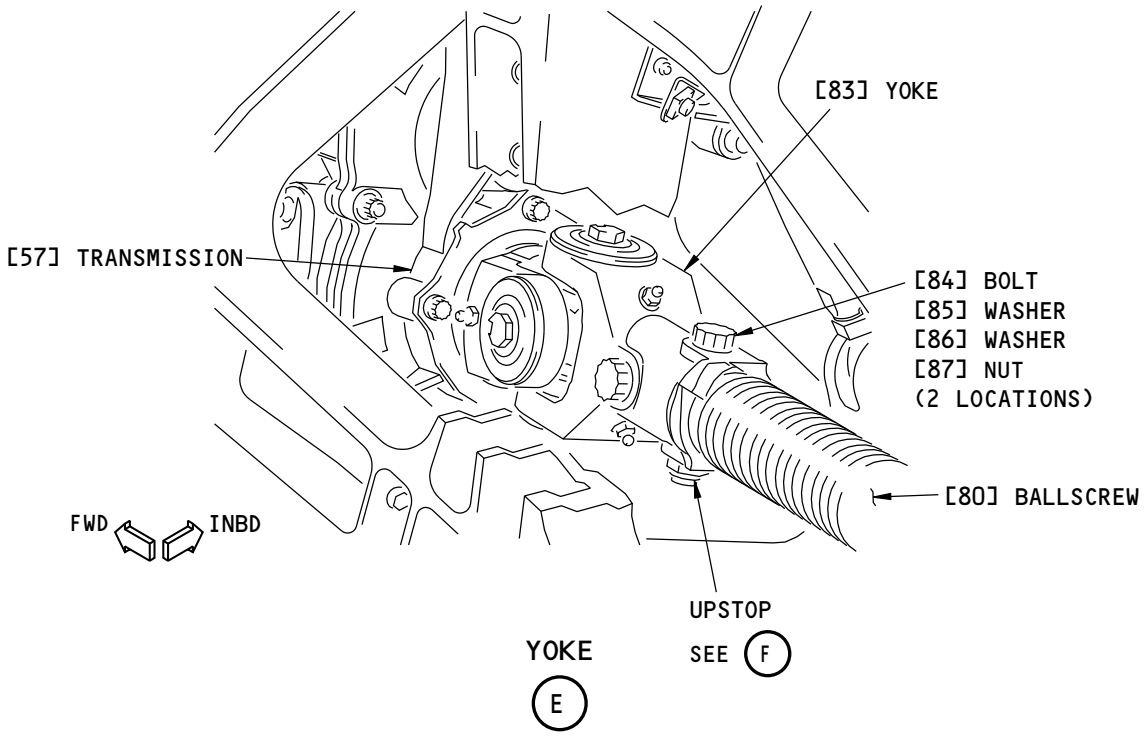
ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

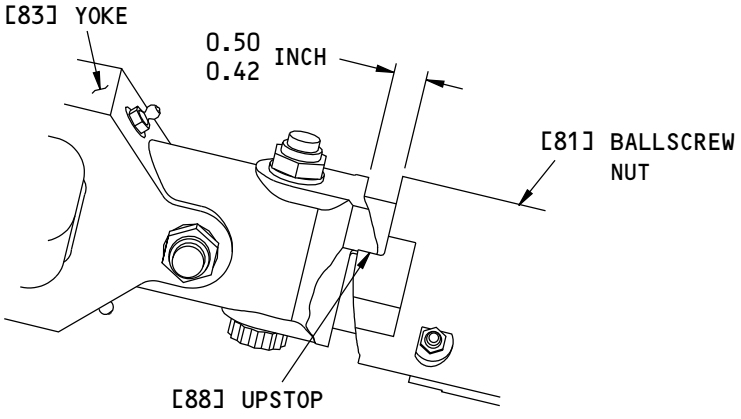


C95649 S0006413829_V1

Outboard Flap Outboard Transmission Installation
Figure 402/27-51-25-990-802 (Sheet 2 of 4)

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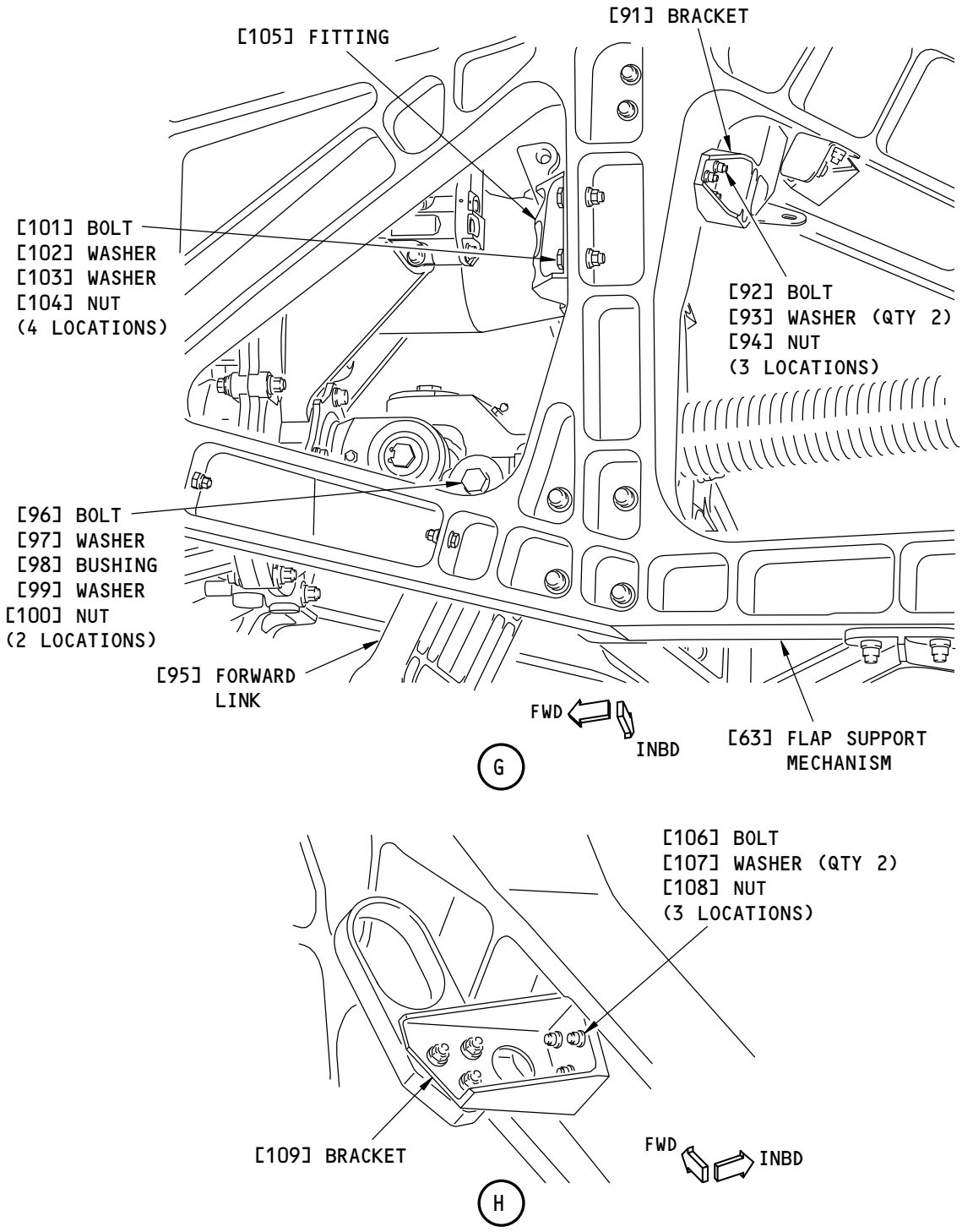


UPSTOP
(BALLSCREW NUT SHOWN WITH UPSTOPS IN CONTACT)
F

C95655 S0006413830_V1

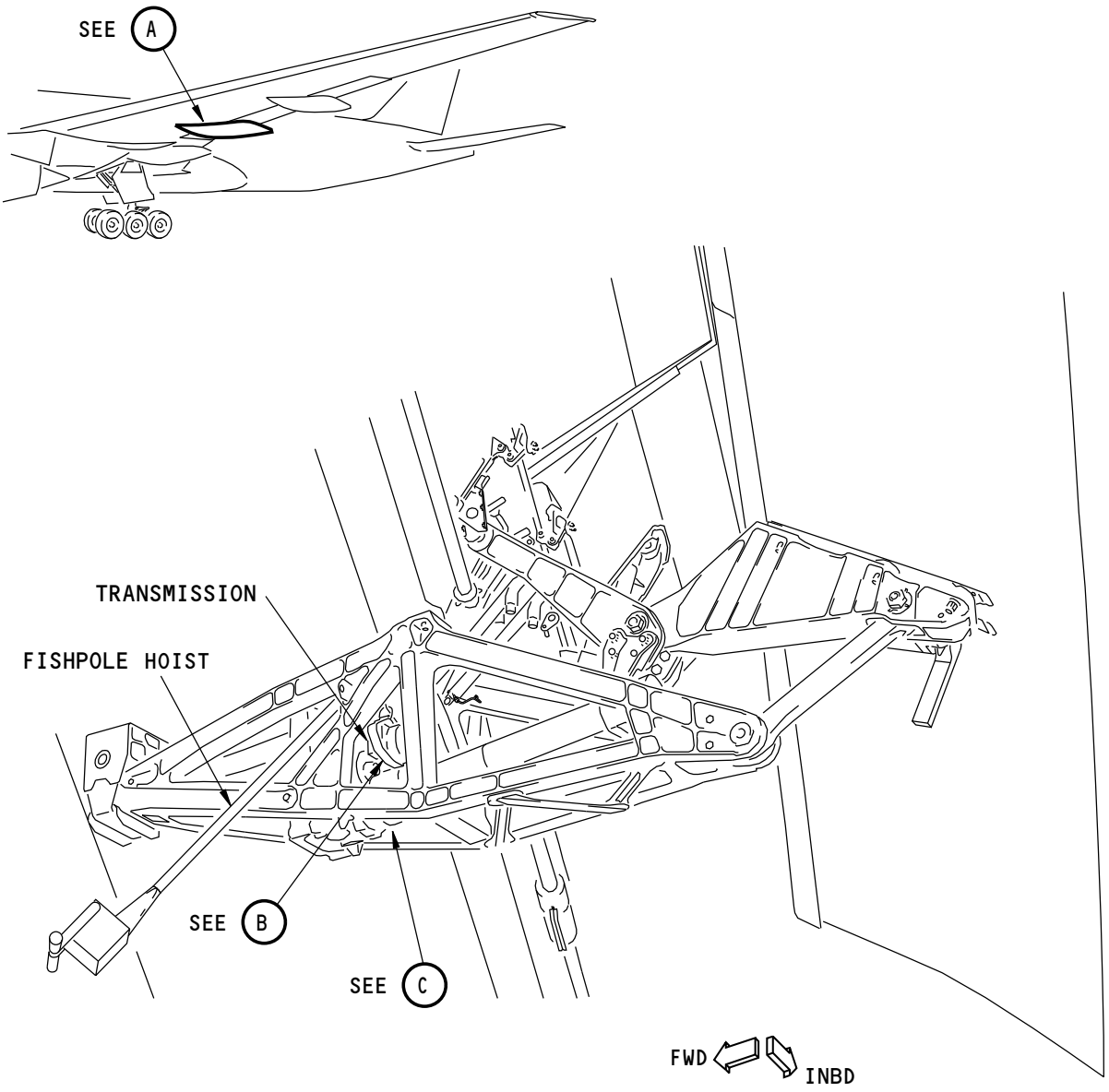
Outboard Flap Outboard Transmission Installation
Figure 402/27-51-25-990-802 (Sheet 3 of 4)

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Outboard Flap Outboard Transmission Installation
Figure 402/27-51-25-990-802 (Sheet 4 of 4)

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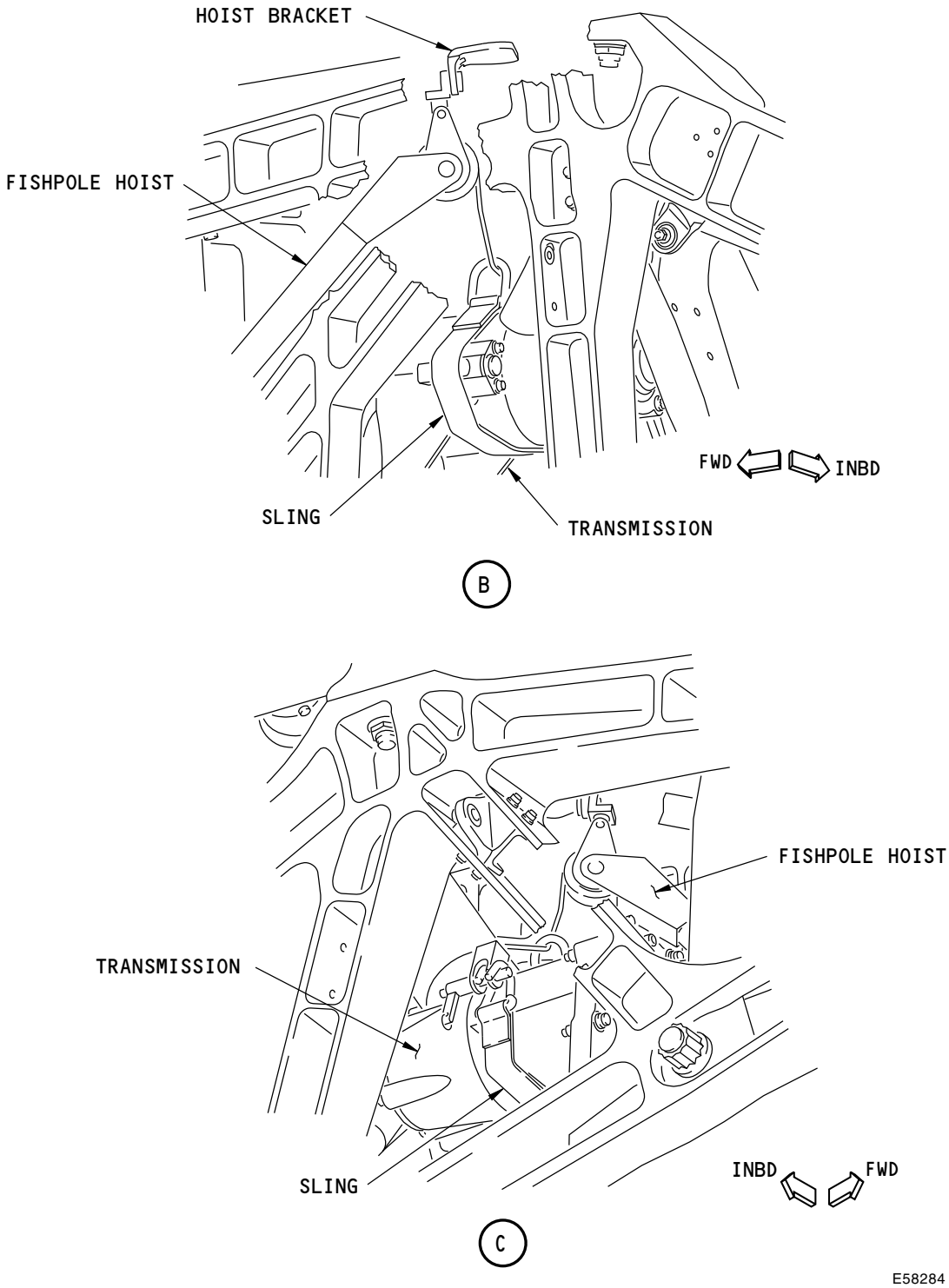
TRANSMISSION NO. 2
(TRANSMISSION NO. 1 IS EQUIVALENT)

C

E58280 S0006413832_V1

Transmission Removal Equipment
Figure 403/27-51-25-990-803 (Sheet 1 of 2)

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Transmission Removal Equipment
Figure 403/27-51-25-990-803 (Sheet 2 of 2)

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TASK 27-51-25-400-802

5. Outboard Flap Outboard Transmission Installation

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the transmission on flap supports No. 1 and 8.

B. References

Reference	Title
12-13-09-610-802	Flap Transmission Servicing (P/B 301)
12-21-09-640-804	Outboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
27-59-01-400-807-002	Outboard Flap Skew Sensor - Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1724	Equipment - Removal/Installation, Trailing Edge Flap Transmission Part #: J27023-54 Supplier: 81205
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995

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(Continued)

Reference	Description	Specification
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Location Zones

Zone	Area
577	Flap Support Fairing No. 1
677	Flap Support Fairing No. 8

F. Outboard Flap Outboard Transmission Installation

SUBTASK 27-51-25-420-005

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the transmission assembly [57] (Figure 402):

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the transmission assembly [57] and the flap support mechanism [63].

(b) If you will use the fishpole hoist, COM-1582 and the sling, which is part of the trailing edge flap transmission equipment, SPL-1724, install them on the transmission assembly [57] and the hoist bracket.

(c) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolt [64].

(d) Lift the transmission assembly [57] to its position.

(e) Install the bolt [64], washer [65], washer [66] and nut [67] with the bolt heads forward.

(f) Tighten the nut [67]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-51-25-080-002

(2) Remove the fishpole hoist, COM-1582 and the sling from the transmission assembly [57] (Figure 403).

SUBTASK 27-51-25-420-006

(3) Connect the ballscrew [80] to the yoke [83] on the transmission assembly [57] (Figure 402):

(a) Turn the ballscrew nut [81] until it is at the forward end of the ballscrew [80].

(b) Put the ballscrew [80] into the yoke [83].

(c) Install the bolt [84], washer [85], washer [86] and nut [87] that attach the ballscrew [80] to the yoke [83].

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(d) Make sure the ballscrew [80] is installed correctly in the yoke [83]:

1) Move the ballscrew nut [81] until the upstop [88] touches the upstop on the yoke [83].

2) Make sure the distance between the yoke [83] and the ballscrew nut [81] is 0.42 in. (10.67 mm) - 0.50 in. (12.70 mm).

3) If the distance is not in the limits, change the distance:

a) Remove the nut [87], washer [85], washer [86] and bolt [84] that attach the ballscrew [80] to the yoke [83].

b) Turn the ballscrew [80] degrees in the yoke [83].

c) Install the bolt [84], washer [85], washer [86] and nut [87].

(e) Tighten the nut [87].

SUBTASK 27-51-25-420-007

(4) Connect the ballscrew [80] with the gimbal [82] to the drive arm [51]:

(a) Move the gimbal [82] aft on the ballscrew [80] until it aligns with the drive arm [111].

(b) On transmission No. 1, make sure the ball returns [79] on the ballscrew nut [81] are outboard.

(c) On transmission No. 8, make sure the ball returns [79] on the ballscrew nut [81] are inboard.

(d) Make sure the zerk fitting [90] are on the upper side of the ballscrew nut [81].

(e) Apply grease, D00013 to the trunnion seal [89].

(f) Apply a layer of PR-1405-G sealant, A00723 to the mating surfaces of the gimbal plate [78] and the drive arm [51].

(g) Put the trunnion seal [89] in their location on the gimbal [82].

(h) Put the gimbal plate [78] and the shim [73] on the drive arm [51].

NOTE: Make sure you install the same thickness of shim [73] as you removed.

(i) Install the bolt [74], washer [75], washer [76] and nut [77] that attach the gimbal plate [78] to the drive arm [51].

(j) Tighten the nut [77] to 700 in-lb (79 N·m) - 920 in-lb (104 N·m).

(k) Apply a bead of PR-1405-G sealant, A00723 around the gimbal plate [78].

SUBTASK 27-51-25-420-010

(5) Connect the torque tube [53] to the transmission assembly [57]:

(a) Remove the tape from the splined coupling [54].

(b) Apply grease, D00633 to the coupling sleeve [56].

(c) Put the splined coupling [54] in the coupling sleeve [56] on the transmission assembly [57].

(d) Install the screw [55] to attach the torque tube [53] to the transmission assembly [57].

(e) Tighten the screw [55].

NOTE: Do not over tighten the screw [55].

(f) Install the MS20995C20 lockwire, G50225 on the screw [55].

SUBTASK 27-51-25-080-004

(6) Remove the trailing edge flap (with transmission removed) lock, SPL-1757 from the flap support mechanism.

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SUBTASK 27-51-25-010-017

(7) Install the bracket [109] on the flap support mechanism [63]:

(a) Apply PR-1405-G sealant, A00723 to the mating surface on the bracket [109] and flap support mechanism [63].

(b) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [106].

(c) Install the bolt [106], washer [107] and nut [108] to attach the bracket [109] to the inboard side of the flap support mechanism.

SUBTASK 27-51-25-010-018

(8) Install the bracket [91] on the flap support mechanism [63]:

(a) Apply PR-1405-G sealant, A00723 to the mating surface on the bracket [91] and flap support mechanism [63].

(b) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [92].

(c) Install the bolt [92], washer [93] and nut [94] to attach the bracket [91] to the outboard side of the flap support mechanism [63].

SUBTASK 27-51-25-010-019

(9) Install the fitting [105] on the outboard side of the flap support mechanism [63]:

(a) Apply PR-1405-G sealant, A00723 to the mating surface on the fitting [105] and flap support mechanism [63].

(b) Apply PR-1405-G sealant, A00723 to the shank and threads of the bolt [101].

(c) Install the bolt [101], washer [102], washer [103] and nut [104] to attach the bracket [109] to the flap support mechanism [63].

(d) Tighten the nut [104] to 50 in-lb (6 N·m) - 75 in-lb (8 N·m).

SUBTASK 27-51-25-010-020

(10) Install the forward link [95] for the aft fairing on the flap support mechanism [63]:

(a) Install the bushing [98], bolt [96], washer [97], washer [99] and nut [100] to attach the forward link [95] to the flap support mechanism [63].

(b) Tighten the nut [100] to 180 in-lb (20 N·m) - 200 in-lb (23 N·m).

SUBTASK 27-51-25-420-008

CAUTION

MAKE SURE THAT YOU INSTALL THE DIAGONAL BRACE CORRECTLY. YOU CAN CAUSE DAMAGE TO THE AIRPLANE IF YOU DO NOT INSTALL THE DIAGONAL BRACE CORRECTLY.

(11) Install the brace [71] aft of the transmission assembly [57]:

(a) Put the brace [71] in its location between the fittings.

(b) Apply layer of grease, D00633 to the bushing [60], bushing [69], bolt [58] and bolt [68].

(c) Install the bushing [60] and bushing [69] in the fittings.

(d) Install the bolt [58], bolt [68] and the washer [59] with the heads of the bolts aft.

1) If you cannot install the bolt [58] and bolt [68], adjust the length of the brace [71].

(e) Install the washer [61] and the washer [62] on the bolt [58].

(f) Install the washer [70] and the washer [62] on the bolt [68].

(g) Tighten the washer [62] to 220 in-lb (25 N·m) - 250 in-lb (28 N·m).

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SUBTASK 27-51-25-410-003

(12) Do this task: Outboard Flap Skew Sensor - Installation, TASK 27-59-01-400-807-002.

SUBTASK 27-51-25-640-004

(13) Do this task: Flap Transmission Servicing, TASK 12-13-09-610-802.

SUBTASK 27-51-25-640-002

(14) Do this task: Outboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-804.

SUBTASK 27-51-25-820-002

(15) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-25-410-004

(1) Do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-25-440-002

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-25-860-013

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-25-860-014

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-25-740-002

(5) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: It is only necessary to do the test of the flaps.

SUBTASK 27-51-25-860-015

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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OUTBOARD FLAP BALLSCREW AND GIMBAL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard ballscrew and gimbal for the outboard flap

(2) An installation of the outboard ballscrew and gimbal for the outboard flap.

(3) A removal of the inboard ballscrew and gimbal for the outboard flap

(4) An installation of the inboard ballscrew and gimbal for the outboard flap.

TASK 27-51-26-000-801

2. Outboard Flap Outboard Ballscrew and Gimbal Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 1 and 8.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Location Zones

Zone	Area
577	Flap Support Fairing No. 1
677	Flap Support Fairing No. 8

E. Prepare for the Removal

SUBTASK 27-51-26-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-26-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-26-210-004

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-26-210-001

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-26-860-003

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-26-860-004

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-26-040-001

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-26-010-001

(8) For the applicable outboard flap fairing, do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-26-480-001

CAUTION

MAKE SURE YOU INSTALL THE FLAP LOCK ON THE FLAP SUPPORT MECHANISM BEFORE YOU REMOVE THE BALLSCREW. WITHOUT THE FLAP LOCK THE FLAP SUPPORT WILL NOT STOP THE FLAP FROM EXTENDING PAST ITS USUAL POSITION. THIS CAN CAUSE DAMAGE TO THE FLAP.

(9) Install the trailing edge flap (with transmission removed) lock, SPL-1757 on the flap support mechanism to hold the flap when you remove the ballscrew.

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F. Outboard Flap Outboard Ballscrew and Gimbal Removal

SUBTASK 27-51-26-020-009

CAUTION

MAKE SURE THAT YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(1) Disconnect the gimbal [12] from the drive arm [4]:

(a) Remove the nut [27], washer [26], washer [25], and bolt [24] that attach the plate assy [8] to the drive arm [4].

(b) Remove the bulkhead fitting [36] and shim [38] from the drive arm [4].

(c) Remove the nut [31], washer [30], washer [29], washer [39], and bolt [28] that attach the plate assy [8] to the drive arm [4].

(d) Remove the spacer [37] from the drive arm [4].

(e) Remove the nut [7], nut [35], washer [3], washer [6], washer [33], washer [34], bolt [2], and bolt [32] that attach the plate assy [8] to the drive arm [4].

(f) Remove the plate assy [8] with the shim [5] and the seal [9] from the drive arm [4].

(g) Make a record of the thickness and location of the shim [5].

SUBTASK 27-51-26-020-002

(2) Disconnect the ballscrew assembly [14] from the yoke [18] on the transmission:

(a) Remove the nut [22], washer [20], washer [21] and bolt [19] that attach the ballscrew assy [14] to the yoke [18].

(b) Remove the ballscrew assy [14] from the yoke [18].

SUBTASK 27-51-26-020-003

(3) Carefully remove the ballscrew assy[14] and the gimbal [12] from the flap support mechanism.

SUBTASK 27-51-26-020-004

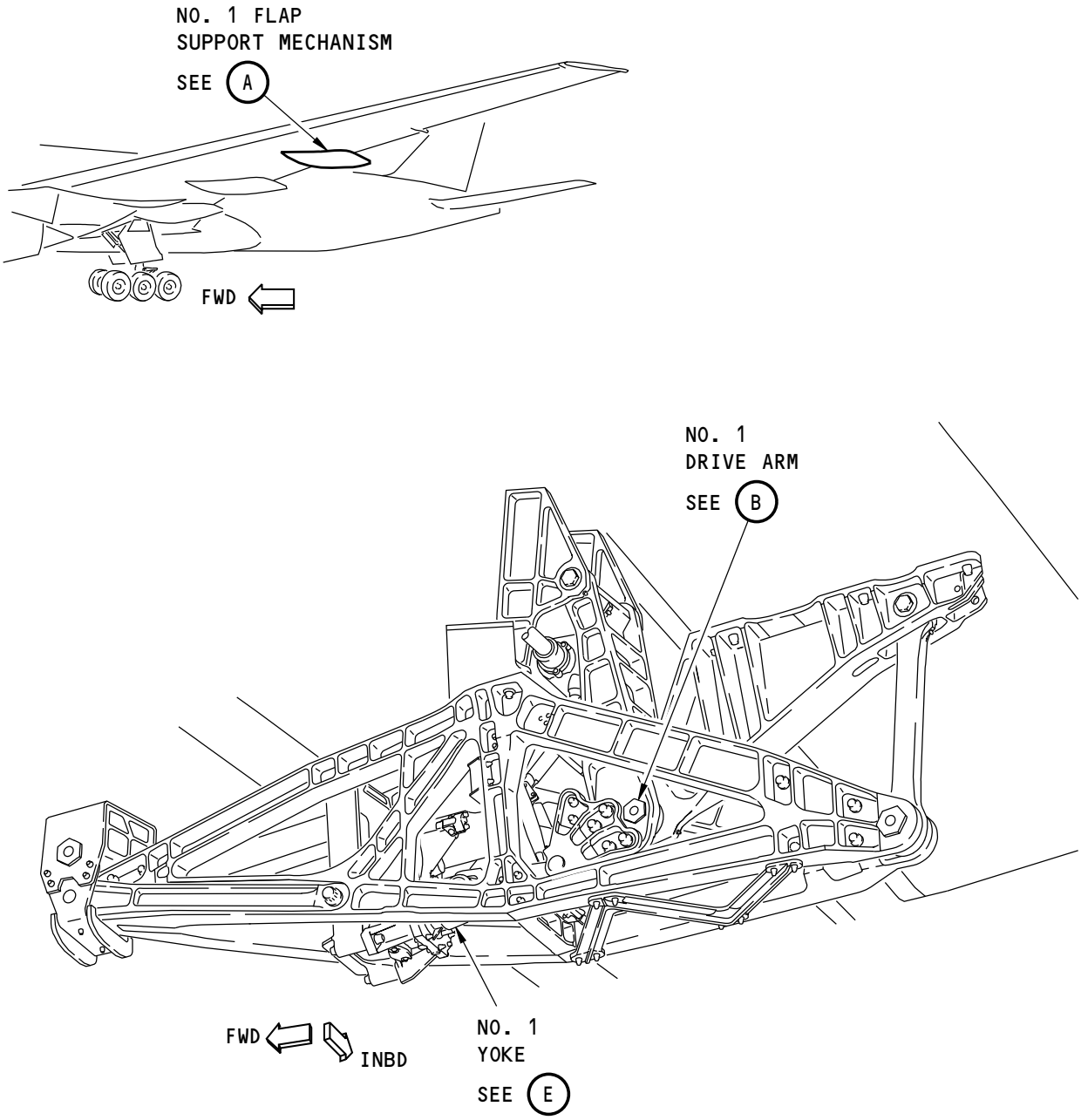
(4) If it is necessary, remove the gimbal [12] from the ballscrew nut [13]:

(a) Remove the bolt [10] and collar [16] that attach the bushing assy [1] to the gimbal [12].

(b) Remove the bushing assy [1] with the seals [17] from the ballscrew nut [13].

——— END OF TASK ———

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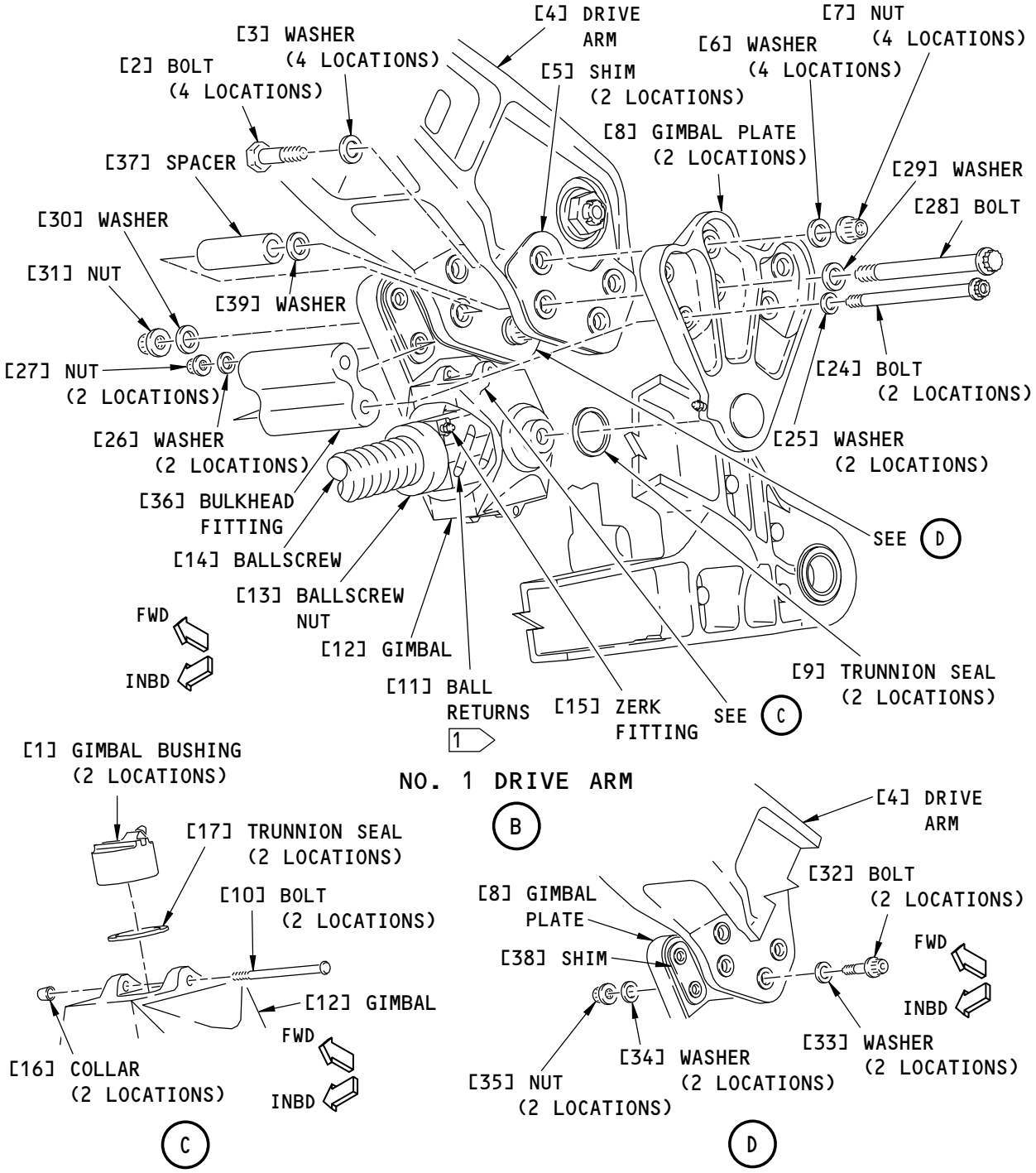
NO. 1 FLAP SUPPORT MECHANISM
(NO. 8 FLAP SUPPORT IS EQUIVALENT)

A

J85416 S0000181016_V1

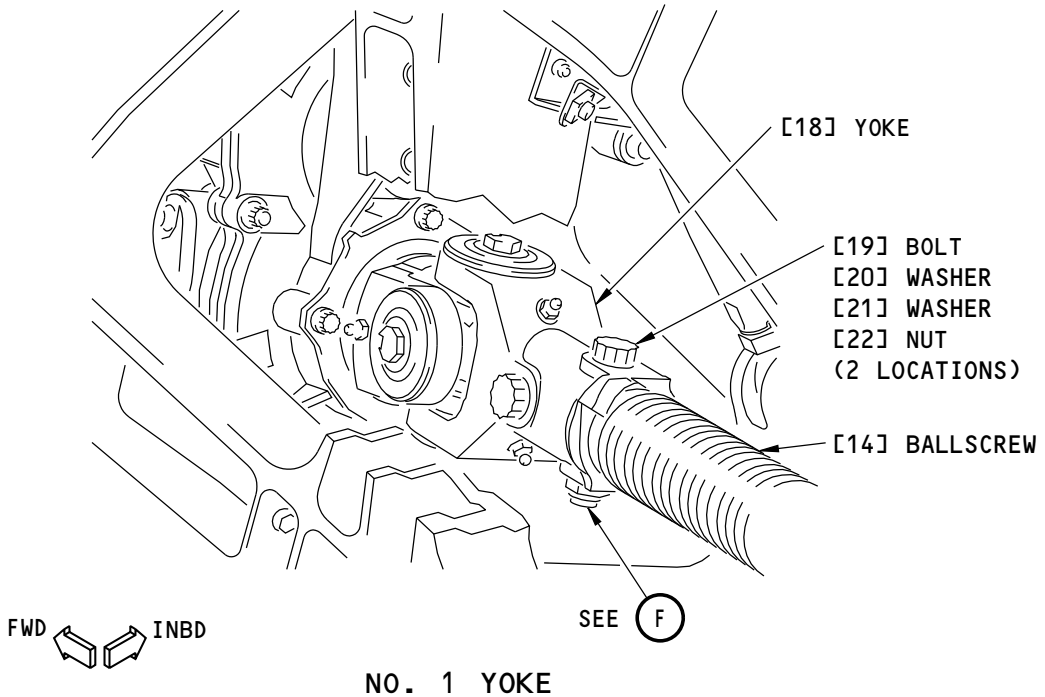
Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401/27-51-26-990-801 (Sheet 1 of 5)

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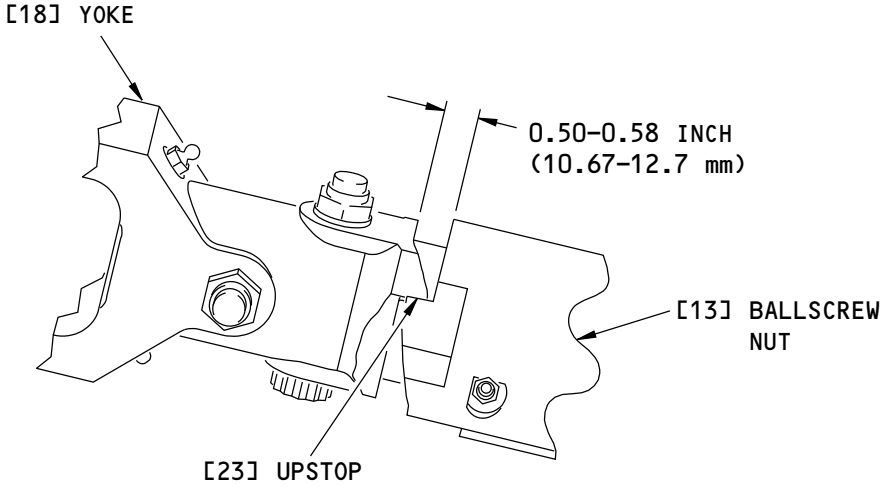
Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401/27-51-26-990-801 (Sheet 2 of 5)

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NO. 1 YOKE

E



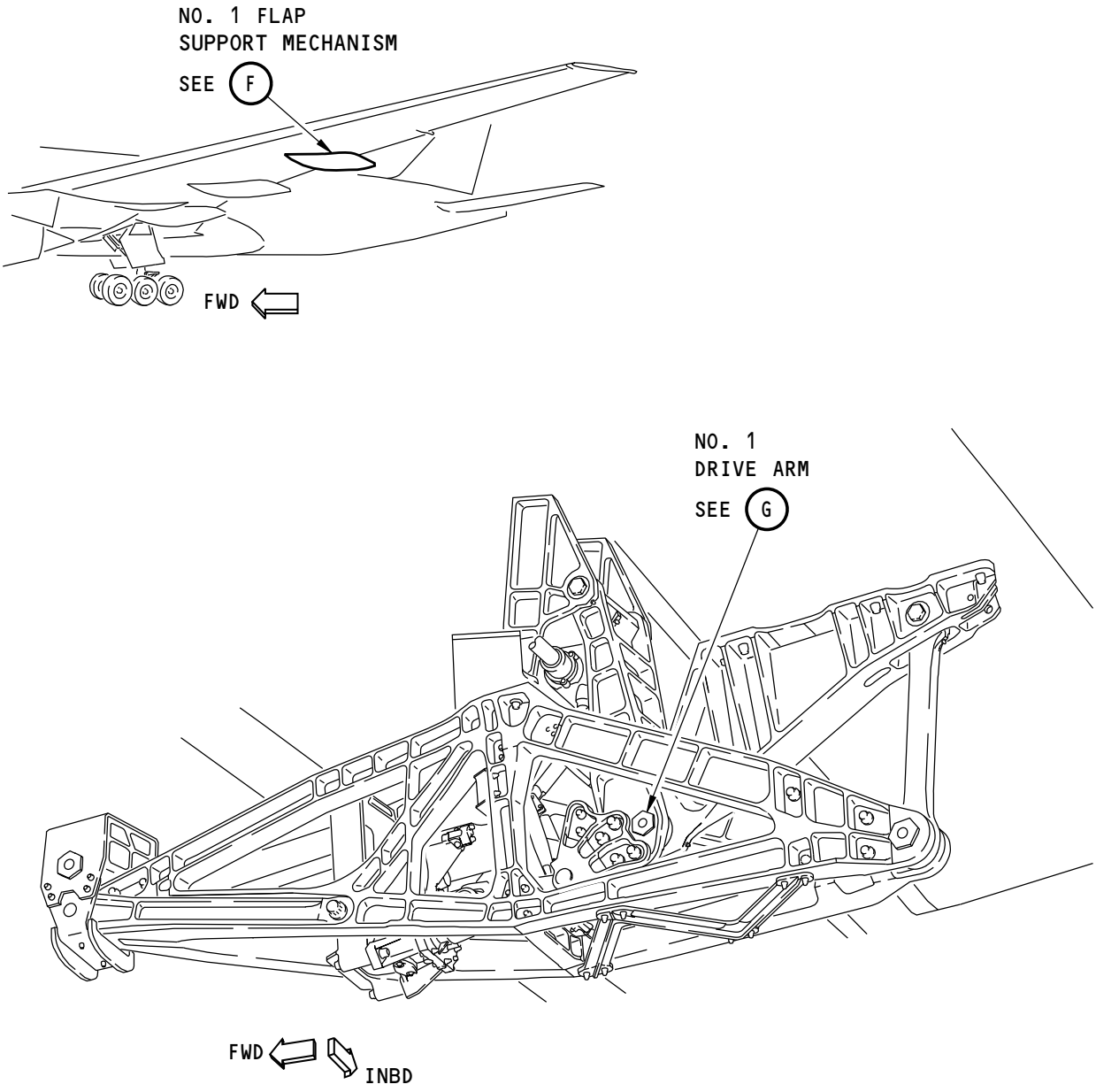
(BALLSCREW NUT SHOWN IN RETRACTED POSITION)

F

J85418 S0000181018_V1

Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401/27-51-26-990-801 (Sheet 3 of 5)

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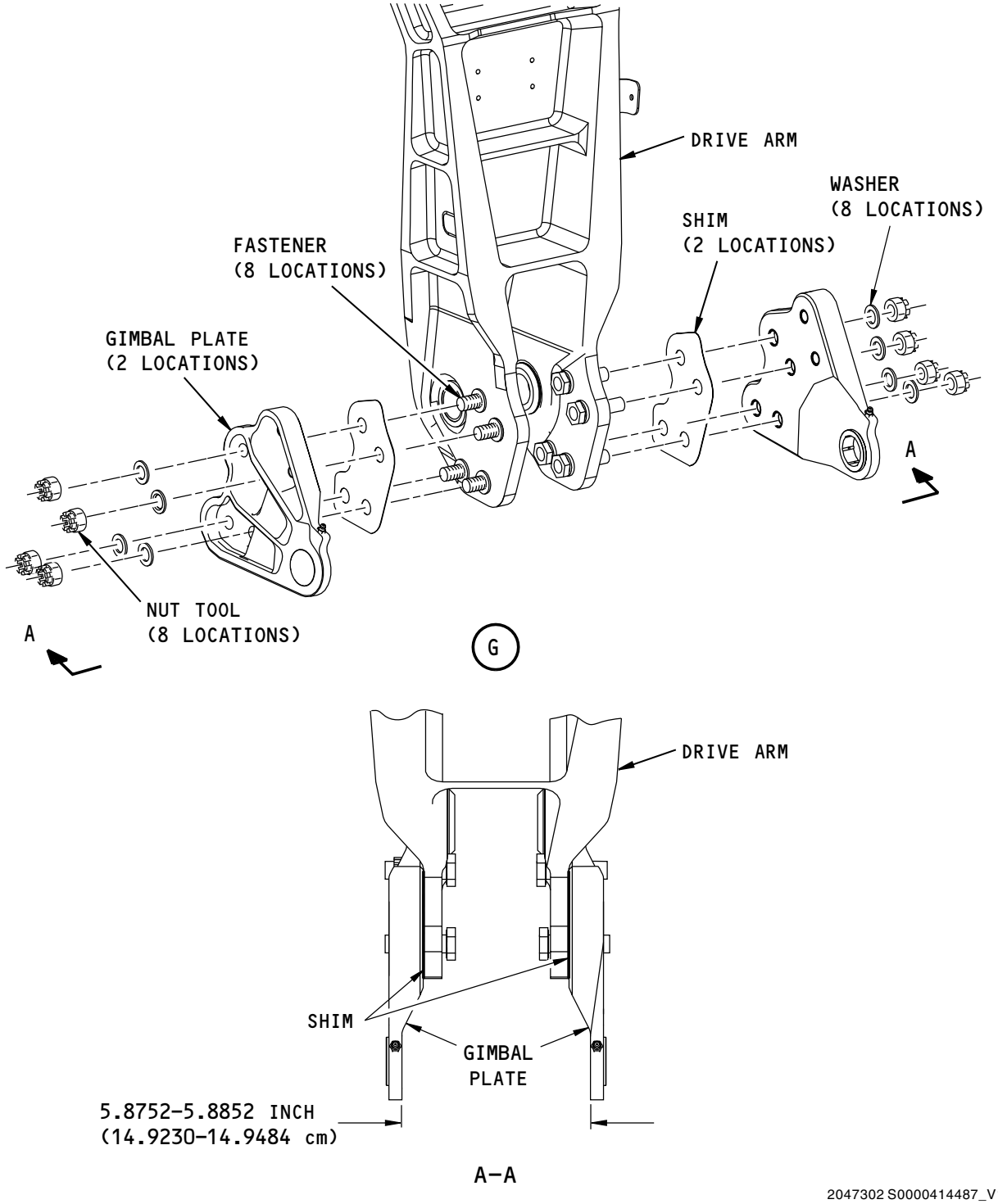


NO. 1 FLAP SUPPORT MECHANISM
(NO. 8 FLAP SUPPORT IS EQUIVALENT)
F

2047458 S0000416478_V1

Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401/27-51-26-990-801 (Sheet 4 of 5)

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Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401/27-51-26-990-801 (Sheet 5 of 5)

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TASK 27-51-26-400-801

3. Outboard Flap Outboard Ballscrew and Gimbal Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 1 and 8.

B. References

Reference	Title
12-21-09-640-804	Outboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C50180	Coating - Chemical And Solvent Resistant Finish - (BAC 792 White Color)	BMS10-11 Type II
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
12	Gimbal	Not Specified	
17	Seal	Not Specified	

F. Location Zones

Zone	Area
577	Flap Support Fairing No. 1

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(Continued)

Zone	Area
677	Flap Support Fairing No. 8

G. Outboard Flap Outboard Ballscrew and Gimbal Installation

SUBTASK 27-51-26-420-003

(1) If you removed it, install the gimbal [12] on the ballscrew nut [13]:

(a) Apply grease, D00013 to the seals [17].

(b) Put the seal [17] on the ballscrew nut [13].

(c) Put the gimbal [12] in its location on the ballscrew nut [13].

(d) Apply grease, D00013 to the inner surface of the bushing assy [1].

(e) Install the bushing assy [1] through the gimbal [12] on the ballscrew nut [13].

(f) Install the bolt [10] and collar [16] that attach the bushing assy [1] to the gimbal [12].

SUBTASK 27-51-26-420-001

(2) Connect the ballscrew assembly [14] to the yoke [18] on the transmission:

(a) Turn the ballscrew nut [13] until it is at the forward end of the ballscrew assy [14].

(b) Put the ballscrew assy [14] into the yoke [18].

(c) Install the bolt [19], washer [20], washer [21] and nut [22] that attach the ballscrew assy [14] to the yoke [18].

(d) Make sure the ballscrew assy [14] is installed correctly in the yoke [18]:

1) Move the ballscrew nut [13] until the upstops [23] touch.

2) Make sure the distance between the yoke [18] and the ballscrew nut [13] is 0.42 to 0.50 inch.

3) If the distance is not in the limits, change the distance:

a) Remove the nut [22], washer [20], washer [21] and bolt [19] that attach the ballscrew assy [14] to the yoke [18].

b) Turn the ballscrew assy [14] 180 degrees in the yoke [18].

c) Install the bolt [19], washer [20], washer [21] and nut [22].

(e) Tighten the nut [22] to 80-120 pound-inches (9.0-13.6 newton-meters) plus run-on torque.

SUBTASK 27-51-26-820-003

(3) Adjust the gimbal plate shims:

(a) Put the plate assy [8] and shim [5] on the drive arm [4].

(b) Install bolts in the direction indicated on Figure 401 (Sheet 5).

(c) Change the thickness of the two laminated shims equally to set the distance between the two gimbal plates to 5.8752 in. (14.9230 cm) to 5.8852 in. (14.9484 cm).

(d) Remove the gimbal plates prior to connecting gimbal [12] once adjustment is complete.

(e) Apply coating, C00064 and coating, C50180 to all surfaces of the shim that were adjusted.

SUBTASK 27-51-26-420-007

(4) Connect the gimbal [12] to the drive arm [4]:

(a) Move the gimbal [12] aft on the ballscrew assy [14] until it aligns with the drive arm [4].

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(b) On transmission No. 1, make sure the ball returns [11] on the ballscrew nut [13] are outboard.

(c) On transmission No. 8, make sure the ball returns [11] on the ballscrew nut [13] are inboard.

(d) Make sure the zerk fittings [15] are on the upper side of the ballscrew nut [13].

(e) Apply grease, D00013 to the seals [9].

(f) Apply a layer of PR-1405-G sealant, A00723 to the mating surfaces of the plate assy [8] and the drive arm [4].

(g) Put the seals [9] in their location on the gimbal [12].

(h) Install the gimbal plate assy [8].

1) Put the plate assy [8] and shim [5] on the drive arm [4].

NOTE: Make sure you install the same thickness of shim [5] as you removed.

CAUTION

DO NOT INSTALL THE INCORRECT BOLTS IN THE LOWER, AFT HOLES. THE INCORRECT BOLTS CAN CAUSE DAMAGE TO EQUIPMENT.

2) Install the nut [7], nut [35], washer [3], washer [6], washer [33], washer [34], bolt [2], and bolt [32] that attach the plate assy [8] to the drive arm [4].

a) Tighten the nut [7] to 892–948 pound-inches (101–107 newton-meters).

b) Tighten the nut [35] to 970–1030 pound-inches (110–116 newton-meters).

3) Install the spacer [37] on the plate assy [8].

4) Install the nut [31], washer [30], washer [29], washer [39], and bolt [28] that attach the plate assy [8] to the drive arm [4].

a) Tighten the nut [31] to 892–948 pound-inches (101–107 newton-meters).

5) Make sure that the total allowable clearance between spacer [37] and bushing on inboard side and washer on outboard side does not exceed 0.005 in. (0.127 mm).

a) Adjust washer [39] thickness to get the allowable clearance.

6) Install the bulkhead fitting [36] and shim [38] on the drive arm [4].

7) Install the nut [27], washer [26], washer [25], and bolt [24] that attach the plate assy [8] to the drive arm [4].

a) Tighten the nut [27] to 412 in-lb (47 N·m) to 438 in-lb (49 N·m).

(i) Measure the clearance between the bulkhead fitting [36] and the plate assy [8] surface.

1) The maximum permitted clearance not filled by the shim is 0.005 in. (0.127 mm).

(j) Apply a bead of PR-1405-G sealant, A00723 around the plate assy [8].

SUBTASK 27-51-26-080-001

(5) Remove the trailing edge flap (with transmission removed) lock, SPL-1757 from the flap support mechanism.

SUBTASK 27-51-26-640-001

(6) Do this task: Outboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-804.

SUBTASK 27-51-26-820-001

(7) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-26-410-001

(1) For the applicable fairing, do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-26-440-001

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-26-860-005

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-26-860-006

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-26-740-001

(5) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: It is only necessary to do the test of the flaps.

SUBTASK 27-51-26-860-007

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-51-26-000-802

4. Outboard Flap Inboard Ballscrew and Gimbal Removal

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 2 and 7.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-28-000-801	Outboard Flap Support Fairing Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Location Zones

Zone	Area
576	Flap Support Fairing No. 2
676	Flap Support Fairing No. 7

E. Prepare for the Removal

SUBTASK 27-51-26-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-26-860-010

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-26-210-006

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-26-210-002

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-26-860-011

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-26-860-012

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-26-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-26-010-002

(8) For the applicable fairing, do this task: Outboard Flap Support Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-26-480-002

CAUTION MAKE SURE YOU INSTALL THE FLAP LOCK ON THE FLAP SUPPORT MECHANISM BEFORE YOU REMOVE THE BALLSCREW. WITHOUT THE FLAP LOCK THE FLAP SUPPORT WILL NOT STOP THE FLAP FROM EXTENDING PAST ITS USUAL POSITION. THIS CAN CAUSE DAMAGE TO THE FLAP.

(9) Install the trailing edge flap (with transmission removed) lock, SPL-1757 on the flap support mechanism to hold the flap when you remove the ballscrew.

F. Outboard Flap Inboard Ballscrew and Gimbal Removal

SUBTASK 27-51-26-020-010

CAUTION MAKE SURE THAT YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(1) Disconnect the gimbal [51] from the drive arm [43]:

(a) Remove the nut [67], washer [66], washer [65], and bolt [64] that attach the plate assy [47] to the drive arm [43].

(b) Remove the bulkhead fitting [75] and shim [74] from the drive arm [43].

(c) Remove the nut [71], washer [70], washer [73], washer [69], and bolt [68] that attach the plate assy [47] to the drive arm [43].

(d) Remove the spacer [72] from the drive arm [43].

(e) Remove the nut [46], washer [45], and bolt [42] that attach the plate assy [47] to the drive arm [43].

(f) Remove the plate assy [47] with the seals [48] and the shim [44] from the drive arm [43].

(g) Make a record of the thickness and location of the shim [44].

SUBTASK 27-51-26-020-006

(2) Disconnect the ballscrew assy [53] from the yoke [61] on the transmission:

(a) Remove the nut [60], washer [58], washer [59] and bolt [57] that attach the ballscrew assy [53] to the yoke [61].

(b) Remove the ballscrew assembly [53] from the yoke [61].

SUBTASK 27-51-26-020-007

(3) Carefully remove the ballscrew assy [53] and the gimbal [51] from the flap support mechanism.

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SUBTASK 27-51-26-020-008

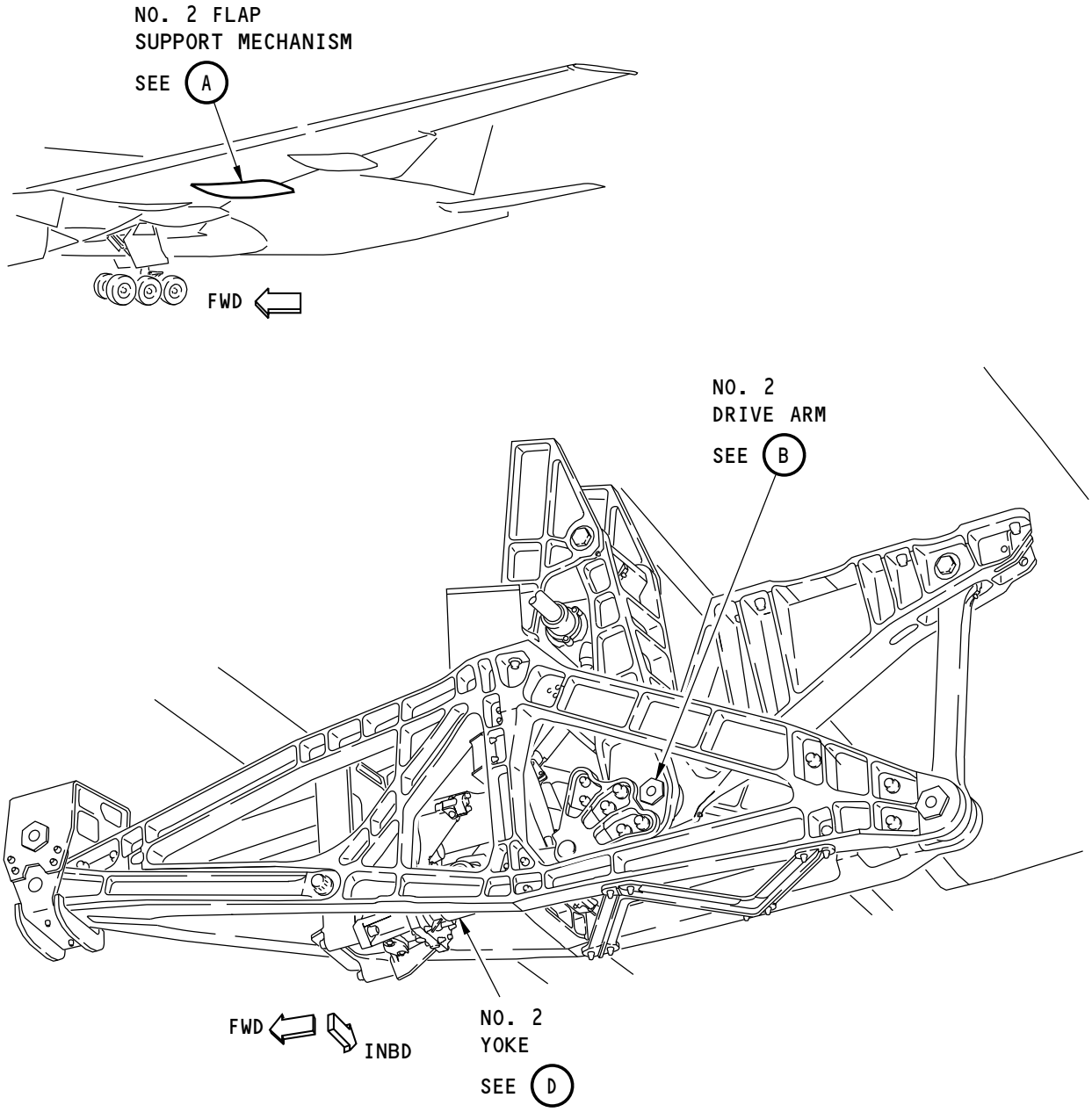
(4) If it is necessary, remove the gimbal [51] from the ballscrew nut [52]:

(a) Remove the bolt [49] and collar [55] that attach the bushing assy [41] to the gimbal [51].

(b) Remove the bushing assy [41] with the seals [56] from the ballscrew nut [52].

——— END OF TASK ———

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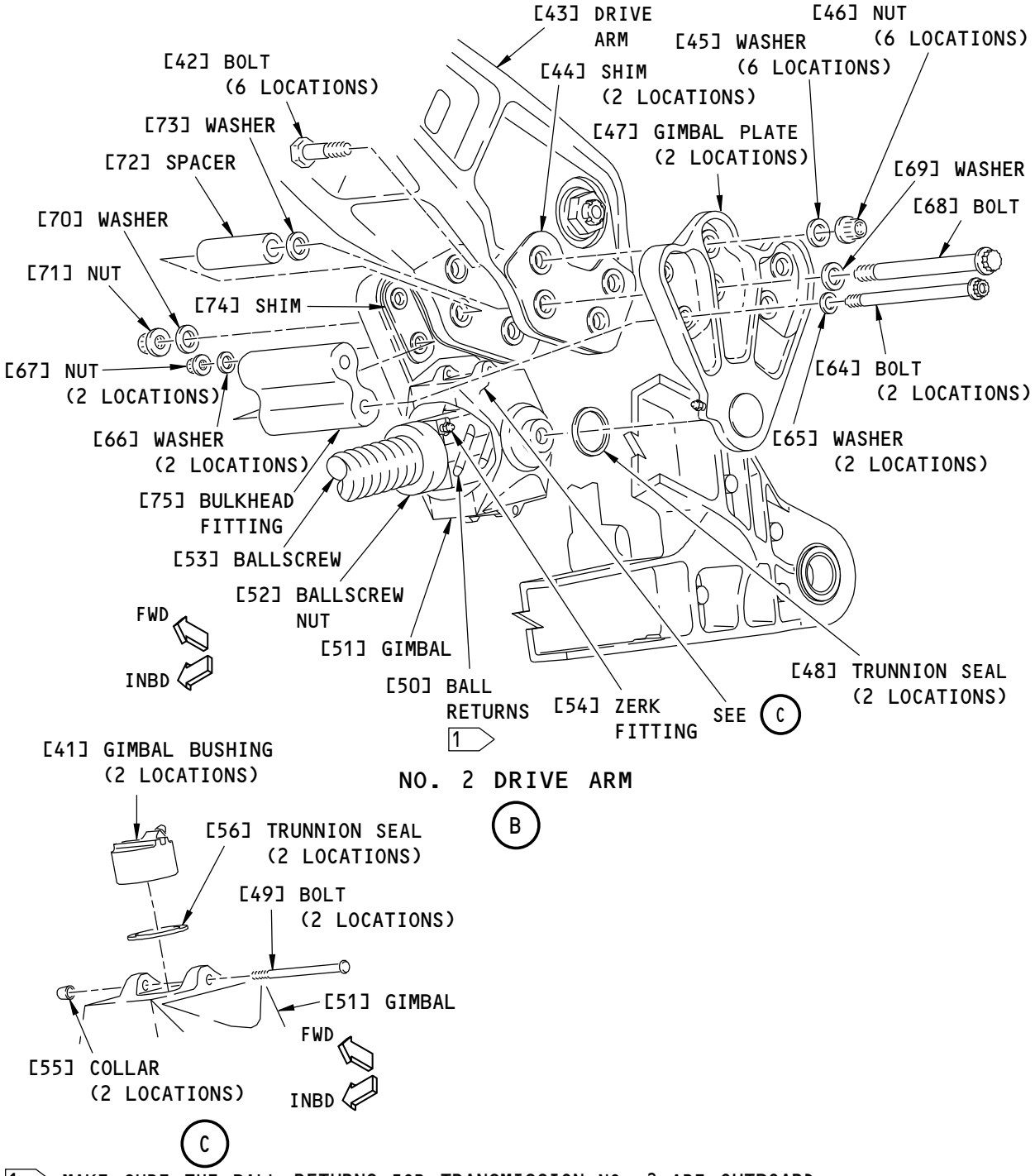


NO. 2 FLAP SUPPORT MECHANISM
(NO. 7 FLAP SUPPORT IS EQUIVALENT)
A

J85419 S0000181020_V1

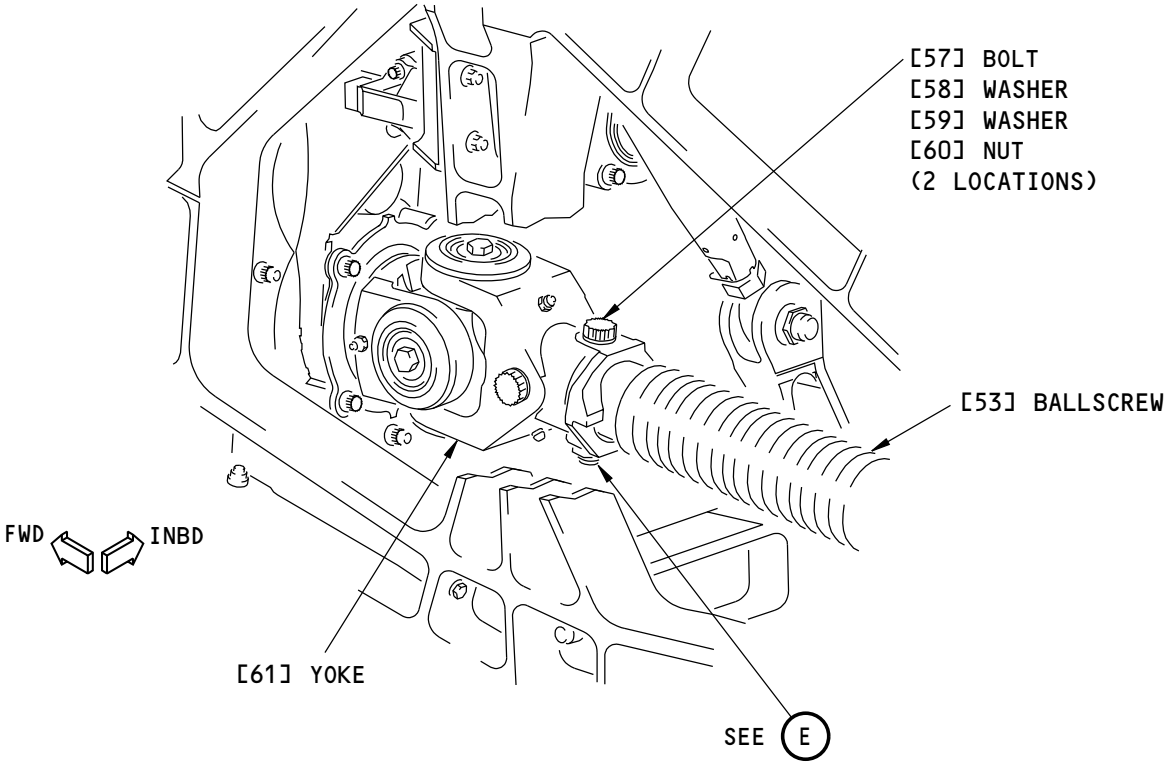
Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402/27-51-26-990-802 (Sheet 1 of 5)

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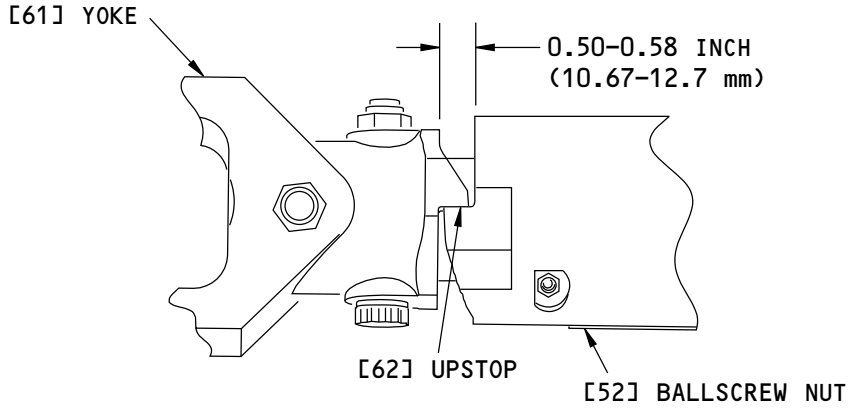
Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402/27-51-26-990-802 (Sheet 2 of 5)

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NO. 2 YOKE

D



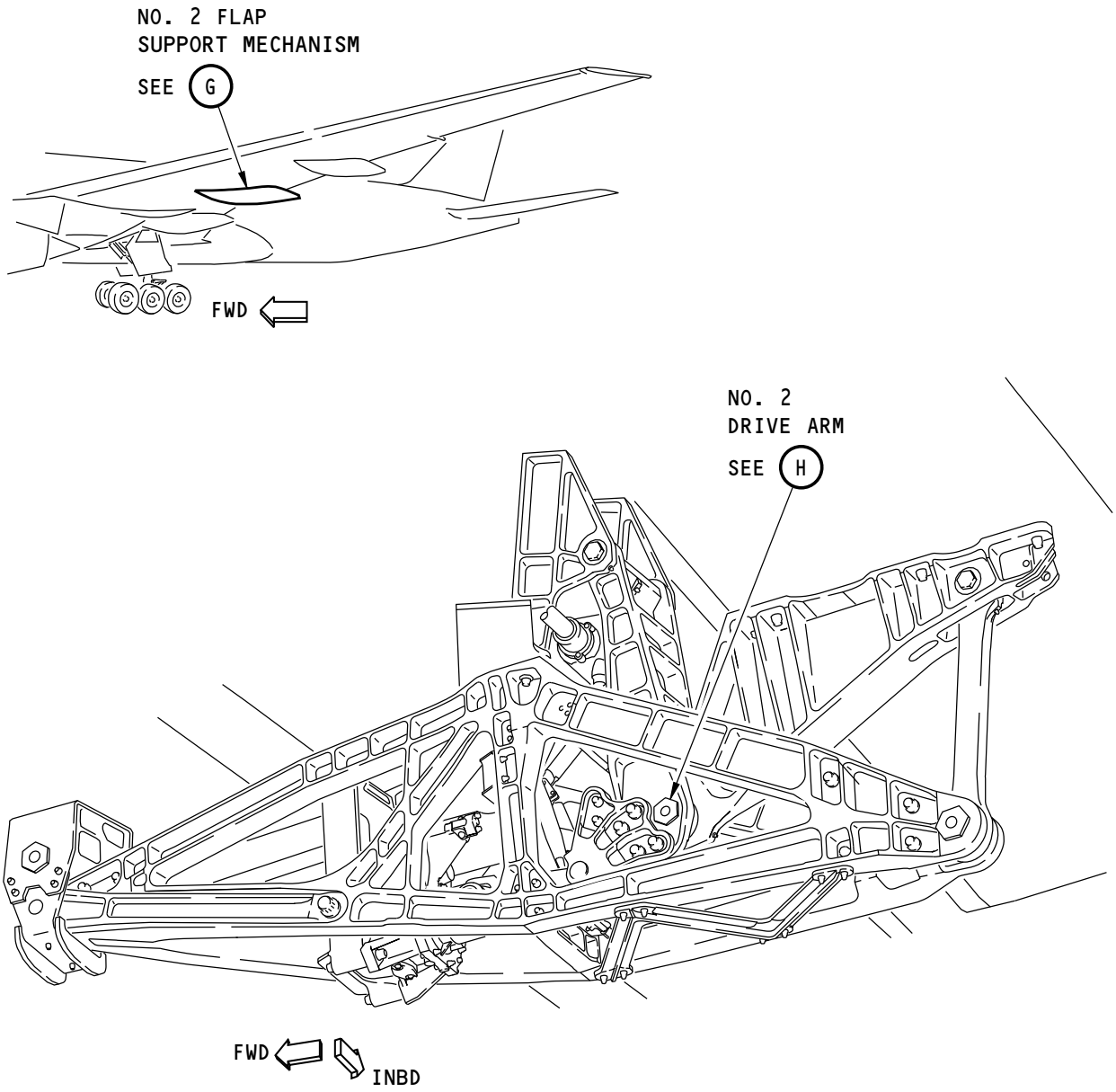
(BALLSCREW NUT SHOWN IN RETRACTED POSITION)

E

J85421 S0000181022_V1

Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402/27-51-26-990-802 (Sheet 3 of 5)

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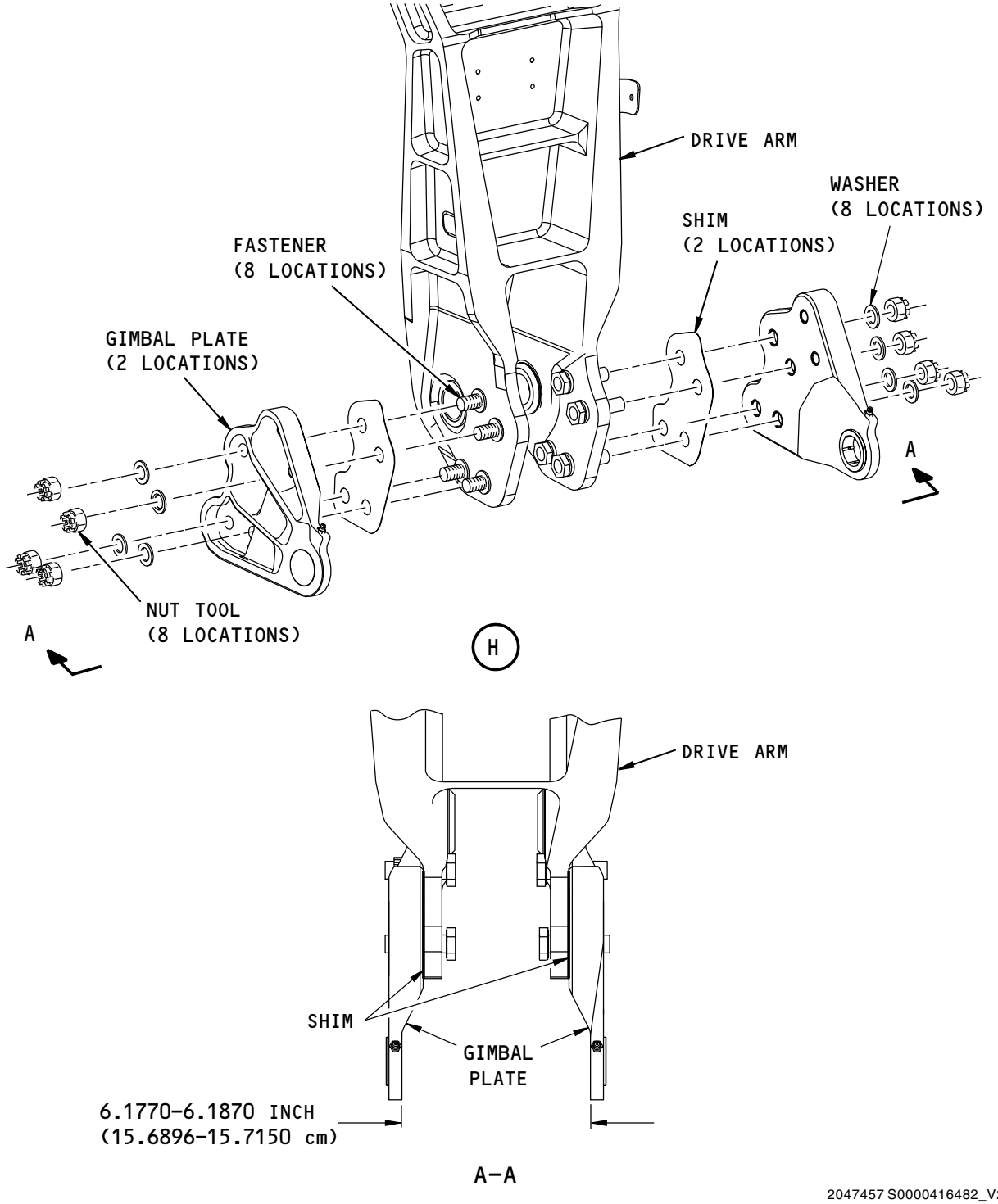


NO. 2 FLAP SUPPORT MECHANISM
(NO. 7 FLAP SUPPORT IS EQUIVALENT)
G

2047454 S0000416483_V1

Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402/27-51-26-990-802 (Sheet 4 of 5)

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Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402/27-51-26-990-802 (Sheet 5 of 5)

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TASK 27-51-26-400-802

5. Outboard Flap Inboard Ballscrew and Gimbal Installation

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is applicable to the ballscrew and gimbal on flap supports No. 2 and 7.

B. References

Reference	Title
12-21-09-640-810	Outboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-400-801	Outboard Flap Support Fairing Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1757	Lock - Trailing Edge Flap (With Transmission Removed) Part #: J27035-59 Supplier: 81205 Opt Part #: J27035-55 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C50180	Coating - Chemical And Solvent Resistant Finish - (BAC 792 White Color)	BMS10-11 Type II
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
48	Seal	Not Specified	
56	Seal	Not Specified	

F. Location Zones

Zone	Area
576	Flap Support Fairing No. 2

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(Continued)

Zone	Area
676	Flap Support Fairing No. 7

G. Outboard Flap Inboard Ballscrew and Gimbal Installation

SUBTASK 27-51-26-420-004

(1) If you removed it, install the gimbal [51] on the ballscrew nut [52]:

(a) Apply grease, D00013 to the seal [56].

(b) Put the seals [56] on the ballscrew nut [52].

(c) Put the gimbal [51] in its location on the ballscrew nut [52].

(d) Apply grease, D00013 to the inner surface of the bushing assy [41].

(e) Install the bushing assy [41] through the gimbal [51] on the ballscrew nut [52].

(f) Install the bolt [49] and collar [55] that attach the bushing assy [41] to the gimbal [51].

SUBTASK 27-51-26-420-005

(2) Connect the ballscrew assy [53] to the yoke [61] on the transmission:

(a) Turn the ballscrew nut [52] until it is at the forward end of the ballscrew assy [53].

(b) Put the ballscrew assy [53] into the yoke [61].

(c) Install the bolt [57], washer [58], washer [59] and nut [60] that attach the ballscrew assy [53] to the yoke [61].

(d) Make sure the ballscrew assy [53] is installed correctly in the yoke [61]:

1) Move the ballscrew nut [52] until the upstops [62] touch.

2) Make sure the distance between the yoke [61] and the ballscrew nut [52] is 0.50 to 0.58 inch.

3) If the distance is not in the limits, change the distance:

a) Remove the nut [60], washer [58], washer [59] and bolt [57] that attach the ballscrew assy [53] to the yoke [61].

b) Turn the ballscrew assy [53] 180 degrees in the yoke [61].

c) Install the bolt [57], washer [58], washer [59] and nut [60].

(e) Tighten the nut [60] to 80-120 pound-inches (9.0-13.6 newton-meters) plus run-on torque.

SUBTASK 27-51-26-820-004

(3) Adjust the gimbal plate shims:

(a) Put the plate assy [47] and shim [44] on the drive arm [43].

(b) Install bolts in the direction indicated on Figure 402 (Sheet 5).

(c) Change the thickness of the two laminated shims equally to set the distance between the two gimbal plates to6.1770 in. (15.6896 cm) to 6.1870 in. (15.7150 cm).

(d) Remove the gimbal plates prior to connecting gimbal [51] once adjustment is complete.

(e) Apply coating, C00064 and coating, C50180 to all surfaces of the shim that were adjusted.

SUBTASK 27-51-26-420-008

(4) Connect the gimbal [51] to the drive arm [43]:

(a) Move the gimbal [51] aft on the ballscrew assy [53] until it aligns with the drive arm [43].

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(b) On transmission No. 2, make sure the ball returns [50] on the ballscrew nut [52] are outboard.

(c) On transmission No. 7, make sure the ball returns [50] on the ballscrew nut [52] are inboard.

(d) Make sure the zerk fittings [54] are on the upper side of the ballscrew nut [52].

(e) Apply grease, D00013 to the seal [48].

(f) Apply a layer of PR-1405-G sealant, A00723 to the mating surfaces of the gimbal plate [47] and the drive arm [43].

(g) Put the seals [48] in their location on the gimbal [51].

(h) Install the gimbal plate assy [47].

1) Put the plate assy [47] and shim [44] on the drive arm [43].

NOTE: Make sure you install the same thickness of shim [44] as you removed.

2) Install the nut [46], washer [45], and bolt [42] that attach the plate assy [47] to the drive arm [43].

a) Tighten the nut [46] to 1160–1230 pound-inches (131–139 newton-meters).

3) Install the spacer [72] on the drive arm [43].

4) Install the nut [71], washer [70], washer [73], washer [69], and bolt [68] that attach the plate assy [47] to the drive arm [43].

a) Tighten the nut [71] to 1160–1230 pound-inches (131–139 newton-meters).

5) Make sure that the total allowable clearance between spacer [72] and bushing on inboard side and washer on outboard side does not exceed 0.005 in. (0.127 mm).

a) Adjust washer [73] thickness to get the allowable clearance.

6) Install the bulkhead fitting [75] and shim [74] on the drive arm [43].

7) Install the nut [67], washer [66], washer [65], and bolt [64] that attach the plate assy [47] to the drive arm [43].

a) Tighten the nut [67] to 412 in-lb (47 N·m) to 438 in-lb (49 N·m).

(i) Measure the clearance between the bulkhead fitting [75] and the plate assy [47] surface.

1) The maximum permitted clearance not filled by the shim is 0.005 in. (0.127 mm).

(j) Apply a bead of PR-1405-G sealant, A00723 around the plate assy [47].

SUBTASK 27-51-26-080-002

(5) Remove the trailing edge flap (with transmission removed) lock, SPL-1757 from the flap support mechanism.

SUBTASK 27-51-26-640-002

(6) Do this task: Outboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, TASK 12-21-09-640-810.

SUBTASK 27-51-26-820-002

(7) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-26-410-002

(1) For the applicable fairing, do this task: Outboard Flap Support Fairing Installation, TASK 27-51-28-400-801.

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SUBTASK 27-51-26-440-002

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-26-860-013

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-26-860-014

(4) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-26-740-002

(5) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: It is only necessary to do the test of the flaps.

SUBTASK 27-51-26-860-015

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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OUTBOARD FLAP FAIRINGS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap support fairings for the outboard flaps

(2) An installation of the flap support fairings for the outboard flaps

(3) A removal of the outboard auxiliary support fairing

(4) An installation of the outboard auxiliary support fairing.

TASK 27-51-28-000-801

2. Outboard Flap Support Fairing Removal

A. General

(1) This task includes the removal of the fairings for the inboard and outboard flap supports on the outboard flaps. It is only necessary to do the prepare for removal and the part of the task for the applicable fairing to remove a single fairing.

(2) This procedure includes the removal of the forward fairings and the aft fairings.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

D. Access Panels

Number	Name/Location
576BB	Flap Support Fairing No. 2 Panel
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel
576GL	Flap Support Fairing No. 2 Panel
577BB	Flap Support Fairing No. 1 Panel
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel
577GL	Flap Support Fairing No. 1 Panel
676BB	Flap Support Fairing No. 7 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel

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(Continued)

Number	Name/Location
676DB	Flap Support Fairing No. 7 Panel
676GR	Flap Support Fairing No. 7 Panel
677BB	Flap Support Fairing No. 8 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel
677GR	Flap Support Fairing No. 8 Panel

E. Prepare for the Removal

SUBTASK 27-51-28-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-28-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-28-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-51-28-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-28-860-003

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-28-860-004

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-28-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Outboard Flap Outboard Support Fairing Removal

(Figure 401)

NOTE: Use this procedure to remove the fairing from flap support No. 1 or No. 8.

SUBTASK 27-51-28-010-001

(1) Remove the applicable access panels, from the forward fairing [1]:

Number	Name/Location
577BB	Flap Support Fairing No. 1 Panel
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel
677BB	Flap Support Fairing No. 8 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel

SUBTASK 27-51-28-020-006

(2) Disconnect the electrical connections for the landing gear illumination light:

(a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
F	21	C33498	CAMERA LTS

(b) Remove the nuts [46] and washers [47] that attach the jumper wires [44] to the flap support [3].

(c) Disconnect the electrical connector [45] for the landing gear illumination light.

SUBTASK 27-51-28-020-001

(3) Remove the forward fairing [1]:

(a) Remove the nuts [14], washers [13] and bolts [12] that attach the three link assemblies [11] to the forward fairing [1].

(b) Remove the nut [16] and washer [17] that attach the jumper wire [15] to the flap support [3].

(c) Remove the nut [6], washers [5] and bolt [4] that attach the cable assembly [7] to the forward fairing [1].

(d) Remove the nut [8] and washer [9] and remove the forward fairing [1].

(e) If you will install a new cable assembly [7] remove the nut [6], washers [5] and bolt [4].

SUBTASK 27-51-28-020-002

(4) Remove the aft fairing [2]:

NOTE: The aft fairing [2] weighs approximately 61 pounds.

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(a) Remove the applicable access panels, from the aft faring [2]:

Number	Name/Location
577GL	Flap Support Fairing No. 1 Panel
677GR	Flap Support Fairing No. 8 Panel

(b) At the forward end of the aft fairing [2], remove the nut [18] and washer [19] that attach the jumper wire [20] to the flap support [3].

(c) Remove the nuts [26], washers [24], washers [25], bolts [22] and bushings [23] that attach the forward link [21] to the aft fairing [2].

(d) Remove the nut [32], washer [29], washer [30], bolt [28] and bushing [31] that attach the drive link [27] to the aft fairing [2].

(e) Remove the nut [37], washer [34], washer [35], bolt [33] and bushing [36] that attach the adjustable link [38] to the aft fairing [2].

(f) Remove the nut [43], washer [40], washer [41], bolt [39] and bushing [42] that attach the support link [44] to the aft fairing [2].

(g) Lower the aft fairing [2].

G. Outboard Flap Inboard Support Fairing Removal

(Figure 402)

NOTE: Use this procedure to remove the fairing from flap support No. 2 or No. 7.

SUBTASK 27-51-28-010-002

(1) Remove the applicable access panels, from the forward fairing [61]:

Number	Name/Location
576BB	Flap Support Fairing No. 2 Panel
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel
676BB	Flap Support Fairing No. 7 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel

SUBTASK 27-51-28-020-003

(2) Remove the forward fairing [61]:

(a) Remove the nuts [74], washers [73] and bolts [72] that attach the three link assemblies [71] to the forward fairing [61].

(b) Remove the nut [75] and washer [76] that attach the jumper wire [72] to the flap support [63].

(c) Remove the nut [66], washers [65] and bolt [64] that attach the cable assembly [67] to the forward fairing [61].

(d) Remove the nut [68] and washer [69] and remove the forward fairing [61].

(e) If you will install a new cable assembly [67], remove the nut [66], washers [65] and bolt [64].

SUBTASK 27-51-28-020-004

(3) Remove the aft fairing [62]:

NOTE: The aft fairing [62] weighs approximately 72 pounds.

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(a) Remove the applicable access panels, from the aft fairing [62]:

Number	Name/Location
576GL	Flap Support Fairing No. 2 Panel
676GR	Flap Support Fairing No. 7 Panel

(b) At the forward end of the aft fairing [62], remove the nut [78] and washer [79] that attach the jumper wire [80] to the flap support [63].

(c) Remove the nuts [86], washers [84], washers [85], bolts [82] and bushings [83] that attach the forward link [81] to the aft fairing [62].

(d) Remove the nut [92], washer [89], washer [90], bolt [88] and bushing [91] that attach the drive link [87] to the aft fairing [62].

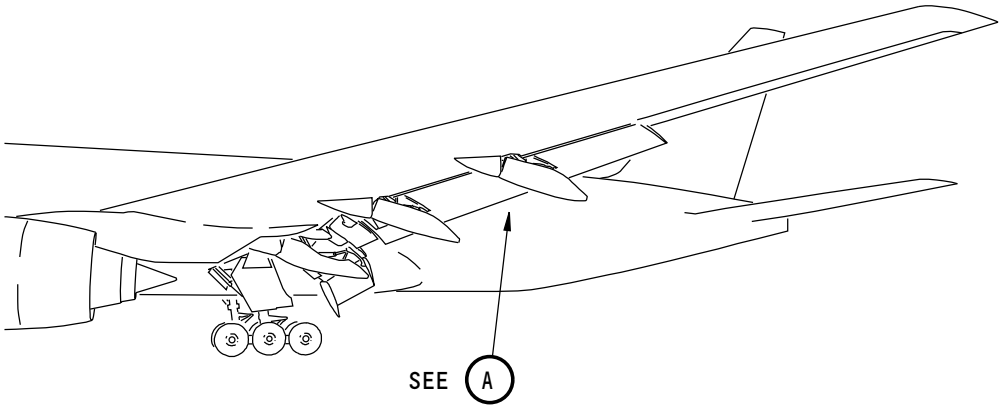
(e) Remove the nut [97], washer [94], washer [95], bolt [93] and bushing [96] that attach the adjustable link [98] to the aft fairing [62].

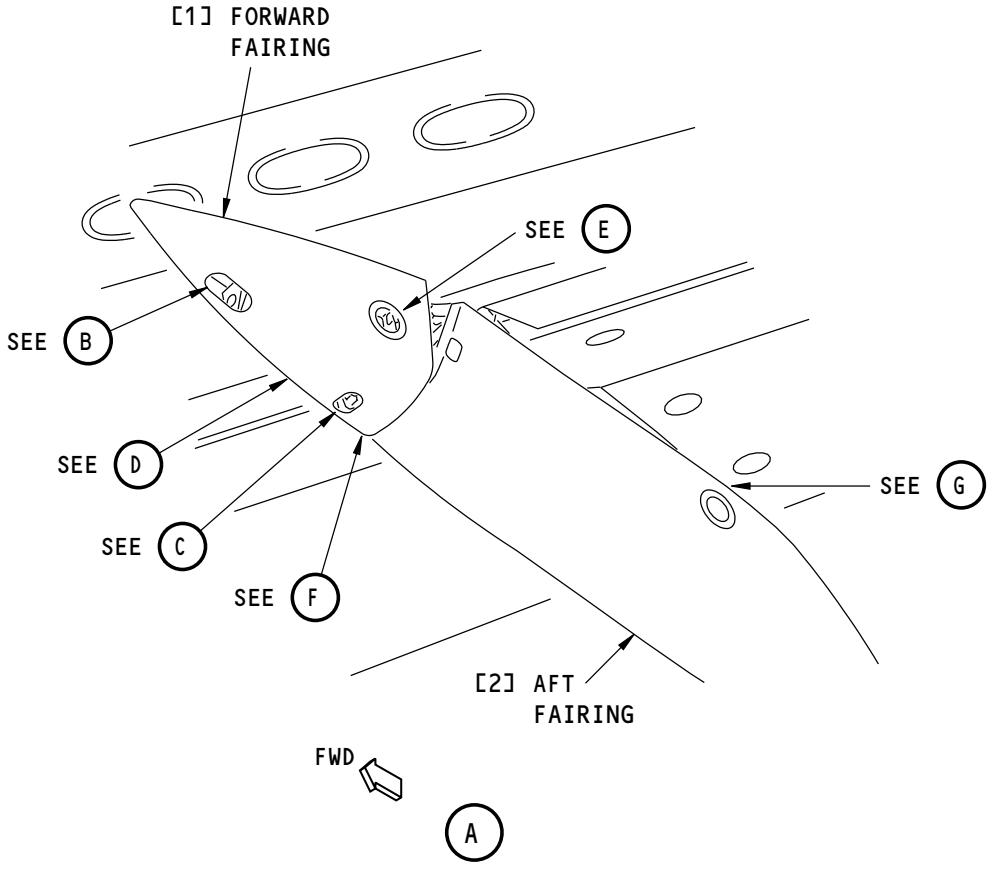
(f) Remove the nut [103], washer [100], washer [101], bolt [99] and bushing [102] that attach the support link [104] to the aft fairing [62].

(g) Lower the aft fairing [62].

——— END OF TASK ———

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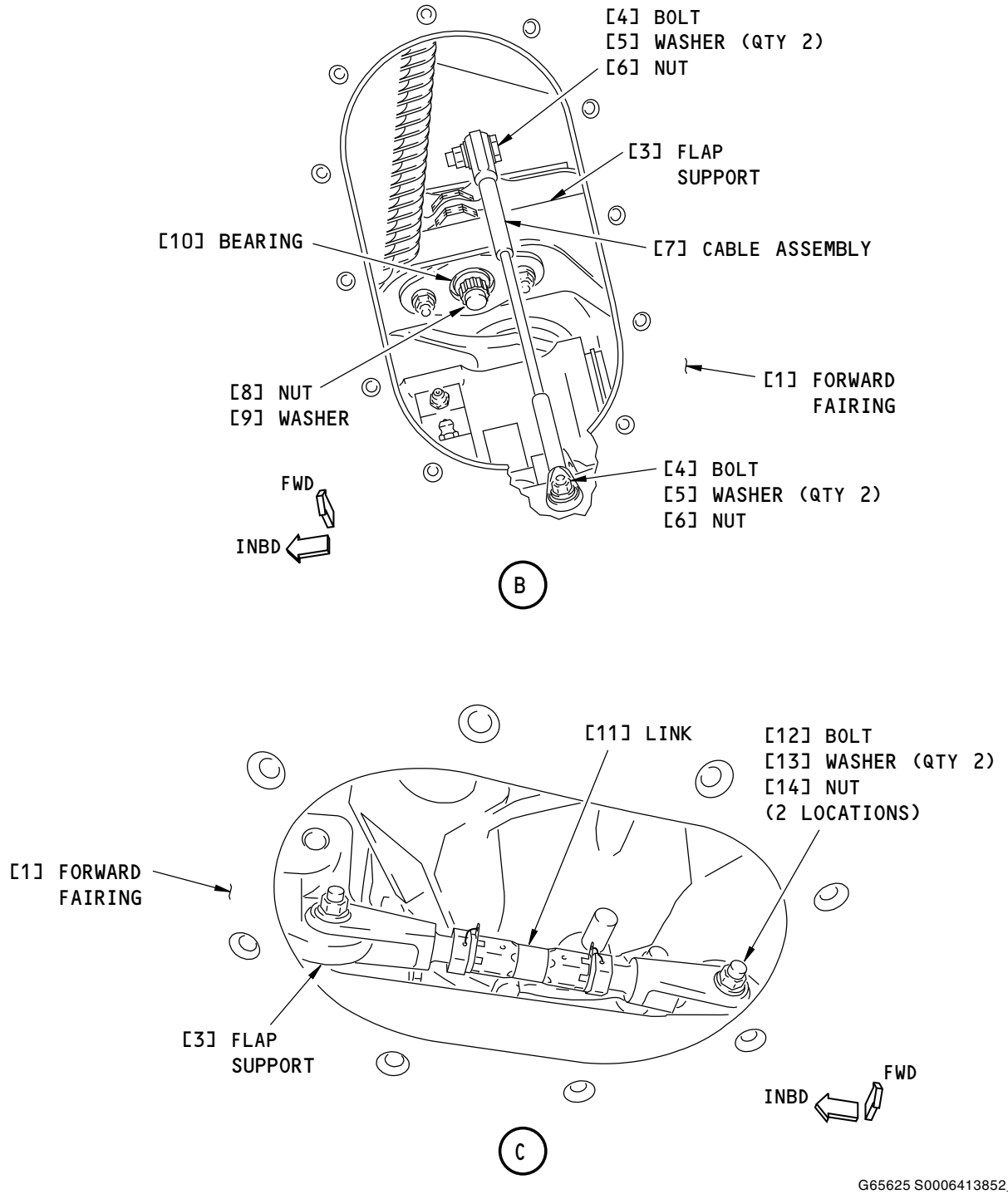




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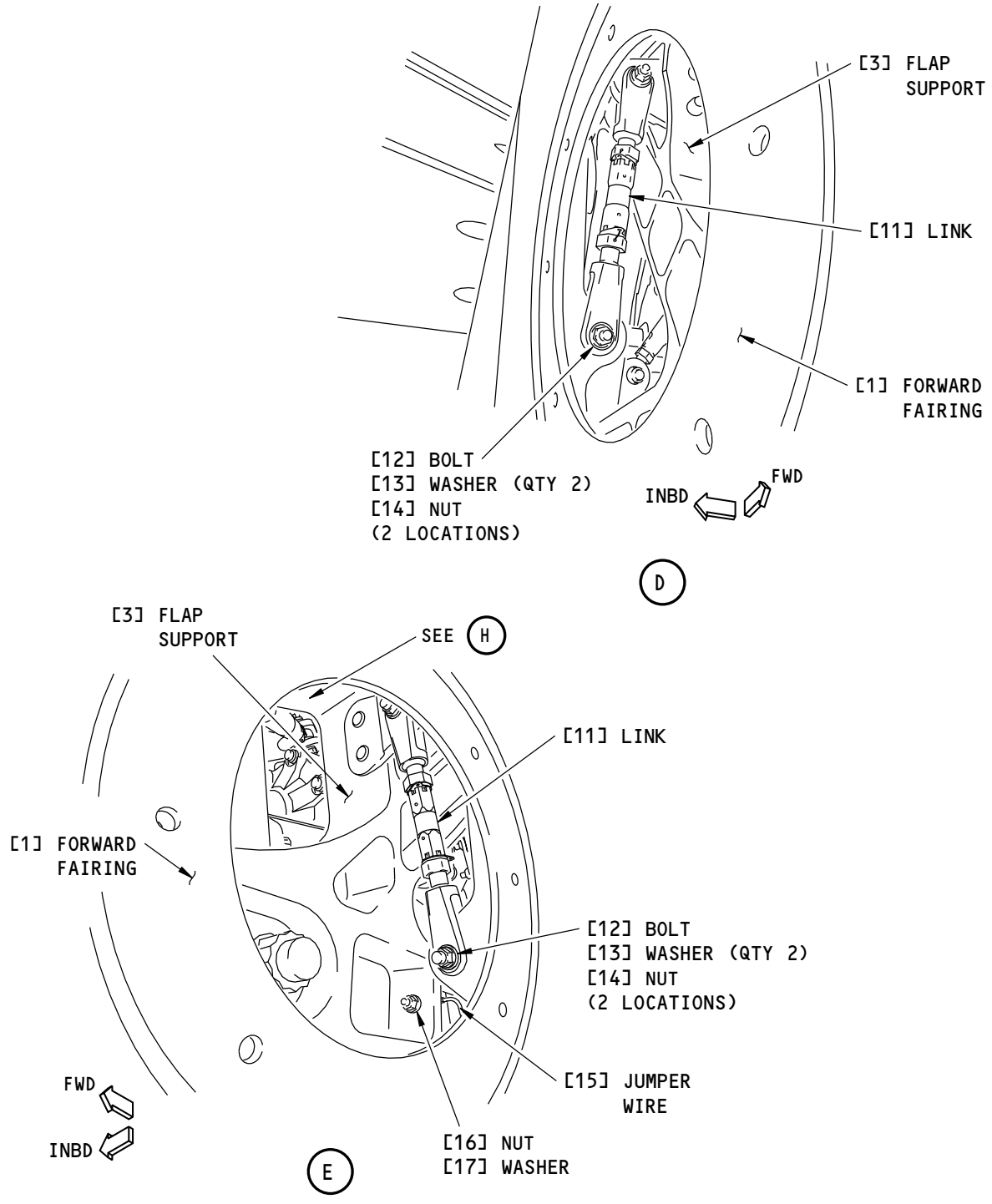
Outboard Flap Outboard Support Fairing Installation
Figure 401/27-51-28-990-801 (Sheet 1 of 5)

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Outboard Flap Outboard Support Fairing Installation
Figure 401/27-51-28-990-801 (Sheet 2 of 5)

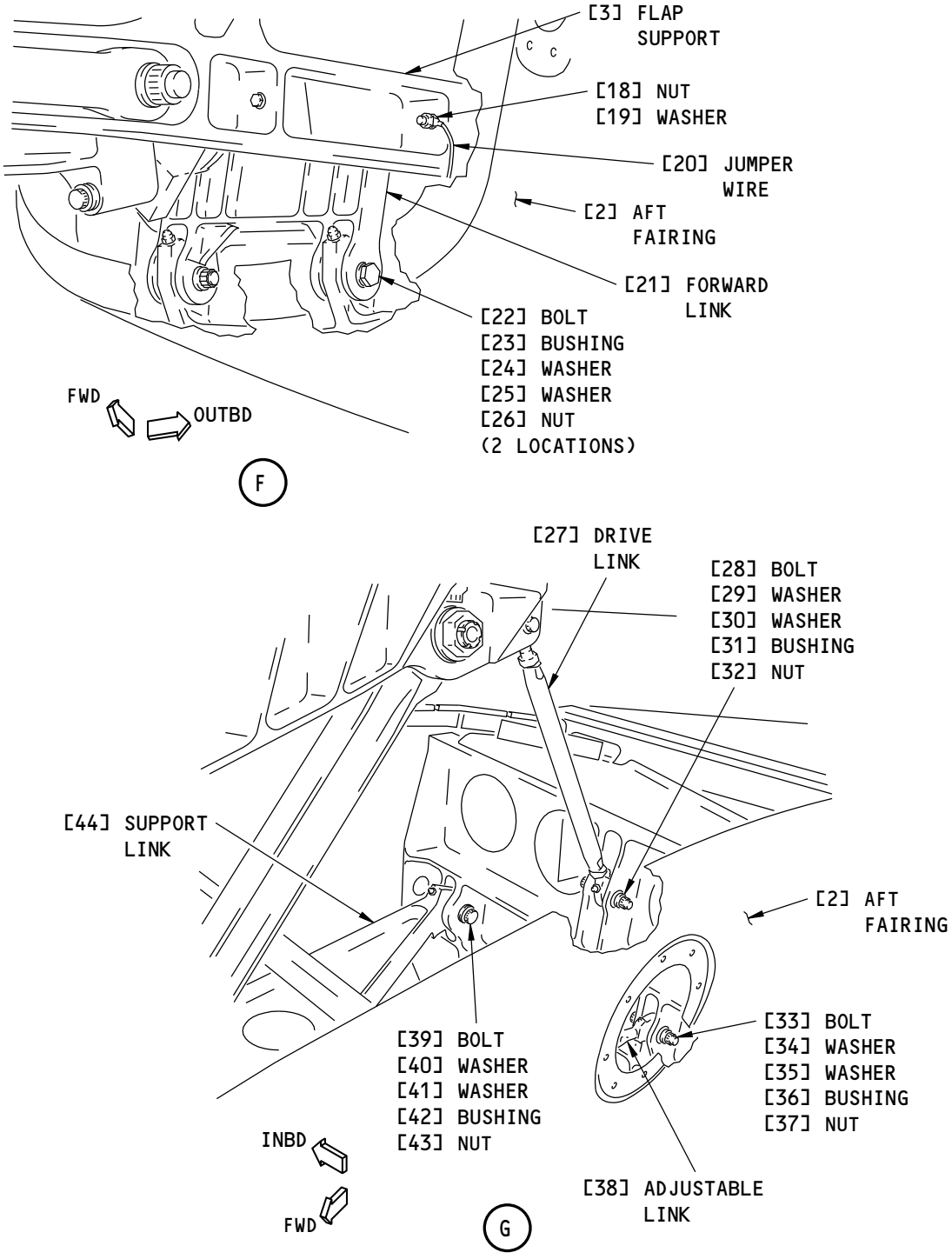
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Outboard Flap Outboard Support Fairing Installation
Figure 401/27-51-28-990-801 (Sheet 3 of 5)

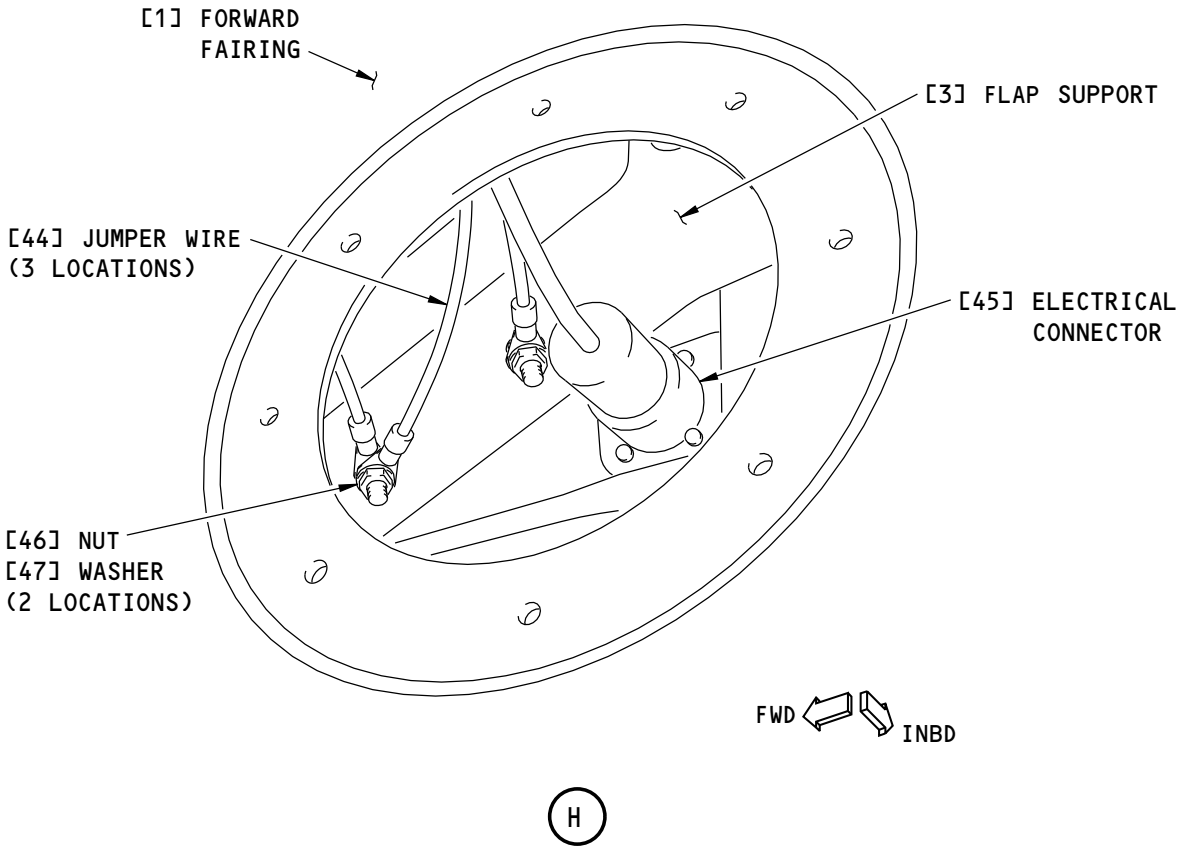
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Outboard Flap Outboard Support Fairing Installation
Figure 401/27-51-28-990-801 (Sheet 4 of 5)

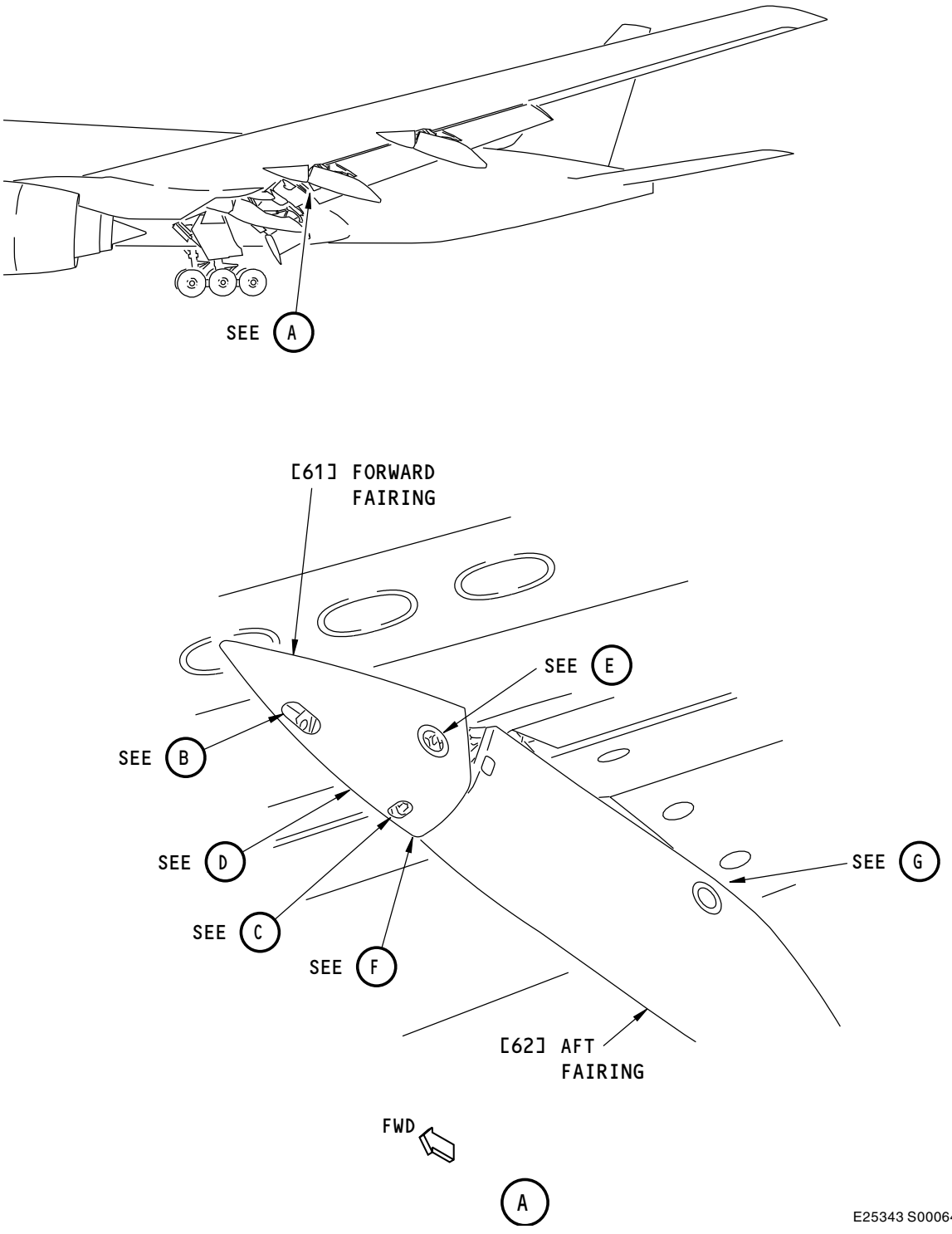
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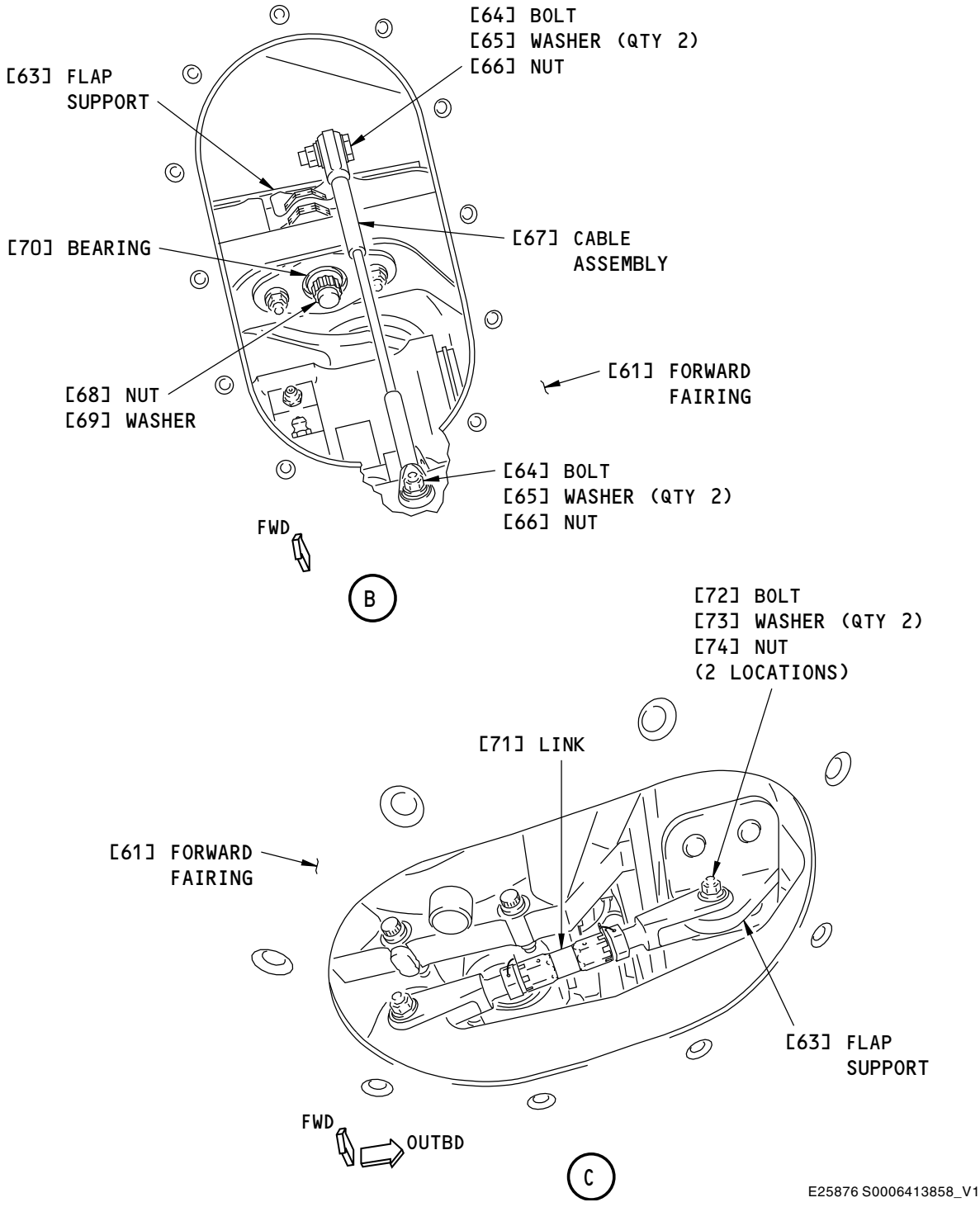
Outboard Flap Outboard Support Fairing Installation
Figure 401/27-51-28-990-801 (Sheet 5 of 5)

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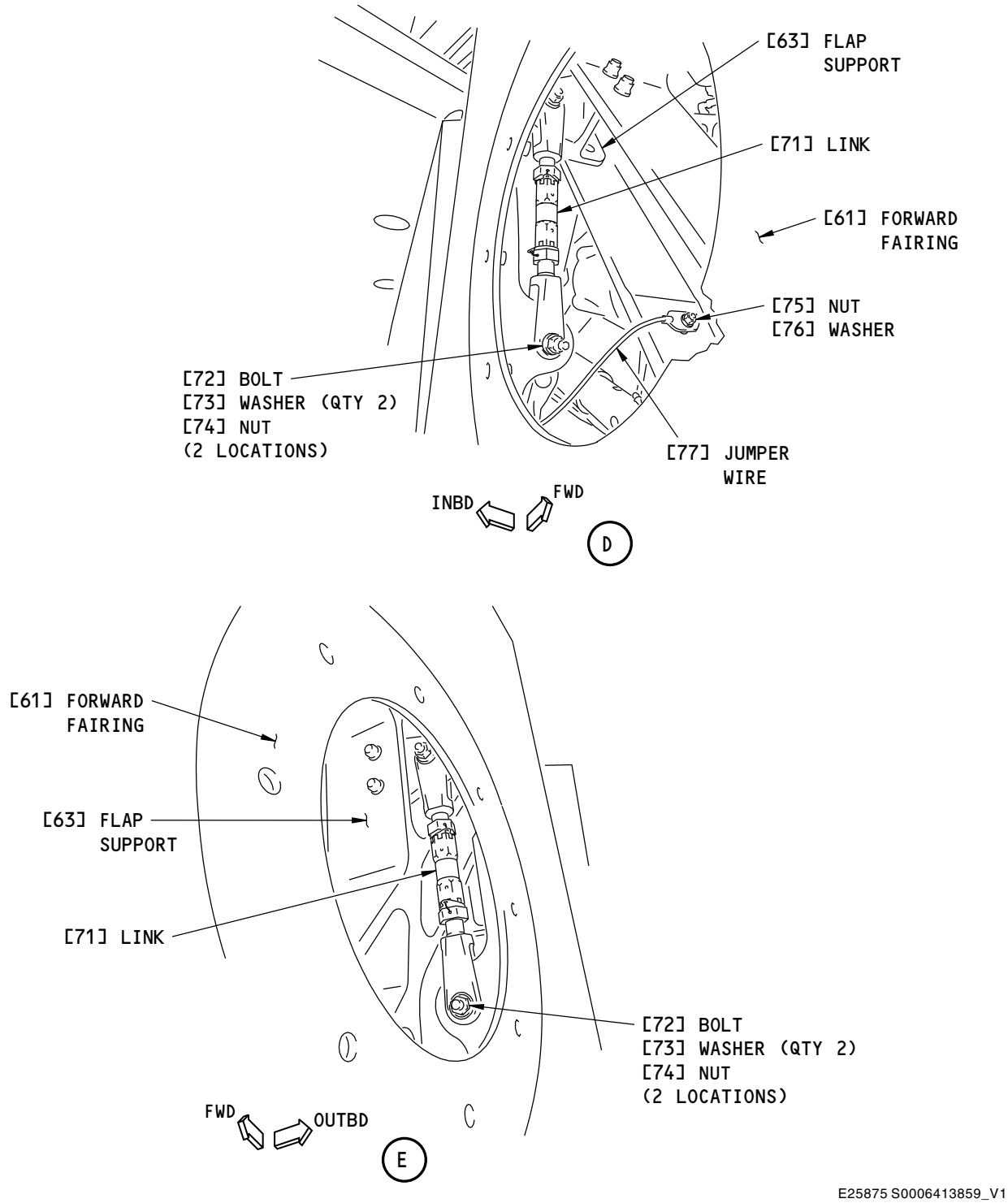
Outboard Flap Inboard Support Fairing Installation
Figure 402/27-51-28-990-802 (Sheet 1 of 4)

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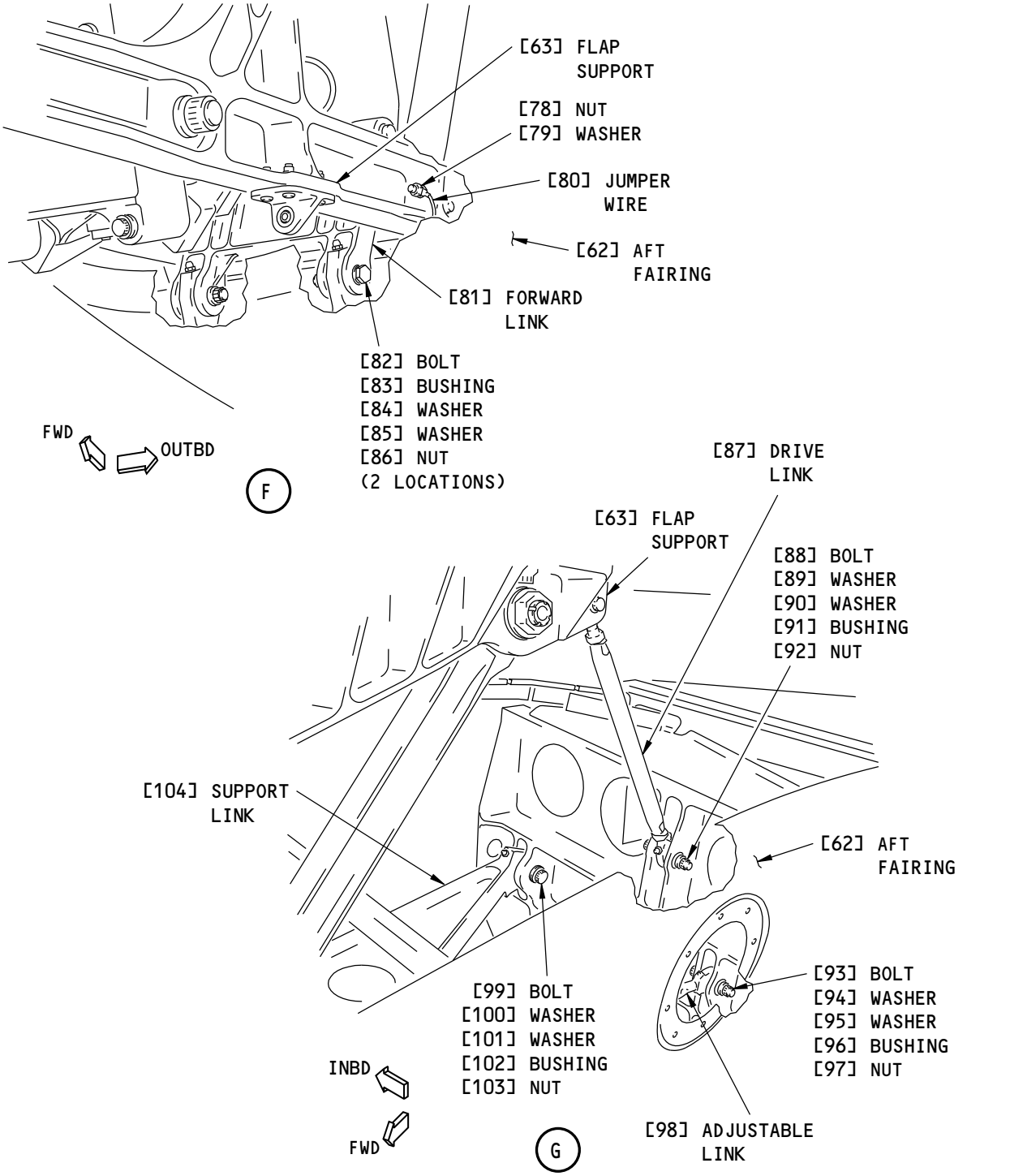
Outboard Flap Inboard Support Fairing Installation
Figure 402/27-51-28-990-802 (Sheet 2 of 4)

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Outboard Flap Inboard Support Fairing Installation
Figure 402/27-51-28-990-802 (Sheet 3 of 4)

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Outboard Flap Inboard Support Fairing Installation
Figure 402/27-51-28-990-802 (Sheet 4 of 4)

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TASK 27-51-28-400-801

3. Outboard Flap Support Fairing Installation

A. General

(1) This task includes the installation of the fairings for the inboard and outboard flap supports on the outboard flaps. It is only necessary to do the part of the task for the applicable fairing.

(2) This procedure includes the installation of the forward fairings and the aft fairings.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-820-801	Outboard Flap Outboard Support Fairing Adjustment (P/B 501)
27-51-28-820-802	Outboard Flap Inboard Support Fairing Adjustment (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Forward fairing	27-51-28-03-545	ARO ALL
		27-51-28-03-550	ARO ALL
2	Aft fairing	27-51-28-03-535	ARO ALL
		27-51-28-03-540	ARO ALL
61	Forward fairing	27-11-15-01-030	ARO ALL
		27-11-15-01-035	ARO ALL
		27-51-28-11-495	ARO ALL
		27-51-28-11-500	ARO ALL
62	Aft fairing	27-11-15-01-041	ARO ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
62 (cont.)		27-11-15-01-046	ARO ALL
		27-51-28-11-505	ARO ALL
		27-51-28-11-510	ARO ALL
71	Link assembly	27-51-28-11-105	ARO ALL

F. Location Zones

Zone	Area
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

G. Access Panels

Number	Name/Location
576BB	Flap Support Fairing No. 2 Panel
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel
576GL	Flap Support Fairing No. 2 Panel
577BB	Flap Support Fairing No. 1 Panel
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel
577GL	Flap Support Fairing No. 1 Panel
676BB	Flap Support Fairing No. 7 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel
676GR	Flap Support Fairing No. 7 Panel
677BB	Flap Support Fairing No. 8 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel
677GR	Flap Support Fairing No. 8 Panel

H. Outboard Flap Outboard Support Fairing Installation

(Figure 401)

NOTE: Use this procedure to install the fairing for flap support No. 1 or No. 8.

SUBTASK 27-51-28-210-003

(1) Make sure the flaps are in the extended position.

SUBTASK 27-51-28-420-001

(2) Install the aft fairing [2]:

(a) At the aft end of the aft fairing [2], install the bushing [36] and bushing [42].

(b) Install the bolt [39], washer [40], washer [41] and nut [43] to attach the support link [44] to the aft fairing [2].

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(c) Install the bolt [33], washer [34], washer [35] and nut [37] that attach the adjustable link [38] to the aft fairing [2].

(d) Tighten the nut [43] to 700-800 pound-inches or the bolt [39] to 750-880 pound-inches.

(e) Tighten the nut [37] to 180-200 pound-inches or the bolt [33] to 190-220 pound-inches.

(f) Install the bushing [31] in the aft fairing [2].

(g) Install the bolt [28], washer [29], washer [30] and nut [32] that attach the drive link [27] to the aft fairing [2].

(h) Tighten the nut [32] to 180-200 pound-inches or the bolt [28] to 190-220 pound-inches.

(i) At the forward end of the aft fairing [2], install the bushings [23], bolts [22], washers [24], washers [25] and nuts [26] to attach the forward link [21] to the aft fairing [2].

(j) Tighten the nuts [26] to 180-200 pound-inches or the bolt [22] to 190-220 pound-inches.

(k) Install the nut [18] and washer [19] to attach the jumper wire [20] to the flap support [3].

(l) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [20] is less than 0.001 ohm (WDM D6-54446).

SUBTASK 27-51-28-420-002

(3) Install the forward fairing [1]:

(a) If the cable assembly [7] is not installed on the flap support [3], install the bolt [4], washers [5] and nut [6] to attach the cable assembly [7].

(b) Tighten the nut [6] to 50-60 pound-inches

(c) Apply grease, D00633, to the bearing [10] at the forward end of the forward fairing [1].

(d) Make sure you can turn the bearing [10] in the fitting.

(e) Lift the forward fairing [1] to its position.

(f) Install the nut [8] and washer [9] that attach the forward fairing [1] to the flap support [3].

(g) Tighten the nut [8] to 180-200 pound-inches.

(h) Apply a layer of sealant, A00247, to the shank and threads of the bolt [4].

(i) Install the bolt [4], washers [5] and nut [6] that attach the cable assembly [7] to the forward fairing [1].

(j) Tighten the nut [6] to 50-60 pound-inches.

(k) Install the nut [16] and washer [17] to attach the jumper wire [15] to the flap support [3].

(l) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [15] is less than 0.001 ohm (WDM D6-54446).

(m) Install the bolts [12], washers [13] and nuts [14] to attach the three link assemblies [11] to the forward fairing [1].

(n) Tighten the nuts [14] to 50-60 pound-inches.

SUBTASK 27-51-28-440-001

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-28-860-005

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-28-860-006

(6) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-28-860-007

(7) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-28-820-001

(8) Do this task: Outboard Flap Outboard Support Fairing Adjustment, TASK 27-51-28-820-801.

SUBTASK 27-51-28-420-006

(9) Connect the electrical connections for the landing gear illumination light:

(a) Install the jumper wires [44] to the flap support [3] with the nuts [46] and washers [47].

(b) Connect the electrical connector [45] for the landing gear illumination light.

(c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
F	21	C33498	CAMERA LTS

SUBTASK 27-51-28-410-001

(10) Install the applicable access panels, on the forward fairing [1]:

Number	Name/Location
577BB	Flap Support Fairing No. 1 Panel
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel
677BB	Flap Support Fairing No. 8 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel

SUBTASK 27-51-28-410-002

(11) Install the applicable access panels, on the aft fairing [2]:

Number	Name/Location
577GL	Flap Support Fairing No. 1 Panel
677GR	Flap Support Fairing No. 8 Panel

I. Outboard Flap Inboard Support Fairing Installation

(Figure 402)

NOTE: Use this procedure to install the fairing for flap support No. 2 or No. 7.

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SUBTASK 27-51-28-210-004

(1) Make sure the flaps are in the extended position.

SUBTASK 27-51-28-420-003

(2) Install the aft fairing [62]:

(a) At the aft end of the aft fairing [62], install the bushing [96] and bushing [102].

(b) Install the bolt [99], washer [100], washer [101] and nut [103] to attach the support link [104] to the aft fairing [62].

(c) Install the bolt [93], washer [94], washer [95] and nut [97] that attach the adjustable link [98] to the aft fairing [62].

(d) Tighten the nut [103] to 700-800 pound-inches or tighten the bolt [99] to 750-880 pound-inches.

(e) Tighten the nut [97] to 270-300 pound-inches or tighten the bolt [93] to 285-330 pound-inches.

(f) Install the bushing [91] in the aft fairing [62].

(g) Install the bolt [88], washer [89], washer [90] and nut [92] that attach the drive link [87] to the aft fairing [62].

(h) Tighten the nut [92] to 180-200 pound-inches.

(i) At the forward end of the aft fairing [62], install the bushings [83], bolts [82], washers [84], washers [85] and nuts [86] to attach the forward link [81] to the aft fairing [62].

(j) Tighten the nuts [86] to 180-200 pound-inches.

(k) Install the nut [78] and washer [79] to attach the jumper wire [80] to the flap support [63].

(l) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [80] is less than 0.001 ohm (WDM D6-54446).

SUBTASK 27-51-28-420-004

(3) Install the forward fairing [61]:

(a) If the cable assembly [67] is not installed on the flap support [63], install the bolt [64], washers [65] and nut [66] to attach the cable assembly [67].

(b) Tighten the nut [66] to 50-60 pound-inches.

(c) Apply grease, D00633, to the bearing [70] at the forward end of the forward fairing [61].

(d) Make sure you can turn the bearing [70] in the fitting.

(e) Lift the forward fairing [61] to its position.

(f) Install the nut [68] and washer [69] that attach the forward fairing [61] to the flap support [63].

(g) Tighten the nut [68] to 270-300 pound-inches.

(h) Apply a layer of sealant, A00247, to the shank and threads of the bolt [64].

(i) Install the bolt [64], washers [65] and nut [66] that attach the cable assembly [67] to the forward fairing [61].

(j) Tighten the nut [66] to 50-60 pound-inches.

(k) Install the bolts [72], washers [73] and nuts [74] to attach the link assemblies [71] to the forward fairing [61].

(l) Tighten the nuts [74] to 50-60 pound-inches.

(m) Install the nut [75] and washer [76] to attach the jumper wire [77] to the flap support [63].

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(n) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [77] is less than 0.001 ohm (WDM D6-54446).

SUBTASK 27-51-28-440-002

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-28-860-009

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-28-860-010

(6) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-28-860-011

(7) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-28-820-002

(8) Do this task: Outboard Flap Inboard Support Fairing Adjustment, TASK 27-51-28-820-802.

SUBTASK 27-51-28-410-003

(9) Install the applicable access panels, on forward fairing [61]:

Number	Name/Location
576BB	Flap Support Fairing No. 2 Panel
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel
676BB	Flap Support Fairing No. 7 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel

SUBTASK 27-51-28-410-004

(10) Install the applicable access panels, on the aft fairing [62]:

Number	Name/Location
576GL	Flap Support Fairing No. 2 Panel
676GR	Flap Support Fairing No. 7 Panel

END OF TASK

TASK 27-51-28-000-802

4. Outboard Auxiliary Support Fairing Removal

(Figure 403)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

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(Continued)

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
578	Outboard Auxiliary Support Fairing - Left Wing
678	Outboard Auxiliary Support Fairing - Right Wing

C. Prepare for the Removal

SUBTASK 27-51-28-860-013

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-28-210-008

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-28-210-005

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-51-28-860-014

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-28-860-015

(5) Extend the trailing edge flaps to the 30-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-28-860-016

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-28-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

D. Outboard Auxiliary Support Fairing Removal

SUBTASK 27-51-28-020-005

(1) Remove the outboard auxiliary support fairing assembly [121]:

(a) Remove the nut [124] and washer [125] that attach the jumper wire [123] to the outboard flap [126].

(b) At the aft end of the fairing assembly [121], remove the bolts [132] and washers [133] that attach the fairing assembly [121] to the outboard flap [126].

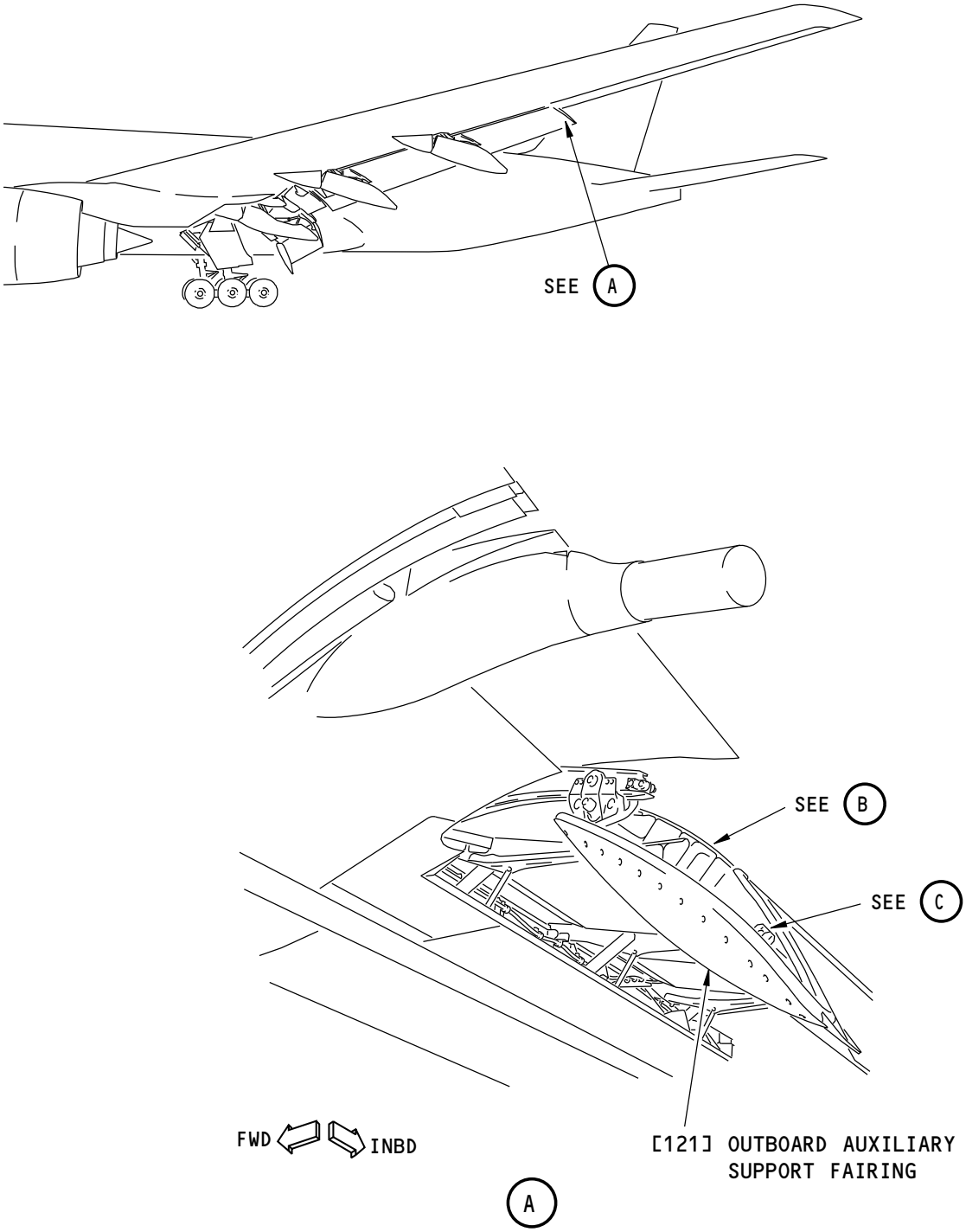
(c) At the forward end of the fairing assembly [121], remove the nut [130], washers [128], washers [131] and bolts [127] that attach the fairing assembly [121].

(d) Remove the fairing assembly [121].

(e) If you will not install the same fairing assembly [121], remove the shim [129].

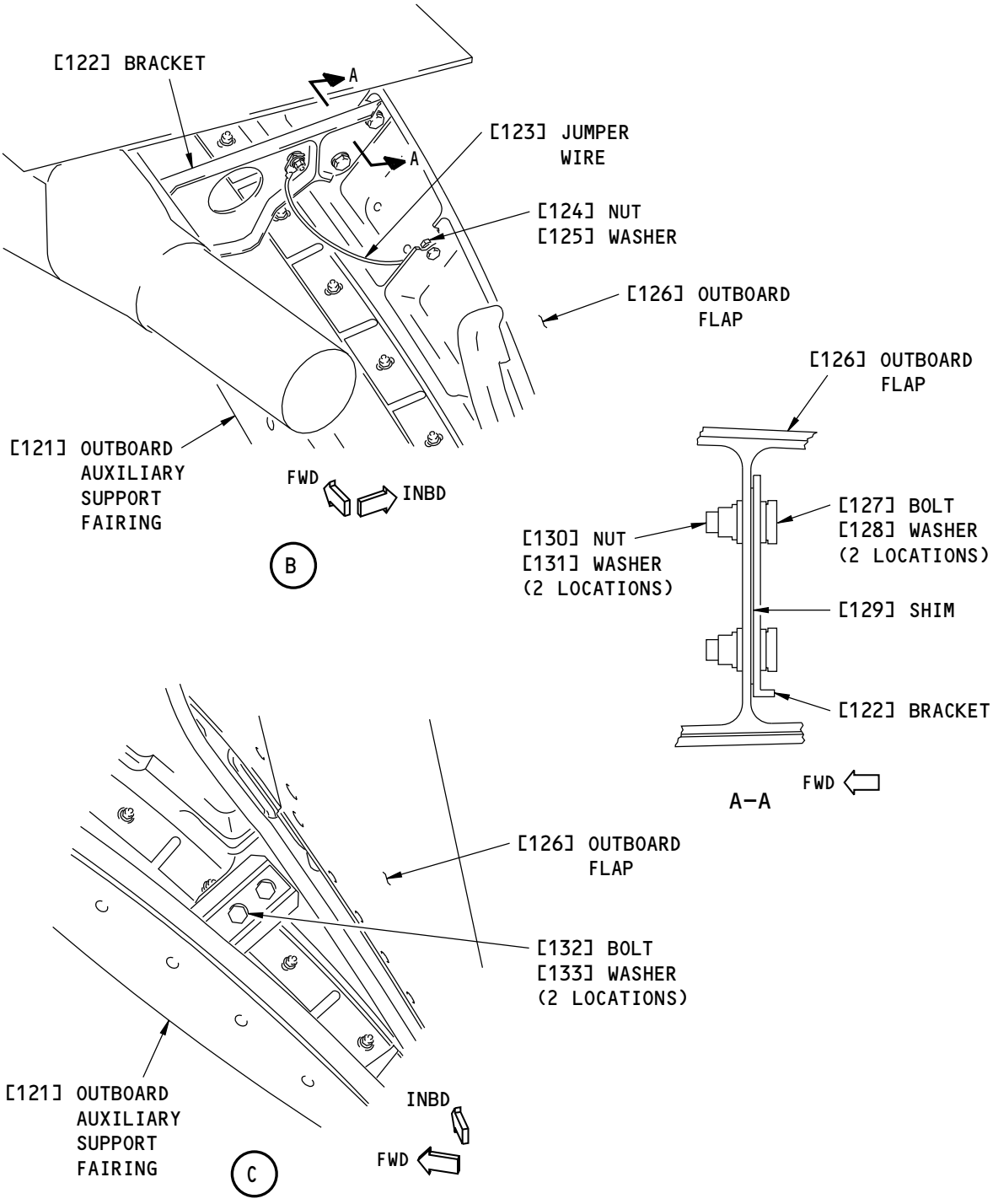
——— END OF TASK ———

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Outboard Auxiliary Support Fairing Installation
Figure 403/27-51-28-990-803 (Sheet 1 of 2)

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Outboard Auxiliary Support Fairing Installation
Figure 403/27-51-28-990-803 (Sheet 2 of 2)

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TASK 27-51-28-400-802

5. Outboard Auxiliary Support Fairing Installation

(Figure 403)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
121	Fairing assembly	27-51-28-05-062	ARO ALL
		27-51-28-05-067	ARO ALL

E. Location Zones

Zone	Area
578	Outboard Auxiliary Support Fairing - Left Wing
678	Outboard Auxiliary Support Fairing - Right Wing

F. Outboard Auxiliary Support Fairing Installation

SUBTASK 27-51-28-420-005

(1) Install the fairing assembly [121]:

(a) Put the fairing assembly [121] in its position on the outboard flap [126].

(b) Apply a layer of sealant, A00247, to the shank and threads of the bolts [127] and bolts [132].

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(c) At the aft end of the fairing assembly [121], install the bolts [132] and washers [133] that attach the fairing assembly [121].

(d) At the forward end of the fairing assembly [121], measure the clearance between the bracket [122] on the fairing and the outboard flap [126].

(e) If the clearance is more than 0.01 inch, install the shim [129]:

NOTE: The maximum thickness of the shim is 0.06 inch.

1) Apply a layer of primer, C00259 to the shim [129].

2) Put the shim [129] in its position on the outboard flap [126].

(f) Install the bolts [127], washers [128], washers [131] and nuts [130] that attach the fairing assembly [121] to the outboard flap [126].

(g) Tighten the bolts [132] to 50-60 pound-inches.

(h) Tighten the nuts [130] to 50-60 pound-inches.

(i) Install the nut [124] and washer [125] that attach the jumper wire [123] to the outboard flap [126].

(j) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [123] is less than 0.001 ohm (WDM D6-54446).

(k) Apply a fillet seal of sealant, A00247 around the nut [124] and washer [125].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-003

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-28-860-017

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-28-860-018

(3) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-28-860-019

(4) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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OUTBOARD FLAP FAIRINGS - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) A task to adjust the outboard flap support fairing for the outboard flaps

(2) A task to adjust the inboard flap support fairing for the outboard flaps.

TASK 27-51-28-820-801

2. Outboard Flap Outboard Support Fairing Adjustment

(Figure 501)

A. General

(1) Use this task to adjust the fairings for flap supports No. 1 or No. 8.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Location Zones

Zone	Area
577	Flap Support Fairing No. 1
677	Flap Support Fairing No. 8

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F. Access Panels

Number	Name/Location
577BB	Flap Support Fairing No. 1 Panel
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel
577GL	Flap Support Fairing No. 1 Panel
677BB	Flap Support Fairing No. 8 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel
677GR	Flap Support Fairing No. 8 Panel

G. Prepare for the Adjustment

SUBTASK 27-51-28-860-021

(1) If the trailing edge flaps are not retracted, retract the flaps:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

(b) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(d) Retract the trailing edge flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(e) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-28-040-003

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

H. Outboard Flap Outboard Support Fairing Adjustment

SUBTASK 27-51-28-220-001

(1) Measure the mismatch between the aft fairing [2] and the aft end of the outboard flap [3] (View A-A):

(a) Put a straightedge between the flap [3] and the aft fairing [2].

(b) Measure the clearance between the straightedge and the aft fairing [2] or the flap [3].

SUBTASK 27-51-28-820-003

(2) If the mismatch is not 0.00 ±0.06 inch, adjust the length of the drive link [4]:

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(a) Remove the applicable access panels, from the outboard side of the aft fairing [2]:

(TASK 06-30-00-800-806)

Number	Name/Location
577GL	Flap Support Fairing No. 1 Panel
677GR	Flap Support Fairing No. 8 Panel

(b) Adjust the length of the drive link [4] until the clearance is in the limit:

1) Loosen the locknuts [5] on the drive link [4].
2) Turn the drive link [4] to change the length.
3) Tighten the locknuts [5] on the drive link [4].
4) Install lockwire on the locknuts [5].

(c) Install the applicable access panels, on the aft fairing [2]:

Number	Name/Location
577GL	Flap Support Fairing No. 1 Panel
677GR	Flap Support Fairing No. 8 Panel

SUBTASK 27-51-28-220-002

(3) Measure the mismatch between the FORWARD FAIRING [1] and the aft fairing [2], (view B-B side, view D-D bottom):

(a) If the mismatch on sides is not in the limit of 0.00 ±0.06 inch, adjust the links [8] on the forward fairing [1].

NOTE: On the inboard side, measure the mismatch approximately 4.5 inches below the top edge of the aft fairing [2]. On the outboard side, measure the mismatch approximately 2.75 inches below the top edge of the aft fairing [2].

(b) If the mismatch on the bottom is not in the limit of 0.00 to 0.05 inch, adjust the links [8] on the forward fairing [1].

SUBTASK 27-51-28-820-004

(4) If the mismatch is not in the limits, adjust the links [8] on the forward fairing [1]:

(a) On the left wing, remove these access panels, from the forward fairing [1]:

(TASK 06-30-00-800-806)

Number	Name/Location
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel

(b) On the right wing, remove these access panels, from the forward fairing [1]:

(TASK 06-30-00-800-807)

Number	Name/Location
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel

(c) Adjust the length of the links [8]:

1) Loosen the locknuts [7] on the links [8].
2) Turn the links [8] to change the length.
3) Tighten the locknuts [7] on the links [8].

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4) Install lockwire on the locknuts [7].

(d) Install the applicable access panels, on the forward fairing [1]:

Number	Name/Location
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel

SUBTASK 27-51-28-220-003

(5) Measure the clearance between the forward end of the forward fairing [1] and the lower surface of the wing (view C-C).

SUBTASK 27-51-28-820-005

(6) If the clearance is not in the limit of 0.1721 ±0.05 inch, adjust the forward end of the forward fairing [1]:

(a) Remove the forward fairing [1]:

1) On the left wing, remove these access panels, from the forward fairing [1]:

(TASK 06-30-00-800-806)

Number	Name/Location
577BB	Flap Support Fairing No. 1 Panel
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel

2) On the right wing, remove these access panels, from the forward fairing [1]:

(TASK 06-30-00-800-807)

Number	Name/Location
677BB	Flap Support Fairing No. 8 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel

3) Disconnect the electrical connections for the landing gear illumination light:

a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
F	21	C33498	CAMERA LTS

b) Remove the nuts [31] and washers [32] that attach the jumper wires [44] to the flap support [3].

c) Disconnect the electrical connector [30] for the landing gear illumination light.

4) Remove the nuts [11], washers [10] and bolts [9] that attach the links [8] to the forward fairing [1].

5) Remove the nut [13] and washer [14] that attach the jumper wire [12] to the flap support [6].

6) Remove the nut [18], washers [17] and bolt [16] that attach the cable assembly [15] to the forward fairing [1].

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7) Remove the nut [19] and washer [20] and remove the forward fairing [1].

(b) Adjust the position of the spacer [25] to adjust the forward fairing [1]:

1) Remove the bolts [22] and collars [23] that attach the retainer [28] and the spacer [25] to the flap support [6].

2) Change the position of the shims [26] and shim [27] between the retainer [28] and the spacer [25].

NOTE: Install a minimum of one shim under the head of bolts [22].

3) Put the retainer [28] and the spacer [25] in their positions with the bolt [24], shims [26] and shim [27] on the flap support [6].

4) Install the bolts [22] and collars [23] to hold the retainer [28] and the spacer [25] to the flap support [6].

(c) Install the forward fairing [1]:

1) Apply grease, D00633 to the bearing [21].

2) Make sure you can turn the bearing [21] in the fitting.

3) Lift the forward fairing [1] to its position.

4) Install the nut [19] and washer [20] on the bolt [24].

5) Tighten the nut [19] to 180-200 pound-inches.

6) Apply a layer of sealant, A00247 to the shank and threads of the bolt [16].

7) Install the bolt [16], washers [17] and nut [18] that attach the cable assembly [15] to the forward fairing [1].

8) Tighten the nut [18] to 50-60 pound-inches.

9) Install the nut [13] and washer [14] to attach the jumper wire [12] to the flap support [6].

10) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [12] is less than 0.001 ohm (WDM D6-54446).

11) Install the bolts [9], washers [10] and nuts [11] to attach the links [8] to the forward fairing [1].

12) Tighten the nuts [11] to 50-60 pound-inches.

13) Connect the electrical connections for the landing gear illumination light:

a) Install the jumper wires [29] to the flap support [3] with the nuts [31] and washers [32].

b) Connect the electrical connector [30] for the landing gear illumination light.

c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
F	21	C33498	CAMERA LTS

14) Install the applicable access panels, on the forward fairing [1]:

Number	Name/Location
577BB	Flap Support Fairing No. 1 Panel
577CB	Flap Support Fairing No. 1 Panel
577DL	Flap Support Fairing No. 1 Panel
577DR	Flap Support Fairing No. 1 Panel

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(Continued)

Number	Name/Location
677BB	Flap Support Fairing No. 8 Panel
677CB	Flap Support Fairing No. 8 Panel
677DL	Flap Support Fairing No. 8 Panel
677DR	Flap Support Fairing No. 8 Panel

(d) Make sure the clearance is in the limit of 0.1721 ±0.05 inch.

SUBTASK 27-51-28-220-007

(7) Make sure the bulb seals [32] on the inboard and outboard sides of the forward fairing [1] are compressed against the lower surface of the wing (Figure 501).

SUBTASK 27-51-28-820-009

(8) If the bulb seals [32] are not compressed, change the adjustment of the bulb seals [32]:

(a) Remove the forward fairing [1].

(b) Loosen the nuts that attach hold the seal retainers.

(c) Move the bulb seals [32] and the seal retainers.

(d) Tighten the nuts on the seal retainers.

(e) Install the forward fairing [1].

(f) Make sure the bulb seals [32] are compressed against the lower surface of the wing.

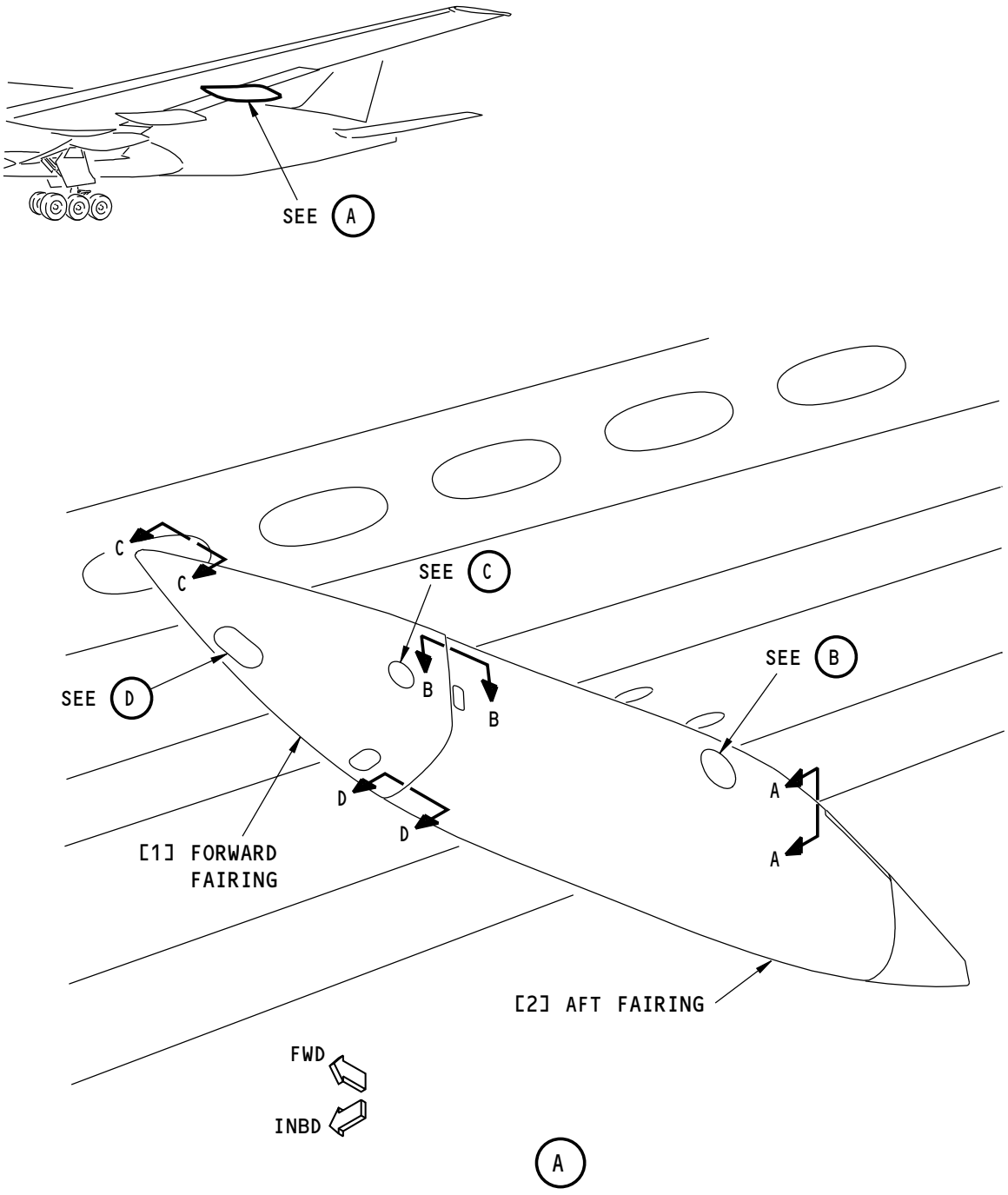
I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-004

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

——— END OF TASK ———

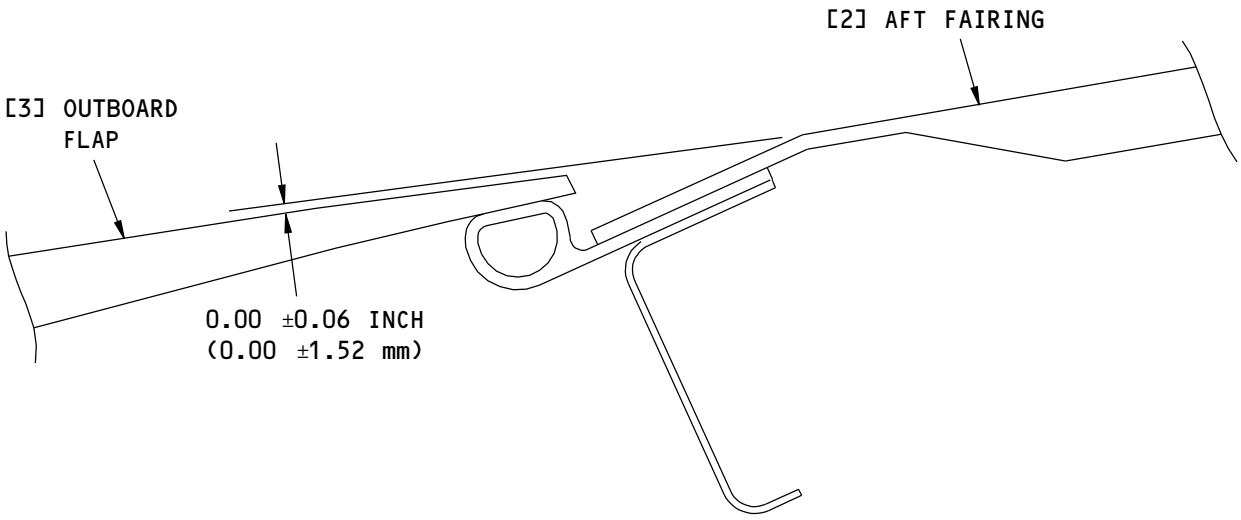
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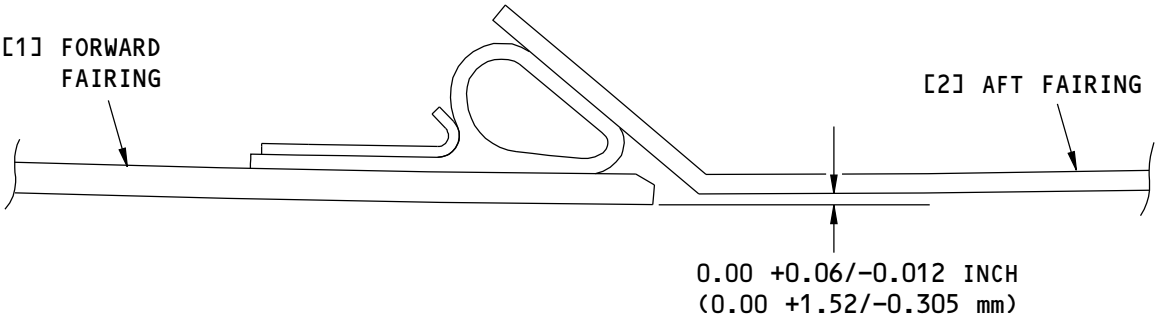
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Outboard Flap Outboard Support Fairing Adjustment
Figure 501/27-51-28-990-804 (Sheet 1 of 6)

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A–A

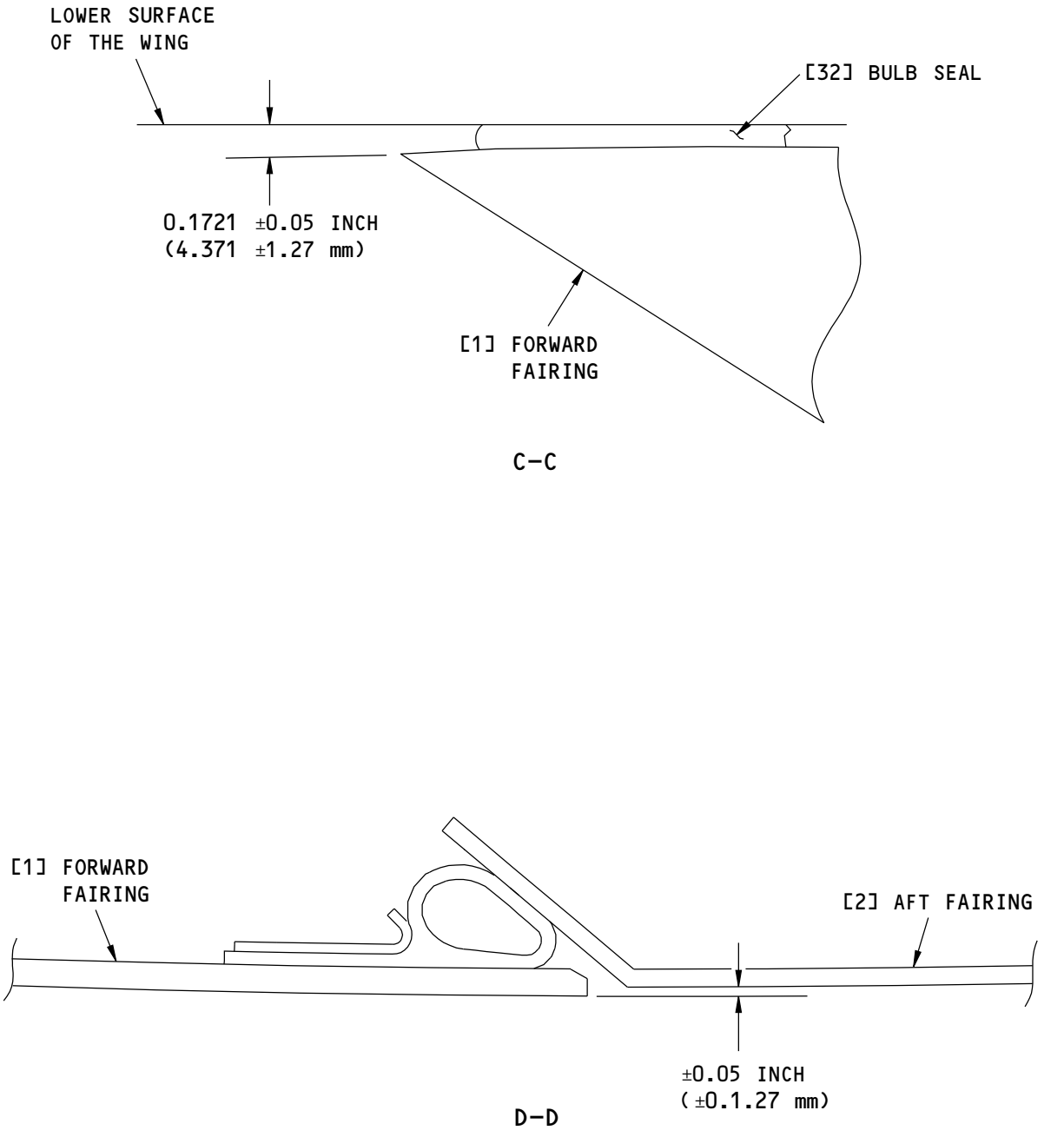


B–B

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Outboard Flap Outboard Support Fairing Adjustment
Figure 501/27-51-28-990-804 (Sheet 2 of 6)

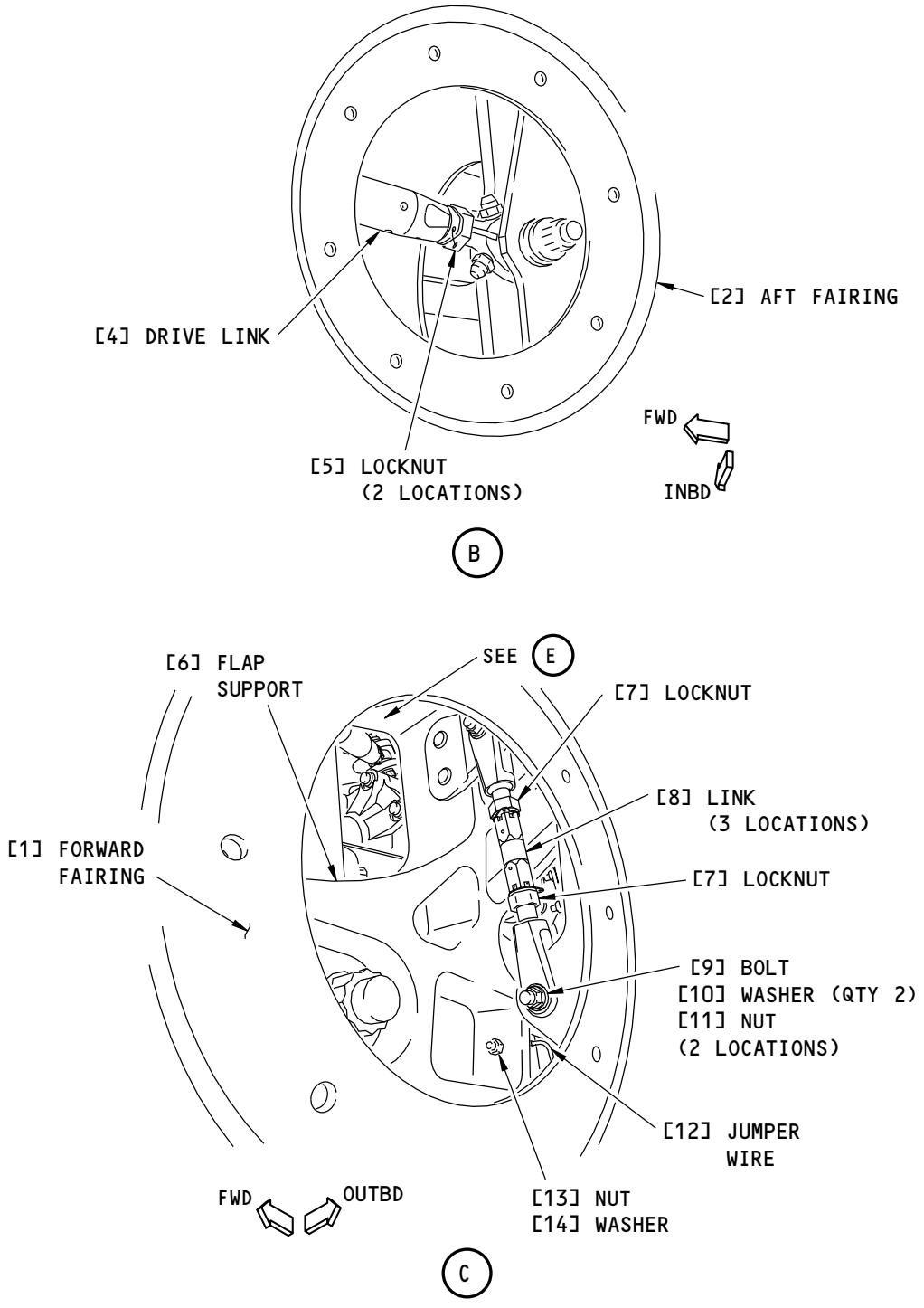
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Outboard Flap Outboard Support Fairing Adjustment
Figure 501/27-51-28-990-804 (Sheet 3 of 6)

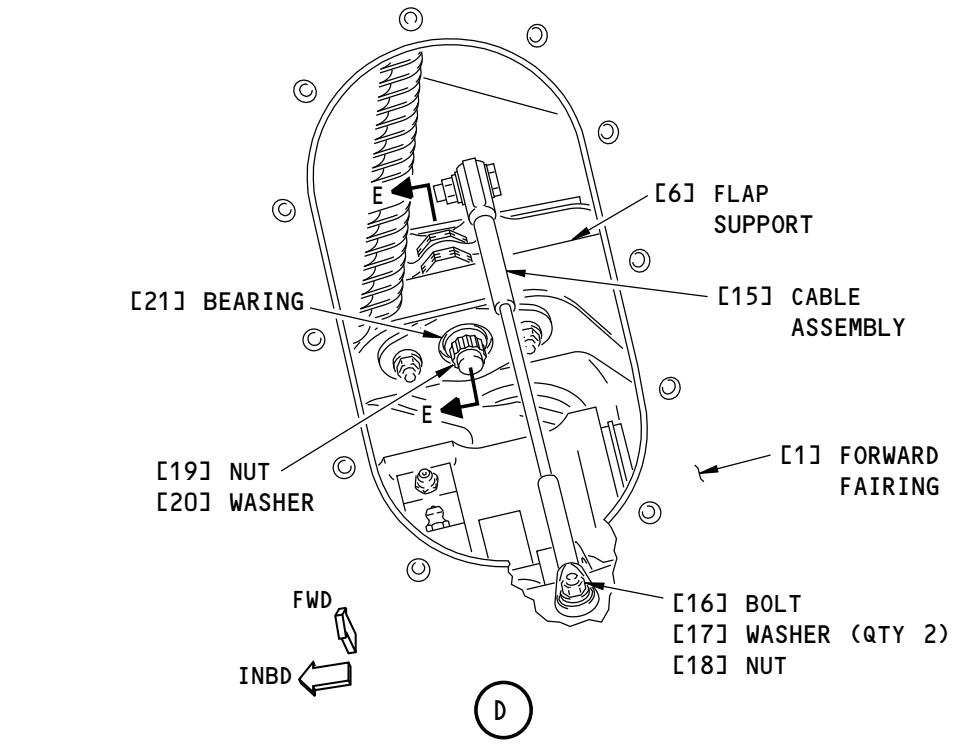
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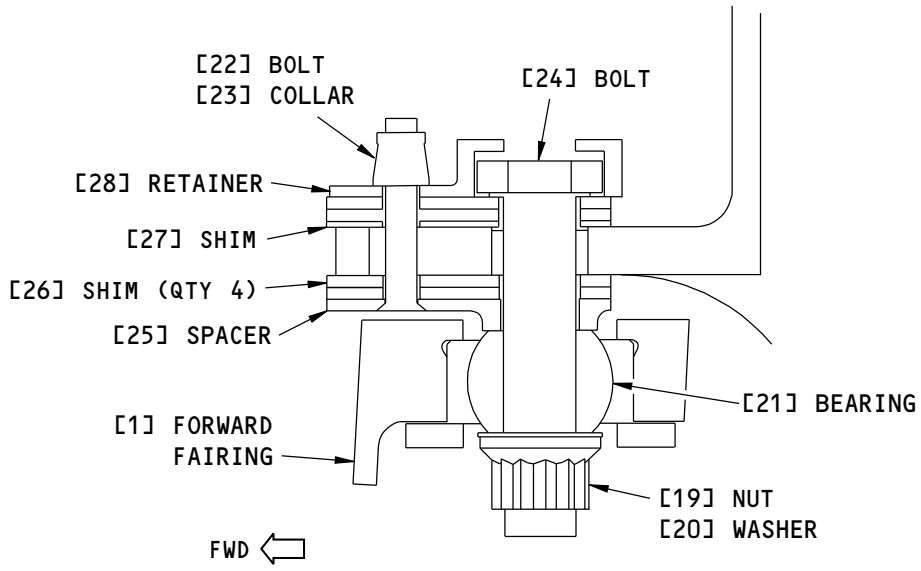


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Outboard Flap Outboard Support Fairing Adjustment
Figure 501/27-51-28-990-804 (Sheet 4 of 6)

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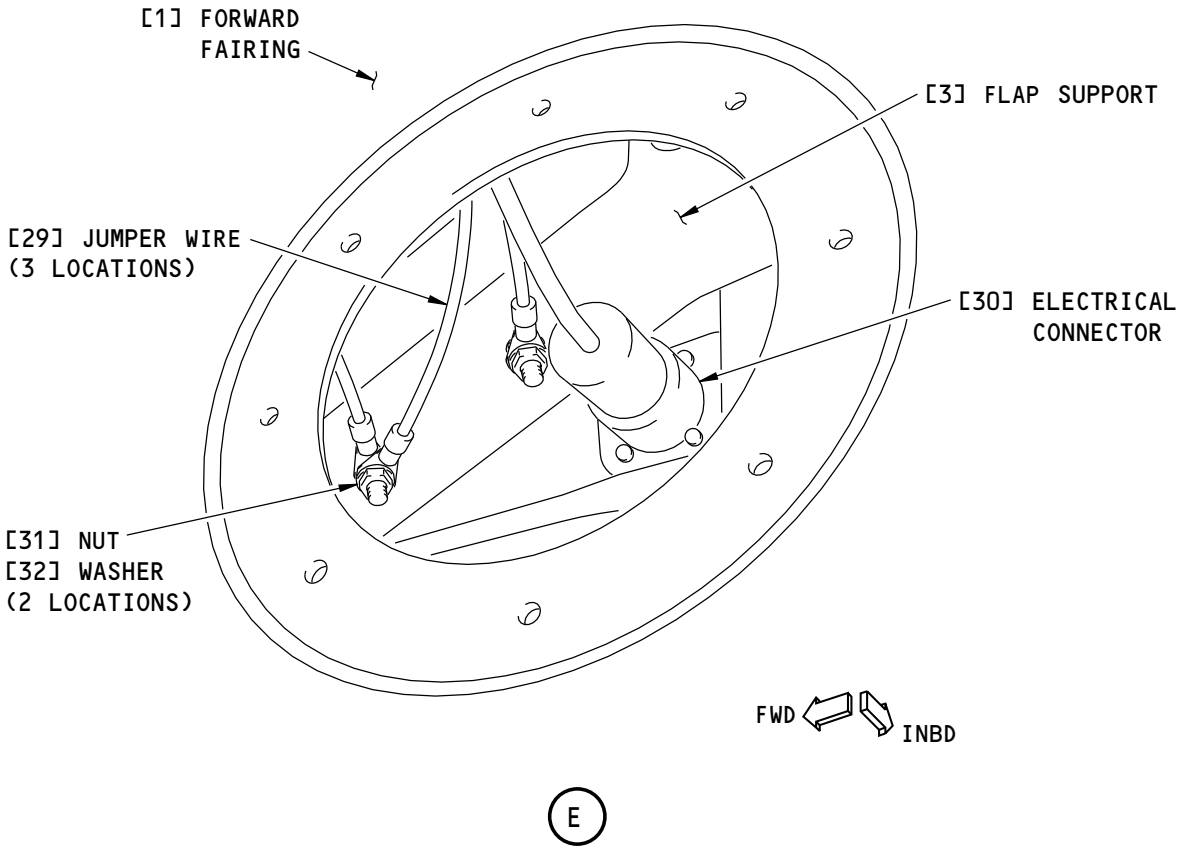


E–E

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Outboard Flap Outboard Support Fairing Adjustment
Figure 501/27-51-28-990-804 (Sheet 5 of 6)

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Outboard Flap Outboard Support Fairing Adjustment
Figure 501/27-51-28-990-804 (Sheet 6 of 6)

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TASK 27-51-28-820-802

3. Outboard Flap Inboard Support Fairing Adjustment

(Figure 502)

A. General

(1) Use this task to adjust the fairing for flap supports No. 2 or No. 7.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
41	Forward fairing	27-51-28-11-495	ARO ALL
		27-51-28-11-500	ARO ALL

F. Location Zones

Zone	Area
576	Flap Support Fairing No. 2
676	Flap Support Fairing No. 7

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G. Access Panels

Number	Name/Location
576BB	Flap Support Fairing No. 2 Panel
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel
576GL	Flap Support Fairing No. 2 Panel
676BB	Flap Support Fairing No. 7 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel
676GR	Flap Support Fairing No. 7 Panel

H. Prepare for the Adjustment

SUBTASK 27-51-28-860-023

(1) If the trailing edge flaps are not retracted, retract the flaps:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

(b) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

(d) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

(e) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-28-040-004

WARNING

DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

I. Outboard Flap Inboard Support Fairing Adjustment

SUBTASK 27-51-28-220-004

(1) Measure the mismatch between the aft fairing [42] and the aft end of the outboard flap [43] (View A-A):

(a) Put a straightedge between the flap [43] and the aft fairing [42].

(b) Measure the clearance between the straightedge and the aft fairing [42] or the flap [43].

SUBTASK 27-51-28-820-006

(2) If the mismatch is not 0.00 ±0.06 inch, adjust the length of the drive link [44]:

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(a) From the outboard side of the aft fairing [42] , remove the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
576GL	Flap Support Fairing No. 2 Panel
676GR	Flap Support Fairing No. 7 Panel

(b) Adjust the length of the drive link [44] until the mismatch is in the limit:

1) Loosen the locknuts [45] on the drive link [44].
2) Turn the drive link [44] to change the length.
3) Tighten the locknuts [45] on the drive link [44].
4) Install lockwire on the locknuts [45].

(c) On the aft fairing [42], install the applicable access panels:

Number	Name/Location
576GL	Flap Support Fairing No. 2 Panel
676GR	Flap Support Fairing No. 7 Panel

SUBTASK 27-51-28-220-005

(3) Measure the mismatch between the forward fairing [41] and the aft fairing [42]:

(a) If the mismatch on sides is not in the limit of 0.00 ±0.06 inch, adjust the links [47] on the forward fairing [41].

NOTE: On the inboard side, measure the mismatch approximately 2.0 inches below the top edge of the aft fairing [42]. On the outboard side, measure the mismatch approximately 1.5 inches below the top edge of the aft fairing [42].

(b) If the mismatch on the bottom is not in the limit of 0.00 to 0.05 inch, adjust the links [47] on the forward fairing [41].

SUBTASK 27-51-28-820-007

(4) If the mismatch is not in the limits, adjust the links [47] on the forward fairing [41]:

(a) To gain access to the links [47] remove panels from the forward fairing [41] , do this step:

On the left wing, remove these access panels, from the forward fairing [41]:

(TASK 06-30-00-800-806)

Number	Name/Location
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel

(b) On the right wing, remove these access panels, remove the forward fairing [41]:

(TASK 06-30-00-800-807)

Number	Name/Location
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel

(c) Adjust the length of the links [47]:

1) Loosen the locknuts [54] on the links [47].
2) Turn the links [47] to change the length.
3) Tighten the locknuts [54] on the links [47].

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4) Install lockwire on the locknuts [54].

(d) On the forward fairing [41], install the applicable access panels:

Number	Name/Location
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel

SUBTASK 27-51-28-220-006

(5) Measure the clearance between the forward end of the forward fairing [41] and the lower surface of the wing.

SUBTASK 27-51-28-820-008

(6) If the clearance is not in the limit of 0.1711 ±0.05 inch, adjust the forward end of the forward fairing [41]:

(a) Remove the forward fairing [41]:

1) On the left wing, remove these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
576BB	Flap Support Fairing No. 2 Panel
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel

2) On the right wing, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
676BB	Flap Support Fairing No. 7 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel

3) Remove the nuts [53], washers [52] and bolts [51] that attach the links [47] to the forward fairing [41].

4) Remove the nut [48] and washer [49] that attach the jumper wire [50] to the flap support [46].

5) Remove the nut [58], washers [57] and bolt [56] that attach the cable assembly [55] to the forward fairing [41].

6) Remove the nut [59] and washer [60] and remove the forward fairing [41].

(b) Adjust the position of the spacer [65] to adjust the forward fairing [41]:

1) Remove the bolts [62] and collars [63] that attach the retainer [68] and the spacer [65] to the flap support [46].

2) Change the position of the shims [66] and shim [67] between the retainer [68] and the spacer [65].

NOTE: Install a minimum of one shim under the head of bolts [62].

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3) Put the retainer [68] and the spacer [65] in their position with the bolt [64], shims [66] and shim [67] on the flap support [46].

4) Install the bolts [62] and collars [63] to hold the retainer [68] and the spacer [65] to the flap support [46].

(c) Install the forward fairing [41]:

1) Apply grease, D00633 to the bearing [61].

2) Make sure you can turn the bearing [61] in the fitting.

3) Lift the forward fairing [41] to its position.

4) Install the nut [59] and washer [60] on the bolt [64].

5) Tighten the nut [59] to 270-300 pound-inches.

6) Apply a layer of sealant, A00247 to the shank and threads of the bolt [56].

7) Install the bolt [56], washers [57] and nut [58] that attach the cable assembly [55] to the forward fairing [41].

8) Tighten the nut [58] to 50-60 pound-inches.

9) Install the nut [48] and washer [49] to attach the jumper wire [50] to the flap support [46].

10) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [50] is less than 0.001 ohm (WDM D6-54446).

11) Install the bolts [51], washers [52] and nuts [53] to attach the links [47] to the forward fairing [41].

12) Tighten the nuts [53] to 50-60 pound-inches.

13) Install the applicable access panels:

Number	Name/Location
576BB	Flap Support Fairing No. 2 Panel
576CL	Flap Support Fairing No. 2 Panel
576CR	Flap Support Fairing No. 2 Panel
576DB	Flap Support Fairing No. 2 Panel
676BB	Flap Support Fairing No. 7 Panel
676CL	Flap Support Fairing No. 7 Panel
676CR	Flap Support Fairing No. 7 Panel
676DB	Flap Support Fairing No. 7 Panel

(d) Make sure the clearance is in the limit of 0.1711 ±0.05 inch.

SUBTASK 27-51-28-220-008

(7) Make sure the bulb seals [69] on the inboard and outboard sides of the forward fairing [41] are compressed against the lower surface of the wing (Figure 502).

SUBTASK 27-51-28-820-010

(8) If the bulb seals [69] are not compressed, change the adjustment of the bulb seals [69]:

(a) Remove the forward fairing [41].

(b) Loosen the nuts that attach hold the seal retainers.

(c) Move the bulb seals [69] and the seal retainers.

(d) Tighten the nuts on the seal retainers.

(e) Install the forward fairing [41].

(f) Make sure the bulb seals [69] are compressed against the lower surface of the wing.

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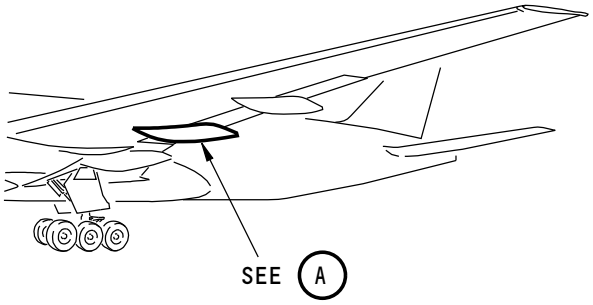
J. Put the Airplane Back to Its Usual Condition

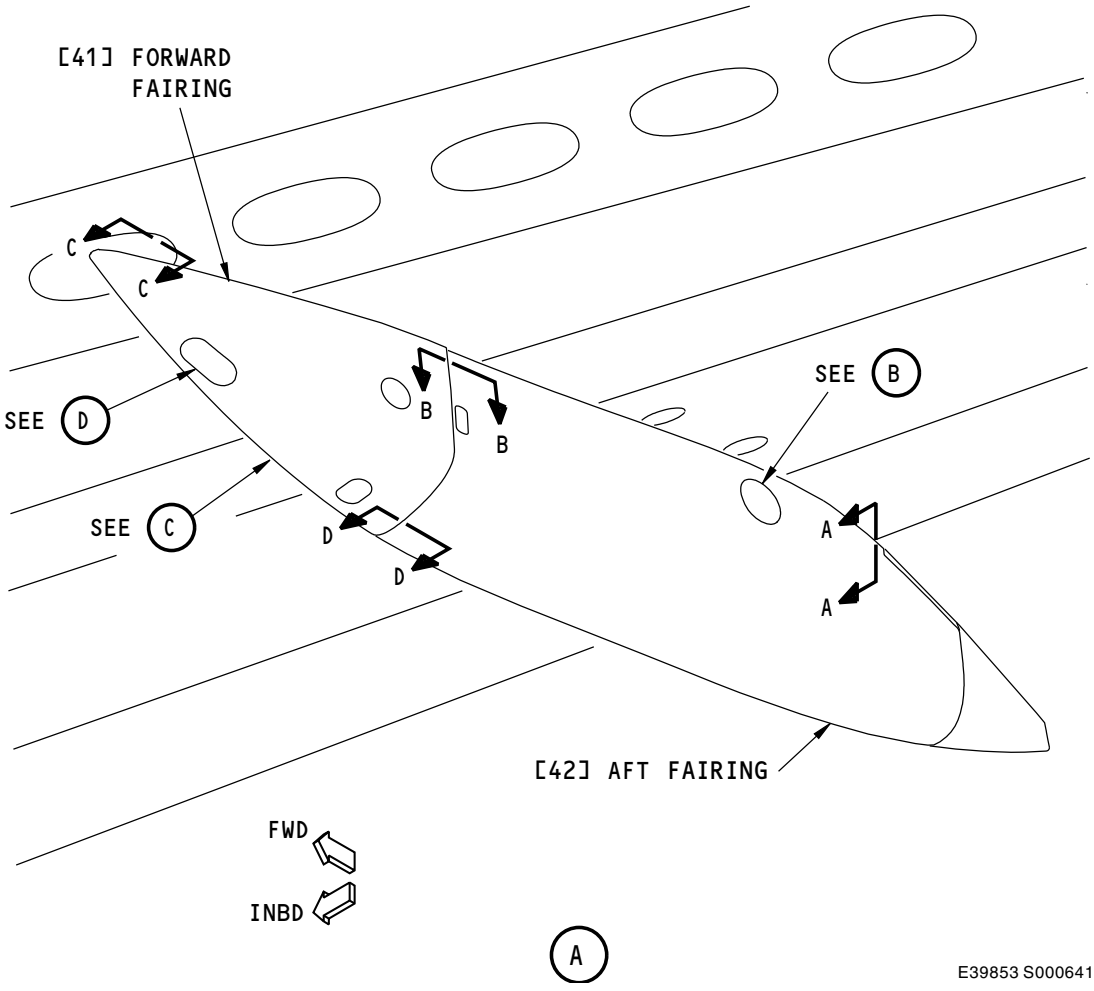
SUBTASK 27-51-28-440-005

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

——— END OF TASK ———

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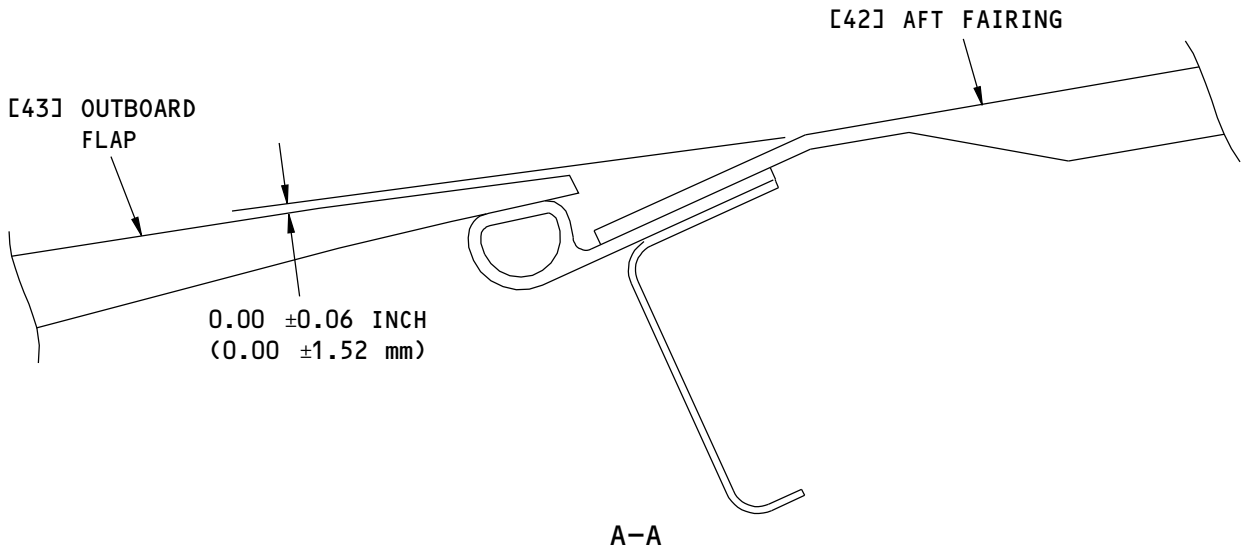




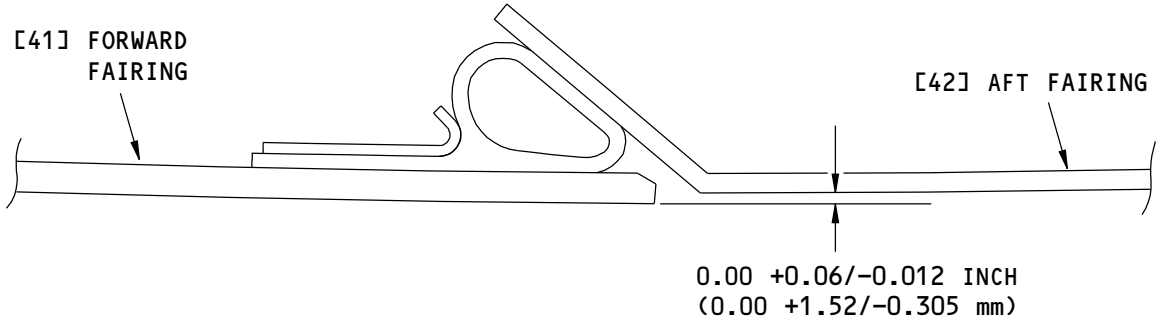
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Outboard Flap Inboard Support Fairing Adjustment
Figure 502/27-51-28-990-805 (Sheet 1 of 5)

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A–A

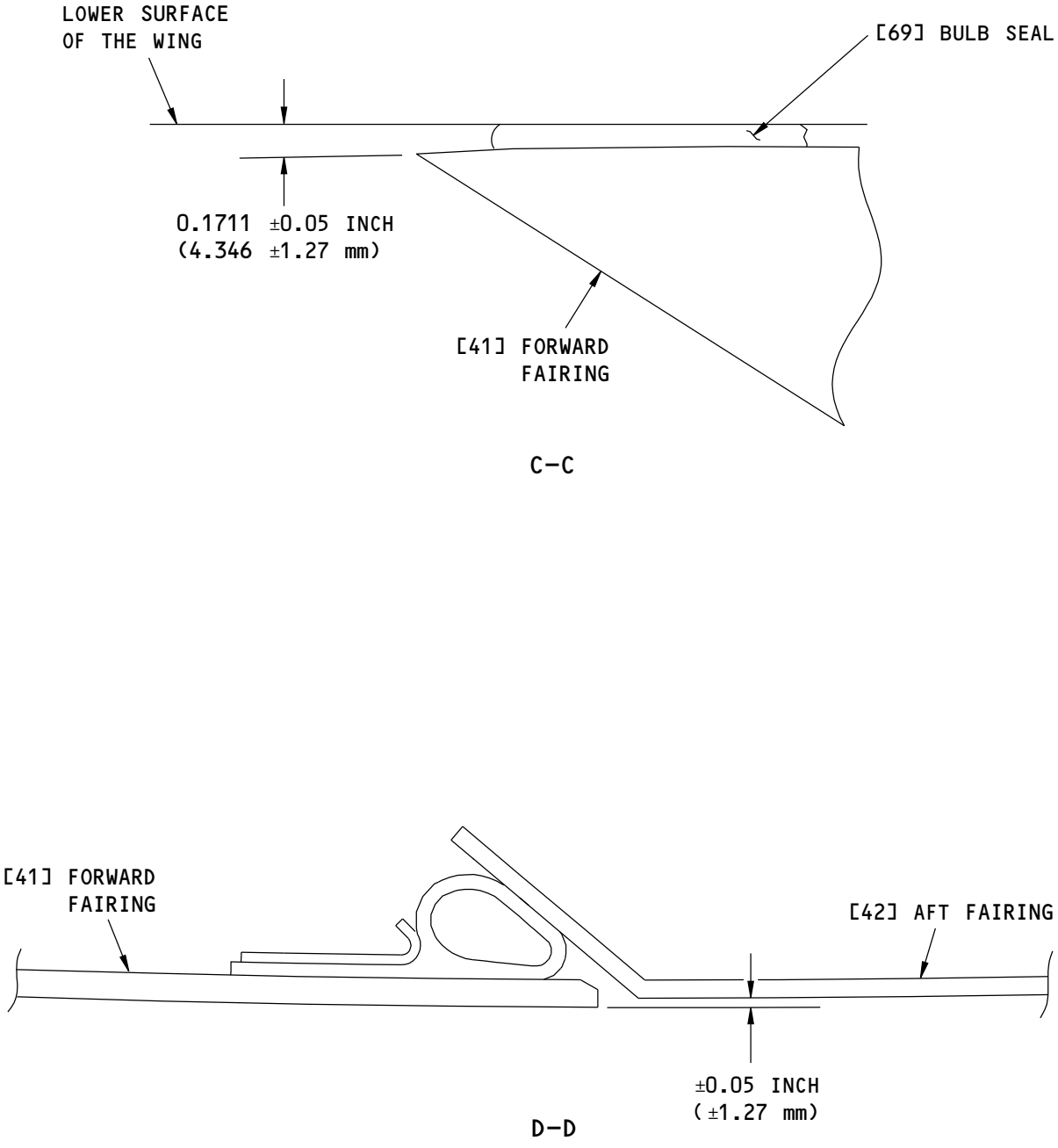


B–B

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Outboard Flap Inboard Support Fairing Adjustment
Figure 502/27-51-28-990-805 (Sheet 2 of 5)

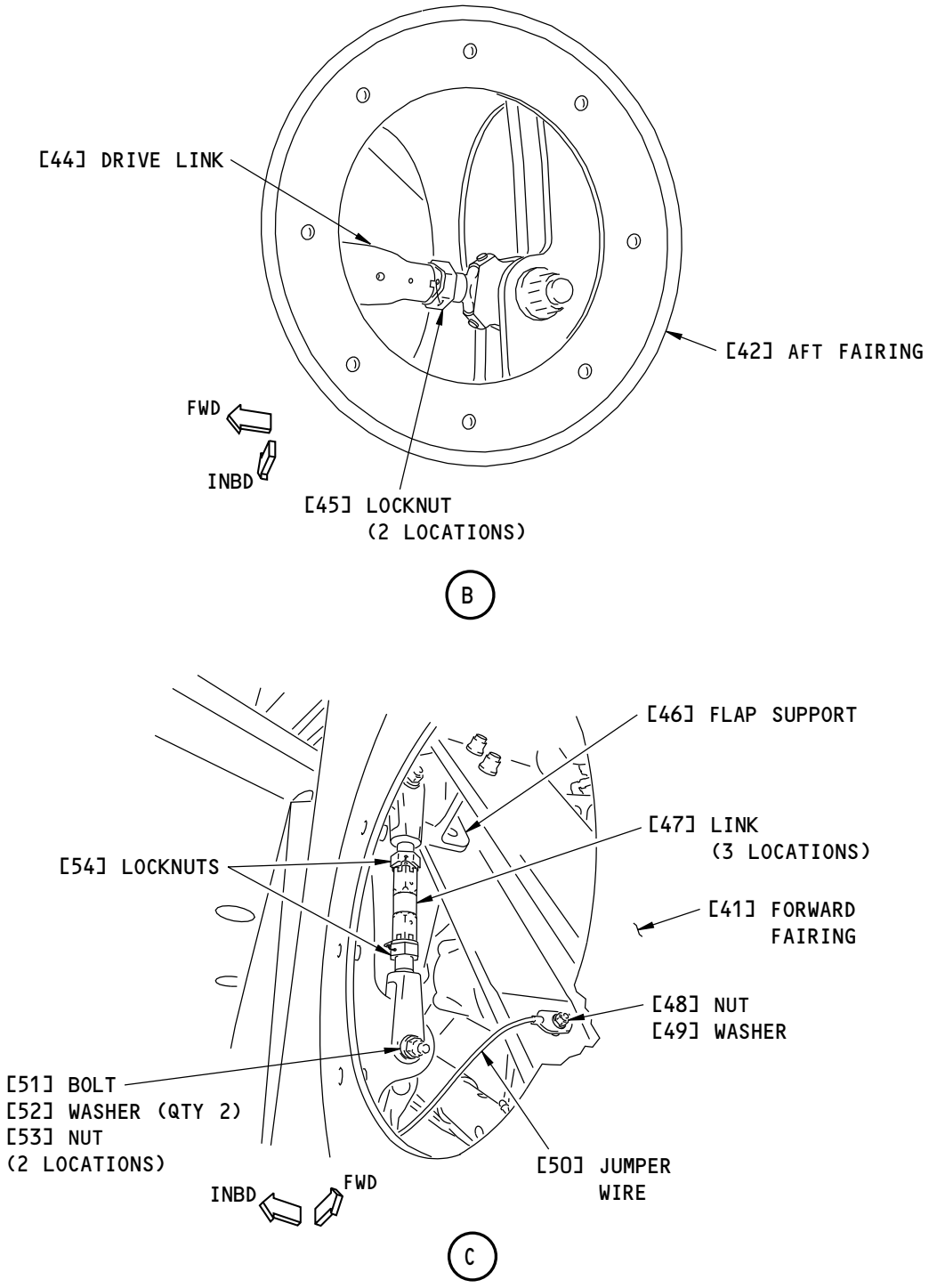
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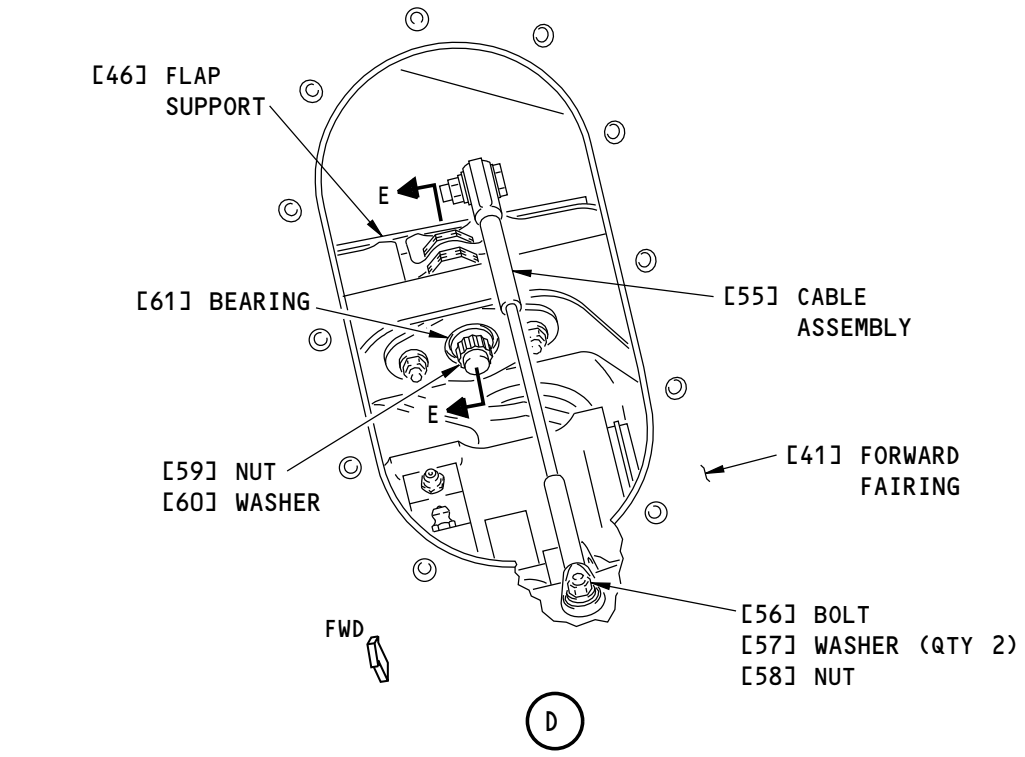
Outboard Flap Inboard Support Fairing Adjustment
Figure 502/27-51-28-990-805 (Sheet 3 of 5)

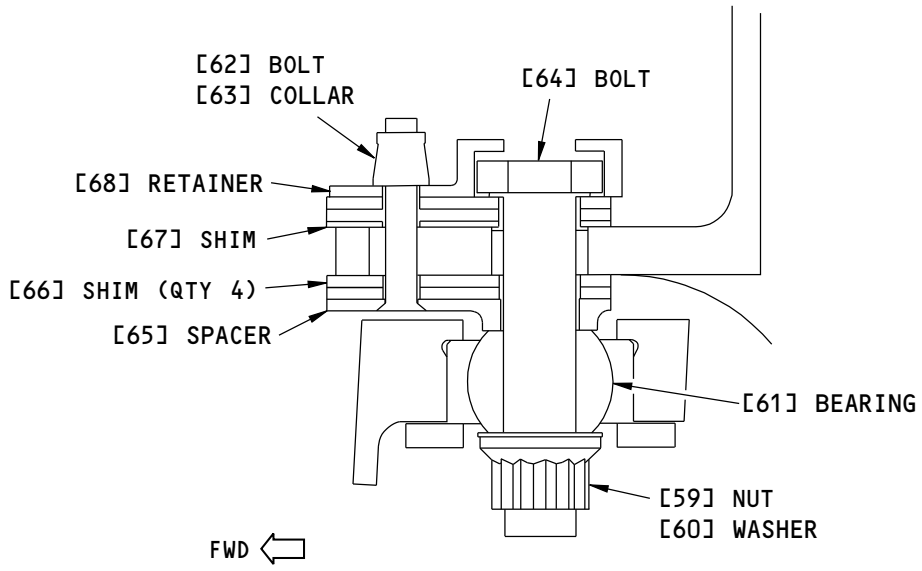
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Outboard Flap Inboard Support Fairing Adjustment
Figure 502/27-51-28-990-805 (Sheet 4 of 5)

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E–E

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Outboard Flap Inboard Support Fairing Adjustment
Figure 502/27-51-28-990-805 (Sheet 5 of 5)

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FLAP POWER DRIVE UNIT (PDU) - REMOVAL/INSTALLATION

1. General]

A. This procedure has these tasks:

(1) A removal of the power drive unit (PDU) for the trailing edge flaps.

(2) An installation of the power drive unit (PDU) for the trailing edge flaps.

(3) A removal of the hydraulic and electric motor seals from the power drive unit (PDU) for the trailing edge flaps.

(4) An installation of the hydraulic and electric motor seals from the power drive unit (PDU) for the trailing edge flaps.

B. Because of the weight of the PDU, it is necessary for a minimum of two persons to remove the PDU. You can remove and install the PDU with the electric and hydraulic motors either installed or removed. It is much easier to remove the PDU with the electric motor removed. With the motors installed, the PDU weighs approximately 83 pounds. With the motors removed the PDU weighs approximately 40 pounds.

TASK 27-51-31-000-801

2. Flap Power Drive Unit (PDU) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) You can remove the PDU with the electric and hydraulic motors either removed or installed. It is recommended that you remove the electric motor. This procedure covers PDU removal with the electric motor removed and the hydraulic motor installed.

(2) It is necessary to get access to the PDU from each side of the keel beam for removal. You must disconnect the electric and hydraulic motors from the right side of the keel beam. You must remove the PDU from the left side of the keel beam.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-34-000-801	Flap Electric Motor Removal (P/B 401)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

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D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
149	Aft Keel Beam

E. Prepare for the Removal

SUBTASK 27-51-31-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-31-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-31-210-001

(3) Make sure the trailing edge flaps are in the retracted position. If the flaps are not retracted, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-31-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-31-860-001

(5) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

F. Flap Power Drive Unit Removal

SUBTASK 27-51-31-860-002

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

SUBTASK 27-51-31-020-001

(2) Disconnect the electrical connector [6] from the electric motor [7].

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SUBTASK 27-51-31-020-002

(3) Disconnect the hydraulic tube [1], hydraulic tube [2], and hydraulic tube [4] from the hydraulic motor [3].

(a) Install caps on the hydraulic tube [1], hydraulic tube [2], and hydraulic tube [4] and plugs in the ports of the hydraulic motor [3].

NOTE: A plug should be installed in the bottom of the hydraulic motor drain port.

SUBTASK 27-51-31-020-006

(4) Remove the bolt [8] and washers [9] that attach the jumper wire [10] to the electric motor [7].

SUBTASK 27-51-31-010-001

(5) To make the power drive unit [5] removal easier, remove the electric motor [7]. To remove it, do this task: Flap Electric Motor Removal, TASK 27-51-34-000-801.

NOTE: It is easier to remove the power drive unit with the electric motor removed.

SUBTASK 27-51-31-480-003

(6) Install T.E. flap drive shaft clamp equipment, SPL-1706 on the torque tubes outboard of the position sensor gearboxes to make sure the torque tubes do not turn.

NOTE: Install the T.E. flap drive shaft clamp equipment to stop the torque tube movement in the extend direction. In the left wheel well, between the PDU and transmission No. 4, the torque tubes will turn clockwise as you look outboard. In the right wheel well outboard of the PDU and outboard of the transmissions, the torque tubes will turn counterclockwise.

SUBTASK 27-51-31-020-007

(7) In the left wheel well, remove the tube assembly [15] between the power drive unit [5] and the position sensor gearbox:

NOTE: Make sure the drive system does not turn while the torque tubes are disconnected.

(a) Remove the screws [12] that attach the coupling sleeves [13] to the splined couplings [14] on the tube assemblies [15].

(b) Move the coupling sleeves [13] off the splined couplings [14].

SUBTASK 27-51-31-020-003

(8) In the right wheel well, disconnect the tube assembly [15] from the power drive unit [5]:

NOTE: It is not necessary to remove the tube assembly on the right side of the power drive unit.

(a) Remove the screws [12] that attach the coupling sleeve [13] to the splined coupling [14] on the tube assembly [15].

(b) Move the coupling sleeve [13] off the splined coupling [14].

SUBTASK 27-51-31-020-004

WARNING USE A MINIMUM OF TWO PERSONS TO REMOVE THE PDU. THE PDU WEIGHS 83 POUNDS WITH THE ELECTRIC AND HYDRAULIC MOTORS INSTALLED. IF YOU DROP THE PDU IT CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Remove the power drive unit [5]:

(a) Remove the nut [28], washer [25], washer [27], bolt [24] and bushing [26] that attach the power drive unit [5] to the link [11].

(b) Remove the nuts [18] and washers [17] that attach the power drive unit [5] to the bracket [19].

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(c) Move the retainers [21] off the heads of the bolts [22].

(d) Remove the bolts [22] and washers [23] from the bracket [19].

NOTE: Hold the weight of the power drive unit when you remove the bolts.

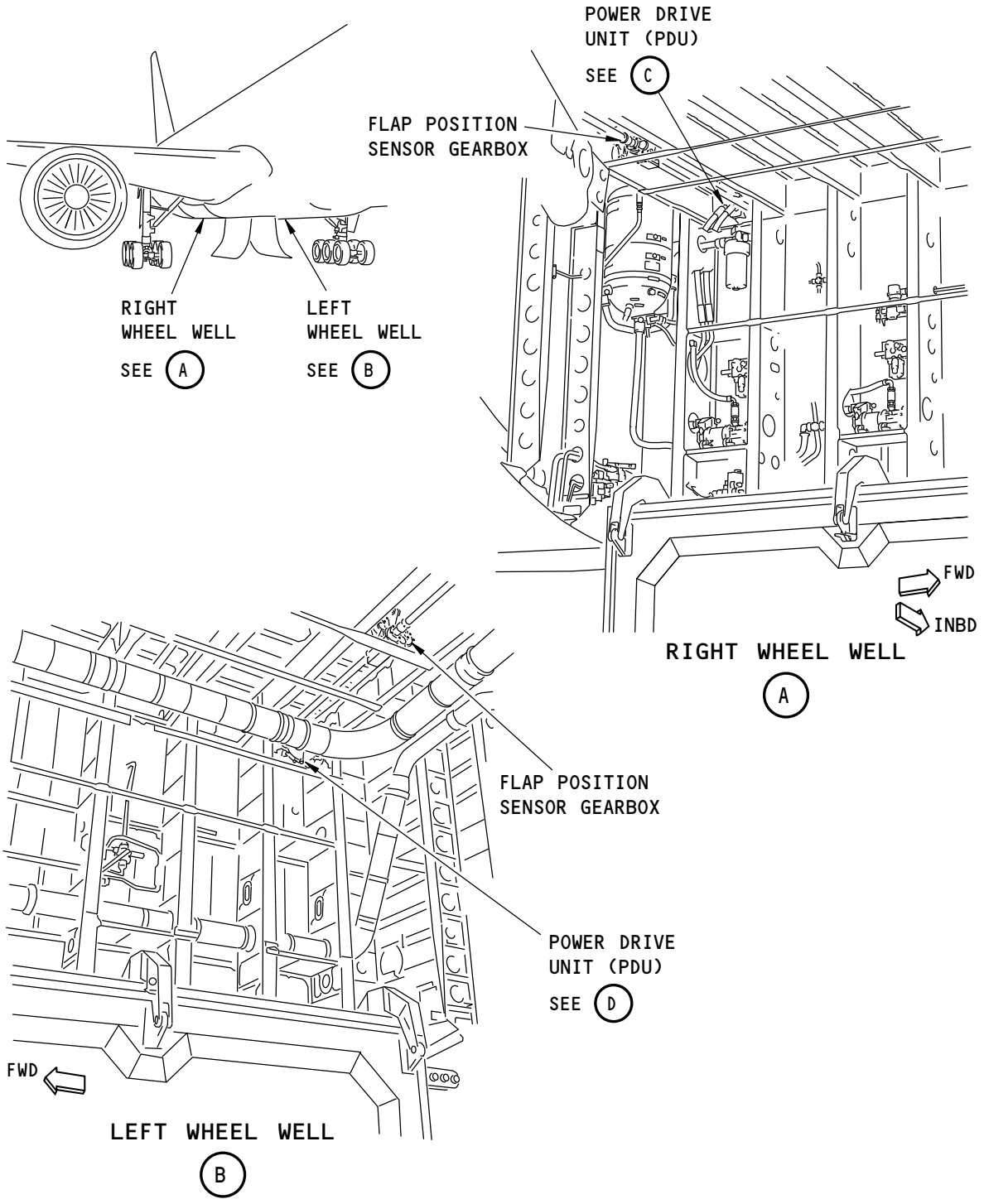
(e) Move the power drive unit [5] left and down, and remove it through the left wheel well.

NOTE: When you remove the power drive unit, the bushings can fall out of the bracket.

(f) Remove the retainers [21], bushings [16] and bushings [20] from the brackets [19].

——— END OF TASK ———

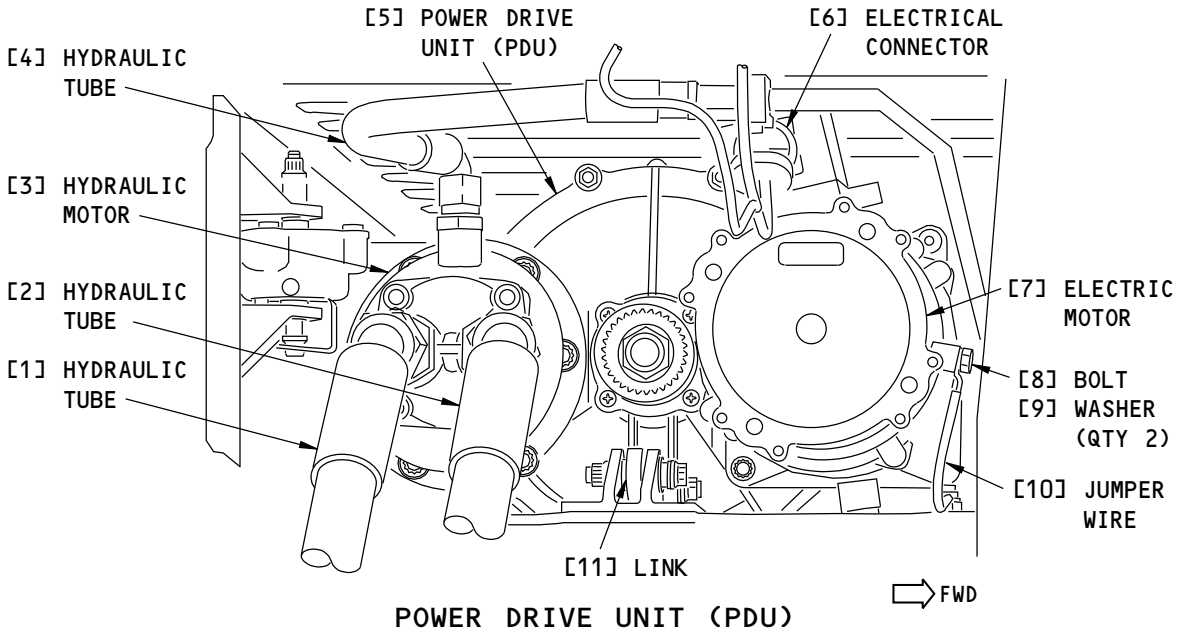
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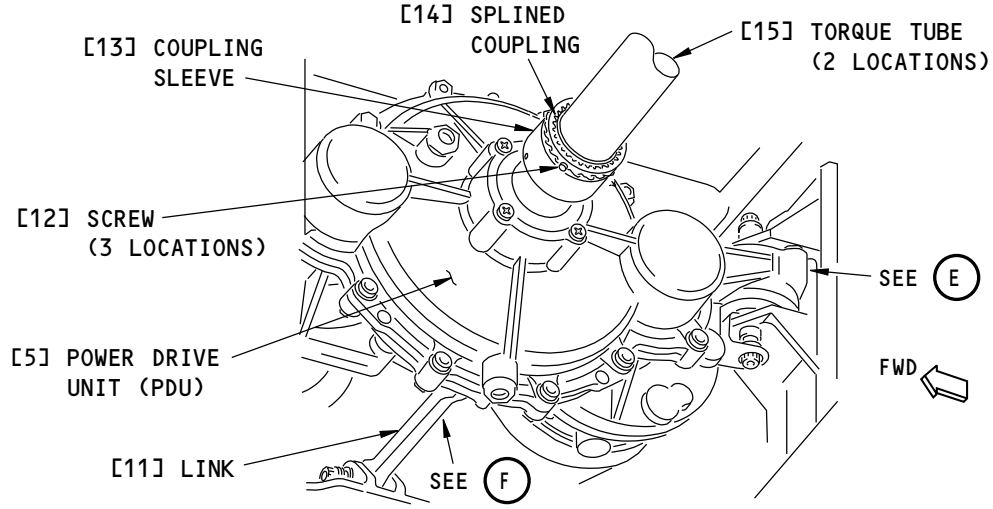
Flap Power Drive Unit Installation
Figure 401/27-51-31-990-801 (Sheet 1 of 3)

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POWER DRIVE UNIT (PDU)
(VIEW FROM THE RIGHT SIDE)
(TORQUE TUBE REMOVED FOR CLARITY)

C



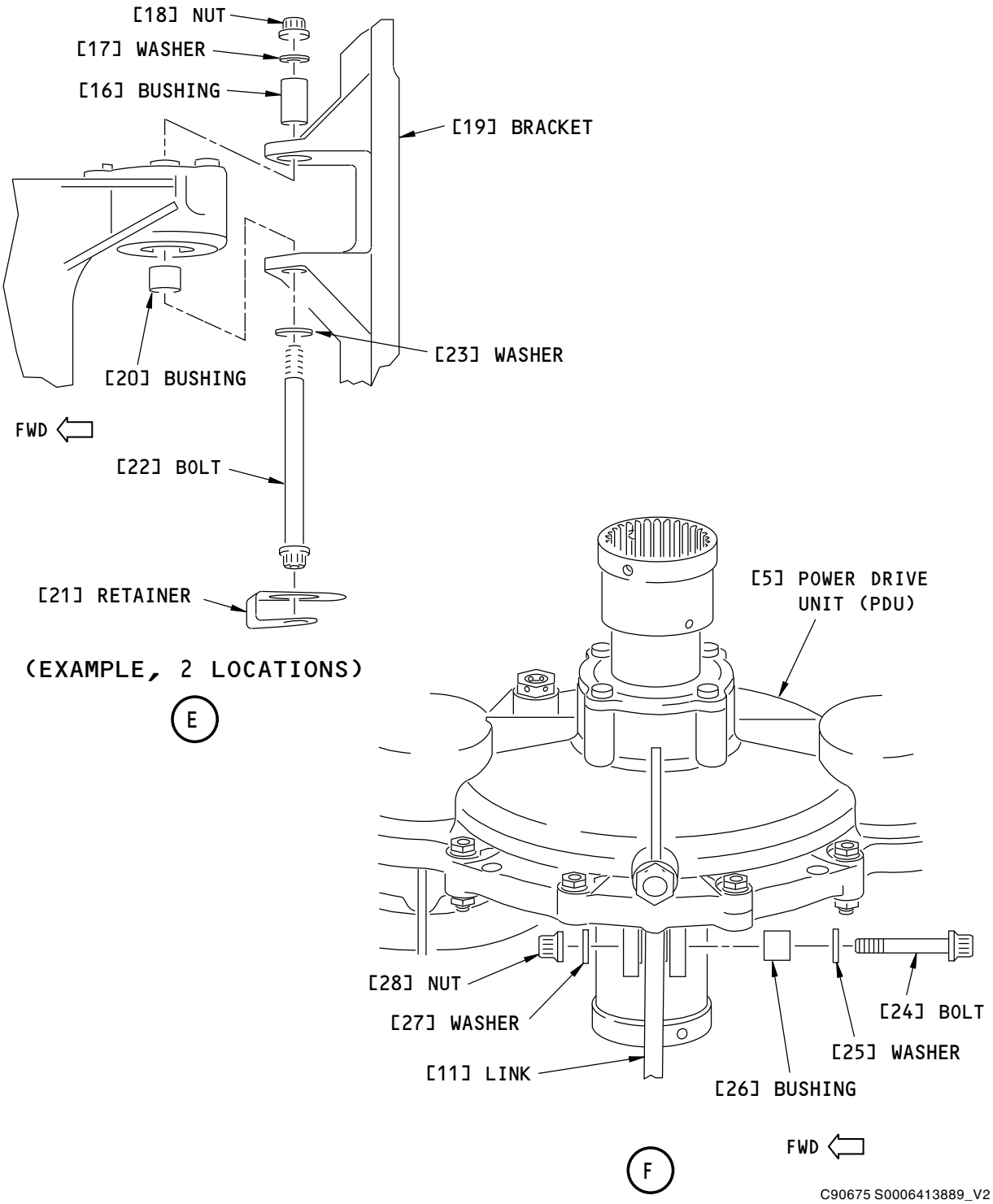
POWER DRIVE UNIT (PDU)
(VIEW FROM THE LEFT SIDE)

D

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Flap Power Drive Unit Installation
Figure 401/27-51-31-990-801 (Sheet 2 of 3)

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Flap Power Drive Unit Installation
Figure 401/27-51-31-990-801 (Sheet 3 of 3)

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TASK 27-51-31-400-801

3. Flap Power Drive Unit (PDU) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) You can install the PDU with the electric and hydraulic motors either removed or installed. This procedure covers PDU installation with the electric motor removed, and the hydraulic motor installed.

(2) It is necessary to get access to the PDU from each side of the keel beam for installation. You must connect the electric and hydraulic motors on the right side of the keel beam. You must install the PDU from the left side of the keel beam.

B. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
12-13-09-610-801	Flap PDU and Electric Motor Servicing (P/B 301)
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
27-51-00-740-803	Flap System Secondary Control Test (P/B 501)
27-51-34-400-801	Flap Electric Motor Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

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(Continued)

Reference	Description	Specification
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Power drive unit	27-51-31-05-070	ARO ALL
15	Tube assembly	27-51-38-01-110	ARO ALL

F. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
149	Aft Keel Beam

G. Flap Power Drive Unit Installation

SUBTASK 27-51-31-860-008

(1) Make sure that these circuit breakers are open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

SUBTASK 27-51-31-210-002

(2) Make sure the trailing edge flaps are in the retracted position.

SUBTASK 27-51-31-020-005

WARNING USE TWO PERSONS TO INSTALL THE PDU. THE PDU WEIGHS 83 POUNDS WITH THE ELECTRIC AND HYDRAULIC MOTORS INSTALLED. IF YOU DROP THE PDU IT CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Install the power drive unit [5]:

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(a) Put the retainers [21] on the brackets [19].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the lower surface of the bushings [16] and bushings [20].

(c) Lift the power drive unit [5] into its position through the left wheel well.

(d) Install the bushings [16] and bushings [20] on the brackets [19].

(e) Install the bolts [22] and washers [23] that attach the power drive unit [5] to the brackets [19].

(f) Move the retainers [21] over the heads of the bolts [22].

(g) Install the washers [17] and nuts [18] on the bolts [22].

(h) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the side of the bushing [26] that touches the link [11].

(i) Install the bushing [26] in the fitting on the power drive unit [5].

(j) Install the bolt [24], washer [25], washer [27] and nut [28] that attach the power drive unit [5] to the link [11].

(k) Tighten the nuts [18] and nut [28] to 100 in-lb (11 N·m) to 125 in-lb (14 N·m) plus run on torque.

SUBTASK 27-51-31-420-001

(4) In the right wheel well, connect the tube assembly [15] to the power drive unit [5]:

(a) Apply grease, D00633 to the coupling sleeve [13].

(b) Put the tube assembly [15] in its position on the power drive unit [5].

(c) Put the splined coupling [14] in the coupling sleeve [13].

(d) Install the screws [12] that attach the tube assembly [15].

(e) Tighten the screws [12].

NOTE: Do not over tighten the screws.

(f) Install the lockwire on the screws [12].

SUBTASK 27-51-31-420-004

(5) In the left wheel well, install the tube assembly [15] between the power drive unit [5] and the flap position sensor gearbox:

(a) Apply grease, D00633 to the coupling sleeve [13].

(b) Put the tube assembly [15] in its position between the power drive unit [5] and the flap position sensor gearbox.

NOTE: Connect the torque tube to the power drive unit after the flap position sensor gearbox.

(c) Put the splined coupling [14] in the coupling sleeve [13].

(d) Install the screws [12] to attach the tube assembly [15].

(e) Tighten the screws [12].

NOTE: Do not over tighten the screws.

(f) Install the lockwire on the screws [12].

SUBTASK 27-51-31-110-001

(6) Clean the jumper wire [10] terminal and the mating surface of electric motor [7] housing for electrical bonding.

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SUBTASK 27-51-31-410-001

(7) If you removed the electric motor [7], do this task: Flap Electric Motor Installation, TASK 27-51-34-400-801

SUBTASK 27-51-31-420-005

(8) Install the bolt [8] and washers [9] to attach the jumper wire [10] to the electric motor [7].

SUBTASK 27-51-31-760-001

(9) Make sure that the electric motor [7] is electrically grounded as follows:

NOTE: The steps that follow will check the electrical bond at the two ends of the jumper wire [10].

(a) With the intrinsically safe approved bonding meter, COM-1550, measure the resistance between the end of the jumper wire [10] that is attached to the electric motor [7] and the electric motor [7] housing.

1) Make sure that the resistance between the jumper wire [10] terminal and the electric motor [7] housing is less than 0.30 milliohms.

(b) With the intrinsically safe approved bonding meter, COM-1550, measure the resistance between the other end of the jumper wire [10] and the structure it is attached to.

1) Make sure that the resistance between the jumper wire [10] terminal and the structure is less than 0.30 milliohms.

SUBTASK 27-51-31-080-001

(10) Remove the T.E. flap drive shaft clamp equipment, SPL-1706 from the torque tubes.

SUBTASK 27-51-31-420-002

(11) Remove the caps and plugs and connect the hydraulic tube [1], hydraulic tube [2], and hydraulic tube [4] to the hydraulic motor [3].

(a) Tighten the B-nuts on the hydraulic tube [1] and hydraulic tube [2] to 1200 ±60 in-lb (136 ±7 N·m).

(b) Tighten the B-nut on the hydraulic tube [4] to 280 ±14 in-lb (32 ±2 N·m).

NOTE: Make sure that the plug is removed from the bottom drain port of the hydraulic motor. No drain plug or tube should be installed in this drain port.

SUBTASK 27-51-31-420-003

(12) Connect the electrical connector [6] to the electric motor [7].

SUBTASK 27-51-31-860-003

(13) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

SUBTASK 27-51-31-610-001

(14) If it is necessary, fill the power drive unit and the electric motor, (TASK 12-13-09-610-801).

SUBTASK 27-51-31-640-001

(15) For the applicable torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

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SUBTASK 27-51-31-610-002

(16) Fill the hydraulic reservoir for the center hydraulic system if it is necessary. To fill the reservoir, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

H. Flap Power Drive Unit Installation Test

SUBTASK 27-51-31-440-001

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-31-860-004

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-31-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-31-210-004

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-31-740-001

(5) Do this task: Flap System Secondary Control Test, TASK 27-51-00-740-803.

NOTE: Do the test with the flaps only.

SUBTASK 27-51-31-860-005

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-31-740-002

(7) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: Do the test with the flaps only.

SUBTASK 27-51-31-210-003

(8) Make sure there are no hydraulic fluid leaks at the hydraulic motor.

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-31-080-002

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-51-31-860-006

(2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-51-31-000-802

4. Flap Power Drive Unit Seal Removal

(Figure 402)

A. General

(1) This procedure is applicable to the seals on the power drive unit (PDU) at the attachment of the hydraulic motor, and the electric motor.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-33-400-801	Flap Hydraulic Motor Installation (P/B 401)
27-51-34-000-801	Flap Electric Motor Removal (P/B 401)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1058	Container - Oil Resistant, 1 Gallon, (4 Liter)

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
149	Aft Keel Beam

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E. Prepare for the Removal

SUBTASK 27-51-31-480-004

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-31-480-005

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-31-210-007

(3) Make sure the trailing edge flaps are in the retracted position. If the flaps are not retracted, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-31-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-31-860-009

(5) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

F. Seal Removal

SUBTASK 27-51-31-010-002

(1) To replace the seal [45] for the hydraulic motor [3], remove the hydraulic motor [3] from the power drive unit [5]. To remove it, do this task: Flap Hydraulic Motor Installation, TASK 27-51-33-400-801.

SUBTASK 27-51-31-010-003

(2) To replace the seal [45] for the electric motor [7], remove the electric motor [7] from the power drive unit [5]. To remove it, do this task: Flap Electric Motor Removal, TASK 27-51-34-000-801.

SUBTASK 27-51-31-680-001

(3) Drain the fluid from the power drive unit [5]:

(a) Put a oil resistant container 1 gal, (4 l), STD-1058 below the drain port to catch the fluid.

(b) Remove the plug [41] and the packing [42] from the drain port.

(c) Wait for the fluid to drain from the power drive unit [5].

SUBTASK 27-51-31-020-008

(4) Remove the seal [45] from the power drive unit [5]:

(a) Remove the screws [43] and the retainer [46] from the power drive unit [5].

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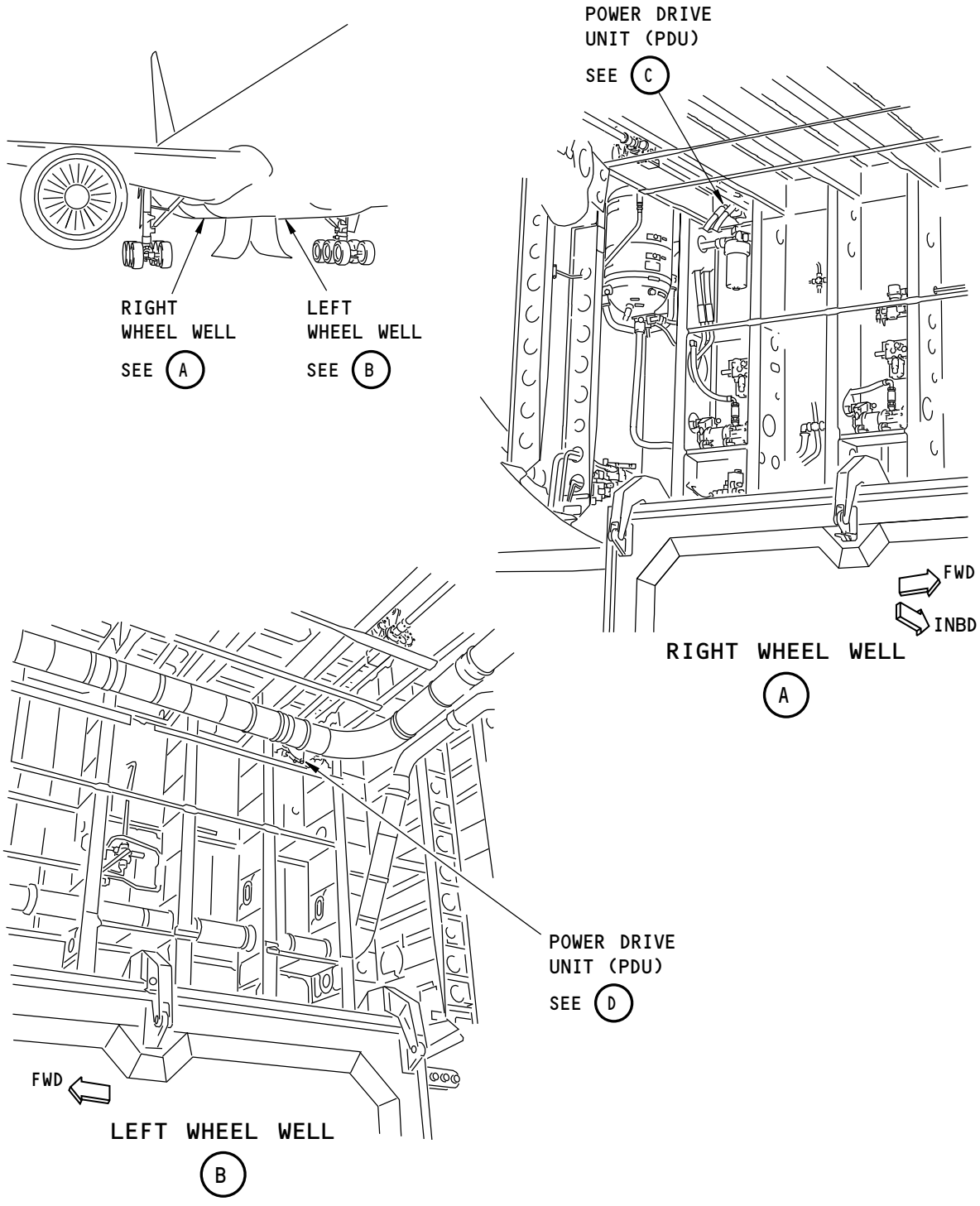
CAUTION

USE CAUTION WHEN YOU REMOVE THE SEAL FROM THE POWER DRIVE UNIT. YOU CAN SCRATCH THE PINION GEAR SHAFT, OR THE PDU HOUSING. SCRATCHES, OR OTHER DAMAGE CAN CAUSE FLUID LEAKS PAST THE NEW SEAL.

(b) Carefully remove the seal [45] from the power drive unit [5].

——— END OF TASK ———

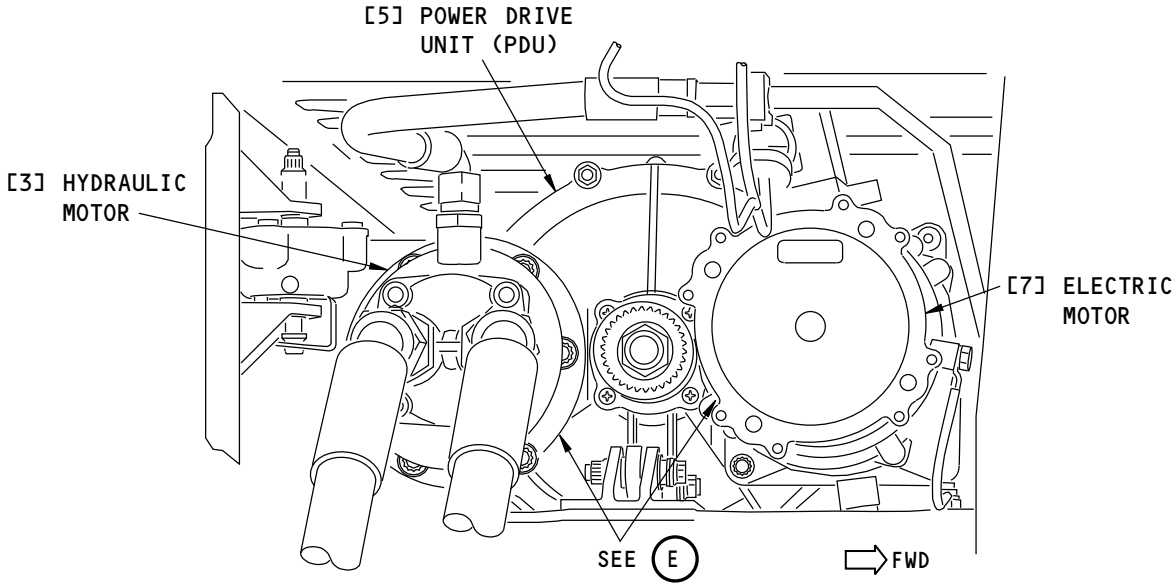
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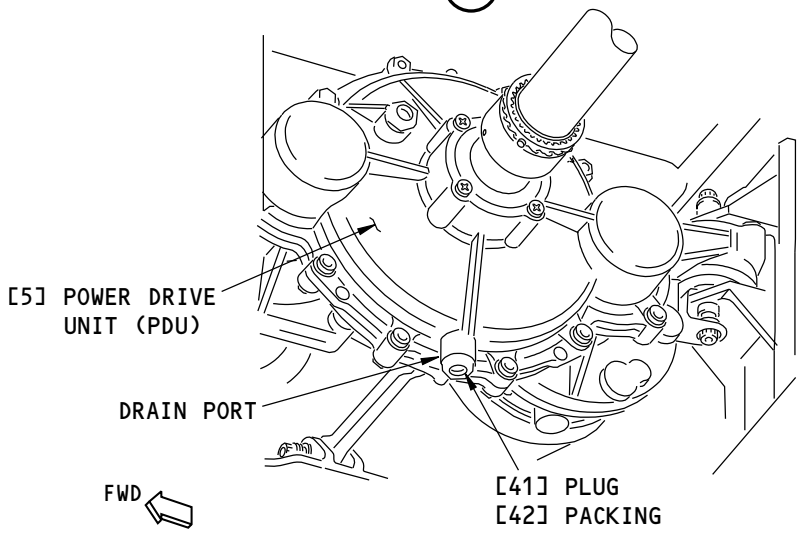
Flap Power Drive Unit Seal Installation
Figure 402/27-51-31-990-802 (Sheet 1 of 3)

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POWER DRIVE UNIT (PDU)
(VIEW FROM THE RIGHT SIDE)
(TORQUE TUBE REMOVED FOR CLARITY)

C



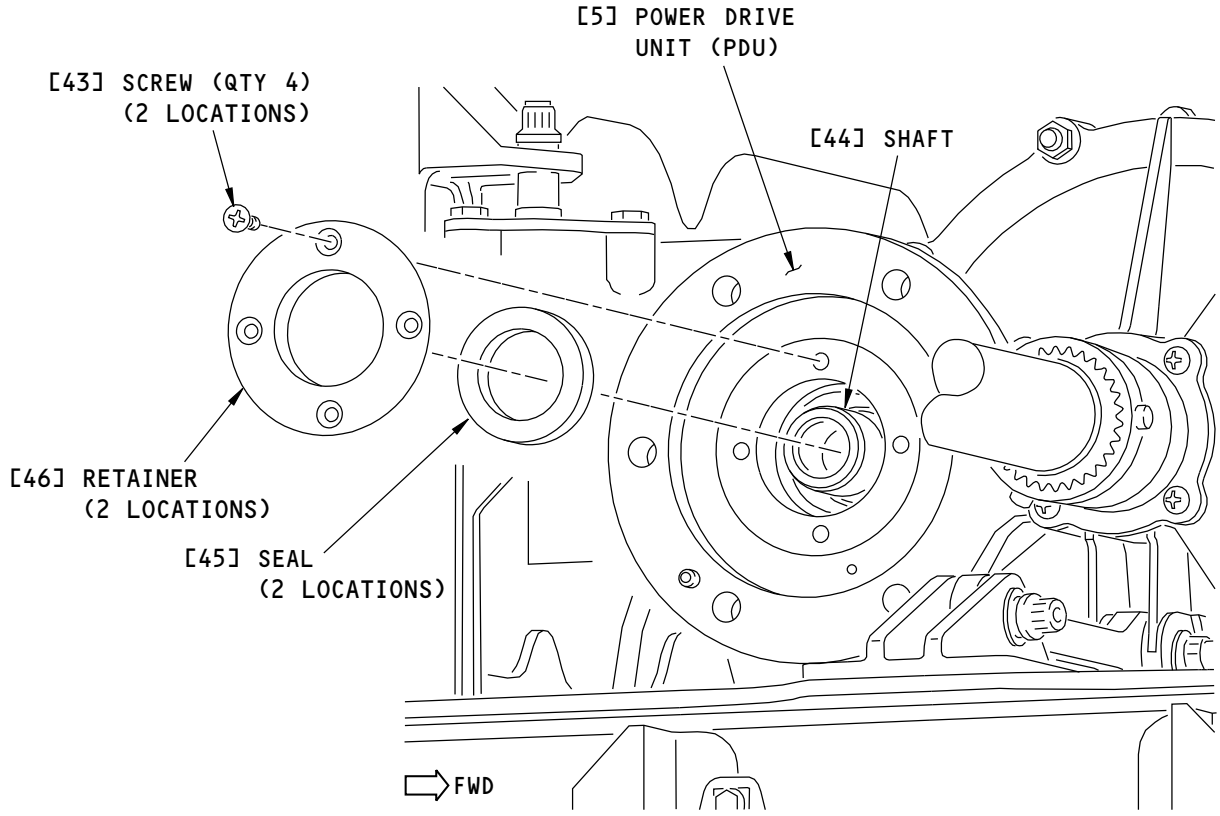
POWER DRIVE UNIT (PDU)
(VIEW FROM THE LEFT SIDE)

D

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Flap Power Drive Unit Seal Installation
Figure 402/27-51-31-990-802 (Sheet 2 of 3)

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(EXAMPLE)
(MOTOR REMOVED)

E

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Flap Power Drive Unit Seal Installation
Figure 402/27-51-31-990-802 (Sheet 3 of 3)

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TASK 27-51-31-400-802

5. Flap Power Drive Unit Seal Installation

(Figure 402)

A. General

(1) This procedure is applicable to the seals on the power drive unit (PDU) at the attachment of the hydraulic motor, and the electric motor.

B. References

Reference	Title
12-13-09-610-801	Flap PDU and Electric Motor Servicing (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
27-51-00-740-803	Flap System Secondary Control Test (P/B 501)
27-51-33-400-801	Flap Hydraulic Motor Installation (P/B 401)
27-51-34-400-801	Flap Electric Motor Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1755	Sleeve - Tool Set, Seal Installation (-17 is Part of -1 Set) Part #: J27058-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
D50011	Grease - Perfluoropolyether - Christo-lube MCG111	
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right
149	Aft Keel Beam

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F. Seal Installation

SUBTASK 27-51-31-020-009

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the seal [45] on the power drive unit [5]:

(a) Make sure the seal [45], and the mating surfaces on the power drive unit [5] are clean.

(b) Lubricate the new seal [45], and the mating surfaces on the power drive unit [5] with fluid, D00070.

CAUTION MAKE SURE YOU PROTECT THE SEAL LIP DURING THE INSTALLATION. THE SPLINES ON THE SHAFT [44] CAN CAUSE DAMAGE TO THE SEAL.

(c) Use a seal installation sleeve, SPL-1755 to install the seal [45] in the power drive unit [5].

NOTE: If the sleeve is not available, you can use hand pressure to install the seal [45]. You can use the retainer [46] to protect the seal lip, and to get the correct seal depth.

1) Insert the seal [45] to a depth of 0.318 to 0.328 inch (8.08 to 8.33 mm).

NOTE: There are two types of seal retainers used on the PDU.

(d) To install the plain retainer [46], do the following steps:

1) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the flange of the retainer [46], and to the shank and threads of the screws [43].

2) Install the retainer [46] and the screws [43] on the power drive unit [5]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(e) To install the retainer [46] with the excluder seal (and O-ring), do the following steps:

1) Apply a layer of Cor-Ban 27L Compound, G50237, to the flange of the retainer [46] and to the shank and threads of the screws [43].

2) Make sure the seal bore in the power drive unit [5] is clean.

3) Lubricate the seal bore in the power drive unit [5] with the Christo-lube MCG111 grease, D50011.

4) Lubricate the excluder seal lips (and O-ring) on the retainer [46] with the Christo-lube MCG111 grease, D50011.

5) Install the retainer [46] and the screws [43] on the power drive unit [5]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

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SUBTASK 27-51-31-680-002

(2) Install the plug [41] in the power drive unit [5]:

(a) Lubricate the new packing [42] with fluid, D00070.

(b) Install the plug [41] and the packing [42] in the drain port.

(c) Tighten the plug [41] to 110-130 pound-inches plus run-on torque.

(d) Install lockwire on the plug [41].

SUBTASK 27-51-31-410-002

(3) If you removed the electric motor [7], then, do this task: Flap Electric Motor Installation, TASK 27-51-34-400-801

SUBTASK 27-51-31-410-003

(4) If you removed the hydraulic motor [3], then, do this task: Flap Hydraulic Motor Installation, TASK 27-51-33-400-801

SUBTASK 27-51-31-610-003

(5) Fill the power drive unit [5] and the electric motor [7] with fluid, D00070. To fill them, (TASK 12-13-09-610-801).

G. Flap Power Drive Unit Installation Test

SUBTASK 27-51-31-440-002

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-31-860-010

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-31-210-009

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-31-210-010

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-31-740-003

(5) Do this task: Flap System Secondary Control Test, TASK 27-51-00-740-803.

NOTE: Do the test with the flaps only.

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SUBTASK 27-51-31-860-011

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-31-740-004

(7) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: Do the test with the flaps only.

SUBTASK 27-51-31-210-011

(8) Make sure there are no fluid leaks at the hydraulic, or electric motors.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-31-080-003

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

SUBTASK 27-51-31-860-012

(2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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FLAP LIMIT SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the limit switch for the trailing edge flaps.

(2) An installation of the limit switch for the trailing edge flaps.

B. The limit switch is installed on the flap position sensor gearbox in the right main wheel well.

C. The trailing edge flaps must be in the retracted position during the removal and installation of the limit switch.

TASK 27-51-32-000-801

2. Flap Limit Switch Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-51-32-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-32-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-32-210-004

(3) Make sure the flaps are in the retracted position. If they are not retracted, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

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SUBTASK 27-51-32-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

D. Flap Limit Switch Removal

SUBTASK 27-51-32-210-001

(1) Make sure the index marks for the rig indicator [4] on the flap position sensor gearbox [1] are aligned.

(a) If the index marks are not aligned, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-32-860-001

(2) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-51-32-020-001

(3) Disconnect the electrical connector [3] from the flap limit switch [2].

SUBTASK 27-51-32-020-002

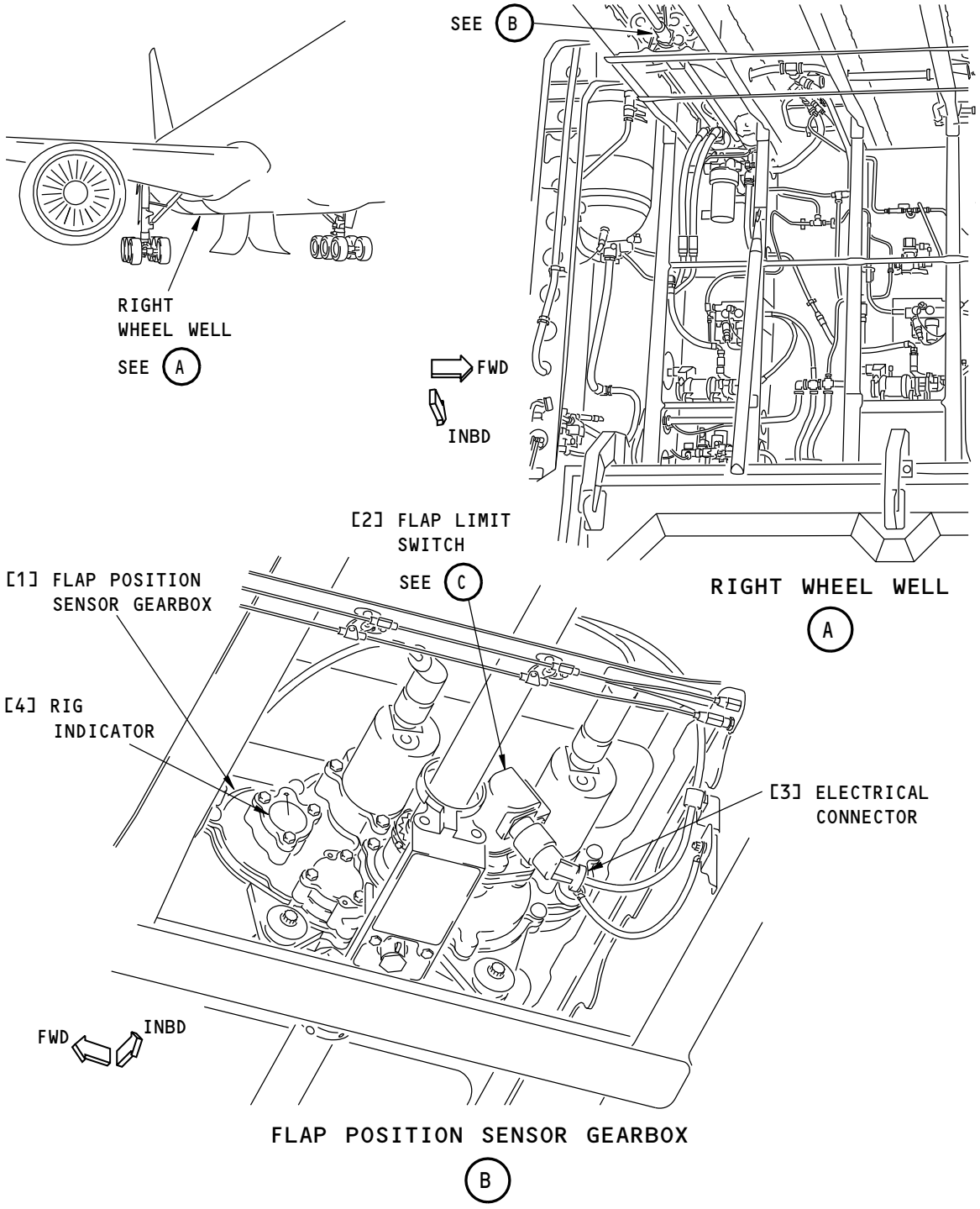
(4) Remove the flap limit switch [2]:

(a) Remove the bolts [5] and washers [11] that attach the flap limit switch [2] to the position sensor gearbox [1].

(b) Remove the flap limit switch [2].

——— END OF TASK ———

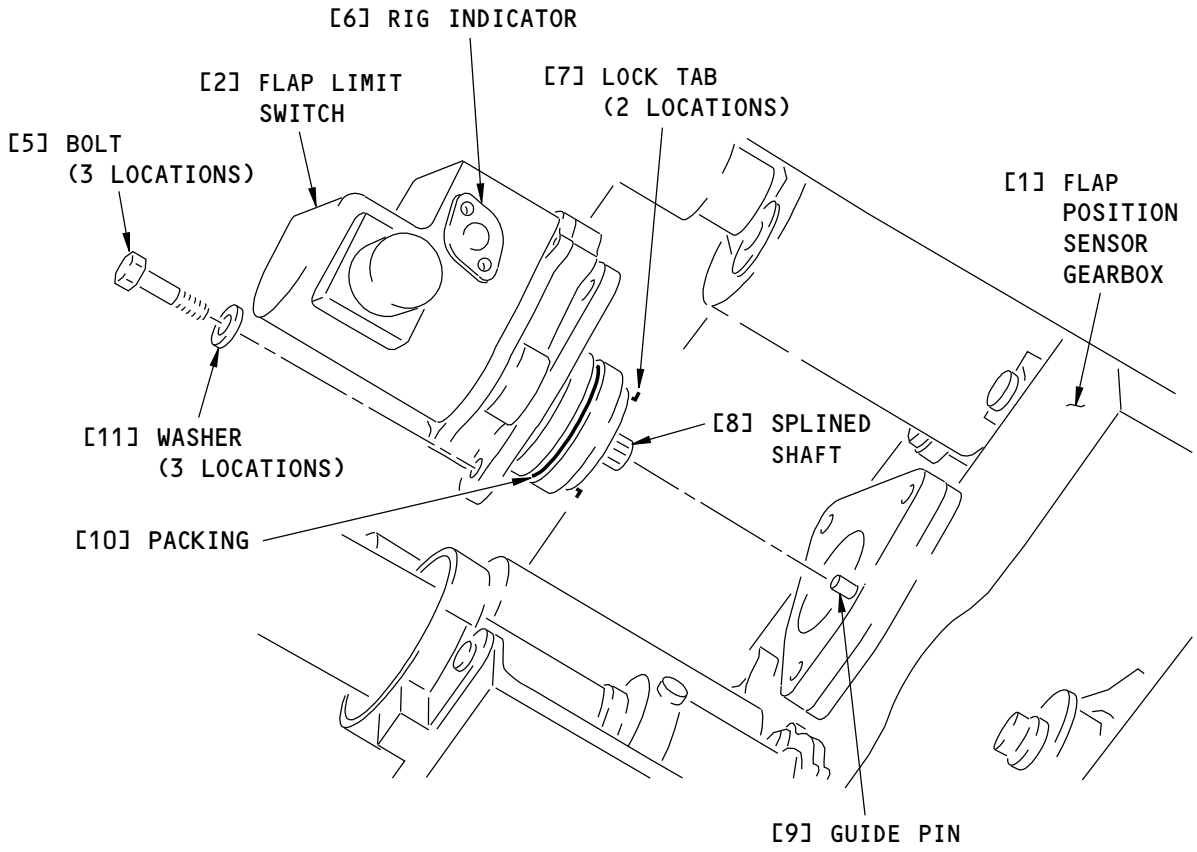
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Flap Limit Switch Installation
Figure 401/27-51-32-990-801 (Sheet 1 of 2)

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FLAP LIMIT SWITCH

C

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Flap Limit Switch Installation
Figure 401/27-51-32-990-801 (Sheet 2 of 2)

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TASK 27-51-32-400-801

3. Flap Limit Switch Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-720-802	Flap System Alternate Control Test (P/B 501)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Flap limit switch	27-51-32-01-025	ARO ALL
10	Packing	27-51-32-01-030	ARO ALL

D. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

E. Flap Limit Switch Installation

SUBTASK 27-51-32-210-002

(1) Make sure the flaps are in the retracted position. If they are not retracted, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-51-32-860-005

(2) Make sure that this circuit breaker is open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-51-32-210-003

(3) Make sure the index marks for the rig indicator [6] on the flap position sensor gearbox [1] are aligned.

NOTE: If the index marks are not aligned, the limit switch will not be adjusted correctly.

(a) If the index marks are not aligned, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

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SUBTASK 27-51-32-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Install the flap limit switch [2]:

(a) Apply grease, D00633 to the packing [10].

(b) Install the packing [10] on the flap limit switch [2].

(c) Apply grease, D00633 to the splines on the splined shaft [8] for the flap limit switch [2].

(d) Fill the area on the flap limit switch [2] around the splined shaft [8] with grease, D00633.

(e) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surface of the flap limit switch [2] and the flap position sensor gearbox [1].

(f) Put the flap limit switch [2] in the flap position sensor gearbox [1]:

1) Engage the flap limit switch [2] with the opening in the flap position sensor gearbox [1].

2) Engage the guide pin [9] on the flap position sensor gearbox [1] with the hole in the flap limit switch [2].

3) Engage the splined shaft [8] with the splines on the flap position sensor gearbox [1].

NOTE: This will disengage the lock tab [7] in the flap limit switch [2]. You can turn the flap limit switch [2] a small amount to engage the splines.

(g) Install the bolts [5] and washers [11] that attach the flap limit switch [2].

(h) Install lockwire on the bolts [5].

(i) Make sure the bars on the rig indicator [6] on the flap limit switch [2] are still aligned.

SUBTASK 27-51-32-420-002

(5) Connect the electrical connector [3] to the flap limit switch [2].

SUBTASK 27-51-32-860-002

(6) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

F. Flap Limit Switch Installation Test

SUBTASK 27-51-32-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-32-440-001

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-32-710-001

(3) Do this task: Flap System Alternate Control Test, TASK 27-51-00-720-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-32-080-001

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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FLAP HYDRAULIC MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the hydraulic motor for the trailing edge flaps.

(2) An installation of the hydraulic motor for the trailing edge flaps.

B. The hydraulic motor for the trailing edge flaps is installed in the right wheel well on the Power Drive Unit (PDU).

C. The hydraulic motor weighs approximately 17 pounds.

TASK 27-51-33-000-801

2. Flap Hydraulic Motor Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-51-33-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-33-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

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SUBTASK 27-51-33-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-33-860-001

(4) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

D. Flap Hydraulic Motor Removal

SUBTASK 27-51-33-020-001

(1) Disconnect the hydraulic tubes [2], [4] and [5] from the motor assembly [1].

(a) Install caps on the hydraulic tubes [2], [4] and [5].

(b) Install plugs in the ports of the motor assembly [1].

NOTE: A plug should be installed in the bottom of the motor drain port.

SUBTASK 27-51-33-020-002

(2) Remove the motor assembly [1]:

(a) Remove the bolts [15] and washers [14] that attach the motor assembly [1] to the PDU [3].

(b) Remove the motor assembly [1].

SUBTASK 27-51-33-020-003

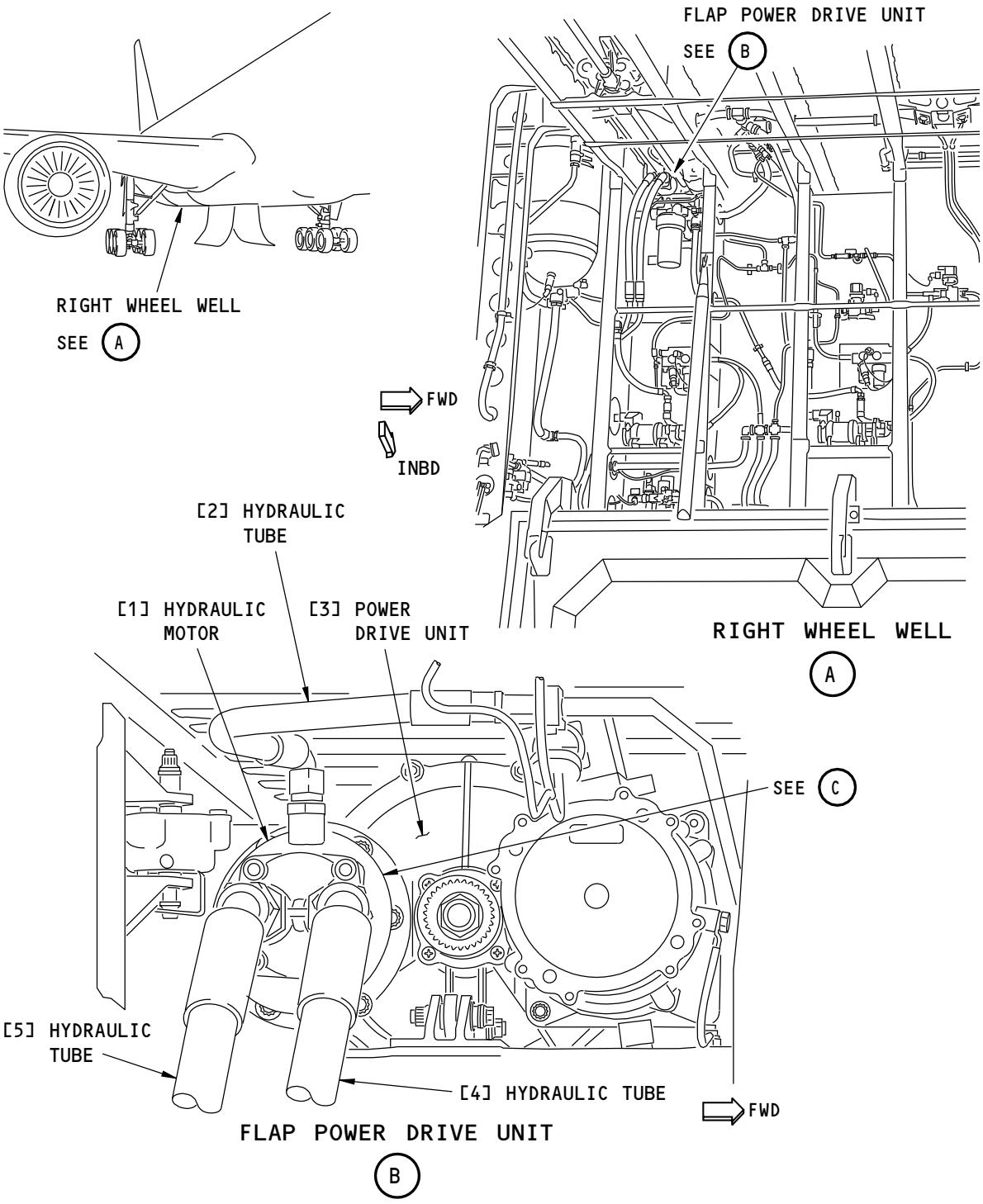
(3) If you will install a new motor assembly [1], remove the hydraulic fittings:

(a) Remove the union [10] and packing [11] from the motor assembly [1].

(b) Remove the adapters [6], packings [7], rings [8] and packings [9] from the motor assembly [1].

END OF TASK

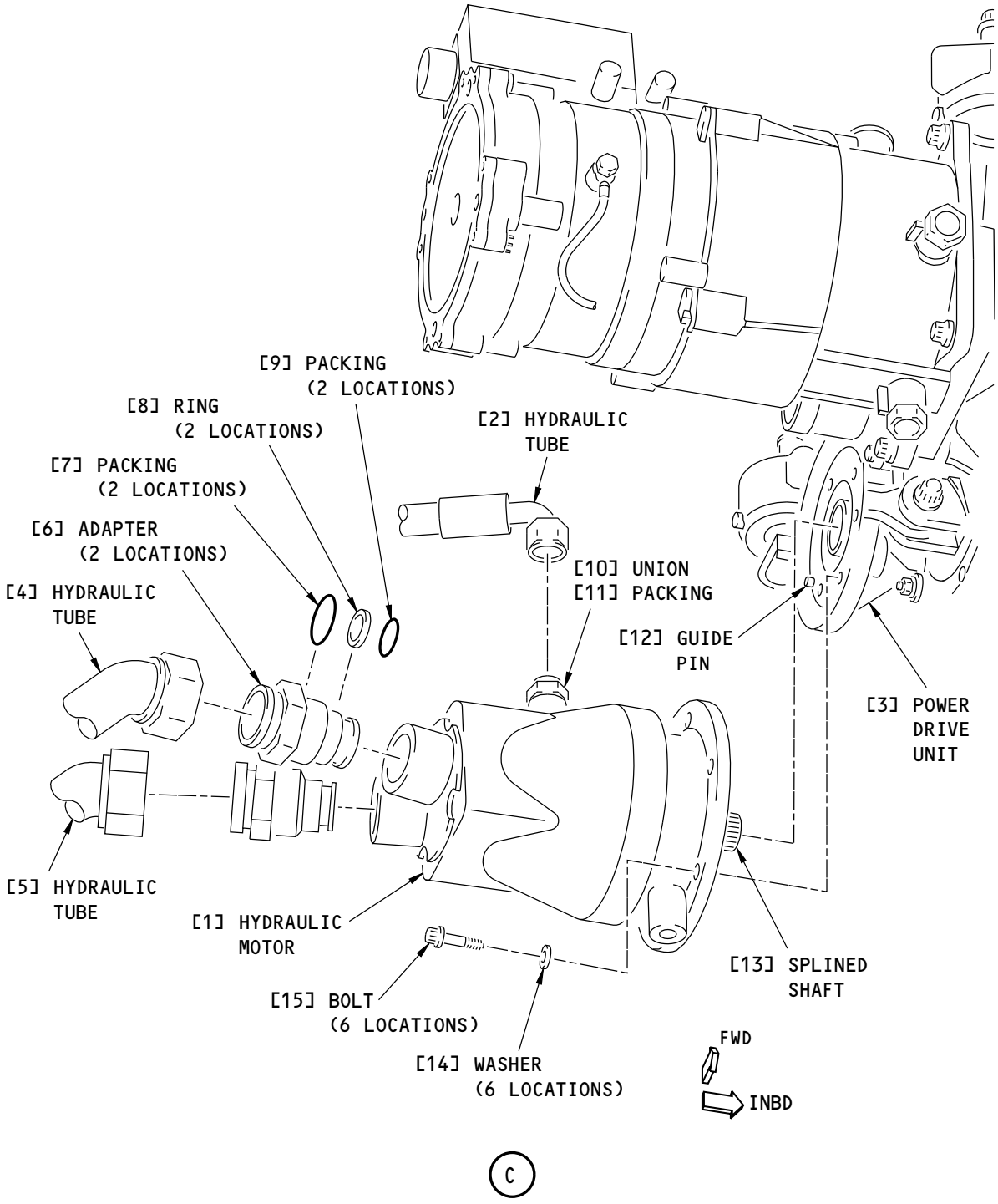
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Flap Hydraulic Motor Installation
Figure 401/27-51-33-990-801 (Sheet 1 of 2)

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Flap Hydraulic Motor Installation
Figure 401/27-51-33-990-801 (Sheet 2 of 2)

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TASK 27-51-33-400-801

3. Flap Hydraulic Motor Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00016	Grease - Aircraft, General Purpose, Wide Temperature Range	MIL-PRF-81322
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Motor assembly	27-51-33-01-035	ARO ALL
		27-81-33-01-040	ARO ALL

D. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

E. Flap Hydraulic Motor Installation

SUBTASK 27-51-33-420-001

(1) If you will install a new motor assembly [1], install the hydraulic fittings:

(a) Apply fluid, D00070 to packings [7], packings [9] and packing [11].

(b) Install the packing [11] and union [10] in the motor assembly [1].

(c) Install the packings [9], rings [8], packings [7] and adapters [6] in the motor assembly [1].

SUBTASK 27-51-33-420-002

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING	DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Install the motor assembly [1]:

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the mating surfaces of the motor assembly [1] and the PDU [3].

(b) Apply a layer of grease, D00016 to the splined shaft [13] on the motor assembly [1] and the splines on the PDU [3].

(c) Fill the space between the motor assembly [1] and the PDU [3] with grease, D00016.

(d) Engage the splined shaft [13] on the motor assembly [1] with the splines in the PDU [3].

(e) Engage the hole in the motor assembly [1] with the guide pin [12] on the PDU [3].

(f) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the shank and threads of the bolts [15].

(g) Install the bolts [15] and washers [14] to attach the motor assembly [1].

(h) Tighten the bolts [15] to 216 in-lb (24 N·m) - 264 in-lb (30 N·m).

(i) Install lockwire on the bolts [15].

SUBTASK 27-51-33-080-001

(3) Remove the caps from the hydraulic tubes [2], [4] and [5] and the plugs from the hydraulic ports.

NOTE: Make sure that the plug is removed from the bottom drain port of the hydraulic motor. No drain plug or tube should be installed in this drain port.

SUBTASK 27-51-33-420-003

(4) Connect the hydraulic tube [4], hydraulic tube [5] and hydraulic tube [2] to the motor assembly [1]:

(a) Connect the hydraulic tube [4] and hydraulic tube [5] to the adapters [6] of the motor assembly [1].

1) Tighten the B-nuts on the hydraulic tube [4] and hydraulic tube [5] to 1200 ±60 in-lb (136 ±7 N·m).

(b) Connect the hydraulic tube [2] to the union [10] of the motor assembly [1].

1) Tighten the B-nut on the hydraulic tube [2] to 280 ±14 in-lb (32 ±2 N·m).

SUBTASK 27-51-33-610-001

(5) Fill the reservoir for the center hydraulic system if it is necessary. To fill the reservoir, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

F. Flap Hydraulic Motor Installation Test

SUBTASK 27-51-33-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-33-440-001

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-33-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-51-33-860-003

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-33-740-001

(5) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: Do the TEST OF FLAPS ONLY with one of the two FSEUs.

SUBTASK 27-51-33-210-002

(6) Make sure there are no hydraulic fluid leaks at the motor assembly [1].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-33-860-004

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-33-080-002

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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FLAP ELECTRIC MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the electric motor for the trailing edge flaps.

(2) An installation of the electric motor for the trailing edge flaps.

B. The electric motor for the trailing edge flaps is installed in the right wheel well on the PDU.

C. The electric motor weighs approximately 37 pounds.

TASK 27-51-34-000-801

2. Flap Electric Motor Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-51-34-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-34-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-34-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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D. Trailing Edge PDU Electric Motor Removal

SUBTASK 27-51-34-860-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

SUBTASK 27-51-34-020-001

(2) Disconnect the electrical connector [2] from the electric motor [3].

SUBTASK 27-51-34-020-002

(3) Remove the electric motor [3]:

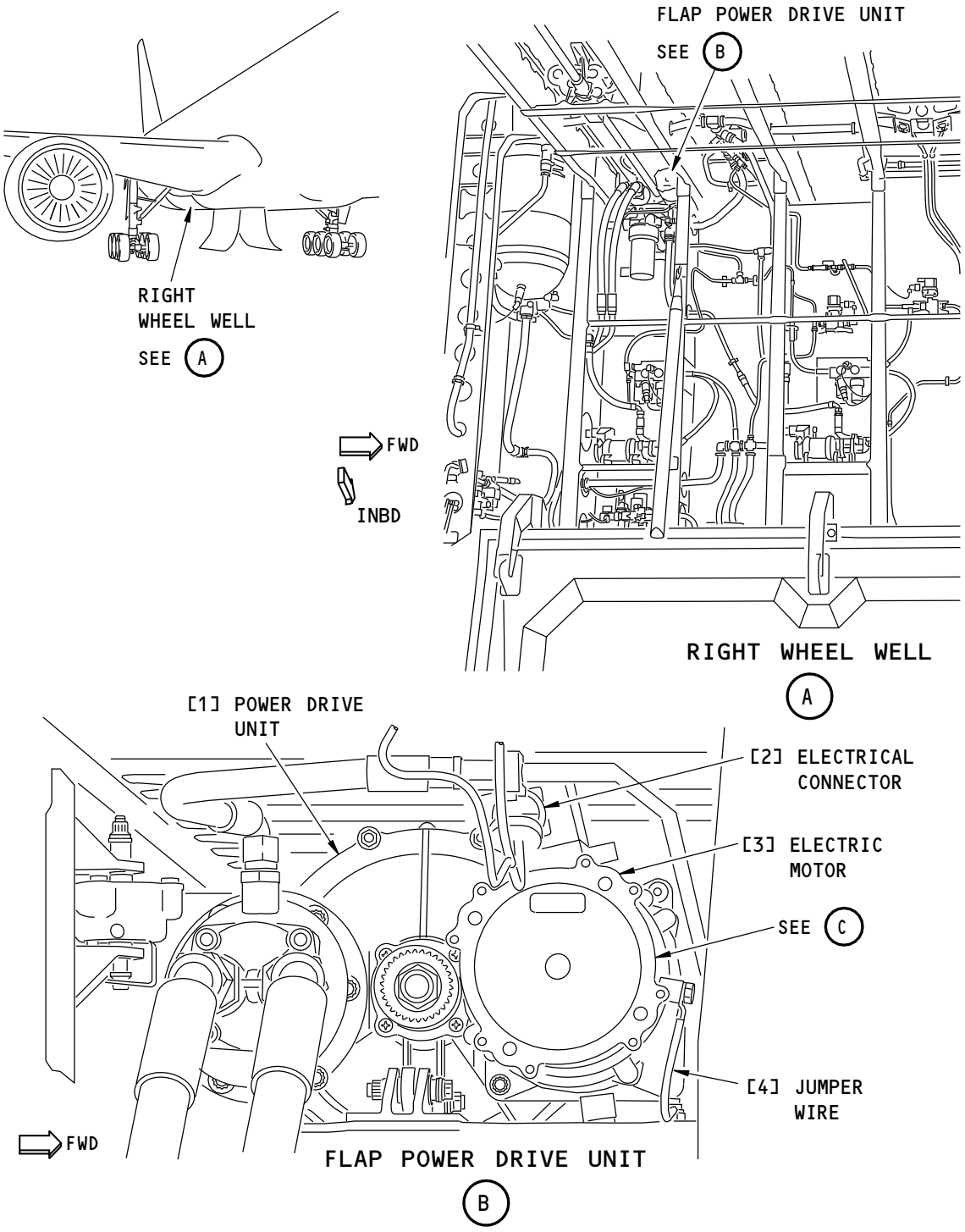
(a) Remove the bolt [5] and washers [6] that attach the jumper wire [4] to the electric motor [3].

(b) Remove the bolts [7] and washers [8] that attach the electric motor [3] to the PDU [1].

(c) Remove the electric motor [3] from the PDU [1].

——— END OF TASK ———

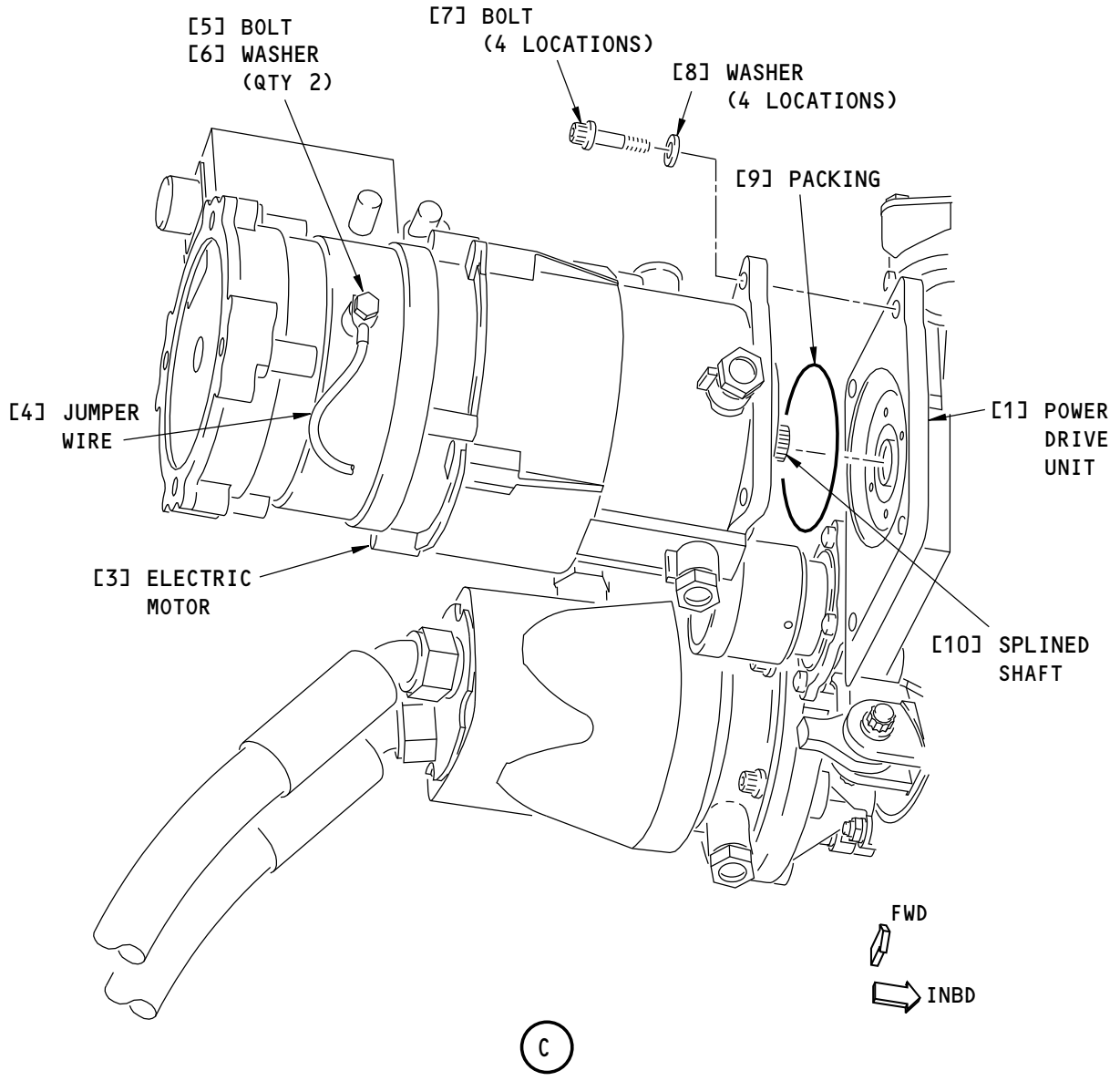
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Flap Electric Motor Installation
Figure 401/27-51-34-990-801 (Sheet 1 of 2)

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Flap Electric Motor Installation
Figure 401/27-51-34-990-801 (Sheet 2 of 2)

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TASK 27-51-34-400-801

3. Flap Electric Motor Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-13-09-610-801	Flap PDU and Electric Motor Servicing (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-740-803	Flap System Secondary Control Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00016	Grease - Aircraft, General Purpose, Wide Temperature Range	MIL-PRF-81322
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Electric motor	27-51-34-01-020	ARO ALL

E. Location Zones

Zone	Area
144	Main Landing Gear Wheel Right

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F. Flap Electric Motor Installation

SUBTASK 27-51-34-860-005

(1) Make sure that these circuit breakers are open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

SUBTASK 27-51-34-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Install the electric motor [3].

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the electric motor [3] and the PDU [1].

(b) Apply a layer of grease, D00016 to the splined shaft [10] on the electric motor [3] and the splines on the PDU [1].

(c) Fill the space between the electric motor [3] and the PDU [1] with grease, D00016.

(d) Apply grease, D00016 to the packing [9] for the electric motor [3].

(e) Install the packing [9] on the electric motor [3].

(f) Put the electric motor [3] in its position on the PDU [1].

(g) Engage the splined shaft [10] on the electric motor [3] with the splines in the PDU [1].

(h) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [7].

(i) Install the bolts [7] and washers [8] that attach the electric motor [3] to the PDU [1]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(j) Install lockwire on the bolts [7].

SUBTASK 27-51-34-420-002

(3) Connect the jumper wire [4] to the electric motor [3].

(a) Install the bolt [5] and washers [6] to attach the jumper wire [4] to the electric motor [3].

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(b) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the electric motor [3] and the structure is less than 0.30 milliohms (WDM D6-54446).

SUBTASK 27-51-34-420-003

(4) Connect the electrical connector [2] to the electric motor [3].

SUBTASK 27-51-34-610-001

(5) If it is necessary, for the electric motor [3], do this task: Flap PDU and Electric Motor Servicing, TASK 12-13-09-610-801.

G. Flap Electric Motor Installation Test

SUBTASK 27-51-34-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-34-860-003

(2) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

SUBTASK 27-51-34-440-001

(3) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-34-210-001

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU OPERATE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR FULLY CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-51-34-740-001

(5) Do this task: Flap System Secondary Control Test, TASK 27-51-00-740-803.

NOTE: It is only necessary to do the test for the FLAPS ONLY with one of the two FSEUs.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-34-080-001

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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TE FLAP SIDE OF BODY ANGLE GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the side of body angle gearbox for the trailing edge flaps.

(2) An installation of the side of body angle gearbox for the trailing edge flaps.

TASK 27-51-35-000-801

2. TE Flap Side of Body Angle Gearbox Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

D. Prepare for the Removal

SUBTASK 27-51-35-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-51-35-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

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SUBTASK 27-51-35-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. TE Flap Side of Body Angle Gearbox Removal

SUBTASK 27-51-35-480-003

(1) Install a T.E. flap drive shaft clamp equipment, SPL-1706, on torque tubes [4] inboard and outboard of the side of body angle gearbox [1] you will remove.

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. In the left wheel well, between the PDU and transmission No. 4, the torque tubes will turn clockwise as you look outboard. In the right wheel well outboard of the PDU and outboard of the transmissions, the torque tubes will turn counterclockwise.

SUBTASK 27-51-35-020-001

(2) Disconnect the torque tubes [4] from the side of body angle gearbox [1]:

(a) Remove the screws [5] that attach the coupling sleeves [2] to the splined couplings [3].

(b) Move the coupling sleeves [2] off the splined couplings [3].

SUBTASK 27-51-35-020-002

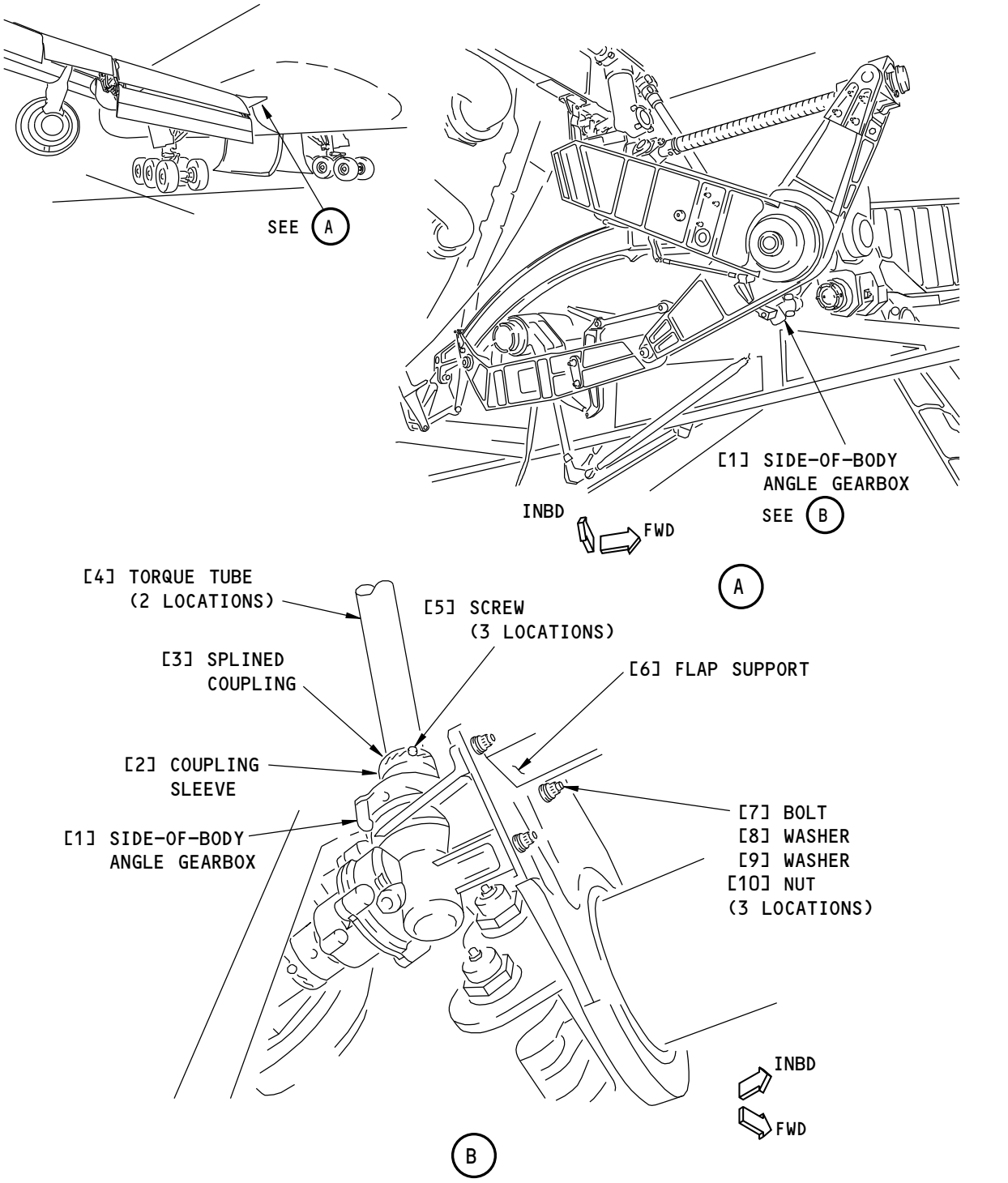
(3) Remove the side of body angle gearbox [1]:

(a) Remove the nuts [10], washers [8], washers [9] and bolts [7] that attach the side of body angle gearbox [1] to the flap support [6].

(b) Remove the side of body angle gearbox [1].

END OF TASK

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Side-of-Body Angle Gearbox Installation
Figure 401/27-51-35-990-801

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TASK 27-51-35-400-801

3. TE Flap Side of Body Angle Gearbox Installation

(Figure 401)

A. References

Reference	Title
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Side of body angle gearbox	27-51-35-01-030	ARO ALL
		27-51-35-01-035	ARO ALL

E. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

F. TE Flap Side of Body Angle Gearbox Installation

SUBTASK 27-51-35-420-001

(1) Install the side of body angle gearbox [1]:

(a) Put the side of body angle gearbox [1] in its position on the flap support [6].

(b) Install the bolts [7], washers [8], washers [9] and nuts [10] that attach the side of body angle gearbox [1].

SUBTASK 27-51-35-420-002

(2) Connect the torque tubes [4] to the side of body angle gearbox [1]:

(a) Put the torque tube [4] in its position.

(b) Apply grease, D00633, to the coupling sleeves [2].

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(c) Put the coupling sleeves [2] on the splined couplings [3].

(d) Install the screws [5] to attach the coupling sleeves [2].

(e) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

(f) Install the lockwire on the screws [5].

SUBTASK 27-51-35-080-001

(3) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tubes [4].

SUBTASK 27-51-35-820-001

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-35-640-001

(5) For the applicable torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

SUBTASK 27-51-35-440-001

(6) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-35-860-001

(7) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-35-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-35-210-003

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-35-210-001

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(10) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-35-710-001

(11) Use the primary system to extend the flaps to the 5-unit position. To extend the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

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SUBTASK 27-51-35-710-002

(12) Use the primary system to retract the flaps to the UP position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

G. Put the Airplane Back To Its Usual Condition

SUBTASK 27-51-35-860-003

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-35-080-002

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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TE FLAP REAR SPAR ANGLE GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rear spar angle gearbox for the trailing edge flaps

(2) An installation of the rear spar angle gearbox for the trailing edge flaps.

TASK 27-51-36-000-801

2. TE Flap Rear Spar Angle Gearbox Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

C. Location Zones

Zone	Area
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

D. Access Panels

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

E. Procedure

SUBTASK 27-51-36-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-36-010-001

(2) On the lower surface of the wing, remove the applicable access panels:

(TASK 06-30-00-800-806), (TASK 06-30-00-800-807)

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

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SUBTASK 27-51-36-480-001

(3) Install T.E. flap drive shaft clamp equipment, SPL-1706, on torque tubes [10] inboard and outboard of the rear spar angle gearbox [1].

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. As you look outboard, the torque tubes outboard of the transmissions will turn counterclockwise for the left and right wings.

SUBTASK 27-51-36-020-001

(4) Disconnect the torque tubes [10] from the rear spar angle gearbox [1]:

(a) Remove the screws [9] that attach the coupling sleeves [7] to the splined couplings [8].

(b) Move the coupling sleeves [7] off the splined couplings [8].

SUBTASK 27-51-36-020-002

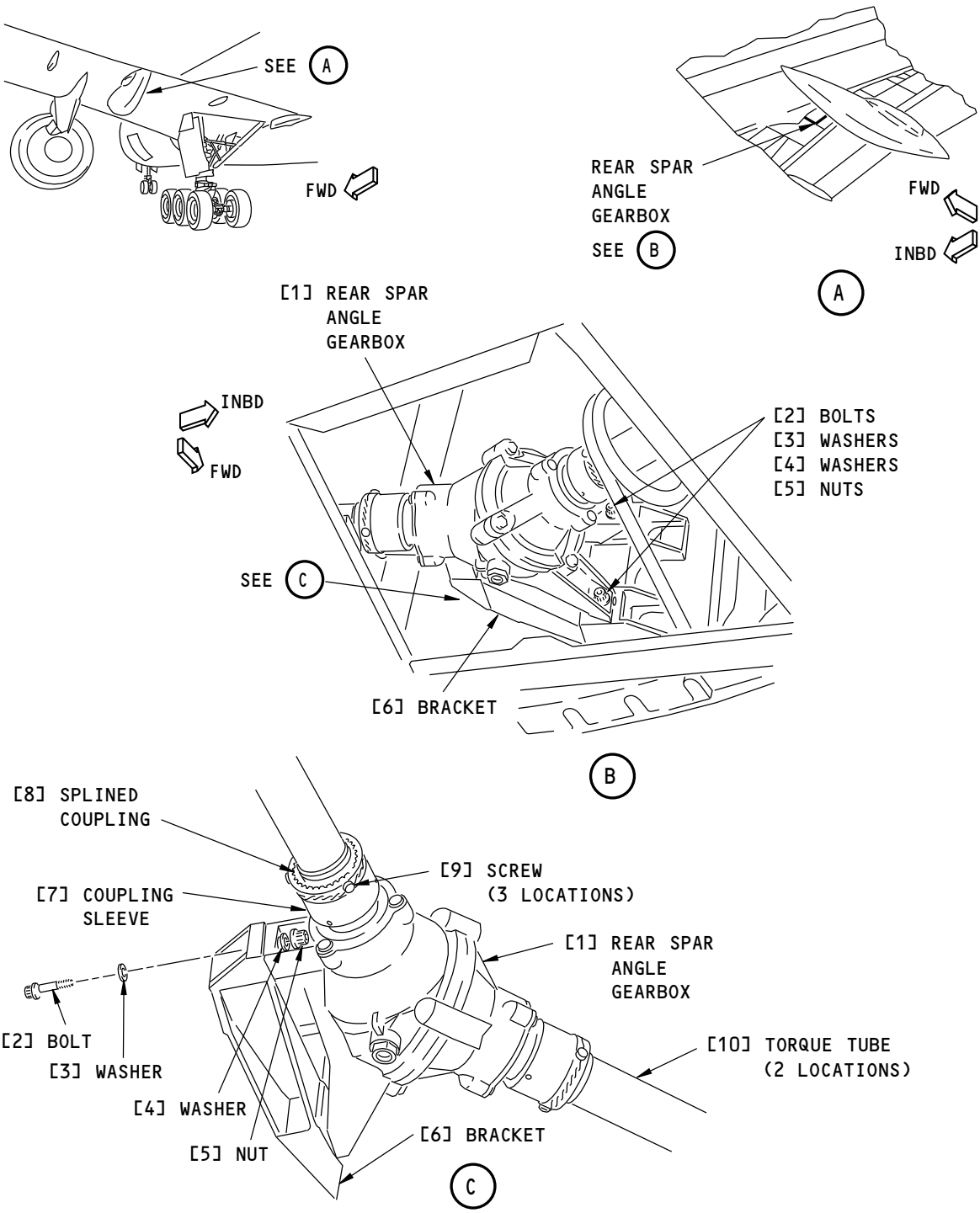
(5) Remove the rear spar angle gearbox [1]:

(a) Remove the nuts [5], washers [3], washers [4] and bolts [2] that attach the rear spar angle gearbox [1] to the bracket [6].

(b) Remove the rear spar angle gearbox [1].

——— END OF TASK ———

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Rear Spar Angle Gearbox Installation
Figure 401/27-51-36-990-801

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TASK 27-51-36-400-801

3. TE Flap Rear Spar Angle Gearbox Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Rear spar angle gearbox	27-51-36-01-030	ARO ALL
		27-51-36-01-035	ARO ALL

E. Location Zones

Zone	Area
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

F. Access Panels

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

G. TE Flap Rear Spar Angle Gearbox Installation

SUBTASK 27-51-36-420-001

(1) Install the rear spar angle gearbox [1]:

(a) Put the rear spar angle gearbox [1] in its position on the bracket [6].

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(b) Install the bolts [2], washers [3], washers [4] and nuts [5] that attach the rear spar angle gearbox [1].

NOTE: Install the outboard bolt [2] with the head forward.

SUBTASK 27-51-36-420-002

(2) Connect the torque tubes [10] to the rear spar angle gearbox [1]:

(a) Apply grease, D00633 to the coupling sleeves [7].

(b) Put the splined couplings [8] in the coupling sleeves [7].

(c) Install the screws [9] that attach the coupling sleeves [7].

(d) Tighten the screws [9].

NOTE: Do not over tighten the screws [9].

(e) Install lockwire on the screws [9].

SUBTASK 27-51-36-080-001

(3) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tubes [10] inboard and outboard of the rear spar angle gearbox [1].

SUBTASK 27-51-36-820-001

(4) If a torque tube turned while they were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-36-640-001

(5) For the applicable torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

SUBTASK 27-51-36-860-001

(6) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-36-440-001

(7) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-36-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-36-210-003

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Make sure the thrust reverser cowls are closed.

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SUBTASK 27-51-36-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(10) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-36-710-001

(11) Use the primary system to extend the flaps to the 5-unit position. To extend the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-36-710-002

(12) Use the primary system to retract the flaps to the UP position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-51-36-860-003

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-36-410-001

(2) On the lower surface of the wing, install the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

END OF TASK

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TRAILING EDGE TORQUE TUBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A task to remove the torque tubes outboard of the No. 3 or 6 transmission

(2) A task to install the torque tubes outboard of the No. 3 or 6 transmission

(3) A task to remove the torque tubes between transmissions No. 3 or No. 6 and the side of body angle gearboxes

(4) A task to install the torque tubes between transmissions No. 3 or No. 6 and the side of body angle gearboxes

(5) A task to remove the torque tubes in the main landing gear wheel well

(6) A task to install the torque tubes in the main landing gear wheel well.

TASK 27-51-38-000-801

2. Outboard Wing Flap Torque Tube Removal

(Figure 401)

A. General

(1) This procedure applies to the torque tubes outboard of the No. 3 or No. 6 transmission.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-11-15-000-801	Outboard Flaperon Fairing Removal (P/B 401)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-39-000-801	Inboard Wing Torque Tube Support Removal (P/B 401)
27-51-39-000-802	Outboard Wing Torque Tube Support Removal (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Location Zones

Zone	Area
561	Rear Spar to Trailing Edge - Outboard of Flaperon - Left Wing
661	Rear Spar to Trailing Edge - Outboard of Flaperon - Right Wing

E. Prepare for the Removal

SUBTASK 27-51-38-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-38-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-38-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-38-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-38-860-003

(5) Extend the flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-38-860-004

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-38-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Outboard Wing Flap Torque Tube Removal

SUBTASK 27-51-38-010-001

(1) If you will remove torque tube [7], do this task: Outboard Flaperon Fairing Removal, TASK 27-11-15-000-801.

SUBTASK 27-51-38-010-002

(2) If it is necessary, disconnect the wire tray, clamps and wire harness if they are in the way of the removal of the torque tube.

SUBTASK 27-51-38-010-003

(3) For torque tube [1], torque tube [2], torque tube [3] or torque tube [4] between transmissions No. 1 [8] and No. 2 [14], disconnect the link [41] from the trailing edge panel [42] (Figure 402).

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(a) Remove the nut [43], washer [44], washer [45] and washer [46] and bolt [47] that attach the link [41] to the trailing edge panel [42].

(b) Move the link [41] up, away from the torque tube.

SUBTASK 27-51-38-020-001

(4) For torque tube [1], torque tube [2], torque tube [3], torque tube [4], torque tube [5] and torque tube [7], remove the guard [12] (Figure 401):

(a) Remove the bolts [9], washers [10] and nuts [11] that attach the guard [12].

(b) Remove the guard [12] from the torque tube.

SUBTASK 27-51-38-010-004

(5) For torque tube [6], move the vapor seal tube [17] away from the torque tube support [19]:

(a) Remove the screw [15] and bushing [16] that attach the vapor seal tube [17] to the torque tube support [19].

(b) Move the vapor seal tube [17] inboard, away from the torque tube support [19].

SUBTASK 27-51-38-480-001

(6) Install T.E. flap drive shaft clamp equipment, SPL-1706, on the torque tubes inboard and outboard of the torque tube (Figure 403).

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. As you look outboard, the torque tubes will turn counterclockwise for the left and right wings.

SUBTASK 27-51-38-020-002

(7) Remove the torque tube [1], torque tube [2], torque tube [3], torque tube [4], torque tube [5], torque tube [6] or torque tube [7] (Figure 401):

(a) Remove the screws [21] that attach the coupling sleeves [22] to the splined couplings [23].

(b) Move the coupling sleeves [22] off the splined couplings [23].

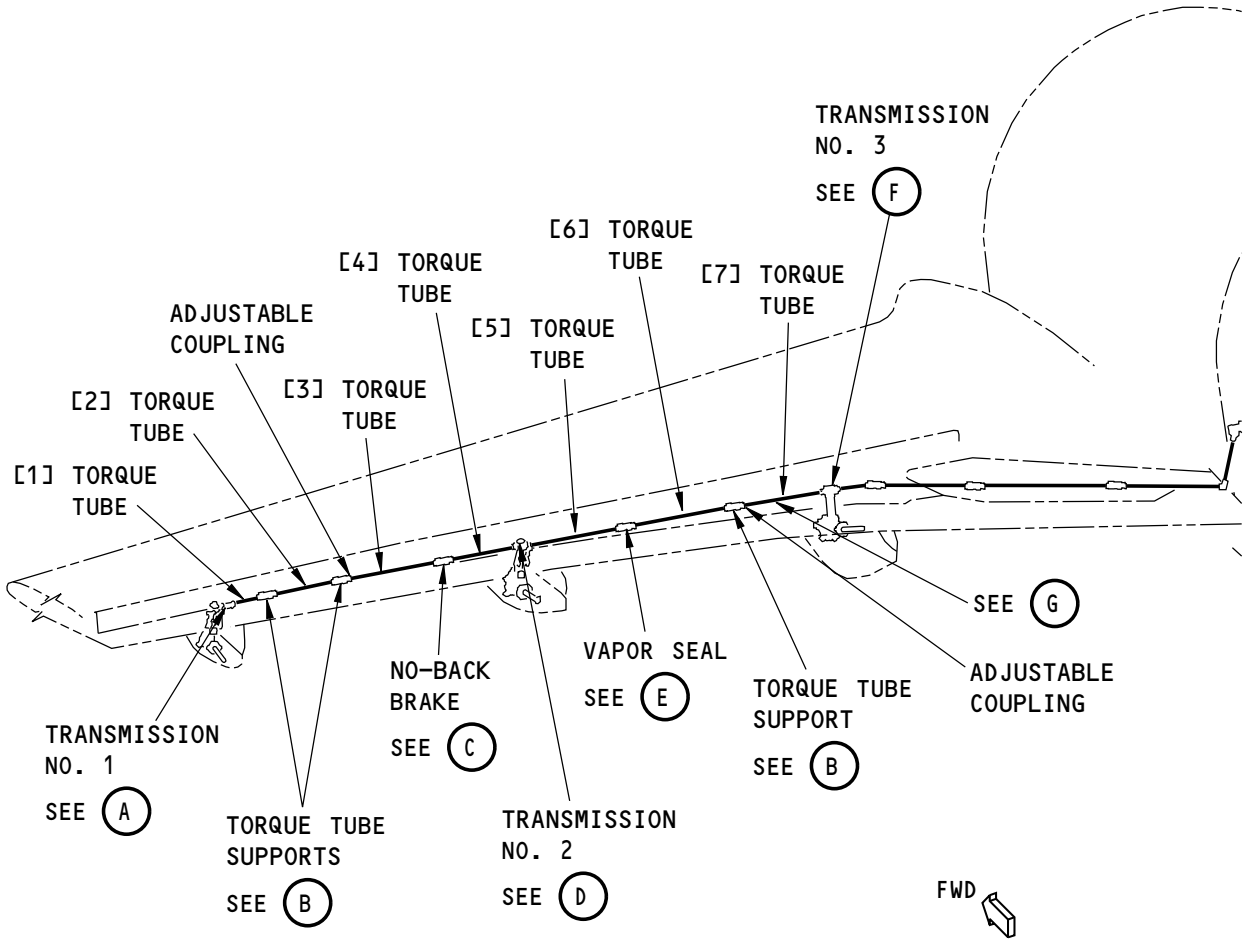
(c) For torque tube [6], between transmissions No. 2 [14] and No. 3 [20], remove the applicable torque tube support, do this task: Outboard Wing Torque Tube Support Removal, TASK 27-51-39-000-802.

(d) For torque tube [7], outboard of transmission No. 3 [20], remove the applicable torque tube support, do this task: Inboard Wing Torque Tube Support Removal, TASK 27-51-39-000-801.

(e) Remove the torque tube.

——— END OF TASK ———

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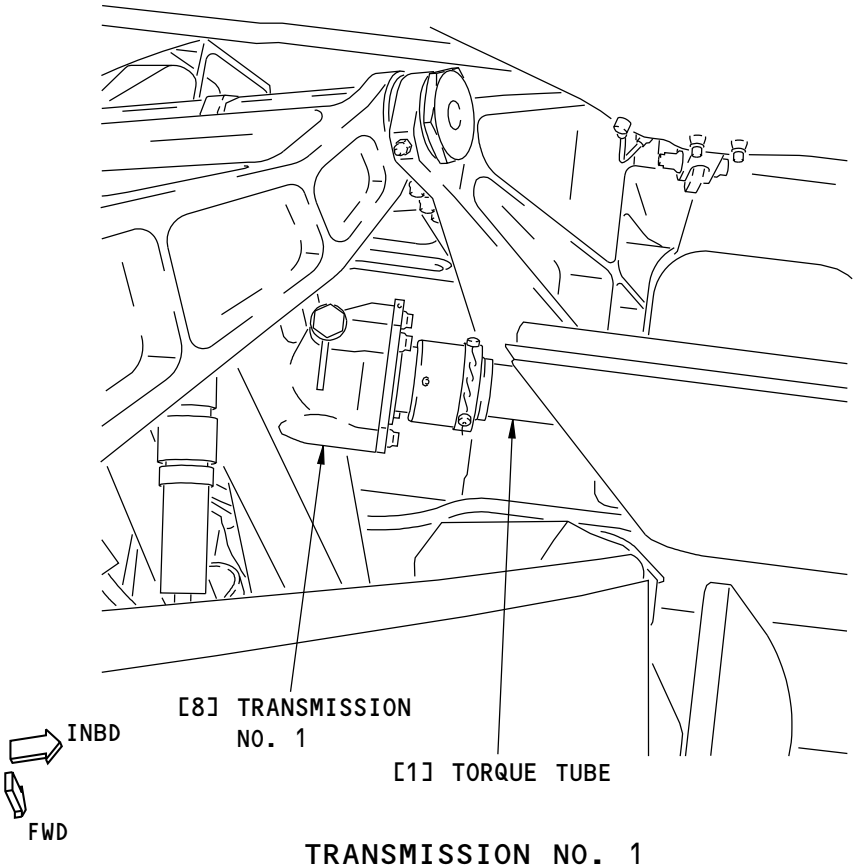


LEFT WING
(RIGHT WING IS EQUIVALENT)

E30029 S0006413933_V1

Outboard Wing Flap Torque Tube Installation
Figure 401/27-51-38-990-801 (Sheet 1 of 5)

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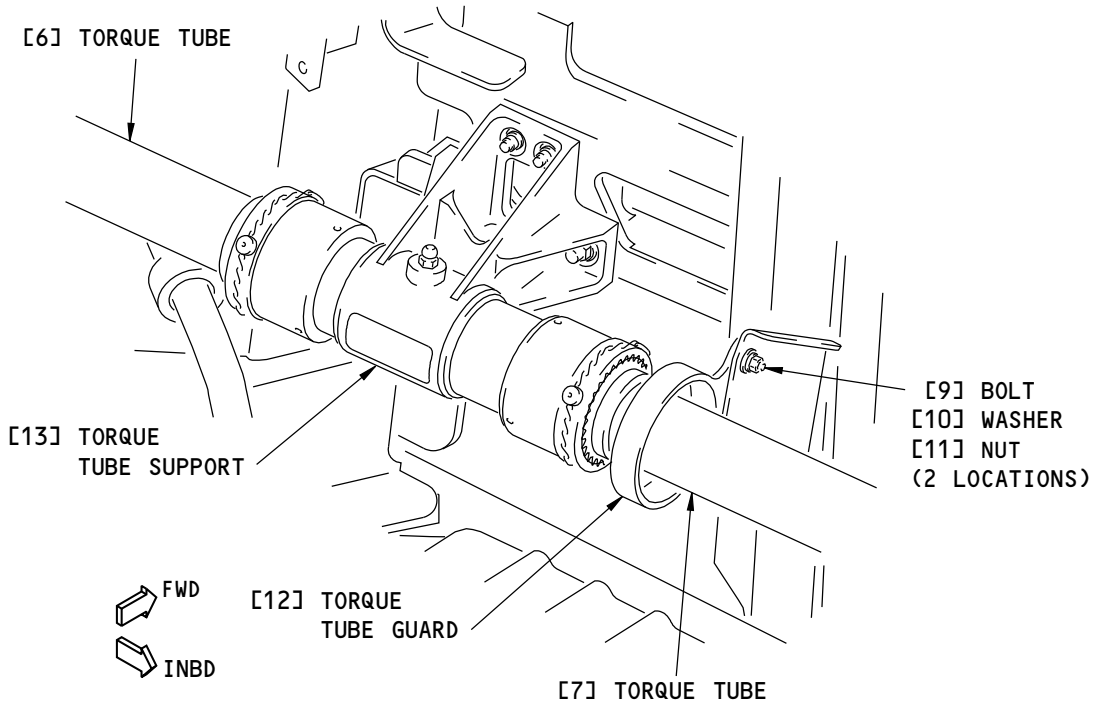
TRANSMISSION NO. 1
(TRANSMISSION NO. 8 IS EQUIVALENT)

A

E30078 S0006413934_V1

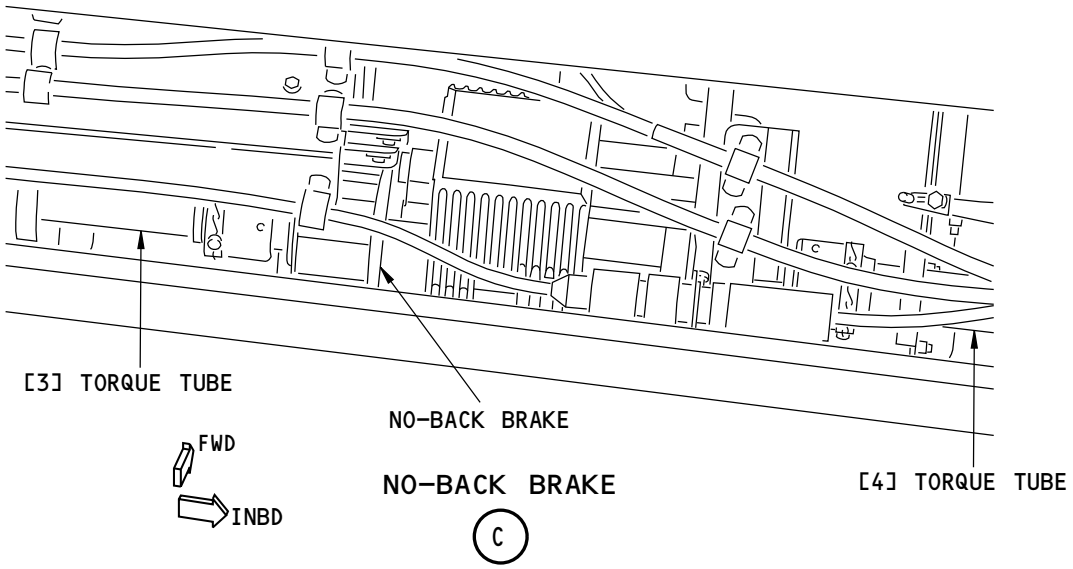
Outboard Wing Flap Torque Tube Installation
Figure 401/27-51-38-990-801 (Sheet 2 of 5)

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TORQUE TUBE SUPPORT
(EXAMPLE)

B



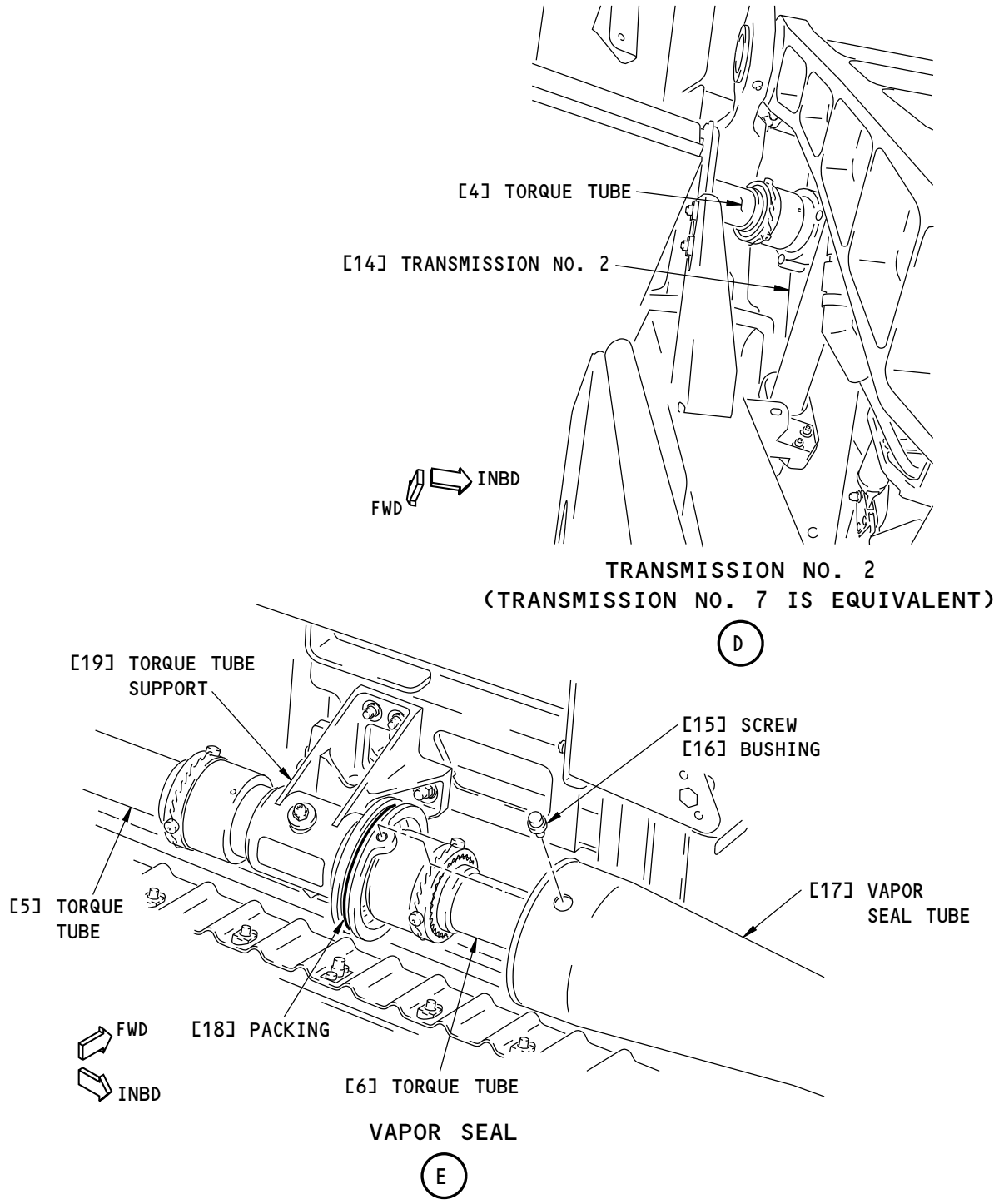
NO-BACK BRAKE

C

E30415 S0006413935_V1

Outboard Wing Flap Torque Tube Installation
Figure 401/27-51-38-990-801 (Sheet 3 of 5)

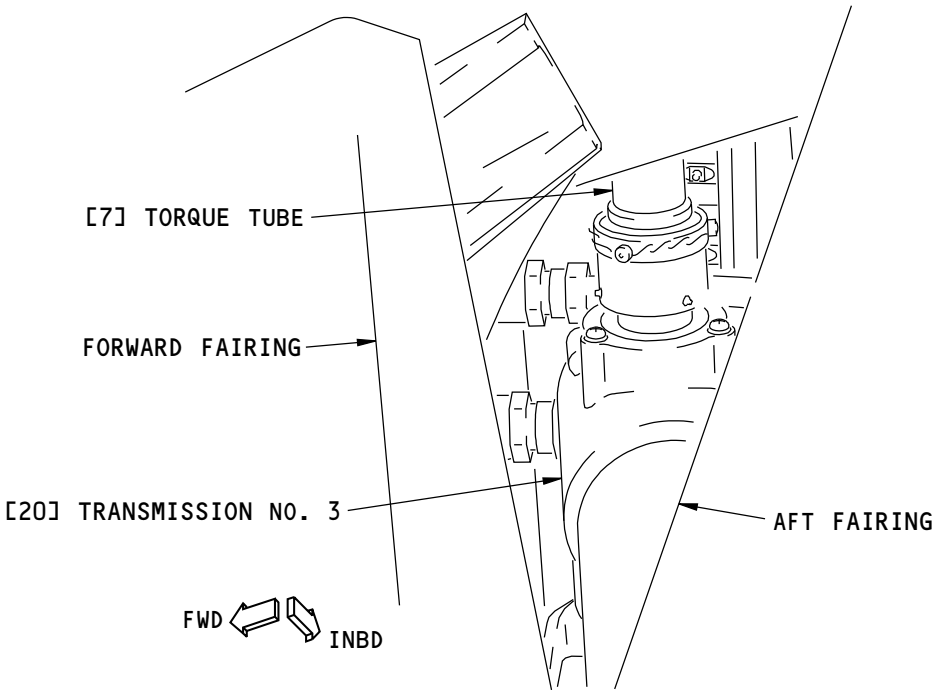
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E30436 S0006413936_V1

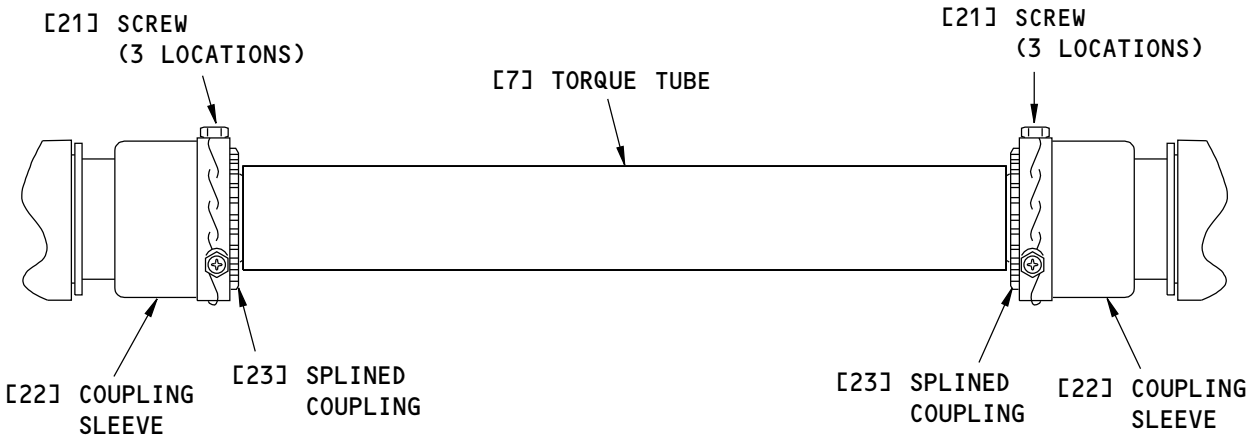
Outboard Wing Flap Torque Tube Installation
Figure 401/27-51-38-990-801 (Sheet 4 of 5)

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TRANSMISSION NO. 3
(TRANSMISSION NO. 6 IS EQUIVALENT)

F



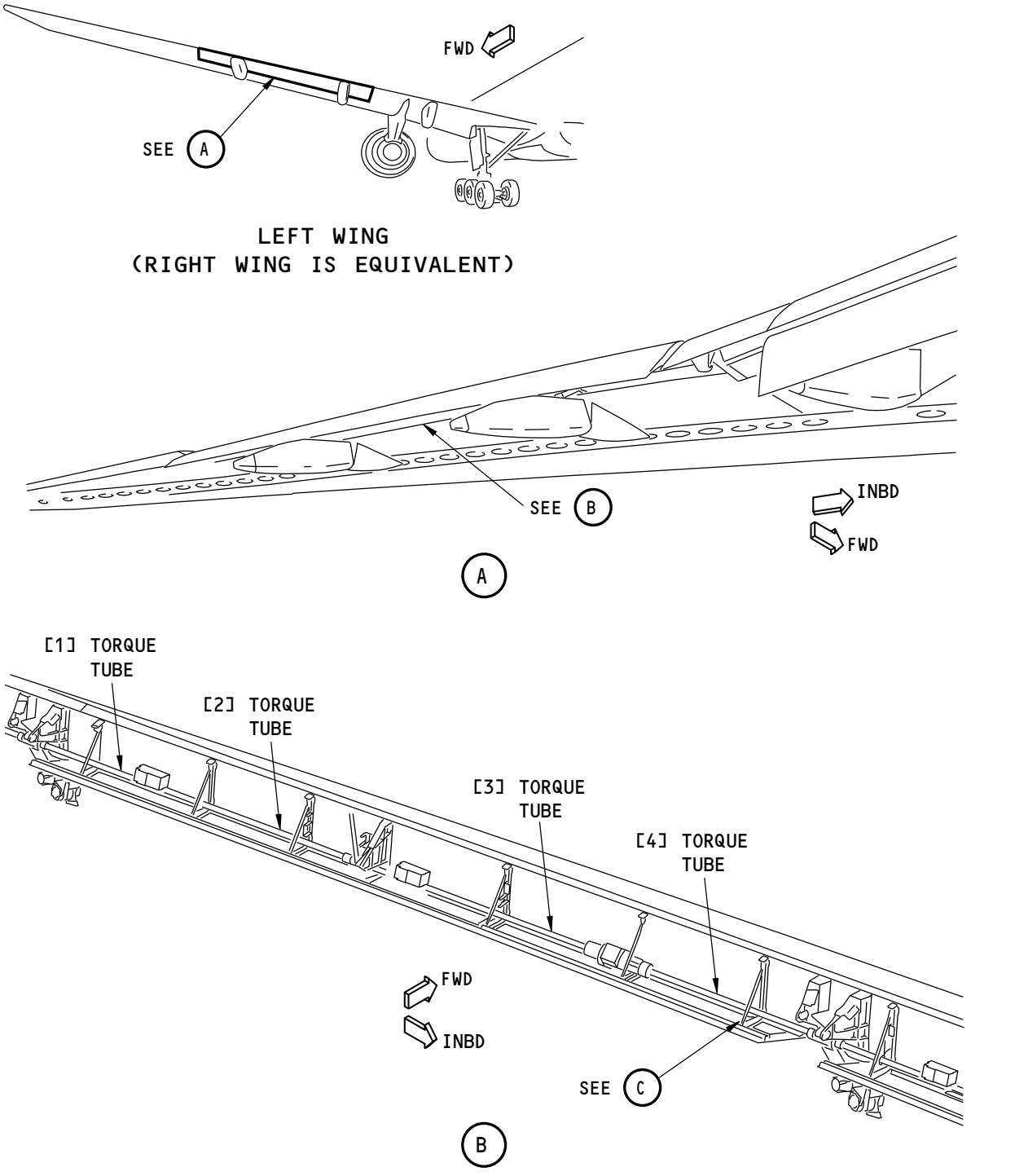
TORQUE TUBE COUPLINGS
(EXAMPLE)

G

E30467 S0006413937_V1

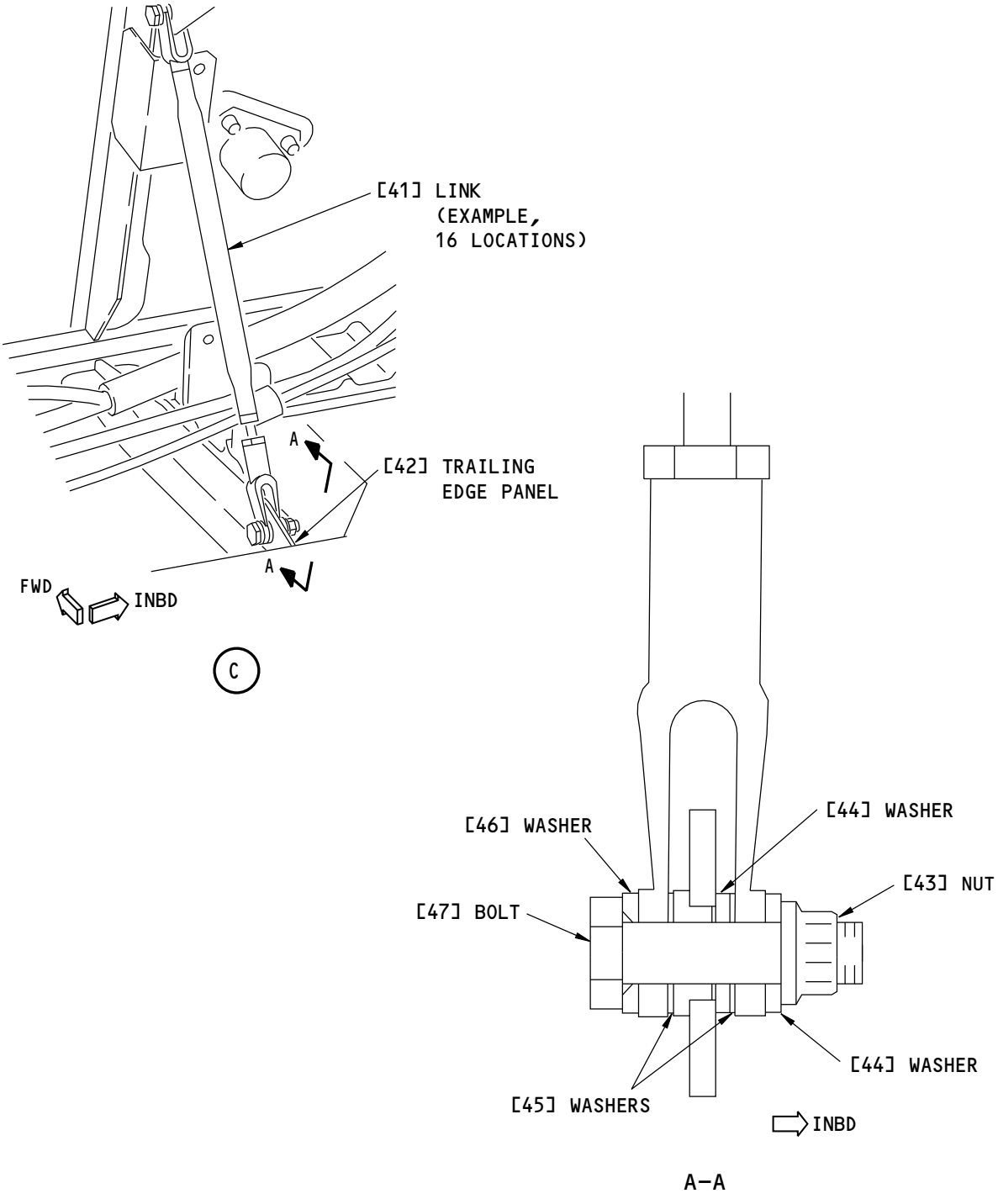
Outboard Wing Flap Torque Tube Installation
Figure 401/27-51-38-990-801 (Sheet 5 of 5)

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Fixed Trailing Edge Panels Installation
Figure 402/27-51-38-990-802 (Sheet 1 of 2)

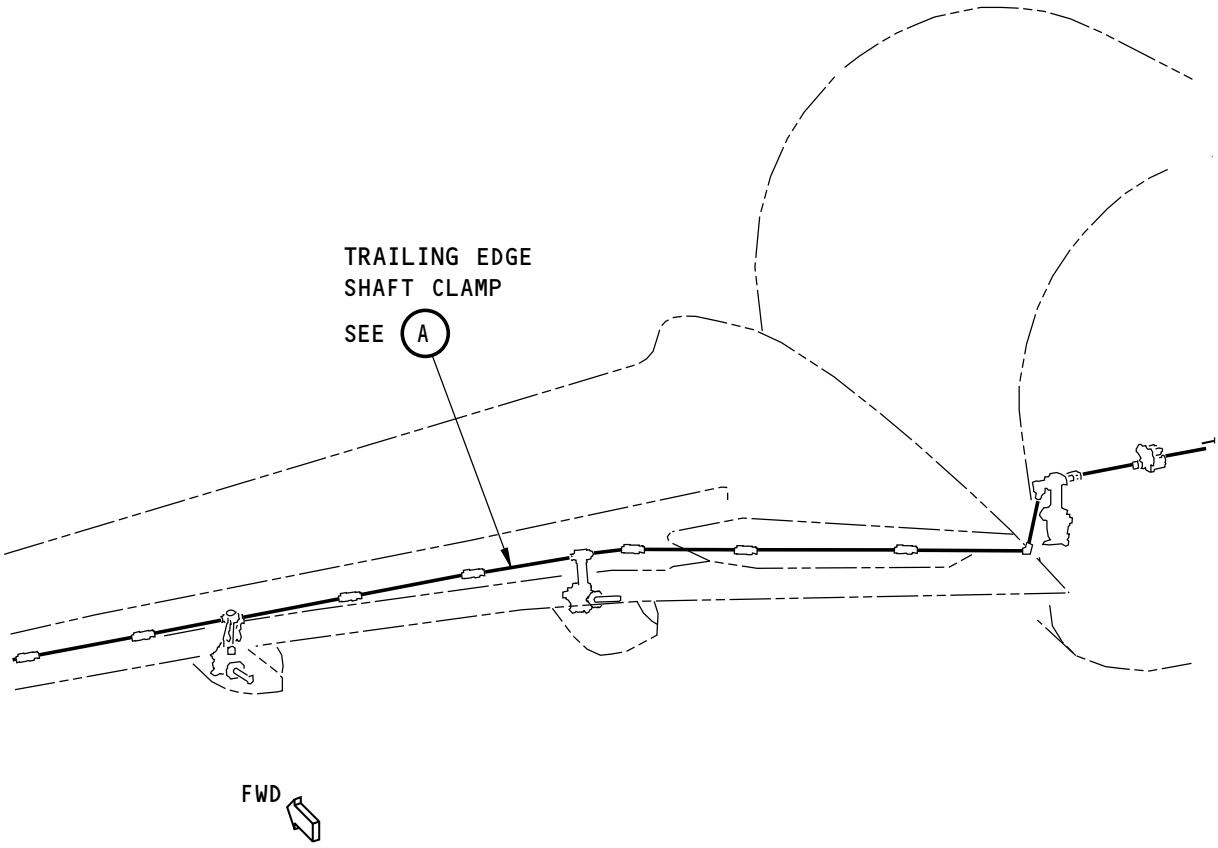
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E30509 S0006413939_V1

Fixed Trailing Edge Panels Installation
Figure 402/27-51-38-990-802 (Sheet 2 of 2)

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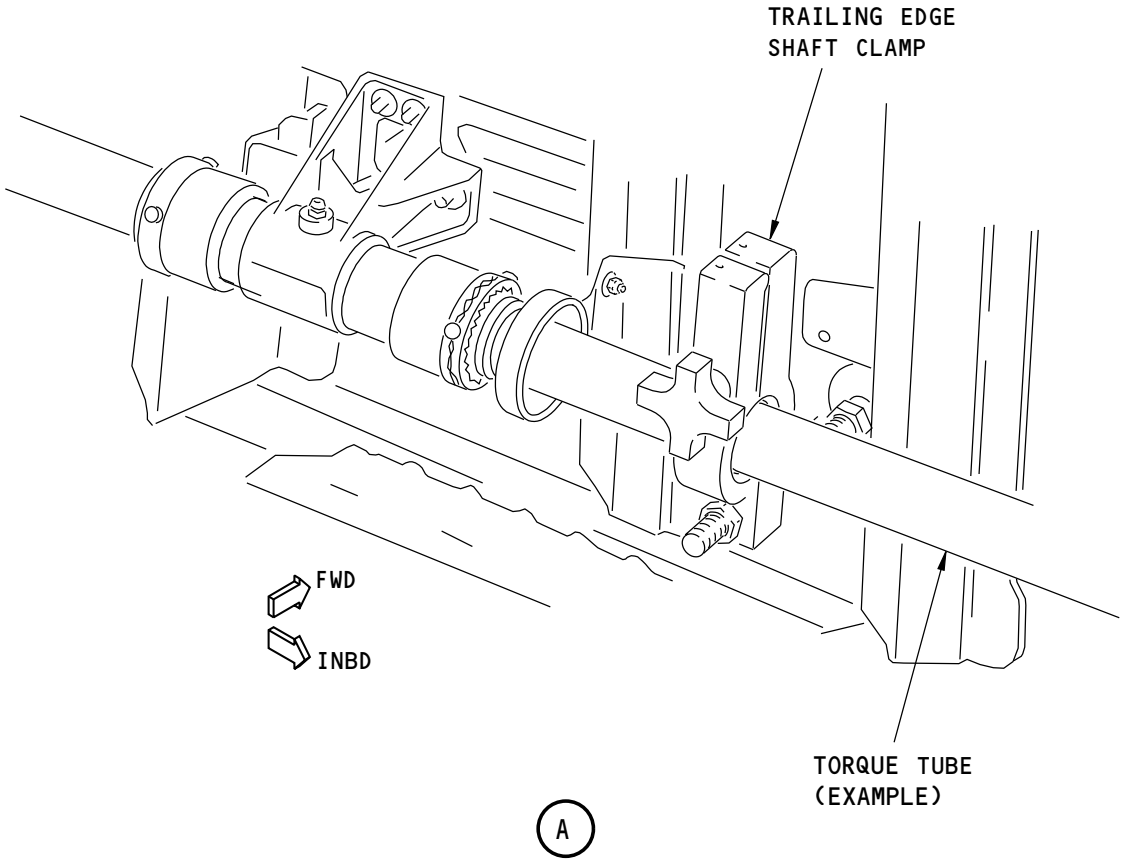


LEFT WING
(RIGHT WING IS EQUIVALENT)

E30132 S0006413940_V1

Trailing Edge Drive Shaft Clamp Installation
Figure 403/27-51-38-990-803 (Sheet 1 of 2)

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E30483 S0006413941_V1

Trailing Edge Drive Shaft Clamp Installation
Figure 403/27-51-38-990-803 (Sheet 2 of 2)

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TASK 27-51-38-400-801

3. Outboard Wing Flap Torque Tube Installation

(Figure 401)

A. General

(1) This procedure applies to the torque tubes outboard of the No. 3 or No. 6 transmission.

B. References

Reference	Title
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-11-15-400-801	Outboard Flaperon Fairing Installation (P/B 401)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-39-400-801	Inboard Wing Torque Tube Support Installation (P/B 401)
27-51-39-400-802	Outboard Wing Torque Tube Support Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Torque tube	27-51-38-01-050	ARO ALL
2	Torque tube	27-51-38-01-055	ARO ALL
3	Torque tube	27-51-38-01-060	ARO ALL
4	Torque tube	27-51-38-01-065	ARO ALL
5	Torque tube	27-51-38-01-070	ARO ALL
6	Torque tube	27-51-38-01-075	ARO ALL
7	Torque tube	27-51-38-01-080	ARO ALL
18	Packing	27-51-38-02-045	ARO ALL

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F. Location Zones

Zone	Area
561	Rear Spar to Trailing Edge - Outboard of Flaperon - Left Wing
661	Rear Spar to Trailing Edge - Outboard of Flaperon - Right Wing

G. Outboard Wing Flap Torque Tube Installation

SUBTASK 27-51-38-420-001

(1) Install the torque tube [1], torque tube [2], torque tube [3], torque tube [4], torque tube [5], torque tube [6] or torque tube [7]:

(a) Put the torque tube in its position.

(b) Apply grease, D00633, to the coupling sleeves [22].

(c) For torque tube [7], outboard of transmission No. 3 [20], install the applicable torque tube support, do this task: Inboard Wing Torque Tube Support Installation, TASK 27-51-39-400-801.

(d) For torque tube [6], between transmissions No. 2 [14] and No. 3 [20], install the applicable torque tube support, do this task: Outboard Wing Torque Tube Support Installation, TASK 27-51-39-400-802.

(e) Put the coupling sleeves [22] on the splined couplings [23].

(f) If you cannot align the fastener holes on the coupling sleeves [22] to the splined couplings [23], then align the torque tubes:

NOTE: The torque tube supports on the outboard ends of torque tube [3] and torque tube [7] have an adjustable coupling that can be used to align the torque tubes.

1) For torque tube [1], torque tube [2], or torque tube [3], use the adjustable coupling on the outboard end of torque tube [3] to try to align the fastener holes.

2) For torque tube [5], torque tube [6] or torque tube [7], use the adjustable coupling on the outboard end of torque tube [7] to try to align the fastener holes.

3) Remove the screws [21] from the applicable torque tube coupling.

4) Move the coupling sleeve [22] inboard.

5) Turn the torque tubes until the fastener holes align.

NOTE: Do not turn the torque tube ends that are attached to the transmissions.

6) Move the adjustable couplings [22] on the splined couplings [23].

7) If you still cannot get the fastener holes to align, then, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

(g) Install the screws [21] to attach the coupling sleeves [22].

(h) Tighten the screws [21].

NOTE: Do not over tighten the screws [21].

(i) Install the lockwire or safety cable on the screws [21].

SUBTASK 27-51-38-420-002

(2) For torque tube [1], torque tube [2], torque tube [3], torque tube [4], torque tube [5] and torque tube [7], install the guard [12]:

(a) Put the guard [12] on the torque tube.

(b) Install the bolts [9], washers [10] and nuts [11] that attach the guard [12].

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SUBTASK 27-51-38-080-001

(3) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tubes inboard and outboard of the applicable torque tube (Figure 403).

SUBTASK 27-51-38-820-001

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-38-640-001

(5) For the applicable torque tube support and torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

SUBTASK 27-51-38-410-001

(6) For torque tube [6], put the vapor seal tube [17] in its position (Figure 401):

(a) If it is necessary, install a new packing [18] on the torque tube support [19].

(b) Apply grease, D00013, to the packing [18] on the torque tube support [19].

(c) Move the vapor seal tube [17] to its position on the torque tube support [19].

(d) Install the screw [15] and bushing [16] to attach the vapor seal tube [17].

SUBTASK 27-51-38-010-005

(7) For torque tube [1], torque tube [2], torque tube [3] or torque tube [4] between transmissions No. 1 and No. 2, connect the link [41] for the trailing edge panel [42] (Figure 402):

(a) Move the link [41] to its position on the trailing edge panel [42].

(b) Install the bolt [47], washer [44], washer [45] and washer [46] and nut [43] that attach the link [41] to the trailing edge panel [42].

SUBTASK 27-51-38-410-002

(8) For torque tube [7], do this task: Outboard Flaperon Fairing Installation, TASK 27-11-15-400-801.

SUBTASK 27-51-38-410-003

(9) Connect the wire tray, clamps and wire harness if you disconnected them.

SUBTASK 27-51-38-440-001

(10) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-38-860-005

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-38-210-008

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(12) Make sure the thrust reverser cowls are closed.

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SUBTASK 27-51-38-210-002

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(13) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-38-710-001

(14) Use the primary system to retract flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-38-710-002

(15) Use the primary system to extend the flaps to the 5-unit position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-38-710-003

(16) Use the primary system to retract the flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-51-38-860-006

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-51-38-000-802

4. Inboard Wing Flap Torque Tube Removal

(Figure 404)

A. General

(1) This procedure applies to the torque tubes between transmissions No. 3 or 6 and the side of body angle gearboxes.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

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D. Location Zones

Zone	Area
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

E. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

F. Prepare for the Removal

SUBTASK 27-51-38-860-008

(1) If you will remove torque tube [61], extend the trailing edge flaps:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure the thrust reverser cowls are closed.

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(d) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(e) Extend the flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

(f) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-51-38-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-38-010-006

(3) Remove these access panels to get access to the torque tube [62], torque tube [63] and torque tube [64]:

(a) On the left wing, remove these access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel

(TASK 06-30-00-800-806)

(b) On the right wing, remove these access panels:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

(TASK 06-30-00-800-807)

G. Inboard Wing Flap Torque Tube Removal

SUBTASK 27-51-38-020-003

(1) For torque tube [61], torque tube [63] and torque tube [64], remove the guard [65]:

(a) Remove the bolts [66], washers [67] and nuts [68] that attach the guard [65].

(b) Remove the guard [65] from the torque tube.

SUBTASK 27-51-38-480-002

(2) Install T.E. flap drive shaft clamp equipment, SPL-1706, on the torque tubes inboard and outboard of the torque tube (Figure 403).

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. As you look outboard, the torque tubes will turn counterclockwise for the left and right wings.

SUBTASK 27-51-38-020-004

(3) Remove the torque tube [61], torque tube [62], torque tube [63] or torque tube [64] (Figure 404):

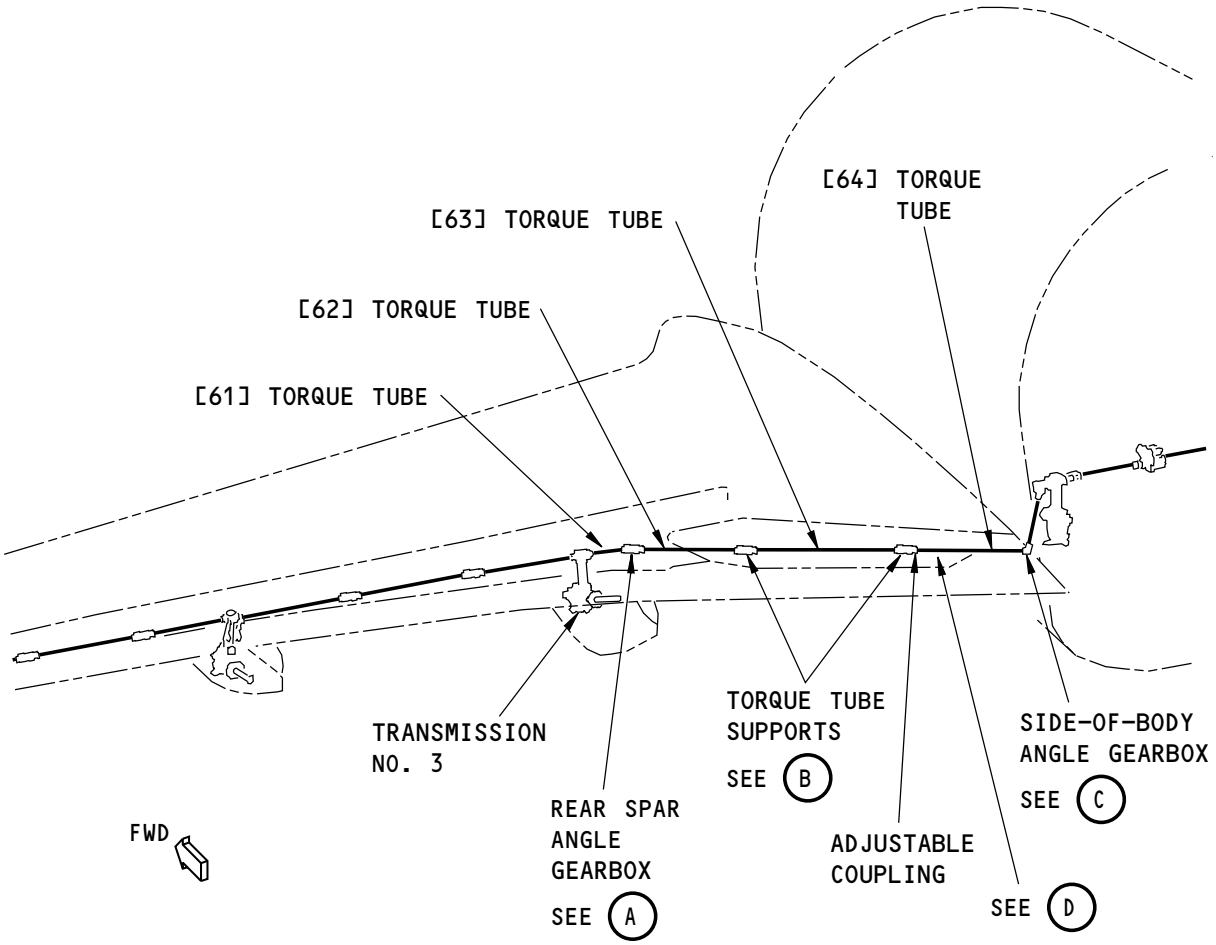
(a) Remove the screws [21] that attach the coupling sleeves [22] to the splined couplings [23].

(b) Move the coupling sleeves [22] off the splined couplings [23].

(c) Remove the torque tube.

END OF TASK

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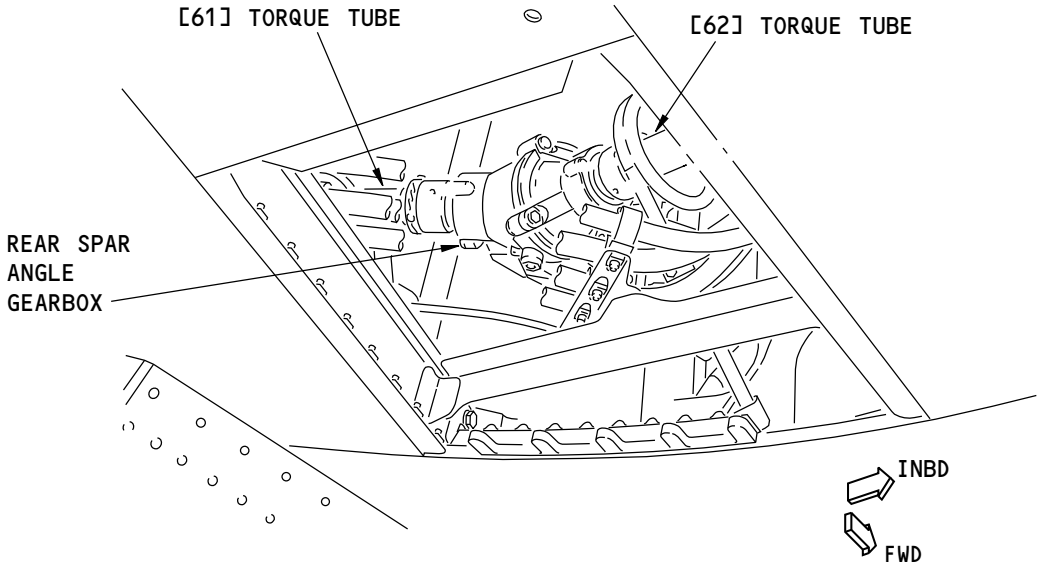


LEFT WING
(RIGHT WING IS EQUIVALENT)

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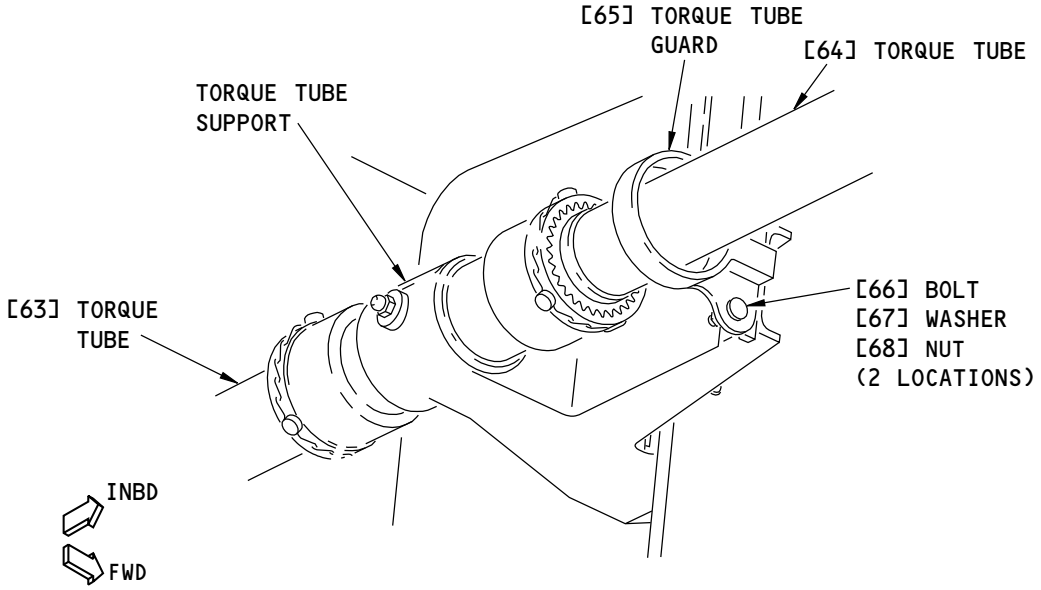
Inboard Wing Flap Torque Tube Installation
Figure 404/27-51-38-990-804 (Sheet 1 of 3)

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REAR SPAR ANGLE GEARBOX

A



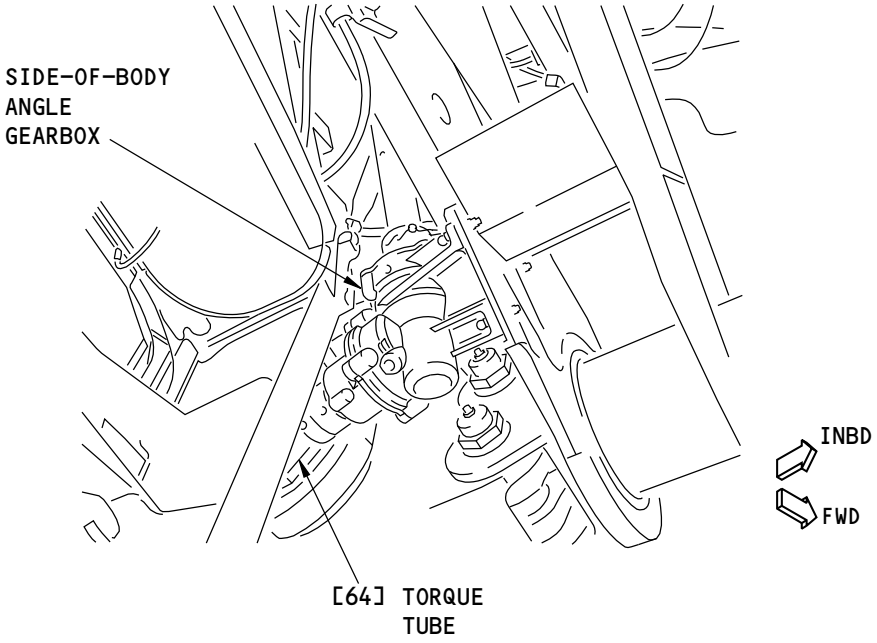
TORQUE TUBE SUPPORT
(EXAMPLE)

B

E30470 S0006413945_V1

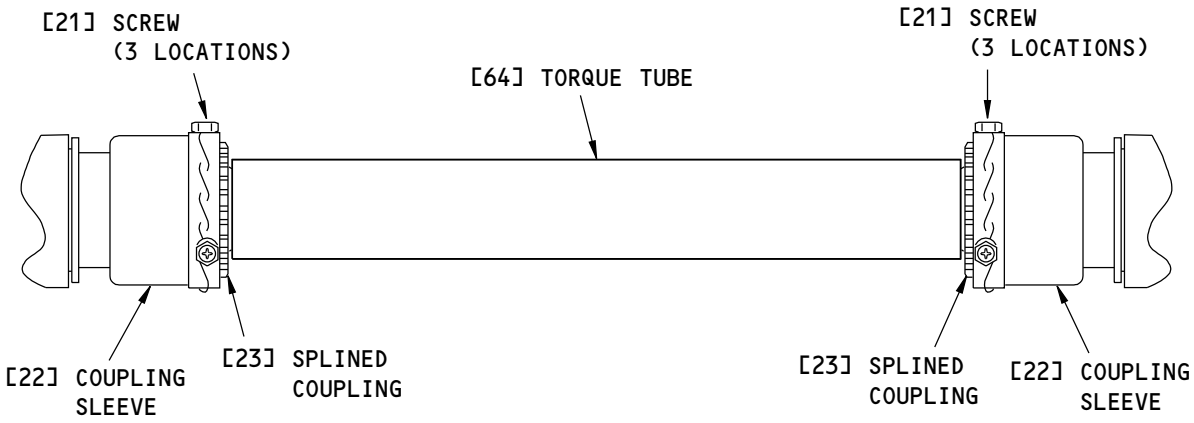
Inboard Wing Flap Torque Tube Installation
Figure 404/27-51-38-990-804 (Sheet 2 of 3)

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SIDE-OF-BODY ANGLE GEARBOX

C



TORQUE TUBE COUPLINGS
(EXAMPLE)

D

E32734 S0006413946_V1

Inboard Wing Flap Torque Tube Installation
Figure 404/27-51-38-990-804 (Sheet 3 of 3)

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TASK 27-51-38-400-802

5. Inboard Wing Flap Torque Tube Installation

(Figure 404)

A. General

(1) This procedure applies to the torque tubes between transmissions No. 3 or 6 and the side of body angle gearboxes.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
61	Torque tube	27-51-38-01-085	ARO ALL
62	Torque tube	27-51-38-01-090	ARO ALL
63	Torque tube	27-51-38-01-095	ARO ALL
64	Torque tube	27-51-38-01-100	ARO ALL

F. Location Zones

Zone	Area
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing

G. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
552FB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

H. Inboard Wing Flap Torque Tube Installation

SUBTASK 27-51-38-420-003

(1) Install the torque tube [61], torque tube [62], torque tube [63] or torque tube [64]:

(a) Put the torque tube in its position.

(b) Apply grease, D00633, to the coupling sleeves [22].

(c) Put the coupling sleeves [22] on the splined couplings [23].

(d) If you cannot align the fastener holes on the coupling sleeves [22] to the splined couplings [23], then align the torque tubes:

NOTE: The torque tube support on the outboard end of torque tube [64] has an adjustable coupling that can be used to align the torque tubes.

1) Remove the screws [21] from the applicable torque tube coupling.

2) Move the coupling sleeve [22] inboard.

3) Turn the torque tubes until the fastener holes align.

NOTE: Do not turn the torque tube ends that are attached to the transmissions.

4) Move the adjustable couplings [22] on the splined couplings [23].

5) If you still cannot get the fastener holes to align, then, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

(e) Install the screws [21] to attach the coupling sleeves [22].

(f) Tighten the screws [21].

NOTE: Do not over tighten the screws [21].

(g) Install the lockwire or safety cable on the screws [21].

SUBTASK 27-51-38-420-004

(2) For torque tube [61], torque tube [63] and torque tube [64], install the guard [65]:

(a) Put the guard [65] on the torque tube.

(b) Install the bolts [66], washers [67] and nuts [68] that attach the guard [65].

SUBTASK 27-51-38-080-002

(3) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tubes inboard and outboard of the torque tube (Figure 403).

SUBTASK 27-51-38-820-002

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-38-640-002

(5) For the applicable torque tube support and torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

SUBTASK 27-51-38-410-004

(6) If you removed them, install these access panels:

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(a) On the left wing, install these access panel:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel

(TASK 06-30-00-800-806)

(b) On the right wing, install these access panel:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

(TASK 06-30-00-800-807)

SUBTASK 27-51-38-440-002

(7) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-38-860-009

(8) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-38-860-010

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(9) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-38-210-010

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(10) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-38-210-003

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(11) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-38-710-004

(12) If they are extended, use the primary system to retract flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-38-710-005

(13) Use the primary system to extend the flaps to the 5-unit position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

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SUBTASK 27-51-38-710-006

(14) Use the primary system to retract the flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

I. Put the Airplane Back To Its Usual Condition

SUBTASK 27-51-38-860-011

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-51-38-000-803

6. Wheel Well Flap Torque Tube Removal

(Figure 405)

A. General

(1) This procedure applies to the torque tubes in the main landing gear wheel well between the side of body angle gearboxes.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

E. Prepare for the Removal

SUBTASK 27-51-38-480-003

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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SUBTASK 27-51-38-480-004

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-51-38-040-003

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Wheel Well Flap Torque Tube Removal

SUBTASK 27-51-38-480-005

(1) Install a T.E. flap drive shaft clamp equipment, SPL-1706, on a torque tube outboard of the torque tube you will remove (Figure 403).

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. In the left wheel well, between the PDU and transmission No. 4, the torque tubes will turn clockwise as you look outboard. In the right wheel well outboard of the PDU and outboard of the transmissions, the torque tubes will turn counterclockwise.

SUBTASK 27-51-38-020-005

(2) Remove the guard [84] (Figure 405):

(a) Remove the bolts [85], washers [86] and nuts [87] that attach the guard [84].

(b) Remove the guard [84] from the torque tube.

SUBTASK 27-51-38-020-006

(3) Remove the torque tube [81], torque tube [82] or torque tube [83]:

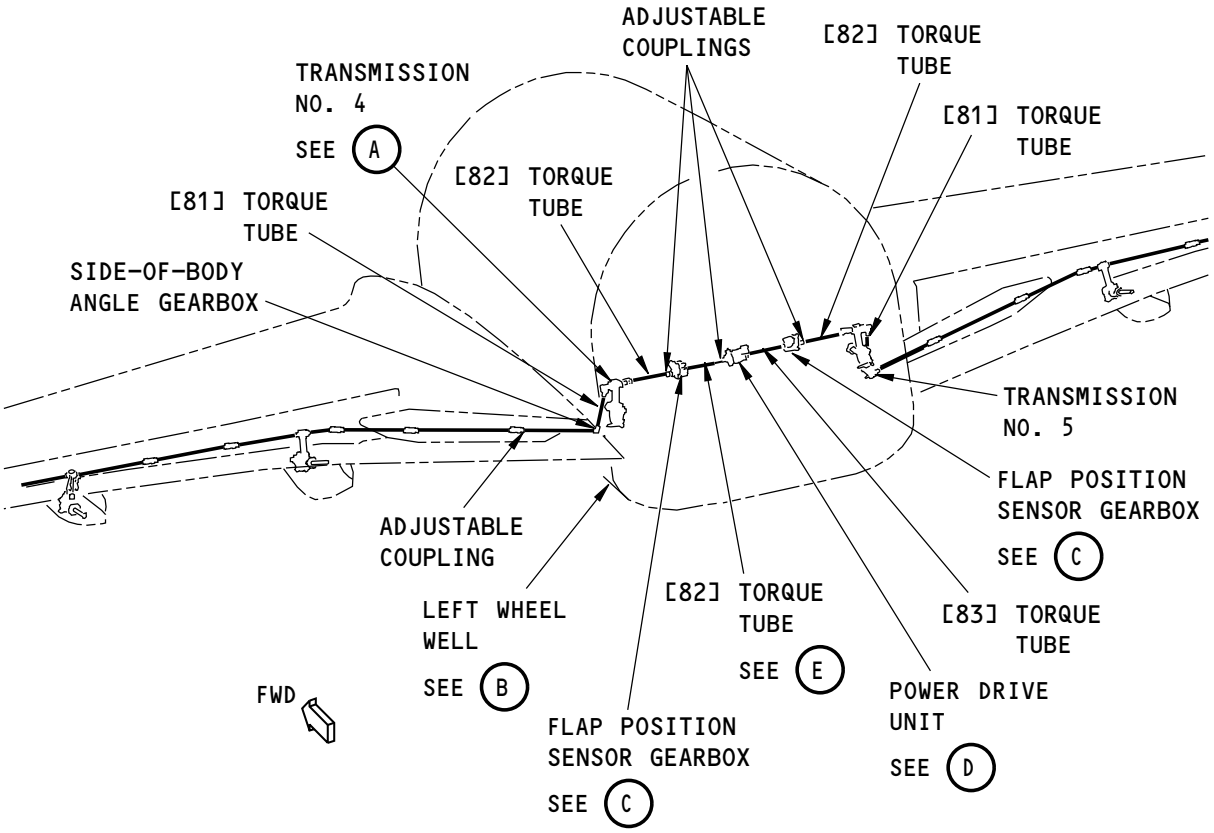
(a) Remove the screws [21] that attach the coupling sleeves [22] to the splined couplings [23].

(b) Move the coupling sleeves [22] off the splined couplings [23].

(c) Remove the torque tube.

END OF TASK

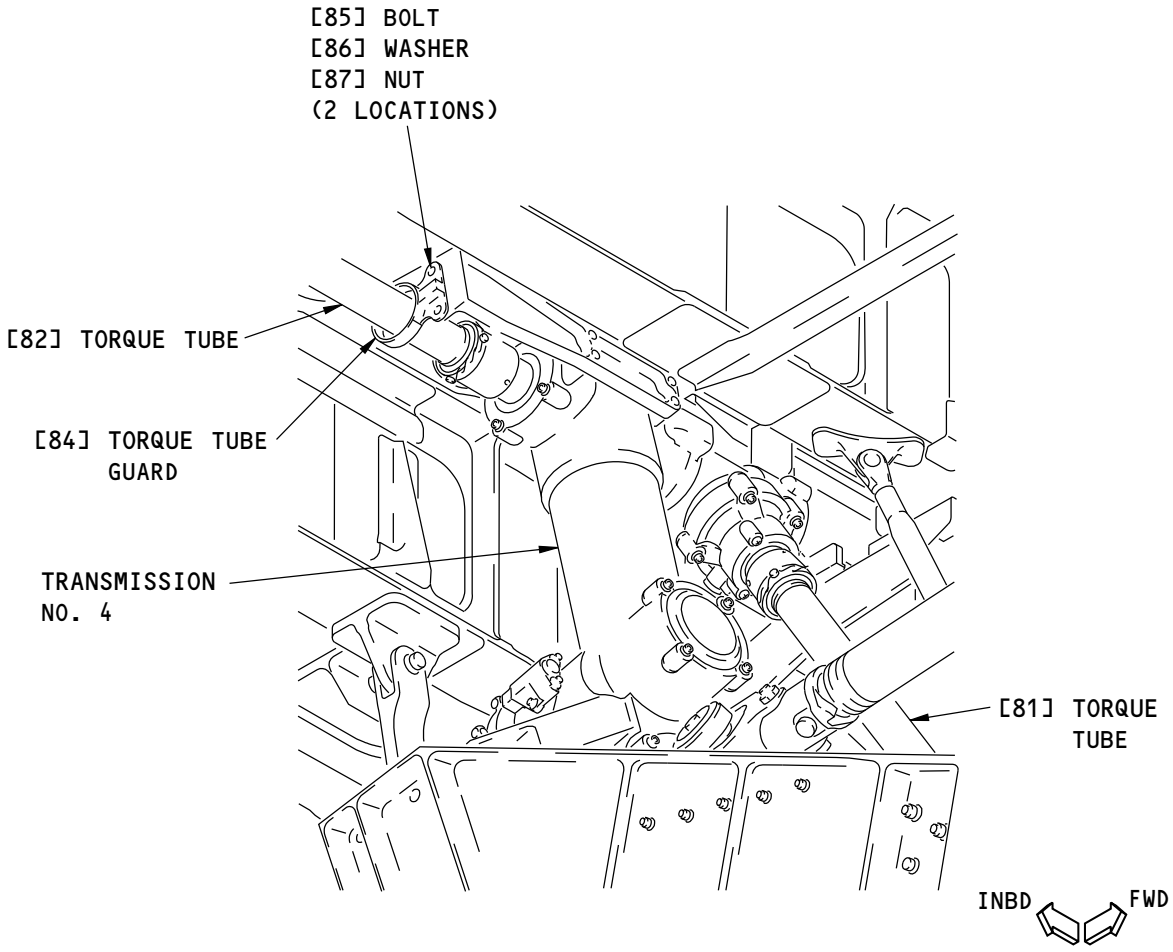
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E30147 S0006413949_V1

Wheel Well Torque Tube Installation
Figure 405/27-51-38-990-805 (Sheet 1 of 4)

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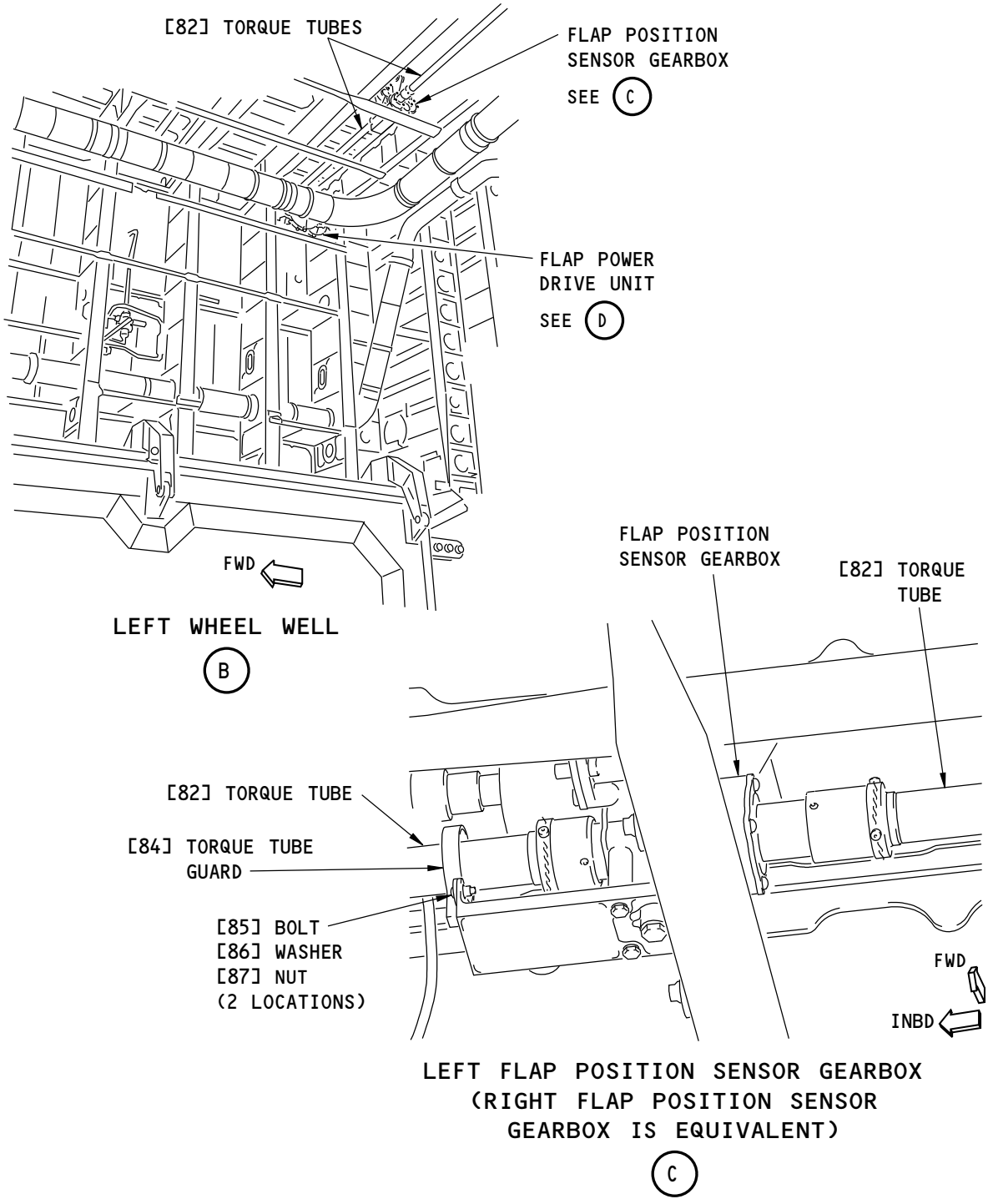
TRANSMISSION NO. 4
(TRANSMISSION NO. 5 IS EQUIVALENT)

A

E32764 S0006413950_V1

Wheel Well Torque Tube Installation
Figure 405/27-51-38-990-805 (Sheet 2 of 4)

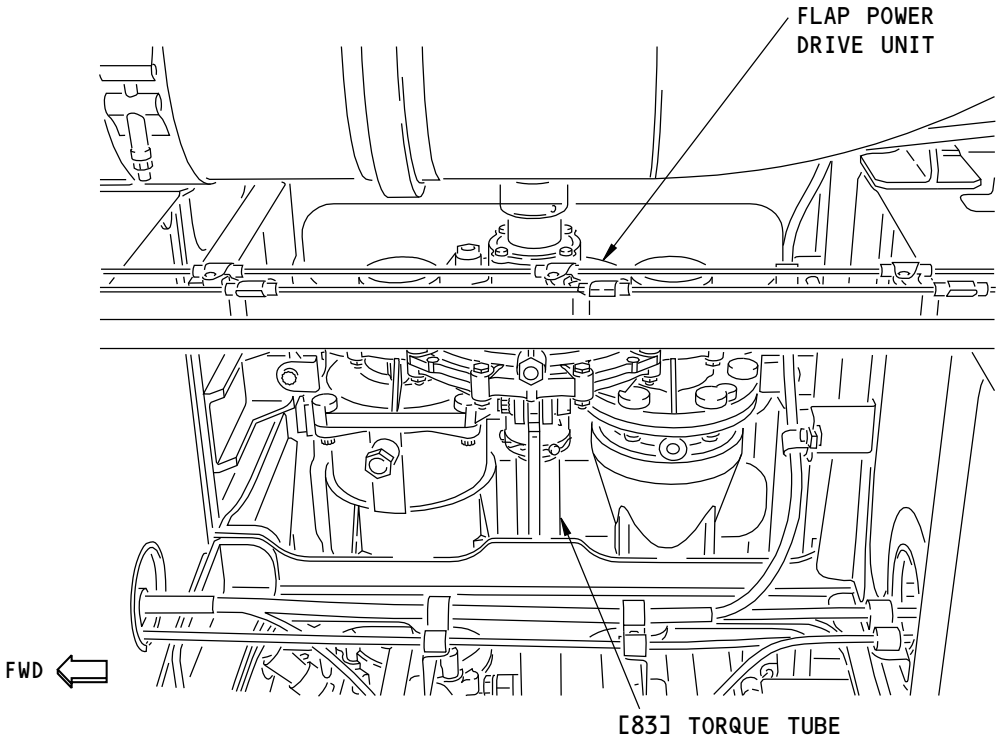
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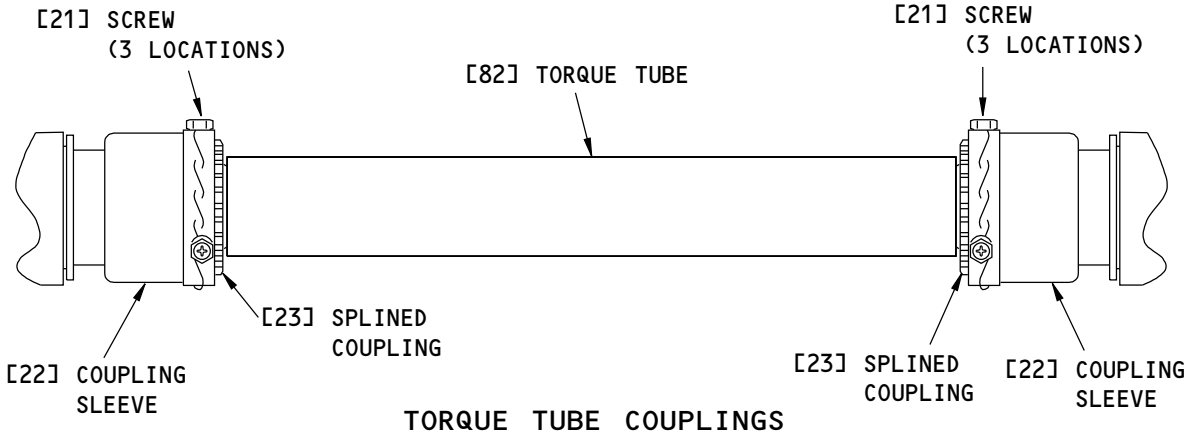
Wheel Well Torque Tube Installation
Figure 405/27-51-38-990-805 (Sheet 3 of 4)

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FLAP POWER DRIVE UNIT

D



TORQUE TUBE COUPLINGS
(EXAMPLE)

E

E30487 S0006413952_V1

Wheel Well Torque Tube Installation
Figure 405/27-51-38-990-805 (Sheet 4 of 4)

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TASK 27-51-38-400-803

7. Wheel Well Flap Torque Tube Installation

(Figure 405)

A. General

(1) This procedure applies to the torque tubes in the main landing gear wheel well between the side of body angle gearboxes.

B. References

Reference	Title
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Torque tube	27-51-38-01-080	ARO ALL
81	Torque tube	27-51-38-01-105	ARO ALL
82	Torque tube	27-51-38-01-110	ARO ALL
83	Torque tube	27-51-38-01-115	ARO ALL

F. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

G. Wheel Well Flap Torque Tube Installation

SUBTASK 27-51-38-420-005

(1) Install the torque tube [81], torque tube [82] or torque tube [83]:

(a) Put the torque tube in its position.

(b) Apply grease, D00633, to the coupling sleeves [22].

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(c) Put the coupling sleeves [22] on the splined couplings [23].

(d) If you cannot align the fastener holes on the coupling sleeves [22] to the splined couplings [23], then align the torque tubes:

NOTE: The torque tube support on the outboard end of torque tube [7], the flap position sensor gearboxes, and the flap power drive unit have an adjustable coupling that can be used to align the torque tubes.

1) For torque tube [81], use the adjustable coupling on the outboard end of torque tube [7] to try to align the fastener holes.

2) For torque tube [82], use the adjustable coupling on the inboard end of the torque tube to try to align the fastener holes.

3) For torque tube [83], use the adjustable coupling on the left side of the flap power drive unit to try to align the fastener holes.

4) Remove the screws [21] from the applicable torque tube coupling.

5) Move the coupling sleeve [22] inboard.

6) Turn the torque tubes until the fastener holes align.

NOTE: Do not turn the torque tube ends that are attached to the transmission, or to the flap position sensor gearboxes. You can turn the torque tube ends attached to the power drive unit.

7) Move the adjustable couplings [22] on the splined couplings [23].

8) If you still cannot get the fastener holes to align, then, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

(e) Install the screws [21] to attach the coupling sleeves [22].

(f) Tighten the screws [21].

NOTE: Do not over tighten the screws [21].

(g) Install the lockwire or safety cable on the screws [21].

SUBTASK 27-51-38-420-006

(2) Install the guard [84]:

(a) Put the guard [84] on the torque tube.

(b) Install the bolts [85], washers [86] and nuts [87] that attach the guard [84].

SUBTASK 27-51-38-080-003

(3) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tube outboard of the torque tube you installed (Figure 403).

SUBTASK 27-51-38-820-003

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-38-640-003

(5) For the applicable torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

SUBTASK 27-51-38-440-003

(6) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-38-860-013

(7) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-51-38-860-014

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-38-210-012

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-38-210-004

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(10) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-38-710-007

(11) Use the primary system to extend the flaps to the 5-unit position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-38-710-008

(12) Use the primary system to retract the flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-51-38-860-015

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-38-080-004

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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TRAILING EDGE TORQUE TUBE SUPPORTS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the torque tube supports on the inboard end of the wing

(2) An installation of the torque tube supports on the inboard end of the wing

(3) A removal of the torque tube supports on the outboard end of the wing

(4) An installation of the torque tube supports on the outboard end of the wing

TASK 27-51-39-000-801

2. Inboard Wing Torque Tube Support Removal

(Figure 401)

A. General

(1) This procedure applies to the torque tube supports inboard of the flaperon.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Location Zones

Zone	Area
550	Subzone 550 - Wing Trailing Edge - Aft of Rear Spar
650	Subzone 650 - Wing Trailing Edge - Aft of Rear Spar

E. Access Panels

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

F. Procedure

SUBTASK 27-51-39-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-39-010-001

(2) Remove the applicable access panel on the lower surface of the wing:

(a) Remove the applicable access panels:

(TASK 06-30-00-800-806), (TASK 06-30-00-800-807)

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-51-39-480-001

(3) Install T.E. flap drive shaft clamp equipment, SPL-1706, on torque tubes [4] inboard and outboard of the support assembly [1] or support assembly [2].

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. As you look outboard, the torque tubes outboard of the transmissions will turn counterclockwise for the left and right wings.

SUBTASK 27-51-39-020-001

(4) Disconnect the torque tubes [4] from the support assembly [1] or support assembly [2]:

(a) Remove the bolts [9], washers [10] and nuts [11] and remove the guard [8] from the support assembly [1] or support assembly [2].

(b) Remove the screws [7] that attach the coupling sleeves [5] to the splined couplings [6].

(c) Move the coupling sleeves [5] off the splined couplings [6].

SUBTASK 27-51-39-020-002

(5) Remove the support assembly [1]:

(a) Remove the collar [13] and collars [15] from the bolt [12] and bolts [14] that attach the support assembly [1] to the landing gear beam [16].

(b) Remove the support assembly [1].

SUBTASK 27-51-39-020-006

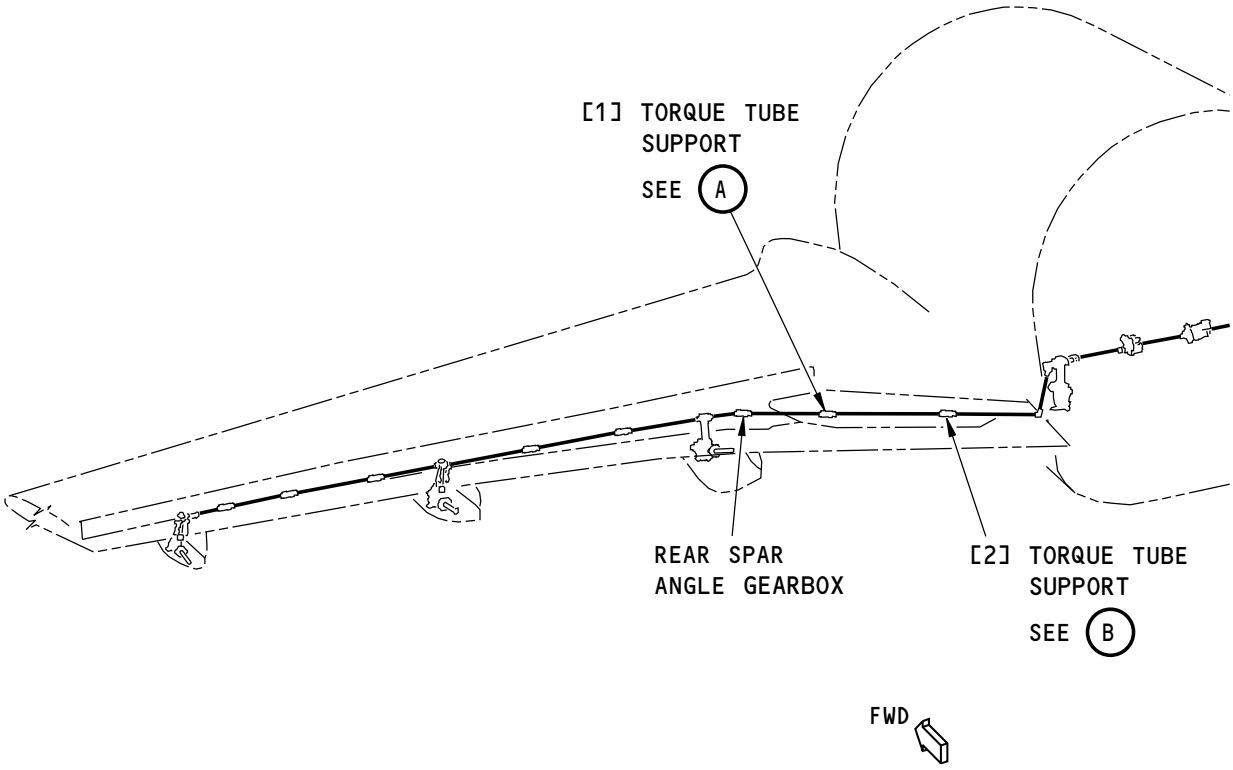
(6) Remove the support assembly [2]:

(a) Remove the collar [13] and collars [15] from the bolt [17] and bolts [18] that attach the support assembly [2] to the landing gear beam [16].

(b) Remove the support assembly [2].

END OF TASK

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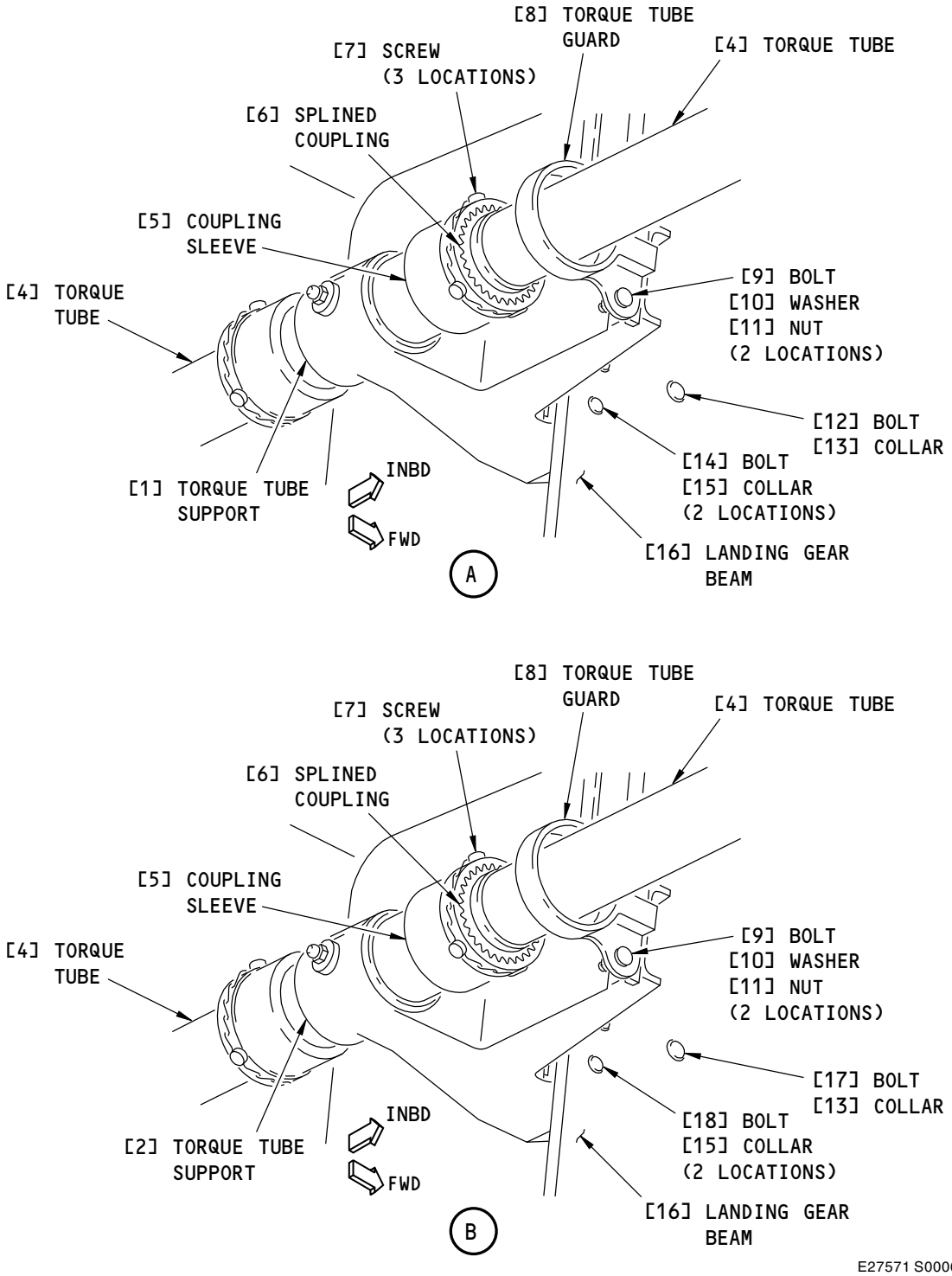


LEFT WING
(RIGHT WING IS EQUIVALENT)

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Inboard Wing Torque Tube Support Installation
Figure 401/27-51-39-990-801 (Sheet 1 of 2)

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Inboard Wing Torque Tube Support Installation
Figure 401/27-51-39-990-801 (Sheet 2 of 2)

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TASK 27-51-39-400-801

3. Inboard Wing Torque Tube Support Installation

(Figure 401)

A. General

(1) This procedure applies to the torque tube supports inboard of the flaperon.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Support assembly	27-51-39-05-015	ARO ALL
		27-51-39-05-020	ARO ALL
2	Support assembly	27-51-39-05-025	ARO ALL
		27-51-39-05-030	ARO ALL

F. Location Zones

Zone	Area
550	Subzone 550 - Wing Trailing Edge - Aft of Rear Spar
650	Subzone 650 - Wing Trailing Edge - Aft of Rear Spar

G. Access Panels

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

H. Procedure

SUBTASK 27-51-39-400-001

(1) Install the support assembly [1]:

(a) Apply a layer of sealant, A00247, to the mating surface of the support assembly [1] and the landing gear beam [16].

(b) Apply a layer of sealant, A00247, to the shank and threads of the bolt [12] and bolts [14].

(c) Put the support assembly [1] in its location on the landing gear beam [16].

(d) Install the collar [13], collars [15], bolt [12] and bolts [14] that attach the support assembly [1] to the landing gear beam [16].

SUBTASK 27-51-39-400-002

(2) Install the support assembly [2]:

(a) Apply a layer of sealant, A00247, to the mating surface of the support assembly [2] and the landing gear beam [16].

(b) Apply a layer of sealant, A00247, to the shank and threads of the bolt [17] and bolts [18].

(c) Put the support assembly [2] in its location on the landing gear beam [16].

(d) Install the collar [13], collars [15], bolt [17] and bolts [18] that attach the support assembly [2] to the landing gear beam [16].

SUBTASK 27-51-39-420-001

(3) Connect the torque tubes [4] to the support assembly [1] or support assembly [2]:

(a) Apply grease, D00633, to the coupling sleeves [5].

(b) Put the splined couplings [6] in the coupling sleeves [5].

(c) Install the screws [7] that attach the coupling sleeves [5].

(d) Tighten the screws [7].

NOTE: Do not over tighten the screws [7].

(e) Install lockwire or safety cable on the screws [7].

(f) Install the bolts [9], washers [10] and nuts [11] to attach the guard [8] to the support assembly [1] or support assembly [2].

SUBTASK 27-51-39-080-001

(4) Remove the T.E. flap drive shaft clamp equipment, SPL-1706, from the torque tubes inboard and outboard of the support assembly [1] or support assembly [2].

SUBTASK 27-51-39-820-001

(5) If a torque tube turned while they were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-39-640-001

(6) For the applicable torque tube support and torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

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SUBTASK 27-51-39-860-001

(7) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-39-440-001

(8) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-39-860-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(9) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-39-210-005

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(10) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-39-210-001

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(11) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-39-710-001

(12) Use the primary system to extend the flaps to the 5-unit position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-39-710-002

(13) Use the primary system to retract the flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

I. Put the Airplane Back To Its Usual Condition

SUBTASK 27-51-39-860-003

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-39-410-001

(2) Install the applicable access panel on the lower surface of the wing:

(a) Install the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel
652AB	Inboard Fixed Trailing Edge Panel

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(b) Install the applicable access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

——— END OF TASK ———

TASK 27-51-39-000-802

4. Outboard Wing Torque Tube Support Removal

(Figure 402)

A. General

(1) This procedure applies to the torque tube supports outboard of the inboard flap.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Location Zones

Zone	Area
557	Left Wing Flaperon
560	Subzone 560 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon
657	Right Wing Flaperon
660	Subzone 660 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon

E. Procedure

SUBTASK 27-51-39-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-51-39-860-006

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-39-210-007

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-39-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-39-710-003

(5) Extend the flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-39-860-007

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-51-39-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-39-480-002

(8) Install T.E. flap drive shaft clamp equipment, SPL-1706, on torque tubes [4] inboard and outboard of the support assembly [41], support assembly [42] or support assembly [43].

NOTE: Install the T.E. flap drive shaft clamp equipment, SPL-1706 to stop the torque tube movement in the extend direction. As you look outboard, the torque tubes outboard of the transmissions will turn counterclockwise for the left and right wings.

SUBTASK 27-51-39-020-003

(9) For support assembly [42], move the vapor seal tube [52]:

(a) Remove the screw [50] and bushing [51] from the vapor seal tube [52].

(b) Move the vapor seal tube [52] inboard, off the support assembly [42].

SUBTASK 27-51-39-020-004

(10) Disconnect the torque tubes [4] from the support assembly [41], support assembly [42] or support assembly [43]:

(a) For the inboard support assembly [41], remove the bolts [54], washers [55] and nuts [56] and remove the guard [58] from the bracket [57].

(b) If applicable, remove the lockwire from the screws [7].

(c) Remove the screws [7] that attach the coupling sleeves [5] to the splined couplings [6].

(d) Move the coupling sleeves [5] off the splined couplings [6].

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SUBTASK 27-51-39-020-005

(11) Remove the applicable support assembly [41], support assembly [42] or support assembly [43]:

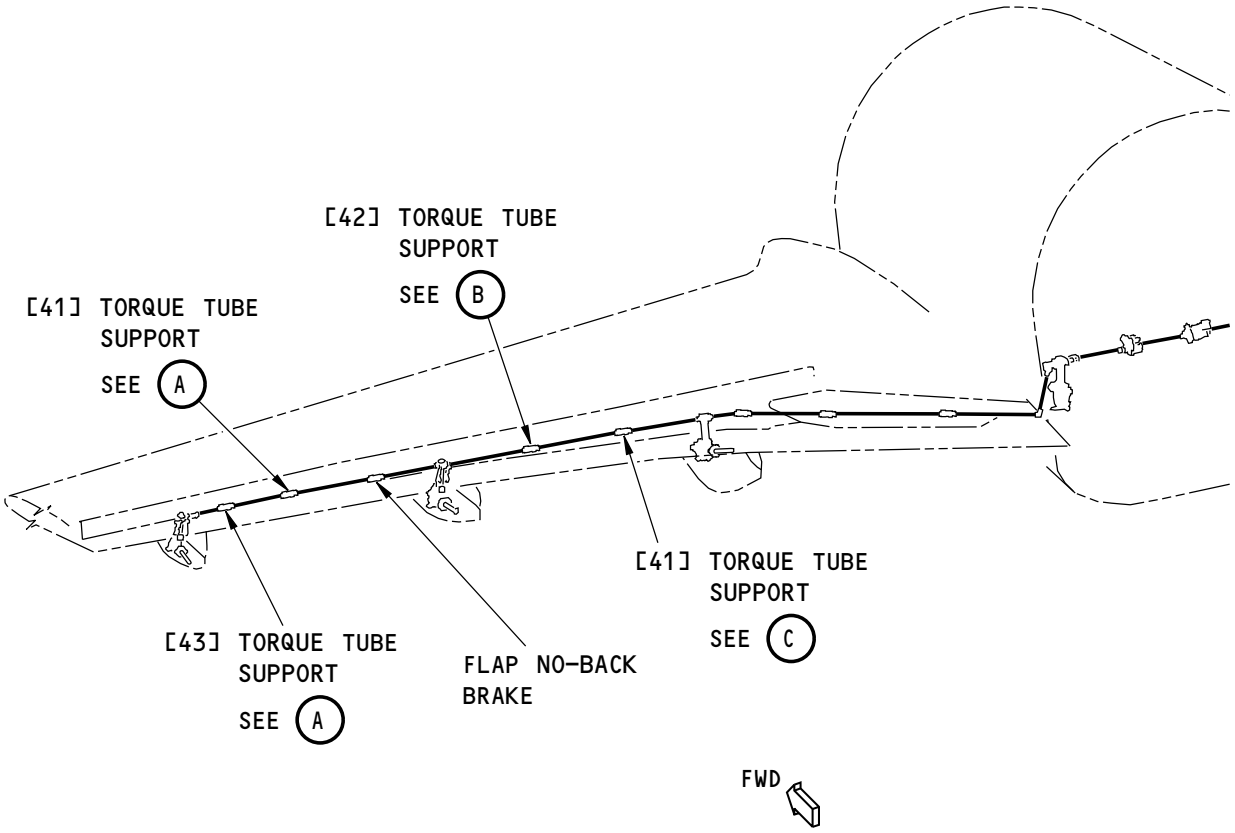
(a) Remove the nuts [59] and the collars [45] from the bolts [44] that attach the support assembly [41], support assembly [42] or support assembly [43] to the bracket [46].

(b) Remove the nuts [47] and washers [48] from the bolts [57] that attach the support assembly [41], support assembly [42] or support assembly [43] to the bracket [46].

(c) Remove the support assembly [41], support assembly [42] or support assembly [43].

END OF TASK

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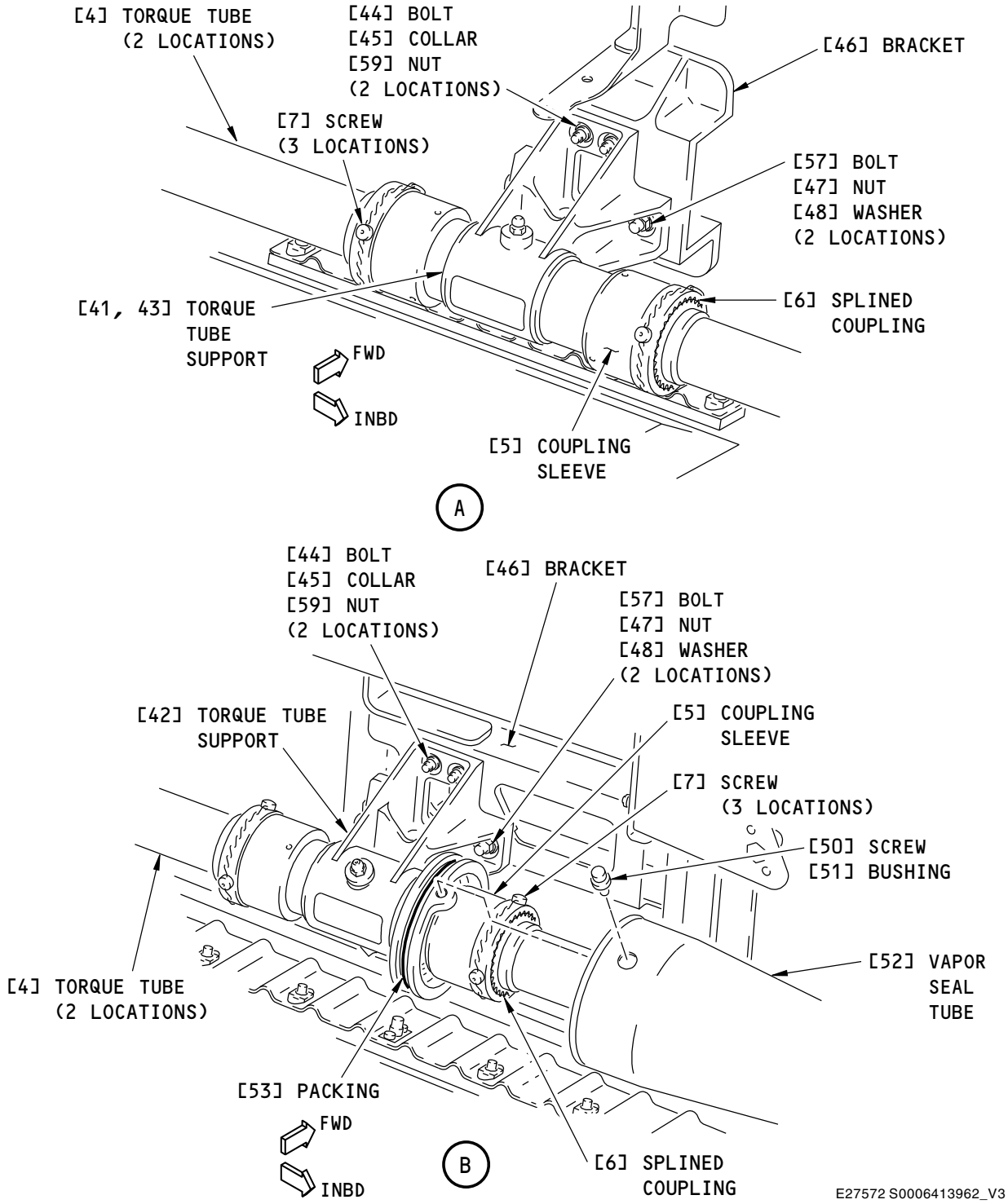


LEFT WING
(RIGHT WING IS EQUIVALENT)

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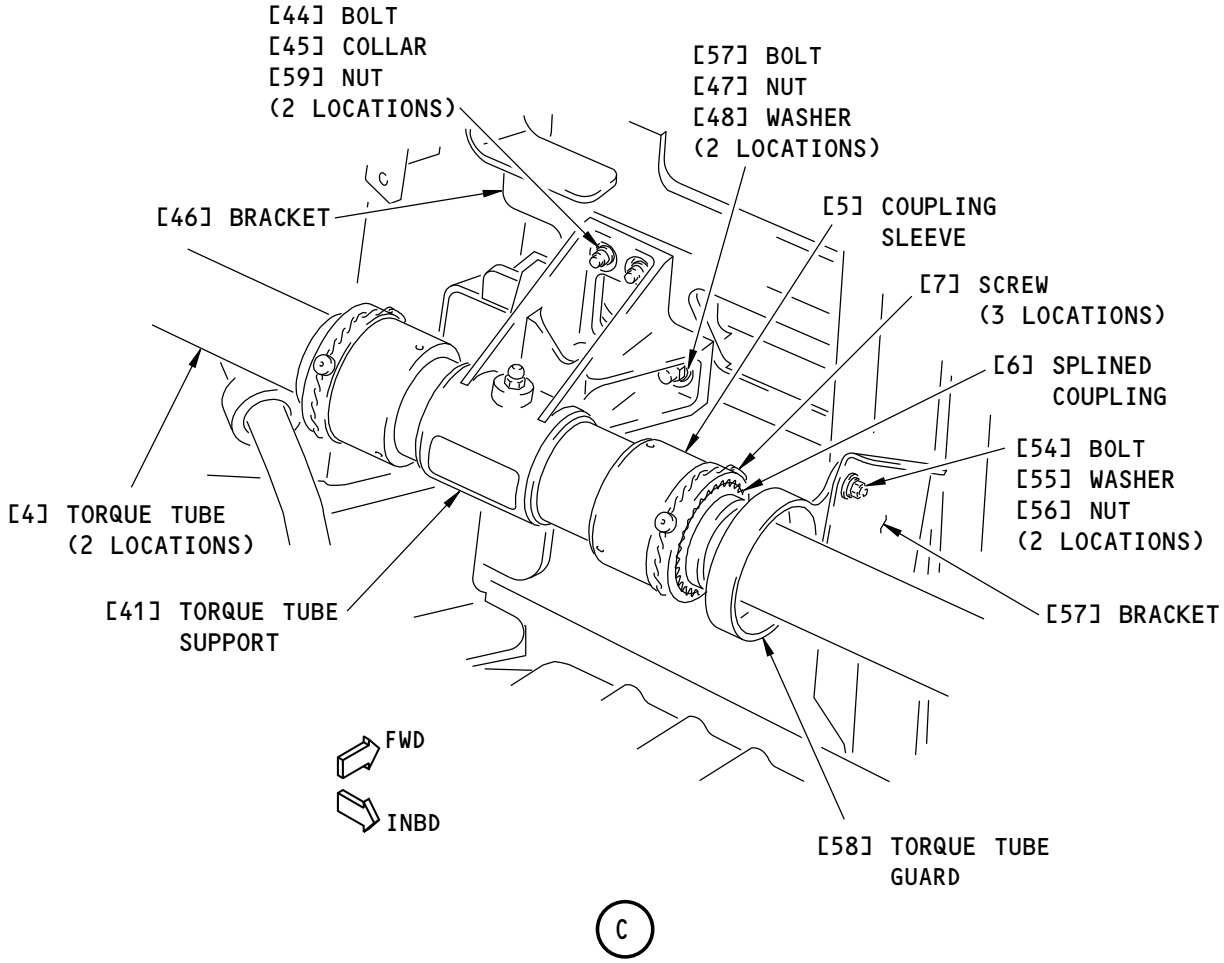
Outboard Wing Torque Tube Support Installation
Figure 402/27-51-39-990-802 (Sheet 1 of 3)

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Outboard Wing Torque Tube Support Installation
Figure 402/27-51-39-990-802 (Sheet 2 of 3)

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Outboard Wing Torque Tube Support Installation
Figure 402/27-51-39-990-802 (Sheet 3 of 3)

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TASK 27-51-39-400-802

5. Outboard Wing Torque Tube Support Installation

(Figure 402)

A. General

(1) This procedure applies to the torque tube supports outboard of the inboard flap.

B. References

Reference	Title
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1706	Equipment - Clamp, T.E. Flap Drive Shaft Part #: J27043-18 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
41	Support assembly	27-51-39-15-040	ARO ALL
		27-51-39-15-045	ARO ALL
42	Support assembly	27-51-39-15-030	ARO ALL
		27-51-39-15-035	ARO ALL
43	Support assembly	27-51-39-15-054	ARO ALL
53	Packing	27-51-38-02-045	ARO ALL

F. Location Zones

Zone	Area
557	Left Wing Flaperon

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(Continued)

Zone	Area
560	Subzone 560 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon
657	Right Wing Flaperon
660	Subzone 660 - Wing Trailing Edge - Aft of Rear Spar - Outboard of Flaperon

G. Procedure

SUBTASK 27-51-39-420-002

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the applicable support assembly [41], support assembly [42] or support assembly [43]:

(a) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [44] and bolts [57].

(b) Put the support assembly [41], support assembly [42] or support assembly [43] in its location on the bracket [46].

(c) Install the bolts [57], nuts [47] and washers [48] that attach the support assembly [41], support assembly [42] or support assembly [43] to the bracket [46].

1) If using Mastinox 6856 K, C00913, tighten the nut [47] to 70 ±10 in-lb (8 ±1 N·m).

2) If using Cor-Ban 27L Compound, G50237, tighten the nut [47] to 65 ±2 in-lb (7 ±1 N·m).

(d) Install the bolts [44], collars [45] and the nuts [59] that attach the support assembly [41], support assembly [42] or support assembly [43] to the bracket [46].

1) Tighten the nuts [59] to 25 ±2 in-lb (2.8 ±0.3 N·m).

SUBTASK 27-51-39-420-003

(2) Connect the torque tubes [4] to the support assembly [41], support assembly [42] or support assembly [43]:

(a) Apply grease, D00633, to the coupling sleeves [5].

(b) Put the splined couplings [6] in the coupling sleeves [5].

(c) Install the screws [7] that attach the coupling sleeves [5].

(d) Tighten the screws [7].

NOTE: Do not over tighten the screws [7].

(e) Install lockwire or safety cable on the screws [7].

(f) For the inboard support assembly [41], install the bolts [54], washers [55] and nuts [56] to attach the guard [58] to the bracket [57].

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SUBTASK 27-51-39-080-002

(3) Remove the T.E. flap drive shaft clamp equipment, SPL-1706 from the torque tubes [4] inboard and outboard of the support assembly [41], support assembly [42], support assembly [43], or support assembly [60].

SUBTASK 27-51-39-820-002

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-51-39-640-002

(5) For the applicable torque tube support and torque tube couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

SUBTASK 27-51-39-420-004

(6) If you installed support assembly [42], connect the vapor seal tube [52]:

(a) If it is necessary, install a new packing [53] on the support assembly [42].

(b) Apply grease, D00013, to the packing [53] on the support assembly [42].

(c) Move the vapor seal tube [52] on the support assembly [42].

(d) Install the bushing [51] and screw [50] to attach the vapor seal tube [52] to the support assembly [42].

SUBTASK 27-51-39-440-002

(7) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-39-860-008

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-39-210-009

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Make sure the thrust reverser cowls are closed.

SUBTASK 27-51-39-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(10) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-51-39-710-004

(11) Use the primary system to retract flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

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SUBTASK 27-51-39-710-005

(12) Use the primary system to extend the flaps to the 5-unit position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-39-710-006

(13) Use the primary system to retract the flaps to the UP position. To retract them, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-51-39-860-009

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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TRAILING EDGE FLAP POSITION INDICATION SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has an operational test of the position indication system for the trailing edge flaps.

TASK 27-58-00-710-801

2. Flap Position Indication System - Operational Test

(Figure 501)

A. General

(1) This procedure does a test of the primary, secondary and alternate mode displays for the flap position indication system.

(2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-58-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-58-00-210-005

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Make sure the thrust reverser cowls are closed.

SUBTASK 27-58-00-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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E. Primary Mode Display Test

SUBTASK 27-58-00-860-002

> **WARNING** KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-58-00-710-001

> **WARNING** MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the 5-unit position.

(a) Make sure the command bar on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bar on the FLAPS display changes to green when the flaps get to the 5-unit position.

SUBTASK 27-58-00-710-002

(3) Move the flap control lever to the 15-unit position.

(a) Make sure the command bar on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bar on the FLAPS display changes to green when the flaps get to the 15-unit position.

SUBTASK 27-58-00-710-003

(4) Move the flap control lever to the 20-unit position.

(a) Make sure the command bar on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bar on the FLAPS display changes to green when the flaps get to the 20-unit position.

SUBTASK 27-58-00-710-004

(5) Move the flap control lever to the 25-unit position.

(a) Make sure the command bar on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bar on the FLAPS display changes to green when the flaps get to the 25-unit position.

SUBTASK 27-58-00-710-005

(6) Move the flap control lever to the 30-unit position.

(a) Make sure the command bar on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bar on the FLAPS display changes to green when the flaps get to the 30-unit position.

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SUBTASK 27-58-00-710-006

(7) Move the flap control lever to the UP position.

(a) Make sure the command bar on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bar on the FLAPS display changes to green when the flaps and slats get to the fully retracted position.

(c) Make sure the FLAPS display does not show approximately 10 seconds after the flaps get to the fully retracted position.

Table 501/27-58-00-710-801 Flap Positions

Flap Lever Position	EICAS Maintenance Page Indication
UP	8.97 to 11.03
5	163.19 to 171.34
15	200.53 to 208.67
20	238.78 to 246.92
25	298.84 to 306.99
30	344.13 to 353.07

SUBTASK 27-58-00-860-003

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

F. Secondary Mode Display Test

SUBTASK 27-58-00-860-013

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-58-00-710-015

(2) Move the flap control lever to the 1-unit position.

NOTE: The SLATS PRIMARY FAIL message will show on EICAS. This is necessary to cause the secondary display mode to show.

SUBTASK 27-58-00-860-004

(3) Use a maintenance access terminal (MAT) to override the secondary mode inhibit:

NOTE: After you override the secondary mode inhibit, you have 15 seconds to move the flap control lever. It will be necessary to override the secondary mode inhibit again before you can move the flaps again.

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WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Make these selections on the MAT:

1) OTHER FUNCTIONS
2) SPECIAL FUNCTIONS
3) 27 HIGH LIFT SYSTEM
4) SECONDARY MODE INHIBIT OVERRIDE-FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE-FSEU 2
5) CONTINUE
6) CONTINUE
7) START FUNCTION
8) CONTINUE

SUBTASK 27-58-00-710-007

(4) Move the flap control lever to the 5-unit position.

(a) Make sure the secondary display mode shows on the EICAS.

(b) Make sure the command bars on the FLAPS display shows in magenta while the flaps and slats move.

(c) Make sure the command bars on the FLAPS display change to green when the flaps get to the 5-unit position.

SUBTASK 27-58-00-860-005

(5) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-58-00-710-008

(6) Move the flap control lever to the 15-unit position.

(a) Make sure the command bars on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bars on the FLAPS display change to green when the flaps get to the 15-unit position.

SUBTASK 27-58-00-860-006

(7) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-58-00-710-009

(8) Move the flap control lever to the 20-unit position.

(a) Make sure the command bars on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bars on the FLAPS display change to green when the flaps get to the 20-unit position.

SUBTASK 27-58-00-860-007

(9) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-58-00-710-010

(10) Move the flap control lever to the 25-unit position.

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(a) Make sure the command bars on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bars on the FLAPS display change to green when the flaps get to the 25-unit position.

SUBTASK 27-58-00-860-008

(11) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-58-00-710-011

(12) Move the flap control lever to the 30-unit position.

(a) Make sure the command bars on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bars on the FLAPS display change to green when the flaps get to the 30-unit position.

SUBTASK 27-58-00-860-009

(13) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-58-00-710-012

(14) Move the flap control lever to the UP position.

(a) Make sure the command bars on the FLAPS display shows in magenta while the flaps and slats move.

(b) Make sure the command bars on the FLAPS display change to green when the flaps and slats get to the fully retracted position.

SUBTASK 27-58-00-860-014

(15) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

G. Alternate Mode Display Test

SUBTASK 27-58-00-860-010

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS AND SLATS. THE FLAPS AND SLATS WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-58-00-210-001

(2) Make sure the FLAPS display changes to the alternate mode display.

SUBTASK 27-58-00-710-013

(3) Move the ALTN FLAPS control switch to EXT to extend the flaps and slats.

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(a) Make sure the FLAPS display shows the position of the flaps and slats.

SUBTASK 27-58-00-710-014

(4) Move the ALTN FLAPS control switch to RET to retract the flaps and slats to the fully retracted position.

(a) Make sure the FLAPS display shows the position of the flaps and slats.

SUBTASK 27-58-00-860-011

WARNING

MAKE SURE THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

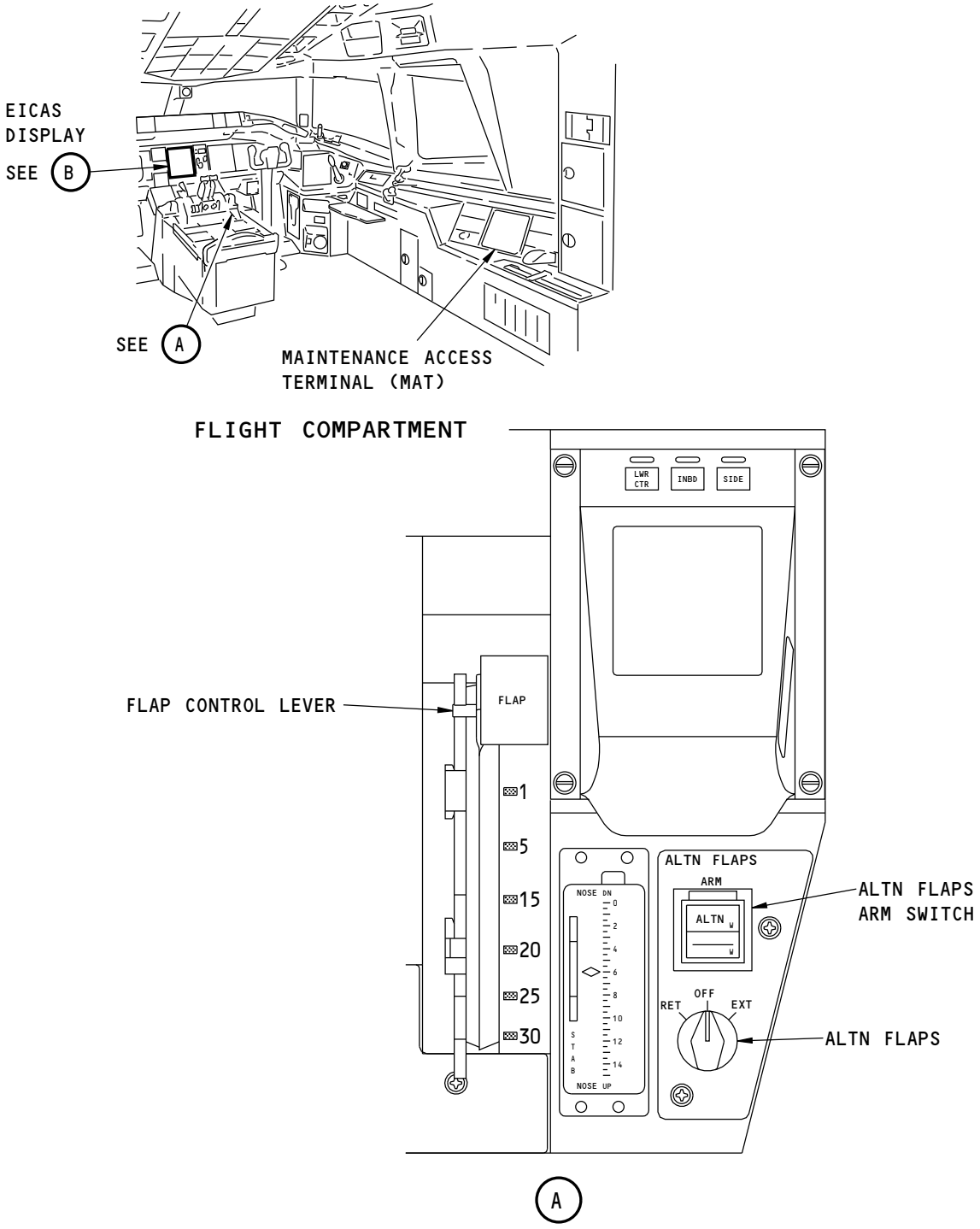
(5) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

SUBTASK 27-58-00-210-002

(6) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

END OF TASK

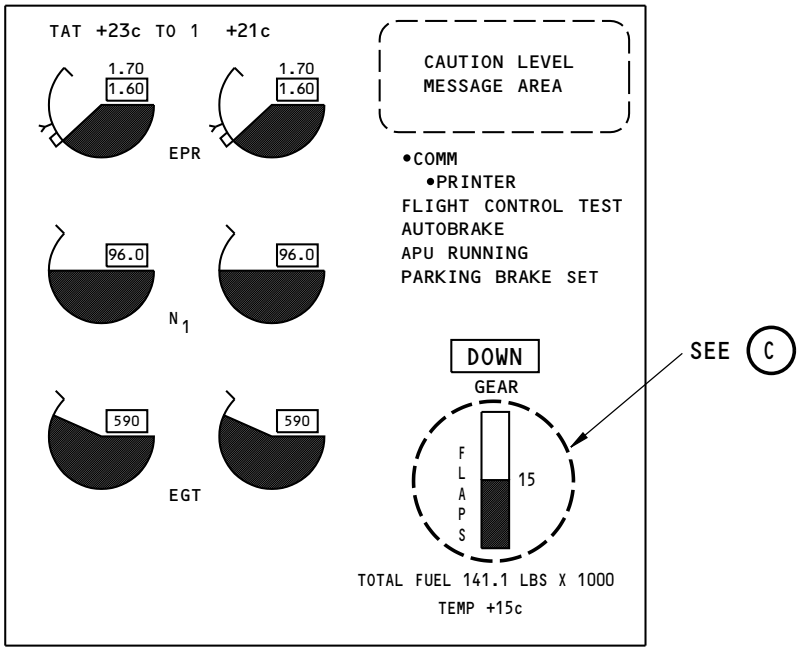
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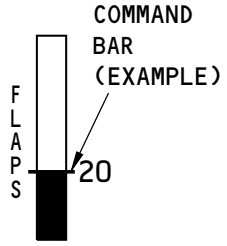
Flap Position Indication System
Figure 501/27-58-00-990-801 (Sheet 1 of 2)

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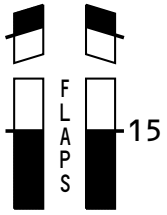
EICAS DISPLAY

B



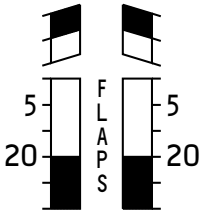
PRIMARY
MODE DISPLAY

C



SECONDARY
MODE DISPLAY

C



ALTERNATE
MODE DISPLAY

C

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Flap Position Indication System
Figure 501/27-58-00-990-801 (Sheet 2 of 2)

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FLAP POSITION SENSOR GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap position sensor gearbox.

(2) An installation of the flap position sensor gearbox.

(3) A replacement of the manual drive input in a flap position sensor gearbox.

B. The flaps must be in the retracted position when you install a position sensor gearbox.

TASK 27-58-01-000-801

2. Flap Position Sensor Gearbox Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-32-000-801	Flap Limit Switch Removal (P/B 401)
27-58-03-000-801	Flap Position Sensor Removal (P/B 401)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-58-01-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-58-01-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-58-01-210-001

(3) Make sure the trailing edge flaps are in the retracted position. If they are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

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SUBTASK 27-58-01-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

D. Flap Position Sensor Gearbox Removal

SUBTASK 27-58-01-210-002

(1) Make sure the index marks for the rig indicator [25] on the flap position sensor gearbox [9] are aligned.

SUBTASK 27-58-01-860-001

(2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-58-01-860-002

(3) For the position sensor gearbox [9] in the Right Wheel Well;

Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-58-01-020-001

(4) Remove the electrical connectors [12] from the flap position sensors [26].

SUBTASK 27-58-01-020-002

(5) If you will remove the position sensor gearbox [9] in the right wheel well, remove the electrical connector [17] from the flap limit switch [13].

SUBTASK 27-58-01-020-003

(6) Disconnect the torque tubes [1] from the position sensor gearbox [9]:

(a) Remove the screws [2] that attach the coupling sleeves [10] to the splined couplings [11].

(b) Move the coupling sleeves [10] off the splined couplings [11].

SUBTASK 27-58-01-020-004

(7) Remove the nuts [20], washers [19] and bolts [18] that attach the guard [21] to the bracket [22].

SUBTASK 27-58-01-020-005

(8) Remove the position sensor gearbox [9]:

(a) Remove the screw [15] and washers [16] to disconnect the jumper wire [14] from the position sensor gearbox [9].

(b) Remove the nuts [7], washers [4], washers [5], washers [6] and bolts [3] to disconnect the position sensor gearbox [9] from the structure.

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(c) Remove the nut [30], washer [28], washer [29] and bolt [27] to disconnect the position sensor gearbox [9] from the structure.

(d) Remove the position sensor gearbox [9].

NOTE: The position sensor gearbox weighs approximately 20 pounds.

(e) Remove the bushing [31], bushing [32] and mount [8] from the top fitting on the position sensor gearbox [9].

(f) Remove the mounts [8] from the bottom fittings on the position sensor gearbox [9].

SUBTASK 27-58-01-020-006

(9) If you will install a new position sensor gearbox [9], remove these parts from the gearbox you removed:

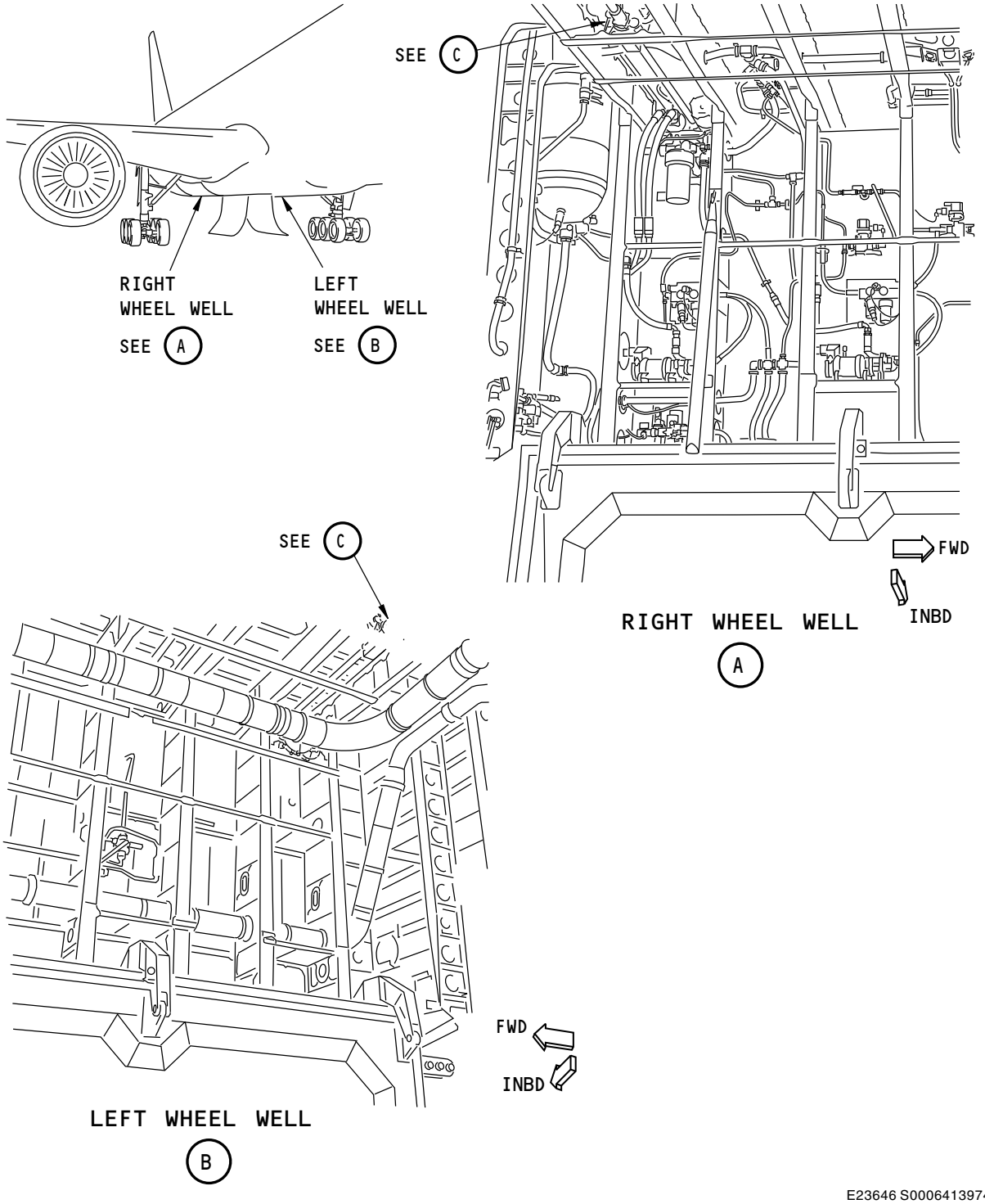
(a) Remove the bolts [23] and washers [24] to remove the bracket [22] from the position sensor gearbox [9].

(b) Do this task: Flap Position Sensor Removal, TASK 27-58-03-000-801.

(c) For the position sensor gearbox [9] in the right wheel well, do this task: Flap Limit Switch Removal, TASK 27-51-32-000-801.

——— END OF TASK ———

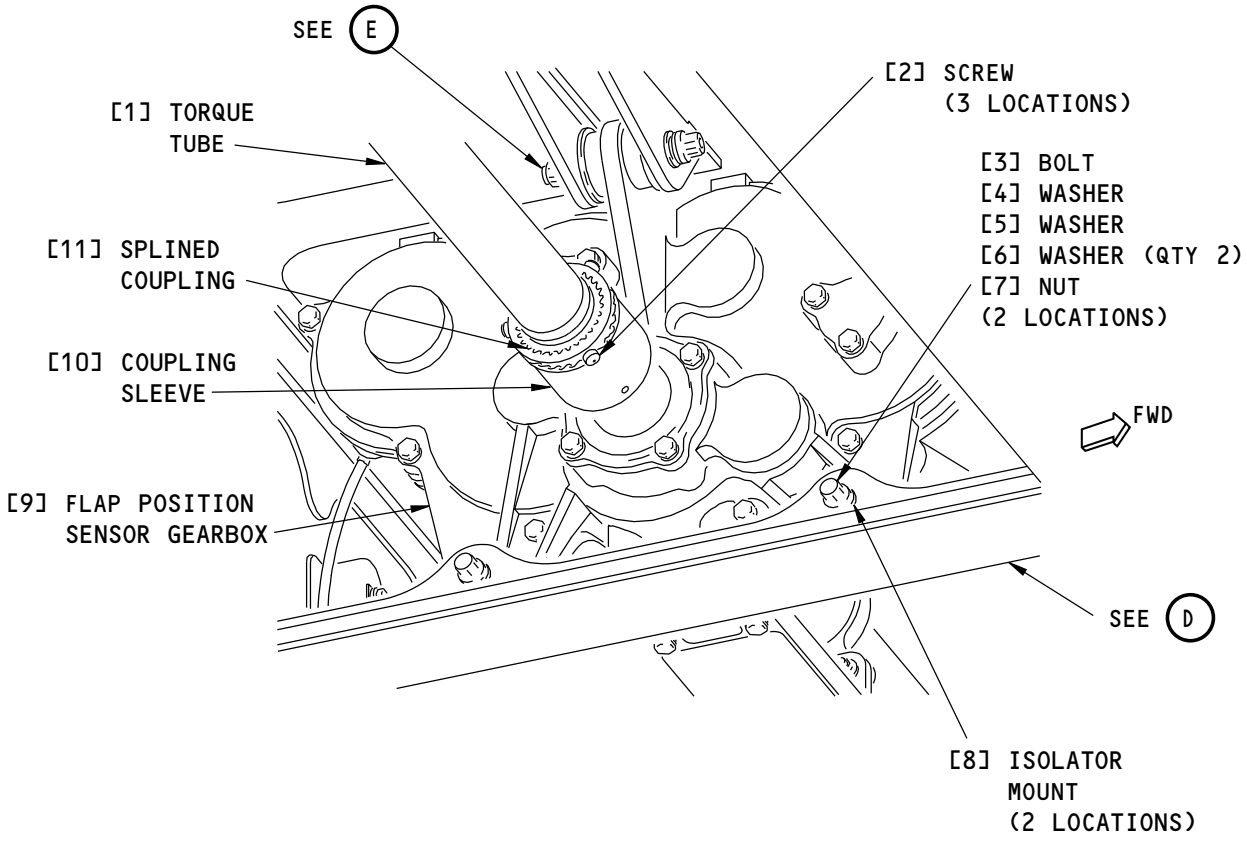
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Flap Position Sensor Gearbox Installation
Figure 401/27-58-01-990-801 (Sheet 1 of 4)

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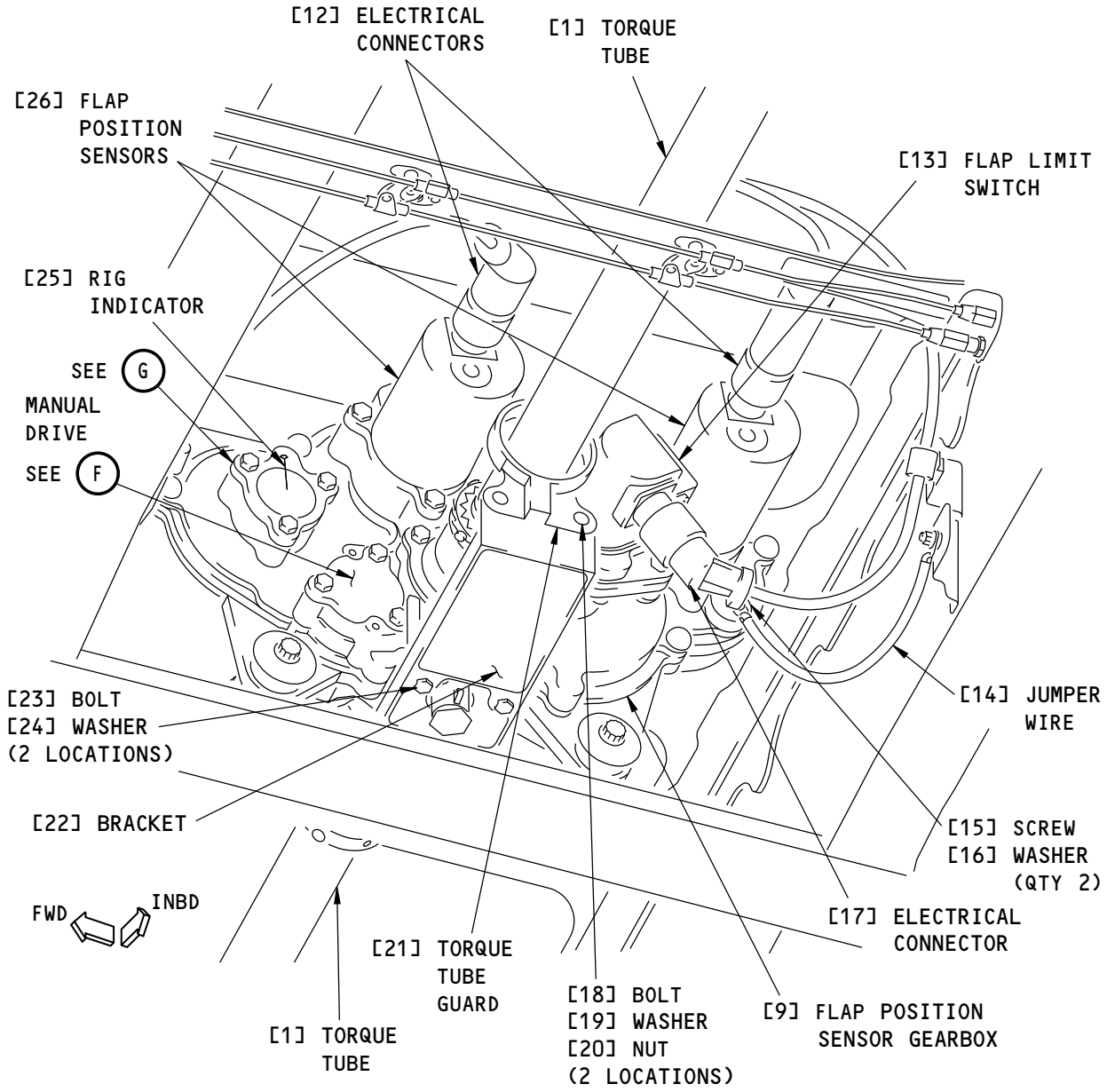
FLAP POSITION SENSOR GEARBOX
(RIGHT GEARBOX IS SHOWN,
LEFT GEARBOX IS EQUIVALENT)

C

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Flap Position Sensor Gearbox Installation
Figure 401/27-58-01-990-801 (Sheet 2 of 4)

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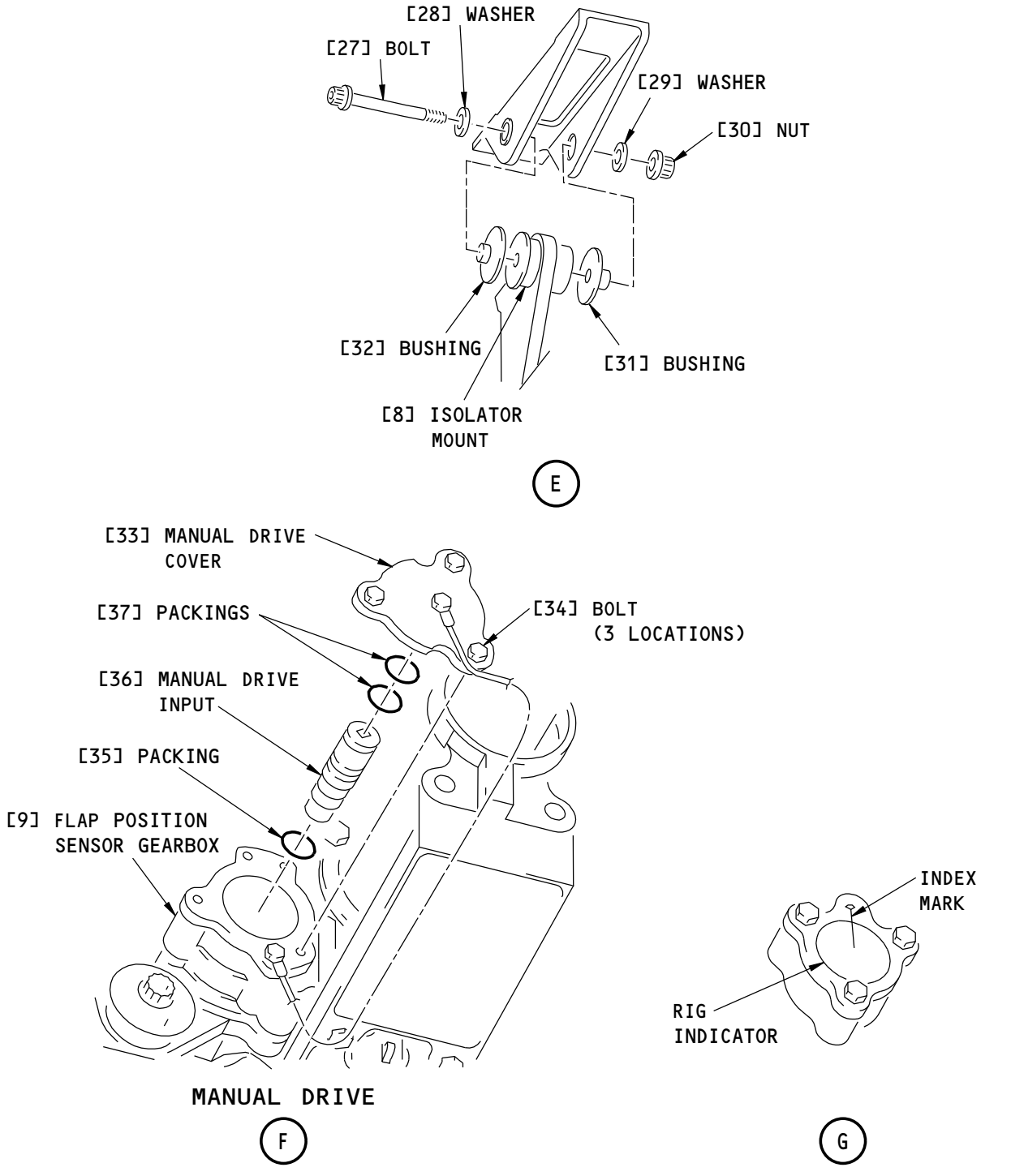
FLAP POSITION SENSOR GEARBOX
(RIGHT GEARBOX IS SHOWN,
LEFT GEARBOX IS EQUIVALENT)

D

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Flap Position Sensor Gearbox Installation
Figure 401/27-58-01-990-801 (Sheet 3 of 4)

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Flap Position Sensor Gearbox Installation
Figure 401/27-58-01-990-801 (Sheet 4 of 4)

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TASK 27-58-01-400-801

3. Flap Position Sensor Gearbox Installation

(Figure 401)

A. References

Reference	Title
12-21-09-640-801	Trailing Edge Torque Tube and Torque Tube Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-720-802	Flap System Alternate Control Test (P/B 501)
27-51-00-740-802	Flap System Primary Control Test (P/B 501)
27-51-32-400-801	Flap Limit Switch Installation (P/B 401)
27-58-03-400-801	Flap Position Sensor Installation (P/B 401)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Position sensor gearbox	27-58-01-10-140	ARO ALL

E. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

F. Flap Position Sensor Gearbox Installation

SUBTASK 27-58-01-860-007

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

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Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-58-01-860-008

(2) For the position sensor gearbox [9] in the Right Wheel Well;

Make sure that this circuit breaker is open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-58-01-420-001

(3) If the bracket [22] is not installed on the position sensor gearbox [9], install the bolts [23] and washers [24] to attach the bracket.

SUBTASK 27-58-01-210-003

(4) Make sure the flaps are in the retracted position.

SUBTASK 27-58-01-420-002

(5) Install the position sensor gearbox [9]:

(a) Install the mount [8] and the bushing [31] and bushing [32] on the top fitting of the position sensor gearbox [9].

(b) Install the mounts [8] on the bottom fittings on the position sensor gearbox [9].

(c) Put the position sensor gearbox [9] in its position.

(d) Install the bolts [3], washers [4], washers [5], washers [6] and nuts [7] that connect the position sensor gearbox [9] to the lower fittings.

(e) Install the bolt [27], washer [28], washer [29] and nut [30] that connect the position sensor gearbox [9] to the upper fitting.

(f) Tighten the nuts [7] and nut [30] to 220-360 pound-inches.

(g) Install the screw [15] and washers [16] to connect the jumper wire [14] to the position sensor gearbox [9].

(h) Tighten the screw [15] to 25-35 pound-inches plus run-on torque.

(i) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance from the structure to the position sensor gearbox [9] is a maximum of 8 milliohm (WDM D6-54446).

SUBTASK 27-58-01-420-003

(6) Install the bolts [18], washers [19] and nuts [20] to attach the guard [21] to the bracket [22].

SUBTASK 27-58-01-210-004

(7) Make sure the index marks for the rig indicator [25] on the position sensor gearbox [9] are aligned.

SUBTASK 27-58-01-420-004

(8) Connect the torque tubes [1] to the position sensor gearbox [9]:

(a) Apply grease, D00633, to the coupling sleeves [10].

(b) Put the coupling sleeves [10] on the splined couplings [11].

(c) Install the screws [2] to attach the coupling sleeves [10].

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(d) Tighten the screws [2].

NOTE: Do not over tighten the screws [2].

(e) Install the lockwire on the screws [2].

SUBTASK 27-58-01-640-001

(9) For the flap position sensor gearbox couplings, do this task: Trailing Edge Torque Tube and Torque Tube Support Lubrication, TASK 12-21-09-640-801.

SUBTASK 27-58-01-420-005

(10) If the flap position sensors [26] are not installed, do this task: Flap Position Sensor Installation, TASK 27-58-03-400-801.

SUBTASK 27-58-01-420-006

(11) Connect the electrical connectors [12] to the flap position sensors [26].

SUBTASK 27-58-01-420-007

(12) On the position sensor gearbox [9] in the right wheel well, if the flap limit switch [13] is not installed, do this task: Flap Limit Switch Installation, TASK 27-51-32-400-801.

SUBTASK 27-58-01-420-008

(13) On the position sensor gearbox [9] in the right wheel well, connect the electrical connector [17] to the flap limit switch [13].

SUBTASK 27-58-01-860-003

(14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-58-01-860-004

(15) If you installed the position sensor gearbox [9] in the right wheel well;

Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-58-01-860-005

(16) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-58-01-440-001

(17) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-58-01-740-001

(18) Do this task: Flap System Primary Control Test, TASK 27-51-00-740-802.

NOTE: Do the TEST OF FLAPS ONLY with FSEU 1 and FSEU 2.

SUBTASK 27-58-01-710-001

(19) If you installed the position sensor gearbox [9] in the right wheel well, do this task: Flap System Alternate Control Test, TASK 27-51-00-720-802.

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-58-01-080-001

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

——— END OF TASK ———

TASK 27-58-01-960-801

4. Flap Position Sensor Gearbox Manual Drive Input Replacement

(Figure 401)

A. General

(1) The manual drive input on the flap position sensor gearbox has a shearout feature. The shearout is designed to break if too much torque is applied to the manual drive.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1169	Screw - 5/16 Inch (0.312-24 UNF-2B), 2 Inch Minimum Length

D. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
35	Packing	27-58-01-10-160	ARO ALL
36	Manual drive input	27-58-01-10-150	ARO ALL
37	Packing	27-58-01-10-155	ARO ALL

F. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

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G. Prepare for the Replacement

SUBTASK 27-58-01-480-003

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-58-01-480-004

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-58-01-210-005

(3) Make sure the trailing edge flaps are in the retracted position. If they are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-58-01-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

H. Replace the Manual Drive Input

SUBTASK 27-58-01-010-001

(1) Loosen the bolts [34] and open the manual drive cover [33].

SUBTASK 27-58-01-020-007

(2) Remove the manual drive input [36]:

(a) Install the screw, STD-1169 in the threaded part of the manual drive input [36].

(b) Pull on the screw, STD-1169 to remove the manual drive input [36] with the packing [35] and packings [37] from the position sensor gearbox [9].

NOTE: It will take approximately 20 pounds of force to remove the manual drive input [36].

SUBTASK 27-58-01-420-009

(3) Install a new manual drive input [36]:

(a) Install new packings [37] on the manual drive input [36].

(b) Put a new packing [35] on the manual drive input [36].

(c) Apply grease, D00013 to the manual drive input [36], packings [37] and packing [35].

(d) Use a 3/8-inch square drive to push the manual drive input [36] in the position sensor gearbox [9].

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SUBTASK 27-58-01-710-002

(4) Use the manual drive to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-58-01-410-001

(5) Put the manual drive cover [33] on the position sensor gearbox [9] and tighten the bolts [34].

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-58-01-440-002

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-58-01-080-002

WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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FLAP POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the position sensor for the trailing edge flaps.

(2) An installation of the position sensor for the trailing edge flaps.

B. The flap position sensors are installed on the flap position sensor gearboxes in the left and right wheel wells. There are two position sensors on each gearbox.

C. The flaps must be in the retracted position when you remove and install the position sensors.

TASK 27-58-03-000-801

2. Flap Position Sensor Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-58-03-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-58-03-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-58-03-210-001

(3) Make sure the trailing edge flaps are in the retracted position. If they are not retracted, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

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SUBTASK 27-58-03-040-001

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

D. Flap Position Sensor Removal

SUBTASK 27-58-03-860-001

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-58-03-020-001

(2) Remove the electrical connector [3] from the position sensor [2].

SUBTASK 27-58-03-020-002

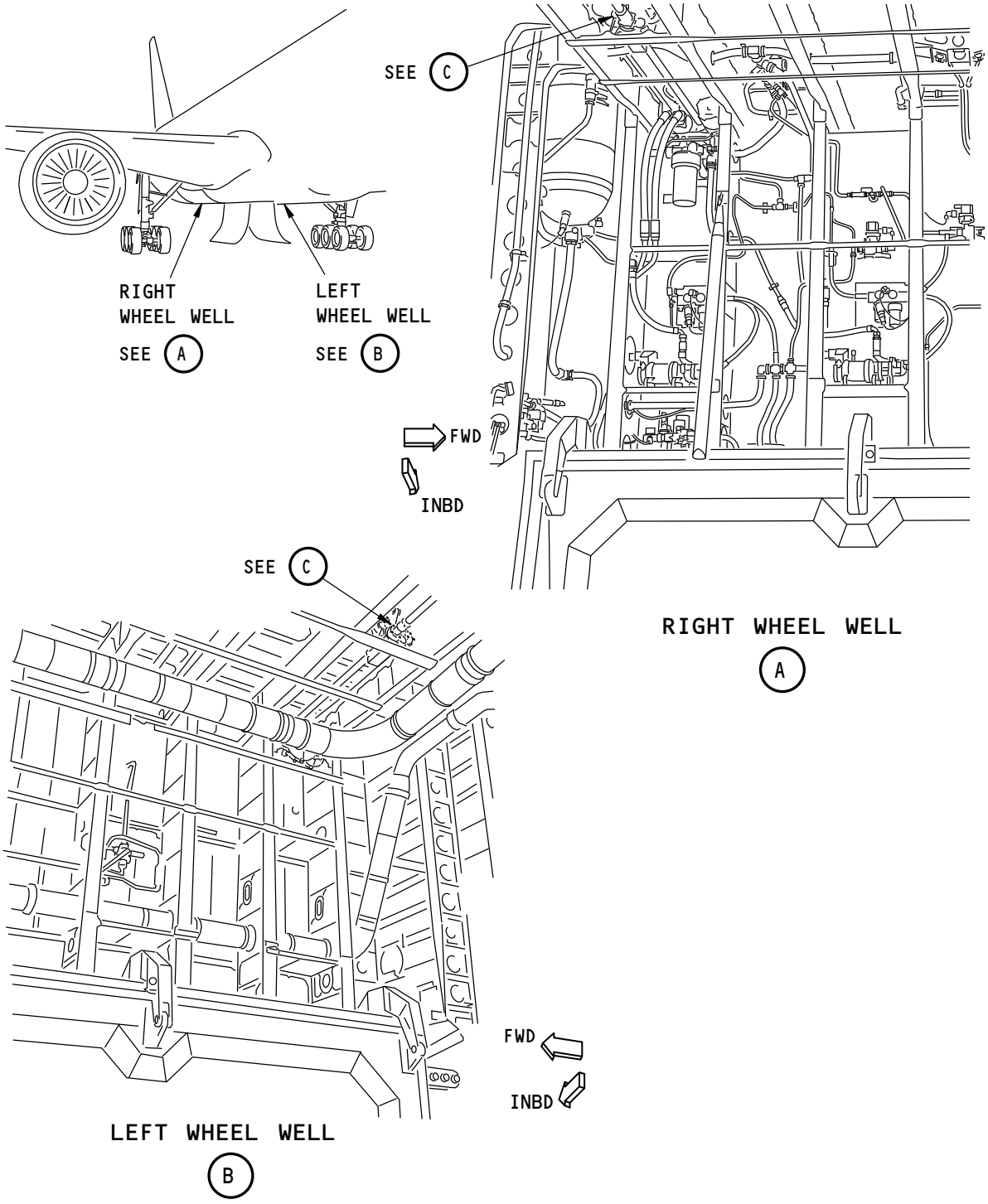
(3) Remove the position sensor [2]:

(a) Remove the bolts [6] and washers [7] that attach the position sensor [2] to the position sensor gearbox [1].

(b) Remove the position sensor [2].

END OF TASK

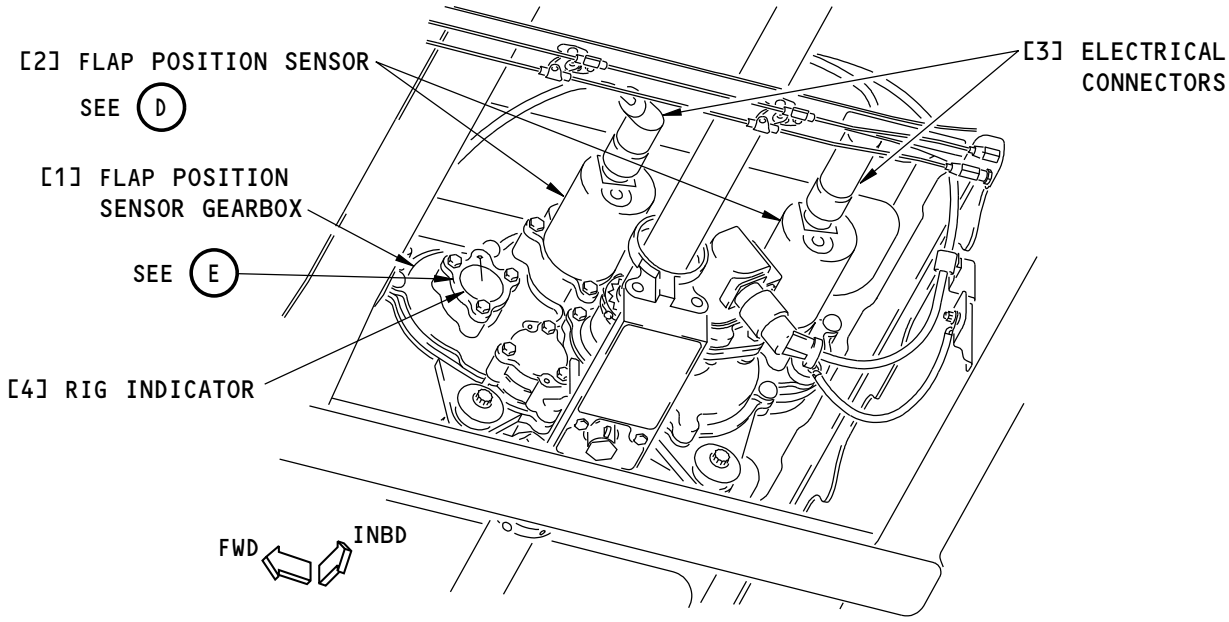
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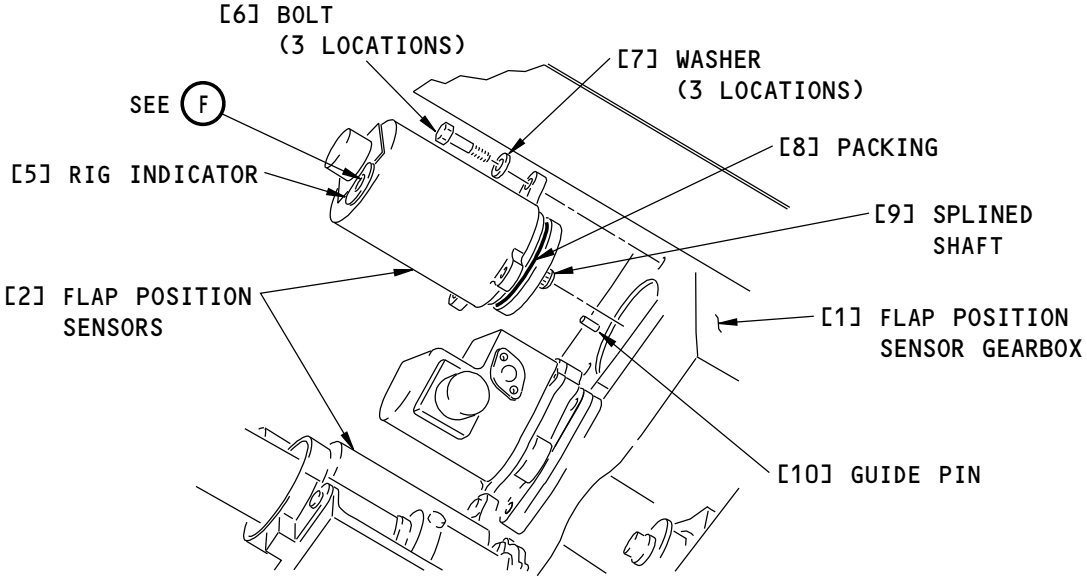
Flap Position Sensor Installation
Figure 401/27-58-03-990-801 (Sheet 1 of 3)

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FLAP POSITION SENSOR GEARBOX
(RIGHT GEARBOX IS SHOWN, LEFT GEARBOX IS EQUIVALENT)

C



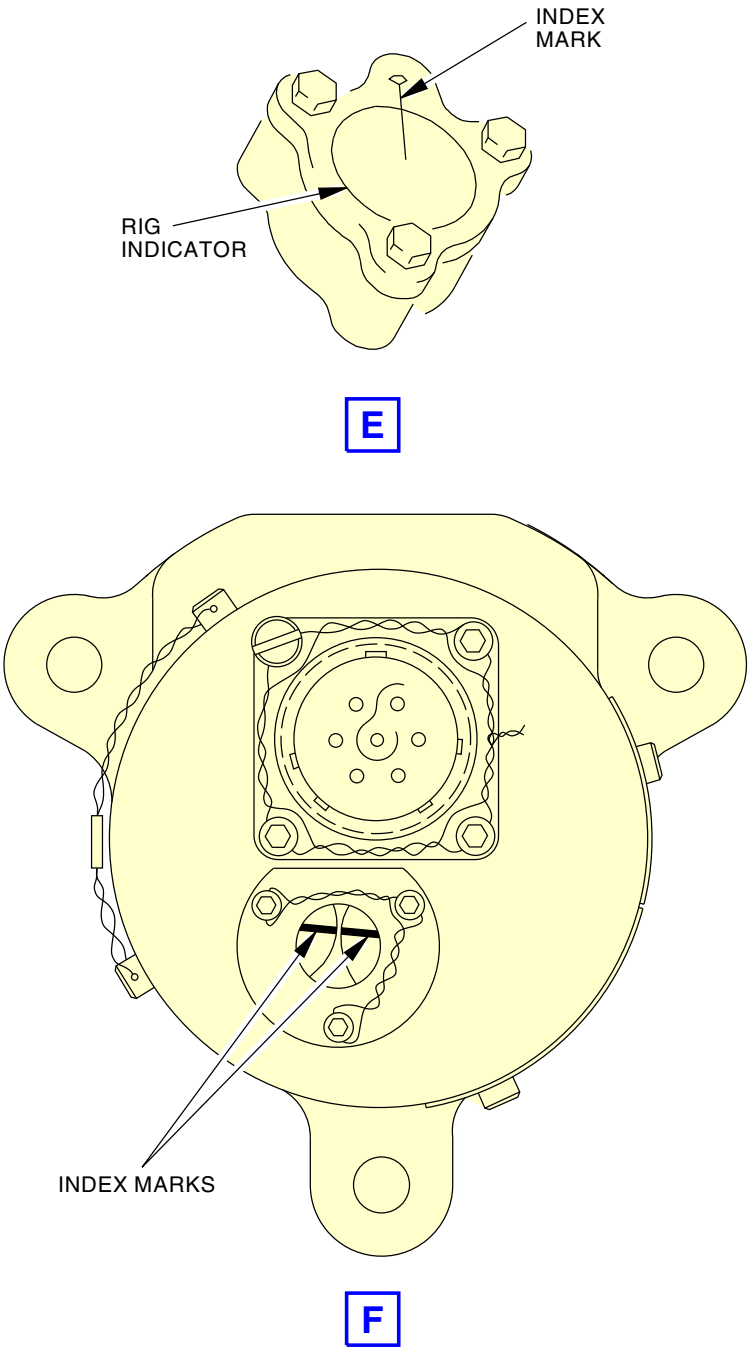
FLAP POSITION SENSOR

D

E17844 S0006413984_V2

Flap Position Sensor Installation
Figure 401/27-58-03-990-801 (Sheet 2 of 3)

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J68051 S0000176040_V2

Flap Position Sensor Installation
Figure 401/27-58-03-990-801 (Sheet 3 of 3)

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TASK 27-58-03-400-801

3. Flap Position Sensor Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-58-00-710-801	Flap Position Indication System - Operational Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Position sensor	27-58-03-01-030	ARO ALL
8	Packing	27-58-03-01-035	ARO ALL

E. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left
144	Main Landing Gear Wheel Well, Right

F. Flap Position Sensor Installation

SUBTASK 27-58-03-210-002

(1) Make sure the trailing edge flaps are in the retracted position. If they are not retracted, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

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SUBTASK 27-58-03-210-003

(2) Make sure the index marks for the rig indicator [5] on the position sensor [2] are aligned.

SUBTASK 27-58-03-820-001

(3) If the index marks on the rig indicator [5] are not aligned, adjust the position sensor [2]:

(a) Press the lock tab on the base of the position sensor [2].

(b) Turn the splined shaft [9] until the index marks align.

(c) Release the lock tab on the position sensor [2].

SUBTASK 27-58-03-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Install the position sensor [2]:

(a) Apply grease, D00633 to the packing [8].

(b) Install the packing [8] on the position sensor [2].

(c) Apply grease, D00633 to the splines on the splined shaft [9] for the position sensor [2].

(d) Fill the area on the position sensor [2] around the splined shaft [9] with grease, D00633.

(e) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surface of the position sensor [2] and the flap position sensor gearbox [1].

(f) Make sure the area around the bottom bolt hole in the position sensor [2] and the flap position sensor gearbox [1] are clean for an electrical bond.

(g) Make sure the rig indicator [4] on the flap position sensor gearbox [1] are aligned.

(h) Put the position sensor [2] in the flap position sensor gearbox [1]:

1) Engage the position sensor [2] with the opening in the flap position sensor gearbox [1].

2) Engage the guide pin [10] on the flap position sensor gearbox [1] with the hole in the position sensor [2].

3) Engage the splined shaft [9] with the splines on the flap position sensor gearbox [1].

NOTE: This will disengage the lock in the position sensor [2]. You can turn the position sensor [2] a small amount to engage the splines.

(i) Install the bolts [6] and washers [7] that attach the position sensor [2].

(j) Install MS20995C20 lockwire, G50225 on the bolts [6].

(k) Make sure the rig indicator [5] on the position sensor [2] are still aligned.

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(l) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the position sensor [2] and the position sensor gearbox does not exceed 2.5 milliohms.

SUBTASK 27-58-03-420-002

(5) Connect the electrical connector [3] to the position sensor [2].

SUBTASK 27-58-03-860-002

(6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

G. Flap Position Sensor Installation Test

SUBTASK 27-58-03-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-58-03-440-001

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-58-03-740-001

(3) Do this task: Flap Position Indication System - Operational Test, TASK 27-58-00-710-801.

SUBTASK 27-58-03-200-001

(4) Do a check of the EICAS flap/slat maintenance page:

(a) Move the flap control lever to the UP position.

(b) Make sure the EICAS flap/slat maintenance page shows less than 11.03 degrees.

(c) If the EICAS flap/slat maintenance page shows 11.03 degrees or more, replace the flap position sensor.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-58-03-080-001

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

——— END OF TASK ———

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FLAP SKEW DETECTION SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has the following task(s):

(1) A test of the flap skew detection system.

(2) A rigging check of the RVT flap skew sensors.

TASK 27-59-00-740-801

2. Flap Skew Detection System Test

(Figure 501)

A. General

(1) A maintenance access terminal (MAT) for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(2) To do a full test of the flap skew system, you must do this test with FSEU 1 and FSEU 2. The same sequence of steps can be used for FSEU 1 or FSEU 2.

(3) Do this test with FSEU 1 and 2 to test these flap skew sensors:

(a) M27338 Flap Skew Sensor

(b) M27339 Flap Skew Sensor

(c) M27340 Flap Skew Sensor

(d) M27341 Flap Skew Sensor

(e) M27342 Flap Skew Sensor

(f) M27343 Flap Skew Sensor

(g) M27344 Flap Skew Sensor

(h) M27345 Flap Skew Sensor

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-59-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-59-00-860-002

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-59-00-860-003

(3) Make sure the flap control lever is in the UP position.

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SUBTASK 27-59-00-860-004

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must use the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

SUBTASK 27-59-00-740-001

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS DURING THIS TEST. THE FLAPS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Use a maintenance access terminal (MAT) to do the system test of the flaps primary controls:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 High Lift System
5) SYSTEM TEST
6) Primary System Test-FSEU 1 (Primary System Test-FSEU 2)
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST
3) Test of flaps only

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

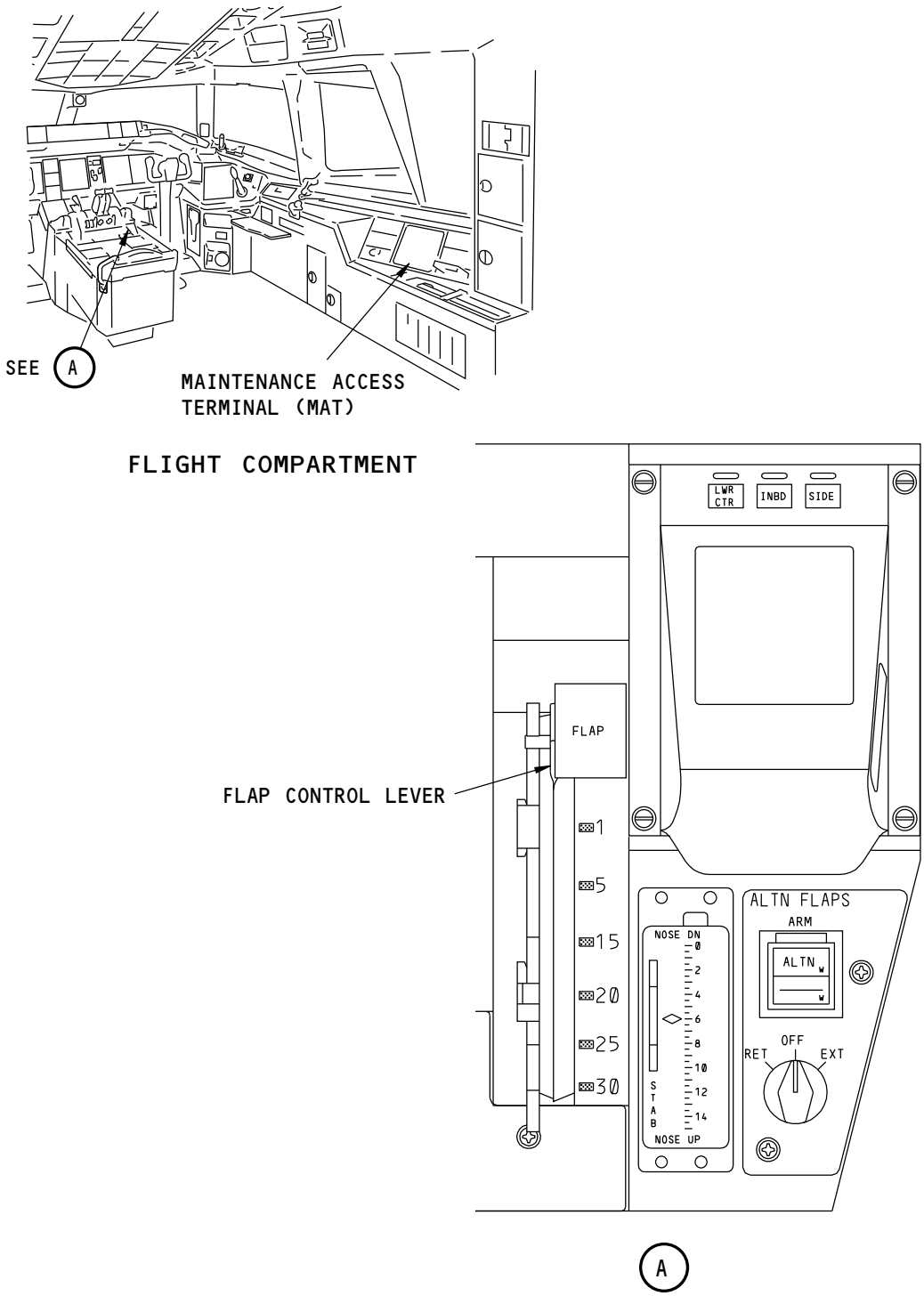
(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-59-00-860-005

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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Flap Skew Detection System Test
Figure 501/27-59-00-990-801

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TASK 27-59-00-720-801

3. Flap Skew Sensor - Rigging Check

A. General

(1) This test is only applicable for RVT flap skew sensors.

(2) This test checks that the RVT skew sensor were rigged correctly using the maintenance page.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Prepare for the Test

SUBTASK 27-59-00-760-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-59-00-860-006

WARNING MAKE SURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT

(2) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-00-860-007

(3) Extend the flaps to the 30-unit detent: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

D. Flap Skew Sensor Test

SUBTASK 27-59-00-720-001

(1) Make sure that the following values are within the acceptable range on the FLAP/SLAT EICAS MAINT PAGE:

NOTE: If this test is performed on an airplane with an older version of AIMS installed, the "A" reference is equivalent to the "1" reference and the "B" reference is equivalent to the "2" reference.

(a) OUTBD FLAP L1 A 8.150 to 8.650 Volts

(b) OUTBD FLAP L2 A 8.150 to 8.650 Volts

(c) INBD FLAP L3 A 8.150 to 8.650 Volts

(d) INBD FLAP L4 A 8.150 to 8.650 Volts

(e) OUTBD FLAP L1 B 8.150 to 8.650 Volts

(f) OUTBD FLAP L2 B 8.150 to 8.650 Volts

(g) INBD FLAP L3 B 8.150 to 8.650 Volts

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(h) INBD FLAP L4 B 8.150 to 8.650 Volts
(i) INBD FLAP R5 A 8.150 to 8.650 Volts
(j) INBD FLAP R6 A 8.150 to 8.650 Volts
(k) OUTBD FLAP R7 A 8.150 to 8.650 Volts
(l) OUTBD FLAP R8 A 8.150 to 8.650 Volts
(m) INBD FLAP R5 B 8.150 to 8.650 Volts
(n) INBD FLAP R6 B 8.150 to 8.650 Volts
(o) OUTBD FLAP R7 B 8.150 to 8.650 Volts
(p) OUTBD FLAP R8 B 8.150 to 8.650 Volts

SUBTASK 27-59-00-720-002

(2) Make sure that the following conditions are true on the FLAP/SLAT EICAS MAINT PAGE:
(a) OUTBD FLAP L1 A and R8 A Are within 0.3V of each other
(b) OUTBD FLAP L2 A and R7 A Are within 0.3V of each other
(c) INBD FLAP L3 A and R6 A Are within 0.3V of each other
(d) INBD FLAP L4 A and R5 A Are within 0.3V of each other
(e) OUTBD FLAP L1 B and R8 B Are within 0.3V of each other
(f) OUTBD FLAP L2 B and R7 B Are within 0.3V of each other
(g) INBD FLAP L3 B and R6 B Are within 0.3V of each other
(h) INBD FLAP L4 B and R5 B Are within 0.3V of each other

SUBTASK 27-59-00-860-008

(3) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-59-00-720-003

(4) Make sure that the following conditions are true on the FLAP/SLAT EICAS MAINT PAGE:
(a) OUTBD FLAP L1 A and R8 A Are within 0.3V of each other
(b) OUTBD FLAP L2 A and R7 A Are within 0.3V of each other
(c) INBD FLAP L3 A and R6 A Are within 0.3V of each other
(d) INBD FLAP L4 A and R5 A Are within 0.3V of each other
(e) OUTBD FLAP L1 B and R8 B Are within 0.3V of each other
(f) OUTBD FLAP L2 B and R7 B Are within 0.3V of each other
(g) INBD FLAP L3 B and R6 B Are within 0.3V of each other
(h) INBD FLAP L4 B and R5 B Are within 0.3V of each other

SUBTASK 27-59-00-820-001

(5) If any of the above conditions were not met then do the flap skew sensor rigging steps in the following task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-59-00-860-009

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-59-00-760-002

(2) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-806.

——— END OF TASK ———

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FLAP SKEW SENSORS - REMOVAL/INSTALLATION

1. General

A. This procedure contains removal and installation instructions for the rotary variable transformer (RVT) flap skew sensor and the associated linkages.

B. This procedures contains these task(s):

(1) A removal of the RVT flap skew sensor for the outboard flap.

(2) An installation of the RVT flap skew sensor for the outboard flap.

(3) A removal of the outboard RVT flap skew sensor for the inboard flap.

(4) An installation of the outboard RVT flap skew sensor for the inboard flap.

(5) A removal of the inboard RVT flap skew sensor for the inboard flap.

(6) An installation of the inboard RVT flap skew sensor for the inboard flap.

(7) A removal of the control rod assembly of the RVT flap skew sensor for the outboard flap.

(8) An installation of the control rod assembly of the RVT flap skew sensor for the outboard flap.

(9) A removal of the outboard control rod assembly of the RVT flap skew sensor for the inboard flap.

(10) An installation of the outboard control rod assembly of the RVT flap skew sensor for the inboard flap.

(11) A removal of the inboard control rod assembly of the RVT flap skew sensor for the inboard flap.

(12) An installation of the inboard control rod assembly of the RVT flap skew sensor for the inboard flap.

TASK 27-59-01-000-807-002

2. Outboard Flap Skew Sensor - Removal

(Figure 401)

A. General

(1) This procedure is applicable to the rotary variable transformer (RVT) flap skew sensors for the outboard flaps. There is one skew sensor installed at flap supports 1, 2, 7 and 8.

(2) Sensor M27338 is installed at flap support No. 1.

(3) Sensor M27339 is installed at flap support No. 2.

(4) Sensor M27344 is installed at flap support No. 7.

(5) Sensor M27345 is installed at flap support No. 8.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
567	Left Wing Outboard Flap

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(Continued)

Zone	Area
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

D. Prepare for the Removal

SUBTASK 27-59-01-760-004-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-59-01-860-067-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-069-002

WARNING

MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-59-01-860-070-002

CAUTION

MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-59-01-860-071-002

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-860-072-002

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-59-01-860-073-002

WARNING

DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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E. Outboard Flap Skew Sensor Removal

SUBTASK 27-59-01-760-005-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-020-007-002

(2) Remove the flap skew sensor [5]:

(a) Remove the electrical connectors [1] from the flap skew sensor [5].

(b) Remove the bolt [21], washer [22] and washer [24] and remove the grounding strap [23] from the flap skew sensor [5].

(c) Remove the bolts [3] and washers [4] that attach the flap skew sensor [5] to the bracket [2].

NOTE: Hold the flap skew sensor [5] in its position while you disconnect it.

(d) Remove the flap skew sensor [5].

SUBTASK 27-59-01-020-008-002

(3) If necessary, do the following steps to remove the bracket [2] and housing assembly [25]:

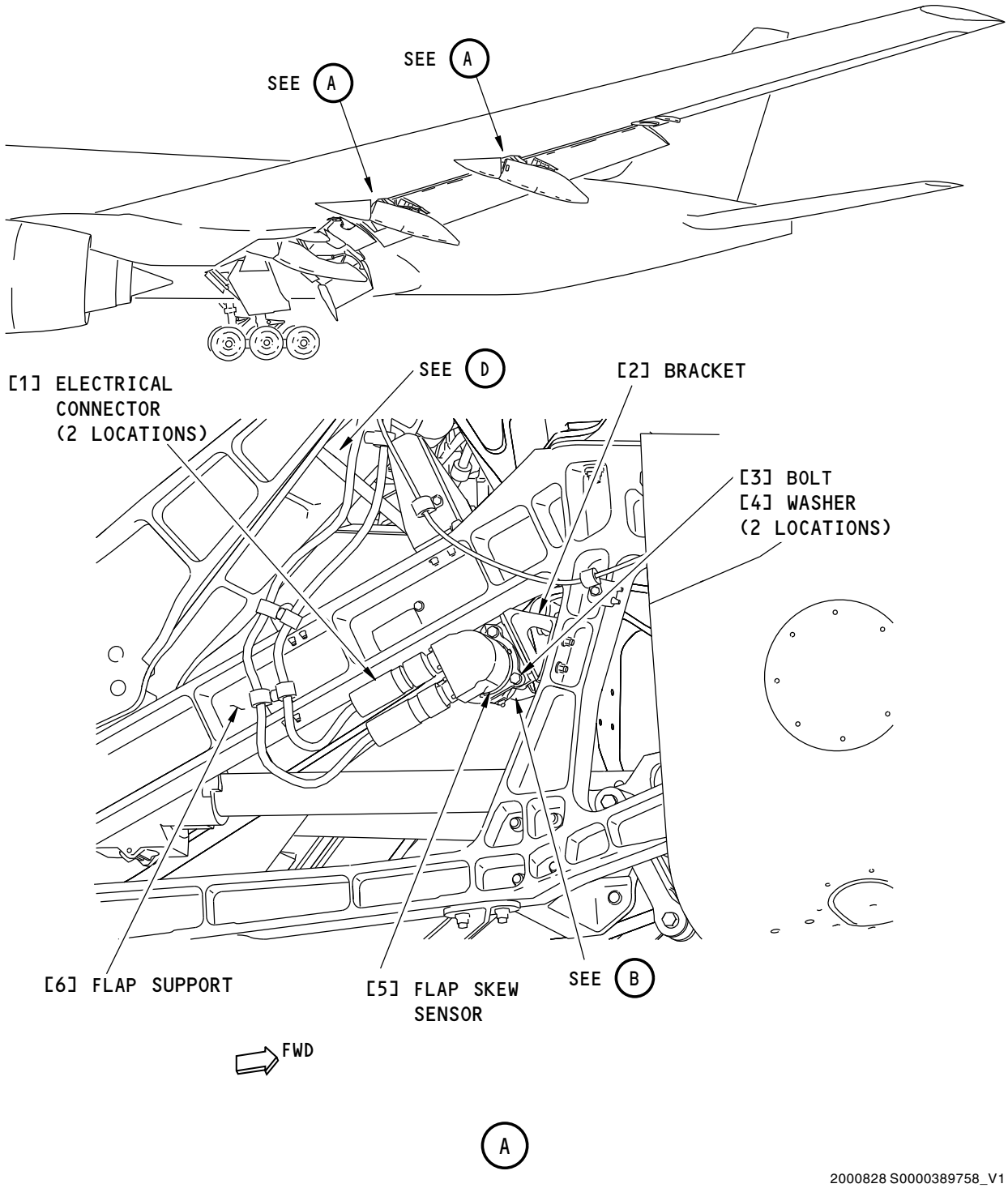
(a) Remove the bolt [34], bushing [36], washer [38] and nut [37] to disconnect the rod assembly [35] from the crank arm [33].

(b) Remove the one bolt [29] and three bolts [26] that attach the bracket [2] to the flap support [6].

(c) Remove the bracket [2] and housing assembly [25].

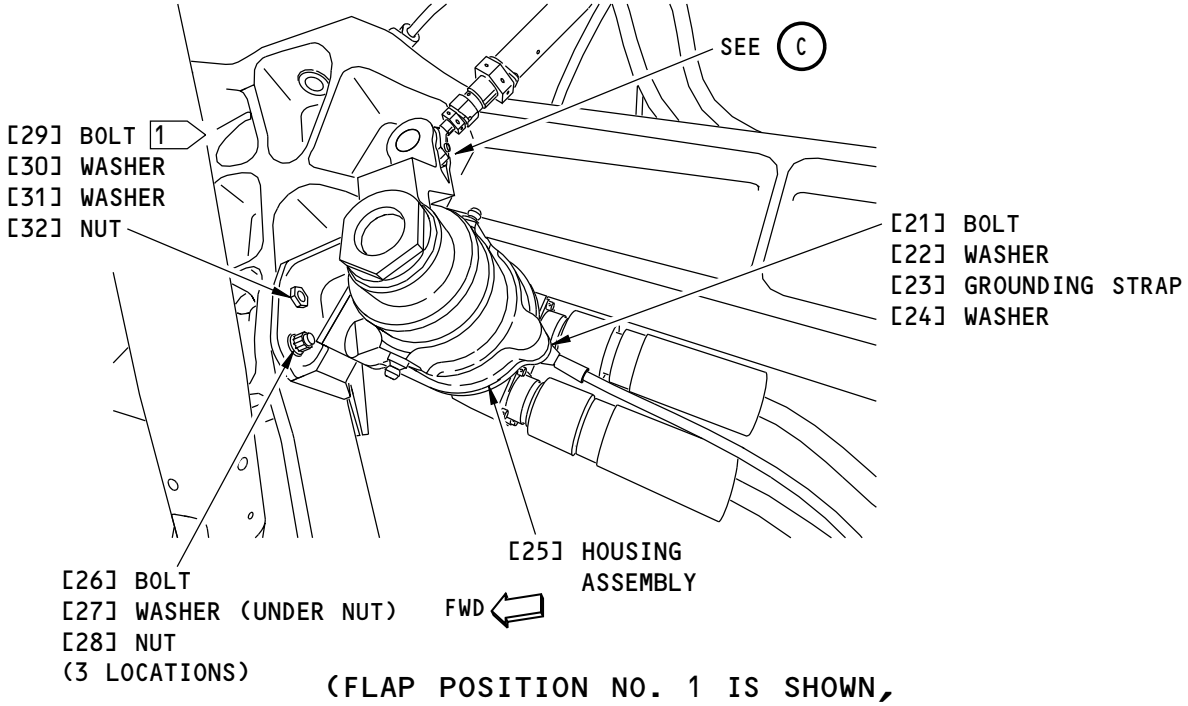
——— END OF TASK ———

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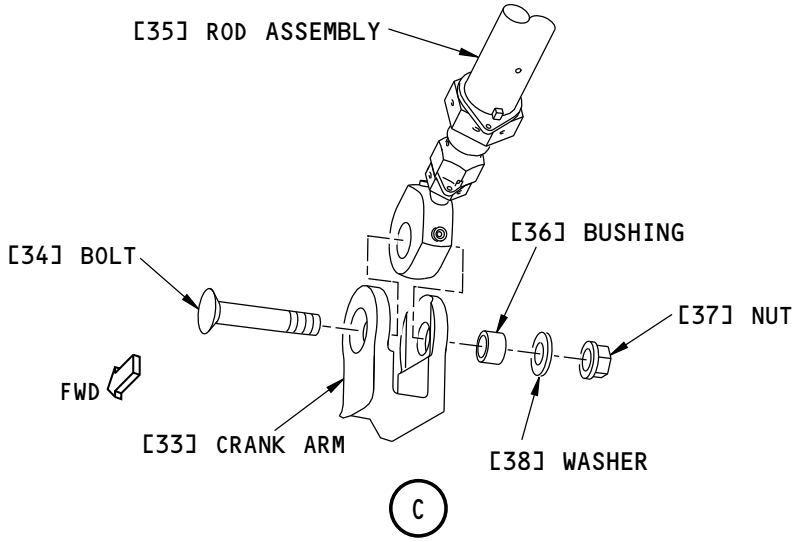
Outboard Flap Skew Sensor Installation
Figure 401/27-59-01-990-809-002 (Sheet 1 of 3)

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(FLAP POSITION NO. 1 IS SHOWN,
FLAP POSITION NO. 2 IS EQUIVALENT)

B



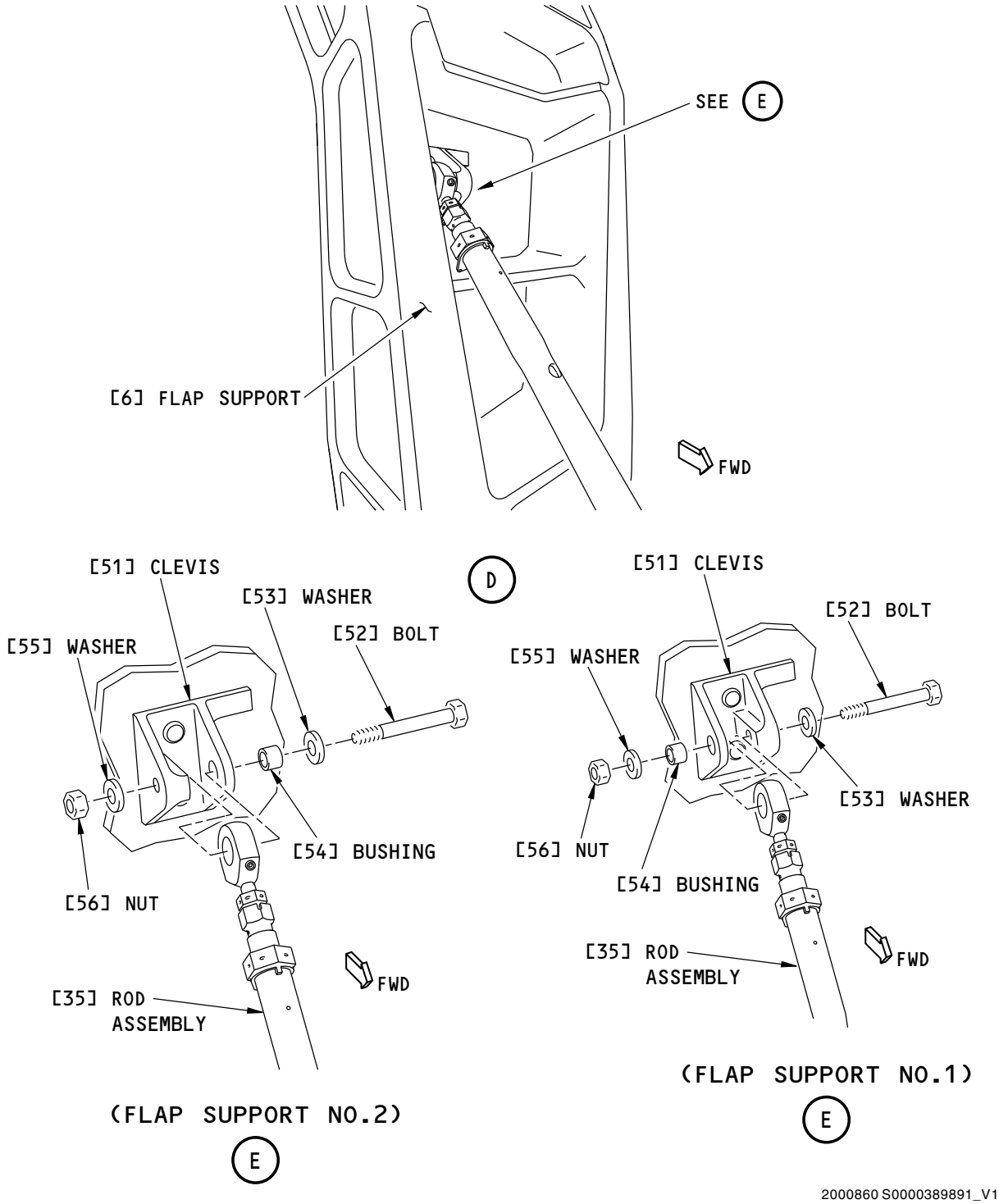
C

1 FOR FLAP POSITION NO. 2 AND NO. 7, BOLT ORIENTATION IS OPPOSITE AS SHOWN.

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Outboard Flap Skew Sensor Installation
Figure 401/27-59-01-990-809-002 (Sheet 2 of 3)

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Outboard Flap Skew Sensor Installation
Figure 401/27-59-01-990-809-002 (Sheet 3 of 3)

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TASK 27-59-01-400-807-002

3. Outboard Flap Skew Sensor - Installation

Figure 401

A. General

(1) This procedure is applicable to all RVT flap skew sensors for the outboard flaps. There is one flap skew sensor installed at each flap support.

B. References

Reference	Title
12-21-09-600-801	Flap Skew Sensor - Lubrication (P/B 301)
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-720-801	Flap Skew Sensor - Rigging Check (P/B 501)
27-59-00-740-801	Flap Skew Detection System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
A50158	Sealant - Class B Rapid Curing Fuel Tank (PRC-Desoto PR-2001 Class B)	AMS 3277 Type 2 Class B
D00633	Grease - Aircraft General Purpose	BMS3-33
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

E. Outboard Flap Skew Sensor Installation

SUBTASK 27-59-01-860-112-002

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

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SUBTASK 27-59-01-210-026-002

(2) Make sure that the bolts that attach the clevis [51] to the flap support [6] are intact.

SUBTASK 27-59-01-420-007-002

(3) If necessary, do the following steps to attach the bracket [2] and housing assembly [25] to the flap support [6]:

(a) Apply a faying surface seal with PR-1405-G sealant, A00723 between the bracket and flap support [6].

(b) Put the bracket [2] in its position on the flap support [6].

(c) Prior to installation, apply PR-2001 sealant, A50158, to the shanks and threads of bolts [26] and bolt [29].

(d) Install the bolts [26], washers [27] and nuts [28] to attach the bracket [2] to the flap support [6].

(e) Remove excess sealant.

(f) Install the bolt [29], washer [30], washer [31] and nut [32].

NOTE: For flap position No. 2 and 7, the bolt [29] orientation is opposite as shown in Figure 401 and the washer [30] is not used.

(g) Remove excess sealant.

SUBTASK 27-59-01-420-008-002

(4) Do the following steps to install the flap skew sensor [5]:

(a) Apply and layer of grease, D00633 to the splines and o-ring of the flap skew sensor [5].

(b) Apply a thin fay seal with corrosion inhibiting material, G50136 between flap skew sensor [5] and housing assembly [25].

(c) Put the flap skew sensor [5] in its position in the housing assembly [25].

(d) Apply a layer of corrosion inhibiting material, G50136 on the shank and threads of the bolts [3].

(e) Install the bolts [3] and washers [4] to attach the flap skew sensor [5] to the housing assembly [25].

(f) Install the bolt [21], washer [22], grounding strap [23] and washer [24] to attach the sensor to the housing assembly [25] (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 27-59-01-420-009-002

(5) Do the following steps to connect the rod assembly [35] to the crank arm [33]:

(a) Apply a layer of corrosion inhibiting material, G50136, to the bolt [34] shank and threads.

(b) Install the bolt [34], bushing [36], washer [38] and nut [37].

SUBTASK 27-59-01-820-001-002

(6) Adjust the flap skew sensor [5] using the steps in the following task: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-59-01-640-001-002

(7) Do this task for the applicable skew sensor: Flap Skew Sensor - Lubrication, TASK 12-21-09-600-801.

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SUBTASK 27-59-01-860-113-002

(8) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-860-114-002

(9) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-115-002

WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(10) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-116-002

(11) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-59-01-720-001

(12) Do this task: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-59-01-710-004-002

(13) Do this task: Flap Skew Detection System Test, TASK 27-59-00-740-801.

SUBTASK 27-59-01-860-117-002

(14) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-59-01-000-808-002

4. Inboard Flap Outboard Skew Sensor - Removal

(Figure 402)

A. General

(1) This procedure is applicable to the rotary variable transformer (RVT) flap skew sensors at the outboard end of the inboard flaps. There is one skew sensor installed at flap supports 3 and 6.

(2) Sensor M27340 is installed at flap support No. 3.

(3) Sensor M27343 is installed at flap support No. 6.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)

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(Continued)

Reference	Title
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Prepare for the Removal

SUBTASK 27-59-01-760-006-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-59-01-860-074-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-076-002

WARNING

MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-59-01-860-077-002

CAUTION

MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-59-01-860-078-002

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-860-079-002

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

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SUBTASK 27-59-01-860-080-002

WARNING DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Flap Outboard Skew Sensor Removal

SUBTASK 27-59-01-760-007-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-020-009-002

(2) Remove the flap skew sensor [71]:

(a) Remove the electrical connectors [72] from the flap skew sensor [71].

(b) Remove the bolt [111], washer [112] and washer [114] and remove the jumper assembly [113] from the flap skew sensor [71].

(c) Remove the bolts [73] and washers [74] that attach the flap skew sensor [71] to the bracket [76].

NOTE: Hold the flap skew sensor [71] in its position while you disconnect it.

(d) Remove the flap skew sensor [71].

SUBTASK 27-59-01-020-010-002

(3) If necessary, do the following steps to remove the bracket [76] and housing assembly [115]:

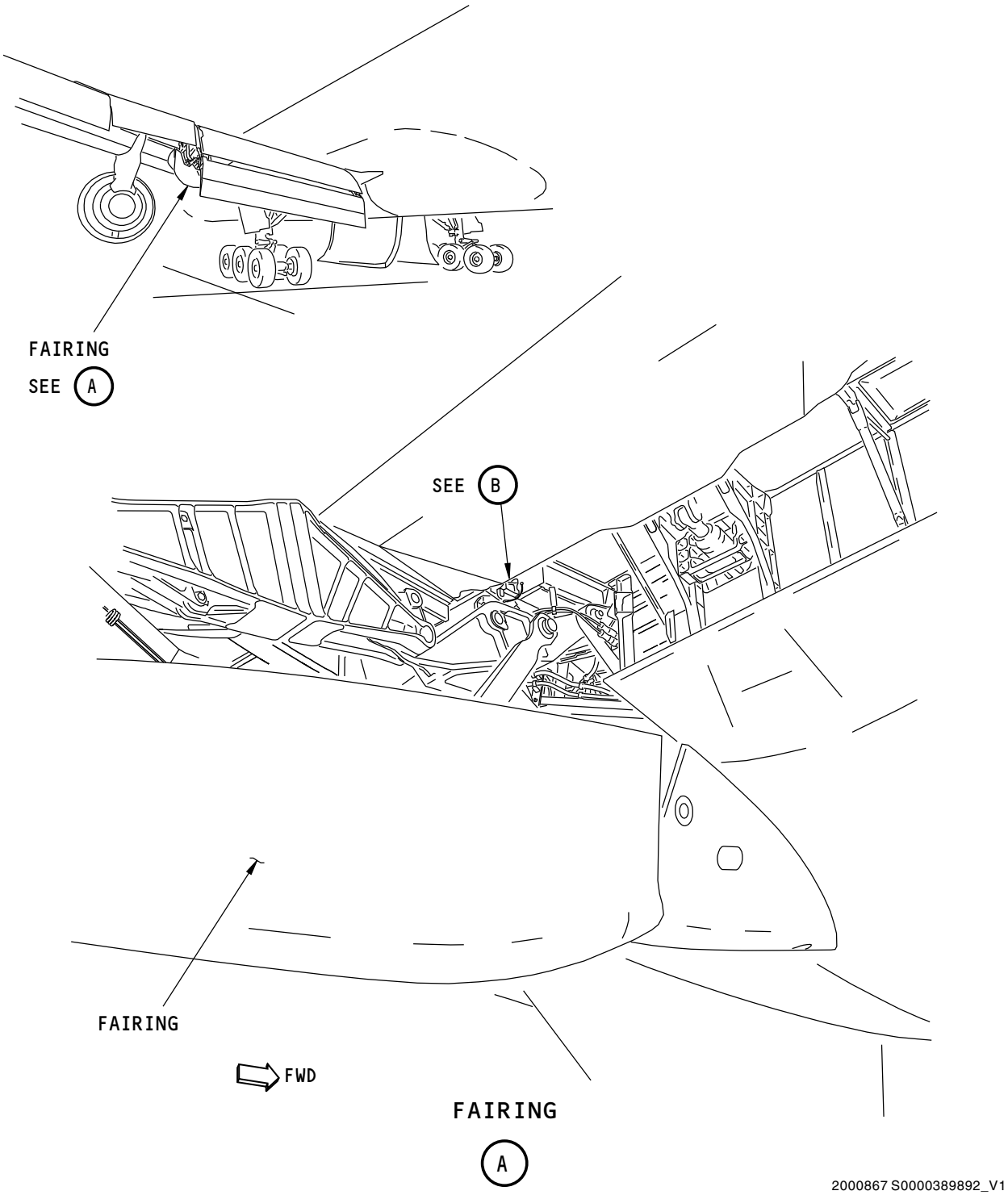
(a) Remove the bolt [79], washer [85], bushing [83], washer [82] and nut [81] to disconnect the rod assembly [84] from the crank arm [80].

(b) Remove the four bolts [77] and washers [78] that attach the bracket [76] to the flap support.

(c) Remove the bracket [76] and housing assembly [115].

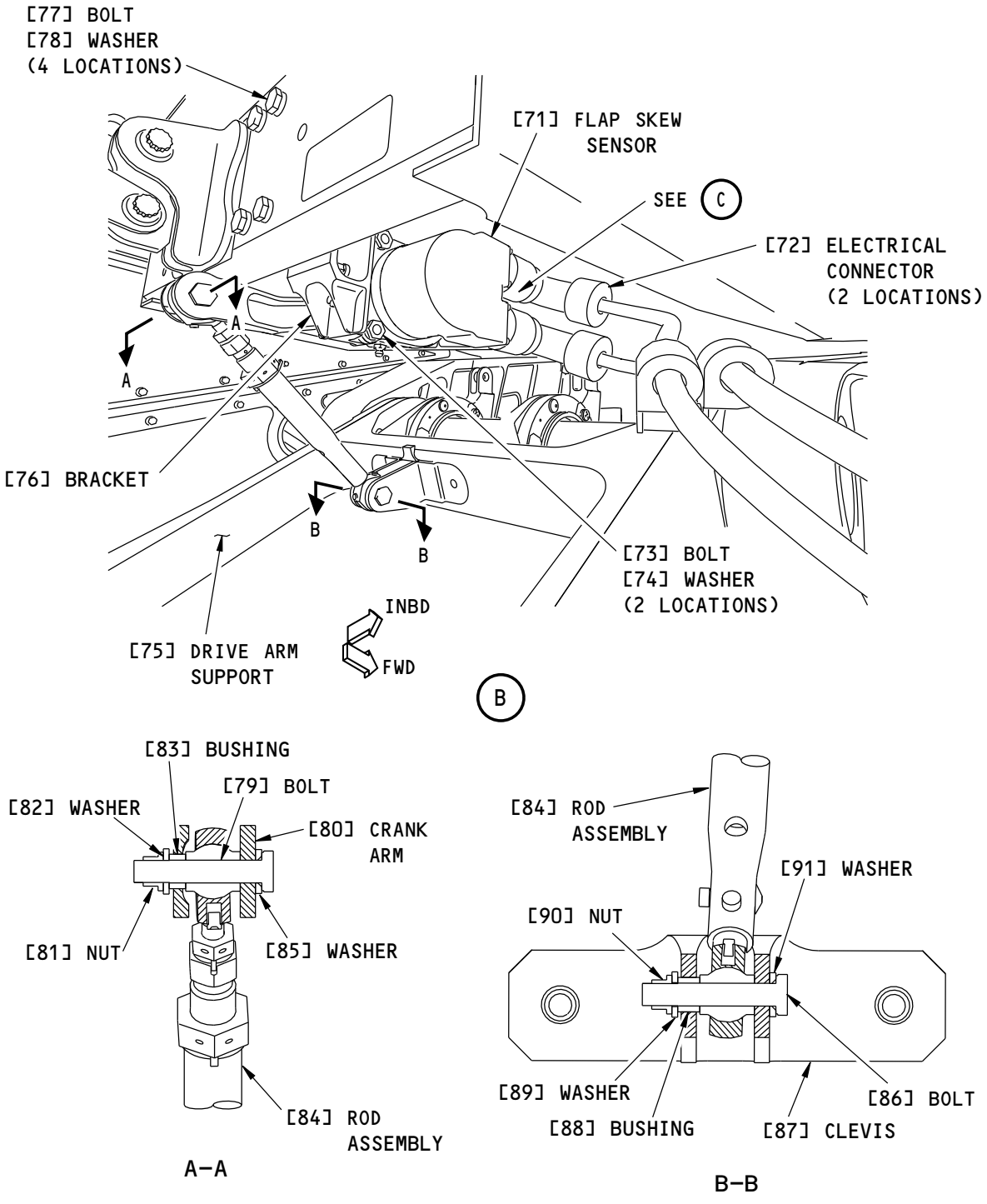
END OF TASK

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Inboard Flap Outboard Skew Sensor Installation
Figure 402/27-59-01-990-807-002 (Sheet 1 of 3)

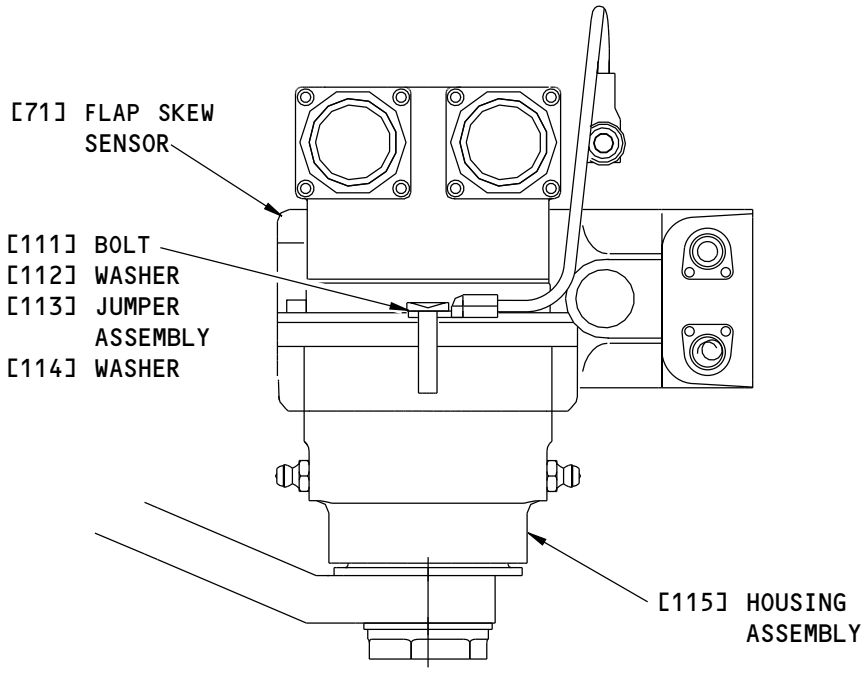
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Inboard Flap Outboard Skew Sensor Installation
Figure 402/27-59-01-990-807-002 (Sheet 2 of 3)

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Inboard Flap Outboard Skew Sensor Installation
Figure 402/27-59-01-990-807-002 (Sheet 3 of 3)

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TASK 27-59-01-400-808-002

5. Inboard Flap Outboard Skew Sensor - Installation

Figure 402

A. General

(1) This procedure is applicable to the RVT flap skew sensor at the outboard end of the inboard flaps. There is one flap skew sensor installed at each flap support.

B. References

Reference	Title
12-21-09-600-801	Flap Skew Sensor - Lubrication (P/B 301)
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-720-801	Flap Skew Sensor - Rigging Check (P/B 501)
27-59-00-740-801	Flap Skew Detection System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
A50158	Sealant - Class B Rapid Curing Fuel Tank (PRC-Desoto PR-2001 Class B)	AMS 3277 Type 2 Class B
D00633	Grease - Aircraft General Purpose	BMS3-33
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

E. Inboard Flap Outboard Skew Sensor Installation

SUBTASK 27-59-01-860-118-002

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-210-027-002

(2) Make sure that the bolts that attach the clevis [87] to the drive arm support [75] are intact.

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SUBTASK 27-59-01-420-010-002

(3) If necessary, do the following steps to attach the bracket [76] and housing assembly [115] to the support structure:

(a) Apply a faying surface seal with PR-1405-G sealant, A00723 between the bracket and flap support.

(b) Put the bracket [76] in its position on the flap support.

(c) Prior to installation, apply PR-2001 sealant, A50158, to the shanks and threads of bolts [77].

(d) Install the bolts [77] and washers [78] to attach the bracket [76] to the flap support.

(e) Remove excess sealant.

SUBTASK 27-59-01-420-011-002

(4) Do the following steps to install the flap skew sensor [71]:

(a) Apply and layer of grease, D00633 to the splines and o-ring of the flap skew sensor [71].

(b) Apply a thin fay seal with corrosion inhibiting material, G50136 between flap skew sensor [71] and housing assembly [115].

(c) Put the flap skew sensor [71] in its position in the housing assembly [115].

(d) Apply a layer of corrosion inhibiting material, G50136 on the shank and threads of the bolts [73].

(e) Install the bolts [73] and washers [74] to attach the flap skew sensor [71] to the housing assembly [115].

(f) Install the bolt [111], washer [112], jumper assembly [113] and washer [114] to attach the flap skew sensor [71] to the housing assembly [115] (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 27-59-01-420-012-002

(5) Do the following steps to connect the rod assembly [84] to the crank arm [80]:

(a) Apply a layer to corrosion inhibiting material, G50136 the bolt [79] shank and threads.

(b) Install the bolt [79], washer [85], bushing [83], washer [82] and nut [81].

SUBTASK 27-59-01-820-002-002

(6) Adjust the flap skew sensor [71] using the steps in the following task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-59-01-640-002-002

(7) Do this task for the applicable skew sensor: Flap Skew Sensor - Lubrication, TASK 12-21-09-600-801.

SUBTASK 27-59-01-860-119-002

(8) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

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SUBTASK 27-59-01-860-120-002

(9) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-121-002

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(10) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-122-002

(11) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-59-01-720-002

(12) Do this task: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-59-01-710-005-002

(13) Do this task: Flap Skew Detection System Test, TASK 27-59-00-740-801.

SUBTASK 27-59-01-860-123-002

(14) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-59-01-000-809-002

6. Inboard Flap Inboard Skew Sensor - Removal

(Figure 403)

A. General

(1) This procedure is applicable to the rotary variable transformer (RVT) flap skew sensors at the inboard end of the inboard flaps. There is one skew sensor installed at flap supports 4 and 5.

(2) Sensor M27341 is installed at flap support No. 4.

(3) Sensor M27342 is installed at flap support No. 5.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4

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(Continued)

Zone	Area
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

D. Prepare for the Removal

SUBTASK 27-59-01-760-008-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-59-01-480-005-002

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-59-01-480-006-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-59-01-860-081-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-083-002

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-59-01-860-084-002

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-59-01-860-085-002

(7) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-860-086-002

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-59-01-860-087-002

WARNING DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Flap Inboard Skew Sensor Removal

SUBTASK 27-59-01-860-088-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-020-011-002

(2) Remove the flap skew sensor [131]:

(a) Remove the electrical connectors [140] from the flap skew sensor [131].

(b) Remove the bolt [135], washer [136] and washer [138] and remove the jumper assembly [137] from the flap skew sensor [131].

(c) Remove the bolts [132] and washers [133] that attach the flap skew sensor [131] to the crank assembly [139].

NOTE: Hold the flap skew sensor [131] in its position while you disconnect it.

(d) Remove the flap skew sensor [131].

SUBTASK 27-59-01-020-012-002

(3) If necessary, do the following steps to remove the bracket [134] and crank assembly [139]:

(a) Remove the bolt [155], washer [156], bushing [158], washer [160] and nut [159] to disconnect the rod assembly [157] from the crank arm [139].

(b) Remove the bolt [152] and bolt [144] that attach the bracket [134] to the actuator support assembly [149].

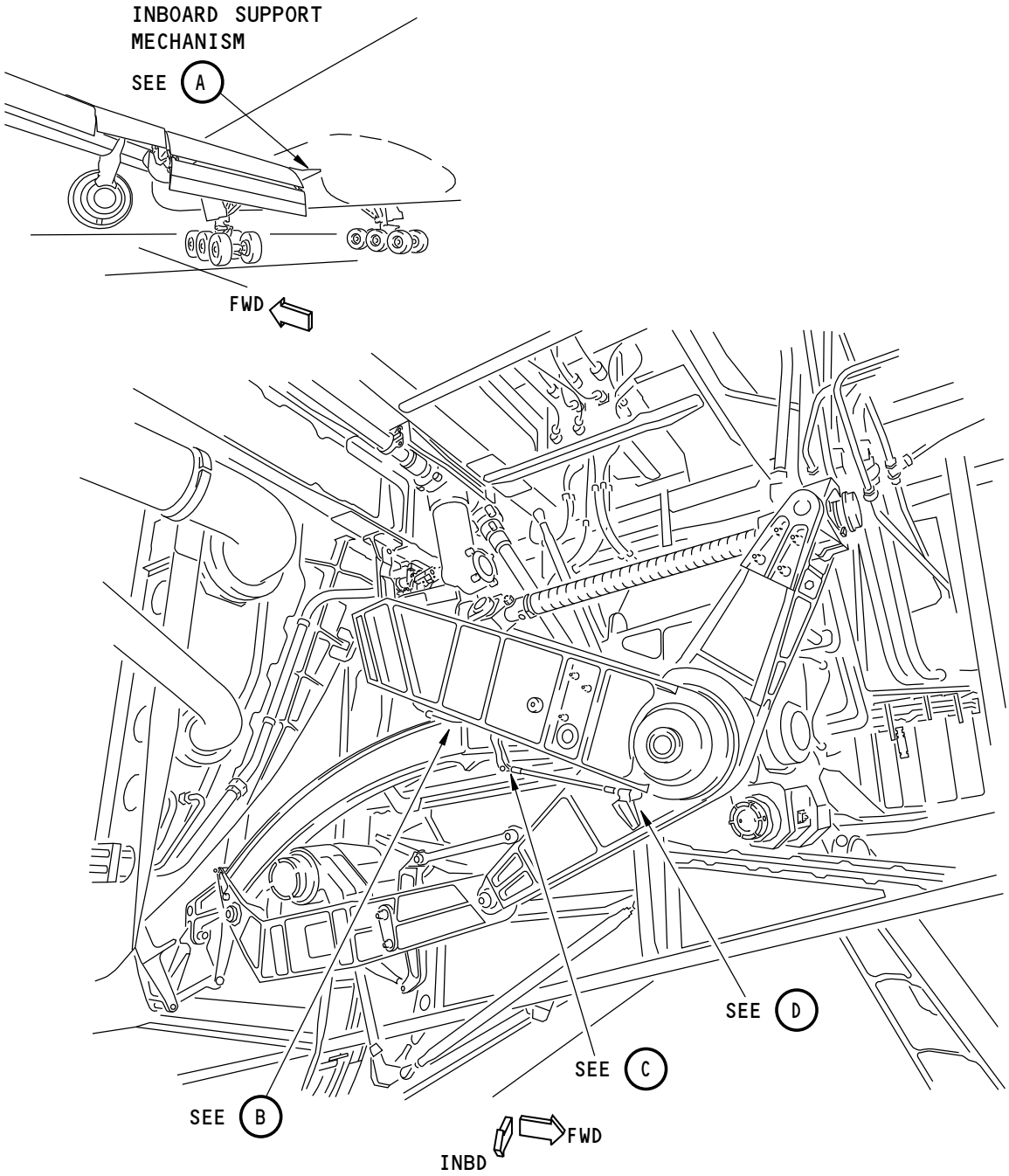
(c) Remove the two bolts [141].

NOTE: Make sure to keep the shims [143], or make a note or their thickness, for installation.

(d) Remove the bracket [134] and crank assembly [139].

END OF TASK

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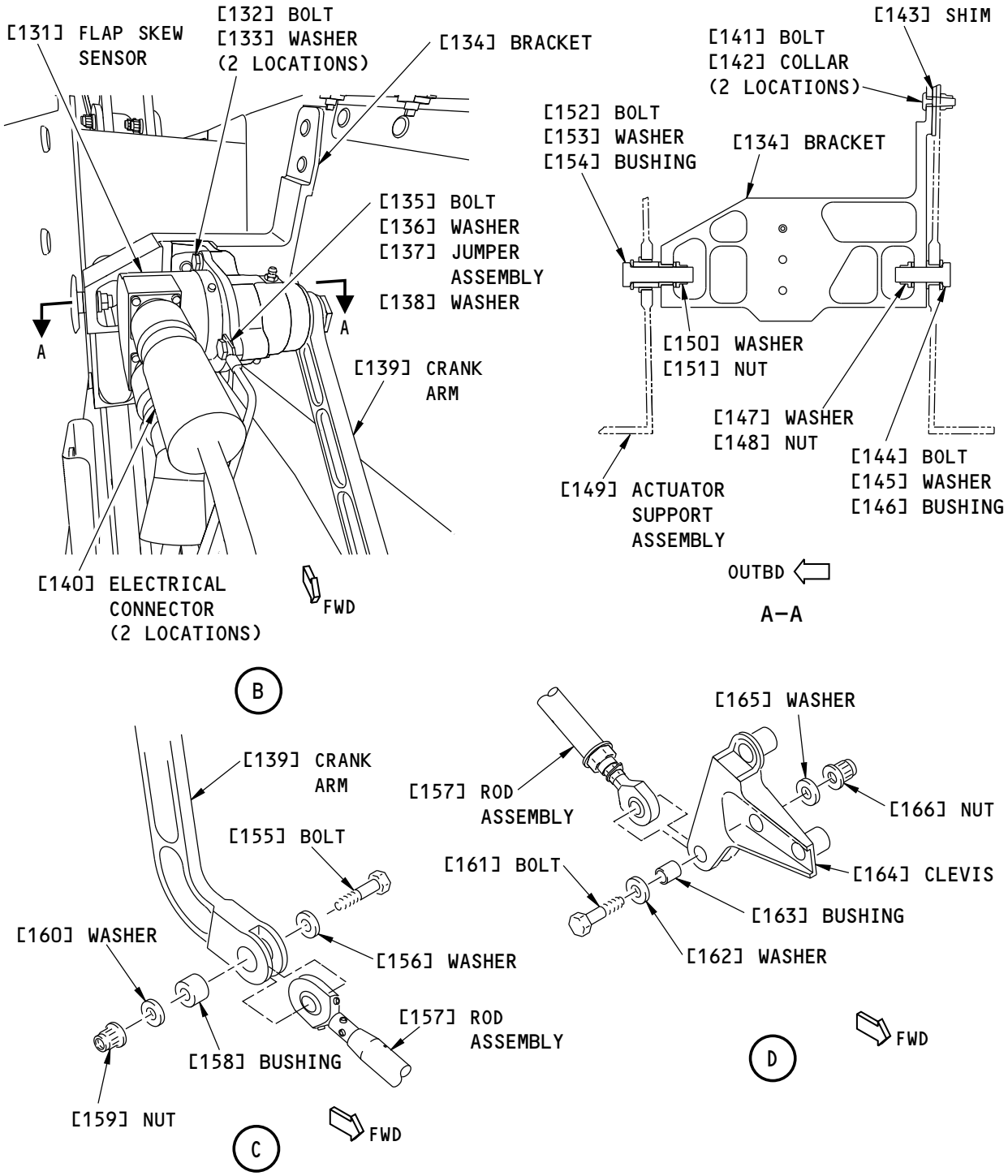


INBOARD SUPPORT MECHANISM
A

2001511 S0000389895_V1

Inboard Flap Inboard Skew Sensor Installation
Figure 403/27-59-01-990-808-002 (Sheet 1 of 2)

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2001559 S0000389896_V2

Inboard Flap Inboard Skew Sensor Installation
Figure 403/27-59-01-990-808-002 (Sheet 2 of 2)

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TASK 27-59-01-400-809-002

7. Inboard Flap Inboard Skew Sensor - Installation

(Figure 403)

A. General

(1) This procedure is applicable to the RVT flap skew sensor at the inboard end of the inboard flaps. There is one flap skew sensor installed at each flap support.

B. References

Reference	Title
12-21-09-600-801	Flap Skew Sensor - Lubrication (P/B 301)
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-720-801	Flap Skew Sensor - Rigging Check (P/B 501)
27-59-00-740-801	Flap Skew Detection System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00723	Sealant - Corrosion Inhibitive, 2-Part - PR-1405-G	
D00633	Grease - Aircraft General Purpose	BMS3-33
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

E. Inboard Flap Inboard Skew Sensor Installation

SUBTASK 27-59-01-860-124-002

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-420-013-002

(2) If necessary, do the following steps to attach the bracket [134] and housing assembly to the actuator support assembly [149]:

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(a) Apply a faying surface seal with PR-1405-G sealant, A00723 between the bracket and actuator support assembly.

(b) Put the bracket [134] in its position between the actuator support assembly.

1) Put the shim [134] its position.

(c) Prior to installation, apply PR-1405-G sealant, A00723, to the shanks and threads of the bolts [141].

(d) Install the bolts [141] into the collars [142].

(e) Prior to installation, apply corrosion inhibiting material, G50136, to the shanks and threads of bolt [152] and bolt [144].

(f) Install the bolt [152], washer [153], bushing [154], washer [150] and nut [151].

(g) Install the bolt [144], washer [145], bushing [146], washer [147] and nut [148].

(h) Remove excess sealant.

SUBTASK 27-59-01-420-014-002

(3) Do the following steps to install the flap skew sensor [131]:

(a) Apply and layer of grease, D00633 to the splines and o-ring of the flap skew sensor [131].

(b) Apply a thin fay seal with corrosion inhibiting material, G50136 between flap skew sensor [131] and housing assembly.

(c) Put the flap skew sensor [131] in its position in the housing assembly.

(d) Apply a layer of corrosion inhibiting material, G50136 on the shank and threads of the bolts [132].

(e) Install the bolts [132] and washers [133] to attach the flap skew sensor [131] to the housing assembly.

(f) Install the bolt [135], washer [136], jumper assembly [137] and washer [138] to attach the flap skew sensor [131] to the housing assembly (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 27-59-01-420-015-002

(4) Do the following steps to connect the rod assembly [157] to the crank arm [139]:

(a) Apply a layer to corrosion inhibiting material, G50136 the bolt [155] shank and threads.

(b) Install the bolt [155], washer [156], bushing [158], washer [160] and nut [159].

SUBTASK 27-59-01-820-003-002

(5) Adjust the flap skew sensor [132] using the steps in the following task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-59-01-640-003-002

(6) Do this task for the applicable flap skew sensor: Flap Skew Sensor - Lubrication, TASK 12-21-09-600-801.

SUBTASK 27-59-01-860-125-002

(7) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

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Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-860-126-002

(8) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-127-002

WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(9) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-128-002

(10) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-59-01-720-003

(11) Do this task: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-59-01-710-006-002

(12) Do this task: Flap Skew Detection System Test, TASK 27-59-00-740-801.

SUBTASK 27-59-01-860-129-002

(13) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-59-01-000-810-002

8. Outboard Flap Skew Sensor Control Rod - Removal

(Figure 401)

A. General

(1) This procedure is applicable to the control rods of the rotary variable transformer (RVT) flap skew sensors for the outboard flaps. There is one skew sensor installed at flap supports 1, 2, 7 and 8.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2

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(Continued)

Zone	Area
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

D. Prepare for the Removal

SUBTASK 27-59-01-760-009-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-59-01-860-089-002

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-091-002

WARNING

MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-59-01-860-092-002

CAUTION

MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-59-01-860-093-002

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-860-094-002

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-59-01-860-095-002

WARNING

DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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E. Outboard Flap Skew Sensor Control Rod Removal

SUBTASK 27-59-01-760-010-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-020-013

(2) Remove the rod assembly [35] of the flap skew sensor [131]:

(a) Remove the bolt [34], bushing [36], washer [38] and nut [37] to disconnect the rod assembly [35] from the crank arm [33].

(b) Remove the bolt [52], washer [53], bushing [54], washer [53] and nut [56] to disconnect the rod assembly [35] from the clevis [51].

NOTE: The bushing location varies dependent upon flap position (Figure 401).

(c) Remove the control rod assembly [35].

——— END OF TASK ———

TASK 27-59-01-400-810-002

9. Outboard Flap Skew Sensor Control Rod - Installation

Figure 401

A. General

(1) This procedure is applicable to the control rods of the rotary variable transformer (RVT) flap skew sensors for the outboard flaps. There is one skew sensor installed at flap supports 1, 2, 7 and 8.

B. References

Reference	Title
12-21-09-600-801	Flap Skew Sensor - Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-720-801	Flap Skew Sensor - Rigging Check (P/B 501)
27-59-00-740-801	Flap Skew Detection System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

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D. Location Zones

Zone	Area
567	Left Wing Outboard Flap
576	Flap Support Fairing No. 2
577	Flap Support Fairing No. 1
667	Right Wing Outboard Flap
676	Flap Support Fairing No. 7
677	Flap Support Fairing No. 8

E. Outboard Flap Skew Sensor Control Rod Installation

SUBTASK 27-59-01-420-016-002

(1) Install the rod assembly [35] of the flap skew sensor [5]:

(a) Apply a layer of corrosion inhibiting material, G50136 to the shank and threads of the bolt [34] and bolt [52].

(b) Install the bolt [34], bushing [36], washer [38] and nut [37] to connect the rod assembly [35] to the crank arm [33].

(c) Install the bolt [52], washer [53], bushing [54], washer [53] and nut [56] to connect the rod assembly [35] to the clevis [51].

NOTE: The bushing location varies dependent upon flap support position (Figure 401).

SUBTASK 27-59-01-820-004-002

(2) Adjust the flap skew sensor using the steps in the following task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

NOTE: If you are installing the previous rod assembly [35] and the length was not changed, then you do not need to do this step.

SUBTASK 27-59-01-640-004-002

(3) Do this task for the applicable skew sensor: Flap Skew Sensor - Lubrication, TASK 12-21-09-600-801.

SUBTASK 27-59-01-860-130-002

(4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-860-131-002

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-59-01-860-132-002

WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-133-002

(7) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-59-01-720-004

(8) Do this task: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-59-01-710-007-002

(9) Do this task: Flap Skew Detection System Test, TASK 27-59-00-740-801.

SUBTASK 27-59-01-860-134-002

(10) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

TASK 27-59-01-000-811-002

10. Inboard Flap Outboard Skew Sensor Control Rod - Removal

(Figure 402)

A. General

(1) This procedure is applicable to the control rods of the rotary variable transformer (RVT) flap skew sensors on the outboard end of the inboard flaps. There is one skew sensor installed at flap supports 3 and 6.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

D. Prepare for the Removal

SUBTASK 27-59-01-760-011-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-59-01-860-096-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-098-002

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

SUBTASK 27-59-01-860-099-002

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-59-01-860-100-002

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-860-101-002

(6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-59-01-860-102-002

WARNING DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(7) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Flap Outboard Skew Sensor Control Rod Removal

SUBTASK 27-59-01-860-103-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

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SUBTASK 27-59-01-020-014-002

(2) Remove the rod assembly [84] of the flap skew sensor [71]:

(a) Remove the bolt [79], washer [85], bushing [83], washer [82] and nut [81] to disconnect the rod assembly [84] from the crank arm [80].

(b) Remove the bolt [86], washer [91], bushing [88], washer [89] and nut [90] to disconnect the rod assembly [84] from the clevis [87].

(c) Remove the control rod assembly [84].

——— END OF TASK ———

TASK 27-59-01-400-811-002

11. Inboard Flap Outboard Skew Sensor Control Rod - Installation

Figure 402

A. General

(1) This procedure is applicable to the control rod of the outboard rotary variable transformer (RVT) flap skew sensor for the inboard flaps.

B. References

Reference	Title
12-21-09-600-801	Flap Skew Sensor - Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-720-801	Flap Skew Sensor - Rigging Check (P/B 501)
27-59-00-740-801	Flap Skew Detection System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
573	Flap Support Fairing No. 3
655	Right Wing Inboard Main Flap
673	Flap Support Fairing No. 6

E. Inboard Flap Outboard Skew Sensor Control Rod Installation

SUBTASK 27-59-01-420-017-002

(1) Install the rod assembly [84] of the flap skew sensor [71]:

(a) Apply a layer of corrosion inhibiting material, G50136 to the shank and threads of the bolt [79] and bolt [86].

(b) Install the bolt [86], washer [91], bushing [88], washer [89] and nut [90] to connect the rod assembly [84] to the clevis [87].

(c) Install the bolt [79], washer [85], bushing [83], washer [82] and nut [81] to connect the rod assembly [84] to the crank arm [80].

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SUBTASK 27-59-01-820-005-002

(2) Adjust the flap skew sensor and control rod using the steps in the following task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.

NOTE: If you are installing the previous rod assembly [84] and the length was not changed, then you do not need to do this step.

SUBTASK 27-59-01-640-005-002

(3) Do this task for the applicable skew sensor: Flap Skew Sensor - Lubrication, TASK 12-21-09-600-801.

SUBTASK 27-59-01-860-135-002

(4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-860-136-002

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-137-002

WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-138-002

(7) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-59-01-720-005

(8) Do this task: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-59-01-710-008-002

(9) Do this task: Flap Skew Detection System Test, TASK 27-59-00-740-801.

SUBTASK 27-59-01-860-139-002

(10) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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TASK 27-59-01-000-812-002

12. Inboard Flap Inboard Skew Sensor Control Rod - Removal

(Figure 403)

A. General

(1) This procedure is applicable to the control rods of the rotary variable transformer (RVT) flap skew sensors on the inboard end of the inboard flaps. There is one skew sensor installed at flap supports 4 and 5.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

D. Prepare for the Removal

SUBTASK 27-59-01-760-012-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-59-01-480-007-002

WARNING MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-59-01-480-008-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

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SUBTASK 27-59-01-860-104-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-106-002

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure the thrust reverser cowls are closed.

SUBTASK 27-59-01-860-107-002

CAUTION MAKE SURE THAT THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-59-01-860-108-002

(7) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-860-109-002

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-59-01-860-110-002

WARNING DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

E. Inboard Flap Inboard Skew Sensor Control Rod Removal

SUBTASK 27-59-01-860-111-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

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SUBTASK 27-59-01-020-015-002

(2) Remove the rod assembly [157] of the flap skew sensor [131]:

(a) Remove the bolt [155], washer [156], bushing [158], washer [160] and nut [159] to disconnect the rod assembly [157] from the crank arm [139].

(b) Remove the bolt [161], washer [162], bushing [163], washer [165] and nut [166] to disconnect the rod assembly [157] from the clevis [164].

(c) Remove the control rod assembly [157].

——— END OF TASK ———

TASK 27-59-01-400-812-002

13. Inboard Flap Inboard Skew Sensor Control Rod - Installation

Figure 403

A. General

(1) This procedure is applicable to the control rod of the inboard rotary variable transformer (RVT) flap skew sensor for the inboard flaps.

B. References

Reference	Title
12-21-09-600-801	Flap Skew Sensor - Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-720-801	Flap Skew Sensor - Rigging Check (P/B 501)
27-59-00-740-801	Flap Skew Detection System Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

D. Location Zones

Zone	Area
555	Left Wing Inboard Main Flap
571	Flap Support Fairing No. 4
655	Right Wing Inboard Main Flap
671	Flap Support Fairing No. 5

E. Inboard Flap Inboard Skew Sensor Control Rod Installation

SUBTASK 27-59-01-420-018-002

(1) Install the rod assembly [157] of the flap skew sensor [131]:

(a) Apply a layer of corrosion inhibiting material, G50136 to the shank and threads of the bolt [155] and bolt [161].

(b) Install the bolt [161], washer [162], bushing [163], washer [165] and nut [166] to connect the rod assembly [157] to the clevis [164].

(c) Install the bolt [155], washer [156], bushing [158], washer [160] and nut [159] to connect the rod assembly [157] to the crank arm [139].

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SUBTASK 27-59-01-820-006-002

(2) Adjust the flap skew sensor and control rod assembly [131] using the steps in the following task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-801.:

NOTE: If you are installing the previous rod assembly [131] and the length was not changed, then you do not need to do this step.

SUBTASK 27-59-01-640-006-002

(3) Do this task for the applicable skew sensor: Flap Skew Sensor - Lubrication, TASK 12-21-09-600-801.

SUBTASK 27-59-01-860-140-002

(4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-59-01-860-141-002

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-142-002

WARNING

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(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-59-01-860-143-002

(7) Retract the trailing edge flaps to the UP position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-59-01-720-006

(8) Do this task: Flap Skew Sensor - Rigging Check, TASK 27-59-00-720-801.

SUBTASK 27-59-01-710-009-002

(9) Do this task: Flap Skew Detection System Test, TASK 27-59-00-740-801.

SUBTASK 27-59-01-860-144-002

(10) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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SPOILER AND SPEEDBRAKE CONTROL SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks for the spoilers:

(1) A task to deactivate the spoilers:

(a) In the UP position

(b) In the DOWN position

(2) A task to activate the spoilers.

TASK 27-61-00-040-801

2. Spoiler Deactivation

A. Procedure

SUBTASK 27-61-00-040-001

(1) Do one of these tasks to deactivate the spoilers:

(a) Do this task: Spoiler Deactivation (With the Spoilers Up), TASK 27-61-00-040-802.

(b) Do this task: Spoiler Deactivation (With the Spoilers Down), TASK 27-61-00-040-803.

——— END OF TASK ———

TASK 27-61-00-040-802

3. Spoiler Deactivation (With the Spoilers Up)

(Figure 201)

A. General

(1) This procedure does the following:

(a) Removes electrical power from the Spoiler Control System.

(b) Put the spoilers in the up position, and to lock them in position so they can not move.

(c) Gain safe access to the trailing edge flaps or other parts in the area of the spoilers.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205
STD-1330	Wrench - Hexdrive, Allen Wrench

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D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

E. Access Panels

Number	Name/Location
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

F. Procedure

SUBTASK 27-61-00-010-005

(1) Open these access panels:

Number	Name/Location
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-00-860-001

(2) Make sure electrical power is available. Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-00-860-002

(3) Do one of these two procedures to get access to the spoiler PCUs:

NOTE: You must either have the spoilers up or the flaps extended to get access to the spoiler PCUs. Thus, you must either do the steps to put the spoilers up or to extend the flaps. You do not need to do both procedures.

(a) Do these steps to put the spoilers in their up position:

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1) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.
2) Put the speed break lever in the up position (this will move the spoilers up).
3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.
4) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the SHUT OFF position.

(b) Do these steps to extend the trailing edge flaps:

1) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.
2) Set the three FLT CONTROL HYD VALVE POWER switches for the WING in the SHUT OFF position.
3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-61-00-040-002

(4) Position the trailing edge flaps as required and deactivate the flap system. Do this task:Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-00-860-003

(5) Open these circuit breakers:

(a) Open these circuit breakers on the left power supply assembly (PSA-L), and attach DO-NOT-CLOSE tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

(b) Open these circuit breakers on the center power supply assembly (PSA-C), and attach DO-NOT-CLOSE tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

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(c) Open these circuit breakers on the right power supply assembly (PSA-R), and attach DO-NOT-CLOSE tags:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-00-860-004

(6) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

SUBTASK 27-61-00-480-001

(7) Do these steps to install the inboard and outboard spoiler actuators lock equipment, SPL-1719 for each spoiler (Figure 201):

(a) Use a hexdrive allen wrench, STD-1330 to operate the manual release cam on the PCA and remove residual hydraulic pressure.

(b) Manually lift the necessary spoiler and Install inboard and outboard spoiler actuators lock equipment, SPL-1719 on the rod of the spoiler PCU.

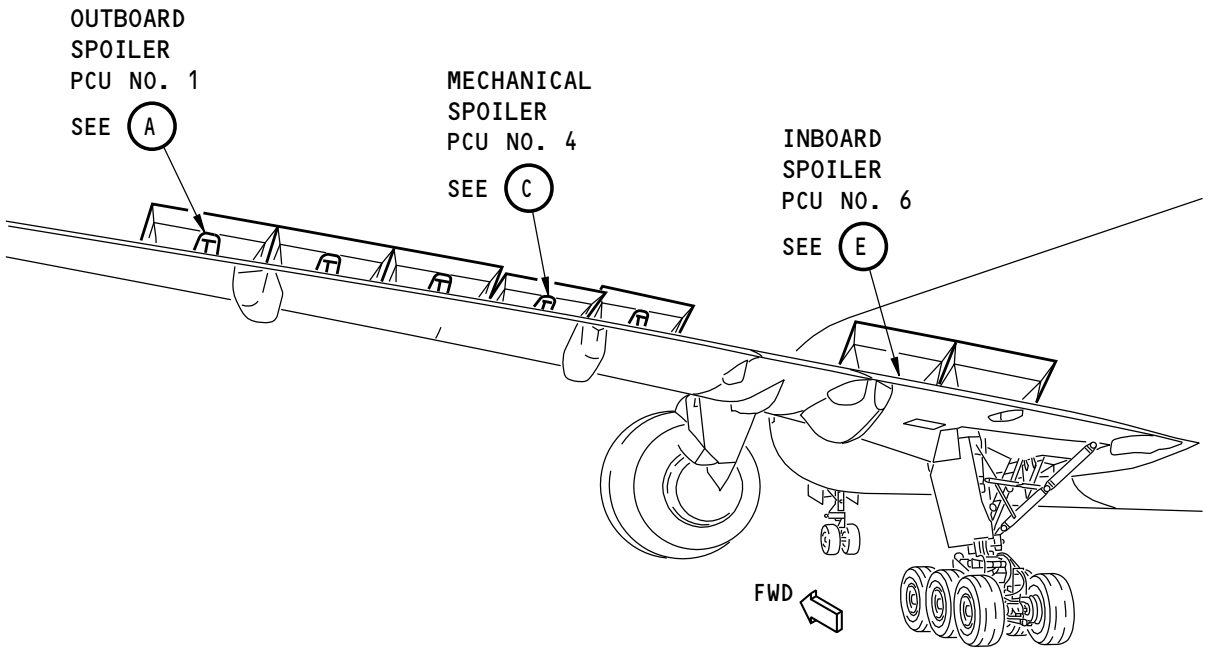
SUBTASK 27-61-00-860-005

(8) Do not put the FLT CONTROL HYD VALVE POWER switches for the WING in the NORM position until you do the activation procedure.

NOTE: You can now operate the flaps as necessary. You can also close the circuit breakers for the ACEs if it is necessary.

——— END OF TASK ———

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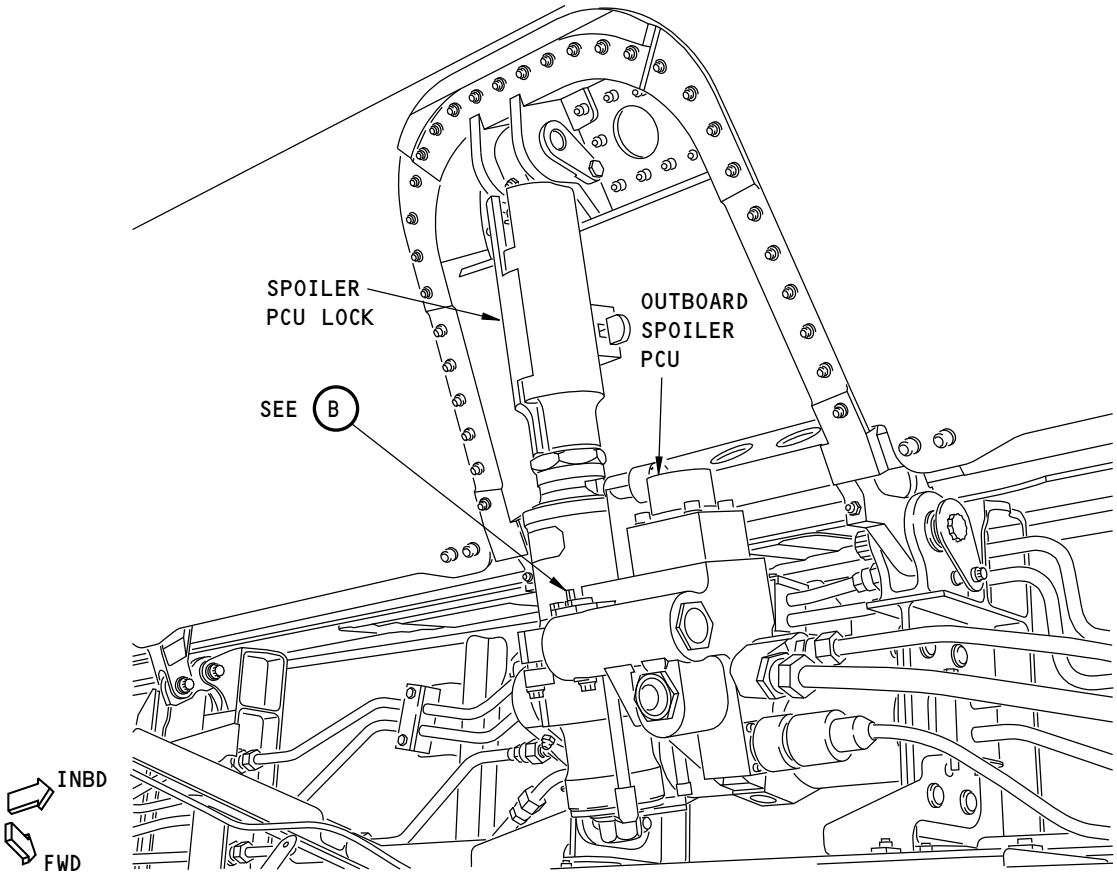


OUTBOARD, MECHANICAL AND INBOARD SPOILERS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

E60147 S0006414029_V1

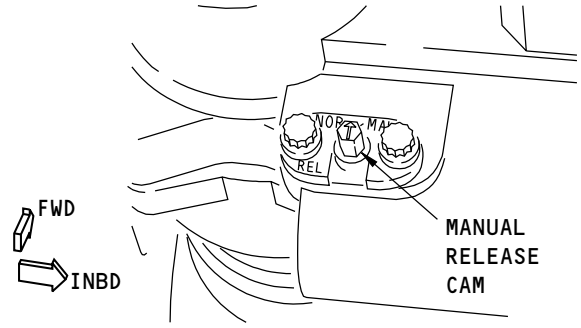
Spoiler and Speedbrake Control System Maintenance Practices
Figure 201/27-61-00-990-801 (Sheet 1 of 5)

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OUTBOARD SPOILER PCU WITH LOCK INSTALLED

A



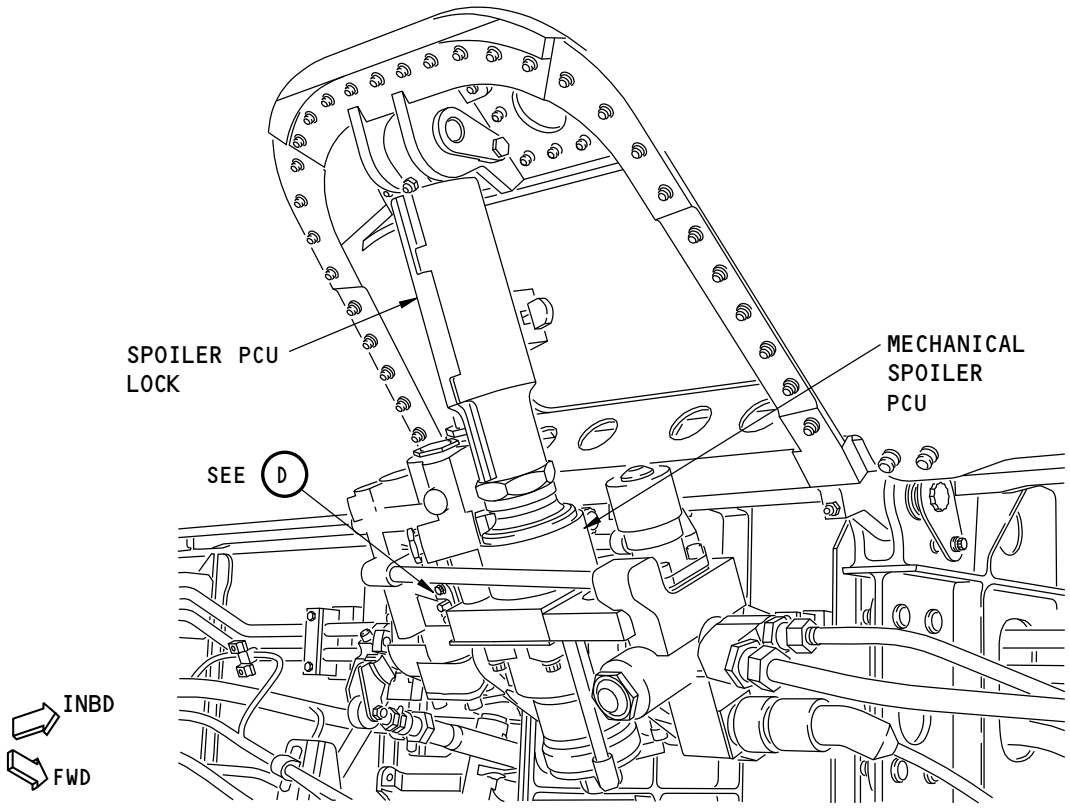
OUTBOARD SPOILER PCU MANUAL RELEASE VALVE

B

E60148 S0006414030_V1

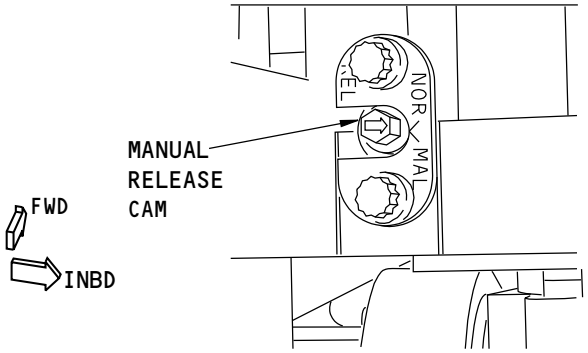
Spoiler and Speedbrake Control System Maintenance Practices
Figure 201/27-61-00-990-801 (Sheet 2 of 5)

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MECHANICAL SPOILER PCU WITH LOCK INSTALLED

C



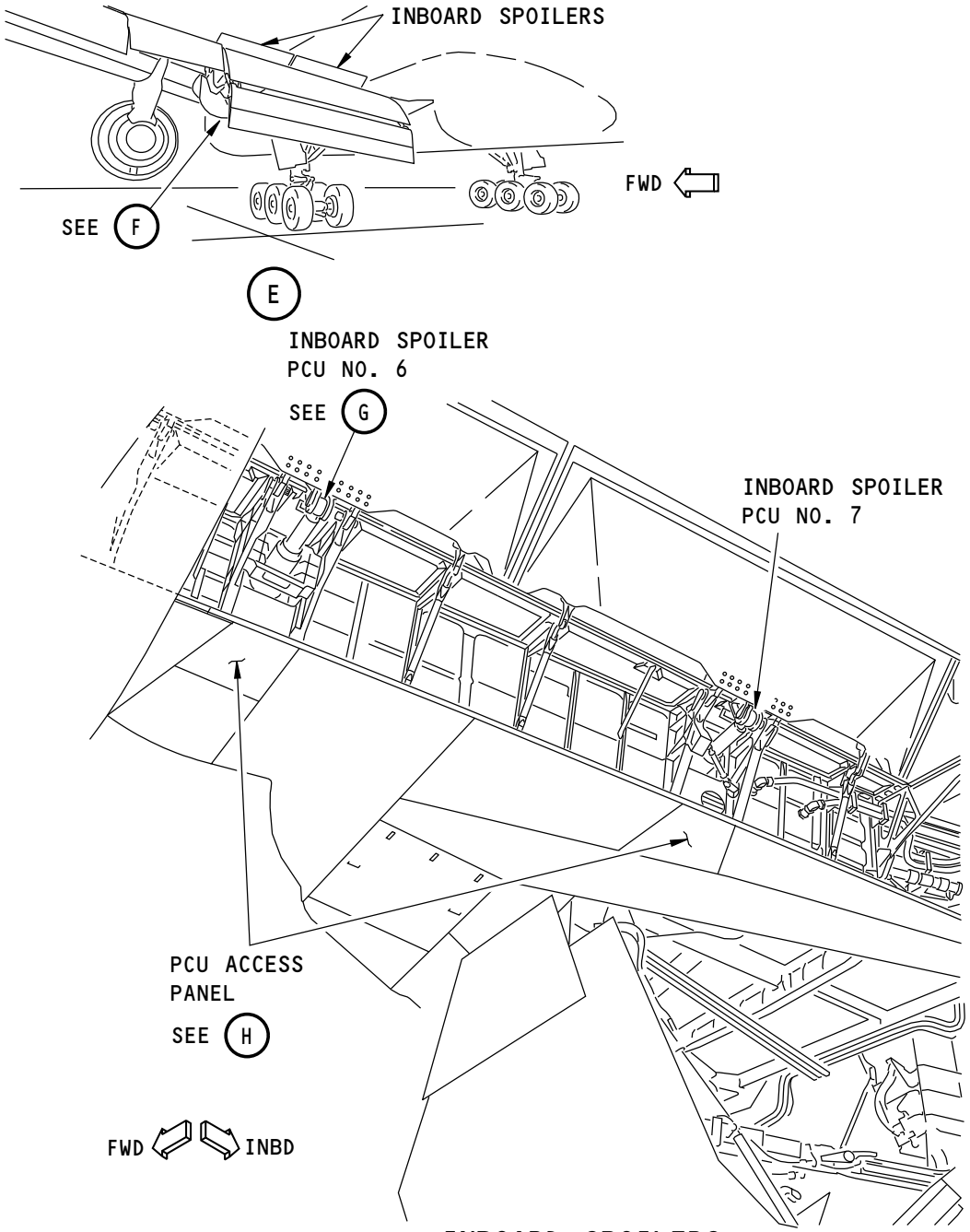
MECHANICAL SPOILER PCU MANUAL RELEASE VALVE

D

E60151 S0006414031_V1

Spoiler and Speedbrake Control System Maintenance Practices
Figure 201/27-61-00-990-801 (Sheet 3 of 5)

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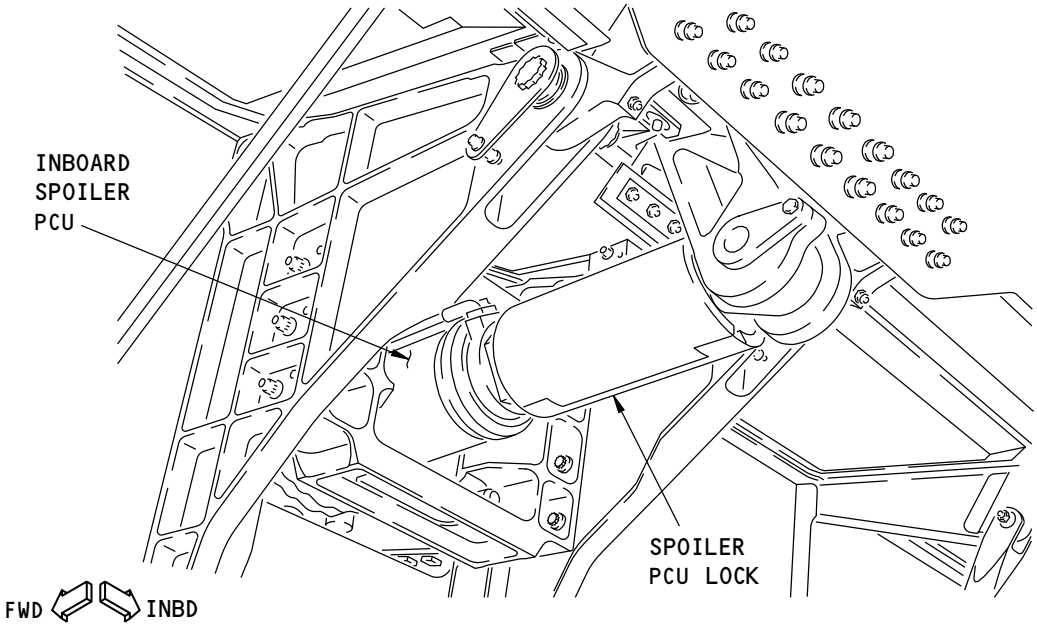
INBOARD SPOILERS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

F

2157508 S0000473092_V2

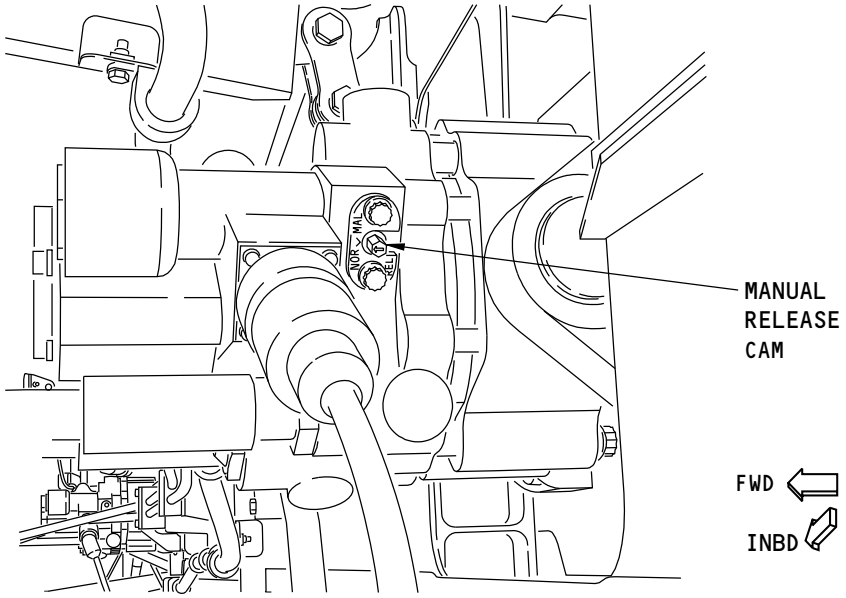
Spoiler and Speedbrake Control System Maintenance Practices
Figure 201/27-61-00-990-801 (Sheet 4 of 5)

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INBOARD SPOILER PCU WITH LOCK INSTALLED

G



INBOARD SPOILER PCU MANUAL RELEASE VALVE

H

E61497 S0006414033_V1

Spoiler and Speedbrake Control System Maintenance Practices
Figure 201/27-61-00-990-801 (Sheet 5 of 5)

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TASK 27-61-00-040-803

4. Spoiler Deactivation (With the Spoilers Down)

A. General

(1) This procedure does these tasks:

(a) Removes electrical power from the Spoiler Control System.

(b) Put the spoilers in the down position.

B. References

Reference	Title
27-61-00-700-801	Spoiler Operational Test (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

E. Procedure

SUBTASK 27-61-00-860-006

(1) Make sure all the spoilers are in the down position. Do this task: Spoiler Operational Test, TASK 27-61-00-700-801.

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SUBTASK 27-61-00-860-007

(2) On the P61, Maintenance Panel, put the Left, Center and Right WING FLT CONTROL HYD POWER switches to the SHUT OFF position and attach DO NOT OPERATE tag, STD-858.

NOTE: This step will shut off all hydraulic power in the wing.

SUBTASK 27-61-00-860-071

(3) Do the following steps at the Power Supply Assemblies (PSAs):

(a) Open these circuit breakers on the left power supply assembly (PSA-L), and attach DO-NOT-CLOSE tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

(b) Open these circuit breakers on the center power supply assembly (PSA-C), and attach DO-NOT-CLOSE tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

(c) Open these circuit breakers on the right power supply assembly (PSA-R), and attach DO-NOT-CLOSE tags:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

(d) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

SUBTASK 27-61-00-480-002

(4) Install rig pins SP1 and SP2 from the rigging pin set, SPL-2532 on the control wheel (Figure 202).

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SUBTASK 27-61-00-480-003

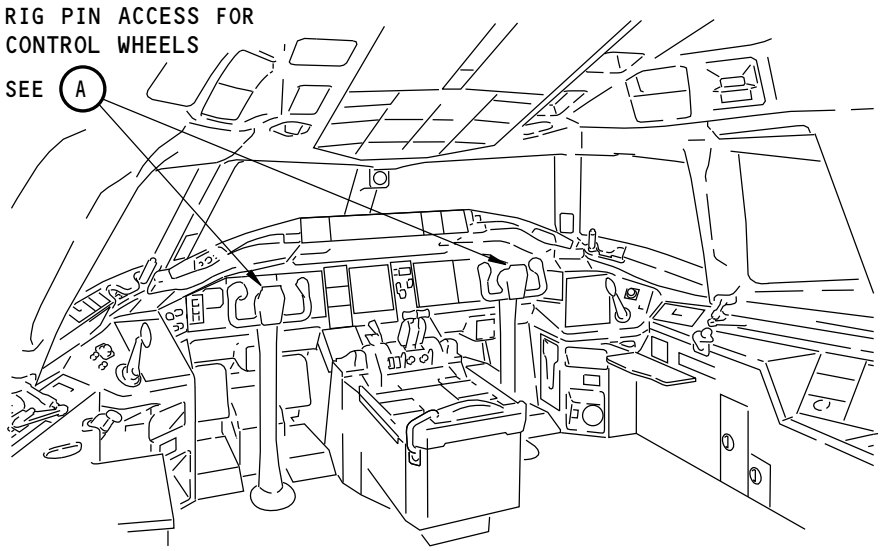
(5) Make sure the speedbrake lever is in the latched position.

SUBTASK 27-61-00-480-004

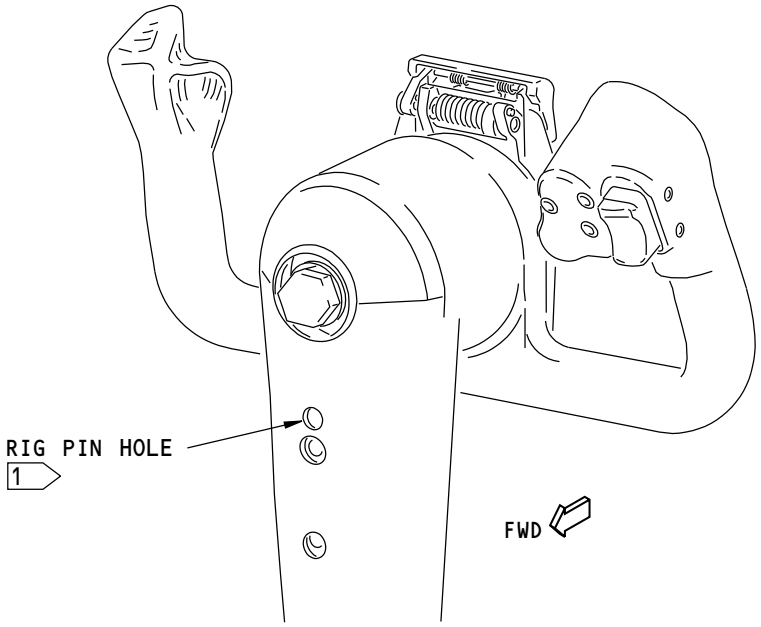
(6) Attach a DO NOT OPERATE tag, STD-858 tag on the speedbrake lever.

——— END OF TASK ———

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FLIGHT COMPARTMENT



CONTROL WHEEL
A

1 RIG PIN SP1 ON THE CAPTAIN'S CONTROL COLUMN.
RIG PIN SP2 ON THE FIRST OFFICER'S CONTROL COLUMN.

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Spoiler and Speedbrake Control System Rigging Pin Installation
Figure 202/27-61-00-990-802

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TASK 27-61-00-440-801

5. Spoiler Activation

(Figure 201)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

D. Access Panels

Number	Name/Location
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

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E. Procedure

SUBTASK 27-61-00-860-008

(1) Do these steps if the spoilers were deactivated in the UP position:

(a) Do these steps if the flap system was reactivated or if the ACEs circuit breakers were closed:

1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

2) Put the three FLT CONTROL HYD VALVE POWER switches for the WING's in the SHUT OFF position.

3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

4) Make sure these circuit breakers are open and have DO-NOT-CLOSE tags attached:

NOTE: Close the PFC circuit breakers on each power supply assembly last.

a) Make sure these circuit breakers on the left power supply assembly (PSA-L) are open and have DO-NOT-CLOSE tags attached:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

b) Make sure these circuit breakers on the center power supply assembly (PSA-C) are open and have DO-NOT-CLOSE tags attached:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

c) Make sure these circuit breakers on the right power supply assembly (PSA-R) are open and have DO-NOT-CLOSE tags attached:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

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5) Make sure that these circuit breakers are open and have safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

(b) Remove the inboard and outboard spoiler actuators lock equipment, SPL-1719 from the spoiler PCUs.

NOTE: If the locks do not remove freely, operate the manual release valve and push the spoiler up.

(c) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

1) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the left power supply assembly (PSA-L).

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

2) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the center power supply assembly (PSA-C).

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R).

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

(d) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

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(e) Do these steps to retract the spoilers if the spoilers are in the extended position:

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) For the left, right, and center hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.
2) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the NORM position.
3) Move the speedbrake lever to the down position

(f) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

(g) Close these access panels:

Number	Name/Location
552BB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-00-860-009

(2) Do these steps if the spoilers were deactivated in the DOWN position:

(a) Remove the rig pins SP1 and SP2 from the control wheel.

(b) Remove the DO NOT OPERATE tag, STD-858 from the speedbrake lever.

(c) On the P61, Maintenance Panel, remove the DO NOT OPERATE tag, STD-858 tags and put the Left, Center and Right WING FLT CONTROL HYD POWER switches to the NORM position.

SUBTASK 27-61-00-860-072

(3) Close these circuit breakers and remove the DO-NOT-CLOSE tags:

(a) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the left power supply assembly (PSA-L).

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

(b) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the center power supply assembly (PSA-C).

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1

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(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

(c) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R).

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

(d) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

——— END OF TASK ———

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SPOILER AND SPEEDBRAKE CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) Spoiler Operational Test - Use this procedure to automatically do a test of the operation of the spoilers. This test will move the spoilers to make sure they move through their full travel.

(2) Control Cable Adjustment (Rigging) for Spoilers 4 and 11 - Use this procedure to adjust the control cables for spoilers 4 and 11. Spoilers 4 and 11 are the only spoilers that are controlled by cables.

(3) Spoiler PCU Adjustment (Rigging) - Use this procedure to adjust all of the spoilers to the correct position.

(4) Spoiler System Test - Use this procedure to do a test of the operation of the spoilers.

(5) Speedbrake Lever Position Transducer Test - Use this procedure to do a test of the operation of the position transducers for the speedbrake lever.

NOTE: Refer to (TASK 27-62-00-820-801) to adjust the transducers.

(6) Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11) - Use this procedure to do a test of the two spoilers (numbers 4 and 11) that are controlled by cables. This test will make sure the two spoilers move the correct distance when you turn the control wheel.

(7) Spoiler Control Direct Mode Test - Use this procedure to make sure the spoilers move the correct distance when the flight control system is in direct mode.

TASK 27-61-00-700-801

2. Spoiler Operational Test

(Figure 501)

A. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10

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(Continued)

Zone	Area
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

C. Prepare for the Test

SUBTASK 27-61-00-580-001

(1) If you will adjust the spoilers with the airplane on the landing gear, do this step to remove any lateral or torsional loads in the landing gear:

(a) Tow the airplane forward and aft, a minimum of 20 feet (6 meters). To tow the airplane, do this task: Maintenance Towing, TASK 09-11-00-580-801.

SUBTASK 27-61-00-860-010

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-00-860-011

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-00-860-012

(4) Make sure the Captain's control wheel is at the neutral position with the CAPT WHEEL POSITION shows 0.00 ±0.03 on PFCS maintenance page 1 (TASK 31-61-00-800-804).

D. Do the Spoiler Operational Test

SUBTASK 27-61-00-860-013

(1) Make sure the speedbrake lever is in the DOWN (forward) position.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 501/27-61-00-993-818

SPOILER POSITION	Limits
1, 2, 3, 5, 10, 12, 13 and 14	-3.30 to -2.90
4 and 11	-3.35 to -2.85
6, 7, 8 and 9	-2.60 to -2.20

SUBTASK 27-61-00-730-001

(2) Move the speedbrake lever to the UP (aft) position to fully extend the spoilers.

NOTE: Spoilers 4 and 11 do not move until the speedbrake lever is more than 80 percent aft. This causes spoilers 4 and 11 to move up after the other spoilers. This is correct operation of the speedbrakes.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

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Table 502/27-61-00-993-819

SPOILER POSITION	Limits
1, 2, 3, 5, 10, 12, 13 and 14	+2.90 to +3.35
4 and 11	+1.36 to +1.82
6, 7, 8 and 9	+2.20 to +2.60

SUBTASK 27-61-00-730-002

(3) Move the speedbrake lever to the DOWN (forward) position to fully retract all the spoilers.

(a) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 503/27-61-00-993-820

SPOILER POSITION	Limits
1, 2, 3, 5, 10, 12, 13 and 14	-3.30 to -2.90
4 and 11	-3.35 to -2.85
6, 7, 8 and 9	-2.60 to -2.20

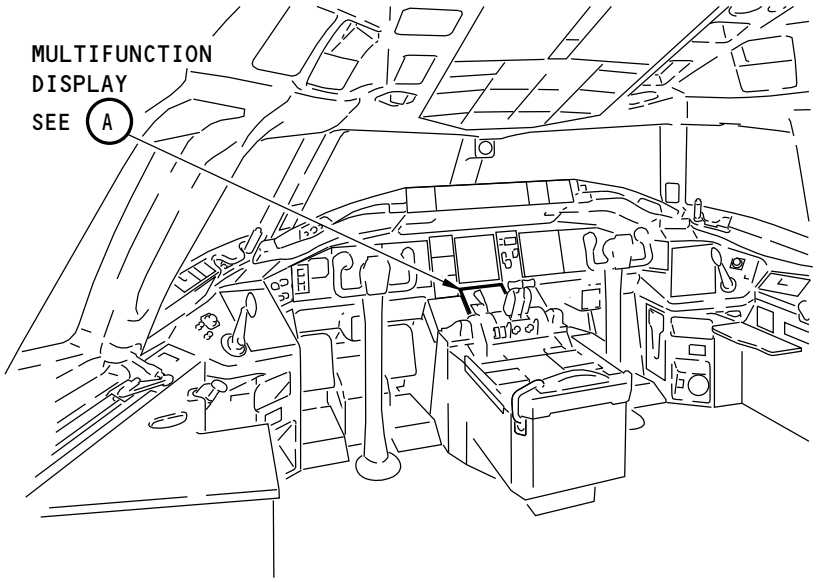
E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-014

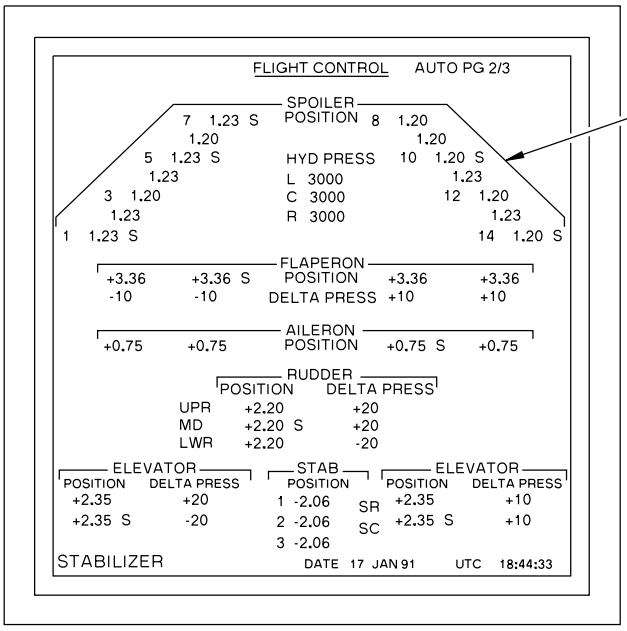
(1) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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FLIGHT COMPARTMENT



MULTIFUNCTION DISPLAY PANEL

A

E57248 S0006414042_V1

Spoiler Position Indication
Figure 501/27-61-00-990-803

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TASK 27-61-00-820-801

3. Control Cable Adjustment (Rigging) for Spoilers 4 and 11

(Figure 502)

A. General

(1) Use this procedure to adjust the control cables for spoilers 4 and 11. Spoilers 4 and 11 are the only spoilers that are controlled by cables.

(2) To adjust the cables that go from the control wheels to the mechanisms under the flight compartment floor, do this task: Control Wheel and Cable Adjustment (Rigging), TASK 27-11-00-700-802.

(3) Use this procedure to adjust these cables:

(a) The cables that go from the mechanisms below the flight compartment floor to the spoiler control mechanism for the mechanical spoilers (in the area above the main wheel well).

(b) The cables that go from the spoiler control mechanism to each spoiler.

B. References

Reference	Title
20-10-05-000-801	Turnbuckle Locking Clips Removal (P/B 401)
20-10-05-400-801	Turnbuckle Locking Clips Installation (P/B 401)
25-52-09-000-801	Ceiling Liner Removal (P/B 401)
25-52-09-400-801	Ceiling Liner - Installation (P/B 401)
27-11-00-700-802	Control Wheel and Cable Adjustment (Rigging) (P/B 501)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1553	Tensiometer - Cable, Low Tension (200 lbs and below) Part #: 102-03108 Supplier: 21844 Part #: 102-03120 Supplier: 21844 Part #: ACX-250 Supplier: 13331 Part #: T60-1001-C8-1A Supplier: 0N8U4 Opt Part #: 102-03110 Supplier: 21844 Opt Part #: ACM-200 Supplier: 13331
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
115	Area Outboard and Above Nose Landing Gear Wheel Well, Left
116	Area Outboard and Above Nose Landing Gear Wheel Well, Right
141	Area Above Main Landing Gear Wheel Well, Left
142	Area Above Main Landing Gear Wheel Well, Right

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(Continued)

Zone	Area
563	Spoiler No. 4
663	Spoiler No. 11

E. Prepare for Spoiler Control Cable Adjustment

SUBTASK 27-61-00-860-016

(1) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-00-040-003

(2) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

F. Spoiler Control Body Cable Adjustment

SUBTASK 27-61-00-010-004

(1) Remove the access hole cover, located at STA 1245 and RBL 25, to get access to the spoiler control mechanism.

SUBTASK 27-61-00-010-002

(2) Remove the ceiling liner from the forward cargo compartment for access to the turnbuckles on body cables SBA and SBB (TASK 25-52-09-000-801).

SUBTASK 27-61-00-820-001

(3) Adjust the spoiler control body cables, SBA and SBB:

(a) Do this task: Turnbuckle Locking Clips Removal, TASK 20-10-05-000-801.

(b) Adjust the turnbuckles until you can install these rigging pins from the rigging pin set, SPL-2532:

1) Rig pin SP4 in the right lateral mechanism.

2) Rig pin SP7 in the spoiler control mechanism center quadrant.

(c) Use the low tension cable tensiometer, COM-1553, to measure the tension on the body control cables.

(d) For new cables, tighten the body cables to two times the value of the rigging loads (Table 504):

NOTE: Before you do the cable rigging, make sure that the airplane temperature has been stable (±5 °F, ±2.8 °C) along the cable length for a minimum of one hour.

Table 504/27-61-00-993-808 Spoiler Cable Rigging Load

Temperature °Fahrenheit (°Celsius)	Body Cable Rigging Load pounds (kilograms)		Wing Cable Rigging Load pounds (kilograms)	
	Low	High	Low	High
110 (43.3)	74 (33.6)	94 (42.6)	116 (52.6)	136 (61.6)
109 (42.8)	74 (33.6)	94 (42.6)	116 (52.6)	136 (61.6)
108 (42.2)	73 (33.1)	93 (42.1)	115 (52.1)	135 (61.2)
107 (41.6)	73 (33.1)	93 (42.1)	114 (51.7)	134 (60.7)
106 (41.1)	73 (33.1)	93 (42.1)	114 (51.7)	134 (60.7)
105 (40.6)	72 (32.7)	92 (41.7)	113 (51.2)	133 (60.3)
104 (40.0)	72 (32.7)	92 (41.7)	113 (51.2)	133 (60.3)

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Table 504/27-61-00-993-808 Spoiler Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Body Cable Rigging Load pounds (kilograms)		Wing Cable Rigging Load pounds (kilograms)	
	Low	High	Low	High
103 (39.4)	72 (32.7)	92 (41.7)	112 (50.8)	132 (59.8)
102 (38.9)	71 (32.2)	91 (41.2)	112 (50.8)	132 (59.8)
101 (38.3)	71 (32.2)	91 (41.2)	111 (50.3)	131 (59.4)
100 (37.8)	71 (32.2)	91 (41.2)	111 (50.3)	131 (59.4)
99 (37.2)	70 (31.8)	90 (40.8)	110 (49.9)	130 (58.9)
98 (36.7)	70 (31.8)	90 (40.8)	110 (49.9)	130 (58.9)
97 (36.1)	70 (31.8)	90 (40.8)	109 (49.4)	129 (58.5)
96 (35.6)	69 (31.3)	89 (40.3)	109 (49.4)	129 (58.5)
95 (35.0)	69 (31.3)	89 (40.3)	108 (48.9)	128 (58.0)
94 (34.4)	68 (30.8)	88 (39.9)	108 (48.9)	128 (58.0)
93 (33.9)	68 (30.8)	88 (39.9)	107 (48.5)	127 (57.6)
92 (33.3)	68 (30.8)	88 (39.9)	107 (48.5)	127 (57.6)
91 (32.8)	67 (30.4)	87 (39.4)	106 (48.0)	126 (57.1)
90 (32.2)	67 (30.4)	87 (39.4)	106 (48.0)	126 (57.1)
89 (31.7)	67 (30.4)	87 (39.4)	105 (47.6)	125 (56.6)
88 (31.1)	66 (29.9)	86 (39.0)	105 (47.6)	125 (56.6)
87 (30.6)	66 (29.9)	86 (39.0)	104 (47.1)	124 (56.2)
86 (30.0)	66 (29.9)	86 (39.0)	103 (46.7)	123 (55.7)
85 (29.4)	65 (29.5)	85 (38.6)	103 (46.7)	123 (55.7)
84 (28.9)	65 (29.5)	85 (38.6)	102 (46.2)	122 (55.3)
83 (28.3)	65 (29.5)	85 (38.6)	102 (46.2)	122 (55.3)
82 (27.8)	64 (29.0)	84 (38.1)	101 (45.8)	121 (54.8)
81 (27.2)	64 (29.0)	84 (38.1)	101 (45.8)	121 (54.8)
80 (26.7)	64 (29.0)	84 (38.1)	100 (45.3)	120 (54.4)
79 (26.1)	63 (28.6)	83 (37.6)	100 (45.3)	120 (54.4)
78 (25.6)	63 (28.6)	83 (37.6)	99 (44.9)	119 (53.9)
77 (25.0)	63 (28.6)	83 (37.6)	99 (44.9)	119 (53.9)
76 (24.4)	62 (28.1)	82 (37.1)	98 (44.4)	118 (53.5)
75 (23.9)	62 (28.1)	82 (37.1)	98 (44.4)	118 (53.5)
74 (23.3)	61 (27.7)	81 (36.7)	97 (44.0)	117 (53.0)
73 (22.8)	61 (27.7)	81 (36.7)	97 (44.0)	117 (53.0)
72 (22.2)	61 (27.7)	81 (36.7)	96 (43.5)	116 (52.6)
71 (21.7)	60 (27.2)	80 (36.2)	96 (43.5)	116 (52.6)

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Table 504/27-61-00-993-808 Spoiler Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Body Cable Rigging Load pounds (kilograms)		Wing Cable Rigging Load pounds (kilograms)	
	Low	High	Low	High
70 (21.1)	60 (27.2)	80 (36.2)	95 (43.1)	115 (52.1)
69 (20.6)	60 (27.2)	80 (36.2)	95 (43.1)	115 (52.1)
68 (20.0)	59 (26.8)	79 (35.8)	94 (42.6)	114 (51.7)
67 (19.4)	59 (26.8)	79 (35.8)	93 (42.1)	113 (51.2)
66 (18.9)	59 (26.8)	79 (35.8)	93 (42.1)	113 (51.2)
65 (18.3)	58 (26.3)	78 (35.3)	92 (41.7)	112 (50.8)
64 (17.8)	58 (26.3)	78 (35.3)	92 (41.7)	112 (50.8)
63 (17.2)	58 (26.3)	78 (35.3)	91 (41.2)	111 (50.3)
62 (16.7)	57 (25.9)	77 (34.9)	91 (41.2)	111 (50.3)
61 (16.1)	57 (25.9)	77 (34.9)	90 (40.8)	110 (49.9)
60 (15.6)	57 (25.9)	77 (34.9)	90 (40.8)	110 (49.9)
59 (15.0)	56 (25.4)	76 (34.4)	89 (40.3)	109 (49.4)
58 (14.4)	56 (25.4)	76 (34.4)	89 (40.3)	109 (49.4)
57 (13.9)	56 (25.4)	76 (34.4)	88 (39.9)	108 (48.9)
56 (13.3)	55 (24.9)	75 (34.0	88 (39.9)	108 (48.9)
55 (12.8)	55 (24.9)	75 (34.0)	87 (39.4)	107 (48.5)
54 (12.2)	54 (24.5)	74 (33.6)	87 (39.4)	107 (48.5)
53 (11.7)	54 (24.5)	74 (33.6)	86 (39.0)	106 (48.0)
52 (11.1)	54 (24.5)	74 (33.6)	86 (39.0)	106 (48.0)
51 (10.6)	53 (24.0)	73 (33.1)	85 (38.6)	105 (47.6)
50 (10.0)	53 (24.0)	73 (33.1)	85 (38.6)	105 (47.6)
49 (9.4)	53 (24.0)	73 (33.1)	84 (38.1)	104 (47.1)
48 (8.9)	52 (23.6)	72 (32.6)	84 (38.1)	104 (47.1)
47 (8.3)	52 (23.6)	72 (32.6)	83 (37.6)	103 (46.7)
46 (7.8)	52 (23.6)	72 (32.6)	82 (37.1)	102 (46.2)
45 (7.2)	51 (23.1)	71 (32.2)	82 (37.1)	102 (46.2)
44 (6.7)	51 (23.1)	71 (32.2)	81 (36.7)	101 (45.8)
43 (6.1)	51 (23.1)	71 (32.2)	81 (36.7)	101 (45.8)
42 (5.6)	50 (22.7)	70 (31.7)	80 (36.2)	100 (45.3)
41 (5.0)	50 (22.7)	70 (31.7)	80 (36.2)	100 (45.3)
40 (4.4)	50 (22.7)	70 (31.7)	79 (35.8)	99 (44.9)
39 (3.9)	49 (22.2)	69 (31.2)	79 (35.8)	99 (44.9)
38 (3.3)	49 (22.2)	69 (31.2)	78 (35.3)	98 (44.4)

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Table 504/27-61-00-993-808 Spoiler Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Body Cable Rigging Load pounds (kilograms)		Wing Cable Rigging Load pounds (kilograms)	
	Low	High	Low	High
37 (2.8)	49 (22.2)	69 (31.2)	78 (35.3)	98 (44.4)
36 (2.2)	48 (21.8)	68 (30.8)	77 (34.9)	97 (44.0)
35 (1.7)	48 (21.8)	68 (30.8)	77 (34.9)	97 (44.0)
34 (1.1)	47 (21.3)	67 (30.4)	76 (34.4)	96 (43.5)
33 (0.6)	47 (21.3)	67 (30.4)	76 (34.4)	96 (43.5)
32 (0)	47 (21.3)	67 (30.4)	75 (34.0)	95 (43.1)
31 (-0.6)	46 (20.9)	66 (29.9)	75 (34.0)	95 (43.1)
30 (-1.1)	46 (20.9)	66 (29.9)	74 (33.6)	94 (42.6)
29 (-1.7)	46 (20.9)	66 (29.9)	74 (33.6)	94 (42.6)
28 (-2.2)	45 (20.4)	65 (29.5)	73 (33.1)	93 (42.1)
27 (-2.8)	45 (20.4)	65 (29.5)	72 (32.6)	92 (41.7)
26 (-3.3)	45 (20.4)	65 (29.5)	72 (32.6)	92 (41.7)
25 (-3.9)	44 (20.0)	64 (29.0)	71 (32.2)	91 (41.2)
24 (-4.4)	44 (20.0)	64 (29.0)	71 (32.2)	91 (41.2)
23 (-5.0)	44 (20.0)	64 (29.0)	70 (31.7)	90 (40.8)
22 (-5.6)	43 (19.5)	63 (28.6)	70 (31.7)	90 (40.8)
21 (-6.1)	43 (19.5)	63 (28.6)	69 (31.2)	89 (40.3)
20 (-6.7)	43 (19.5)	63 (28.6)	69 (31.2)	89 (40.3)
19 (-7.2)	42 (19.1)	62 (28.1)	68 (30.8)	88 (39.9)
18 (-7.8)	42 (19.1)	62 (28.1)	68 (30.8)	88 (39.9)
17 (-8.3)	42 (19.1)	62 (28.1)	67 (30.4)	87 (39.4)
16 (-8.9)	41 (18.6)	61 (27.7)	67 (30.4)	87 (39.4)
15 (-9.4)	41 (18.6)	61 (27.7)	66 (29.9)	86 (39.0)
14 (-10.0)	40 (18.1)	60 (27.2)	66 (29.9)	86 (39.0)
13 (-10.6)	40 (18.1)	60 (27.2)	65 (29.5)	85 (38.6)
12 (-11.1)	40 (18.1)	60 (27.2)	65 (29.5)	85 (38.6)
11 (-11.7)	39 (17.7)	59 (26.8)	64 (29.0)	84 (38.1)
10 (-12.2)	39 (17.7)	59 (26.8)	64 (29.0)	84 (38.1)
9 (-12.8)	39 (17.7)	59 (26.8)	63 (28.6)	83 (37.6)
8 (-13.3)	38 (17.2)	58 (26.3)	63 (28.6)	83 (37.6)
7 (-13.9)	38 (17.2)	58 (26.3)	62 (28.1)	82 (37.1)
6 (-14.4)	38 (17.2)	58 (26.3)	61 (27.7)	81 (36.7)
5 (-15.0)	37 (16.8)	57 (25.9)	61 (27.7)	81 (36.7)

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Table 504/27-61-00-993-808 Spoiler Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Body Cable Rigging Load pounds (kilograms)		Wing Cable Rigging Load pounds (kilograms)	
	Low	High	Low	High
4 (-15.6)	37 (16.8)	57 (25.9)	60 (27.2)	80 (36.2)
3 (-16.1)	37 (16.8)	57 (25.9)	60 (27.2)	80 (36.2)
2 (-16.7)	36 (16.3)	56 (25.4)	59 (26.8)	79 (35.8)
1 (-17.2)	36 (16.3)	56 (25.4)	59 (26.8)	79 (35.8)
0 (-17.8)	36 (16.3)	56 (25.4)	58 (26.3)	78 (35.3)
-1 (-18.3)	35 (15.9)	55 (24.9)	58 (26.3)	78 (35.3)
-2 (-18.9)	35 (15.9)	55 (24.9)	57 (25.9)	77 (34.9)
-3 (-19.4)	35 (15.9)	55 (24.9)	57 (25.9)	77 (34.9)
-4 (-20.0)	34 (15.4)	54 (24.5)	56 (25.4)	76 (34.4)
-5 (-20.6)	34 (15.4)	54 (24.5)	56 (25.4)	76 (34.4)
-6 (-21.1)	33 (15.0)	53 (24.0)	55 (24.9)	75 (34.0)
-7 (-21.7)	33 (15.0)	53 (24.0)	55 (24.9)	75 (34.0)
-8 (-22.2)	33 (15.0)	53 (24.0)	54 (24.5)	74 (33.6)
-9 (-22.8)	32 (14.5)	52 (23.6)	54 (24.5)	74 (33.6)
-10 (-23.3)	32 (14.5)	52 (23.6)	53 (24.0)	73 (33.1)
-11 (-23.9)	32 (14.5)	52 (23.6)	53 (24.0)	73 (33.1)
-12 (-24.4)	31 (14.1)	51 (23.1)	52 (23.6)	72 (32.6)
-13 (-25.0)	31 (14.1)	51 (23.1)	51 (23.1)	71 (32.2)
-14 (-25.6)	31 (14.1)	51 (23.1)	51 (23.1)	71 (32.2)
-15 (-26.1)	30 (13.6)	50 (22.7)	50 (22.7)	70 (31.7)
-16 (-26.7)	30 (13.6)	50 (22.7)	50 (22.7)	70 (31.7)
-17 (-27.2)	30 (13.6)	50 (22.7)	49 (22.2)	69 (31.2)
-18 (-27.8)	29 (13.2)	49 (22.2)	49 (22.2)	69 (31.2)
-19 (-28.3)	29 (13.2)	49 (22.2)	48 (21.8)	68 (30.8)
-20 (-28.9)	29 (13.2)	49 (22.2)	48 (21.8)	68 (30.8)
-21 (-29.4)	28 (12.7)	48 (21.8)	47 (21.3)	67 (30.4)
-22 (-30.0)	28 (12.7)	48 (21.8)	47 (21.3)	67 (30.4)
-23 (-30.6)	28 (12.7)	48 (21.8)	46 (20.9)	66 (29.9)
-24 (-31.1)	27 (12.2)	47 (21.3)	46 (20.9)	66 (29.9)
-25 (-31.7)	27 (12.2)	47 (21.3)	45 (20.4)	65 (29.5)
-26 (-32.2)	26 (11.8)	46 (20.9)	45 (20.4)	65 (29.5)
-27 (-32.8)	26 (11.8)	46 (20.9)	44 (20.0)	64 (29.0)
-28 (-33.3)	26 (11.8)	46 (20.9)	44 (20.0)	64 (29.0)

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Table 504/27-61-00-993-808 Spoiler Cable Rigging Load (Continued)

Temperature °Fahrenheit (°Celsius)	Body Cable Rigging Load pounds (kilograms)		Wing Cable Rigging Load pounds (kilograms)	
	Low	High	Low	High
-29 (-33.9)	25 (11.3)	45 (20.4)	43 (19.5)	63 (28.6)
-30 (-34.4)	25 (11.3)	45 (20.4)	43 (19.5)	63 (28.6)
-31 (-35.0)	25 (11.3)	45 (20.4)	42 (19.1)	62 (28.1)
-32 (-35.6)	24 (10.9)	44 (20.0)	42 (19.1)	62 (28.1)
-33 (-36.1)	24 (10.9)	44 (20.0)	41 (18.6)	61 (27.7)
-34 (-36.7)	24 (10.9)	44 (20.0)	40 (18.1)	60 (27.2)
-35 (-37.2)	23 (10.4)	43 (19.5)	40 (18.1)	60 (27.2)
-36 (-37.8)	23 (10.4)	43 (19.5)	39 (17.7)	59 (26.7)
-37 (-38.3)	23 (10.4)	43 (19.5)	39 (17.7)	59 (26.7)
-38 (-38.9)	22 (10.0)	42 (19.1)	38 (17.2)	58 (26.3)
-39 (-39.4)	22 (10.0)	42 (19.1)	38 (17.2)	58 (26.3)
-40 (-40.0)	22 (10.0)	42 (19.1)	37 (16.8)	57 (25.9)

(e) For cables that are not new, tighten the body cables to the specified rigging loads (Table 504).

(f) Remove rigging pins SP4 and SP7.

(g) Operate the cable system a minimum of 25 times to the maximum travel limits.

(h) Install rigging pins SP4 and SP7.

(i) If you installed new cables, decrease the tension in the body cables to the specified rigging loads (Table 504).

(j) Make sure rigging pins SP4 and SP7 can move freely.

SUBTASK 27-61-00-420-001

(4) Do this task: Turnbuckle Locking Clips Installation, TASK 20-10-05-400-801.

SUBTASK 27-61-00-080-001

(5) Remove rigging pins SP4 and SP7.

G. Spoiler Control Wing Cable Adjustment

SUBTASK 27-61-00-820-002

(1) Adjust the spoiler control wing cables, SB1A, SB1B, SB2A and SB2B:

(a) Do this task: Turnbuckle Locking Clips Removal, TASK 20-10-05-000-801.

(b) Adjust the turnbuckles until you can install these rigging pins from the rigging pin set, SPL-2532:

1) Rig pin SP5 or SP6 in the spoiler PCU quadrant.

NOTE: Rig pin SP5 is for the left spoiler PCU quadrant. Rig pin SP6 is for the right spoiler PCU quadrant.

2) Rig pin SP7 in the spoiler control mechanism center quadrant.

(c) Use the low tension cable tensiometer, COM-1553, to measure the tension on the wing control cables.

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(d) For new cables, tighten the wing cables to two times the value of the specified rigging load (Table 504).

NOTE: Before you do the cable rigging, make sure that the airplane temperature has been stable (±5 °F, ±2.8 °C) along the cable length for a minimum of one hour.

NOTE: The wing cables should not rub on the grommets except for the grommets located on the left and right rear wing spars. These grommets can rub between the 5 and 7 o'clock positions.

(e) For cables that are not new, tighten the wing cables to the specified rigging loads (Table 504).

(f) Remove rigging pins SP7 and SP5 (or SP6).

(g) Operate the cable system a minimum of 25 times to the maximum travel limits.

(h) Install rigging pins SP7 and SP5 (or SP6).

(i) If you installed new cables, decrease the tension in the wing cables to the specified rigging loads (Table 504).

(j) Make sure rigging pins SP7 and SP5 (or SP6) can move freely.

SUBTASK 27-61-00-080-002

(2) Remove rigging pins SP7 and SP5 (or SP6).

SUBTASK 27-61-00-420-002

(3) Do this task: Turnbuckle Locking Clips Installation, TASK 20-10-05-400-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-410-001

(1) Install the ceiling liner (TASK 25-52-09-400-801).

SUBTASK 27-61-00-410-004

(2) Install the access hole cover.

SUBTASK 27-61-00-440-001

(3) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-00-860-017

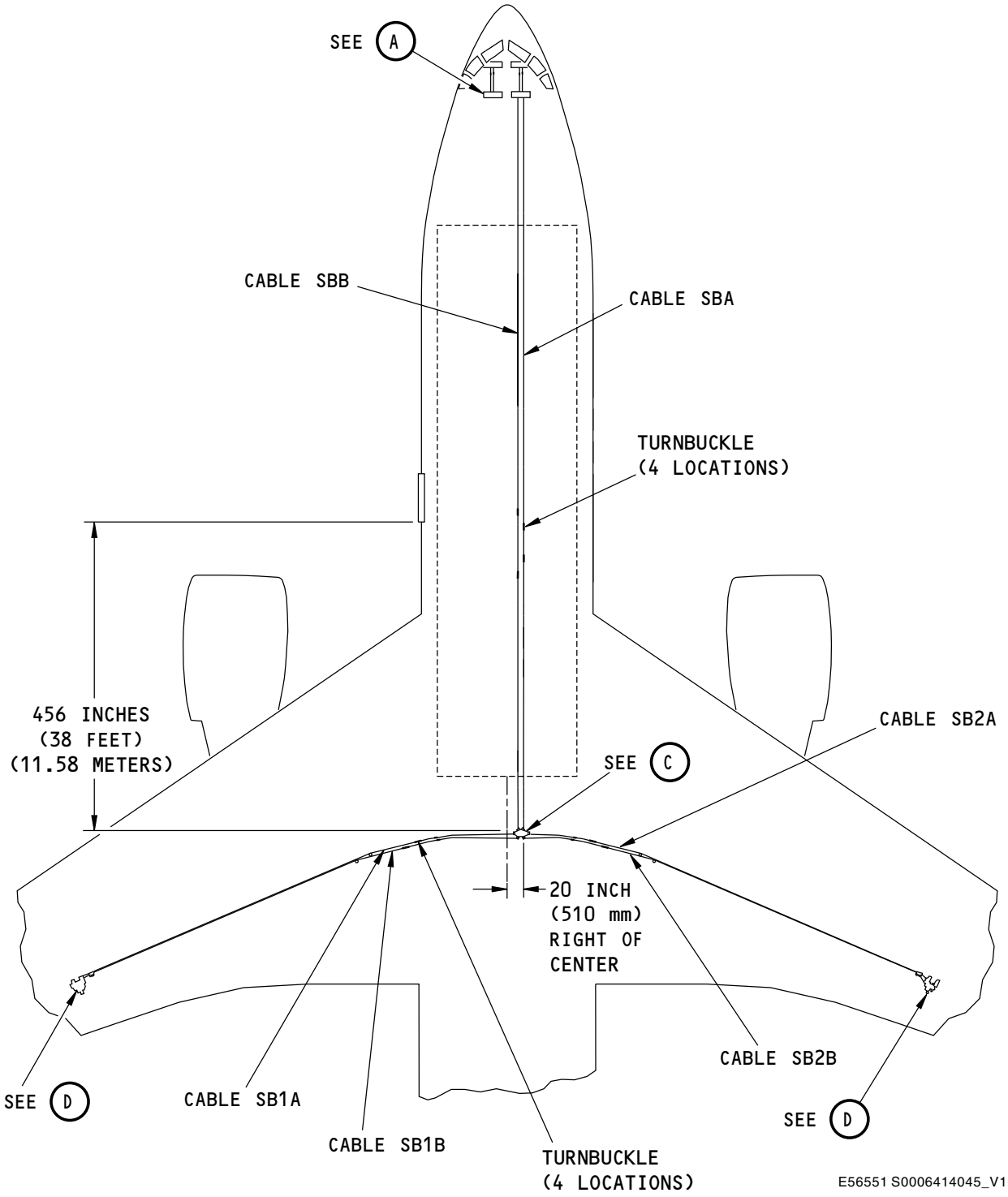
(4) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-00-860-064

(5) Prior to releasing the airplane for flight, do this task: Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), TASK 27-61-00-700-802.

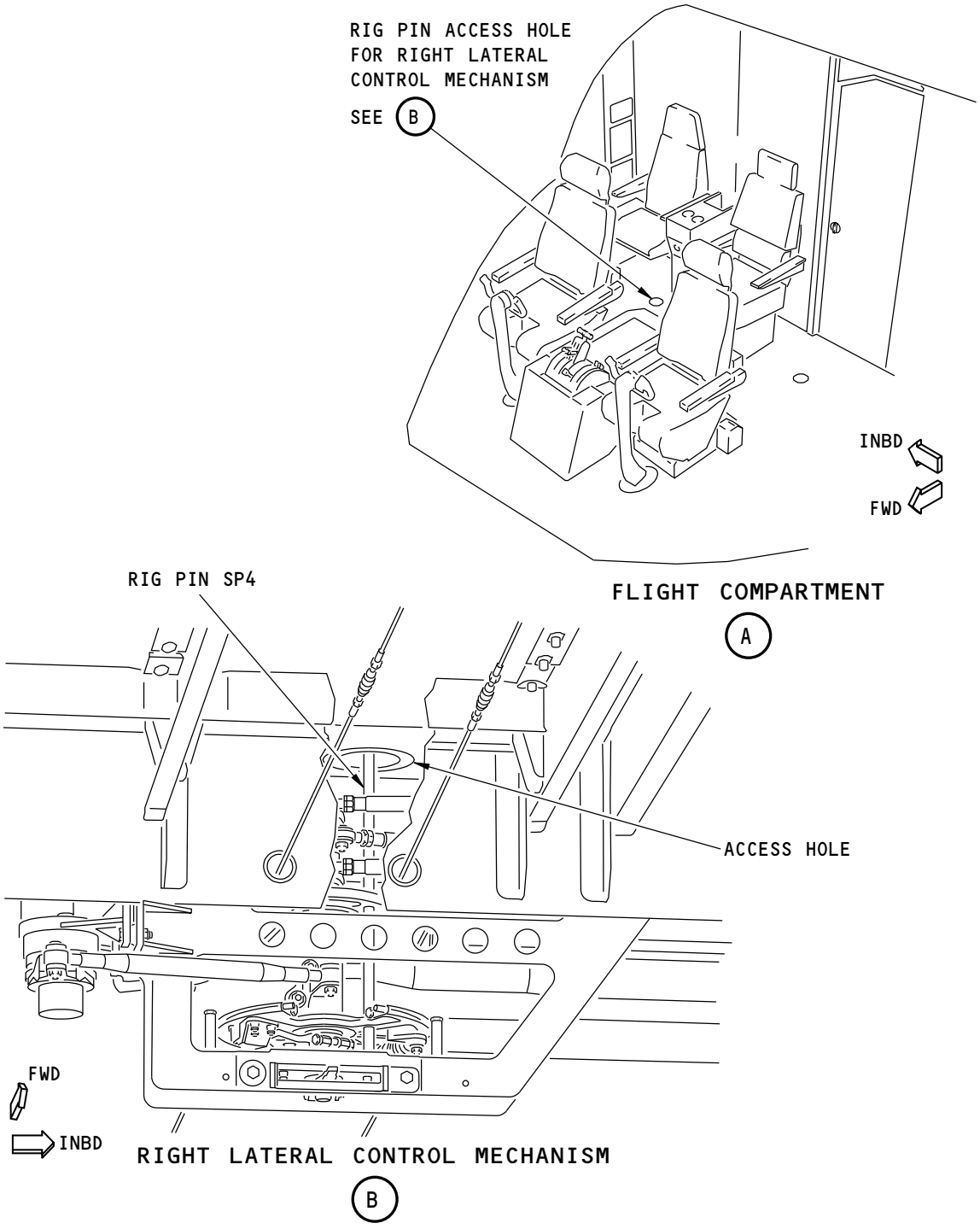
——— END OF TASK ———

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Spoiler Control Adjustment - Rig Pin Installation
Figure 502/27-61-00-990-804 (Sheet 1 of 4)

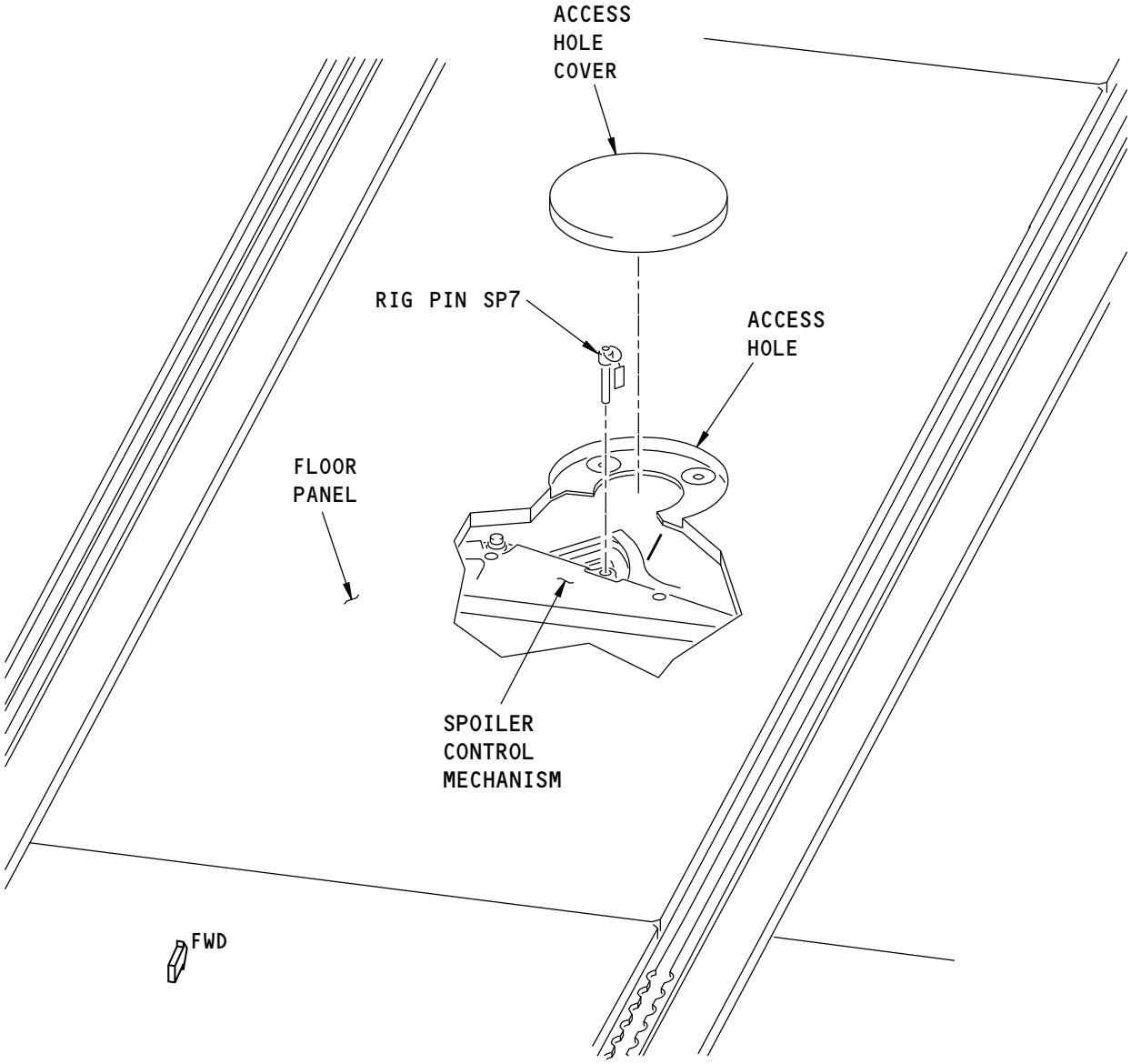
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E56558 S0006414046_V1

Spoiler Control Adjustment - Rig Pin Installation
Figure 502/27-61-00-990-804 (Sheet 2 of 4)

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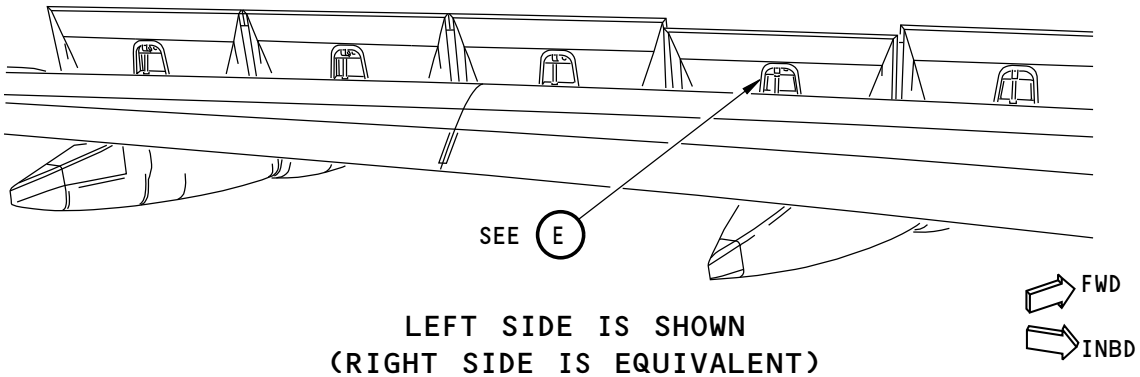
SPOILER CONTROL MECHANISM

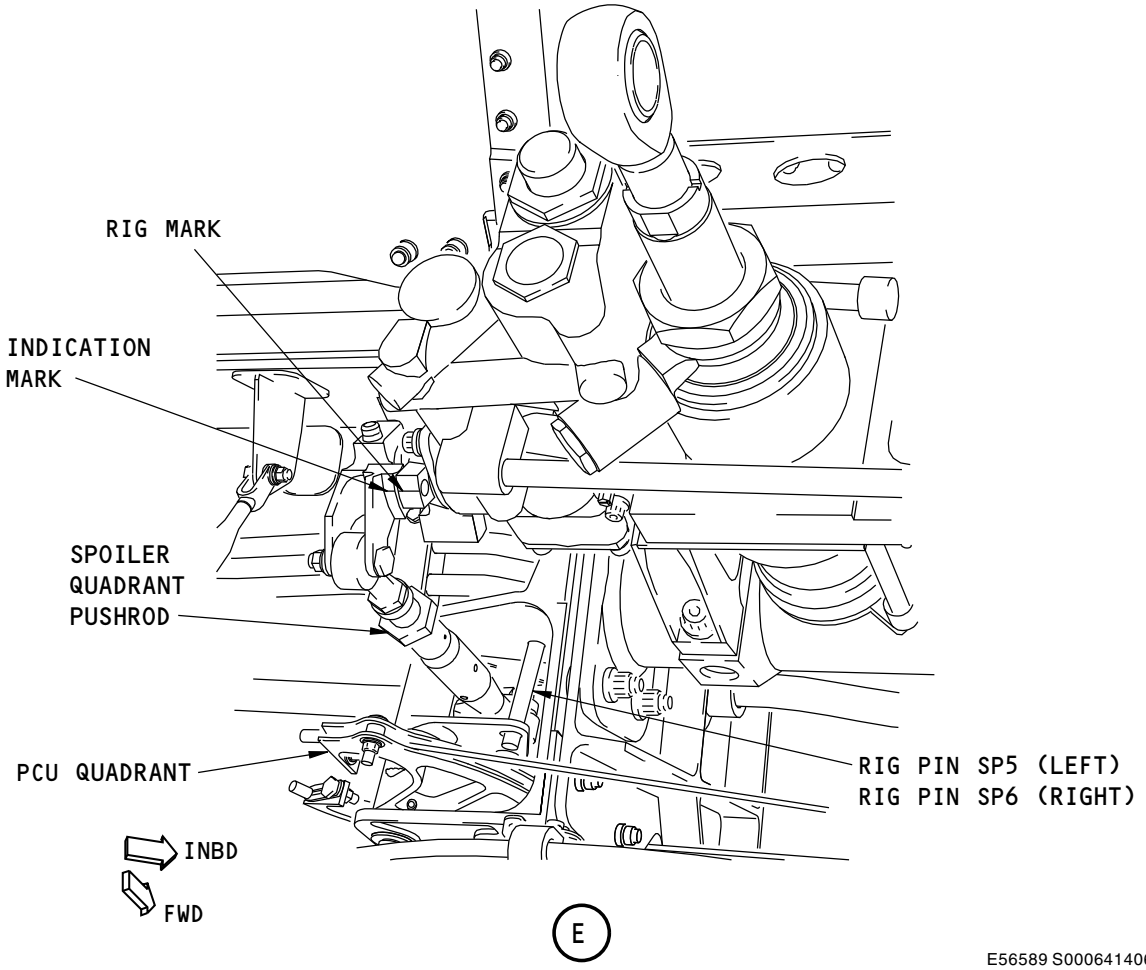
C

G60409 S0006414047_V1

Spoiler Control Adjustment - Rig Pin Installation
Figure 502/27-61-00-990-804 (Sheet 3 of 4)

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E56589 S0006414061_V2

Spoiler Control Adjustment - Rig Pin Installation
Figure 502/27-61-00-990-804 (Sheet 4 of 4)

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TASK 27-61-00-820-802

4. Spoiler PCU Adjustment

(Figure 503, Figure 504)

A. General

(1) Before you adjust the spoiler PCU, make sure the trailing edge flaps are adjusted correctly. Refer to these tasks for the applicable adjustment data:

(a) Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

(b) Inboard Trailing Edge Aft Flap Adjustment, TASK 27-51-12-820-801.

(2) Use this procedure to adjust all of the spoilers to the correct position.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-12-820-801	Inboard Trailing Edge Aft Flap Adjustment (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1738	Gauge - Gap, Spoiler to Flap Clearance Part #: J27034-13 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1

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(Continued)

Zone	Area
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

F. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

G. Prepare for the Adjustment

SUBTASK 27-61-00-860-018

(1) Close these circuit breakers on the left, center and right Power Supply Assembly and attach DO-NOT-OPEN tags:

(a) E1-6 (left), E2-6 (center) and E5-1 (right) shelves

NOTE: The following steps define spoiler adjustment (rig) in the NORMAL mode, with the PFC circuit breakers CLOSED and with the Primary Flight Computers Disconnect Swith in the AUTO position.

NOTE: If the PFC's are not in the NORMAL mode then the spoilers 5 and 10 will not operate.

1) CBD2 PFC LANE 1
2) CBD4 PFC LANE 2
3) CBD6 PFC LANE 3
4) CBD8 BAT INTLK

(2) Open this circuit breaker on the left, center and right Power Supply Assembly and attach DO-NOT-CLOSE tags:

(a) E1-6 (left), E2-6 (center) and E5-1 (right) shelves

NOTE: The circuit breakers labeled “CBD8, BAT INTLK” on the three Power Supply Assemblies must stay open for the duration of this test. If these circuit breakers are closed while external power is OFF, the batteries will run down. These circuit breakers must be closed during day-to-day flight operations.

1) CBD8 BAT INTLK

SUBTASK 27-61-00-860-019

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-61-00-860-020

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-00-860-021

(5) Retract the inboard and outboard flaps with hydraulic power. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-00-040-004

(6) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-00-860-022

(7) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-61-00-860-023

(8) Make sure the Captain's control wheel is at the neutral position with the CAPT WHEEL POSITION shows 0.00 ±0.03 on PFCS maintenance page 1 (TASK 31-61-00-800-804).

SUBTASK 27-61-00-860-024

(9) Make sure the speedbrake lever is in the DOWN (forward) position.

(a) Make sure all the spoilers are in the fully retracted position.

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 505/27-61-00-993-821

SPOILER POSITION	Limits
1, 2, 3, 4, 5, 10, 11, 12, 13, 14	-3.35 to -2.85
6, 7, 8 and 9	-2.60 to -2.20

H. Procedure

SUBTASK 27-61-00-220-001

(1) Measure the clearance between the trailing edge of each spoiler and the top surface of the trailing edge flap with the spoiler to flap clearance gap gauge, SPL-1738 (Figure 503).

NOTE: The dimensions for the outboard spoilers are good for all jacking and fuel load conditions. The dimensions for the inboard spoilers change with fuel load and jacking. (Figure 503) gives the correct dimensions for different conditions. You can use the dimensions on (Figure 503) with or without the engines installed on the airplane.

(a) Make sure the spoiler to flap clearances are correct for all the spoilers.

SUBTASK 27-61-00-820-003

(2) Adjust the rod end of each spoiler power control unit (PCU), if it is necessary (Figure 504):

(a) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

(b) To extend the trailing edge flaps to the 5-unit detent position, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

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(c) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

(d) Set the FLT CONTROL HYD POWER - WING L, C and R switches on the Flight Control Hydraulic Power panel, P61, to the SHUT OFF position.

(e) Remove the applicable access panels:

1) For the left wing, open these access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

2) For the right wing, open these access panels:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

(f) Disconnect the electrical connector from the spoiler PCU.

(g) Move the manual release cam to the REL position and then lift the spoiler.

(h) Move the manual release cam to the NORMAL position.

(i) Loosen the jam nut at the rod end of the spoiler PCU.

(j) Turn the rod of the spoiler PCU to increase or decrease the length of the PCU.

NOTE: On the outboard spoilers, one full turn of the rod will change the clearance 0.35 inch (8.9 mm). A change of one notch in the washer will change the clearance 0.005 inch (0.13 mm).

NOTE: On the inboard spoilers, one full turn of the rod will change the clearance 0.56 inch (14.2 mm). A change of one notch in the washer will change the clearance 0.007 inch (0.18 mm).

(k) Tighten the rod end jam nut sufficiently to seat nut when you measure the spoiler clearances.

(l) Make sure the spoiler to flap clearances are correct.

(m) On the inboard spoilers; tighten the rod end jam nut to 225-250 ft-lbs (305-339 newton-meters) while you hold the piston rod in position.

(n) On the outboard spoilers and spoilers 4 and 11; tighten the rod end jam nut to 80-100 ft-lbs (108-136 newton-meters) while you hold the piston rod in position.

(o) Install the applicable access panels:

1) For the left wing, close these access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

2) For the right wing, close these access panels:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

(p) Connect the electrical connector to the spoiler PCU.

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SUBTASK 27-61-00-860-025

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(3) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-00-860-026

(4) Set the FLT CONTROL HYD POWER - WING L, C and R switches on the Flight Control Hydraulic Power panel, P61, to the NORM position.

SUBTASK 27-61-00-860-027

(5) Move the speedbrake lever to the full upstop position.

SUBTASK 27-61-00-440-002

(6) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-00-860-028

(7) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-00-860-029

(8) Move the speedbrake lever to the DOWN (forward) position.

SUBTASK 27-61-00-040-005

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-00-860-030

(10) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-61-00-220-002

(11) Measure the clearance between the trailing edge of each spoiler and the top surface of the trailing edge flap with the spoiler to flap clearance gap gauge, SPL-1738 (Figure 503).

(a) Make sure the clearances are in the specified limits.

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 506/27-61-00-993-822

SPOILER POSITION	Limits
1, 2, 3, 4, 5, 10, 11, 12, 13, 14	-3.35 to -2.85
6, 7, 8 and 9	-2.60 to -2.20

SUBTASK 27-61-00-820-004

(12) If the spoilers do not have the correct clearances, do the adjustment again.

SUBTASK 27-61-00-420-003

(13) Install MS20995NC32 lockwire, G01912 on the jam nut.

SUBTASK 27-61-00-730-003

(14) Do the spoiler operational test.

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-440-003

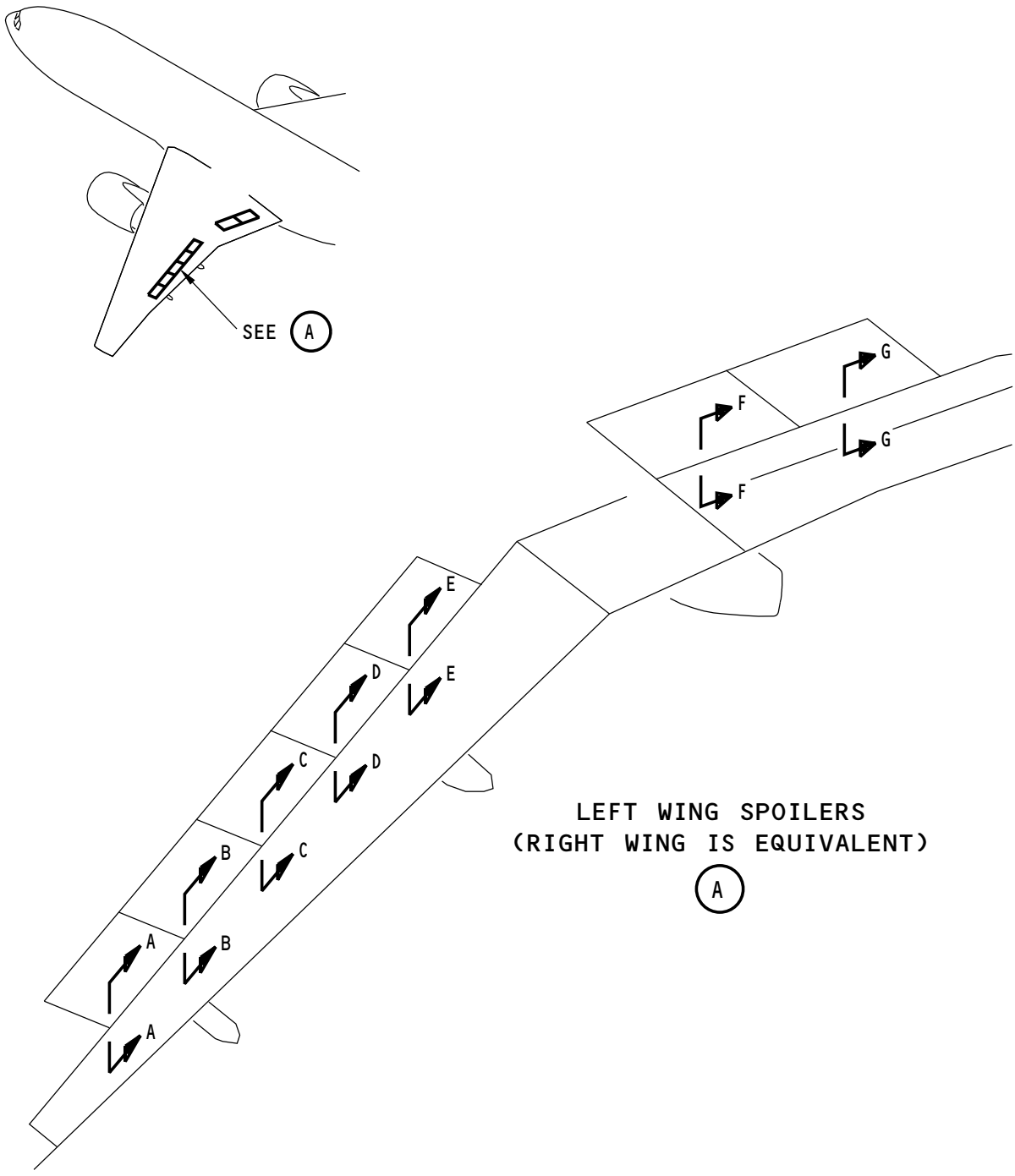
(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-00-860-065

(2) Prior to releasing the airplane for flight, do this task: Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), TASK 27-61-00-700-802.

——— END OF TASK ———

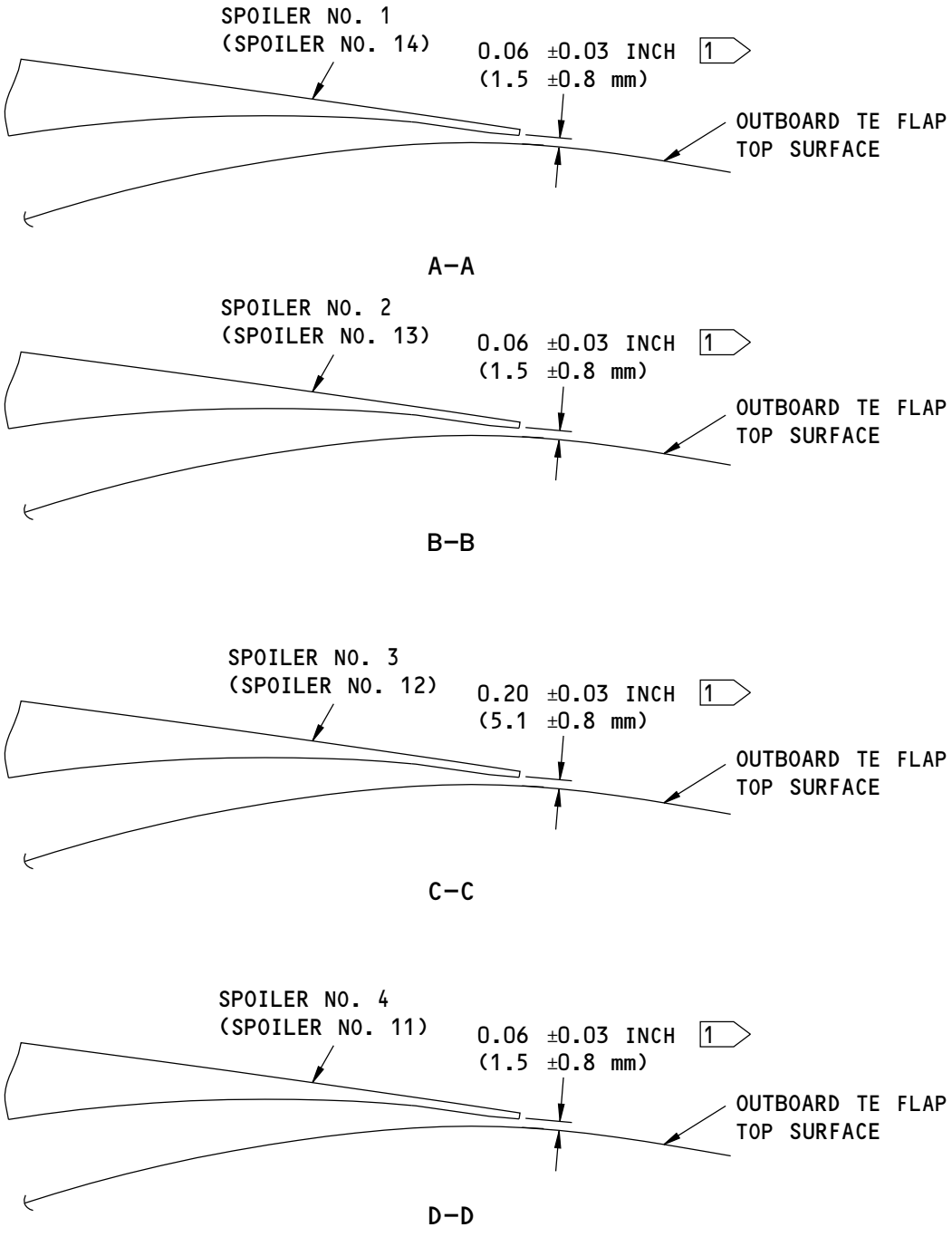
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E57235 S0006414065_V1

Spoiler to Flap Clearances
Figure 503/27-61-00-990-805 (Sheet 1 of 3)

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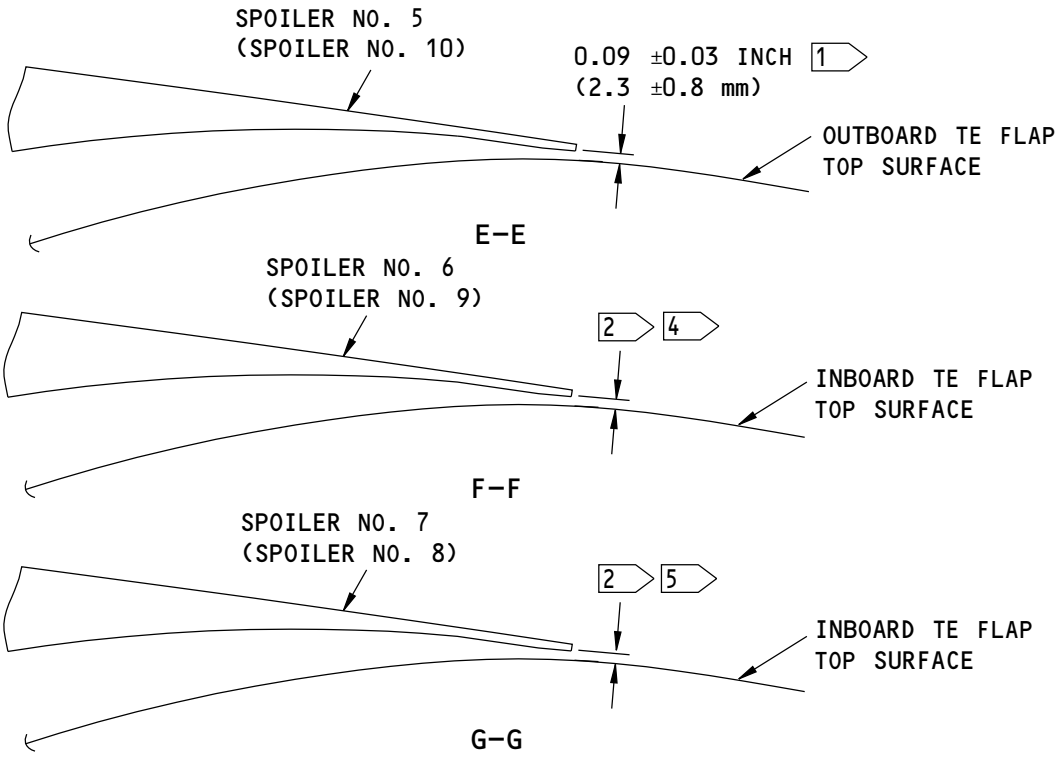


1 MEASURE AT THE OUTBOARD CORNER OF THE SPOILER

E57241 S0006414066_V1

Spoiler to Flap Clearances
Figure 503/27-61-00-990-805 (Sheet 2 of 3)

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DIMENSION	AIRPLANE ON WING AND BODY JACKS INCH (mm)	AIRPLANE ON BODY JACKS ONLY INCH (mm)	AIRPLANE ON WHEELS - NO FUEL INCH (mm)	AIRPLANE ON WHEELS - 100,000 POUNDS OF FUEL INCH (mm)
4	0.06 ±0.04 (1.5 ±1.0)	0.06 ±0.04 (1.5 ±1.0)	0.06 ±0.04 3 (1.5 ±1.0)	0.08 ±0.04 3 (2.0 ±1.0)
5	0.00 +0.04 −0.00 (0.00 +1.00 −0.00)	0.05 ±0.04 (1.3 ±1.0)	0.20 ±0.04 3 (5.1 ±1.0)	0.22 ±0.04 3 (5.6 ±1.0)

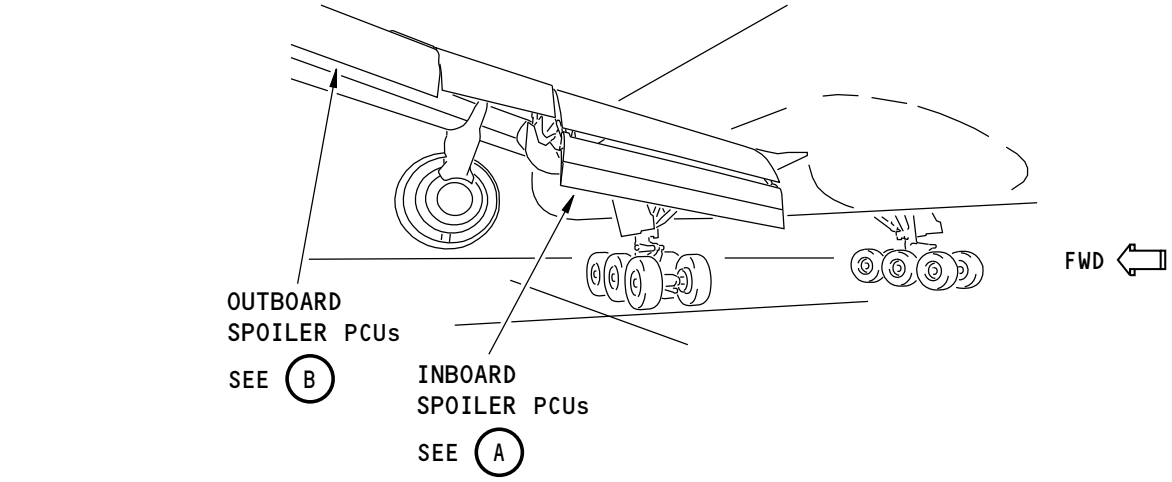
2 MEASURE AT THE LOCATION ON THE SPOILER TRAILING EDGE THAT HAS THE SMALLEST CLEARANCE. IT IS PERMITTED FOR THE CLEARANCE TO BE MORE THAN THE SPECIFIED DIMENSION AT OTHER LOCATIONS.

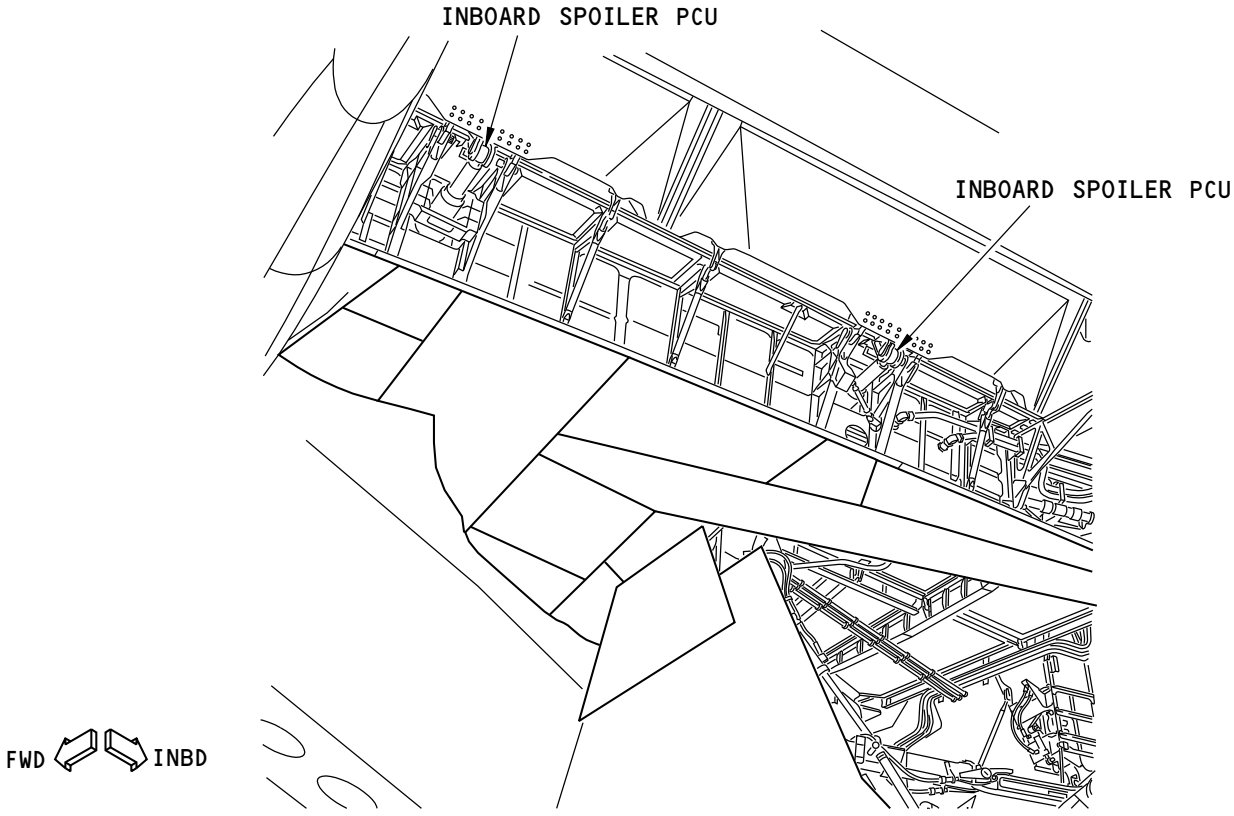
3 INCREASE THE CLEARANCE 0.01 INCH (0.25 mm) FOR EACH 50,000 POUNDS (22680 kg) OF FUEL IN THE AIRPLANE.

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Spoiler to Flap Clearances
Figure 503/27-61-00-990-805 (Sheet 3 of 3)

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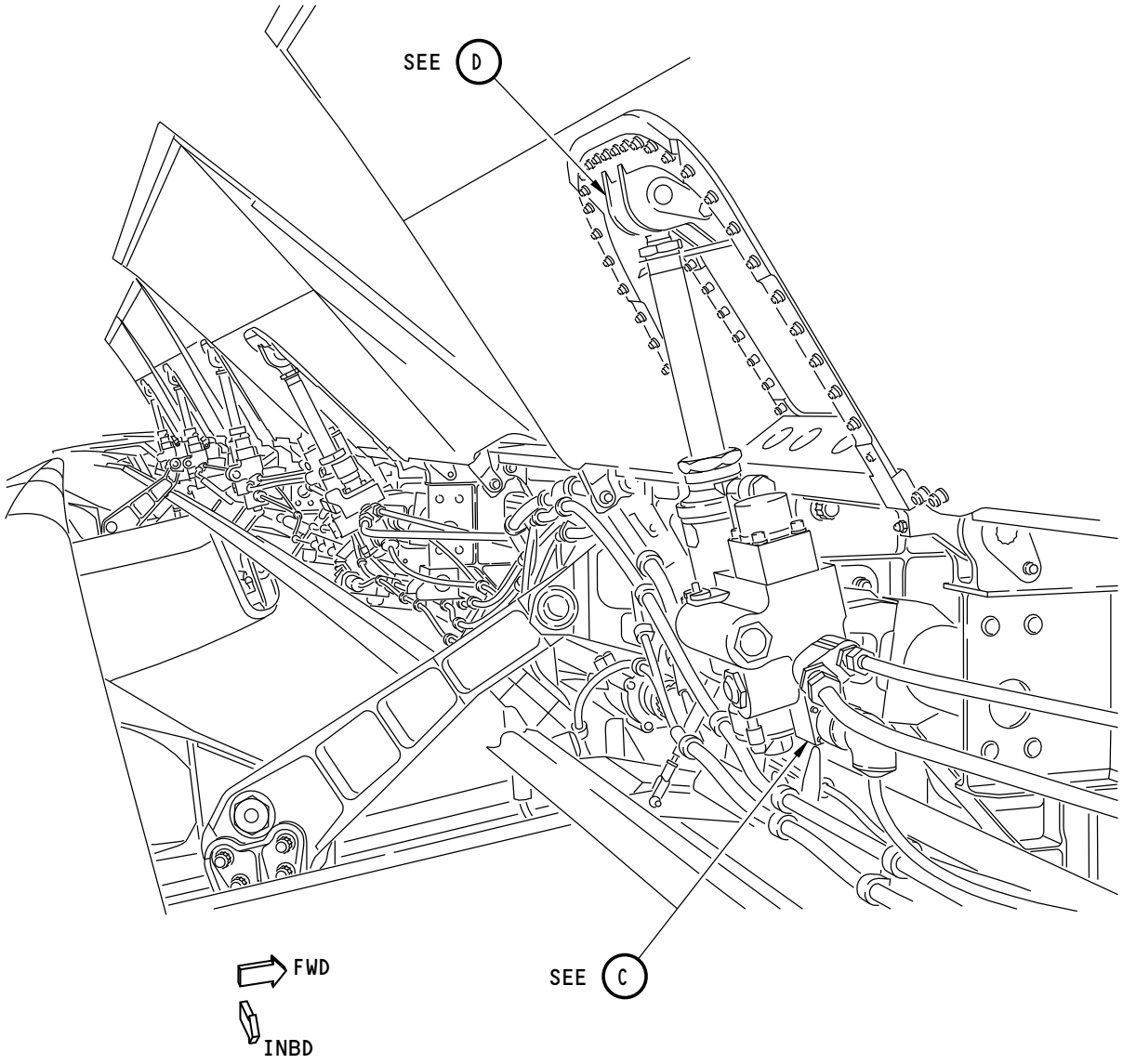


INBOARD SPOILER PCUs
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
A

E57262 S0006414068_V2

Spoiler PCU Adjustment
Figure 504/27-61-00-990-806 (Sheet 1 of 3)

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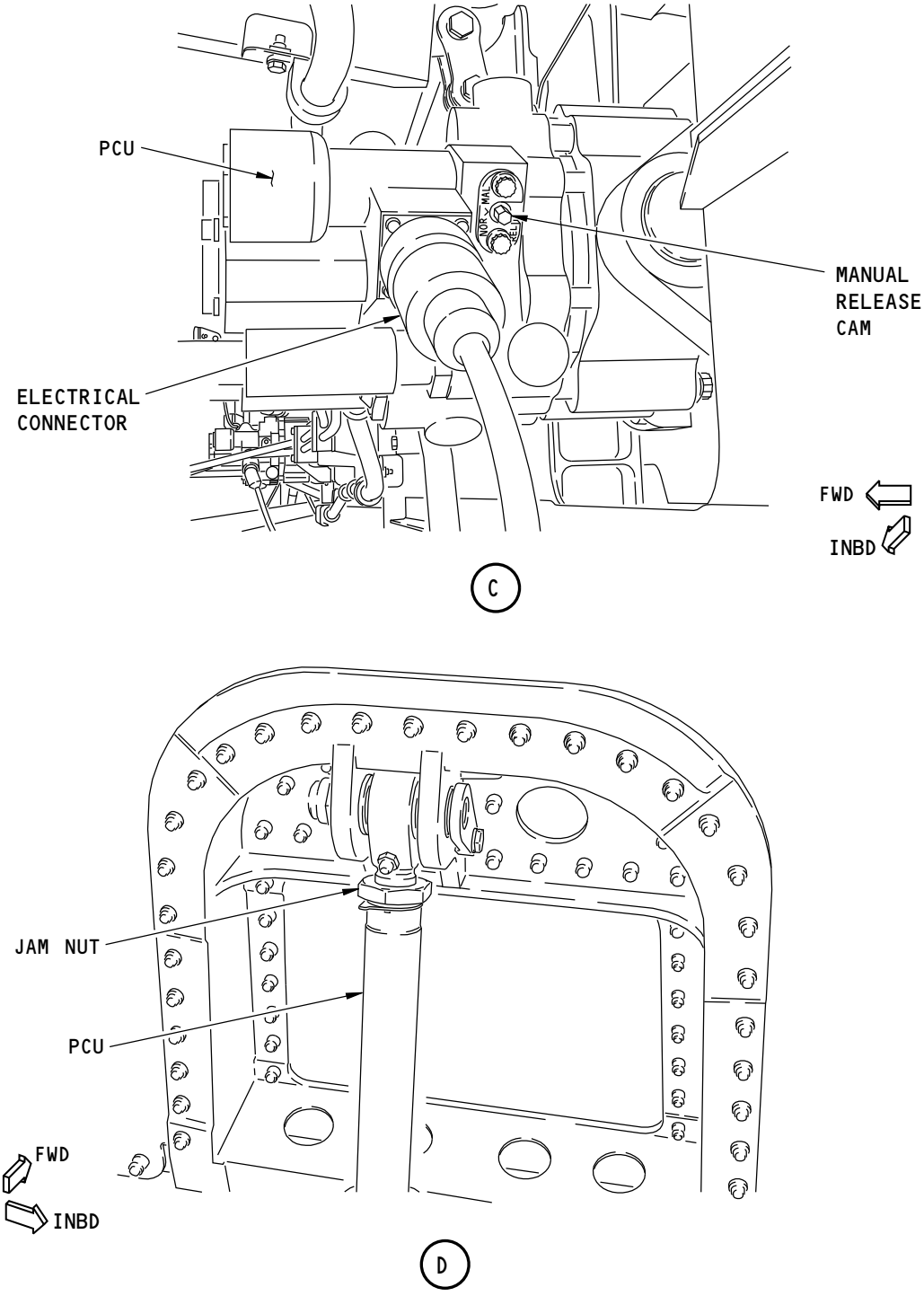
OUTBOARD SPOILER PCU NO. 5
(ALL OUTBOARD SPOILER PCUs ARE SIMILAR)
(RIGHT WING IS EQUIVALENT)

B

E57263 S0006414069_V1

Spoiler PCU Adjustment
Figure 504/27-61-00-990-806 (Sheet 2 of 3)

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Spoiler PCU Adjustment
Figure 504/27-61-00-990-806 (Sheet 3 of 3)

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TASK 27-61-00-740-801

5. Spoilers System Test

A. General

(1) Use this test to make sure the spoilers operate correctly. This test can reset latches for the spoiler pairs 1, 14 and 7, 8; spoiler pair 2, 13; spoiler pairs 3, 12 and 6, 9; spoiler pair 4, 11; and spoiler pair 5, 10.

(2) The same sequence of steps is used for these tests:

(a) The Spoilers 1, 7, 8, 14 System

(b) The Spoilers 2, 13 System

(c) The Spoilers 3, 6, 9, 12 System

(d) The Spoilers 4, 11 System

(e) Or the Spoilers 5, 10 System.

(3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

NOTE: Hydraulic power will be necessary during this test. The MAT will tell you when you need to supply it.

SUBTASK 27-61-00-860-033

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-00-860-061

(2) Use the aileron trim switches (on the aisle stand) to set the aileron trim to zero ±0.5 units.

NOTE: The aileron trim position is shown by the indicators (labels) on the control wheels.

SUBTASK 27-61-00-740-001

(3) Use a maintenance access terminal (MAT) to do the system test of the Spoilers 1, 7, 8, 14; or Spoilers 2, 3; or Spoilers 3, 6, 9, 12; or Spoilers 4, 11; or Spoilers 5, 10.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

4) 27 Primary Flight Control System

5) SYSTEM TEST

6) Spoiler 1,7,8,14 System (Spoiler 2,13 System; Spoiler 3,6,9,12 System; Spoiler 4,11 System; Spoiler 5,10 System)

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7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-61-00-860-062

(4) Push the speedbrake lever forward to make sure it is in the DOWN position.

——— END OF TASK ———

TASK 27-61-00-740-802

6. Speedbrake Lever Position Transducer Test

A. General

(1) This test will have you move the speedbrake lever at different speeds. The PFC (primary flight computer) will make sure the four position transducers all give an equal signal while you move the lever.

(2) Use this test to make sure the speedbrake lever transducers operate correctly. This test can reset latches for the speedbrake lever transducers.

(3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(4) Refer to (TASK 27-62-00-820-801) to adjust the speedbrake lever position transducers.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-62-00-820-801	Speedbrake Control System - Adjustment (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

NOTE: Hydraulic power will be necessary during this test. The MAT will tell you when you need to supply it.

SUBTASK 27-61-00-860-035

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-00-740-002

(2) Use a maintenance access terminal (MAT) to do the system test of the speedbrake lever transducers.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

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2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 Primary Flight Control System
5) SYSTEM TESTS
6) Speedbrake System
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:
1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the speedbrake transducers.
1) If there is a maintenance message for the speedbrake transducers, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-61-00-860-063

(3) Push the speedbrake lever forward to make sure it is in the DOWN position.

——— END OF TASK ———

TASK 27-61-00-700-802

7. Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11)

(Figure 502)

A. General

(1) Use this procedure to make sure the control wheel positions and spoiler PCU position at spoilers 4 and 11 are correct.

(2) The relation between the control wheel position and the position of Spoilers No. 4 and No. 11 is adjusted by changing the length of the cable control pushrods.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
563	Spoiler No. 4
663	Spoiler No. 11

E. Prepare for the Mechanical Spoiler Test

SUBTASK 27-61-00-860-066

(1) Before you adjust the cable control pushrods, make sure that the spoiler control cables are adjusted correctly. To adjust the control cables, do this task: Control Cable Adjustment (Rigging) for Spoilers 4 and 11, TASK 27-61-00-820-801.

SUBTASK 27-61-00-860-037

(2) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-00-860-038

(3) Extend the flaps to a minimum of detent 5 position for access to the cable control pushrods (TASK 27-51-00-860-804).

SUBTASK 27-61-00-040-006

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-00-860-067

(5) If a new cable control pushrod has been installed, do this task as a preliminary length adjustment.

(a) Install the PCU quadrant rigging pin from the rigging pin set, SPL-2532 (Figure 502):

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1) Rig pin SP5 for the No. 4 (Left) spoiler PCU quadrant or rig pin SP6 for the No. 11 (right) spoiler PCU quadrant.

(b) Adjust the length of the cable control pushrod so that the indication mark on the PCU crank is centered on the RIG mark on the PCU body. The marks are located on the bottom side of the PCU.

(c) Remove the rig pin.

SUBTASK 27-61-00-860-039

(6) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-00-860-040

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) For the left hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-00-860-041

(8) Make sure the speed brake lever is in the DOWN position.

F. Do the Adjustment and Test for Spoiler No. 4

SUBTASK 27-61-00-210-001

(1) Verify that the captain's control wheel is at the neutral position.

(a) Use the AILERON TRIM switches to adjust the wheel if it is necessary.

NOTE: You can have the PFCS maintenance page 1 and 2 up at the same time while you do this test.

(b) Make sure this value appears on the PFCS maintenance page 1. (TASK 31-61-00-800-804)

1) CAPT WHEEL POSITION 0.01 to -0.01

(c) Make sure these values appear on the PFCS maintenance page 2.

1) SPOILER POSITION 4 is -3.04 to -3.12

SUBTASK 27-61-00-210-018

(2) Turn and hold the Captain's control wheel counterclockwise until the value shown on CAPT WHEEL POSITION 1 is -0.36 to -0.38 (pickup check).

(a) Make sure the value shown on SPOILER POSITION 4 is -2.65 to -2.90.

(b) If Spoiler No. 4 lifts before the CAPT WHEEL POSITION value is -0.14 rotate the adjustment collar of the cable control rod a maximum of one full turn clockwise, looking forward.

SUBTASK 27-61-00-210-013

(3) Turn and hold the Captain's control wheel clockwise until the value shown on CAPT WHEEL POSITION 1 is -0.16 to -0.18 (laydown check).

(a) Make sure the value shown on SPOILER POSITION 4 is -3.04 to -3.12.

(b) Monitor Spoiler No. 4 and make sure that it stays in the full down position.

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SUBTASK 27-61-00-210-002

(4) Turn the Captain's control wheel to the neutral position and then counterclockwise until the value shown on CAPT WHEEL POSITION 1 is -0.68 to -0.72 (mid-point check).

(a) Make sure the value shown on SPOILER POSITION 4 is -1.85 to -2.35.

SUBTASK 27-61-00-210-019

(5) Turn the Captain's control wheel counterclockwise until the value shown on CAPT WHEEL POSITION 1 is -1.36 to -1.51 (full rotation check).

(a) Make sure the value shown on SPOILER POSITION 4 is 1.39 to 1.79.

SUBTASK 27-61-00-210-004

(6) Turn the Captain's control wheel back to the neutral position and the value shown on CAPT WHEEL POSITION 1 is between -0.01 to 0.01. Hold in this position.

(a) Make sure the value shown on SPOILER POSITION 4 is -3.04 to -3.12.

(b) Monitor Spoiler No. 4 and make sure that it returns to the full down position.

(c) If Spoiler No. 4 does not return to the full down position before the CAPT WHEEL POSITION value is -0.14, rotate the adjustment collar of the cable control pushrod a maximum of one full turn counterclockwise, looking forward.

1) Return the control wheel to neutral and repeat the Adjustment and Test for Spoiler No. 4.

(d) If Spoiler No. 4 returns to the full down position before the CAPT WHEEL POSITION value is -0.14, then continue.

SUBTASK 27-61-00-420-004

(7) Tighten the cable control pushrod jam nuts.

G. Do the Adjustment and Test for Spoiler No. 11

SUBTASK 27-61-00-210-014

(1) Verify that the captain's control wheel is at the neutral position.

(a) Make sure this value appears on the PFCS maintenance page 1.

1) CAPT WHEEL POSITION 0.01 to -0.01

(b) Make sure these values appear on the PFCS maintenance page 2.

1) SPOILER POSITION 11 is -3.04 to -3.12

SUBTASK 27-61-00-210-015

(2) Turn and hold the Captain's control wheel clockwise until the value shown on CAPT WHEEL POSITION 1 is 0.36 to 0.38 (pickup check).

(a) Make sure the value shown on SPOILER POSITION 11 is -2.65 to -2.90.

(b) If Spoiler No. 11 lifts before the CAPT WHEEL POSITION value is 0.14 rotate the adjustment collar of the cable control pushrod a maximum of one full turn clockwise, looking forward.

SUBTASK 27-61-00-210-020

(3) Turn and hold the Captain's control wheel counterclockwise until the value shown on CAPT WHEEL POSITION 1 is 0.16 to 0.18 (laydown check).

(a) Make sure the value shown on SPOILER POSITION 11 is -3.04 to -3.12.

SUBTASK 27-61-00-210-021

(4) Turn the Captain's control wheel to the neutral position and then clockwise until the value shown on CAPT WHEEL POSITION 1 is 0.68 to 0.72 (mid-point check).

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(a) Make sure the value shown on SPOILER POSITION 11 is -1.85 to -2.35.

SUBTASK 27-61-00-210-022

(5) Turn the Captain's control wheel clockwise until the value shown on CAPT WHEEL POSITION 1 is 1.36 to 1.51 (full rotation check).

(a) Make sure the value shown on SPOILER POSITION 11 is 1.39 to 1.79.

SUBTASK 27-61-00-210-023

(6) Turn the Captain's control wheel back to the neutral position and the value shown on CAPT WHEEL POSITION 1 is between -0.01 to 0.01. Hold in this position.

(a) Make sure the value shown on SPOILER POSITION 11 is -3.04 to -3.12.

(b) Monitor Spoiler No. 11 and make sure that it returns to the full down position.

(c) If Spoiler No. 11 does not return to the full down position before the CAPT WHEEL POSITION value is -0.14, rotate the adjustment collar of the cable control pushrod a maximum of one full turn counterclockwise, looking forward.

1) Return the control wheel to neutral and repeat the Adjustment and Test for Spoiler No. 11.

(d) If Spoiler No. 11 returns to the full down position before the CAPT WHEEL POSITION value is -0.14, then continue.

SUBTASK 27-61-00-420-005

(7) Tighten the cable control pushrod jam nuts.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-044

(1) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-00-440-004

(2) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-61-00-860-070

(3) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-00-860-045

(4) For the left hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-61-00-700-803

8. Spoiler Control Direct Mode Test

A. General

(1) Use this procedure to make sure the spoilers move the correct distance when the flight control system is in direct mode.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Spoiler Control Direct Mode Test

SUBTASK 27-61-00-860-047

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-00-860-048

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-00-860-049

(3) Push the speedbrake lever forward to make sure it is in the DOWN position.

E. Do the Spoiler Control Direct Mode Test

SUBTASK 27-61-00-860-050

(1) Set the PRIMARY FLIGHT COMPUTERS switch, on the P5 Overhead Panel, to the DISC position.

(a) Make sure the DISC light comes on.

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(b) Make sure the PFCS maintenance page 3 shows the L1, L2, C and R ACEs in the DIRECT mode (TASK 31-61-00-800-804).

SUBTASK 27-61-00-860-051

(2) To make sure that the flaps and slats are not retracted, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-00-860-052

(3) Make sure the captain's control wheel is at the neutral position with the CAPT WHEEL POSITION shows 0.00 ±0.03 on the PFCS Maintenance Page 1 (TASK 31-61-00-800-804).

NOTE: You can have the PFCS maintenance page 1 and 2 up at the same time while you do this test.

SUBTASK 27-61-00-210-010

(4) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 507/27-61-00-993-809

SPOILER POSITION	Limits
1, 2, 3, 4, 11, 12, 13, 14	-3.35 to -2.85
6, 7, 8 and 9	-2.60 to -2.20

SUBTASK 27-61-00-210-011

(5) Turn and hold the Captain's control wheel to the full left (counterclockwise) position.

NOTE: Do not turn the First Officer's control wheel.

(a) Make sure these are the values shown on the PFCS maintenance page 1 for the CAPT WHEEL and F/O WHEEL:

Table 508/27-61-00-993-810

	CAPT WHEEL	F/O WHEEL
POSITION 1	-1.37 to -1.54	-1.54 to -1.37
POSITION 2	-1.54 to -1.37	-1.54 to -1.37
POSITION 3	-1.37 to -1.54	-1.37 to -1.54

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 509/27-61-00-993-811

SPOILER POSITION	Limits
1, 2, and 3	+1.71 to +2.73
4	+1.39 to +1.79
6 and 7	-0.68 to -0.47
8 and 9	-2.53 to -2.27
12, 13 and 14	-3.27 to -2.94
11	-3.26 to -2.95

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SUBTASK 27-61-00-210-012

(6) Turn and hold the Captain's control wheel the full right (clockwise) position.

NOTE: Do not turn the First Officer's control wheel.

(a) Make sure these are the values shown on the PFCS maintenance page 1 for the CAPT WHEEL and F/O WHEEL:

Table 510/27-61-00-993-812

	CAPT WHEEL	F/O WHEEL
POSITION 1	+1.54 to +1.37	+1.37 to +1.54
POSITION 2	+1.37 to +1.54	+1.37 to +1.54
POSITION 3	+1.54 to +1.37	+1.54 to +1.37

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 511/27-61-00-993-813

SPOILER POSITION	Limits
1, 2, and 3	-3.27 to -2.94
4	-3.26 to -2.95
6 and 7	-2.53 to -2.27
8 and 9	-0.68 to -0.47
12, 13 and 14	+1.71 to +2.73
11	+1.39 to +1.79

SUBTASK 27-61-00-860-053

(7) Put the Captain's control wheel back to its neutral position.

SUBTASK 27-61-00-860-054

(8) Turn and hold the First Officer's control wheel to the full left (counterclockwise) position.

NOTE: Do not turn the Captain's control wheel.

(a) Make sure these are the values shown on the PFCS maintenance page 1 for the CAPT WHEEL and F/O WHEEL:

Table 512/27-61-00-993-814

	CAPT WHEEL	F/O WHEEL
POSITION 1	-1.37 to -1.54	-1.54 to -1.37
POSITION 2	-1.54 to -1.37	-1.54 to -1.37
POSITION 3	-1.37 to -1.54	-1.37 to -1.54

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 513/27-61-00-993-815

SPOILER POSITION	Limits
1, 2, and 3	+1.71 to +2.73

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Table 513/27-61-00-993-815 (Continued)

SPOILER POSITION	Limits
4	+1.39 to +1.79
6 and 7	-0.68 to -0.47
8 and 9	-2.53 to -2.27
12, 13 and 14	-3.27 to -2.94
11	-3.26 to -2.95

SUBTASK 27-61-00-860-055

(9) Turn and hold the First Officer's control wheel to the full right (clockwise) position.

NOTE: Do not turn the Captain's control wheel.

(a) Make sure these are the values shown on the PFCS maintenance page 1 for the CAPT WHEEL and F/O WHEEL:

Table 514/27-61-00-993-816

	CAPT WHEEL	F/O WHEEL
POSITION 1	+1.54 to +1.37	+1.37 to +1.54
POSITION 2	+1.37 to +1.54	+1.37 to +1.54
POSITION 3	+1.54 to +1.37	+1.54 to +1.37

(b) Make sure these are the values shown on the PFCS maintenance page 2 for the SPOILER POSITION:

Table 515/27-61-00-993-817

SPOILER POSITION	Limits
1, 2, and 3	-3.27 to -2.94
4	-3.26 to -2.95
6 and 7	-2.53 to -2.27
8 and 9	-0.68 to -0.47
12, 13 and 14	+1.71 to +2.73
11	+1.39 to +1.79

SUBTASK 27-61-00-860-056

(10) Put the First Officer's control wheel back to its neutral position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-057

(1) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-00-860-058

(2) Set the PRIMARY FLIGHT COMPUTERS switch, on the P5 Overhead Panel, to the AUTO position.

(a) Make sure the DISC light goes off.

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SUBTASK 27-61-00-860-059

(3) For the left, center and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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SPEEDBRAKE LEVER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the speedbrake lever

(2) An installation of the speedbrake lever.

TASK 27-61-01-000-801

2. Speedbrake Lever Removal

(Figure 401)

A. References

Reference	Title
76-11-10-000-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Procedure

SUBTASK 27-61-01-860-001

WARNING REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S AND F/O'S SEATS. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-61-01-860-002

(2) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	4	CBB4-R	AUTO-SPDBRK (L,R)

SUBTASK 27-61-01-860-003

(3) Push the speedbrake lever forward to make sure it is in the DOWN position.

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SUBTASK 27-61-01-020-001

(4) Remove the light plate cover and the upper covers to get access to the speedbrake lever attach fittings (TASK 76-11-10-000-805-H00).

SUBTASK 27-61-01-020-002

(5) Do these steps to remove the lever assembly [1]:

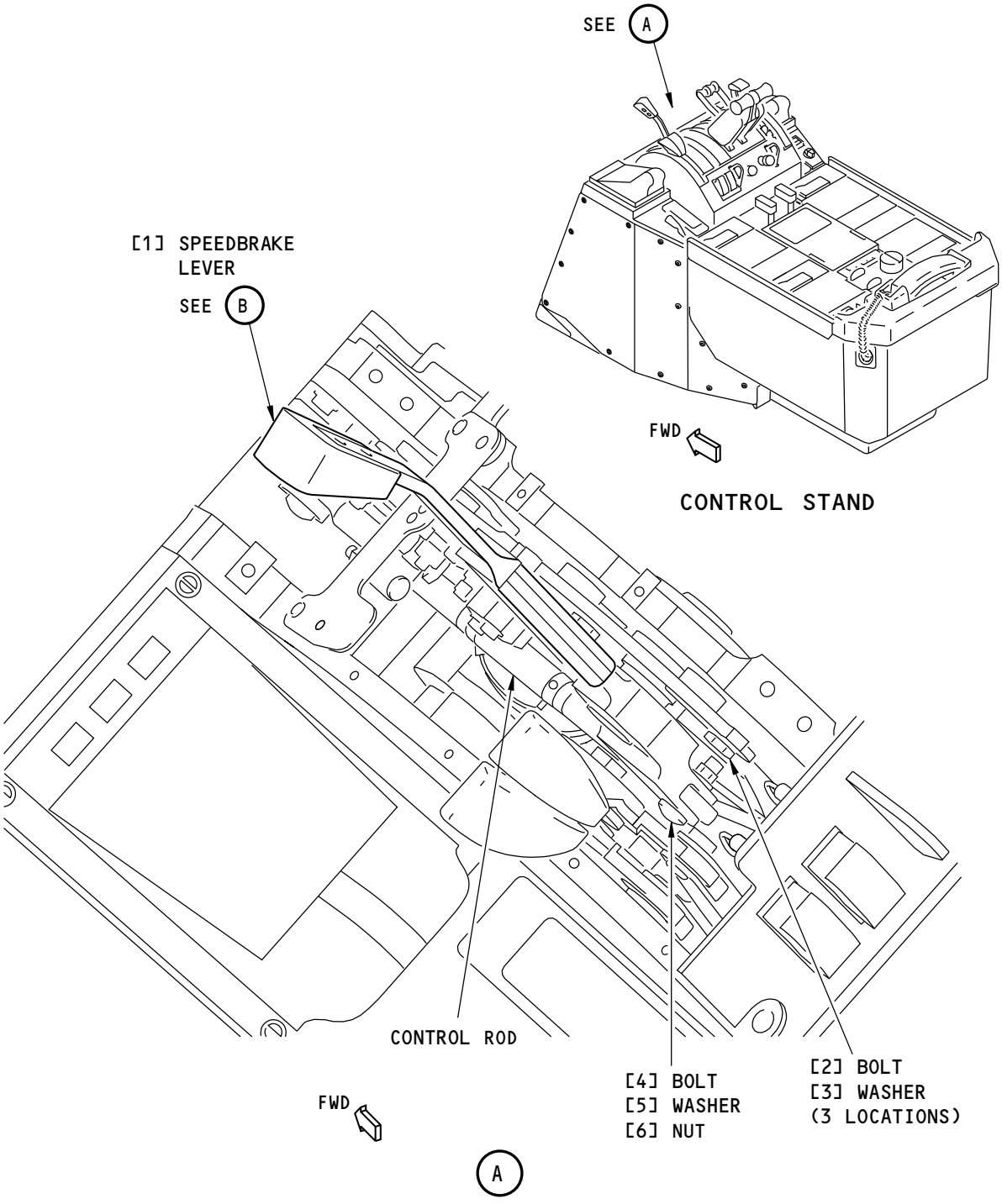
(a) Remove the nut [6], washer [5] (under nut) and bolt [4] that attach the lever assembly [1] to the control rod.

(b) Remove the bolts [2], and washers [3] (3 locations) that attach the lever assembly [1] to the control stand structure.

(c) Remove the lever assembly [1] through the top of the control stand.

——— END OF TASK ———

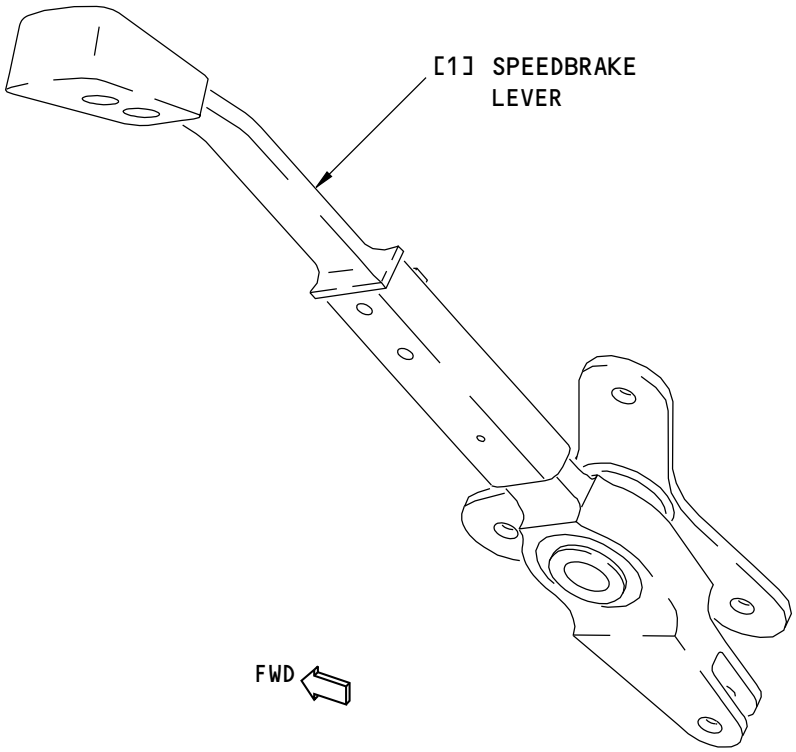
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E25954 S0006414088_V1

Speedbrake Lever Installation
Figure 401/27-61-01-990-801 (Sheet 1 of 2)

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SPEEDBRAKE LEVER
(SHOWN REMOVED)

B

E28896 S0006414089_V1

Speedbrake Lever Installation
Figure 401/27-61-01-990-801 (Sheet 2 of 2)

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TASK 27-61-01-400-801

3. Speedbrake Lever Installation

Figure 401

A. References

Reference	Title
27-62-00-710-801	Auto Speedbrake Control System - Operational Test (P/B 501)
27-62-00-820-801	Speedbrake Control System - Adjustment (P/B 501)
76-11-10-000-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Lever assembly	27-61-01-05-085	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-61-01-420-003

(1) Do these steps to install the lever assembly [1]:

(a) Put the lever assembly [1] in position.

NOTE: Make sure the detent on the speedbrake lever is engaged with the RTO (Refuse Take-Off) mechanism.

(b) Install the bolts [2] and washers [3] (3 locations) that attaches the lever assembly [1] to the control stand structure.

(c) Install the bolt [4], washer [5], and nut [6] that attach the lever assembly [1] to the control rod.

SUBTASK 27-61-01-820-002

(2) Do the speedbrake lever adjustment (TASK 27-62-00-820-801).

SUBTASK 27-61-01-410-001

(3) Install the upper covers and the light plate cover that were removed (TASK 76-11-10-000-805-H00).

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-01-865-001

(1) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	4	CBB4-R	AUTO-SPDBRK (L,R)

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SUBTASK 27-61-01-865-002

(2) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-61-01-710-002

(3) Do the operational test for the speedbrake control system (TASK 27-62-00-710-801).

——— END OF TASK ———

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SPEEDBRAKE LEVER TRANSDUCERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

NOTE: The speedbrake lever transducers are often referred to as RVDTs.

(1) A removal of the speedbrake lever transducers

(2) An installation of the speedbrake lever transducers.

TASK 27-61-02-000-801

2. Speedbrake Lever Transducer Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Procedure

SUBTASK 27-61-02-860-006

WARNING REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S AND F/O'S SEATS. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

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Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-61-02-860-003

(2) Push the speedbrake lever forward to make sure it is in the DOWN position (fully forward).

SUBTASK 27-61-02-010-002

(3) Do these steps to remove the left panel assembly [10].

(a) Turn the quick-release fasteners.

(b) Remove the panel assembly [10].

SUBTASK 27-61-02-020-001

(4) Disconnect the four electrical connectors [1] (DM27029A, DM27029B, DM27029C and DM27029D) for the speedbrake lever transducers (Figure 402).

SUBTASK 27-61-02-020-002

(5) Remove the screw [2], washers [4], and clamps [3].

NOTE: Some airplanes have 2 screws with 2 clamps on each screw.

SUBTASK 27-61-02-020-003

(6) Do these steps to remove the transducer [9]:

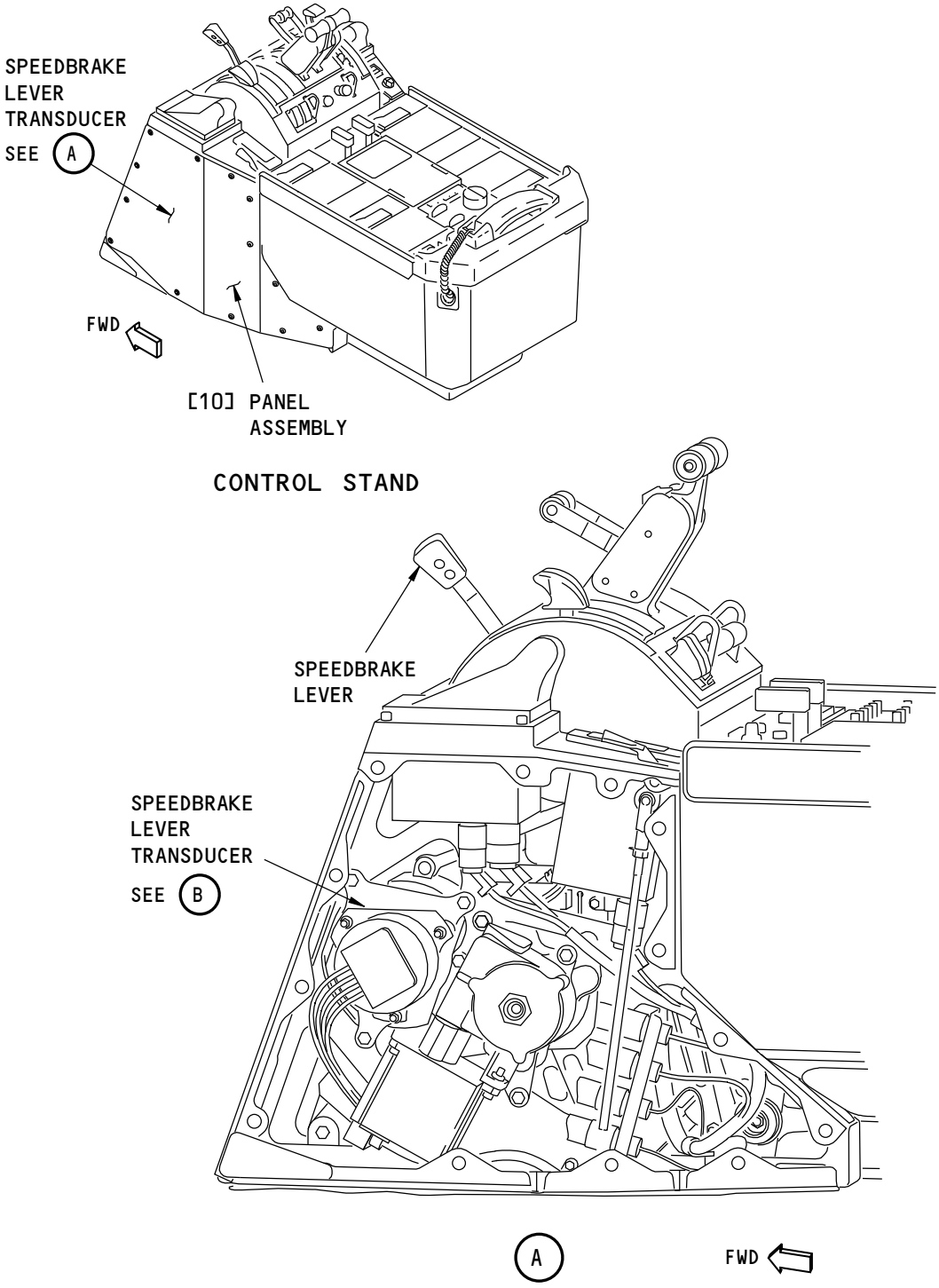
(a) Remove the bolts [8] and washers [7] (2 locations) that hold the transducer [9] to the auto speedbrake mechanism housing.

(b) Remove the nut [5] and washer [6] that hold the transducer [9] to the auto speedbrake mechanism housing.

(c) Move the shaft out of the slip clutch assembly and remove the transducer [9].

——— END OF TASK ———

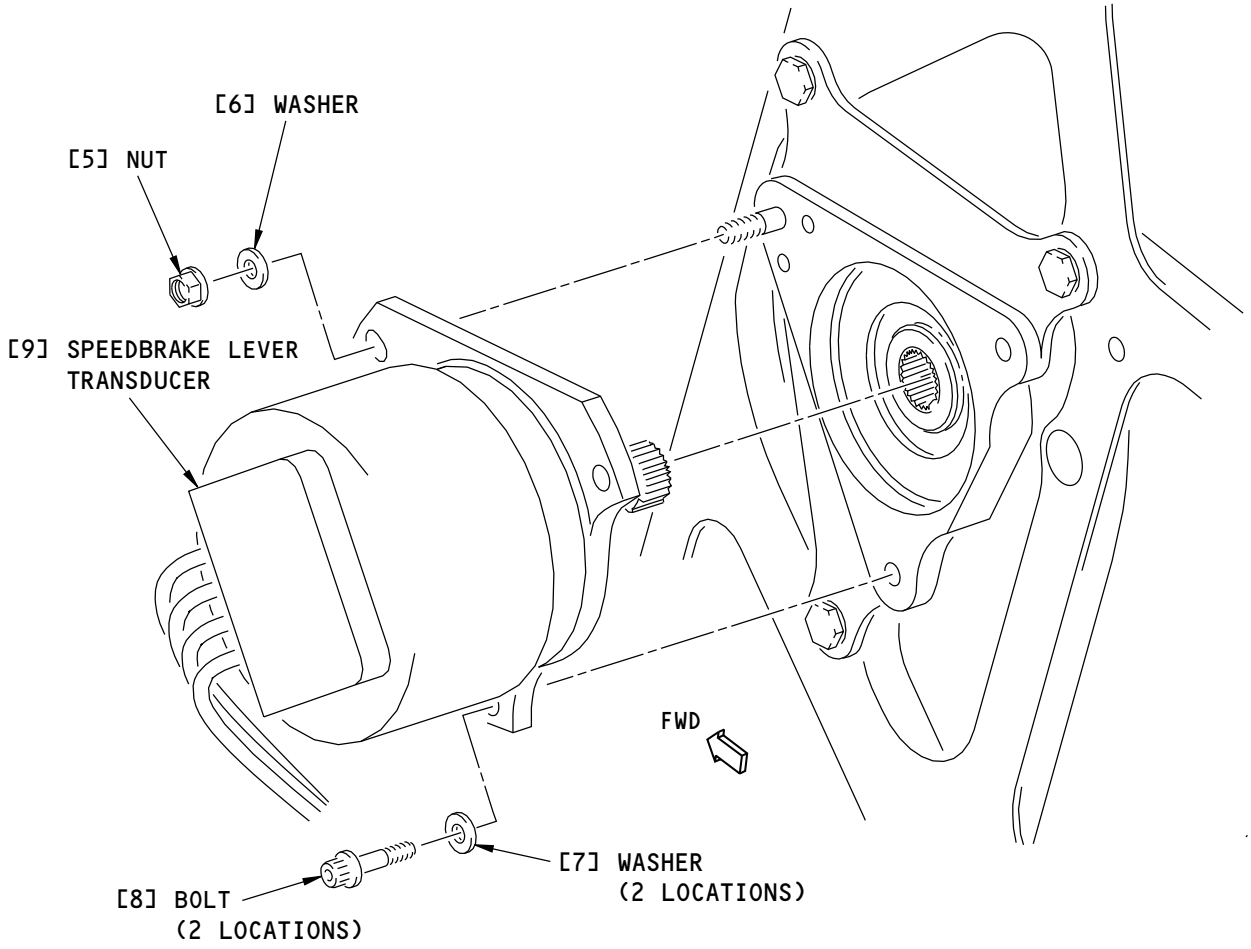
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Speedbrake Lever Transducer Installation
Figure 401/27-61-02-990-801 (Sheet 1 of 2)

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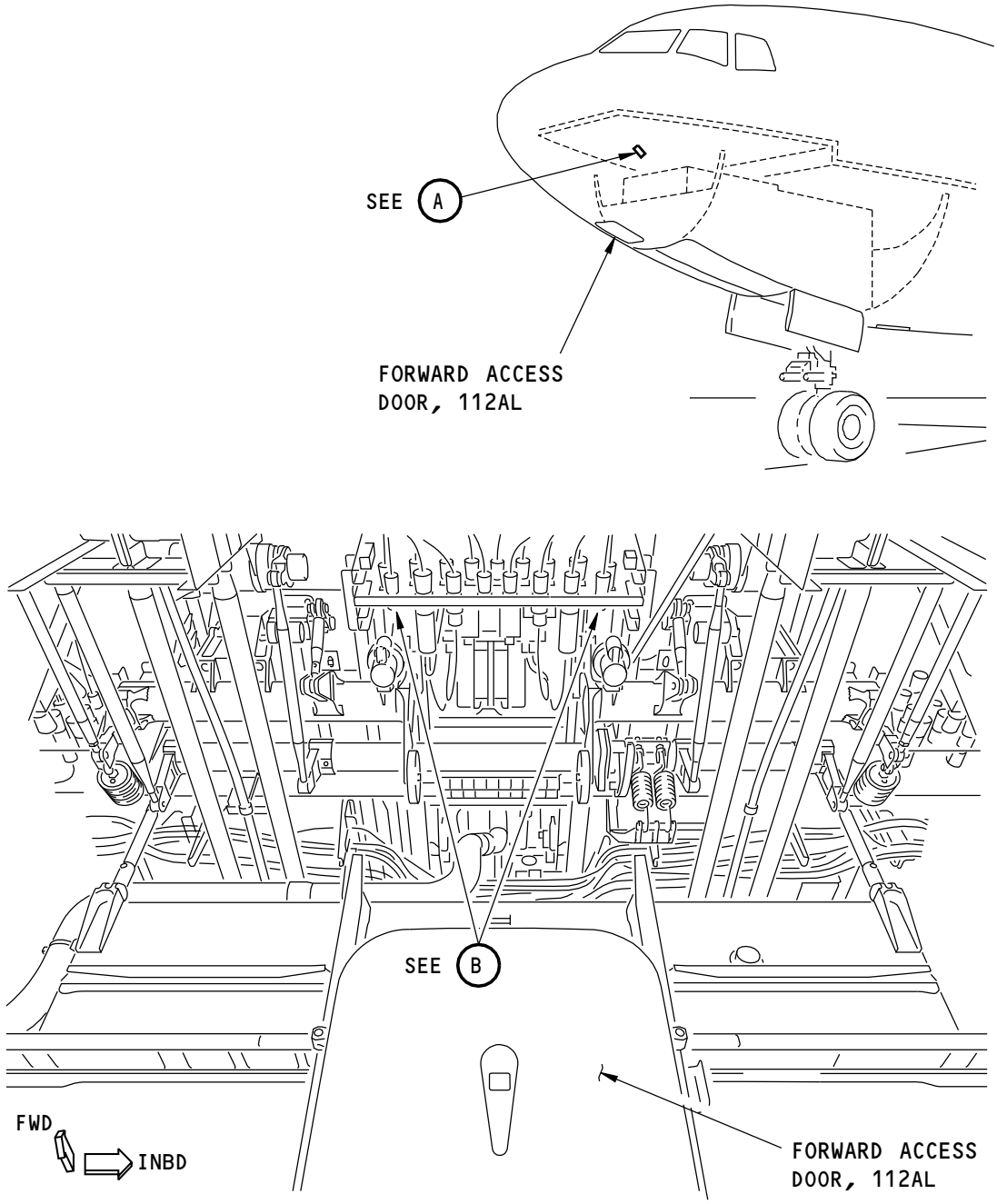
SPEEDBRAKE LEVER TRANSDUCER

B

E26445 S0006414095_V1

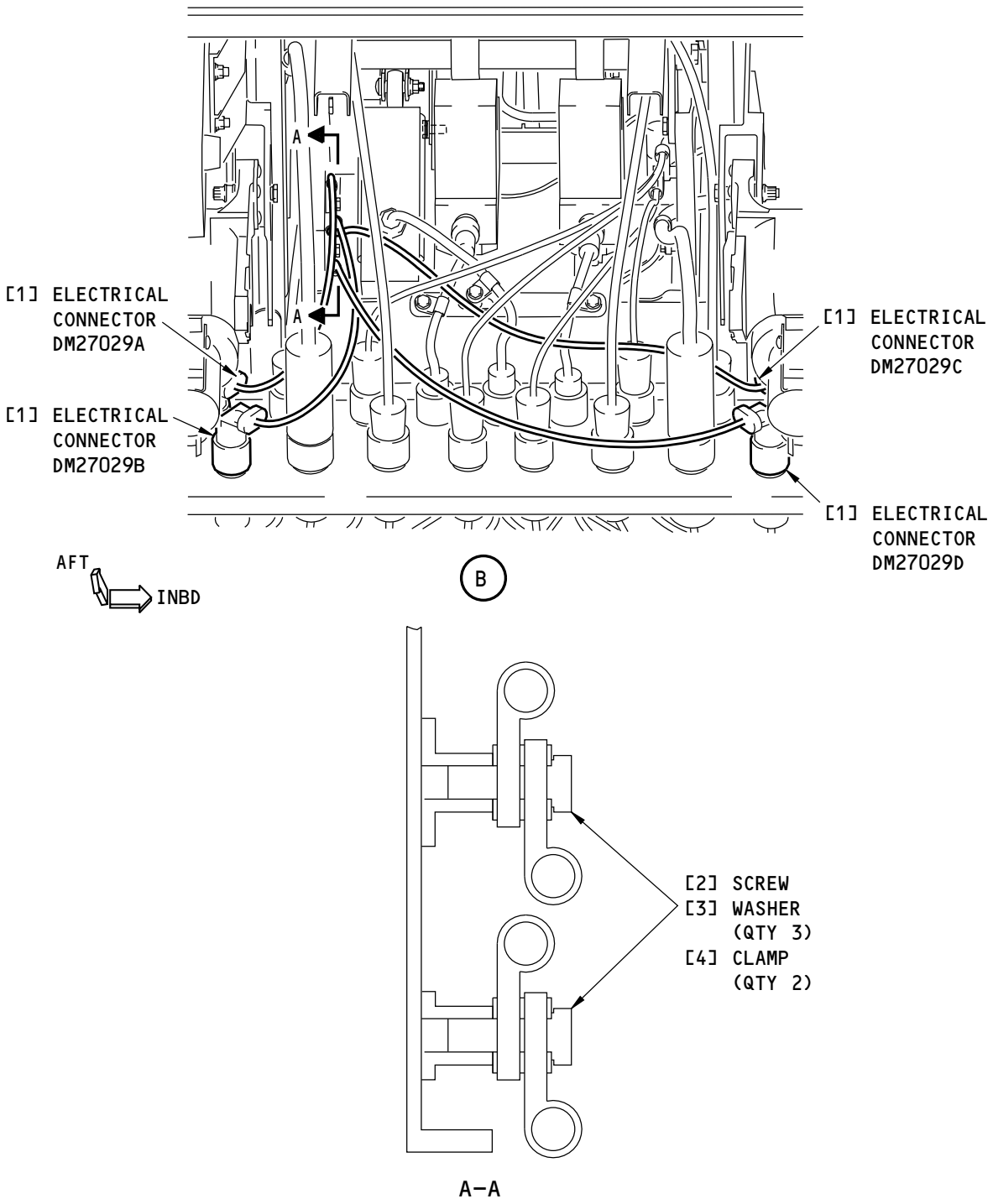
Speedbrake Lever Transducer Installation
Figure 401/27-61-02-990-801 (Sheet 2 of 2)

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Speedbrake Lever Transducer Wiring
Figure 402/27-61-02-990-802 (Sheet 1 of 2)

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Speedbrake Lever Transducer Wiring
Figure 402/27-61-02-990-802 (Sheet 2 of 2)

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TASK 27-61-02-400-801

3. Speedbrake Lever Transducer Installation

(Figure 401)

A. References

Reference	Title
27-61-00-740-802	Speedbrake Lever Position Transducer Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Transducer	27-61-02-05-065	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-61-02-420-001

(1) Do these steps to install the transducer [9]:

(a) Align the splines and put the transducer [9] in its location on the auto speedbrake mechanism housing.

(b) Install the washer [6] and nut [5] that attach the transducer [9] to the auto speedbrake mechanism housing.

(c) Install the bolts [8] and washers [7] (2 locations) that attach the transducer [9] to the auto speedbrake mechanism housing.

SUBTASK 27-61-02-420-002

(2) Connect the four electrical connectors [1] (DM27029A, DM27029B, DM27029C and DM27029D) for the speedbrake lever transducers (Figure 402).

NOTE: Connectors DM27029A and DM27029B, and connectors DM27029C and DM27029D are interchangeable. Which way you connect them is not important.

SUBTASK 27-61-02-410-002

(3) Do these steps to install the panel assembly [10] on the control stand:

(a) Put the panel assembly [10] in its position.

(b) Turn the quick-release fasteners for the panel assembly [10].

E. Put the Airplane Back to its Usual Condition

SUBTASK 27-61-02-860-004

(1) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

SUBTASK 27-61-02-865-001

(2) Close the circuit breakers on the power supply assemblies:

NOTE: Close the PFC circuit breakers on each power supply assembly last.

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(a) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-02-820-002

(3) Do this task: Speedbrake Lever Position Transducer Test, TASK 27-61-00-740-802.

SUBTASK 27-61-02-420-004

(4) Install the screw [2], washers [4], and clamps [3].

NOTE: Some airplanes have 2 screws with 2 clamps on each screw.

SUBTASK 27-61-02-860-005

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

END OF TASK

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SPOILER CONTROL MECHANISM FOR THE MECHANICAL SPOILERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the spoiler control mechanism for the mechanical spoilers.

(2) An installation of the spoiler control mechanism for the mechanical spoilers.

B. In this procedure the spoiler control mechanism for the mechanical spoilers is referred to as the mechanism assembly [1].

TASK 27-61-05-000-801

2. Spoiler Control Mechanism for the Mechanical Spoilers Removal

(Figure 401)

A. References

Reference	Title
20-10-05-000-801	Turnbuckle Locking Clips Removal (P/B 401)
25-52-09-000-801	Ceiling Liner Removal (P/B 401)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Location Zones

Zone	Area
141	Area Above Main Landing Gear Wheel Well, Left
142	Area Above Main Landing Gear Wheel Well, Right

D. Prepare for the Removal

SUBTASK 27-61-05-860-001

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-61-05-860-002

(2) Attach DO-NOT-OPERATE tags on the control wheels.

SUBTASK 27-61-05-010-003

(3) Remove the access hole cover, located at STA 1245 and RBL 25, to get access to the spoiler control mechanism.

E. Spoiler Control Mechanism for the Mechanical Spoilers Removal

SUBTASK 27-61-05-480-001

(1) Install the rig pin, SP7 [2] (from rigging pin set, SPL-2532) in the mechanism assembly [1] center quadrant.

SUBTASK 27-61-05-020-001

(2) Do these steps to disconnect the cables from the quadrants:

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(a) Remove the ceiling liner from the forward cargo compartment to get access to the turnbuckles for cables SBA and SBB (TASK 25-52-09-000-801).

NOTE: Access for cables SB1A, SB1B, SB2A, and SB2B are in the main wheel well.

(b) Install control cable clamp, SPL-1569 on cables SBA, SBB, SB1A, SB1B, SB2A, and SB2B.

(c) Remove the locking clips from the turnbuckles (TASK 20-10-05-000-801).

(d) Use the turnbuckles to loosen the cables.

(e) Remove the nuts [10], washers [9], and bolts [7] to disconnect the cables from the quadrants (6 locations), View C (Figure 401).

SUBTASK 27-61-05-020-002

(3) Do these steps to remove the mechanism assembly [1]:

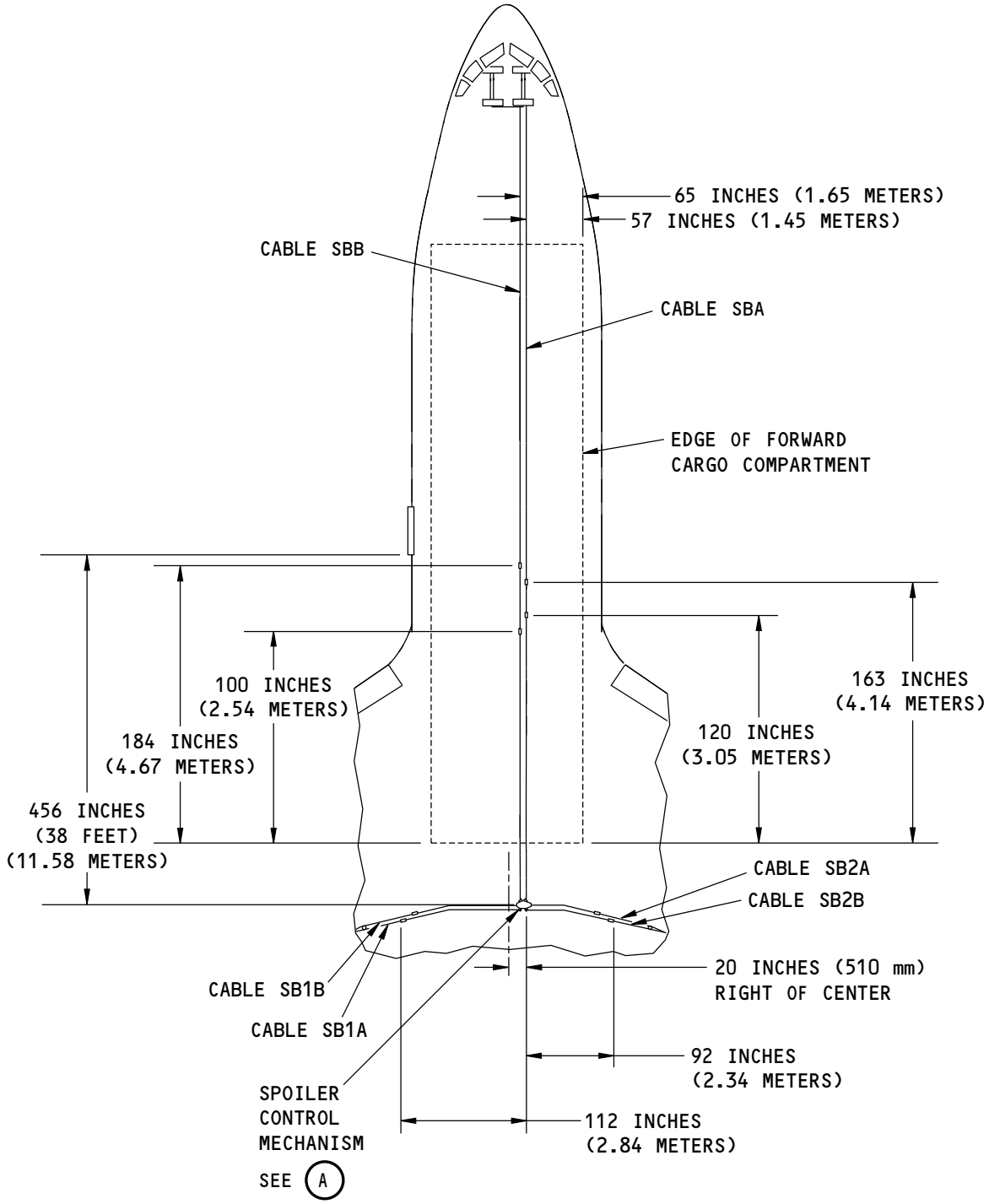
(a) Remove the nuts [14], washers [12], bolts [11], and bushings [13] (2 locations) to disconnect the link assembly from the mechanism assembly [1], View D (Figure 401).

(b) Remove nuts [6], washers [4], bolts [3], and bushings [5] (2 locations) that holds the mechanism assembly [1] to the overwing beam assembly, View B (Figure 401).

(c) Remove the mechanism assembly [1].

——— END OF TASK ———

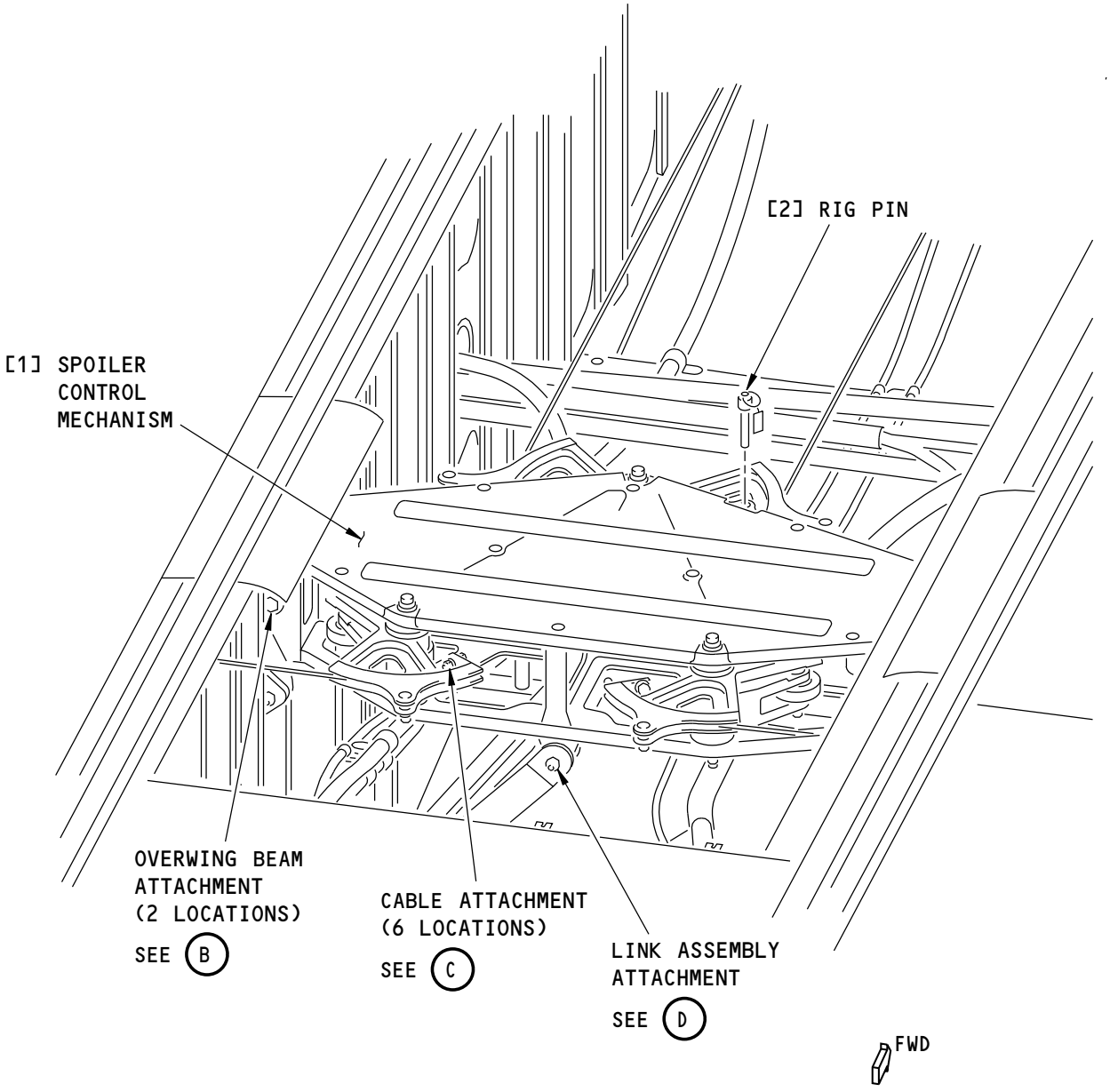
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Spoiler Control Mechanism for the Mechanical Spoiler
Figure 401/27-61-05-990-801 (Sheet 1 of 4)

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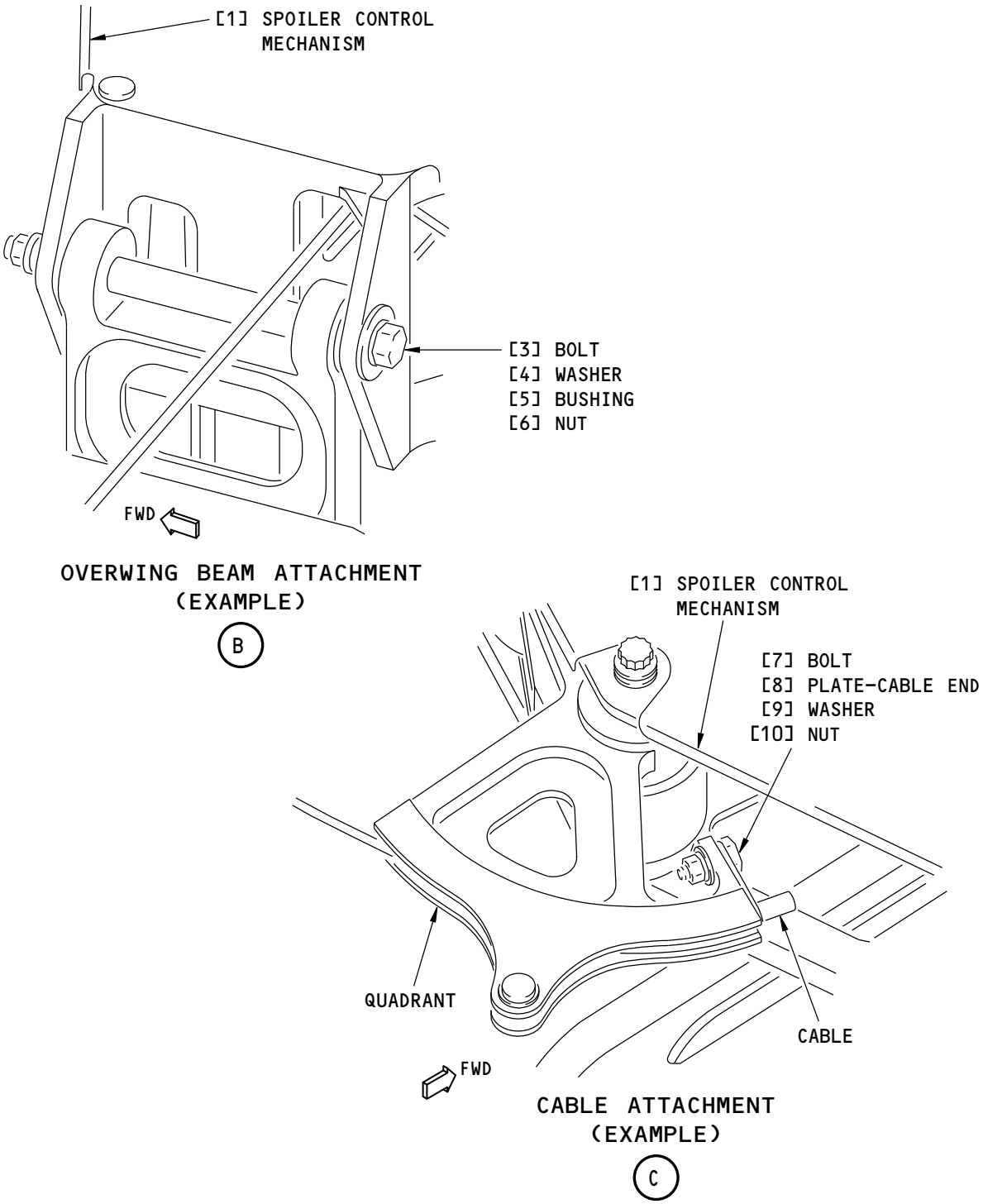


SPOILER CONTROL MECHANISM
(FLOOR PANEL REMOVED)
A

E26944 S0006414103_V1

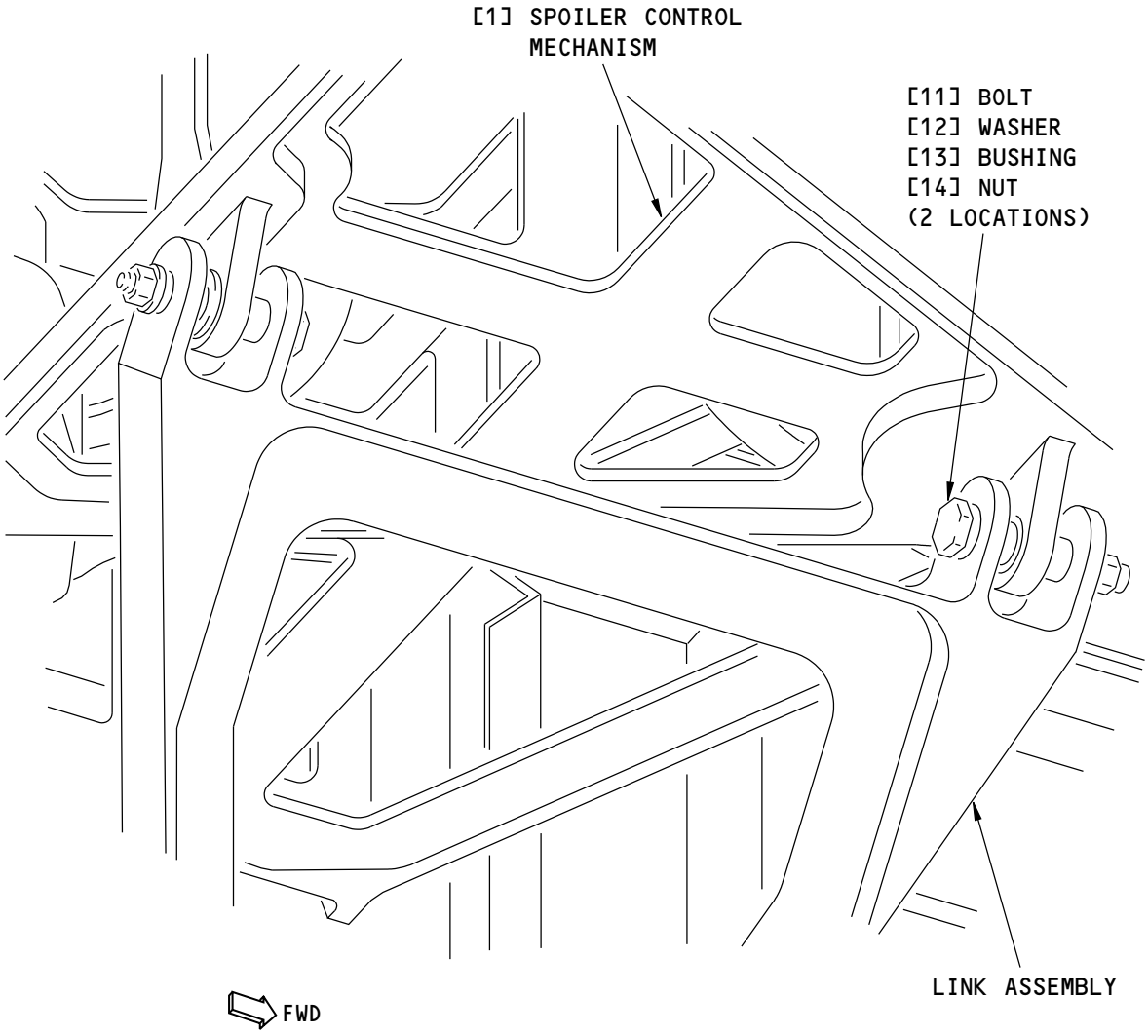
Spoiler Control Mechanism for the Mechanical Spoiler
Figure 401/27-61-05-990-801 (Sheet 2 of 4)

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Spoiler Control Mechanism for the Mechanical Spoiler
Figure 401/27-61-05-990-801 (Sheet 3 of 4)

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LINK ASSEMBLY ATTACHMENT

D

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Spoiler Control Mechanism for the Mechanical Spoiler
Figure 401/27-61-05-990-801 (Sheet 4 of 4)

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TASK 27-61-05-400-801

3. Spoiler Control Mechanism for the Mechanical Spoilers Installation

(Figure 401)

A. References

Reference	Title
20-10-05-400-801	Turnbuckle Locking Clips Installation (P/B 401)
25-52-09-400-801	Ceiling Liner - Installation (P/B 401)
27-61-00-700-802	Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11) (P/B 501)
27-61-00-820-801	Control Cable Adjustment (Rigging) for Spoilers 4 and 11 (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-2532	Pin Set - Rigging Part #: J20003-34 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Mechanism assembly	27-61-05-10-050	ARO ALL

E. Location Zones

Zone	Area
141	Area Above Main Landing Gear Wheel Well, Left
142	Area Above Main Landing Gear Wheel Well, Right

F. Spoiler Control Mechanism for the Mechanical Spoilers Installation

SUBTASK 27-61-05-420-001

(1) Do these steps to install the mechanism assembly [1]:

(a) Apply a layer of grease, D00633 on the bushings [5] (2 locations).

(b) Install the bushings [5] (2 locations).

(c) Put the mechanism assembly [1] in its position.

(d) Install the bolts [3], washers [4], and nuts [6] (2 locations).

(e) Install the bushings [13], bolts [11], washers [12], and nuts [14] for the link assembly (2 locations).

SUBTASK 27-61-05-420-002

(2) Do these steps to connect the cables to the quadrants:

(a) Install the plates [8].

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(b) Install the bolts [7], washers [9], and nuts [10] to connect the cables to the quadrants (6 locations).

(c) Remove the control cable clamp, SPL-1569 from the cables.

(d) Do this task: Control Cable Adjustment (Rigging) for Spoilers 4 and 11, TASK 27-61-00-820-801.

(e) Install the locking clips on the turnbuckles (TASK 20-10-05-400-801).

(f) Remove the rig pin, SP7 [2] (part of rigging pin set, SPL-2532) from the mechanism assembly [1].

SUBTASK 27-61-05-710-001

(3) Do this task: Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), TASK 27-61-00-700-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-05-410-004

(1) Install the access hole cover.

SUBTASK 27-61-05-410-002

(2) Install the ceiling liner in the forward cargo compartment (TASK 25-52-09-400-801).

SUBTASK 27-61-05-020-003

(3) Remove the DO-NOT-CLOSE tags from the control wheels.

——— END OF TASK ———

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SPOILER PCU QUADRANT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the quadrant for the spoiler power control unit (PCU)

(2) An installation of the quadrant for the spoiler power control unit (PCU).

B. The spoiler quadrant for the spoiler power control unit is installed only on the mechanical spoilers (spoilers 4 and 11).

C. The spoiler quadrant for the spoiler power control unit is referred to as the quadrant assembly [1] for the left side, and quadrant assembly [2] for the right side.

TASK 27-61-06-000-801

2. Spoiler PCU Quadrant Removal

A. References

Reference	Title
20-10-05-000-801	Turnbuckle Locking Clips Removal (P/B 401)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Location Zones

Zone	Area
563	Spoiler No. 4
663	Spoiler No. 11

D. Prepare for the Removal

SUBTASK 27-61-06-860-001

(1) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-06-860-002

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-61-06-860-003

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-06-860-004

(4) Attach DO-NOT-OPERATE tags to the control wheels.

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E. Spoiler PCU Quadrant Removal

SUBTASK 27-61-06-040-001

(1) Operate the manual release cam on the spoiler PCU.

SUBTASK 27-61-06-480-002

(2) Manually lift the spoiler and install the inboard and outboard spoiler actuators lock equipment, SPL-1719.

NOTE: The spoiler will only move slowly when you lift them. Keep pushing.

SUBTASK 27-61-06-020-001

(3) Do these steps to disconnect the cables [3] from the quadrant assembly [1] or quadrant assembly [2]:

(a) Install control cable clamp, SPL-1569, on cables SB1A and SB1B if you will remove the left quadrant assembly [1] or on cables SB2A and SB2B if you will remove the right quadrant assembly [2] (Figure 402).

(b) Remove the locking clips from the turnbuckles (TASK 20-10-05-000-801).

(c) Use the turnbuckles to loosen the cables.

(d) Remove the nut [6], washer [5], bolt [4], and plate [17] and disconnect the cables [3] from the quadrant assembly [1] or quadrant assembly [2], (Figure 401).

SUBTASK 27-61-06-020-002

(4) Do these steps to remove the quadrant assembly [1] or quadrant assembly [2]:

(a) Remove the nut [10], washer [9], bolt [7], and bushing [8] to remove the spoiler quadrant pushrod from the PCU quadrant.

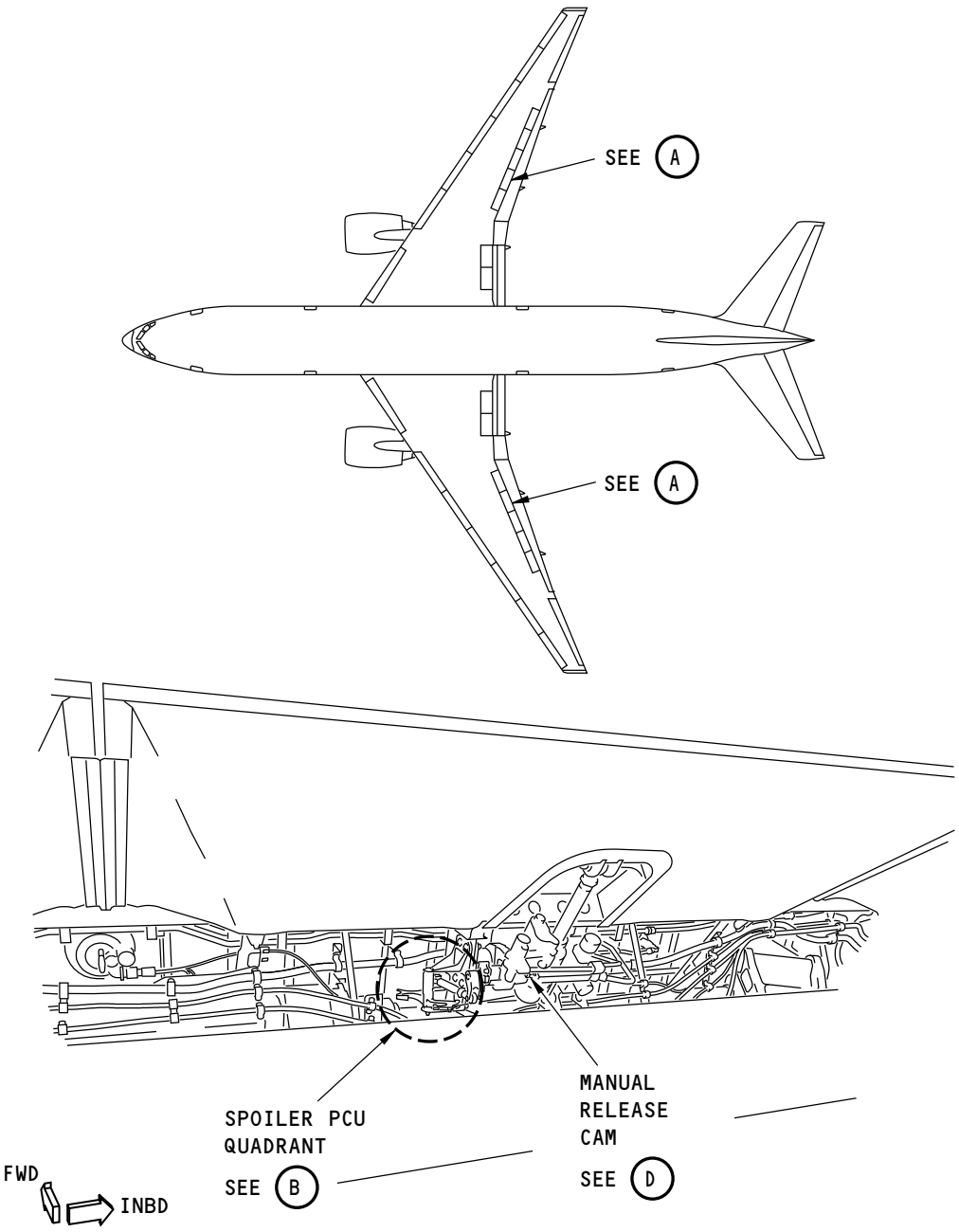
(b) Remove the nut [15], washer [14], bolt [11], bearing [13], bushing [16] and bushing [12].

(c) Remove the quadrant assembly [1] or quadrant assembly [2].

(d) Remove the bearing [13], bushing [12], and bushing [16].

——— END OF TASK ———

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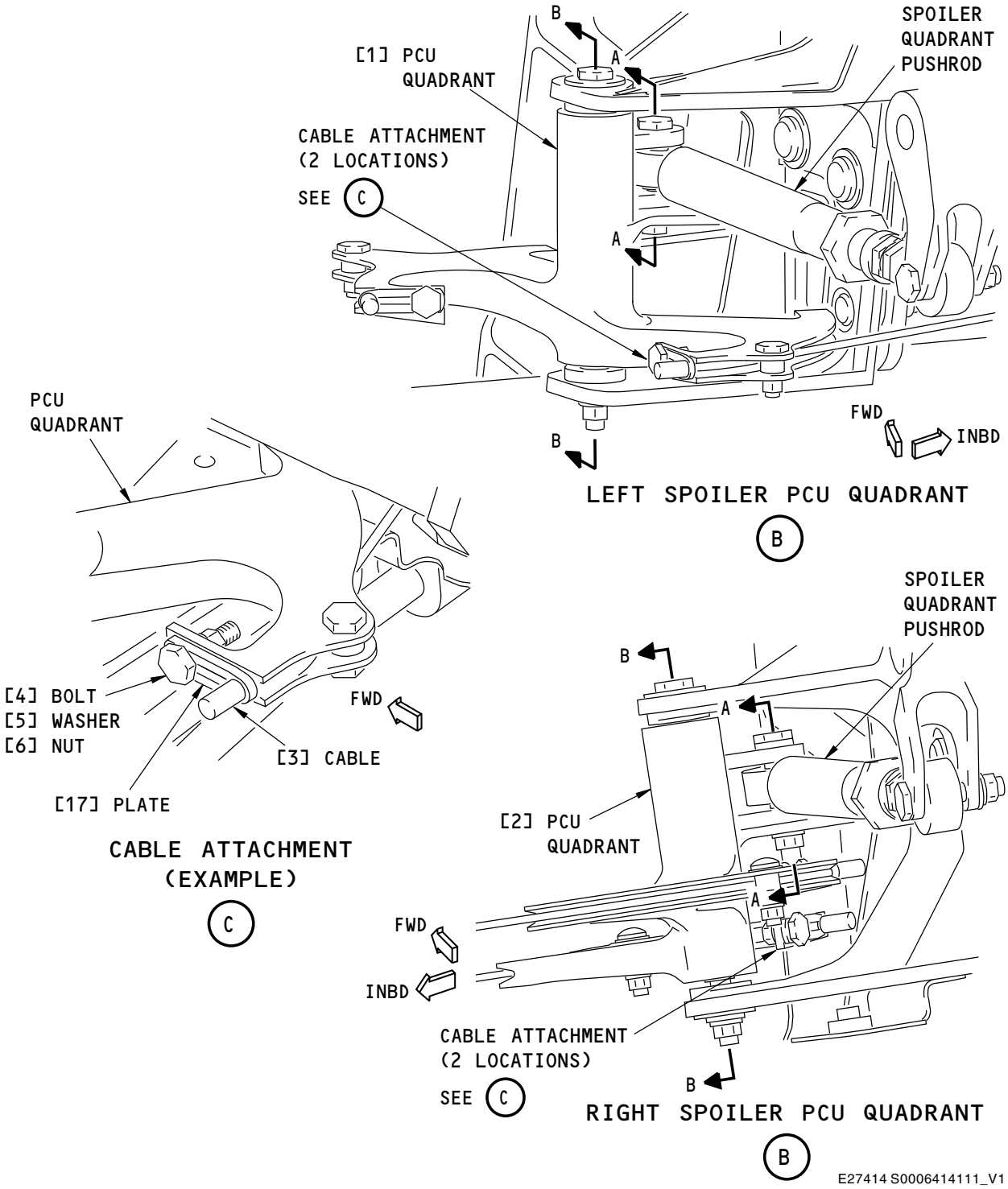
LEFT SPOILER PCU QUADRANT
(RIGHT SPOILER PCU QUADRANT IS EQUIVALENT)

A

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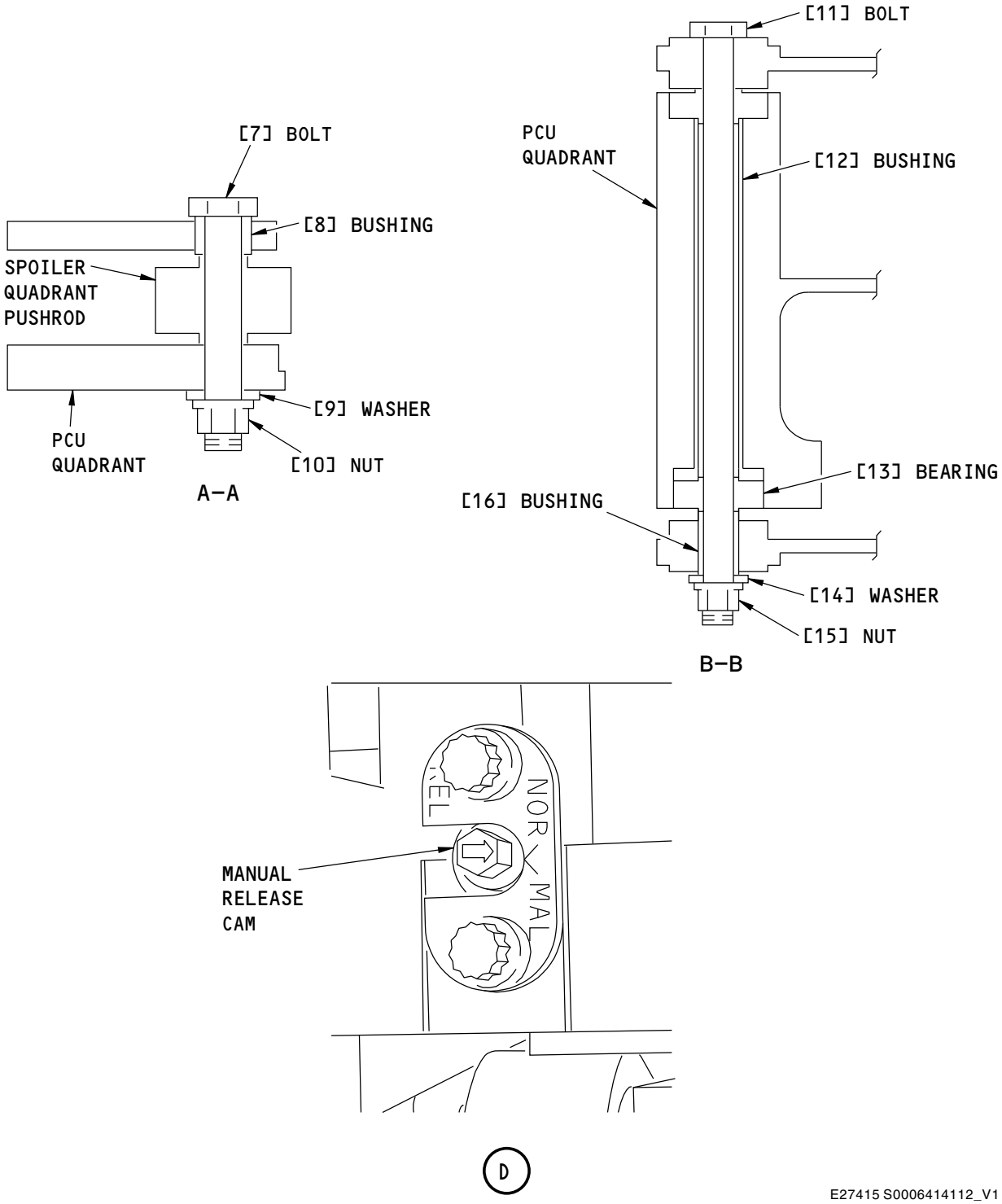
Spoiler PCU Quadrant Installation
Figure 401/27-61-06-990-801 (Sheet 1 of 3)

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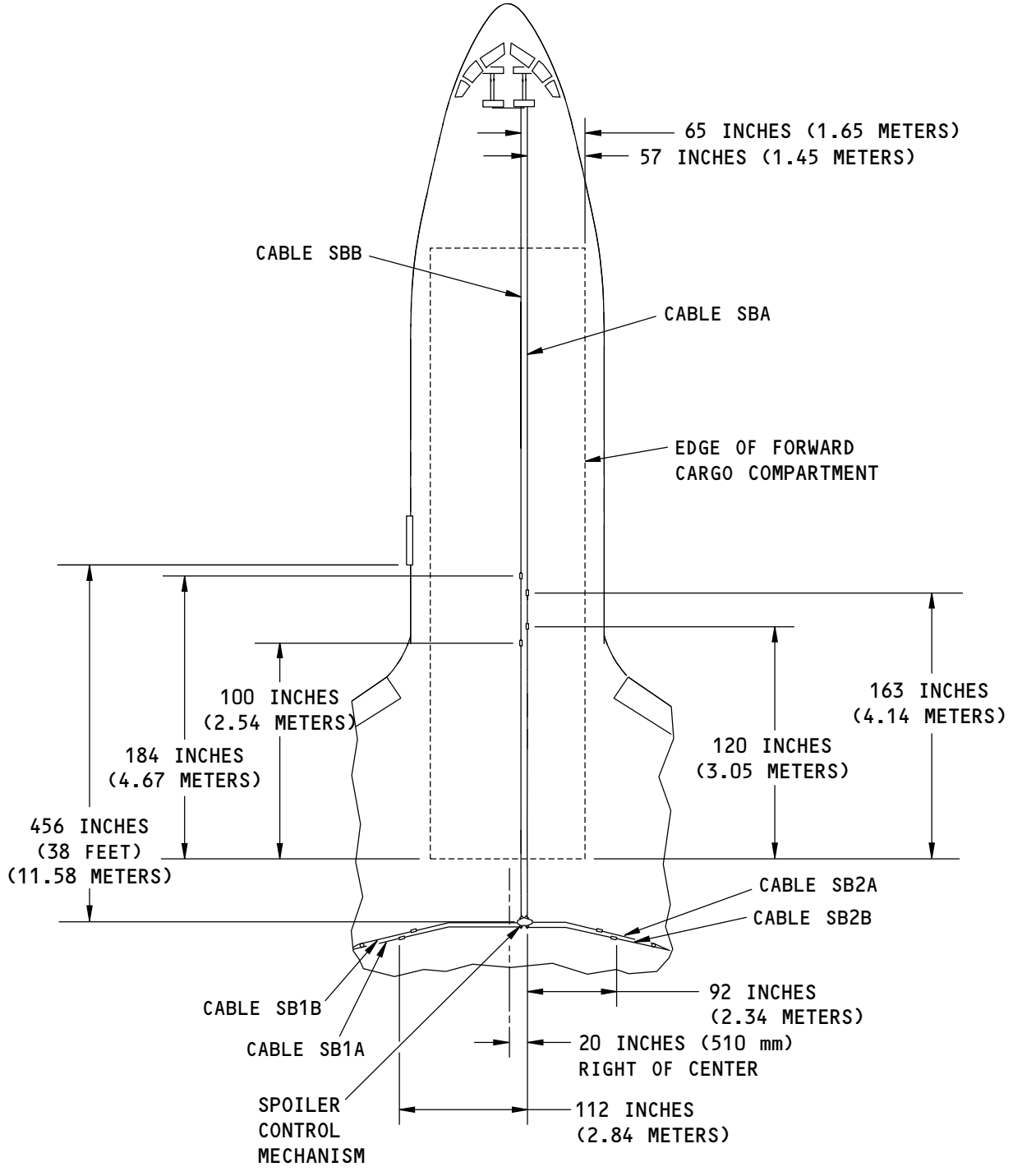
Spoiler PCU Quadrant Installation
Figure 401/27-61-06-990-801 (Sheet 2 of 3)

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Spoiler PCU Quadrant Installation
Figure 401/27-61-06-990-801 (Sheet 3 of 3)

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Spoiler PCU Quadrant Installation
Figure 402/27-61-06-990-802

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TASK 27-61-06-400-801

3. Spoiler PCU Quadrant Installation

(Figure 401)

A. References

Reference	Title
20-10-05-400-801	Turnbuckle Locking Clips Installation (P/B 401)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-700-802	Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11) (P/B 501)
27-61-00-820-801	Control Cable Adjustment (Rigging) for Spoilers 4 and 11 (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable Part #: A20005-9 Supplier: 81205
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Quadrant assembly	27-61-04-10-130	ARO ALL
2	Quadrant assembly	27-61-04-10-135	ARO ALL

E. Location Zones

Zone	Area
563	Spoiler No. 4
663	Spoiler No. 11

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F. Spoiler PCU Quadrant Installation

SUBTASK 27-61-06-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Do these steps to install the quadrant assembly [1] or quadrant assembly [2]:

(a) Apply a layer of grease, D00633 on the bearing [13] and bushing [12].

(b) Install the bushing [12] and bearing [13].

(c) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the bushing [16].

(d) Put the quadrant assembly [1] or quadrant assembly [2] in its position.

(e) Install the bolt [11], bushing [16], washer [14], and nut [15].

(f) Tighten the nut [15] to 50 in-lb (6 N·m) - 70 in-lb (8 N·m).

(g) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, on the bushing [8].

(h) Install the bushing [8].

(i) Put the spoiler quadrant pushrod in its position.

(j) Install the bolt [7], washer [9], and nut [10].

(k) Tighten the nut [10] to 50 in-lb (6 N·m) - 70 in-lb (8 N·m).

SUBTASK 27-61-06-420-002

(2) Do these steps to connect the cables [3] to the quadrant assembly [1] or quadrant assembly [2]:

(a) Put the cables [3] in their position on the quadrant assembly [1] or quadrant assembly [2].

(b) Install the plates [17], bolts [4], washers [5], and nuts [6] for each cable [3].

(c) Tighten the nuts [6] to 25 in-lb (3 N·m) - 35 in-lb (4 N·m).

(d) Remove the control cable clamp, SPL-1569 from the cables [3].

SUBTASK 27-61-06-080-001

(3) Remove the inboard and outboard spoiler actuators lock equipment, SPL-1719, and lower the spoiler.

SUBTASK 27-61-06-820-001

(4) Adjust the applicable spoiler control cables. To adjust them, do this task: Control Cable Adjustment (Rigging) for Spoilers 4 and 11, TASK 27-61-00-820-801.

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SUBTASK 27-61-06-420-003

(5) Install new locking clips on the turnbuckles (TASK 20-10-05-400-801).

G. Spoiler PCU Quadrant Installation Test

SUBTASK 27-61-06-860-005

(1) Remove the DO-NOT-OPERATE tags on the control wheels.

SUBTASK 27-61-06-860-009

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the left hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-06-710-001

(3) To adjust the spoiler quadrant pushrod, do this task: Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), TASK 27-61-00-700-802

H. Put the Airplane Back to its Usual Condition

SUBTASK 27-61-06-860-006

(1) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-06-860-007

(2) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-06-860-010

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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INBOARD SPOILER POWER CONTROL UNIT (PCU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the power control units (PCUs) for the inboard spoilers

(2) An installation of the power control units (PCUs) for the inboard spoilers.

TASK 27-61-07-000-801

2. Inboard Spoiler Power Control Units (PCUs) - Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Location Zones

Zone	Area
553	Spoiler No. 7
554	Spoiler No. 6
653	Spoiler No. 8
654	Spoiler No. 9

D. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

E. Prepare for the Removal

SUBTASK 27-61-07-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-61-07-860-002

WARNING MAKE SURE THE SPEEDBRAKE LEVER IS IN ITS DOWN-AND-LOCKED POSITION BEFORE YOU OPEN THESE CIRCUIT BREAKERS. THE SPOILERS CAN RETRACT AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Open these circuit breakers and attach DO-NOT-CLOSE tags:

(a) On the right power supply assembly (PSA-R) in the E5-1 rack, A1, ACE-R PWR.

(b) On the center power supply assembly (PSA-C) in the E2-6 rack, A1, ACE-C PWR.

SUBTASK 27-61-07-860-003

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE TRAILING EDGE FLAPS. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR WHEN THIS SURFACE MOVES.

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-07-860-004

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-07-860-005

(5) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

NOTE: The right hydraulic system supplies power for spoilers No. 6 and 9. The center hydraulic system supplies power for spoilers No. 7 and 8.

SUBTASK 27-61-07-860-006

(6) Move the FLT CONTROL HYD VALVE POWER - WING C and R switches to the SHUT OFF position.

F. Inboard Spoiler Power Control Units (PCUs) Removal

SUBTASK 27-61-07-010-001

(1) Remove the access panels that follow:

(a) For the left wing, open these access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, open these access panels:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-07-040-001

(2) Operate the manual release cam (View D) to lift the spoiler.

SUBTASK 27-61-07-480-001

(3) Install the inboard and outboard spoiler actuators lock equipment, SPL-1719 for the spoiler.

SUBTASK 27-61-07-020-001

(4) Remove the spoiler PCU as follows:

(a) Disconnect the electrical connector [10] from the PCU [4].

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(b) Disconnect the hydraulic lines [9] and hose [15] from the PCU [4].

NOTE: Make sure you install caps on the hydraulic lines [9] and hose [15].

(c) For the fitting attached to the spoiler (View B):

1) Remove the nut [8], washer [7], bolt [5], and washer [6] that hold the pin [1] to the spoiler.

CAUTION MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

2) Remove the nut [3], washer [2] and pin [1] that connects the PCU [4] to the spoiler.

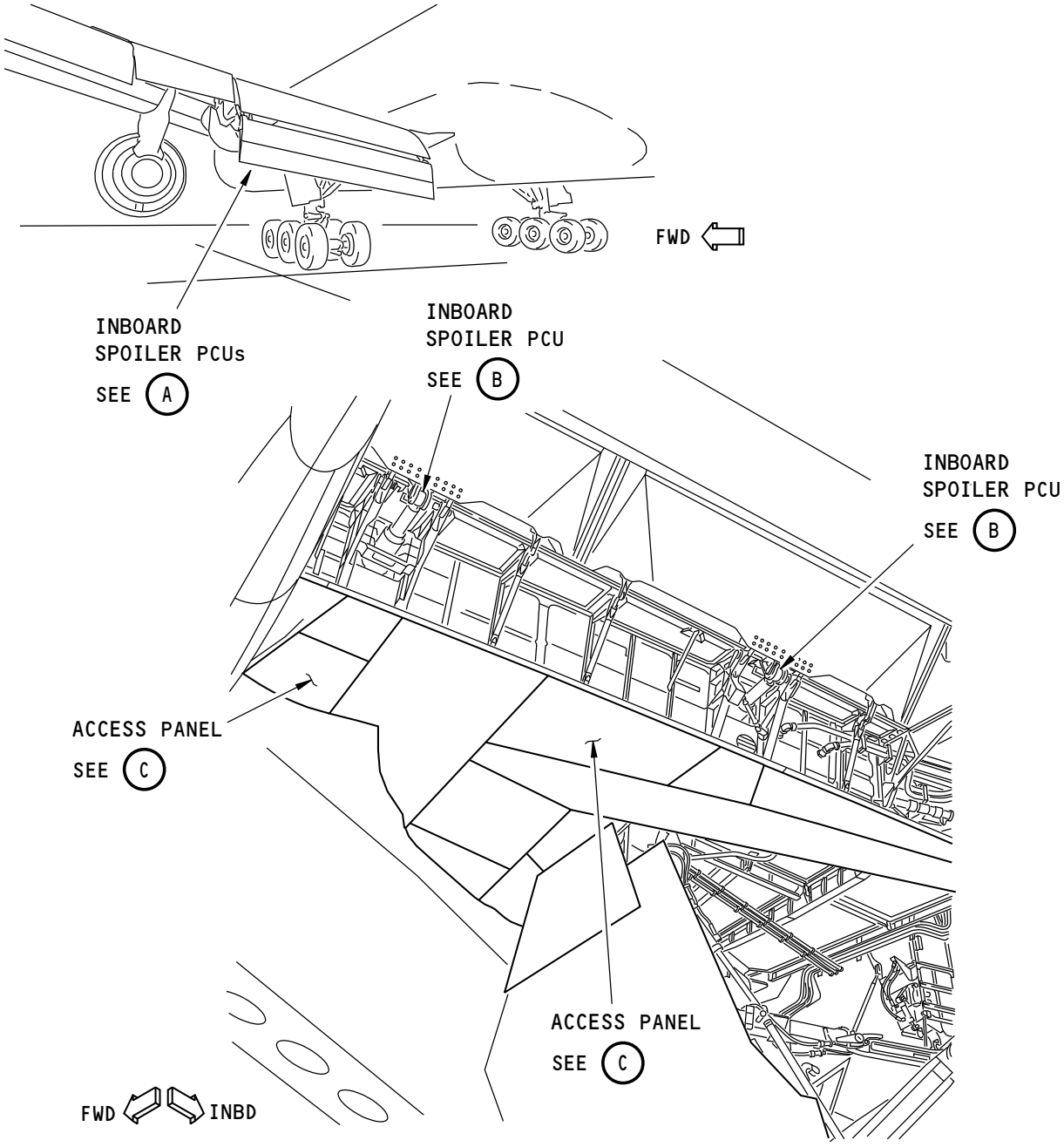
(d) For the fitting attached to the spoiler beam assembly (4 locations on each PCU)(View C):

1) Remove the nuts [14], washers [13], bolts [11], and washers [12] that hold the PCU [4] to the spoiler beam assembly.

(e) Remove the PCU [4].

END OF TASK

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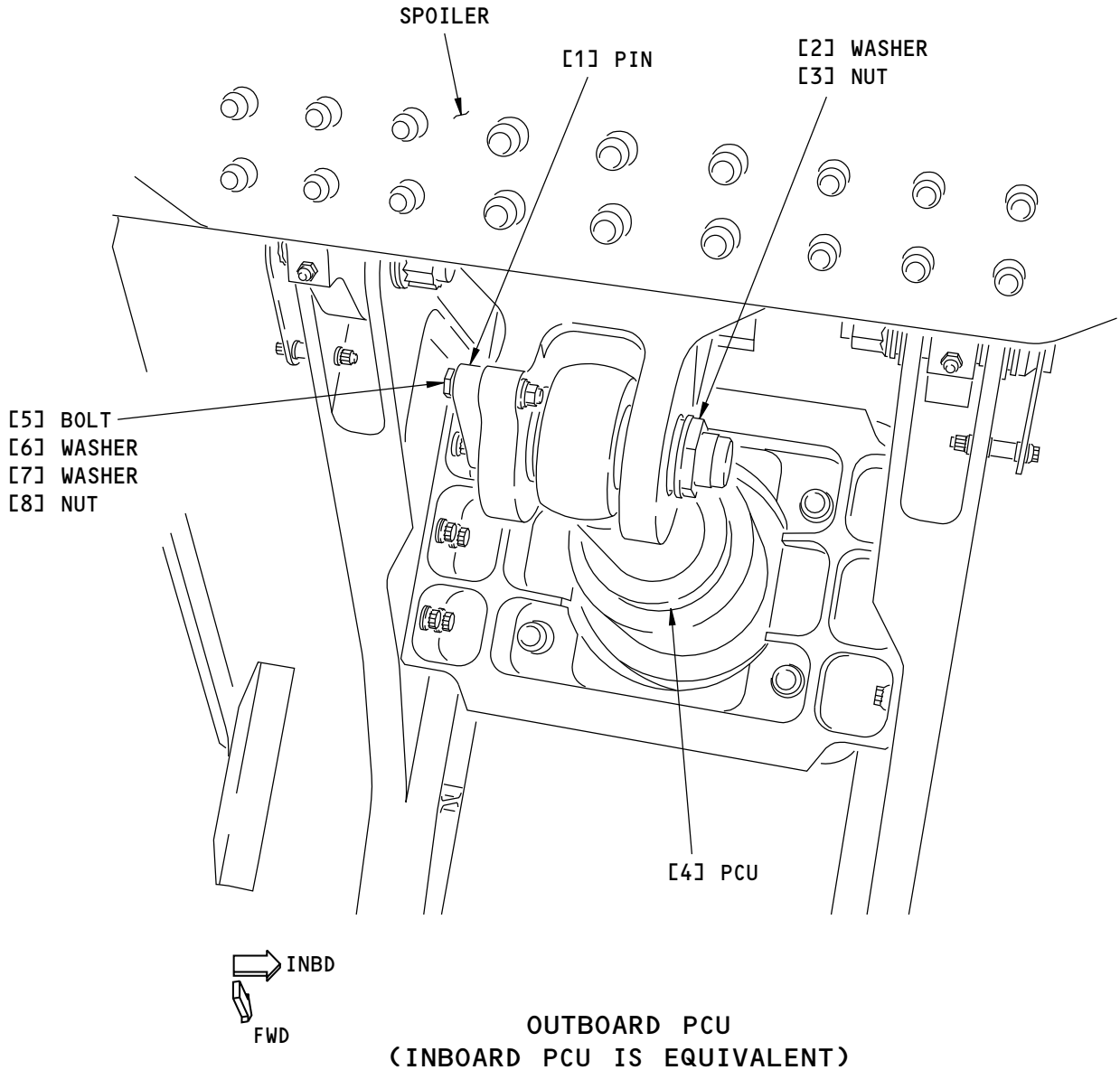


INBOARD SPOILER PCUs
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
A

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Inboard Spoiler Power Control Units (PCUs) Installation
Figure 401/27-61-07-990-801 (Sheet 1 of 4)

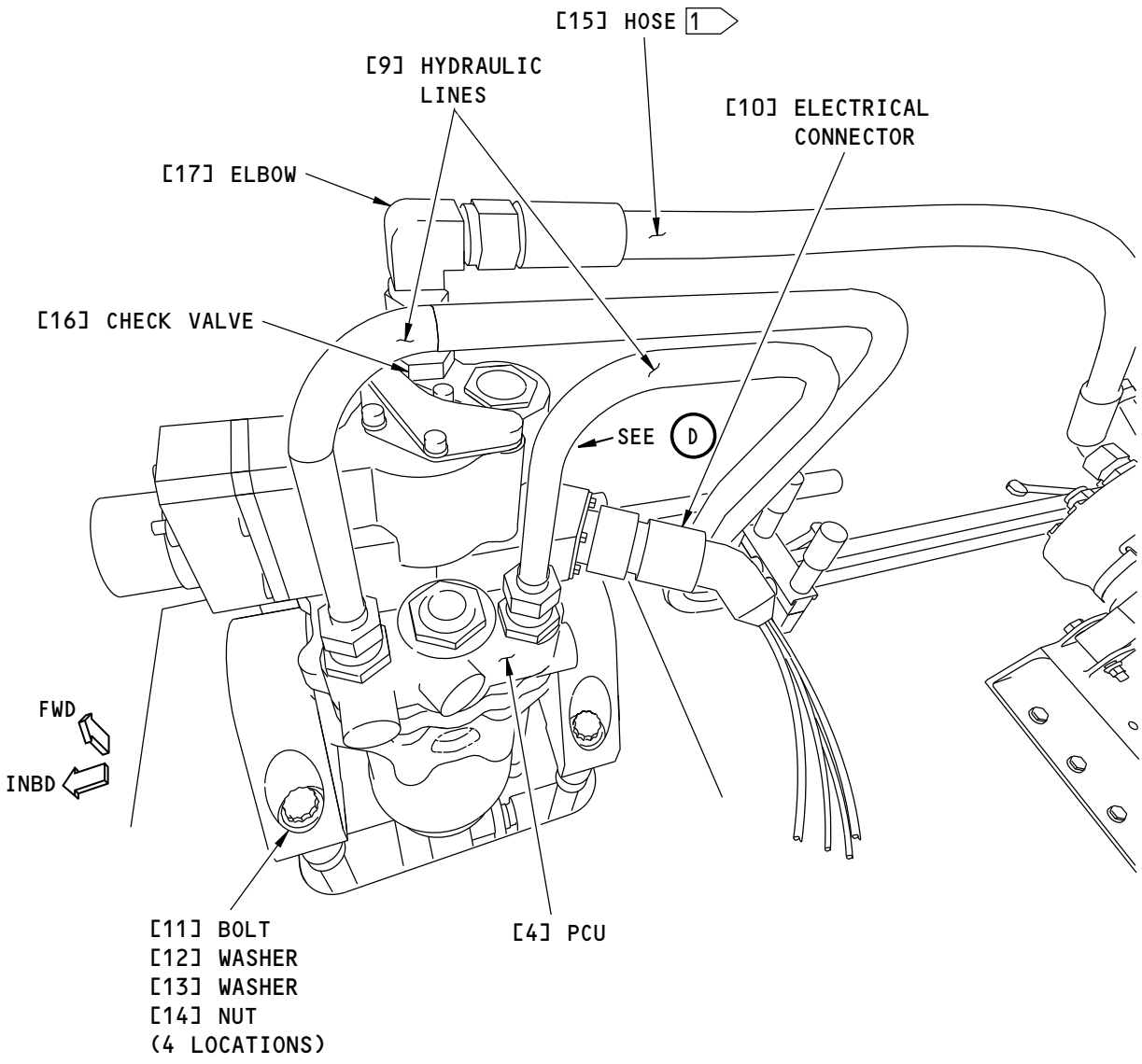
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Inboard Spoiler Power Control Units (PCUs) Installation
Figure 401/27-61-07-990-801 (Sheet 2 of 4)

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INBOARD PCU
(VIEW LOOKING THRU ACCESS PANEL,
OUTBOARD PCU IS EQUIVALENT)

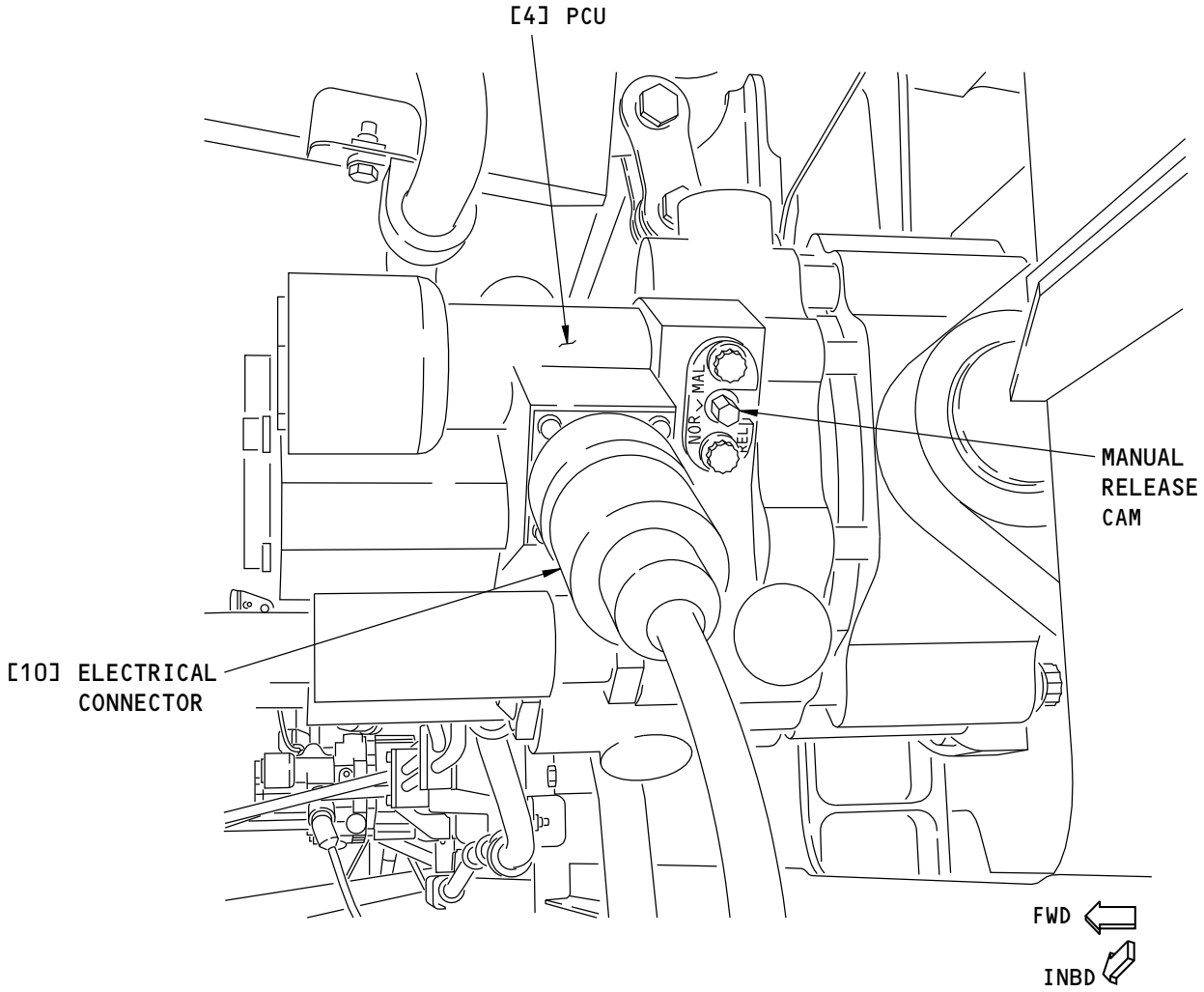
C

1 SARD HYDRAULIC LINE IS ONLY ON THE INBOARD PCU

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Inboard Spoiler Power Control Units (PCUs) Installation
Figure 401/27-61-07-990-801 (Sheet 3 of 4)

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SPOILER PCU MANUAL RELEASE
(EXAMPLE)

D

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Inboard Spoiler Power Control Units (PCUs) Installation
Figure 401/27-61-07-990-801 (Sheet 4 of 4)

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TASK 27-61-07-400-801

3. Inboard Spoiler Power Control Units (PCU) - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-21-10-600-801	Lubricate the Inboard Spoilers (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-700-801	Spoiler Operational Test (P/B 501)
27-61-00-820-802	Spoiler PCU Adjustment (P/B 501)
27-61-12-000-802	SARD Port Plug Removal (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pin	27-61-07-10-190	ARO ALL

D. Location Zones

Zone	Area
553	Spoiler No. 7
554	Spoiler No. 6
653	Spoiler No. 8
654	Spoiler No. 9

E. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

F. Inboard Spoiler Power Control Units (PCUs) Installation

SUBTASK 27-61-07-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Install the PCU [4] as follows:

(a) Put the PCU [4] in its position.

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(b) For the fitting attached to the spoiler beam assembly (4 locations for each PCU [4]:

1) Apply a layer of Cor-Ban 27L Compound, G50237 to the bolts [11].

2) Install the washers [12], bolts [11], washers [13], and nuts [14] that connects the PCU [4] to the spoiler beam assembly.

3) Tighten the nut [14] to 440 in-lb (50 N·m) to 470 in-lb (53 N·m).

(c) For the fitting attached to the spoiler:

1) Apply a layer of grease, D00633 on the outside diameter of the pin [1].

CAUTION MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

2) Install the pin [1], washer [2], and nut [3] that attaches the PCU [4] to the spoiler.

NOTE: Do not tighten the nut now.

3) Install the washer [6], bolt [5], washer [7], and nut [8], that holds the pin [1] to the spoiler.

4) Tighten the nut [3] to 1500 in-lb (169 N·m) - 1800 in-lb (203 N·m).

(d) If installing the PCU for Spoiler 7 or Spoiler 8, do this task: SARD Port Plug Removal, TASK 27-61-12-000-802

(e) Connect the hydraulic lines [9] to the PCU [4].

1) Tighten the B-nuts on the hydraulic lines [9] to 500 ±50 in-lb (56 ±6 N·m).

(f) If it is not installed, install the check valve [16] on the PCU [4].

(g) If it is not installed, install the elbow [17] on the check valve [16].

1) Tighten the B-nut on the elbow [17] to 500 ±25 in-lb (56 ±3 N·m).

(h) Connect the hose [15] to the elbow [17].

1) Tighten the B-nut on the hose [15] to 500 ±25 in-lb (56 ±3 N·m).

(i) Connect the electrical connector [10] to the PCU [4].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-07-080-001

(1) Remove the spoiler actuator lock from the spoiler PCU [4].

SUBTASK 27-61-07-610-001

(2) Do this task: Lubricate the Inboard Spoilers, TASK 12-21-10-600-801.

SUBTASK 27-61-07-410-001

(3) Install the access panels that follow:

(a) For the left wing, close these access panels:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, close these access panels:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

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SUBTASK 27-61-07-860-007

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-07-860-008

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-07-860-009

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE TRAILING EDGE FLAPS. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR WHEN THIS SURFACE MOVES.

(6) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-07-860-010

(7) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

(a) On the right power supply assembly (PSA-R) in the E5-1 rack, A1, ACE-R PWR.

(b) On the center power supply assembly (PSA-C) in the E2-6 rack, A1, ACE-C PWR.

SUBTASK 27-61-07-860-011

(8) Move the applicable FLT CONTROL HYD VALVE POWER - WING R or C switches to the NORM position.

H. Inboard Spoiler Power Control Units (PCUs) Installation Test

SUBTASK 27-61-07-820-001

(1) Do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802.

SUBTASK 27-61-07-710-001

(2) Do this task: Spoiler Operational Test, TASK 27-61-00-700-801.

SUBTASK 27-61-07-860-012

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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OUTBOARD SPOILER POWER CONTROL UNIT (PCU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the power control units (PCUs) for the outboard spoilers No. 1, 2, 3, 5, 10, 12, 13, and 14

(2) An installation of the power control units (PCUs) for the outboard spoilers No. 1, 2, 3, 5, 10, 12, 13, and 14.

TASK 27-61-08-000-801

2. Outboard Spoiler Power Control Unit (PCU) - Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Location Zones

Zone	Area
562	Spoiler No. 5
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
662	Spoiler No. 10
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

D. Prepare for the Removal

SUBTASK 27-61-08-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-61-08-860-002

WARNING MAKE SURE THE SPEEDBRAKE LEVER IS IN ITS DOWN-AND-LOCKED POSITION BEFORE YOU OPEN THESE CIRCUIT BREAKERS. THE SPOILERS CAN RETRACT AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-08-860-003

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE TRAILING EDGE FLAPS. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR WHEN THIS SURFACE MOVES.

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-08-860-004

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-61-08-860-005

(5) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

NOTE: The right hydraulic system supplies power for spoilers No. 3 and 12. The center hydraulic system supplies power for spoilers No. 1, 5, 10 and 14. The left hydraulic system supplies power for spoiler No. 2 and 13.

SUBTASK 27-61-08-860-006

(6) Move the FLT CONTROL HYD VALVE POWER - WING L, C and R switches to the SHUT OFF position and attach DO-NOT-OPERATE tags.

E. Outboard Spoiler Power Control Unit (PCU) Removal

SUBTASK 27-61-08-860-007

(1) Operate the manual release cam and lift the spoiler (View D).

SUBTASK 27-61-08-480-001

(2) Install the inboard and outboard spoiler actuators lock equipment, SPL-1719, on the spoiler PCU.

SUBTASK 27-61-08-020-001

(3) Remove the spoiler PCU as follows:

(a) Disconnect the electrical connector [10] for the PCU [6].

(b) Disconnect the hydraulic lines [9] and hydraulic lines [15] from the PCU [6].

NOTE: Make sure you install caps on the hydraulic lines [9].

(c) For the PCU to the spoiler attachment:

CAUTION

MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

1) Remove the bolt [2], and washer [3] that hold the pin [1] to the spoiler.

2) Remove the nut [7], washer [8] and pin [1] that hold the PCU [6] to the spoiler.

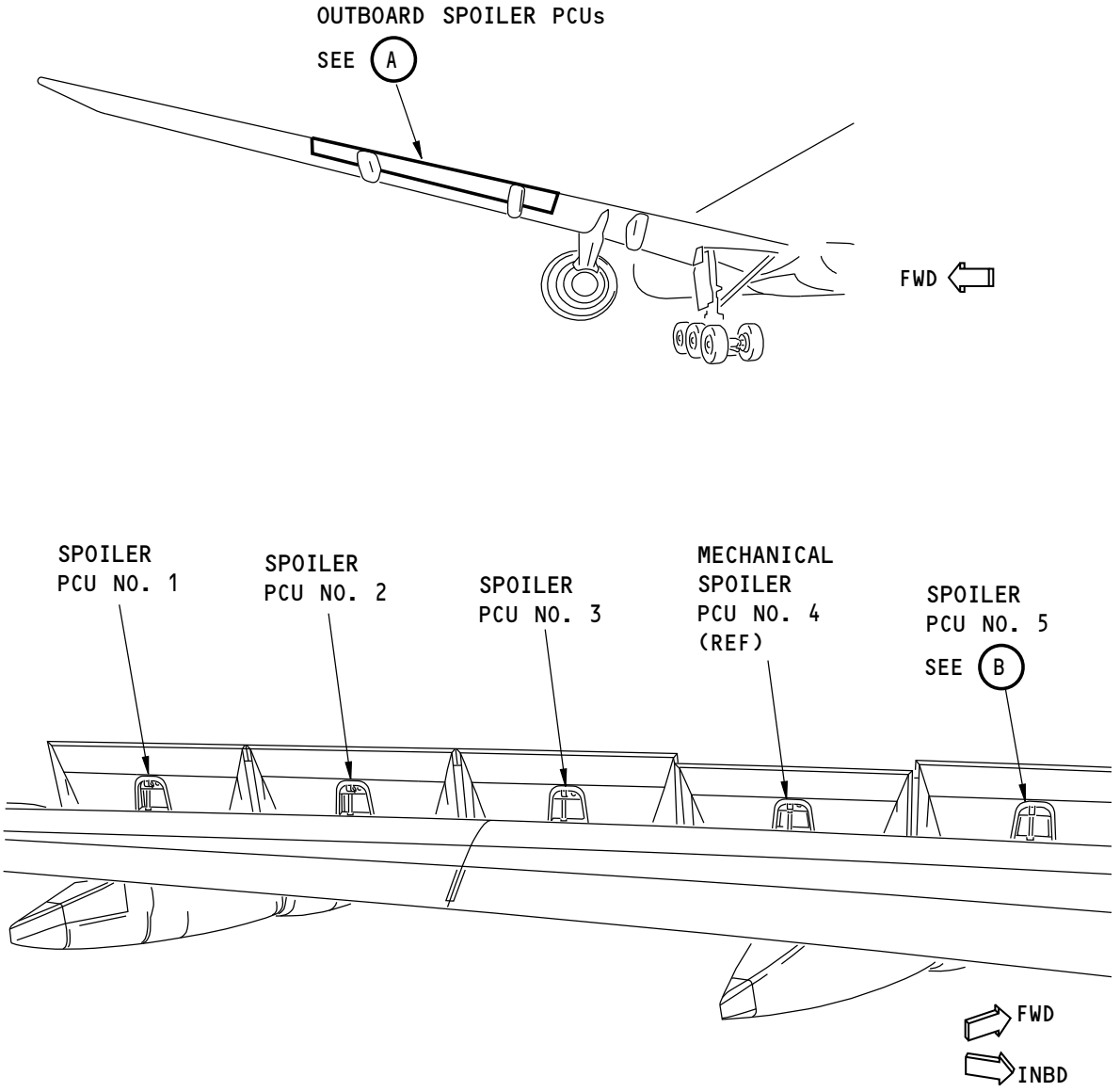
(d) For the fitting attached to the spoiler beam assembly (4 locations/PCU):

1) Remove the bolts [11] and washer [12] that hold the PCUs [6] to the spoiler beam assembly.

(e) Remove the PCUs [6].

END OF TASK

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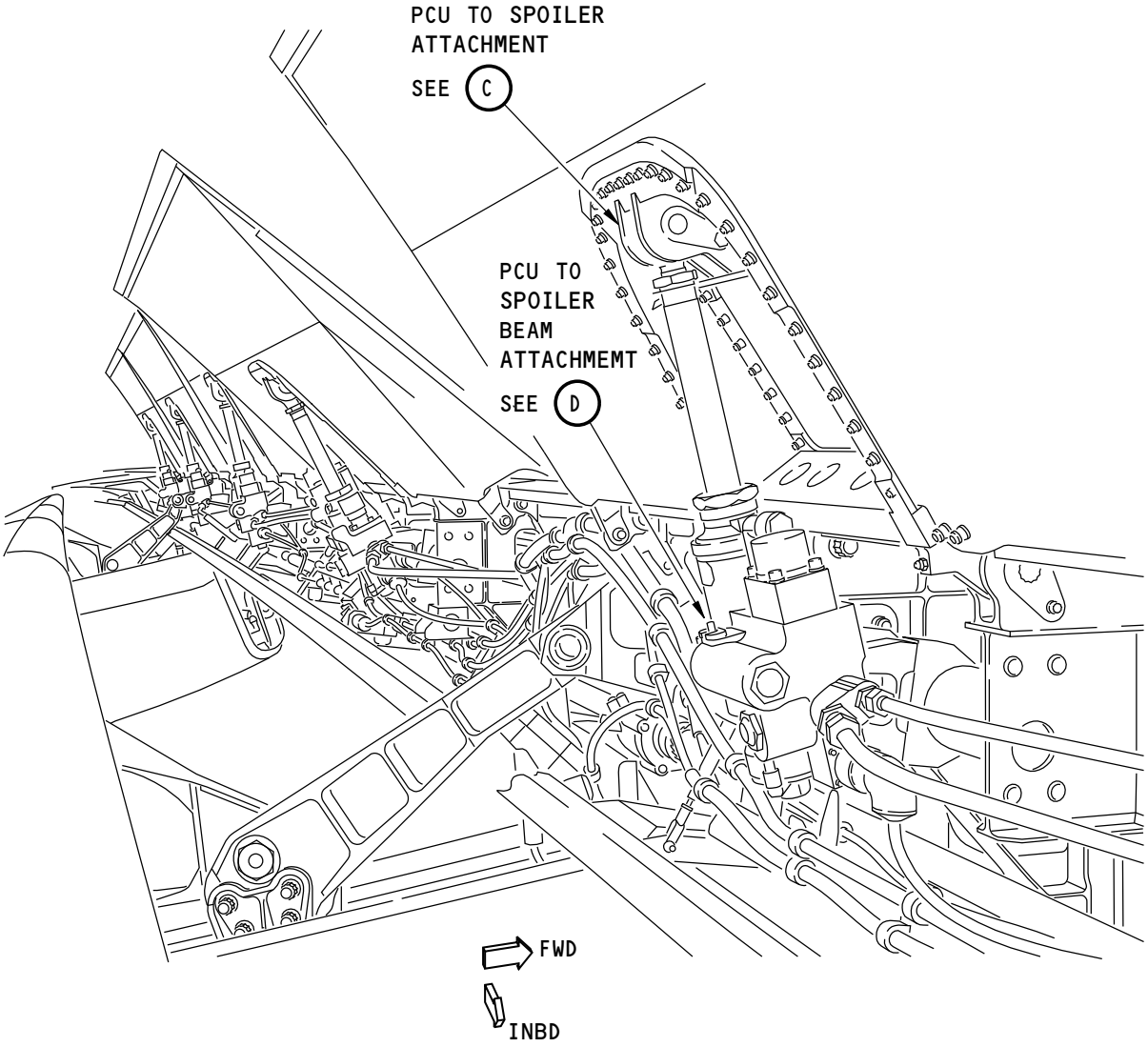
OUTBOARD SPOILER PCUs
(LEFT WING SPOILER PCUs ARE SHOWN,
RIGHT WING SPOILER PCUs ARE EQUIVALENT)

A

E06216 S0006414126_V1

Outboard Spoiler Power Control Unit (PCUs) Installation
Figure 401/27-61-08-990-801 (Sheet 1 of 4)

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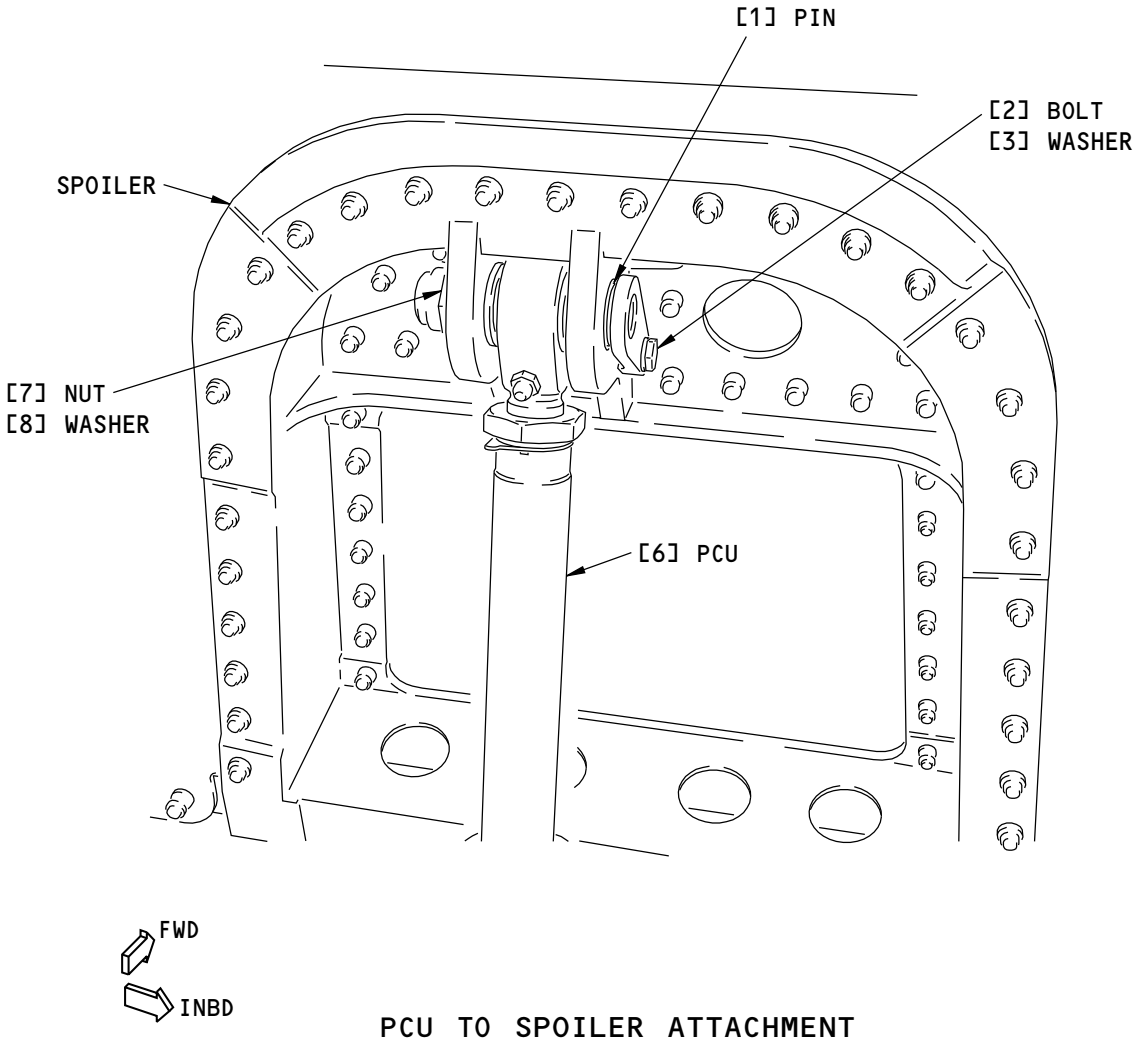
OUTBOARD SPOILER PCU NO. 5
(SPOILER PCU NO. 1,2,3,10,12,13,14 ARE EQUIVALENT)

B

E06217 S0006414127_V1

Outboard Spoiler Power Control Unit (PCUs) Installation
Figure 401/27-61-08-990-801 (Sheet 2 of 4)

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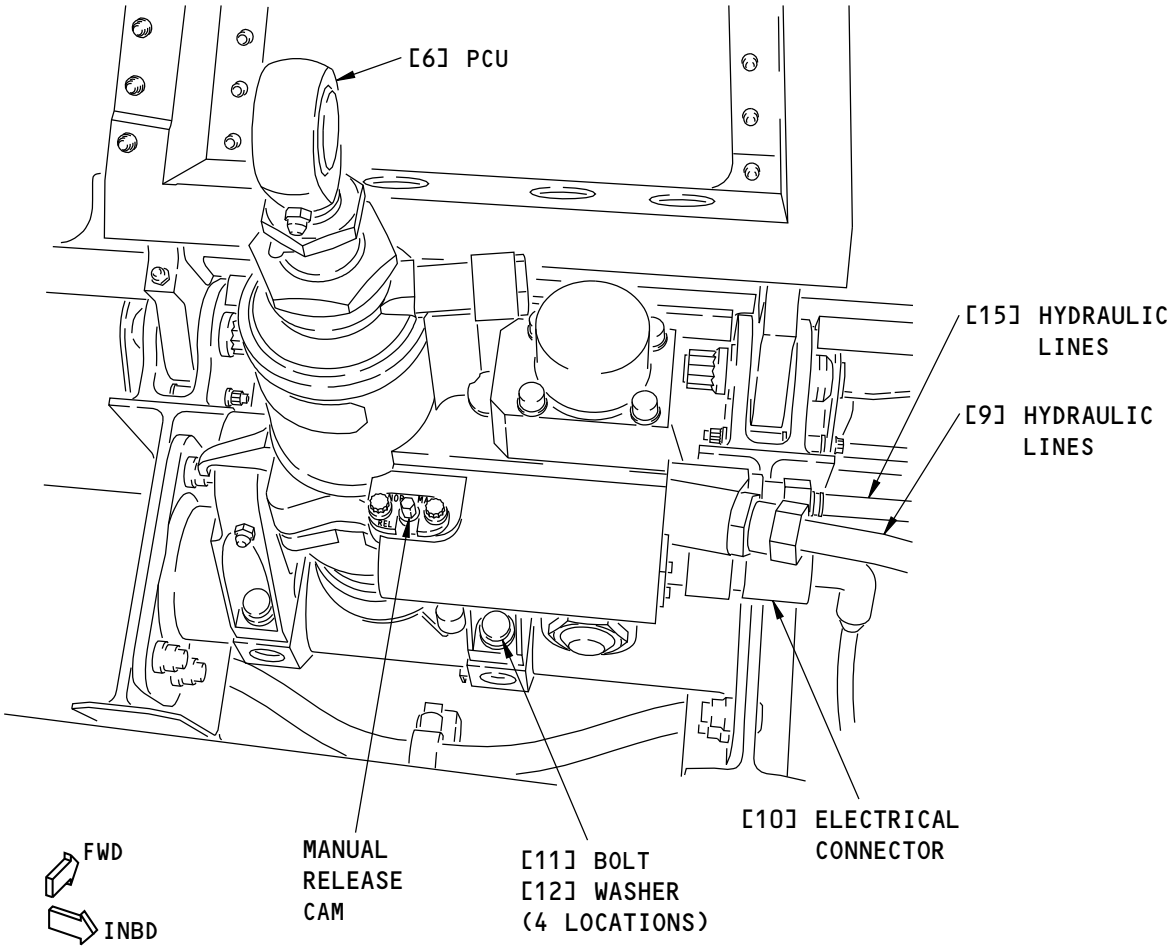
PCU TO SPOILER ATTACHMENT
(EXAMPLE)

C

E06218 S0006414128_V1

Outboard Spoiler Power Control Unit (PCUs) Installation
Figure 401/27-61-08-990-801 (Sheet 3 of 4)

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PCU TO SPOILER BEAM ATTACHMENT
(EXAMPLE)

D

E06219 S0006414129_V3

Outboard Spoiler Power Control Unit (PCUs) Installation
Figure 401/27-61-08-990-801 (Sheet 4 of 4)

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TASK 27-61-08-400-801

3. Outboard Spoiler Power Control Unit (PCU) - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-21-10-600-802	Lubricate the Outboard Spoilers (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-820-802	Spoiler PCU Adjustment (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Location Zones

Zone	Area
562	Spoiler No. 5
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
662	Spoiler No. 10
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

E. Outboard Spoiler Power Control Units (PCU) Installation

SUBTASK 27-61-08-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Install the spoiler PCU [6] as follows:

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(a) Put the PCU [6] in its position.

(b) For the fitting attached to the spoiler beam assembly (4 locations/PCU):

1) Apply a layer of Cor-Ban 27L Compound, G50237 to the bolts [11].

2) Install the washer [12] and bolts [11] that connects the PCUs [6] to the spoiler beam assembly.

3) Tighten the bolts [11] to 225 in-lb (25 N·m) to 275 in-lb (31 N·m).

(c) For the fitting attached to the spoiler:

1) Apply a layer of grease, D00633 on the outside diameter of the pin [1].

2) Apply a layer of Cor-Ban 27L Compound, G50237, to the bolt [2].

CAUTION

MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

3) Install the pin [1], washer [8], and nut [7] that attaches the PCUs [6] to the spoiler.

NOTE: Do not tighten the nut [7] now.

4) Install washer [3], bolt [2] that hold the pin [1] to the spoiler.

5) Tighten the nut [7] to 1000 in-lb (113 N·m) to 1300 in-lb (147 N·m).

(d) Connect the hydraulic lines [9] to the return ports of the PCUs [6].

1) Tighten the B-nuts on the hydraulic lines [9] to 280 ±14 in-lb (32 ±2 N·m).

(e) Connect the hydraulic lines [15] to the pressure ports of the PCUs [6].

1) Tighten the B-nuts on the hydraulic lines [15] to 270 ±14 in-lb (31 ±2 N·m).

(f) Connect the electrical connector [10] to the PCUs [6].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-08-080-001

(1) Remove the inboard and outboard spoiler actuators lock equipment, SPL-1719, from the spoiler PCU.

SUBTASK 27-61-08-610-001

(2) Do this task: Lubricate the Outboard Spoilers, TASK 12-21-10-600-802.

SUBTASK 27-61-08-860-008

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-08-860-009

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-08-860-010

(5) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-08-860-015

(6) Close these circuit breakers:

NOTE: Close the PFC circuit breakers last.

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(a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-08-860-012

(7) Remove the DO-NOT-OPERATE tags and move the FLT CONTROL HYD VALVE POWER - WING L, C and R switches to the NORM position.

G. Outboard Spoiler Power Control Units (PCUs) Installation Test

SUBTASK 27-61-08-820-001

(1) Do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802.

SUBTASK 27-61-08-860-013

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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CABLE-CONTROLLED SPOILER POWER CONTROL UNITS (PCUs) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the cable-controlled spoiler power control units (PCUs)

(2) An installation of the cable-controlled spoiler power control units (PCUs).

B. In this procedure the cable-controlled spoiler power control units (PCUs) are referred to as the PCU [6].

TASK 27-61-09-000-801

2. Cable-Controlled Spoiler Power Control Unit (PCU) - Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Location Zones

Zone	Area
563	Spoiler No. 4
663	Spoiler No. 11

D. Prepare for the Removal

SUBTASK 27-61-09-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-61-09-860-002

WARNING MAKE SURE THE SPEEDBRAKE LEVER IS IN ITS DOWN-AND-LOCKED POSITION BEFORE YOU OPEN THESE CIRCUIT BREAKERS. THE SPOILERS WILL RETRACT AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

SUBTASK 27-61-09-860-003

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE TRAILING EDGE FLAPS. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR WHEN THIS SURFACE MOVES.

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-09-860-004

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-09-860-005

(5) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-61-09-860-006

(6) Move the FLT CONTROL HYD VALVE POWER - WING L switch to the SHUT OFF position and attach a DO-NOT-OPERATE tag.

E. Cable - Controlled Spoiler Power Control Units (PCU) Removal

SUBTASK 27-61-09-860-007

(1) Operate the manual release cam and lift the spoiler (View D).

SUBTASK 27-61-09-480-001

(2) Install the inboard and outboard spoiler actuators lock equipment, SPL-1719, on the spoiler PCU.

SUBTASK 27-61-09-020-001

(3) Remove the PCU [6] as follows:

(a) Disconnect the electrical connector [10] for the PCU [6].

(b) Disconnect the hydraulic line [9] and hydraulic line [18] from the PCU [6].

(c) For the fitting attached to the spoiler (View C):

CAUTION MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

1) Remove the bolt [2], and washer [3] that holds the pin [1] to the spoiler.

2) Remove the nut [7], washer [8] and pin [1] that holds the PCU [6] to the spoiler.

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(d) Remove the nut [17], washer [16], and bolt [15] that holds the spoiler quadrant pushrod to the PCU [6] (View D).

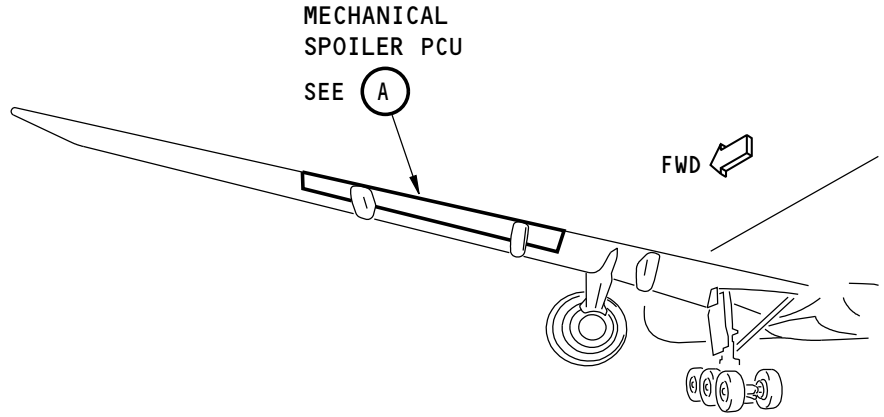
(e) For the fitting attached to the spoiler beam assembly (4 locations for each PCU [6], View D):

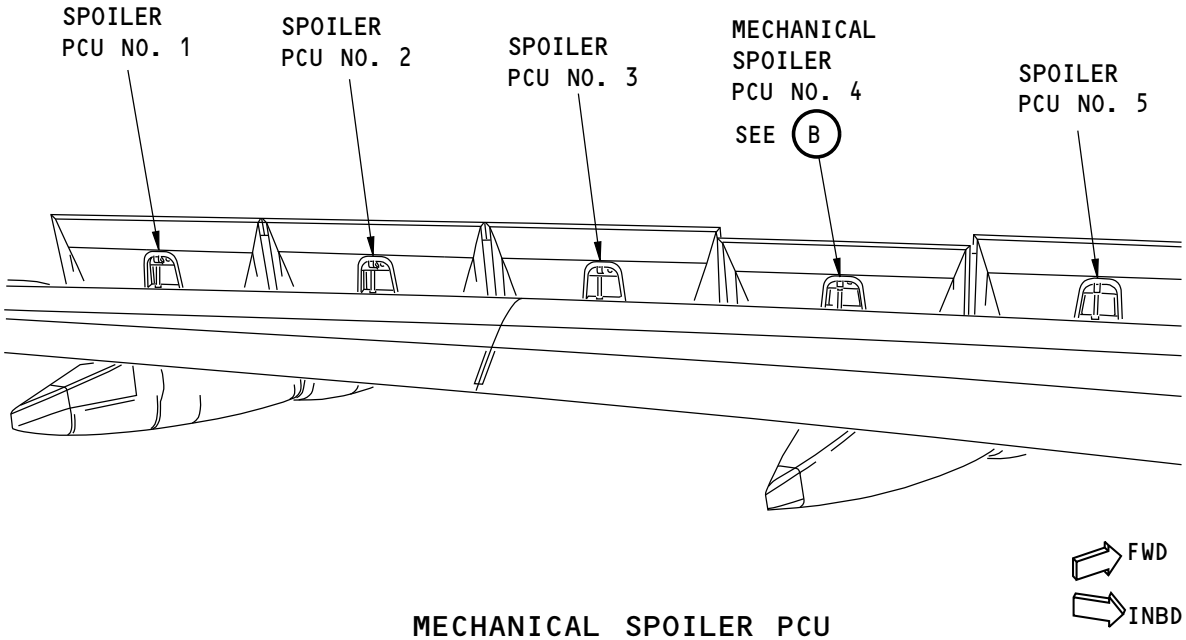
1) Remove the bolts [11] and washers [12] that hold the PCU [6] to the spoiler beam assembly.

(f) Remove the PCU [6].

——— END OF TASK ———

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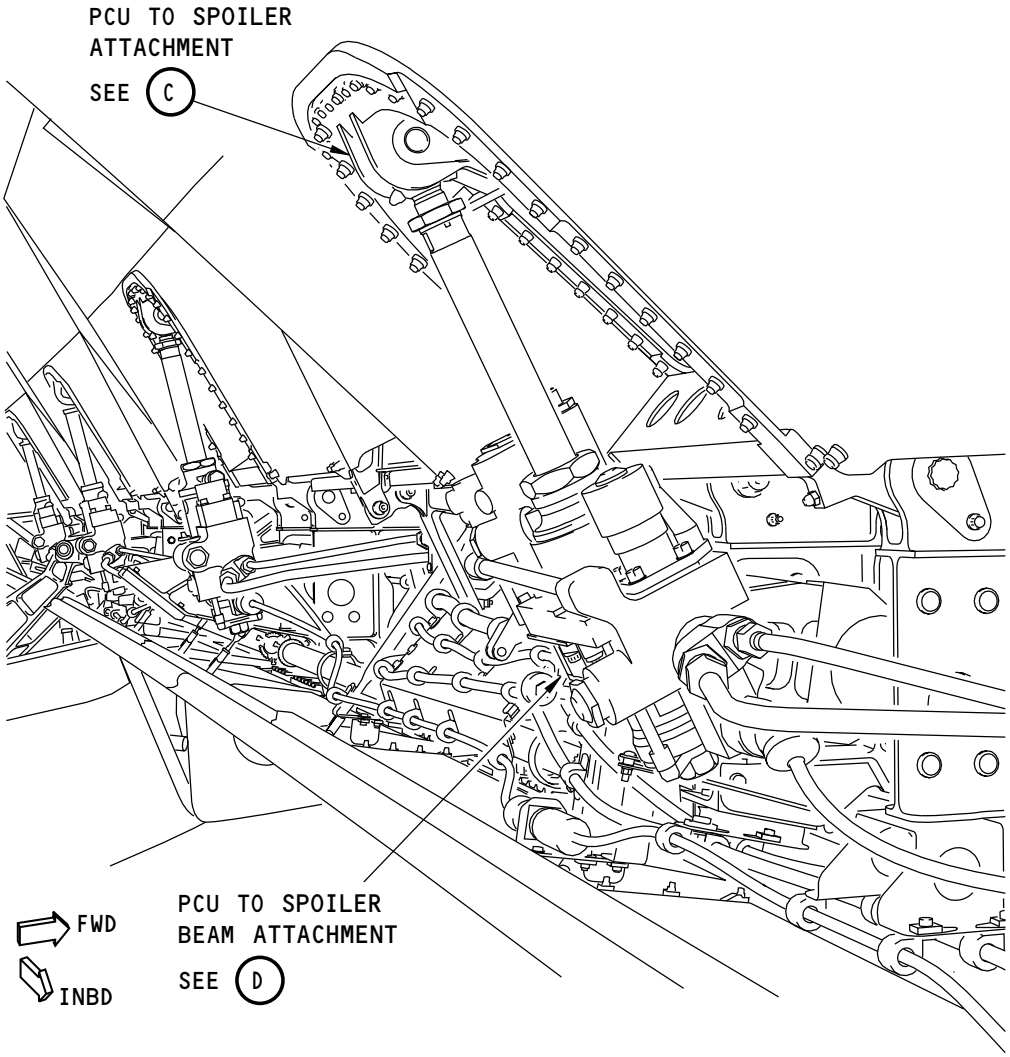
MECHANICAL SPOILER PCU
(LEFT WING SPOILER PCU IS SHOWN,
RIGHT WING SPOILER PCU IS EQUIVALENT)

A

E06221 S0006414134_V1

Cable Controlled Spoiler Power Control Unit (PCU) Installation
Figure 401/27-61-09-990-801 (Sheet 1 of 4)

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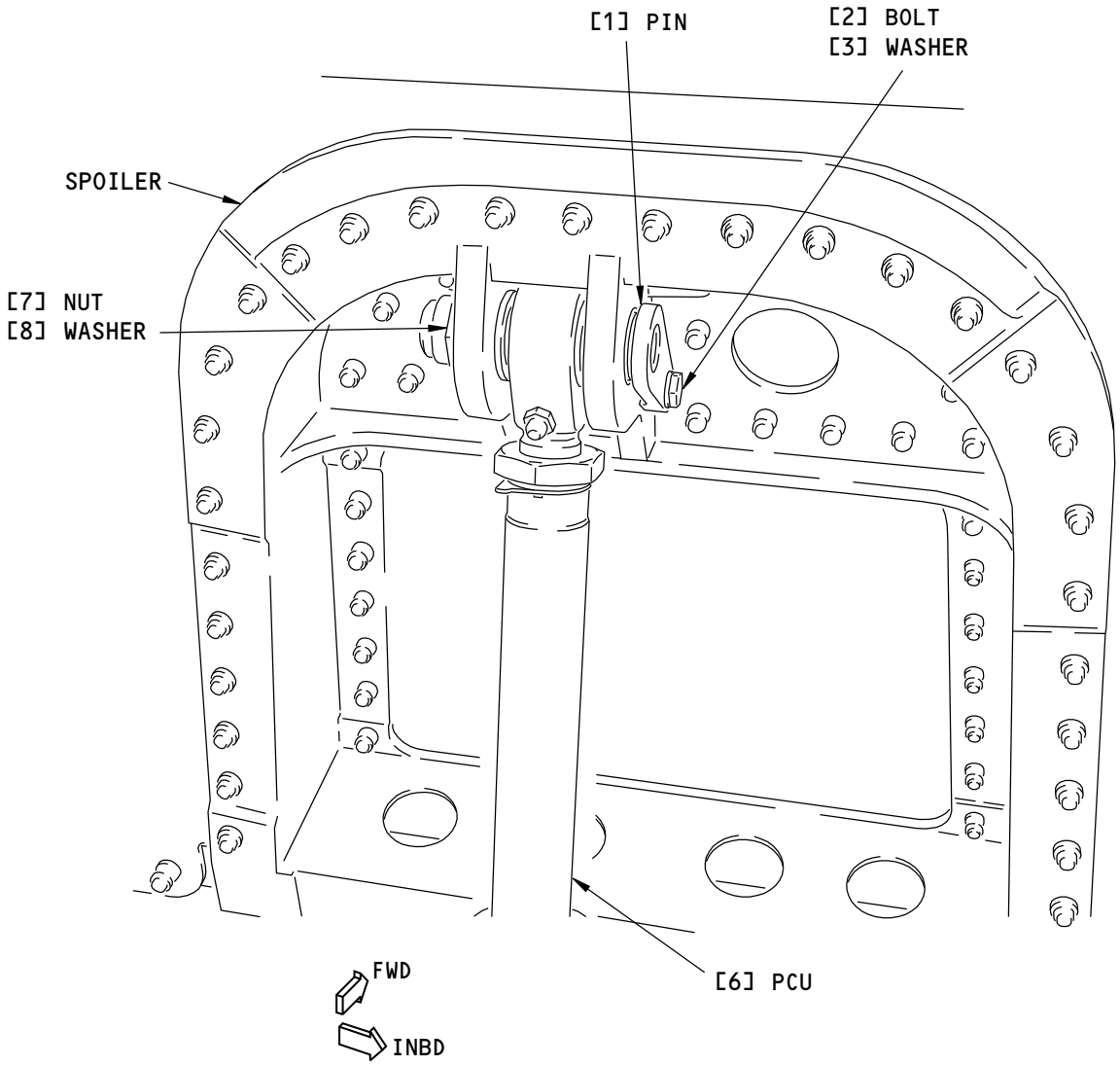
MECHANICAL SPOILER PCU NO. 4
(SPOILER PCU NO. 11 IS EQUIVALENT)

B

E07064 S0006414135_V1

Cable Controlled Spoiler Power Control Unit (PCU) Installation
Figure 401/27-61-09-990-801 (Sheet 2 of 4)

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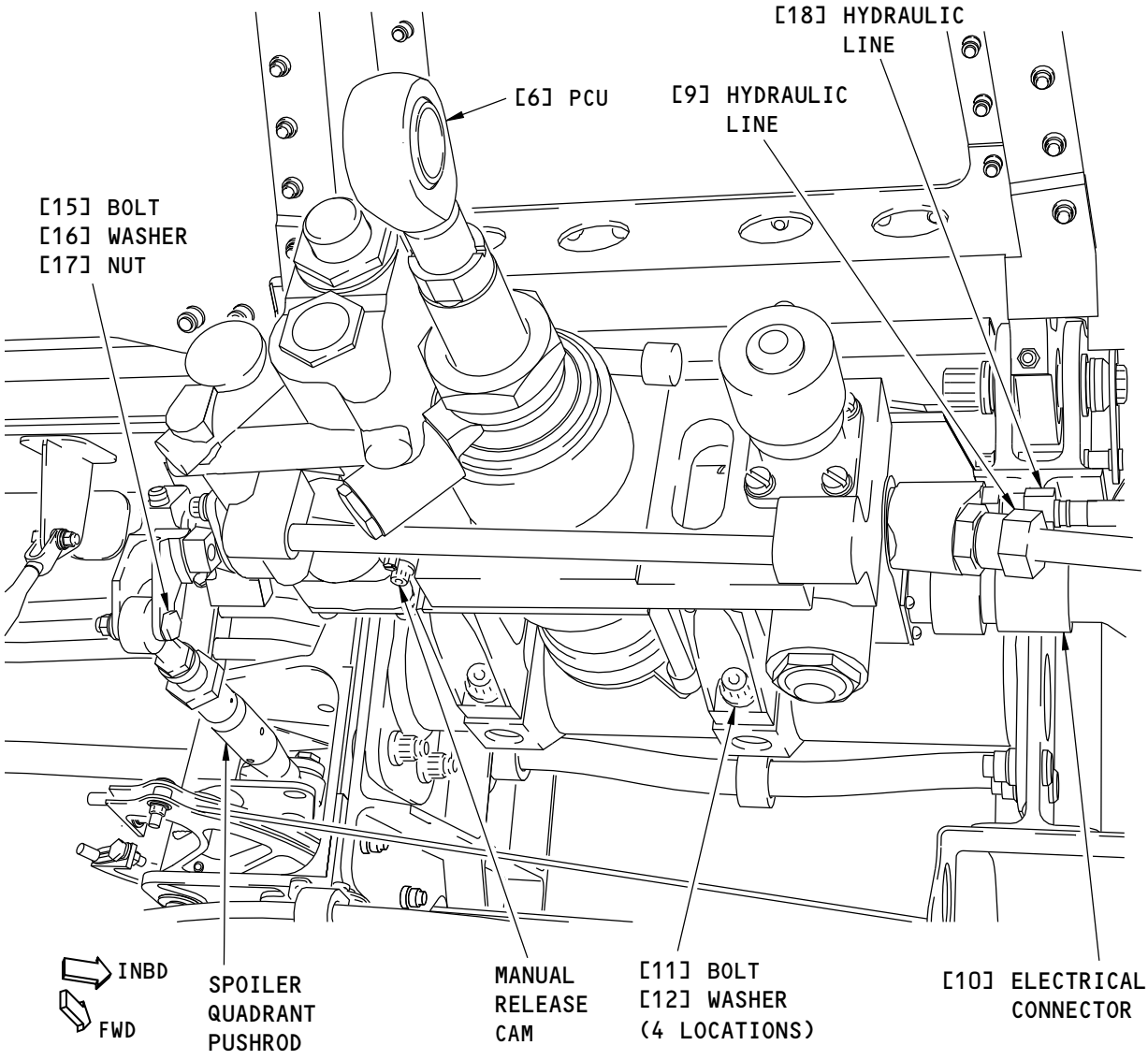
PCU TO SPOILER ATTACHMENT
(EXAMPLE)

C

E07071 S0006414136_V1

Cable Controlled Spoiler Power Control Unit (PCU) Installation
Figure 401/27-61-09-990-801 (Sheet 3 of 4)

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PCU TO SPOILER BEAM ATTACHMENT
(EXAMPLE)

D

E07030 S0006414137_V3

Cable Controlled Spoiler Power Control Unit (PCU) Installation
Figure 401/27-61-09-990-801 (Sheet 4 of 4)

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TASK 27-61-09-400-801

3. Cable-Controlled Spoiler Power Control Unit - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-21-10-600-802	Lubricate the Outboard Spoilers (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-700-801	Spoiler Operational Test (P/B 501)
27-61-00-700-802	Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11) (P/B 501)
27-61-00-820-802	Spoiler PCU Adjustment (P/B 501)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pin	27-61-09-10-045	ARO ALL
6	PCU	27-61-09-10-050	ARO ALL

E. Location Zones

Zone	Area
563	Spoiler No. 4
663	Spoiler No. 11

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F. Cable - Controlled Spoiler Power Control Units (PCU) Installation

SUBTASK 27-61-09-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Do the steps that follow to install the PCU [6]:

(a) Put the PCU [6] in its position.

(b) For the fitting attached to the spoiler beam assembly (4 locations for each PCU [6], View D):

1) Apply a layer of compound, Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the bolts [11].

2) Install the washers [12] and bolts [11] that hold the PCU [6] to the spoiler beam assembly.

3) Tighten the bolts [11].

a) If using Mastinox 6856 K, C00913, tighten the bolts [11] to 250 in-lb (28 N·m) to 330 in-lb (37 N·m).

b) If using Cor-Ban 27L Compound, G50237, tighten the bolts [11] to 225 in-lb (25 N·m) to 275 in-lb (31 N·m).

(c) Install the bolt [15], washer [16], and nut [17] that holds the spoiler quadrant pushrod to the PCU [6].

(d) Tighten the nut [17] to 50 in-lb (6 N·m) to 70 in-lb (8 N·m).

(e) For the fitting attached to the spoiler (View C):

1) Apply a layer of grease, D00633 on the outside diameter of the pin [1].

2) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the bolt [2].

CAUTION MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

3) Install the pin [1], washer [8], and nut [7] that holds the PCU [6] to the spoiler.

NOTE: Do not tighten the nut now.

4) Install washer [3] and bolt [2] that hold the pin [1] to the spoiler.

5) Tighten the nut [7] to 1000 in-lb (113 N·m) to 1300 in-lb (147 N·m).

(f) Connect the hydraulic line [9] to the return port of the PCU [6].

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1) Tighten the B-nut on the hydraulic line [9] to 280 ±14 in-lb (32 ±2 N·m).

(g) Connect the hydraulic line [18] to the pressure port of the PCU [6].

1) Tighten the B-nut on the hydraulic line [18] to 270 ±14 in-lb (31 ±2 N·m).

(h) Connect the electrical connector [10] to the PCU [6].

SUBTASK 27-61-09-080-001

(2) Remove the inboard and outboard spoiler actuators lock equipment, SPL-1719, from the spoiler.

SUBTASK 27-61-09-610-001

(3) Do this task: Lubricate the Outboard Spoilers, TASK 12-21-10-600-802.

SUBTASK 27-61-09-860-008

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-09-860-009

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-09-860-010

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE TRAILING EDGE FLAPS. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR WHEN THIS SURFACE MOVES.

(6) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-09-860-011

(7) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

SUBTASK 27-61-09-860-012

(8) Remove the DO-NOT-OPERATE tag and move the FLT CONTROL HYD VALVE POWER - WING L switch to the NORM position.

G. Cable - Controlled Spoiler Power Control Unit (PCU) Installation Test

SUBTASK 27-61-09-710-001

(1) Do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802.

SUBTASK 27-61-09-820-001

(2) Do this task: Spoiler Operational Test, TASK 27-61-00-700-801.

SUBTASK 27-61-09-710-002

(3) Do this task: Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), TASK 27-61-00-700-802.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-09-860-013

(1) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

END OF TASK

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INBOARD SPOILERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an inboard spoiler

(2) An installation of an inboard spoiler.

B. This procedure is for the inboard spoilers on the left wing, the inboard spoilers on the right wing are the opposite of the left wing.

TASK 27-61-10-000-801

2. Inboard Spoiler Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Location Zones

Zone	Area
553	Spoiler No. 7
554	Spoiler No. 6
653	Spoiler No. 8
654	Spoiler No. 9

D. Procedure

SUBTASK 27-61-10-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-10-860-002

(2) On the P61 Panel, put the FLT CONTROL HYD POWER switches to the SHUT OFF position.

SUBTASK 27-61-10-860-003

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-61-10-860-004

(4) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-10-860-005

(5) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-61-10-860-006

(6) Do these steps to extend the spoiler assembly [1]:

(a) Get access to the Power Control Unit (PCU) for the spoiler assembly [1].

(b) Move the manual release cam on the PCU.

(c) Manually extend the spoiler assembly [1].

SUBTASK 27-61-10-480-001

(7) Install the inboard and outboard spoiler actuators lock equipment, SPL-1719, on the spoiler actuator.

SUBTASK 27-61-10-020-001

(8) Do these steps to disconnect the PCU from the spoiler assembly [1] (View B) (Figure 401):

CAUTION

MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

(a) Remove the nut [4], washer [3], washer [64] and bolt [2] for the pin [20].

(b) Remove the nut [6], washer [5], and pin [20] that holds the PCU to the spoiler hinge fitting.

SUBTASK 27-61-10-020-002

(9) Do these steps to remove the spoiler assembly [1]:

(a) Do these steps to disconnect the center hinge fittings from the spoiler assembly [1] (View B) (Figure 401):

1) Remove the nut [19], bolt [13], washer [18], washer [17], washer [15], washer [14], and bushing [16] for the bolt retainer [12].

2) Remove the retainer [12].

3) Remove the nut [27], bolt [21], washer [26], washer [25], washer [23], washer [22], and bushing [24] for the retainer [28].

4) Remove the retainer [28].

5) Remove the nut [11], bolt [7], washer [10] and washer [8], and bushings [9].

6) Remove the nut [33], bolt [29], washer [32] and washer [30], and bushing [31].

(b) Do these steps to disconnect the inboard hinge fittings from the spoiler assembly [1] (View C) (Figure 401):

1) Remove the nut [36], washer [35], and screw [34] that holds the jumper cable [37] to the wing.

2) Remove the pin [40], nut [39], washer [38], bolt [41], washer [42], and bushing [61].

(c) Do these steps to disconnect the outboard hinge fittings from the spoiler assembly [1] (Views D and E) (Figure 401):

1) Remove the nut [45], washer [44], and screw [43] that holds the jumper cable [51] to the wing.

2) Remove the pin [50], nut [49], washer [48], bolt [46], washer [47], and bushing [62].

3) Remove the nut [54] and washer [53] that holds the jumper cable [60] to the wing.

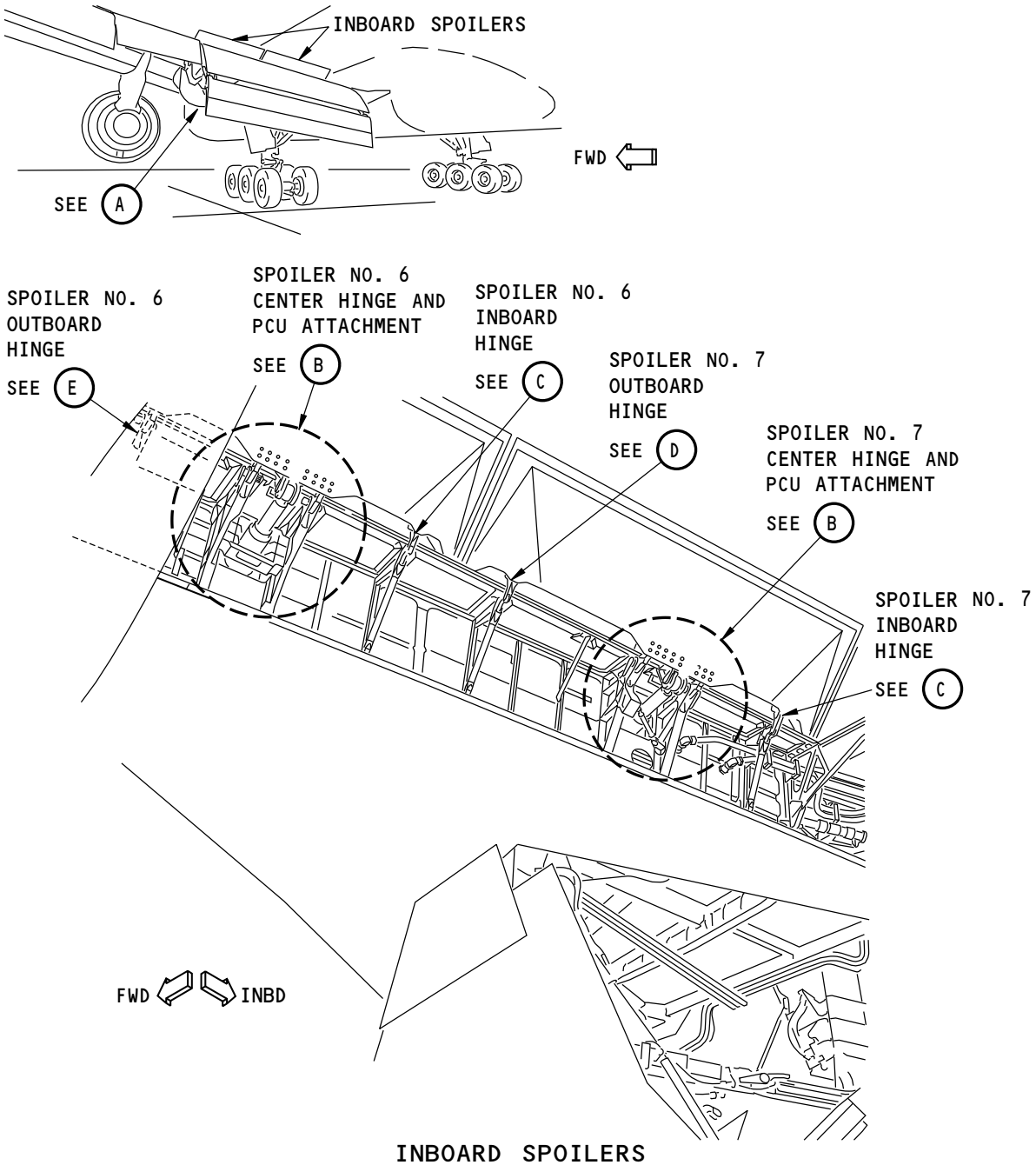
4) Remove the pin [59], nut [58], washer [57], bolt [55], washer [56], and bushing [63].

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(d) Remove the spoiler assembly [1] from the wing.

——— END OF TASK ———

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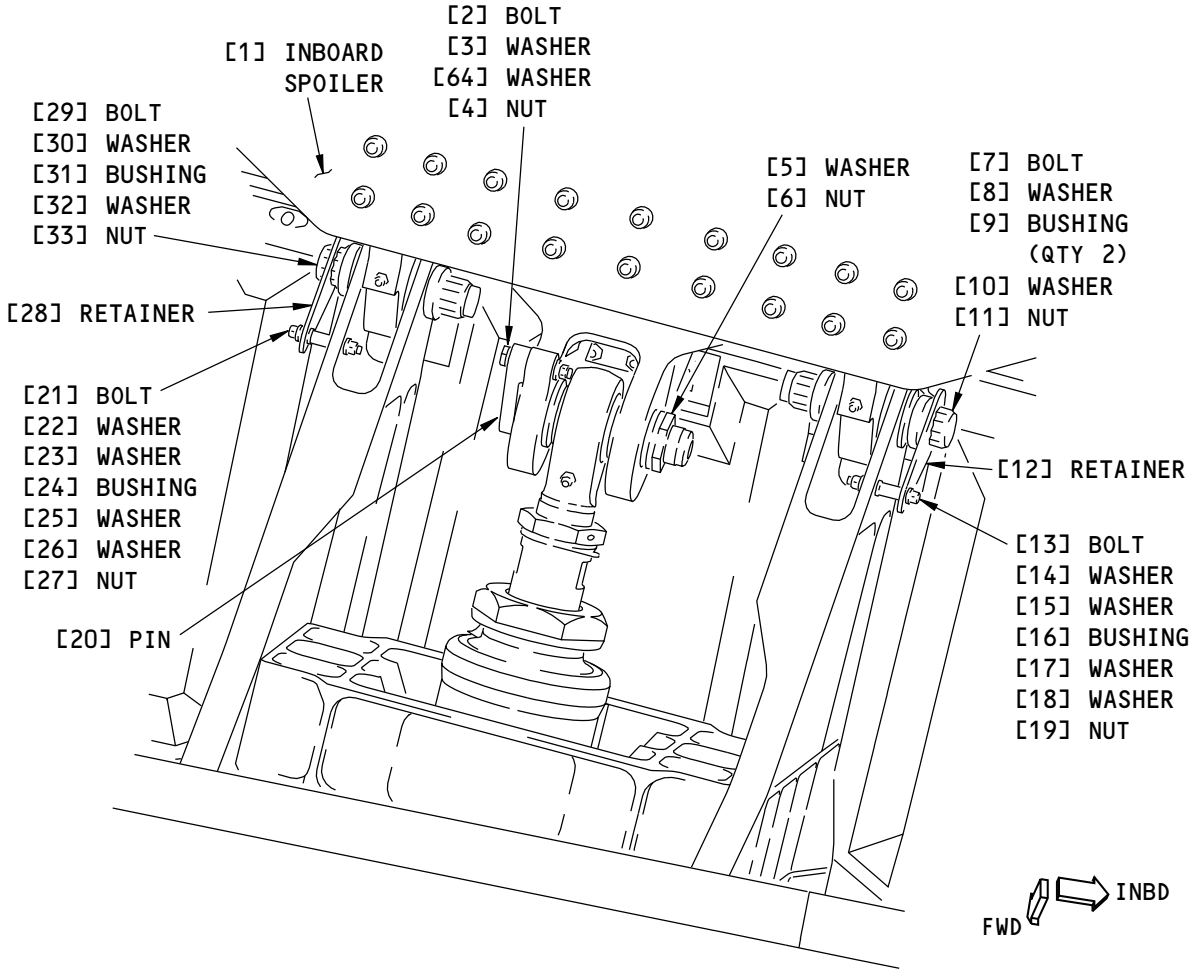


INBOARD SPOILERS
(SPOILERS NO. 6 AND 7 ARE SHOWN, NO. 8 AND 9 ARE EQUIVALENT)
A

E27333 S0006414142_V1

Inboard Spoilers Installation
Figure 401/27-61-10-990-801 (Sheet 1 of 3)

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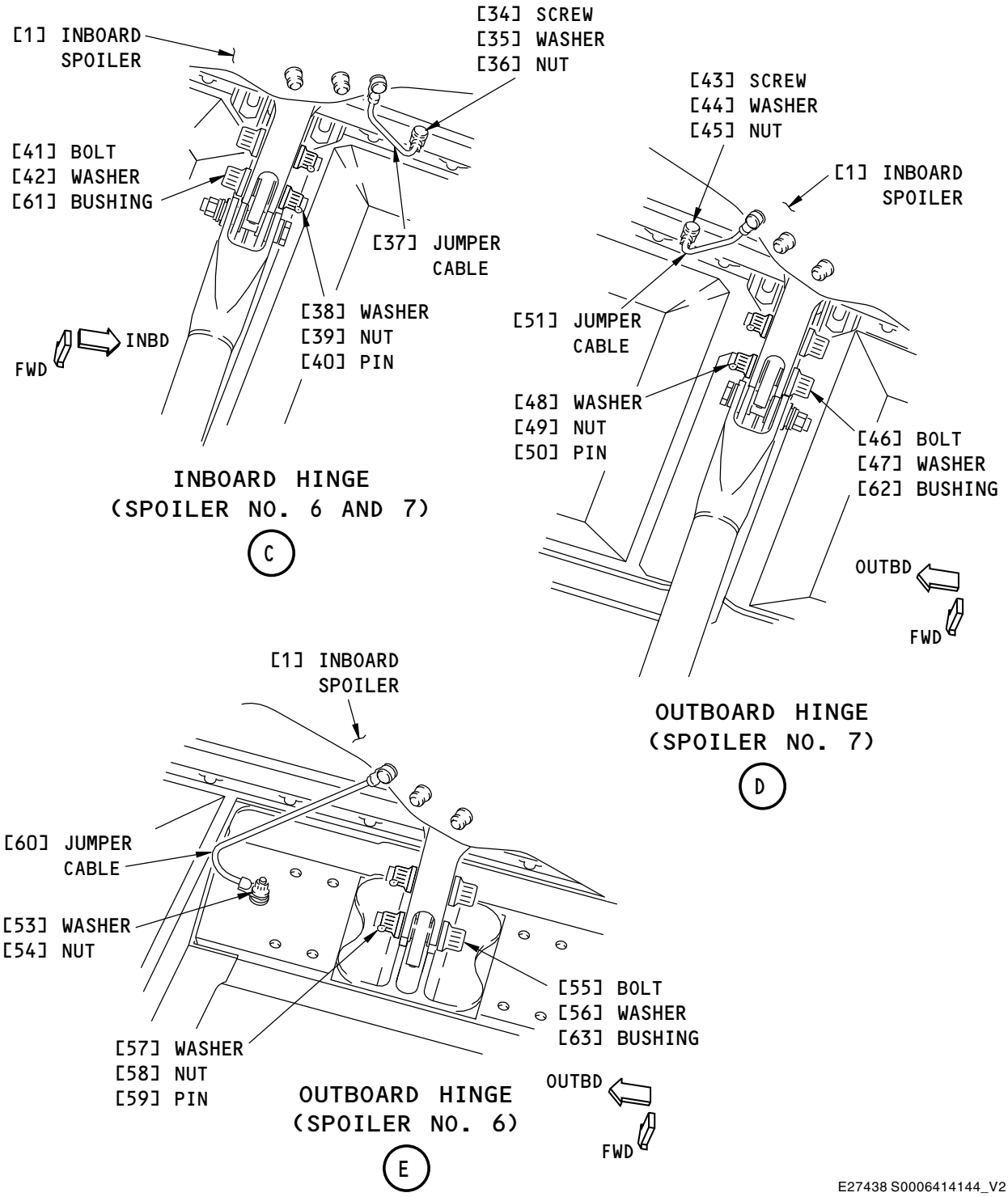
CENTER HINGE AND PCU ATTACHMENT

B

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Inboard Spoilers Installation
Figure 401/27-61-10-990-801 (Sheet 2 of 3)

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Inboard Spoilers Installation
Figure 401/27-61-10-990-801 (Sheet 3 of 3)

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TASK 27-61-10-400-801

3. Inboard Spoiler Installation

(Figure 401)

A. References

Reference	Title
12-21-10-600-801	Lubricate the Inboard Spoilers (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-820-802	Spoiler PCU Adjustment (P/B 501)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Spoiler assembly	27-61-10-01-215	ARO ALL
		27-61-10-01-220	ARO ALL

E. Location Zones

Zone	Area
553	Spoiler No. 7
554	Spoiler No. 6
653	Spoiler No. 8
654	Spoiler No. 9

F. Procedure

SUBTASK 27-61-10-420-001

(1) Do these steps to install the spoiler assembly [1]:

CAUTION BE SURE TO PUT THE CENTER HINGE FITTING SEAL UNDER THE TRAILING EDGE WING PANEL. IF YOU DO NOT DO THIS, DAMAGE MAY OCCUR TO THE TRAILING EDGE WING PANEL.

(a) Put the spoiler assembly [1] in its position on the wing.

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(b) Do these steps to install the center hinge fittings (View B): (Figure 401)

1) Apply a layer of grease, D00633 on the bushings [9].
2) Install the bushings [9], bolt [7], washer [8] and washer [10], and nut [11].
3) Tighten the nut [11] to 1700 in-lb (192.1 N·m) - 1900 in-lb (214.7 N·m).
4) Install the bolt retainer [12].
5) Apply a layer of grease, D00633 on the bolt [13].
6) Install the bushing [16], bolt [13], washer [14], washer [15], washer [17], and washer [18], and nut [19]. Refer to Standard Torque Values, TASK 20-11-00-910-801.
7) Apply a layer of grease, D00633 on the bushing [31].
8) Install the bushing [31], bolt [29], washer [30] and washer [32], and nut [33].
9) Tighten the nut [33] to 1700 in-lb (192.1 N·m) - 1900 in-lb (214.7 N·m).
10) Install the bolt retainer [28].
11) Apply a layer of grease, D00633 on the bolt [21].
12) Install the bushing [24], bolt [21], washer [22], washer [23], washer [25], and washer [26], and nut [27]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(c) Do these steps to connect the PCU to the spoiler assembly [1]:

1) Apply a layer of grease, D00633 on the outside diameter of the pin [20].

CAUTION MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

2) Install the pin [20], washer [5], and nut [6] that holds the PCU to the spoiler assembly [1].

NOTE: Do not tighten the nut now.

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

3) Apply a thin coat of Cor-Ban 27L Compound, G50237 on the threads of the bolt [2], washer [3] and washer [64].
4) Install the bolt [2], washer [3], washer [64] and nut [4] for the pin [20]. Refer to Standard Torque Values, TASK 20-11-00-910-801.
5) Tighten the nut [6] to 1500 in-lb (169.5 N·m) - 1800 in-lb (203.4 N·m).

(d) Do these steps to install the inboard hinge fittings (View C) (Figure 401):

1) Apply a layer of grease, D00633 on the bushing [61].
2) Install the bushing [61], bolt [41], washer [42] and washer [38], and nut [39].
3) Tighten the nut [39] to 130 in-lb (14.7 N·m) - 200 in-lb (22.6 N·m).
4) Install the pin [40].

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5) Install the screw [34], washer [35], and nut [36] for the jumper cable [37] (SWPM 20-20-00).

NOTE: Make sure the electrical bonding and grounding requirements are satisfactory (SWPM 20-20-00).

6) Apply sealant, A02315, on the head and tail of the electrical bonding fasteners and jumpers.

(e) Do these steps to install the outboard hinge fittings (Views D and E) (Figure 401):

1) Apply a layer of grease, D00633 on the bushing [62].
2) Install the bushing [62], bolt [46], washer [47] and washer [48], and nut [49].
3) Tighten the nut [49] to 130 in-lb (14.7 N·m) - 200 in-lb (22.6 N·m).
4) Install the pin [50].
5) Install the screw [43], washer [44], and nut [45] for the jumper cable [51] (SWPM 20-20-00).
6) Apply sealant, A02315, on the head and tail of the electrical bonding fasteners and jumpers.
7) Apply a layer of grease, D00633 on the bushing [63].
8) Install the bushing [63], bolt [55], washer [56] and washer [57], and nut [58].
9) Tighten the nut [58] to 130 in-lb (14.7 N·m) - 200 in-lb (22.6 N·m).
10) Install the pin [59].
11) Install the washer [53] and nut [54] for the jumper cable [60] (SWPM 20-20-00).

NOTE: Make sure the electrical bonding and grounding requirements are satisfactory (SWPM 20-20-00).

12) Apply sealant, A02315, on the head and tail of the electrical bonding fasteners and jumpers.

SUBTASK 27-61-10-610-001

(2) Do this task: Lubricate the Inboard Spoilers, TASK 12-21-10-600-801.

SUBTASK 27-61-10-080-001

(3) Remove the inboard and outboard spoiler actuators lock equipment, SPL-1719, from the spoiler actuator.

SUBTASK 27-61-10-820-001

(4) Do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802.

SUBTASK 27-61-10-860-007

(5) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-10-860-008

(6) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-10-860-009

(7) On the P61 Panel, put the FLT CONTROL HYD POWER switches to the NORM position.

——— END OF TASK ———

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INBOARD SPOILERS - INSPECTION/CHECK

1. General

A. This procedure has this task:

(1) A task to inspect the bushings on the inboard spoiler panel and power control unit.

TASK 27-61-10-210-801

2. Inboard Spoiler Inspection

(Figure 601)

A. General

(1) This task does an inspection of the bushings on the inboard spoiler.

B. References

Reference	Title
27-61-10-000-801	Inboard Spoiler Removal (P/B 401)
27-61-10-400-801	Inboard Spoiler Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 inch, Readable to 1/1000 inch
STD-1097	Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch

D. Location Zones

Zone	Area
553	Spoiler No. 7
554	Spoiler No. 6
653	Spoiler No. 8
654	Spoiler No. 9

E. Procedure

SUBTASK 27-61-10-860-011

(1) Do this task: Inboard Spoiler Removal, TASK 27-61-10-000-801.

SUBTASK 27-61-10-020-003

(2) Use these tools to do a check for wear on the parts of the spoiler:

(a) micrometer (0-1 inch, readable to 1/1000 inch), STD-1096

(b) vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097

SUBTASK 27-61-10-020-004

(3) Examine the parts of the inboard spoiler for worn areas:

(a) Remove the parts you want to do a check.

(b) Measure the parts with a micrometer (0-1 inch, readable to 1/1000 inch), STD-1096 or a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

(c) Compare the dimensions you measured with the permitted wear limits (Table 601):

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Table 601/27-61-10-993-803

Name of the parts that are in contact	Dim.	Dia. Design Limits		Wear Limits	
		Minimum inches (mm)	Maximum inches (mm)	Permitted Max. I.D. or Min. O.D.	Maximum Service Diametric Clearance
#1 Bushing	I.D.	1.0620 (26.975)	1.0628 (26.995)	1.0685 (27.140)	0.0065 (0.165)
#1 Bushing	O.D.	1.0605 (26.937)	1.0615 (26.962)	1.0557 (26.815)	
#2 Bushing	I.D.	0.7495 (19.037)	0.7500 (19.050)	0.7580 (19.253)	0.0050 (0.127)
#2 Bolt	O.D.	0.7480 (18.999)	0.7490 (19.025)	0.7415 (18.834)	
#3 Bearing	I.D.	0.7500 (19.050)	0.7505 (19.063)	0.7580 (19.253)	0.0050 (0.127)
#3 Bolt	O.D.	0.7480 (18.999)	0.7490 (19.025)	0.7415 (18.834)	
#4 Bushing	I.D.	0.7495 (19.037)	0.7503 (19.058)	0.7580 (19.253)	0.0050 (0.127)
#4 Bolt	O.D.	0.7480 (18.999)	0.7490 (19.025)	0.7415 (18.834)	
#5 Bushing	I.D.	0.4375 (11.113)	0.4382 (11.130)	0.4417 (11.219)	0.0050 (0.127)
#5 Bushing	O.D.	0.4365 (11.087)	0.4370 (11.100)	0.4330 (10.998)	
#6 Bushing	I.D.	0.3125 (7.938)	0.3130 (7.950)	0.3165 (8.039)	0.0050 (0.127)
#6 Bolt	O.D.	0.3110 (7.899)	0.3120 (7.925)	0.3075 (7.811)	
#7 Bushing	I.D.	0.3125 (7.938)	0.3131 (7.953)	0.3165 (8.039)	0.0050 (0.127)
#7 Bolt	O.D.	0.3110 (7.899)	0.3120 (7.925)	0.3075 (7.811)	

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Table 601/27-61-10-993-803 (Continued)

Name of the parts that are in contact	Dim.	Dia. Design Limits		Wear Limits	
		Minimum inches (mm)	Maximum inches (mm)	Permitted Max. I.D. or Min. O.D.	Maximum Service Diametric Clearance
#8 Bearing	I.D.	0.3125 (7.938)	0.3130 (7.950)	0.3165 (8.039)	0.0050 (0.127)
#8 Bolt	O.D.	0.3110 (7.899)	0.3120 (7.925)	0.3075 (7.811)	
#9 Bushing	I.D.	1.2500 (31.750)	1.2505 (31.763)	1.2525 (31.814)	0.0030 (0.076)
#9 Pin	O.D	1.2485 (31.712)	1.2490 (31.725)	1.2475 (31.687)	
#10 PCU Rod End	I.D.	1.2500 (31.750)	1.2505 (31.763)	1.2525 (31.814)	0.0030 (0.076)
#10 Pin	O.D	1.2485 (31.712)	1.2490 (31.725)	1.2475 (31.687)	

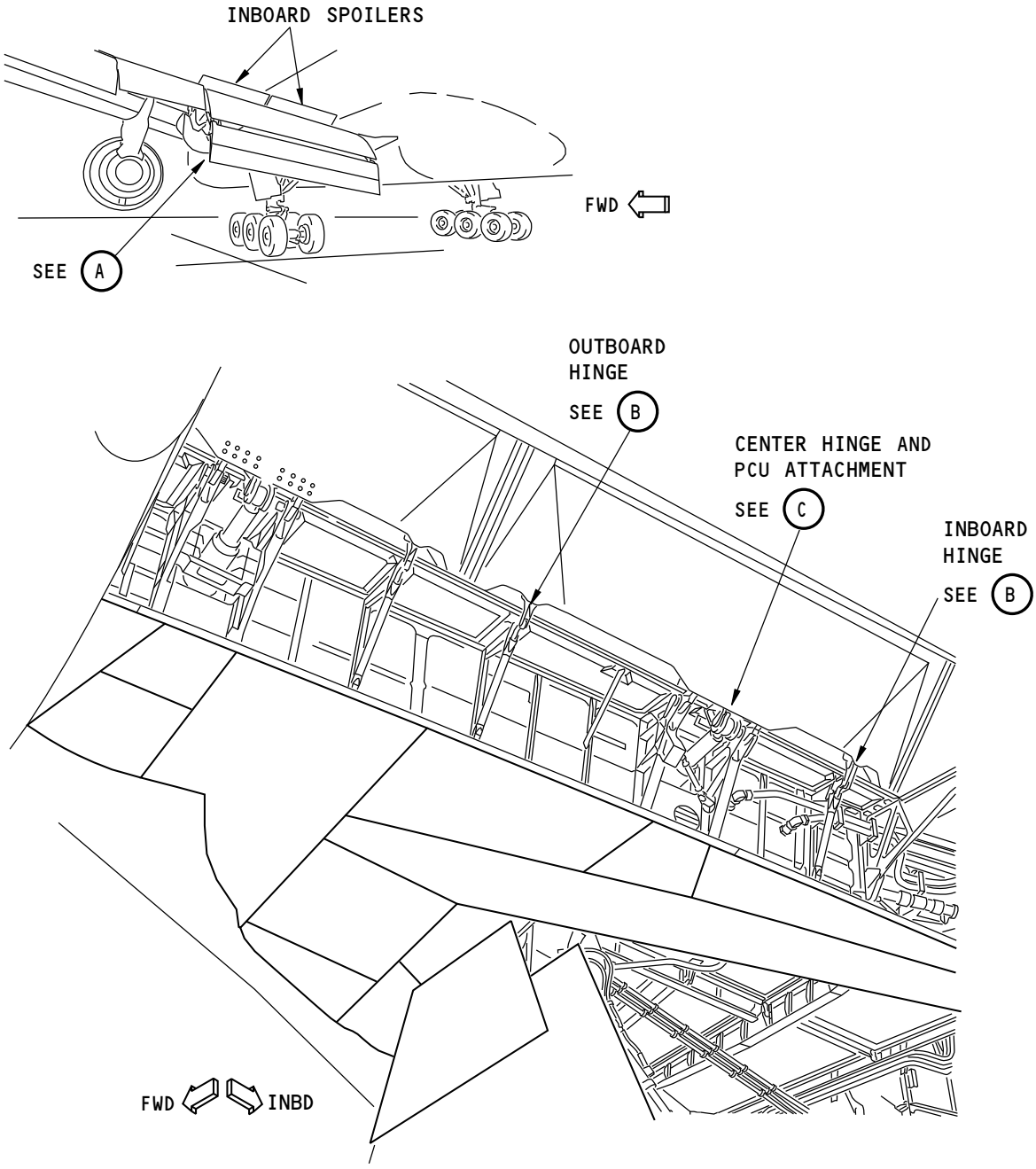
(d) If the parts are out of tolerance, replace or repair the parts.

SUBTASK 27-61-10-400-001

(4) Do this task: Inboard Spoiler Installation, TASK 27-61-10-400-801.

——— END OF TASK ———

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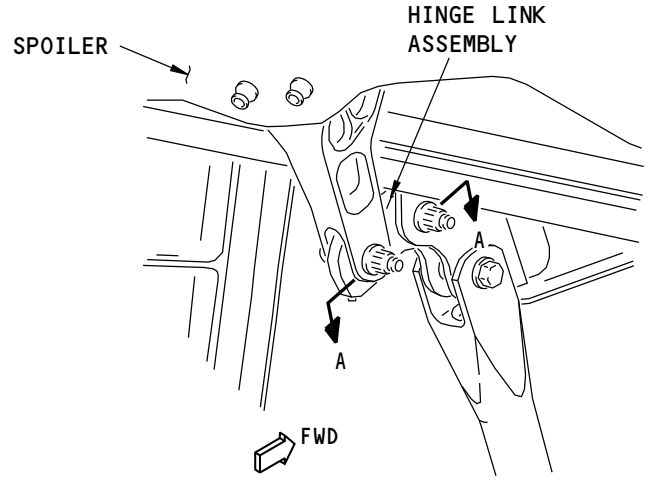


INBOARD SPOILERS
(SPOILERS NO. 6 AND 7 ARE SHOWN, NO. 8 AND 9 ARE EQUIVALENT)
A

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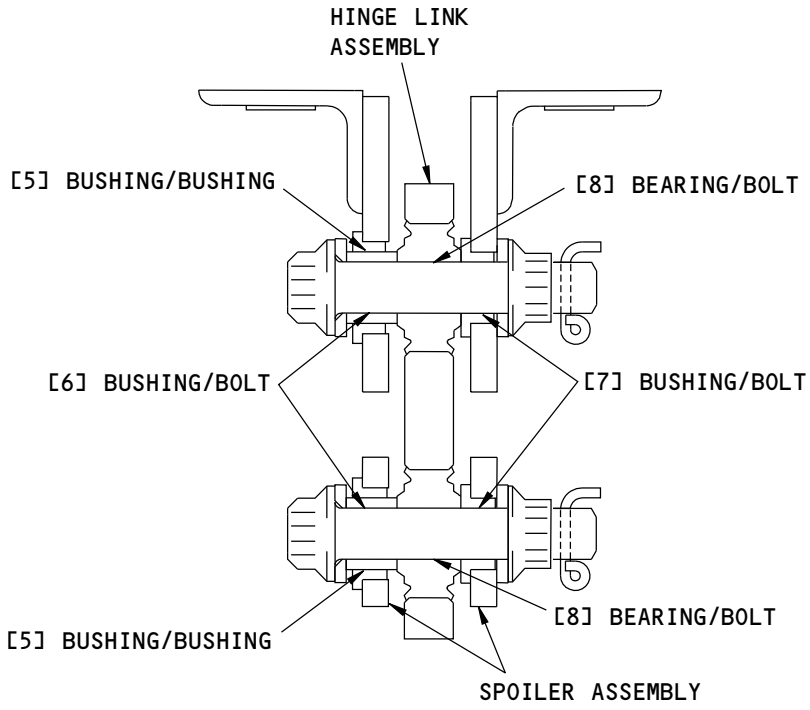
Inboard Spoiler Wear Limits
Figure 601/27-61-10-990-802 (Sheet 1 of 4)

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HINGE
(EXAMPLE)

B

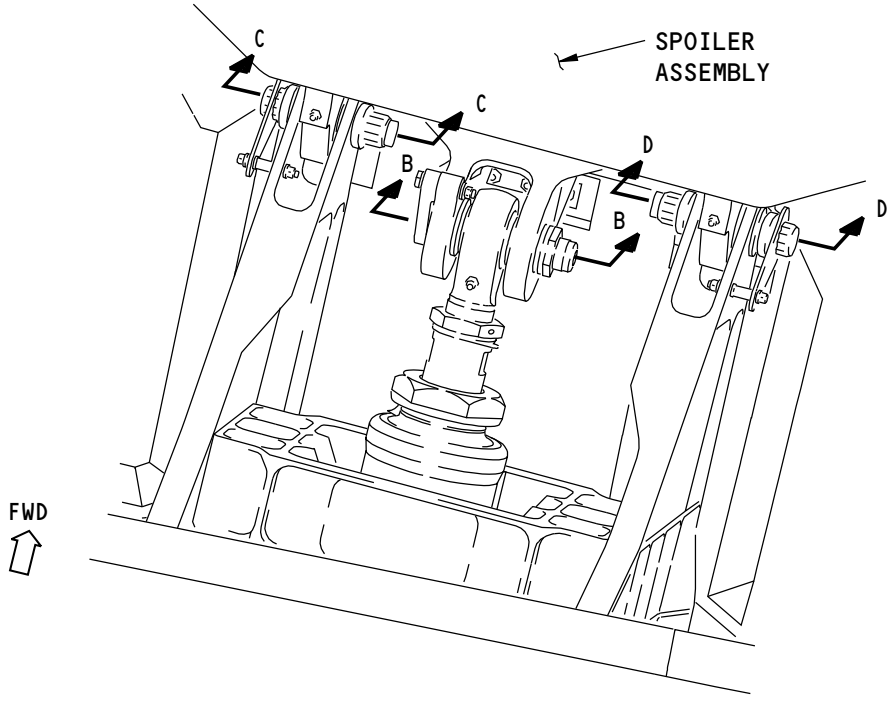


A–A

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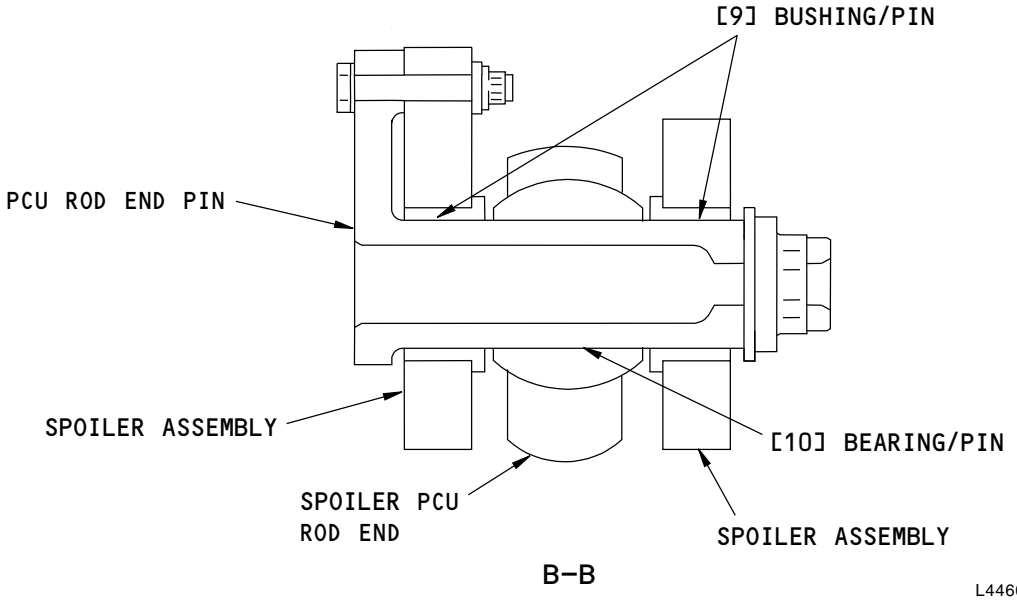
Inboard Spoiler Wear Limits
Figure 601/27-61-10-990-802 (Sheet 2 of 4)

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CENTER HINGE AND PCU ATTACHMENT

C

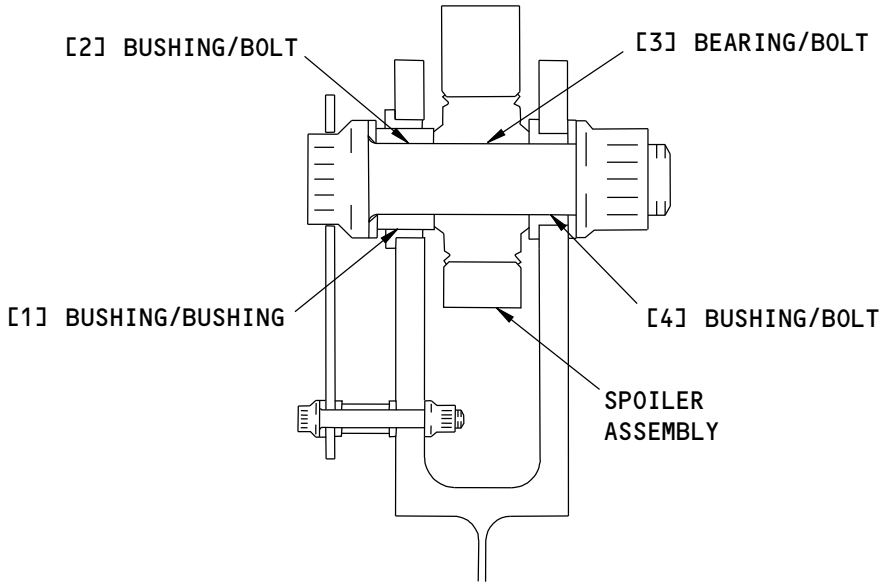


B–B

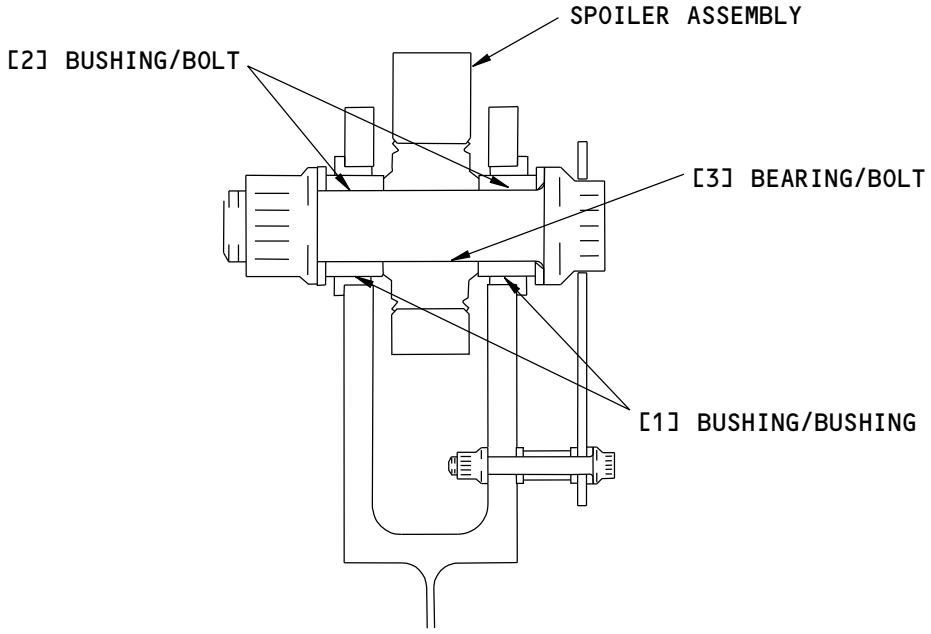
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Inboard Spoiler Wear Limits
Figure 601/27-61-10-990-802 (Sheet 3 of 4)

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C–C



D–D

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Inboard Spoiler Wear Limits
Figure 601/27-61-10-990-802 (Sheet 4 of 4)

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OUTBOARD SPOILERS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an outboard spoiler

(2) An installation of an outboard spoiler.

TASK 27-61-11-000-801

2. Outboard Spoiler Removal

(Figure 401)

A. General

(1) This procedure is applicable to all of the outboard spoilers (spoilers 1, 2, 3, 4, 5, 10, 11, 12, 13, and 14).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

D. Location Zones

Zone	Area
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

E. Procedure

SUBTASK 27-61-11-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-61-11-860-002

(2) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804 to get access to the lower surfaces of the spoilers.

SUBTASK 27-61-11-860-003

(3) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-11-860-004

(4) On the P61 Panel, put the FLT CONTROL HYD POWER switches to the SHUT OFF position.

SUBTASK 27-61-11-860-005

(5) For the applicable hydraulic systems and their reservoirs, (TASK 29-11-00-860-807).

NOTE: The right hydraulic system supplies for spoilers No. 3 and 12. The center hydraulic system supplies power for spoilers No. 1, 5, 10, and 14. The left hydraulic system supplies power for spoilers No. 2, 4, 11, and 13.

SUBTASK 27-61-11-480-001

(6) If the mechanical spoilers will be removed (Spoilers No. 4 and 11), attach a DO-NOT-OPERATE tag on the control wheel.

SUBTASK 27-61-11-860-006

(7) Do these steps to extend the spoiler assembly [1]:

(a) Get access to the Power Control Unit (PCU) for the spoiler assembly [1].

(b) Move the manual release cam on the PCU.

(c) Manually extend the spoiler assembly [1].

SUBTASK 27-61-11-480-002

(8) Install the inboard and outboard spoiler actuators lock equipment, SPL-1719, on the spoiler actuator.

SUBTASK 27-61-11-020-001

(9) Do these steps to disconnect the PCU [7] from the spoiler assembly [1]:

(a) Remove the bolt [3] and washer [4] that holds the pin [2].

CAUTION

MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

(b) Remove the nut [8], washer [9], and pin [2] that holds the PCU [7] to the spoiler assembly [1].

SUBTASK 27-61-11-020-002

(10) Do these steps to remove the spoiler assembly [1]:

(a) Do these steps for the corner hinge fittings on the spoiler assembly [1] (Figure 401):

1) Remove the nuts [12] and washers [11] that hold the bonding jumpers [16] [16] to the grounding studs on the wing.

2) Remove the pins [19], nuts [18], washers [17] and washers [14], bolts [13], and bushings [15] that holds the spoiler assembly [1] to the corner hinges.

(b) Do these steps for the center hinge fittings on the spoiler assembly [1] (Figure 401):

1) Do these steps to remove the two plates [28] from the bolt [20] and the bolt [39]:

a) Remove the nut [34], bolt [29], washer [30], washers [25], bushing [26] and bushing [32].

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b) Remove the nut [45], bolt [41], washer [40], washers [42], bushing [43] and bushing [44].

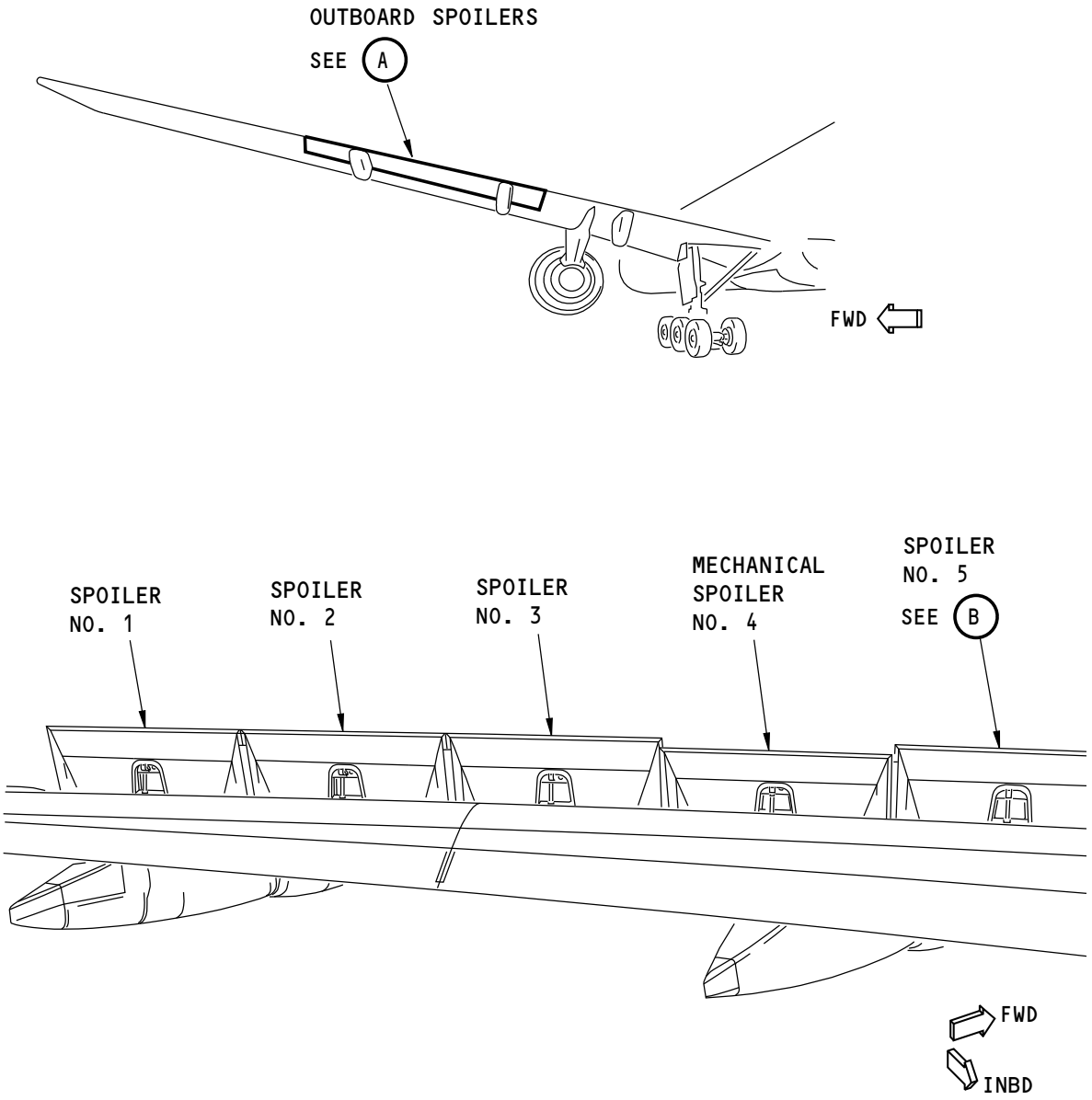
2) Remove the nut [24], washer [23], bolt [20], washer [21] and bushing [22] that hold the spoiler assembly [1] to the center left hinge fitting.

3) Remove the nut [35], washer [36], bolt [39], washer [38] and bushings [37] that hold the spoiler assembly [1] to the center right hinge fitting.

(c) Remove the spoiler assembly [1] from the wing.

——— END OF TASK ———

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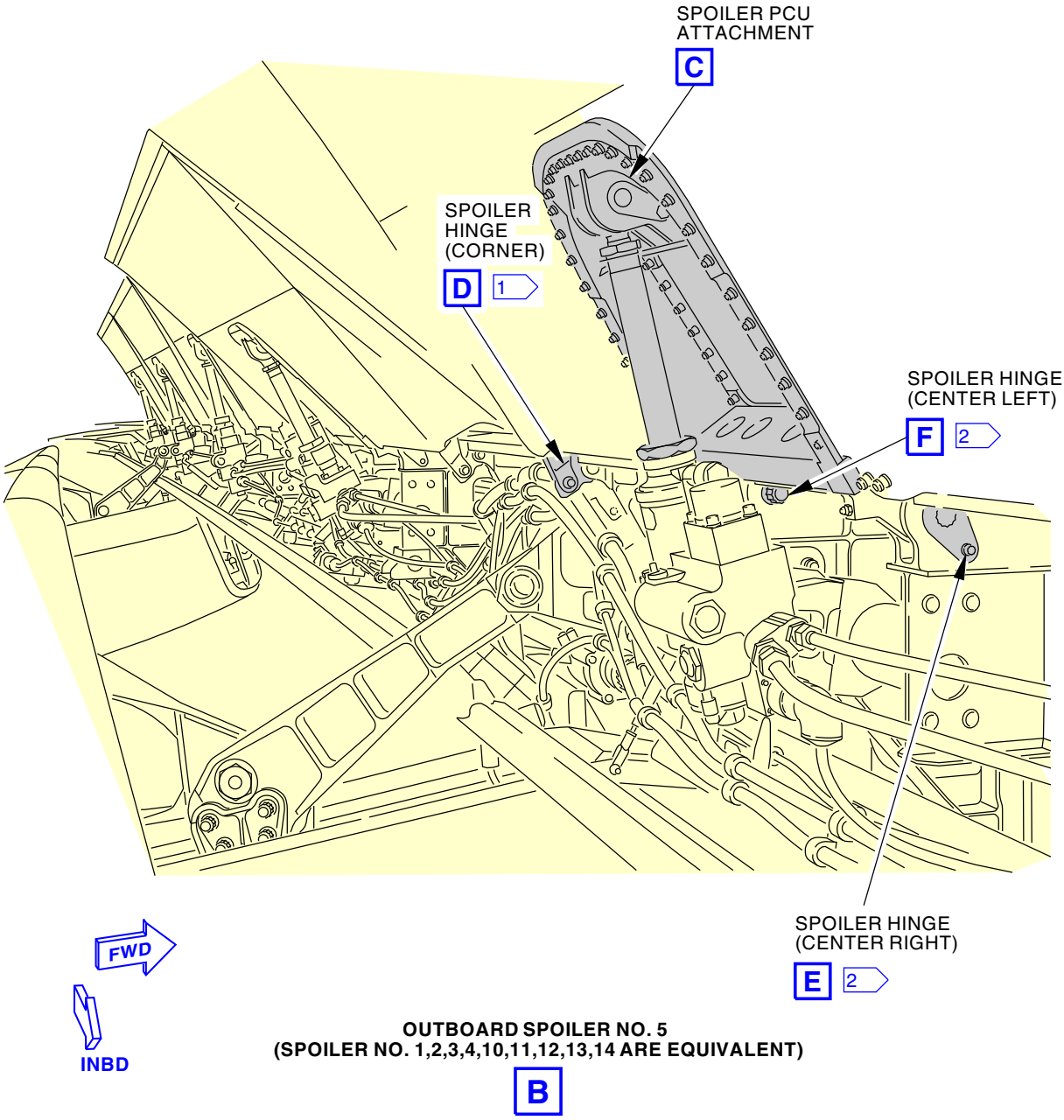
OUTBOARD SPOILERS
(LEFT WING SPOILERS ARE SHOWN,
RIGHT WING SPOILERS ARE EQUIVALENT)

A

E27098 S0006414156_V1

Outboard Spoilers Installation
Figure 401/27-61-11-990-801 (Sheet 1 of 5)

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OUTBOARD SPOILER NO. 5
(SPOILER NO. 1,2,3,4,10,11,12,13,14 ARE EQUIVALENT)

B

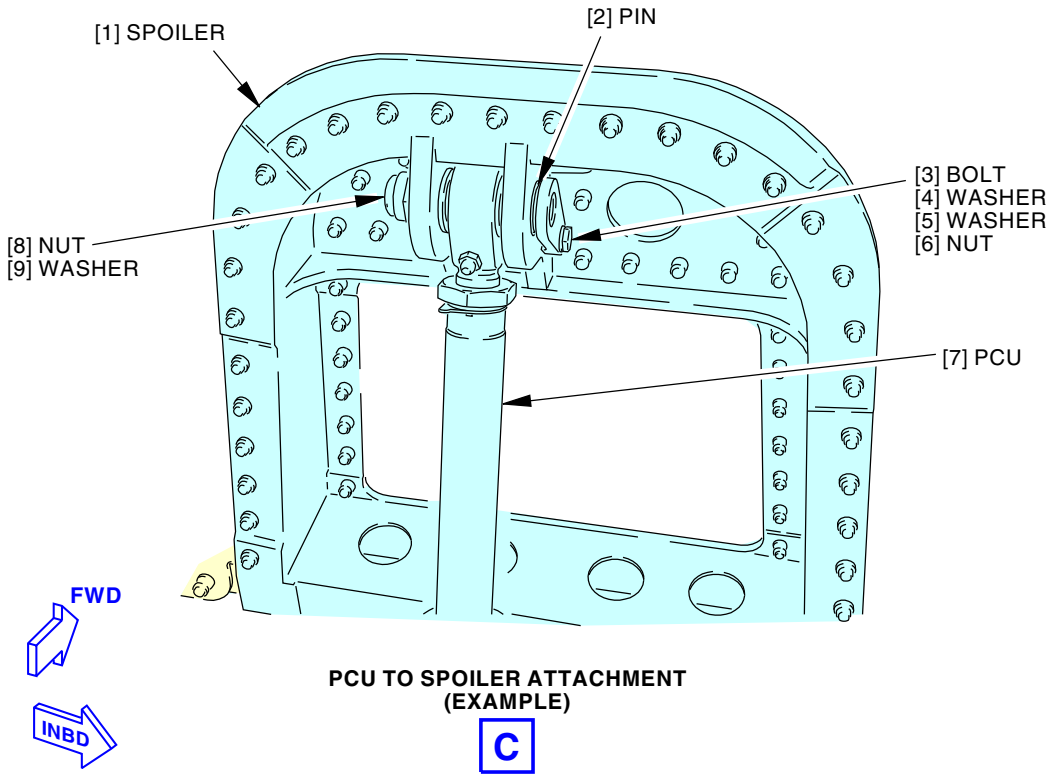
1 FOR ALL CORNER HINGES (LEFT AND RIGHT WINGS), INSTALL THE BOLTS WITH THE HEAD TO THE RIGHT, EXCEPT ON THE OUTBOARD CORNER HINGE ON SPOILER NO. 13

2 FOR ALL CENTER HINGES, INSTALL THE BOLTS WITH THE NUTS TO THE CENTER OF THE SPOILER

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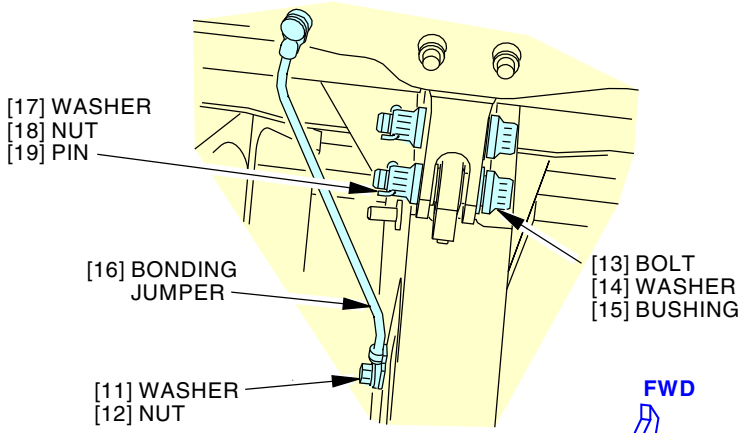
Outboard Spoilers Installation
Figure 401/27-61-11-990-801 (Sheet 2 of 5)

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PCU TO SPOILER ATTACHMENT (EXAMPLE)

C



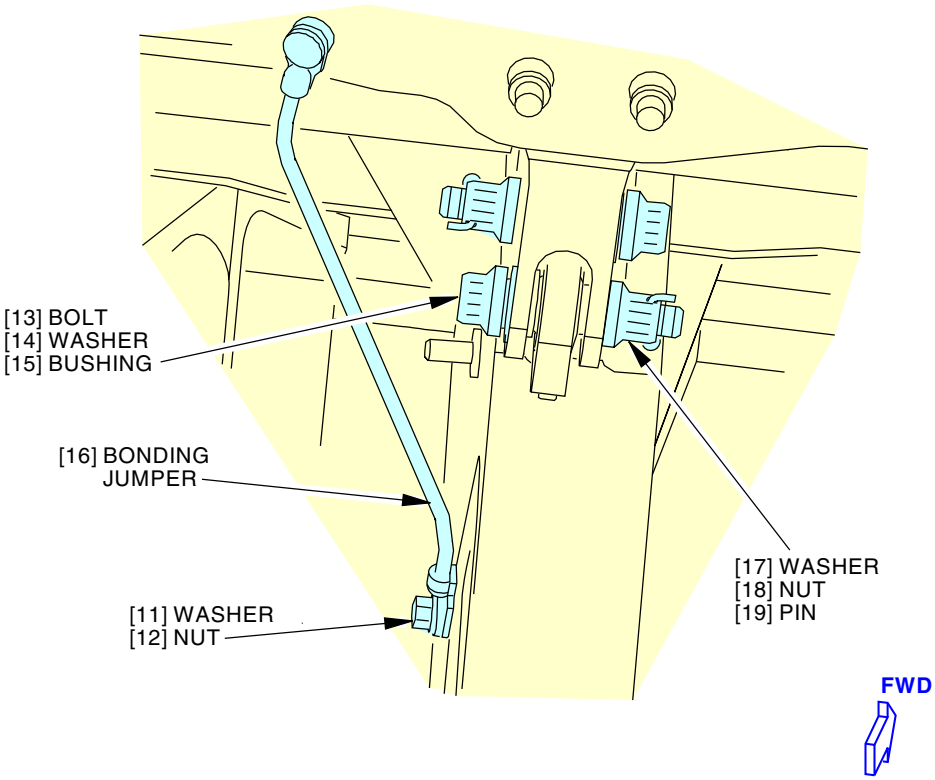
CORNER SPOILER HINGE (EXCEPT NO. 13 SPOILER) (EXAMPLE)

D 1

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Outboard Spoilers Installation
Figure 401/27-61-11-990-801 (Sheet 3 of 5)

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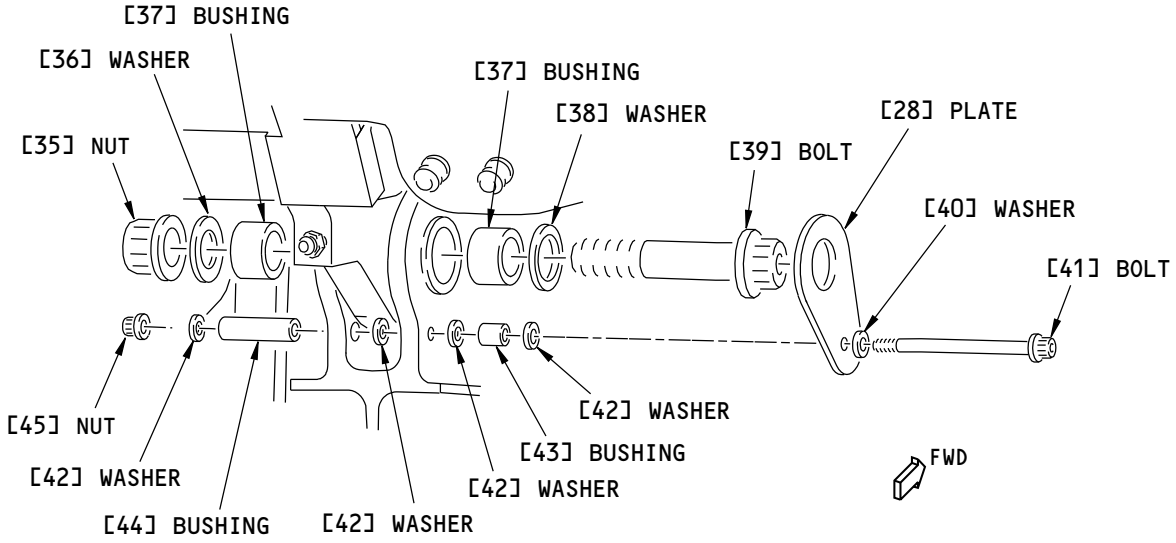
SPOILER NO 13 OUTBOARD CORNER HINGE

D

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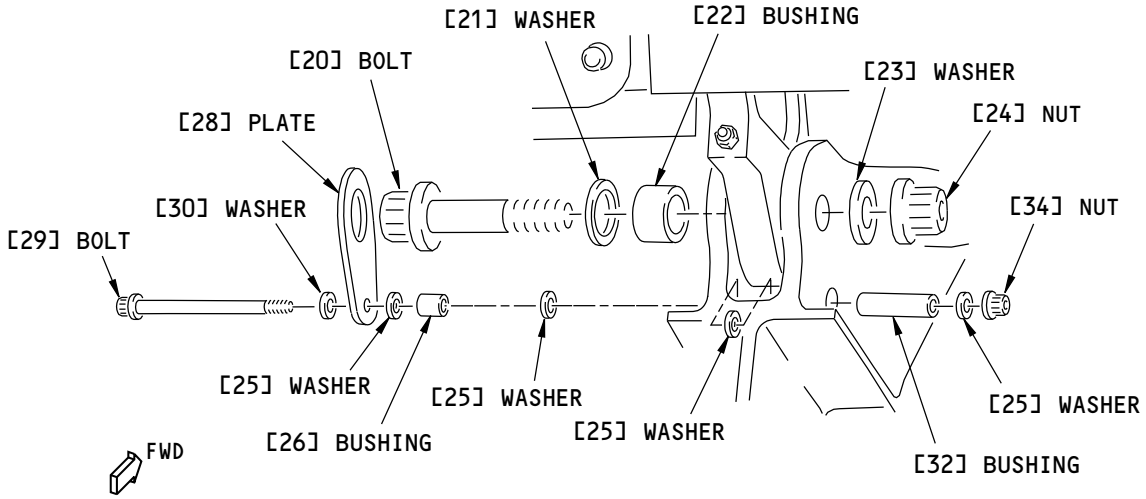
Outboard Spoilers Installation
Figure 401/27-61-11-990-801 (Sheet 4 of 5)

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SPOILER HINGE
(CENTER RIGHT)
(EXAMPLE)

E 2



SPOILER HINGE
(CENTER LEFT)
(EXAMPLE)

F 2

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Outboard Spoilers Installation
Figure 401/27-61-11-990-801 (Sheet 5 of 5)

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TASK 27-61-11-400-801

3. Outboard Spoilers Installation

A. General

(1) This procedure is applicable to all of the outboard spoilers (spoilers 1, 2, 3, 4, 5, 10, 11, 12, 13, and 14).

B. References

Reference	Title
12-21-10-600-802	Lubricate the Outboard Spoilers (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-61-00-820-802	Spoiler PCU Adjustment (P/B 501)
SWPM 20-20-00	Standard Wiring Practices Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Spoiler assembly	27-61-11-01-305	ARO ALL
		27-61-11-01-315	ARO ALL
		27-61-11-01-320	ARO ALL

F. Location Zones

Zone	Area
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

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G. Procedure

SUBTASK 27-61-11-420-001

(1) Do these steps to install the spoiler assembly [1]:

(a) Apply a layer of grease, D00633 on the bushing [22] and bushings [37].

(b) Put the spoiler assembly [1] in its position on the wing.

(c) Do these steps for the center hinge fittings on the spoiler assembly [1] (Figure 401):

1) Install the bushing [22], washer [21], bolt [20], washer [23], and nut [24] for the center left hinge fitting.

2) Install the bushings [37], washer [38], bolt [39], washer [36], and nut [35] for the center right hinge fitting.

3) Tighten the nut [24] and nut [35] to 1100 in-lb (124 N·m) - 1375 in-lb (155 N·m).

4) Apply a layer of grease, D00633, on bushing [32], bushing [44], bolt [29] and bolt [41].

5) Install the plate [28], and the bolt [29], washer [30], washers [25], bushing [26], bushing [32], and nut [34]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

6) Install the plate [28], and the bolt [41], washer [40], washers [42], bushing [43], bushing [44], and nut [45]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(d) Do these steps for the corner hinge fittings on the spoiler assembly [1] (Figure 401):

1) Apply a layer of grease, D00633 on the bushings [15].

2) Install the bushings [15], washers [14] and washers [17], bolts [13], and nuts [18].

3) Tighten the nuts [18] to 130 in-lb (15 N·m) - 200 in-lb (23 N·m).

4) Install the pins [19].

5) Install the washers [11] and nuts [12] that hold the bonding jumpers [16] to the grounding studs on the wing. (SWPM 20-20-00)

NOTE: Make sure electrical bonding and grounding requirements are satisfactory (SWPM 20-20-00).

6) Use sealant, A02315, to apply a filet seal on the head and tail of the electrical bonding fastener and bonding jumpers [16].

SUBTASK 27-61-11-420-002

(2) Do these steps to connect the PCU to the spoiler assembly [1]:

(a) Apply a layer of grease, D00633 to the outside diameter of the pin [2].

(b) Apply a layer of grease, D00633 to the bolt [3].

CAUTION

MAKE SURE THAT THE SPLIT INNER RACE OF THE BEARING STAYS WITH THE OUTER RACE. IF YOU INSTALL THE BEARING INCORRECTLY, DAMAGE TO THE BEARING WILL OCCUR.

(c) Install the pin [2], washer [9], and nut [8] that attach the PCU [7] to the spoiler assembly [1].

NOTE: Do not tighten the nut now.

(d) Install the bolt [3], and washer [4].

(e) Tighten the nut [8] to 1000 in-lb (113 N·m) - 1300 in-lb (147 N·m).

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SUBTASK 27-61-11-640-001

(3) Do this task: Lubricate the Outboard Spoilers, TASK 12-21-10-600-802.

SUBTASK 27-61-11-080-001

(4) Remove the inboard and outboard spoiler actuators lock equipment, SPL-1719, from the spoiler actuator.

SUBTASK 27-61-11-080-002

(5) Remove the DO-NOT-OPERATE tag on the control wheel, if you removed the mechanical spoilers (4 and 11).

SUBTASK 27-61-11-860-007

(6) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-11-860-008

(7) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-11-860-009

(8) On the P61 Panel, put the FLT CONTROL HYD POWER switches to the NORM position.

SUBTASK 27-61-11-820-001

(9) Do this task: Spoiler PCU Adjustment, TASK 27-61-00-820-802.

——— END OF TASK ———

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OUTBOARD SPOILERS - INSPECTION/CHECK

1. General

A. This procedure has this task:

(1) A task to inspect the bushings on the outboard spoiler panel and power control unit.

TASK 27-61-11-210-801

2. Outboard Spoiler Inspection

(Figure 601)

A. General

(1) This task is an inspection of the parts on the outboard spoiler.

B. References

Reference	Title
27-61-11-000-801	Outboard Spoiler Removal (P/B 401)
27-61-11-400-801	Outboard Spoilers Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 inch, Readable to 1/1000 inch
STD-1097	Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch

D. Location Zones

Zone	Area
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13
666	Spoiler No. 14

E. Procedure

SUBTASK 27-61-11-860-010

(1) Do this task: Outboard Spoiler Removal, TASK 27-61-11-000-801.

SUBTASK 27-61-11-020-003

(2) Use these tools:

(a) micrometer (0-1 inch, readable to 1/1000 inch), STD-1096

(b) vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

SUBTASK 27-61-11-020-004

(3) Do these steps:

(a) Remove the applicable parts.

(b) Measure each part with a micrometer (0-1 inch, readable to 1/1000 inch), STD-1096 or a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

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(c) Compare the dimensions with the wear limits in the table:

Outboard Spoiler Wear Limits

Part	Location - Inner Dia. (ID), Outer Dia. (OD)	Design Minimum Dim.	Design Maximum Dim.	Wear Limit Maximum OD or ID Dimension	Wear Limit Maximum Diametric Clearance
No. 1 Bushing	ID	0.8120 in. (20.625 mm)	0.8128 in. (20.645 mm)	0.8173 in. (20.759 mm)	0.0058 in. (0.147 mm)
No. 1 Bolt	OD	0.8110 in. (20.599 mm)	0.8115 in. (20.612 mm)	0.8062 in. (20.477 mm)	0.0058 in. (0.147 mm)
No. 2 Bushing	ID	0.5620 in. (14.275 mm)	0.5625 in. (14.288 mm)	0.5665 in. (14.389 mm)	0.0050 in. (0.127 mm)
No. 2 Bolt	OD	0.5605 in. (14.237 mm)	0.5615 in. (14.262 mm)	0.5570 in. (14.148 mm)	0.0050 in. (0.127 mm)
No. 3 Bearing	ID	0.5625 in. (14.288 mm)	0.5629 in. (14.298 mm)	0.5665 in. (14.389 mm)	0.0050 in. (0.127 mm)
No. 3 Bolt	OD	0.5605 in. (14.237 mm)	0.5615 in. (14.262 mm)	0.5575 in. (14.160 mm)	0.0050 in. (0.127 mm)
No. 4 Bushing	ID	0.5620 in. (14.275 mm)	0.5627 in. (14.293 mm)	0.5665 in. (14.389 mm)	0.0050 in. (0.127 mm)
No. 4 Bolt	OD	0.5605 in. (14.237 mm)	0.5615 in. (14.262 mm)	0.5570 in. (14.1478 mm)	0.0050 in. (0.127 mm)
No. 5 Bushing	ID	0.4375 in. (11.112 mm)	0.4382 in. (11.130 mm)	0.4420 in. (11.227 mm)	0.0050 in. (0.127 mm)
No. 5 Bolt	OD	0.4365 in. (11.087 mm)	0.4370 in. (11.100 mm)	0.4325 in. (10.985 mm)	0.0050 in. (0.127 mm)
No. 6 Bushing	ID	0.3125 in. (7.938 mm)	0.3130 in. (7.950 mm)	0.3170 in. (8.052 mm)	0.0050 in. (0.127 mm)
No. 6 Bolt	OD	0.3110 in. (7.899 mm)	0.3120 in. (7.925 mm)	0.3075 in. (7.810 mm)	0.0050 in. (0.127 mm)
No. 7 Bushing	ID	0.3125 in. (7.938 mm)	0.3131 in. (7.953 mm)	0.3170 in. (8.052 mm)	0.0050 in. (0.127 mm)
No. 7 Bolt	OD	0.3110 in. (7.899 mm)	0.3120 in. (7.925 mm)	0.3075 in. (7.810 mm)	0.0050 in. (0.127 mm)
No. 8 Bearing	ID	0.3125 in. (7.938 mm)	0.3130 in. (7.950 mm)	0.3170 in. (8.052 mm)	0.0050 in. (0.127 mm)
No. 8 Bolt	OD	0.3110 in. (7.899 mm)	0.3120 in. (7.925 mm)	0.3075 in. (7.810 mm)	0.0050 in. (0.127 mm)
No. 9 Bushing	ID	0.8745 in. (22.212 mm)	0.8753 in. (22.233 mm)	0.8773 in. (22.283 mm)	0.0030 in. (0.076 mm)
No. 9 Pin	OD	0.8735 in. (22.187 mm)	0.8740 in. (22.200 mm)	0.8725 in. (22.162 mm)	0.0030 in. (0.076 mm)
No. 10 PCU Rod End	ID	0.8745 in. (22.212 mm)	0.8750 in. (22.225 mm)	0.8770 in. (22.276 mm)	0.0030 in. (0.076 mm)

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Outboard Spoiler Wear Limits (Continued)

Part	Location - Inner Dia. (ID), Outer Dia. (OD)	Design Minimum Dim.	Design Maximum Dim.	Wear Limit Maximum OD or ID Dimension	Wear Limit Maximum Diametric Clearance
No. 10 Pin	OD	0.8735 in. (22.187 mm)	0.8740 in. (22.200 mm)	0.8725 in. (22.162 mm)	0.0030 in. (0.076 mm)

(d) If the parts are out of tolerance, replace or repair the parts.

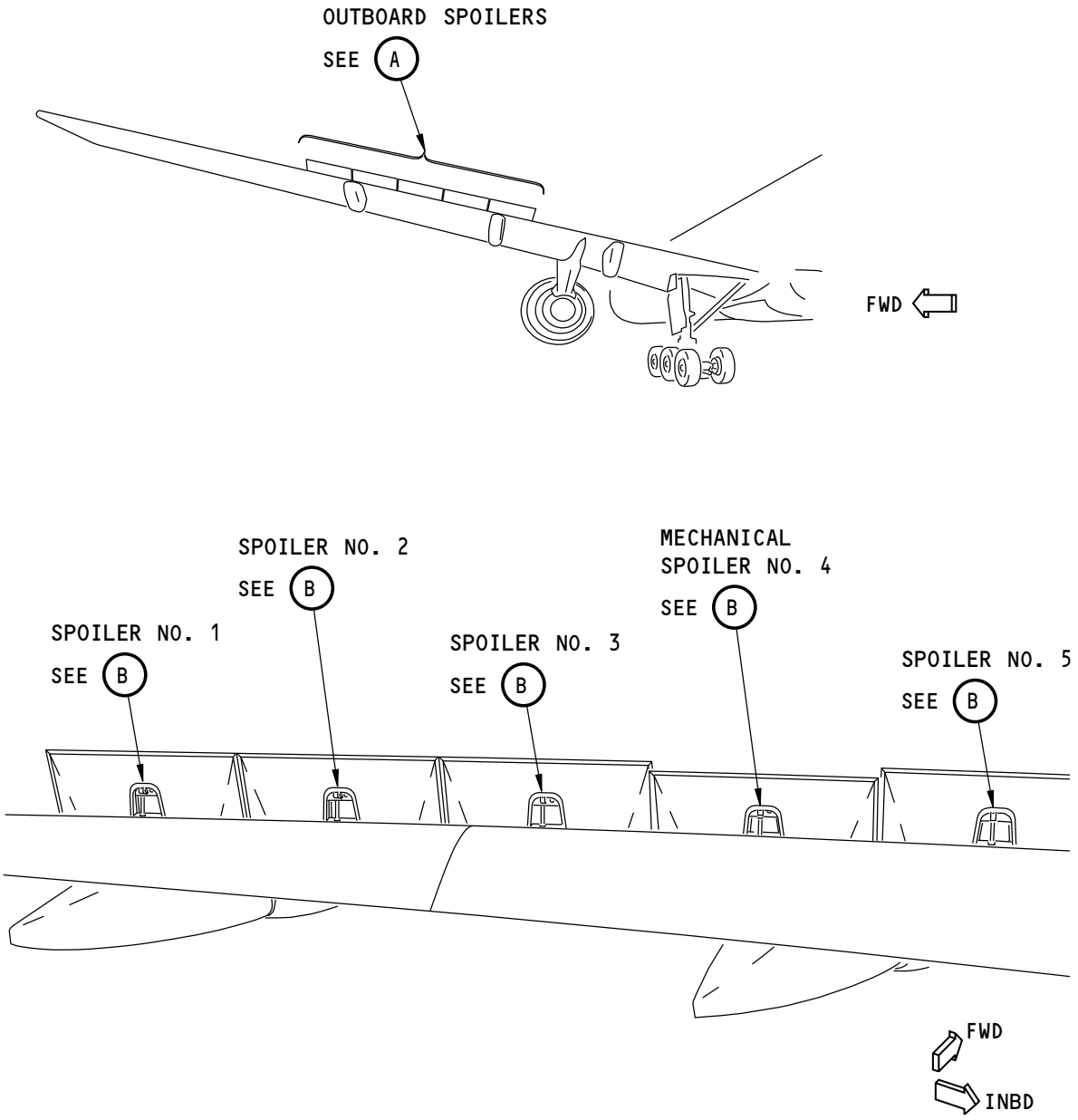
(e) Install the applicable parts.

SUBTASK 27-61-11-400-001

(4) Do this task: Outboard Spoilers Installation, TASK 27-61-11-400-801.

——— END OF TASK ———

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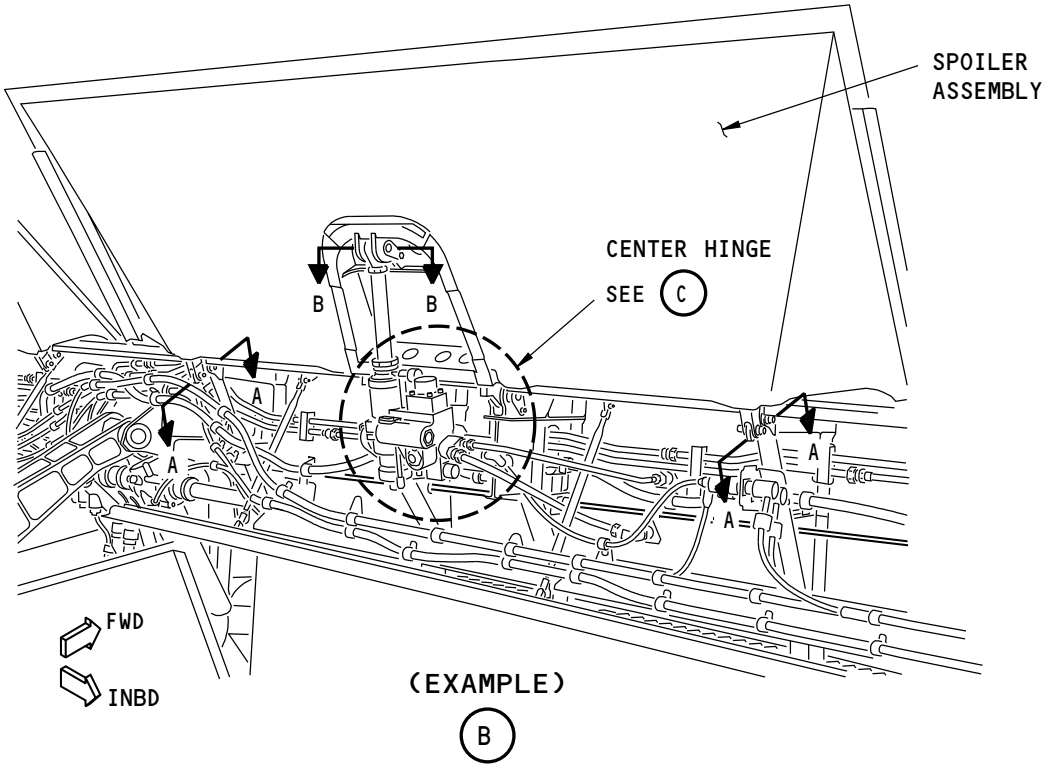


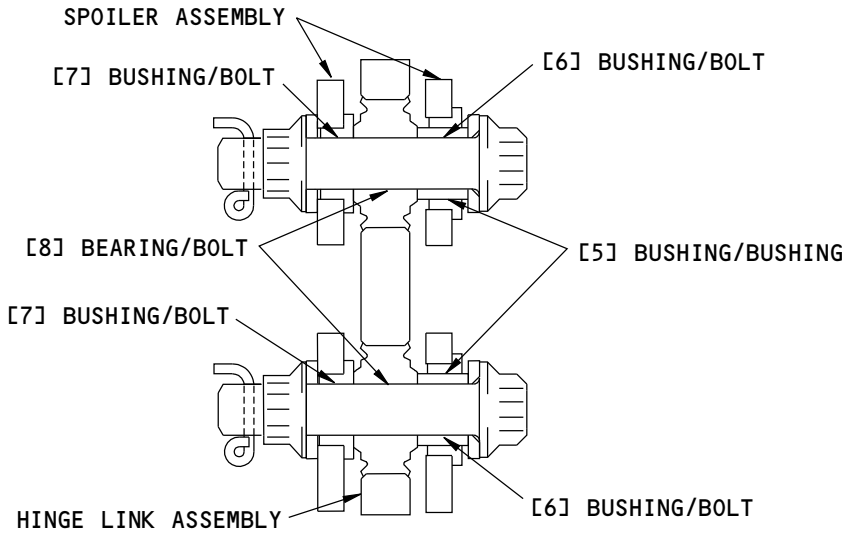
OUTBOARD SPOILERS
(LEFT WING IS SHOWN,
RIGHT WING IS EQUIVALENT)
A

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Outboard Spoiler Wear Limits
Figure 601/27-61-11-990-802 (Sheet 1 of 4)

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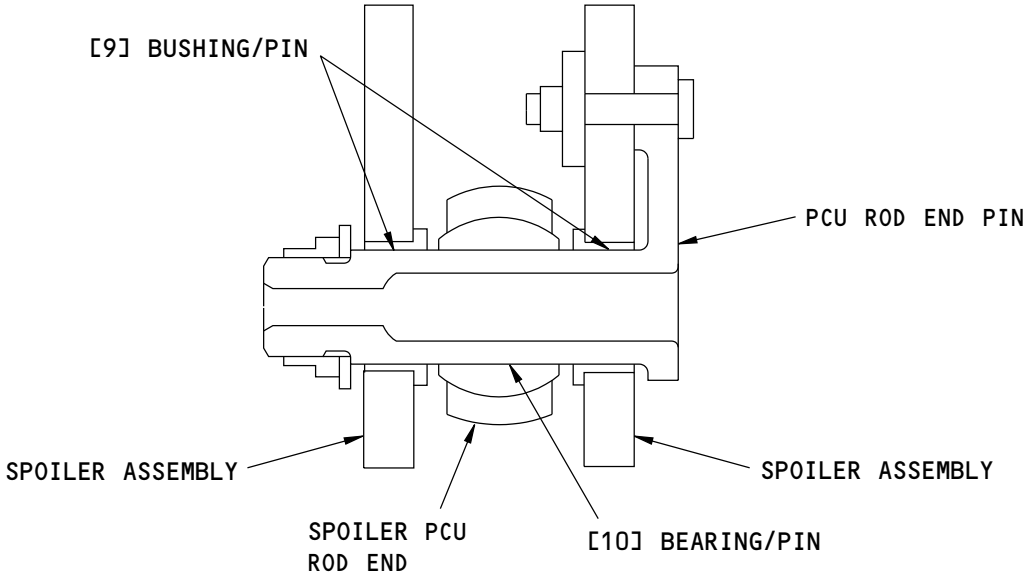




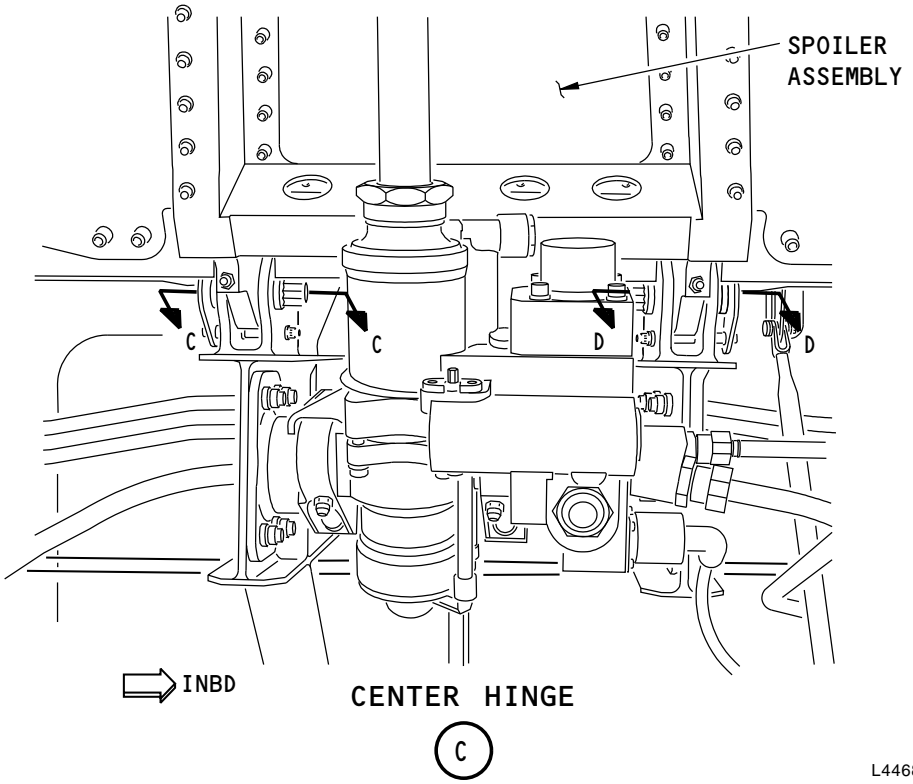
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Outboard Spoiler Wear Limits
Figure 601/27-61-11-990-802 (Sheet 2 of 4)

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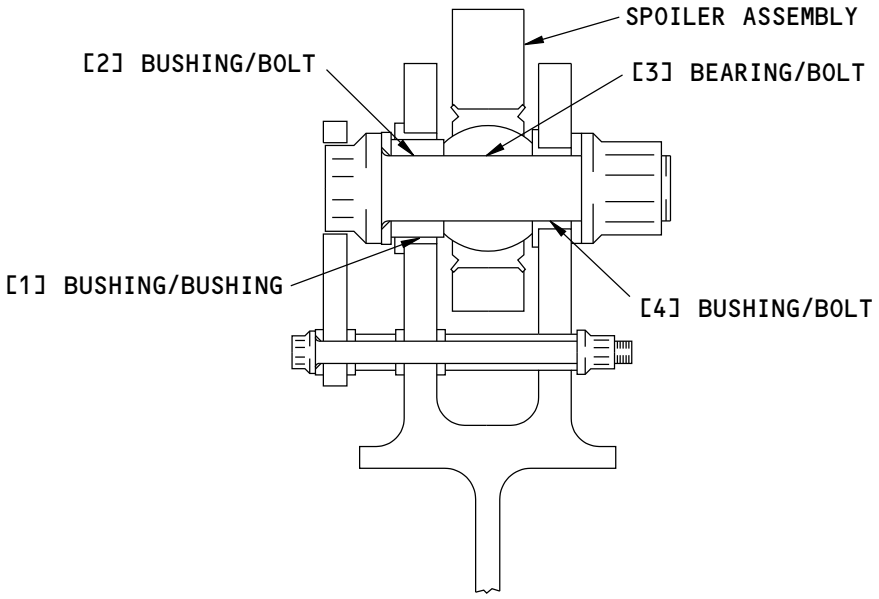
B–B



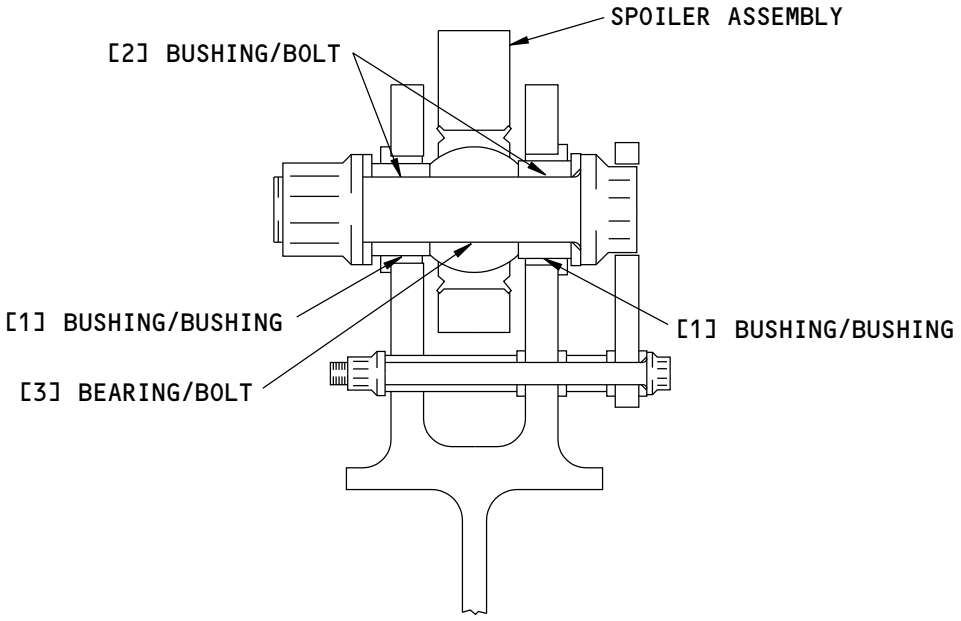
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Outboard Spoiler Wear Limits
Figure 601/27-61-11-990-802 (Sheet 3 of 4)

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LEFT CENTER HINGE
C–C



RIGHT CENTER HINGE
D–D

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Outboard Spoiler Wear Limits
Figure 601/27-61-11-990-802 (Sheet 4 of 4)

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SPOILER AUXILIARY RETRACT DEVICE (SARD) PORT PLUG - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the SARD port plug.

(2) An installation of the SARD port plug.

B. The SARD port plug is used to block an unused spoiler auxiliary retract device port on the PCU for spoilers 6 and 9. The port plug should be removed and installed only if necessary.

TASK 27-61-12-000-802

2. SARD Port Plug Removal

(Figure 201)

A. References

Reference	Title
25-21-08-000-801	Overdoor Panel Opening/Removal (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
52-12-25-000-802	Hinge Covers Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
243	Area Above Passenger Compartment Ceiling, Left - Section 44
244	Area Above Passenger Compartment Ceiling, Right - Section 44
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
554	Spoiler No. 6
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing
654	Spoiler No. 9
833	Left No. 3 Overwing Door - Section 44
843	Right No. 3 Overwing Door - Section 44

C. Access Panels

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

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D. Prepare for the Removal

SUBTASK 27-61-12-860-014

WARNING MAKE SURE THE SPEEDBRAKE LEVER IS IN ITS DOWN-AND-LOCKED POSITION BEFORE YOU OPEN THESE CIRCUIT BREAKERS. THE SPOILERS CAN RETRACT AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-12-860-015

(2) Make sure the passenger entry door 3 (PED 3 or overwing emergency exit door) is closed and locked.

SUBTASK 27-61-12-040-003

(3) Make sure the mode select handle on the PED 3 is in the MANUAL/DISARM position.

SUBTASK 27-61-12-010-002

(4) Remove the aft hinge cover and the forward hinge cover on the PED 3 to get access to the EPAS battery.

(a) Do this task: Hinge Covers Removal, TASK 52-12-25-000-802.

SUBTASK 27-61-12-040-004

(5) Move the safety switch for the EPAS battery to the DISARM position.

SUBTASK 27-61-12-010-003

(6) Open the overdoor panel above the PED 3 door to get access to the backup battery.

(a) Do this task: Overdoor Panel Opening/Removal, TASK 25-21-08-000-801.

SUBTASK 27-61-12-040-005

(7) Move the safety switch for the backup battery to the DISARM position.

SUBTASK 27-61-12-860-016

(8) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-12-860-017

(9) If there is hydraulic power, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

NOTE: The right hydraulic system supplies power for spoilers No. 6 and 9.

SUBTASK 27-61-12-860-018

(10) Move the FLT CONTROL HYD VALVE POWER - WING C and R switches to the SHUT OFF position.

SUBTASK 27-61-12-010-005

(11) Remove the applicable access panels, (Figure 201):

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(a) For the left wing, remove this access panel:

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, open this access panel:

Number	Name/Location
652EB	Inboard Fixed Trailing Edge Panel

E. SARD Port Plug Removal

SUBTASK 27-61-12-000-001

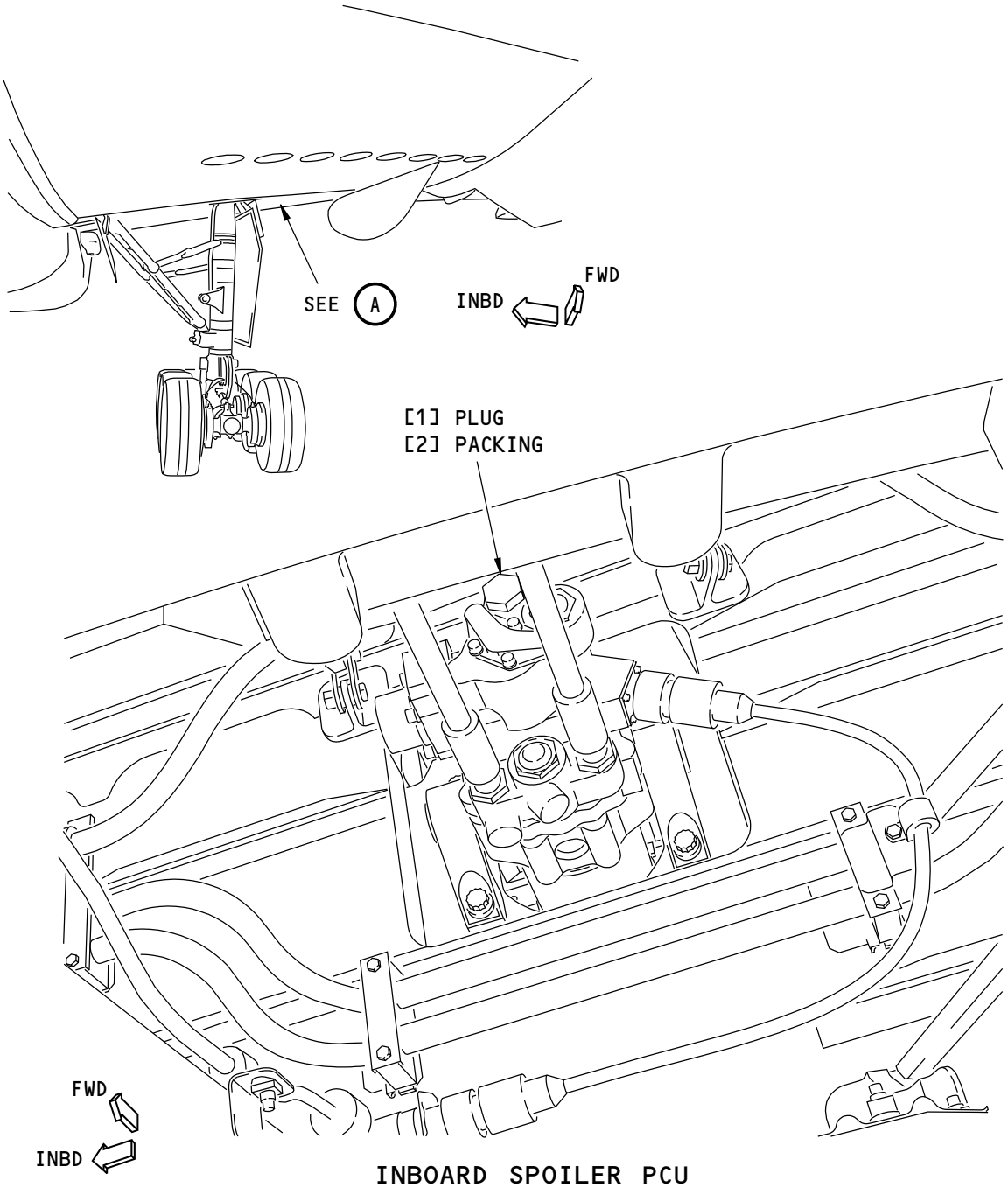
(1) Remove the SARD port plug as follows:

(a) Remove the lockwire and tamper proof seals from the plug [1].

(b) Remove plug from the PCU assembly.

——— END OF TASK ———

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Spoiler Auxiliary Retract Device (SARD) Port Plug Installation
Figure 201/27-61-12-990-802

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TASK 27-61-12-400-802

3. SARD Port Plug Installation

(Figure 201)

A. References

Reference	Title
25-21-08-400-801	Overdoor Panel Installation/Closing (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
52-12-25-400-802	Hinge Covers Installation (P/B 201)

B. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
552	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Left Wing
554	Spoiler No. 6
652	Landing Gear Support Beam & Rear Spar to Wing Trailing Edge - Right Wing
654	Spoiler No. 9
833	Left No. 3 Overwing Door - Section 44
843	Right No. 3 Overwing Door - Section 44

D. Access Panels

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

E. SARD Port Plug Installation.

SUBTASK 27-61-12-420-007

(1) Do the following to install the SARD Port Plug:

(a) Install packing [2] onto the plug [1].

(b) Apply grease to threads of the plug [1] and install into manifold assembly.

(c) Tighten the plug [1] to 360 +/- 20 inch-lbs (40.6 +/- 2.2 Newton-meters).

(d) Install MS20995C32 lockwire, G01048 to the plug [1].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-12-410-005

(1) Install the applicable access panels:

(a) For the left wing, close this access panel:

Number	Name/Location
552EB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, close this access panel:

Number	Name/Location
652EB	Inboard Fixed Trailing Edge Panel

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SUBTASK 27-61-12-860-019

(2) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-12-860-020

(3) Move the FLT CONTROL HYD VALVE POWER - WING C and R switches to the ON position.

SUBTASK 27-61-12-860-021

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-12-440-001

(5) Turn the safety switch on the backup battery to the ARM position.

SUBTASK 27-61-12-410-003

(6) Close the overdoor panel above the PED 3 door.

(a) Do this task: Overdoor Panel Installation/Closing, TASK 25-21-08-400-801.

SUBTASK 27-61-12-860-022

(7) Move the safety switch on the EPAS battery to the ARM position.

SUBTASK 27-61-12-410-004

(8) Install the forward and aft hinge covers on the passenger entry door 3 (PED 3).

(a) Do this task: Hinge Covers Installation, TASK 52-12-25-400-802.

NOTE: If the safety switch for the EPAS battery is in the DISARM position, the aft hinge cover will not be flush.

——— END OF TASK ———

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SPOILER AUXILIARY RETRACT DEVICE (SARD) - REMOVAL/INSTALLATION

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A removal of the SARD cylinder

(2) An installation of the SARD cylinder

(3) A removal of the SARD cartridge

(4) An installation of the SARD cartridge.

C. The spoiler auxiliary retract devices (SARDs) automatically retract the inboard spoilers when the offwing slide escape system operates. The components on each SARD include the cylinder and the cartridge. This procedure is applicable to both SARDs.

TASK 27-61-13-000-801

2. SARD Cylinder Removal

(Figure 401)

A. References

Reference	Title
25-21-08-000-801	Overdoor Panel Opening/Removal (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
52-12-25-000-802	Hinge Covers Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
653	Spoiler No. 8
833	Left No. 3 Overwing Door - Section 44
843	Right No. 3 Overwing Door - Section 44

C. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

D. Prepare for the Removal

SUBTASK 27-61-13-860-029

(1) Make sure the passenger entry door 3 (PED 3 or overwing emergency exit door 3 is closed and locked:

SUBTASK 27-61-13-040-004

(2) Make sure the mode select handle on the PED 3 is in the MANUAL/DISARM position.

SUBTASK 27-61-13-010-006

(3) Remove the aft hinge cover and the forward hinge cover on the PED 3 to get access to the EPAS battery.

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(a) Do this task: Hinge Covers Removal, TASK 52-12-25-000-802.

SUBTASK 27-61-13-040-005

(4) Move the EPAS battery safety switch to the DISARM position.

SUBTASK 27-61-13-010-007

(5) Open the overdoor panel above the PED 3 door to get access to the backup battery.

(a) Do this task: Overdoor Panel Opening/Removal, TASK 25-21-08-000-801.

SUBTASK 27-61-13-040-006

(6) Move the safety switch for the backup battery to the DISARM position.

SUBTASK 27-61-13-010-001

(7) Remove the applicable access panels:

(a) For the left wing, open this access panel:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, open this access panel:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-13-860-001

WARNING MAKE SURE THE SPEEDBRAKE LEVER IS IN ITS DOWN-AND-LOCKED POSITION BEFORE YOU OPEN THESE CIRCUIT BREAKERS. THE SPOILERS CAN RETRACT AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-13-860-002

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-13-860-003

(10) If there is hydraulic power, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

NOTE: The center hydraulic system supplies power for spoilers No. 7 and 8.

SUBTASK 27-61-13-860-004

(11) Move the FLT CONTROL HYD VALVE POWER - WING C and R switches to the SHUT OFF position.

E. SARD Cylinder Removal

SUBTASK 27-61-13-000-001

(1) Remove the cartridge assembly [16].

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(a) To remove the cartridge assembly [16], do this task: SARD Cartridge Removal, TASK 27-61-13-000-802

SUBTASK 27-61-13-020-001

(2) Remove the cylinder assembly [7]:

CAUTION

MAKE SURE TO HANDLE THE HOSE CAREFULLY. DO NOT BEND THE HOSE EXCESSIVELY. THIS CAN CAUSE DAMAGE TO THE HOSE.

(a) Disconnect the hose [11] from the spoiler PCU.

1) Install a cap on the open port.

(b) Remove the hose [11] from the cylinder assembly [7].

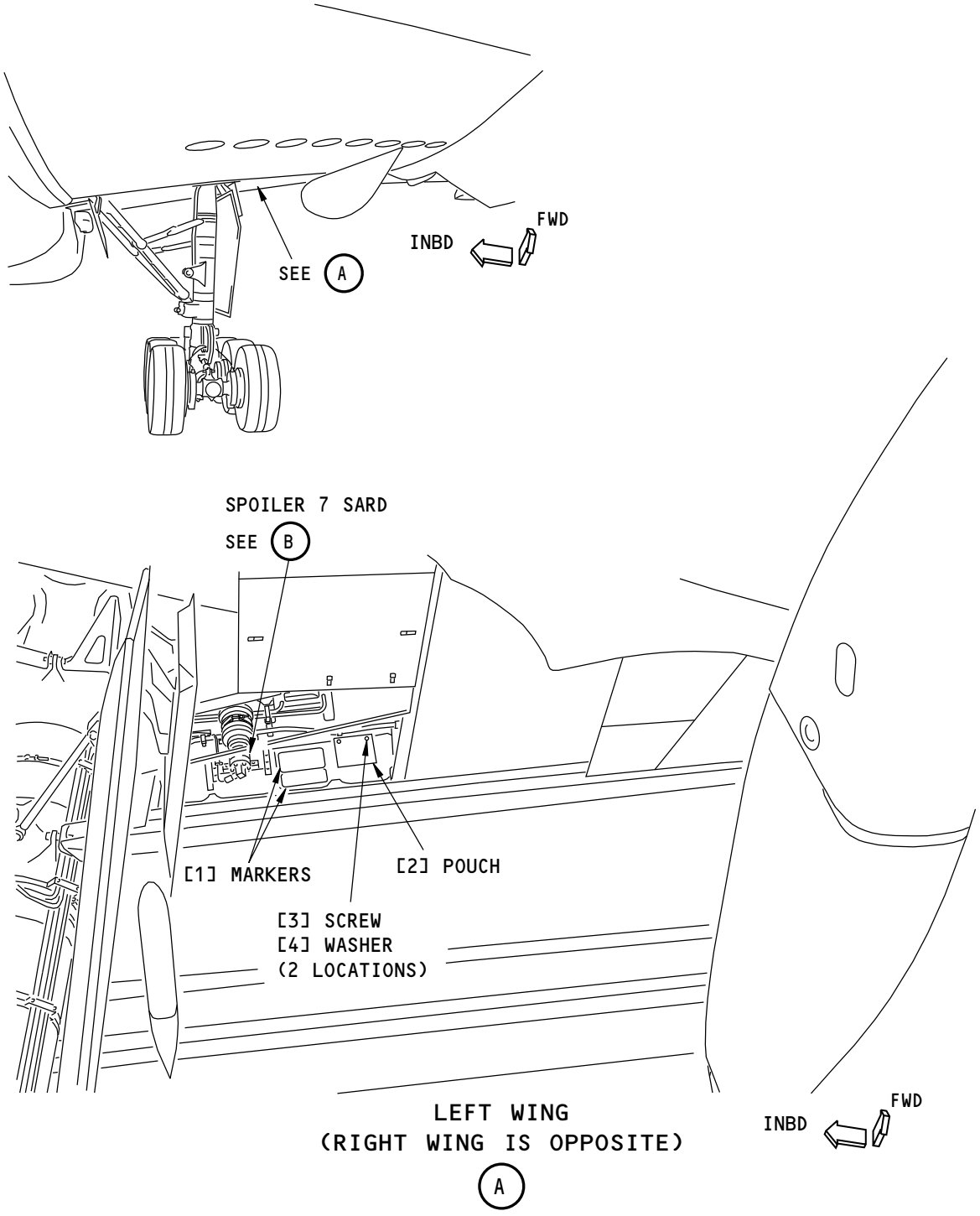
1) Install a cover on the open port.

(c) Disconnect the tube assembly [10] from the cylinder assembly [7].

(d) Loosen the nuts on clamp [8] and clamp [9] to remove the cylinder assembly [7] from the bracket assembly [14].

——— END OF TASK ———

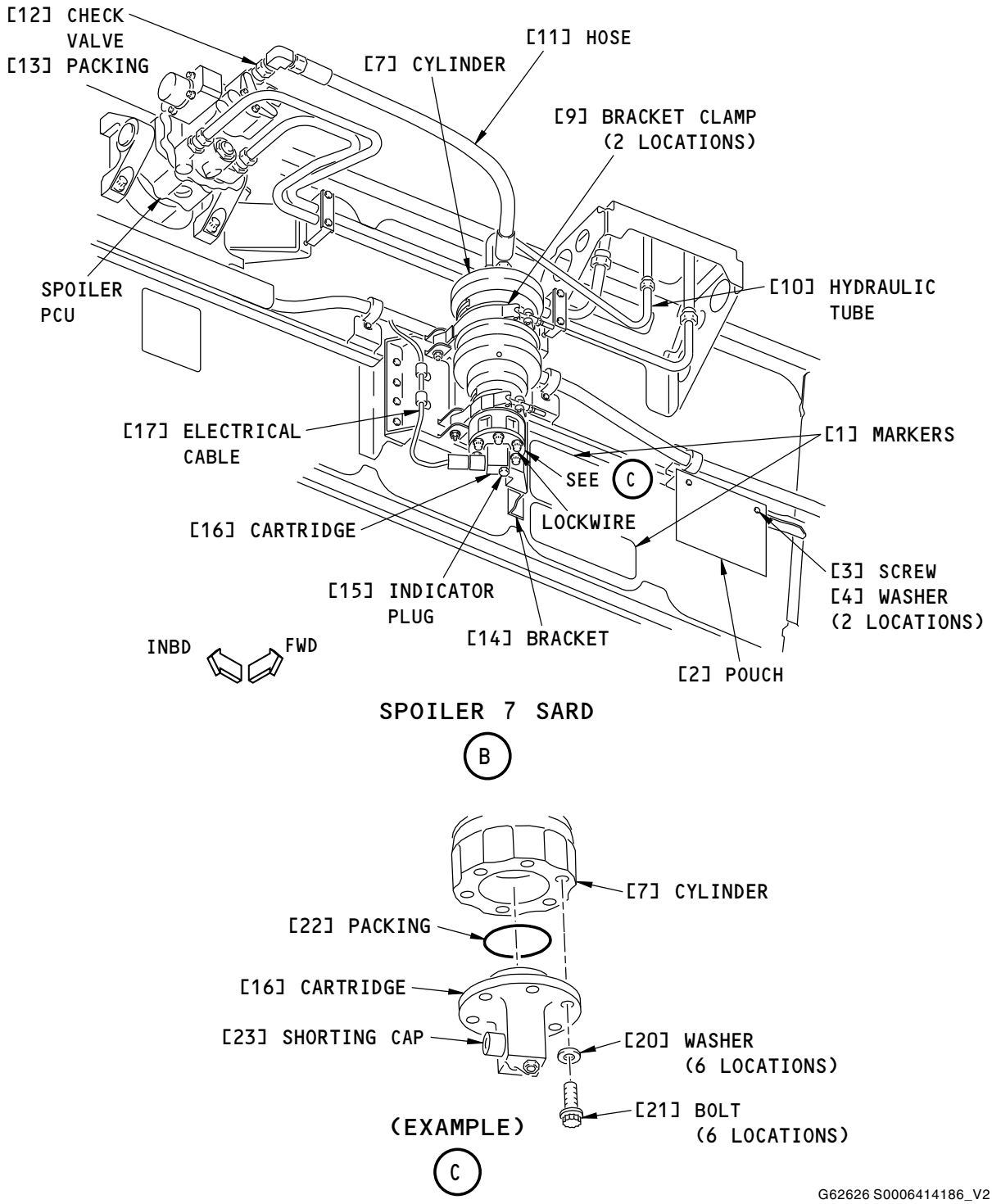
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Spoiler Auxiliary Retract Device (SARD) Installation
Figure 401/27-61-13-990-801 (Sheet 1 of 2)

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Spoiler Auxiliary Retract Device (SARD) Installation
Figure 401/27-61-13-990-801 (Sheet 2 of 2)

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TASK 27-61-13-400-801

3. SARD Cylinder Installation

(Figure 401)

A. References

Reference	Title
25-21-08-400-801	Overdoor Panel Installation/Closing (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-61-13-820-801	Spoiler Auxiliary Retract Device (SARD) - Functional Test (P/B 501)
52-12-19-710-801	Emergency Power Assist System (EPAS) Squib Test (PED 3) (P/B 501)
52-12-25-400-802	Hinge Covers Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Cylinder assembly	27-61-13-01-130	ARO ALL
13	Packing	27-61-13-01-045	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
653	Spoiler No. 8
833	Left No. 3 Overwing Door - Section 44
843	Right No. 3 Overwing Door - Section 44

D. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

E. Cylinder Installation

SUBTASK 27-61-13-420-001

(1) If it is not installed, install the packing [13] on the spoiler PCU.

SUBTASK 27-61-13-420-002

(2) Install the cylinder assembly [7]:

(a) Loosely attach the cylinder assembly [7] to the bracket assembly [14].

(b) Loosely attach tube assembly [10] to the cylinder assembly [7].

(c) Tighten the nuts on the clamp [8] and the clamp [9] to 50-80 pound-inches (5.7 - 9.0 newton-meters).

(d) Tighten the tube assembly [10].

(e) Make sure the spoiler is in the fully retracted (DOWN) position before you install the hose [11].

(f) Attach the hose [11] to the cylinder assembly [7].

(g) Attach the hose [11] to the valve [12].

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(h) Do this task: Spoiler Auxiliary Retract Device (SARD) - Functional Test, TASK 27-61-13-820-801.

SUBTASK 27-61-13-400-001

(3) Install the cartridge assembly [16].

(a) Refer to this task:SARD Cartridge Installation, TASK 27-61-13-400-802.

SUBTASK 27-61-13-720-001

(4) Do a test for continuity through the SARD cartidge squib.

(a) Do this task: Emergency Power Assist System (EPAS) Squib Test (PED 3), TASK 52-12-19-710-801.

NOTE: This test uses an inline electrical connector D6253P/D6253J on the PED 3 door.

NOTE: This test is recommended whenever an electrical connector is disconnected and connected again to an off-wing escape system squib or the EPAS reservoir squib.

NOTE: Do not use any multimeter for the continuity check across the squib circuit because the use of the wrong multimeter can cause the squib to fire. Use an approved ignition circuit tester.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-13-410-001

(1) Install the applicable access panels:

(a) For the left wing, close this access panel:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, close this access panel:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-13-860-005

(2) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-13-860-006

(3) Move the FLT CONTROL HYD VALVE POWER - WING C and R switches to the ON position.

SUBTASK 27-61-13-860-007

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-13-440-002

(5) Move the safety switch for the backup battery to the ARM position.

SUBTASK 27-61-13-410-006

(6) Close the overdoor panel at the PED 3 door.

(a) Do this task: Overdoor Panel Installation/Closing, TASK 25-21-08-400-801.

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SUBTASK 27-61-13-860-030

(7) Move the safety switch on the EPAS battery to the ARM position.

SUBTASK 27-61-13-410-007

(8) Install the forward and aft hinge covers on the PED 3.

(a) Do this task: Hinge Covers Installation, TASK 52-12-25-400-802.

NOTE: If the safety switch for the EPAS battery is in the DISARM position, the aft hinge cover will not be flush.

——— END OF TASK ———

TASK 27-61-13-000-802

4. SARD Cartridge Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure gives the task to remove the SARD cartridge. The SARD cartridge has a squib.

(2) The EPAS battery pack on each passenger entry door (PED) 3 fires the squibs on the EPAS pneumatic reservoir, the escape slide inflation bottle and the SARD cartridge. The over wing system backup battery on an overhead panel near the PED 3 fires the squibs on the inflation bottle and the SARD cartridge.

(3) The squibs are electro-explosive devices (EED). Maintenance personnel that touch the EED must use wrist straps to ground themselves to a ground point. These persons must wear clothes that make a small static electrical charge such as cotton or cotton/synthetic blends. Do not wear all wool clothing, all nylon clothing or all synthetic clothing. Remove reflective outerwear such as visual safety vests or coats before you touch the EED or disconnect or connect wire bundles.

B. References

Reference	Title
25-21-08-000-801	Overdoor Panel Opening/Removal (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-61-13-000-803	SARD Cleaning (P/B 701)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
52-12-25-000-802	Hinge Covers Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1565	Strap - Adjustable Wrist, Conductive, Static Control Part #: 09070 Supplier: 62576 Part #: 14810 Supplier: 62576 Part #: 2214 Supplier: 55203 Opt Part #: 2211 Supplier: 55203 Opt Part #: 2212 Supplier: 55203 Opt Part #: 2213 Supplier: 55203

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D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
243	Area Above Passenger Compartment Ceiling, Left - Section 44
244	Area Above Passenger Compartment Ceiling, Right - Section 44
553	Spoiler No. 7
653	Spoiler No. 8
833	Left No. 3 Overwing Door - Section 44
843	Right No. 3 Overwing Door - Section 44

E. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

F. Prepare for the Removal

SUBTASK 27-61-13-865-001

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
H	15	C52612	L EPAS BACKUP BAT

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
H	16	C33621	EMERGENCY LIGHTS DOOR 3L
H	17	C33620	EMERGENCY LIGHTS DOOR 3R

Right Power Management Panel, P210

Row	Col	Number	Name
J	14	C52613	R EPAS BACKUP BAT

SUBTASK 27-61-13-860-031

(2) Make sure the passenger entry door 3 (PED 3 or overwing emergency exit door) is safe as follows:

(a) Make sure the PED 3 door is closed and latched.

(b) Make sure the mode select handle is in the MANUAL/DISARM position.

SUBTASK 27-61-13-010-008

(3) Remove the aft hinge cover and the forward hinge cover on the PED 3 to get access to the EPAS battery.

(a) Do this task: Hinge Covers Removal, TASK 52-12-25-000-802.

SUBTASK 27-61-13-040-007

(4) Move the safety switch for the EPAS battery to the DISARM position.

SUBTASK 27-61-13-010-009

(5) Open the overdoor panel above the PED 3 door to get access to the backup battery.

(a) Do this task: Overdoor Panel Opening/Removal, TASK 25-21-08-000-801.

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SUBTASK 27-61-13-040-008

(6) Move the safety switch for the backup battery to the DISARM position.

SUBTASK 27-61-13-010-002

(7) Remove the applicable wing access panels:

(a) For the left wing, remove this access panel:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, remove this access panel:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-13-860-008

WARNING MAKE SURE THE SPEEDBRAKE LEVER IS IN ITS DOWN-AND-LOCKED POSITION BEFORE YOU OPEN THESE CIRCUIT BREAKERS. THE SPOILERS CAN RETRACT AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-13-860-009

(9) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-13-860-010

(10) If there is hydraulic pressure, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

NOTE: The center hydraulic system supplies power for spoilers No. 7 and 8.

SUBTASK 27-61-13-860-011

(11) Move the FLT CONTROL HYD VALVE POWER - WING C and R switches to the SHUT OFF position.

G. SARD Cartridge Removal

SUBTASK 27-61-13-910-001

WARNING PUT ON A WRIST STRAP THAT IS ATTACHED TO A GROUND BEFORE YOU MAKE ELECTRICAL CONNECTIONS TO AN ELECTRICAL EXPLOSIVE DEVICE. STATIC ELECTRICITY CAN CAUSE AN EXPLOSION.

(1) Before you touch the cartridge (squib), put on a static control wrist strap, COM-1565 so that it touches your skin, then connect it to an electrical ground.

SUBTASK 27-61-13-020-002

(2) Remove the cartridge assembly [16]:

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WARNING PUT CAPS ON THE BOTTLE SQUIBS AND FLOW VALVE SQUIBS. IF YOU DO NOT PUT CAPS ON THE SQUIBS, THE SQUIBS CAN FIRE ACCIDENTALLY AND CAUSE INJURIES TO PERSONNEL.

(a) Remove the electrical connector [17] from the cartridge assembly [16].

(b) Remove screws [3] and washers [4] from pouch assembly [2].

(c) Remove the shorting cap [23] from the pouch assembly [2].

NOTE: Another name for shorting cap is a faraday cap.

(d) Install the shorting cap [23] on the electrical connection on the cartridge assembly [16].

(e) Examine if there is a red plunger on the bottom of the cartridge assembly [16].

NOTE: If you see a red plunger on the bottom of the cartridge, the cartridge assembly [16] has been fired.

(f) If there is a red plunger on the bottom of the cartridge assembly [16], do these steps;

NOTE: You must replace the cartridge assembly [16] if there is a red plunger on the bottom of the cartridge.

WARNING MAKE SURE TO UNSCREW THE INDICATOR PLUG PART OF THE WAY BEFORE YOU REMOVE THE CARTRIDGE. DO NOT UNSCREW THE INDICATOR PLUG MORE THAN IT IS NECESSARY TO RELEASE GAS FROM THE CARTRIDGE. PRESSURE FROM THE CARTRIDGE CAN CAUSE THE INDICATOR PLUG OR THE CARTRIDGE TO QUICKLY RELEASE. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION MAKE SURE THE WORKING AREA IS WELL VENTILATED BEFORE YOU UNSCREW THE INDICATOR PLUG TO AVOID BREATHING THE GAS VAPORS.

1) Slowly unscrew the indicator plug [15] on the bottom of the cartridge assembly [16] until gas begins to escape.

a) Do not unscrew the indicator plug [15] further until all the gas is released from the cartridge assembly [16].

2) Stamp "X" on the marker [1] to show that the cartridge assembly [16] has been fired.

NOTE: You must replace the cylinder assembly [7] after 50 firings.

3) Remove the bolts [21] and washers [20] to remove the cartridge assembly [16] from the cylinder assembly [7].

(g) If there is no red plunger at the bottom the cartridge assembly [16], do this step;

1) Remove the bolts [21] and washers [20] to remove the cartridge assembly [16] from the cylinder assembly [7].

SUBTASK 27-61-13-100-004

(3) If there is a red plunger on the bottom of the cartridge assembly [16], do this task: SARD Cleaning, TASK 27-61-13-000-803

END OF TASK

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TASK 27-61-13-400-802

5. SARD Cartridge Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure gives the task to install the SARD cartridge. The SARD cartridge has a squib.

(2) The EPAS battery pack on each passenger entry door (PED) 3 fires the squibs on the EPAS pneumatic reservoir, the escape slide inflation bottle and the SARD cartridge. The backup battery for the over wing escape system on an overhead panel near the PED 3 fires the squibs on the inflation bottle and the SARD cartridge.

(3) The squibs are electro-explosive devices (EED). Maintenance personnel that touch the EED must use wrist straps to ground themselves to a ground point. These persons must wear clothes that make a small static electrical charge such as cotton or cotton/synthetic blends. Do not wear all wool clothing, all nylon clothing or all synthetic clothing. Remove reflective outerwear such as visual safety vests or coats before you touch the EED or disconnect or connect wire bundles.

B. References

Reference	Title
25-21-08-400-801	Overdoor Panel Installation/Closing (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
52-12-19-710-801	Emergency Power Assist System (EPAS) Squib Test (PED 3) (P/B 501)
52-12-25-400-802	Hinge Covers Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1565	Strap - Adjustable Wrist, Conductive, Static Control Part #: 09070 Supplier: 62576 Part #: 14810 Supplier: 62576 Part #: 2214 Supplier: 55203 Opt Part #: 2211 Supplier: 55203 Opt Part #: 2212 Supplier: 55203 Opt Part #: 2213 Supplier: 55203

D. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
16	Cartridge assembly	27-61-13-01-060	ARO ALL
22	Packing	27-61-13-01-055	ARO ALL

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F. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
243	Area Above Passenger Compartment Ceiling, Left - Section 44
244	Area Above Passenger Compartment Ceiling, Right - Section 44
553	Spoiler No. 7
653	Spoiler No. 8
833	Left No. 3 Overwing Door - Section 44
843	Right No. 3 Overwing Door - Section 44

G. Access Panels

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel

H. SARD Cartridge Installation

SUBTASK 27-61-13-865-004

(1) Make sure that these circuit breakers are open and have safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-13-910-002



WARNING PUT ON A WRIST STRAP THAT IS ATTACHED TO A GROUND BEFORE YOU MAKE ELECTRICAL CONNECTIONS TO AN ELECTRICAL EXPLOSIVE DEVICE. STATIC ELECTRICITY CAN CAUSE AN EXPLOSION.

(2) Before you touch the cartridge (squib), put on a static control wrist strap, COM-1565 so that it touches your skin, then connect it to an electrical ground.

SUBTASK 27-61-13-420-003

(3) If it is not installed, install the packing [22] on the cylinder assembly [7].

SUBTASK 27-61-13-420-004

(4) Install the cartridge assembly [16]:

(a) Install the bolts [21] and washers [4] to connect the cartridge assembly [16] to the cylinder assembly [7].

(b) Tighten the bolts [21] to 180-200 pound-inches (20.3 - 22.6 newton-meters).

(c) Install MS20995C32 lockwire, G01048 on the bolts [21].

(d) Remove the shorting cap [23] from the cartridge assembly [16].

(e) Put the shorting cap [23] in the pouch assembly [2].

(f) Install screws [3] and washers [4].

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(g) Install the electrical connector [17] on the cartridge assembly [16].

NOTE: You must be careful when you connect the electrical connectors to the squib. When examined, the electrical connector can appear to be completely engaged. However, a bent pin in the connector will not let the squib fire. You must straighten any bent pins in the squib.

SUBTASK 27-61-13-720-002

(5) Do a test for continuity through the SARD cartidge squib.

(a) Do this task: Emergency Power Assist System (EPAS) Squib Test (PED 3), TASK 52-12-19-710-801.

NOTE: This test uses an inline electrical connector D6253P/D6253J on the PED 3 door.

NOTE: This test is recommended whenever an electrical connector is disconnected and connected again to an off-wing escape system squib or the EPAS reservoir squib.

NOTE: Do not use any multimeter for the continuity check across the squib circuit because the use of the wrong multimeter can cause the squib to fire. Use an approved ignition circuit tester.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-13-410-002

(1) Install the applicable wing access panels:

(a) For the left wing, close this access panel:

Number	Name/Location
552CB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, close this access panel:

Number	Name/Location
652CB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-13-860-012

(2) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-13-860-013

(3) Move the FLT CONTROL HYD VALVE POWER - WING C and R switches to the ON position.

SUBTASK 27-61-13-860-014

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-13-440-003

(5) Move the safety switch for the backup battery to the ARM position.

SUBTASK 27-61-13-410-008

(6) Close the overdoor panel at the PED 3 door.

(a) Do this task: Overdoor Panel Installation/Closing, TASK 25-21-08-400-801.

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SUBTASK 27-61-13-860-032

(7) Move the safety switch for the EPAS battery to the ARM position.

SUBTASK 27-61-13-410-009

(8) Install the forward and aft hinge covers on the PED 3.

(a) Do this task: Hinge Covers Installation, TASK 52-12-25-400-802.

NOTE: If the safety switch for the EPAS battery is in the DISARM position, the aft hinge cover will not be flush.

SUBTASK 27-61-13-865-002

(9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
H	15	C52612	L EPAS BACKUP BAT

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
H	16	C33621	EMERGENCY LIGHTS DOOR 3L
H	17	C33620	EMERGENCY LIGHTS DOOR 3R

Right Power Management Panel, P210

Row	Col	Number	Name
J	14	C52613	R EPAS BACKUP BAT

END OF TASK

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SPOILER AUXILIARY RETRACT DEVICE (SARD) - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this task:

(1) A functional test of the spoiler auxiliary retract device (SARD).

(a) This test will fill and bleed the SARD transfer cylinders and the hydraulic lines to the inboard spoiler power control units (PCU's) and the check the SARD transfer cylinder to spoiler PCU function.

TASK 27-61-13-820-801

2. Spoiler Auxiliary Retract Device (SARD) - Functional Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) Use this procedure to functionally check the Spoiler Auxiliary Retract Device (SARD) installed on spoilers 7 and 8.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-61-13-000-802	SARD Cartridge Removal (P/B 401)
27-61-13-400-802	SARD Cartridge Installation (P/B 401)
29-11-00-860-805	Center Hydraulic System Pressurization with an Air-Driven Pump (ADP) (P/B 201)
29-11-00-860-806	Main Hydraulic System Reservoirs Pressurization with an External Air Source (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1754	Adapter - Test, Sard System Part #: J27072-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
G00018	Nitrogen - Gaseous, Pressurizing, 99.5 Percent Pure	A-A-59503 Type I Grade B, MIL-PRF-27401 Type I Grade A

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

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(Continued)

Zone	Area
553	Spoiler No. 7
653	Spoiler No. 8

F. Prepare for the Test

SUBTASK 27-61-13-020-003

(1) Do this task: SARD Cartridge Removal, TASK 27-61-13-000-802.

SUBTASK 27-61-13-860-015

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-13-860-016

(3) Make sure that these circuit breakers are closed:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-13-860-017

(4) Put the three TAIL FLT CONTROL HYD VALVE POWER switches, located on the P61 panel to the SHUT OFF position.

SUBTASK 27-61-13-860-018

(5) Set the PRIMARY FLIGHT COMPUTERS DISCONNECT SWITCH, located on the P5 overhead panel, in the AUTO position.

SUBTASK 27-61-13-860-019

(6) Put the FLT CONTROL HYD VALVE POWER - WING C, located on the P61 panel to the ON position.

SUBTASK 27-61-13-860-020

(7) Pressurize the center hydraulic reservoir.

(a) To pressurize, do this task: Main Hydraulic System Reservoirs Pressurization with an External Air Source, TASK 29-11-00-860-806.

(b) Make sure that the C hydraulic system reservoir pressure is 40 to 60 psi (276 to 414 kPa) on the HYDRAULIC SYSTEM MAINTENANCE PAGE.

SUBTASK 27-61-13-220-001

(8) Make sure the distance from the SARD cartridge mounting to the inside face of the SARD cylinder piston head is not more than 6.67 inches (169.4 mm) in the fully retracted position.

NOTE: The inside face of the SARD cylinder piston head is the greatest internal measurable face from the SARD cartridge mounting face.

SUBTASK 27-61-13-480-001

(9) Using the existing hardware, install the sard system test adapter, SPL-1754 [1] to the SARD cylinder [7], that is connected to the spoiler PCU [6] (Figure 501).

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SUBTASK 27-61-13-480-002

(10) Install a regulated nitrogen supply that is capable of supplying 20 cu. inches/sec at 1000 psi (328 cu. centimeters/sec at 6,900 kPa), nitrogen, G00018 to the sard system test adapter, SPL-1754 [1], installed on the SARD cylinder [7], that is connected to the spoiler PCU [6].

SUBTASK 27-61-13-860-021

(11) Pressurize the Center hydraulic system to 2900 - 3100 psi (20,000 - 21,370 kPa).

(a) Do this task: Center Hydraulic System Pressurization with an Air-Driven Pump (ADP), TASK 29-11-00-860-805.

SUBTASK 27-61-13-860-033

(12) Ensure that the FLT CTRL MODE is NORMAL on the PFCS SYNOPTIC page.

SUBTASK 27-61-13-870-001

(13) Fill and bleed the SARD system:

(a) Move the speedbrake lever to the full UP position and then to the full DOWN position a minimum of 5 times.

(b) Move the speedbrake lever to the full UP position.

(c) Make sure the applicable spoiler SPOILER POSITIONS on the MAINTENANCE PAGE 2 reads 2.30 to 2.50 inch (58.4 to 63.5 mm).

(d) Apply 900 to 1100 psi (6,210 to 7,580 kPa) of nitrogen regulated pressure, nitrogen, G00018 to the SARD adapter [1] on the SARD cylinder.

NOTE: The SARD cylinder will then be pressurized with nitrogen at 900 to 1100 psi (6,210 to 7,580 kPa).

(e) Make sure the nitrogen system pressure is 900 to 1100 psi (6,210 to 7,580 kPa).

(f) Maintain the pressure for a minimum of 5 seconds.

(g) Close the regulated nitrogen supply, nitrogen, G00018 to the SARD cylinder [7].

WARNING THE NITROGEN PRESSURE IN THE SARD CYLINDER WILL BE RELEASED TO THE AIR. DO NOT RELEASE INTO A CLOSED AREA WITH PERSONNEL PRESENT. RELEASE INTO AN AREA OPEN TO THE AIR.

(h) Open the bleed valve [9] to bleed the pressure in the SARD cylinder to the outside air.

(i) Close off the bleed valve [9].

(j) Apply 900 to 1100 psi (6,210 to 7,580 kPa) nitrogen regulated pressure, nitrogen, G00018 to the SARD adapter [1] on the SARD cylinder.

NOTE: The SARD cylinder will then be pressurized with nitrogen at 900 to 1100 psi (6,210 to 7,580 kPa).

(k) Make sure the nitrogen system pressure is 900 to 1100 psi (6,210 to 7,580 kPa).

(l) Maintain the pressure for a minimum of 5 seconds.

(m) Close the regulated nitrogen supply, nitrogen, G00018 to the SARD cylinder.

WARNING THE NITROGEN PRESSURE IN THE SARD CYLINDER WILL BE RELEASED TO THE AIR. DO NOT RELEASE INTO A CLOSED AREA WITH PERSONNEL PRESENT. RELEASE INTO AN AREA OPEN TO THE AIR.

(n) Use the bleed valve [9] to bleed the pressure in the SARD cylinder to the outside air.

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(o) Close off the bleed valve [9].

(p) Apply 900 to 1100 psi (6,210 to 7,580 kPa) nitrogen regulated pressure, nitrogen, G00018 to the SARD adapter [1] on the SARD cylinder.

NOTE: The SARD cylinder will then be pressurized with nitrogen at 900 to 1100 psi (6,210 to 7,580 kPa).

(q) Make sure the nitrogen system pressure is 900 to 1100 psi (6,210 to 7,580 kPa).

(r) Maintain the pressure for a minimum of 5 seconds.

(s) Close the regulated nitrogen supply, nitrogen, G00018 to the SARD cylinder.

WARNING THE NITROGEN PRESSURE IN THE SARD CYLINDER WILL BE RELEASED TO THE AIR. DO NOT RELEASE INTO A CLOSED AREA WITH PERSONNEL PRESENT. RELEASE INTO AN AREA OPEN TO THE AIR.

(t) Use the bleed valve [9] to bleed the pressure in the SARD cylinder to the outside air.

(u) Close off the bleed valve [9].

(v) Move the speedbrake lever to the full DOWN position.

G. Functional Test of the Spoiler Auxiliary Retract Device (SARD)

SUBTASK 27-61-13-860-022

(1) Move the speedbrake lever to the full UP position.

SUBTASK 27-61-13-970-001

(2) Record the applicable spoiler SPOILER POSITION using the MAINTENANCE PAGE 2.

(a) Make sure that the spoiler SPOILER POSITION, on the MAINTENANCE PAGE 2 reads 2.30 to 2.50 inch (58.4 to 63.5 mm).

SUBTASK 27-61-13-800-001

(3) Close the shut off valve [8] (downstream of the regulator) and set the regulated pressure to 900 to 1100 psi (6,210 to 7,580 kPa).

SUBTASK 27-61-13-860-023

(4) Put the FLT CONTROL HYD VALVE POWER - WING C, located on the P61 overhead panel to the SHUTOFF position.

SUBTASK 27-61-13-860-024

(5) Depressurize the C hydraulic system.

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

(b) Make sure the C hydraulic system is depressurized, but leave the reservoir pressurized.

SUBTASK 27-61-13-970-002

(6) Make sure that the applicable spoiler SPOILER POSITION values on MAINTENANCE PAGE 2, are within 0.300 inches (7.62 mm) of the full UP value.

NOTE: If the spoiler panel starts to slowly retract proceed to the next step before the SPOILER POSITION exceeds 0.300 inches (7.62 mm) of the full UP value recorded above.

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SUBTASK 27-61-13-800-002

(7) Apply 900 to 1100 psi (6,210 to 7,580 kPa) nitrogen regulated pressure, nitrogen, G00018 to the SARD adapter [1], by rapidly opening the shut off valve [8].

NOTE: The SARD cylinder will then be pressurized with nitrogen 900 to 1100 psi (6,210 to 7,580 kPa).

SUBTASK 27-61-13-860-025

(8) Make sure that the applicable spoiler moves to the fully retracted position within 5 seconds after applying pressure to the SARD cylinder.

SUBTASK 27-61-13-780-001

WARNING

DO NOT RELEASE INTO A CLOSED AREA WITH PERSONNEL PRESENT. RELEASE INTO AN AREA OPEN TO THE AIR.

(9) Close off the regulated nitrogen supply, nitrogen, G00018 and release the nitrogen pressure in the SARD cylinder and lines to the air.

SUBTASK 27-61-13-860-026

(10) Make sure that the C hydraulic system reservoir pressure on the HYDRAULIC SYSTEM MAINTENANCE PAGE is 40 to 60 psi (276 to 414 kPa).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-13-860-027

(1) Depressurize the C hydraulic system.

(a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

(b) Make sure the C hydraulic system is depressurized.

SUBTASK 27-61-13-860-028

(2) Make sure the L, C and R WING and TAIL FLT CONTROL HYD VALVE POWER switches, located on the P61 panel are in the SHUTOFF position.

SUBTASK 27-61-13-080-001

(3) Remove the sard system test adapter, SPL-1754 [1] from the spoiler SARD cylinder [7].

SUBTASK 27-61-13-080-002

(4) Remove the regulated nitrogen supply, nitrogen, G00018 installed on the SARD adapter [1].

SUBTASK 27-61-13-865-003

(5) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

Power Supply Assembly Right, M24201

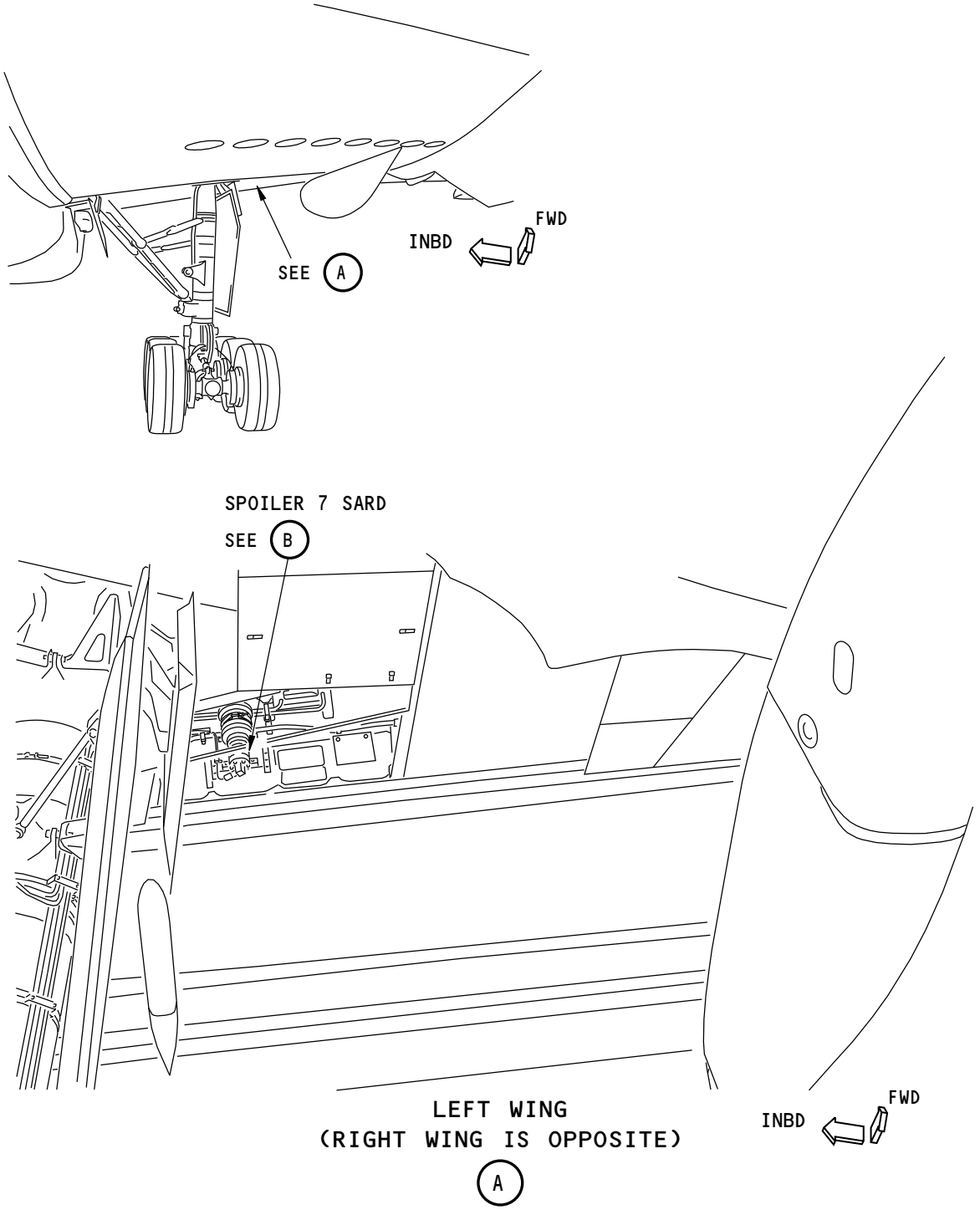
Row	Col	Number	Name
A	1	CBA1-R	ACE PWR

SUBTASK 27-61-13-420-005

(6) Do this task: SARD Cartridge Installation, TASK 27-61-13-400-802.

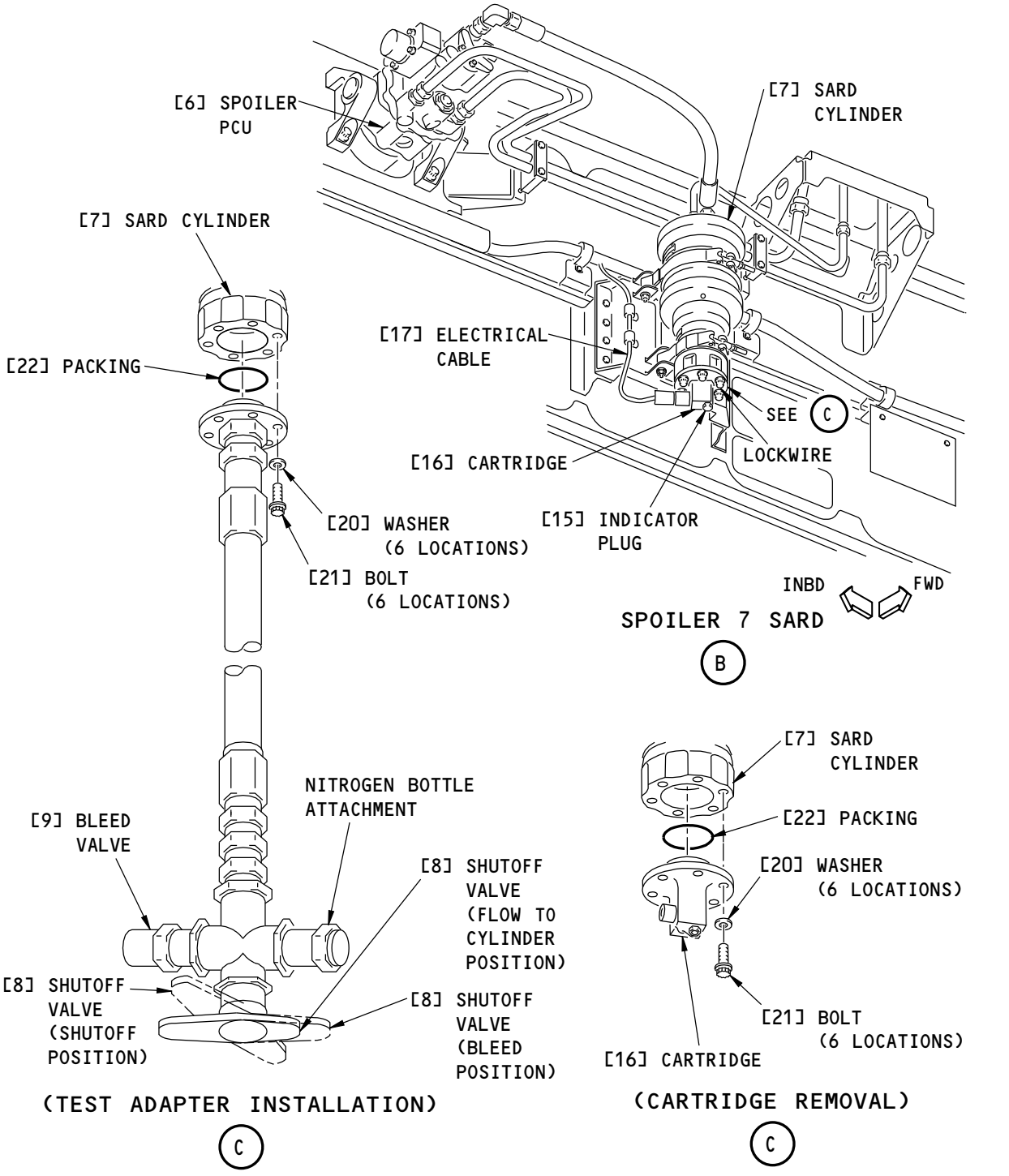
END OF TASK

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Spoiler Auxiliary Retract Device (SARD) Test
Figure 501/27-61-13-990-802 (Sheet 1 of 2)

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Spoiler Auxiliary Retract Device (SARD) Test
Figure 501/27-61-13-990-802 (Sheet 2 of 2)

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SPOILER AUXILIARY RETRACT DEVICE (SARD) - CLEANING/PAINTING

1. General

A. This procedure has one task to clean the SARD.

B. This procedure tells how to clean the SARD connected to spoilers 7 and 8, after firing and removal of the SARD cartridge. It tells how to clean the transfer cylinder when it is removed from the airplane. Also, it tells how to clean the transfer cylinder when it is installed on the airplane.

TASK 27-61-13-000-803

2. SARD Cleaning

A. References

Reference	Title
27-61-13-820-801	Spoiler Auxiliary Retract Device (SARD) - Functional Test (P/B 501)
29-11-00-860-805	Center Hydraulic System Pressurization with an Air-Driven Pump (ADP) (P/B 201)
29-11-00-860-806	Main Hydraulic System Reservoirs Pressurization with an External Air Source (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1754	Adapter - Test, Sard System Part #: J27072-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B00095	Compound - Sodium Bicarbonate	ASTM D928
B00636	Acid, Acetic (Vinegar) (5%-10% Acetic Acid)	Commercially available product
G00834	Cloth - Lint-free Cotton	
G01061	Water - Distilled	
G02439	Brush - Nylon Bristle	

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
553	Spoiler No. 7
653	Spoiler No. 8
833	Left No. 3 Overwing Door - Section 44
843	Right No. 3 Overwing Door - Section 44

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E. Prepare to Clean the SARD

SUBTASK 27-61-13-100-001

WARNING BE CAREFUL WITH THE CARTRIDGE. THE CARTRIDGE HAS EXPLOSIVE MATERIAL. THE EXPLOSIVE MATERIAL CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If you will remove the transfer cylinder from the airplane before you clean, do the steps that follow:

(a) Use the sard system test adapter, SPL-1754 to move the piston to the extended position.

1) Refer to: Spoiler Auxiliary Retract Device (SARD) - Functional Test, TASK 27-61-13-820-801.

(b) Make sure that the distance from the cylinder cartridge mounting face to the inside face of the piston head of the transfer cylinder is not less than 9.18 inches (233 mm).

SUBTASK 27-61-13-100-002

WARNING BE CAREFUL WITH THE CARTRIDGE. THE CARTRIDGE HAS EXPLOSIVE MATERIAL. THE EXPLOSIVE MATERIAL CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(2) If you will keep the transfer cylinder on the airplane while you clean, do one of the two methods of moving the transfer piston to the extended position:

(a) To move the piston by the inboard spoiler Power Control Unit (PCU) manual release cam, do the steps that follow:

1) Install the sard system test adapter, SPL-1754 to the cartridge mounting flange on the transfer cylinder.

a) Refer to: Spoiler Auxiliary Retract Device (SARD) - Functional Test, TASK 27-61-13-820-801.

2) Pressurize the gas side of the transfer cylinder to 1000 ±100 psig (6895 ±690 kPa).

3) Move the inboard spoiler PCU manual release cam to the "REL" position and hold for one minute.

NOTE: This action will move the transfer cylinder piston to the fully extended position. You can see movement of the transfer cylinder piston by inserting a wooden stick or a steel rod/wire (less than 0.06 inch or 1.5 mm diameter) into the transfer cylinder drainhole. Press it lightly against the piston at the same time that the manual release cam is rotated.

4) Close the nitrogen gas supply at the supply bottle.

5) Release all of the nitrogen gas pressure from the cylinder.

6) Remove the sard system test adapter, SPL-1754 from the cartridge mounting flange on the transfer cylinder.

a) Refer to: Spoiler Auxiliary Retract Device (SARD) - Functional Test, TASK 27-61-13-820-801.

7) Make sure that the distance between the cylinder cartridge mounting face and the inside face of the piston head of the transfer cylinder is greater than 9.18 inches (233 mm).

NOTE: The piston should now be in the extended position and the hydraulic cylinder ready for cleaning.

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(b) Move the piston by releasing the pressure in the C Hydraulic System, do the steps that follow:

1) Install the sard system test adapter, SPL-1754 to the cartridge mounting flange on the transfer cylinder.
   a) Refer to: Spoiler Auxiliary Retract Device (SARD) - Functional Test, TASK 27-61-13-820-801.
2) Pressurize the gas side of the transfer cylinder to 1000 ±100 psig (6895 ±690 kPa).
3) Pressurize the center hydraulic reservoir.
   a) Do this task: Main Hydraulic System Reservoirs Pressurization with an External Air Source, TASK 29-11-00-860-806.
   b) Make sure that the C hydraulic system reservoir pressure is NORM on the HYDRAULIC SYSTEM MAINTENANCE PAGE.
4) Pressurize the center hydraulic system to 2900-3100 psig (19,995-21,373 kPa).
   a) Do this task: Center Hydraulic System Pressurization with an Air-Driven Pump (ADP), TASK 29-11-00-860-805.
5) Put the PRIMARY FLIGHT COMPUTER Disconnect Switch, located on the P5 Overhead Panel, to the AUTO position.
6) Make sure that the FLT CNTRL MODE is NORMAL on the FLIGHT CONTROL SYNOPTIC PAGE.
7) Open the C WING FLT CONTROL HYD VALVE POWER shut off valve, on the P61 Flight Control Hydraulic Power Panel.
8) Put the speedbrake lever in the full UP position.
9) Make sure that the SPOILER POSITION 7 and 8 on the FLIGHT CONTROLS MAINTENANCE PAGE shows 2.30 inches (58.4 mm) minimum.
10) Release the pressure from the C hydraulic system and reservoir.
   a) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.
   b) Make sure that the reservoir is fully depressurized.
   c) Put a tag on the reservoir to prevent it from being pressurized.
11) Close the C WING FLT CONTROL HYD VALVE POWER shut off valve on the P61 Flight Control Hydraulic Power Panel.
12) Close the nitrogen gas supply at the supply bottle.
13) Release all of the nitrogen gas pressure from the cylinder.
14) Remove the sard system test adapter, SPL-1754 from the cartridge mounting flange on the transfer cylinder.
   a) Refer to: Spoiler Auxiliary Retract Device (SARD) - Functional Test, TASK 27-61-13-820-801.
15) Make sure that the distance between the cylinder cartridge mounting face and the inside face of the piston head of the transfer cylinder is greater than 9.18 inches (233 mm).

   NOTE: The piston should now be in the extended position and the hydraulic cylinder ready for cleaning.

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SUBTASK 27-61-13-100-003

(3) To clean the transfer cylinder, do the steps that follow:

(a) Mix 300 grams of compound, B00095 (sodium bicarbonate) with one gallon (3.8 liters) of distilled water, G01061.

(b) Spray a part of the mixture into the cylinder.

(c) Use a brush, G02439 to scrub the inside of the cylinder.

1) Do this until the cylinder bore is clean of all products of combustion.

(d) Rinse the cylinder with acid, B00636 (distilled vinegar) until approximately 1 gallon (3.8 liters) is used.

(e) Rinse the cylinder with a minimum of two gallons (7.6 liters) of distilled water to remove any residual pyrotechnic material and vinegar solution.

(f) Use a lint-free cloth, G00834 to remove moisture from the inside of the cylinder.

(g) Visually inspect for products of combustion and unwanted material.

1) Do any part of the cleaning process again to make sure that the cylinder is clean.

(h) Discard the combustion products, residue, or waste correctly.

(i) Move the piston back to the fully retracted position.

1) Do this task: Main Hydraulic System Reservoirs Pressurization with an External Air Source, TASK 29-11-00-860-806.

(j) Make sure that the distance from the cylinder cartridge mounting face to the inside face of the transfer cylinder piston head is not more than 6.67 inch (169 mm).

NOTE: The inside face of the SARD cylinder piston head is the greatest internal measurable face from the SARD cartridge mounting face.

——— END OF TASK ———

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SPOILER PCU ELECTRO-HYDRAULIC SERVO VALVE (EHSV) AND SOLENOID VALVE - REMOVAL/ INSTALLATION

1. General

A. This procedure has these tasks:

(1) The removal of the spoiler PCU electro-hydraulic servo valve or solenoid valve.

(2) The installation of the spoiler PCU electro-hydraulic servo valve or solenoid valve.

B. The inboard and outboard spoiler PCUs have electro-hydraulic servo valves (EHSV). The cable-controlled spoiler PCUs (Spoiler 4 and 11) have solenoid valves.

C. The spoiler PCU electro-hydraulic servo valve (EHSV) is referred to as the EHSV in this procedure.

TASK 27-61-14-000-801

2. Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-860-804	Extend the Trailing Edge Flaps (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Location Zones

Zone	Area
553	Spoiler No. 7
554	Spoiler No. 6
562	Spoiler No. 5
563	Spoiler No. 4
564	Spoiler No. 3
565	Spoiler No. 2
566	Spoiler No. 1
653	Spoiler No. 8
654	Spoiler No. 9
662	Spoiler No. 10
663	Spoiler No. 11
664	Spoiler No. 12
665	Spoiler No. 13

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(Continued)

Zone	Area
666	Spoiler No. 14

D. Access Panels

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel
552BB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel
652AB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

E. Prepare for the Removal

SUBTASK 27-61-14-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-14-860-002



WARNING

MAKE SURE THE SPEEDBRAKE LEVER IS IN ITS DOWN-AND-LOCKED POSITION BEFORE YOU OPEN THESE CIRCUIT BREAKERS. THE SPOILERS CAN RETRACT AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

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Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-14-860-004

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE TRAILING EDGE FLAPS. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR WHEN THIS SURFACE MOVES.

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-14-040-001

(4) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-61-14-860-005

(5) Do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-61-14-860-006

(6) Move the FLT CONTROL HYD VALVE POWER - WING L, C and R switches to the SHUT OFF position.

F. Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal

SUBTASK 27-61-14-010-001

(1) Remove the applicable access panels if you remove the servo valve assembly [11]:

(a) For the left wing, open these access panels:

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel
552BB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, open these access panels:

Number	Name/Location
652AB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-14-040-002

(2) Operate the manual release cam to lift the spoiler.

SUBTASK 27-61-14-480-001

(3) Install the inboard and outboard spoiler actuators lock equipment, SPL-1719 for the spoiler PCU.

SUBTASK 27-61-14-020-001

(4) Do these steps to remove the servo valve assembly [1] from the outboard PCU:

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(a) Remove the screws [4] and washers [5] that connect the servo valve assembly [1] to the PCU.

(b) Remove the servo valve assembly [1] and packing [2].

(c) Remove the seal plate [3].

NOTE: Check the seal plate for damage. The seal plate can be used again if no damage has occurred. However, a new seal plate is recommended.

SUBTASK 27-61-14-020-002

(5) Do these steps to remove the solenoid valve assembly [6] from the cable-controlled spoiler PCU:

(a) Remove the screws [10] and washers [9] that connect the solenoid valve assembly [6] to the PCU.

(b) Remove the solenoid valve assembly [6] and packing [8].

(c) Remove the seal plate [7].

NOTE: Check the seal plate for damage. The seal plate can be used again if no damage has occurred. However, a new seal plate is recommended.

SUBTASK 27-61-14-020-003

(6) Do these steps to remove the servo valve assembly [11] from the inboard spoiler PCU:

(a) Remove the screws [14] and washers [15] that connect the servo valve assembly [11] to the PCU.

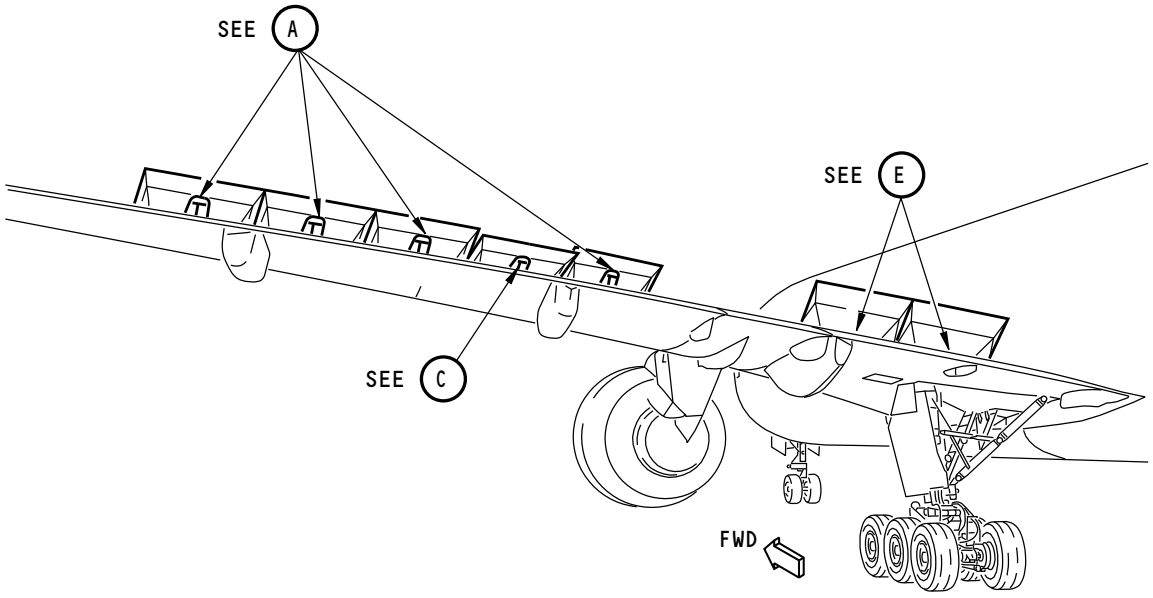
(b) Remove the servo valve assembly [11] and packing [2].

(c) Remove the seal plate [13].

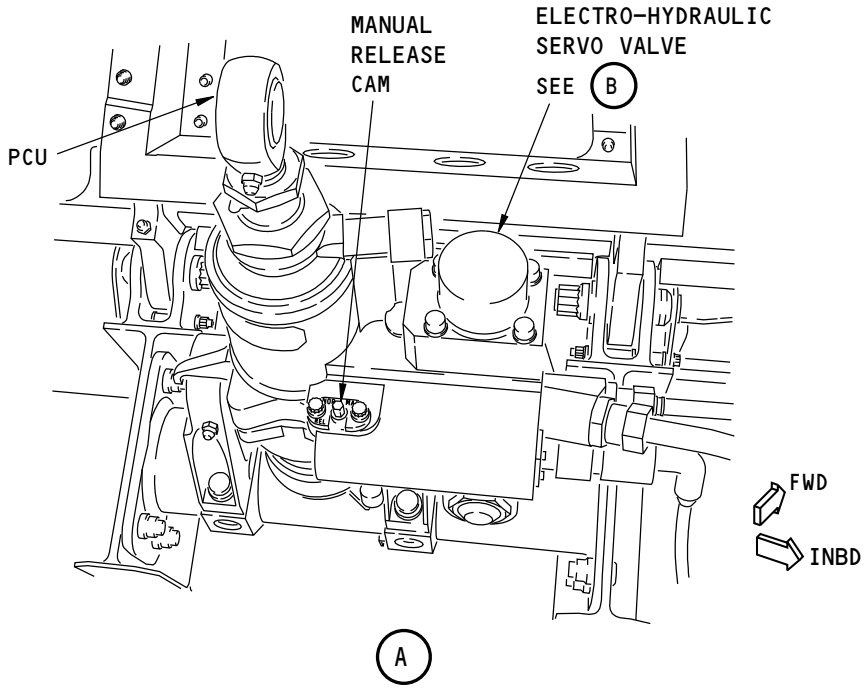
NOTE: Check the seal plate for damage. The seal plate can be used again if no damage has occurred. However, a new seal plate is recommended.

——— END OF TASK ———

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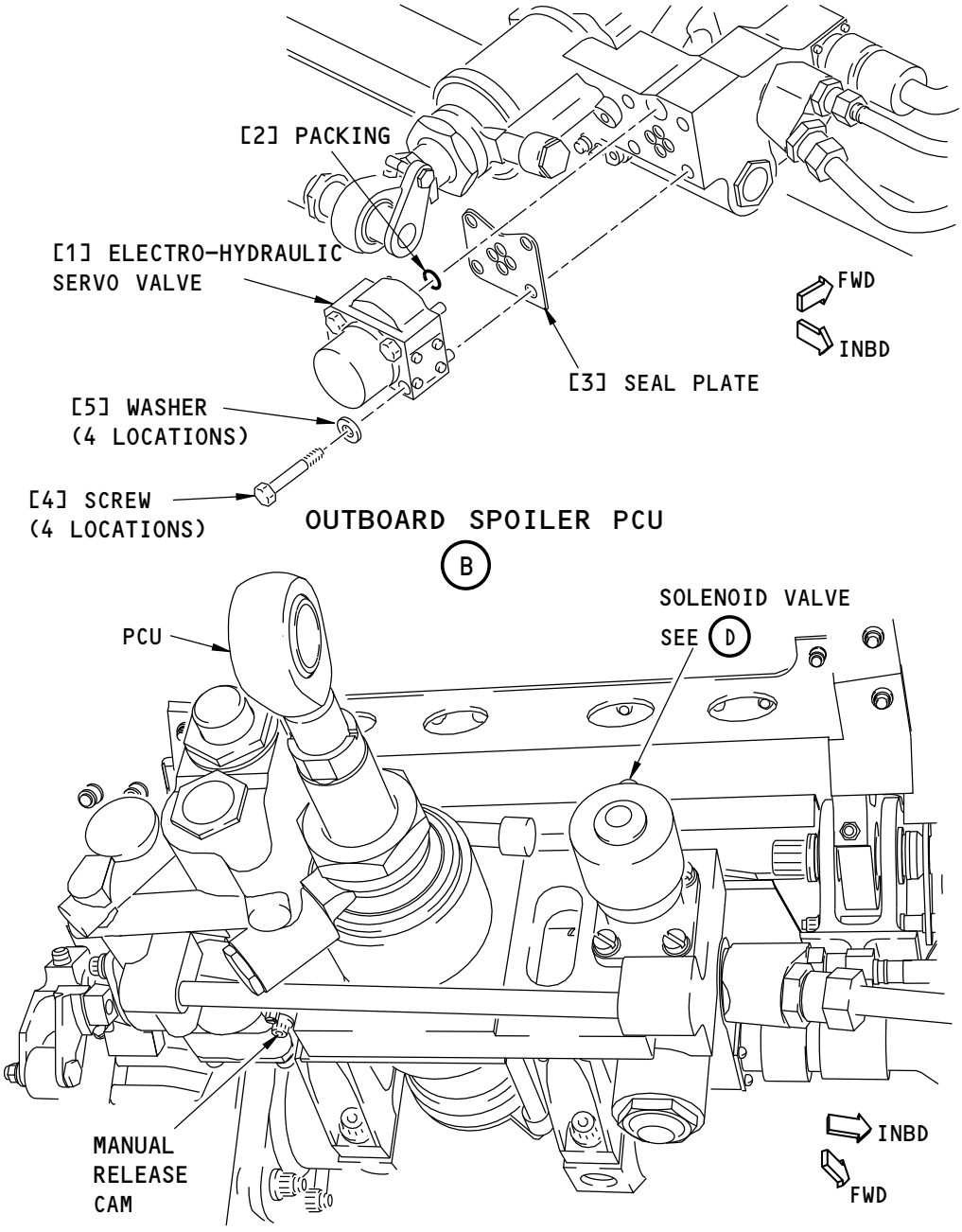
OUTBOARD, MECHANICAL AND INBOARD SPOILERS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)



F99745 S0006414171_V1

Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) Installation
Figure 401/27-61-14-990-801 (Sheet 1 of 4)

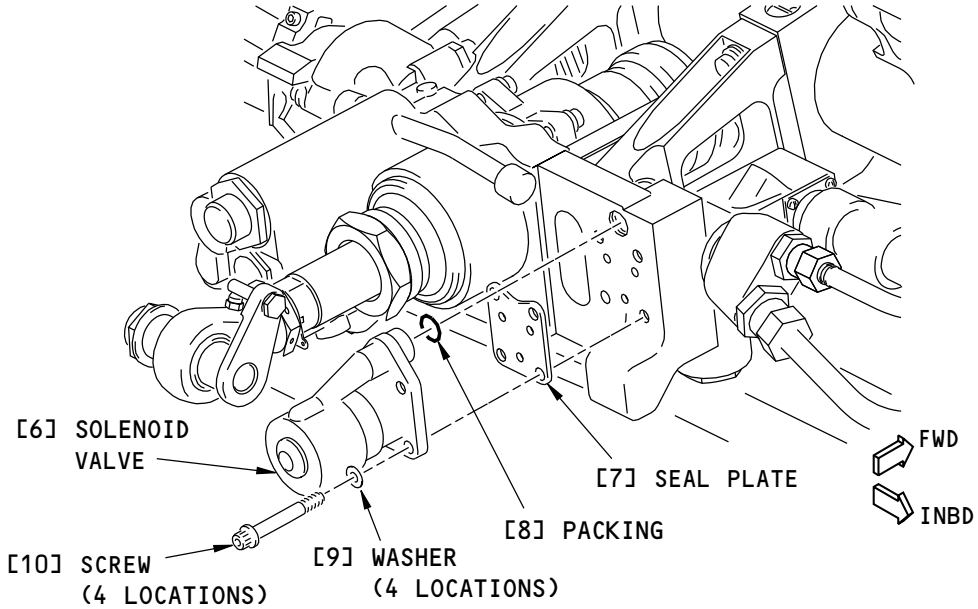
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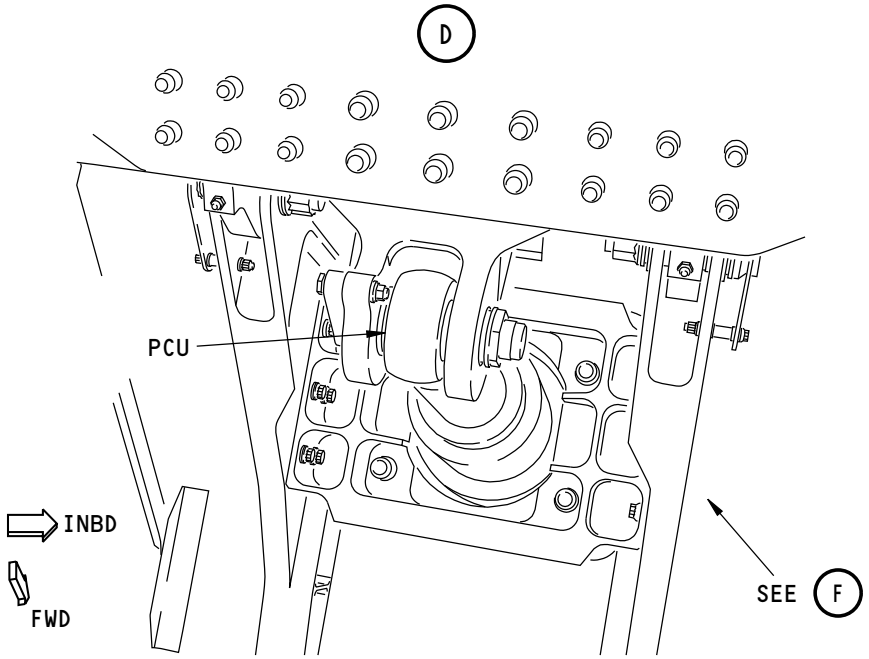
F99859 S0006414172_V2

Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) Installation
Figure 401/27-61-14-990-801 (Sheet 2 of 4)

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CABLE–CONTROLLED SPOILER PCU



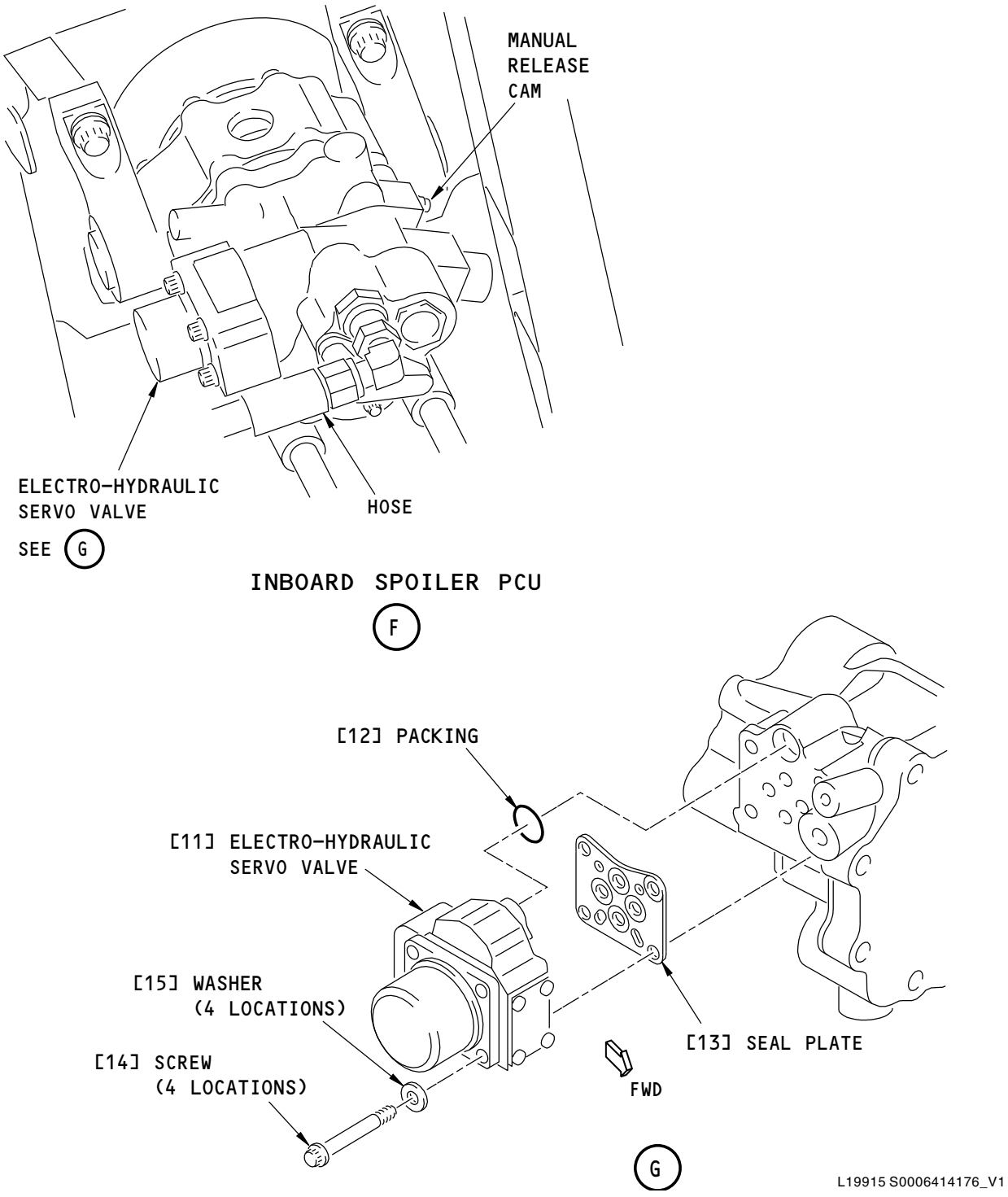
INBOARD SPOILER PCU

E

F99908 S0006414173_V2

Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) Installation
Figure 401/27-61-14-990-801 (Sheet 3 of 4)

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Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) Installation
Figure 401/27-61-14-990-801 (Sheet 4 of 4)

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TASK 27-61-14-400-801

3. Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
27-51-00-860-805	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-700-801	Spoiler Operational Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1719	Equipment - Lock, Inboard and Outboard Spoiler Actuators Part #: J27005-48 Supplier: 81205 Opt Part #: J27005-33 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
D50105	Grease - BATCO X8401-1	
G02166	Lockwire - MS20995NC20, Monel - 0.020 Inch (0.508 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Valve assembly	27-61-09-11-050	ARO ALL
		27-61-09-11-052	ARO ALL
8	Packing	27-61-09-11-075	ARO ALL
11	Servo valve assembly	27-61-07-11-050	ARO ALL
12	Packing	27-61-07-11-080	ARO ALL

E. Location Zones

Zone	Area
553	Spoiler No. 7
554	Spoiler No. 6
653	Spoiler No. 8
654	Spoiler No. 9

F. Access Panels

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel
552BB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel

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(Continued)

Number	Name/Location
652AB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

G. Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) Installation

SUBTASK 27-61-14-420-001

(1) Do these steps to install the servo valve assembly [1] on the outboard spoiler PCU:

(a) Apply a layer of BATCO X8401-1 grease, D50105 to the shank and threads of the screws [4].

(b) Lubricate the packing [2] with hydraulic fluid, D00153 and install on the servo valve assembly [1].

(c) Lubricate the seal plate [3] with hydraulic fluid, D00153 and install.

(d) Install the servo valve assembly [1] with packing [2]] on the PCU.

(e) Install screws [4] and washers [5] to attach the servo valve assembly [1] to the PCU.

(f) Tighten the screws [4] to 60 pound-inches (6.8 newton-meters).

(g) Install MS20995NC20 lockwire, G02166 on the screws [4].

SUBTASK 27-61-14-420-002

(2) Do these steps to install the solenoid valve assembly [6] on the cable-controlled spoiler PCU:

(a) Apply a layer of BATCO X8401-1 grease, D50105 to the shank and threads of the screws [10].

(b) Lubricate the packing [8] with hydraulic fluid, D00153 and install on the solenoid valve assembly [6].

(c) Lubricate the seal plate [7] with hydraulic fluid, D00153 and install.

(d) Install the solenoid valve assembly [6] with packing [8] on the PCU.

(e) Install screws [10] and washers [9] to attach the solenoid valve assembly [6] to the PCU.

(f) Tighten the screws [10] to 60 pound-inches (6.8 newton-meters).

(g) Install MS20995NC20 lockwire, G02166 on the screws [10].

SUBTASK 27-61-14-420-003

(3) Do these steps to install the servo valve assembly [11] on the inboard spoiler PCU:

(a) Apply a layer of BATCO X8401-1 grease, D50105 to the shank and threads of the screws [14].

(b) Lubricate the packing [12] with hydraulic fluid, D00153 and install on the servo valve assembly [11].

(c) Lubricate the seal plate [13] with hydraulic fluid, D00153 and install.

(d) Install the servo valve assembly [11] with packing [12] on the PCU.

(e) Install screws [14] and washers [15] to attach the servo valve assembly [11] to the PCU.

(f) Tighten the screw [14] to 60 pound-inches (6.8 newton-meters).

(g) Install MS20995NC20 lockwire, G02166 on the screw [14].

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-14-080-001

(1) Remove the inboard and outboard spoiler actuators lock equipment, SPL-1719 from the spoiler PCU.

SUBTASK 27-61-14-410-001

(2) Install applicable access panels:

(a) For the left wing, close these access panels:

Number	Name/Location
552AB	Inboard Fixed Trailing Edge Panel
552BB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
552FB	Inboard Fixed Trailing Edge Panel

(b) For the right wing, close these access panels:

Number	Name/Location
652AB	Inboard Fixed Trailing Edge Panel
652BB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
652FB	Inboard Fixed Trailing Edge Panel

SUBTASK 27-61-14-860-007

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-61-14-860-008

(4) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-61-14-860-009

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE TRAILING EDGE FLAPS. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR WHEN THIS SURFACE MOVES.

(5) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-805.

SUBTASK 27-61-14-860-010

(6) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

NOTE: On each of the power supply assemblies, close the PFC circuit breakers last.

(a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

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Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-61-14-860-011

(7) Move the applicable FLT CONTROL HYD VALVE POWER - WING L, R or C switches to the NORM position.

I. Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation Test

SUBTASK 27-61-14-710-001

(1) Do this task: Spoiler Operational Test, TASK 27-61-00-700-801.

SUBTASK 27-61-14-210-001

(2) Make sure no hydraulic fluid leaks from the EHSV or solenoid valve.

——— END OF TASK ———

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AUTO SPEEDBRAKE CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An operational test of the Auto Speedbrake Control System

(2) An adjustment of the Auto Speedbrake Control System

(3) A system test of the Auto Speedbrake Control System

TASK 27-62-00-710-801

2. Auto Speedbrake Control System - Operational Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Prepare for the Operational Test

SUBTASK 27-62-00-210-001

(1) Make sure the speedbrake lever is in its DOWN (fully forward) position.

SUBTASK 27-62-00-860-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-62-00-860-002

WARNING

MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED THE SPOILERS AND THRUST REVERSERS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-62-00-860-003

(4) Move the FUEL CONTROL switches on the control stand panel, P10, to the CUT OFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-62-00-860-004

(5) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
P	23	C78605	L ENG T/R CTRL

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Right Power Management Panel, P210

Row	Col	Number	Name
N	12	C78604	R ENG T/R CTRL

SUBTASK 27-62-00-860-028

WARNING MAKE SURE THE SPEEDBRAKE LEVER IS IN THE DOWN POSITION, WHEN YOU MOVE AN EEC MAINTENANCE SWITCH TO TEST POSITION. IF YOU DO NOT OBEY THIS INSTRUCTION THIS CAN CAUSE THE SPEEDBRAKE LEVER AND SPOILER TO MOVE, AND INJURY TO PERSONNEL CAN OCCUR.

(6) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the TEST position.

SUBTASK 27-62-00-710-001

(7) Operate the aileron trim switches until the aileron trim indicator shows zero units on the trim.

D. Operational Test for the Auto Speedbrake

SUBTASK 27-62-00-860-005

(1) Move the forward thrust levers fully forward.

SUBTASK 27-62-00-860-006

(2) Move the speedbrake lever to the ARMED detent position.

SUBTASK 27-62-00-210-017

(3) Look at page 1 of the maintenance pages for the flight controls, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804

SUBTASK 27-62-00-210-018

(4) Make sure the SPD BRK HANDLE POSITION indications read -1.42 to +1.42.

NOTE: Make sure all indicators show the same value ±0.5.

SUBTASK 27-62-00-860-007

(5) Move the forward thrust levers fully aft to the idle stop.

SUBTASK 27-62-00-210-002

(6) Make sure the speedbrake lever moves to its UP (fully aft) position.

SUBTASK 27-62-00-210-003

(7) Look at page 1 of the maintenance pages for the flight controls, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804

SUBTASK 27-62-00-210-004

(8) Make sure the SPD BRK HANDLE POSITION indications read +34.00 to + 37.00.

NOTE: Make sure all indicators show the same value ±0.5.

SUBTASK 27-62-00-860-008

(9) Move the forward thrust levers fully forward.

SUBTASK 27-62-00-210-005

(10) Make sure the speedbrake lever moves to its DOWN position.

SUBTASK 27-62-00-210-006

(11) Look at page 1 of the maintenance pages for the flight controls, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

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SUBTASK 27-62-00-210-007

(12) Make sure the SPD BRK HANDLE POSITION indications read -6.30 to -9.21.

NOTE: Make sure all indicators show the same value ±0.5.

SUBTASK 27-62-00-860-009

(13) Move the forward thrust levers aft to the idle stop.

E. Operational Test for the RTO Speedbrake Mechanism

SUBTASK 27-62-00-860-010

(1) Move the reverse thrust levers up and aft to the reverse idle detent.

SUBTASK 27-62-00-210-008

(2) Make sure the speedbrake lever moves to its UP (fully aft) position.

SUBTASK 27-62-00-860-011

(3) Move the reverse thrust levers back down to the stowed position.

SUBTASK 27-62-00-860-029

(4) Move the forward thrust levers fully forward.

SUBTASK 27-62-00-210-009

(5) Make sure the speedbrake lever moves to its DOWN (fully forward) position.

F. Operational Test for the Speedbrake Lever

SUBTASK 27-62-00-860-042

(1) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the NORM position.

SUBTASK 27-62-00-210-020

(2) Move the speedbrake lever fully up and do these checks:

(a) Make sure the force necessary to move the speedbrake lever up is between 2.5 and 6.0 pounds (11.1 and 26.7 newtons).

NOTE: The force necessary to move the lever out of the armed detent position (approximately 9 degrees aft of the DOWN detent) is between 7 and 10 pounds (31.1 and 44.5 newtons).

(b) Make sure the speedbrake lever moves smoothly and freely.

(c) Make sure the speedbrake lever moves to the full UP position.

SUBTASK 27-62-00-860-043

(3) Move the speedbrake lever to its DOWN position and do these checks:

(a) Make sure the force necessary to move the speedbrake lever down is between 2.5 and 6.0 pounds (11.1 and 26.7 newtons).

NOTE: The force necessary to move the lever out of the armed detent position (approximately 9 degrees aft of the DOWN detent) is between 7 and 10 pounds (31.1 and 44.5 newtons).

(b) Make sure the speedbrake lever moves smoothly and freely.

(c) Make sure the speedbrake lever moves to the full DOWN position.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-00-860-030

(1) Move the forward thrust levers aft to the idle stop.

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SUBTASK 27-62-00-860-012

(2) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
P	23	C78605	L ENG T/R CTRL

Right Power Management Panel, P210

Row	Col	Number	Name
N	12	C78604	R ENG T/R CTRL

SUBTASK 27-62-00-860-013

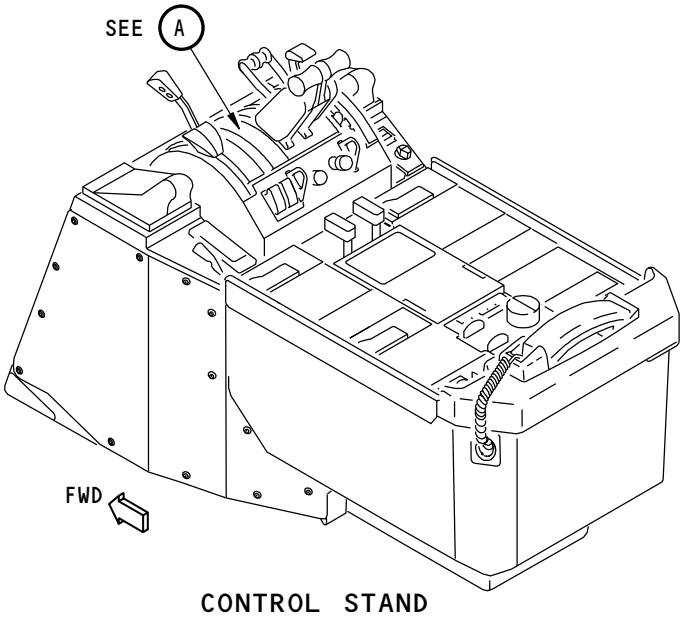
(3) Remove the DO-NOT-OPERATE tags from the FUEL CONTROL switches on the P10 panel.

SUBTASK 27-62-00-860-031

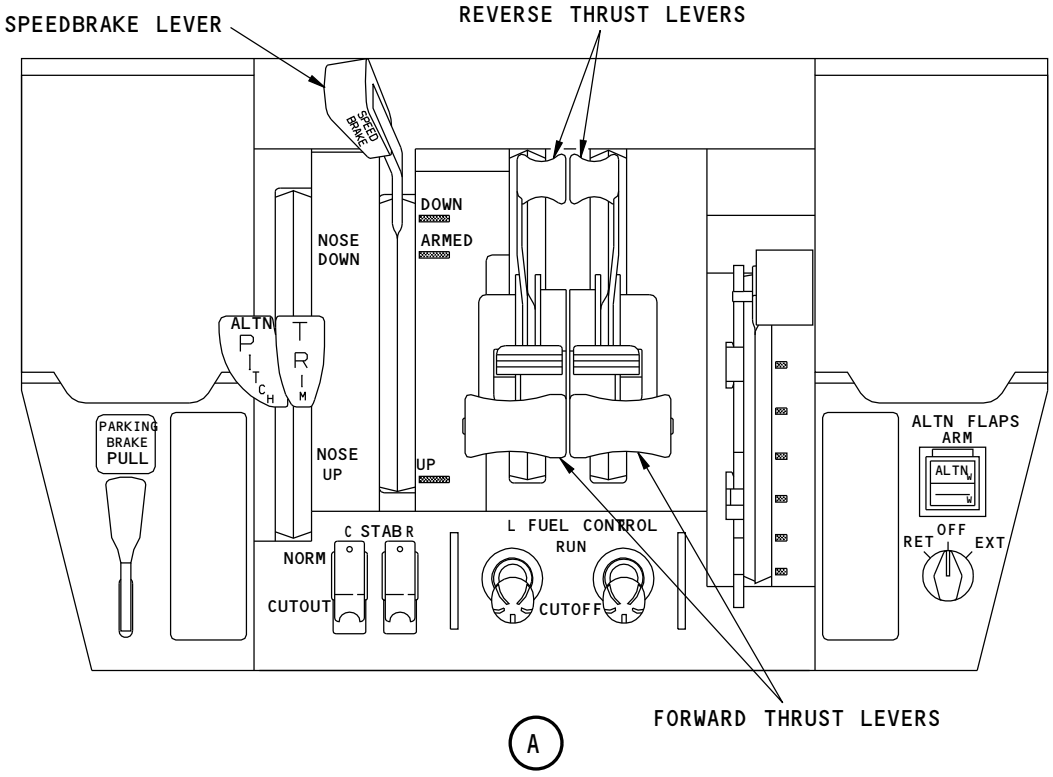
(4) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the NORM position.

——— END OF TASK ———

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CONTROL STAND



D01997 S0006414200_V1

Auto Speedbrake Control Operational Test
Figure 501/27-62-00-990-801

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TASK 27-62-00-820-801

3. Speedbrake Control System - Adjustment

(Figure 502, Figure 503)

A. General

(1) This procedure has instructions to do these adjustments:

(a) Auto Speedbrake Actuator Adjustment

(b) Speedbrake Lever Transducers Adjustment

(c) RTO Speedbrake Mechanism Adjustment

(d) RTO Speedbrake Switch Adjustment

(2) Do only the adjustments that you think are necessary.

(a) Before you do the adjustment, do the "Prepare for the Adjustment" steps.

(b) After you do the adjustment(s), do the "Put the Airplane Back to Its Usual Condition" steps.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
WDM 27-61-20	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 260 Supplier: 55026 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

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(Continued)

Reference	Description	Specification
G02166	Lockwire - MS20995NC20, Monel - 0.020 Inch (0.508 mm) Diameter	NASM20995

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

F. Access Panels

Number	Name/Location
112AL	Forward Access Door

G. Prepare for the Adjustment

SUBTASK 27-62-00-860-015

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-62-00-860-016

WARNING MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED THE CONTROL SURFACES CAN MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-62-00-860-017

(3) Move the FUEL CONTROL switches on the control stand panel, P10, to the CUTOFF position and attach DO-NOT-OPERATE tags.

SUBTASK 27-62-00-860-018

(4) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
P	23	C78605	L ENG T/R CTRL

Right Power Management Panel, P210

Row	Col	Number	Name
N	12	C78604	R ENG T/R CTRL

SUBTASK 27-62-00-210-016

(5) Make sure the reverse thrust levers are in the stowed (down and forward) position.

SUBTASK 27-62-00-210-010

(6) Move the forward thrust levers fully forward.

NOTE: This is to make sure the auto speedbrake actuator is retracted.

SUBTASK 27-62-00-860-039

(7) Open these circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

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Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	4	CBB4-R	AUTO-SPDBRK (L,R)

SUBTASK 27-62-00-010-001

(8) Turn the 13 quick-release fasteners, and remove the access panel from the left side of the control stand, P10.

H. Auto Speedbrake Actuator Adjustment

(Figure 503)

SUBTASK 27-62-00-860-032

(1) Put the speedbrake lever in its ARMED position.

NOTE: There is a detent at the ARMED position that the speedbrake lever must be in.

(a) Look at page 1 of the maintenance pages for the primary flight controls. For information about the maintenance pages, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(b) Make sure the four SPD BRK HANDLE POSITION indications show -0.80 to +0.80.

(c) If the position indications do not show the correct value, then do these steps:

1) Disconnect the auto speedbrake actuator from the auto speedbrake clutch.

2) Loosen the jam nut [23] on the actuator rod [24].

3) Turn the rod end (in 180 degree increments) to adjust the actuator rod length. Adjust the actuator rod [24] until the maintenance page shows -0.80 to +0.80 for all four SPD BRK HANDLE POSITION indications.

4) Tighten the jam nut [23] to 160-190 inch-pounds (18.1-21.5 newton-meters).

a) Install MS20995NC20 lockwire, G02166 [22] for the jam nut.

5) Connect the auto speedbrake actuator back to the auto speedbrake clutch.

6) Tighten the nut to 50-80 inch-pounds.

I. Speedbrake Lever Transducers Adjustment

(Figure 502)

SUBTASK 27-62-00-860-019

(1) Put the speedbrake lever in its DOWN (fully forward) position.

SUBTASK 27-62-00-210-011

(2) Look at page 1 of the maintenance pages for the flight controls. For information on the maintenance pages, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 27-62-00-820-001

(3) If the indications for the SPD BRK HANDLE POSITION does not read -6.30 to -9.21, adjust the speedbrake lever as follows:

(a) Adjust the length of the speedbrake rod [2], until the indications for the SPD BRK HANDLE POSITION show -6.30 to -9.21.

NOTE: Put the rod end in a position that gives the rod the most room to turn side-to-side (when the rod is installed).

(b) Tighten the jam nut [1] on the speedbrake rod [2] to 60-95 pound-inches (6.8-10.7 newton-meters).

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J. RTO (Rejected Takeoff) Speedbrake Mechanism Adjustment

(Figure 502)

SUBTASK 27-62-00-820-004

(1) Do these steps to prepare to adjust the RTO speedbrake mechanism:

(a) Move the two thrust levers aft, to the idle position.

(b) Loosen the jam nut on the switch adjustment screw. Turn the screw to get the maximum clearance to the switch.

NOTE: This will prevent damage to the switch when you adjust the screws A and B.

(c) Loosen the jam nut on adjustment screw A.

(d) Loosen adjustment screw A fully, then re-install it approximately 5 turns.

NOTE: Hold the parts of the leaf spring so they will not fall when you have screw A fully loose.

NOTE: Screw A must be out sufficiently to make sure it does not touch the drive segment when you adjust screw B. If screw A touches the drive segment you can not adjust screw B correctly. This is a temporary adjustment, you will make the final adjustment later.

(e) Tighten the jam nut on the adjustment screw A to 30-50 pound-inches (3.4-5.7 newton-meters).

NOTE: This is necessary to hold the leaf spring in its position.

SUBTASK 27-62-00-820-005

(2) Do these steps to adjust the RTO speedbrake mechanism.

(a) Loosen the jam nut on adjustment screw B.

(b) Put the speedbrake lever in the DOWN (fully forward) position.

(c) Pull the left reverse thrust lever fully up and back, to the reverse thrust position.

(d) Adjust screw B as necessary to lift (extend) the speedbrake lever to its maximum length.

NOTE: You can pull on the speedbrake lever to see what its maximum length is.

NOTE: This is an approximate adjustment, you will make the final adjustment later.

NOTE: Screw B adjusts the force in the leaf spring. The leaf spring must provide the force to lift the speedbrake lever.

(e) Move the speedbrake lever to the UP (fully aft) position.

(f) Loosen the jam nut on adjustment screw A.

(g) Adjust screw A until dimension X is 0.02 to 0.04 inches (0.5 to 1.0 mm) (Figure 502).

NOTE: Screw A adjusts the maximum distance that the lifter arm will lift the speedbrake lever.

1) Tighten the jam nut on screw A to 30-50 pound-inches (3.4-5.7 newton-meters).

(h) Move the speedbrake lever to the DOWN position so it is on the lifter arm.

(i) Adjust screw B until a force of 4 to 5 pounds (17.8 to 22.2 newtons) will start to push the speedbrake lever down (that is start to move the lifter arm).

NOTE: Push on the top of the lever with the force gage. Hold the force gage so you push in the direction of the pivot point for the lever.

1) Tighten the jam nut on screw B to 30-50 pound-inches (3.4-5.7 newton-meters).

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SUBTASK 27-62-00-820-006

(3) Do these steps to make sure the RTO speedbrake mechanism operates smoothly after adjustment.

(a) Make sure the speedbrake lever slides smoothly and without obstruction when moved from the detent plate onto the lifter arm and back onto the detent plate.

(b) Push the left reverse thrust lever down, to the idle position.

(c) Pull the right reverse thrust lever up, to the reverse thrust position.

(d) Make sure the speedbrake lever slides smoothly and freely when moved from the detent plate onto the lifter and back onto the detent plate.

(e) If the speedbrake lever does not slide smoothly and freely, then do these steps:

1) Adjust screw A until the speedbrake lever slides smoothly and freely when the two (right or left) reverse thrust levers are lifted.

2) Tighten the jam nut on screw A to 30-50 pound-inches (3.4-5.7 newton-meters).

3) Adjust screw B, again, until a force of 4 to 5 pounds (17.8 to 22.2 newtons) will start to push the speedbrake lever down.

4) Tighten the jam nut on screw B to 30-50 pound-inches (3.4-5.7 newton-meters).

SUBTASK 27-62-00-910-001

(4) Install MS20995NC32 lockwire, G01912 between screw A and screw B.

SUBTASK 27-62-00-820-002

(5) Adjust the auto speedbrake armed switch.

K. RTO Speedbrake Switch Adjustment

(Figure 502)

SUBTASK 27-62-00-020-001

(1) Loosen the jam nut on the switch adjustment screw.

SUBTASK 27-62-00-010-002

(2) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-62-00-480-001

(3) Connect a digital/analog multimeter, COM-1793 between pin 47 and pin 48 of connector D4971P to check for continuity (WDM 27-61-20).

NOTE: This connector is at the AEO150 panel which is above the forward access door.

SUBTASK 27-62-00-820-003

(4) Adjust the switch adjustment screw until the switch goes from open to closed at a dimension "X" of 0.00 to 0.015 inch (0.00 to 0.38 mm).

NOTE: Move the right reverse thrust lever to change the dimension "X". Make sure the switch closes as you move the lever up.

SUBTASK 27-62-00-420-001

(5) Tighten the jam nut on the switch adjustment screw to 50-80 pound-inches (5.7-9.0 newton-meters).

SUBTASK 27-62-00-080-001

(6) Disconnect the digital/analog multimeter, COM-1793 and re-connect electrical connector D4971.

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SUBTASK 27-62-00-410-002

(7) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

L. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-00-860-020

(1) Push the two reverse thrust levers down and forward.

SUBTASK 27-62-00-410-001

(2) Put the access panel back on the control stand.

SUBTASK 27-62-00-860-040

(3) Close these circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
B	4	CBB4-R	AUTO-SPDBRK (L,R)

SUBTASK 27-62-00-860-021

(4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
P	23	C78605	L ENG T/R CTRL

Right Power Management Panel, P210

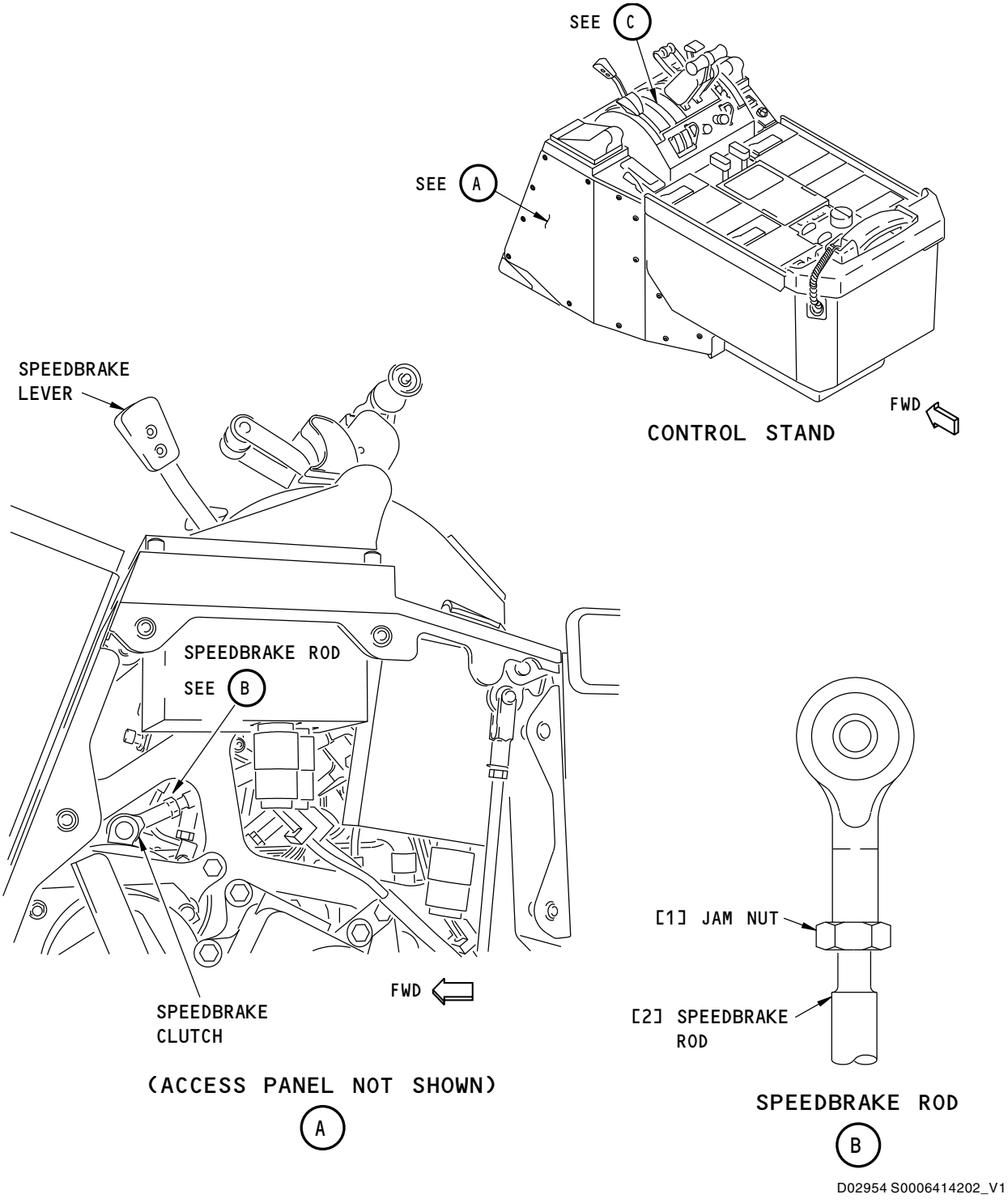
Row	Col	Number	Name
N	12	C78604	R ENG T/R CTRL

SUBTASK 27-62-00-860-022

(5) Remove the DO-NOT-OPERATE tags from the FUEL CONTROL switches on the P10 panel.

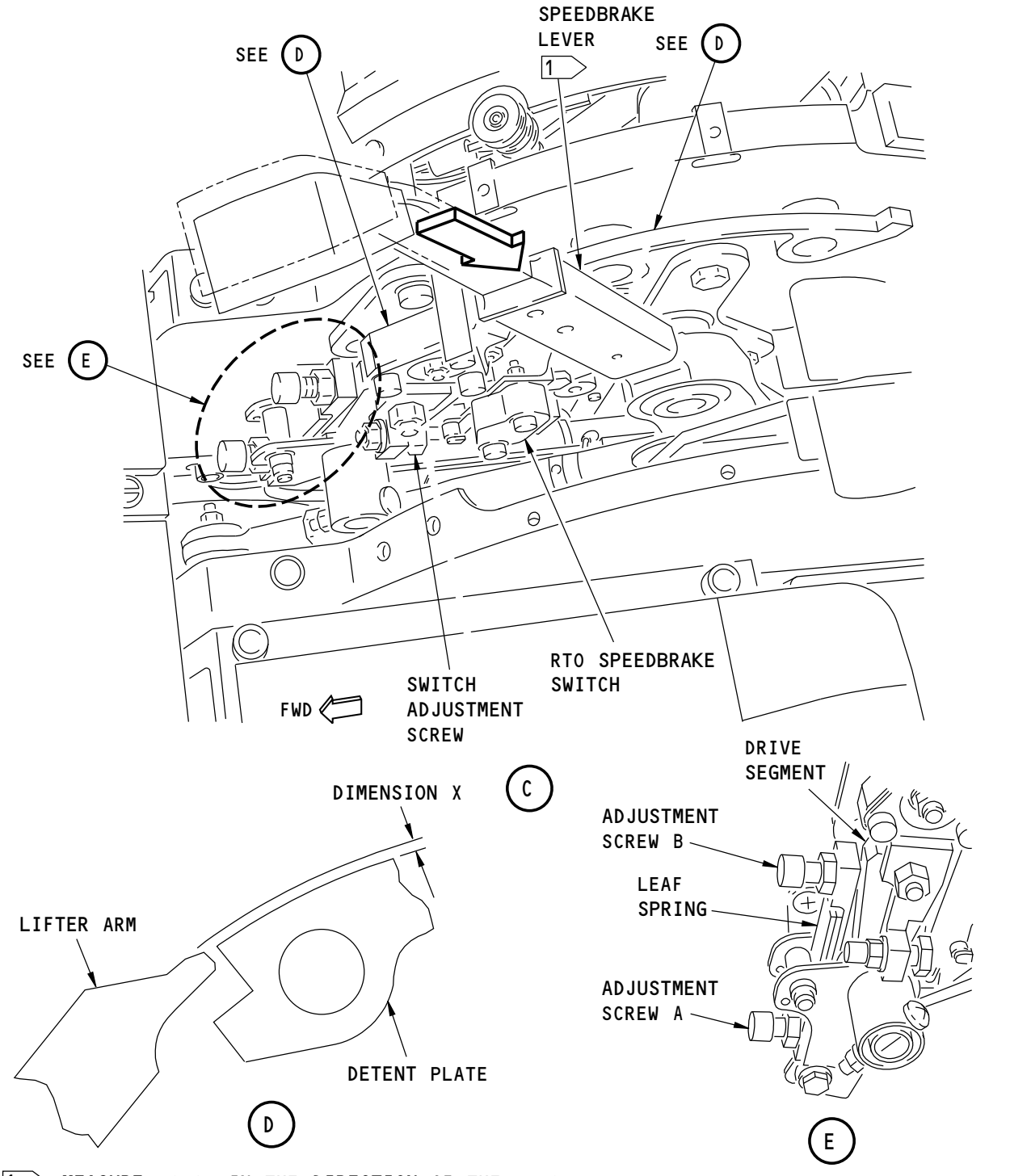
END OF TASK

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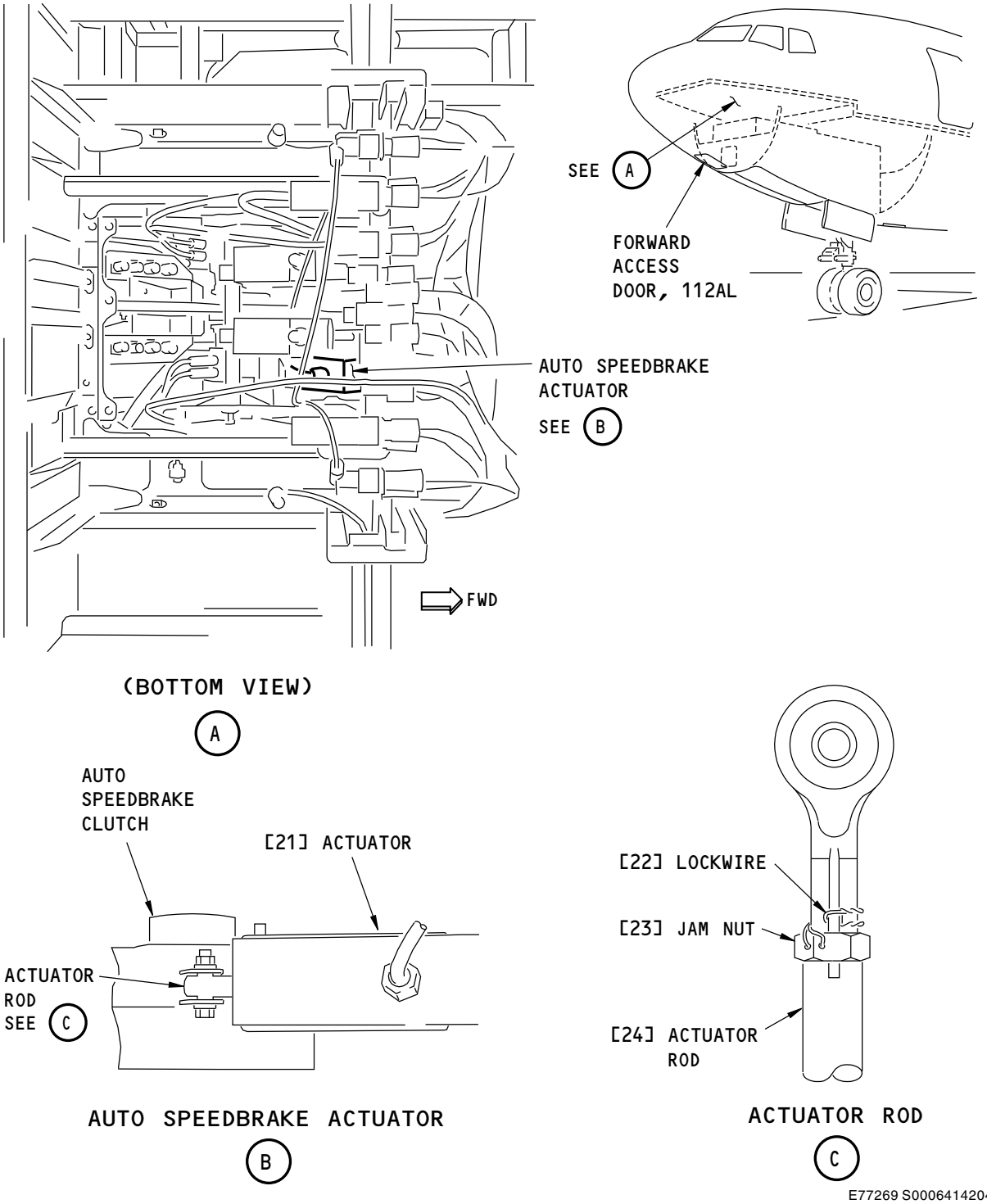
Auto Speedbrake Control Adjustment
Figure 502/27-62-00-990-802 (Sheet 1 of 2)

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Auto Speedbrake Control Adjustment
Figure 502/27-62-00-990-802 (Sheet 2 of 2)

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Auto Speedbrake Actuator Adjustment
Figure 503/27-62-00-990-803

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TASK 27-62-00-700-801

4. Auto Speedbrake Control - System Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1139	Timer - Stop Watch, Accurate to 1 Second

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the System Test

SUBTASK 27-62-00-860-024

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-62-00-860-025

WARNING

MAKE SURE HYDRAULIC POWER IS NOT SUPPLIED. IF HYDRAULIC POWER IS SUPPLIED THE SPOILERS AND THRUST REVERSERS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-62-00-860-026

(3) Move the FUEL CONTROL switches on the control stand panel, P10, to the CUTOFF position and attach DO-NOT-CLOSE tags.

SUBTASK 27-62-00-860-033

(4) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
P	23	C78605	L ENG T/R CTRL

Right Power Management Panel, P210

Row	Col	Number	Name
N	12	C78604	R ENG T/R CTRL

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SUBTASK 27-62-00-860-034

WARNING

MAKE SURE THE SPEEDBRAKE LEVER IS IN THE DOWN POSITION, WHEN YOU MOVE AN EEC MAINTENANCE SWITCH TO TEST POSITION. IF YOU DO NOT OBEY THIS INSTRUCTION THIS CAN CAUSE THE SPEEDBRAKE LEVER AND SPOILER TO MOVE, AND INJURY TO PERSONNEL CAN OCCUR.

(5) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the TEST position.

E. Auto Speedbrake System Test

SUBTASK 27-62-00-210-012

(1) Make sure the speedbrake lever is in the DOWN (fully forward) position.

SUBTASK 27-62-00-210-013

(2) Look at page 1 and 3 of the maintenance pages for the flight controls. For more information, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 27-62-00-210-014

(3) Make sure the four SPD BRK HANDLE POSITION indications show -6.30 to -9.21 units.

SUBTASK 27-62-00-860-044

(4) Move the forward thrust levers fully forward.

SUBTASK 27-62-00-860-041

(5) Move the speedbrake lever to the ARMED position.

SUBTASK 27-62-00-210-019

(6) Make sure the four positions on the SPD BRK HANDLE indication read between -1.42 to +1.42 units.

SUBTASK 27-62-00-860-045

(7) Move the forward thrust levers fully aft to the idle stop.

SUBTASK 27-62-00-860-027

(8) Move the speedbrake lever to the full UP (fully aft) position.

SUBTASK 27-62-00-210-015

(9) Make sure the four positions on the SPD BRK HANDLE indication read between +34.00 to +37.00 units.

SUBTASK 27-62-00-730-001

(10) Do these steps to check auto speedbrake tracking and rate:

(a) Make sure the thrust levers are in the idle position.

(b) Set the speedbrake lever to the DOWN (forward) position.

(c) Make sure the SPDBRK ACTR RETRACTED indication reads YES on maintenance page 3.

(d) Use a stopwatch, STD-1139 to measure the time it takes the speedbrake lever to travel.

(e) Move the reverse thrust levers up to the deployed position and start the stopwatch, STD-1139.

(f) Make sure the speedbrake lever moves to the UP (fully aft) position in less than 1.5 seconds.

(g) Make sure the speedbrake lever stays at the UP position.

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(h) Look at page 3 of the maintenance pages for flight controls, make sure the SPDBRK ACTR RETRACTED indication reads NO.

(i) Use the stopwatch, STD-1139 to measure the time it takes the speedbrake lever to travel.

(j) Move the reverse thrust levers back down to the stowed position.

(k) Move the forward thrust levers fully forward and start the stopwatch, STD-1139.

(l) Make sure the speedbrake lever moves to the DOWN position in less than 1.5 seconds.

(m) Make sure the speedbrake lever stays at the DOWN DETENT position.

(n) Push the speedbrake lever forward to make sure it is in the DOWN position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-00-860-035

(1) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
P	23	C78605	L ENG T/R CTRL

Right Power Management Panel, P210

Row	Col	Number	Name
N	12	C78604	R ENG T/R CTRL

SUBTASK 27-62-00-860-036

(2) Remove the DO-NOT-OPERATE tags from the FUEL CONTROL switches on the P10 panel.

SUBTASK 27-62-00-860-037

(3) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the NORM position.

——— END OF TASK ———

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AUTO SPEEDBRAKE ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the auto speedbrake actuator

(2) An installation of the auto speedbrake actuator.

TASK 27-62-01-000-801

2. Auto Speedbrake Actuator - Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112AL	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-62-01-860-001

(1) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the SHUT OFF position.

SUBTASK 27-62-01-860-002

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

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Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

D. Auto Speedbrake Actuator Removal

SUBTASK 27-62-01-010-001

(1) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-62-01-020-001

(2) Disconnect the electrical connector [2] at the AEO160 panel.

SUBTASK 27-62-01-020-002

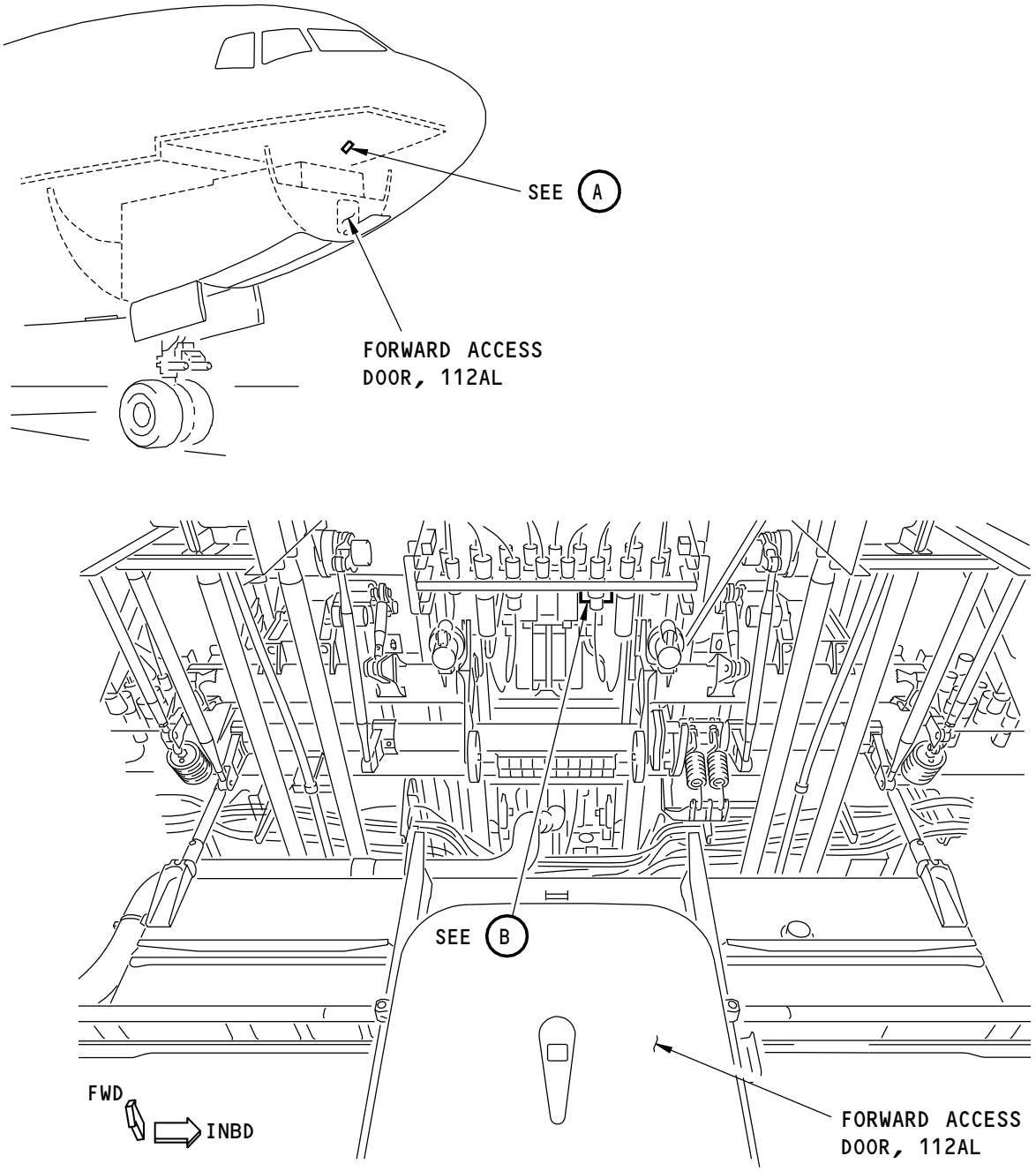
(3) Do these steps to remove the actuator assembly [1]:

(a) Remove the nut [4], washer [5], bolt [7], washer [6], and bushing [3] that holds the actuator assembly [1] to the structure.

(b) Remove the nut [10], washer [9], and bolt [8] that holds the actuator assembly [1] to the clutch assembly.

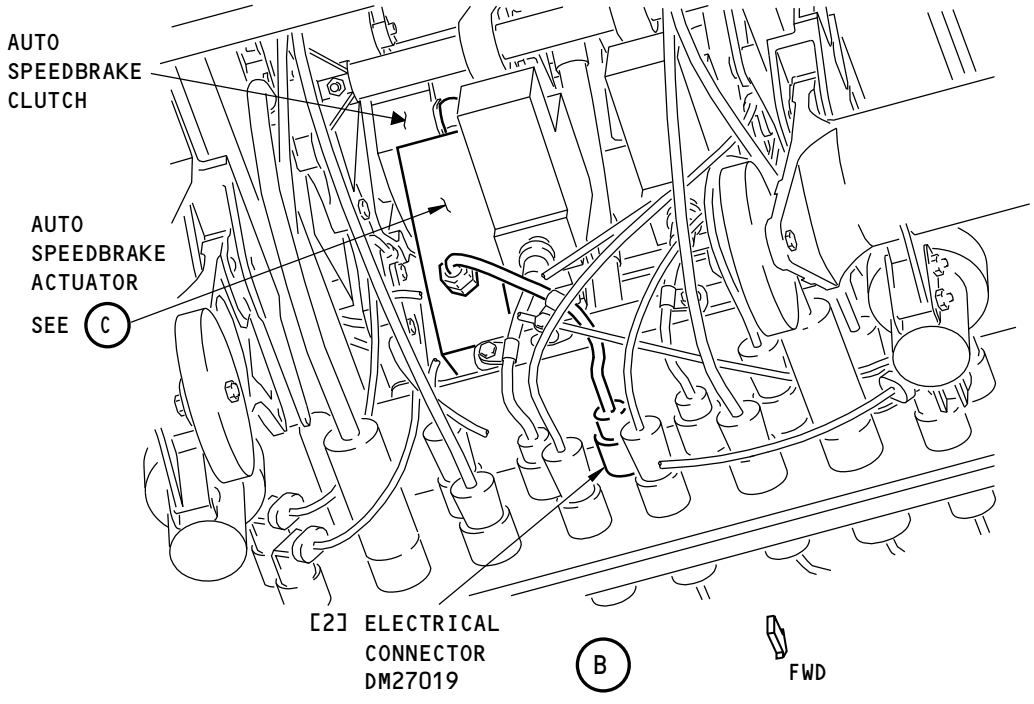
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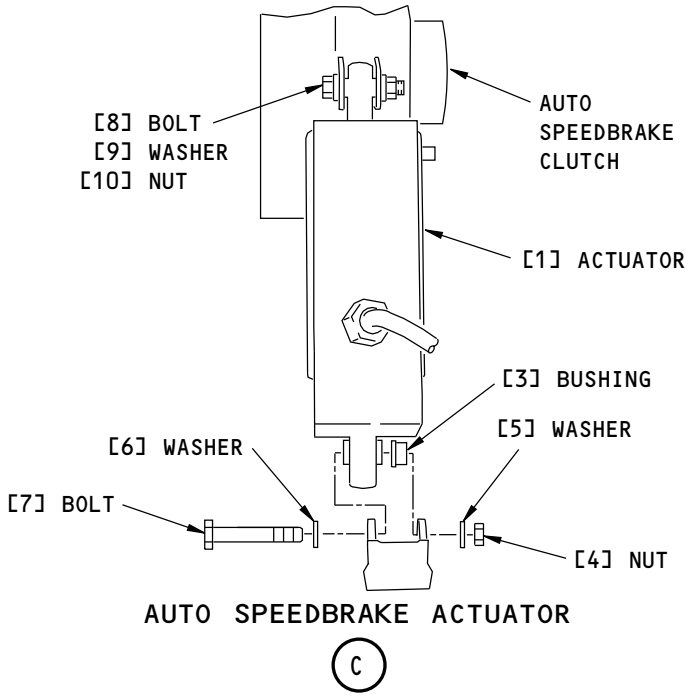
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Auto Speedbrake Actuator Installation
Figure 401/27-62-01-990-801 (Sheet 1 of 2)

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Auto Speedbrake Actuator Installation
Figure 401/27-62-01-990-801 (Sheet 2 of 2)

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TASK 27-62-01-400-801

3. Auto Speedbrake Actuator - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1139	Timer - Stop Watch, Accurate to 1 Second

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Actuator assembly	27-62-01-05-050	ARO ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Auto Speedbrake Actuator Installation

SUBTASK 27-62-01-420-001

(1) Put the auto speedbrake actuator assembly [1] in its position.

SUBTASK 27-62-01-420-002

(2) Do these steps to attach the actuator assembly [1]:

(a) Install the flanged bushing [3], washer [6] (under the bolt head), bolt [7], washer [5] (under the nut), and nut [4], that connects the actuator assembly [1] to the structure.

(b) Tighten the nut [4] to 50-80 pound-inches (5.7-9.0 newton-meters).

(c) Install the bolt [8], washer [9] (under the nut), and nut [10], that connects the actuator assembly [1] to the auto speedbrake clutch.

(d) Tighten the nut [10] to 50-80 pound-inches (5.7-9.0 newton-meters).

SUBTASK 27-62-01-420-003

(3) Connect the electrical connector [2] at the AEO160 panel.

SUBTASK 27-62-01-860-018

(4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1

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(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

G. Auto Speedbrake Actuator Installation Test

SUBTASK 27-62-01-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-62-01-860-013

(2) Move the FUEL CONTROL switches on the control stand panel, P10, to the CUT OFF position.

SUBTASK 27-62-01-860-014

(3) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the TEST position.

SUBTASK 27-62-01-860-005

(4) Do these steps to check auto speedbrake tracking and rate:

(a) Make sure the thrust levers are in the idle (fully aft) position.

(b) Make sure the reverse thrust levers are in the stowed (down and forward) position.

(c) Set the speedbrake lever to the DOWN (forward) position.

(d) Get a stopwatch, STD-1139 to measure the time it takes the speedbrake lever to travel.

(e) Move the reverse thrust levers up to the deployed position and start the stopwatch, STD-1139.

(f) Make sure the speedbrake lever moves to the UP (fully aft) position in less than 1.5 seconds.

(g) Make sure the speedbrake lever stays at the UP position.

(h) Use the stopwatch, STD-1139 to measure the time it takes the speedbrake lever to travel.

(i) Move the reverse thrust levers back down to the stowed position.

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(j) Move the forward thrust levers fully forward and start the stopwatch, STD-1139.

(k) Make sure the speedbrake lever moves to the DOWN position in less than 1.5 seconds.

(l) Make sure the speedbrake lever stays at the DOWN position.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-01-860-016

(1) Move the forward thrust levers aft to the idle stop.

SUBTASK 27-62-01-860-017

(2) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the NORM position.

SUBTASK 27-62-01-410-001

(3) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-62-01-860-011

(4) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the NORM position.

END OF TASK

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AUTO SPEEDBRAKE CLUTCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the auto speedbrake clutch

(2) An installation of the auto speedbrake clutch.

(3) In this procedure the auto speedbrake clutch is referred to as the clutch assembly [1].

TASK 27-62-02-000-802

2. Auto Speedbrake Clutch Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-61-02-000-801	Speedbrake Lever Transducer Removal (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left

C. Access Panels

Number	Name/Location
112AL	Forward Access Door

D. Prepare for the Removal

SUBTASK 27-62-02-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-62-02-860-002

(2) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the SHUT OFF position.

SUBTASK 27-62-02-860-003

(3) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	28	C27608	ACE-L2 PWR

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

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Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
B	4	CBB4-L	AUTO SPDBRK (L,R)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-62-02-860-004

(4) Move the captain's seat fully aft.

SUBTASK 27-62-02-040-001

WARNING REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S SEAT. YOU CAN ACCIDENTALLY CAUSE THE SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-62-02-010-001

(6) Turn the 13 quick-release fasteners and remove the access panel from the left side of the control stand.

SUBTASK 27-62-02-010-002

(7) Do this task: Speedbrake Lever Transducer Removal, TASK 27-61-02-000-801.

E. Auto Speedbrake Clutch Removal

SUBTASK 27-62-02-410-001

(1) Open this access panel:

Number	Name/Location
112AL	Forward Access Door

NOTE: To remove the lower attachments of the clutch assembly [1], it is necessary to get access to the forward area of the nose landing gear wheel well.

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SUBTASK 27-62-02-020-001

(2) Do these steps to remove the clutch assembly [1]:

(a) Remove the nut [12], washer [11] and bolt [10] that attach the clutch assembly [1] to the auto speedbrake actuator.

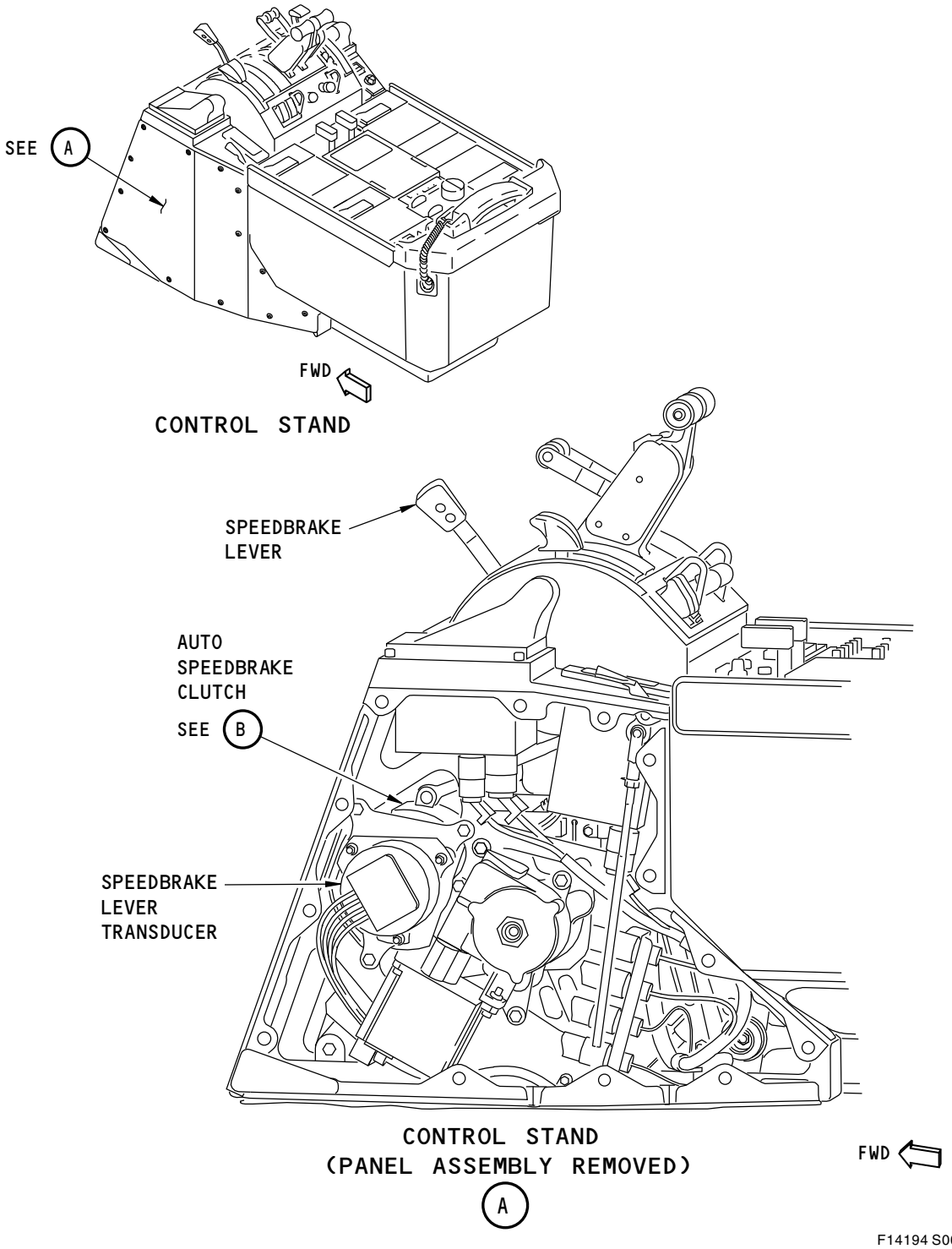
(b) Remove the bolt [8] and washer [9] that attach the drag lever to the control stand.

(c) Remove the nut [4], washer [3] and bolt [2] that attach the clutch assembly [1] to the rod assembly.

(d) Remove the bolt [6] and washer [7] and remove the adapter assembly [5].

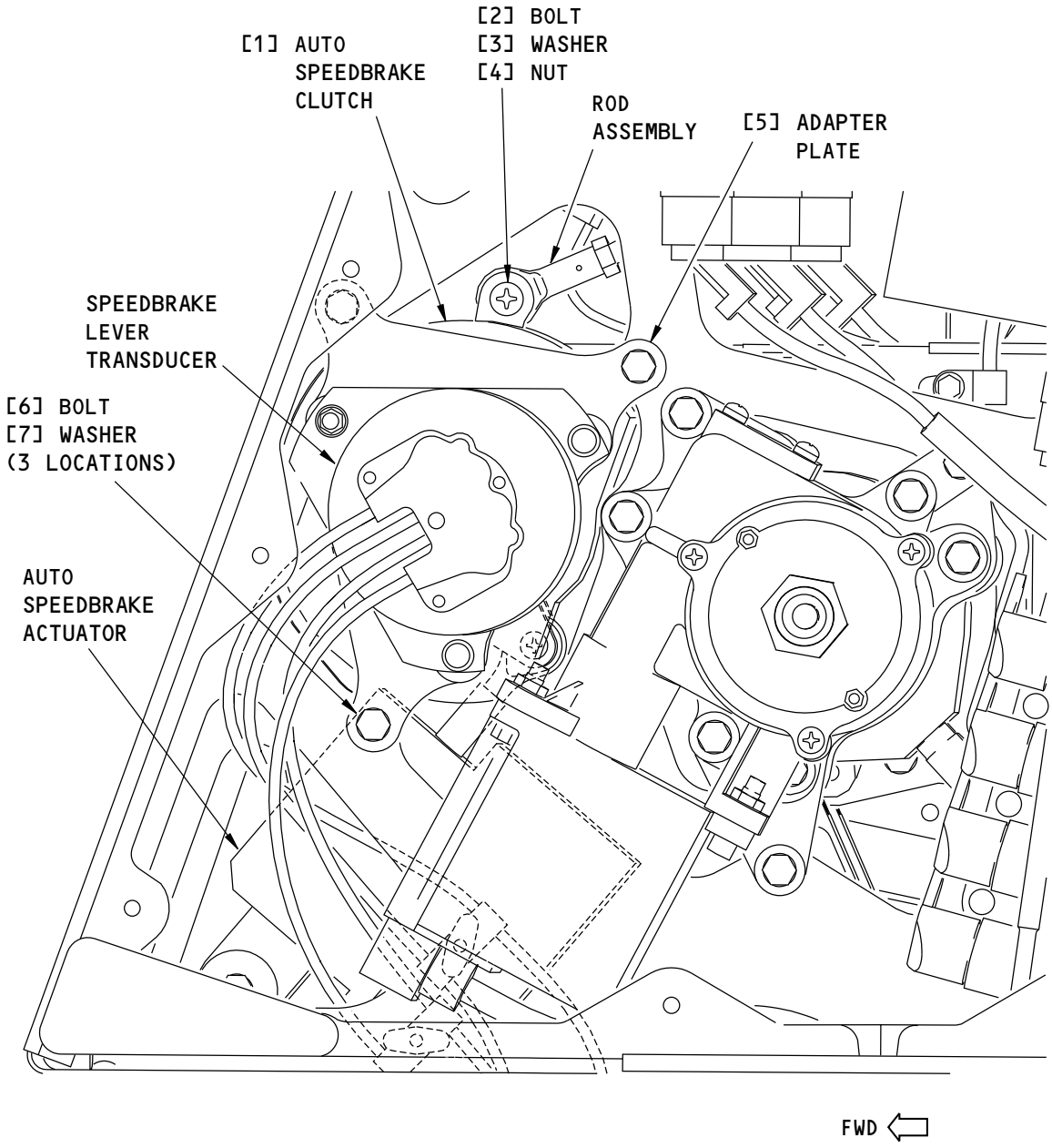
——— END OF TASK ———

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Auto Speedbrake Clutch Installation
Figure 401/27-62-02-990-801 (Sheet 1 of 4)

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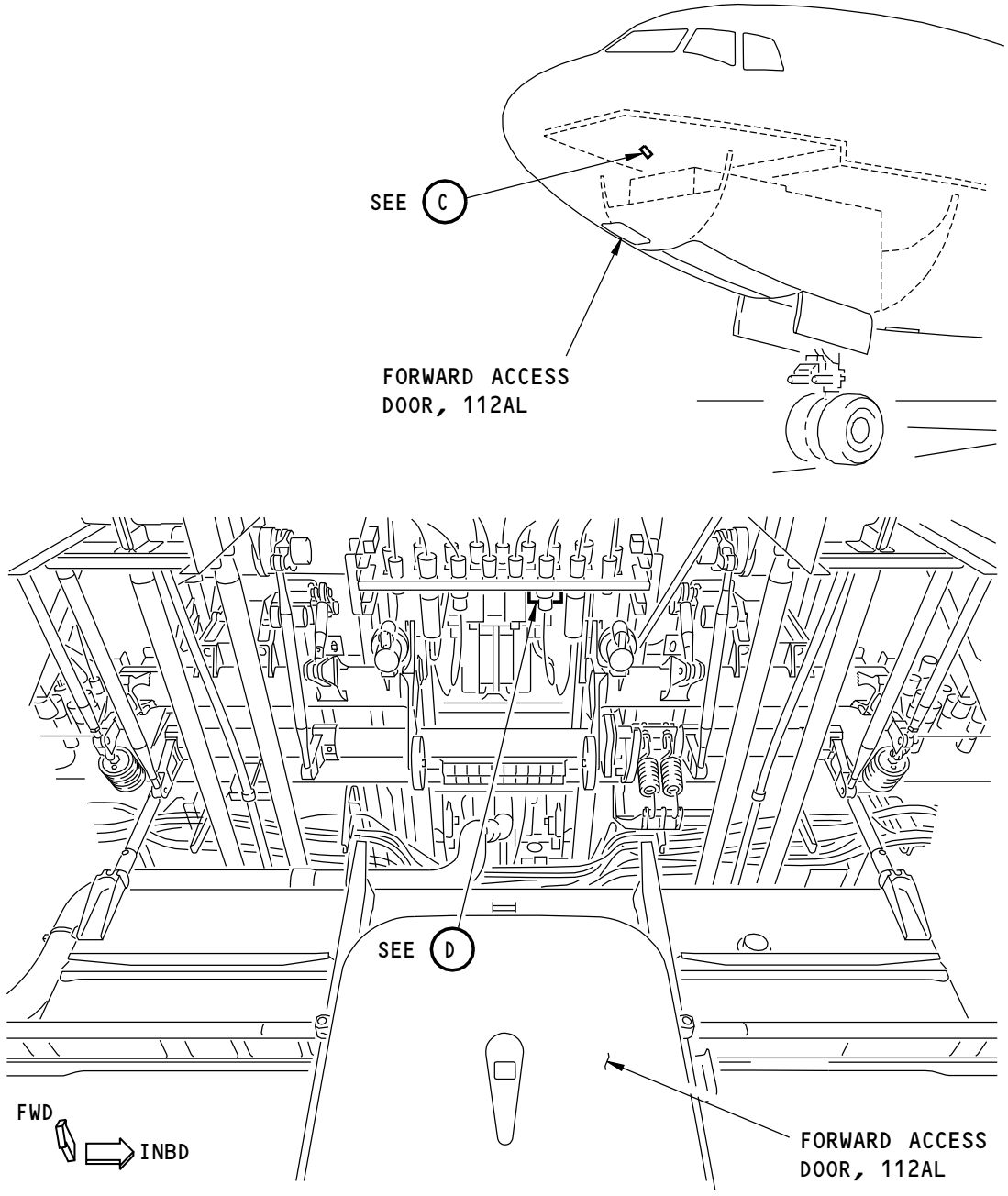
AUTO SPEEDBRAKE CLUTCH

B

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Auto Speedbrake Clutch Installation
Figure 401/27-62-02-990-801 (Sheet 2 of 4)

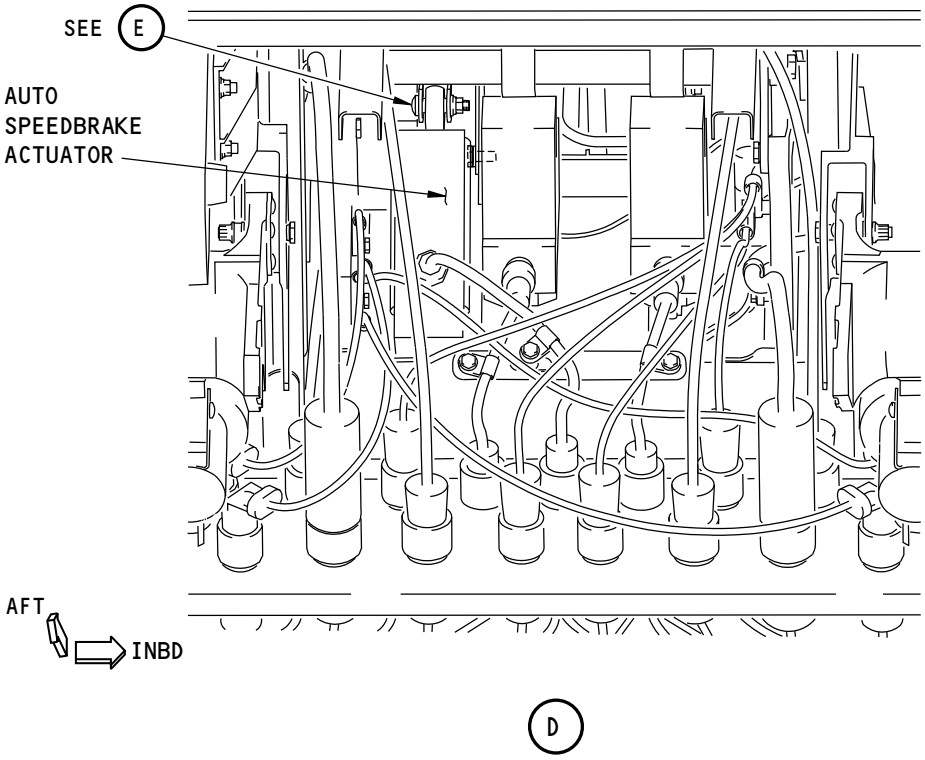
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Auto Speedbrake Clutch Installation
Figure 401/27-62-02-990-801 (Sheet 3 of 4)

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Auto Speedbrake Clutch Installation
Figure 401/27-62-02-990-801 (Sheet 4 of 4)

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TASK 27-62-02-400-802

3. Auto Speedbrake Clutch Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-61-02-400-801	Speedbrake Lever Transducer Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-1139	Timer - Stop Watch, Accurate to 1 Second

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Clutch assembly	27-62-02-03-015	ARO ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment, Left

E. Access Panels

Number	Name/Location
112AL	Forward Access Door

F. Auto Speedbrake Clutch Installation

SUBTASK 27-62-02-420-001

(1) Put the clutch assembly [1] in its position.

SUBTASK 27-62-02-410-005

(2) Install the adapter assembly [5]:

(a) Put the adapter assembly [5] in its position on the control stand.

(b) Install the bolt [6] and washer [7] that attach the adapter assembly [5].

SUBTASK 27-62-02-420-002

(3) Do these steps to attach the clutch assembly [1]:

(a) Install bolt [2], washer [3] (under the nut), and nut [4] that connect the clutch assembly [1] to the rod assembly.

(b) Tighten the nut [4] to 50-80 pound-inches (5.7-9.0 newton-meters).

(c) Install the bolt [10], washer [11] (under the nut) and nut [12] that connect the clutch assembly [1] to the auto speedbrake actuator.

(d) Tighten the nut [12] to 50-80 pound-inches (5.7-9.0 newton-meters).

(e) Install the washer [9] and bolt [8] that attaches the drag lever to the control stand.

SUBTASK 27-62-02-410-002

(4) Do this task: Speedbrake Lever Transducer Installation, TASK 27-61-02-400-801.

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SUBTASK 27-62-02-860-005

(5) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

G. Auto Speedbrake Clutch Installation Test

SUBTASK 27-62-02-860-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-62-02-860-015

(2) Move the FUEL CONTROL switches on the control stand panel, P10, to the CUT OFF position.

SUBTASK 27-62-02-860-016

(3) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the TEST position.

SUBTASK 27-62-02-860-007

(4) Do these steps to check auto speedbrake tracking and rate:

(a) Make sure the thrust levers are in the idle (fully aft) position.

(b) Make sure the reverse thrust levers are in the stowed (down and forward) position.

(c) Put the speedbrake lever in the DOWN (forward) position.

(d) Use a stopwatch, STD-1139 to measure the time it takes the speedbrake lever to travel:

1) Move the reverse thrust levers up to the deployed position and start the stopwatch, STD-1139.

2) Make sure the speedbrake lever moves to the UP (fully aft) position in less than 1.5 seconds.

3) Make sure the speedbrake lever stays at the UP position.

4) Move the reverse thrust levers back down to the stowed position.

5) Move the forward thrust levers fully forward and start the stopwatch, STD-1139.

6) Make sure the speedbrake lever moves to the DOWN position in less than 1.5 seconds.

7) Make sure the speedbrake lever stays at the DOWN position.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-02-860-017

(1) Move the forward thrust levers aft to the idle stop.

SUBTASK 27-62-02-860-018

(2) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the NORM position.

SUBTASK 27-62-02-410-003

(3) Close this access panel:

Number	Name/Location
112AL	Forward Access Door

SUBTASK 27-62-02-410-004

(4) Install the access panel on the left side of the control stand.

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SUBTASK 27-62-02-860-012

(5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
K	28	C27608	ACE-L2 PWR

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-62-02-865-001

(6) Close these circuit breakers:

NOTE: On each of the power supply assemblies. close the PFC circuit breakers last.

(a) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

SUBTASK 27-62-02-860-013

(7) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the NORM position.

END OF TASK

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RTO SPEEDBRAKE MECHANISM - REMOVAL/INSTALLATION

1. General

A. The RTO (rejected takeoff) speedbrake mechanism is a mechanism that pushes the speedbrake lever out of its down detent. It does this when the reverse thrust is commanded by the pilot.

B. This procedure has these tasks:

(1) A removal of the RTO speedbrake mechanism.

(2) An installation of the RTO speedbrake mechanism.

(3) A removal of the RTO speedbrake switch.

(4) An installation of the RTO speedbrake switch.

TASK 27-62-03-000-801

2. RTO Speedbrake Mechanism Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
76-11-10-000-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment, Left

C. Prepare for the Removal

SUBTASK 27-62-03-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-62-03-860-002

(2) Put the three FLT CONTROL HYD VALVE POWER switches for the WING (on the overhead maintenance panel, P61) in the SHUT OFF position.

SUBTASK 27-62-03-860-003

(3) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

SUBTASK 27-62-03-860-004

WARNING REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S AND F/O'S SEATS. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do these steps to deactivate the captain's and first officer's seats:

(a) Move the captain's and first officer's seats fully aft.

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(b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-62-03-010-001

(5) Do this task: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal, TASK 76-11-10-000-805-H00.

D. Procedure

SUBTASK 27-62-03-020-001

(1) Do these steps to remove the lifter assembly [3] and the adjuster assembly [16]:

(a) Remove the nut [1] from the lifter assembly [3].

(b) Remove the lifter assembly [3] and disconnect it from the spring [4].

(c) Remove the nut [12] and the bolt [11].

(d) Remove the adjuster assembly [16] and spring [4].

SUBTASK 27-62-03-020-002

CAUTION

DO NOT LET THE PARTS THAT ARE ON THE SHAFT ASSEMBLY FALL WHEN YOU REMOVE THE SHAFT ASSEMBLY. THE PARTS CAN FALL THROUGH THE CONTROL STAND WHEN YOU REMOVE THE SHAFT ASSEMBLY.

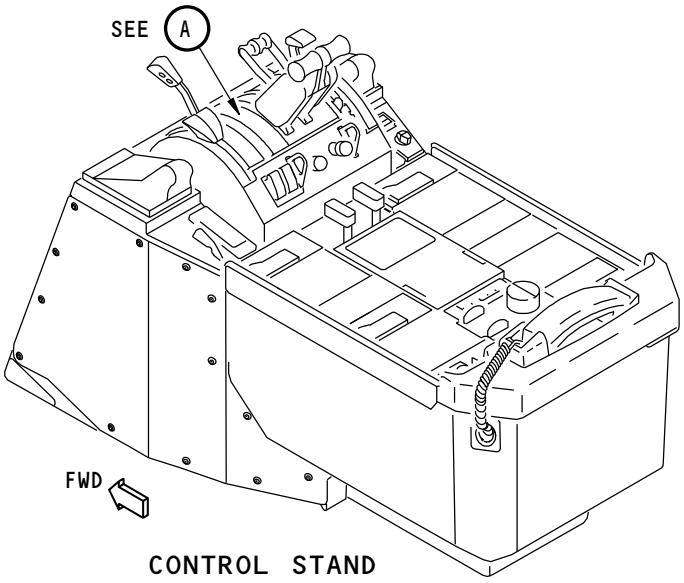
(2) Do these steps to remove the shaft assembly [19]:

(a) Remove the bolts [18] (3 locations) from the support assembly [17].

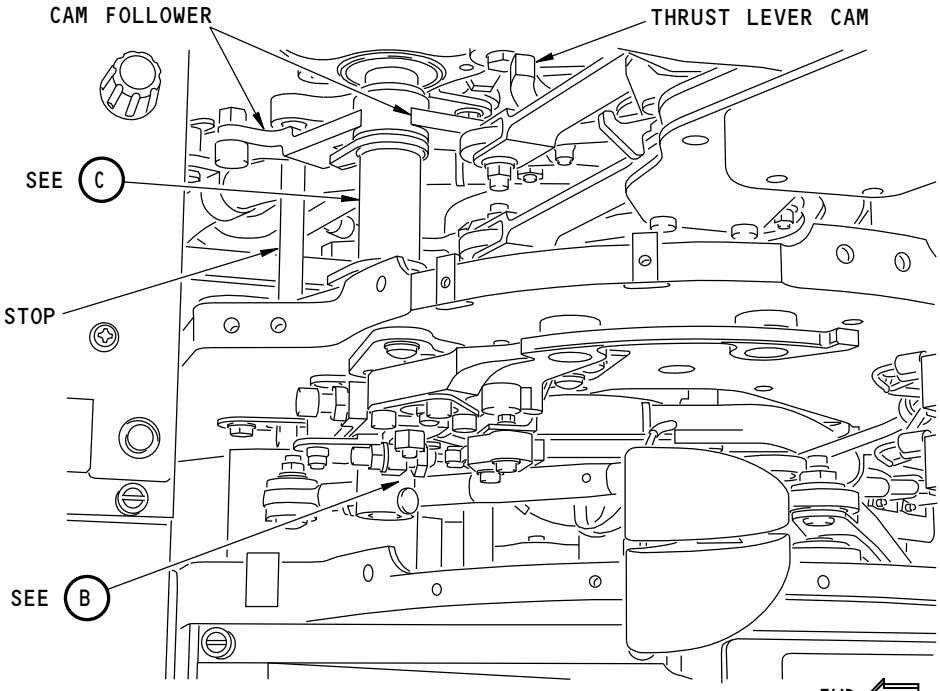
(b) Remove the shaft assembly [19]. Catch the washer [23], spacer [22], follower assembly [26], sleeve [21], and follower assembly [20] as you remove the shaft assembly [19].

——— END OF TASK ———

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CONTROL STAND



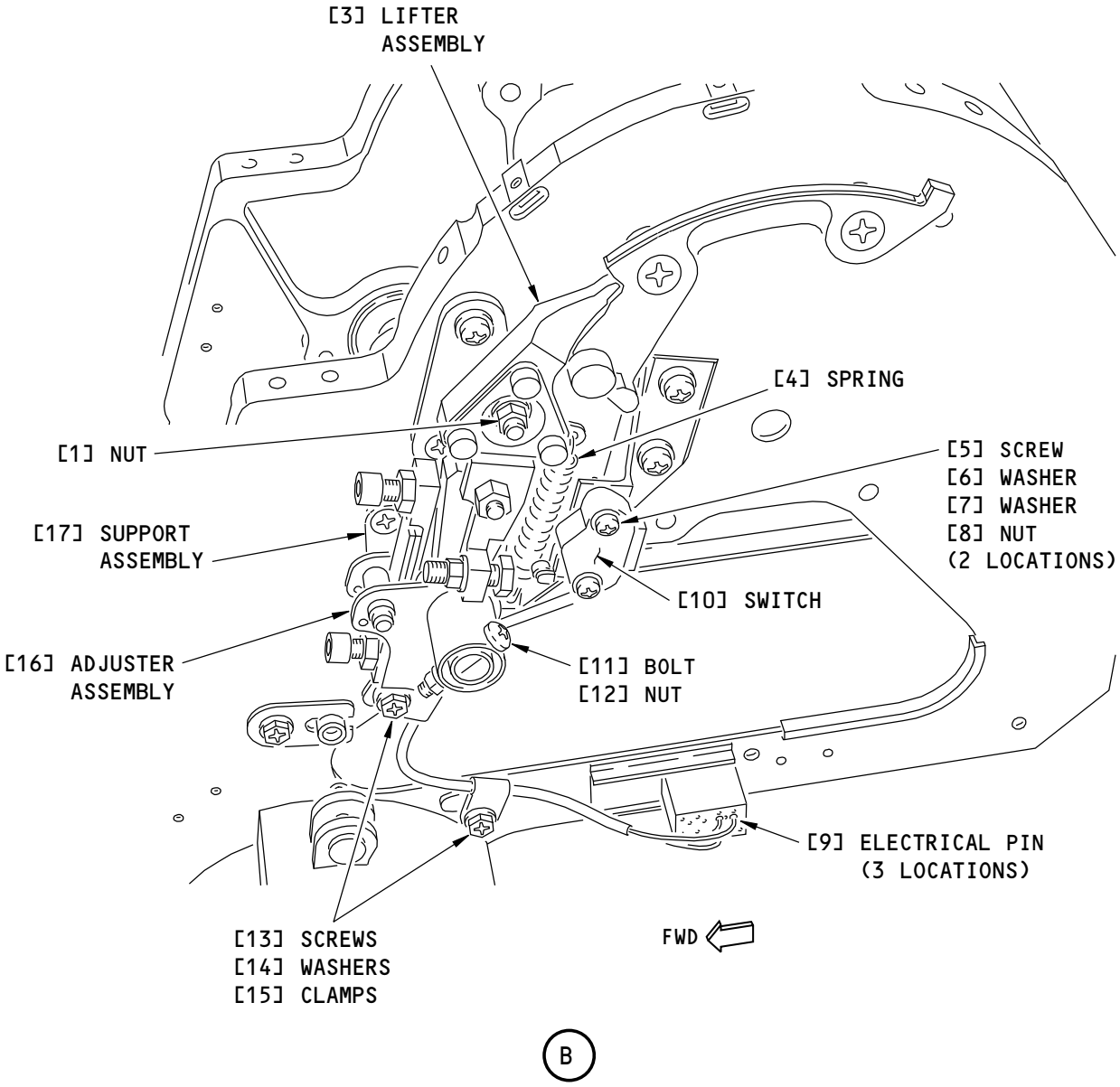
(SPEEDBRAKE LEVER REMOVED)

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RTO Mechanism Installation
Figure 401/27-62-03-990-801 (Sheet 1 of 3)

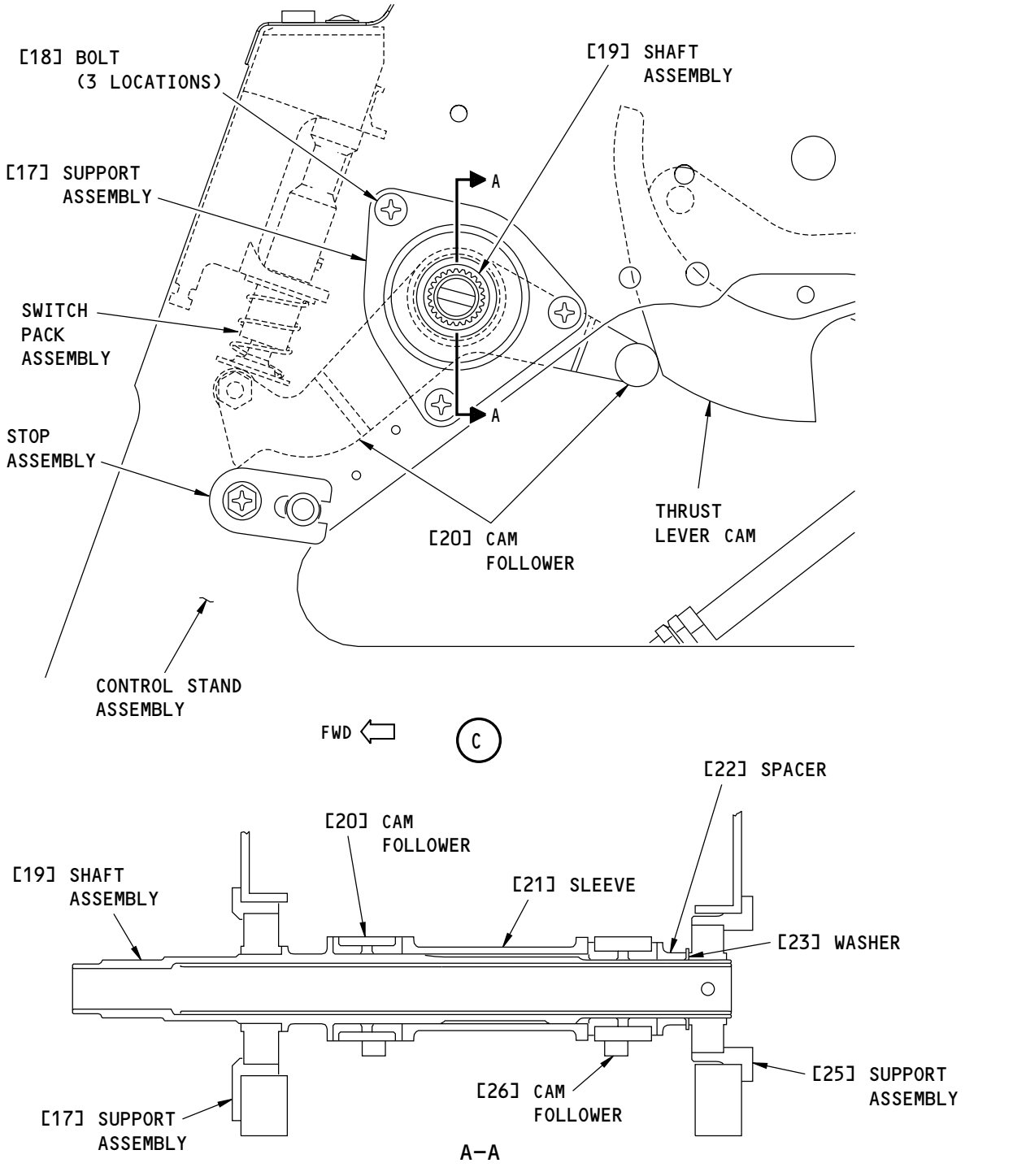
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RTO Mechanism Installation
Figure 401/27-62-03-990-801 (Sheet 2 of 3)

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RTO Mechanism Installation
Figure 401/27-62-03-990-801 (Sheet 3 of 3)

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TASK 27-62-03-400-801

3. RTO Speedbrake Mechanism Installation

(Figure 401)

A. References

Reference	Title
27-62-00-820-801	Speedbrake Control System - Adjustment (P/B 501)
76-11-10-400-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Lifter assembly	27-62-03-05-110	ARO ALL
		27-62-03-05-150	ARO ALL
4	Spring	27-62-03-05-085	ARO ALL
16	Adjuster assembly	27-62-03-05-250	ARO ALL
17	Support assembly	27-62-03-05-280	ARO ALL
19	Shaft assembly	27-62-03-05-300	ARO ALL
20	Follower assembly	27-62-03-05-410	ARO ALL
21	Sleeve	27-62-03-05-405	ARO ALL
26	Follower assembly	27-62-03-05-355	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left

E. Procedure

SUBTASK 27-62-03-420-001

(1) Do these steps to install the shaft assembly [19]:

(a) Apply a layer of grease, D00633 or grease, D00013, on the follower assembly [20] and follower assembly [26].

(b) Install the shaft assembly [19], and install the parts that follow as you install the shaft assembly [19].

1) follower assembly [20] (engage this part with the thrust lever linkage)

2) sleeve [21]

3) follower assembly [26] (engage this part with the thrust lever linkage)

4) spacer [22]

5) washer [23]

(c) Install the support assembly [17].

(d) Install the bolts [18] (3 locations).

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SUBTASK 27-62-03-420-002

(2) Do these steps to install the adjuster assembly [16] and lifter assembly [3]:

(a) Put the adjuster assembly [16] on the shaft assembly [19].

(b) Install the bolt [11] and nut [12].

(c) Tighten the nut [12] to 12-15 pound-inches (1.4-1.7 newton-meters).

(d) Install the spring [4] and the lifter assembly [3].

(e) Install the nut [1].

SUBTASK 27-62-03-820-001

(3) Adjust the RTO Speedbrake Mechanism and Switch, do this task: Speedbrake Control System - Adjustment, TASK 27-62-00-820-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-03-010-002

(1) Do this task: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation, TASK 76-11-10-400-805-H00.

SUBTASK 27-62-03-860-007

(2) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

SUBTASK 27-62-03-860-008

(3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-62-03-860-005

(4) Put the three FLT CONTROL HYD VALVE POWER switches for the WING in the NORM position.

——— END OF TASK ———

TASK 27-62-03-000-802

4. RTO Speedbrake Switch Removal

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
76-11-10-000-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal (P/B 401)

B. Procedure

SUBTASK 27-62-03-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-62-03-860-010

(2) Put the three FLT CONTROL HYD VALVE POWER switches for the WING (on the overhead maintenance panel, P61) in the SHUT OFF position.

SUBTASK 27-62-03-860-011

(3) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

SUBTASK 27-62-03-860-012

WARNING

REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S AND F/O'S SEATS. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do these steps to deactivate the captain's and first officer's seats:

(a) Move the captain's and first officer's seats fully aft.

(b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

SUBTASK 27-62-03-010-003

(5) Do this task: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Removal, TASK 76-11-10-000-805-H00.

C. Procedure

SUBTASK 27-62-03-020-003

(1) Do these steps to remove the switch:

(a) Disconnect the electrical pins [9] (3 locations).

(b) Remove the screw [13], washer [14], and clamp [15].

(c) Remove the screws [5], washers [6], washers [7], and nuts [8] for the switch [10].

(d) Remove the switch [10].

END OF TASK

TASK 27-62-03-400-802

5. RTO Speedbrake Switch Installation

(Figure 401)

A. References

Reference	Title
27-62-00-820-801	Speedbrake Control System - Adjustment (P/B 501)

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(Continued)

Reference	Title
76-11-10-400-805-H00	Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation (P/B 401)
WDM 27-61-20	Wiring Diagram Manual

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Switch	27-62-03-05-060	ARO ALL

C. Procedure

SUBTASK 27-62-03-420-003

(1) Put the switch [10] in its position.

(a) Install the screws [5], washers [6], washers [7], and nuts [8].

(b) Connect the electrical pins [9] (3 locations) as follows (WDM 27-61-20):

1) Connect N.C. (normally closed) to PA5

2) Connect COM (common) to PB5

3) Connect N.O. (normally open) to PA6.

(c) Install the clamps [15], the washers [14], and screws [13].

SUBTASK 27-62-03-820-002

(2) Adjust the RTO Speedbrake Switch, do this task: Speedbrake Control System - Adjustment, TASK 27-62-00-820-801.

D. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-03-010-004

(1) Do this task: Control Stand Rails, Seal Retainers, Seal Assemblies, Covers, and Lightplates Installation, TASK 76-11-10-400-805-H00.

SUBTASK 27-62-03-860-013

(2) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)

SUBTASK 27-62-03-860-014

(3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT

Right Power Management Panel, P210

Row	Col	Number	Name
B	13	C25324	F/O SEAT

END OF TASK

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LEADING EDGE SLAT SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks for the leading edge slat system:

(1) A task to deactivate the leading edge slats

(2) A task to activate the leading edge slats

(3) A task to operate the system with primary control

(4) A task to operate the system with secondary control

(5) A task to operate the system with alternate control

(6) A task to manually operate the system without airplane power

(7) A task to retract the leading edge slats with the trailing edge flaps extended and disabled

(8) A task to extend the leading edge slats

(9) A task to retract the leading edge slats.

TASK 27-81-00-040-801

2. Leading Edge Slat - Deactivation

(Figure 201)

A. General

(1) Use this task to deactivate the leading edge slat system.

(2) There are two procedures in this task to deactivate the slats:

(a) If you will not do maintenance on the leading edge slat system, it is only necessary to do the Slat Deactivation procedure.

(b) If you will do maintenance on the leading edge slat system, do the Slat Deactivation procedure and the Deactivation for Slat Maintenance procedure.

B. References

Reference	Title
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
143	Main Landing Gear Wheel Well, Left
212	Flight Compartment, Right

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(Continued)

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

E. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

F. Slat Deactivation

SUBTASK 27-81-00-860-001

(1) Open these circuit breakers and install safety locks:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
ARO ALL			
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-81-00-480-015

(2) Put DO-NOT-OPERATE tags on the flap control lever and the ALTN FLAPS switches.

G. Deactivation for Slat Maintenance

NOTE: It is necessary to do the Slat Deactivation before you do the Deactivation for Slat Maintenance.

SUBTASK 27-81-00-040-007

(1) If you will do work on the leading edge slat system, do these steps:

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

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(c) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors for the slat primary control valve:

1) Disconnect the electrical connectors from the slat primary control valve, Figure 201.

NOTE: The slat primary control valve is installed in the left main wheel well.

2) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connectors on the primary control valve and the connector plugs.

NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

(d) Open this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

on the lower surface of the strakelet on the left wing.

(e) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electric motor for the slat Power Drive Unit (PDU):

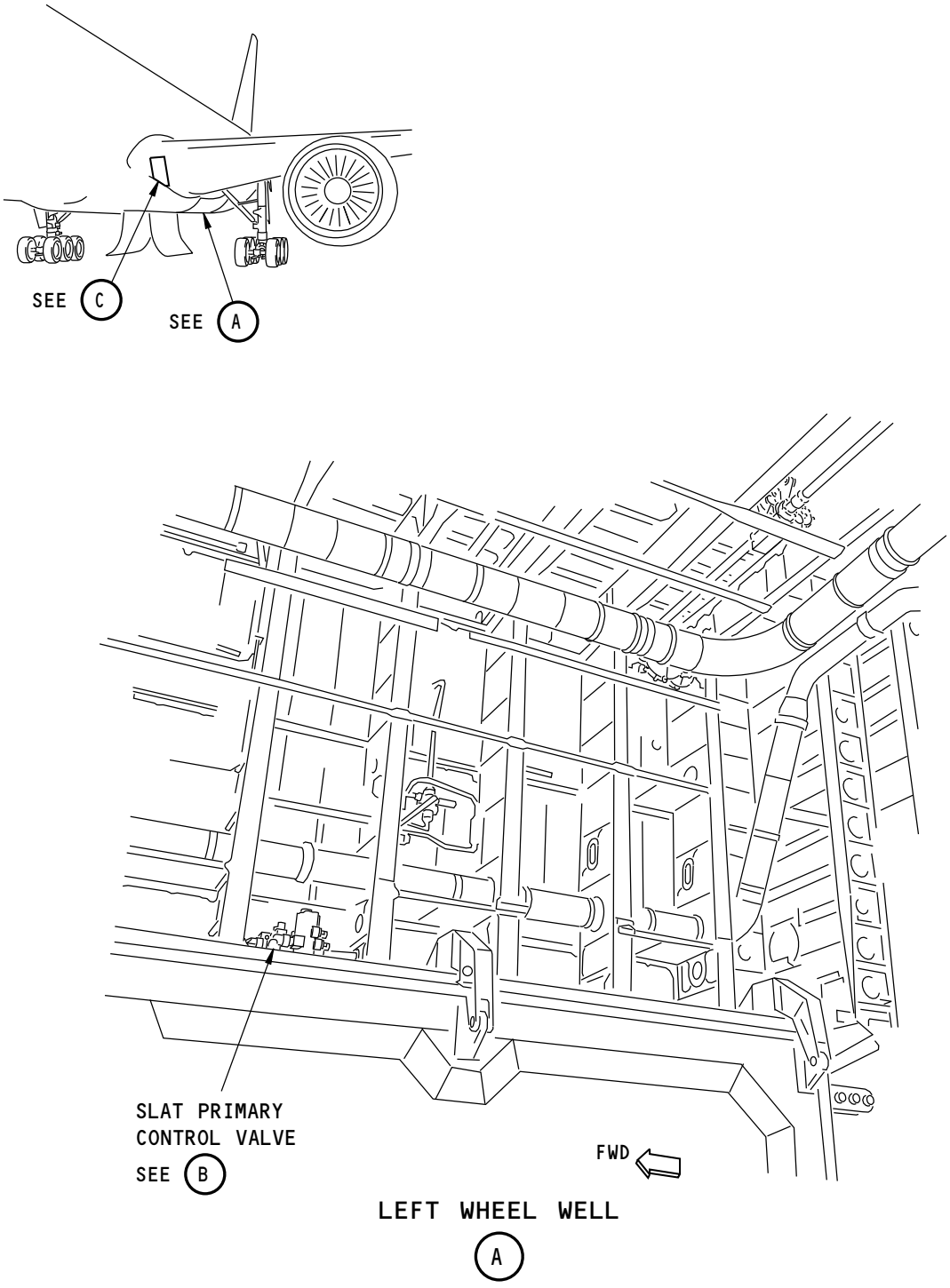
1) Disconnect the electrical connector from the slat electric motor, Figure 201.

2) Install the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 on the electrical connector on the electric motor and the connector plug.

NOTE: The cover for the electric motor is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

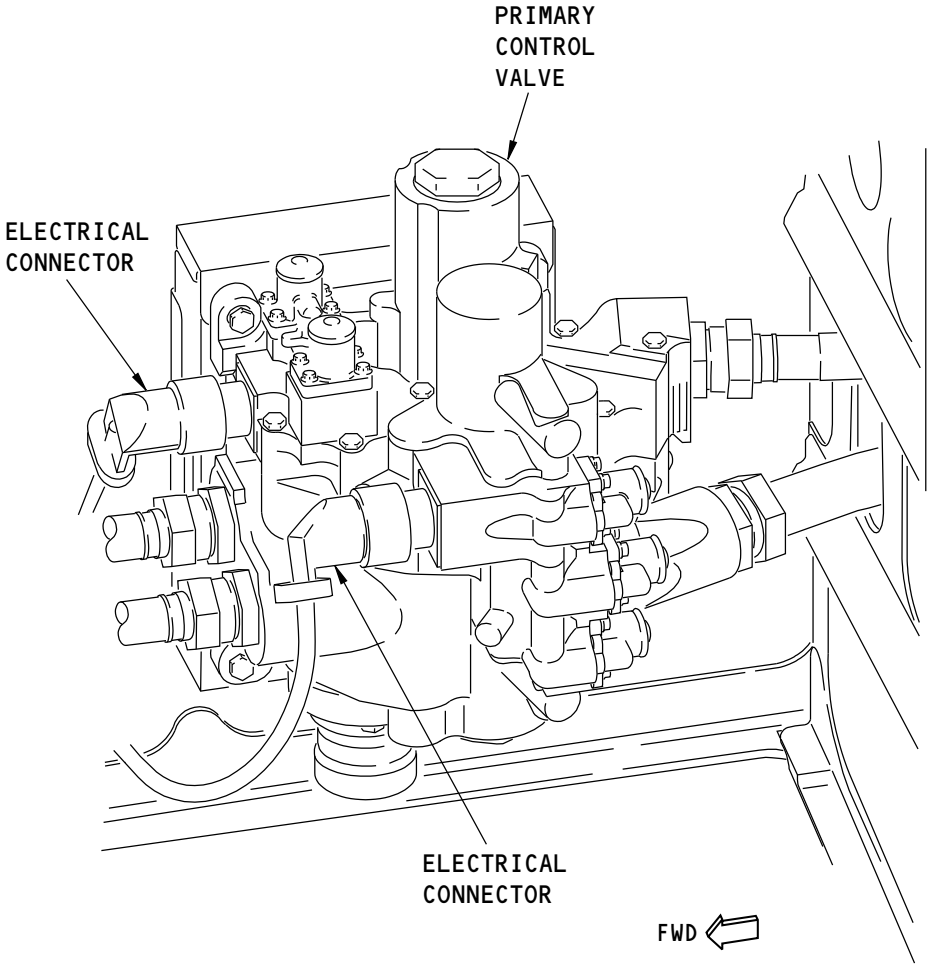
——— END OF TASK ———

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Leading Edge Slat Deactivation
Figure 201/27-81-00-990-801 (Sheet 1 of 3)

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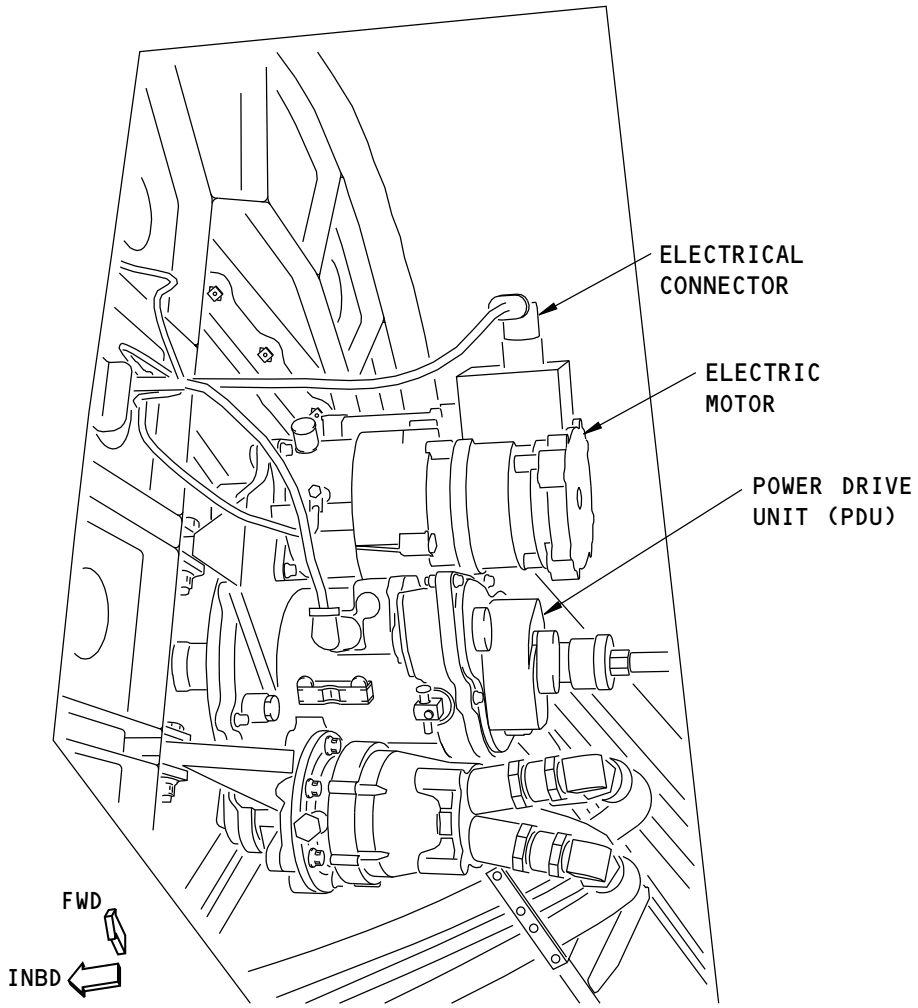
SLAT PRIMARY CONTROL VALVE

B

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Leading Edge Slat Deactivation
Figure 201/27-81-00-990-801 (Sheet 2 of 3)

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SLAT PDU

C

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Leading Edge Slat Deactivation
Figure 201/27-81-00-990-801 (Sheet 3 of 3)

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TASK 27-81-00-440-801

3. Leading Edge Slat Reactivation

(Figure 201)

A. General

(1) Use this procedure to reactivate the Leading Edge Slat System.

(2) It is necessary to do a test of the slat primary control valve and the slat electric motor during this procedure if the electrical connectors were disconnected.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-05-740-801	Slat Primary Control Valve Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1740	Covers - Electrical, L.E. Slats, T.E. Flaps and Flaperons Part #: J27037-1 Supplier: 81205

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
143	Main Landing Gear Wheel Well, Left
212	Flight Compartment, Right
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

E. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

F. Procedure

SUBTASK 27-81-00-440-007

(1) If the electrical connectors for the slat primary control valve and the electric motor were disconnected, do these steps:

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

(c) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electric motor on the slat Power Drive Unit (PDU):

NOTE: The cover for the PDU is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

1) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connector on the electric motor.

2) Connect the electrical connector to the slat electric motor.

(d) Close this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

(e) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the slat primary control valve:

NOTE: The cover for the primary control valve is part of the kit L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740.

1) Remove the L.E. slats, T.E. flaps and flaperons electrical cover, SPL-1740 from the electrical connectors for the primary control valve.

2) Connect the electrical connectors to the slat primary control valve.

SUBTASK 27-81-00-860-002

(2) Remove the safety locks and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
ARO ALL			
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-81-00-080-010

(3) Remove the DO-NOT-OPERATE tags from the flap control lever and the ALTN FLAPS switches.

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SUBTASK 27-81-00-710-003

(4) If you connected the electrical connectors for the slat primary control valve and the electric motor, do these tests of the slat drive system:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Make sure the thrust reverser cowls are closed.

1) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

2) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

CAUTION DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(c) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

(d) Do this task: Slat Primary Control Valve Test, TASK 27-81-05-740-801.

(e) Make sure the slat electric motor operates:

1) Use the alternate control system to electrically extend the slats for a minimum of two seconds.

2) Use the alternate control system to electrically retract the slats.

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(f) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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TASK 27-81-00-860-803

4. Leading Edge Slat System Operation With Primary Control

A. General

(1) The primary control system uses the center hydraulic system to move the slats.

(2) The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats at their usual rate. With the ACMPs only, the system will operate at approximately 1/5 the usual rate. To operate at the usual rate you must use the Air Driven Pumps (ADPs) or a hydraulic service cart to supply hydraulic power.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-81-00-860-031

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-210-001

(2) Make sure the covers are not installed on the electrical connectors for the slat primary control valve (Figure 201).

SUBTASK 27-81-00-210-015

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

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SUBTASK 27-81-00-210-007

CAUTION: MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-00-860-003

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats at their usual rate. With the ACMPs only, the system will operate at approximately 1/5 the usual rate. To operate at the usual rate you must use the Air Driven Pumps (ADPs) or a hydraulic service cart to supply hydraulic power.

SUBTASK 27-81-00-860-004

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAP TORQUE TUBES, SLAT TORQUE TUBES, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Move the flap control lever to the applicable detent position (Figure 202).

NOTE: The slats will move to the retracted position with the flap control lever in the UP position. The slats will move to the sealed position with the flap control lever in the 1, 5, 15 and 20-unit positions. The slats will move to the gapped position with the flap control lever in the 25 or 30-unit positions. The slats will not move to the retracted position with primary control until the flaps are in the retracted position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-005

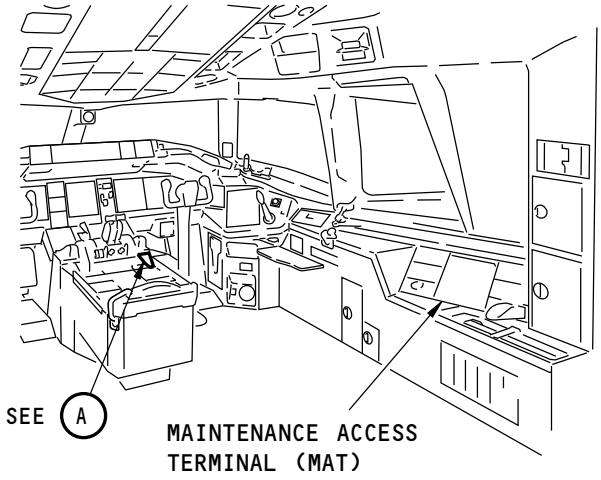
(1) Move the flap control lever to the UP position to retract the flaps and slats.

SUBTASK 27-81-00-860-032

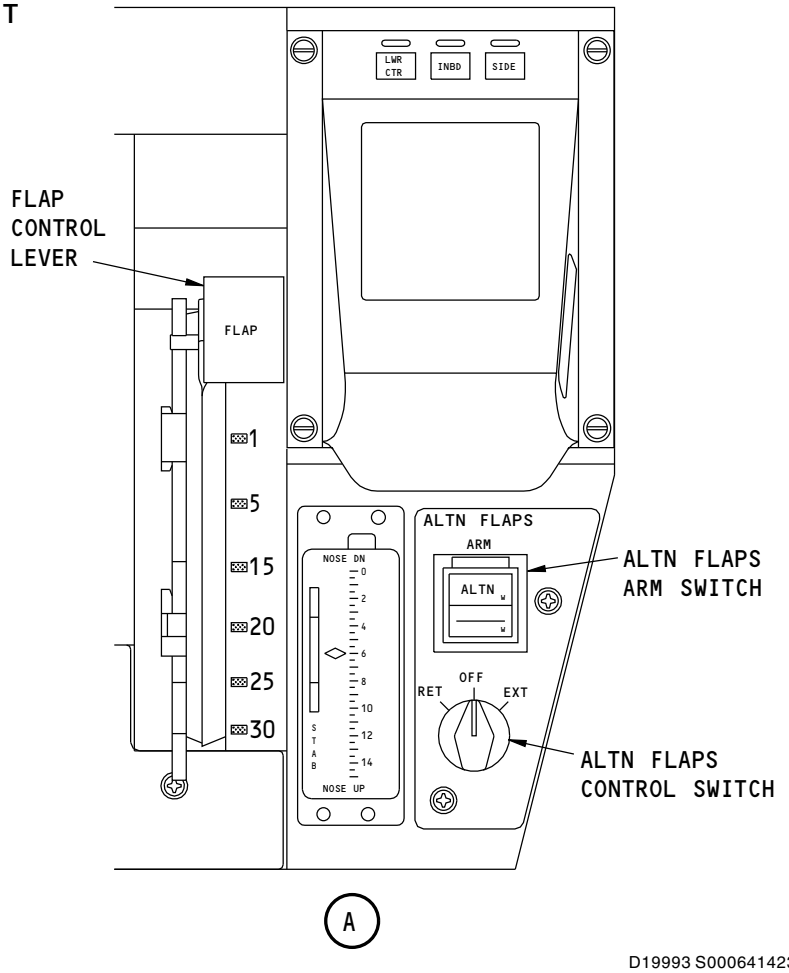
(2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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FLIGHT COMPARTMENT



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Leading Edge Slat System Operation
Figure 202/27-81-00-990-802

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TASK 27-81-00-860-801

5. Leading Edge Slat System Operation With Secondary Control

A. General

(1) The secondary control system uses electrical power to move the slats.

(2) It is necessary to override the secondary mode inhibit on the Maintenance Access Terminal (MAT) before you operate the system. For instructions on how to use a MAT, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(3) When you override the secondary mode inhibit, the slats will operate with the electric motor.

(4) If there has not been a fault in the primary system, the slats will move to the retracted, sealed or gapped positions. If there has been a fault in the primary system, the slats will only move to the retracted and gapped positions.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-81-00-860-034

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-210-002

(2) Make sure the covers are not installed on the electrical connectors for the slat primary control valve or the slat electric motor (Figure 201).

SUBTASK 27-81-00-210-017

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

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SUBTASK 27-81-00-210-008

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-00-860-006

(5) Use a maintenance access terminal (MAT) to override the secondary mode inhibit:

(a) Make these selections on the MAT:

1) OTHER FUNCTIONS
2) SPECIAL FUNCTIONS
3) 27 HIGH LIFT SYSTEM
4) SECONDARY MODE INHIBIT OVERRIDE-FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE-FSEU 2
5) CONTINUE
6) CONTINUE
7) START FUNCTION
8) CONTINUE

SUBTASK 27-81-00-860-007

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAP TORQUE TUBES, SLAT TORQUE TUBES, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Move the flap control lever to the applicable detent position (Figure 202).

NOTE: After you enable the secondary system, you have 15 seconds to move the flap control lever. It will be necessary to enable the secondary system again if you must move the slats again. With the flap control lever in the UP position, the slats will move to the retracted position. If there has been a fault with the primary system, and the flap control lever is not in the UP position, the slats will move to the gapped position and the secondary position display will show. If there has not been a fault with the primary system, and the flap control lever is in the 1, 5, 15 or 20-unit position, the slats will move to the sealed position and the primary display will show. If there has not been a fault with the primary system, and the flap control lever is in the 25 or 30-unit position, the slats will move to the gapped position and the primary display will show. The slats will not move to the retracted position with secondary control until the flaps are in the retracted position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-008

(1) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-81-00-860-009

(2) Move the flap control lever to the UP position to retract the slats.

END OF TASK

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TASK 27-81-00-860-802

6. Leading Edge Slat System Operation With Alternate Control

A. General

(1) The alternate control system uses electrical power to move the slats.

(2) The slats will not extend past the sealed position during alternate system operation.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-81-00-860-036

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-210-003

(2) Make sure the covers are not installed on the electrical connectors for the slat primary control valve or the slat electric motor (Figure 201).

SUBTASK 27-81-00-210-019

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-00-210-009

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-81-00-860-010

WARNING	MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAP TORQUE TUBES AND SLAT TORQUE TUBES. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION	DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(5) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-81-00-860-011

(6) Move the ALTN FLAPS control switch to EXT or RET to extend or retract the flaps and slats as it is necessary.

NOTE: The slats will not move to the retracted position with the alternate control system until the flaps are in the retracted position.

SUBTASK 27-81-00-860-012

(7) Move the ALTN FLAPS control switch to OFF.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-013

WARNING	MAKE SURE THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING	MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPERONS. THE FLAPERONS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION	DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(1) Move the ALTN FLAPS control switch until the slats and flaps are in the same position as the flap control lever or move the flap control lever to the position of the flaps and slats (Table 201).

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Table 201/27-81-00-993-811 Flap and Slat Position Indications

Flap Control Lever Position	SLAT POS EICAS Maintenance Page Indication	FLAP POS EICAS Maintenance Page Indication
UP	8.35 to 11.65	8.97 to 12.03
1	245.13 to 252.31	10.00 to 12.03
5	245.13 to 252.31	163.19 to 171.34
15	245.13 to 252.31	200.53 to 208.67
20	245.13 to 252.31	238.78 to 246.92
25	346.51 to 355.89	298.84 to 306.99
30	346.51 to 355.89	344.13 to 353.07

SUBTASK 27-81-00-860-014

(2) Move the ALTN FLAPS control switch to OFF.

SUBTASK 27-81-00-860-015

(3) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

SUBTASK 27-81-00-210-004

(4) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

——— END OF TASK ———

TASK 27-81-00-980-801

7. Leading Edge Slat System Manual Operation

A. General

(1) Use this task to manually operate the leading edge slats without airplane power.

(2) You can manually operate the full slat drive system with the wrench flats on the torque tube on the outboard end of the Power Drive Unit (PDU). You can also disconnect a torque tube and operate part of the slat drive system with a splined coupling adapter.

(3) You can use a spline adapter to operate the slat system manually when power is not available. Use the adapter with a nutrunner to fit on the spline of the PDU with the electric motor removed.

B. References

Reference	Title
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-34-000-801	Slat Electric Motor Removal (P/B 401)
27-81-34-400-801	Slat Electric Motor Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1735	Nutrunner - Angle, Pneumatic Drive, Reversible (meets 190 to 400 In. lbs torque requirement) Part #: 377-841U Supplier: 41812 Opt Part #: 35RNAL-104M Supplier: 65LN0 Opt Part #: 376-3223WK Supplier: 41812
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-8942	Spline Adaptor - LE/TE Power Drive Unit, Manual Drive Part #: J27015-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

E. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

F. Procedure

SUBTASK 27-81-00-010-003

(1) On the lower surface of the strakelet on the left wing, open this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-00-040-001

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-00-020-001

(3) If you will drive part of the slat drive system, disconnect the torque tube coupling from the gearbox where you want to drive the slats (Figure 203):

NOTE: It will be necessary to do the leading edge slat adjustment procedure when you connect the torque tube.

(a) Remove the screws [3] that attach the coupling sleeve [5] to the splined coupling [4].

(b) Disconnect the coupling sleeve [5] from the splined coupling [4].

SUBTASK 27-81-00-980-001

CAUTION DO NOT DRIVE THE SLATS WITH MORE THAN THE SPECIFIED TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE NO-BACK BRAKE/OFFSET GEARBOXES.

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(CAUTION PRECEDES)

CAUTION DO NOT LET THE MAIN TRACKS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE NO-BACK BRAKE/ OFFSET GEARBOXES.

(4) Use an LE slat drive torque tube coupling adapter, SPL-1694 with a pneumatic nutrunner, COM-1735 or the wrench flats [6] on the torque tube outboard of the PDU [1] to manually extend or retract the slats (Table 202):

NOTE: You can use the EICAS maintenance page to determine the approximate position of slats No. 1 and 14.

Table 202/27-81-00-993-812 Slat Positions

Slat Position	EICAS Maintenance Page Indications
UP	8.35 to 11.65
Sealed	245.13 to 252.31
Gapped	346.51 to 355.89

(a) If the temperature is higher than 35 °F, move the applicable slats with a torque less than the maximum torque shown (Table 203).

Table 203/27-81-00-993-813 Necessary Torque (Higher than 35 °F)

Slats Moved	Maximum Torque (Pound Inches)
4 or Less Outboard Slats	190
5 Outboard Slats	250
6 Outboard Slats	300
2 or Less Outboard Slats and 1 Inboard Slat	190
3 Outboard Slats and 1 Inbd Slat	250
4 Outboard Slats and 1 Inbd Slat	300
5 Outboard Slats and 1 Inbd Slat	350
6 Outboard Slats and 1 Inbd Slat (Full Wing)	400

(b) If the temperature is lower than 35 °F, use a torque wrench to measure the torque necessary to move the slats. The maximum torque is the torque you measured, plus the torque shown (Table 204).

Table 204/27-81-00-993-814 Necessary Torque (Lower than 35 °F)

Slats Moved	Additional Torque (Pound Inches)
6 or Less Outboard Slats	50
2 or Less Outboard Slats and 1 Inboard Slat	50
3 Outboard Slats and 1 Inbd Slat	60
4 Outboard Slats and 1 Inbd Slat	65
5 Outboard Slats and 1 Inbd Slat	75
6 Outboard Slats and 1 Inbd Slat (Full Wing)	80

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SUBTASK 27-81-00-980-002

(5) If you use the Spline Adaptor, SPL-8942 with a nutrunner installed on the spline of the power drive unit (PDU) with electric motor removed, do the steps that follow Figure 204:

(a) Do this task: Slat Electric Motor Removal, TASK 27-81-34-000-801.

(b) Install the Spline Adaptor, SPL-8942 and the nutrunner (customer furnished) as shown in Figure 204 (also on the placard of the Spline Adaptor, SPL-8942 box assembly).

(c) Make sure that the output torque is not more than 500 pound-inches during the manual operation of the slat drive system.

(d) Make sure that the slat drive system does not hit the extend or the retract overtravel stops at fast speed.

(e) Make sure that you do not operate the nutrunner at full speed near the jackscrew endstops.

(f) Do this task: Slat Electric Motor Installation, TASK 27-81-34-400-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-016

CAUTION DO NOT DRIVE THE SLATS WITH MORE THAN THE SPECIFIED TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE NO-BACK BRAKE/OFFSET GEARBOXES.

CAUTION DO NOT LET THE MAIN TRACKS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE NO-BACK BRAKE/OFFSET GEARBOXES.

(1) Manually turn the slat drive system until the slats are in a position which agrees with the flap control lever.

NOTE: You can use the EICAS maintenance page to determine the approximate position of slats No. 1 and 14 (Table 202). Do not use the EICAS maintenance page to determine if the slats are adjusted correctly.

SUBTASK 27-81-00-820-001

(2) If you disconnected a torque tube to operate the slats, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-00-440-001

(3) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

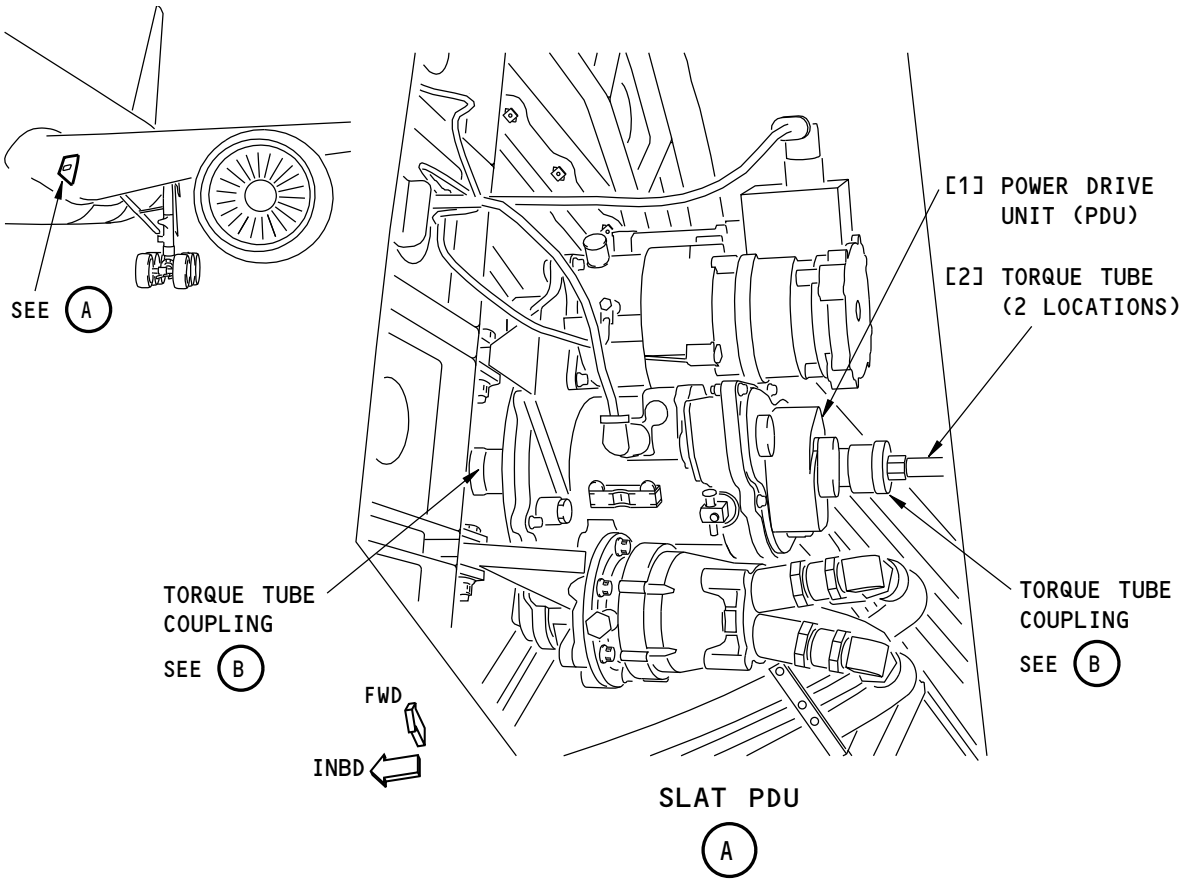
SUBTASK 27-81-00-010-004

(4) Close this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

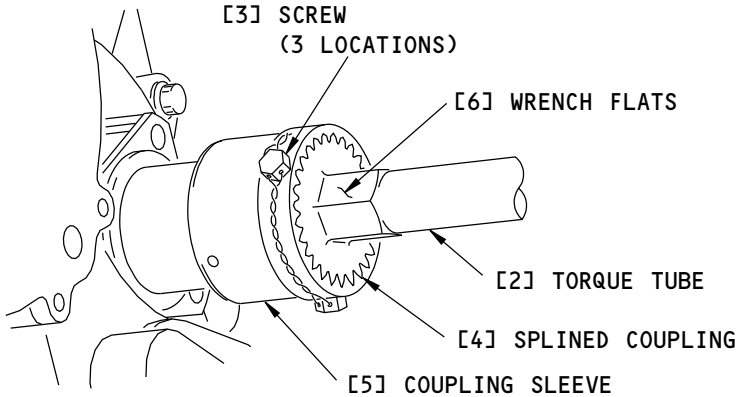
END OF TASK

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SLAT PDU

A



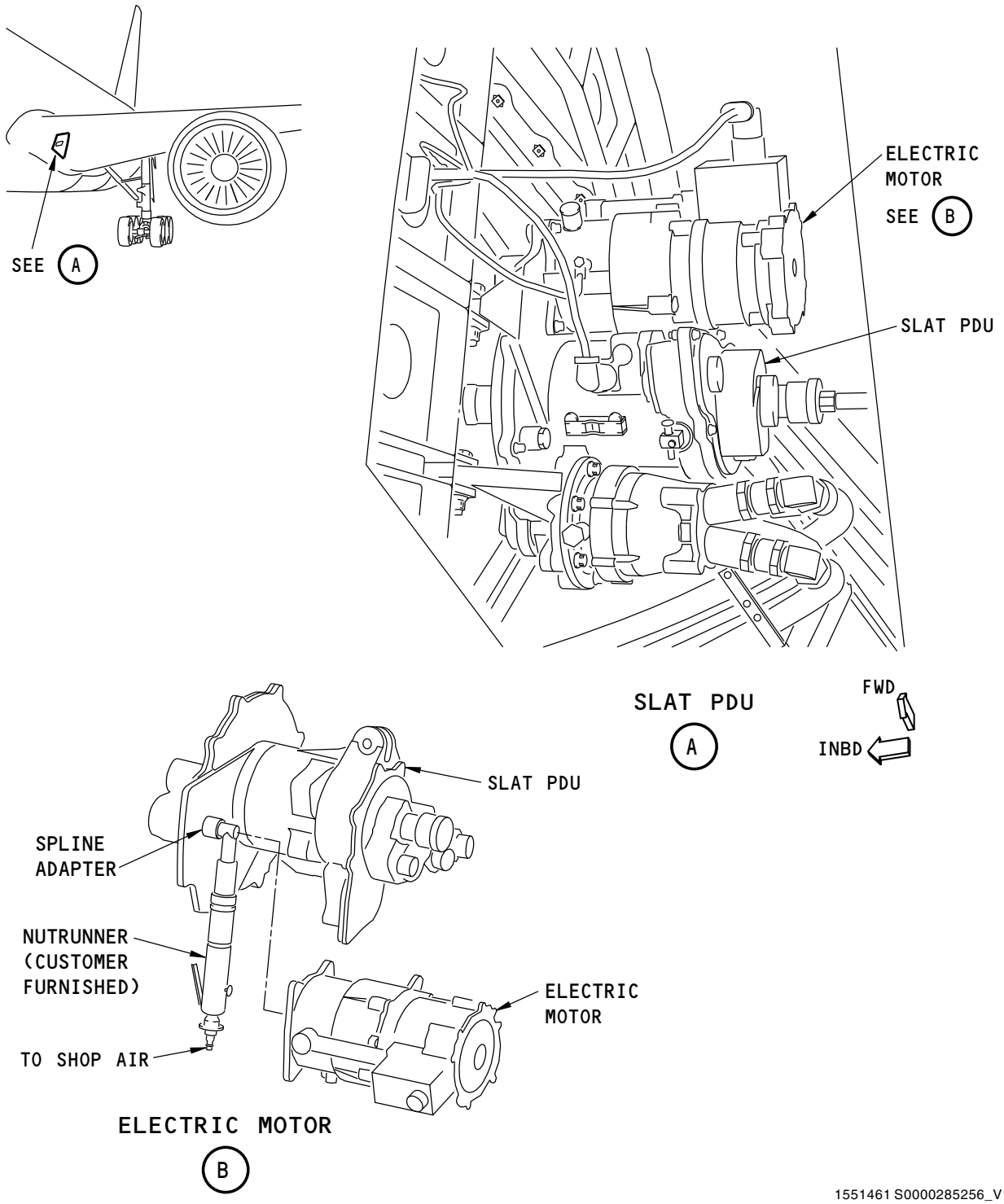
TORQUE TUBE COUPLING (EXAMPLE)

B

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Leading Edge Slat System Manual Operation
Figure 203/27-81-00-990-803

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Leading Edge slat and Trailing Edge Flap Spline Adaptor
Figure 204/27-81-00-990-817

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TASK 27-81-00-980-802

8. Leading Edge Slat Retraction with the Trailing Edge Flaps Extended and Disabled

A. General

(1) Use this task to retract the leading edge slats to the retracted position with the trailing edge flaps extended and disabled.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap Reactivation (P/B 201)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-81-00-860-038

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-210-005

(2) Make sure the flap control lever is in the 30-unit position.

SUBTASK 27-81-00-480-008

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-81-00-480-009

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-81-00-040-002

WARNING DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Trailing Edge Flap Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-81-00-860-017

(6) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-81-00-010-005

(7) Get access to the flap position sensor gearbox in the right wheel well (Figure 205).

SUBTASK 27-81-00-020-002

(8) Disconnect the electrical connector DS27004 from the flap limit switch.

SUBTASK 27-81-00-480-003

(9) Install a jumper wire between pins 4 and 6 on electrical connector DS27004.

NOTE: This step will allow the slats to move to the retracted position with alternate control when the flaps are not retracted.

(a) Install a REMOVE BEFORE FLIGHT tag on the jumper wire.

SUBTASK 27-81-00-860-018

(10) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-81-00-860-019

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SLATS AND THE SLAT TORQUE TUBES. THE SLATS AND TORQUE TUBES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(11) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-81-00-860-020

(12) Move the ALTN FLAPS control switch to RET to retract the slats to the retracted position.

SUBTASK 27-81-00-860-021

(13) Move the ALTN FLAPS control switch to OFF.

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E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-210-021

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-00-860-022

WARNING MAKE SURE THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPERONS. THE FLAPERONS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(2) Move the ALTN FLAPS control switch to move the slats until they are in a position that agrees with the position of the flap control lever.

SUBTASK 27-81-00-860-023

(3) Move the ALTN FLAPS control switch to OFF.

SUBTASK 27-81-00-860-024

(4) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

(a) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

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SUBTASK 27-81-00-860-025

(5) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-81-00-080-003

(6) Remove the jumper wire from the electrical connector DS27004 in the right main wheel well.

SUBTASK 27-81-00-420-001

(7) Connect the electrical connector DS27004 to the flap limit switch.

SUBTASK 27-81-00-860-026

(8) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

SUBTASK 27-81-00-440-002

(9) Do this task: Trailing Edge Flap Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-81-00-710-002

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS AND SLATS. THE FLAPS AND SLATS WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(10) Make sure the flap limit switch operates correctly:

(a) Use the alternate control system to electrically extend the flaps and slats for a minimum of two seconds.

(b) Use the alternate control system to electrically retract the flaps and slats.

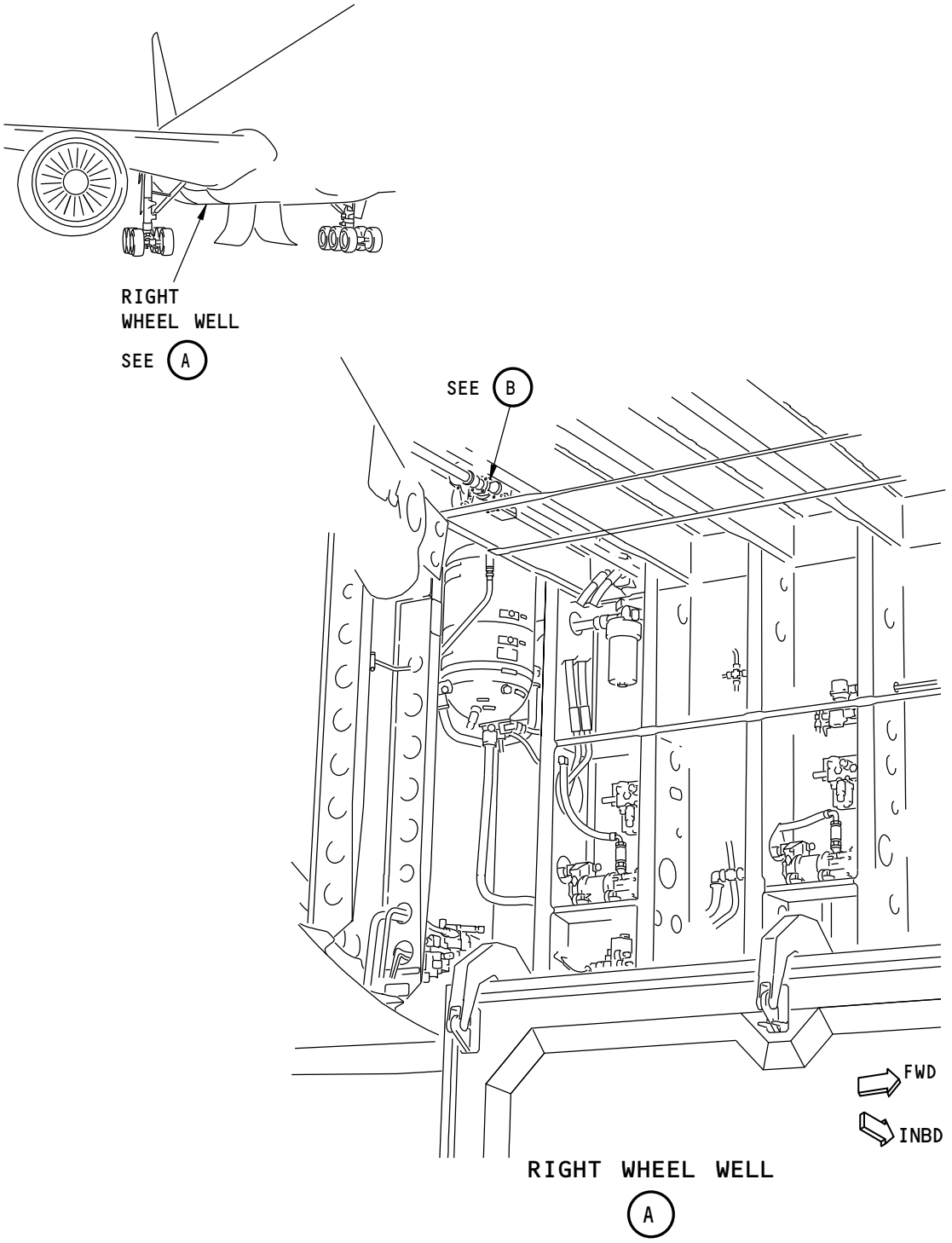
SUBTASK 27-81-00-080-005

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(11) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

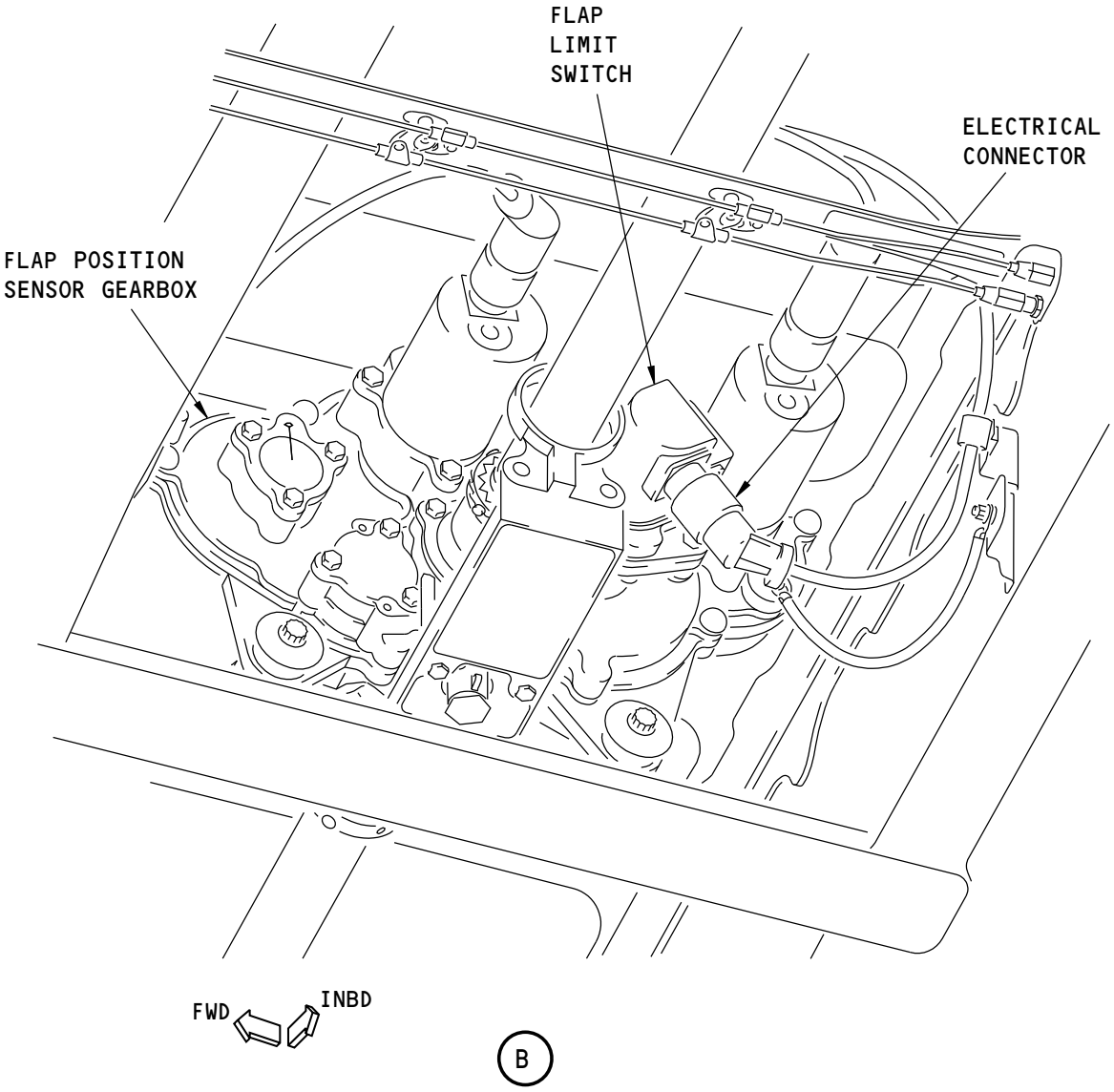
END OF TASK

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Flap Position Sensor Gearbox
Figure 205/27-81-00-990-804 (Sheet 1 of 2)

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Flap Position Sensor Gearbox
Figure 205/27-81-00-990-804 (Sheet 2 of 2)

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TASK 27-81-00-860-804

9. Extend the Leading Edge Slats

A. Location Zones

Zone	Area
212	Flight Compartment, Right
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

B. Procedure

SUBTASK 27-81-00-210-023

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-00-210-010

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-00-860-040

(3) Do one of the these tasks to extend the slats.

(a) To extend the slats with hydraulic power, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(b) To extend the slats with electrical power in secondary mode, do this task: Leading Edge Slat System Operation With Secondary Control, TASK 27-81-00-860-801.

NOTE: You can only extend the slats to the gapped position in secondary mode on the ground.

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CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(c) To extend the slats with electrical power in alternate mode, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

NOTE: You can only extend the slats to the sealed position in alternate mode.

(d) To manually extend the slats, do this task: Leading Edge Slat System Manual Operation, TASK 27-81-00-980-801.

——— END OF TASK ———

TASK 27-81-00-860-805

10. Retract the Leading Edge Slats

A. Location Zones

Zone	Area
212	Flight Compartment, Right
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

B. Procedure

SUBTASK 27-81-00-210-011

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-00-860-041

(2) Do one of the these tasks to retract the slats.

(a) To retract the slats with hydraulic power, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(b) To retract the slats with electrical power in secondary mode, do this task: Leading Edge Slat System Operation With Secondary Control, TASK 27-81-00-860-801.

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(c) To retract the slats with electrical power in alternate mode, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

(d) To manually retract the slats, do this task: Leading Edge Slat System Manual Operation, TASK 27-81-00-980-801.

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(e) To retract the slats when the flaps are extended and deactivated, do this task: Leading Edge Slat Retraction with the Trailing Edge Flaps Extended and Disabled, TASK 27-81-00-980-802.

END OF TASK

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LEADING EDGE SLAT SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An adjustment of the drive system for the leading edge slats

(2) An automatic test of the primary slat control system

(3) An automatic test of the secondary slat control system

(4) A test of the alternate slat control system

(5) A test of the priority valve for the main landing gear

(6) A test of the no-back brakes on the offset gearboxes

(7) A check to make sure the leading edge slats are adjusted correctly.

TASK 27-81-00-820-801

2. Leading Edge Slat Drive System Adjustment

A. General

(1) This task makes sure the Power Drive Unit (PDU), the inboard slat and the outboard slat drive systems are in the fully retracted position. The procedure to adjust the inboard slats is in (TASK 27-81-10-400-801). The procedure to adjust the outboard slats is in (TASK 27-81-15-400-801). The procedure to adjust the Krueger flap is in (TASK 27-81-21-400-801).

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-10-400-801	Inboard Leading Edge Slat Installation (P/B 401)
27-81-15-400-801	Outboard Leading Edge Slat Installation (P/B 401)
27-81-21-400-801	Krueger Flap Installation (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

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(Continued)

Reference	Description
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205
SPL-1756	Pin - Ground Lock (J27030-2 Included in Kits J27030-1 and J27030-29) Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
24	Packing	27-81-38-02-015	ARO ALL

F. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
521	Leading Edge to Front Spar - Outboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing
621	Leading Edge to Front Spar - Outboard of Nacelle Strut - Right Wing

G. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

H. Prepare for the Adjustment

SUBTASK 27-81-00-040-006

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-00-860-042

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-860-043

(3) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-00-040-003

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-00-200-001

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

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I. Slat Power Drive Unit (PDU) Adjustment

SUBTASK 27-81-00-010-010

(1) To get access to the PDU, remove this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-00-480-016

(2) Push in the rig pin [3] for the PDU [1] and install the ground lock pin (J27030-2 Included in Kits J27030-1 and J27030-29), SPL-1756 [2] (Figure 501).

NOTE: When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [3].

SUBTASK 27-81-00-820-011

(3) If you cannot easily push in the rig pin [3], change the position of the PDU [1] to the retracted position:

NOTE: To remove the backlash in the drive system, you must move the PDU to the retracted position in the retract direction.

(a) Use the wrench flats on the torque tube [7] to manually turn the PDU in the extend direction approximately one turn of the torque tube.

(b) Manually turn the PDU [1] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

NOTE: This step will remove the backlash in the slat drive system.

(c) Push in the rig pin [3] on the PDU [1] and hold it.

(d) Install the ground lockpin [2] in the rig pin [3].

(e) Make sure the PDU [1] is locked in this position:

NOTE: If the PDU [1] is not locked in this position, move the PDU [1] to the retracted position again.

1) Manually try to turn the PDU [1] in the retract direction.

2) Manually try to turn the PDU [1] in the extend direction.

J. Inboard Slat Drive System Adjustment

SUBTASK 27-81-00-820-003

(1) Use the rig pin to make sure the PDU is in the retracted position.

SUBTASK 27-81-00-010-007

(2) Remove the fixed leading edge panels from the lower surface of the wing to get access to the main tracks for the inboard slat:

(a) For slat No. 7, remove these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611EB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
611LB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-00-200-004

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(3) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-00-820-004

(4) Make sure the inboard and outboard main tracks for the inboard slats [21] are in the retracted position (Figure 502):

(a) Install the inboard slat rig pins [22], which are part of leading edge slat installation rigging equipment, SPL-1721, in the rig pin holes for the inboard and outboard main tracks.

(b) If the main tracks do not touch the rig pins [22], retract the inboard slat drive system:

NOTE: If the position of the inboard slat has been adjusted to align with the fixed structure, it is not necessary for the slat tracks to touch the rig pins.

1) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on the torque tube [7] outboard of the outboard offset gearbox [23] for the inboard slat [21].

2) Disconnect the torque tube [7] outboard of the outboard offset gearbox [23] for the inboard slat [21].

a) Remove the screws [5] from the coupling sleeve [8].

b) Move the coupling sleeve [8] off the splined coupling [6].

3) Disconnect the torque tube [7] inboard of the inboard offset gearbox [23] for the inboard slat [21].

a) Remove the bolts [28], washers [27] and plate [26] that attach the seal tube [25].

b) Move the seal tube [25] inboard, away from the offset gearbox [23].

c) Remove the screws [5] from the coupling sleeve [8].

d) Move the coupling sleeve [8] off the splined coupling [6].

4) If one main track does not touch the rig pin [22], disconnect the torque tube [7] between the offset gearboxes [23] (Figure 502).

a) Remove the screws [5] from the coupling sleeve [8].

b) Move the coupling sleeve [8] off the splined coupling [6].

CAUTION DO NOT DRIVE THE SLAT WITH MORE THAN 190 POUND-INCHES OF TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE OFFSET GEARBOXES.

5) Use a LE slat drive torque tube coupling adapter, SPL-1694 to carefully turn the offset gearbox to retract the main track until the main track touches the rig pin [22].

6) Connect the torque tubes [7] between the offset gearboxes [23], to the inboard offset gearbox [23] and the outboard offset gearbox [23] for the inboard slat [21]:

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a) Apply grease, D00633 to the coupling sleeves [8].

b) Move the coupling sleeves [8] on the splined couplings [6].

c) Install the screws [5] to attach the coupling sleeves [8].

d) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

e) Install lockwire on the screws [5].

7) For the inboard offset gearbox [23] on the inboard slat [21], move the seal tube [25] to its usual position:

a) If it is necessary, install a new packing [24] on the seal tube [25].

b) Apply grease, D00013 to the packing [24] on the seal tube [25].

c) Move the seal tube [25] outboard to the offset gearbox [23].

d) Apply grease, D00013 to the bolts [28].

e) Put the plate [26] in its position and install the bolts [28] and washers [27].

8) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [7].

(c) Remove the inboard slat rig pins [22].

SUBTASK 27-81-00-220-001

(5) At the inboard and outboard ends of the inboard slat [21], measure the mismatch between the slat and the fixed structure Figure 502.

SUBTASK 27-81-00-820-005

(6) If the mismatch is not in the limit of 0.00 ±0.10 inch, adjust the position of the inboard slat [21]:

NOTE: After slats have been rigged within rigging tolerance, a mismatch of 0.100 ±0.080 in. (2.540 ±2.032 mm) between the slat nose and the fixed leading edge nose (resulting from subsequent drive system actuation) is permitted. The maximum permitted adjustment of the inboard slat is 0.10 inch (0.73 torque tube turns) in the extend direction. It is necessary to retract the slat to its final position. You can not adjust the slat in the retract direction.

(a) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube [7] outboard of the applicable inboard slat [21].

(b) Disconnect the torque tubes [7] from the offset gearbox [23] on the end of the slat [21] that does not align:

1) For the inboard offset gearbox [23] for the inboard slat [21], move the seal tube [25]:

a) Remove the bolts [28], washers [27] and plate [26] that attach the seal tube [25].

b) Move the seal tube [25] inboard, away from the offset gearbox [23].

2) Remove the screws [5] from the coupling sleeves [8].

3) Move the coupling sleeves [8] off the splined couplings [6].

(c) Adjust the position of the inboard slat [21]:

1) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the coupling sleeve [8] on the offset gearbox [23] in the extend direction to move the slat 0.22 to 0.35 inch (1.6 to 2.5 torque tube turns).

NOTE: This step is necessary so you can retract the slat to the final position.

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2) Manually turn the coupling sleeve [8] in the retract direction until the mismatch is in the limit.

(d) Connect the torque tubes [7] to the applicable offset gearbox [23]:

1) Apply grease, D00633 to the coupling sleeves [8].
2) Put the coupling sleeves [8] on the splined couplings [6].
3) Install the screws [5] to attach the coupling sleeves [8].
4) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

5) Install lockwire on the screws [5].
6) For the inboard offset gearbox [23] on the inboard slat [21], move the seal tube [25] to its usual position:
   a) If it is necessary, install a new packing [24] on the seal tube [25].
   b) Apply grease, D00013 to the packing [24] on the seal tube [25].
   c) Move the seal tube [25] outboard to the offset gearbox [23].
   d) Put the plate [26] in its position and install the bolts [28] and washers [27].

(e) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube [7] outboard of the inboard slat [21].

SUBTASK 27-81-00-200-002

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(7) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-00-410-001

(8) Install the fixed leading edge panels for the inboard slat:

(a) For slat No. 7, install these access panel:

(TASK 06-30-00-800-806)

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, install these access panel:

(TASK 06-30-00-800-807)

Number	Name/Location
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel

K. Outboard Slat Drive System Adjustment

SUBTASK 27-81-00-820-006

(1) Use the rig pin to make sure the PDU is in the retracted position (Figure 501).

SUBTASK 27-81-00-010-008

(2) Remove the fixed leading edge panels to get access to the applicable offset gearboxes [32] for the outboard slats [42] (Figure 503) (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807).

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(a) For slat No. 1, remove these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4,remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, remove these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, remove these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

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(k) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, remove these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-00-200-005

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(3) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-00-820-007

(4) If the drive system for the outboard slats has not been disconnected, do these steps to make sure the outboard slats are in the retracted position:

(a) Install outboard slat rig pins [31], which are part of leading edge slat installation rigging equipment, SPL-1721, in the main track ribs for one pair of outboard slat main tracks on each wing (Table 501).

(b) If neither of the main tracks for the pair touch the rig pin, retract the outboard slat drive system:

1) Disconnect the torque tube [7] from the inboard end of the inboard offset gearbox [32] on slat No. 6 or 9.

a) Remove the screws [5] from the coupling sleeve [8].

b) Move the coupling sleeve [8] off the splined coupling [6].

CAUTION DO NOT DRIVE THE SLATS WITH MORE THAN THE SPECIFIED TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE OFFSET GEARBOXES.

2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the offset gearbox [32] to retract the slats until one of the main tracks touches the rig pin [31].

a) If the temperature is more than 35 °F, retract the slats with a maximum torque of 300 pound-inches.

b) If the temperature is less than 35 °F, use a torque wrench to measure the torque necessary to manually retract the slats.

c) Retract the slats with a maximum torque of the torque you measured + 50 pound-inches.

3) Connect the torque tubes [7] to the offset gearboxes [32]:

a) Apply grease, D00633 to the coupling sleeves [8].

b) Move the coupling sleeves [8] on the splined couplings [6].

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c) Install the screws [5] to attach the coupling sleeves [8].

d) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

e) Install lockwire on the screws [5].

Table 501/27-81-00-993-815 Outboard Slat Main Track Pairs

Inboard End of Slat No.	Outboard End of Slat No.	Note
1	2	
2	3	
3	4	*[1]
4	5	
5	6	
10	9	
11	10	
12	11	*[1]
13	12	
14	13	

*[1] ** Note: Recommended Rig Pin location if the slat drive system was not disconnected.

SUBTASK 27-81-00-820-008

(5) If the drive system for the outboard slats is disconnected between adjacent slats, do these steps to make sure the outboard slats are in the retracted position:

(a) Install outboard slat rig pins [31], which are part of leading edge slat installation rigging equipment, SPL-1721, in a pair of main track ribs for the slats inboard of the position where the slats are disconnected (Table 501).

(b) If neither of the main tracks for the pair touch the rig pin [31], retract the outboard slat drive system inboard of the position where the drive system is disconnected:

1) Disconnect the torque tube [7] from the inboard end of the inboard offset gearbox on slat No. 6 or 9 [32]:

a) Remove the screws [5] from the coupling sleeve [8].

b) Move the coupling sleeve [8] off the splined coupling [6].

CAUTION DO NOT DRIVE THE SLATS WITH MORE THAN THE SPECIFIED TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE OFFSET GEARBOXES.

2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the offset gearbox [32] to retract the slats until one of the main tracks touches the rig pin [31].

a) If you will retract four or less outboard slats, and if the temperature is more than 35 °F, retract the slats with a maximum torque of 190 pound-inches.

b) If you will retract five outboard slats, and if the temperature is more than 35 °F, retract the slats with a maximum torque of 250 pound-inches.

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c) If the temperature is less than 35 °F, use a torque wrench to measure the torque necessary to manually retract the slats.

d) Retract the slats with a maximum torque of the torque you measured + 50 pound-inches.

3) Connect the torque tube [7] to the offset gearbox [32]:

a) Apply grease, D00633 to the coupling sleeves [8].

b) Move the coupling sleeves [8] on the splined couplings [6].

c) Install the screws [5] to attach the coupling sleeves [8].

d) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

e) Install lockwire on the screws [5].

(c) Install outboard slat rig pins [31], which are part of leading edge slat installation rigging equipment, SPL-1721, in a pair of main track ribs for the slats outboard of the position where the slats are disconnected (Table 501).

(d) If neither of the main tracks for the pair touch the rig pin [31], retract the outboard slat drive system outboard of the position where the drive system is disconnected:

CAUTION

DO NOT DRIVE THE SLATS WITH MORE THAN THE SPECIFIED TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE OFFSET GEARBOXES.

1) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the offset gearbox [32] to retract the slats until one of the main tracks touches the rig pin [31]:

a) If you will retract four or less outboard slats, and if the temperature is more than 35 °F, retract the slats with a maximum torque of 190 pound-inches.

b) If you will retract five outboard slats, and if the temperature is more than 35 °F, retract the slats with a maximum torque of 250 pound-inches.

c) If the temperature is less than 35 °F, use a torque wrench to measure the torque necessary to manually retract the slats.

d) Retract the slats with a maximum torque of the torque you measured + 50 pound-inches.

(e) Connect the torque tube [7] where the outboard slat drive system is disconnected:

1) Apply grease, D00633 to the coupling sleeves [8].

2) Move the coupling sleeves [8] on the splined couplings [6].

3) Install the screws [5] to attach the coupling sleeves [8].

4) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

5) Install lockwire on the screws [5].

SUBTASK 27-81-00-820-009

(6) If the drive system for the outboard slats is disconnected between the two offset gearboxes [32] for an outboard slat, do these steps to make sure the outboard slats are in the retracted position:

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(a) Remove the fixed leading edge panels to get access to the main tracks for the applicable slat and a pair of main tracks inboard and outboard of the slat (Table 501).

(b) Disconnect the torque tubes [7] inboard of the inboard offset gearbox [32] and outboard of the outboard offset gearbox [32] for the applicable slat:

1) Remove the screws [5] from the coupling sleeve [8].
2) Move the coupling sleeve [8] off the splined coupling [6].

(c) Make sure the applicable slat is in the retracted position:

1) Install outboard slat rig pins [31], which are part of leading edge slat installation rigging equipment, SPL-1721, in the main track ribs for the applicable slat.
2) Adjust the position of the slat until the ends of the slat are extended approximately the same distance from the fixed structure.
3) Temporarily connect the torque tubes [7] between the offset gearboxes for the applicable slat:
   a) Move the coupling sleeves [8] on the splined couplings [6].
   b) Temporarily install the screws [5] to attach the coupling sleeves [8].

CAUTION DO NOT DRIVE THE SLAT WITH MORE THAN 190 POUND-INCHES TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE OFFSET GEARBOXES.

4) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the offset gearboxes [32] to retract the slat until one of the main tracks touches the rig pin [31].
5) Disconnect the torque tube [7] between the two offset gearboxes [32].
6) Manually turn the two offset gearboxes [32] to retract the slat until the main tracks touch the rig pins [31].
7) Connect the torque tube [7] between the two offset gearboxes.
8) Remove the rig pins [31] from the main track ribs.

(d) Make sure the outboard slat drive system inboard and outboard of the applicable slat is in the retracted position:

1) Install outboard slat rig pins [31], which are part of leading edge slat installation rigging equipment, SPL-1721, in a pair of main track ribs for the slats inboard of the applicable slat (Table 501).
2) If neither of the main tracks for the pair touch the rig pin [31], retract the outboard slat drive system inboard of the applicable slat:
   a) Disconnect the torque tube (7) from the inboard end of the inboard offset gearbox (32) on slat No. 6 or 9.

CAUTION DO NOT DRIVE THE SLATS WITH MORE THAN THE SPECIFIED TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE OFFSET GEARBOXES.

   b) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the offset gearbox to retract the slats until one of the main tracks touches the rig pin [31].

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c) If you will retract four or less outboard slats and the temperature is more than 35 °F, retract the slats with a maximum torque of 190 pound-inches.

d) If you will retract five outboard slats and the temperature is more than 35 °F, retract the slats with a maximum torque of 250 pound-inches.

e) If the temperature is less than 35 °F, use a torque wrench to measure the torque necessary to manually retract the slats.

f) Retract the slats with a maximum torque of the torque you measured + 50 pound-inches.

3) Connect the torque tube [7] to the offset gearbox [32]:

a) Apply grease, D00633 to the coupling sleeves [8].

b) Move the coupling sleeves [8] on the splined couplings [6].

c) Install the screws [5] to attach the coupling sleeves [8].

d) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

e) Install lockwire on the screws [5].

4) Remove the rig pins [31] from the main track ribs.

5) Install outboard slat rig pins [31] in a pair of main track ribs for the slats outboard of the applicable slat.

6) If neither of the main tracks for the pair touch the rig pin [31], retract the outboard slat drive system outboard of the applicable slat:

CAUTION DO NOT DRIVE THE SLATS WITH MORE THAN THE SPECIFIED TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUTS IN THE OFFSET GEARBOXES.

a) Manually turn the offset gearbox to retract the slats until one of the main tracks touches the rig pin.

b) If you will retract four or less outboard slats and the temperature is more than 35 °F, retract the slats with a maximum torque of 190 pound-inches.

c) If you will retract five outboard slats and the temperature is more than 35 °F, retract the slats with a maximum torque of 250 pound-inches.

d) If the temperature is less than 35 °F, use a torque wrench to measure the torque necessary to manually retract the slats.

e) Retract the slats with a maximum torque of the torque you measured + 50 pound-inches.

7) Connect the torque tube [7] to the outboard offset gearbox [32]:

a) Apply grease, D00633 to the coupling sleeves [8].

b) Move the coupling sleeves [8] on the splined couplings [6].

c) Install the screws [5] to attach the coupling sleeves [8].

d) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

e) Install lockwire on the screws [5].

8) Remove the rig pins [31] from the main track ribs outboard of the applicable slat.

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SUBTASK 27-81-00-220-002

(7) Measure the mismatch between the adjacent outboard slats and between the slats and fixed structure Figure 503.

NOTE: Measure the mismatch in a three inch area around the slat bullnose.

SUBTASK 27-81-00-820-010

(8) If the mismatch between adjacent slats or the fixed structure is not in the limit of 0.00 ±0.14 in. (0.00 ±3.56 mm), adjust the position of the end of the slat which is further retracted:

NOTE: After slats have been rigged within rigging tolerance, a mismatch of 0.185 in. (4.699 mm) max between the slats and and a mismatch of +0.185 in. (4.699 mm) or -0.085 in. (2.159 mm) between the slats and the adjacent fixed leading edge, resulting from subsequent drive system actuation is acceptable.

The maximum permitted adjustment of a slat is 0.15 inch (0.95 torque tube turns) in the extend direction. You can not adjust the slat in the retracted position. It is necessary to retract the slat to the final position.

(a) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the applicable slat.

(b) Disconnect the torque tubes [7] from the offset gearbox [32] on the end of the slat [42] that does not align:

1) Remove the screws [5] from the coupling sleeves [8].
2) Move the coupling sleeves [8] off the splined couplings [6].

(c) Adjust the position of the outboard slat [42]:

1) Turn the coupling sleeve [8] on the offset gearbox [32] in the extend direction to move the slat 0.27 to 0.40 inch (1.7 to 2.35 torque tube turns).

NOTE: This step is necessary so you can retract the slat to the final position.

2) Manually turn the coupling sleeve [8] in the retract direction until the mismatch is in the limit.

(d) Connect the torque tubes [7] to the applicable offset gearboxes [32]:

1) Apply grease, D00633 to the coupling sleeves [8].
2) Put the coupling sleeves [8] on the splined couplings [6].
3) Install the screws [5] to attach the coupling sleeves [8].
4) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

5) Install lockwire on the screws [5].

(e) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [7].

SUBTASK 27-81-00-200-003

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(9) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

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SUBTASK 27-81-00-410-004

(10) Install the applicable fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, install these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, install these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, install these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, install these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, install these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, install these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, install these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, install these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, install these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) For slat No. 12, install these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, install these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, install these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel

L. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-080-011

(1) Remove the ground lockpin [2] and make sure the rig pin [3] comes out of the PDU [1] (Figure 501):

(a) Make sure you can see the stripe [4] on the rig pin [3].

SUBTASK 27-81-00-440-003

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-00-410-002

(3) Install this access panel:

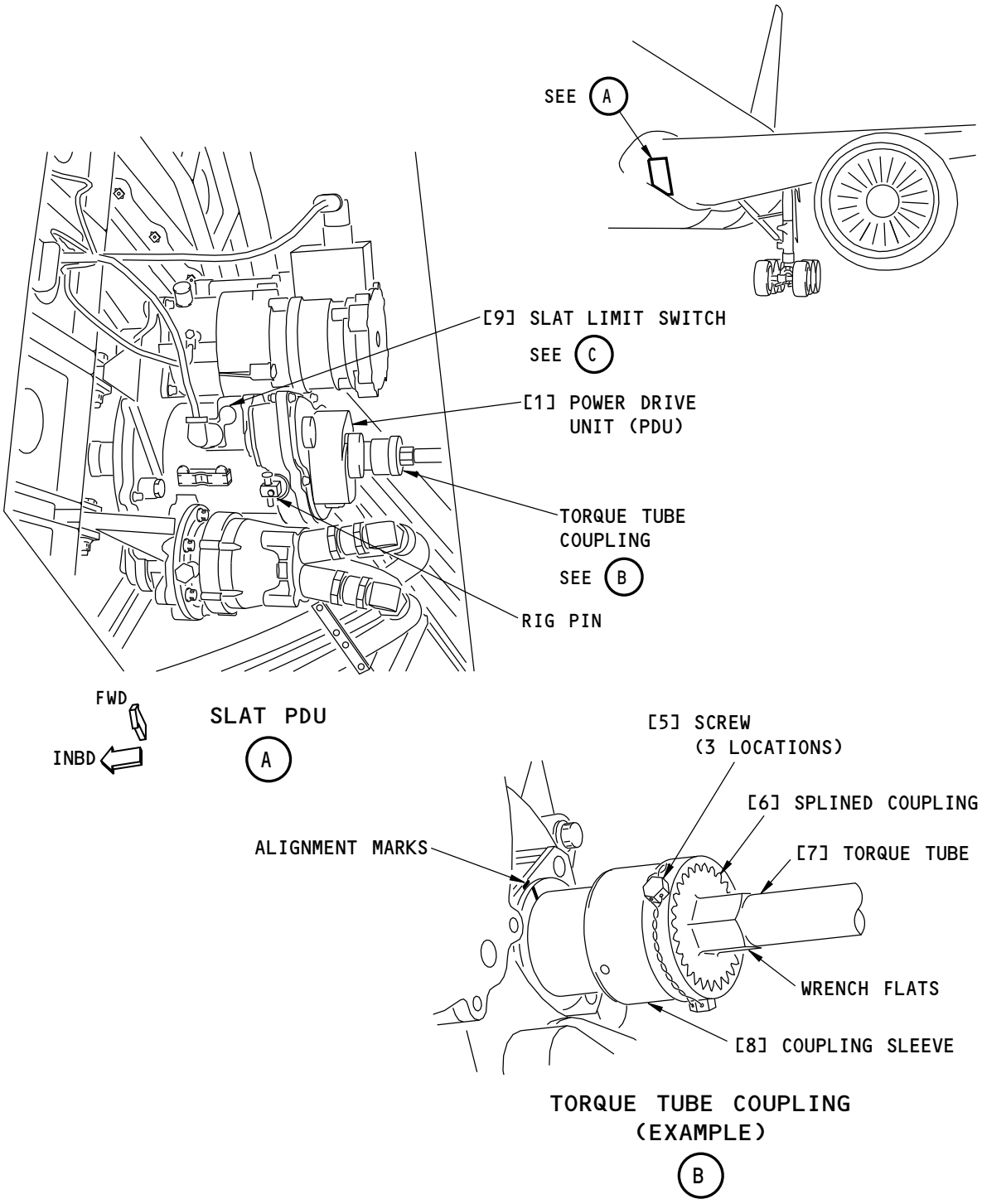
Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-00-440-004

(4) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

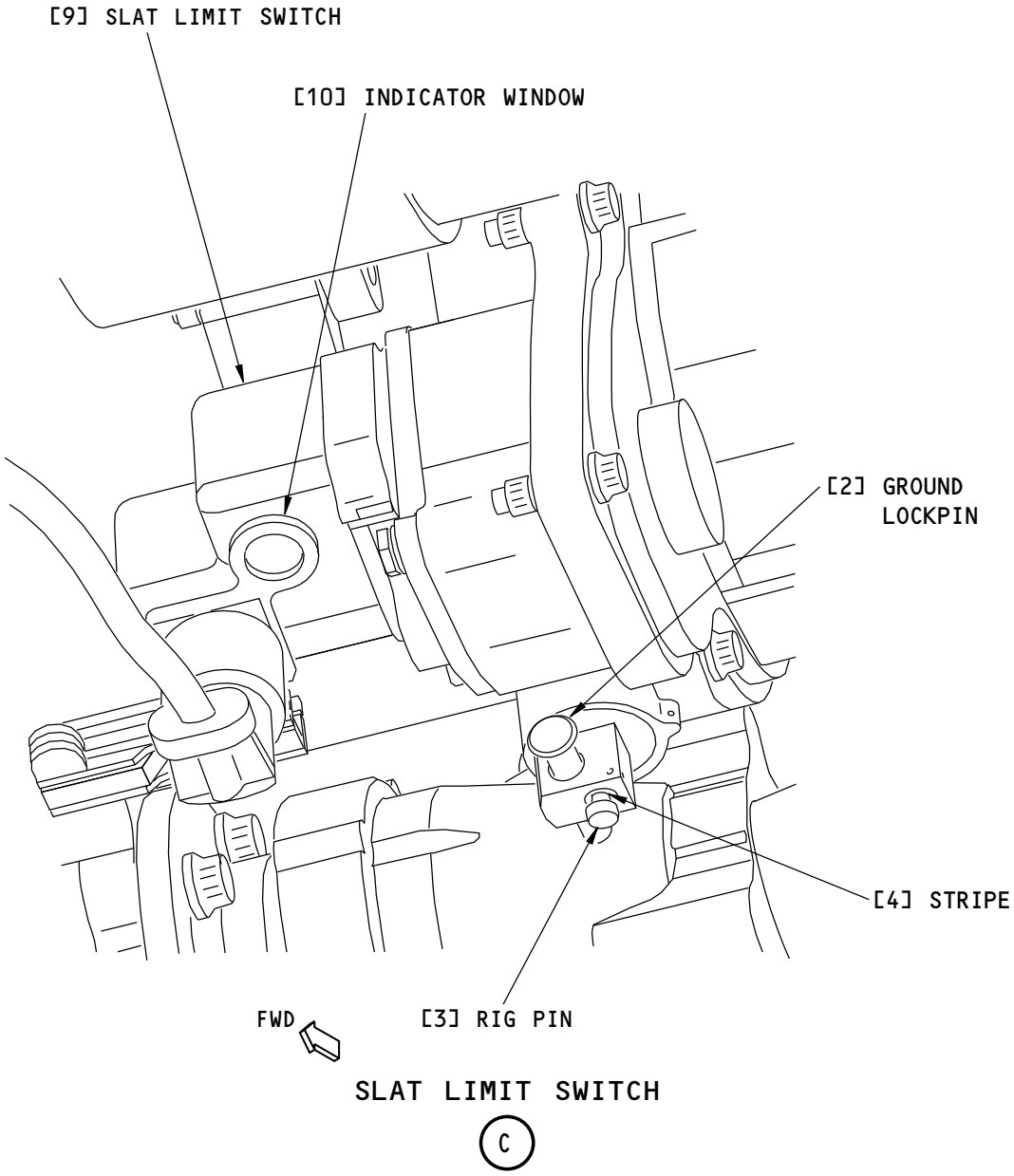
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F47935 S0006414255_V1

Leading Edge Slat Power Drive Unit Adjustment
Figure 501/27-81-00-990-805 (Sheet 1 of 2)

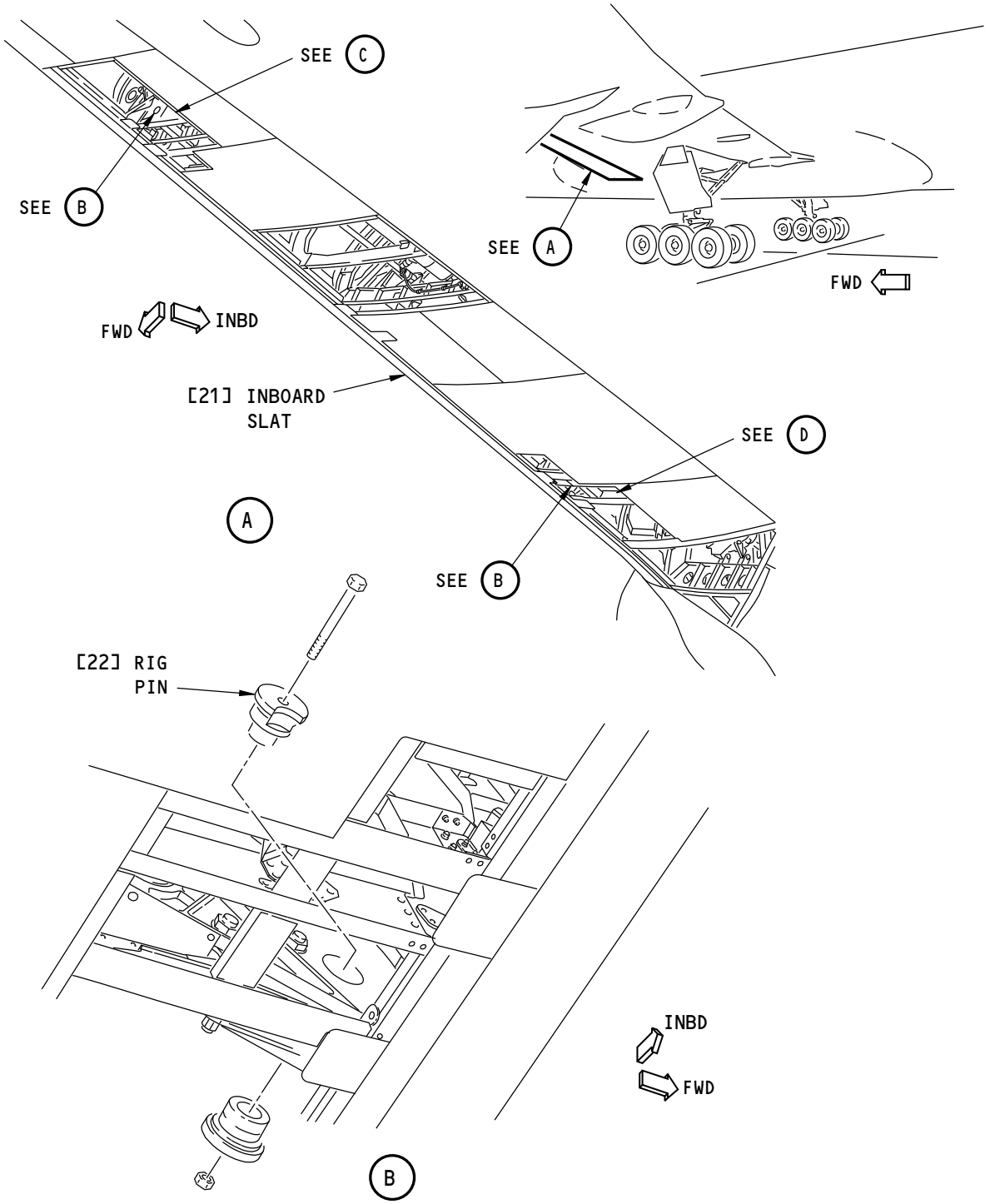
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F47986 S0006414256_V1

Leading Edge Slat Power Drive Unit Adjustment
Figure 501/27-81-00-990-805 (Sheet 2 of 2)

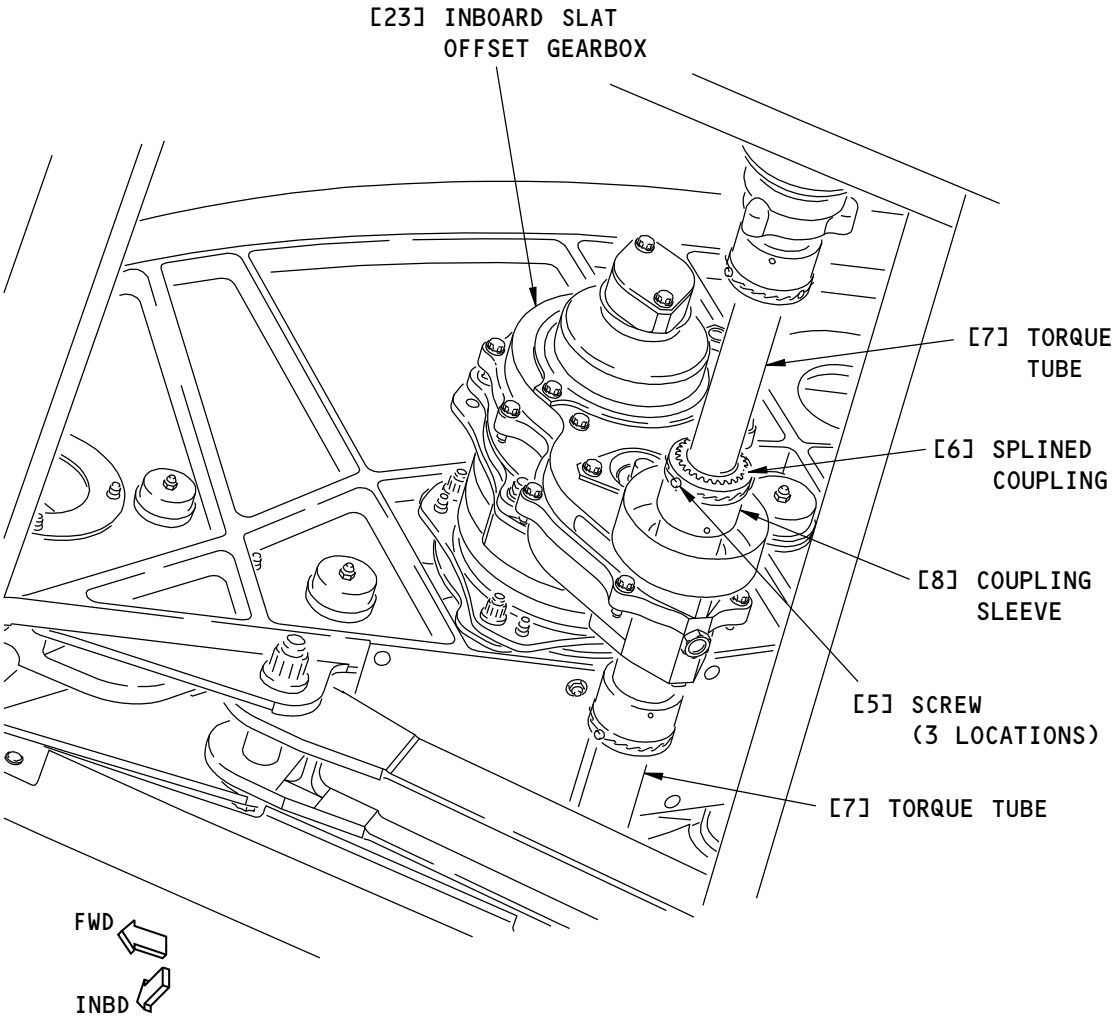
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E08935 S0006414257_V1

Inboard Slat Drive System Adjustment
Figure 502/27-81-00-990-806 (Sheet 1 of 4)

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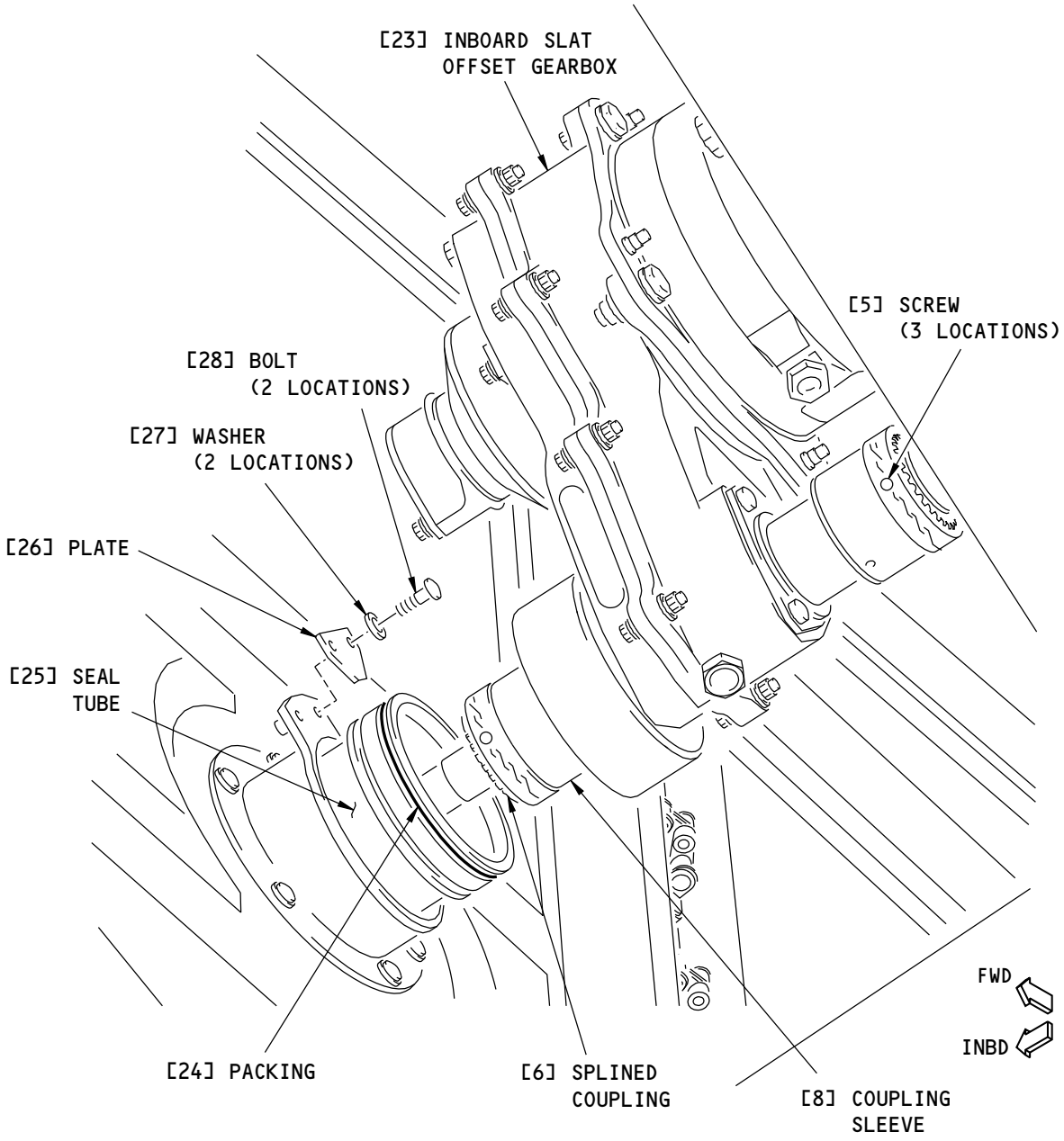
OUTBOARD ROTARY ACTUATOR FOR THE INBOARD SLAT

C

E08147 S0006414258_V1

Inboard Slat Drive System Adjustment
Figure 502/27-81-00-990-806 (Sheet 2 of 4)

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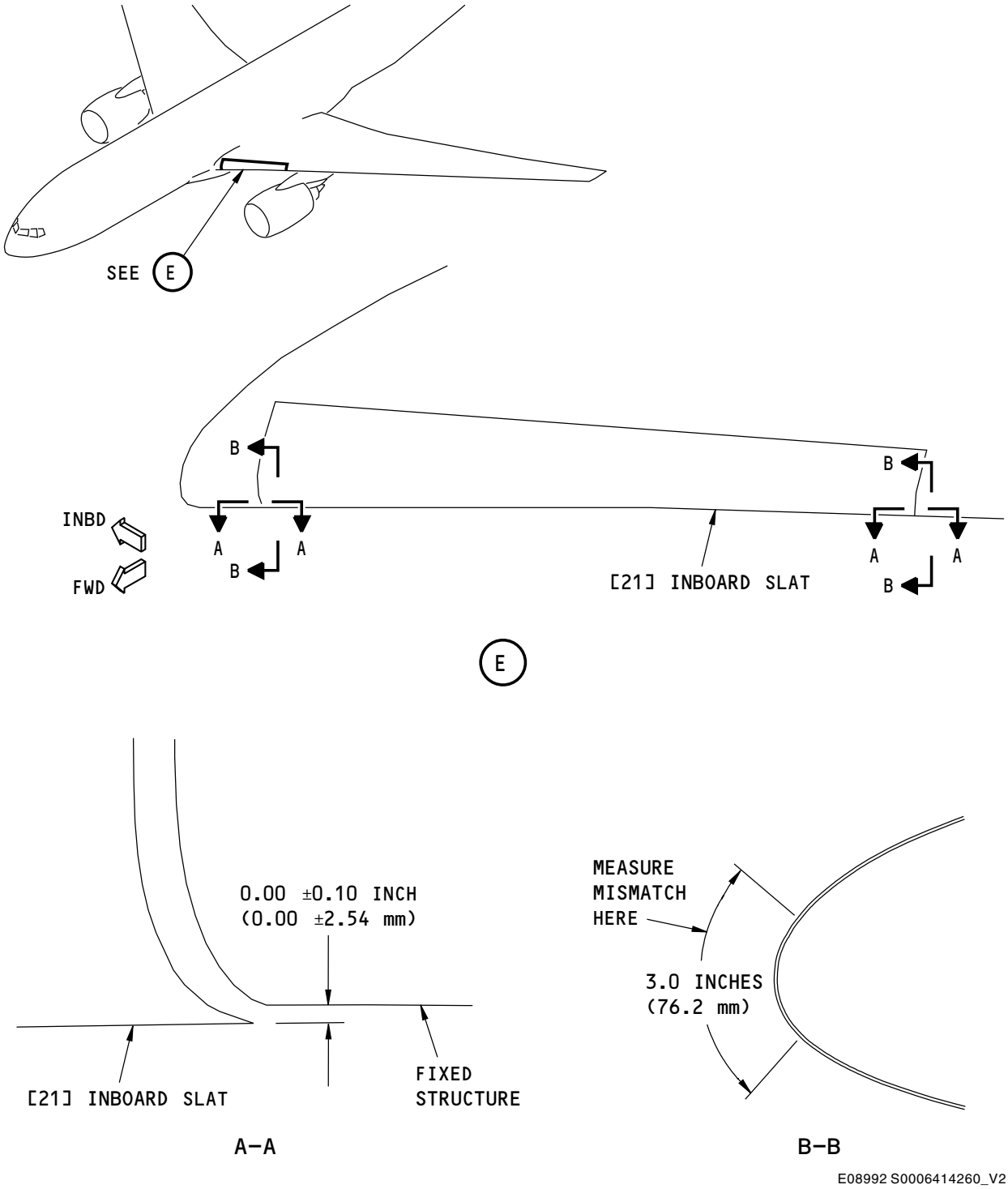
INBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

D

F02251 S0006414259_V1

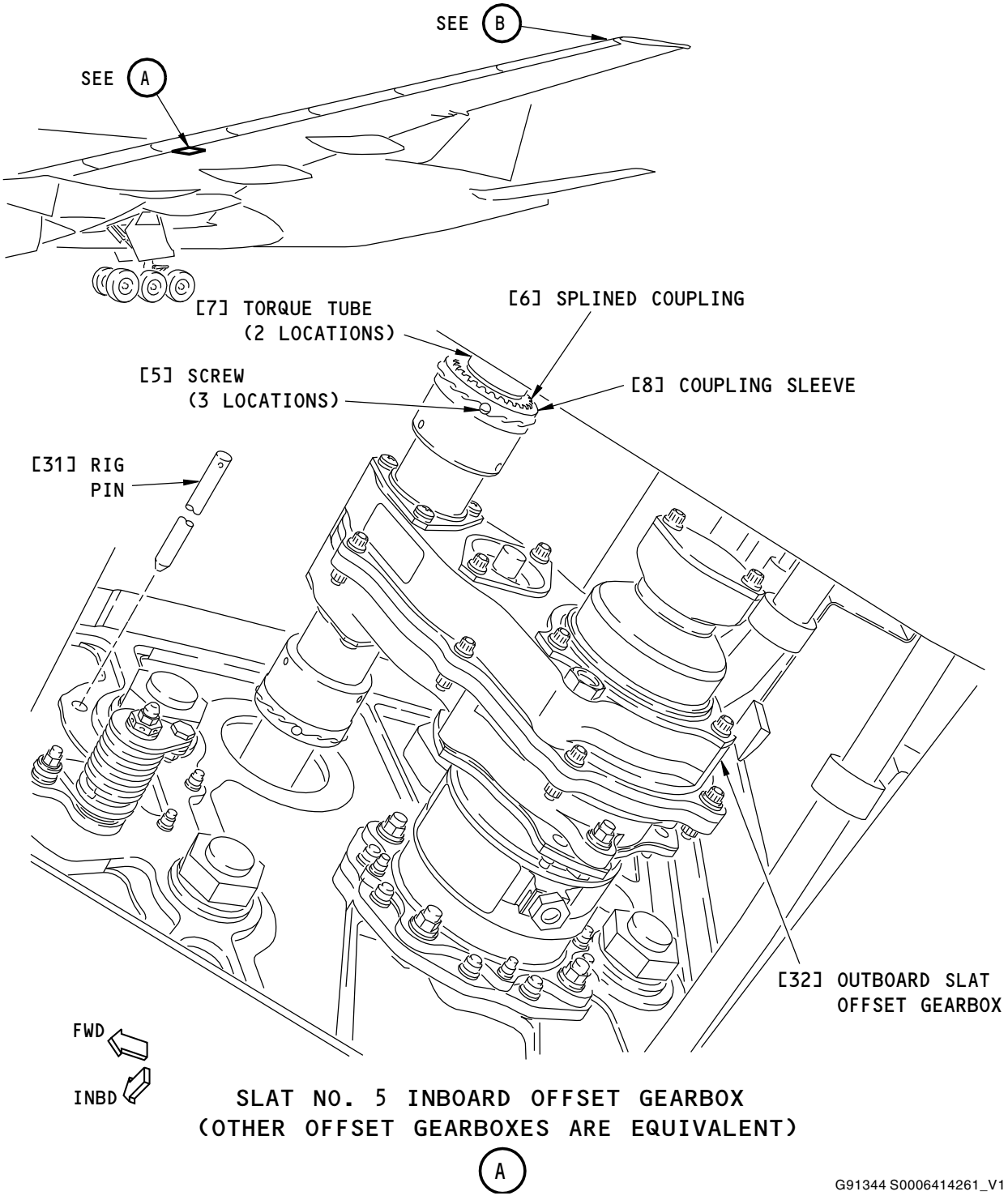
Inboard Slat Drive System Adjustment
Figure 502/27-81-00-990-806 (Sheet 3 of 4)

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Inboard Slat Drive System Adjustment
Figure 502/27-81-00-990-806 (Sheet 4 of 4)

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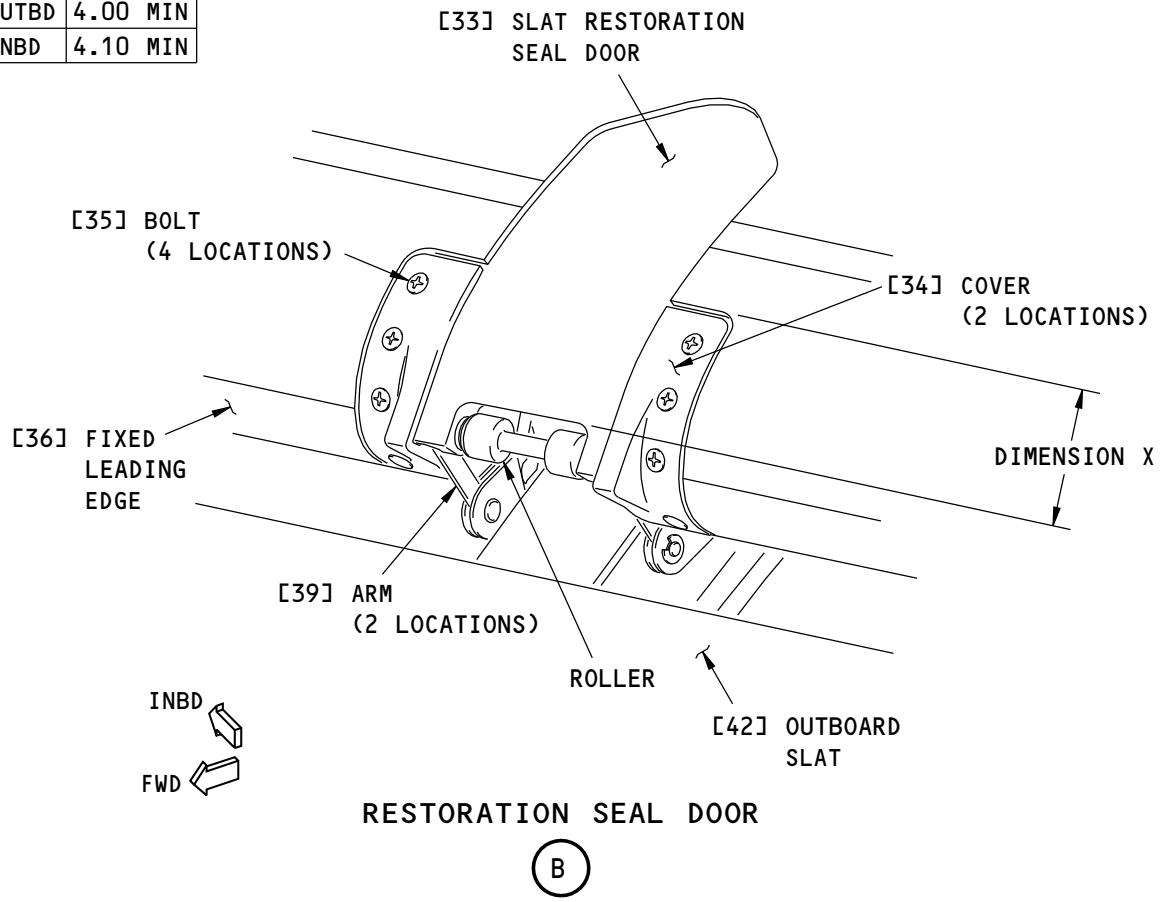


Outboard Slat Drive System Adjustment
Figure 503/27-81-00-990-807 (Sheet 1 of 3)

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TABLE II

SLAT	DIM X
3 OUTBD	3.50 MIN
3 INBD	3.70 MIN
4 OUTBD	3.90 MIN
4 INBD	4.10 MIN
5 OUTBD	4.00 MIN
5 INBD	4.00 MIN
6 OUTBD	4.00 MIN
6 INBD	4.10 MIN

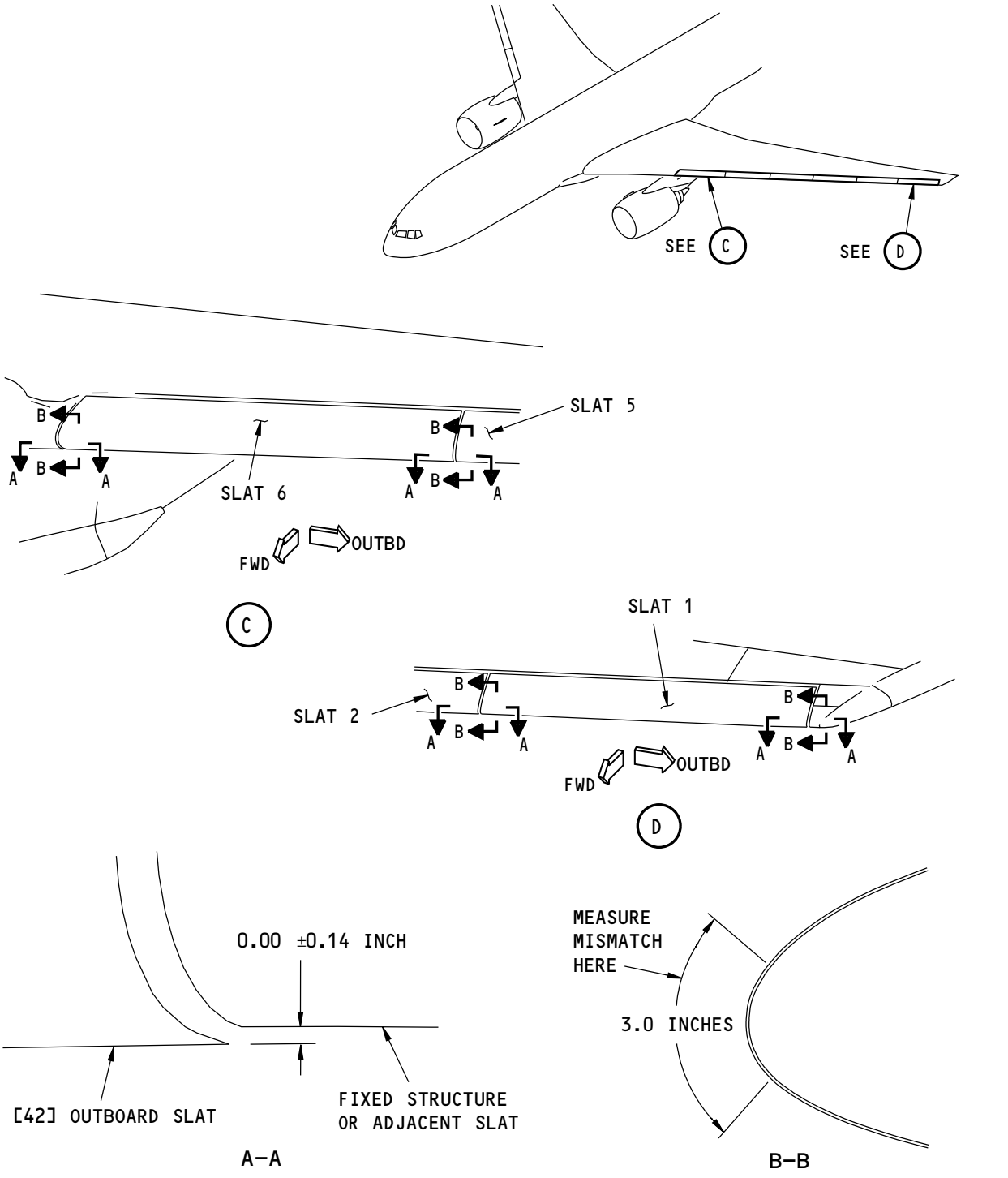


NOTE: RIGHT HAND SIDE SLATS ARE INSTALLED / RIGGED SAME AS LEFT HAND SIDE SLATS. RIGHT HAND SLATS ARE OMITTED FROM SLAT INSTALLATION / RIGGING PROCEDURE FOR CLARITY / SIMPLIFICATION.

N37849 S0006414265_V2

Outboard Slat Drive System Adjustment
Figure 503/27-81-00-990-807 (Sheet 2 of 3)

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Outboard Slat Drive System Adjustment
Figure 503/27-81-00-990-807 (Sheet 3 of 3)

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TASK 27-81-00-740-801

3. Slat System Primary Control Test

(Figure 504)

A. General

(1) To do a full test of the primary control system, you must do this test with FSEU 1 and FSEU 2. The same sequence of steps can be used for FSEU 1 or FSEU 2.

(2) Use this test to make sure the hydraulic operation of the slats and flaps is correct. In this procedure, you can do a test of the leading edge slats, the trailing edge flaps or the two systems.

(3) In this procedure it is necessary to move the flap control lever before the test will start. The sequence of operation for the flaps and slats will not be the same as usual.

(4) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT, or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(5) These EICAS CAUTION messages can show during this test:

(a) FLAP/SLAT CONTROL

(b) NO AUTOLAND

(6) These EICAS STATUS messages can show during this test:

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

(c) NO AUTOLAND

(d) FLIGHT CONTROL SYS

(e) PFC INTERFACE

(7) This EICAS ADVISORY message can show during this test:

(a) NO AUTOLAND

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-81-00-860-045

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-860-046

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-81-00-860-047

(3) Make sure the flap control lever is in the UP position.

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SUBTASK 27-81-00-210-029

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-00-210-024

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-81-00-860-048

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats. You must use the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

SUBTASK 27-81-00-740-002

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION DO NOT OPERATE THE FLAPS CONTINUOUSLY FOR MORE THAN 12 MINUTES IN PRIMARY MODE WITHOUT A 30 MINUTE COOLING OFF PERIOD FOR THE NO-BACK BRAKES. THE NO-BACK BRAKES CAN GET TOO HOT.

(7) Use a maintenance access terminal (MAT) to do the system test of the high lift system primary controls:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 HIGH LIFT SYSTEM
5) SYSTEM TEST
6) Primary System Test-FSEU 1 (Primary System Test-FSEU 2)

NOTE: To do a full test of the primary control system you must do the test with FSEU 1 and FSEU 2.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST
3) Test of slats and flaps (Test of slats only, Test of flaps only)

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-81-00-740-003

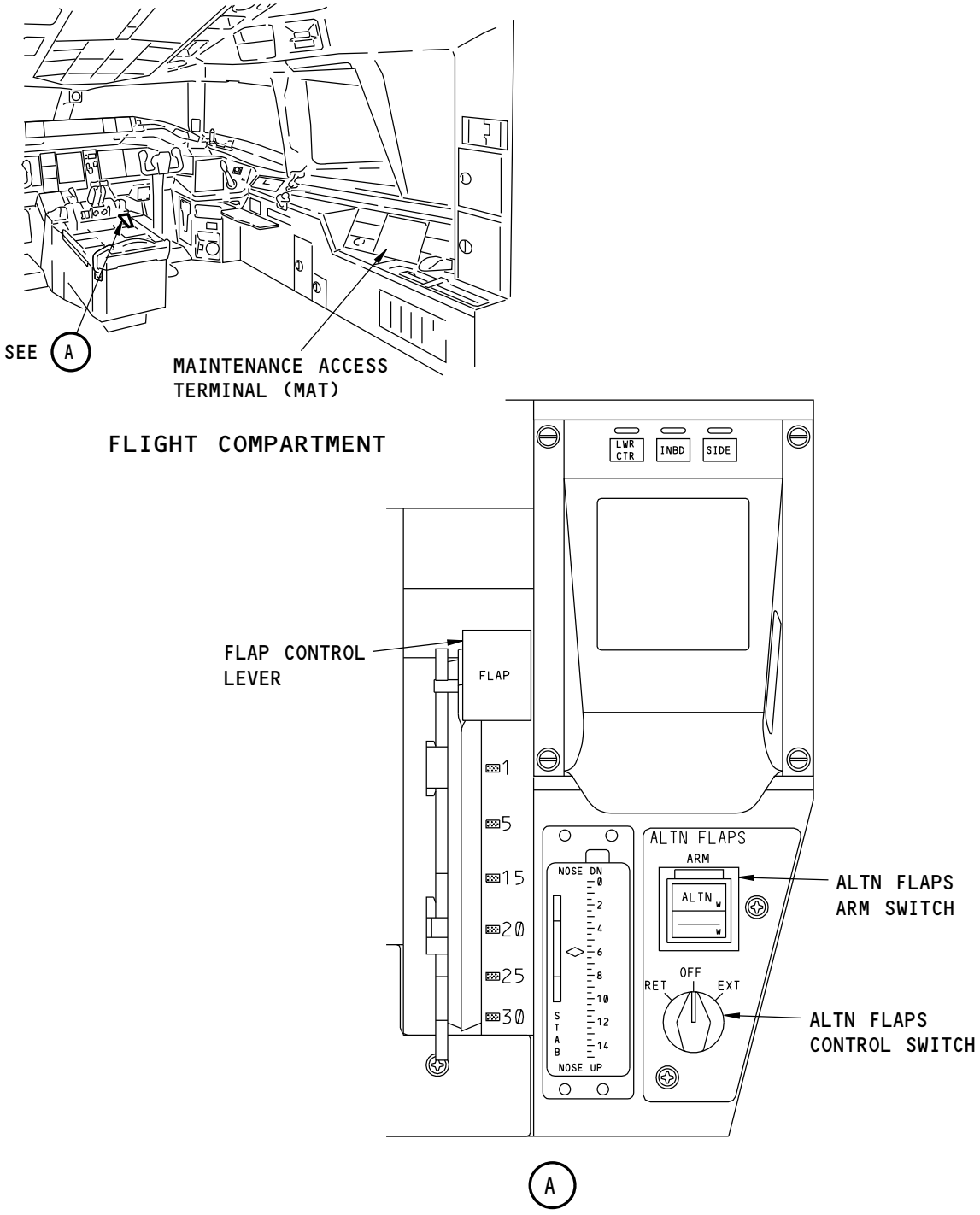
(8) Do the system test of the high lift system primary controls with the MAT again with the other FSEU.

SUBTASK 27-81-00-860-064

(9) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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Slat System Controls
Figure 504/27-81-00-990-808

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TASK 27-81-00-740-802

4. Slat System Secondary Control Test

(Figure 504)

A. General

(1) To do a full test of the secondary control system, you must do this test with FSEU 1 and FSEU 2. The same sequence of steps can be used for FSEU 1 or FSEU 2.

(2) Use this test to make sure the secondary operation of the slats and flaps is correct. In this procedure, you can do a test of the leading edge slats, the trailing edge flaps or the two systems.

(3) In this procedure it is necessary to move the flap control lever before the test will start. The sequence of operation for the flaps and slats will not be the same as usual.

(4) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT, or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(5) These EICAS CAUTION messages can show during this test:

(a) FLAP/SLAT CONTROL

(b) NO AUTOLAND

(6) These EICAS STATUS messages can show during this test:

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

(c) NO AUTOLAND

(d) FLIGHT CONTROL SYS

(e) PFC INTERFACE

(7) This EICAS ADVISORY message can show during this test:

(a) NO AUTOLAND

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-81-00-860-049

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-860-050

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-81-00-860-051

(3) Make sure the flap control lever is in the UP position.

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SUBTASK 27-81-00-210-031

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-00-210-025

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-81-00-740-004

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Use a maintenance access terminal (MAT) to do the system test of the high lift system secondary controls:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 HIGH LIFT SYSTEM
5) SYSTEM TEST
6) Secondary System Test-FSEU 1 (Secondary System Test-FSEU 2)

NOTE: To do a full test of the secondary control system you must do the test with FSEU 1 and FSEU 2.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

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2) START TEST

3) Test of slats and flaps (Test of slats only, Test of flaps only)

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-81-00-740-005

(7) Do the system test of the high lift system secondary controls with the MAT again with the other FSEU.

——— END OF TASK ———

TASK 27-81-00-720-801

5. Slat System Alternate Control Test

(Figure 504)

A. General

(1) This procedure does a test of the alternate control system for the leading edge slats.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-81-00-860-052

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-860-053

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-81-00-860-054

(3) Make sure the flap control lever is in the UP position.

SUBTASK 27-81-00-210-033

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

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(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-00-210-026

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-81-00-860-055

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

E. Alternate Control System Test

SUBTASK 27-81-00-210-027

(1) Make sure the ALTN FLAPS control switch is in the OFF position.

SUBTASK 27-81-00-720-001

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(2) Do the test of the alternate control system:

(a) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

(b) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL shows.

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(c) Make sure the flaps and slats do not move.

(d) Move the ALTN FLAPS control switch to EXT to extend the slats.

1) Make sure the slats stop at the sealed position.

2) Make sure the four values shown for the SLAT POS indication, on the FLAP/SLAT EICAS maintenance page, are between 239.0 and 250.09 (TASK 31-61-00-800-804).

(e) Move the ALTN FLAPS control switch to RET to retract the slats.

1) Make sure the slats stop at the retracted position.

2) Make sure the four values shown for the SLAT POS indication on the EICAS maintenance page, are less than 12.5.

(f) Move the ALTN FLAPS control switch to the OFF position.

WARNING MAKE SURE THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(g) Push the ALTN FLAPS ARM switch to disarm the alternate control system.

(h) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-065

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

TASK 27-81-00-720-802

6. Autoslat Priority Valve Test - Main Landing Gear

(Figure 505)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure does a test of the autoslat priority valve for the main landing gear.

(2) It is necessary to do a MAT test of an FSEU during this test.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-51-00-740-801	Flap/Slat Electronics Unit (FSEU) Self Test (P/B 501)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

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C. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right
197	Aft Wing-to-Body Fairings, Left

D. Prepare for the Test

SUBTASK 27-81-00-860-056

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-480-012

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-81-00-480-013

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

E. Autoslat Priority Valve Test

SUBTASK 27-81-00-860-057

(1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

SUBTASK 27-81-00-860-058

(2) Operate the autoslat priority valve for the main landing gear:

(a) Disconnect the electrical connector DV27105 from the autoslat priority valve in the right wheel well.

(b) Install a jumper wire between pin 2 on the receptacle on the autoslat priority valve and ground.

(c) Install a jumper wire between pin 1 on the plug DV27105 and pin 1 on the receptacle on the autoslat priority valve.

SUBTASK 27-81-00-860-059

(3) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

SUBTASK 27-81-00-080-007

(4) Remove the door safety pins for the main landing gear doors.

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SUBTASK 27-81-00-860-066

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-00-720-002

WARNING KEEP ALL PERSONS AND EQUIPMENT CLEAR OF THE MAIN AND NOSE LANDING GEAR DOORS. THE DOORS WILL CLOSE DURING THIS PROCEDURE. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Close the main landing gear doors to test the autoslat priority valve:

NOTE: The main landing gear doors will close slowly due to reduced hydraulic flow.

(a) On the P56 panel, push the ARM DOORS switch (S32015) to ARM and the ALL DOORS OPEN/MAIN LANDING GEAR DOORS CLOSE switch (S32016) to CLOSE.

(b) Make sure that the doors do not fully close for a minimum of 1 minute and 20 seconds.

SUBTASK 27-81-00-860-060

WARNING KEEP ALL PERSONS AND EQUIPMENT CLEAR OF THE MAIN AND NOSE LANDING GEAR DOORS. THE DOORS WILL OPEN DURING THIS PROCEDURE. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Push the ARM DOORS switch (S32015) to ARM and the ALL DOORS OPEN/MAIN LANDING GEAR DOORS CLOSE switch (S32016) to OPEN.

(a) Make sure the landing gear doors open.

SUBTASK 27-81-00-480-014

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-81-00-860-061

(9) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

SUBTASK 27-81-00-860-062

(10) Put the autoslat priority valve back to its usual condition:

(a) Remove the jumper wires from the plug DV27105 and the receptacle on the autoslat priority valve.

(b) Connect the plug DV27105 to the receptacle on the autoslat priority valve.

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SUBTASK 27-81-00-860-063

(11) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

SUBTASK 27-81-00-080-009

(12) Remove the door safety pins for the main landing gear doors.

SUBTASK 27-81-00-720-003

(13) Close the main landing gear doors:

(a) On the P56 panel, push the ARM DOORS switch (S32015) to ARM and the ALL DOORS OPEN/MAIN LANDING GEAR DOORS CLOSE switch (S32016) to CLOSE.

(b) Make sure the time necessary to close the doors is less than 20 seconds.

SUBTASK 27-81-00-740-006

(14) Do this task: Flap/Slat Electronics Unit (FSEU) Self Test, TASK 27-51-00-740-801.

NOTE: It is only necessary to do this test with one FSEU. The test does a check of the electrical connection to the priority valve.

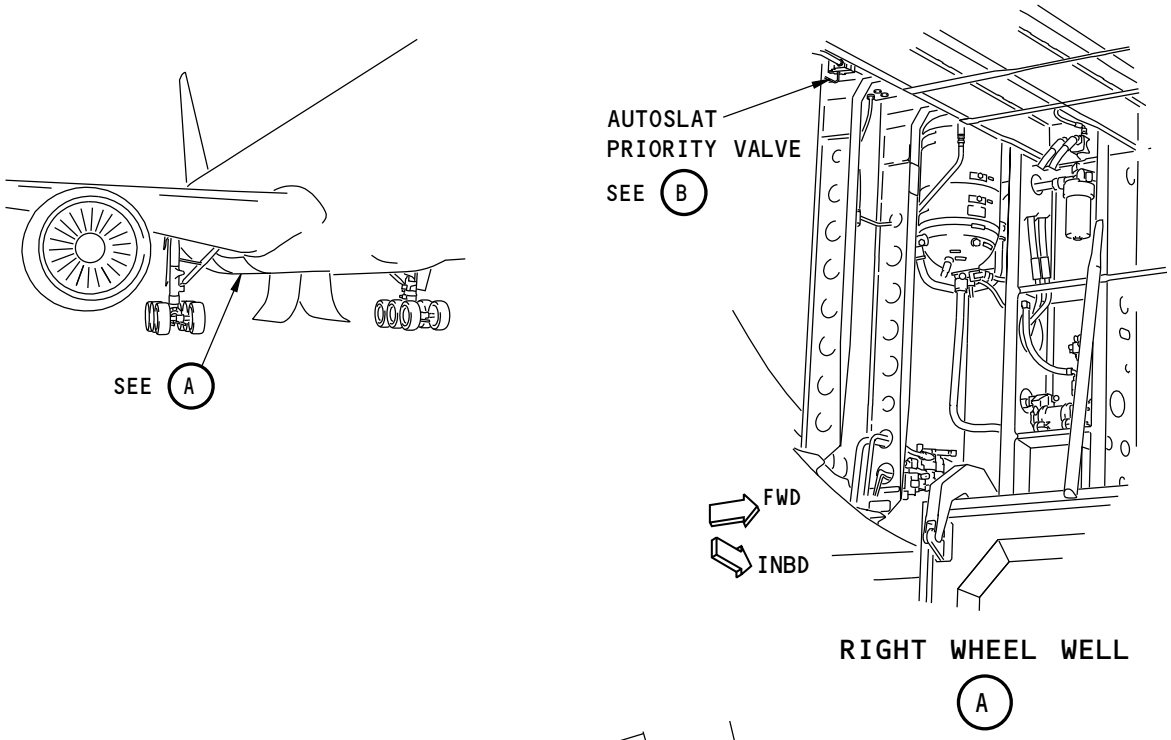
F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-067

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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Autoslat Priority Valve
Figure 505/27-81-00-990-809

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TASK 27-81-00-720-803

7. Leading Edge Slat No-Back Brake Test

(Figure 506)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task makes sure the no-back brakes operate correctly on the offset gearboxes for the leading edge slats.

(2) This procedure applies to all of the no-back brake, offset gearboxes for the leading edge slats.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
61	Packing	27-81-10-10-130	ARO ALL
67	Packing	27-81-17-10A-175	ARO ALL

F. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
521	Leading Edge to Front Spar - Outboard of Nacelle Strut - Left Wing

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(Continued)

Zone	Area
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing
621	Leading Edge to Front Spar - Outboard of Nacelle Strut - Right Wing

G. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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H. Prepare for the Test

SUBTASK 27-81-00-040-004

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-00-040-005

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-00-010-009

(3) Remove the fixed leading edge panels from the lower surface of the wing to get access to the offset gearboxes for the slats (TASK 06-30-00-800-806 or TASK 06-30-00-800-807):

(a) For slat No. 1, remove this access panel:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel

(b) For slat No.1, remove this panel:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel

(c) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(d) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(e) For slat No. 4, remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(f) For slat No. 5, remove these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

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(g) For slat No. 6, remove these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 7, remove these access panels:

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(i) For slat No. 8, remove these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(j) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(k) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(l) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(m) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(n) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(o) For slat No. 14, remove this access panel:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel

(p) For slat No. 14, remove this access panel:

Number	Name/Location
621AFB	Outboard Fixed Leading Edge Panel

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I. Leading Edge Slat No-Back Brake Test

SUBTASK 27-81-00-480-011

(1) Install leading edge slat drive shaft clamp equipment, SPL-1696 on the torque tubes [7] inboard and outboard of the applicable inboard slat offset gearbox [23] or outboard slat offset gearbox [32].

SUBTASK 27-81-00-020-003

(2) Disconnect the torque tubes [7] from the applicable inboard slat offset gearbox [23] or outboard slat offset gearbox [32]:

(a) Make marks on the torque tubes [7] and the coupling sleeves [8] on the offset gearbox to help install the torque tubes [7] in the same position.

(b) Remove the screws [5] from the coupling sleeves [8].

(c) Move the coupling sleeves [8] off the splined couplings [6].

SUBTASK 27-81-00-020-004

(3) Remove the plate [62] from the inboard slat offset gearbox [23]:

NOTE: It is acceptable for a small amount of oil to be under the plate [62].

(a) Remove the bolts [63] and washers [64] that attach the plate [62].

(b) Pull the plate [62] with the packing [61] off of the inboard slat offset gearbox [23].

SUBTASK 27-81-00-020-005

(4) Remove the plate [68] from the outboard slat offset gearbox [32]:

NOTE: It is acceptable for a small amount of oil to be under the plate [68].

(a) Remove the bolts [69] and washers [70] that attach the plate [68].

(b) Pull the plate [68] with the packing [67] off of the outboard slat offset gearbox [32].

SUBTASK 27-81-00-720-004

(5) Do the test of the no-back brake:

(a) Put a torque wrench in the no-back brake shaft [65] or no-back brake shaft [66] for the no-back brake.

NOTE: The inboard no-back brakes have a 1/2 inch square drive on the shaft [65]. The outboard no-back brakes have a 3/8 inch square drive on the shaft [66].

CAUTION

DO NOT APPLY MORE THAN A 420 POUND-INCH TORQUE TO THE OUTPUT SHAFT IN THE CLOCKWISE OR COUNTERCLOCKWISE DIRECTION. YOU CAN CAUSE DAMAGE TO THE GEARBOX ASSEMBLY.

(b) Use the torque wrench to apply 380 in-lb (43 N·m) – 420 in-lb (47 N·m) torque to the no-back brake shaft [65] or no-back brake shaft [66] for approximately five seconds.

(c) Make sure the shaft does not turn while you apply the torque.

NOTE: The shaft can turn a small amount to engage the no-back brake.

CAUTION

DO NOT APPLY MORE THAN A 420 POUND-INCH TORQUE TO THE OUTPUT SHAFT IN THE CLOCKWISE OR COUNTERCLOCKWISE DIRECTION. YOU CAN CAUSE DAMAGE TO THE GEARBOX ASSEMBLY.

(d) Use the torque wrench to apply 380 in-lb (43 N·m) - 420 in-lb (47 N·m) torque in the opposite direction for approximately five seconds.

(e) Make sure the shaft does not turn after you apply the torque.

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(f) Remove the torque wrench from the no-back brake shaft [65] or no-back brake shaft [66].

SUBTASK 27-81-00-420-002

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) Install the plate [62] on the inboard slat offset gearbox [23]:

(a) Apply fluid, D00070 to a new packing [61].

(b) Install the packing [61] on the plate [62].

(c) Apply a layer of grease, D00013 to the mating surface of the plate [62].

(d) Put the plate [62] in its position on the inboard slat offset gearbox [23].

(e) Apply a layer of Cor-Ban 27L Compound, G50237 (preferred) or Mastinox 6856 K, C00913 (alternate) to the shank and bottom of the head of the bolts [63].

(f) Install the bolts [63] and washers [64].

(g) Tighten the bolts [63] to 20 in-lb (2 N·m) – 25 in-lb (3 N·m) plus run-on torque.

NOTE: Partially tighten the two bolts before you tighten either of them fully.

SUBTASK 27-81-00-420-004

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(7) Install the plate [68] on the outboard slat offset gearbox [32]:

(a) Apply fluid, D00070 to a new packing [67].

(b) Install the packing [67] on the plate [68].

(c) Apply a layer of grease, D00013 to the mating surface of the plate [68].

(d) Put the plate [68] in its position on the inboard slat offset gearbox [23].

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(e) Apply a layer of Cor-Ban 27L Compound, G50237 (preferred) or Mastinox 6856 K, C00913 (alternate) to the shank and bottom of the head of the bolts [69].

(f) Install the bolts [69] and washers [70].

(g) Tighten the bolts [69] to 20 in-lb (2 N·m) – 25 in-lb (3 N·m) plus run-on torque.

NOTE: Partially tighten the two bolts before you tighten either of them fully.

SUBTASK 27-81-00-420-003

(8) Connect the torque tubes [7] to the inboard slat offset gearbox [23] or outboard slat offset gearbox [32]:

(a) Make sure the marks on the coupling sleeves [8] align with the marks on the torque tubes [7].

(b) Apply grease, D00633 to the coupling sleeves [8].

(c) Move the coupling sleeves [8] on the splined couplings [6].

(d) Install the screws [5] to attach the coupling sleeves [8].

(e) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

(f) Install lockwire on the screws [5].

SUBTASK 27-81-00-080-008

(9) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [7].

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-410-003

(1) Install the applicable fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806 or TASK 06-30-00-800-807):

(a) For slat No. 1, install these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, install these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, install these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, install these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, install these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, install these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 7, install these access panels:

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(h) For slat No. 8, install these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(i) For slat No. 9, install these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(j) For slat No. 10, install these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(k) For slat No. 11, install these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(l) For slat No. 12, install these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(m) For slat No. 13, install these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(n) For slat No. 14, install these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-00-440-005

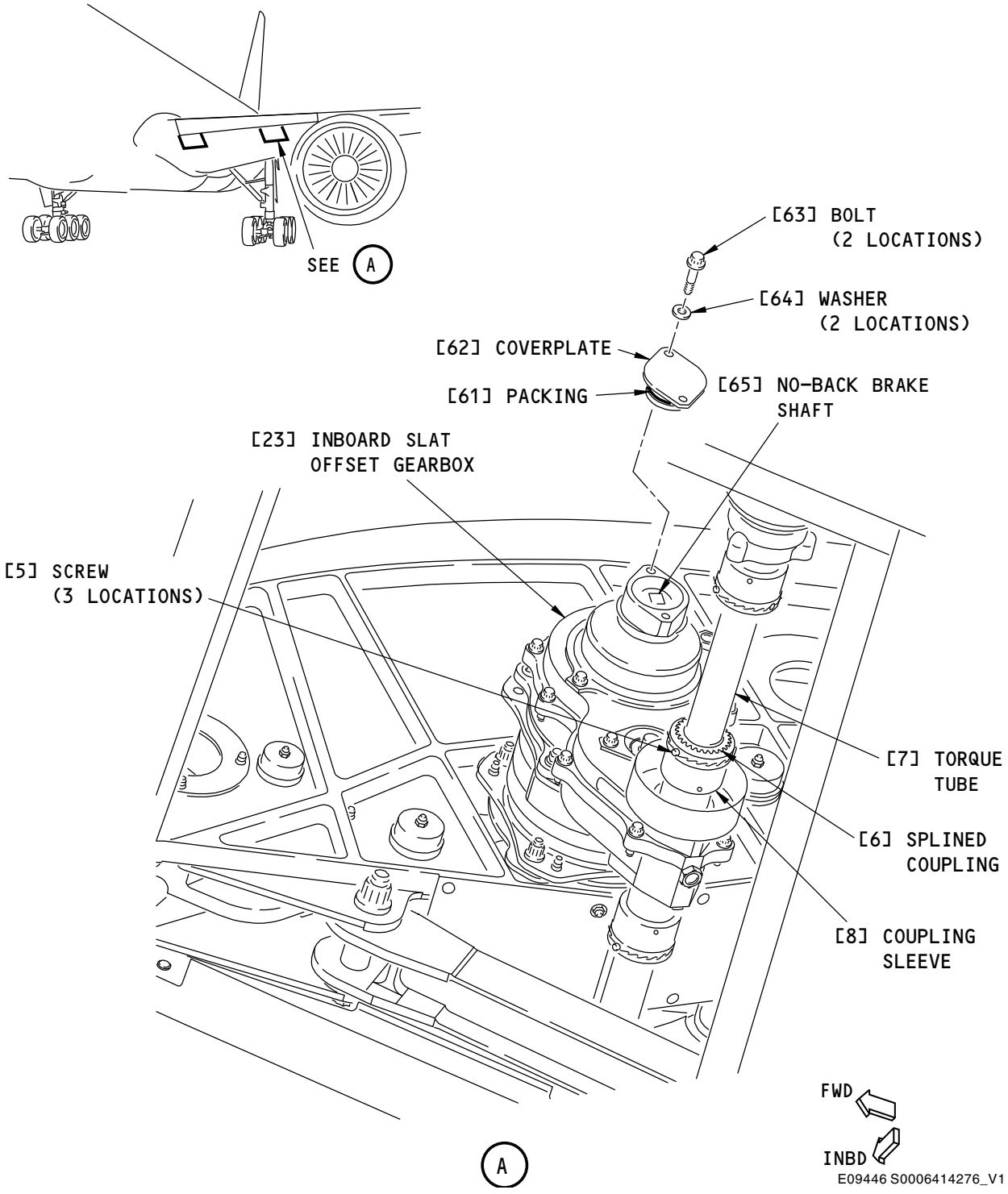
(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-00-440-006

(3) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

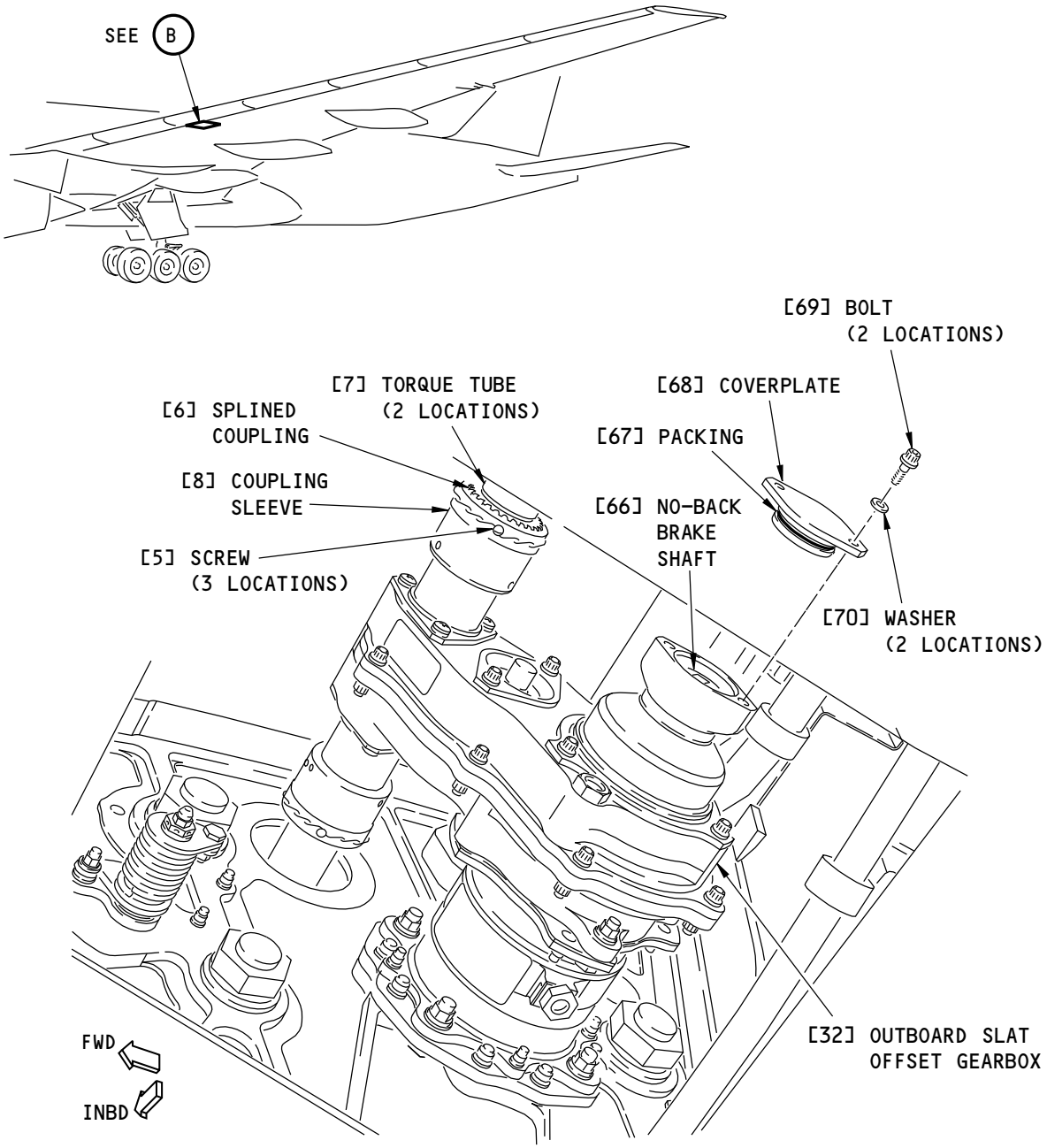
——— END OF TASK ———

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Slat No-Back Brake Test
Figure 506/27-81-00-990-810 (Sheet 1 of 2)

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Slat No-Back Brake Test
Figure 506/27-81-00-990-810 (Sheet 2 of 2)

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TASK 27-81-00-220-801

8. Leading Edge Slat System Adjustment Verification

A. General

(1) This task does a check to make sure the power drive unit (PDU), the slat limit switch, the inboard slats, the outboard slats and the slat position sensors are adjusted correctly.

(2) You should not use this task to adjust the leading edge slats.

(3) If you find that the leading edge slats are not adjusted correctly, use the following procedures to adjust the leading edge slats:

(a) The procedure to adjust the leading edge slat drive system is in (TASK 27-81-00-820-801).

(b) The procedure to adjust the inboard slats is in (TASK 27-81-10-400-801).

(c) The procedure to adjust the outboard slats is in (TASK 27-81-15-400-801).

(d) The procedure to adjust the Krueger flap is in (TASK 27-81-21-400-801).

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-10-400-801	Inboard Leading Edge Slat Installation (P/B 401)
27-81-15-400-801	Outboard Leading Edge Slat Installation (P/B 401)
27-81-21-400-801	Krueger Flap Installation (P/B 401)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1756	Pin - Ground Lock (J27030-2 Included in Kits J27030-1 and J27030-29) Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
521	Leading Edge to Front Spar - Outboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

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(Continued)

Zone	Area
621	Leading Edge to Front Spar - Outboard of Nacelle Strut - Right Wing

E. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel

F. Prepare for the Check of the Adjustment

SUBTASK 27-81-00-040-008

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-00-860-068

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-00-860-069

(3) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-00-040-009

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

G. Slat Power Drive Unit (PDU) Adjustment

SUBTASK 27-81-00-010-012

(1) To get access to the PDU, remove this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-00-480-018

(2) Push in the rig pin [3] for the PDU [1] and install the ground lock pin (J27030-2 Included in Kits J27030-1 and J27030-29), SPL-1756 [2], (Figure 501).

NOTE: When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [3].

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SUBTASK 27-81-00-820-013

(3) If you cannot easily push in the rig pin [3], change the position of the PDU [1] to the retracted position:

NOTE: To remove the backlash in the drive system, you must move the PDU to the retracted position in the retract direction.

(a) Use the wrench flats on the torque tube [7] to manually turn the PDU in the extend direction approximately one turn of the torque tube.

(b) Manually turn the PDU [1] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

NOTE: This step will remove the backlash in the slat drive system.

(c) Push in the rig pin [3] on the PDU [1] and hold it.

(d) Install the ground lockpin [2] in the rig pin [3].

(e) Make sure the PDU [1] is locked in this position:

NOTE: If the PDU [1] is not locked in this position, move the PDU [1] to the retracted position again.

1) Manually try to turn the PDU [1] in the retract direction.

2) Manually try to turn the PDU [1] in the extend direction.

H. Slat Limit Switch Adjustment Verification

SUBTASK 27-81-00-210-034

(1) Do a check of the adjustment of the slat limit switch (Figure 501):

(a) Get access to the slat limit switch on the PDU [1].

(b) Make sure the indicator needle in the window aligns with the marks on the window.

I. Inboard Slat Adjustment Verification

SUBTASK 27-81-00-220-003

(1) Do a check of the position of the inboard slat [21] (Figure 507):

(a) At the inboard and outboard ends of the inboard slat [21], measure the mismatch between the slat and the fixed structure.

(b) Make sure the mismatch is in the limit of 0.00 ±0.10 inch.

NOTE: After slats have been rigged within rigging tolerance, a mismatch of0.100 ±0.080 in. (2.540 ±2.032 mm) between the slat nose and the fixed leading edge nose (resulting from subsequent drive system actuation) is permitted.

SUBTASK 27-81-00-010-013

(2) Remove the fixed leading edge panels from the lower surface of the wing to get access to the main tracks for the inboard slat:

(a) For slat No. 7, remove these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel

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(b) For slat No. 8, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-00-820-014

(3) Do a check of the position of the inboard and outboard main tracks for the inboard slats [21] (Figure 507):

(a) At the inboard and outboard main tracks for the inboard slat [21], measure the mismatch between the track and the rig pin hole.

(b) Make sure the mismatch is in the limit of -0.03 to 0.13 inch.

NOTE: A positive mismatch is defined as when the main track is outside of the rig pin hole.

SUBTASK 27-81-00-410-007

(4) Install the fixed leading edge panels for the inboard slat:

(a) For slat No. 7, install these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, install these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel

J. Outboard Slat Adjustment Verification

SUBTASK 27-81-00-220-004

(1) Do a check of the position of the leading edge of the outboard slats [42] (Figure 507):

(a) At the inboard end of slats No. 6 and No. 9, measure the mismatch between the slat and the fixed structure.

(b) At the outboard end of slats No. 1 and No. 14, measure the mismatch between the slat and the fixed structure.

(c) Make sure the mismatch between slats and the fixed structure is in the limit of 0.00 ±0.14 in. (0.00 ±3.56 mm)

(d) Measure the mismatch between the adjacent outboard slats.

NOTE: Measure the mismatch in a three inch area around the slat bullnose.

(e) Make sure the mismatch between the adjacent slats is in the limit of 0.00 ±0.14 in. (0.00 ±3.56 mm).

NOTE: After slats have been rigged within rigging tolerance, a mismatch of 0.185 in. (4.699 mm) max between the slats and and a mismatch of +0.185 in. (4.699 mm) or -0.085 in. (2.159 mm) between the slats and the adjacent fixed leading edge, resulting from subsequent drive system actuation is acceptable.

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SUBTASK 27-81-00-220-005

(2) Do a check of the position of the trailing edge of the outboard slats [42] (Figure 507):

(a) On slats No. 1 thru No. 6 and No. 9 thru No. 14, measure the distance between the aft edge of the slat outer skin and the aft edge of the upper skin panel for the fixed leading edge (View C-C).

NOTE: This distance is referred to as Dimension A. Measure the distance aft of the main tracks.

(b) Make sure the Dimension A is in the limits shown in (Table 502).

Table 502/27-81-00-993-817 Outboard Slat Trailing Edge Position

Slat Number	Slat Track Position	Dimension A (inches)	
		Maximum	Minimum
No. 1 thru 5 No. 10 thru 14	Outboard	13.73	13.35
No. 1 thru 5 No. 10 thru 14	Inboard	13.73	13.35
No. 6 and 9	Outboard	13.73	13.35
No. 6 and 9	Inboard	13.65	13.27

K. Slat Position Sensor Adjustment Verification

SUBTASK 27-81-00-280-001

(1) Do a check of the output of the slat position sensors:

(a) Look at the FLAP/SLAT EICAS maintenance page, (TASK 31-61-00-800-804).

(b) Make sure the four values shown for the SLAT POS indication, on the FLAP/SLAT EICAS maintenance page, are in the limit of 9.2 to 10.8.

L. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-080-012

(1) Remove the ground lockpin [2] and make sure the rig pin [3] comes out of the PDU [1] (Figure 501):

(a) Make sure you can see the stripe [4] on the rig pin [3].

SUBTASK 27-81-00-440-008

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-00-410-008

(3) Install this access panel:

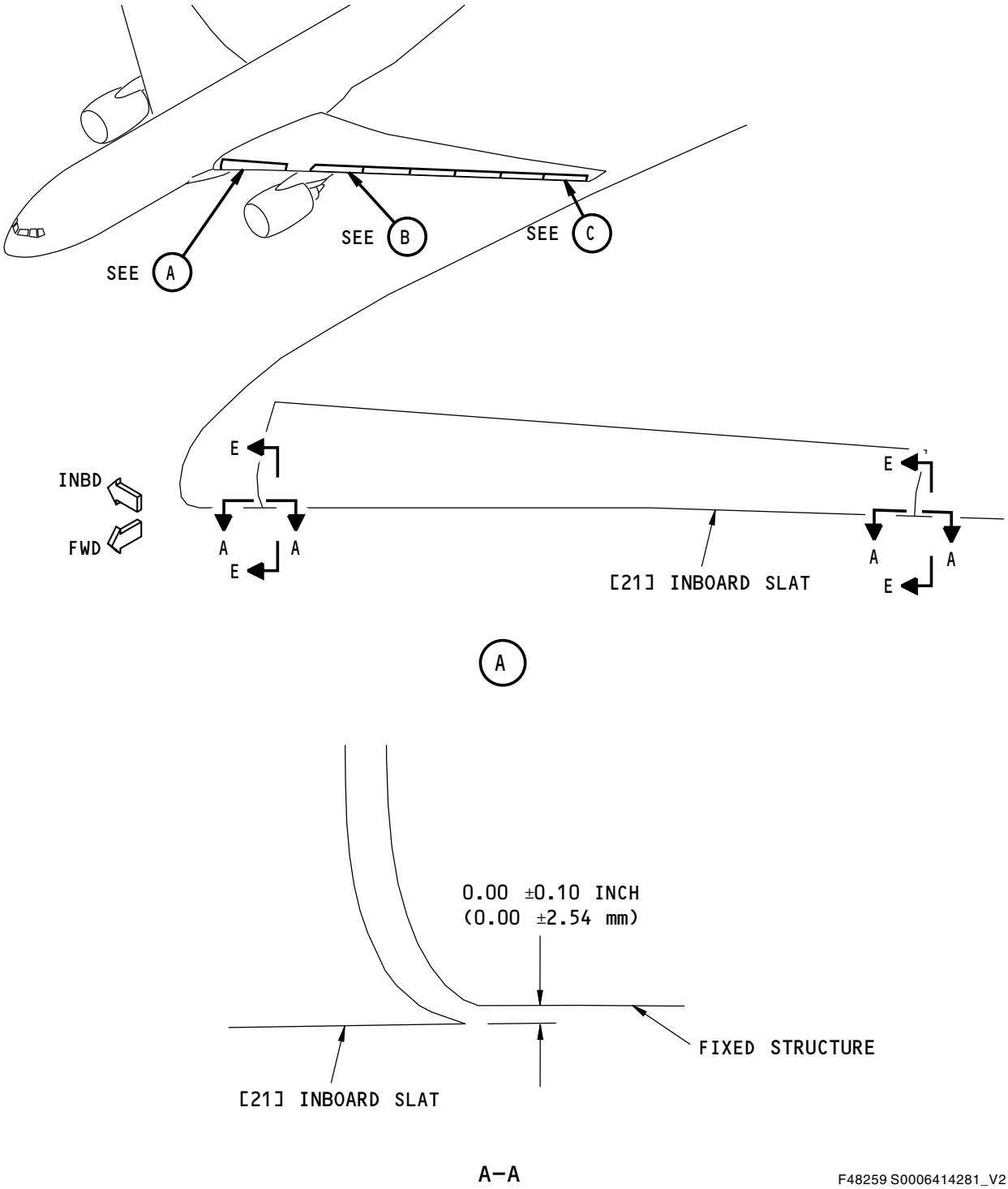
Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-00-440-009

(4) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

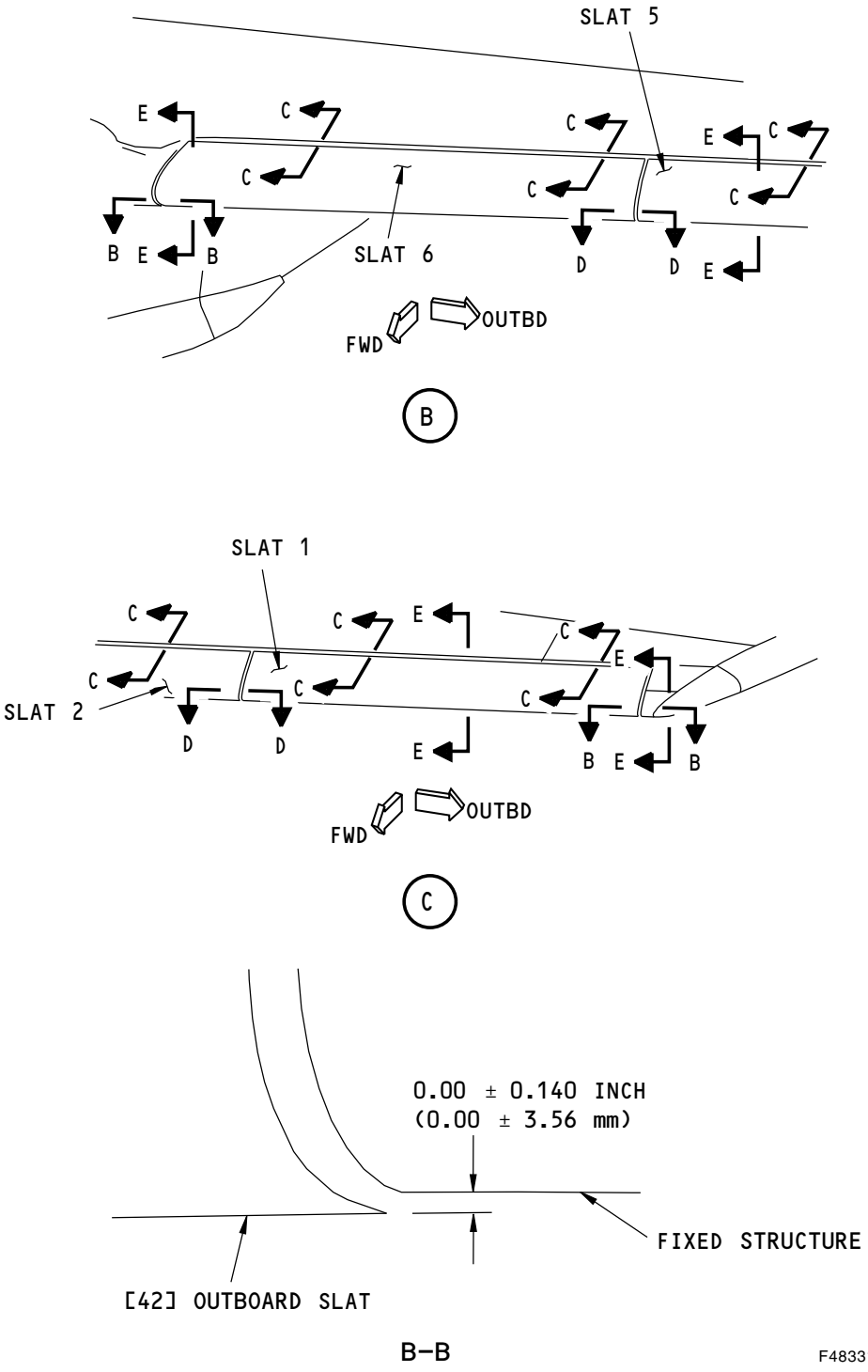
END OF TASK

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Leading Edge Slat Adjustment Verification
Figure 507/27-81-00-990-816 (Sheet 1 of 4)

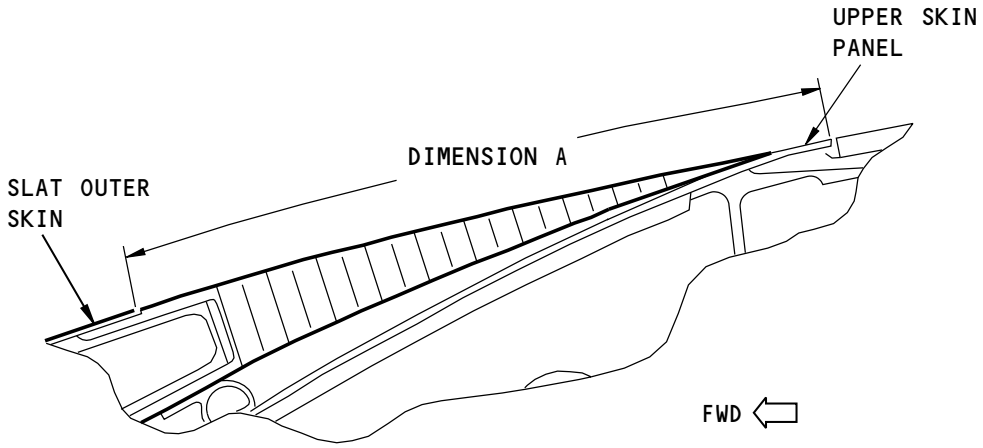
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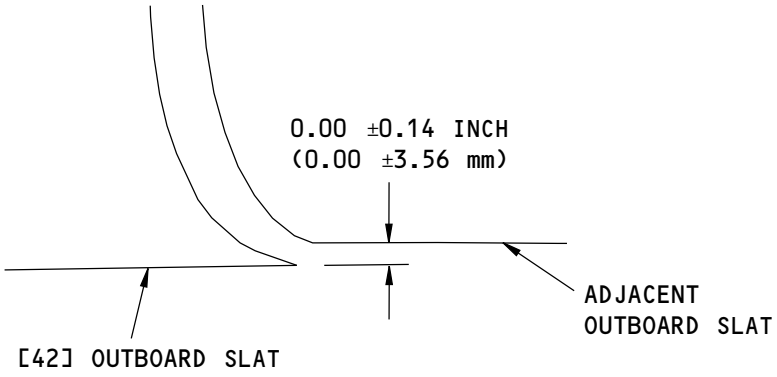
F48331 S0006414282_V3

Leading Edge Slat Adjustment Verification
Figure 507/27-81-00-990-816 (Sheet 2 of 4)

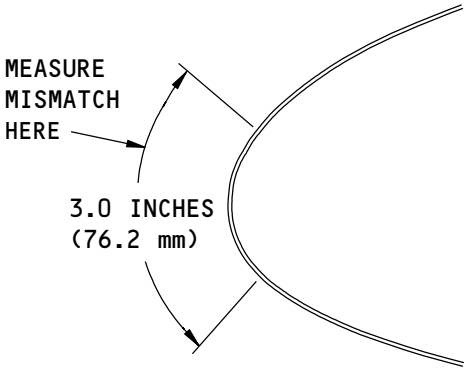
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C–C



D–D

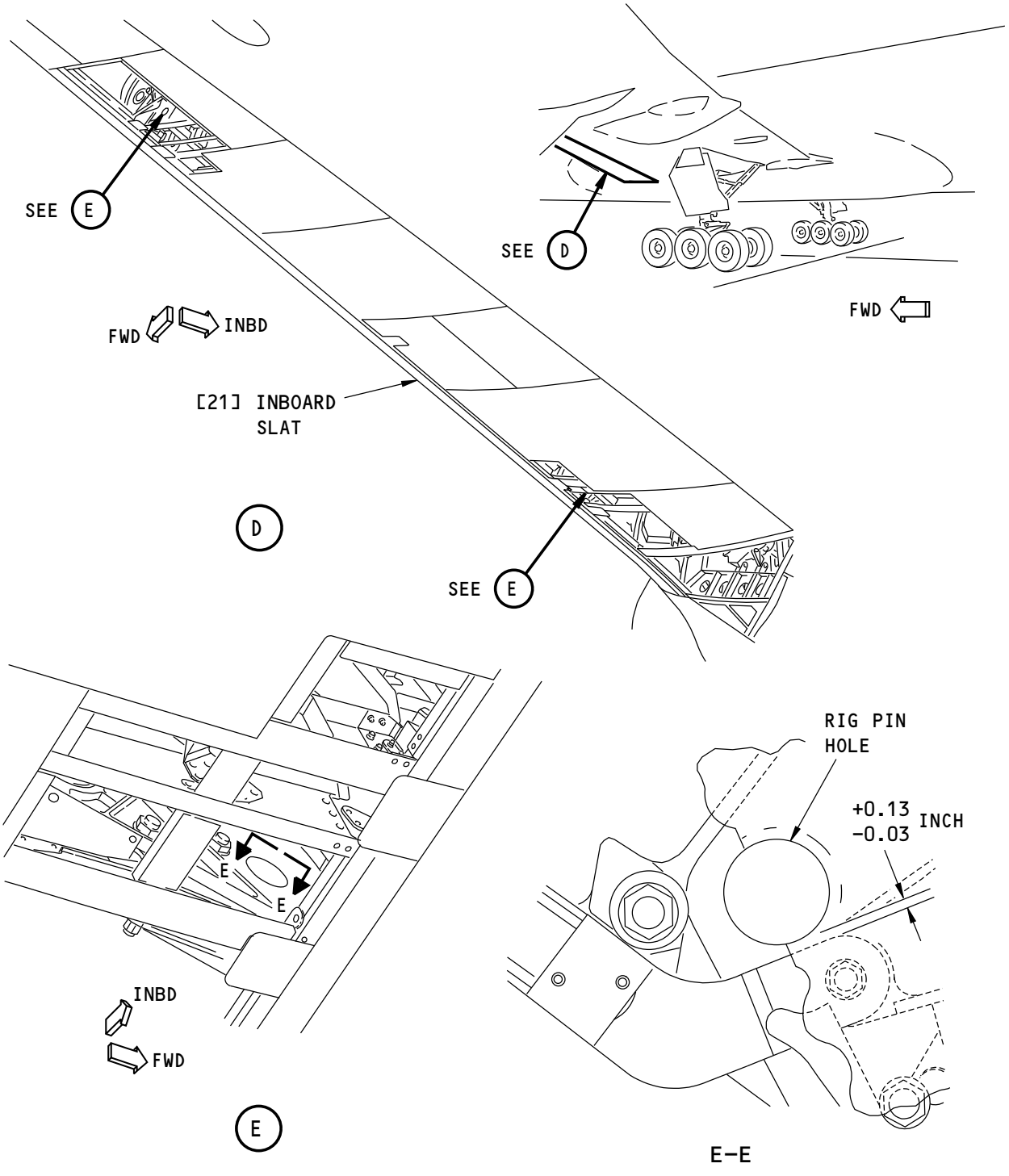


E–E

F48354 S0006414283_V2

Leading Edge Slat Adjustment Verification
Figure 507/27-81-00-990-816 (Sheet 3 of 4)

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F48364 S0006414284_V1

Leading Edge Slat Adjustment Verification
Figure 507/27-81-00-990-816 (Sheet 4 of 4)

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SLAT PRIMARY CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the primary control valve for the leading edge slats.

(2) An installation of the primary control valve for the leading edge slats.

(3) A removal of the solenoids from the primary control valve.

(4) An installation of the solenoids on the primary control valve.

B. There are five solenoids installed on the primary control valve. It is not necessary to remove the solenoids to remove the primary control valve.

(1) The solenoids are as follows:

(a) Shutoff solenoid

(b) Extend solenoid

(c) Low speed solenoid

(d) Retract solenoid

(e) Bypass solenoid

TASK 27-81-05-000-801

2. Slat Primary Control Valve Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left

C. Prepare for the Removal

SUBTASK 27-81-05-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

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SUBTASK 27-81-05-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-81-05-860-005

(3) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

D. Remove the Primary Control Valve

SUBTASK 27-81-05-860-001

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-81-05-020-001

(2) Disconnect the electrical connecctors [7] and [12] from the valve assembly [3].

SUBTASK 27-81-05-020-002

(3) Disconnect the hydraulic tubes [4], [6], [10] and [11] from the valve assembly [3].

SUBTASK 27-81-05-020-003

(4) Remove the bolts [8] and washers [9] and remove the valve assembly [3] from the bracket [2].

SUBTASK 27-81-05-480-003

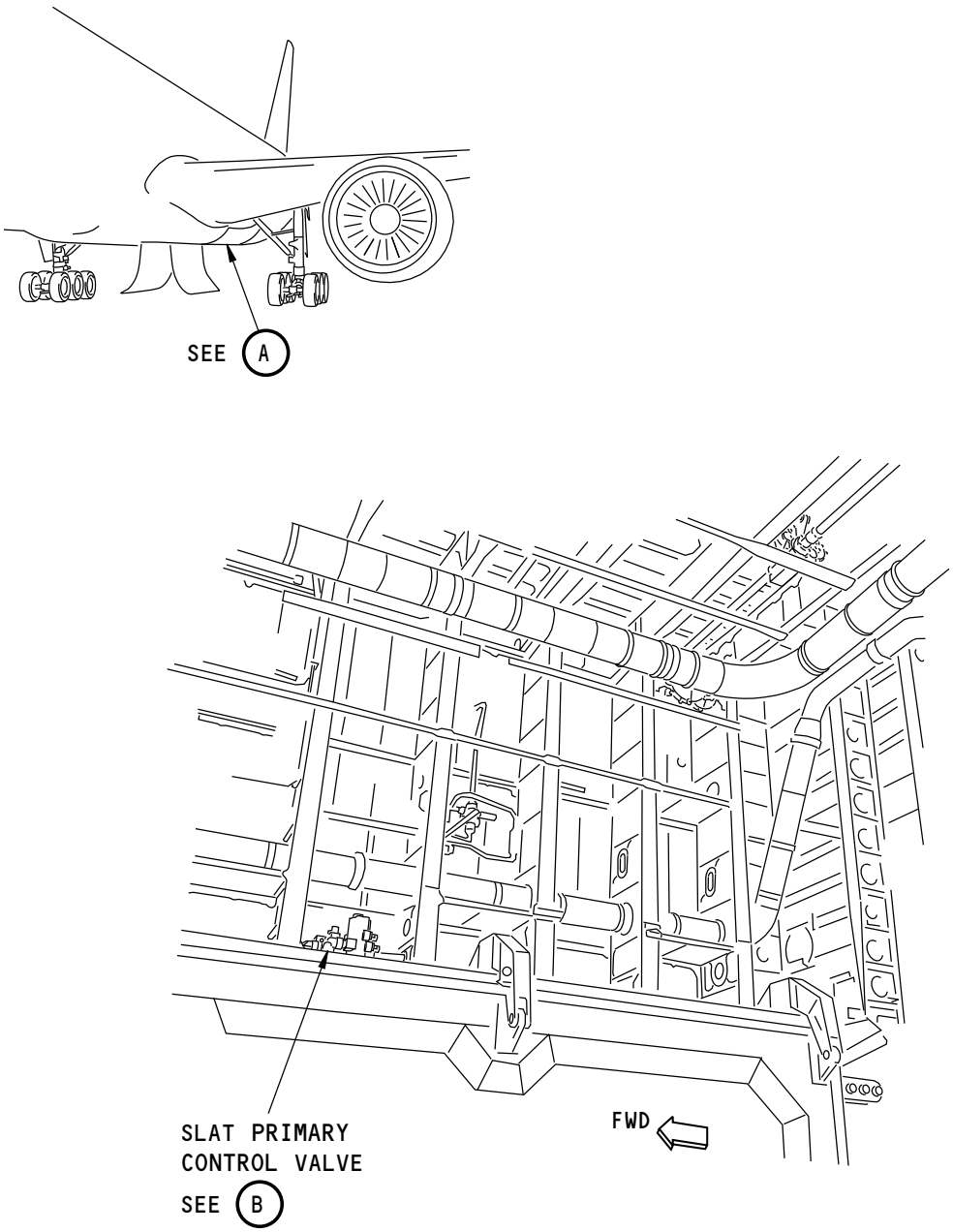
(5) Install caps on the hydraulic tubes [4], [6], [10] and [11].

SUBTASK 27-81-05-480-004

(6) Install plugs in the hydraulic ports on the valve assembly [3].

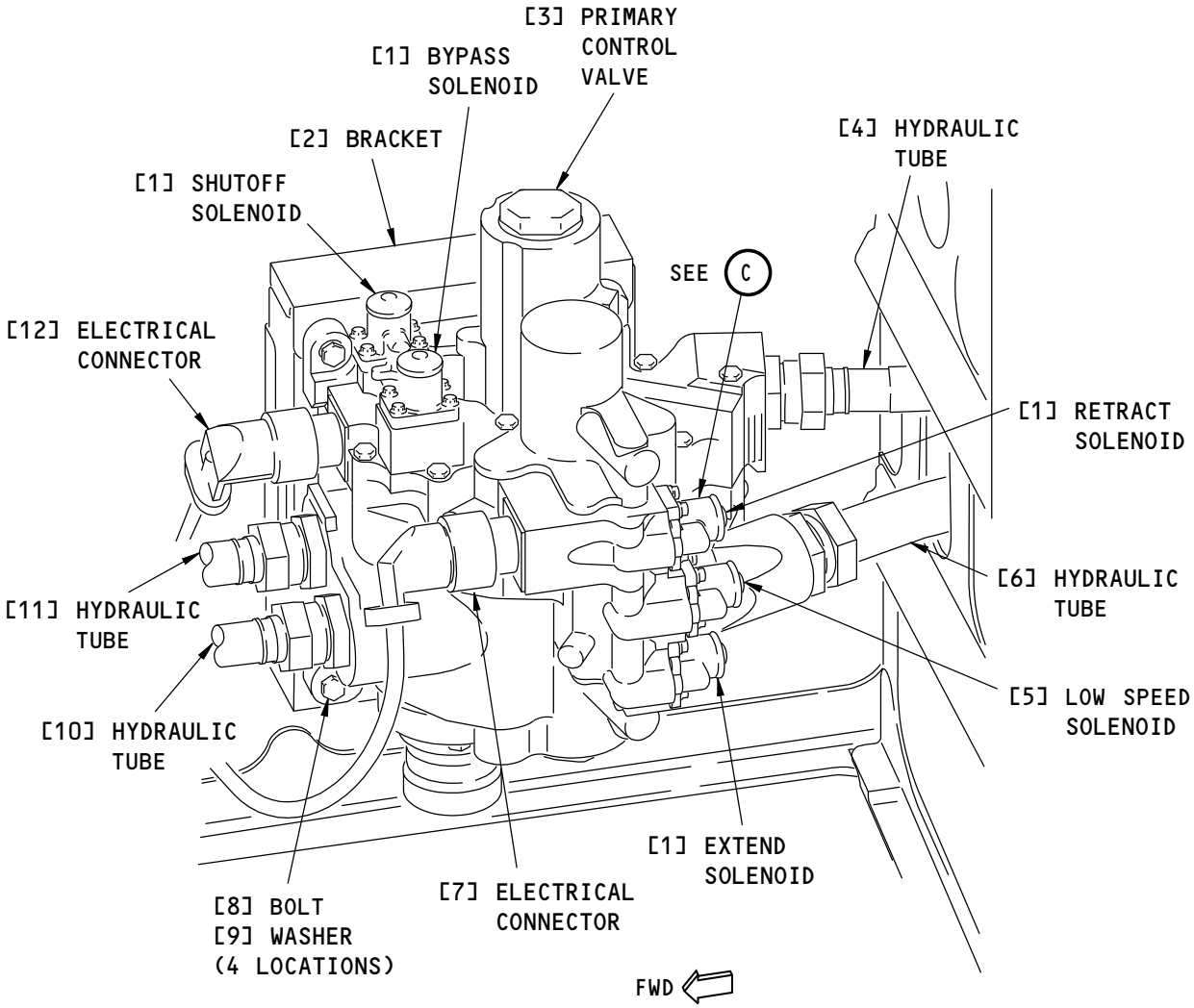
END OF TASK

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Slat Primary Control Valve Installation
Figure 401/27-81-05-990-801 (Sheet 1 of 3)

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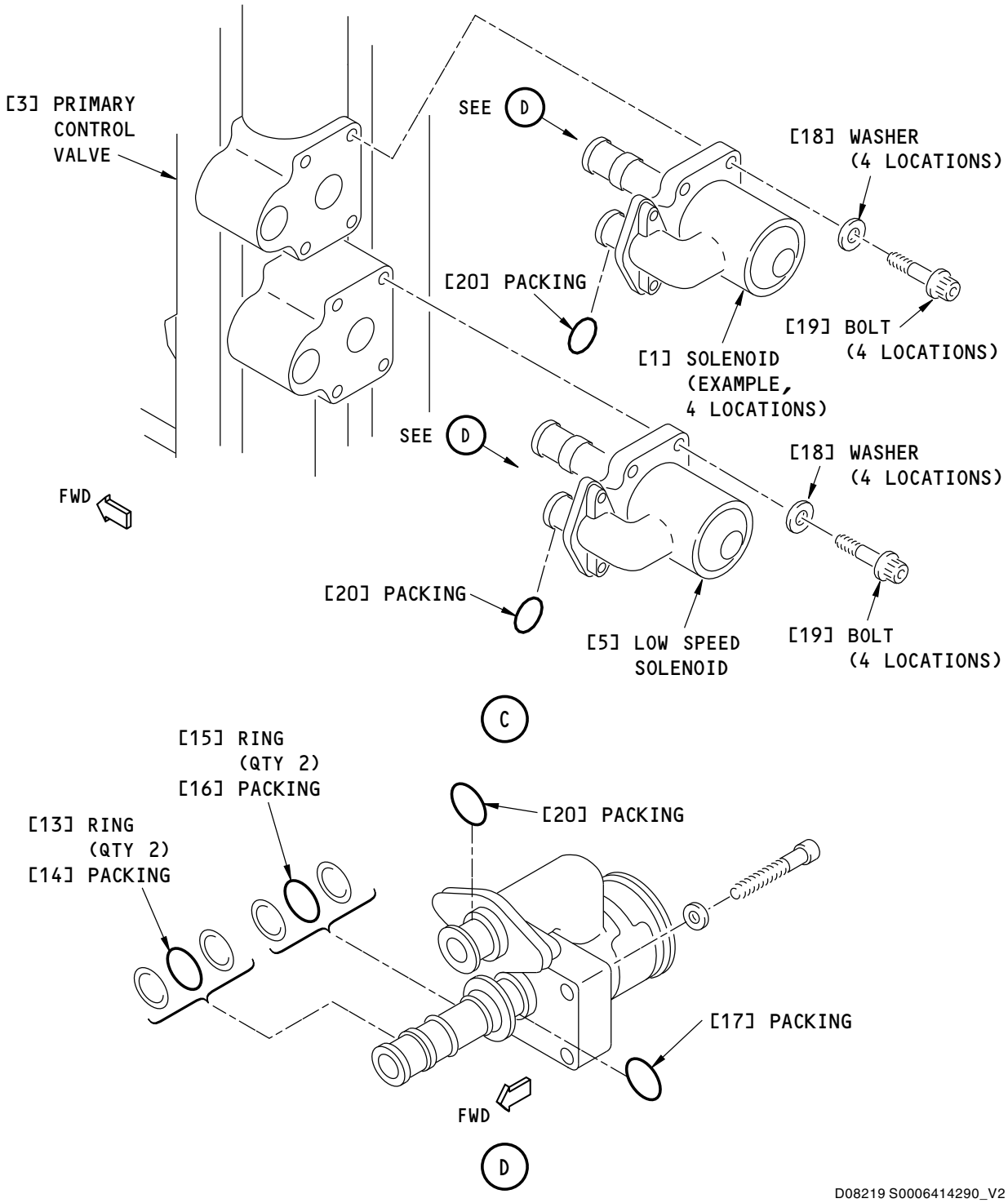
SLAT PRIMARY CONTROL VALVE

B

D08152 S0006414289_V1

Slat Primary Control Valve Installation
Figure 401/27-81-05-990-801 (Sheet 2 of 3)

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Slat Primary Control Valve Installation
Figure 401/27-81-05-990-801 (Sheet 3 of 3)

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TASK 27-81-05-400-801

3. Slat Primary Control Valve Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
27-81-05-740-801	Slat Primary Control Valve Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00767	Sealant - Fuel Tank	BMS5-45

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Valve assembly	27-81-05-10-010	ARO ALL

E. Location Zones

Zone	Area
143	Main Landing Gear Wheel Left

F. Procedure

SUBTASK 27-81-05-420-001

(1) Install the valve assembly [3]:

(a) Make sure the mating surface of the valve assembly [3] and the bracket [2] are clean.

(b) Remove the caps from the hydraulic tubes [4], [6], [10] and [11] and the plugs from the ports on the valve assembly [3].

(c) Put the valve assembly [3] in its position on the bracket [2].

(d) Install the bolts [8] and washers [9] that attach the valve assembly [3].

(e) Apply a fillet seal of sealant, A00767 or sealant, A00247 around the mating surfaces of the valve assembly [3].

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(f) With the intrinsically safe approved bonding meter, COM-1550, make sure the bonding resistance between the valve assembly [3] and the structure is less than 0.008 ohms.

SUBTASK 27-81-05-420-002

(2) Connect the hydraulic tube [4], hydraulic tube [6], hydraulic tube [10] and hydraulic tube [11] to the valve assembly [3].

(a) Tighten the B-nuts on the hydraulic tube [4], hydraulic tube [10] and hydraulic tube [11] to 1200 ±60 in-lb (136 ±7 N·m).

(b) Tighten the B-nut on the hydraulic tube [6] to 900 ±45 in-lb (102 ±5 N·m).

SUBTASK 27-81-05-420-003

(3) Connect the electrical connectors [7] and [12] to the valve assembly [3].

SUBTASK 27-81-05-860-002

(4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-81-05-610-001

(5) If it is necessary for the center hydraulic system, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

SUBTASK 27-81-05-740-001

(6) Do this task: Slat Primary Control Valve Test, TASK 27-81-05-740-801.

SUBTASK 27-81-05-210-001

(7) Make sure there are no hydraulic fluid leaks at the valve assembly [3].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-05-080-001

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

TASK 27-81-05-000-802

4. Primary Control Valve Solenoid Removal

(Figure 401)

A. General

(1) This procedure is applicable to all of the solenoid [1] and solenoid [5] installed on the primary control valve.

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B. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left

D. Prepare for the Removal

SUBTASK 27-81-05-480-005

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-81-05-480-006

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

SUBTASK 27-81-05-860-006

(3) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

E. Primary Control Valve Solenoid Removal

SUBTASK 27-81-05-860-003

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-81-05-020-004

(2) Remove the solenoid [1] from the valve assembly [3]:

(a) Remove the bolts [19] and washers [18] that attach the solenoid [1].

(b) Pull the solenoid [1] straight out of the valve assembly [3].

(c) Remove the rings [13], packing [14], rings [15], packing [16], packing [17], and packing [20] from the solenoid [1].

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SUBTASK 27-81-05-020-005

(3) Remove the solenoid [5] from the valve assembly [3]:

(a) Remove the bolts [19] and washers [18] that attach the solenoid [5].

(b) Pull the solenoid [5] straight out of the valve assembly [3].

(c) Remove the rings [13], packing [14], rings [15], packing [16], packing [17], and packing [20] from the solenoid [5].

——— END OF TASK ———

TASK 27-81-05-400-802

5. Primary Control Valve Solenoid Installation

(Figure 401)

A. General

(1) This procedure is applicable to all of the solenoid [1] and solenoid [5] installed on the primary control valve.

B. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
27-81-05-740-801	Slat Primary Control Valve Test (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00436	Sealant - Fuel Tank	BMS5-45 (Supersedes BMS5-26)
D00571	Grease - BATCO X8401-2	

D. Location Zones

Zone	Area
143	Main Landing Gear Wheel Well, Left

E. Procedure

SUBTASK 27-81-05-420-005

(1) Install the solenoid [1] in the valve assembly [3]:

(a) Install new rings [13], packing [14], rings [15], packing [16], packing [17], and packing [20] on the solenoid [1].

(b) Apply a bead of sealant, A00436 to the mating surface of the solenoid [1].

NOTE: Do not get the sealant on the flange of the solenoid.

(c) Put the solenoid [1] in its position on the valve assembly [3].

(d) Apply a layer of sealant, A00436, to the bottom surface of the washers [18].

(e) Apply a layer BATCO X8401-2 grease, D00571 to the shank and threads of the bolts [19].

(f) Install the bolts [19] and washers [18] that attach the solenoid [1] to the valve assembly [3].

(g) Tighten the bolts [19] to 32-37 pound-inches.

(h) Install lockwire on the bolts [19].

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SUBTASK 27-81-05-420-004

(2) Install the solenoid [5] in the valve assembly [3]:

(a) Install new rings [13], packing [14], rings [15], packing [16], packing [17], and packing [20] on the solenoid [5].

(b) Apply a bead of sealant, A00436 to the mating surface of the solenoid [5].

NOTE: Do not get the sealant on the flange of the solenoid.

(c) Put the solenoid [5] in its position on the valve assembly [3].

(d) Apply a layer of sealant, A00436, to the bottom surface of the washers [18].

(e) Apply a layer BATCO X8401-2 grease, D00571 to the shank and threads of the bolts [19].

(f) Install the bolts [19] and washers [18] that attach the solenoid [5] to the valve assembly [3].

(g) Tighten the bolts [19] to 32-37 pound-inches.

(h) Install lockwire on the bolts [19].

SUBTASK 27-81-05-860-004

(3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-81-05-610-002

(4) For the center hydraulic system, if it is necessary, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

SUBTASK 27-81-05-740-002

(5) Do this task: Slat Primary Control Valve Test, TASK 27-81-05-740-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-05-080-002

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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SLAT PRIMARY CONTROL VALVE - ADJUSTMENT/TEST

1. General

A. This procedure includes an automatic test of the slat primary control valve.

TASK 27-81-05-740-801

2. Slat Primary Control Valve Test

(Figure 501)

A. General

(1) Use this test to make sure the slat primary control valve and the solenoids in the primary control valve operate correctly.

(2) In this procedure it is necessary to move the flap control lever before the test will start. The sequence of operation for the flaps and slats will not be the same as usual.

(3) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT, or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(4) These EICAS CAUTION messages can show during this test:

(a) FLAP/SLAT CONTROL

(b) NO AUTOLAND

(5) These EICAS STATUS messages can show during this test:

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

(c) NO AUTOLAND

(d) FLIGHT CONTROL SYS

(e) PFCS INTERFACE

(6) This EICAS ADVISORY message can show during this test:

(a) NO AUTOLAND

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Procedure

SUBTASK 27-81-05-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-81-05-860-008

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats. You must use the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

SUBTASK 27-81-05-860-009

(3) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-81-05-210-004

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-05-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR FULLY CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) access door is fully open or fully closed.

SUBTASK 27-81-05-860-010

(6) If you installed a new slat primary control valve, extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

NOTE: This is necessary to bleed air from the primary control valve.

SUBTASK 27-81-05-860-011

(7) Make sure the flap control lever is in the UP position.

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SUBTASK 27-81-05-740-003

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE FLAPS AND SLATS DURING THIS TEST. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Use a maintenance access terminal (MAT) to do the LRU replacement test of the slat primary control valve:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 HIGH LIFT SYSTEM
5) LRU REPLACEMENT TEST
6) SLATS PRIMARY CONTROL VALVE TEST-FSEU 1 (SLATS PRIMARY CONTROL VALVE TEST- FSEU 2)

NOTE: To do a full test of the primary control valve, you must do the test with FSEU 1 and FSEU 2.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-81-05-740-004

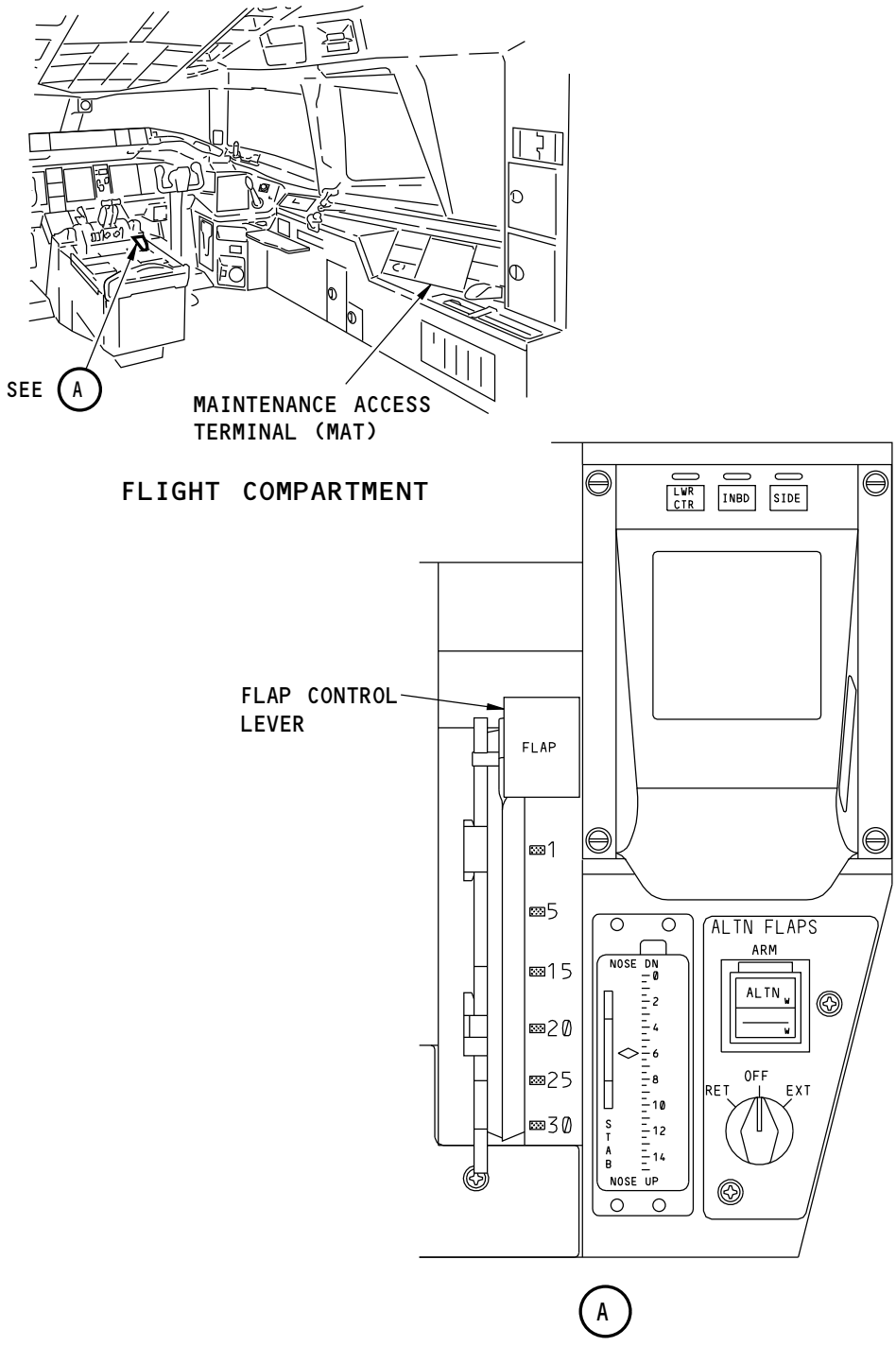
(9) Do the slat primary control valve test again with the other FSEU.

SUBTASK 27-81-05-860-012

(10) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

——— END OF TASK ———

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Slat Primary Control Valve Test
Figure 501/27-81-05-990-802

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AUTOSLAT PRIORITY VALVE - MAIN LANDING GEAR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the autoslat priority valve for the main landing gear.

(2) An installation of the autoslat priority valve for the main landing gear.

TASK 27-81-06-000-801

2. Autoslat Priority Valve - Main Landing Gear - Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
32-00-15-480-801	Landing Gear Door Safety Pins Installation (P/B 201)
32-00-30-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

C. Prepare for the Removal

SUBTASK 27-81-06-480-001

WARNING MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-30-480-801.

SUBTASK 27-81-06-480-002

WARNING OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, TASK 32-00-15-480-801.

D. Autoslat Priority Valve Removal

SUBTASK 27-81-06-860-001

(1) For the center hydraulic system and reservoir, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

SUBTASK 27-81-06-860-002

(2) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

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SUBTASK 27-81-06-020-001

(3) Remove the valve [1]:

(a) Get access to the valve [1] in the right main wheel well.

(b) Disconnect the hydraulic lines [2], [6] and [8] from the valve [1].

(c) Install caps on the hydraulic lines [2], [6] and [8].

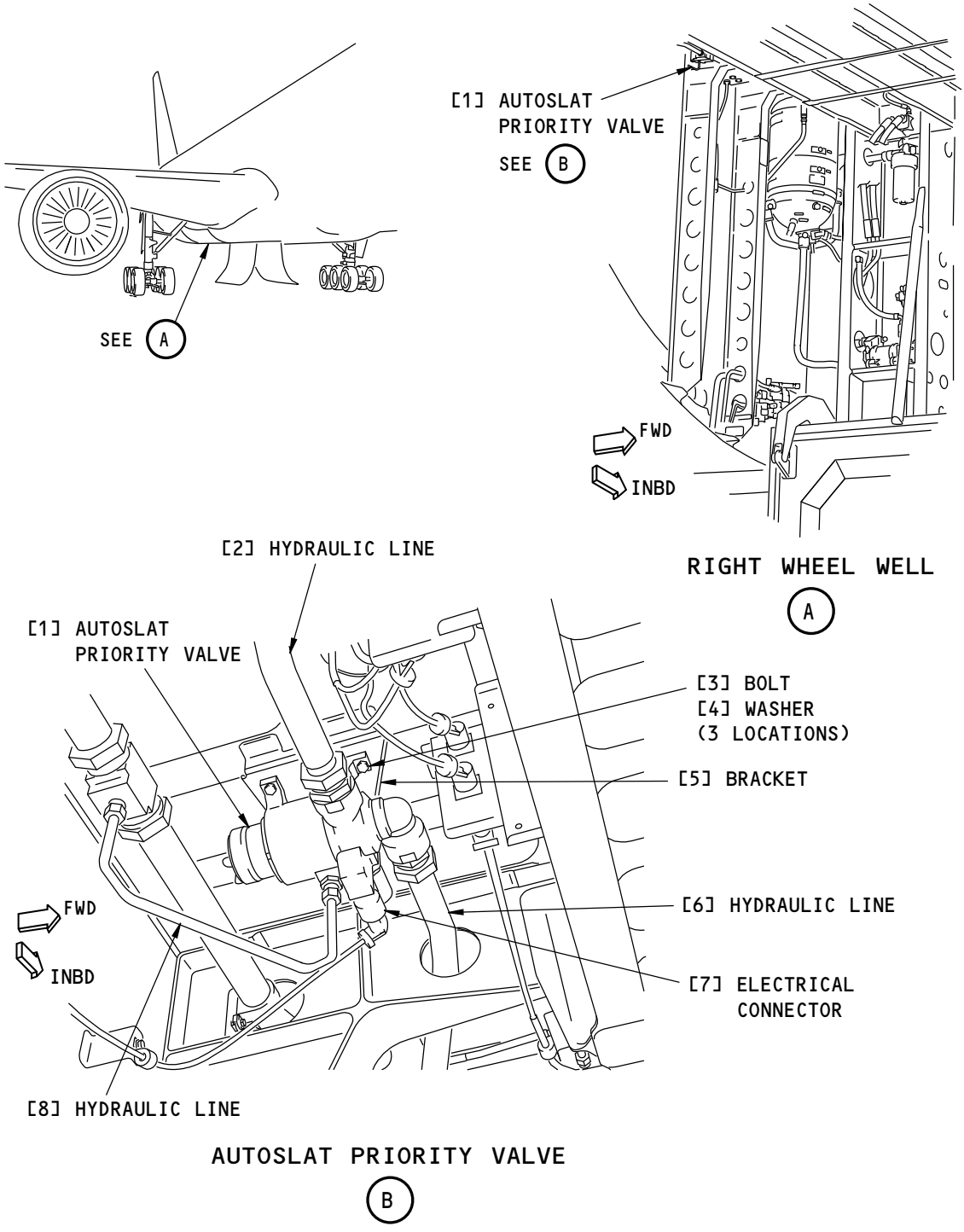
(d) Disconnect the electrical connector [7] from the valve [1].

(e) Remove the bolts [3] and washers [4] and remove the valve [1].

(f) Install plugs in the ports of the valve [1].

——— END OF TASK ———

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Main Landing Gear Autoslat Priority Valve Installation
Figure 401/27-81-06-990-801

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TASK 27-81-06-400-801

3. Autoslat Priority Valve - Main Landing Gear - Installation

(Figure 401)

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
27-81-00-720-802	Autoslat Priority Valve Test - Main Landing Gear (P/B 501)
32-00-15-080-801	Landing Gear Door Safety Pins Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Valve	27-81-06-01-015	ARO ALL

E. Location Zones

Zone	Area
144	Main Landing Gear Wheel Well, Right

F. Autoslat Priority Valve Installation

SUBTASK 27-81-06-420-001

(1) Install the valve [1]:

(a) Apply a thin layer of sealant, A00247 to the mating surfaces of the valve [1] and the bracket [5].

(b) Put the valve [1] on the bracket [5] in the right main wheel well.

(c) Apply a layer of sealant, A00247 to the shank and threads of the bolts [3].

(d) Install the bolts [3] and washers [4].

(e) Make sure sealant comes out of the mating surfaces of the valve [1] and the bracket [5].

(f) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the valve [1] and the structure is less than 0.008 ohm, (WDM D6-54446).

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(g) Remove the caps from the hydraulic line [2], hydraulic line [6] and hydraulic line [8] the plugs from the ports of the valve [1].

(h) Connect the hydraulic line [8] to the valve [1].

1) Tighten the B-nut on the hydraulic line [8] to 170 ±9 in-lb (19 ±1 N·m).

(i) Connect the hydraulic line [2] and hydraulic line [6] to the valve [1].

1) Tighten the B-nuts on the hydraulic line [2] and hydraulic line [6] to 1600 ±80 in-lb (181 ±9 N·m).

(j) Connect the electrical connector [7] to the valve [1].

SUBTASK 27-81-06-610-001

(2) For the center hydraulic system, if it is necessary, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

SUBTASK 27-81-06-860-003

(3) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2

SUBTASK 27-81-06-710-001

(4) Do this task: Autoslat Priority Valve Test - Main Landing Gear, TASK 27-81-00-720-802.

SUBTASK 27-81-06-790-001

(5) Make sure there are no hydraulic leaks from the valve [1].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-06-080-001

WARNING OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND LOCKPINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Door Safety Pins Removal, TASK 32-00-15-080-801.

END OF TASK

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INBOARD LEADING EDGE SLAT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard leading edge slat

(2) An installation of the inboard leading edge slat.

B. If you will remove and install the same slat and not change the adjustment of the main and auxiliary tracks, it is not necessary to do the preload adjustment procedure.

TASK 27-81-10-000-801

2. Inboard Leading Edge Slat Removal

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1715	Equipment - Sling, Inboard/Outboard LE Slat Part #: J27014-19 Supplier: 81205
SPL-1756	Pin - Ground Lock (J27030-2 Included in Kits J27030-1 and J27030-29) Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

C. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

D. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
521ADB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

E. Prepare for the Removal

SUBTASK 27-81-10-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-10-860-010

(2) If you will remove and install the same slat and not change the adjustment of the main or auxiliary tracks, extend the slats to the gapped position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-10-860-001

(3) If you will not remove and install the same slat or if you will change the adjustment of the main or auxiliary tracks, make sure the slats are in the retracted position.

(a) If the slats are not in the retracted position, retract the slats. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-10-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-10-010-001

(5) Remove the applicable fixed leading edge panels from the lower surface of the wing, (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 7, remove these access panels:

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, remove these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) To get access to the power drive unit, remove this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

(d) To get access to the torque tubes outboard of the applicable inboard slat, remove these access panels:

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-10-200-001

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(6) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-10-820-014

(7) If you will not remove and install the same slat, or if you will change the adjustment of the main or auxiliary tracks, make sure power drive unit (PDU) [12] is in the retracted position (Figure 401):

(a) Push in the rig pin [13] and install the ground lock pin (J27030-2 Included in Kits J27030-1 and J27030-29), SPL-1756 [14] in the Power Drive Unit (PDU) [12].

NOTE: This will make sure the slat drive system is in the retracted position. When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [13].

(b) If you cannot push in the rig pin [13], then adjust the position of the slat power drive unit (PDU) [12]:

1) Use the wrench flats on the torque tube to manually turn the PDU [12] in the extend direction approximately one turn of the torque tube.

NOTE: This step is necessary to remove the backlash in the slat drive system.

2) Manually turn the PDU [12] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

3) Push in the rig pin [13] on the PDU [12] and hold it.

4) Install the ground lockpin [14] in the rig pin [13].

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5) Make sure the PDU [12] is locked in this position:

NOTE: If the PDU [12] is not locked in this position, move the PDU [12] to the retracted position again.

a) Manually try to turn the PDU [12] in the retract direction.

b) Manually try to turn the PDU [12] in the extend direction.

SUBTASK 27-81-10-860-002

(8) If you will not remove and install the same slat, or if you will change the adjustment of the main or auxiliary tracks, manually extend the applicable inboard slat (Figure 401):

(a) Install a leading edge slat drive shaft clamp equipment, SPL-1696, on a torque tube [4] outboard of the applicable slat assembly [1].

(b) Disconnect the torque tubes [3] from the offset gearboxes [2] for the slat assembly [1]:

1) For the inboard offset gearbox [2], remove the bolts [11], washers [10] and plate [9] that hold the seal tube [8].

2) Move the seal tube [8] inboard to get access to the inboard coupling.

3) Remove the screws [6] from the coupling sleeves [5].

4) Move the coupling sleeves [5] off the splined couplings [6].

WARNING MOVE ALL PERSONS AWAY FROM THE SLAT. THE SLAT WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO NOT TURN THE OFFSET GEARBOX WITH MORE THAN 190 POUND-INCHES TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

CAUTION DO NOT LET THE MAIN TRACKS HIT THE DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

(c) Use the LE slat drive torque tube coupling adapter, SPL-1694, to extend the slat assembly [1] to the extended position.

NOTE: To move the slat assembly [1] from the retracted position to the extended position, you must turn the coupling approximately 138 turns. You can use an air drive motor to extend the slat.

F. Inboard Leading Edge Slat Removal

SUBTASK 27-81-10-480-001

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

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(2) Install the sling [21], which is a part of the inboard/outboard LE slat sling equipment, SPL-1715, on the slat assembly [1] (Figure 402):

NOTE: The slat weighs approximately 210 pounds.

(a) Install the sling fittings [22] on the slat assembly [1].

(b) Connect the sling [21] to the sling fittings [22].

(c) Use the sling [21] to hold the weight of the slat assembly [1].

SUBTASK 27-81-10-020-001

(3) Disconnect the auxiliary arms [41], [42] and [43] from the auxiliary tracks [44], [45] and [46] (Figure 403):

(a) Remove the nuts [50], washers [48], washers [49] and bolt assemblies [47] that attach the auxiliary arm rollers [52] to the auxiliary arms [41], [42] and [43].

(b) Remove the auxiliary arm rollers [52] from the auxiliary tracks [44], [45] and [46].

SUBTASK 27-81-10-020-002

(4) Disconnect the slat assembly [1] from the main tracks [81], [82] and [83] (Figure 404):

(a) Remove the nut [84], washer [85], washer [87] and bolt [88] that attach the outboard main track [81] to the slat assembly [1].

(b) Remove the washers [86] and bushing [89] from the outboard main track [81].

(c) Make a record of the location and thickness of the washers [86] for the outboard main track [81].

WARNING

SECURE THE CENTER MAIN TRACK [82] TO THE FIXED LEADING EDGE BEFORE YOU DISCONNECT IT FROM THE SLAT ASSY [1]. THE CENTER MAIN TRACK [82] CAN FALL FROM THE AIRPLANE WHEN IT IS DISCONNECTED. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) Secure the center main track [82] to the structure to make sure it cannot fall from the airplane.

(e) Remove the nuts [91], washers [92], washers [94] and bolts [95] that attach the inboard and center main tracks [82] and [83] to the slat assembly [1].

(f) Remove the washers [93] and bushings [96] from the inboard and center main tracks [82] and [83].

(g) Make a record of the location and thickness of the washers [93] for each main track [82] and [83].

SUBTASK 27-81-10-020-003

(5) Use the sling to lower the slat assembly [1].

SUBTASK 27-81-10-200-005

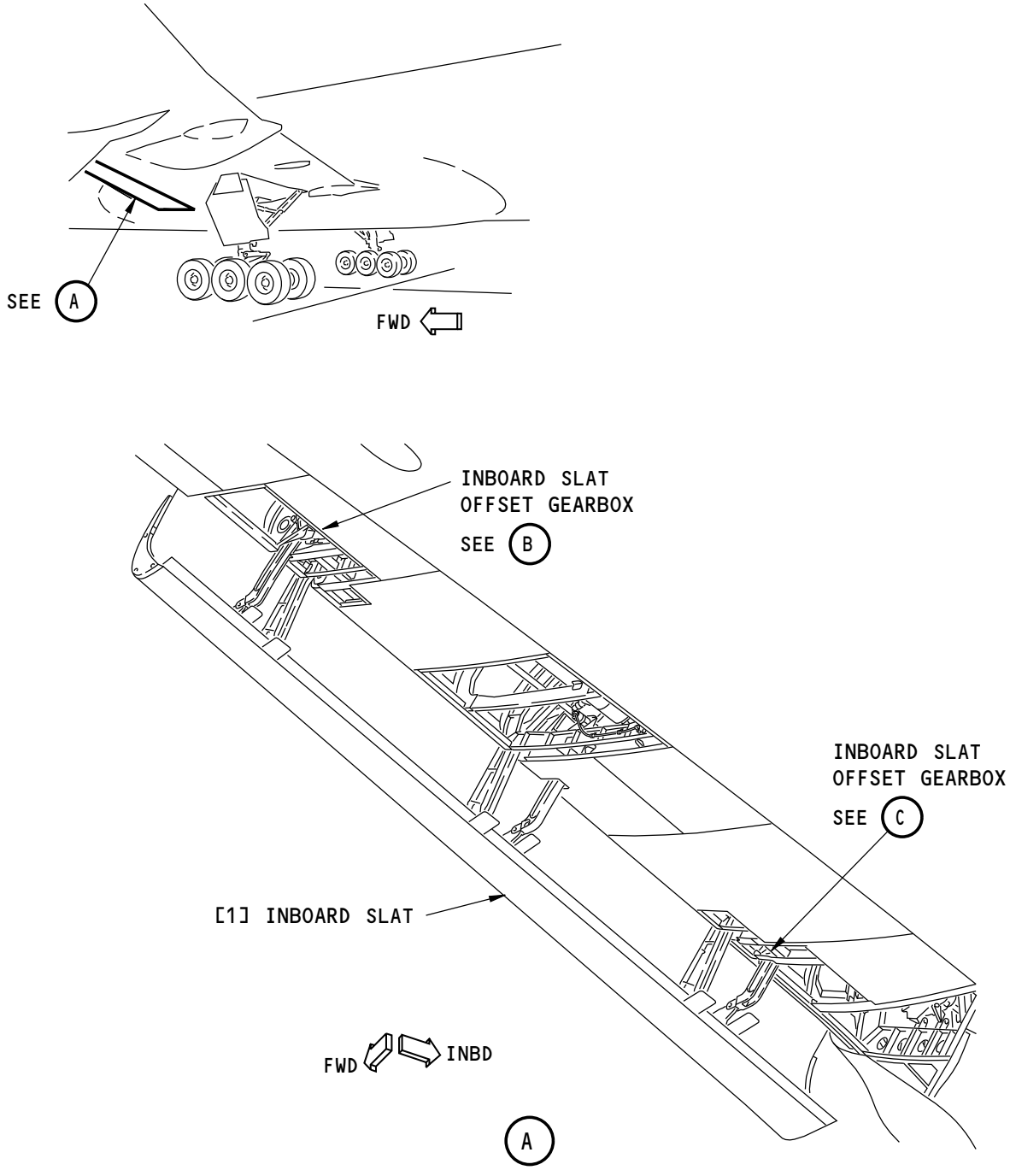
WARNING

DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(6) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

END OF TASK

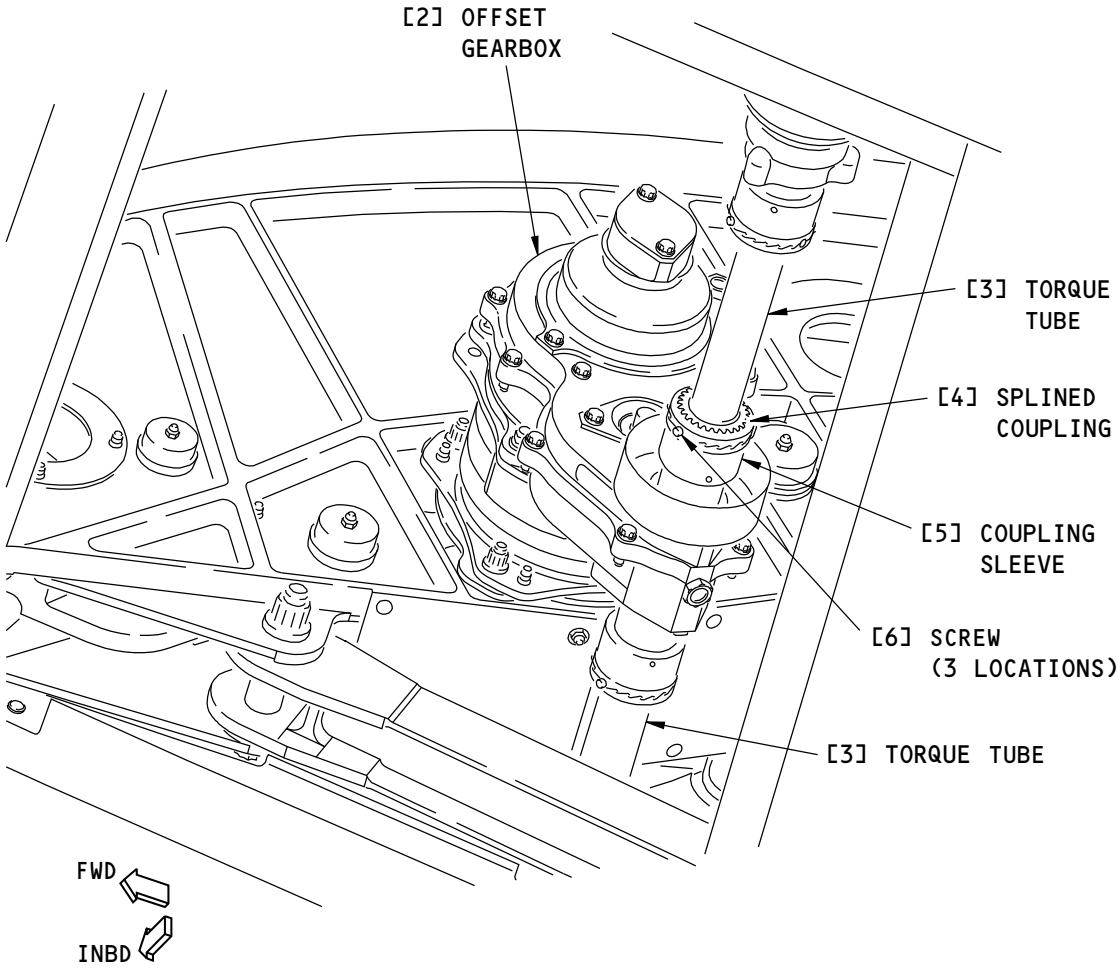
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Inboard Slat Manual Operation
Figure 401/27-81-10-990-801 (Sheet 1 of 4)

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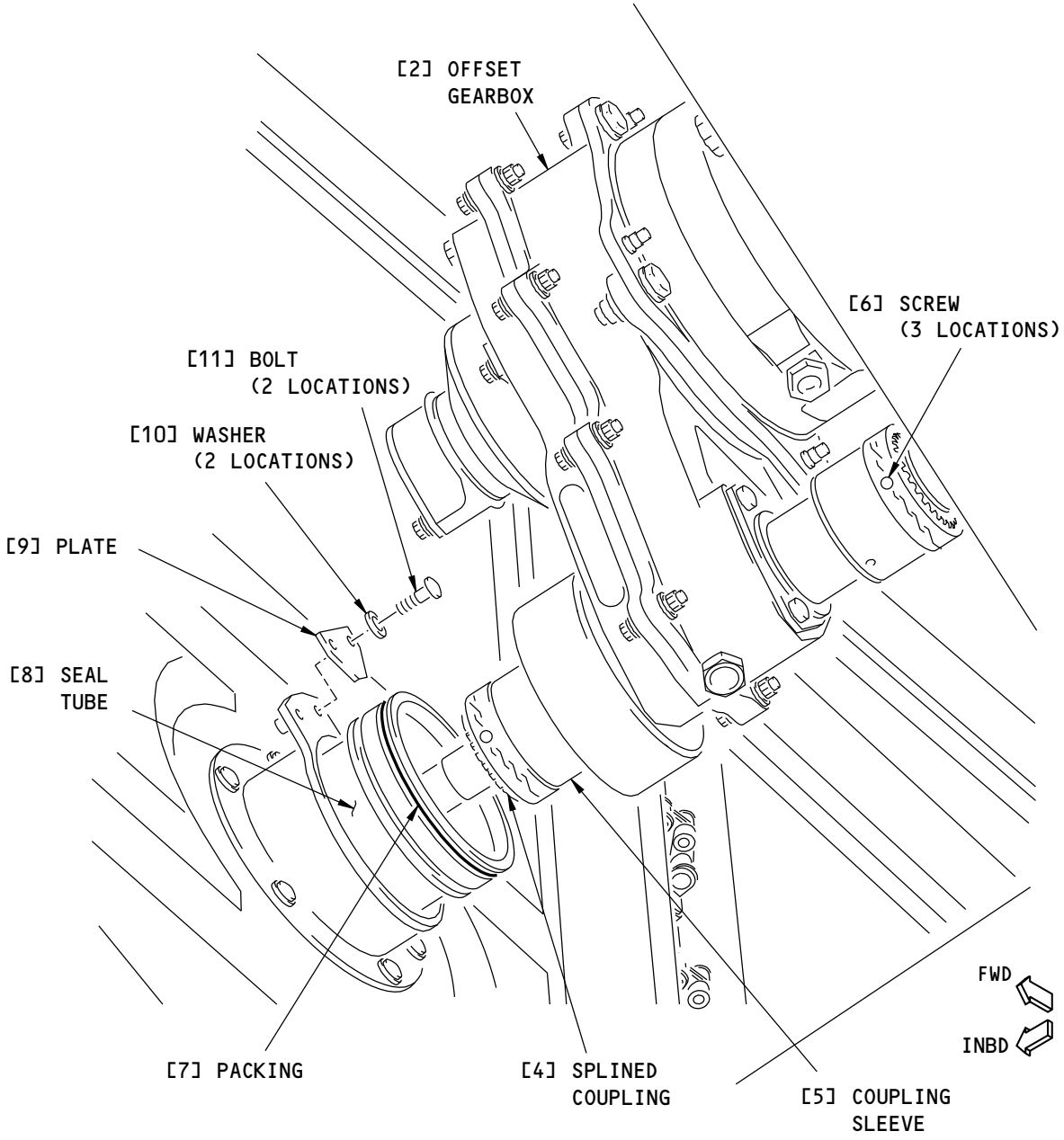
OUTBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

B

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Inboard Slat Manual Operation
Figure 401/27-81-10-990-801 (Sheet 2 of 4)

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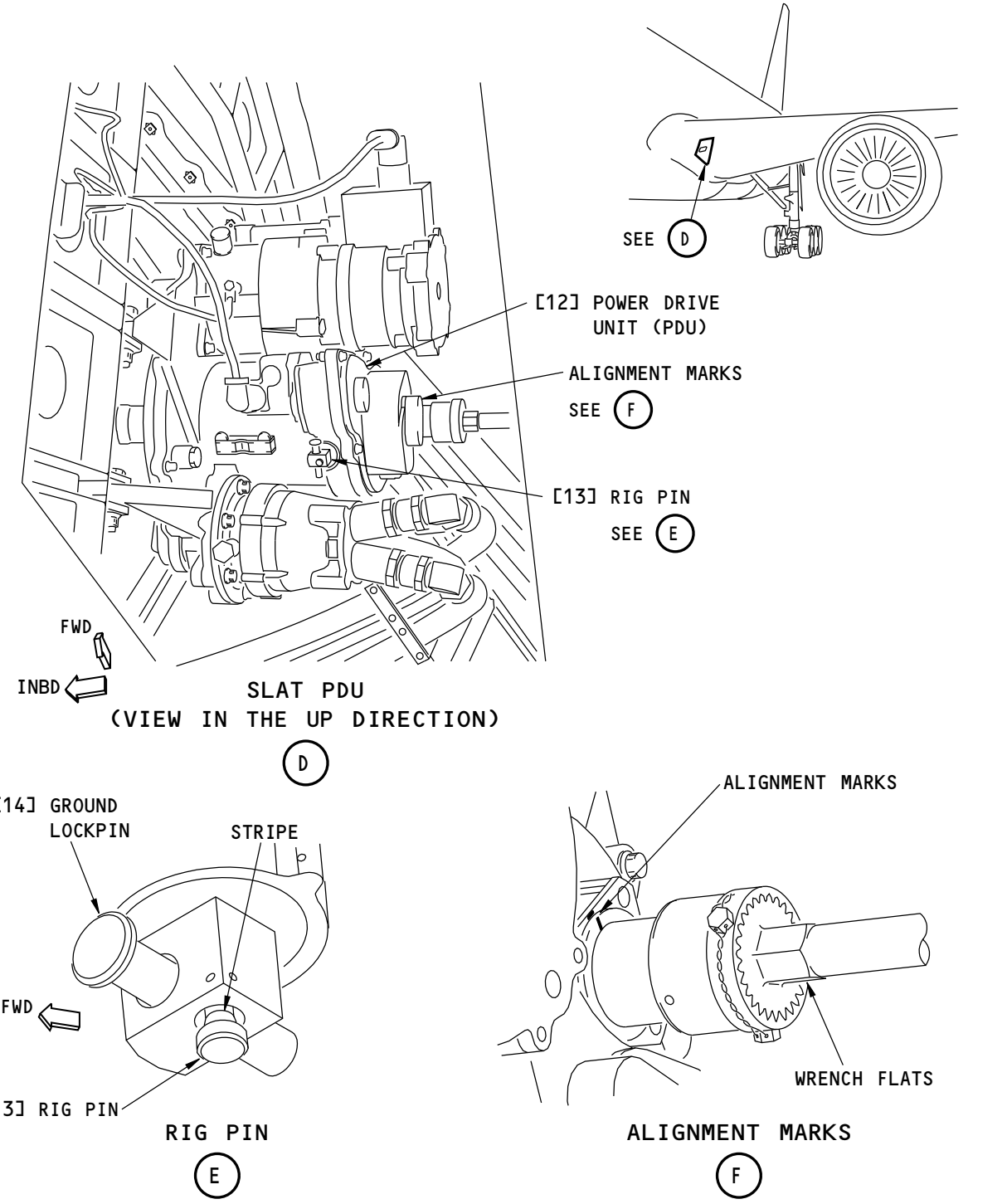
INBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

C

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Inboard Slat Manual Operation
Figure 401/27-81-10-990-801 (Sheet 3 of 4)

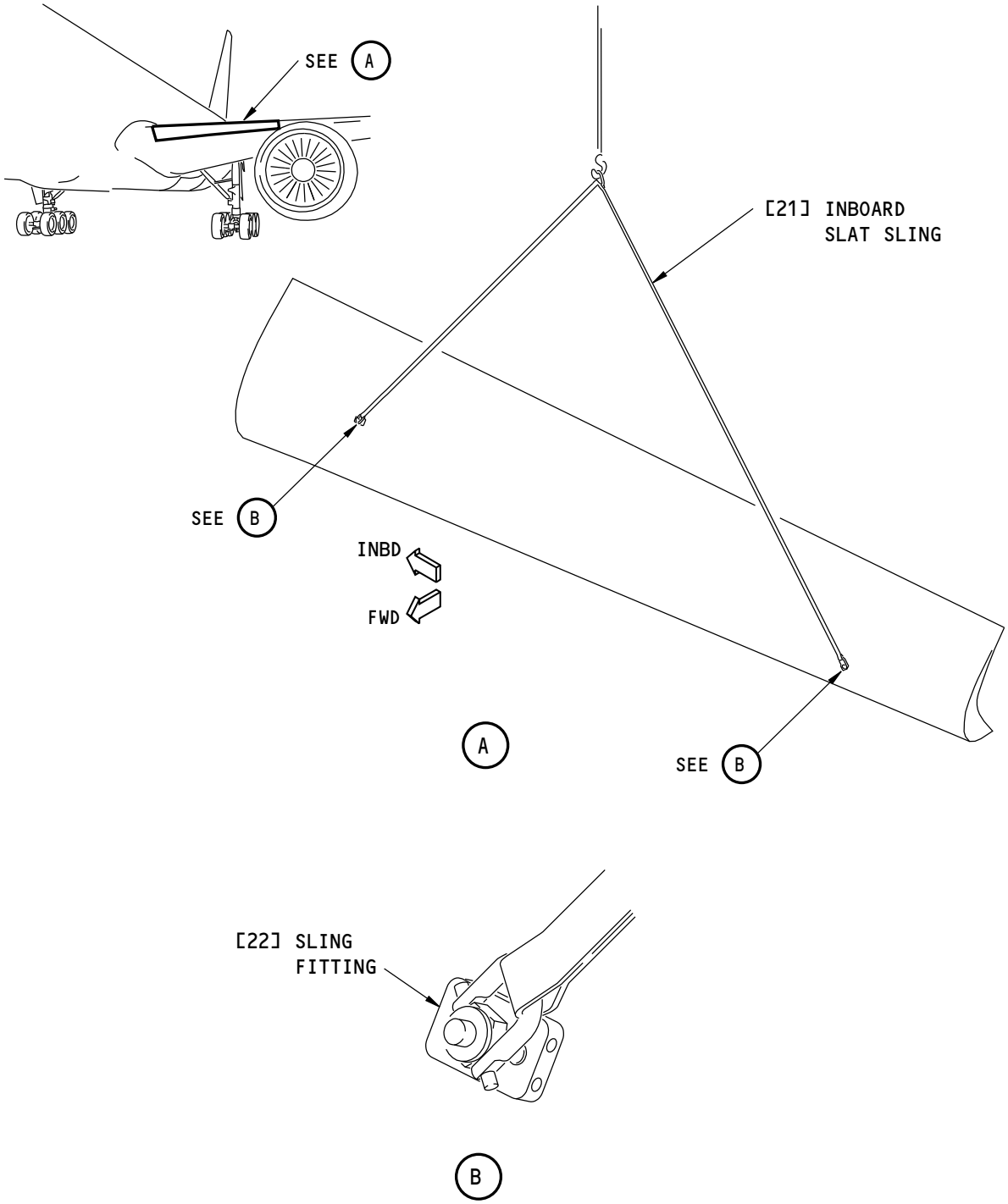
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Inboard Slat Manual Operation
Figure 401/27-81-10-990-801 (Sheet 4 of 4)

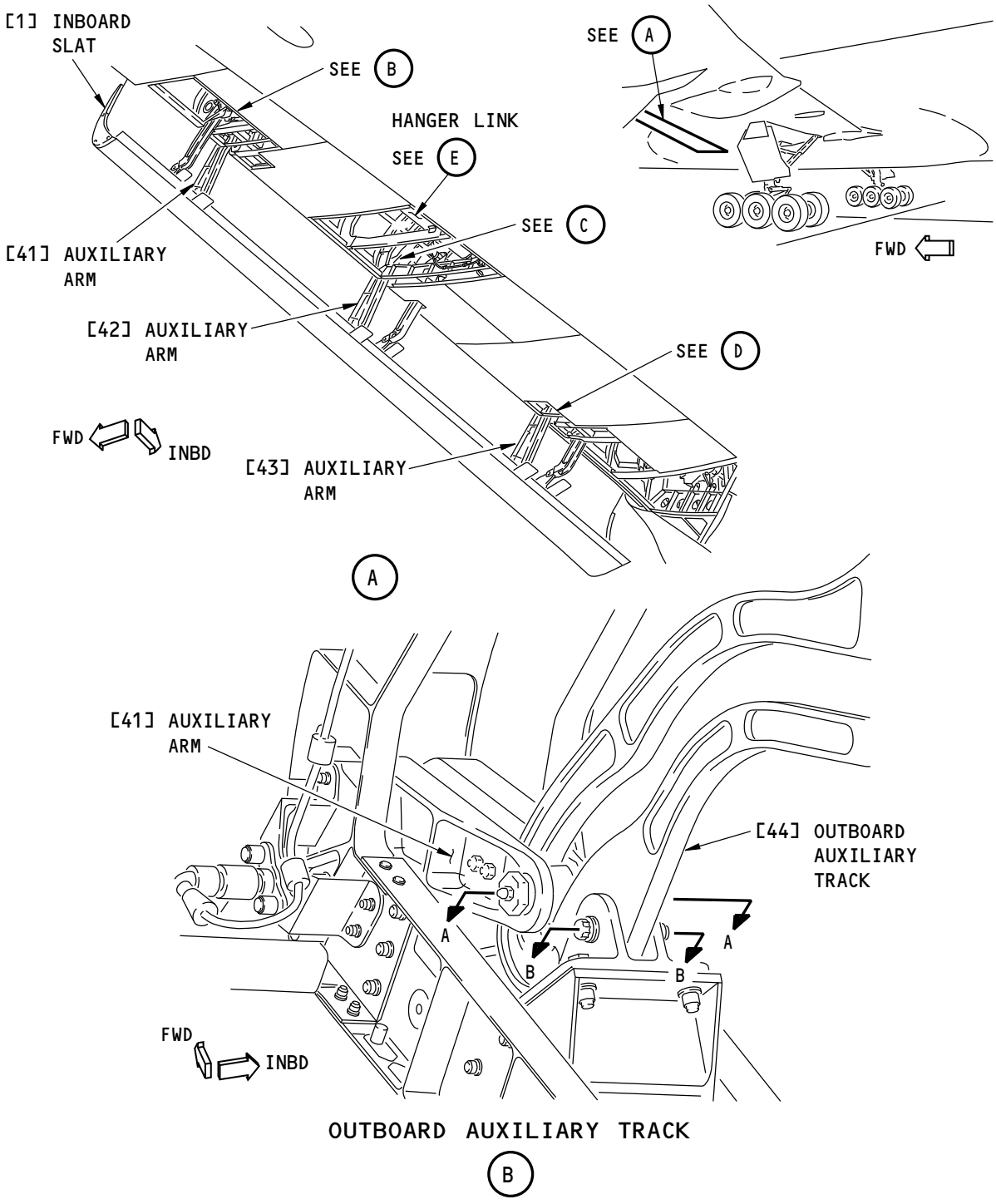
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Inboard Slat Sling Installation
Figure 402/27-81-10-990-802

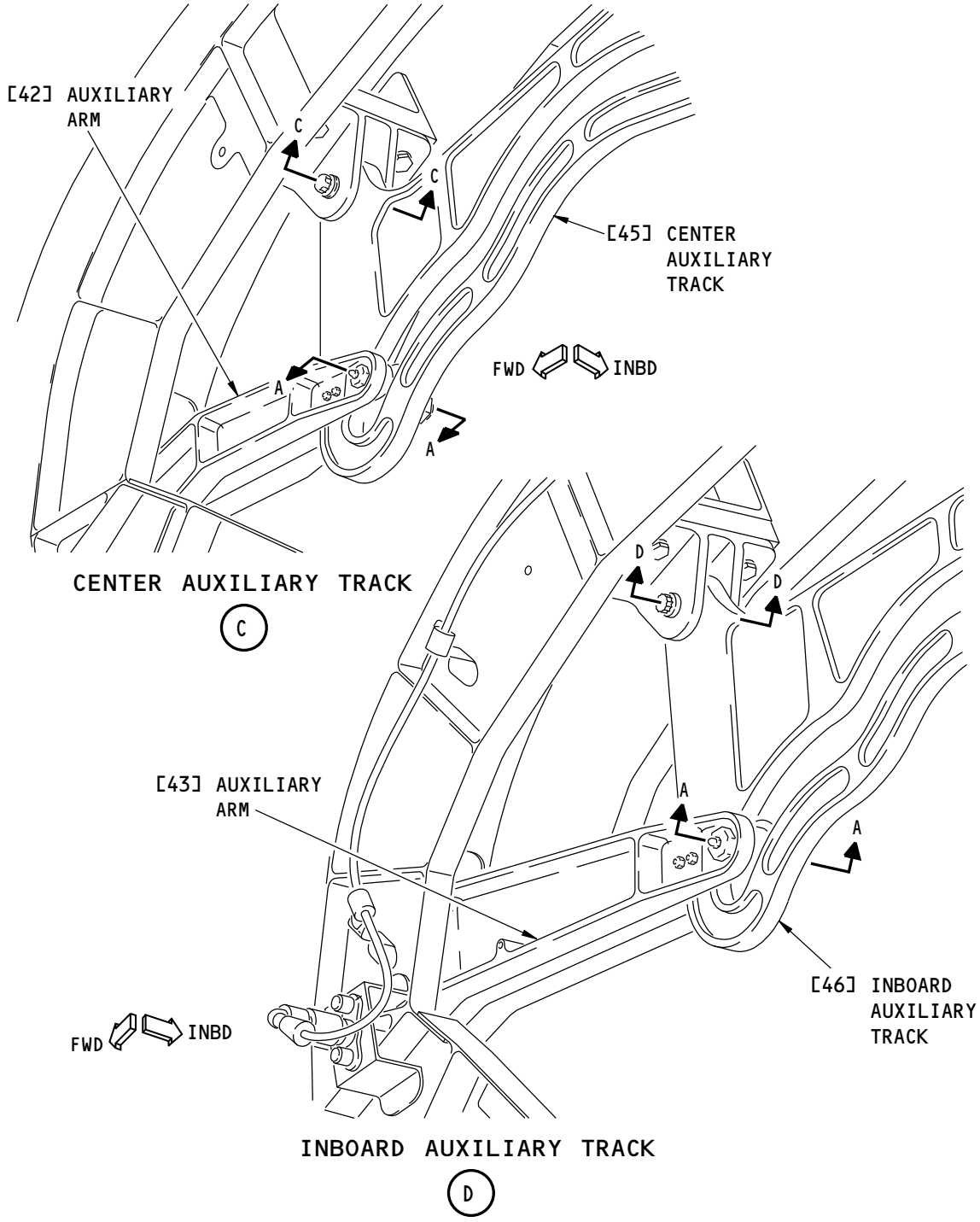
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Inboard Slat Auxiliary Tracks
Figure 403/27-81-10-990-803 (Sheet 1 of 5)

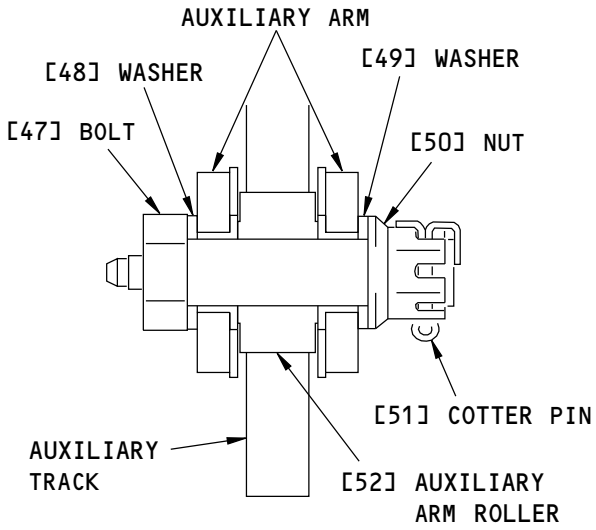
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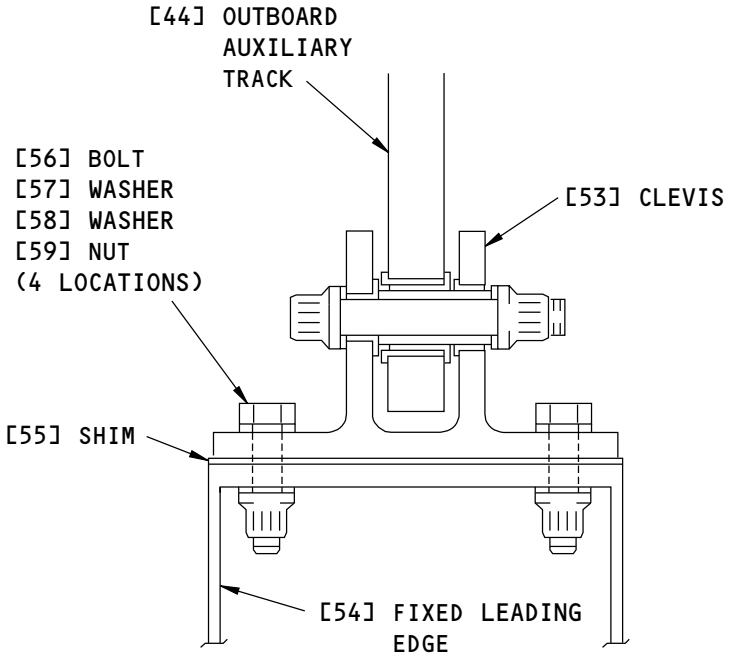
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Inboard Slat Auxiliary Tracks
Figure 403/27-81-10-990-803 (Sheet 2 of 5)

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A–A

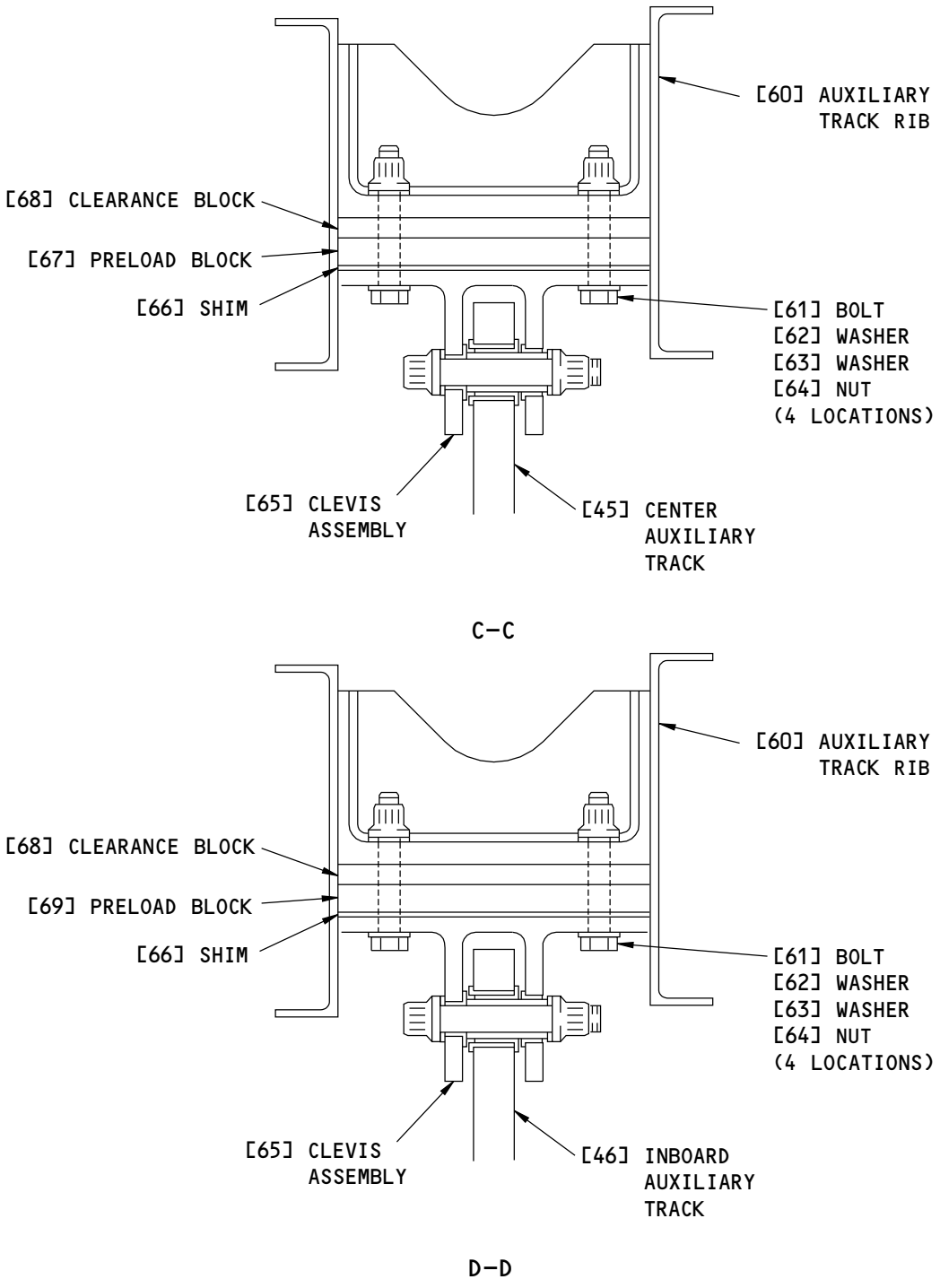


B–B

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Inboard Slat Auxiliary Tracks
Figure 403/27-81-10-990-803 (Sheet 3 of 5)

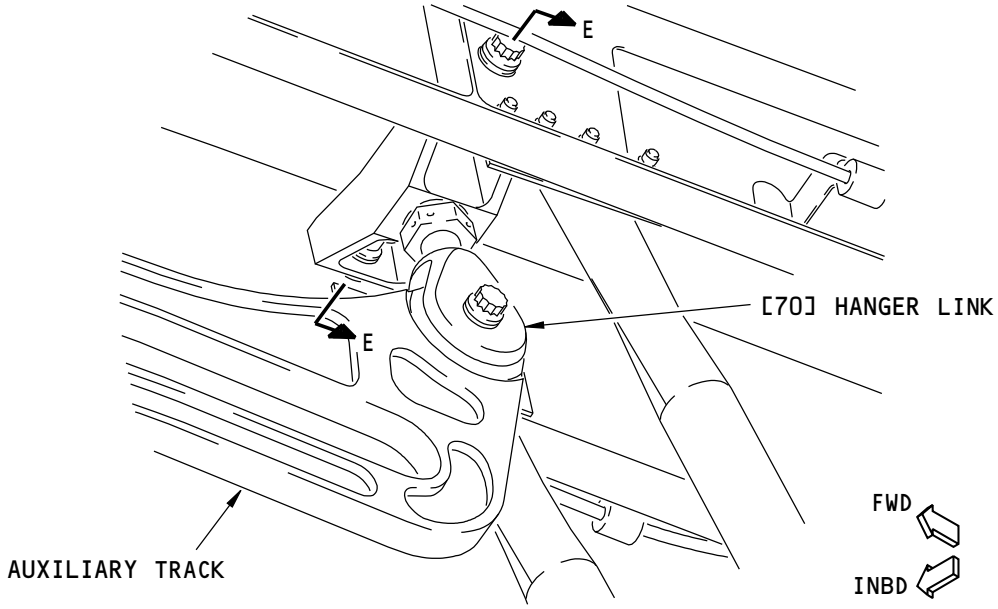
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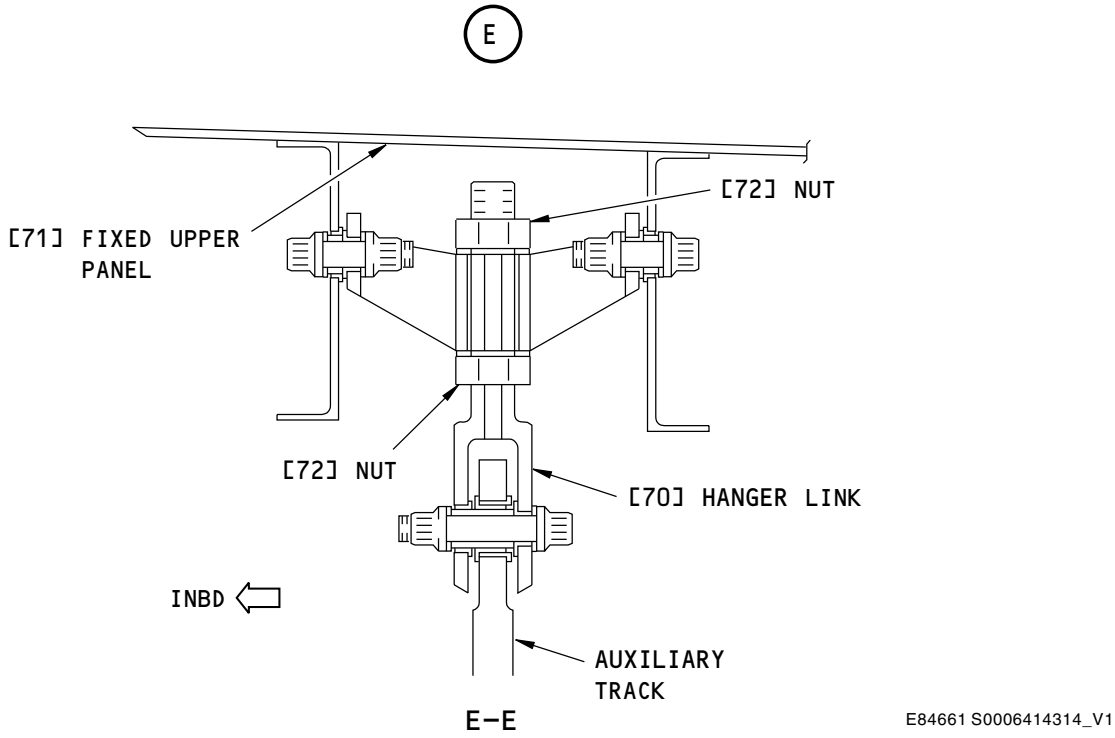
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Inboard Slat Auxiliary Tracks
Figure 403/27-81-10-990-803 (Sheet 4 of 5)

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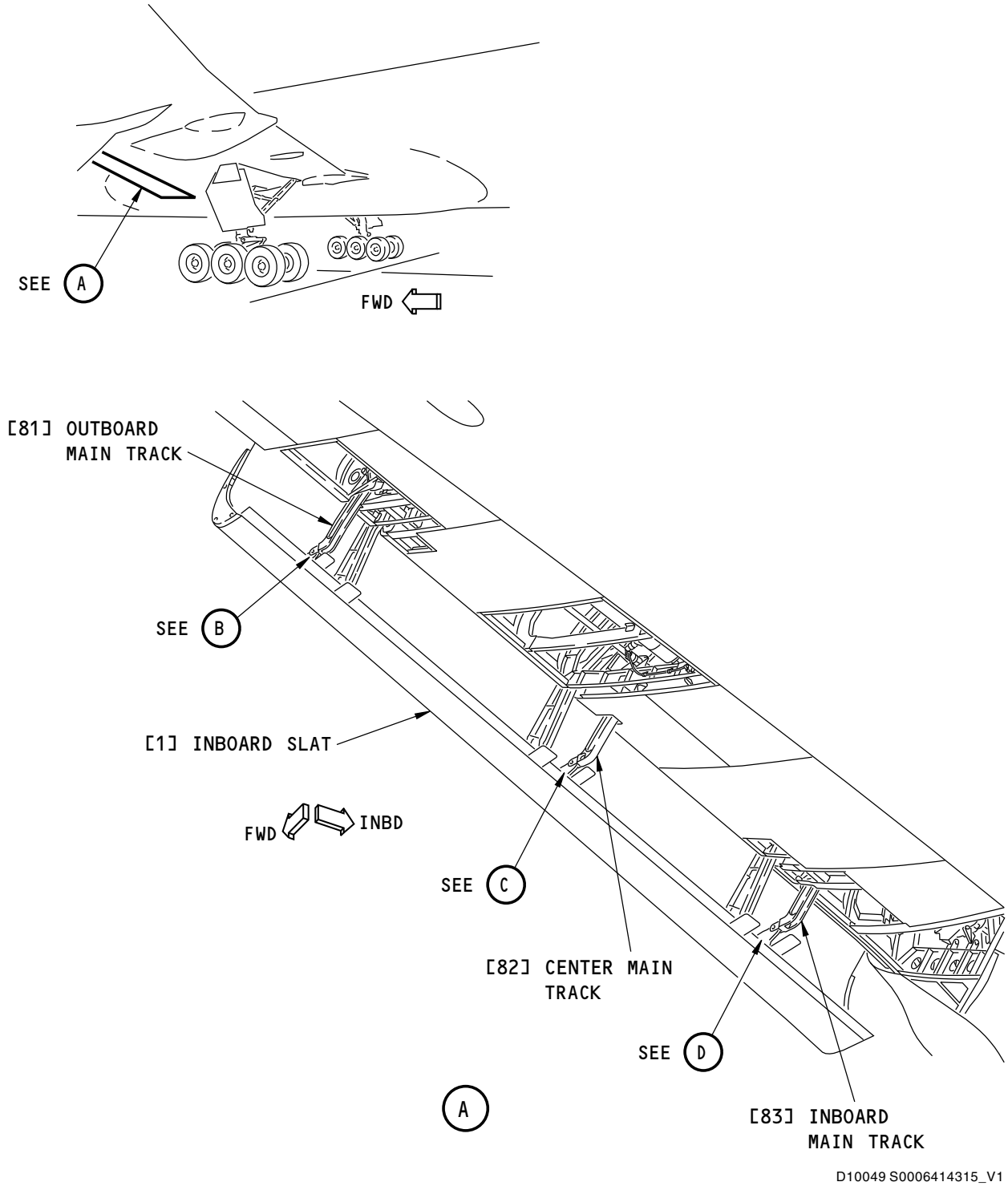


HANGER LINK
(CENTER HANGER LINK IS SHOWN, INBOARD
AND OUTBOARD HANGER LINKS ARE EQUIVALENT)



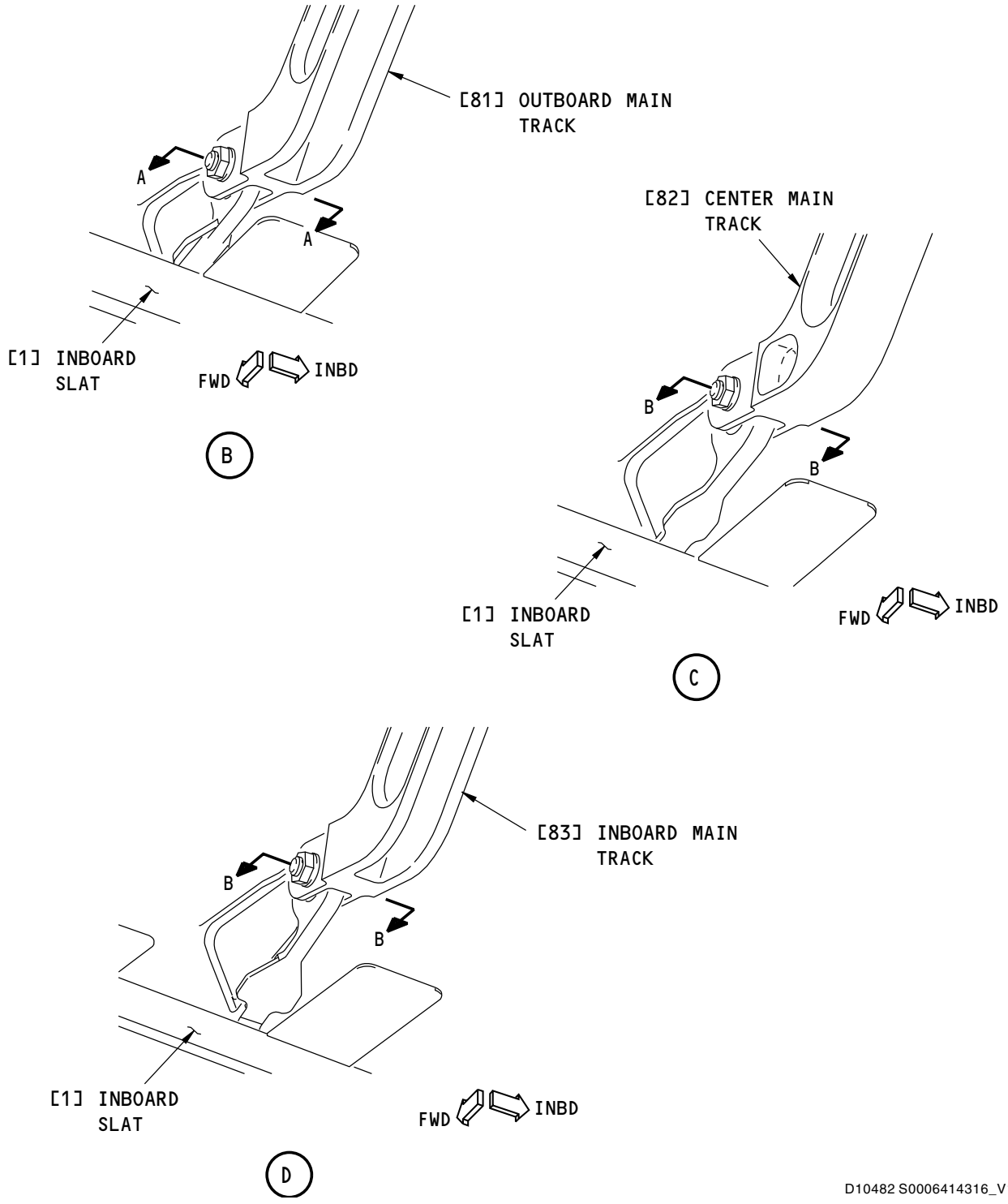
Inboard Slat Auxiliary Tracks
Figure 403/27-81-10-990-803 (Sheet 5 of 5)

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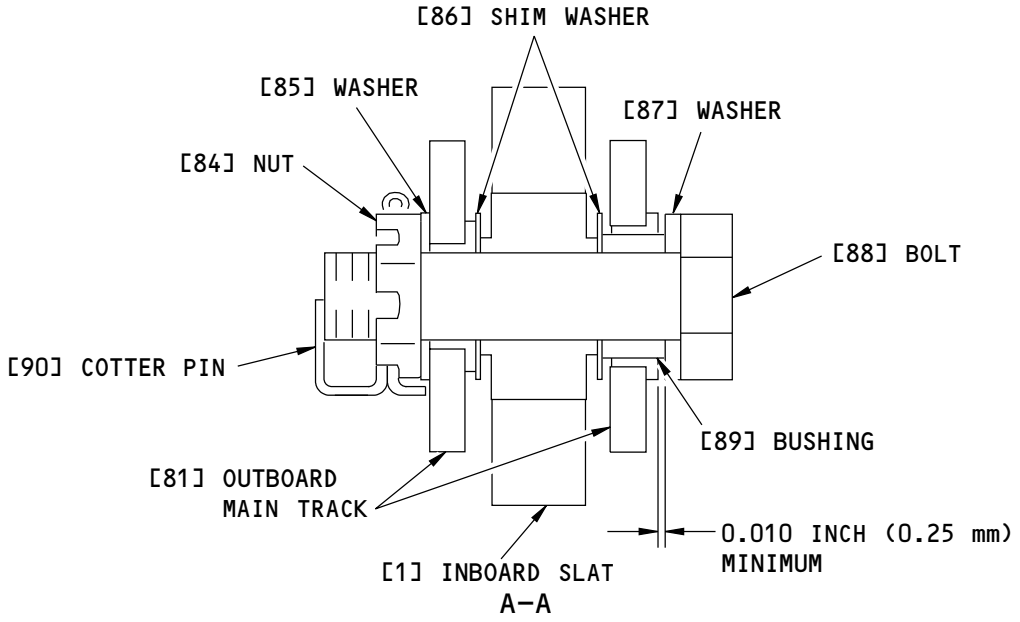
Inboard Slat Main Tracks
Figure 404/27-81-10-990-804 (Sheet 1 of 3)

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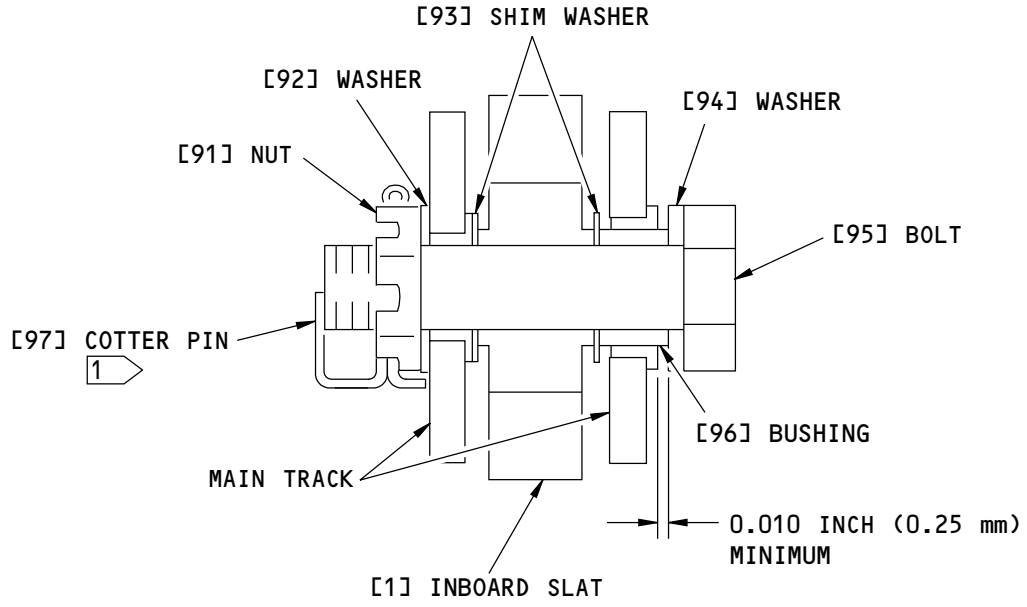


Inboard Slat Main Tracks
Figure 404/27-81-10-990-804 (Sheet 2 of 3)

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A–A



B–B

1 IF NECESSARY, BEND UPPER COTTER PIN END TO GET IT INSERTED IN THE NEXT CASTELLATION TO PREVENT RIDING ON THE ADJACENT RIB ASSEMBLY.

D10490 S0006414317_V2

Inboard Slat Main Tracks
Figure 404/27-81-10-990-804 (Sheet 3 of 3)

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TASK 27-81-10-400-801

3. Inboard Leading Edge Slat Installation

A. General

(1) If you installed the same slat you removed and did not change the adjustment of the main or auxiliary tracks, it is not necessary to do the preload adjustment.

(2) If you will not install the same slat you removed or if you changed the adjustment of the main or auxiliary tracks, it will be necessary to do the preload adjustment of the inboard slat.

(3) The load condition of the airplane (fuel quantity, on or off jacks, engines installed or not installed) has no effect on the adjustment dimensions in this procedure.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1715	Equipment - Sling, Inboard/Outboard LE Slat Part #: J27014-19 Supplier: 81205
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205
SPL-1756	Pin - Ground Lock (J27030-2 Included in Kits J27030-1 and J27030-29) Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A50001	compound - corrosion inhibiting - ZC-027L	ZC-027L
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

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(Continued)

Reference	Description	Specification
D50004	Compound - Antiseize	BMS3-28
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Slat assembly	27-81-10-02-135	ARO ALL
		27-81-10-02-140	ARO ALL
7	Packing	27-81-38-02-015	ARO ALL
51	Pin	27-81-10-02-085	ARO ALL
52	Auxiliary arm roller	57-41-07-10-270	ARO ALL
		57-43-10-04A-450	ARO ALL
53	Clevis assembly	57-22-10-25A-095	ARO 005-015
		57-22-10-28E-110	ARO 001-004
90	Pin	27-81-10-02-050	ARO ALL
97	Pin	27-81-10-02-085	ARO ALL

F. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

G. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
521ADB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

H. Inboard Leading Edge Slat Installation

SUBTASK 27-81-10-210-001

(1) Make sure the fixed leading edge panels are removed.

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SUBTASK 27-81-10-200-002

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(2) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-10-210-002

(3) Make sure the main tracks [81], [82] and [83] are installed (Figure 404):

(a) Make sure the main tracks [81], [82] and [83] are installed between the rollers.

(b) Make sure the track sector gears are engaged with the pinion gears on the rotary actuators.

(c) Make sure the center main track [82] moves freely on the rollers.

(d) Do a check of the main tracks [81], [82] and [83] for corrosion.

(e) If you find corrosion of the main tracks [81], [82] and [83], then do the SUBTASK 12-21-08-210-001.

SUBTASK 27-81-10-820-001

(4) If you will not install the same slat assembly [1] you removed or changed the adjustment of the main or auxiliary tracks, change the position of the auxiliary tracks [44], [45] and [46] (Figure 403):

NOTE: If you do not change the position of the auxiliary tracks [44], [45] and [46], the slat assembly [1] will be preloaded against the fixed leading edge when you retract it.

(a) Install the spacer block and the preload block tools, which are parts of the leading edge slat installation rigging equipment, SPL-1721, at the forward fitting for the outboard auxiliary track [44]:

1) Remove the nuts [59], washers [57], washers [58] and bolts [56] that attach the clevis assembly [53] to the fixed leading edge [54].

2) Put the spacer block and the preload block tools between the fixed leading edge [54] and the clevis assembly [53].

3) Install the bolts in the position of bolts [56] with washers and nuts to attach the clevis assembly [53] to the fixed leading edge [54] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block and spacer block tools installed.

(b) Remove the clearance blocks [68] and the preload block [67] and preload block [69] from the forward fittings for the inboard and center auxiliary tracks [45] and [46]:

1) Remove the nuts [64], washers [62], washers [63] and bolts [61] that attach the clevis assemblies [65] to the auxiliary track ribs [60].

2) Remove the clearance blocks [68] and the preload block [67] and preload block [69] from the auxiliary track ribs [60].

NOTE: Do not remove the shims [66] from the clevis assemblies [65]. The preload block [67] and preload block [69] are thicker than the clearance blocks [68].

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3) Install the bolts in the position of bolts [61] with washers and nuts to attach the clevis assemblies [65] to the auxiliary track ribs [60] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload blocks and clearance blocks removed.

Table 401/27-81-10-993-807 Approximate Bolt Length During Track Adjustment

Condition	Outboard Bolt [56]	Center Bolt [61]	Inboard Bolt {61]
Preload Block and Spacer Block Tools Installed	23/16 inch		
Preload Block Tool Installed	18/16 inch		
Preload Block and Clearance Block Removed		12/16 inch	13/16 inch
Clearance Block Removed and Preload Block Installed		17/16 inch	20/16 inch

SUBTASK 27-81-10-210-003

(5) Make sure the auxiliary arm rollers [52] are not installed on the auxiliary tracks [44], [45] and [46].

SUBTASK 27-81-10-480-002

(6) Install the sling, which is part of the inboard/outboard LE slat sling equipment, SPL-1715, on the slat assembly [1].

SUBTASK 27-81-10-860-003

(7) Use the sling to lift the slat assembly [1] to its position.

SUBTASK 27-81-10-420-001

(8) Connect the slat assembly [1] to the outboard main track [81] (Figure 404):

(a) Install the bushing [89] in the outboard main track [81].

(b) Install the bolt [88], washer [85], washers [86], washer [87] and nut [84] that attach the outboard main track [81] to the slat assembly [1].

NOTE: Install the same thickness of washers [86] in the same locations as the washers you removed. On the left wing, install the bolt [88] with the head inboard. On the right wing, install the bolt [88] with the head outboard.

(c) Tighten the nut [84] to 290 pound-inches.

(d) Make sure the clearance between the washer [87] and the bushing in the main track [81] is a minimum of 0.010 inch.

(e) If the clearance is not in the limit, adjust the clearance:

1) Remove the nut [84], washer [85], washer [87] and bolt [88].

2) Increase the thickness of the washers [86] between the main track [81] and the slat assembly [1].

3) Install the bolt [88], washer [85], washer [87], washers [86] and nut [84] that attach the outboard main track [81] to the slat assembly [1].

4) Tighten the nut [84] to 290 pound-inches.

(f) Tighten the nut [84] until you can install the pin [90].

NOTE: Make sure the torque is not more than 510 pound-inches.

(g) Install the pin [90].

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SUBTASK 27-81-10-420-002

(9) Connect the slat assembly [1] to the inboard and center main tracks [82] and [83]:

(a) Install the bushings [96] in the main tracks [82] and [83].

(b) Install the bolts [95], washers [92], washers [93], washers [94] and nuts [91] that attach the main tracks [82] and [83] to the slat assembly [1].

NOTE: Install the same thickness of washers [93] in the same locations as the washers you removed. On the left wing, install the bolts [95] with the heads inboard. On the right wing, install the bolts [95] with the heads outboard.

(c) Tighten the nuts [91] to 660 pound-inches.

(d) Make sure the clearance between the washers [94] and the bushings in the main tracks [82] and [83] are a minimum of 0.010 inch.

(e) If the clearance is not in the limit, adjust the clearance:

1) Remove the nut [91], washer [92], washer [94] and bolt [95].

2) Increase the thickness of the washers [93] between the main track [82] or [83] and the slat assembly [1].

3) Install the bolts [95], washer [92], washers [93], washer [94] and nut [91] that attach the main track [82] or [83] to the slat assembly [1].

4) Tighten the nut [91] to 660 pound-inches.

(f) Tighten the nuts [91] until you can install the pins [97].

NOTE: Make sure the torque is not more than 980 pound-inches.

(g) Install the pins [97].

SUBTASK 27-81-10-420-003

(10) Connect the auxiliary arms [41], [42] and [43] to the auxiliary tracks [44], [45] and [46] (Figure 403):

(a) Put the auxiliary arm rollers [52] in their location on the auxiliary tracks [44], [45] and [46] between the auxiliary arms [41], [42] and [43].

(b) Install the bolt assemblies [47], washers [48], washers [49] and nuts [50] that attach the auxiliary arm rollers [52] to the auxiliary arms [41], [42] and [43].

(c) Tighten the nuts [50] to 500-760 pound-inches.

(d) Install the pins [51].

SUBTASK 27-81-10-080-001

(11) Remove the sling from the slat assembly [1].

SUBTASK 27-81-10-610-001

(12) Apply compound, C00528 or the optional corrosion inhibitiing compound - ZC-027L, A50001 to the top and bottom surface of the main tracks [81], [82] and [83].

I. Inboard Leading Edge Slat Preload Adjustment

NOTE: If you installed the same slat you removed and did not change the adjustment of the main or auxiliary tracks, it is not necessary to do the preload adjustment.

NOTE: With the slat extended to the gapped position, the inboard end of the slat will touch the leading edge.

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SUBTASK 27-81-10-820-002

(1) Adjust the clearance between the hanger links [70] for the auxiliary tracks [44], [45] and [46] and the fixed upper panel [71] (Figure 403):

NOTE: This will move the slat to a preliminary position and ensure there is an initial clearance between the slat and upper panels when in the retracted position to prevent damage to both surfaces.

(a) Loosen the nuts [72] on the hanger links [70].

1) Apply compound, D50004 to the threads to prevent thread galling per the steps that follow:

a) Put a small amount of the compound on the bristles of a small brush.

b) Apply a thin layer of the compound to the end threads of the hanger link [70].

(b) Turn the nuts [72] on the hanger link [70] for the inboard auxiliary track [46] until the clearance between the hanger link [70] and the fixed upper panel [71] is 0.30 inch.

(c) Turn the nuts [72] on the hanger link [70] for the center auxiliary track [45] until the clearance between the hanger link [70] and the fixed upper panel [71] is 0.19 inch.

(d) Turn the nuts [72] on the hanger link [70] for the outboard auxiliary track [44] until the clearance between the hanger link [70] and the fixed upper panel [71] is 0.45 inch.

(e) Tighten the nuts [72] on the hanger links [70].

SUBTASK 27-81-10-860-004

(2) Retract the slat to the retracted position:

(a) Install the rig pins, which are part of the leading edge slat installation rigging equipment, SPL-1721, in the rig pin holes for the inboard and outboard main tracks (Figure 405).

WARNING MOVE ALL PERSONS AWAY FROM THE SLAT. THE SLAT WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO NOT TURN THE OFFSET GEARBOX WITH MORE THAN 190 POUND-INCHES TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

(b) Use the LE slat drive torque tube coupling adapter, SPL-1694 to carefully retract the slat assembly [1] until one of the main tracks touches the rig pin.

NOTE: To move the inboard slat from the extended position to the fully retracted position you must turn the coupling 138 turns. You can use an air drive motor to retract the slat.

NOTE: You can use a mechanical counter to count the number of turns or count them visually by marking the torque tube.

(c) If the inboard and outboard main tracks do not touch the rig pins, retract the main track that does not touch the rig pin:

1) Disconnect one of the torque tubes [3] between the offset gearboxes [2] for the slat assembly [1] (Figure 401):

a) Remove the screws [6] from the coupling sleeve [5].

b) Move the coupling sleeve [5] off the splined coupling [4].

2) Carefully turn the torque tube [3] to retract the main track until it touches the rig pin.

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3) Connect the torque tube [3] between the offset gearboxes [2] for the slat assembly [1]:
   a) Apply grease, D00633, to the coupling sleeve [5].
   b) Move the coupling sleeve [5] on the splined coupling [5].
   c) Install the screws [6].
   d) Tighten the screws [6].
      NOTE: Do not over tighten the screws [6].
   e) Install lockwire on the screws [6].

SUBTASK 27-81-10-820-015

(3) Make sure the rig pin [13] is pushed in and the ground lockpin [14] is installed in the Power Drive Unit (PDU) [12].
   NOTE: This will make sure the slat PDU is in the retracted position.

SUBTASK 27-81-10-860-005

(4) Connect the torque tubes [3] to the offset gearboxes [2] for the slat assembly [1].
   (a) Apply grease, D00633, to the coupling sleeves [5].
   (b) Move the coupling sleeves [5] on the splined couplings [4].
   (c) Install the screws [6].
   (d) Tighten the screws [6].
      NOTE: Do not over tighten the screws [6].
   (e) Install lockwire on the screws [6].
   (f) For the inboard offset gearbox, apply grease, D00013 to the packing [7] on the seal tube [8].
      1) If it is necessary, install a new packing [7] on the seal tube [8].
   (g) Move the seal tube [8] outboard on the inboard offset gearbox [2].
   (h) Apply grease, D00013 to the bolts [11].
   (i) Install the plate [9], washers [10] and bolts [11] that hold the seal tube [8].

SUBTASK 27-81-10-080-003

(5) Remove the ground lockpin [14] and make sure the rig pin [13] comes out of the PDU [12].
   (a) Make sure you can see the stripe on the rig pin [13].

SUBTASK 27-81-10-480-003

(6) Remove the leading edge slat drive shaft clamp equipment, SPL-1696, from the torque tube outboard of the inboard slat.

SUBTASK 27-81-10-820-003

(7) Remove the spacer block tool from the clevis assembly [53] for the outboard auxiliary track [44] (Figure 403):
   NOTE: This step will let you measure the correct preload dimension at the outboard end of the slat in the retracted position.
   (a) Remove the nuts, washers and bolts that attach the clevis assembly [53] to the fixed leading edge [54].
   (b) Remove the spacer block tool from the fixed leading edge [54] and the clevis assembly [53].
      NOTE: Do not remove the preload block tool at this time.

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(c) Install the bolts in the position of bolts [56] with washers and nuts to attach the clevis assembly [53] to the fixed leading edge [54] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block tool installed.

SUBTASK 27-81-10-820-004

(8) Install the clearance blocks [68] on the forward fittings for the inboard auxiliary track [46] and center auxiliary track [45]:

NOTE: The preload block [67] and preload block [69] are thicker than the clearance blocks [68]. This step will let you measure the correct preload dimension at the inboard and center of the slat in the retracted position.

(a) Remove the nuts, washers and bolts that attach the clevis assemblies [65] to the auxiliary track ribs [60].

(b) Install the clearance blocks [68] on the auxiliary track ribs [60].

NOTE: Do not install the preload block [67] and preload block [69] at this time.

(c) Install the bolts in the position of bolts [61] with washers and nuts to attach the clevis assemblies [65] to the auxiliary track ribs [60] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block tool installed.

SUBTASK 27-81-10-220-001

(9) Measure the clearance between the trailing edge of the slat and the fixed upper panel aft of the auxiliary tracks (Figure 406):

NOTE: Measure the clearance at the highest point on the fixed upper panel in the limit of 3.0 inches of the center of the auxiliary tracks:

SUBTASK 27-81-10-820-005

(10) If the clearance is not in the limit of 0.0010 to 0.0400 inch, adjust the hanger links [70] for the auxiliary tracks [44], [45] or [46] (Figure 403):

NOTE: This will change the clearance between the slat wedge and the fixed upper panel [71] from the preliminary position.

(a) Loosen the nuts [72] on the hanger links [70].

(b) Turn the nuts [72] on the hanger links [70] until the clearance is in the limit.

(c) Tighten the nuts [72] on the hanger links [70].

SUBTASK 27-81-10-440-001

(11) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-10-860-006

(12) Extend the leading edge slat system the to the 15 unit sealed position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

NOTE: This may be accomplished by extending the slat 97.1 torque tube turns from the fully retracted position.

NOTE: Do not move past full extend position.

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SUBTASK 27-81-10-040-003

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(13) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-10-080-002

(14) Remove the rig pins from the inboard and outboard main tracks (Figure 405).

SUBTASK 27-81-10-220-002

(15) Measure the clearance between the trailing edge of the slat and the fixed upper panel aft of the auxiliary tracks (Figure 406).

NOTE: Measure the clearance at the highest point on the fixed upper panel in the limit of 3.0 inches of the center of the auxiliary tracks.

SUBTASK 27-81-10-820-006

(16) If the clearance is not in the limit of 0.0010 to 0.0400 inch at the outboard auxiliary track [44], adjust the shim [55] to get the correct preload at the sealed position (Figure 403):

(a) Remove the nuts, washers and bolts that attach the clevis assembly [53] to the fixed leading edge [54].

(b) Change the thickness of the shim [55] between the clevis assembly [53] and the fixed leading edge [54].

NOTE: Do not remove the preload block tool at this time.

(c) Install the bolts, washers and nuts that attach the clevis assembly [53] to the fixed leading edge [54].

SUBTASK 27-81-10-820-007

(17) If the clearance is not in the limit of 0.0010 to 0.0400 inch at the inboard or center auxiliary tracks [45] or [46], adjust the applicable shims [66] to get the correct preload at the sealed position:

(a) Remove the nuts, washers and bolts that attach the clevis assembly [65] to the auxiliary track rib [60].

(b) Change the thickness of the shims [66] between the clevis assembly [65] and the auxiliary track ribs [60].

NOTE: Do not install the preload block [67] or preload block [69] at this time.

(c) Install the bolts, washers and nuts that attach the clevis assembly [65] to the auxiliary track rib [60].

SUBTASK 27-81-10-440-002

(18) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-10-860-007

(19) Retract the leading edge slat system 6.75 degrees +/- 1.25 degrees. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

NOTE: This may be accomplished by retracting the slat 42 torque tube turns from the sealed position.

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SUBTASK 27-81-10-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(20) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-10-820-008

(21) Adjust the hanger links [70] for the auxiliary tracks [44], [45] and [46] to move the auxiliary tracks down the distance shown to get the correct preload (Table 402):

Table 402/27-81-10-993-808 Hanger Link Adjustment

Auxiliary Track	Distance (Inch)	Turns of Nut [72]
Inboard	0.215 ±0.0200	3.5 to 4.0
Center	0.180 ±0.0200	2.9 to 3.6
Outboard	0.140 ±0.0200	2.2 to 2.9

(a) Turn the top nut [72] on the hanger link [70] the applicable number of turns.

(b) Tighten the lower nut [72] on the hanger link [70] 96 in-lb (11 N·m) to 106 in-lb (12 N·m).

(c) Install lockwire on the nuts [72].

SUBTASK 27-81-10-820-009

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(22) Remove the preload block tool from the clevis assembly [53] for the outboard auxiliary track [44]:

(a) Remove the nuts, washers and bolts that attach the clevis assembly [53] to the fixed leading edge [54].

(b) Remove the preload block tool from the fixed leading edge [54] and the clevis assembly [53].

(c) Apply a layer of Cor-Ban 27L Compound, G50237 to the clevis assembly [53], shim [55] and fixed leading edge [54].

(d) Apply a layer of Cor-Ban 27L Compound, G50237 to the mating surfaces on the bolts [56], washers [57], washers [58] and nuts [59].

(e) Install the bolts [56], washers [57], washers [58] and nuts [59] to attach the clevis assembly [53] to the fixed leading edge [54].

NOTE: Install the correct fasteners for the final position of the clevis assembly [53].

(f) Tighten the nuts [59] to 90 in-lb (10.2 N·m)-125 in-lb (14.1 N·m).

NOTE: Bolt head direction is optional. It is acceptable to torque bolt heads for ease of installation by torquing to the maximum of the specified torque range.

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SUBTASK 27-81-10-820-010

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(23) Install the preload block [67] and preload block [69] on the clevis assemblies [65] for the center auxiliary track [45] and the inboard auxiliary track [46]:

(a) Remove the nuts, washers and bolts that attach the clevis assemblies [65] to the auxiliary track ribs [60].

(b) Apply a layer of Cor-Ban 27L Compound, G50237 to the clevis assemblies [65], shims [66], preload block [67], preload block [69], clearance blocks [68] and auxiliary track ribs [60].

(c) Install the preload block [67] and preload block [69] on the auxiliary track ribs [60].

(d) Apply a layer of Cor-Ban 27L Compound, G50237 to the mating surfaces of the bolts [61], washers [62], washers [63] and nuts [64].

(e) Install the bolts [61], washers [62], washers [63] and nuts [64] to attach the clevis assemblies [65] to the auxiliary track ribs [60].

NOTE: Install the correct fasteners for the final position of the clevis assemblies [65].

(f) Tighten the nuts [64] to 90 in-lb (10.2 N·m)-125 in-lb (14.1 N·m).

NOTE: Bolt head direction optional. It is acceptable to torque bolt heads for ease of installation by torquing to the maximum of the specified torque range.

SUBTASK 27-81-10-860-013

(24) Extend the leading edge slat to the to the 15 unit position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

NOTE: From the 6.75 degree position, extend the slat 42 torque tube turns.

(a) Check for trailing edge sealing.

SUBTASK 27-81-10-860-014

(25) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

NOTE: From the sealed position, retract the slats 97.1 torque tube turns.

(a) Check for trailing edge sealing.

J. Inboard Leading Edge Slat Alignment

SUBTASK 27-81-10-200-003

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-10-440-003

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-10-860-009

(3) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-10-210-005

(4) Make sure the inboard blade seals [114] touch the fixed structure (Fig. 406).

SUBTASK 27-81-10-040-005

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-10-820-016

(6) Make sure power drive unit (PDU) [12] and the slats are in the retracted position (Figure 401):

NOTE: When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [13].

(a) Push in the rig pin [13] and install the ground lock pin (J27030-2 Included in Kits J27030-1 and J27030-29), SPL-1756 [14] in the Power Drive Unit (PDU) [12].

NOTE: This will make sure the slat drive system is in the retracted position.

(b) If you cannot push in the rig pin [13], then adjust the position of the slat power drive unit (PDU) [12]:

1) Use the wrench flats on the torque tube to manually turn the PDU [12] in the extend direction approximately one turn of the torque tube.

NOTE: This step is necessary to remove the backlash in the slat drive system.

2) Manually turn the PDU [12] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

3) Push in the rig pin [13] on the PDU [12] and hold it.

4) Install the ground lockpin [14] in the rig pin [13].

5) Make sure the PDU [12] is locked in this position:

NOTE: If the PDU [12] is not locked in this position, move the PDU [12] to the retracted position again.

a) Manually try to turn the PDU [12] in the retract direction.

b) Manually try to turn the PDU [12] in the extend direction.

(c) Remove the ground lockpin [14] and make sure the rig pin [13] comes out of the PDU [12].

1) Make sure you can see the stripe on the rig pin [13].

SUBTASK 27-81-10-220-003

(7) At the inboard and outboard ends of the slat, measure the mismatch between the slat and the fixed structure.

SUBTASK 27-81-10-820-011

(8) If the mismatch is not in the limit of 0.00 ±0.10 inch, adjust the position of the slat:

NOTE: The maximum permitted adjustment of the inboard slat is 0.10 inch (0.73 torque tube turns) in the extend direction. This adjustment will not change the preload adjustments.

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(a) Install a leading edge slat drive shaft clamp equipment, SPL-1696, on a torque tube outboard of the applicable inboard slat.

(b) Disconnect the torque tubes [3] from the offset gearbox [2] on the end of the slat assembly [1] that does not align (Figure 401):

1) For the inboard offset gearbox, remove the bolts [11], washers [10] and plate [9] that hold the seal tube [8].

2) Move the seal tube [8] inboard to get access to the inboard coupling.

3) Remove the screws [6] from the coupling sleeves [5].

4) Move the coupling sleeves [5] off the splined couplings [4].

(c) Adjust the position of the slat assembly [1]:

1) Turn the coupling sleeve [5] on the offset gearbox [2] in the extend direction to move the slat 0.22 to 0.35 inch (1.6 to 2.5 torque tube turns).

NOTE: This step is necessary to extend the slat past the adjacent structure so you can retract it until it aligns.

2) Manually turn the coupling sleeve [5] in the retract direction until the mismatch is in the limit.

(d) Connect the torque tubes [3] to the applicable offset gearbox [2]:

1) Apply grease, D00633 to the coupling sleeves [5].

2) Put the coupling sleeves [5] on the splined couplings [4].

3) Install the screws [6] in the coupling sleeves [5].

4) Tighten the screws [6].

NOTE: Do not over tighten the screws [6].

5) Install lockwire on the screws [6].

6) For the inboard offset gearbox, install the seal tube [8]:

a) If it is necessary, install a new packing [7] on the seal tube [8].

b) Apply grease, D00013 to the packing [7] on the seal tube [8].

c) Move the seal tube [8] outboard on the inboard offset gearbox.

d) Install the plate [9], washers [10] and bolts [11] that hold the seal tube [8].

(e) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube.

SUBTASK 27-81-10-200-004

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(9) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-10-410-001

(10) Install the fixed leading edge panels (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

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(a) For slat No. 7, install these access panels:

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, install these access panel:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) Install these access panels:

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-10-210-006

(11) Make sure the doors for the main tracks and the auxiliary tracks are adjusted correctly (Figure 406):

(a) With the main track doors [112] preloaded against the fixed leading edge panels, measure the clearance between the main track door [112] and the fixed leading edge panel.

NOTE: Measure the clearance at the sides and aft edge of the main track door [112].

1) If the clearance at the aft edge is not in the limit of 0.130 to 0.2200 inch, then adjust the position of the main track door [112] per Figure 406, View B-B.

2) If the clearance on the sides is not in the limit of 0.060 to 0.250 inch, then adjust the position of the door per Figure 406, View B1-B1.

(b) With the auxiliary track doors [111] preloaded against the fixed leading edge panels, measure the clearance between the auxiliary track door [111] and the fixed leading edge panel.

NOTE: Measure the clearance at the sides and aft edge of the auxiliary track door [111].

1) If the clearance at the aft edge is not in the limit of 0.130 to 0.2200 inch, then adjust the position of the auxiliary track door [111] per Figure 406, View B-B.

2) If the clearance on the sides is not in the limit of 0.060 to 0.250 inch, then adjust the position of the door per Figure 406, View B1-B1.

SUBTASK 27-81-10-820-012

(12) If it is necessary, adjust the position of the main track doors [112] or the auxiliary track doors [111]:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

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WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) If it is necessary, adjust the main track door [112]:

1) Loosen the nuts [113] that attach the main track door [112] to the slat.
2) Adjust the position of the main track door [112].
3) Tighten the nuts [113].

(e) If it is necessary, adjust the auxiliary track door [111]:

1) Loosen the nuts [113] that attach the auxiliary track door [111] to the slat.
2) Adjust the position of the auxiliary track door [111].
3) Tighten the nuts [113].

(f) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(g) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(h) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-10-210-007

(13) Make sure the inboard blade seals [114] touch the fixed structure.

SUBTASK 27-81-10-820-013

(14) If the blade seals [114] do not touch the rib, adjust the seals:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Loosen the bolts [115] on the seal retainer [116].

(e) Adjust the position of the blade seals [114].

(f) Tighten the bolts [115] on the seal retainer [116].

(g) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(h) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

(i) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-10-410-002

(1) Install this access panel:

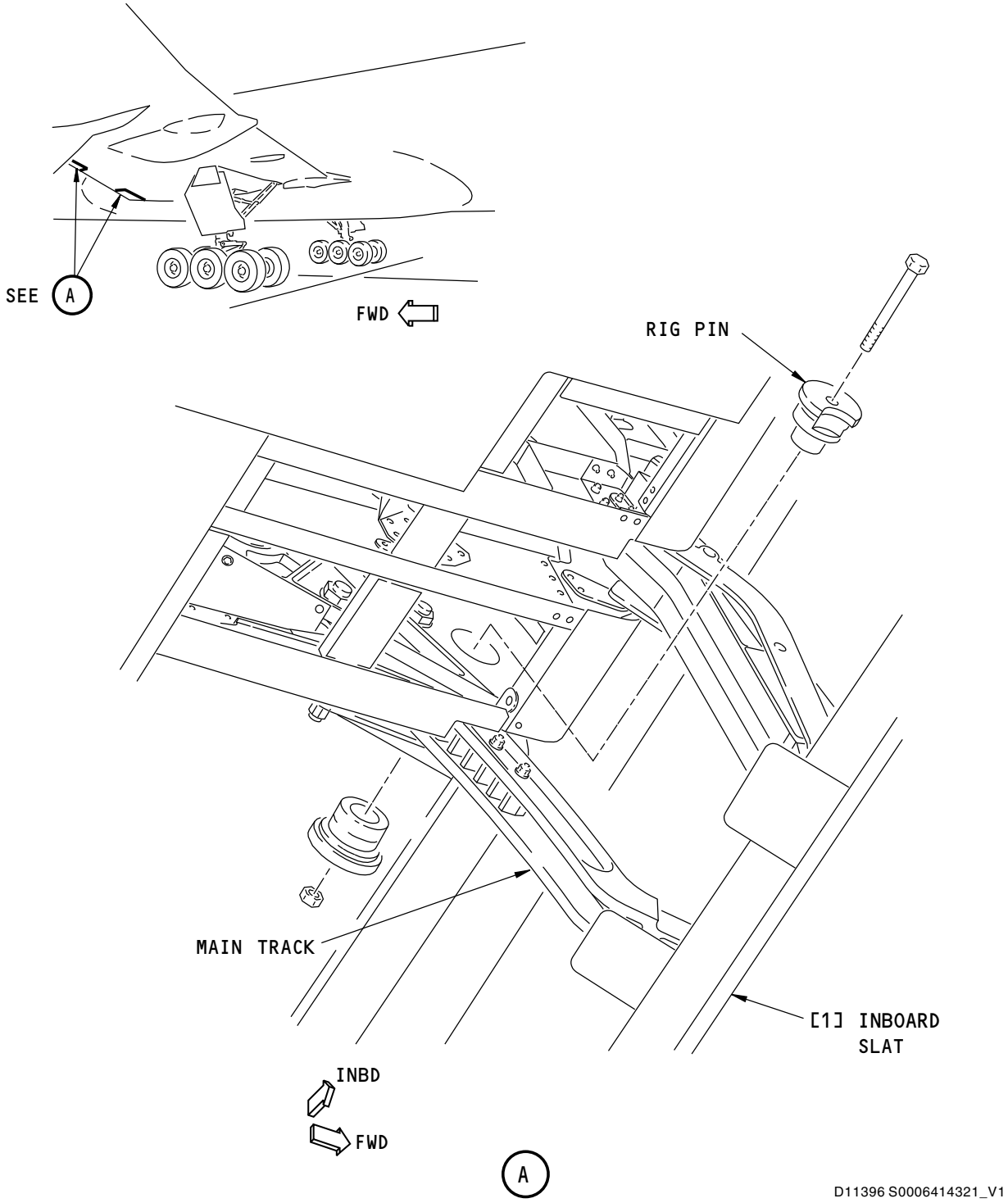
Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-10-440-004

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

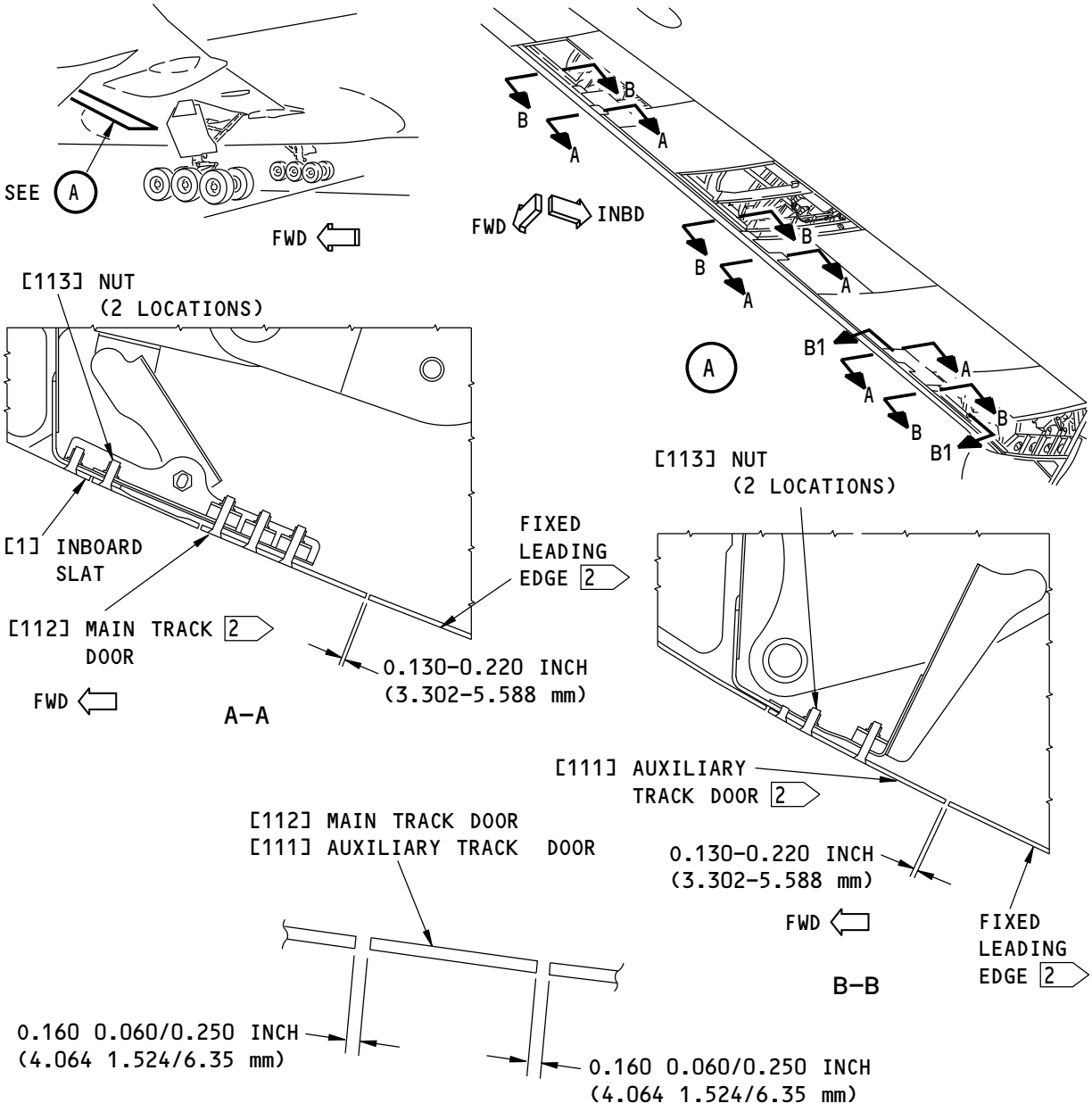
——— END OF TASK ———

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Inboard Slat Rig Pin Installation
Figure 405/27-81-10-990-805

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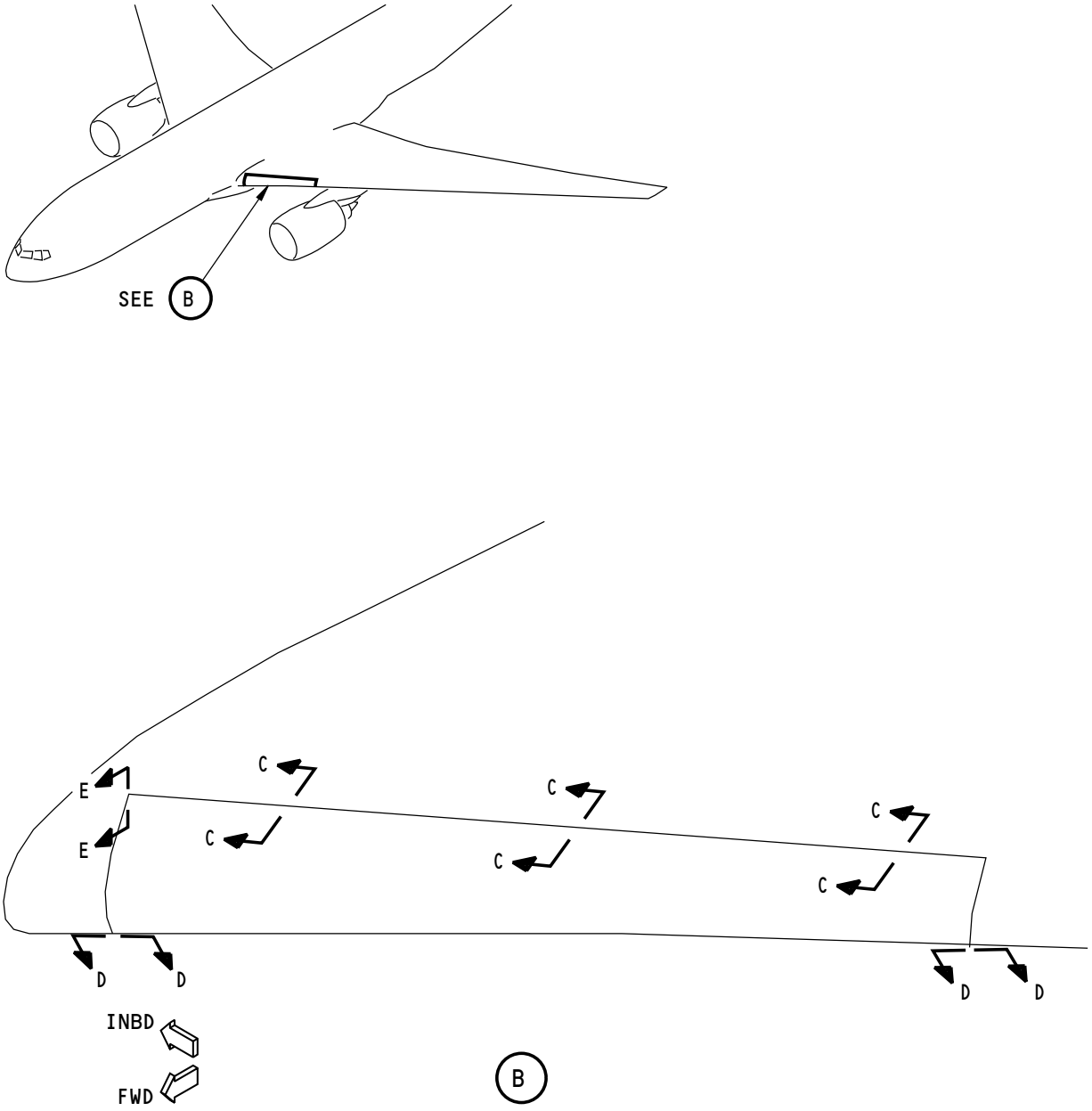
1 ALL SIX (MAIN AND AUXILIARY TRACK) DOOR LOCATIONS

2 PERMITTED MISMATCH BETWEEN MAIN OR AUXILIARY TRACK DOOR AFT EDGE SURFACE AND FIXED LEADING EDGE SURFACE IS 0.00 TO -0.03 INCH (0.00 -0.762 mm)

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Inboard Slat Clearance
Figure 406/27-81-10-990-806 (Sheet 1 of 3)

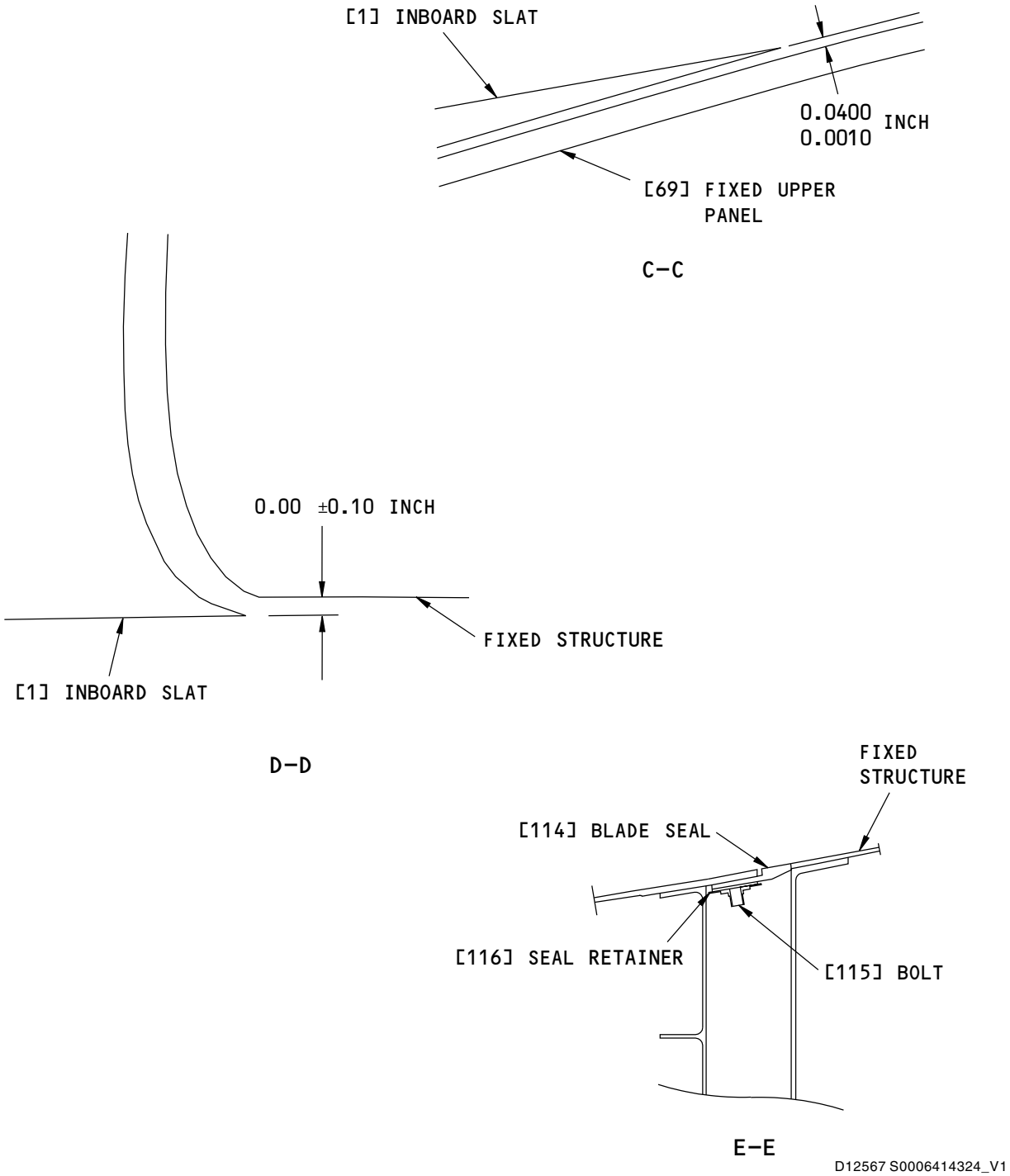
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Inboard Slat Clearance
Figure 406/27-81-10-990-806 (Sheet 2 of 3)

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Inboard Slat Clearance
Figure 406/27-81-10-990-806 (Sheet 3 of 3)

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INBOARD LEADING EDGE ROTARY ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a rotary actuator for an inboard leading edge slat.

(2) An installation of a rotary actuator for an inboard leading edge slat.

B. This procedure is applicable to the inboard and outboard rotary actuators on the inboard slats.

C. It is necessary to remove and install the no-back brake, offset gearbox with the rotary actuator.

TASK 27-81-11-000-801

2. Inboard Leading Edge Rotary Actuator Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-12-960-801	Inboard No-Back Brake, Offset Gearbox Shearout Replacement (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

D. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

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E. Prepare for the Removal

SUBTASK 27-81-11-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-11-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-11-010-001

(3) Remove the applicable fixed leading edge panel from the lower surface of the wing:

(a) For slat No. 7, remove the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, remove the applicable access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

F. Inboard Leading Edge Rotary Actuator Removal

SUBTASK 27-81-11-480-001

(1) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the applicable offset gearbox [2].

NOTE: If the slat drive system moves when the torque tubes are disconnected, it will be necessary to do the slat drive system adjustment.

SUBTASK 27-81-11-020-001

(2) Disconnect the torque tubes [3] from the offset gearbox [2]:

(a) If you will remove the rotary actuator [1] on the inboard end of the slat, move the seal tube [19] away from the offset gearbox [2]:

1) Remove the bolts [22], washers [21] and the plate [20] that hold the seal tube [19].

2) Move the seal tube [19] inboard, away from the offset gearbox [2].

(b) Remove the screws [6] from the coupling sleeves [5].

(c) Move the coupling sleeves [5] off the splined couplings [4].

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SUBTASK 27-81-11-960-001

CAUTION	DO NOT REMOVE THE ROTARY ACTUATOR IF THE OFFSET GEARBOX HAS A BROKEN SHEAROUT UNTIL YOU REPLACE THE SHEAROUT. THE NO-BACK BRAKE CAN HOLD A HIGH TORQUE AFTER THE FAILURE OF THE SHEAROUT. YOU CAN CAUSE DAMAGE TO THE ROTARY ACTUATOR AND OFFSET GEARBOX.

(3) If the shearout [19] in the offset gearbox [2] is broken, do this task: Inboard No-Back Brake, Offset Gearbox Shearout Replacement, TASK 27-81-12-960-801.

SUBTASK 27-81-11-020-002

(4) Remove the rotary actuator [1] with the offset gearbox [2]:

(a) Remove the nuts [7] and washers [8] that attach the rotary actuator [1] to the bolts [9] on the main track rib.

(b) Disengage the rotary actuator [1] from the pinion gear in the main track rib.

(c) Lower the rotary actuator [1] and the offset gearbox [2] through the access panel.

SUBTASK 27-81-11-020-003

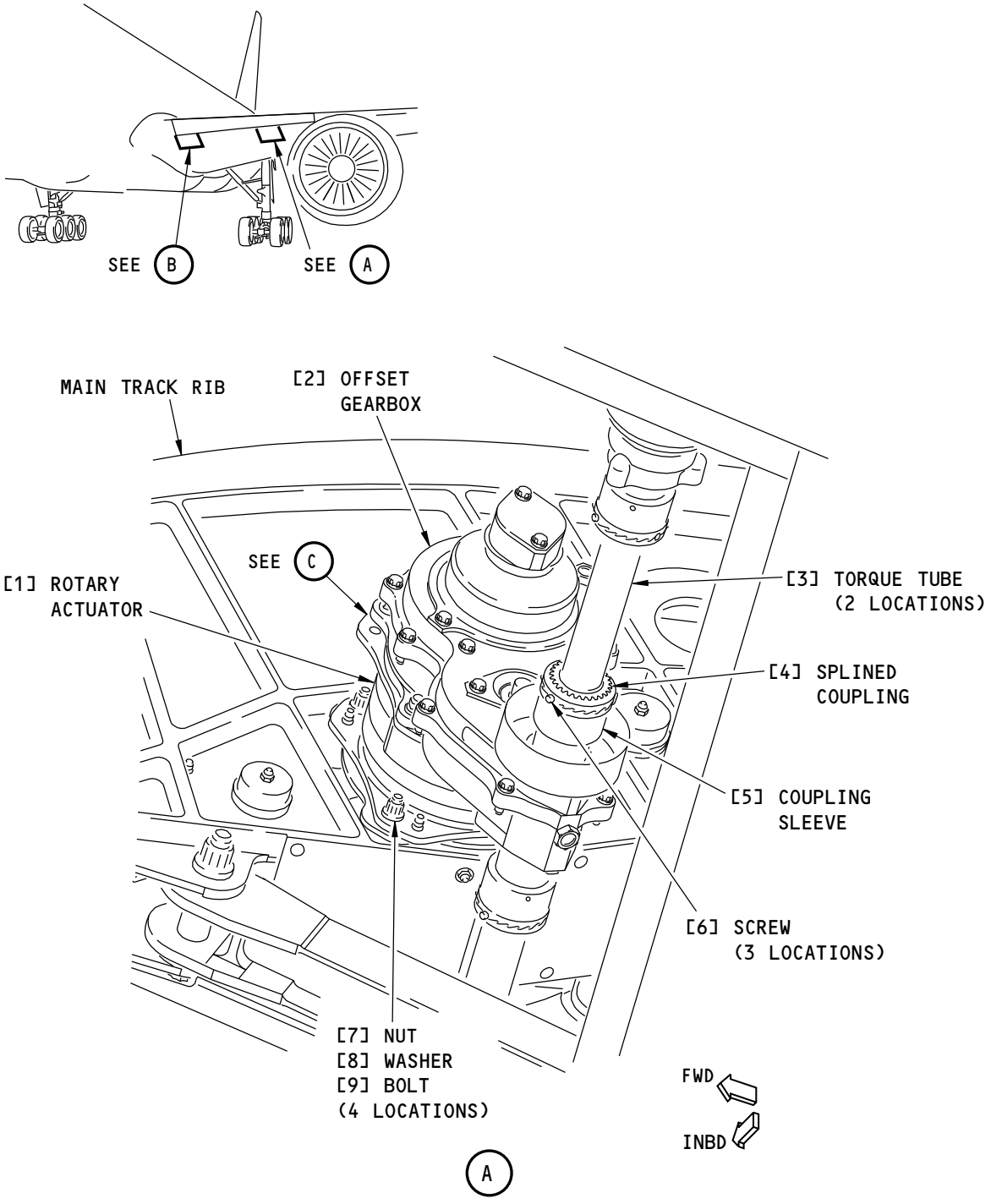
(5) Disconnect the rotary actuator [1] from the offset gearbox [2]:

(a) Remove the nuts [14], washers [13] and bolts [11] that attach the rotary actuator [1] to the offset gearbox [2].

(b) Disengage the rotary actuator [1] from the offset gearbox [2].

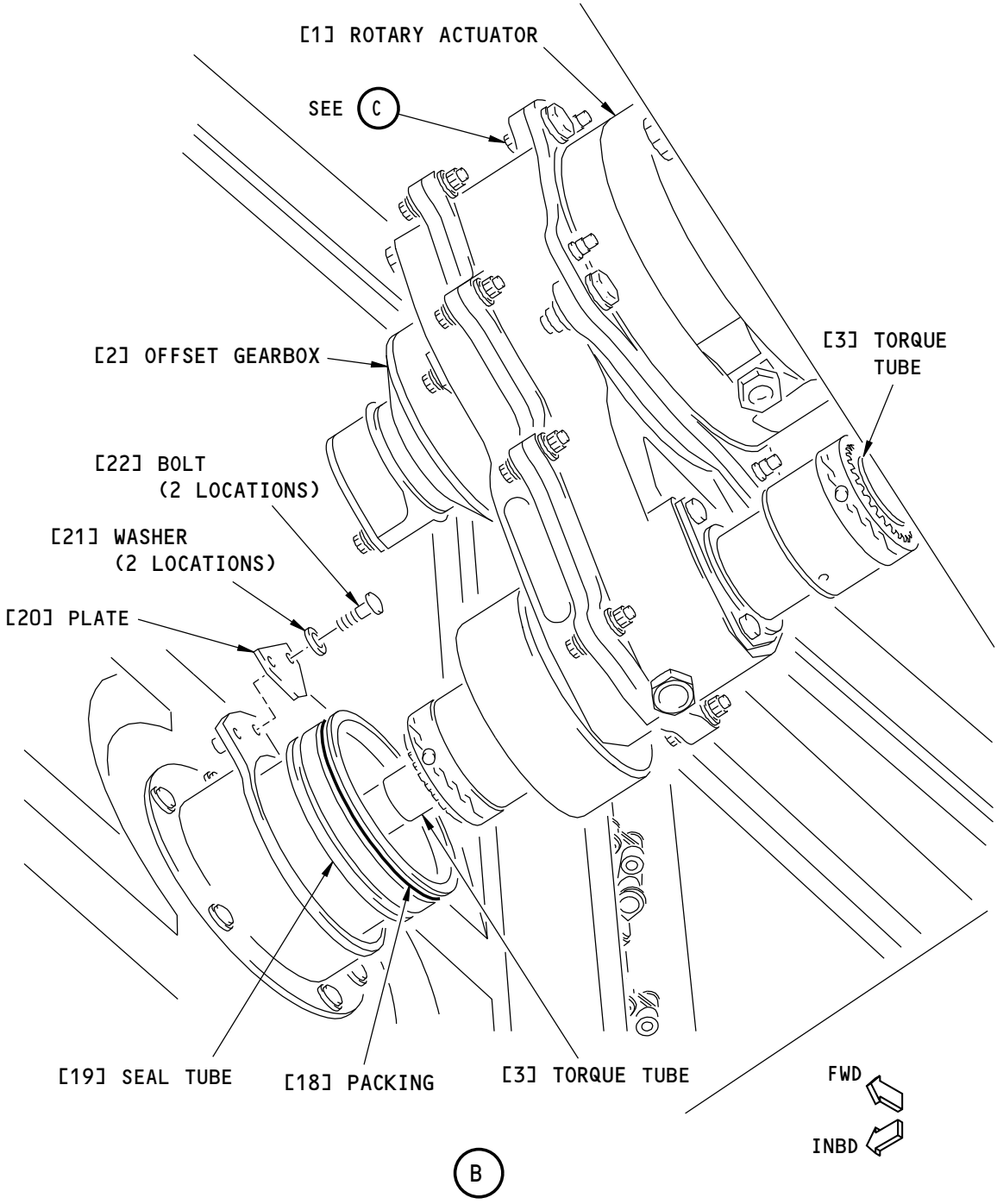
——— END OF TASK ———

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Inboard Leading Edge Rotary Actuator Installation
Figure 401/27-81-11-990-801 (Sheet 1 of 3)

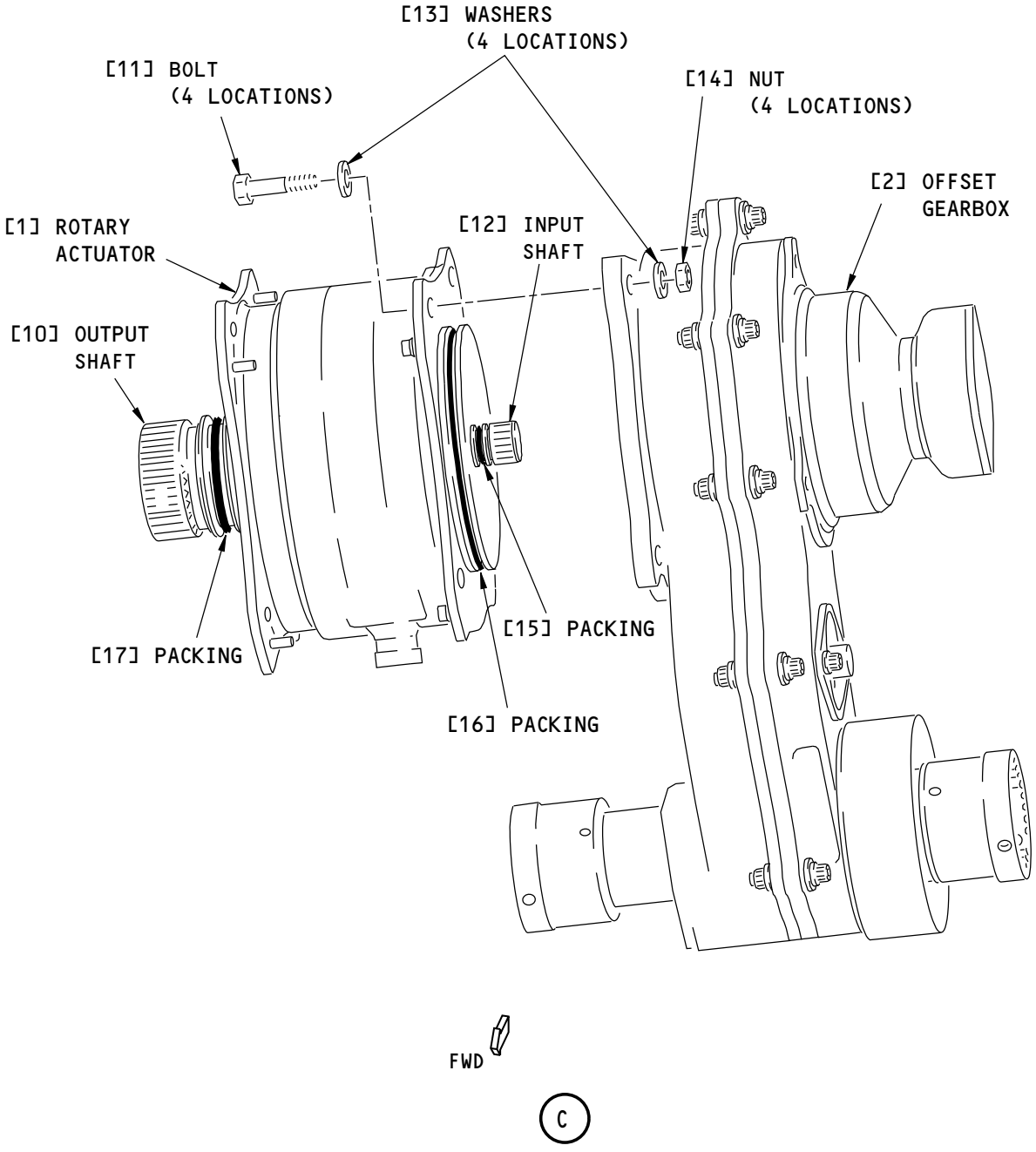
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Inboard Leading Edge Rotary Actuator Installation
Figure 401/27-81-11-990-801 (Sheet 2 of 3)

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Inboard Leading Edge Rotary Actuator Installation
Figure 401/27-81-11-990-801 (Sheet 3 of 3)

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TASK 27-81-11-400-801

3. Inboard Leading Edge Rotary Actuator Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-801	Inboard Slat Rollers and Pinion Bearing Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Rotary actuator	27-81-10-10-050	ARO ALL
2	Offset gearbox	27-81-10-10-055	ARO ALL
17	Packing	27-81-10-10-015	ARO ALL
18	Packing	27-81-38-02-015	ARO ALL

E. Location Zones

Zone	Area
512	Slat No. 7

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(Continued)

Zone	Area
612	Slat No. 8

F. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

G. Inboard Leading Edge Rotary Actuator Installation

SUBTASK 27-81-11-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Connect the rotary actuator [1] to the offset gearbox [2]:

(a) Put grease, D00013 in the output shaft of the offset gearbox [2] until the cavity is approximately 1/4 full.

NOTE: If there is no grease in the output shaft, fill it with 4.0 ±0.5 cubic centimeters (3.9 ±0.5 grams) of grease.

(b) Apply grease, D00013 to the splines on the input shaft [12] for the rotary actuator [1].

(c) Apply grease, D00013 to the packing [15] and packing [16] on the rotary actuator [1].

(d) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the outer mating surface of the offset gearbox [2].

(e) Engage the output shaft for the offset gearbox [2] with the input shaft [12] for the rotary actuator [1].

(f) Install the bolts [11], washers [13] and nuts [14] to connect the offset gearbox [2] to the rotary actuator [1].

(g) Tighten the nuts [14].

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SUBTASK 27-81-11-420-002

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Install the rotary actuator [1] with the offset gearbox [2]:

(a) Put grease, D00013 in the output shaft [10] of the rotary actuator [1] until the cavity is approximately 1/4 full.

NOTE: If there is no grease in the output shaft, fill it with 86.0 ±8.6 cubic centimeters (83 ±8.3 grams) of grease.

(b) Apply grease, D00013 to the splines on the output shaft [10] of the rotary actuator [1].

(c) If it is necessary, install a new packing [17] on the rotary actuator [1].

(d) Apply grease, D00013 to the packing [17] on the rotary actuator [1].

(e) Put the rotary actuator [1] and offset gearbox [2] in their position on the main track rib.

(f) Apply Cor-Ban 27L Compound, G50237 to the shank and threads of the bolts [9].

(g) Install the nuts [7] and washers [8] that attach the rotary actuator [1] to the bolts [9] on the main track rib.

(h) Tighten the nuts [7]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-11-820-001

(3) If the slat drive system has moved while the torque tubes were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801

SUBTASK 27-81-11-860-001

(4) Connect the torque tubes [3] to the offset gearbox [2]:

(a) Apply grease, D00633 to the coupling sleeves [5].

(b) Move the coupling sleeves [5] on the splined couplings [4].

(c) Install the screws [6].

(d) Tighten the screws [6].

NOTE: Do not over tighten the screws [6].

(e) Install MS20995C20 lockwire, G50225 on the screws [6].

(f) Do this task: Inboard Slat Rollers and Pinion Bearing Lubrication, TASK 12-21-08-640-801.

(g) If you installed the rotary actuator [1] on the inboard end of the slat, move the seal tube [19] to its usual position:

1) If it is necessary, install the packing [18] on the seal tube [19].

2) Apply grease, D00013 to the packing [18] on the seal tube [19].

3) Move the seal tube [19] outboard to the offset gearbox [2].

4) Apply grease, D00013 to the bolts [22].

5) Put the plate [20] in its position and install the bolts [22] and washers [21].

SUBTASK 27-81-11-080-001

(5) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [3].

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H. Inboard Leading Edge Rotary Actuator Installation Test

SUBTASK 27-81-11-440-001

(1) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-11-710-001

(2) Use the primary system to extend the slats to the sealed position. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the sealed position.

SUBTASK 27-81-11-710-002

(3) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the retracted position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-11-010-002

(1) On the lower surface of the wing, install the applicable access panels:

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-11-440-002

(2) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

END OF TASK

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INBOARD LEADING EDGE NO-BACK BRAKE, OFFSET GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a no-back brake, offset gearbox for an inboard leading edge slat.

(2) An installation of a no-back brake, offset gearbox for an inboard leading edge slat.

(3) A replacement of the shearout for a no-back brake, offset gearbox on an inboard leading edge slat.

B. This procedure is applicable to the four no-back brake, offset gearboxes on the inboard slats.

TASK 27-81-12-000-801

2. Inboard Leading Edge No-Back Brake, Offset Gearbox Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

D. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

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E. Prepare for the Removal

SUBTASK 27-81-12-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-12-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-12-010-001

(3) Remove the applicable fixed leading edge panel from the lower surface of the wing:

(a) For slat No. 7, remove the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, remove the applicable access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

F. Inboard No-Back Brake, Offset Gearbox Removal

SUBTASK 27-81-12-480-001

(1) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the applicable offset gearbox [2].

NOTE: If the slat drive system moves when the torque tubes are disconnected, it will be necessary to do the slat drive system adjustment.

SUBTASK 27-81-12-020-001

(2) Disconnect the torque tubes [4] from the offset gearbox [2]:

(a) If you will remove the offset gearbox [2] on the inboard end of the slat, move the seal tube [23]:

1) Remove the bolts [26], washers [25] and the plate [24] that hold the seal tube [23].

2) Move the seal tube [23] inboard to get access to the coupling sleeve [6].

(b) Remove the screws [7] from the coupling sleeves [6].

(c) Move the coupling sleeves [6] off the splined couplings [5].

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SUBTASK 27-81-12-960-001

CAUTION

DO NOT REMOVE THE OFFSET GEARBOX IF IT HAS A BROKEN SHEAROUT UNTIL YOU REPLACE THE SHEAROUT. THE NO-BACK BRAKE CAN HOLD A HIGH TORQUE AFTER THE FAILURE OF THE SHEAROUT. YOU CAN CAUSE DAMAGE TO THE ROTARY ACTUATOR AND OFFSET GEARBOX.

(3) If the shearout [19] in the offset gearbox [2] is broken, do this task: Inboard No-Back Brake, Offset Gearbox Shearout Replacement, TASK 27-81-12-960-801.

SUBTASK 27-81-12-020-002

(4) Remove the offset gearbox [2]:

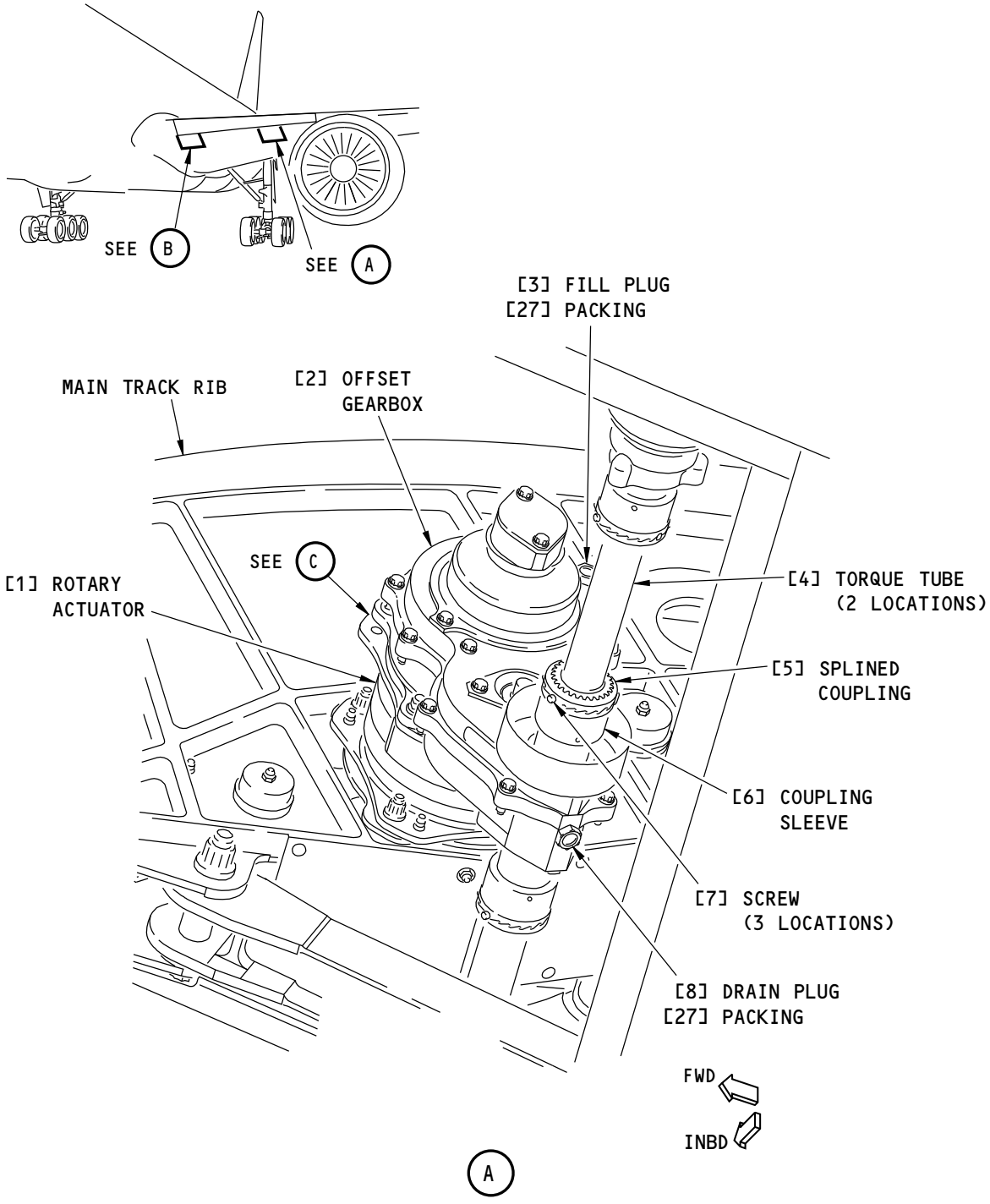
(a) Remove the nuts [12], washers [11] and bolts [9] that attach the offset gearbox [2] to the rotary actuator [1].

(b) Disengage the offset gearbox [2] from the rotary actuator [1].

(c) Lower the offset gearbox [2] through the access panel.

——— END OF TASK ———

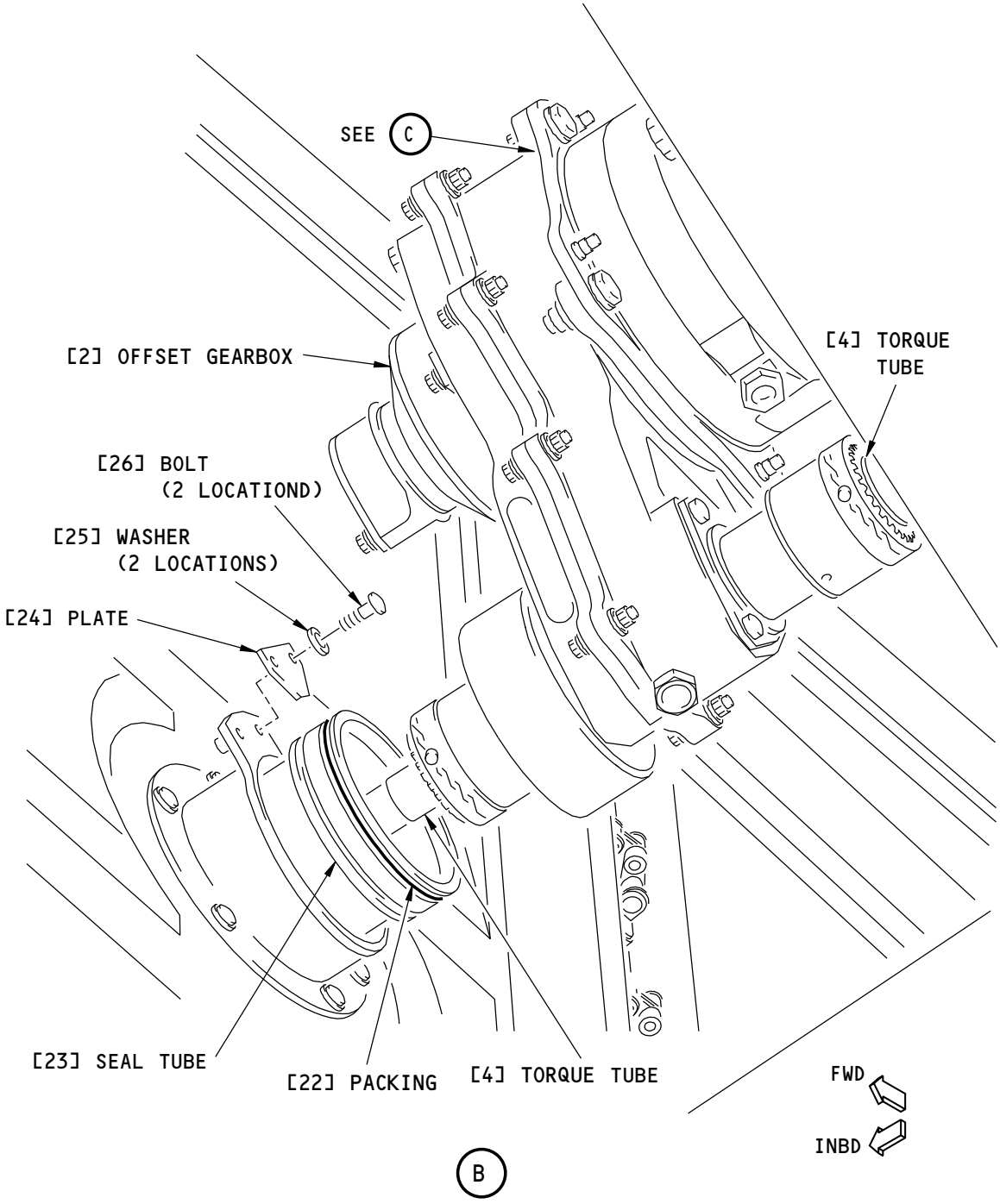
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Inboard Leading Edge No-Back Brake, Offset Gearbox Installation
Figure 401/27-81-12-990-801 (Sheet 1 of 3)

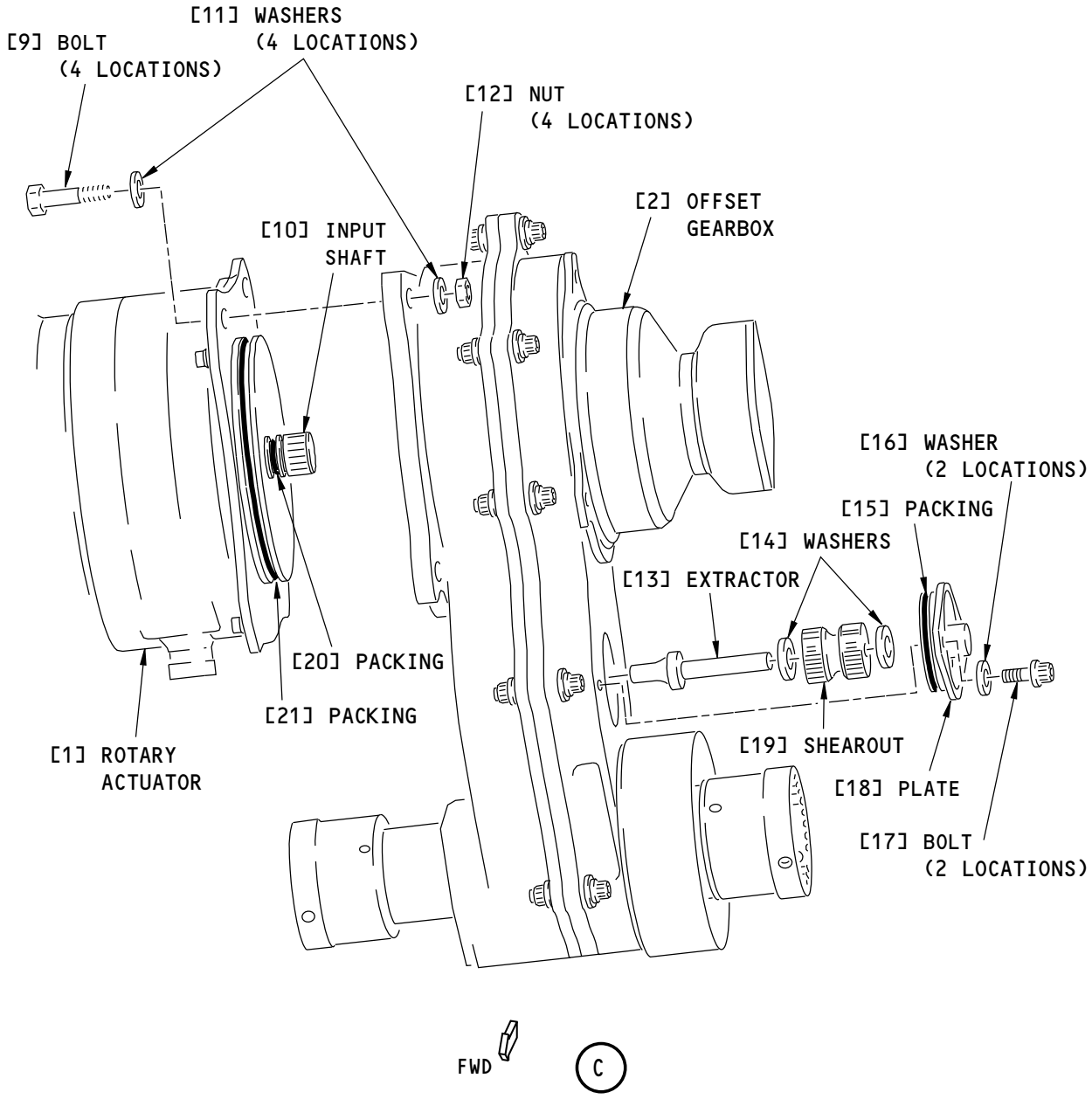
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Inboard Leading Edge No-Back Brake, Offset Gearbox Installation
Figure 401/27-81-12-990-801 (Sheet 2 of 3)

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D12214 S0006414340_V1

Inboard Leading Edge No-Back Brake, Offset Gearbox Installation
Figure 401/27-81-12-990-801 (Sheet 3 of 3)

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TASK 27-81-12-400-801

3. Inboard Leading Edge No-Back Brake, Offset Gearbox Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-804	Inboard Leading Edge Torque Tube and Support Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Offset gearbox	27-81-10-10-055	ARO ALL
20	Packing	27-81-10-10-045	ARO ALL
21	Packing	27-81-10-10-040	ARO ALL
22	Packing	27-81-38-02-015	ARO ALL

E. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

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F. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

G. Inboard No-Back Brake, Offset Gearbox Installation

SUBTASK 27-81-12-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the offset gearbox [2]:

(a) Put grease, D00013 in the output shaft of the offset gearbox [2] until the cavity is approximately 1/4 full.

NOTE: If there is no grease in the output shaft, fill it with 4.0 ±0.5 cubic centimeters (3.9 ±0.5 grams) of grease.

(b) Apply grease, D00013 to the splines on the input shaft [10] for the rotary actuator [1].

(c) Put grease, D00013 in the cavity next to the output shaft the offset gearbox [2] until the grease is at the level of the outer edge of the coverplate.

(d) If it is necessary, install a new packing [20] and packing [21] on the rotary actuator [1].

(e) Apply grease, D00013 to the packing [20] and packing [21] on the rotary actuator [1].

(f) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the outer mating surface of the offset gearbox [2].

(g) Put the offset gearbox [2] in its position on the rotary actuator [1].

(h) Engage the output shaft for the offset gearbox [2] with the input shaft [10] for the rotary actuator [1].

(i) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the threads and shank of the bolts [9].

(j) Install the bolts [9], washers [11] and nuts [12] to connect the offset gearbox [2] to the rotary actuator [1].

(k) Tighten the nuts [12]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-12-820-001

(2) If the slat drive system has moved while the torque tubes were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

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SUBTASK 27-81-12-860-001

(3) Connect the torque tubes [4] to the offset gearbox [2]:

(a) Apply grease, D00633 to the coupling sleeves [6].

(b) Move the coupling sleeves [6] on the splined couplings [5].

(c) Install the screws [7].

(d) Tighten the screws [7].

NOTE: Do not over tighten the screws [7].

(e) Install lockwire on the screws [7].

(f) For the applicable torque tubes on the inboard slat, do this task: Inboard Leading Edge Torque Tube and Support Lubrication, TASK 12-21-08-640-804.

(g) If you installed the offset gearbox [2] on the inboard end of the slat, move the seal tube [23] to its usual position:

1) If it is necessary, install a new packing [22] on the seal tube [23].

2) Apply grease, D00013 to the packing [22] on the seal tube [23].

3) Move the seal tube [23] outboard to the offset gearbox [2].

4) Apply grease, D00013 to the bolts [26].

5) Put the plate [24] in its position and install the bolts [26] and washers [25].

SUBTASK 27-81-12-080-001

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [4].

H. Inboard No-Back Brake, Offset Gearbox Installation Test

SUBTASK 27-81-12-440-001

(1) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-12-710-001

(2) Use the primary system to extend the slats to the sealed position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

(a) Make sure the slats move to the sealed position.

SUBTASK 27-81-12-710-002

(3) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(a) Make sure the slats move to the retracted position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-12-010-002

(1) On the lower surface of the wing, install the applicable access panels:

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

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SUBTASK 27-81-12-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

TASK 27-81-12-960-801

4. Inboard No-Back Brake, Offset Gearbox Shearout Replacement

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1058	Container - Oil Resistant, 1 Gallon, (4 Liter)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
13	Extractor	27-81-10-10-090	ARO ALL
15	Packing	27-81-10-10-085	ARO ALL
19	Shearout	27-81-10-10-100	ARO ALL
27	Packing	27-81-10-10-060	ARO ALL

E. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

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F. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

G. Prepare for the Shearout Replacement

SUBTASK 27-81-12-040-003

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-12-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

H. Inboard No-Back Brake Offset Gearbox Shearout Replacement

SUBTASK 27-81-12-010-003

(1) Remove the applicable fixed leading edge panel from the lower surface of the wing:

(a) For slat No. 7, remove the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, remove the applicable access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-12-680-001

(2) Drain the oil from the offset gearbox [2]:

(a) Put a oil resistant container 1 gal, (4 l), STD-1058 under the offset gearbox [2].

(b) Remove the drain plug [8] from the offset gearbox [2].

(c) Let the oil drain from the offset gearbox [2].

(d) Apply fluid, D00070 to the drain plug [8] and the packing [27].

(e) Install the drain plug [8] and the packing [27] in the offset gearbox [2].

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(f) Tighten the drain plug [8] to 100 in-lb (11 N·m) - 110 in-lb (12 N·m).

SUBTASK 27-81-12-020-003

(3) Remove the shearout [19] from the offset gearbox [2]:

(a) Remove the bolts [17] and washers [16] from the plate [18].

(b) Remove the plate [18].

(c) Pull on the extractor [13] to remove the shearout [19] and the washers [14].

SUBTASK 27-81-12-420-002

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Install the shearout [19] in the offset gearbox [2]:

(a) Make sure the washers [14] are not damaged.

(b) Put a washer [14] on the extractor [13].

(c) Put the extractor [13] and washer [14] in the offset gearbox [2].

(d) Put the shearout [19] and the washer [14] on the extractor [13].

(e) Apply fluid, D00070 to the packing [15] on the plate [18].

(f) Apply grease, D00013 to the mating surface of the plate [18] and the offset gearbox [2].

(g) Apply Cor-Ban 27L Compound, G50237 (preferred) or Mastinox 6856 K, C00913 (alternate) to the shank and bottom of the head of the bolts [17].

(h) Install the bolts [17] and washers [16] to connect the plate [18] and packing [15].

(i) Tighten the bolts [17] to 20 in-lb (2 N·m) - 25 in-lb (3 N·m) plus run-on torque.

SUBTASK 27-81-12-610-001

(5) Fill the offset gearbox [2] with fluid, D00070:

(a) Remove the fill plug [3] from the offset gearbox [2].

(b) Fill the offset gearbox [2] to the level of the fill port with fluid, D00070.

NOTE: The offset gearbox holds approximately 740 cubic centimeters (25 ounces) of oil.

(c) Apply fluid, D00070 to the fill plug [3] and a new packing [27].

(d) Install the fill plug [3] and the packing [27] in the fill port.

(e) Tighten the fill plug [3] to 100 in-lb (11 N·m) - 110 in-lb (12 N·m).

SUBTASK 27-81-12-820-002

(6) If the shearout [19] was broken, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

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SUBTASK 27-81-12-440-003

(7) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-12-710-003

(8) Use the primary system to extend the slats to the sealed position. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the sealed position.

SUBTASK 27-81-12-710-004

(9) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the retracted position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-12-010-004

(1) On the lower surface of the wing, install the applicable access panels:

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-12-440-004

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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INBOARD LEADING EDGE PINION GEAR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the pinion gear for the inboard leading edge slats

(2) An installation of the pinion gear for the inboard leading edge slats.

B. It is necessary to remove the applicable rotary actuator to replace a pinion gear.

TASK 27-81-13-000-801

2. Inboard Leading Edge Pinion Gear Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-11-000-801	Inboard Leading Edge Rotary Actuator Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1707	Adapter - Torque, Slat Pinion (Kit) (-2 Adapter for Inboard, -3 Adapter for Outboard) Part #: J27022-1 Supplier: 81205

C. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

D. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

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E. Prepare for the Removal

SUBTASK 27-81-13-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-13-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-13-010-001

(3) Remove the applicable fixed leading edge panels from the lower surface of the wing:

(a) For the left wing, remove the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For the right wing, remove the applicable access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

F. Inboard Leading Edge Pinion Gear Removal

SUBTASK 27-81-13-020-001

(1) For the applicable rotary actuator, do this task: Inboard Leading Edge Rotary Actuator Removal, TASK 27-81-11-000-801.

SUBTASK 27-81-13-010-002

(2) Remove the plate [2] or plate [3] between the ribs:

(a) For the inboard pinion gear [7], remove the bolts [1] and remove the plate [2].

(b) For the outboard pinion gear [7], remove the bolts [1] and remove the plate [3].

SUBTASK 27-81-13-020-002

(3) Remove the pinion gear [7]:

(a) Bend the tab on the washer [13] until you can turn the nut [14].

(b) Put the slat pinion torque adapter kit, SPL-1707 in the end of the shaft assembly [4] to hold it while you remove the nut [14].

(c) Use a spanner wrench to remove the nut [14], washer [13] and washer [12] from the shaft assembly [4].

(d) Remove the bolts [15], washers [16] and retainer [17] from the main track rib [19].

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(e) Loosely install the bolts [15] and washers [16] through the main track rib [19] to hold the retainer assembly [18].

(f) Remove the bushing [10] and the bearing [11] from the shaft assembly [4] and the main track rib [19].

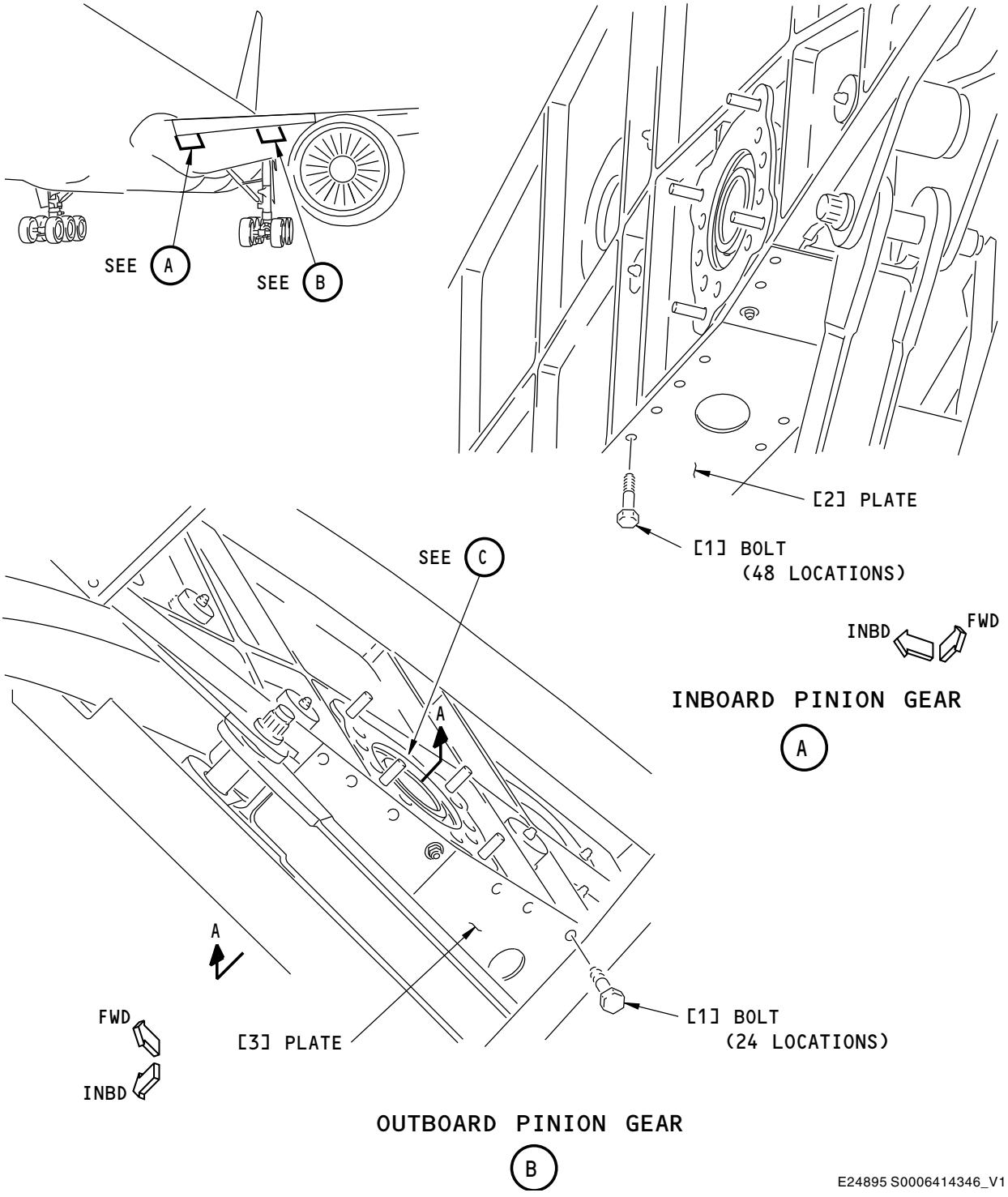
(g) Hold the pinion gear [7] and remove the shaft assembly [4] with the bearing [11] from the main track rib [19].

(h) Remove the pinion gear [7].

(i) If you will replace the retainer assembly [18], remove the bolts [15] and washers [16] and remove the retainer.

——— END OF TASK ———

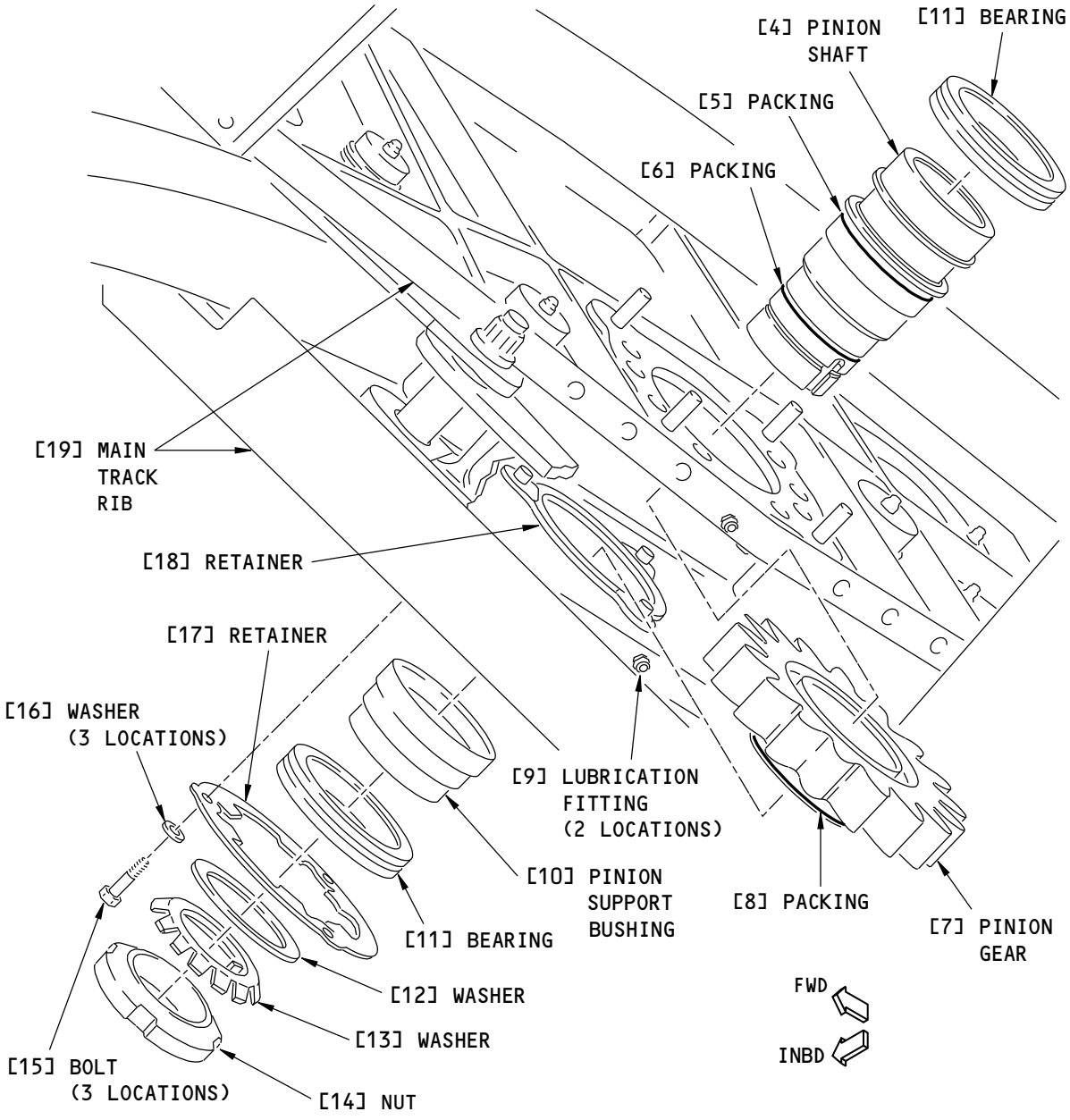
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E24895 S0006414346_V1

Inboard Leading Edge Pinion Gear Installation
Figure 401/27-81-13-990-801 (Sheet 1 of 3)

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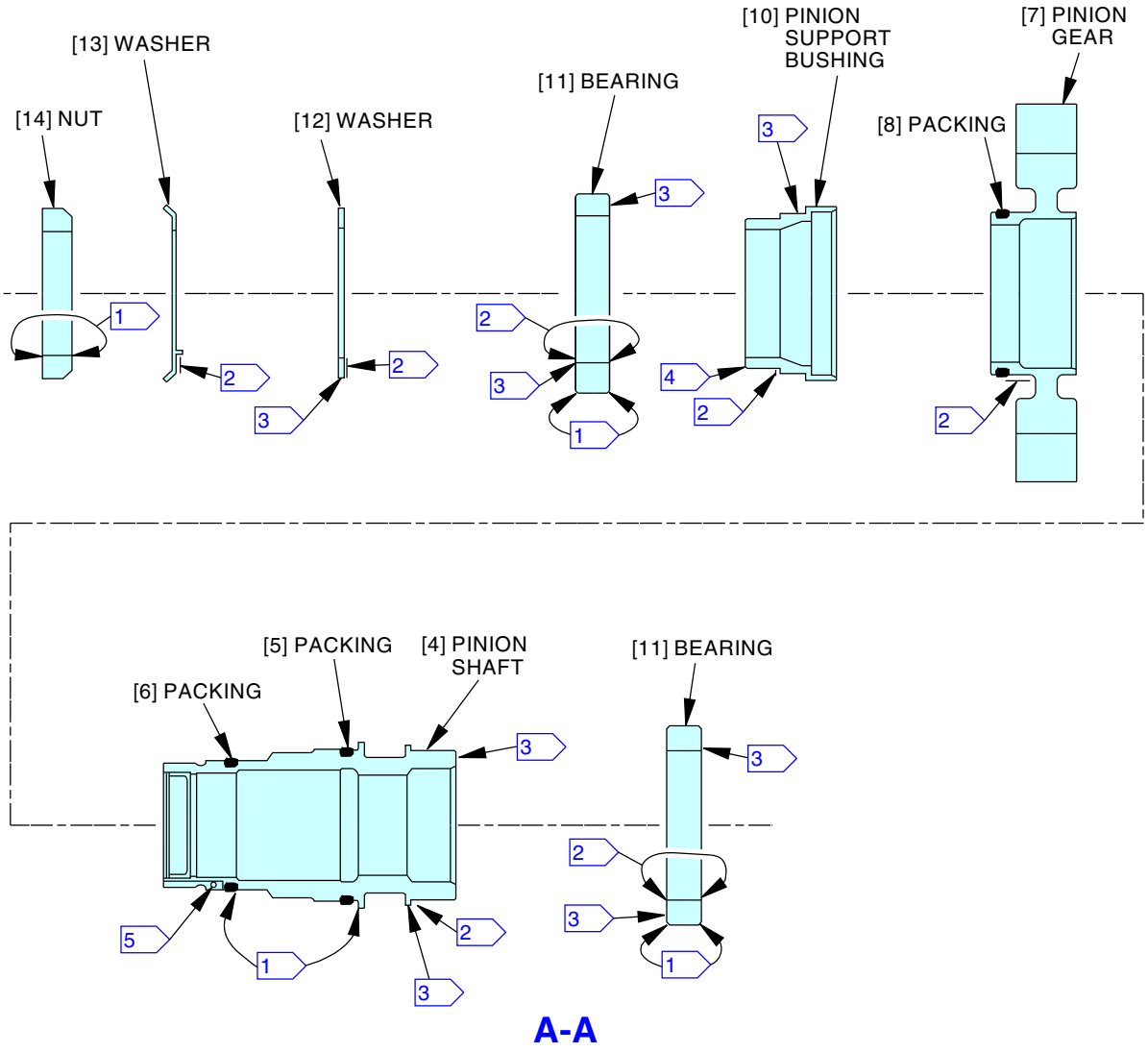
OUTBOARD PINION GEAR
(INBOARD PINION GEAR IS EQUIVALENT)

C

E24897 S0006414347_V1

Inboard Leading Edge Pinion Gear Installation
Figure 401/27-81-13-990-801 (Sheet 2 of 3)

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1 APPLY GREASE (BMS 3-33) TO THESE AREAS.

2 APPLY CORROSION INHIBITING COMPOUND (BMS 3-38 OR BMS 3-27) TO THESE AREAS.

3 WITH A CLEAN CLOTH, WIPE THE CORROSION INHIBITING COMPOUND FROM THESE AREAS.

4 WITH A CLEAN CLOTH, WIPE GREASE FROM THESE AREAS.

5 FILL THE KEYWAY ON THE PINION SHAFT FROM THE CORNER TO THE THREADS WITH CORROSION INHIBITING COMPOUND (BMS 3-38 OR BMS 3-27).

E22524 S0006414348_V3

Inboard Leading Edge Pinion Gear Installation
Figure 401/27-81-13-990-801 (Sheet 3 of 3)

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TASK 27-81-13-400-801

3. Inboard Leading Edge Pinion Gear Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-801	Inboard Slat Rollers and Pinion Bearing Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-11-400-801	Inboard Leading Edge Rotary Actuator Installation (P/B 401)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1707	Adapter - Torque, Slat Pinion (Kit) (-2 Adapter for Inboard, -3 Adapter for Outboard) Part #: J27022-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Shaft assembly	27-81-13-10-115	ARO ALL
5	Packing	27-81-13-10-110	ARO ALL
6	Packing	27-81-13-10-105	ARO ALL
7	Pinion gear	27-81-13-10-100	ARO ALL
8	Packing	27-81-13-10-095	ARO ALL
11	Bearing	27-81-13-10-085	ARO ALL
17	Retainer	27-81-13-10-075	ARO ALL
18	Retainer assembly	27-81-13-10-080	ARO ALL

E. Location Zones

Zone	Area
512	Slat No. 7

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(Continued)

Zone	Area
612	Slat No. 8

F. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

G. Inboard Leading Edge Pinion Gear Installation

SUBTASK 27-81-13-640-001

(1) Apply grease, D00633 to the lubrication fittings [9] in the main track ribs [19] to fill the grease passages for the bearings [11].

SUBTASK 27-81-13-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Install the bearing [11] on the shaft assembly [4] if it is not installed:

(a) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the inside diameter of the bearing [11] and the mating surface of the flange on the shaft assembly [4].

(b) Put the bearing [11] on the shaft assembly [4].

(c) Use a clean cotton wiper, G00034 to remove the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 from the outside of the flange, the sides of the bearing [11] and the end of the shaft assembly [4].

SUBTASK 27-81-13-420-002

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Install the bearing [11] on the bushing [10] if it is not installed:

(a) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the inside diameter of the bearing [11] and the mating surface of the flange on the bushing [10].

(b) Put the bearing [11] on the bushing [10].

(c) Use a clean cotton wiper, G00034 to remove the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 from the outside of the flange and the sides of the bearing [11].

SUBTASK 27-81-13-420-003

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Install the pinion gear [7]:

(a) If you removed the retainer assembly [18], loosely install the retainer assembly [18] on the main track rib [19] with the bolts [15] and washers [16].

(b) Install new packing [5] and packing [6] on the shaft assembly [4] with grease, D00633.

(c) Apply grease, D00633 to the outside diameter of the bearing [11] and the surface of the shaft assembly [4] between the packing [5] and packing [6].

(d) Apply grease, D00633 to the outside diameter of the pinion gear [7] where it will mate with the bushing [10].

(e) Install a new packing [8] on the pinion gear [7] with grease, D00633.

(f) Hold the pinion gear [7] in its position between the main track ribs [19].

NOTE: If the main track is installed, engage the teeth on the pinion gear [7] with the sector gear in the main track.

(g) Install the shaft assembly [4], with the bearing [11] through the main track rib [19] and the pinion gear [7].

(h) Apply grease, D00633 to the outside diameter of the bearing [11] on the bushing [10].

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(i) Install the bushing [10], with the bearing [11] on the shaft assembly [4] and the pinion gear [7].

(j) Remove the bolts [15] and washers [16] from the retainer assembly [18].

(k) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [15].

(l) Install the washers [16] and bolts [15] to attach the retainer [17]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(m) Fill the keyway on the shaft assembly [4] from the flange to the start of the threads with Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913.

(n) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the washer [12] and washer [13].

(o) Apply a layer of grease, D00633 to the threads on the nut [14].

(p) Loosely install the washer [12], washer [13] and nut [14] on the shaft assembly [4].

(q) Use a clean cotton wiper, G00034 to remove the grease, D00633 from the end of the bushing [10].

(r) Install the slat pinion torque adapter kit, SPL-1707 in the end of the shaft assembly [4] to hold it while you tighten the nut [14].

(s) Use the spanner wrench to tighten the nut [14] to 300-420 pound-inches.

(t) Remove the spanner wrench and the slat pinion torque adapter kit, SPL-1707 from the shaft assembly [4] and nut [14].

(u) Bend one of the tabs on the washer [13] to hold the nut [14].

SUBTASK 27-81-13-420-004

(5) For the applicable rotary actuator, do this task: Inboard Leading Edge Rotary Actuator Installation, TASK 27-81-11-400-801.

SUBTASK 27-81-13-010-003

(6) Install the plate [2] or plate [3] between the ribs [19]:

(a) For the inboard pinion gear [7], put the plate [2] between the ribs [19] and install the bolts [1].

(b) For the outboard pinion gear [7], put the plate [3] between the ribs [19] and install the bolts [1].

SUBTASK 27-81-13-640-002

(7) For the applicable pinion gear, do this task: Inboard Slat Rollers and Pinion Bearing Lubrication, TASK 12-21-08-640-801.

SUBTASK 27-81-13-820-001

(8) Do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-13-410-001

(1) Install the applicable fixed leading edge panels on the lower surface of the wing:

(a) For the left wing, install these access panel:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

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(b) For the right wing, install these access panel:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-13-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-13-440-002

(3) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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OUTBOARD LEADING EDGE SLAT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an outboard leading edge slat

(2) An installation of an outboard leading edge slat.

B. These procedures apply to all of the outboard leading edge slats.

C. If you will remove and install the same slat and not change the adjustment of the main tracks, it is not necessary to do the preload adjustment procedure.

D. Slats numbered 3 thru 6 and 9 thru 12 have a wing anti-ice duct that goes through them. The duct goes from the fixed leading edge to slats 6 or 9 then through ducts to the outboard slats.

TASK 27-81-15-000-801

2. Outboard Leading Edge Slat Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-89-13-000-801	Outboard Slat Skew Cable Removal (P/B 201)
30-11-05-000-801	Wing Anti-Ice T-Duct Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1715	Equipment - Sling, Inboard/Outboard LE Slat Part #: J27014-19 Supplier: 81205

C. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

D. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
522JT	Slat No. 6 WAI Access Panel
523AT	Slat No. 5 Cove Access Panel
523JT	Slat No. 5 TAI Access Panel
524AT	Slat No. 4 TAI Access Panel
524JT	Slat No. 4 WAI Access Panel
525AT	Slat No. 3 WAI Access Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel
622JT	Slat No. 9 WAI Access panel
623AT	Slat No. 10 WAI Access Panel
623JT	Slat No. 10 WAI Access Panel
624AT	Slat No. 11 TAI Access Panel
624JT	Slat No. 11 TAI Access Panel
625AT	Slat No. 12 TAI Access Panel

E. Prepare for the Removal

SUBTASK 27-81-15-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-15-860-001

(2) Extend the slats to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

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SUBTASK 27-81-15-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-010-002

(4) Remove the applicable fixed leading edge panels from the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, remove these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, remove these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, remove these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

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(i) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, remove these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-15-200-012

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Make sure that the housing (can) assemblies of the main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

SUBTASK 27-81-15-020-010

(6) If you will remove slat No. 6 or No. 9 [1] or slat No. 6 or No. 9 [1], do this task: Wing Anti-Ice T-Duct Removal, TASK 30-11-05-000-801, (Figure 402).

SUBTASK 27-81-15-020-001

(7) If you will remove a slat No. 3 thru 5 or 10 thru 12, disconnect the wing anti-ice ducts [51] between the slats:

(a) Remove the applicable panels to get access to the ducts (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

1) To remove slat No. 3, open these access panels:

Number	Name/Location
524JT	Slat No. 4 WAI Access Panel
525AT	Slat No. 3 WAI Access Panel

2) To remove slat No. 4, open these access panels:

Number	Name/Location
523JT	Slat No. 5 TAI Access Panel
524AT	Slat No. 4 TAI Access Panel
524JT	Slat No. 4 WAI Access Panel
525AT	Slat No. 3 WAI Access Panel

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3) To remove slat No. 5, open these access panels:

Number	Name/Location
522JT	Slat No. 6 WAI Access Panel
523AT	Slat No. 5 Cove Access Panel
523JT	Slat No. 5 TAI Access Panel
524AT	Slat No. 4 TAI Access Panel

4) To remove slat No. 10, open these access panels:

Number	Name/Location
622JT	Slat No. 9 WAI Access panel
623AT	Slat No. 10 WAI Access Panel
623JT	Slat No. 10 WAI Access Panel
624AT	Slat No. 11 TAI Access Panel

5) To remove slat No. 11, open these access panels:

Number	Name/Location
623JT	Slat No. 10 WAI Access Panel
624AT	Slat No. 11 TAI Access Panel
624JT	Slat No. 11 TAI Access Panel
625AT	Slat No. 12 TAI Access Panel

6) To remove slat No. 12, open these access panels:

Number	Name/Location
624JT	Slat No. 11 TAI Access Panel
625AT	Slat No. 12 TAI Access Panel

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(b) Make sure that the housing (can) assemblies of the main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

(c) Remove the nuts [58], washers [57] and bolts [56] that attach the two halves of the retainer assembly [55].

(d) Remove the screws [53] and washers [54] that attach the retainer assembly [55] and the wing anti-ice duct [51] to the slat.

(e) Move the vibreaker assembly [52] outboard on the wing anti-ice duct [51].

SUBTASK 27-81-15-020-002

(8) If you will remove a slat No. 2 thru 6 or 9 thru 13, do this task: Outboard Slat Skew Cable Removal, TASK 27-89-13-000-801.

SUBTASK 27-81-15-020-003

(9) If you will remove slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5], do these tasks:

(a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

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(Continued)

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

(b) Disconnect the electrical connectors [101] from the slat skew sensors [102] on slat No. 2 or No. 13 [5] (Figure 403).

(c) Remove the bolts [104], washers [105] and clamps [103] that hold and attach the electrical wires to slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5] structure.

(d) Remove the flexible conduit [201] that connects the electrical wires from slat No. 1 [6] to slat No. 2 [5] or from slat No. 13 [5] to slat No. 14 [6] (Figure 401).

1) Remove the bolts [197], bolt [198], bolt [199] and washers [200] that attach the flexible conduit [201] to slat No. 1 [6] and slat No. 2 [5] or slat No. 13 [5] and slat No. 14 [6] structures.

2) Remove the flexible conduit [201].

SUBTASK 27-81-15-480-001

(10) Install the outboard slat sling [121], which is part of inboard/outboard LE slat sling equipment, SPL-1715, on the slat (Figure 404). The weight of slats are shown below.

Table 401/27-81-15-993-816

777-300 OUTBOARD SLATS	WEIGHT	
	Pounds	Kilograms
slat No 1 or No. 14 [6]	**79**	**36**
slat No. 2 or No. 13 [5]	86	39
slat No. 3 or No. 12 [4]	99	45
slat No. 4 or No. 11 [3]	106	48
slat No. 5 or No. 10 [2]	114	52
slat No. 6 or No. 9 [1]	128	58

Table 402/27-81-15-993-817

777-200LR/-300ER OUTBOARD SLATS	WEIGHT	
	Pounds	Kilograms
slat No 1 or No. 14 [6]	**156**	**71**
slat No. 2 or No. 13 [5]	86	39
slat No. 3 or No. 12 [4]	99	45
slat No. 4 or No. 11 [3]	106	48
slat No. 5 or No. 10 [2]	114	52
slat No. 6 or No. 9 [1]	128	58

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(a) Install the sling fitting [122] on the slat.

(b) Connect the outboard slat sling [121] to the sling fitting [122].

(c) Use the outboard slat sling [121] to support the weight of the slat.

F. Outboard Leading Edge Slat Removal

SUBTASK 27-81-15-020-011

(1) Disconnect the jumpers [33] on the inboard and outboard ends of the applicable slat (Figure 401):

(a) Remove the screws [35] and washers [34] that attach the jumpers [33] to the slat.

SUBTASK 27-81-15-020-004

(2) Remove the nuts [14], washers [13], washers [16] and washers [19], bolts [18] and bushings [31] to disconnect the slat from the main track links [15] (Figure 401).

SUBTASK 27-81-15-200-002

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(3) Make sure that the housing (can) assemblies of the main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

SUBTASK 27-81-15-020-005

WARNING ATTACH THE CENTER MAIN TRACK TO THE FIXED LEADING EDGE BEFORE YOU DISCONNECT IT FROM THE SLAT ASSY. IF YOU DO NOT, THE CENTER MAIN TRACK CAN FALL FROM THE AIRPLANE WHEN YOU DISCONNECT IT. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Disconnect the applicable slat from the main tracks [10]:

(a) On slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5], remove the nuts [12], washers [21],washers [11], washers [20], bolts [22] and bushings [9].

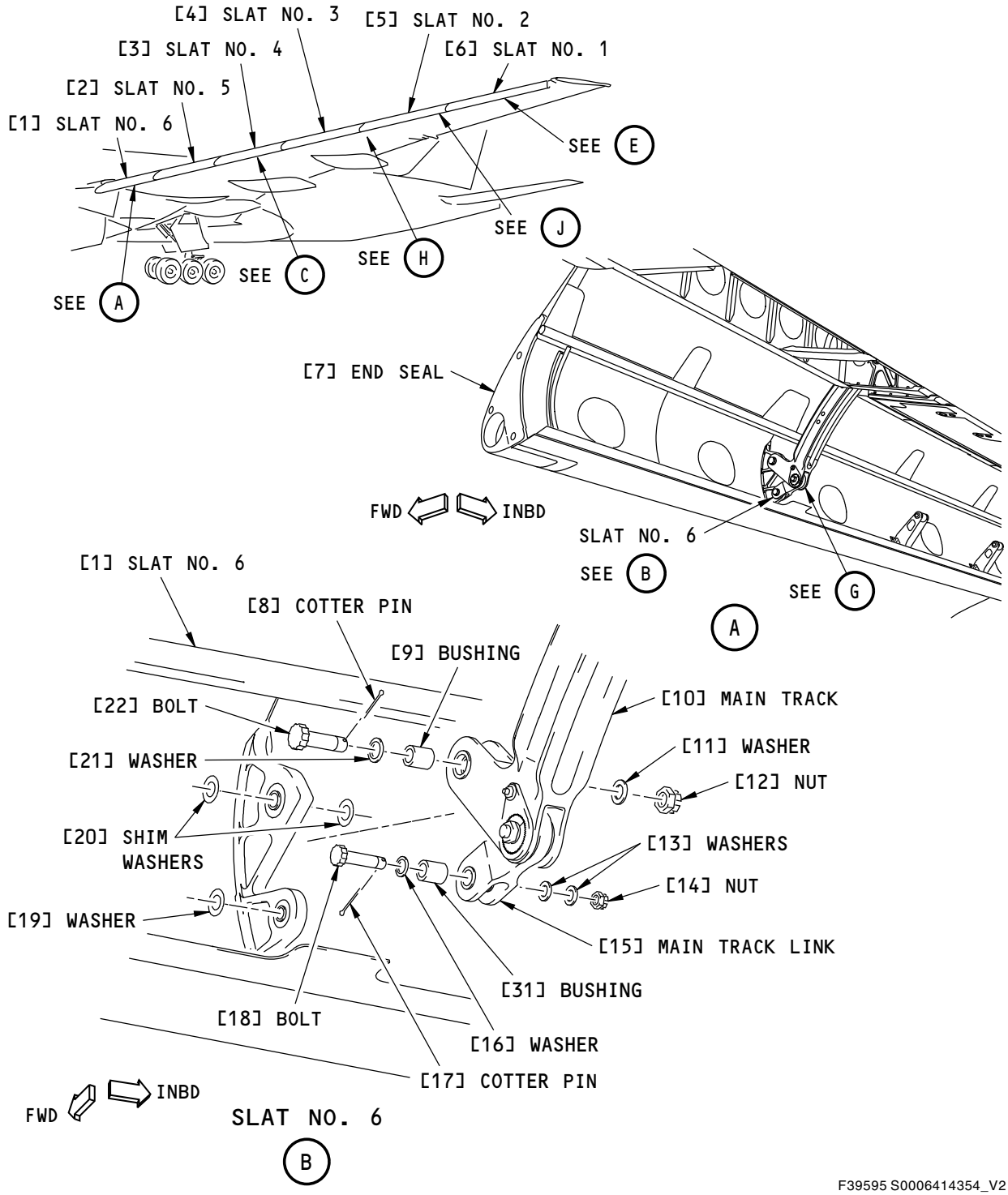
(b) On slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2] or slat No. 6 or No. 9 [1], remove the nuts [12], washers [11], washers [20], washers [21], bolts [22] and bushings [9].

SUBTASK 27-81-15-020-006

(5) Use the outboard slat sling [121] to remove the slat.

END OF TASK

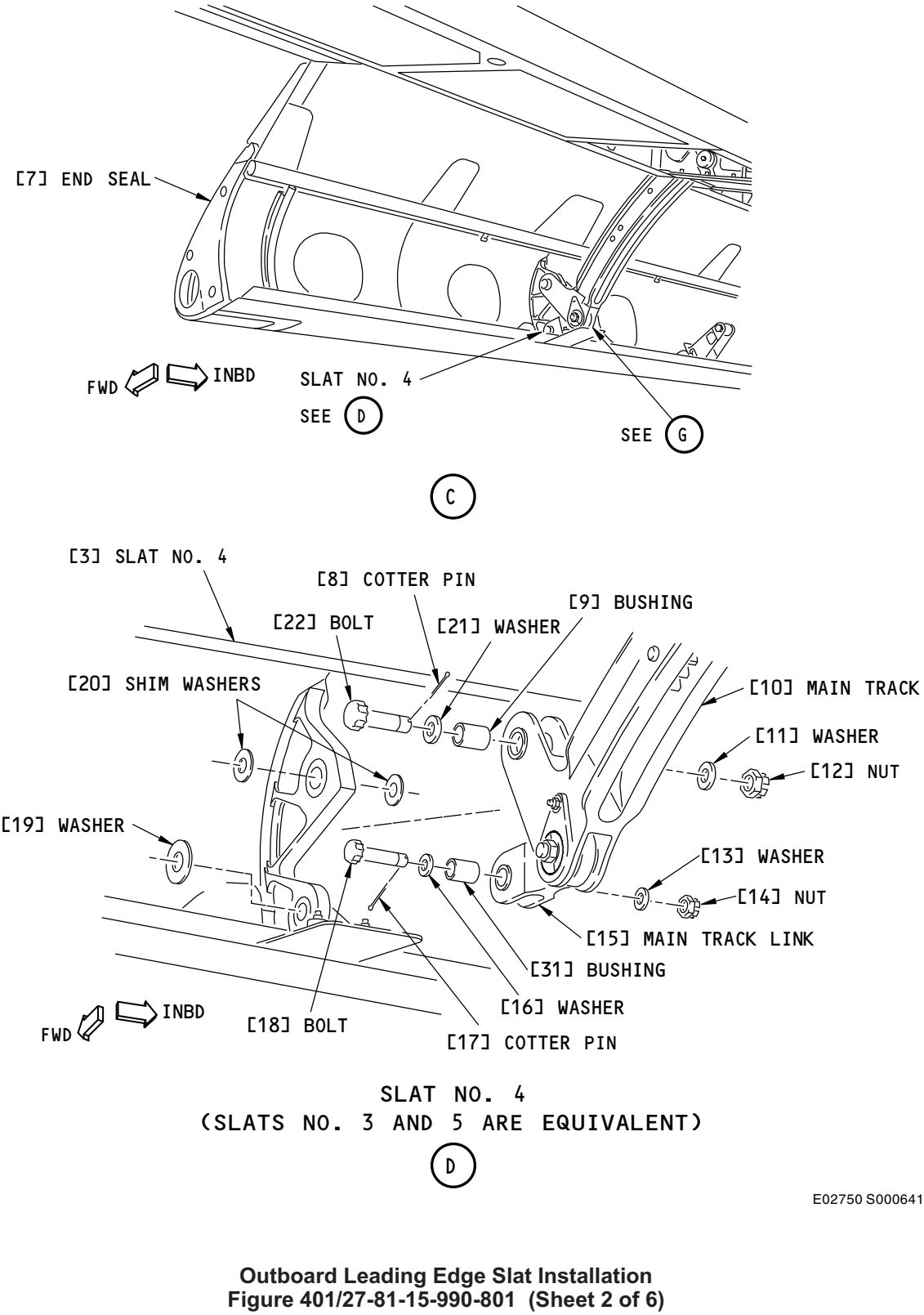
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F39595 S0006414354_V2

Outboard Leading Edge Slat Installation
Figure 401/27-81-15-990-801 (Sheet 1 of 6)

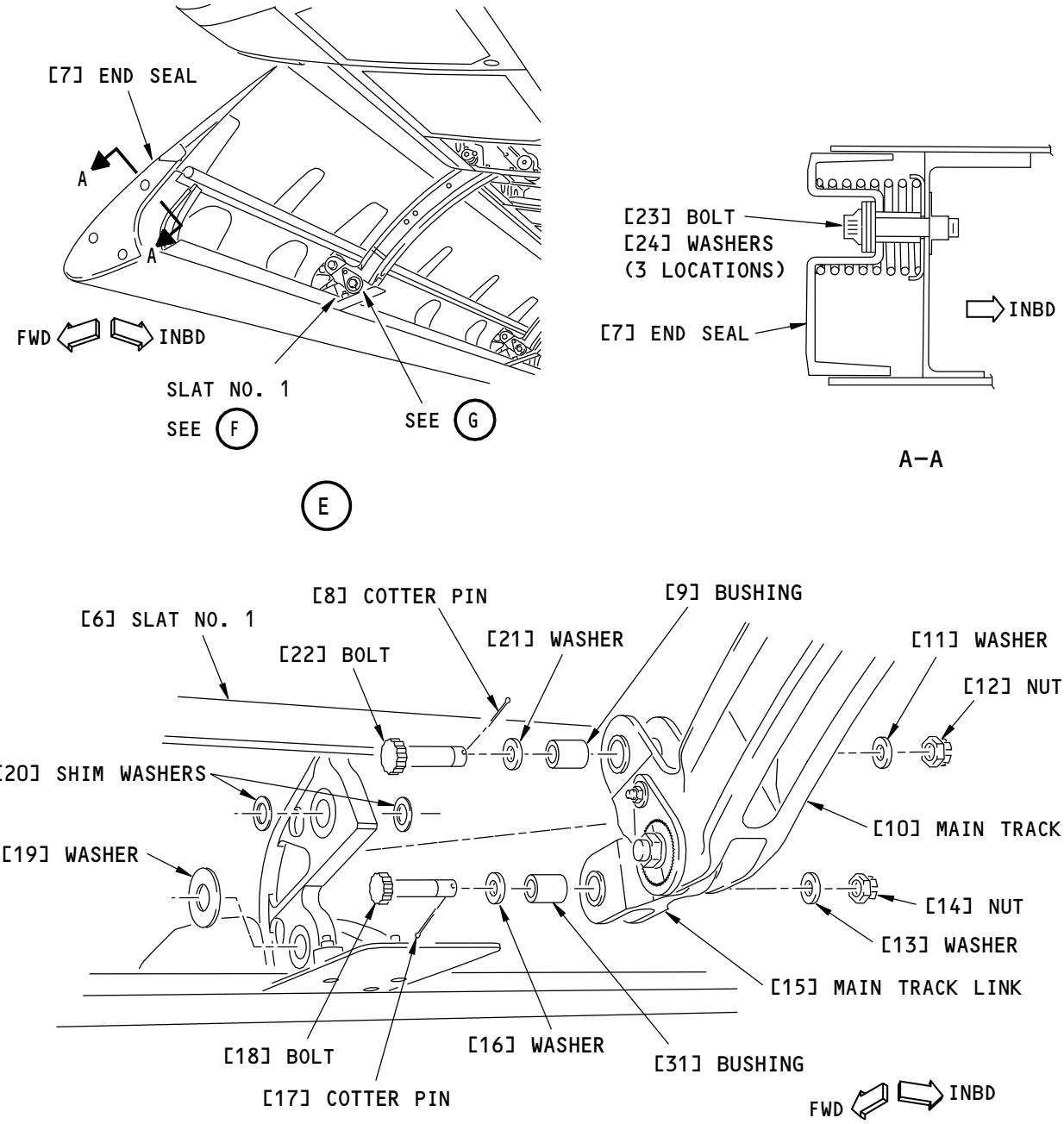
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E02750 S0006414355_V1

Outboard Leading Edge Slat Installation
Figure 401/27-81-15-990-801 (Sheet 2 of 6)

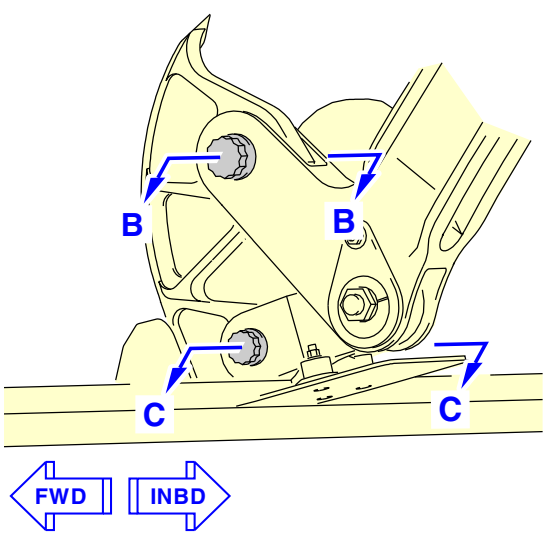
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E07923 S0006414356_V2

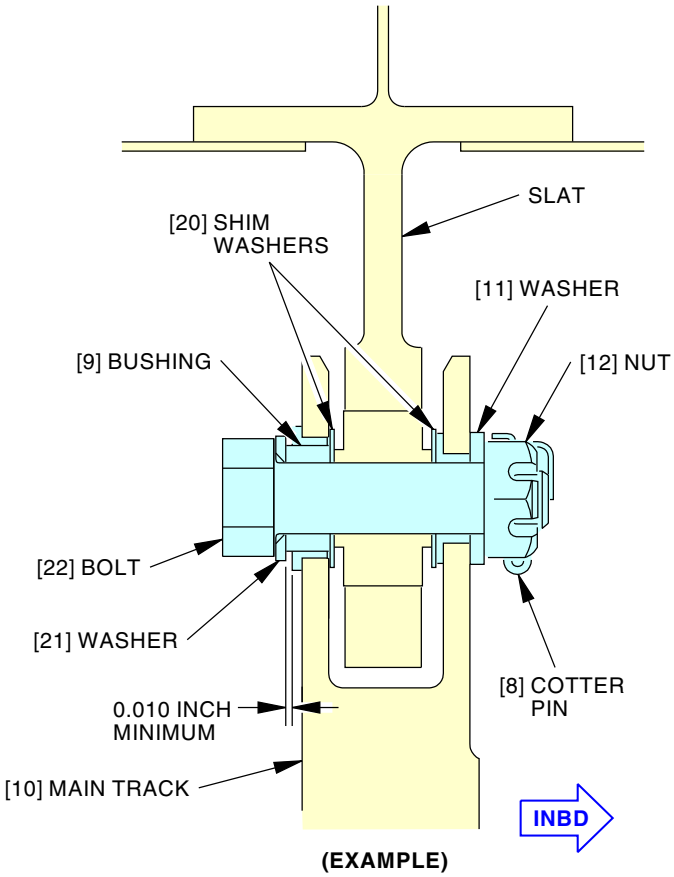
Outboard Leading Edge Slat Installation
Figure 401/27-81-15-990-801 (Sheet 3 of 6)

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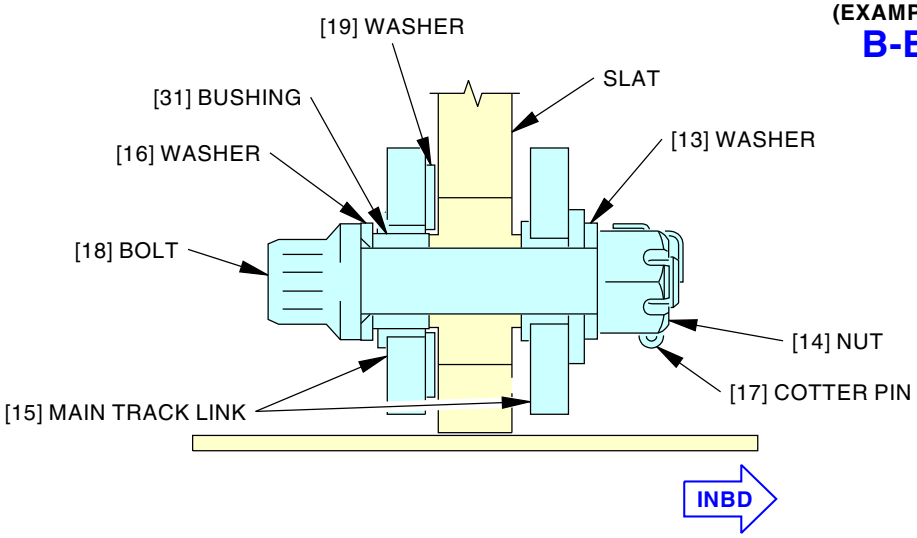
SLAT NO. 4
(OTHER SLATS ARE EQUIVALENT)

G



(EXAMPLE)

B-B



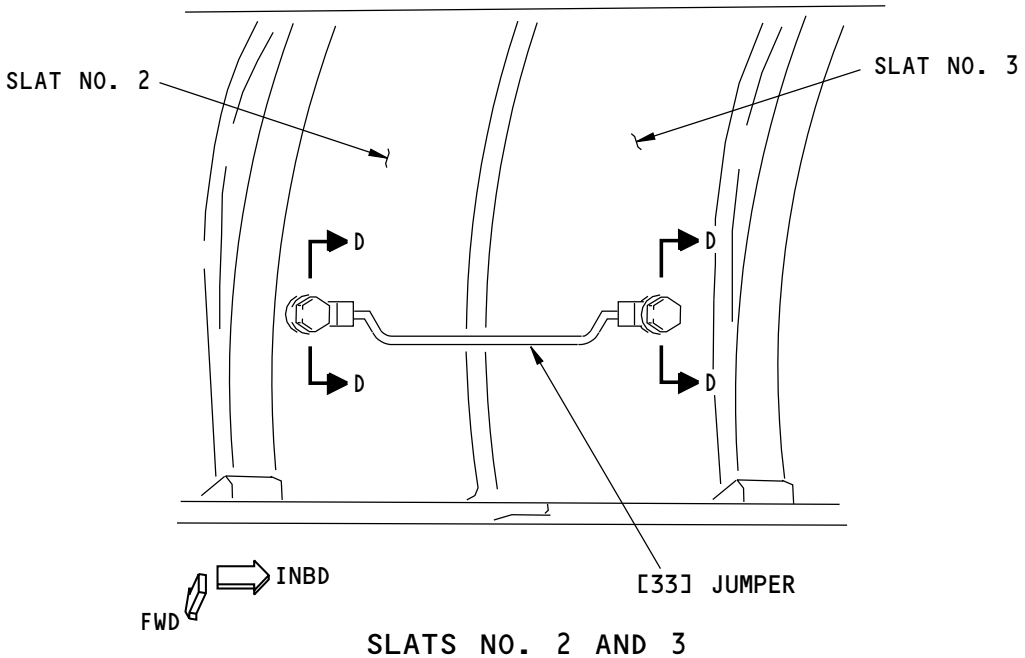
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
(EXAMPLE)

C-C

E79159 S0006414357_V2

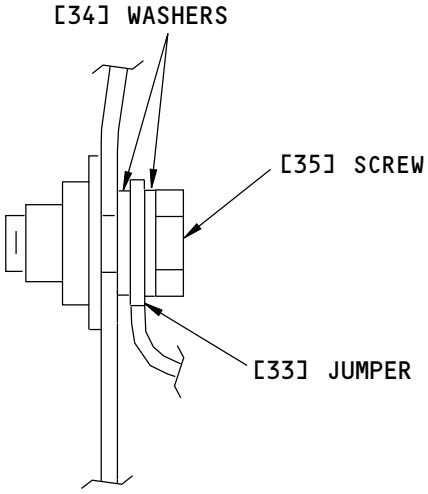
Outboard Leading Edge Slat Installation
Figure 401/27-81-15-990-801 (Sheet 4 of 6)

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SLATS NO. 2 AND 3
(OTHER SLATS ARE EQUIVALENT)

H

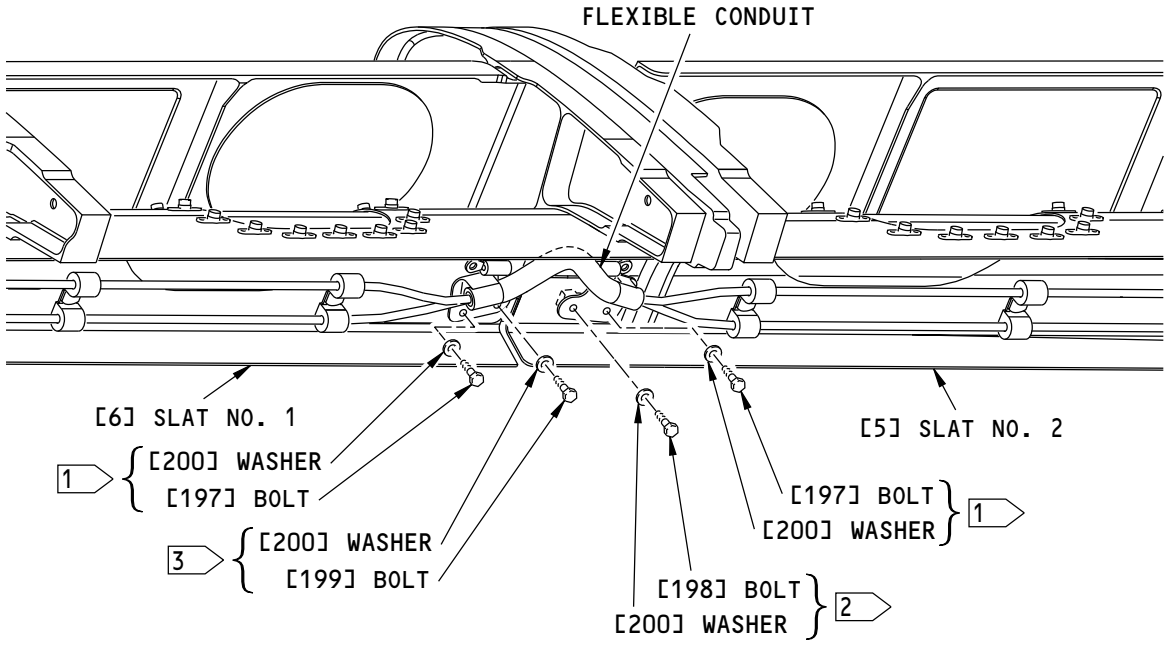


D–D

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Outboard Leading Edge Slat Installation
Figure 401/27-81-15-990-801 (Sheet 5 of 6)

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SLAT NO. 1 AND NO. 2
(SLATS NO. 13 AND 14 ARE EQUIVALENT)

J

1 ATTACH FLEXIBLE CONDUIT TO STRUCTURE WITH BOLT [197] AND WASHER [200]

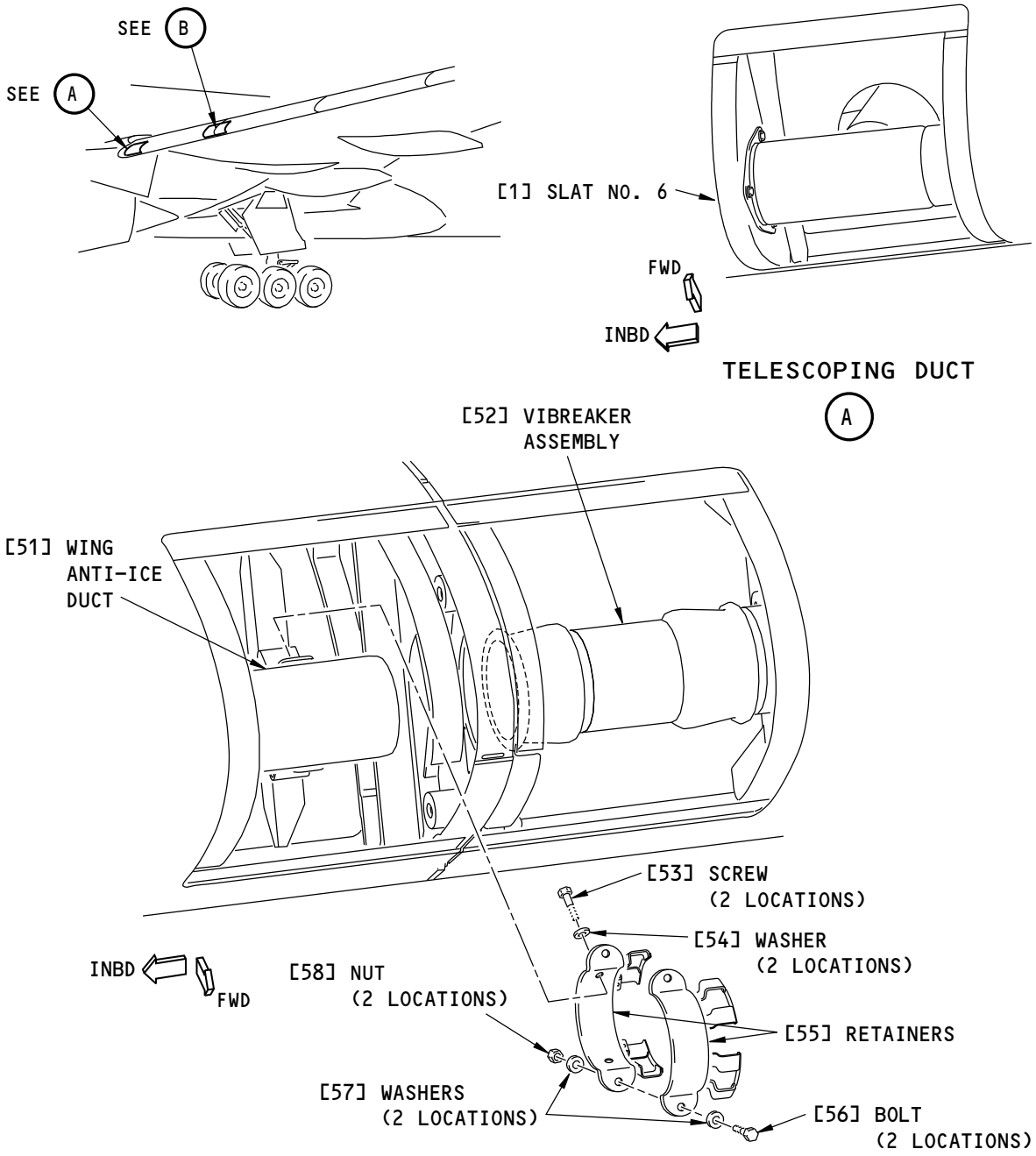
2 ATTACH FLEXIBLE CONDUIT TO STRUCTURE WITH BOLT [198] AND WASHER [200]

3 ATTACH FLEXIBLE CONDUIT TO STRUCTURE WITH BOLT [199] AND WASHER [200]

2372773 S0000535196_V1

Outboard Leading Edge Slat Installation
Figure 401/27-81-15-990-801 (Sheet 6 of 6)

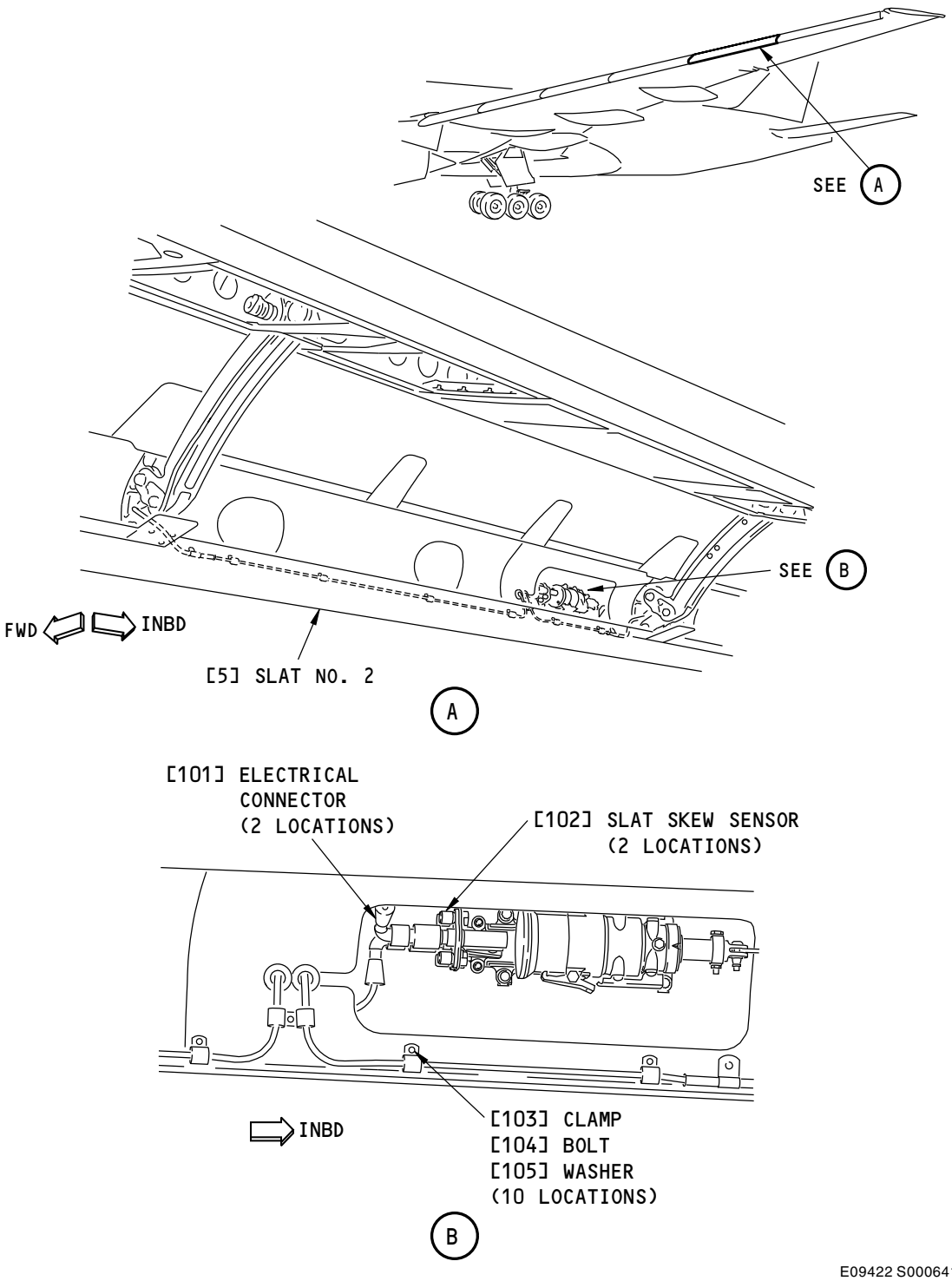
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E09457 S0006414359_V1

Outboard Leading Edge Slat Anti-ice Ducts
Figure 402/27-81-15-990-802

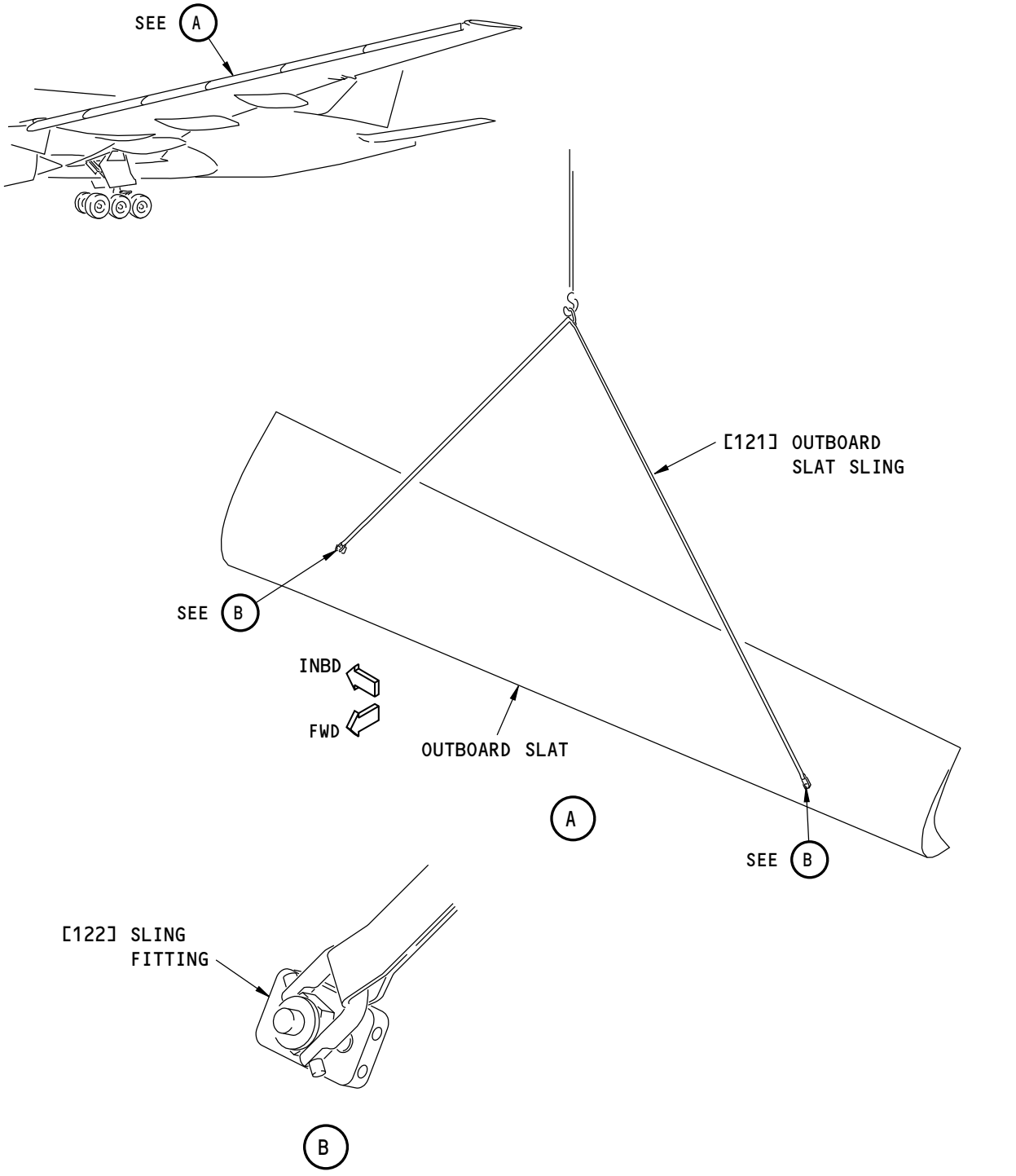
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E09422 S0006414360_V1

Outboard Slat Skew Sensor
Figure 403/27-81-15-990-803

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E07919 S0006414361_V1

Outboard Leading Edge Slat Sling Installation
Figure 404/27-81-15-990-804

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TASK 27-81-15-400-801

3. Outboard Leading Edge Slat Installation

(Figure 401)

A. General

(1) The load condition of the airplane (fuel quantity and whether it is on or off wing and body jacks) has an effect on the preload adjustment dimensions in this procedure.

(2) The structural condition of the leading edge slat can be affected by the slat adjustment. Make sure the adjustment dimensions are followed.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-802	Leading Edge Slat System Operation With Alternate Control (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-43-400-801	Outboard Slat Main Track Installation (P/B 401)
27-89-13-400-801	Outboard Slat Skew Cable Installation (P/B 201)
30-11-05-400-801	Wing Anti-Ice T-Duct Installation (P/B 401)
30-11-06-400-801	Wing Anti-Ice Spray-Duct Installation (P/B 401)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)
WDM D6-54446	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1715	Equipment - Sling, Inboard/Outboard LE Slat Part #: J27014-19 Supplier: 81205
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

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D. Consumable Materials

Reference	Description	Specification
A00900	Sealant - Silicone, RTV - Dow Corning 93-006-1RF (Formerly 93-006-1. Use until Stock depleted)	
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
A50001	compound - corrosion inhibiting - ZC-027L	ZC-027L
A50198	Sealant - Dow Corning 93-006-6 Aerospace Sealant and Catalyst	
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Slat No. 6 or No. 9	27-81-15-01A-550	ARO ALL
		27-81-15-01A-555	ARO ALL
2	Slat No. 5 or No. 10	27-81-15-01A-275	ARO ALL
		27-81-15-01A-280	ARO ALL
3	Slat No. 4 or No. 11	27-81-15-01A-265	ARO ALL
		27-81-15-01A-270	ARO ALL
4	Slat No. 3 or No. 12	27-81-15-01A-255	ARO ALL
		27-81-15-01A-260	ARO ALL
6	Slat No 1 or No. 14	27-81-15-01A-085	ARO ALL
		27-81-15-01A-090	ARO ALL
8	Cotter pin	27-81-15-01A-010	ARO ALL
		27-81-15-01A-185	ARO ALL
		27-81-15-01A-475	ARO ALL
17	Cotter pin	27-81-15-01A-050	ARO ALL
		27-81-15-01A-220	ARO ALL
		27-81-15-01A-510	ARO ALL
146	Cotter pin	27-81-15-01A-680	ARO ALL
152	Cotter pin	27-81-15-01A-440	ARO ALL
		27-81-15-01A-640	ARO ALL

F. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

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G. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
522JT	Slat No. 6 WAI Access Panel
523AT	Slat No. 5 Cove Access Panel
523JT	Slat No. 5 TAI Access Panel
524AT	Slat No. 4 TAI Access Panel
524JT	Slat No. 4 WAI Access Panel
525AT	Slat No. 3 WAI Access Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel
622JT	Slat No. 9 WAI Access panel
623AT	Slat No. 10 WAI Access Panel
623JT	Slat No. 10 WAI Access Panel
624AT	Slat No. 11 TAI Access Panel
624JT	Slat No. 11 TAI Access Panel
625AT	Slat No. 12 TAI Access Panel

H. Outboard Leading Edge Slat Installation

SUBTASK 27-81-15-420-001

(1) If you will install slat No. 3 or No. 12 [4],slat No. 4 or No. 11 [3] or slat No. 5 or No. 10 [2], put the vibreaker assembly [52] on the inboard end of the wing anti-ice duct [51] (Figure 402):

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(a) Do a check for damage or deterioration of the seals on the vibreaker assembly [52].

(b) If the seals show damage, then install a new vibreaker assembly [52]. To install it, do this task: Wing Anti-Ice Spray-Duct Installation, TASK 30-11-06-400-801.

SUBTASK 27-81-15-210-009

(2) Make sure the slat end seals extend past the end of slat Figure 408.

SUBTASK 27-81-15-210-001

(3) Make sure the fixed leading edge [172] panels are removed.

SUBTASK 27-81-15-200-003

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(4) Make sure that the housing (can) assemblies of the slat main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

SUBTASK 27-81-15-200-001

(5) Do a check of the main tracks [10] for corrosion.

(6) If you find corrosion of the main tracks [10], then do the SUBTASK 12-21-08-210-002..

SUBTASK 27-81-15-210-002

(7) Make sure the main tracks [10] for the applicable slat are installed in the extended position (Figure 405):

(a) Make sure the main tracks [10] are installed between the rollers [75].

(b) Make sure the sector gears in the main tracks [10] are engaged with the pinion gears.

SUBTASK 27-81-15-480-002

(8) Install the outboard slat sling [121], which is a part of inboard/outboard LE slat sling equipment, SPL-1715, on the outboard slat (Figure 404).

SUBTASK 27-81-15-860-002

(9) Use the outboard slat sling [121] to lift the slat to its position.

SUBTASK 27-81-15-420-002

(10) For slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5], connect the slat to the main tracks [10] (Figure 401):

(a) Install the bushings [9] in the main track [10].

(b) Install the bolts [22], washers [20],washers [21], washers [11], and nuts [12] to connect the applicable slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5] to the main tracks [10].

NOTE: On the left wing, install the bolts [22] with the head outboard. On the right wing, install the bolts [22] with the head inboard.

(c) Tighten the nuts [12] to 510 in-lb (58 N·m).

(d) Make sure the clearance between the washers [21] and the flanged bushing in the main track [10] is a minimum of 0.01 in. (0.25 mm).

(e) If the clearance is not in the limit, adjust the clearance:

1) Remove the nut [12], washers [21], washers [11] and bolt [22].

2) Increase the thickness of the washers [20] between the forward end of the main track [10] and the slat attachment fitting.

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3) Install the bolt [22], washers [21], washers [11], washers [20] and nut [12].

4) Tighten the nut [12] 510 in-lb (58 N·m).

(f) Loosen the nuts [12] until you can install the cotter pins [8].

1) Make sure the torque is more than 290 in-lb (33 N·m).

(g) Install the cotter pins [8].

SUBTASK 27-81-15-420-003

(11) For slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2] or slat No. 6 or No. 9 [1], connect the main tracks [10]:

(a) Install the bushings [9] in the main track [10].

(b) Install the bolts [22], washers [20], washers [11], washers [21] and nuts [12] to connect the applicable slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2] or slat No. 6 or No. 9 [1] to the main tracks [10].

NOTE: On the left wing, install the bolts [22] with the head outboard. On the right wing, install the bolts [22] with the head inboard.

(c) Tighten the nuts [12] 850 in-lb (96 N·m).

(d) Make sure the clearance between the washers [21] and the flanged bushing in the main track [10] is a minimum of 0.01 in. (0.25 mm).

(e) If the clearance is not in the limit, adjust the clearance:

1) Remove the nut [12], washers [11], washers [21] and bolt [22].

2) Increase the thickness of the washers [20] between the main track [10] and the slat.

3) Install the bolt [22], washers [11], washers [21], washers [20] and nut [12].

4) Tighten the nut [12] 850 in-lb (96 N·m).

(f) Loosen the nuts [12] until you can install the cotter pins [8].

1) Make sure the torque is more than 480 in-lb (54 N·m).

(g) Install the cotter pins [8].

SUBTASK 27-81-15-420-004

(12) Connect the slat to the main track links [15]:

(a) Install the bushings [31] in the main track links [15].

(b) Install the bolts [18], washers [13], washers [16] and washers [19] and nuts [14].

NOTE: On the left wing, install the bolts [18] with the head outboard. On the right wing, install the bolts [18] with the head inboard.

(c) Tighten the nuts [14] 690 in-lb (78 N·m).

(d) Loosen the nuts [14] until you can install the cotter pins [17].

1) Make sure the torque on the nuts [14] is more than 370 in-lb (42 N·m).

SUBTASK 27-81-15-210-003

(13) Make sure that the main track [10] motion is parallel and not binding and there is a total clearance of 0.008 to 0.060 inch between the main tracks [10] and the rub strips installed on the main track rib Figure 407 (Sheet 1). .

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SUBTASK 27-81-15-820-002

(14) If the total clearance between each side of the main track [10] and the rub strips (installed on the main track rib) is greater than 0.060 inch, then adjust the clearance at the forward end of the main track [10] and the slat attachment fitting as shown in view B-B of the Figure 401, view B-B of the Figure 406 or Figure 407 , and view A-A of the Figure 406 or Figure 407. If the clearance between the rub strips on the main track rib is not adjustable, you may need to remove the main track [10], in order to adjust the shims installed under the rub strips at the main track rib. per the Outboard Slat Main Track Installation, TASK 27-81-43-400-801:

(a) On slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5], adjust the clearance per detail view “F” and view B-B of the Figure 401, view B-B of the Figure 406 or Figure 407, and view A-A of the Figure 406 or Figure 407:

1) Remove the nut [12], washers [21]washers [11], and bolt [22].

2) Change the thickness of the washers [20] between the main track [10] and the slat No. 2 or No. 13 [5] or slat No 1 or No. 14 [6] attach fitting.

NOTE: Any quantity of 0.016, 0.032 or 0.063 inch thick shim washers [20] can be used on either side of the main track, as long as, the clamp bushing [9] protrudes a minimum of 0.010 inch beyond the main track [10], as shown in view B-B, Figure 401.

3) Install the bolt [22], washers [20], washers [21], washers [11] and nut [12].

4) Tighten the nut [12] 510 in-lb (58 N·m).

5) Make sure the clearance between the washers [21] and the flanged bushing in the main track [10] is a minimum of 0.010 inch.

6) Loosen the nut [12] until you can install the cotter pin [8].

a) Make sure the torque is more than 290 in-lb (33 N·m).

7) Install the cotter pin [8].

(b) On slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2] or slat No. 6 or No. 9 [1], adjust the clearance:

1) Remove the nut [12], washer [11], washer [21] and bolt [22].

2) Increase the thickness of the washers [20] between the forward end of the main track [10] and the slat attach fitting.

3) Install the bolt [22], washer [11], washer [21], washer [20] and nut [12].

4) Tighten the nut [12] 850 in-lb (96 N·m).

5) Make sure the clearance between the washer [21] and the flanged bushing in the main track [10] is a minimum of 0.010 inch.

6) Loosen the nut [12] until you can install the cotter pin [8].

a) Make sure the torque is more than 480 in-lb (54 N·m).

7) Install the cotter pin [8].

SUBTASK 27-81-15-020-007

(15) If you installed slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5], do these tasks:

(a) Connect the electrical connectors [101] to the slat skew sensors [102] on slat No. 2 or No. 13 [5] (Figure 403).

(b) Put the electrical wires from the electrical connectors [101] in their position on slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5].

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(c) Install the clamps [103], bolts [104] and washers [105] that hold and attach the electrical wires to slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5] structure.

(d) Install the flexible conduit [201] that connects the electrical wires from slat No. 1 [6] to slat No. 2 [5] or from slat No. 13 [5] to slat No. 14 [6] (Figure 401).

1) Install the bolts [197], bolt [198], bolt [199] and washers [200] that attach the flexible conduit [201] to slat No. 1 [6] and slat No. 2 [5] or slat No. 13 [5] and slat No. 14 [6] structures.

2) Tighten the bolts to 35 ±2 in-lb (4 ±0 N·m).

(e) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

SUBTASK 27-81-15-420-007

(16) Connect the jumpers [33] on the inboard and outboard ends of the applicable slat (Figure 401):

(a) Put the jumpers [33] in their position between the slats.

(b) Install the screws [35] and washers [34] that attach the jumpers [33] to the slat.

(c) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance from the cove skins on adjacent slats is a maximum of 10 milliohms (WDM D6-54446).

SUBTASK 27-81-15-640-001

(17) Apply compound, C00528 or the optional corrosion inhibitiing compound - ZC-027L, A50001 to the top and bottom surfaces of the main tracks [10].

I. Outboard Leading Edge Slat Preload Adjustment

NOTE: If you installed the same slat and did not change the adjustment of the main tracks, it is not necessary to do the preload adjustment. The load condition of the airplane (fuel quantity and whether it is on or off wing and body jacks) has an effect on the preload adjustment dimensions.

SUBTASK 27-81-15-200-013

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks [10], at all time.

SUBTASK 27-81-15-020-008

(2) On slats slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2], slat No. 6 or No. 9 [1], remove the rollers [149] from the slat (Figure 406 or Figure 407):

(a) Remove the nuts [153], washers [150], washers [154], washers [155] and bolts [151] that attach the rollers [149] to the slat.

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SUBTASK 27-81-15-820-003

(3) Adjust the eccentric bushings [147] on the main tracks [10] for the applicable slat to get the maximum clearance at the trailing edge:

NOTE: The index mark [144] will be on the aft side of the eccentric bushings [147] in line with the main track link [15].

(a) Loosen the nut [145] on the eccentric bushings [147].

(b) Remove the nut [148], washers [143] and bolt [142] that attach the keys [141] to the main track [10].

(c) Use the large socket and small socket, which are parts of leading edge slat installation rigging equipment, SPL-1721, to change the position of the eccentric bushings [147].

(d) Put the keys [141] in their positions on the eccentric bushings [147].

NOTE: If the bolt holes for the keys [141] do not align, you can turn the keys so the opposite surface is against the main track.

(e) Install the bolt [142], washers [143] and nut [148] that attach the keys [141] to the main track [10].

1) Do not install the cotter pin [146] at this time.

NOTE: It will be necessary to adjust the eccentric bushings [147] again.

SUBTASK 27-81-15-860-003

(4) Retract the slat to the retracted position (Figure 405):

(a) Install the rig pins [71], which are part of leading edge slat installation rigging equipment, SPL-1721, in the rig pin holes for the main tracks [10].

CAUTION	DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

CAUTION	USE CARE WHEN YOU RETRACT THE SLATS. IF YOU RETRACT THE MAIN TRACK INTO THE RIG PIN, YOU CAN CAUSE DAMAGE TO THE RIG PIN.

(b) Retract the slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

(c) Push in the rig pin [82] and install the ground lock pin [80], which is a part of the leading edge slat installation rigging equipment, SPL-1721, in the power drive unit [78].

NOTE: This will make sure the slat drive system is in the retracted position. When you retract the slats with the primary, secondary or alternate system, the power drive unit [78] may not be in the retracted position where you can push in the rig pin [82].

(d) If you cannot push in the rig pin [82], then adjust the position of the slat power drive unit [78]:

1) Use the wrench flats on the torque tube [76] to manually turn the power drive unit [78] in the extend direction approximately one turn of the torque tube [76].

NOTE: This step is necessary to remove the backlash in the slat drive system.

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2) Manually turn the power drive unit [78] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

3) Push in the rig pin [82] on the power drive unit [78] and hold it.

4) Install the ground lock pin [80] in the rig pin [79].

5) Make sure the power drive unit [78] is locked in this position:

NOTE: If the power drive unit [78] is not locked in this position, move the power drive unit [78] to the retracted position again.

a) Manually try to turn the power drive unit [78] in the retract direction.

b) Manually try to turn the power drive unit [78] in the extend direction.

(e) Remove the ground lock pin [80] and make sure the rig pin [82] comes out of the power drive unit [78].

1) Make sure you can see the stripe [81] on the rig pin [82].

(f) If the two main tracks [10] for the applicable slat do not touch the rig pins [71], retract the main track [10] that does not touch the rig pin [82]:

1) Install leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube [76] outboard of the slat.

2) Disconnect the torque tubes [76] from the offset gearbox [77] for the main track [10] that does not touch the rig pin [82]:

a) Remove the screws [73] from the coupling sleeves [74].

b) Move the coupling sleeves [74] off the splined coupling [72].

3) Carefully turn the coupling sleeve [74] to retract the main track [10] until it touches the rig pin [71].

4) Connect the torque tubes [76] to the offset gearbox [77]:

a) Apply grease, D00633 to the coupling sleeves [74].

b) Move the coupling sleeves [74] on the splined couplings [72].

c) Install the screws [73] to attach the coupling sleeves [74].

d) Tighten the screws [73].

NOTE: Do not over tighten the screws [73].

e) Install lockwire on the screws [73].

(g) Remove the rig pins [71].

(h) Remove the ground lock pin [80] and let the rig pin [82] come out of the power drive unit [78].

NOTE: Make sure you can see the stripe [81] on the rig pin.

SUBTASK 27-81-15-480-003

(5) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube [76] outboard of the slat.

SUBTASK 27-81-15-930-001

(6) Make a mark of the position of the trailing edge of slat No. 6 or No. 9 [1] on the fixed leading edge [172].

NOTE: Make the mark aft of the inboard main track on slat No. 6 or No. 9 [1].

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SUBTASK 27-81-15-220-002

(7) Measure the clearance between the slat and the adjacent slats (Figure 409):

(a) On slats 1 to 2, 2 to 3, 12 to 13, and 13 to 14, make sure the clearance between the slat and the adjacent slats is 0.250 +0.15/-0.05 inch (View A-A).

(b) On slats 3 to 4, 4 to 5, 5 to 6, 9 to 10, 10 to 11, and 11 to 12, make sure the clearance between the slat and the adjacent slats is 0.250 +0.15/-0.10 inch (View E-E).

SUBTASK 27-81-15-220-003

(8) If you replaced slat No 1 or No. 14 [6] or slat No 1 or No. 14 [6], make sure the clearance between the slat and the outboard fixed leading edge [172] is 0.250 +0.15/-0.10 inch (View B-B).

SUBTASK 27-81-15-220-004

(9) If you replaced slat No. 6 or No. 9 [1] or slat No. 6 or No. 9 [1], make sure the clearance between the slat and the inboard fixed leading edge [172] is 0.250 +0.15/-0.05 inch (View C-C).

SUBTASK 27-81-15-820-004

(10) If the clearance between the adjacent slats or the slat and the fixed leading edge [172] is not in the tolerance, adjust the washers [20] or washers [32] on the main tracks [10] (Figure 401):

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) On slat No 1 or No. 14 [6] or slat No. 2 or No. 13 [5] adjust the clearance between the washers [21] and the bushings [9] in the main tracks [10]:

1) Remove the nuts [12], washers [21], washers [11] and bolts [22].

2) Move some of the washers [20] from one side of the main track [10] to the other side.

3) Install the bolts [22], washers [21], washers [11], washers [20] and nuts [12].

4) Tighten the nuts [12] 510 in-lb (58 N·m).

5) Make sure the clearance between the washers [21] and the bushing in the main track [10] is a minimum of 0.010 inch.

6) Loosen the nuts [12] until you can install the cotter pins [8].

a) Make sure the torque is more than 290 in-lb (33 N·m).

7) Install the cotter pins [8].

(e) On slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2] or slat No. 6 or No. 9 [1], adjust the clearance between the washers [21] and the bushings [9] in the main tracks [10]:

1) Remove the nuts [12], washers [20], washers [21] and bolts [22].

2) Move some of the washers [20] from one side of the main track [10] to the other side.

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3) Install the bolts [22], washers [11], washers [21],washers [20] and nuts [12].

4) Tighten the nuts [12] 850 in-lb (96 N·m).

5) Make sure the clearance between the washer [21] and the bushing in the main track [10] is a minimum of 0.010 inch.

6) Loosen the nuts [12] until you can install the cotter pins [8].

   a) Make sure the torque is more than 480 in-lb (54 N·m).

7) Install the cotter pins [8].

SUBTASK 27-81-15-440-001

(11) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-15-980-001

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(12) Use the alternate system to electrically extend the slat to 6.00 ±0.15 inches from the retracted position. To extend the slat, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

NOTE: This will extend the slat 8.75 ±0.25 degrees. The SLAT POS indications on the EICAS maintenance page will be 104.6 ±4.5. If you extend the slat manually, turn the torque tube 38.5 ±1 turns. You can measure the distance from the trailing edge of slat No. 6 to the mark on the fixed leading edge [172].

SUBTASK 27-81-15-040-003

WARNING

DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(13) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-820-005

CAUTION

MAKE SURE YOU FOLLOW THE RIGGING DIMENSIONS SHOWN BELOW. THE STRUCTURAL CONDITION OF THE LEADING EDGE SLATS CAN BE AFFECTED BY THE SLAT ADJUSTMENT. IF THE DIMENSIONS ARE NOT FOLLOWED, YOU CAN CAUSE DAMAGE TO THE SLATS AND TO THE FIXED LEADING EDGE.

(14) Adjust the eccentric bushings on the main tracks until the clearance between the trailing edge of the slat and the fixed leading edge [172] is in the limits shown in (Table 403) for the applicable load condition (View D-D) (Figure 409):

NOTE: Measure the clearance in the limit of three inches from the center of the main tracks. When you move the index mark [144] forward, the clearance gets smaller.

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Table 403/27-81-15-993-810

Slat Preload Clearance Dimensions		
Airplane Load Condition	**Slats 1, 2, 13 and 14**	**Slats 3, 4, 5, 6, 9, 10, 11 and 12**
On Wing and Body Jacks *[1]	0.076 +0.050 / -0.010 in. (1.930 +1.270 / -0.254 mm)	0.076 ±0.010 in. (1.930 ±0.254 mm)
On Landing Gear, No Fuel in Main Tanks *[2]	0.086 +0.050 / -0.010 in. (2.184 +1.270 / -0.254 mm)	0.086 ±0.010 in. (2.184 ±0.254 mm)
On Landing Gear, Full Fuel in Main Tanks *[2]	0.062 +0.050 / -0.010 in. (1.575 +1.270 / -0.254 mm)	0.062 ±0.010 in. (1.575 ±0.254 mm)

*[1] If the wing jacks are Not Used, use the Dimensions for On Landing Gear Condition.

*[2] If the airplane has a different amount of fuel, you can interpolate between the No Fuel, and the Full Fuel conditions.

(a) Loosen the nut [145] on the eccentric bushing [147] (Figure 406 or Figure 407).

(b) Remove the nuts [148], washers [143] and bolt [142] that attach the keys [141] to the main track [10].

(c) Use the large socket and small sockets, which are part of the leading edge slat installation rigging equipment, SPL-1721, to adjust the eccentric bushings [147].

(d) Measure the clearance between the slat and the fixed leading edge [172] for a minimum of 8 inches forward of the trailing edge, along the full length of the slat.

(e) If the clearance is not a minimum of 0.004 inch, then adjust the clearance:

1) Use the sockets, to adjust the eccentric bushings [147] the minimum amount until the clearance is a minimum of 0.004 inch.

2) Make sure the clearance between the trailing edge of the slat and the fixed leading edge [172] is still in the limit shown in (Table 403).

NOTE: Measure the clearance in the limit of 3 inches from the center of the main tracks. Keep the clearance as close to the nominal dimension as possible.

(f) Install the keys [141] on the eccentric bushings [147].

NOTE: If the bolt holes for the locking keys do not align, you can turn the locking keys so the opposite surface is against the main track.

(g) Install the bolt [142], washers [143] and nut [148] that attach the keys [141] to the main tracks [10].

(h) Tighten the nut [145] to 280-350 pound-inches.

(i) Install the cotter pin [146].

SUBTASK 27-81-15-440-002

(15) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-15-860-004

(16) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

NOTE: Make sure the trailing edge of slat No. 6 or No. 9 [1] aligns with the mark on the fixed leading edge [172] in the limit of ±0.1 inch.

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SUBTASK 27-81-15-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(17) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-420-005

(18) On slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2] or slat No. 6 or No. 9 [1], install the rollers [149] on the slat (Figure 406 or Figure 407):

(a) Install the bolts [151], washers [150], washers [154], washers [155] and nuts [153] to attach the rollers [149] to the slat.

(b) Tighten the nuts [153] to 290-510 pound-inches.

(c) Install the cotter pins [152].

SUBTASK 27-81-15-220-005

(19) On slat No. 3 or No. 12 [4], slat No. 4 or No. 11 [3], slat No. 5 or No. 10 [2] or slat No. 6 or No. 9 [1], measure the clearance between the rollers [149] and the deflection control tracks [160].

SUBTASK 27-81-15-820-006

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(20) If the clearance is not in the limit of 0.02 ±0.01 inch, adjust the thickness of the shims [156]:

(a) Remove the nuts [153], washers [150], washers [154], washers [155] and bolts [151] that attach the rollers [149] to the slat.

(b) Remove the bolt [158] and bolts [159] that attach the deflection control track [160] to the deflection control rib [157].

(c) Change the thickness of the shims [156].

(d) Apply Cor-Ban 27L Compound, G50237 to the mating surfaces on the deflection control rib [157], shims [156] and deflection control track [160].

(e) Put the shims [156] and the deflection control tracks [160] in their position on the deflection control rib [157].

(f) Apply corrosion preventive compound, C00308 to the bolt [158] and bolts [159].

(g) Install the bolt [158] and bolts [159].

(h) Tighten the bolt [158] and bolts [159] 25 in-lb (3 N·m) to 35 in-lb (4 N·m).

(i) Install the bolts [151], washers [150], washers [154], washers [155] and nuts [153] that attach the rollers [149] to the slat.

(j) Tighten the nuts [153] 510 in-lb (58 N·m).

(k) Loosen the nuts [153] until you can install the cotter pins [152].

1) Make sure the torque on the nuts [153] is more than 290 in-lb (33 N·m).

SUBTASK 27-81-15-440-003

(21) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-15-860-005

(22) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

J. Outboard Leading Edge Slat Alignment

SUBTASK 27-81-15-200-014

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Make sure that the housing (can) assemblies of the slat main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

SUBTASK 27-81-15-440-004

(2) If the slats are not activated, do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-15-860-006

(3) Retract the leading edge slats to the sealed position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-15-210-004

(4) Make sure the trailing edge of the slat touches the fixed leading edge [172].

SUBTASK 27-81-15-860-017

(5) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-15-210-011

(6) Make sure the trailing edge of the slat touches the fixed leading edge [172].

SUBTASK 27-81-15-040-005

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-820-007

(8) Push in the rig pin [82] and install the ground lock pin [80] in the power drive unit [78] (Figure 405).

NOTE: This will make sure the slat drive system is in the retracted position.

SUBTASK 27-81-15-820-012

(9) If you cannot push in the rig pin [82], then adjust the position of the slat power drive unit [78]:

(a) Use the wrench flats on the torque tube [76] to manually turn the power drive unit [78] in the extend direction approximately one turn of the torque tube [76].

NOTE: This step is necessary to remove the backlash in the slat drive system.

(b) Manually turn the power drive unit [78] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

(c) Push in the rig pin [82] on the power drive unit [78] and hold it.

(d) Install the ground lock pin [80] in the rig pin [79].

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(e) Make sure the power drive unit [78] is locked in this position:

NOTE: If the power drive unit [78] is not locked in this position, move the power drive unit [78] to the retracted position again.

(f) Manually try to turn the power drive unit [78] in the retract direction.

(g) Manually try to turn the power drive unit [78] in the extend direction.

SUBTASK 27-81-15-220-006

(10) At the inboard and outboard ends of the slat, measure the mismatch between the slat and the adjacent slat or the fixed structure (Figure 409).

NOTE: Measure the mismatch in a three inch area around the slat bullnose.

SUBTASK 27-81-15-820-008

(11) If the mismatch between adjacent slats or the fixed structure is not in the limit of 0.00 ±0.14 in. (0.00 ±3.56 mm), adjust the position of the end of the slat which is further retracted:

If the mismatch between adjacent slats or the fixed structure is not in the limit of 0.00 ±0.14 in. (0.00 ±3.56 mm), adjust the position of the end of the slat which is further retracted:

NOTE: The maximum permitted adjustment of a slat is 0.15 inch (0.95 torque tube turns).

(a) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube [76] outboard of the applicable slat.

(b) Disconnect the torque tubes [76] from the offset gearbox [77] on the end of the slat that does not align (Figure 405):

1) Remove the screws [73] from the coupling sleeves [74].

2) Move the coupling sleeves [74] off the splined couplings [72].

(c) Adjust the position of the slat:

1) Turn the coupling sleeve [74] on the offset gearbox [77] in the extend direction to move the slat 0.27 to 0.40 inch (1.7 to 2.35 torque tube turns).

NOTE: This step is necessary to extend the slat past the adjacent structure or slat so you can retract it until it aligns.

2) Manually turn the coupling sleeve [74] in the retract direction until the mismatch is in the limit.

(d) Connect the torque tubes [76] to the applicable offset gearboxes [77]:

1) Apply grease, D00633 to the coupling sleeves [74].

2) Put the coupling sleeves [74] on the splined couplings [72].

3) Install the screws [73] to attach the coupling sleeves [74].

4) Tighten the screws [73].

NOTE: Do not over tighten the screws [73].

5) Install lockwire on the screws [73].

(e) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 outboard of the slat.

SUBTASK 27-81-15-080-001

(12) Remove the ground lock pin [80] and let the rig pin [82] come out of the power drive unit [78].

NOTE: Make sure you can see the stripe [81] on the rig pin.

SUBTASK 27-81-15-440-005

(13) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-15-860-008

(14) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-15-040-006

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(15) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-020-009

(16) If you installed a slat No. 2 thru 6 or 9 thru 13, do this task: Outboard Slat Skew Cable Installation, TASK 27-89-13-400-801.

SUBTASK 27-81-15-420-006

(17) If you installed slat No. 3 thru 5 or 10 thru 12, connect the wing anti-ice ducts [51] between the slats (Figure 402):

(a) Move the vibreaker assembly [52] inboard until it is on the wing anti-ice ducts [51] in the two slats.

(b) Install the screws [53] and washers [54] to attach the retainer assembly [55] and the wing anti-ice duct [51] to the slat.

(c) Install the bolts [56], washers [57] and nuts [58] that attach the two halves of the retainer assembly [55].

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(d) Make sure that the housing (can) assemblies of the slat main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

(e) Install the applicable panels for the wing anti-ice ducts [51] (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807), do this step:

1) Install the access panels with Dow Corning 93-006-1 RF sealant, A00900 (preferred) or Dow Corning 93-006-6 Sealant, A50198 (alternate) on all mating surface.

2) On slat No. 3, close this access panel:

Number	Name/Location
525AT	Slat No. 3 WAI Access Panel

3) On slat No. 4, close these access panels:

Number	Name/Location
524AT	Slat No. 4 TAI Access Panel
524JT	Slat No. 4 WAI Access Panel

4) On slat No. 5, close these access panels:

Number	Name/Location
523AT	Slat No. 5 Cove Access Panel

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(Continued)

Number	Name/Location
523JT	Slat No. 5 TAI Access Panel

5) On slat No. 6, close this access panel:

Number	Name/Location
522JT	Slat No. 6 WAI Access Panel

6) On slat No. 9, close this access panel:

Number	Name/Location
622JT	Slat No. 9 WAI Access panel

7) On slat No. 10, close these access panels:

Number	Name/Location
623AT	Slat No. 10 WAI Access Panel
623JT	Slat No. 10 WAI Access Panel

8) On slat No. 11, close these access panels:

Number	Name/Location
624AT	Slat No. 11 TAI Access Panel
624JT	Slat No. 11 TAI Access Panel

9) On slat No. 12, close this access panel:

Number	Name/Location
625AT	Slat No. 12 TAI Access Panel

SUBTASK 27-81-15-410-002

(18) If you installed a slat No. 6 or No. 9 [1], do this task: Wing Anti-Ice T-Duct Installation, TASK 30-11-05-400-801.

SUBTASK 27-81-15-200-011

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(19) Make sure that the housing (can) assemblies of the slat main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

SUBTASK 27-81-15-410-004

(20) Install the applicable fixed leading edge [172] panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807), do this step:

(a) Install the access panels with Dow Corning 93-006-1 RF sealant, A00900 (preferred) or Dow Corning 93-006-6 Sealant, A50198 (alternate) on all mating surface.

(b) For slat No. 1, install the applicable access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

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(c) For slat No. 2, install the applicable access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(d) For slat No. 3, install the applicable access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(e) For slat No. 4, install the applicable access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(f) For slat No. 5, install the applicable access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(g) For slat No. 6, install the applicable access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 9, install the applicable access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(i) For slat No. 10, install the applicable access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(j) For slat No. 11, install the applicable access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(k) For slat No. 12, install the applicable access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(l) For slat No. 13, install the applicable access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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(m) For slat No. 14, install the applicable access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-15-440-006

(21) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-15-860-009

(22) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-15-040-007

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(23) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-220-007

(24) Measure the clearance between the flexible panel [192] on the lower trailing edge of the slat and the fixed leading edge [172] (Figure 410):

SUBTASK 27-81-15-820-009

(25) If the clearance is not in the limit of 0.030 to 0.1200 inch, or if the flexible panel [192] does not touch the fixed structure, then adjust the position of the flexible panel [192]:

NOTE: When you measure the clearance after the adjustment is complete, the clearance can be 0.030 to 0.1800 inch.

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Loosen the nuts [191] that hold the flexible panel [192].

(e) Move the flexible panel [192].

(f) Tighten the nuts [191].

(g) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(h) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

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WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(i) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(j) Make sure the clearance between the flexible panel [192] and the fixed leading edge [172] is in the limit of 0.030 to 0.1200 inch:

(k) Apply sealant, A02315 to fill the space between the flexible panel [192] and the slat.

SUBTASK 27-81-15-210-006

(26) On slats No. 1 thru 5 or 10 thru 14, make sure the main track doors [195] are adjusted correctly:

(a) Measure the clearance between the main track doors [195] and the fixed leading edge [172] at the sides and aft edge of the main track door [195].

1) If the clearance at the aft edge is not in the limit of 0.0300 to 0.1200 inch, then adjust the position of the main track door [195].

NOTE: When you measure the clearance after the adjustment is complete, the clearance can be 0.0300 to 0.1800 inch.

2) If the clearance at the sides of the main track door [195] is not in the limit of 0.050 to 0.200 inch, then adjust the position of the main track door [195].

(b) If the main track doors [195] are not preloaded against the fixed leading edge [172] panels and the doors have an adjustable bracket [193], then adjust the preload of the main track doors [195].

(c) If the main track doors [195] do not have adjustable bracket [193] and mismatch is less than 0.0600 inch, no adjustment is required.

SUBTASK 27-81-15-820-010

(27) Adjust the main track doors [195] if it is necessary:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) If it is necessary, adjust the position of the main track door [195]:

1) Loosen the nuts [196] that hold the main track door [195] to the bracket [193].

2) Loosen the nuts [191] that hold the main track door [195] to the applicable slat.

3) Move the main track door [195] to get the clearances in the limits.

4) Tighten the nuts [191] and nuts [196].

(e) If it is necessary, adjust the preload of the main track door [195]:

1) Loosen the nut [14] for the main track link [15] that attaches the bracket [193].

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2) Turn the bracket [193] to make sure the main track door [195] touches the fixed leading edge [172] panel.

3) Tighten the nut [14] to 690 pound-inches.

4) Loosen the nut [14] until you can install the cotter pin [17].

NOTE: Make sure the torque on the nut [14] is more than 370 pound-inches.

WARNING

DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(f) Make sure that the housing (can) assemblies of the slat main tracks [10] are kept clean and free of all unwanted objects (FOD), at all time.

(g) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(h) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(i) Make sure the clearances on the sides and aft edge of the main track door [195] are in the limits.

(j) Make sure the main track door [195] is preloaded against the fixed leading edge [172] panels.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-15-410-003

(1) Install this access panel:

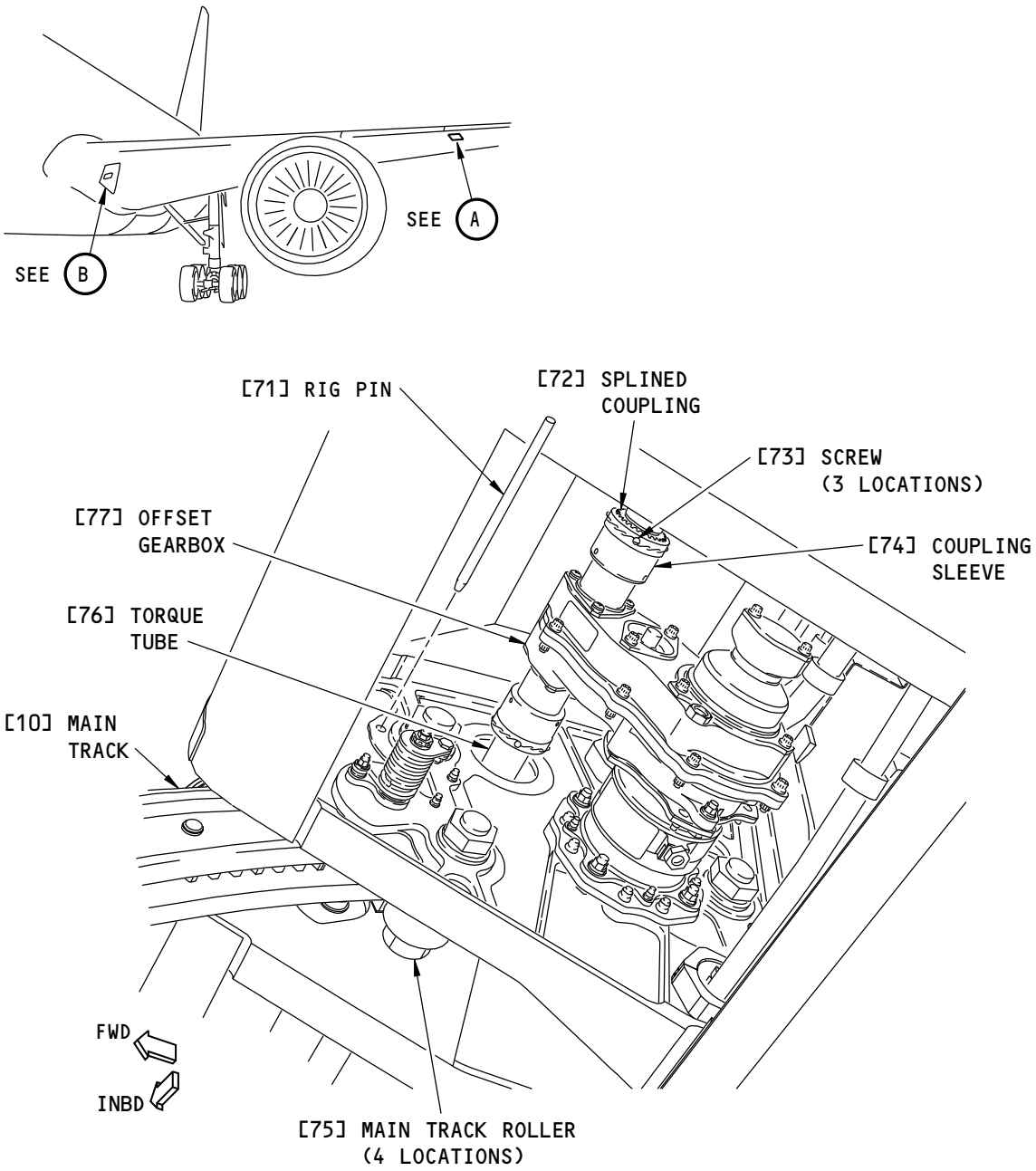
Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-15-440-007

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

END OF TASK

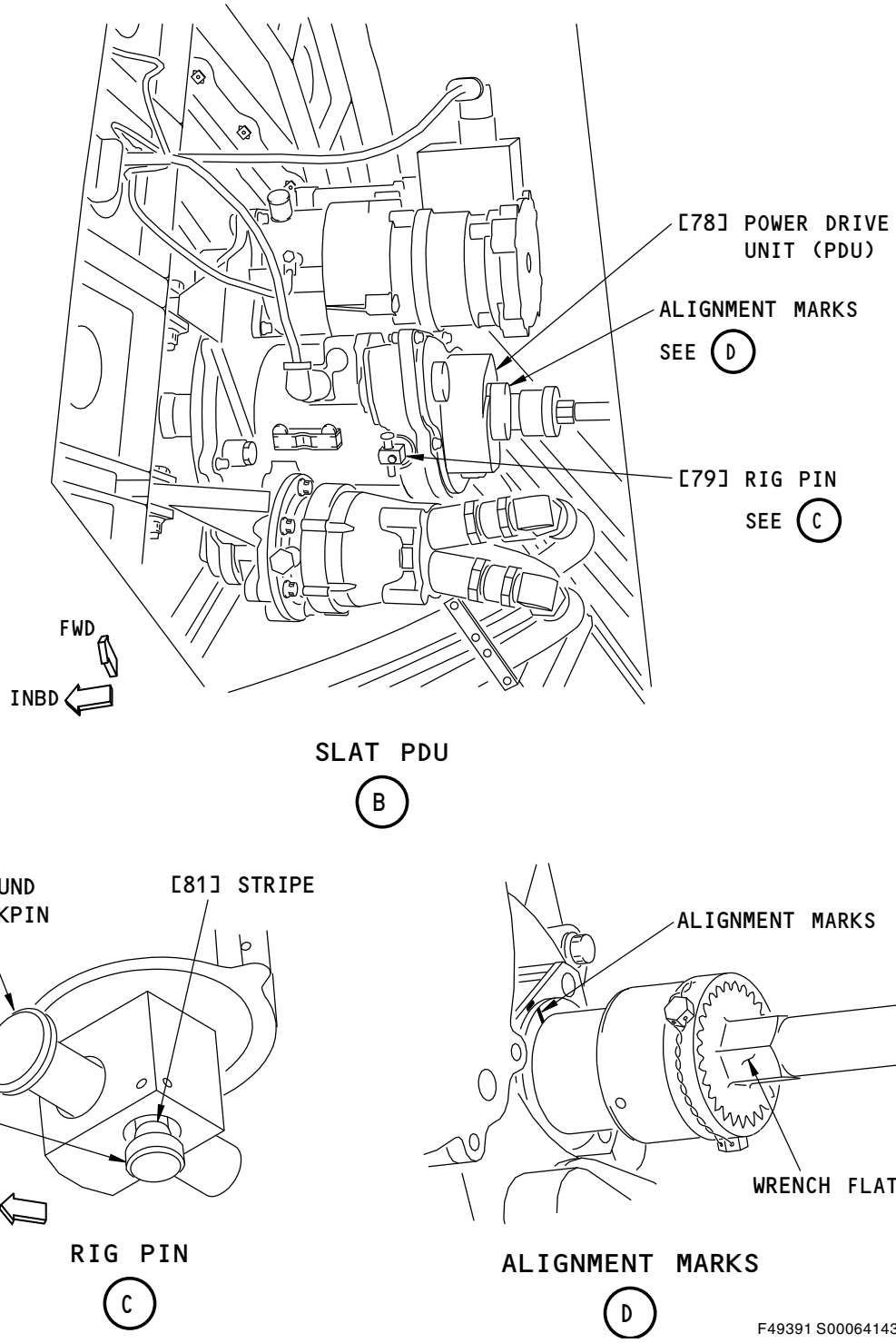
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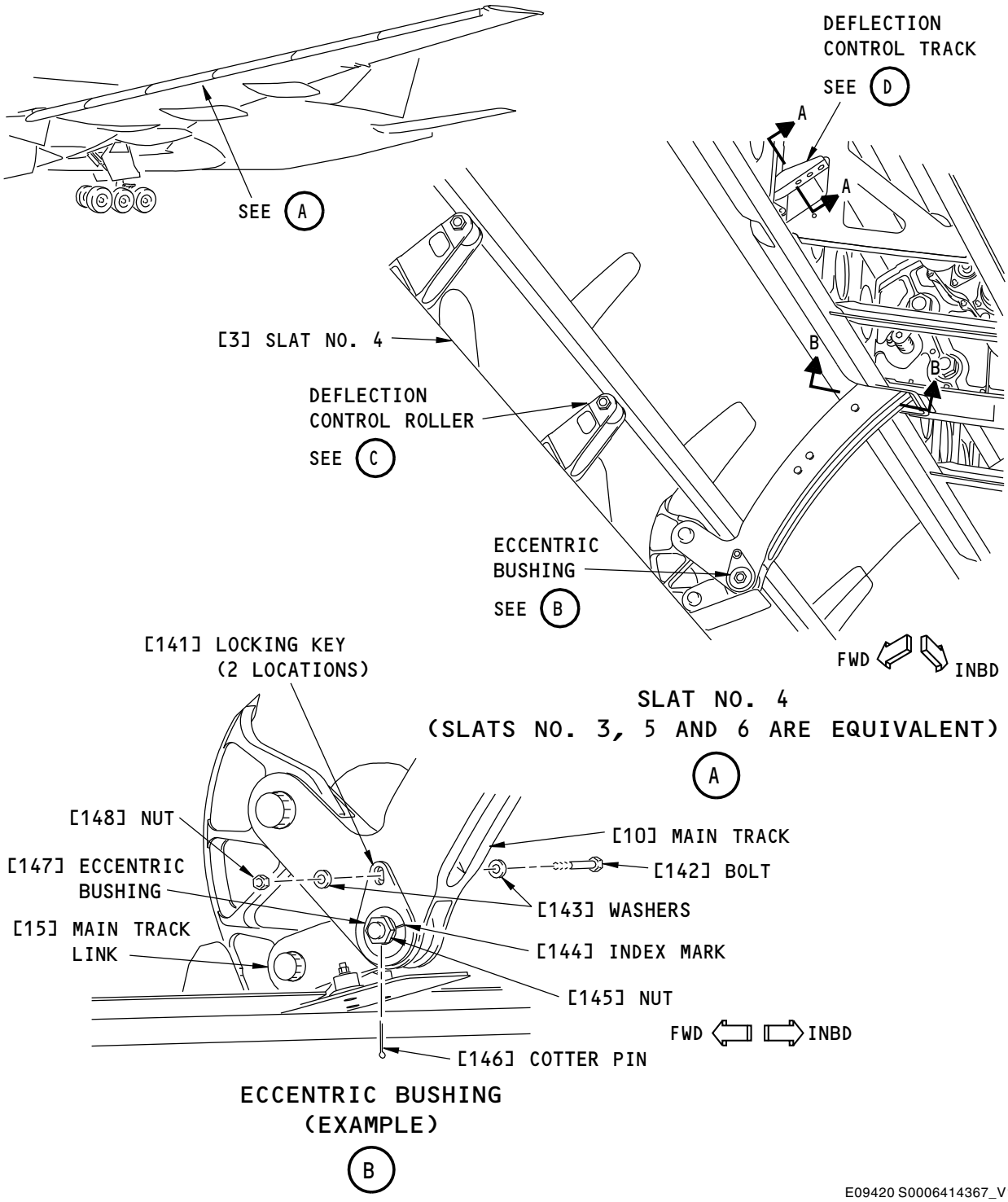
Outboard Slat Manual Operation
Figure 405/27-81-15-990-805 (Sheet 1 of 2)

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Outboard Slat Manual Operation
Figure 405/27-81-15-990-805 (Sheet 2 of 2)

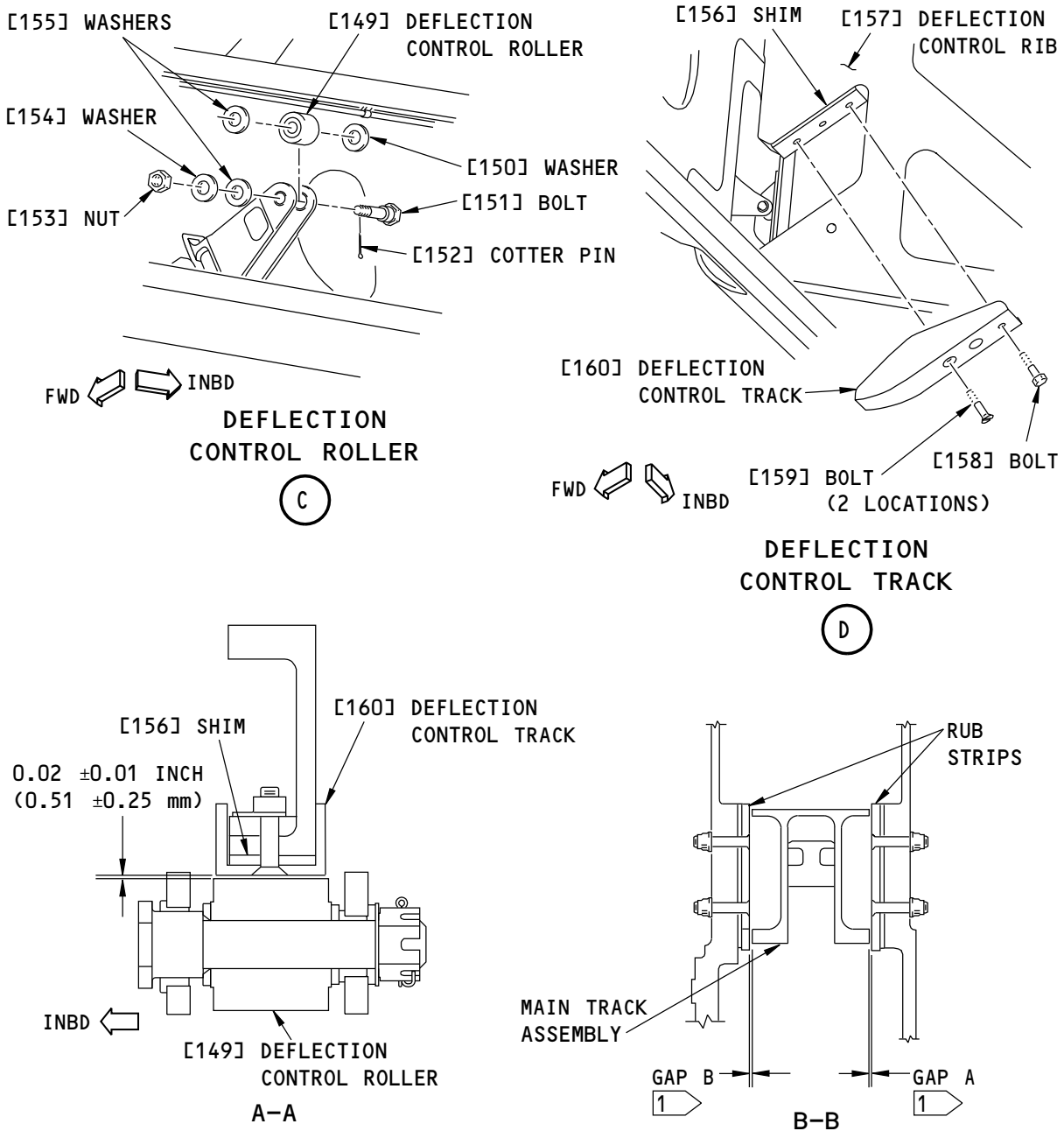
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Outboard Slat Preload Adjustment
Figure 406/27-81-15-990-806 (Sheet 1 of 2)

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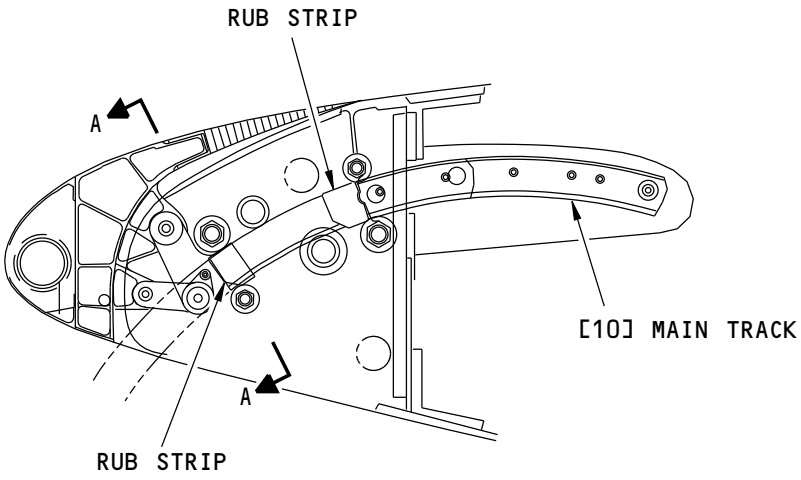


1 MAKE SURE SLAT TRACK MOVES FREELY AND PARALLEL. IF NECESSARY ADJUST SHIMS SO GAP "A" PLUS GAP "B" IS BETWEEN 0.008 AND 0.060 INCH (0.21 AND 1.50 mm).

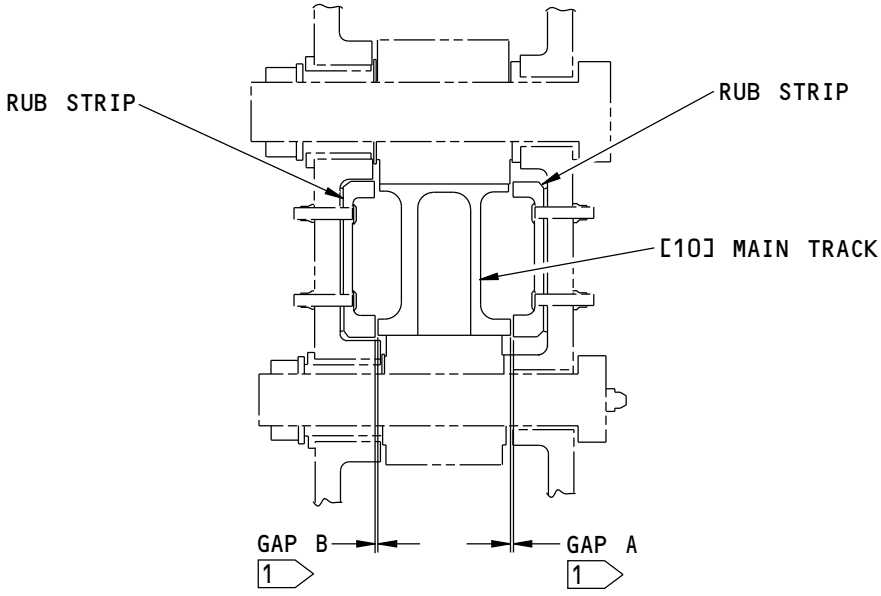
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Outboard Slat Preload Adjustment
Figure 406/27-81-15-990-806 (Sheet 2 of 2)

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OUTBOARD SLAT AND RUB STRIP



A–A

1 MAKE SURE SLAT TRACK MOVES FREELY AND PARALLEL. IF NECESSARY ADJUST SHIMS SO GAP "A" PLUS GAP "B" IS BETWEEN 0.008 AND 0.060 INCH (0.21 AND 1.50 mm).

D42274 S0000156659_V1

Main Track and Rub Strip Clearance
Figure 407/27-81-15-990-815

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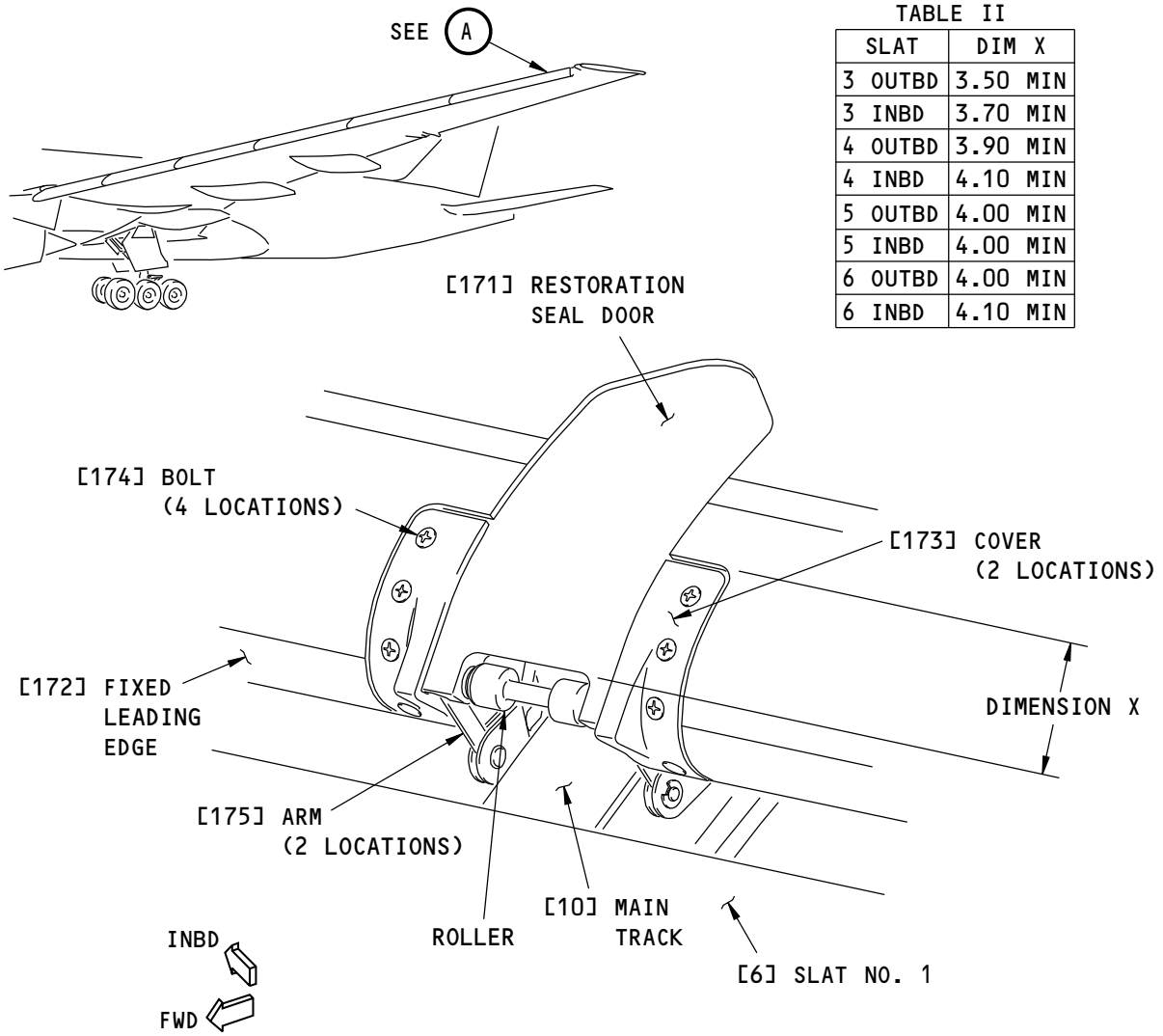


TABLE II

SLAT	DIM X
3 OUTBD	3.50 MIN
3 INBD	3.70 MIN
4 OUTBD	3.90 MIN
4 INBD	4.10 MIN
5 OUTBD	4.00 MIN
5 INBD	4.00 MIN
6 OUTBD	4.00 MIN
6 INBD	4.10 MIN

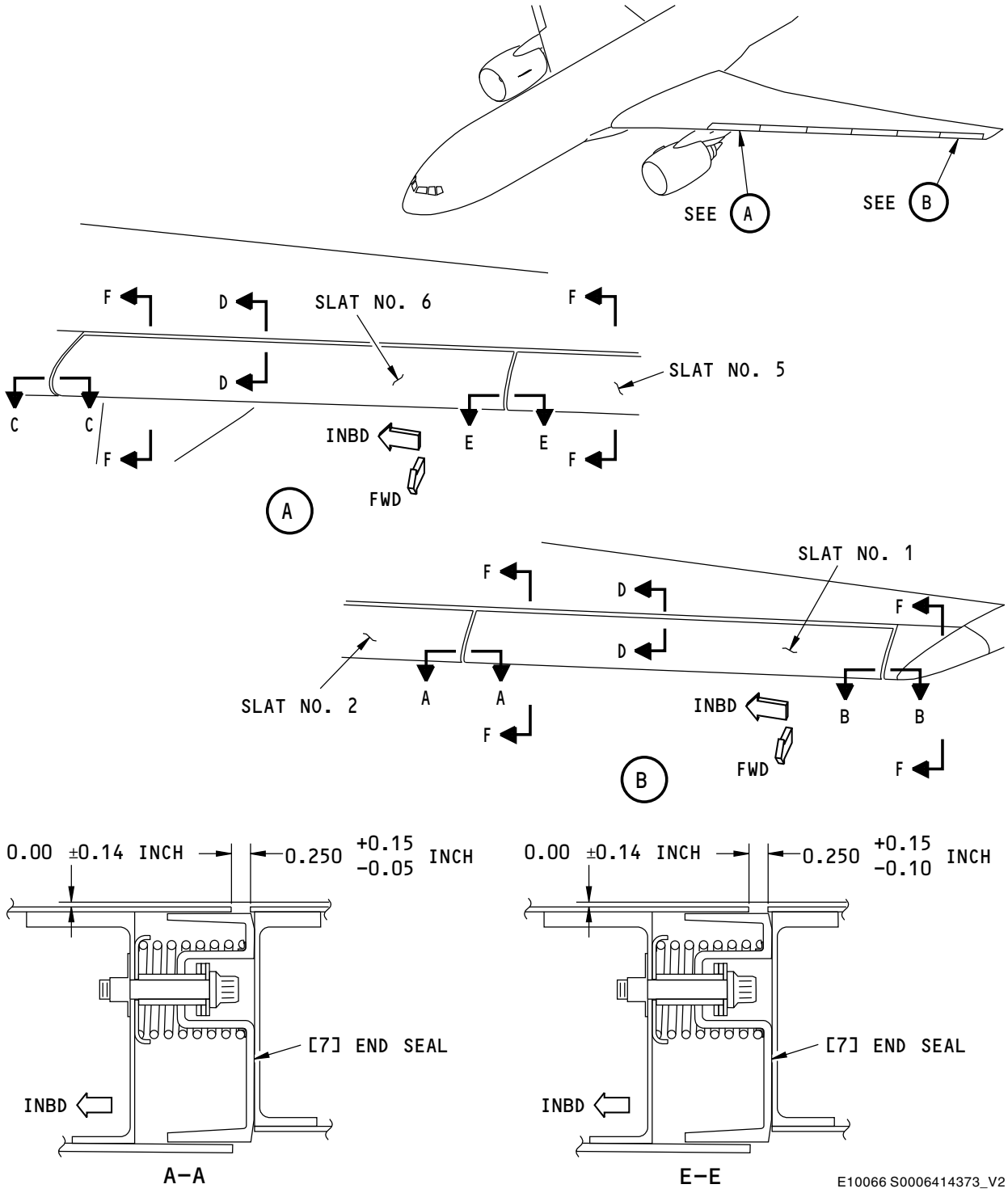
RESTORATION SEAL DOOR
A

NOTE: RIGHT HAND SIDE SLATS ARE INSTALLED / RIGGED SAME AS LEFT HAND SIDE SLATS. RIGHT HAND SLATS ARE OMITTED FROM SLAT INSTALLATION / RIGGING PROCEDURE FOR CLARITY / SIMPLIFICATION.

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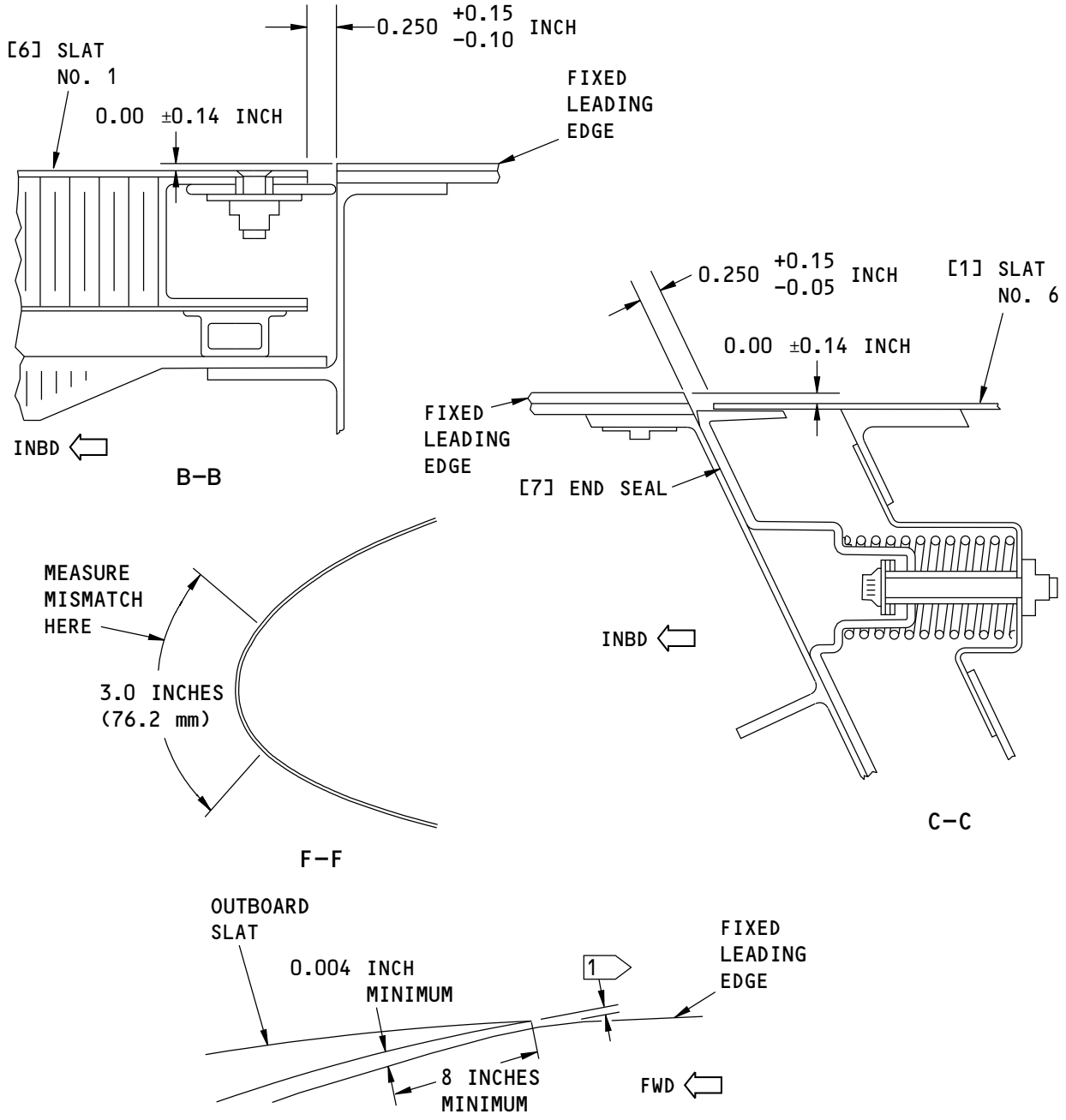
Outboard Leading Edge Slat - Restoration Seal
Figure 408/27-81-15-990-807

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Outboard Leading Edge Slat Clearance
Figure 409/27-81-15-990-808 (Sheet 1 of 2)

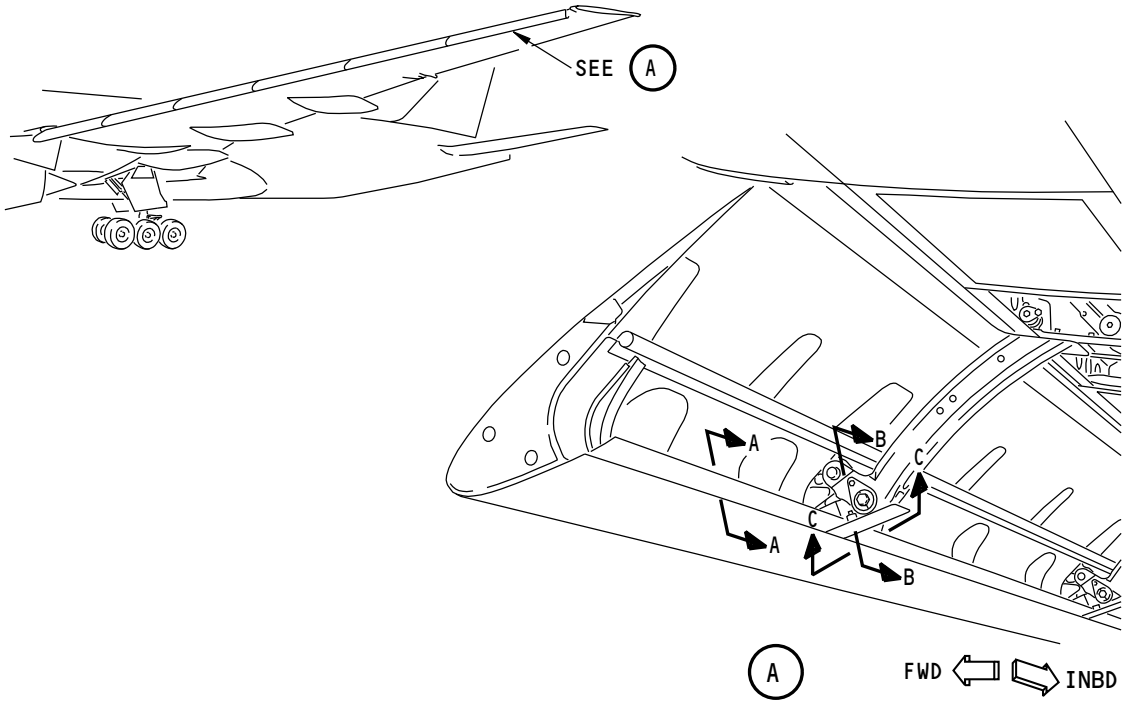
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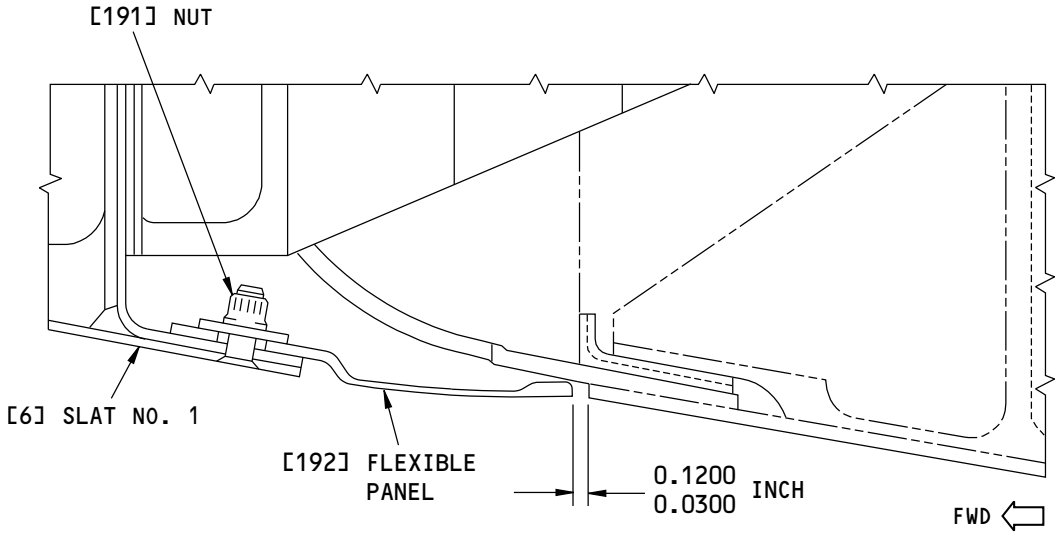


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Outboard Leading Edge Slat Clearance
Figure 409/27-81-15-990-808 (Sheet 2 of 2)

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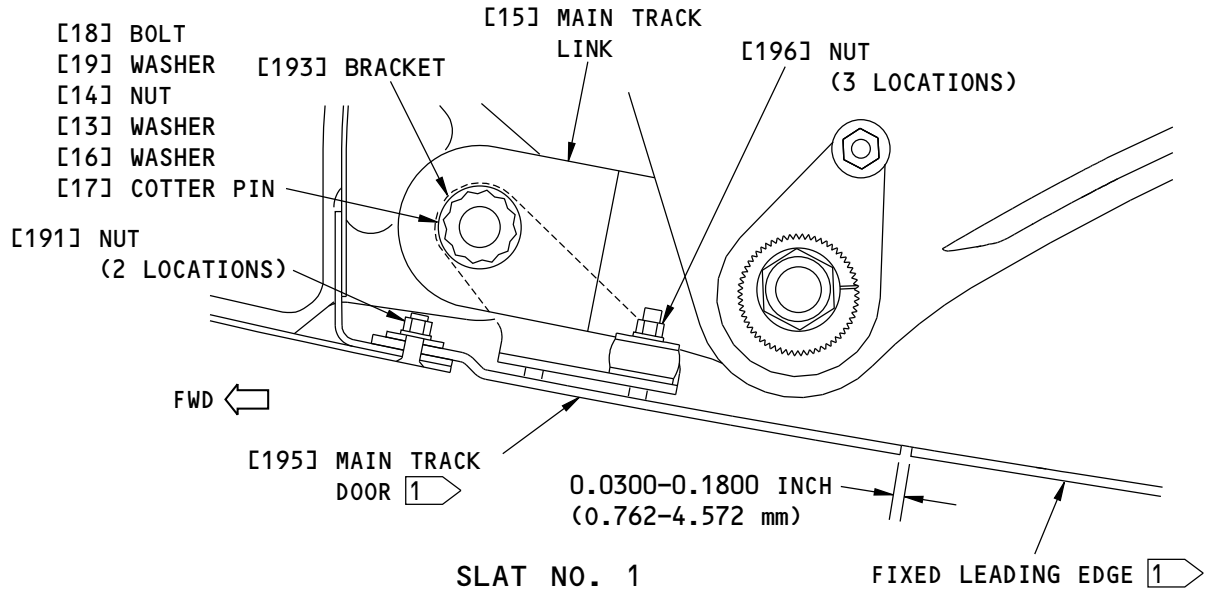


SLAT NO. 1
(SLATS NO. 2 THROUGH 6 ARE EQUIVALENT)
A-A

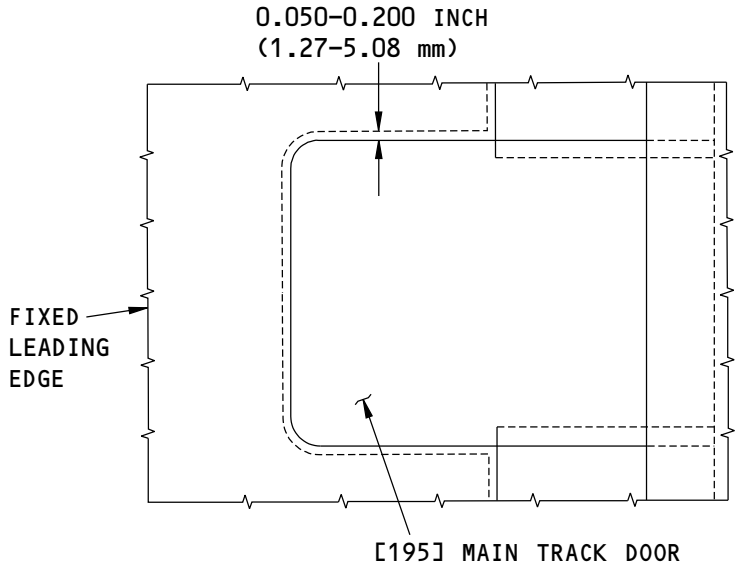
E10933 S0006414386_V1

Outboard Slat Flexible Panels and Doors
Figure 410/27-81-15-990-809 (Sheet 1 of 2)

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SLAT NO. 1
(SLAT SHOWN IN RETRACTED POSITION)
(SLATS NO. 2 THROUGH 5 ARE EQUIVALENT)
B-B



C-C

1 PERMITTED MISMATCH BETWEEN MAIN TRACK DOOR SURFACE AND FIXED LEADING EDGE IS 0.00 TO -0.06 INCH (0.00 -1.524 mm).

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Outboard Slat Flexible Panels and Doors
Figure 410/27-81-15-990-809 (Sheet 2 of 2)

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OUTBOARD LEADING EDGE SLAT - INSPECTION/CHECK

1. General

A. This procedure has these tasks:

(1) A task to inspect the cove skin on the outboard slats for cracks.

(2) A task to inspect the internal areas on the outboard slat for cracks.

B. These inspections accomplish the intent of the inspections in Boeing Service Bulletin 777-57A0034.

C. There are six outboard slats on each wing, this procedure is applicable to all of them.

TASK 27-81-15-200-801

2. Outboard Leading Edge Slat Cove Skin Inspection

(Figure 601)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-15-000-801	Outboard Leading Edge Slat Removal (P/B 401)
27-81-15-400-801	Outboard Leading Edge Slat Installation (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)
SRM 57-43-01	Structural Repair Manual

B. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

C. Prepare for the Inspection

SUBTASK 27-81-15-040-008

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-15-860-010

(2) Extend the slats to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

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SUBTASK 27-81-15-040-009

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-200-005

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(4) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

D. Outboard Leading Edge Slat Cove Skin Inspection

SUBTASK 27-81-15-210-007

(1) Do a detailed visual inspection of the cove skin of the outboard slats for cracks:

(a) When you inspect the cove skin, give extra attention to these areas of the cove skin:

1) The access doors

2) The main track attachments

3) The deflection control rib locations.

SUBTASK 27-81-15-350-001

(2) If you find cracks in the cove skin, do these steps:

(a) If the crack is more than 1.5 inches in length, replace the applicable slat,

These are the tasks: Outboard Leading Edge Slat Removal, TASK 27-81-15-000-801, Outboard Leading Edge Slat Installation, TASK 27-81-15-400-801.

(b) If the crack is 1.5 inches in length or less, do these steps:

1) Do this task: Outboard Leading Edge Slat Internal Inspection, TASK 27-81-15-200-802.

2) Repair the cracks you found (SRM 57-43-01).

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-15-200-006

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-15-440-008

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-15-860-011

(3) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

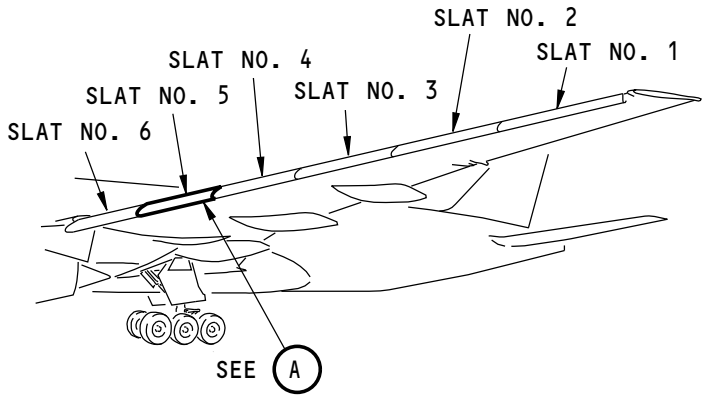
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SUBTASK 27-81-15-440-009

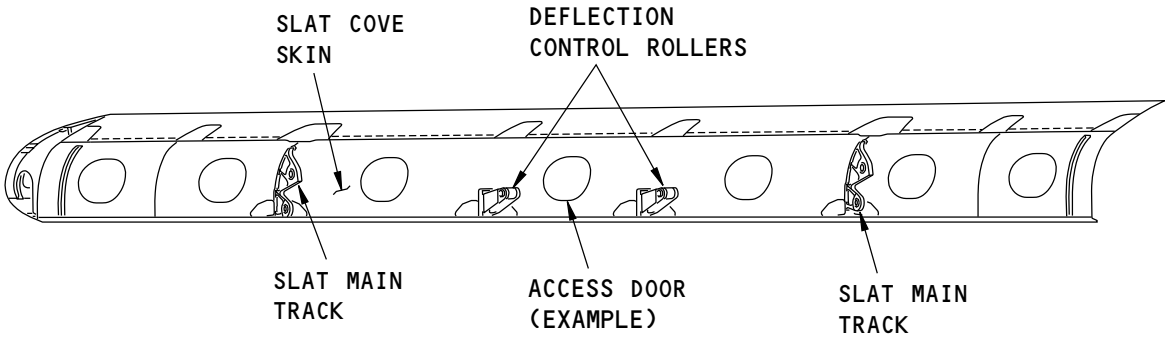
(4) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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LEFT WING
(RIGHT WING IS OPPOSITE)



SLAT NO. 5
(SLAT NO. 1, 2, 3, 4 AND 6 ARE EQUIVALENT)

A

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Outboard Leading Edge Slat Cove Skin Inspection
Figure 601/27-81-15-990-811

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TASK 27-81-15-200-802

3. Outboard Leading Edge Slat Internal Inspection

(Figure 602)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-15-000-801	Outboard Leading Edge Slat Removal (P/B 401)
27-81-15-400-801	Outboard Leading Edge Slat Installation (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1233	Borescope - Flexible, 3/16 Inch (5 mm) Diameter, Length 20 Foot (6 m) Part #: IF5D4X1-14 Supplier: 32212

C. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

D. Access Panels

Number	Name/Location
522AB	Slat No. 6 Cove Access Panel
522CB	Slat No. 6 Cove Access Panel
522DB	Slat No. 6 Cove Access Panel
522EB	Slat No. 6 Cove Access Panel
522FB	Slat No. 6 Cove Access Panel
522GB	Slat No. 6 Cove Access Panel
522HB	Slat No. 6 Cove Access Panel
523BB	Slat No. 5 Cove Access Panel
523CB	Slat No. 5 Cove Access Panel
523DB	Slat No. 5 Cove Access Panel
523EB	Slat No. 5 Cove Access Panel
523FB	Slat No. 5 Cove Access Panel
523GB	Slat No. 5 Cove Access Panel
523HB	Slat No. 5 Cove Access Panel

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(Continued)

Number	Name/Location
524AB	Slat No. 4 Cove Access Panel
524BB	Slat No. 4 Cove Access Panel
524CB	Slat No. 4 Cove Access Panel
524DB	Slat No. 4 Cove Access Panel
524EB	Slat No. 4 Cove Access Panel
524FB	Slat No. 4 Cove Access Panel
524GB	Slat No. 4 Cove Access Panel
525BB	Slat No. 3 Cove Access Panel
525CB	Slat No. 3 Cove Access Panel
525DB	Slat No. 3 Cove Access Panel
525EB	Slat No. 3 Cove Access Panel
525FB	Slat No. 3 Cove Access Panel
525GB	Slat No. 3 Cove Access Panel
525HB	Slat No. 3 Cove Access Panel
526AB	Slat No. 2 Cove Access Panel
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
526DB	Slat No. 2 Cove Access Panel
526EB	Slat No. 2 Cove Access Panel
526FB	Slat No. 2 Cove Access Panel
526GB	Slat No. 2 Cove Access Panel
527AB	Slat No. 1 Cove Access Panel
527BB	Slat No. 1 Cove Access Panel
527CB	Slat No. 1 Cove Access Panel
527DB	Slat No. 1 Cove Access Panel
527EB	Slat No. 1 Cove Access Panel
527FB	Slat No. 1 Cove Access Panel
527GB	Slat No. 1 Cove Access Panel
622AB	Slat No. 9 Cove Access Panel
622CB	Slat No. 9 Cove Access Panel
622DB	Slat No. 9 Cove Access Panel
622EB	Slat No. 9 Cove Access Panel
622FB	Slat No. 9 Cove Access Panel
622GB	Slat No. 9 Cove Access Panel
622HB	Slat No. 9 Cove Access Panel
623BB	Slat No. 10 Cove Access Panel
623CB	Slat No. 10 Cove Access Panel
623DB	Slat No. 10 Cove Access Panel
623EB	Slat No. 10 Cove Access Panel
623FB	Slat No. 10 Cove Access Panel
623GB	Slat No. 10 Cove Access Panel
623HB	Slat no. 10 Cove Access Panel
624BB	Slat No. 11 Cove Access Panel

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(Continued)

Number	Name/Location
624CB	Slat No. 11 Cove Access Panel
624DB	Slat No. 11 Cove Access Panel
624EB	Slat No. 11 Cove Access Panel
624FB	Slat No. 11 Cove Access Panel
624GB	Slat No. 11 Cove Access Panel
624HB	Slat No. 11 Cove Access Panel
625BB	Slat No. 12 Cove Access Panel
625CB	Slat No. 12 Cove Access Panel
625DB	Slat No. 12 Cove Access Panel
625EB	Slat No. 12 Cove Access Panel
625FB	Slat No. 12 Cove Access Panel
625GB	Slat No. 12 Cove Access Panel
625HB	Slat No. 12 Cove Access Panel
626AB	Slat No. 13 Cove Access Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel
626DB	Slat No. 13 Cove Access Panel
626EB	Slat No. 13 Cove Access Panel
626FB	Slat No. 13 Cove Access Panel
626GB	Slat No. 13 Cove Access Panel
627AB	Slat No. 14 Cove Access Panel
627BB	Slat No. 14 Cove Access Panel
627CB	Slat No. 14 Cove Access Panel
627DB	Slat No. 14 Cove Access Panel
627EB	Slat No. 14 Cove Access Panel
627FB	Slat No. 14 Cove Access Panel
627GB	Slat No. 14 Cove Access Panel

E. Prepare for the Inspection

SUBTASK 27-81-15-040-010

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-15-860-012

(2) Extend the slats to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

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SUBTASK 27-81-15-040-011

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-15-010-004

(4) Remove the access panels from the cove skin of the applicable outboard slats on the left wing (TASK 06-30-00-800-806):

(a) For slat No. 1, remove these access panels:

Number	Name/Location
527AB	Slat No. 1 Cove Access Panel
527BB	Slat No. 1 Cove Access Panel
527CB	Slat No. 1 Cove Access Panel
527DB	Slat No. 1 Cove Access Panel
527EB	Slat No. 1 Cove Access Panel
527FB	Slat No. 1 Cove Access Panel
527GB	Slat No. 1 Cove Access Panel

(b) For slat No. 2, remove these access panels:

Number	Name/Location
526AB	Slat No. 2 Cove Access Panel
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
526DB	Slat No. 2 Cove Access Panel
526EB	Slat No. 2 Cove Access Panel
526FB	Slat No. 2 Cove Access Panel
526GB	Slat No. 2 Cove Access Panel

(c) For slat No. 3, remove these access panels:

Number	Name/Location
525BB	Slat No. 3 Cove Access Panel
525CB	Slat No. 3 Cove Access Panel
525DB	Slat No. 3 Cove Access Panel
525EB	Slat No. 3 Cove Access Panel
525FB	Slat No. 3 Cove Access Panel
525GB	Slat No. 3 Cove Access Panel
525HB	Slat No. 3 Cove Access Panel

(d) For slat No. 4, remove these access panels:

Number	Name/Location
524AB	Slat No. 4 Cove Access Panel
524BB	Slat No. 4 Cove Access Panel
524CB	Slat No. 4 Cove Access Panel
524DB	Slat No. 4 Cove Access Panel
524EB	Slat No. 4 Cove Access Panel
524FB	Slat No. 4 Cove Access Panel
524GB	Slat No. 4 Cove Access Panel

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(e) For slat No. 5, remove these access panels:

Number	Name/Location
523BB	Slat No. 5 Cove Access Panel
523CB	Slat No. 5 Cove Access Panel
523DB	Slat No. 5 Cove Access Panel
523EB	Slat No. 5 Cove Access Panel
523FB	Slat No. 5 Cove Access Panel
523GB	Slat No. 5 Cove Access Panel
523HB	Slat No. 5 Cove Access Panel

(f) For slat No. 6, remove these access panels:

Number	Name/Location
522AB	Slat No. 6 Cove Access Panel
522CB	Slat No. 6 Cove Access Panel
522DB	Slat No. 6 Cove Access Panel
522EB	Slat No. 6 Cove Access Panel
522FB	Slat No. 6 Cove Access Panel
522GB	Slat No. 6 Cove Access Panel
522HB	Slat No. 6 Cove Access Panel

SUBTASK 27-81-15-010-005

(5) Remove the access panels from the cove skin of the applicable outboard slats on the right wing (TASK 06-30-00-800-807):

(a) For slat No. 14, remove these access panels:

Number	Name/Location
627AB	Slat No. 14 Cove Access Panel
627BB	Slat No. 14 Cove Access Panel
627CB	Slat No. 14 Cove Access Panel
627DB	Slat No. 14 Cove Access Panel
627EB	Slat No. 14 Cove Access Panel
627FB	Slat No. 14 Cove Access Panel
627GB	Slat No. 14 Cove Access Panel

(b) For slat No. 13, remove these access panels:

Number	Name/Location
626AB	Slat No. 13 Cove Access Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel
626DB	Slat No. 13 Cove Access Panel
626EB	Slat No. 13 Cove Access Panel
626FB	Slat No. 13 Cove Access Panel
626GB	Slat No. 13 Cove Access Panel

(c) For slat No. 12, remove these access panels:

Number	Name/Location
625BB	Slat No. 12 Cove Access Panel
625CB	Slat No. 12 Cove Access Panel
625DB	Slat No. 12 Cove Access Panel
625EB	Slat No. 12 Cove Access Panel

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Number	Name/Location
625FB	Slat No. 12 Cove Access Panel
625GB	Slat No. 12 Cove Access Panel
625HB	Slat No. 12 Cove Access Panel

(d) For slat No. 11, remove these access panels:

Number	Name/Location
624BB	Slat No. 11 Cove Access Panel
624CB	Slat No. 11 Cove Access Panel
624DB	Slat No. 11 Cove Access Panel
624EB	Slat No. 11 Cove Access Panel
624FB	Slat No. 11 Cove Access Panel
624GB	Slat No. 11 Cove Access Panel
624HB	Slat No. 11 Cove Access Panel

(e) For slat No. 10, remove these access panels:

Number	Name/Location
623BB	Slat No. 10 Cove Access Panel
623CB	Slat No. 10 Cove Access Panel
623DB	Slat No. 10 Cove Access Panel
623EB	Slat No. 10 Cove Access Panel
623FB	Slat No. 10 Cove Access Panel
623GB	Slat No. 10 Cove Access Panel
623HB	Slat no. 10 Cove Access Panel

(f) For slat No. 9, remove these access panels:

Number	Name/Location
622AB	Slat No. 9 Cove Access Panel
622CB	Slat No. 9 Cove Access Panel
622DB	Slat No. 9 Cove Access Panel
622EB	Slat No. 9 Cove Access Panel
622FB	Slat No. 9 Cove Access Panel
622GB	Slat No. 9 Cove Access Panel
622HB	Slat No. 9 Cove Access Panel

SUBTASK 27-81-15-200-007

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(6) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

F. Outboard Leading Edge Slat Internal Inspection

SUBTASK 27-81-15-210-008

(1) Do a detailed visual inspection of the internal parts of the outboard slats for cracks:

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(a) When you inspect the internal areas of the slat, give extra attention to these areas:

NOTE: It is recommended that you use a 5 mm borescope, COM-1233 to inspect the aft area near the main track, and the trailing edge wedge front spar.

1) The main track ribs
2) The trailing edge wedge front spar
3) The deflection control ribs.

SUBTASK 27-81-15-350-002

(2) If you find cracks in the slat, replace the applicable slat,

These are the tasks:

Outboard Leading Edge Slat Removal, TASK 27-81-15-000-801,

Outboard Leading Edge Slat Installation, TASK 27-81-15-400-801.

G. Put the Airplane Back to its Usual Condition

SUBTASK 27-81-15-200-008

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-15-010-006

(2) Install the access panels on cove skin of the applicable outboard slats on the left wing (TASK 06-30-00-800-806):

(a) For slat No. 1, install these access panels:

Number	Name/Location
527AB	Slat No. 1 Cove Access Panel
527BB	Slat No. 1 Cove Access Panel
527CB	Slat No. 1 Cove Access Panel
527DB	Slat No. 1 Cove Access Panel
527EB	Slat No. 1 Cove Access Panel
527FB	Slat No. 1 Cove Access Panel
527GB	Slat No. 1 Cove Access Panel

(b) For slat No. 2, install these access panels:

Number	Name/Location
526AB	Slat No. 2 Cove Access Panel
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
526DB	Slat No. 2 Cove Access Panel
526EB	Slat No. 2 Cove Access Panel
526FB	Slat No. 2 Cove Access Panel
526GB	Slat No. 2 Cove Access Panel

(c) For slat No. 3, install these access panels:

Number	Name/Location
525BB	Slat No. 3 Cove Access Panel

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(Continued)

Number	Name/Location
525CB	Slat No. 3 Cove Access Panel
525DB	Slat No. 3 Cove Access Panel
525EB	Slat No. 3 Cove Access Panel
525FB	Slat No. 3 Cove Access Panel
525GB	Slat No. 3 Cove Access Panel
525HB	Slat No. 3 Cove Access Panel

(d) For slat No. 4, install these access panels:

Number	Name/Location
524AB	Slat No. 4 Cove Access Panel
524BB	Slat No. 4 Cove Access Panel
524CB	Slat No. 4 Cove Access Panel
524DB	Slat No. 4 Cove Access Panel
524EB	Slat No. 4 Cove Access Panel
524FB	Slat No. 4 Cove Access Panel
524GB	Slat No. 4 Cove Access Panel

(e) For slat No. 5, install these access panels:

Number	Name/Location
523BB	Slat No. 5 Cove Access Panel
523CB	Slat No. 5 Cove Access Panel
523DB	Slat No. 5 Cove Access Panel
523EB	Slat No. 5 Cove Access Panel
523FB	Slat No. 5 Cove Access Panel
523GB	Slat No. 5 Cove Access Panel
523HB	Slat No. 5 Cove Access Panel

(f) For slat No. 6, install these access panels:

Number	Name/Location
522AB	Slat No. 6 Cove Access Panel
522CB	Slat No. 6 Cove Access Panel
522DB	Slat No. 6 Cove Access Panel
522EB	Slat No. 6 Cove Access Panel
522FB	Slat No. 6 Cove Access Panel
522GB	Slat No. 6 Cove Access Panel
522HB	Slat No. 6 Cove Access Panel

SUBTASK 27-81-15-010-007

(3) Install the access panels on the cove skin of the applicable outboard slats on the right wing (TASK 06-30-00-800-807):

(a) For slat No. 14, install these access panels:

Number	Name/Location
627AB	Slat No. 14 Cove Access Panel
627BB	Slat No. 14 Cove Access Panel
627CB	Slat No. 14 Cove Access Panel
627DB	Slat No. 14 Cove Access Panel
627EB	Slat No. 14 Cove Access Panel

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(Continued)

Number	Name/Location
627FB	Slat No. 14 Cove Access Panel
627GB	Slat No. 14 Cove Access Panel

(b) For slat No. 13, install these access panels:

Number	Name/Location
626AB	Slat No. 13 Cove Access Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel
626DB	Slat No. 13 Cove Access Panel
626EB	Slat No. 13 Cove Access Panel
626FB	Slat No. 13 Cove Access Panel
626GB	Slat No. 13 Cove Access Panel

(c) For slat No. 12, install these access panels:

Number	Name/Location
625BB	Slat No. 12 Cove Access Panel
625CB	Slat No. 12 Cove Access Panel
625DB	Slat No. 12 Cove Access Panel
625EB	Slat No. 12 Cove Access Panel
625FB	Slat No. 12 Cove Access Panel
625GB	Slat No. 12 Cove Access Panel
625HB	Slat No. 12 Cove Access Panel

(d) For slat No. 11, install these access panels:

Number	Name/Location
624BB	Slat No. 11 Cove Access Panel
624CB	Slat No. 11 Cove Access Panel
624DB	Slat No. 11 Cove Access Panel
624EB	Slat No. 11 Cove Access Panel
624FB	Slat No. 11 Cove Access Panel
624GB	Slat No. 11 Cove Access Panel
624HB	Slat No. 11 Cove Access Panel

(e) For slat No. 10, install these access panels:

Number	Name/Location
623BB	Slat No. 10 Cove Access Panel
623CB	Slat No. 10 Cove Access Panel
623DB	Slat No. 10 Cove Access Panel
623EB	Slat No. 10 Cove Access Panel
623FB	Slat No. 10 Cove Access Panel
623GB	Slat No. 10 Cove Access Panel
623HB	Slat no. 10 Cove Access Panel

(f) For slat No. 9, install these access panels:

Number	Name/Location
622AB	Slat No. 9 Cove Access Panel
622CB	Slat No. 9 Cove Access Panel
622DB	Slat No. 9 Cove Access Panel

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(Continued)

Number	Name/Location
622EB	Slat No. 9 Cove Access Panel
622FB	Slat No. 9 Cove Access Panel
622GB	Slat No. 9 Cove Access Panel
622HB	Slat No. 9 Cove Access Panel

SUBTASK 27-81-15-440-010

(4) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-15-860-013

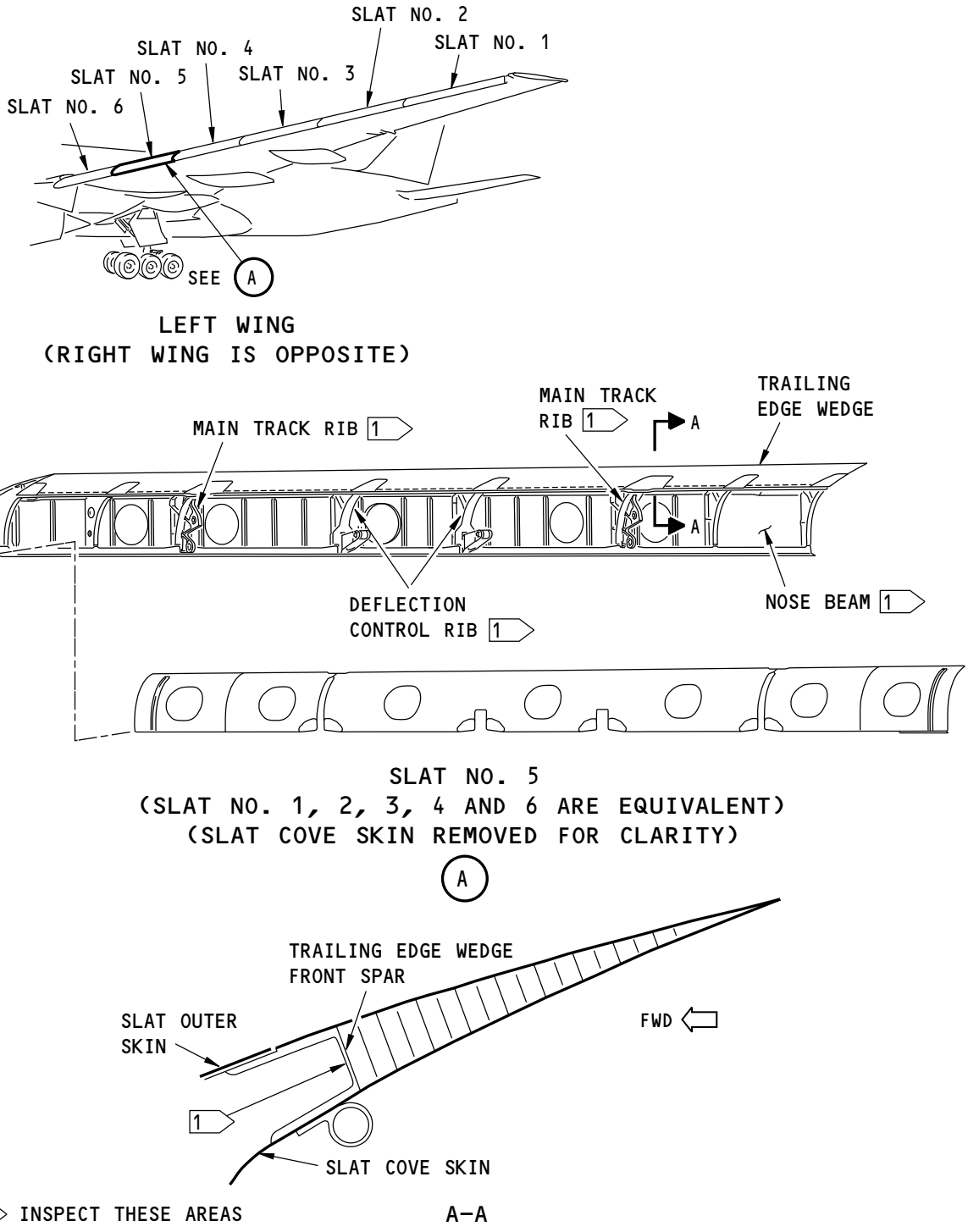
(5) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-15-440-011

(6) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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Outboard Leading Edge Slat Internal Inspection
Figure 602/27-81-15-990-812

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OUTBOARD LEADING EDGE ROTARY ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a rotary actuator for an outboard leading edge slat.

(2) An installation of a rotary actuator for an outboard leading edge slat.

B. This procedure is applicable to all of the rotary actuators on the twelve outboard leading edge slats.

C. It is necessary to remove and install the no-back brake, offset gearbox with the rotary actuator.

TASK 27-81-16-000-801

2. Outboard Leading Edge Rotary Actuator Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-17-960-801	Outboard No-Back Brake, Offset Gearbox Shearout Replacement (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

D. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

E. Prepare for the Removal

SUBTASK 27-81-16-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-16-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-16-010-001

(3) Remove the applicable fixed leading edge panels from the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, remove these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

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(b) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, remove these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, remove these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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(l) For slat No. 14, remove these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-16-200-001

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(4) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

F. Outboard Leading Edge Rotary Actuator Removal

SUBTASK 27-81-16-480-001

(1) Install the leading edge slat drive shaft clamp equipment, SPL-1696 on the torque tubes [3] inboard and outboard of the applicable offset gearbox [1] or offset gearbox [12].

NOTE: If the slat drive system moves when the torque tubes are disconnected, it will be necessary to do the slat drive system adjustment.

SUBTASK 27-81-16-020-001

(2) Disconnect the torque tubes [3] from the offset gearbox [1] or offset gearbox [12]:

(a) Remove the screws [2] from the coupling sleeves [5].

(b) Move the coupling sleeves [5] of the splined couplings [4].

SUBTASK 27-81-16-020-002

(3) If you will remove the rotary actuator [10] on the outboard end of slat No. 1 or No. 14, do these steps:

(a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

(b) Disconnect the electrical connectors [14] for the slat position sensors [11].

(c) Remove the bolts [15] and washers [16] that attach the jumper wires [13] to the slat position sensors [11].

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SUBTASK 27-81-16-960-001

CAUTION

DO NOT REMOVE THE OFFSET GEARBOX OR ROTARY ACTUATOR IF IT HAS A BROKEN SHEAROUT UNTIL YOU REPLACE THE SHEAROUT. THE NO-BACK BRAKE CAN HOLD A HIGH TORQUE AFTER THE FAILURE OF THE SHEAROUT. YOU CAN CAUSE DAMAGE TO THE ROTARY ACTUATOR AND OFFSET GEARBOX.

(4) If the shearout in the offset gearbox [1] or offset gearbox [12] is broken, do this task: Outboard No-Back Brake, Offset Gearbox Shearout Replacement, TASK 27-81-17-960-801.

SUBTASK 27-81-16-020-003

(5) Remove the rotary actuator [10] with the offset gearbox [1] or offset gearbox [12]:

(a) Remove the nuts [7] and washers [8] that attach the rotary actuator [10] to the bolts [6] on the main track rib [9].

(b) Disengage the rotary actuator [10] from the pinion gear shaft in the main track rib [9].

(c) Lower the rotary actuator [10] and the offset gearbox [1] or offset gearbox [12] through the access panel.

SUBTASK 27-81-16-020-004

(6) Disconnect the rotary actuator [10] from the offset gearbox [1] or offset gearbox [12]:

(a) Remove the nuts [19], washers [20] and bolts [24] that attach the rotary actuator [10] to the offset gearbox [1] or offset gearbox [12].

(b) Remove the bolts [17] and washers [18] that attach the rotary actuator [10] to the offset gearbox [1] or offset gearbox [12].

(c) Disengage the rotary actuator [10] from the offset gearbox [1] or offset gearbox [12].

SUBTASK 27-81-16-200-002

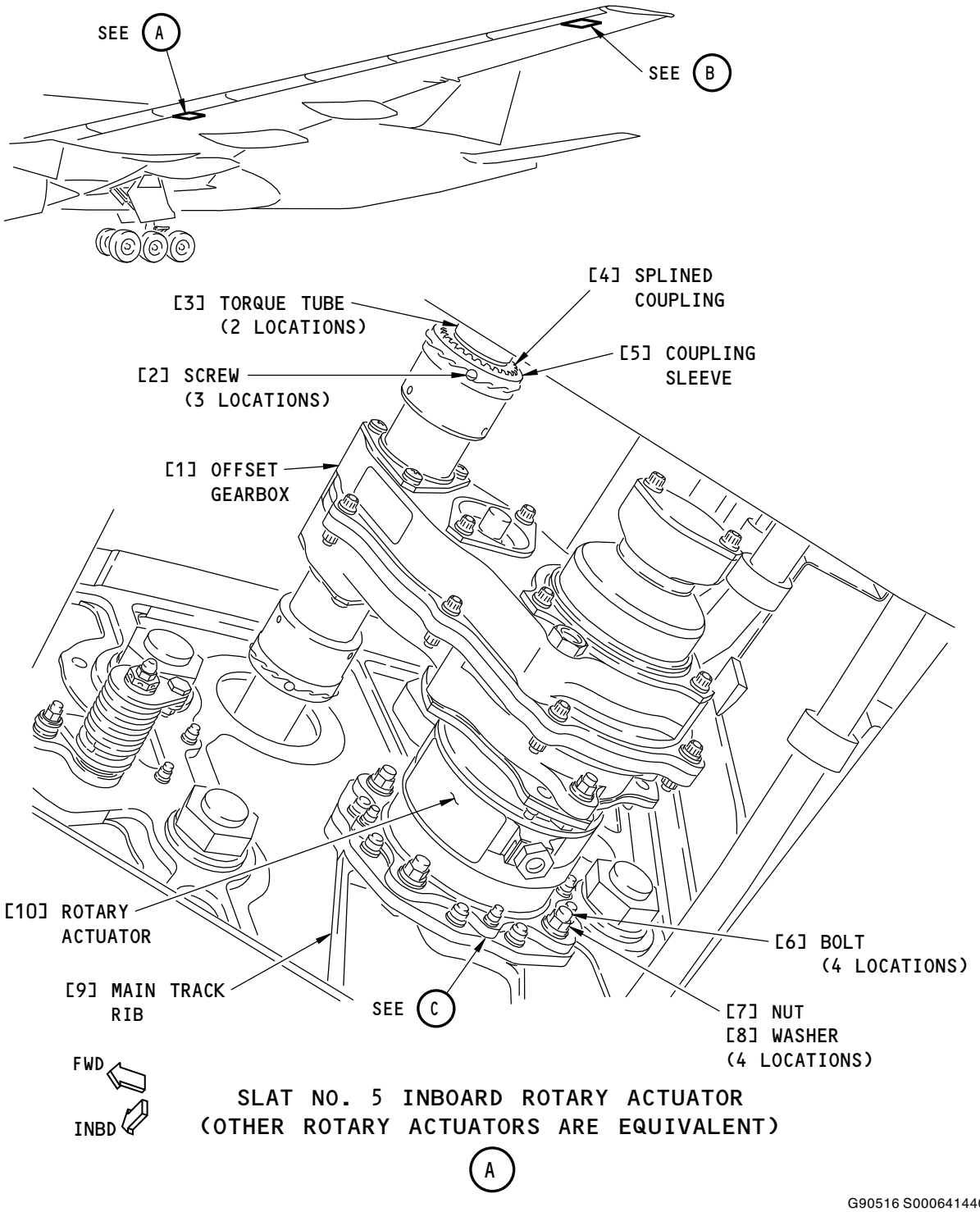
WARNING

DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(7) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

END OF TASK

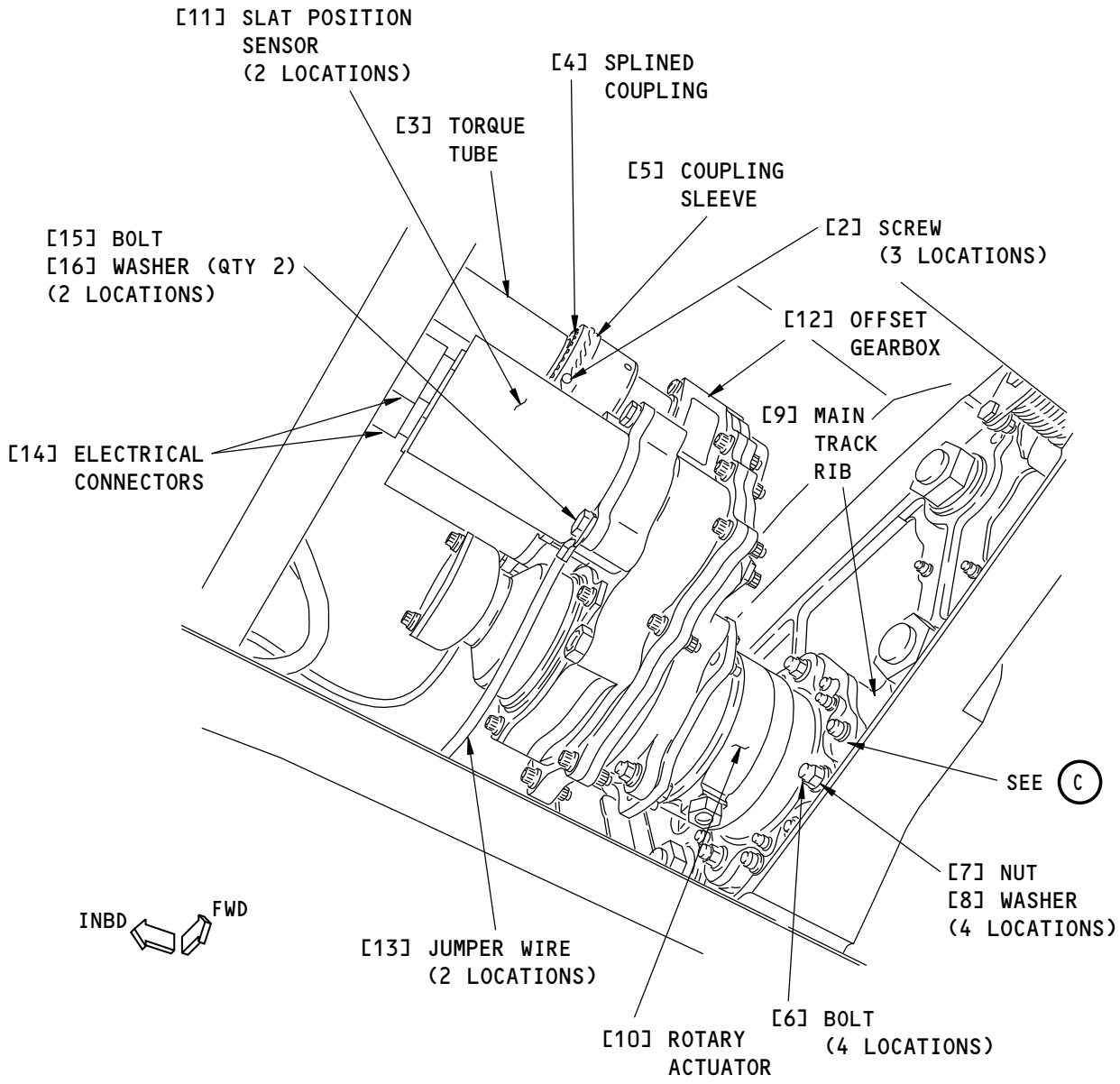
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Outboard Leading Edge Rotary Actuator Installation
Figure 401/27-81-16-990-801 (Sheet 1 of 3)

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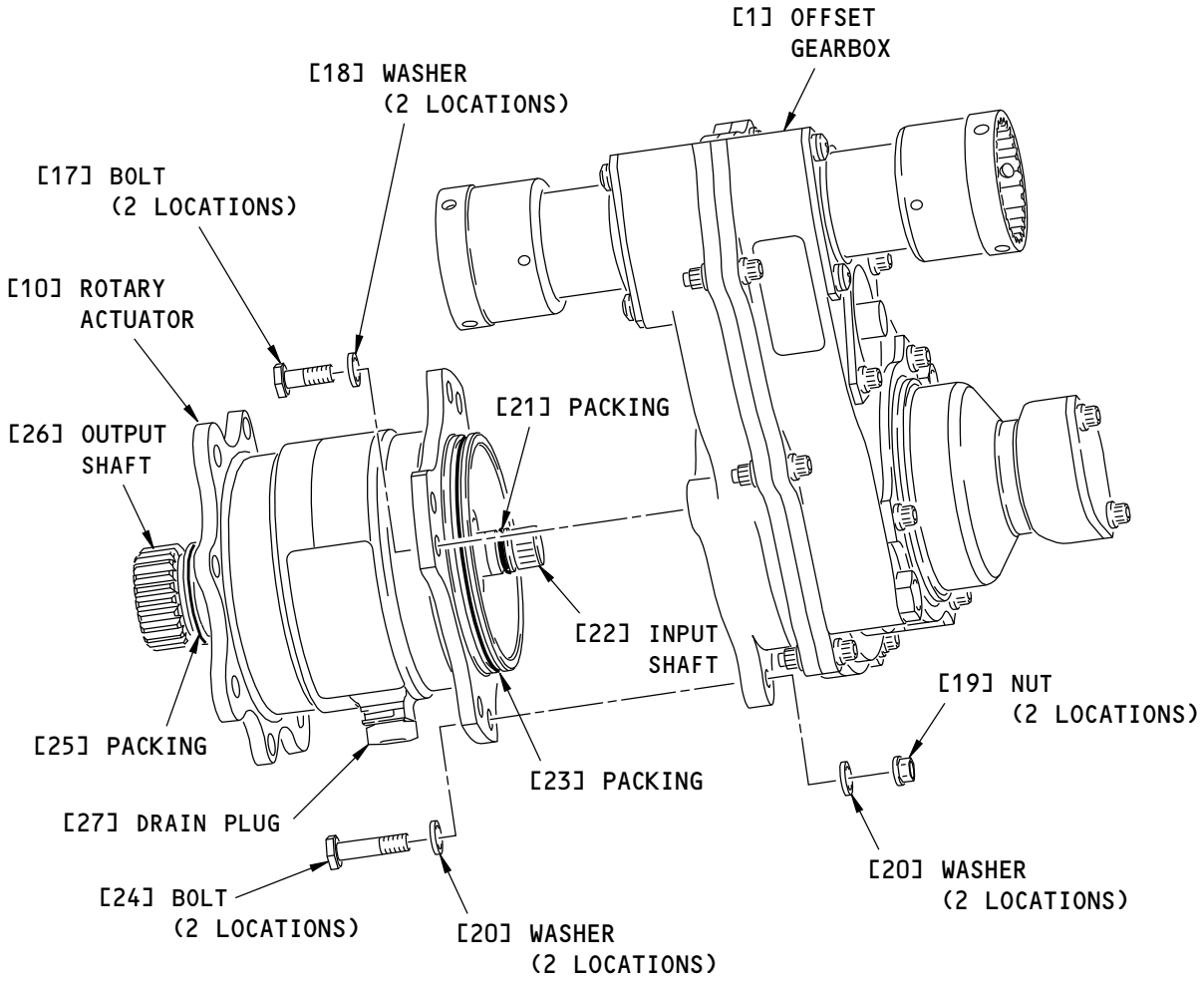
SLAT NO. 1 OUTBOARD ROTARY ACTUATOR
(SLAT NO. 14 OUTBOARD ROTARY ACTUATOR IS EQUIVALENT)

B

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Outboard Leading Edge Rotary Actuator Installation
Figure 401/27-81-16-990-801 (Sheet 2 of 3)

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Outboard Leading Edge Rotary Actuator Installation
Figure 401/27-81-16-990-801 (Sheet 3 of 3)

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TASK 27-81-16-400-801

3. Outboard Leading Edge Rotary Actuator Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-802	Outboard Slat Rollers and Pinion Bearing Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
27-88-00-710-801	Slat Position Indication System - Operational Test (P/B 501)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

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D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Offset gearbox	27-81-17-10A-055	ARO ALL
10	Rotary actuator	27-81-16-01A-045	ARO ALL
12	Offset gearbox	27-81-17-10A-055	ARO ALL
21	Packing	27-81-17-10A-045	ARO ALL
23	Packing	27-81-17-10A-050	ARO ALL

E. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

F. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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G. Outboard Leading Edge Rotary Actuator Installation

SUBTASK 27-81-16-200-003

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-16-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Connect the rotary actuator [10] to the offset gearbox [1] or offset gearbox [12].

NOTE: Make sure you align the (old designed) rotary actuator [10] and offset gearbox [1] or offset gearbox [12] correctly. When the (old designed) rotary actuator [10] is installed, the drain plug [27] or drain port must be down.

NOTE: The new designed rotary actuator [10] does not have the drain plug [27] or drain port. This new rotary actuator [10] is greased for life and no maintenance access through the drain plug [27] or drain port is required. Use the Airplane Illustrated Parts Catalog for applicable rotary actuator [10] hardware.

(a) Align the rotary actuator [10] and the offset gearbox [1] or offset gearbox [12] (Table 401).

NOTE: The rotary actuator [10] and the offset gearbox [1] or offset gearbox [12] align differently at different slat actuator positions. The drain plug [27] or drain port in the (old designed) rotary actuator [10] goes to the left or right of the offset gearbox [12]. As you face the mating surface of the offset gearbox [12], with the torque tube couplings on top, put the drain plug [27] or drain port of the (old designed) rotary actuator [10] to the side of a line between the torque tube couplings and the output shaft [26]t. Refer to the table below to find how to align the (old designed) rotary actuator [10] for the applicable slat actuator position. The two positions of the drain plug [27] or drain port are 90 degrees apart.

Table 401/27-81-16-993-802 Rotary Actuator Alignment

Slat Actuator Position		Drain Plug Position
Slat No. 1, 2, 3, 4, 5	Outboard Inboard	Left Right

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Table 401/27-81-16-993-802 Rotary Actuator Alignment (Continued)

Slat Actuator Position		Drain Plug Position
Slat No. 6	Outboard Inboard	Right Right
Slat No. 8	Outboard Inboard	Left Left
Slat No. 9,10,11,12,13,14	Outboard Inboard	Right Left

(b) Put grease, D00013 in the output shaft of the offset gearbox [1] or offset gearbox [12] until the cavity is approximately 1/4 full.

NOTE: If there is no grease in the output shaft, fill it with 3.5 ±0.5 cubic centimeters (3.4 ±0.5 grams) of grease.

(c) Apply grease, D00013 to the splines on the input shaft [22] for the rotary actuator [10].

(d) Fill the side of the offset gearbox [1] or offset gearbox [12] that mates with the rotary actuator [10] with grease, D00013.

(e) If it is necessary, install a new packing [21] and packing [23] on the rotary actuator [10].

(f) Apply grease, D00013 to the packing [21] and packing [23] on the rotary actuator [10].

(g) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surface of the offset gearbox [1] or offset gearbox [12].

(h) Engage the output shaft [26] for the offset gearbox [1] or offset gearbox [12] with the input shaft [22] for the rotary actuator [10].

NOTE: Make sure the offset gearbox [1] or offset gearbox [12] and rotary actuator [10] align correctly.

(i) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the threads and shank of the bolts [17] and bolts [24].

(j) Install the bolts [17] and washers [18] that connect the rotary actuator [10] to the offset gearbox [1] or offset gearbox [12].

(k) Install the bolts [24], washers [20] and nuts [19] that connect the rotary actuator [10] to the offset gearbox [1] or offset gearbox [12].

(l) Tighten the bolts [17] and nuts [19]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-16-420-002

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Install the rotary actuator [10] with the offset gearbox [1] or offset gearbox [12]:

(a) Clean the existing grease from the output shaft [26] of the rotary actuator [10].

(b) Put grease, D00633 in the output shaft [26] of the rotary actuator [10] until the cavity is approximately 1/4 full.

NOTE: Put 28.0 ±2.8 cubic centimeters (27 ±2.7 grams) of grease in the cavity.

(c) Apply grease, D00633 to the splines on the output shaft [26] of the rotary actuator [10].

(d) Apply grease, D00633 to the packing [25] on the rotary actuator [10].

(e) Put the rotary actuator [10] with the offset gearbox [1] or offset gearbox [12] in their position on the main track rib [9].

(f) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [6].

(g) Install the nuts [7] and washers [8] that attach the rotary actuator [10] to the bolts [6] on the main track rib [9].

(h) Tighten the nuts [7]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-16-820-001

(4) If the slat drive system has moved while the torque tubes [3] were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801

SUBTASK 27-81-16-860-001

(5) Connect the torque tubes [3] to the offset gearbox [1] or offset gearbox [12]:

(a) Apply grease, D00633 to the coupling sleeves [5].

(b) Move the coupling sleeves [5] on the splined couplings [4].

(c) Install the screws [2].

(d) Tighten the screws [2].

NOTE: Do not over tighten the screws [2].

(e) Install MS20995C20 lockwire, G50225 on the screws [2].

SUBTASK 27-81-16-080-001

(6) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [3].

SUBTASK 27-81-16-640-001

(7) For the applicable position on the leading edge, do this task: Outboard Slat Rollers and Pinion Bearing Lubrication, TASK 12-21-08-640-802.

SUBTASK 27-81-16-420-003

(8) If you installed the rotary actuator [10] at the outboard end of slat No. 1 or No. 14, do these steps:

(a) Apply grease, D00633 to the shank and threads of the bolts [15].

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(b) Install the bolts [15] and washers [16] to connect the jumper wires [13] to the slat position sensors [11].

(c) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wires [13] is less than 8 miliohms (WDM D6-54446).

(d) Connect the electrical connectors [14] for the slat position sensors [11].

(e) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

H. Outboard Leading Edge Rotary Actuator Installation Test

SUBTASK 27-81-16-440-001

(1) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-16-710-001

(2) Use the primary system to extend the slats to the sealed position. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the sealed position.

SUBTASK 27-81-16-710-002

(3) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the retracted position.

SUBTASK 27-81-16-730-001

(4) If you installed the rotary actuator [10] on the outboard end of slat No. 1 or No. 14, do this task: Slat Position Indication System - Operational Test, TASK 27-88-00-710-801.

SUBTASK 27-81-16-200-004

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-16-410-001

(1) Install the applicable fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, install these access panel:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

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(b) For slat No. 2, install these access panel:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, install these access panel:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, install these access panel:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, install these access panel:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, install these access panel:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, install these access panel:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, install these access panel:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, install these access panel:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) Install these access panel:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, install these access panel:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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(l) For slat No. 14, install these access panel:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-16-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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OUTBOARD LEADING EDGE NO-BACK BRAKE, OFFSET GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a no-back brake, offset gearbox for an outboard leading edge slat.

(2) An installation of a no-back brake, offset gearbox for an outboard leading edge slat.

(3) A replacement of the shearout from a no-back brake, offset gearbox on an outboard leading edge slat.

B. This procedure is applicable to all of the no-back brake, offset gearboxes on the twelve outboard leading edge slats.

C. The leading edge slat position sensors are installed on the outboard offset gearboxes on slats No. 1 and 14.

TASK 27-81-17-000-801

2. Outboard Leading Edge No-Back Brake, Offset Gearbox Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-88-03-000-801	Slat Position Sensor Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

D. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

E. Prepare for the Removal

SUBTASK 27-81-17-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-17-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-17-010-001

(3) Remove the applicable fixed leading edge panels from the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, remove these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, remove these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, remove these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, remove these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

F. Outboard Leading Edge No-Back Brake, Offset Gearbox Removal

SUBTASK 27-81-17-020-001

(1) If you will remove the offset gearbox [25] on the outboard side of slat No. 1 or No. 14, do these steps:

(a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

(b) Disconnect the electrical connectors [27] for the slat position sensors [24].

(c) Remove the bolts [28] and washers [29] that attach the jumper wires [26] to the slat position sensors [24].

SUBTASK 27-81-17-480-001

(2) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes [3] inboard and outboard of the applicable offset gearbox [1] or offset gearbox [25].

NOTE: If the slat drive system moves when the torque tubes are disconnected, it will be necessary to do the slat drive system adjustment.

SUBTASK 27-81-17-020-002

(3) Disconnect the torque tubes [3] from the offset gearbox [1] or offset gearbox [25]:

(a) Remove the screws [2] from the coupling sleeves [5].

(b) Move the coupling sleeves [5] off the splined couplings [4].

SUBTASK 27-81-17-960-001

CAUTION

DO NOT REMOVE THE OFFSET GEARBOX IF IT HAS A BROKEN SHEAROUT UNTIL YOU REPLACE THE SHEAROUT. THE NO-BACK BRAKE CAN HOLD A HIGH TORQUE AFTER THE FAILURE OF THE SHEAROUT. YOU CAN CAUSE DAMAGE TO THE ROTARY ACTUATOR AND OFFSET GEARBOX.

(4) If the shearout [11] in the offset gearbox [1] or offset gearbox [25] is broken, do this task: Outboard No-Back Brake, Offset Gearbox Shearout Replacement, TASK 27-81-17-960-801.

SUBTASK 27-81-17-020-003

(5) Remove the offset gearbox [1] or offset gearbox [25]:

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(a) Remove the nuts [18], washers [19] and bolts [23] that attach the offset gearbox [1] or offset gearbox [25] to the rotary actuator [6].

(b) Remove the bolts [7] and washers [8] that attach the offset gearbox [1] or offset gearbox [25] to the rotary actuator [6].

(c) Disengage the offset gearbox [1] or offset gearbox [25] from the rotary actuator [6].

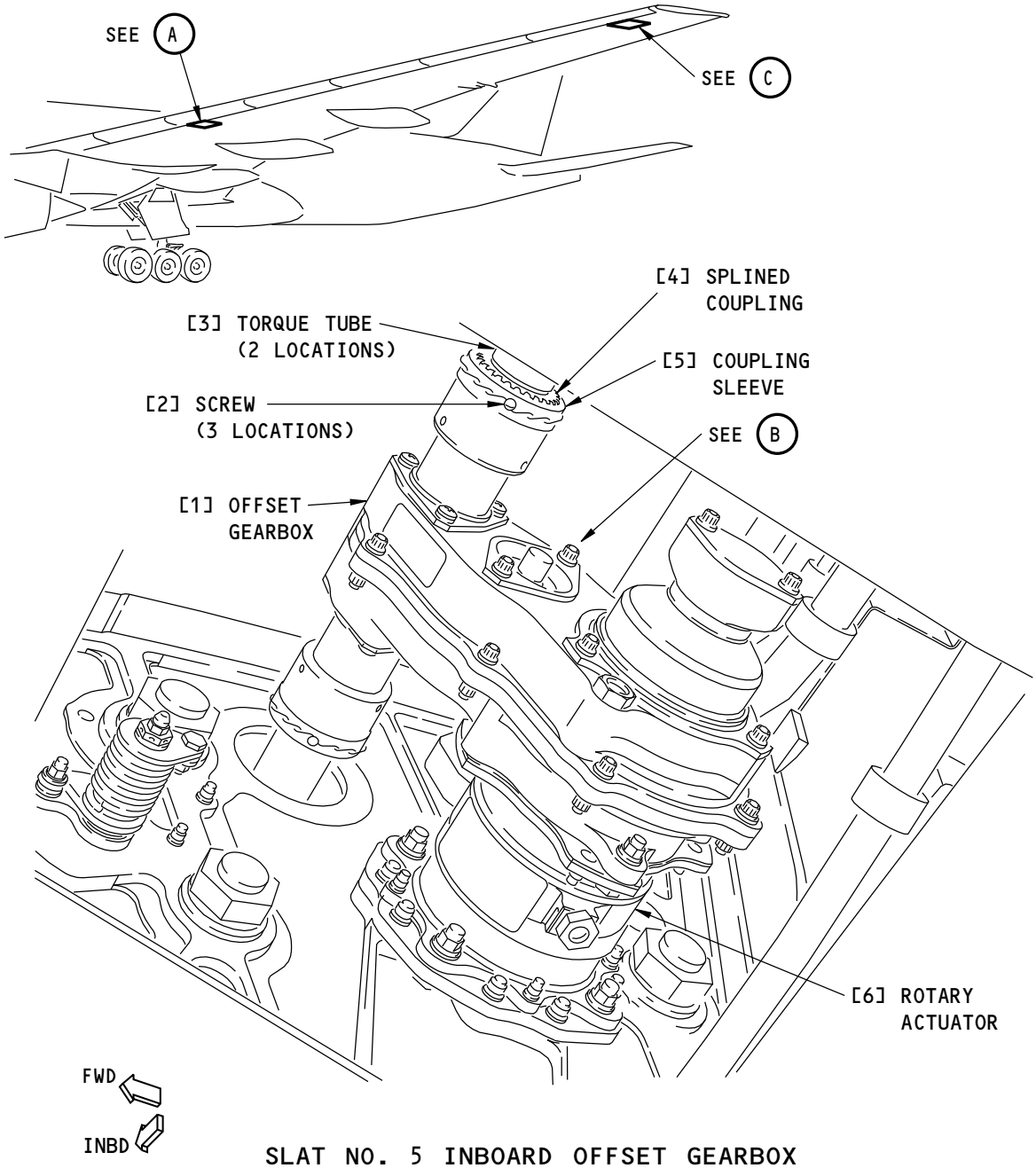
(d) Lower the offset gearbox [1] or offset gearbox [25] through the access panel.

SUBTASK 27-81-17-020-004

(6) If you will install a new outboard offset gearbox [25] on slat No. 1 or 14, remove the slat position sensors [24]. To remove them, do this task: Slat Position Sensor Removal, TASK 27-88-03-000-801.

——— END OF TASK ———

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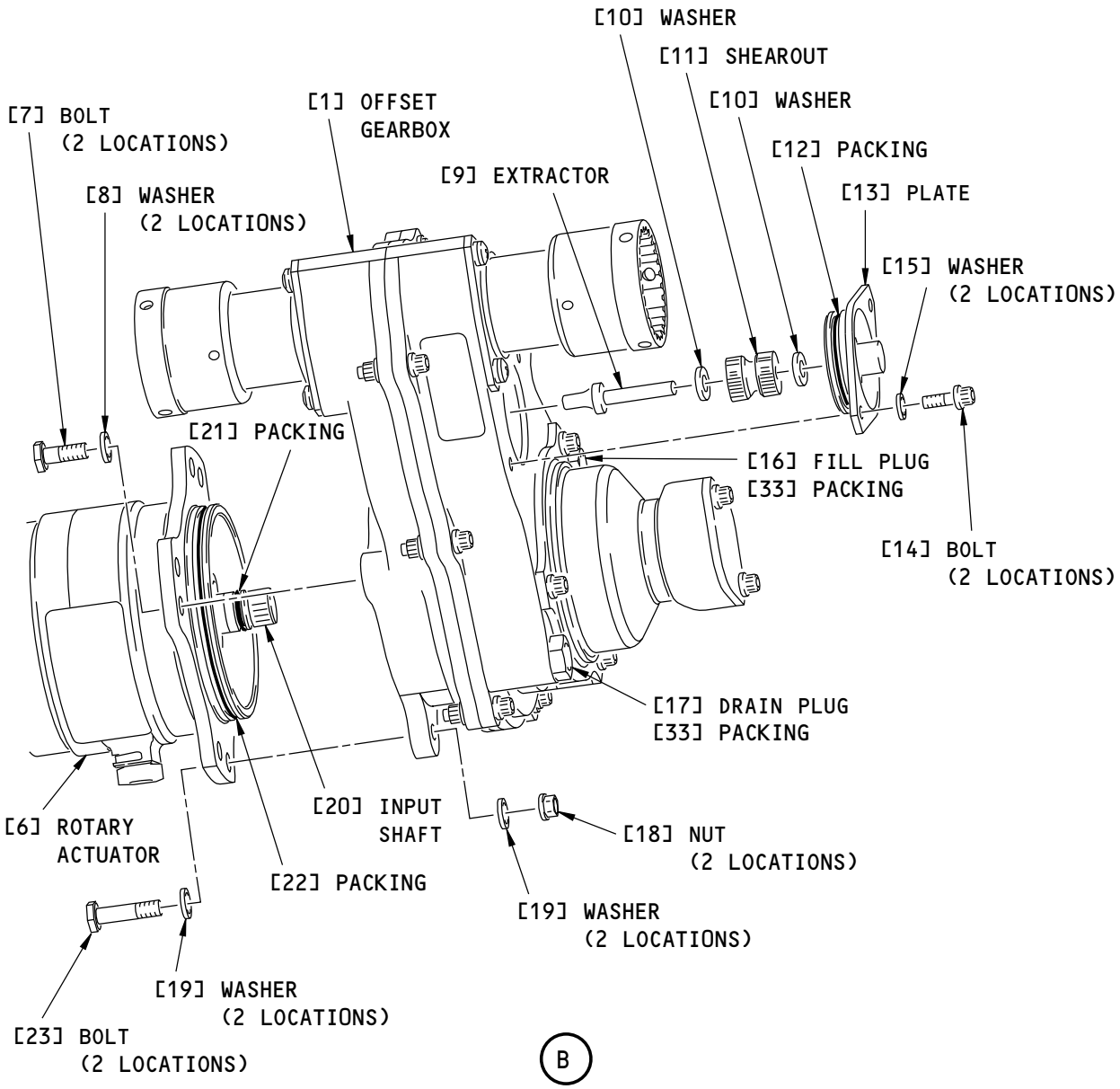
SLAT NO. 5 INBOARD OFFSET GEARBOX
(OTHER OFFSET GEARBOXES ARE EQUIVALENT)

A

G90528 S0006414410_V1

Outboard Leading Edge No-Back Brake, Offset Gearbox Installation
Figure 401/27-81-17-990-801 (Sheet 1 of 4)

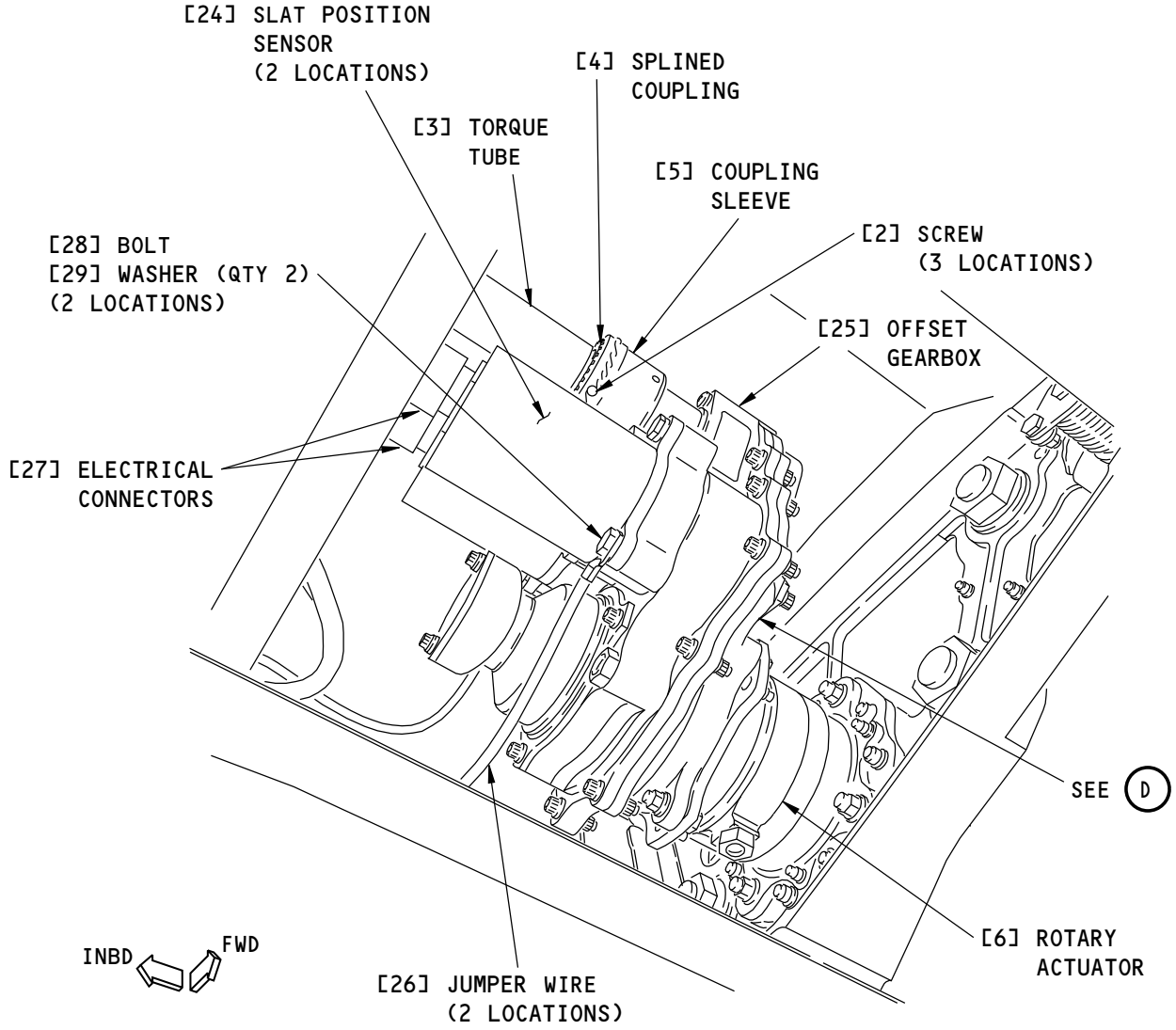
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Outboard Leading Edge No-Back Brake, Offset Gearbox Installation
Figure 401/27-81-17-990-801 (Sheet 2 of 4)

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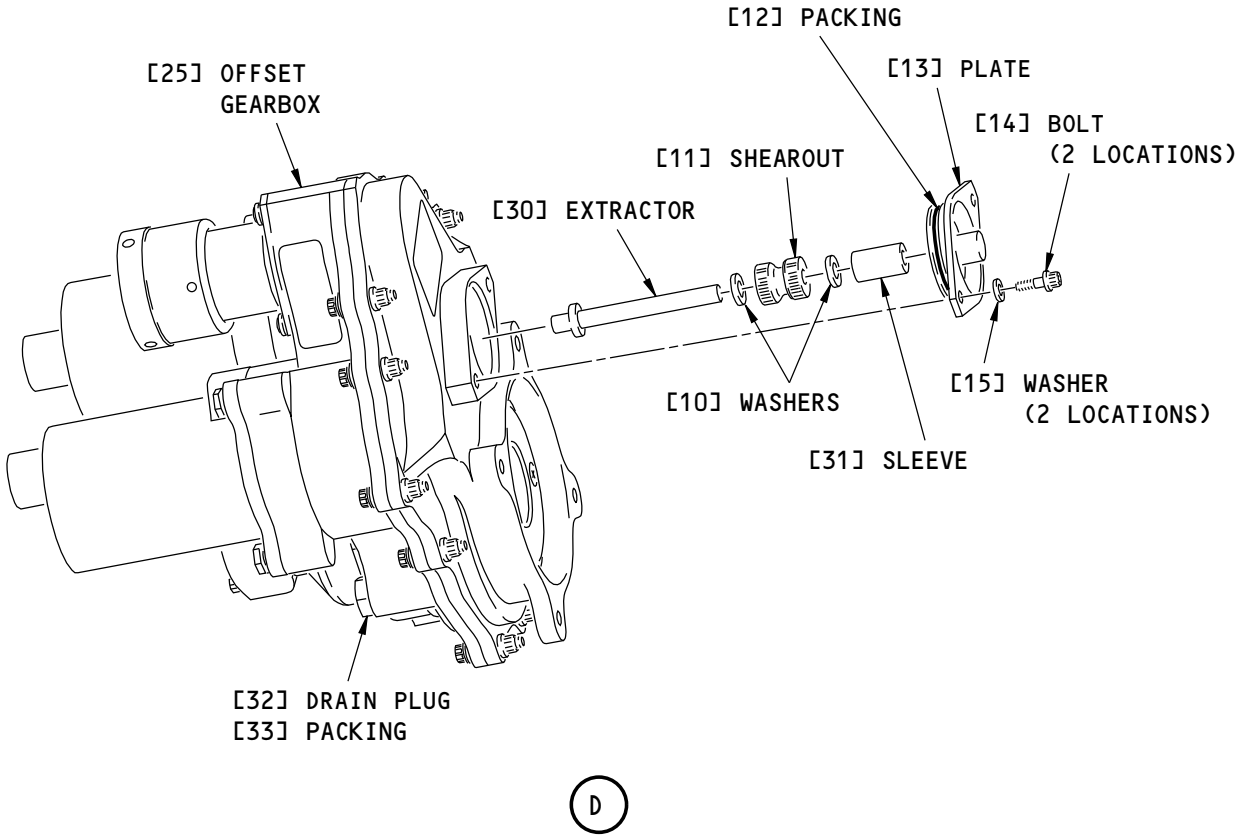
SLAT NO. 1 OUTBOARD OFFSET GEARBOX
(SLAT NO. 14 OUTBOARD OFFSET GEARBOX IS EQUIVALENT)

C

D19658 S0006414412_V1

Outboard Leading Edge No-Back Brake, Offset Gearbox Installation
Figure 401/27-81-17-990-801 (Sheet 3 of 4)

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NOTE: ROTARY ACTUATOR NOT SHOWN.

D19673 S0006414413_V1

Outboard Leading Edge No-Back Brake, Offset Gearbox Installation
Figure 401/27-81-17-990-801 (Sheet 4 of 4)

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TASK 27-81-17-400-801

3. Outboard Leading Edge No-Back Brake, Offset Gearbox Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-802	Outboard Slat Rollers and Pinion Bearing Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
27-88-03-400-801	Slat Position Sensor Installation (P/B 401)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Offset gearbox	27-81-17-10A-055	ARO ALL
21	Packing	27-81-17-10A-045	ARO ALL
22	Packing	27-81-17-10A-050	ARO ALL
25	Offset gearbox	27-81-17-10A-350	ARO ALL

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E. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

F. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

G. Outboard Leading Edge No-Back Brake, Offset Gearbox Installation

SUBTASK 27-81-17-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the offset gearbox [1] or offset gearbox [25]:

(a) Put grease, D00633 in the output shaft of the offset gearbox [1] or offset gearbox [25] until the cavity is approximately 1/4 full.

NOTE: If there is no grease in the output shaft, fill it with 3.5 ±0.5 cubic centimeters (3.4 ±0.5 grams) of grease.

(b) Apply grease, D00633 to the splines on the input shaft [20] for the rotary actuator [6].

(c) Put grease, D00633 in the cavity by the output shaft on the offset gearbox [1] or offset gearbox [25] until grease is at the same level as the outer edge of the lip seal.

(d) If it is necessary, install a new packing [21] and packing [22] on the rotary actuator [6].

(e) Apply grease, D00633 to the packing [21] and packing [22] on the rotary actuator [6].

(f) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surface of the offset gearbox [1] or offset gearbox [25].

(g) Put the offset gearbox [1] or offset gearbox [25] in its position on the rotary actuator [6].

(h) Engage the output shaft for the offset gearbox [1] or offset gearbox [25] with the input shaft [20] for the rotary actuator [6].

(i) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the threads and shank of the bolts [7] and bolts [23].

(j) Install the bolts [7] and washers [8] that connect the offset gearbox [1] or offset gearbox [25] to the rotary actuator [6].

(k) Install the bolts [23], washers [19] and nuts [18] to connect the offset gearbox [1] or offset gearbox [25] to the rotary actuator [6].

(l) Tighten the bolts [7] and nuts [18]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-17-820-001

(2) If the slat drive system moved while the torque tubes [3] were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-17-860-001

(3) Connect the torque tubes [3] to the offset gearbox [1] or offset gearbox [25]:

(a) Apply grease, D00633 to the coupling sleeves [5].

(b) Move the coupling sleeves [5] on the splined couplings [4].

(c) Install the screws [2].

(d) Tighten the screws [2].

NOTE: Do not over tighten the screws [2].

(e) Install lockwire on the screws [2].

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SUBTASK 27-81-17-080-001

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [3].

SUBTASK 27-81-17-640-001

(5) For the applicable slat position, do this task: Outboard Slat Rollers and Pinion Bearing Lubrication, TASK 12-21-08-640-802.

SUBTASK 27-81-17-420-002

(6) If you installed a new offset gearbox [25] for on the outboard side of slat No. 1 or 14, install the slat position sensors [24]. To install them, do this task: Slat Position Sensor Installation, TASK 27-88-03-400-801.

SUBTASK 27-81-17-420-003

(7) If you installed the offset gearbox [25] on the outboard side of slat No. 1 or 14, do these steps:

(a) Apply grease, D00633 to the shank and threads of the bolts [28].

(b) Install the bolts [28] and washers [29] that connect the jumper wires [26] to the slat position sensors [24].

(c) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wires [26] is less than 8 miliohms (WDM D6-54446).

(d) Connect the electrical connectors [27] to the slat position sensors [24].

(e) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

H. Outboard Slat No-Back Brake, Offset Gearbox Installation Test

SUBTASK 27-81-17-440-001

(1) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-17-710-001

(2) Use the primary system to extend the slats to the sealed position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the sealed position.

SUBTASK 27-81-17-710-002

(3) Use the primary system to retract the slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the retracted position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-17-410-001

(1) Install the applicable fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

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(a) For slat No. 1, install these access panel:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, install these access panel:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, install these access panel:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, install these access panel:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, install these access panel:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, install these access panel:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, install these access panel:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, install these access panel:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, install these access panel:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) For slat No. 12, install these access panel:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

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(k) For slat No. 13, install these access panel:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, install these access panel:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel

(m) Install the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-17-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

END OF TASK

TASK 27-81-17-960-801

4. Outboard No-Back Brake, Offset Gearbox Shearout Replacement

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1058	Container - Oil Resistant, 1 Gallon, (4 Liter)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

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D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Extractor	27-81-17-10A-155	ARO ALL
11	Shearout	27-81-17-10A-150	ARO ALL
12	Packing	27-81-17-10A-140	ARO ALL
30	Extractor	27-81-17-10A-455	ARO ALL
31	Sleeve	27-81-17-10A-440	ARO ALL
32	Plug	27-81-17-10A-365	ARO ALL
33	Packing	27-81-17-10A-360	ARO ALL

E. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

F. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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G. Prepare for the Shearout Replacement

SUBTASK 27-81-17-040-003

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-17-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

H. Outboard No-Back Brake Offset Gearbox Shearout Replacement

SUBTASK 27-81-17-010-002

(1) Remove the applicable fixed leading edge panels from the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, remove these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, remove these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, remove these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(j) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, remove these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-17-680-001

(2) Drain the oil from the offset gearbox [1] or offset gearbox [25]:

(a) Put a oil resistant container 1 gal, (4 l), STD-1058 under the offset gearbox [1] or offset gearbox [25].

(b) Remove the plug [17] from the offset gearbox [1] or plug [32] from offset gearbox [25].

(c) Let the oil drain from the offset gearbox [1] or offset gearbox [25].

(d) Apply fluid, D00070 to the plug [17] or plug [32] and a new packing [33].

(e) Install the plug [17] or plug [32] and a packing [33] in the offset gearbox [1] or offset gearbox [25].

(f) Tighten the plug [17] or plug [32] to 100 in-lb (11 N·m) - 110 in-lb (12 N·m).

SUBTASK 27-81-17-020-005

(3) For the offset gearbox [25] on the outboard side of slat No. 1 or 14, remove the shearout [11]:

(a) Remove the bolts [14] and washers [15] from the plate [13].

(b) Remove the plate [13].

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(c) Pull on the extractor [30] to remove the sleeve [31], shearout [11] and the washers [10].

SUBTASK 27-81-17-020-006

(4) For the offset gearbox [1] on the inboard side of slat No. 1 or 14 or the offset gearbox [1] on slats No. 2 thru 13, remove the shearout [11]:

(a) Remove the bolts [14] and washers [15] from the plate [13].

(b) Remove the plate [13].

(c) Pull on the extractor [9] to remove the shearout [11] and the washers [10].

SUBTASK 27-81-17-420-004

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) For the offset gearbox [25] on slat No. 1 or 14, install the shearout [11]:

(a) Put the extractor [30] and a washer [10] in the offset gearbox [25].

(b) Put the shearout [11], washer [10] and sleeve [31] on the extractor [30].

(c) Apply fluid, D00070 to the packing [12] on the plate [13].

(d) Apply grease, D00633 to the mating surface of the plate [13].

(e) Apply Cor-Ban 27L Compound, G50237 (preferred) or Mastinox 6856 K, C00913 (alternate) to the shank and bottom of the head of the bolts [14].

(f) Install the bolts [14] and washers [15] to attach the plate [13] and packing [12].

(g) Tighten the bolts [14] to 20 in-lb (2 N·m) - 25 in-lb (3 N·m) plus run-on torque.

SUBTASK 27-81-17-420-005

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) For the offset gearbox [1] on the inboard side of slat No. 1 or 14 or slats No. 2 thru 13, install the shearout [11]:

(a) Put the extractor [9] and a washer [10] in the offset gearbox [1].

(b) Put the shearout [11] and a washer [10] on the extractor [9].

(c) Apply fluid, D00070 to the packing [12] on the plate [13].

(d) Apply grease, D00633 to the mating surface of the plate [13].

(e) Apply Cor-Ban 27L Compound, G50237 (preferred) or Mastinox 6856 K, C00913 (alternate) to the shank and bottom of the head of the bolts [14].

(f) Install the bolts [14] and washers [15] to connect the plate [13] and packing [12].

(g) Tighten the bolts [14] to 20 in-lb (2 N·m) - 25 in-lb (3 N·m) plus run-on torque.

SUBTASK 27-81-17-610-001

(7) Fill the offset gearbox [1] or offset gearbox [25] with fluid, D00070:

(a) Remove the plug [16] from the offset gearbox [1] or offset gearbox [25].

(b) Fill the offset gearbox [1] or offset gearbox [25] to the level of the fill port with fluid, D00070.

NOTE: The offset gearbox [1] holds approximately 330 cubic centimeters (11 ounces) of fluid, D00070.

NOTE: The offset gearbox [25] holds approximately 405 cubic centimeters (14 ounces) of fluid, D00070.

(c) Apply fluid, D00070 to the plug [16] and a new packing [33].

(d) Install the plug [16] and a packing [33] in the fill port.

(e) Tighten the plug [16] to 100 in-lb (11 N·m) - 110 in-lb (12 N·m).

SUBTASK 27-81-17-820-002

(8) If the shearout [11] was broken, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-17-440-003

(9) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-17-710-003

(10) Use the primary system to extend the slats to the sealed position. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move to the sealed position.

SUBTASK 27-81-17-710-004

(11) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803

(a) Make sure the slats move to the retracted position.

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-17-410-002

(1) Install the applicable fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, install these access panel:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, install these access panel:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, install these access panel:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, install these access panel:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, install these access panel:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, install these access panel:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, install these access panel:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, install these access panel:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, install these access panel:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

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(j) For slat No. 12, install these access panel:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, install these access panel:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, install these access panel:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-17-440-004

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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OUTBOARD LEADING EDGE PINION GEAR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a pinion gear for the outboard leading edge slats

(2) An installation of a pinion gear for the outboard leading edge slats.

B. It is necessary to remove the applicable rotary actuator to replace a pinion gear.

TASK 27-81-18-000-801

2. Outboard Leading Edge Pinion Gear Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-16-000-801	Outboard Leading Edge Rotary Actuator Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1707	Adapter - Torque, Slat Pinion (Kit) (-2 Adapter for Inboard, -3 Adapter for Outboard) Part #: J27022-1 Supplier: 81205

C. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

D. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

E. Prepare for the Removal

SUBTASK 27-81-18-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-18-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-18-010-002

(3) Remove the applicable fixed leading edge panels from the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, remove these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

(b) For slat No. 1, remove this access panel:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel

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(c) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(d) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(e) For slat No. 4, remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(f) For slat No. 5, remove these access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(g) For slat No. 6, remove these access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(i) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(j) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(k) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(l) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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(m) For slat No. 14, remove these access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel

(n) For slat No. 14, remove these access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

F. Outboard Leading Edge Pinion Gear Removal

SUBTASK 27-81-18-010-001

(1) For the applicable rotary actuator, do this task: Outboard Leading Edge Rotary Actuator Removal, TASK 27-81-16-000-801.

SUBTASK 27-81-18-020-001

(2) Remove the pinion gear [1]:

(a) Bend the tab on the washer [14] until you can turn the nut [13].

(b) Put the slat pinion torque adapter kit, SPL-1707 in the end of the pinion shaft [5] to hold it while you remove the nut [13].

(c) Use the spanner wrench to remove the nut [13], washer [14] and washer [15] from the pinion shaft [5].

(d) Remove the bolts [12], washers [11] and retainer [16] from the main track rib [2].

(e) Loosely install the bolts [12] and washers [11] through the main track rib [2] to hold the retainer [10].

(f) Remove the pinion support bushing [9] and the bearing [6] from the pinion shaft [5] and the main track rib [2].

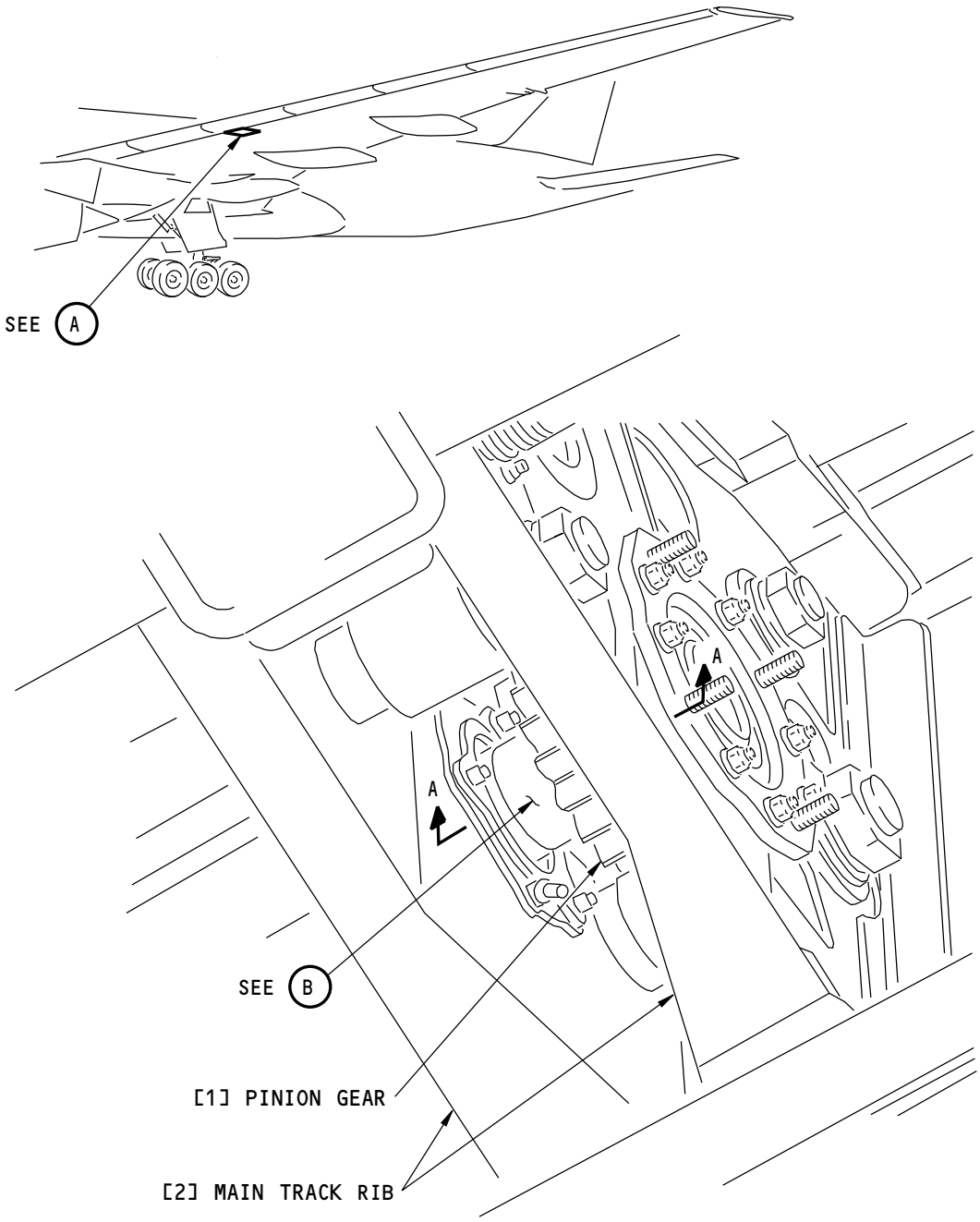
(g) Hold the pinion gear [1] and remove the pinion shaft [5] with the bearing [6] from the main track rib [2].

(h) Remove the pinion gear [1].

(i) If you will replace the retainer [10], remove the bolts [12] and washers [11] and the retainer [10].

——— END OF TASK ———

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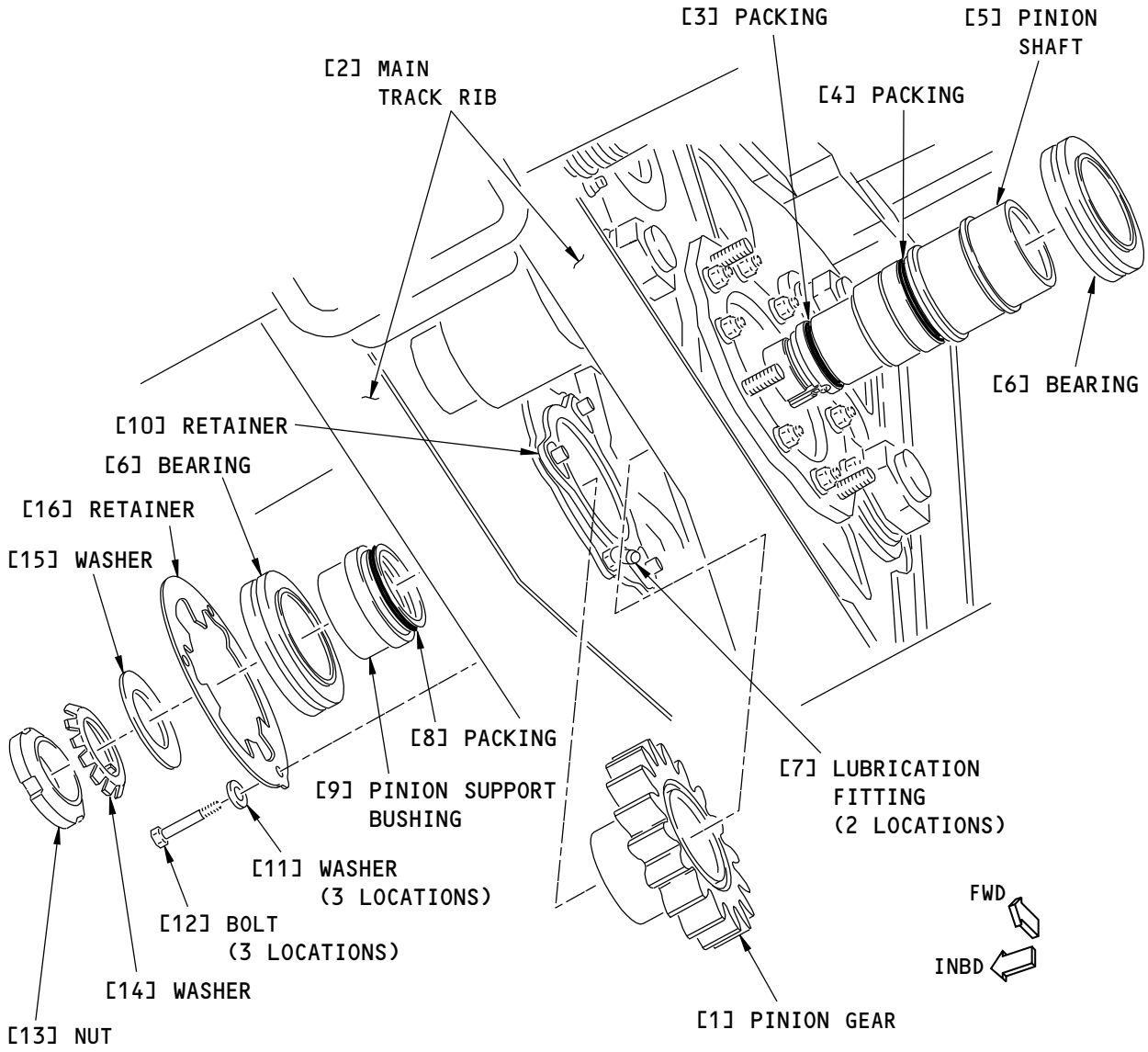
OUTBOARD LEADING EDGE PINION GEAR

A

E08957 S0006414419_V1

Outboard Leading Edge Pinion Gear
Figure 401/27-81-18-990-801 (Sheet 1 of 3)

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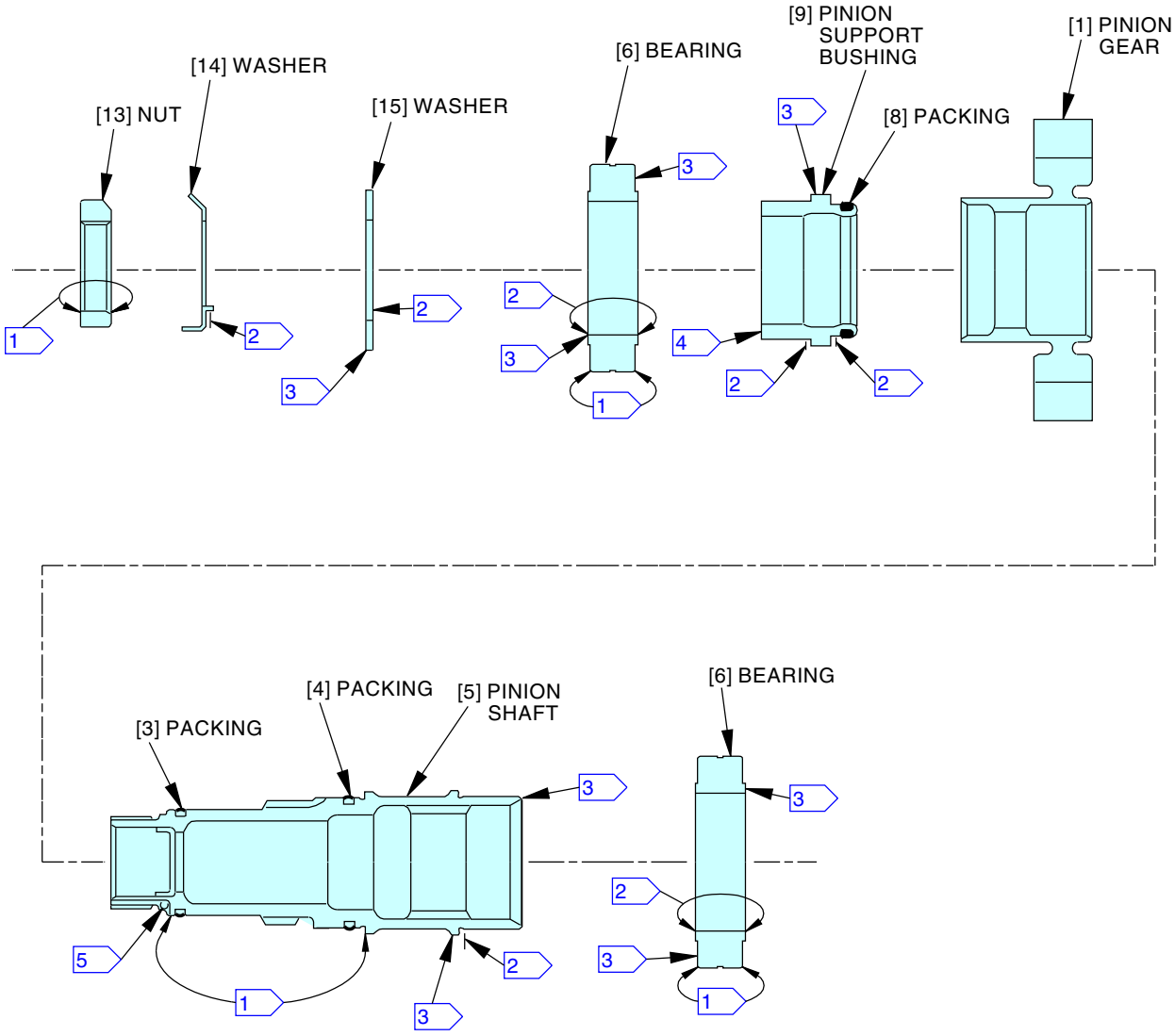
OUTBOARD LEADING EDGE PINION GEAR

B

E09032 S0006414420_V1

Outboard Leading Edge Pinion Gear
Figure 401/27-81-18-990-801 (Sheet 2 of 3)

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1 APPLY GREASE (BMS 3-33) TO THESE AREAS.

2 APPLY CORROSION INHIBITING COMPOUND (BMS 3-38 OR BMS 3-27) TO THESE AREAS.

3 WITH A CLEAN CLOTH WIPE THE CORROSION INHIBITING COMPOUND FROM THESE AREAS.

4 WITH A CLEAN CLOTH WIPE GREASE FROM THESE AREAS.

5 FILL THE KEYWAY ON THE PINION SHAFT FROM THE CORNER TO THE THREADS WITH CORROSION INHIBITING COMPOUND (BMS 3-38 OR BMS 3-27).

E09031 S0006414421_V3

Outboard Leading Edge Pinion Gear
Figure 401/27-81-18-990-801 (Sheet 3 of 3)

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TASK 27-81-18-400-801

3. Outboard Leading Edge Pinion Gear Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-802	Outboard Slat Rollers and Pinion Bearing Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-16-400-801	Outboard Leading Edge Rotary Actuator Installation (P/B 401)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1707	Adapter - Torque, Slat Pinion (Kit) (-2 Adapter for Inboard, -3 Adapter for Outboard) Part #: J27022-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pinion gear	27-81-18-10A-055	ARO ALL
3	Packing	27-81-18-10A-060	ARO ALL
4	Packing	27-81-18-10A-045	ARO ALL
5	Pinion shaft	27-81-18-10A-065	ARO ALL
6	Bearing	27-81-18-10A-040	ARO ALL
8	Packing	27-81-18-10A-045	ARO ALL
9	Pinion support bushing	27-81-18-10A-050	ARO ALL
10	Retainer	27-81-18-10A-035	ARO ALL
16	Retainer	27-81-18-10A-030	ARO ALL

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E. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

F. Access Panels

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

G. Outboard Leading Edge Pinion Gear Installation

SUBTASK 27-81-18-640-001

(1) Apply grease, D00633 to the lubrication fitting [7] in the main track rib [2] to fill the grease passages.

SUBTASK 27-81-18-420-001



WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Install the bearing [6] on the pinion shaft [5] if it is not installed:

(a) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the inside diameter of the bearing [6] and the mating surface of the flange on the pinion shaft [5].

(b) Put the bearing [6] on the pinion shaft [5].

(c) Use a clean cotton wiper, G00034 to remove the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 from the outside of the flange, the sides of the bearing [6] and the end of the pinion shaft [5].

SUBTASK 27-81-18-420-002

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Install the bearing [6] on the pinion support bushing [9] if it is not installed:

(a) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the inside diameter of the bearing [6] and the mating surface of the flange on the pinion support bushing [9].

(b) Put the bearing [6] on the pinion support bushing [9].

(c) Use a cotton wiper, G00034 to remove the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 from the outside of the flange and the sides of the bearing [6].

SUBTASK 27-81-18-420-003

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Install the pinion gear [1]:

(a) If you removed the retainer [10], loosely install the retainer [10] on the main track rib [2] with the bolts [12] and washers [11].

(b) Install new packing [3] and packing [4] on the pinion shaft [5] with grease, D00633.

(c) Apply grease, D00633 to the outside diameter of the bearing [6] and the surface of the pinion shaft [5] between packing [3] and packing [4].

(d) Hold the pinion gear [1] in its position between the main track rib [2].

NOTE: If the main track is installed, engage the teeth on the pinion gear [1] with the sector gear in the main track.

(e) Install the pinion shaft [5], with the bearing [6] through the main track rib [2] and the pinion gear [1].

(f) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surface of the flange on the pinion support bushing [9].

(g) Install a new packing [8] on the pinion support bushing [9] with grease, D00633.

(h) Apply grease, D00633 to the outside diameter of the bearing [6] on the pinion support bushing [9].

(i) Install the pinion support bushing [9], with the bearing [6] on the pinion shaft [5].

(j) Remove the bolts [12] and washer [11] from the retainer [10].

(k) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [12].

(l) Install the bolts [12] and washers [11] to connect retainer [16]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(m) Fill the keyway on the pinion shaft [5] from the flange to the start of the threads with Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913.

(n) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the washer [14] and washer [15].

(o) Loosely install the washer [14], washer [15] and nut [13] on the pinion shaft [5].

(p) Install the slat pinion torque adapter kit, SPL-1707 in the end of the pinion shaft [5] to hold it while you tighten the nut [13].

(q) Use the spanner wrench to tighten the nut [13] 300 in-lb (34 N·m) to 420 in-lb (47 N·m).

(r) Remove the spanner wrench and the slat pinion torque adapter kit, SPL-1707 from the pinion shaft [5] and nut [13].

(s) Bend one of the tabs on the washer [14] to hold the nut [13].

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SUBTASK 27-81-18-410-001

(5) For the applicable rotary actuator, do this task: Outboard Leading Edge Rotary Actuator Installation, TASK 27-81-16-400-801.

SUBTASK 27-81-18-640-002

(6) For the applicable pinion gear bearings, do this task: Outboard Slat Rollers and Pinion Bearing Lubrication, TASK 12-21-08-640-802.

SUBTASK 27-81-18-820-001

(7) Do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-18-410-002

(1) Install the applicable fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, install these access panel:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

(b) For slat No. 1, install this access panel:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel

(c) For slat No. 2, install these access panel:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(d) For slat No. 3, install these access panel:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(e) For slat No. 4, install these access panel:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(f) For slat No. 5, install these access panel:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(g) For slat No. 6, install these access panel:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 9, install these access panel:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
621EB	Outboard Fixed Leading Edge Panel

(i) For slat No. 10, install these access panel:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(j) For slat No. 11, install these access panel:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(k) For slat No. 12, install these access panel:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(l) For slat No. 13, install these access panel:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(m) For slat No. 14, install these access panel:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel

(n) For slat No. 14, install this access panel:

Number	Name/Location
621AFB	Outboard Fixed Leading Edge Panel

(o) Install the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-18-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-18-440-002

(3) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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KRUEGER FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Krueger flap

(2) An installation of the Krueger flap.

TASK 27-81-21-000-801

2. Krueger Flap Removal

(Figure 401)

A. General

(1) This procedure includes the removal of the Krueger flap assembly and the actuation mechanism for the Krueger flap.

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-22-000-801	Krueger Flap Rotary Actuator Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

D. Access Panels

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

E. Prepare for the Removal

SUBTASK 27-81-21-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-21-860-008

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Make sure the thrust reverser cowls are closed.

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(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-21-860-001

(3) Make sure the slats are in the retracted position. If the slats are not retracted, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-21-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-21-010-001

(5) From the top surface of the wing, remove these access panels:

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

F. Krueger Flap Removal

SUBTASK 27-81-21-020-001

(1) Remove the tube assembly [3] between the rotary actuator [4] and the offset gearbox [2]:

(a) Remove the screws [16] from the coupling sleeves [15].

(b) Move the coupling sleeves [15] off the splined couplings [14].

(c) Remove the tube assembly [3].

SUBTASK 27-81-21-020-002

(2) At joint B, View E, remove the nut [23], washer [21], washer [22], bolt [20] and bushing [53] to disconnect the drive arm [6] from the B-C link [18].

SUBTASK 27-81-21-980-001

(3) Manually move the Krueger flap [17] to the open position.

SUBTASK 27-81-21-020-003

(4) At joint F, View F, remove the nut [35], washer [33], washer [34], bolt [32] and bushing [54] to disconnect the E-F link [31] from the Krueger flap [17].

SUBTASK 27-81-21-020-004

(5) At the inboard and outboard hinges (Views G and H), remove the nuts [44], washers [36], washers [45], bolts [37] and bushings [55] to disconnect the links [40] from the fittings on the structure.

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SUBTASK 27-81-21-020-005

(6) Remove the Krueger flap [17]:

(a) At the inboard hinge, remove the pin [43], nut [42], washer [39], washer [41] and bolt [38].

(b) At the outboard hinge, remove the nut [50], washer [48], washer [49], bolt [47] and bushing [56].

(c) Remove the Krueger flap [17] with the bullnose [19] and the links [40].

G. Krueger Flap Drive Mechanism Removal

SUBTASK 27-81-21-020-006

(1) Remove the drive arm [6], View B:

(a) Do this task: Krueger Flap Rotary Actuator Removal, TASK 27-81-22-000-801.

(b) Remove the nut [51] and the washer [52] from the drive arm [6].

(c) Remove the nuts [7], washers [8], washers [12] and bolt [11] that attach the retainer [10] and the holder assembly [5] to the rib [9].

(d) Remove the drive arm [6] with the bearings [13].

SUBTASK 27-81-21-020-007

(2) At joint D, disconnect the drive mechanism [1] from the rib [9], View E:

(a) Remove the pin [25] from the nut [26].

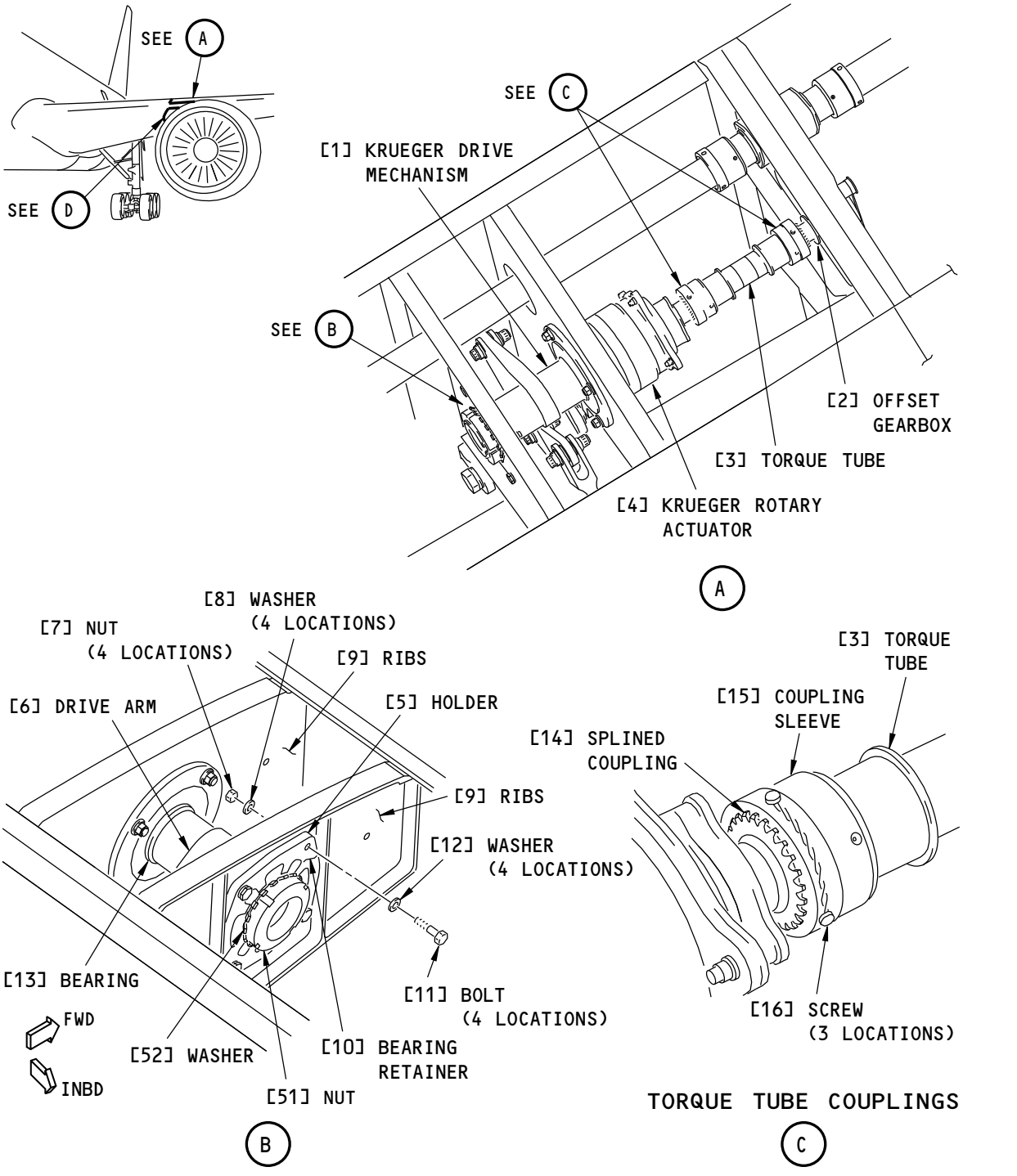
(b) Remove the nut [26] and the washer [24] from the bolt [27].

(c) Hold the drive mechanism [1] and remove the bolt [27] and washer [28].

(d) Remove the drive mechanism [1].

——— END OF TASK ———

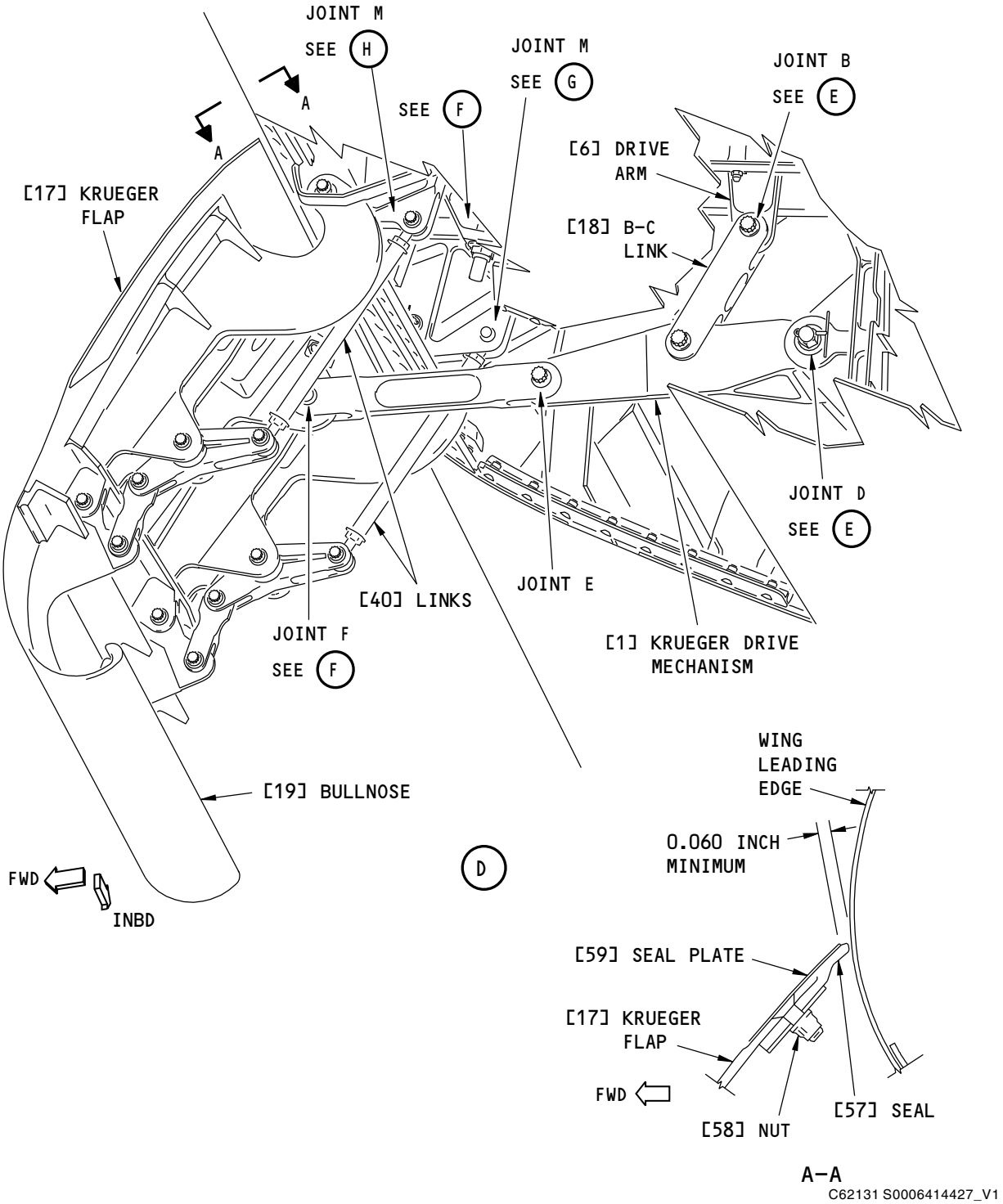
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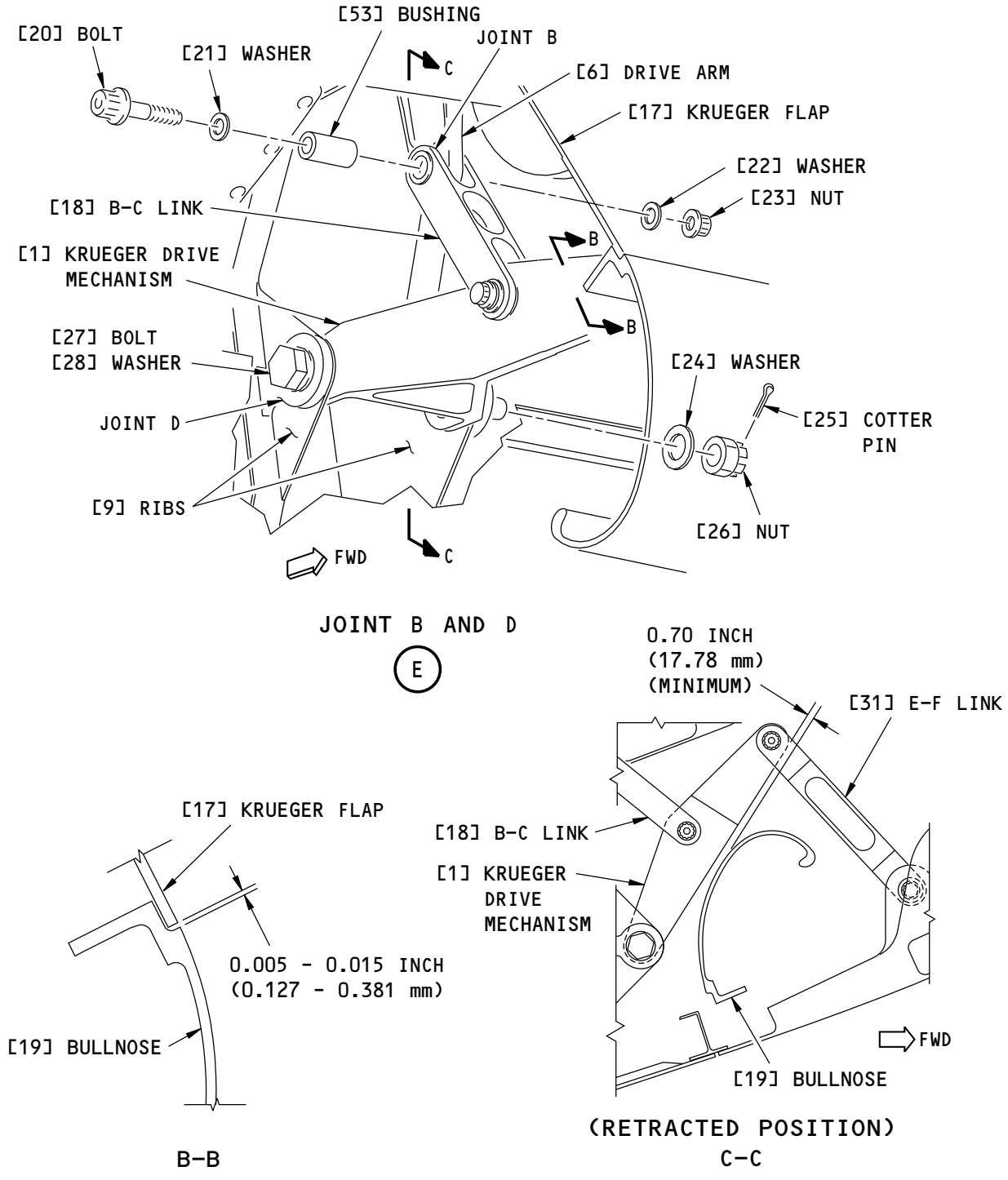
Krueger Flap Installation
Figure 401/27-81-21-990-801 (Sheet 1 of 5)

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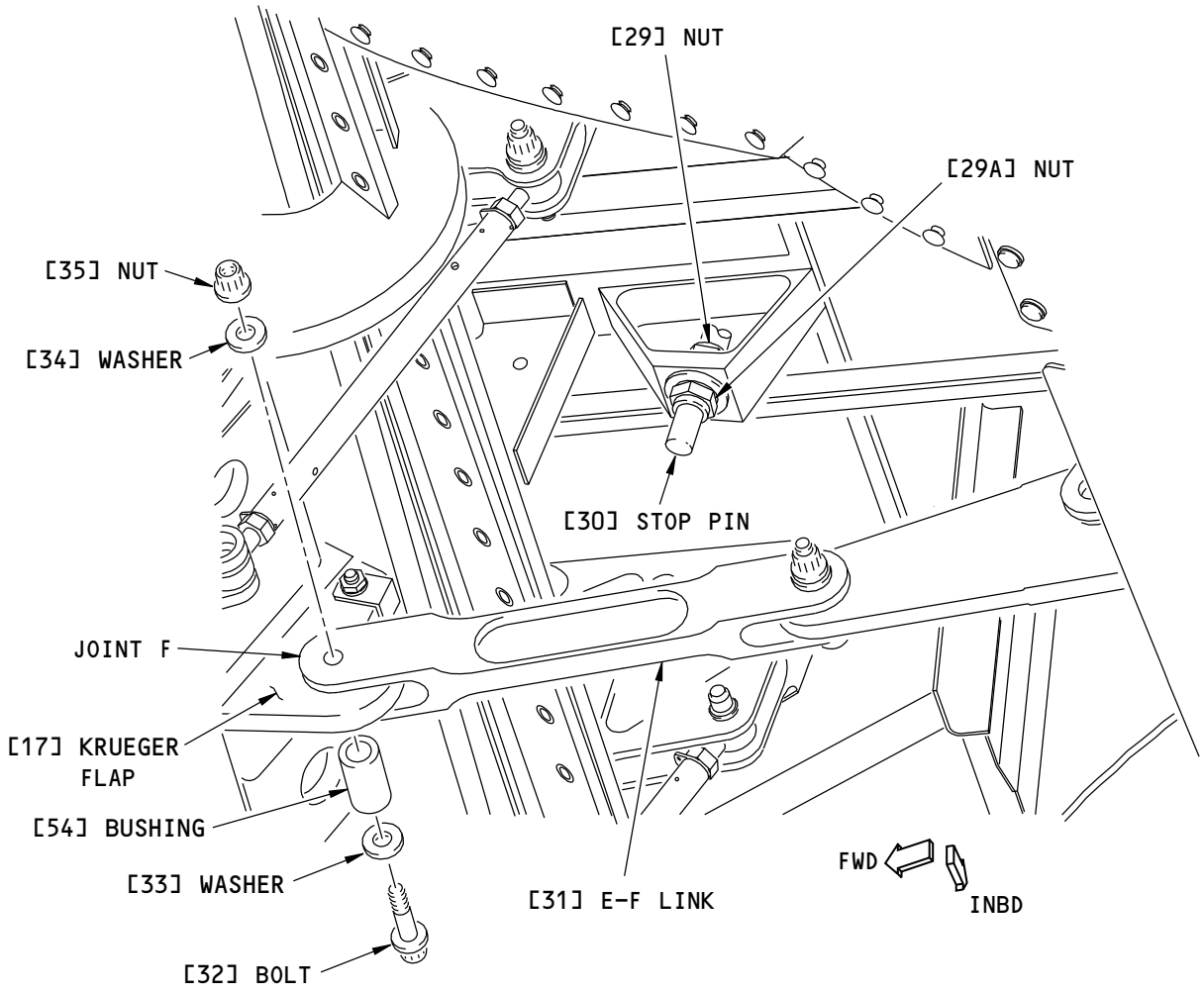
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Figure 401/27-81-21-990-801 (Sheet 2 of 5)

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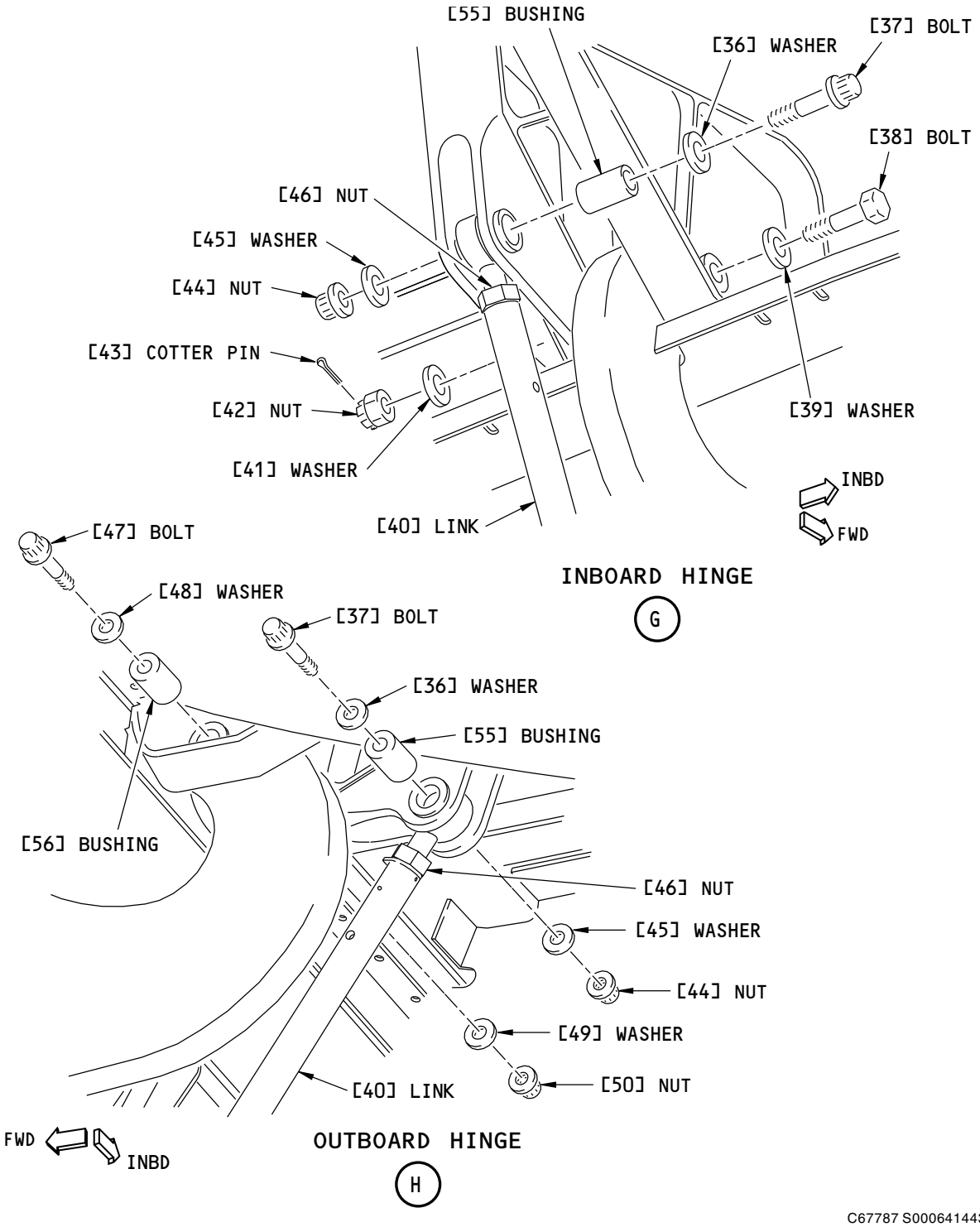
Krueger Flap Installation
Figure 401/27-81-21-990-801 (Sheet 3 of 5)

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Krueger Flap Installation
Figure 401/27-81-21-990-801 (Sheet 4 of 5)

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Krueger Flap Installation
Figure 401/27-81-21-990-801 (Sheet 5 of 5)

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TASK 27-81-21-400-801

3. Krueger Flap Installation

(Figure 401)

A. General

(1) This procedure includes the installation of the Krueger flap assembly and the actuation mechanism for the Krueger flap.

B. References

Reference	Title
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-22-400-801	Krueger Flap Rotary Actuator Installation (P/B 401)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Drive mechanism	27-81-21-02A-130	ARO ALL
3	Tube assembly	27-81-38-01A-380	ARO ALL
5	Holder assembly	27-81-21-02A-085	ARO ALL
		27-81-21-02A-090	ARO ALL
6	Drive arm	27-81-21-02A-175	ARO ALL
10	Retainer	27-81-21-02A-080	ARO ALL
13	Bearing	27-81-21-02A-190	ARO ALL
17	Krueger flap	27-81-21-02A-330	ARO ALL
		27-81-21-02A-335	ARO ALL
25	Pin	27-81-21-02A-100	ARO ALL
43	Pin	27-81-21-02A-280	ARO ALL

E. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

F. Access Panels

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

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G. Krueger Flap Drive Mechanism Installation

SUBTASK 27-81-21-420-001

(1) At joint D, connect the drive mechanism [1] to the ribs [9], View E:

(a) If it is not disconnected, disconnect the drive arm [6] from the B-C link [18].

1) Remove the nut [23], washer [21], washer [22], bolt [20] and bushing [53] to disconnect the drive arm [6] from the B-C link [18].

(b) Put the drive mechanism [1] in its location between the ribs [9].

(c) Install the bolt [27], washer [24], washer [28] and nut [26] that attach the drive mechanism [1] to the ribs [9].

(d) Tighten the nut [26] to 1000-1200 pound-inches.

(e) Install the pin [25].

NOTE: If it is necessary, you can loosen the nut [26] to align the holes for the nut [26].

SUBTASK 27-81-21-420-002

(2) Install the drive arm [6], View B:

(a) Make sure the inboard bearing [13], nut [51] and washer [52] are not installed on the drive arm [6].

(b) Make sure the outboard bearing [13] is installed on the drive arm [6].

(c) Install the drive arm [6] in the ribs [9]:

1) Put the drive arm [6] between the ribs [9].

2) Move the drive arm [6] until you can put the outboard bearing [13] in its location in the rib [9].

(d) Install the holder assembly [5], inboard bearing [13] and retainer [10] in the rib [9].

(e) Apply grease, D00633 to the shank and threads of the bolts [11], washers [8] and washers [12].

(f) Install the bolts [11], washers [8], washers [12] and nuts [7] that attach the retainer [10] to the rib [9].

(g) Install the washer [52] and nut [51] on the drive arm [6]:

1) Apply grease, D00633 to the threads of the nut [51] and to the washer [52].

2) Put the washers [52] and nuts [51] on the drive arm [6].

3) Tighten the nut [51] to 1000 pound-inches.

NOTE: Make sure the washer [52] does not turn while you tighten the nut [51]. Make sure the wrench does not touch the tabs on the washer [52] while you tighten the nut [51].

4) Tighten the nut [51] until you can bend one of the tabs on the washer [52].

NOTE: Tighten the nut [51] to a maximum of 1500 pound-inches.

(h) Do this task: Krueger Flap Rotary Actuator Installation, TASK 27-81-22-400-801.

NOTE: Do not install the tube assembly [3] between the rotary actuator [4] and the offset gearbox [2].

H. Krueger Flap Installation

SUBTASK 27-81-21-420-003

(1) Connect the Krueger flap [17] at the inboard and outboard hinges, Views G and H:

(a) Put the Krueger flap [17] with the bullnose [19] and links [40] in its position.

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(b) At the inboard hinge, install the bolt [38], washer [39], washer [41] and nut [42].

(c) At the outboard hinge, install the bushing [56], bolt [47], washer [48], washer [49] and nut [50].

(d) Tighten the nut [50] on the outboard hinge to 65-100 pound-inches.

(e) Tighten the nut [42] on the inboard hinge to 30-50 pound-inches.

(f) Install the pin [43] in the inboard nut [42].

NOTE: If it is necessary, you can loosen the nut [42] to align the holes for the cotter pin [43].

SUBTASK 27-81-21-420-004

(2) At joint F, connect the Krueger flap [17] to the E-F link [31], View F:

(a) Install the bushing [54], bolt [32], washer [33], washer [34] and nut [35] that connect the Krueger flap [17] to the E-F link [31].

(b) Tighten the nut [35] to 220-410 pound-inches.

SUBTASK 27-81-21-420-005

(3) Connect the links [40], View D, for the bullnose [19]:

(a) Make sure the B-C link [18] is disconnected from the drive arm [6].

(b) Move the drive mechanism [1] to the fully extended position.

NOTE: The three pivot points (Joints D, E and F) on the drive mechanism [1] will be in a straight line.

(c) Move the bullnose [19] to the extended position.

(d) Install the bushings [55], bolts [37], washers [36], washers [45] and nuts [44] to connect the links [40], Views G and H.

(e) Adjust the length of the links [40] until the clearance between the Krueger flap [17] and the bullnose [19] is 0.005-0.015 inch, View B-B.

(f) Tighten the nuts [46] to 60-95 pound-inches.

(g) Install the lockwire on the nuts [46].

NOTE: Make sure the lockwire will not touch the bellcrank at the lower end of the links [40].

(h) Tighten the nuts [44] that attach the links [40] to 65-100 pound-inches.

I. Krueger Flap Adjustment

SUBTASK 27-81-21-980-002

(1) Move the drive mechanism [1], (View D) to the fully extended position.

NOTE: The three pivot points (Joints D, E and F) on the drive mechanism will be in a straight line.

SUBTASK 27-81-21-220-001

(2) Make sure the clearance between the seal plate [59] on top of the Krueger flap [17] and the wing leading edge is a minimum of 0.060 inch, View A-A:

(a) If the clearance is not in the limit, then loosen the nuts [58] and adjust the seal [57].

(b) If it is necessary, trim off part of the seal plate [59] to get the clearance in the limit.

(c) Tighten the nuts [58] for the seal [57].

SUBTASK 27-81-21-980-003

(3) Manually close the Krueger flap [17] to the retracted position.

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SUBTASK 27-81-21-820-001

(4) Adjust the retracted position of the Krueger flap [17]:

(a) Hold the Krueger flap [17] in the retracted position.

NOTE: Make sure the stop (screw) pin [30], touches the Krueger flap [17], View F.

(b) Measure the mismatch between the aft end of the Krueger flap [17] and the fixed leading edge, View B-B (Figure 402).

(c) Adjust the stop (screw) pin [30], until the mismatch is in the limit of +0.050 to -0.030 inch, (Figure 401) :

1) Remove the lockwire from the (BACN11U7CD1) jam (lockwire) nuts [29] and [29A], if installed on the stop (screw) pin [30].

NOTE: BACN10JC7CD, self locking nuts [29] and [29A] are installed on the stop (screw) pin [30] of other airplanes. Refer to the Illustrated Parts Catalog for specific hardware.

NOTE: Do not tighten the nuts [29] and [29A] on the stop (screw) pin [30] until after you adjust the seals.

(d) Make sure the clearance between the bullnose [19] and drive mechanism [1] is a minimum of 0.70 inch, View C-C.

1) If the clearance is not in the limit, open the Krueger flap [17] and adjust the links [40] as necessary.

SUBTASK 27-81-21-820-002

(5) Adjust the inboard seal [61], on the Krueger flap [17] (Figure 402):

(a) Make sure the inboard slat is in the retracted position.

(b) With the Krueger flap [17] held in the retracted position, make sure the inboard seal [61] touches the spring loaded seal on the inboard slat.

WARNING DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure that the thrust reverser is deactivated per the Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(d) Make sure the thrust reverser cowls are closed

1) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

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2) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

(e) Extend the Krueger flap [17] to the extended position (Extend the Leading Edge Slats, TASK 27-81-00-860-804).

(f) Make sure the inboard seal [61] moves freely from the inboard slat.

SUBTASK 27-81-21-820-003

(6) Adjust the outboard seal [62] on the Krueger flap [17]:

(a) Adjust the outboard seal [62] to meet these conditions:

1) With the Krueger flap [17] in the extended position, make sure the outboard seal [62] touches the engine strut.

2) With the Krueger flap in the retracted position, make sure the clearance between the outboard seal [62] and the fixed skin is at a minimum.

3) If it is necessary, loosen the nuts [64] and adjust the outboard seals [62].

4) Tighten the nuts [64].

(b) Measure the mismatch between the outboard seal [62] and the fixed skin.

(c) If the mismatch is not in these limits, adjust the stop (screw) pin [30]:

1) Remove the lockwire from the (BACN11U7CD1) jam (lockwire) nuts [29] and [29A], if installed on the stop (screw) pin [30].

NOTE: BACN10JC7CD, self locking nuts [29] and [29A] are installed on the stop (screw) pin [30] of other airplanes. Refer to the Illustrated Parts Catalog for specific hardware.

NOTE: Do not tighten the nuts [29] and [29A] on the stop (screw) pin [30] until after you complete the adjustment of the seals.

2) The mismatch must be ±0.020 inch for a minimum of 25 percent of the length.

3) The mismatch must be ±0.040 inch for a maximum of 25 percent of the length.

SUBTASK 27-81-21-820-004

(7) Adjust the stop (screw) pin [30], View F (Figure 401):

NOTE: This will make a clearance between the stop (screw) pin [30] and the Krueger flap [17] when the Krueger flap is in the retracted position. This will not change the clearances around the Krueger flap [17].

(a) Open the Krueger flap [17] to get access to the stop (screw) pin [30].

(b) While you look up, turn the stop (screw) pin [30] 1/2 turn clockwise.

NOTE: This will move the stop (screw) pin [30] away from the retracted position of the Krueger flap [17].

(c) Tighten the (BACN11U7CD1) nuts [29] and [29A] on the stop (screw) pin [30] to 63 in-lb (7 N·m) to 67 in-lb (8 N·m) or tighten the (BACN10JC7CD) self-locking nuts [29] and [29A] to 250 in-lb (28 N·m) to 350 in-lb (40 N·m).

(d) If the upper nut [29] installed on the stop (screw) pin [30] is of the jam (lockwire) nut type then do the step that follow:

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1) Apply Loctite 290 (MIL-S-46163, Type III) directly to the clean dry threads of the stop (screw) pin [30] above the (BACN11U7CD1) upper nut [29] allowing to wick into the threads of thIs jam (lockwire) nut.

NOTE: If loctite 290 is not applied to the upper jam (lockwire) nut [29], the stop (screw) pin [30] can drop, which could cause the fitting to become overloaded. Without the Loctite 290 being applied, the stop (screw) pin [30] may move causing the krueger flap to become out of correct seal alignment.

(e) Lockwire the (BACN11U7CD1) upper nuts [29] and [29A] from the upper nut [29] to the lower nut [29A].

NOTE: Flap should now preload against the (lower skin) stiffener of the fixed leading edge.

SUBTASK 27-81-21-420-006

(8) Connect the B-C link [18], to the drive arm [6], View E:

(a) Move the Krueger flap [17] until the B-C link [18] aligns with the drive arm [6].

(b) Install the bushing [53], bolt [20], washer [21], washer [22] and nut [23].

(c) Tighten the nut [23] to 220-410 pound-inches.

SUBTASK 27-81-21-860-002

(9) Make sure the slat drive system is in the retracted position.

SUBTASK 27-81-21-420-007

(10) Install the tube assembly [3], between the Krueger rotary actuator [4] and the offset gearbox [2], View A:

(a) Put the tube assembly [3] in its location.

(b) Connect the tube assembly [3] to the offset gearbox [2]:

1) Apply grease, D00633 to the coupling sleeve [15] on the tube assembly [3].

2) Install the coupling sleeve [15] on the splined coupling [14].

3) Install the screws [16].

(c) Tighten the screws [16].

NOTE: Do not over tighten the screws [16].

1) Install the lockwire on the screws [16].

(d) Manually turn the Krueger rotary actuator [4] to retract the Krueger flap [17] until it is in the fully retracted position.

(e) Manually turn the output shaft for the offset gearbox [2] counterclockwise with a torque of 50-100 pound-inches to remove the backlash in the gearbox.

(f) Manually turn the input shaft on the Krueger rotary actuator [4] in the retract direction with a torque of 37 +4 / -0 in-lb (4 +1 / -0 N·m) to preload the Krueger flap [17].

(g) While you hold the torque on the Krueger rotary actuator [4], connect the tube assembly [3] to the rotary actuator [4]:

1) Put the coupling sleeve [15] on the splined coupling [14].

2) Install the screws [16] that attach the coupling sleeve [15].

3) Tighten the screws [16].

NOTE: Do not over tighten the screws [16].

4) Install lockwire on the screws [16].

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SUBTASK 27-81-21-410-001

(11) On the top surface of the wing, install the applicable access panels:

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

SUBTASK 27-81-21-860-010

WARNING MAKE SURE THAT THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(12) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002

SUBTASK 27-81-21-440-001

(13) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-21-860-003

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(14) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-21-860-004

(15) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-21-860-005

(16) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-21-860-006

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

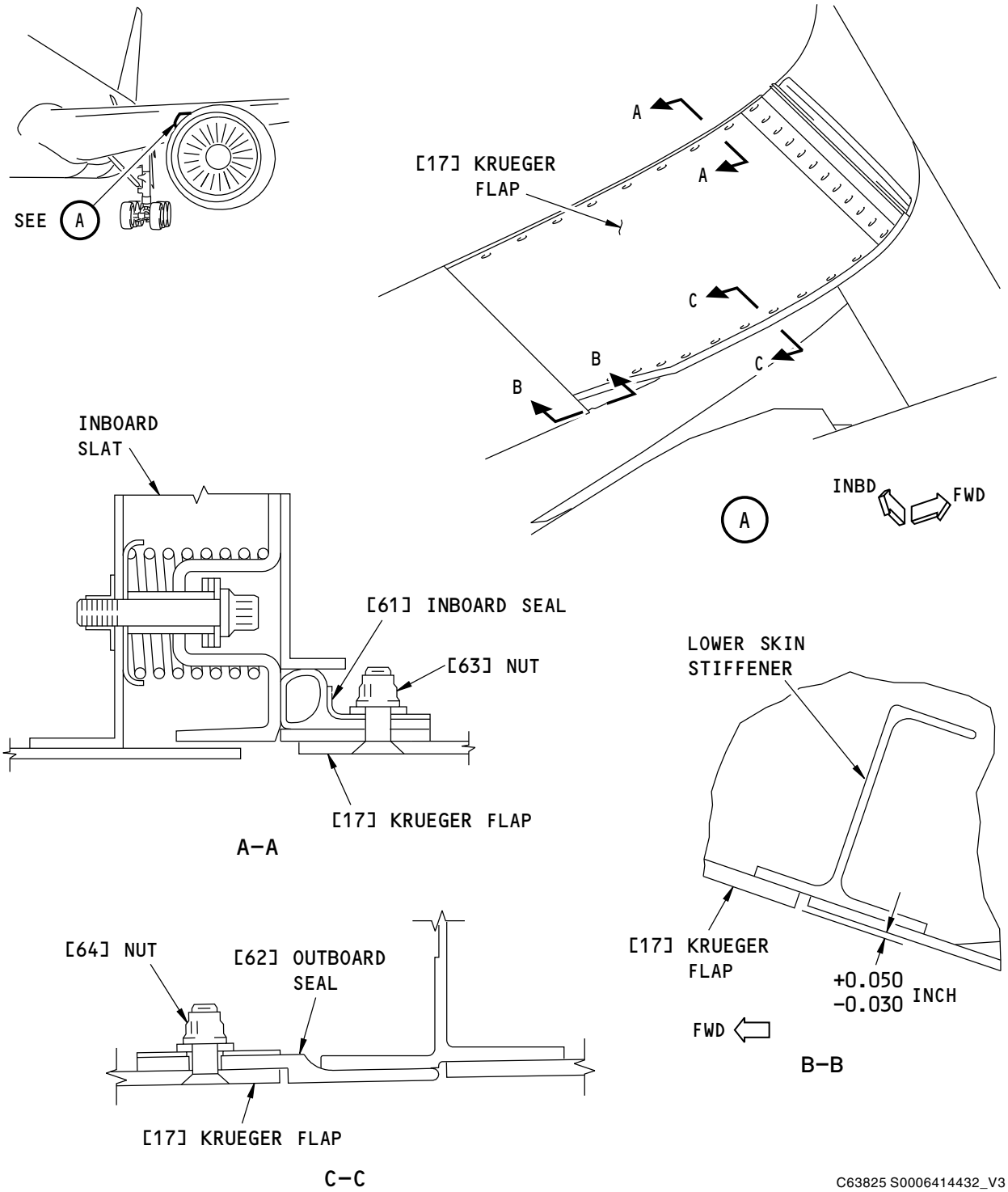
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SUBTASK 27-81-21-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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Krueger Flap Adjustment
Figure 402/27-81-21-990-802

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KRUEGER FLAP ROTARY ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rotary actuator for the Krueger flap

(2) An installation of the rotary actuator for the Krueger flap.

TASK 27-81-22-000-801

2. Krueger Flap Rotary Actuator Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) To get access to the rotary actuator, use the access panel on the top surface of the wing or extend the Krueger Flap. After you install the rotary actuator, you must rig the Krueger flap through the access panel on the top surface of the wing.

B. References

Reference	Title
20-10-27-400-801	Attach Flight Control and Nacelle Surfaces Personnel Equipment Shock Absorbing Lanyard (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

D. Access Panels

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel
611PB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

E. Prepare for the Removal

SUBTASK 27-81-22-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

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SUBTASK 27-81-22-210-001

CAUTION: MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-22-860-001

(3) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-22-040-002

WARNING: DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-22-480-001

(5) Do this task: Attach Flight Control and Nacelle Surfaces Personnel Equipment Shock Absorbing Lanyard, TASK 20-10-27-400-801.

SUBTASK 27-81-22-010-001

(6) From the lower surface of the wing, remove the applicable access panels:

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
611PB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-22-010-002

(7) From the top surface of the wing above the rotary actuator [1], remove the applicable access panels:

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

F. Krueger Flap Rotary Actuator Removal

SUBTASK 27-81-22-020-001

(1) Carefully remove the torque tube [12] between the krueger rotary actuator [1] and the offset gearbox [2]:

NOTE: The torque tube [12] is preloaded when it is installed.

(a) Remove the screws [13] from the coupling sleeves [14].

(b) Move the coupling sleeves [14] off the splined couplings [3].

(c) Remove the torque tube [12].

SUBTASK 27-81-22-020-002

(2) Remove the krueger rotary actuator [1]:

(a) Remove the nuts [9], washers [5], washers [8] and bolts [4] that attach the krueger rotary actuator [1] to the rib [11].

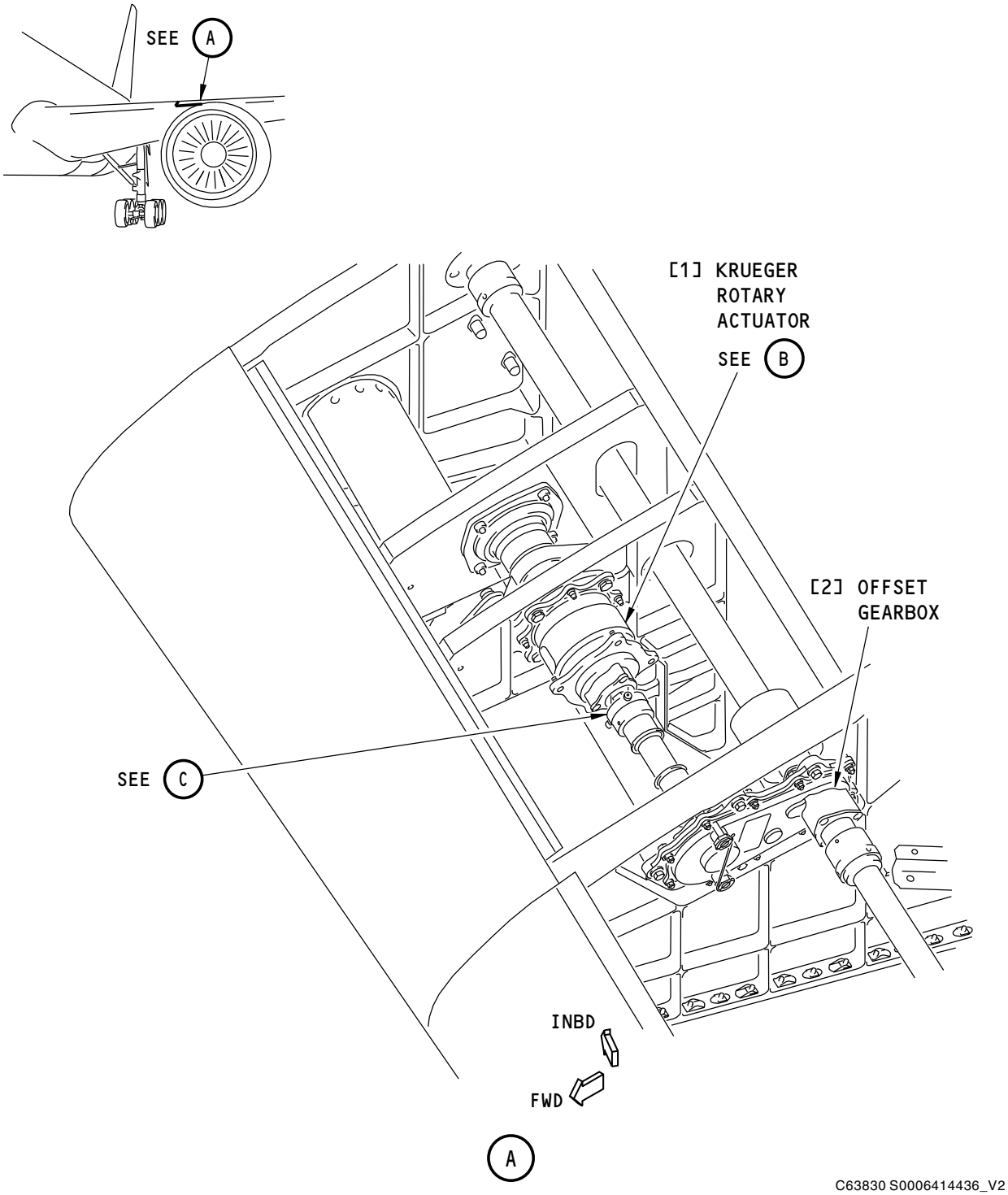
(b) Move the krueger rotary actuator [1] outboard to disengage the splined shaft [7] from the Krueger drive mechanism [10].

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(c) Remove the krueger rotary actuator [1].

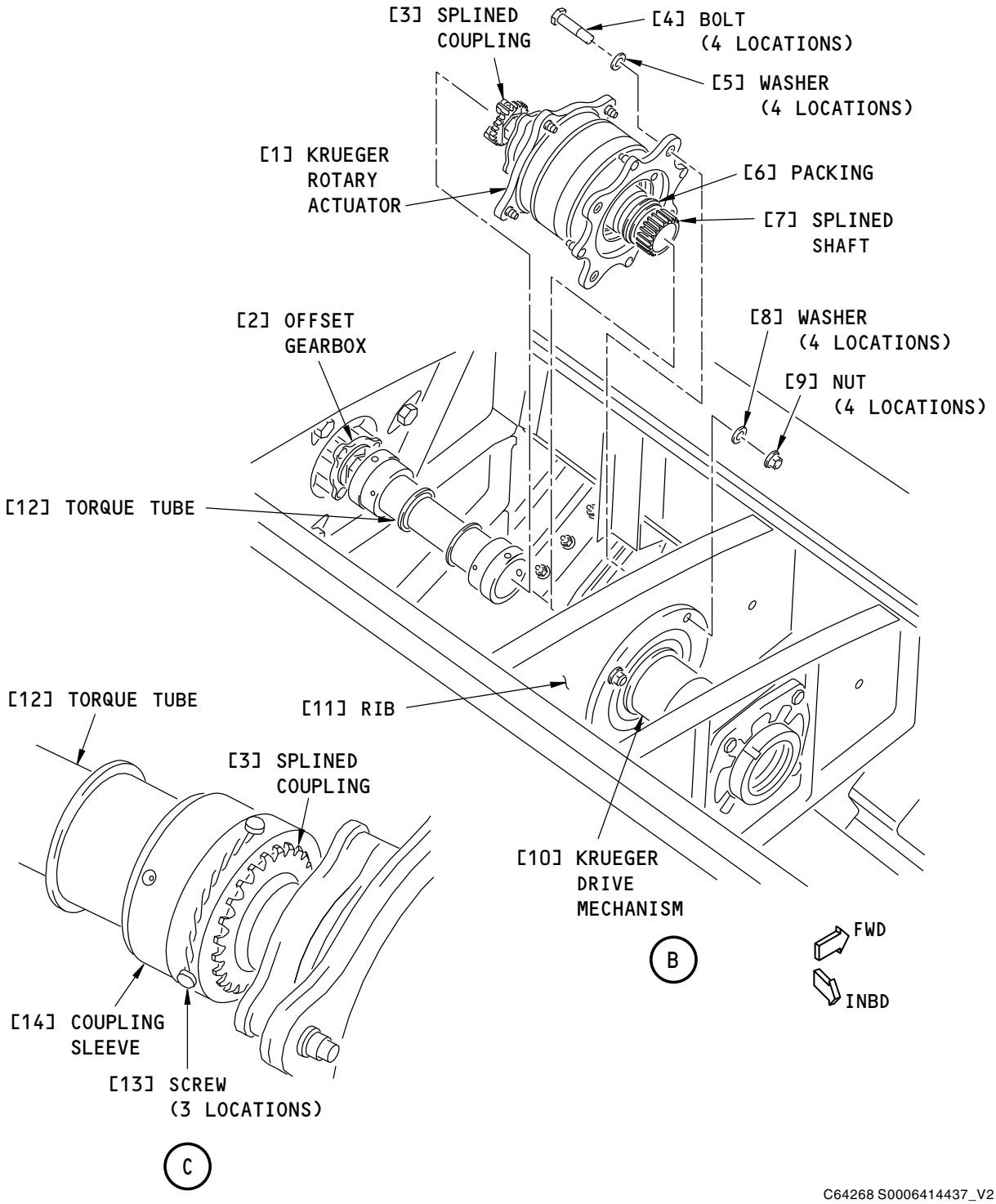
——— END OF TASK ———

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Krueger Rotary Actuator Installation
Figure 401/27-81-22-990-801 (Sheet 1 of 2)

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Krueger Rotary Actuator Installation
Figure 401/27-81-22-990-801 (Sheet 2 of 2)

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TASK 27-81-22-400-801

3. Krueger Flap Rotary Actuator Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) To get access to the rotary actuator, use the access panel on the top surface of the wing or extend the Krueger Flap. After you install the rotary actuator, you must rig the Krueger flap through the access panel on the top surface of the wing.

B. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Krueger rotary actuator	27-81-22-01-010	ARO ALL
6	Packing	27-81-22-01-005	ARO ALL

E. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

F. Access Panels

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel
611PB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

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G. Krueger Flap Rotary Actuator Installation

SUBTASK 27-81-22-420-001

> **WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

> **WARNING** DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the krueger rotary actuator [1]:

(a) Apply grease, D00633 to the krueger rotary actuator [1]:

1) Put grease, D00633 in the splined shaft [7] until the cavity is approximately 1/4 full.

NOTE: If there is no grease in the splined shaft, fill it with 28.0 ±2.8 cubic centimeters (27.0 ±2.7 grams) of grease.

2) Apply grease, D00633 to the splines on the splined shaft [7].

3) Install a new packing [6] on the splined shaft [7].

4) Apply grease, D00633 to the packing [6].

(b) Put the krueger rotary actuator [1] in its position through the access panel in the top surface of the wing.

(c) Engage the splined shaft [7] with the krueger drive mechanism [10].

(d) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the threads and shank of the bolts [4].

(e) Install the bolts [4], washers [5], washers [8] and nuts [9] that attach the krueger rotary actuator [1] to the rib [11].

(f) Tighten the nuts [9]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(g) Wipe the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 from the bolts [4] and nuts [9].

SUBTASK 27-81-22-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-22-860-002

(3) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-22-040-003

> **WARNING** DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

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SUBTASK 27-81-22-420-002

(5) Install the torque tube [12] between the krueger rotary actuator [1] and the offset gearbox [2]:

(a) Put the torque tube [12] in its location.

(b) Connect the torque tube [12] to the offset gearbox [2]:

1) Apply grease, D00633 to the coupling sleeve [14] on the torque tube [12].

2) Install the coupling sleeve [14] on the splined coupling [3].

3) Install the screws [13].

4) Tighten the screws [13].

NOTE: Do not over tighten the screws [13].

5) Install the lockwire on the screws [13].

(c) Use the hex drive to manually turn the krueger rotary actuator [1] to retract the Krueger flap until it is in the fully retracted position.

(d) Manually turn the output shaft for the offset gearbox [2] counterclockwise with a torque of 50 in-lb (6 N·m) - 100 in-lb (11 N·m) to remove the backlash in the gearbox.

(e) Manually turn the input shaft on the krueger rotary actuator [1] in the retract direction with a torque of 37 +4 / -0 in-lb (4 +1 / -0 N·m) to preload the Krueger flap.

(f) While you hold the torque, connect the torque tube [12] to the krueger rotary actuator [1]:

1) Put the coupling sleeve [14] on the splined coupling [3].

2) Install the screws [13] that attaches the coupling sleeve [14].

3) Tighten the screws [13].

NOTE: Do not over tighten the screws [13].

4) Install lockwire on the screws [13].

SUBTASK 27-81-22-410-001

(6) On the lower surface of the wing, install the applicable access panels:

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
611PB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-22-410-002

(7) On the top surface of the wing, install the applicable access panels:

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

SUBTASK 27-81-22-440-002

(8) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-22-860-003

WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(9) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-81-22-710-001

(10) Use the primary system to extend the leading edge slats to the gapped position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the Krueger flap moves smoothly.

(b) Make sure the Krueger flap moves to the extended position.

SUBTASK 27-81-22-710-002

(11) Use the primary system to retract the leading edge slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the Krueger flap moves smoothly.

(b) Make sure the Krueger flap moves to the retracted position.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-22-860-004

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-81-22-440-003

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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KRUEGER FLAP OFFSET GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the offset gearbox for the Krueger flap.

(2) An installation of the offset gearbox for the Krueger flap.

TASK 27-81-23-000-801

2. Krueger Flap Offset Gearbox Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) You must remove the offset gearbox [2] through an access panel on the top surface of the wing.

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

E. Access Panels

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel
611PB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

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F. Prepare for the Removal

SUBTASK 27-81-23-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-23-040-002

WARNING DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-23-010-001

(3) From the lower surface of the wing, remove the applicable access panels:

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
611PB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-23-010-002

(4) From the top surface of the wing above the rotary actuator, remove the applicable access panels:

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

G. Krueger Flap Offset Gearbox Removal

SUBTASK 27-81-23-020-003

(1) Disconnect the torque tubes [11] from the offset gearbox [2]:

(a) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the offset gearbox [2].

NOTE: If the slat drive system moves when the torque tubes are disconnected, it will be necessary to do the slat drive system adjustment.

(b) Remove the screws [4] from the coupling sleeve [3].

(c) Move the coupling sleeve [3] off the splined coupling [5].

(d) Disconnect the torque tubes [11].

SUBTASK 27-81-23-020-001

(2) Carefully remove the torque tube [9] between the offset gearbox [2] and the rotary actuator [1]:

NOTE: The torque tube [9] is preloaded when it is installed.

(a) Remove the screws [12] from the coupling sleeves [13].

(b) Move the coupling sleeves [13] off the splined couplings [5].

(c) Remove the torque tube [9].

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SUBTASK 27-81-23-020-002

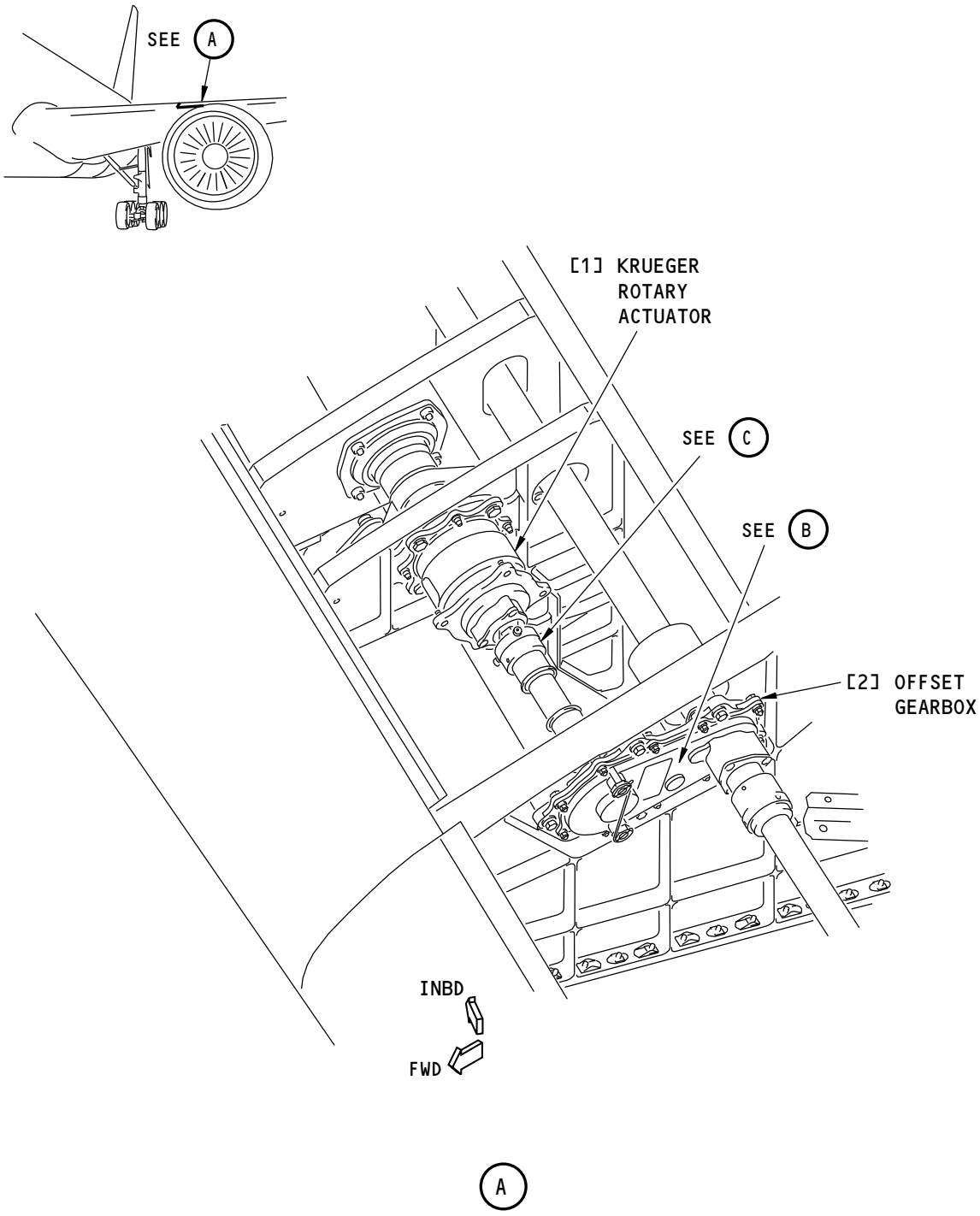
(3) Remove the offset gearbox [2]:

(a) Remove the nuts [6] and washers [7] that attach the offset gearbox [2] to the rib [10].

(b) Remove the offset gearbox [2] through the access panel in the top surface of the wing.

——— END OF TASK ———

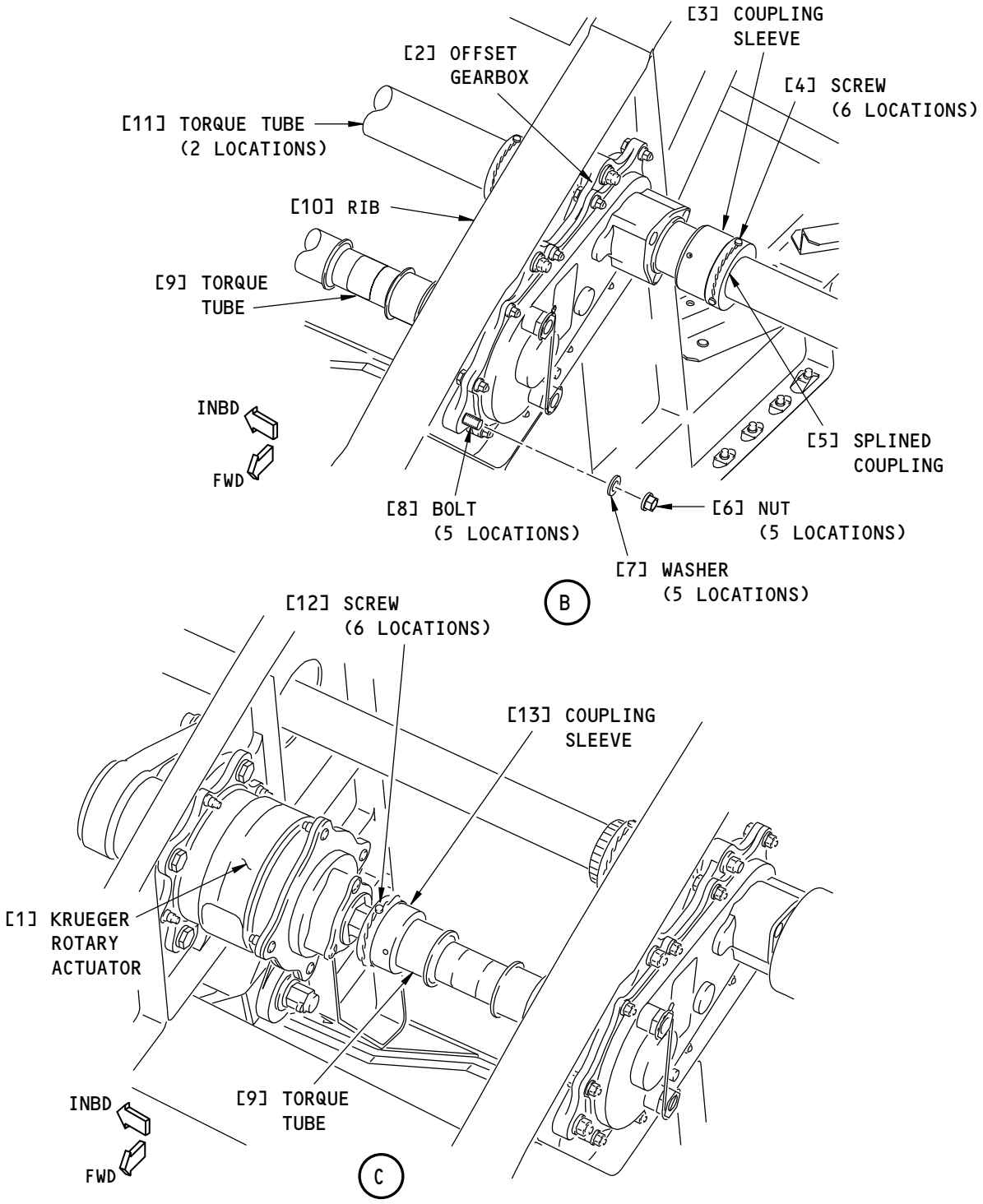
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Krueger Offset Gearbox Installation
Figure 401/27-81-23-990-801 (Sheet 1 of 2)

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Krueger Offset Gearbox Installation
Figure 401/27-81-23-990-801 (Sheet 2 of 2)

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TASK 27-81-23-400-801

3. Krueger Flap Offset Gearbox Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) You must install the offset gearbox [2] through an access panel on the top surface of the wing.

B. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Offset gearbox	27-81-23-10-005	ARO ALL

F. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

G. Access Panels

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel
611PB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

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H. Krueger Flap Offset Gearbox Installation

SUBTASK 27-81-23-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the offset gearbox [2]:

(a) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the threads and shank of the bolts [8] on the rib [10].

(b) Put the offset gearbox [2] in its position through the access panel on the top surface of the wing.

(c) Install the washers [7] and nuts [6] that attach the offset gearbox [2] to the rib [10].

(d) Tighten the nuts [6]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(e) Wipe the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 from the nuts [6].

SUBTASK 27-81-23-420-002

(2) Connect the two torque tubes [11] to the offset gearbox [2]:

(a) Apply grease, D00633 to the coupling sleeve [3].

(b) Move the splined coupling [5] in the coupling sleeve [3] on the offset gearbox [2].

(c) Install the screws [4].

(d) Tighten the screws [4].

NOTE: Do not over tighten the screws [4].

(e) Install the lockwire on the screws [4].

SUBTASK 27-81-23-820-001

(3) If the slat drive system moved while the torque tubes were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-23-080-001

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes.

SUBTASK 27-81-23-420-003

(5) Install the torque tube [9] between the krueger rotary actuator [1] and the offset gearbox [2]:

(a) Connect the torque tube [9] to the offset gearbox [2]:

1) Apply grease, D00633 to the coupling sleeve [13] on the torque tube [9].

2) Install the coupling sleeve [13] on the splined coupling [5] on the offset gearbox [2].

3) Install the screws [12].

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4) Tighten the screws [12].

NOTE: Do not over tighten the screws [12].

5) Install the lockwire on the screws [12].

(b) Turn the hex drive on the input shaft of the rotary actuator to manually retract the Krueger flap until it is in the fully retracted position.

(c) Manually turn the output shaft for the offset gearbox [2] counterclockwise with a torque of 50 in-lb (6 N·m) - 100 in-lb (11 N·m) to remove the backlash in the gearbox.

(d) Manually turn the input shaft on the krueger rotary actuator [1] in the retract direction with a torque of 37 +4 / -0 in-lb (4 +1 / -0 N·m) to preload the Krueger flap.

(e) While you hold the torque, connect the torque tube [9] to the rotary actuator [1]:

1) Put the coupling sleeve [13] on the splined coupling [5] on rotary actuator [1].

2) Install the screws [12] that attach the coupling sleeve [13].

3) Tighten the screws [12].

NOTE: Do not over tighten the screws [12].

4) Install lockwire on the screws [12].

SUBTASK 27-81-23-410-001

(6) On the lower surface of the wing, install the applicable access panels:

Number	Name/Location
511PB	Inboard Fixed Leading Edge Panel
611PB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-23-410-002

(7) On the top surface of the wing, install the applicable access panels:

Number	Name/Location
513AT	Krueger Slat Access Panel
613AT	Krueger Slat Access Panel

SUBTASK 27-81-23-440-001

(8) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-23-210-002

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the event that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

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(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-23-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(10) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-23-860-001

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) Do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-23-710-001

(12) Use the primary system to extend the leading edge slats to the gapped position. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the Krueger flap moves smoothly.

(b) Make sure the Krueger flap moves to the extended position.

SUBTASK 27-81-23-710-002

(13) Use the primary system to retract the leading edge slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the Krueger flap moves smoothly.

(b) Make sure the Krueger flap moves to the retracted position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-23-860-002

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-81-23-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

END OF TASK

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SLAT POWER DRIVE UNIT (PDU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the power drive unit (PDU) for the leading edge slats.

NOTE: This task includes removal of the PDU gearbox, slat limit switch, hydraulic motor and electric motor as a unit.

(2) An installation of the power drive unit (PDU) for the leading edge slats.

NOTE: This task includes installation of the PDU gearbox, slat limit switch, hydraulic motor and electric motor as a unit.

B. You can remove and install the PDU with the slat limit switch, hydraulic motor and electric motor installed or removed from the PDU gearbox. This procedure covers the PDU with these components installed.

TASK 27-81-31-000-801

2. Slat Power Drive Unit (PDU) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1710	Equipment - Removal/Installation, L.E. Slat Power Drive Unit Part #: J27004-24 Supplier: 81205 Opt Part #: J27004-1 Supplier: 81205

C. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

D. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel

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E. Prepare for the Removal

SUBTASK 27-81-31-210-001

(1) Make sure the slats are in the retracted position. If they are not retracted, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-31-040-001

WARNING DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-31-010-001

(3) On the lower leading edge of the left wing, open these access panels:

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-31-860-001

(4) For the center hydraulic system, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

F. Slat Power Drive Unit (PDU) Removal

SUBTASK 27-81-31-860-002

(1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

SUBTASK 27-81-31-020-001

(2) Disconnect the electrical connector [1] from the slat electric motor [2].

SUBTASK 27-81-31-020-002

(3) Disconnect the electrical connector [7] from the slat limit switch [8].

SUBTASK 27-81-31-020-003

(4) Remove the bolt [10] and washers [11] that attach the jumper wire [9] to the electric motor [2].

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SUBTASK 27-81-31-020-004

(5) Disconnect the hydraulic tubes [13], [14] and [15] from the hydraulic motor [6].

(a) Install caps on the hydraulic tubes [13], [14] and [15].

(b) Install plugs in the ports of the motor assembly [6], including the temporary plug [6A] in the bottom drain port.

SUBTASK 27-81-31-480-001

(6) Install the leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard of the angle gearbox, and outboard of the offset gearbox.

SUBTASK 27-81-31-020-005

(7) Remove tube assembly [4] and tube assembly [5]:

(a) Move the seal tube [38] to get access to the coupling on tube assembly [4]:

1) Remove the bolts [41], washers [40] and plate [39] that hold the seal tube [38].

2) Move the seal tube [38] inboard to get access to the coupling.

(b) Remove the screws [17] from the coupling sleeves [19].

(c) Move the coupling sleeves [19] off the splined couplings [18].

(d) Remove tube assembly [4] and tube assembly [5].

(e) Move the seal tube [38] outboard for access to the power drive unit [3].

SUBTASK 27-81-31-020-006

(8) Remove the power drive unit [3]:

(a) Install the sling, which is part of the L.E. slat power drive unit equipment, SPL-1710, on the power drive unit [3] (Figure 402):

1) Put the intercostal, which is part of the L.E. slat power drive unit equipment, SPL-1710, on the structure above the power drive unit [3].

2) Connect a fishpole hoist, COM-1582 to the intercostal and the sling.

3) Put the strap for the sling assembly over the torque tube couplings.

4) Put the cable around the electric motor [2].

5) Connect the sling assembly to the fishpole hoist, COM-1582.

(b) At the lower end of the strut assembly [16], remove the nut [27], washer [26], washer [30], bolt [29] and bushing [28] (Figure 401).

(c) Move the strut assembly [16] from the power drive unit [3].

(d) Remove the nut [25], washer [21], washer [24], bolt [22] and bushing [23] that attach the power drive unit [3] to the aft fitting on the rib.

(e) Remove the nut [25], washer [21], washer [24], bolt [22] and bushing [42] that attach the power drive unit [3] to the forward fitting on the rib.

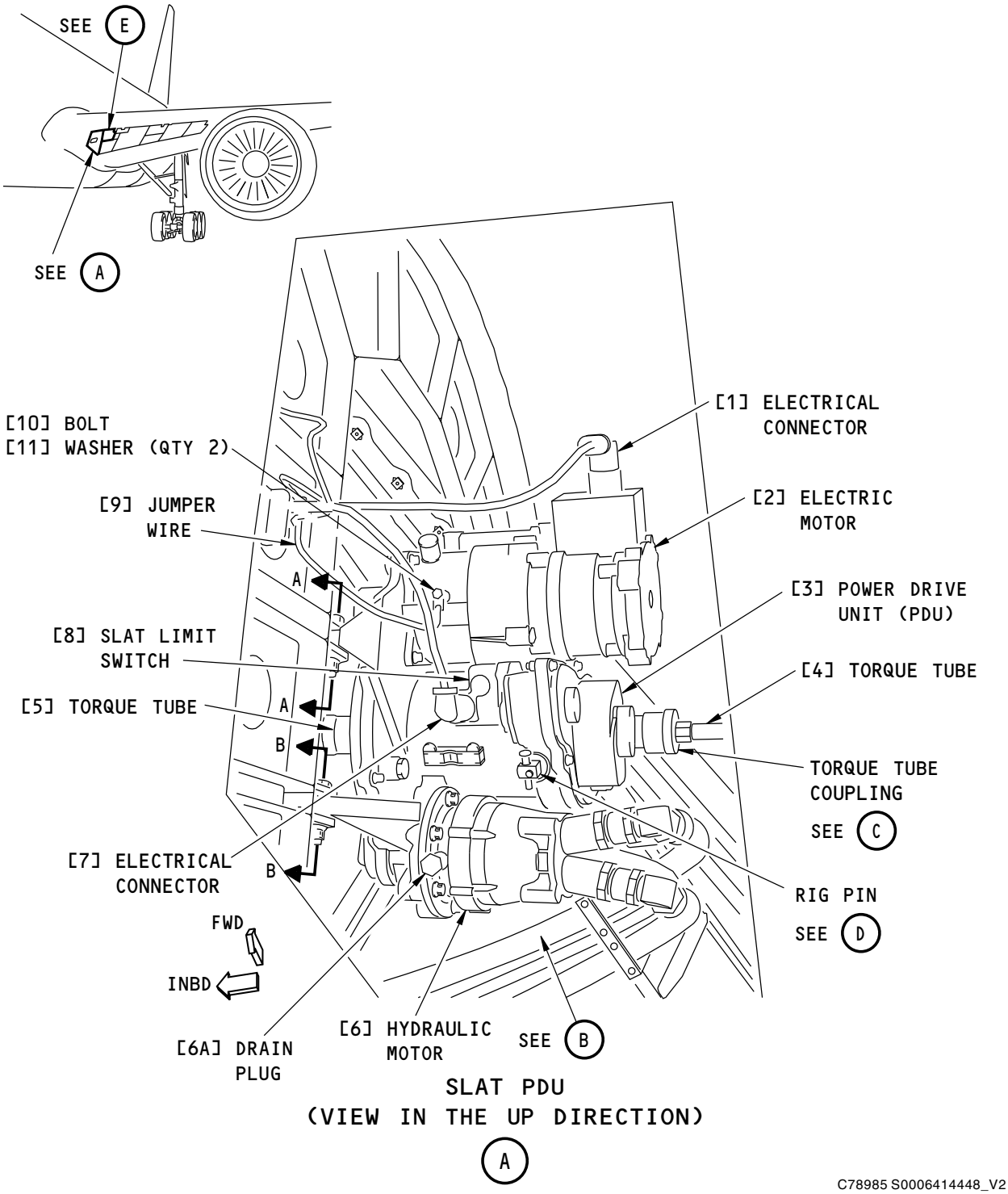
(f) Use the fishpole hoist, COM-1582 to lower the power drive unit [3].

SUBTASK 27-81-31-020-007

(9) If you will install a new strut assembly [16], remove the nut [33], washer [32], washer [36], bolt [35] and bushing [34] to disconnect the strut assembly [16] from the bracket [31].

END OF TASK

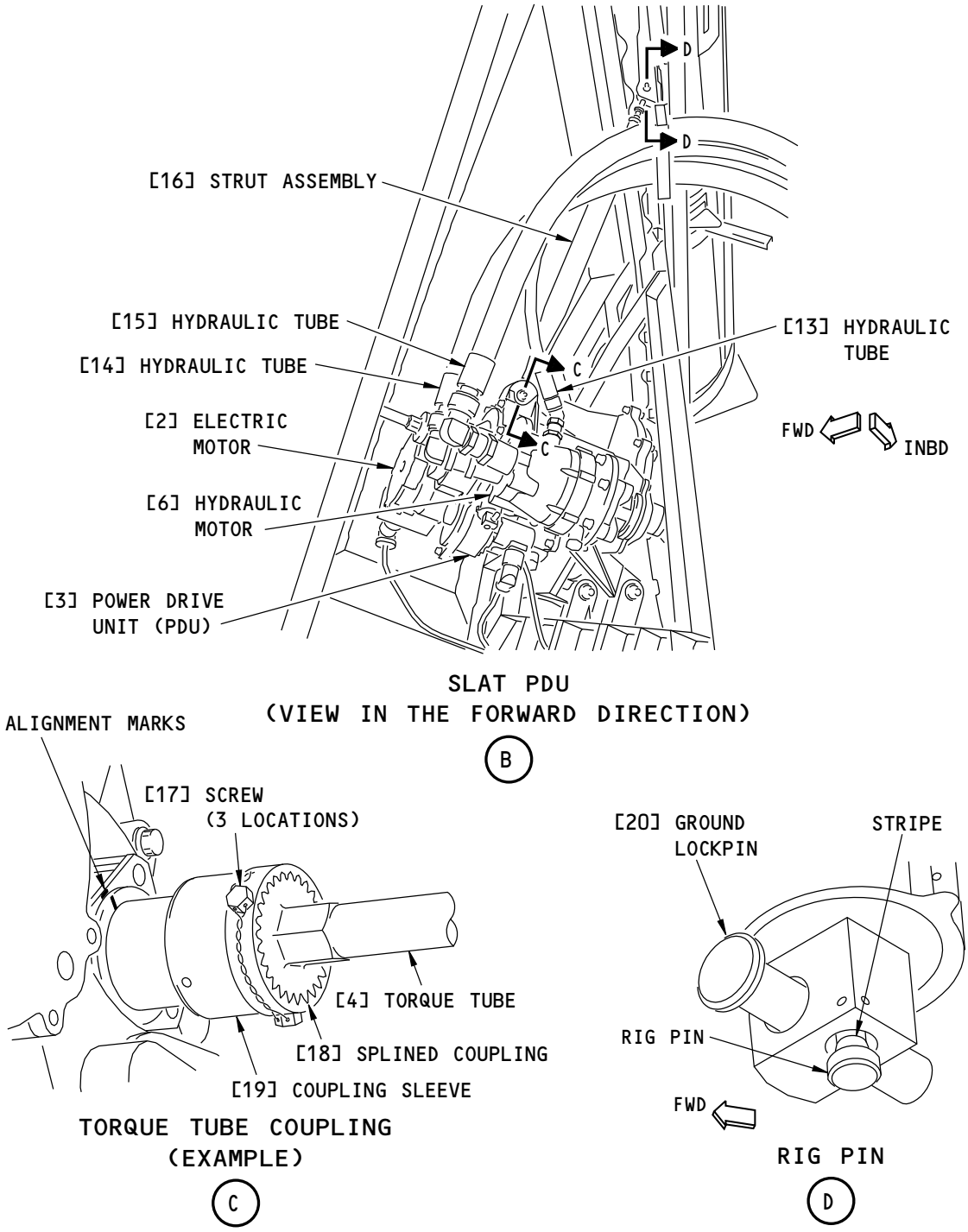
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C78985 S0006414448_V2

Slat Power Drive Unit (PDU) Installation
Figure 401/27-81-31-990-801 (Sheet 1 of 4)

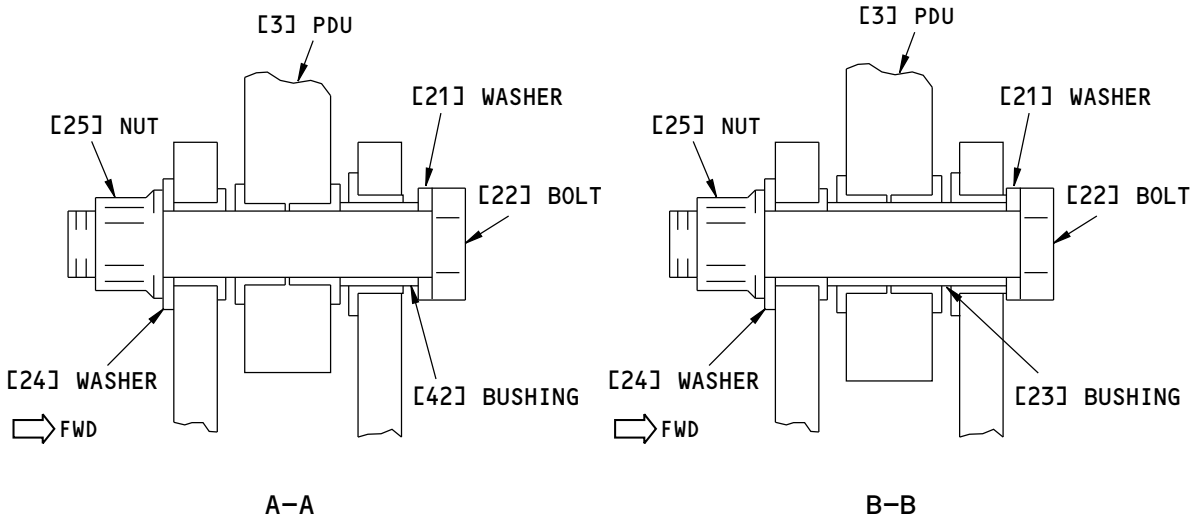
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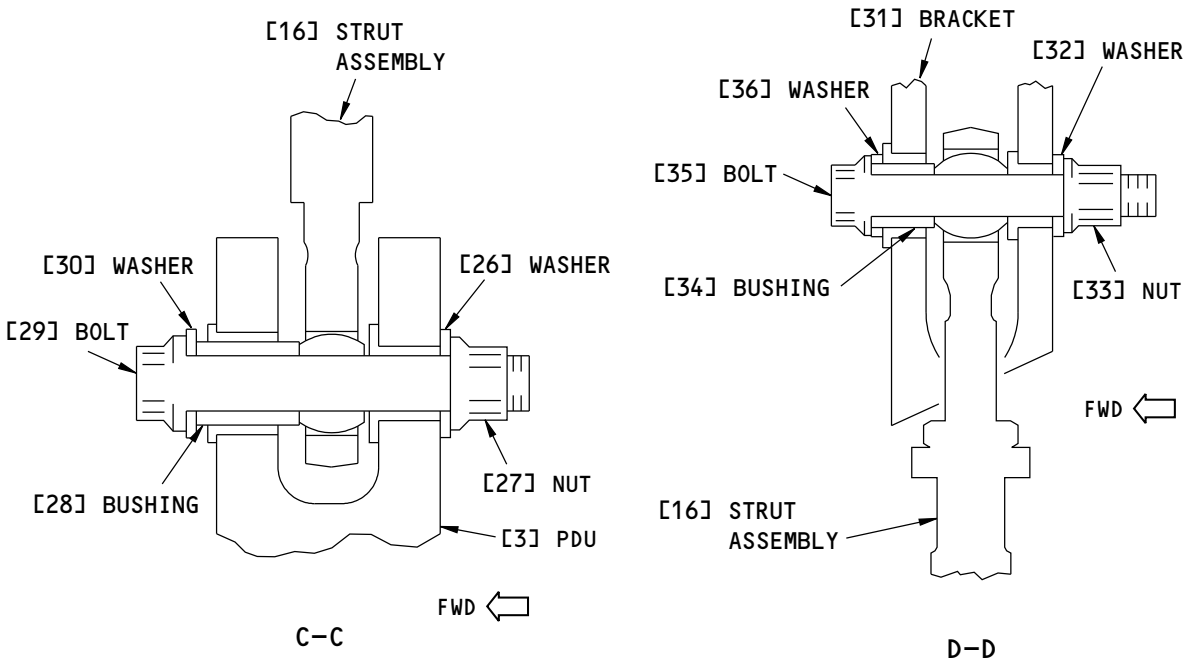


F49338 S0006414449_V1

Slat Power Drive Unit (PDU) Installation
Figure 401/27-81-31-990-801 (Sheet 2 of 4)

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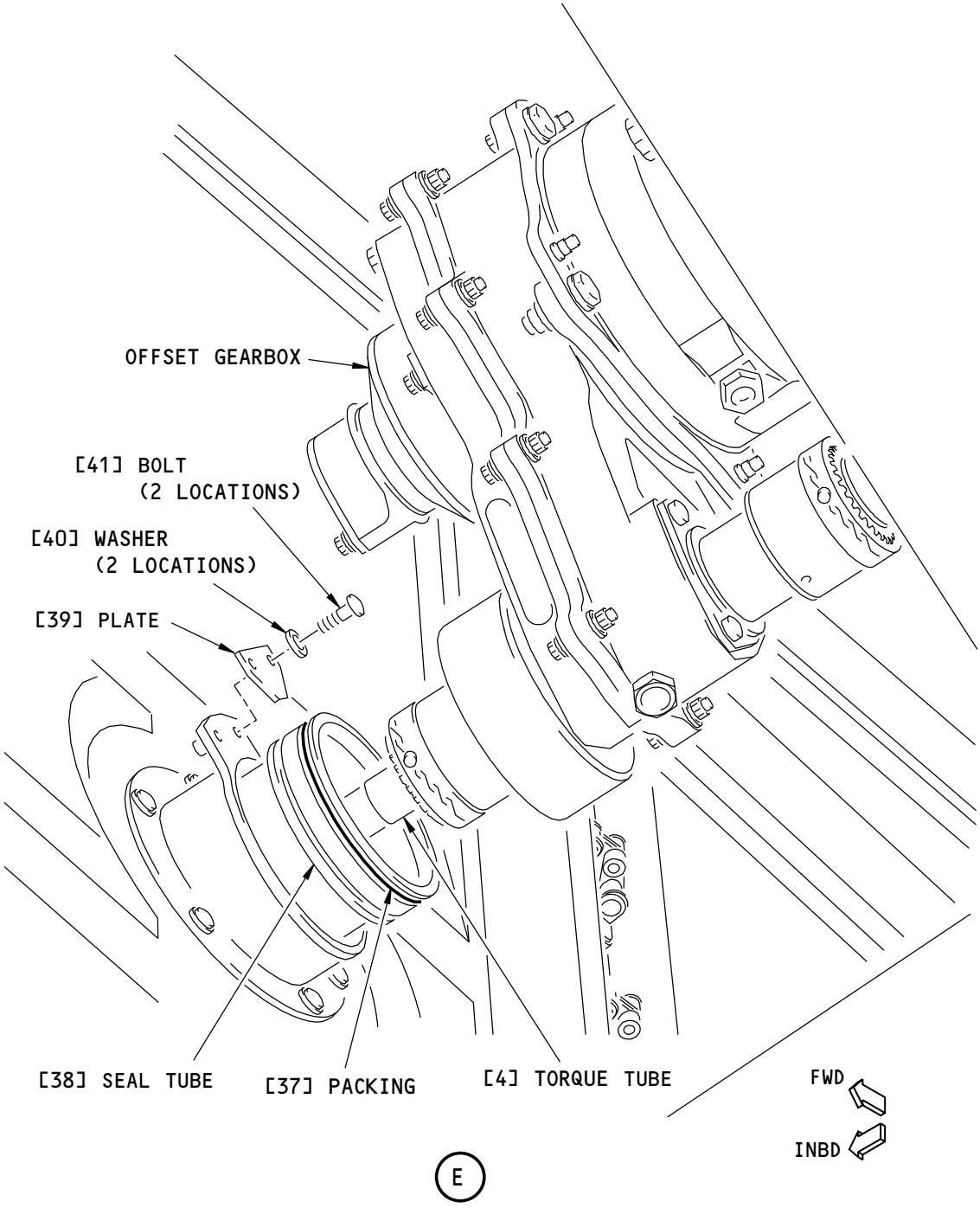




C79004 S0006414450_V1

Slat Power Drive Unit (PDU) Installation
Figure 401/27-81-31-990-801 (Sheet 3 of 4)

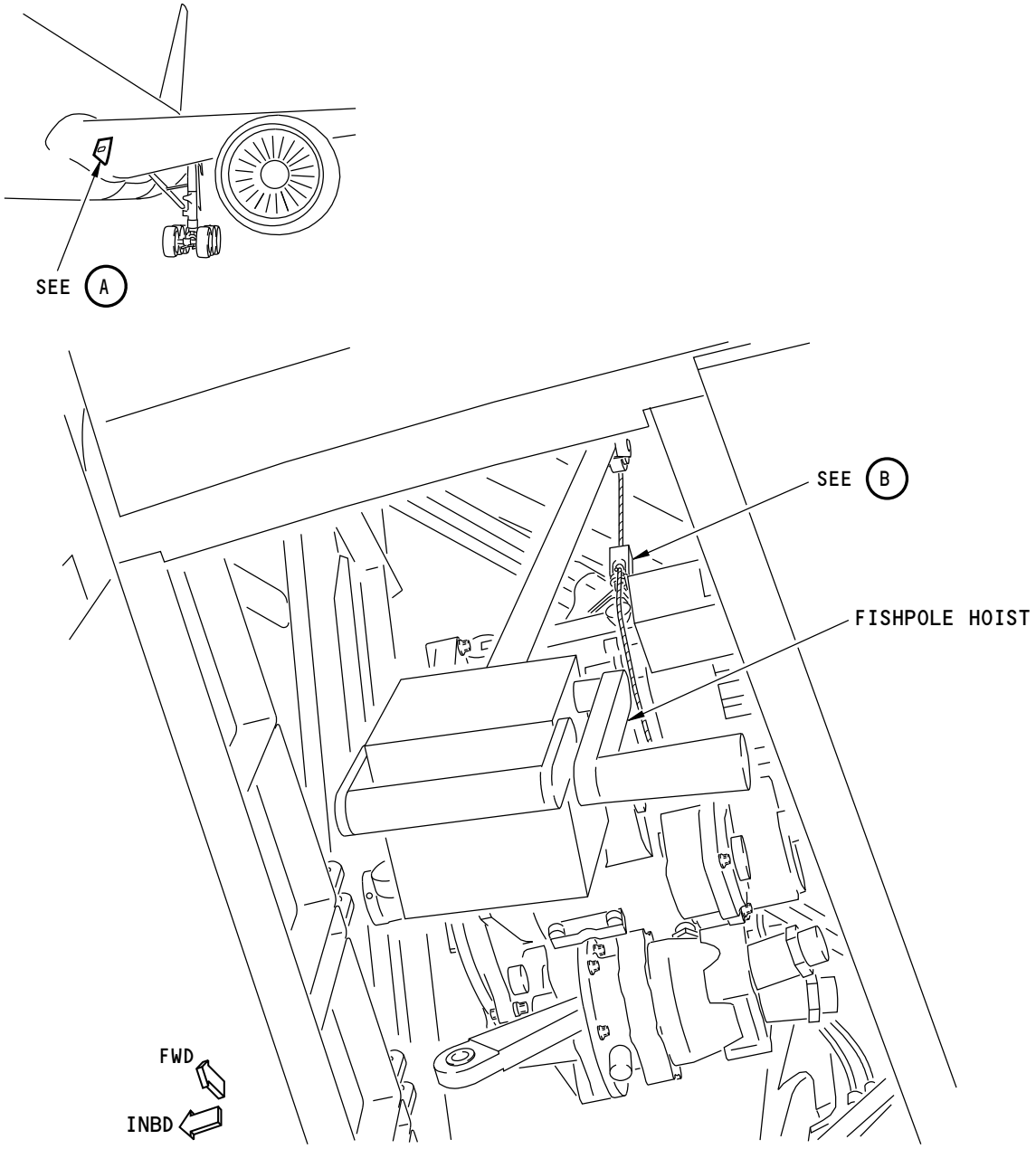
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E67951 S0006414451_V1

Slat Power Drive Unit (PDU) Installation
Figure 401/27-81-31-990-801 (Sheet 4 of 4)

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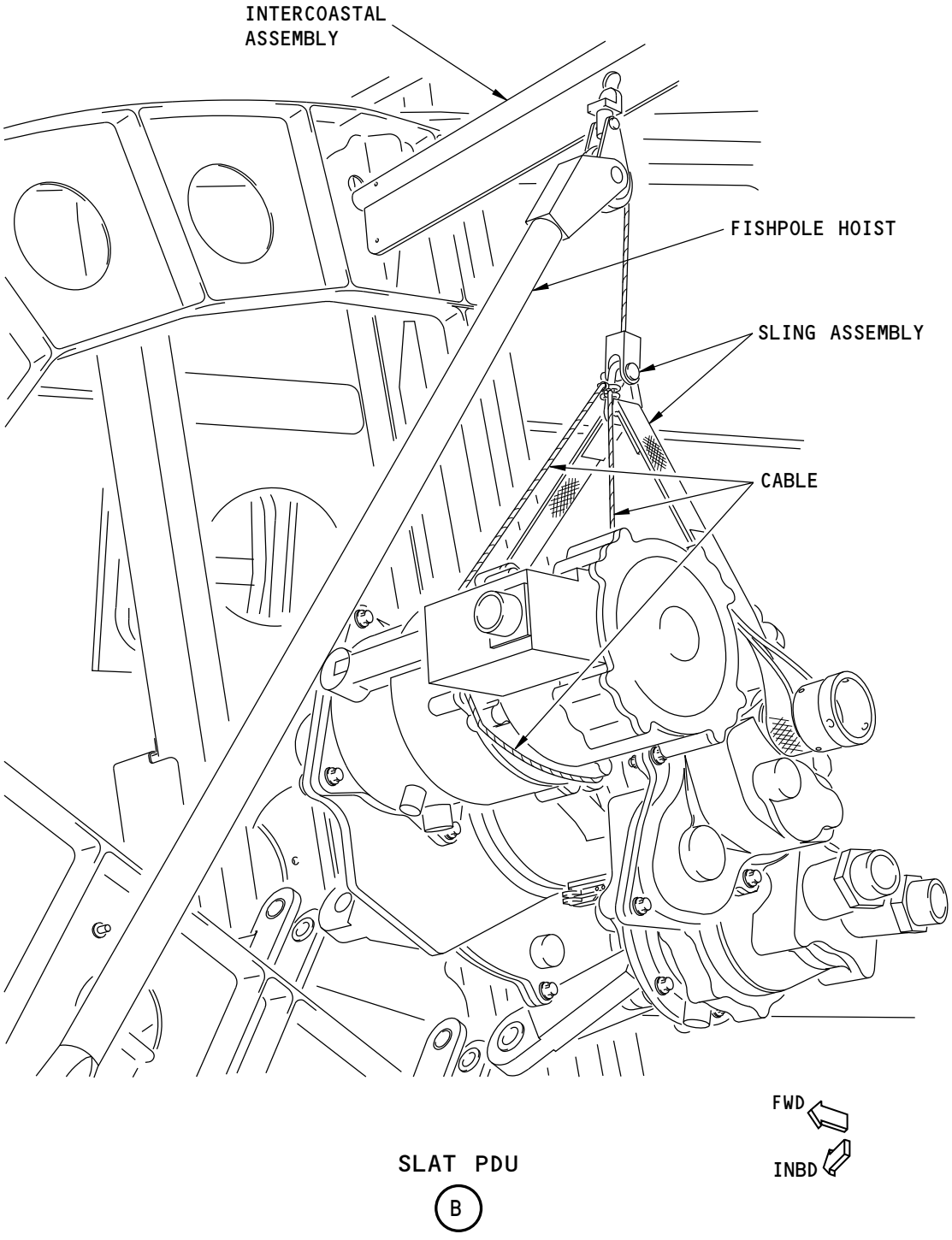


SLAT PDU
(VIEW IN THE UP DIRECTION)
A

E76278 S0006414452_V1

Slat Power Drive Unit (PDU) Equipment Installation
Figure 402/27-81-31-990-802 (Sheet 1 of 2)

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Slat Power Drive Unit (PDU) Equipment Installation
Figure 402/27-81-31-990-802 (Sheet 2 of 2)

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TASK 27-81-31-400-801

3. Slat Power Drive Unit (PDU) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
12-13-08-610-801	Leading Edge Slat PDU and Electric Motor Servicing (P/B 301)
12-21-08-640-804	Inboard Leading Edge Torque Tube and Support Lubrication (P/B 301)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-802	Leading Edge Slat System Operation With Alternate Control (P/B 201)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
COM-1582	Hoist - Fishpole, Manually Powered Part #: PF51-009-1 Supplier: 1YRX6 Part #: PF51-103-5 Supplier: 1YRX6
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1710	Equipment - Removal/Installation, L.E. Slat Power Drive Unit Part #: J27004-24 Supplier: 81205 Opt Part #: J27004-1 Supplier: 81205
SPL-1756	Pin - Ground Lock (J27030-2 Included in Kits J27030-1 and J27030-29) Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

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C. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Power drive unit	27-81-31-05-155	ARO ALL
		27-81-31-05-160	ARO ALL
4	Tube assembly	27-81-38-01A-460	ARO ALL
5	Tube assembly	27-81-38-01A-255	ARO ALL
		27-81-38-01A-425	ARO ALL
16	Strut assembly	27-81-31-05-080	ARO ALL

E. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel

G. Slat Power Drive Unit (PDU) Installation

SUBTASK 27-81-31-860-008

(1) Make sure that these circuit breakers are open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

SUBTASK 27-81-31-420-001

(2) Install the strut assembly [16] if it is not installed:

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CAUTION

MAKE SURE THE LENGTH OF THE STRUT ASSEMBLY IS CORRECT. IF THE STRUT IS NOT THE CORRECT LENGTH, THERE WILL BE EXCESSIVE WEAR OF TORQUE TUBE COUPLINGS.

(a) Make sure the length of the strut assembly [16] is the same as the length on the placard near the top of the strut.

(b) Put the strut assembly [16] in the bracket [31].

(c) Apply a thin layer of grease, D00633 to the bolt [35], washer [32], washer [36] and bushing [34].

(d) Install the bushing [34], bolt [35], washer [32], washer [36] and nut [33] to attach the strut assembly [16] to the bracket [31].

(e) Tighten the nut [33] to 40-50 pound-inches plus run-on torque.

SUBTASK 27-81-31-210-003

(3) Make sure the rig pin is pushed in and the ground lock pin (J27030-2 Included in Kits J27030-1 and J27030-29), SPL-1756 [20] is installed in the power drive unit [3].

SUBTASK 27-81-31-820-002

(4) If the rig pin is not pushed in, adjust the power drive unit [3] to the rigged UP position:

(a) Turn one of the shafts on the power drive unit [3] in the retract direction until it stops.

(b) Turn the shaft in the extend direction approximately 1.67 turns until the alignment mark on the output shaft aligns with the mark on the housing.

(c) Push in the rig pin.

(d) Put the ground lockpin [20] in the rig pin.

(e) Make sure the power drive unit [3] is locked in this position:

NOTE: If the power drive unit [3] is not locked in this position, move the power drive unit [3] to the retracted position again.

1) Manually try to turn the power drive unit [3] in the retract direction.

2) Manually try to turn the power drive unit [3] in the extend direction.

SUBTASK 27-81-31-420-002

(5) Install the power drive unit [3]:

(a) Make sure the intercostal, which is part of the L.E. slat power drive unit equipment, SPL-1710, is installed on the structure above the power drive unit [3] (Figure 402).

(b) Install the sling, which is part of the L.E. slat power drive unit equipment, SPL-1710, on the power drive unit [3]:

1) Put the strap for the sling over the torque tube couplings.

2) Put the cable around the electric motor [2].

3) Connect the sling to the fishpole hoist, COM-1582.

(c) Connect the fishpole hoist, COM-1582 to the intercostal and the sling.

(d) Use the fishpole hoist, COM-1582 to lift the power drive unit [3] into its position.

(e) Apply a thin layer of grease, D00633 to the bolts [22], washers [21], washers [24], bushing [23] and bushing [42] (Figure 401).

(f) Install the bushing [23], bolt [22], washer [21], washer [24] and nut [25] that attach the power drive unit [3] to the aft fitting on the rib.

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(g) Install the bushing [42], bolt [22], washer [21], washer [24] and nut [25] that attach the power drive unit [3] to the forward fitting on the rib.

(h) Apply a thin layer of grease, D00633 to the bolt [29], washer [26], washer [30] and bushing [28].

(i) Align the lower end of the strut assembly [16] with the power drive unit [3].

(j) Install the bushing [28], bolt [29], washer [26], washer [30] and nut [27].

(k) Tighten the nut [27] to 150-200 pound-inches plus run-on torque.

(l) Tighten the nuts [25] to 200-250 pound-inches plus run-on torque.

(m) Remove the fishpole hoist, COM-1582, intercostal and the sling from the power drive unit [3].

SUBTASK 27-81-31-420-003

(6) Connect the jumper wire [9] to the electric motor [2]:

(a) Install the bolt [10] and washers [11] to attach the jumper wire [9] to the electric motor [3].

1) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the end terminal of the jumper wire [9] and the PDU [3] is 0.30 milliohms maximum, (WDM D6-54446).

2) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the other end terminal of the jumper wire [9] and the structure ground stud is 0.30 milliohms maximum, (WDM D6-54446).

SUBTASK 27-81-31-420-004

(7) Install tube assembly [4] and tube assembly [5]:

CAUTION

MAKE SURE THE LENGTH OF THE STRUT ASSEMBLY IS CORRECT. IF THE STRUT IS NOT THE CORRECT LENGTH, THERE WILL BE EXCESSIVE WEAR ON THE TORQUE TUBE COUPLINGS.

(a) Make sure the length of the strut assembly [16] is the same as the length on the placard near the top of the strut.

(b) Move the seal tube [38] inboard to get access to the coupling sleeve [19].

(c) Apply grease, D00633 to the coupling sleeves [19].

(d) Put tube assembly [4] and tube assembly [5] in their locations.

(e) Move the coupling sleeves [19] on the splined couplings [18].

(f) Install the screws [17] to attach the coupling sleeves [19].

(g) Tighten the screws [17].

NOTE: Do not over tighten the screws [17].

(h) Install lockwire on the screws [17].

(i) Put the seal tube [38] in its usual position, on the offset gearbox:

1) Apply grease, D00013 to the packing [37] on the seal tube [38].

2) Move the seal tube [38] outboard to the offset gearbox.

3) Put the plate [39] in its position.

4) Apply grease, D00013 to the bolts [41].

5) Install the bolts [41] and washers [40] that attach the plate [39].

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(j) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes.

SUBTASK 27-81-31-080-001

(8) Remove the ground lockpin [20] and make sure the rig pin comes out of the power drive unit [3].

(a) Make sure you can see the stripe on the rig pin.

SUBTASK 27-81-31-420-005

(9) Remove the caps and plugs and connect the hydraulic tubes [13], [14] and [15] to the hydraulic motor [6].

NOTE: Make sure that the temporary plug [6A] is removed from the bottom drain port of the hydraulic motor. No drain plug or tube is installed in this drain port.

SUBTASK 27-81-31-420-006

(10) Connect the electrical connector [1] to the electric motor [2].

SUBTASK 27-81-31-420-007

(11) Connect the electrical connector [7] to the slat limit switch [8].

SUBTASK 27-81-31-610-001

(12) If it is necessary, fill the PDU and the electric motor with oil, do this task: Leading Edge Slat PDU and Electric Motor Servicing, TASK 12-13-08-610-801.

SUBTASK 27-81-31-640-001

(13) For the applicable torque tube couplings, do this task: Inboard Leading Edge Torque Tube and Support Lubrication, TASK 12-21-08-640-804.

SUBTASK 27-81-31-610-002

(14) If it is necessary, fill the hydraulic reservoir for the center hydraulic system. To fill the reservoir, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

SUBTASK 27-81-31-860-003

(15) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

H. Slat Power Drive Unit (PDU) Installation Test

SUBTASK 27-81-31-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-81-31-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-31-860-006

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-31-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-31-210-002

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-31-710-001

(6) Use the primary system to extend the leading edge slats to the gapped position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move smoothly.

(b) Make sure the slats move to the gapped position.

SUBTASK 27-81-31-710-002

(7) Use the primary system to retract the leading edge slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move smoothly.

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(b) Make sure the slats move to the retracted position.

SUBTASK 27-81-31-860-007

(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-81-31-210-004

(9) Make sure there are no hydraulic leaks at the hydraulic motor.

SUBTASK 27-81-31-710-003

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(10) Use the alternate system to extend the slats until they stop. To extend them, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

(a) Make sure the slats stop at the sealed position.

SUBTASK 27-81-31-710-004

(11) Use the alternate system to retract the slats until they stop. To retract them, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

(a) Make sure the slats stop at the retracted position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-31-410-001

(1) On the lower leading edge on the left wing, close these access panels:

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel

——— END OF TASK ———

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SLAT LIMIT SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the limit switch for the leading edge slats.

(2) An installation of the limit switch for the leading edge slats.

B. The slat limit switch is installed on the Power Drive Unit (PDU) for the slats.

TASK 27-81-32-000-801

2. Slat Limit Switch Removal

(Figure 401)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)

B. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

C. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

D. Procedure

SUBTASK 27-81-32-210-001

(1) Make sure the leading edge slats are in the retracted position. If they are not retracted, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-32-860-001

(2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

SUBTASK 27-81-32-040-001



WARNING DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

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SUBTASK 27-81-32-010-001

(4) On the inboard lower leading edge of the left wing, open this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-32-020-001

(5) Disconnect the electrical connector [2] from the slat limit switch [12].

SUBTASK 27-81-32-020-002

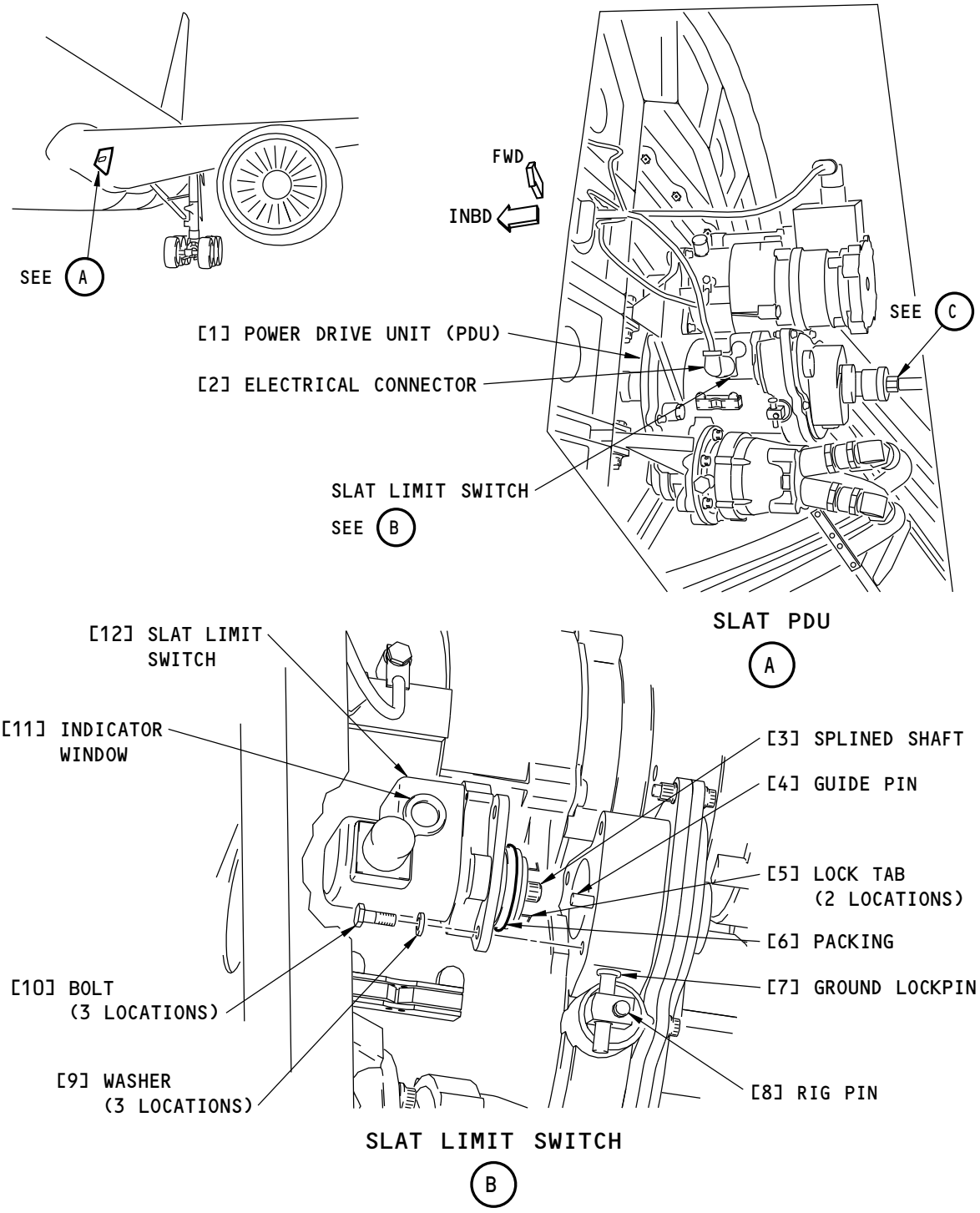
(6) Remove the slat limit switch [12] from the PDU [1]:

(a) Remove the bolts [10] and washers [9] that attach the slat limit switch [12] to the PDU [1].

(b) Remove the slat limit switch [12] from the PDU [1].

——— END OF TASK ———

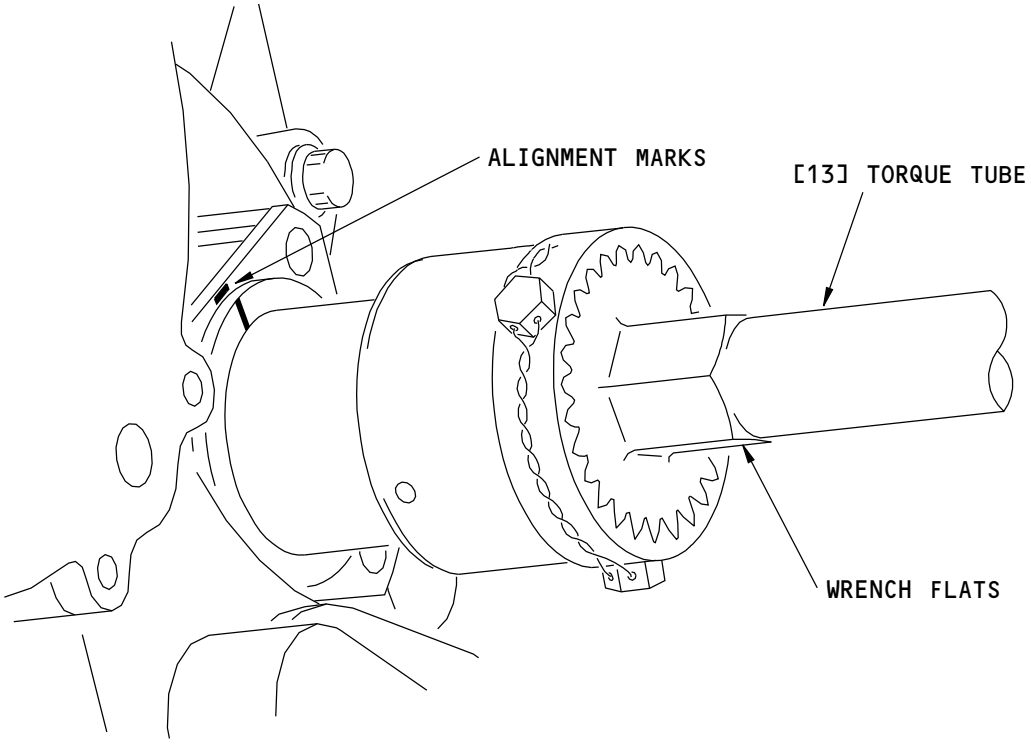
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Slat Limit Switch Installation
Figure 401/27-81-32-990-801 (Sheet 1 of 2)

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TORQUE TUBE

C

F49436 S0006414459_V1

Slat Limit Switch Installation
Figure 401/27-81-32-990-801 (Sheet 2 of 2)

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TASK 27-81-32-400-801

3. Slat Limit Switch Installation

(Figure 401)

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-802	Leading Edge Slat System Operation With Alternate Control (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Packing	27-81-32-01-025	ARO ALL
12	Slat limit switch	27-81-32-01-010	ARO ALL

E. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

G. Slat Limit Switch Installation

SUBTASK 27-81-32-210-002

(1) Make sure the leading edge slats are in the retracted position. If they are not retracted, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

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SUBTASK 27-81-32-860-005

(2) Make sure that these circuit breakers are open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

SUBTASK 27-81-32-480-001

(3) Push in the rig pin [8] and install the leading edge slat installation rigging equipment, SPL-1721 [7], to make sure the PDU [1] is in the retracted position.

NOTE: This will make sure the PDU [1] is in the retracted position. When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [8].

SUBTASK 27-81-32-820-002

(4) If you cannot push in the rig pin [8], then adjust the position of the slat power drive unit (PDU [1]):

(a) Use the wrench flats on the torque tube [13] to manually turn the PDU [1] in the extend direction approximately one turn of the torque tube.

NOTE: This step is necessary to remove the backlash in the slat drive system.

(b) Manually turn the PDU [1] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

(c) Push in the rig pin [8] on the PDU [1] and hold it.

(d) Install the ground lockpin [7] in the rig pin [8].

(e) Make sure the PDU [1] is locked in this position:

NOTE: If the PDU [1] is not locked in this position, move the PDU [1] to the retracted position again.

1) Manually try to turn the PDU [1] in the retract direction.

2) Manually try to turn the PDU [1] in the extend direction.

SUBTASK 27-81-32-210-003

(5) Make sure the slat limit switch [12] is in the UP position:

(a) Make sure the indicator needle in the indicator window [11] aligns with the marks on the window.

(b) If the indicator needle does not align, push the lock tabs [5] and turn the splined shaft [3] on the slat limit switch [12].

(c) If it is necessary, release the lock tabs [5].

SUBTASK 27-81-32-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) Install the slat limit switch [12]:

(a) Remove the packing [6] from the slat limit switch [12].

(b) Apply grease, D00013 to the packing [6].

(c) Install the packing [6] on the slat limit switch [12].

(d) Apply a layer of grease, D00013 to the splined shaft [3] on the slat limit switch [12] and the splines in the PDU [1].

(e) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the slat limit switch [12] and the PDU [1].

(f) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the guide pin [4].

(g) Install the slat limit switch [12] in the PDU [1]:

1) Engage the guide pin [4] in the hole on the slat limit switch [12].

2) Engage the splined shaft [3] with the splines on the PDU [1].

(h) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [10].

(i) Install the washers [9] and bolts [10] that attach the slat limit switch [12] to the PDU [1].

(j) Tighten the bolts [10] and install lockwire. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-32-420-002

(7) Install the electrical connector [2] on the slat limit switch [12].

SUBTASK 27-81-32-860-002

(8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

H. Slat Limit Switch Installation Test

SUBTASK 27-81-32-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-32-080-001

(2) Remove the ground lockpin [7] and make sure the rig pin [8] comes out of the PDU [1].

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SUBTASK 27-81-32-440-001

(3) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-32-710-001

(4) Use the alternate system to extend the slats until they stop. To extend them, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

(a) Make sure the slats stop at the sealed position.

SUBTASK 27-81-32-710-002

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(5) Use the alternate system to retract the slats until they stop. To retract them, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

(a) Make sure the slats stop at the retracted position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-32-420-003

(1) On the inboard lower leading edge of the left wing, install this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

END OF TASK

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SLAT HYDRAULIC MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the hydraulic motor for the leading edge slats.

(2) An installation of the hydraulic motor for the leading edge slats.

B. The hydraulic motor is installed on the power drive unit PDU for the leading edge slats.

TASK 27-81-33-000-801

2. Slat Hydraulic Motor Removal

(Figure 401)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)

B. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

C. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

D. Prepare for the Removal

SUBTASK 27-81-33-210-001

(1) Make sure the slats are in the retracted position. If the slats are not retracted, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-33-860-001

(2) For the center hydraulic system and reservoir, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807

SUBTASK 27-81-33-040-001

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-33-010-001

(4) On the inboard lower leading edge on the left wing, open this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

E. Slat Hydraulic Motor Removal

SUBTASK 27-81-33-020-001

(1) Disconnect the three hydraulic tubes [1], [2] and [3] from the motor assembly [6].

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(a) Install caps in the hydraulic tubes [1], [2] and [3].

(b) Install the plugs in the port of the motor assembly [6], including the temporary drain plug [6A] in the bottom drain port.

SUBTASK 27-81-33-020-002

(2) Remove the motor assembly [6]:

(a) Remove the bolts [11] and washers [10] that attach the motor assembly [6] to the PDU [7].

(b) Remove the motor assembly [6].

SUBTASK 27-81-33-020-003

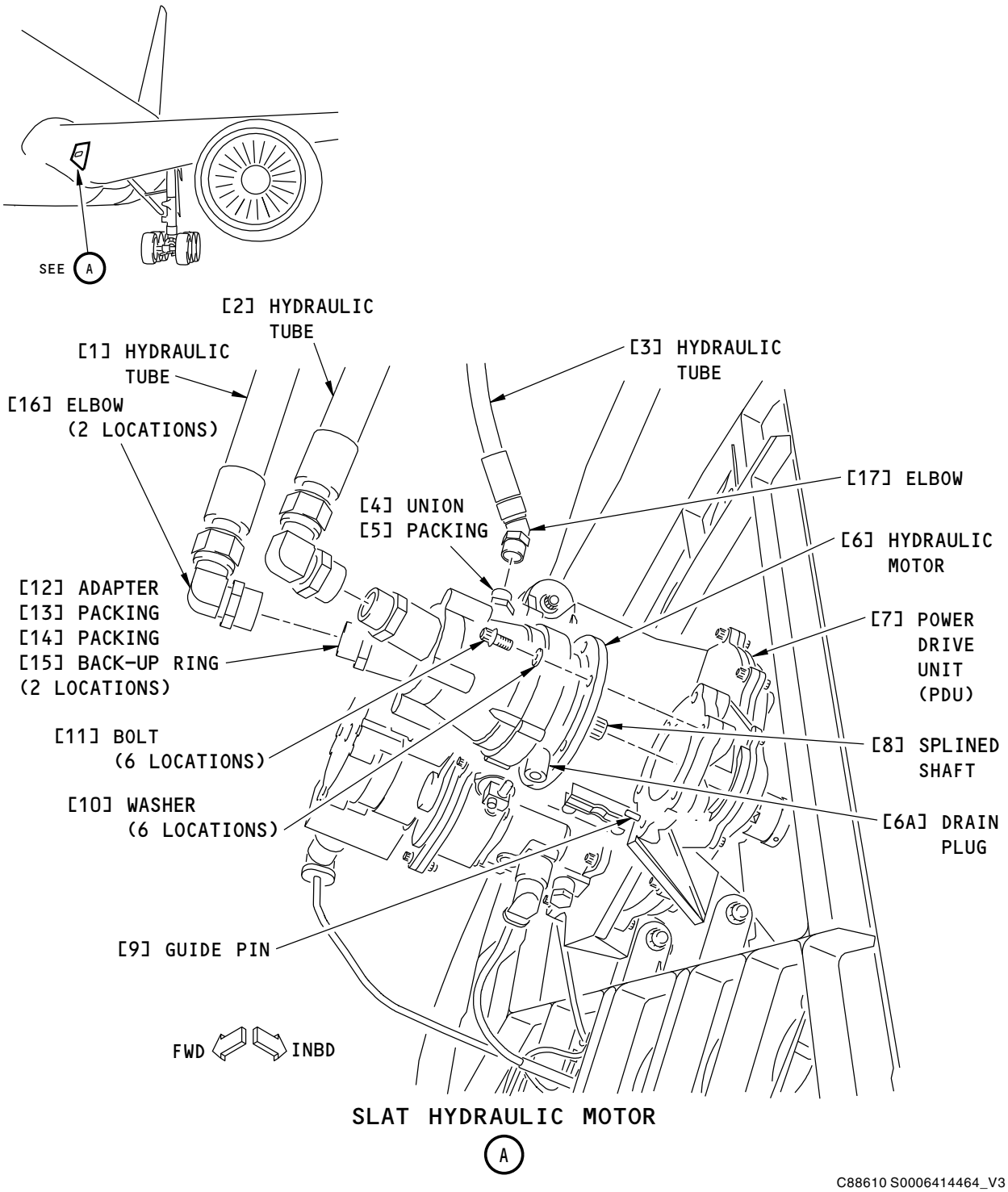
(3) If you will install a new motor assembly [6], remove the hydraulic fittings:

(a) Remove the union [4] and packing [5] from the motor assembly [6].

(b) Remove the adapters [12], packings [13], packings [14] and rings [15] from the motor assembly [6].

——— END OF TASK ———

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Slat Hydraulic Motor Installation
Figure 401/27-81-33-990-801

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TASK 27-81-33-400-801

3. Slat Hydraulic Motor Installation

(Figure 401)

A. References

Reference	Title
12-12-01-610-802	Hydraulic Reservoir Filling (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Packing	27-81-33-01-015	ARO ALL
6	Motor assembly	27-81-33-01-040	ARO ALL
13	Packing	27-81-33-01-025	ARO ALL
		27-81-33-01-030	ARO ALL
14	Packing	27-81-33-01-025	ARO ALL
		27-81-33-01-030	ARO ALL
15	Ring	27-81-33-01-035	ARO ALL

D. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

E. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

F. Slat Hydraulic Motor Installation

SUBTASK 27-81-33-420-001

(1) If you will install a new motor assembly [6], install the hydraulic fittings:

(a) Install a packing [5] and a union [4] in the motor assembly [6].

(b) Install the rings [15], packings [13], packings [14] and adapters [12] in the motor assembly [6].

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SUBTASK 27-81-33-420-002

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Install the motor assembly [6]:

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces on the motor assembly [6] and the PDU [7].

(b) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the guide pin [9].

(c) Apply a layer of grease, D00013 to the splined shaft [8] on the motor assembly [6] and the splines on the PDU [7].

(d) Install the motor assembly [6] on the PDU [7]:

1) Engage the splined shaft [8] with the splines on the PDU [7].

2) Engage the hole in the motor assembly [6] with the guide pin [9].

(e) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the bolts [11].

(f) Install the washers [10] and bolts [11] to attach the motor assembly [6] to the PDU [7].

(g) Tighten the bolts [11], refer to Standard Torque Values, TASK 20-11-00-910-801.

(h) Install lockwire on the bolts [11].

SUBTASK 27-81-33-080-001

(3) Remove the caps from the hydraulic tubes [1], [2] and [3] and the plugs from the hydraulic ports.

NOTE: Make sure that the temporary drain plug [6A] is removed from the bottom drain port of the hydraulic motor. No drain plug or tube is installed in this drain port.

SUBTASK 27-81-33-420-003

(4) Install the elbows [16] on the hydraulic tube [1] and hydraulic tube [2].

(a) Tighten the B-nuts on the hydraulic tube [1] and hydraulic tube [2] to 1200 ±60 in-lb (136 ±7 N·m).

(5) Install the elbow [17] on the hydraulic tube [3].

(a) Tighten the B-nut on the hydraulic tube [3] to 500 ±56 in-lb (56 ±7 N·m).

(6) Connect the hydraulic tube [1] and hydraulic tube [2] with installed elbows [16] to the adapters [12] of the motor assembly [6].

(a) Tighten the B-nuts on the elbows [16] to 1200 ±136 in-lb (136 ±16 N·m).

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(7) Connect the hydraulic tube [3] with installed elbow [17] to the union [4] of the motor assembly [6].

(a) Tighten the B-nut on the elbow [17] to 280 ±14 in-lb (32 ±2 N·m).

SUBTASK 27-81-33-610-001

(8) Fill the reservoir for the center hydraulic system if it is necessary, do this task: Hydraulic Reservoir Filling, TASK 12-12-01-610-802.

G. Slat Hydraulic Motor Installation Test

SUBTASK 27-81-33-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-33-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-33-860-003

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-33-210-005

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-33-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

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SUBTASK 27-81-33-710-001

(6) Use the primary system to extend the leading edge slats to the gapped position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move smoothly.

(b) Make sure the slats move to the gapped position.

SUBTASK 27-81-33-710-002

(7) Use the primary system to retract the leading edge slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the slats move smoothly.

(b) Make sure the slats move to the retracted position.

SUBTASK 27-81-33-210-002

(8) Make sure there are no hydraulic leaks.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-33-860-004

(1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-81-33-410-001

(2) Close access On the inboard lower leading edge, so this step:

On the inboard lower leading edge, close this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

——— END OF TASK ———

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SLAT ELECTRIC MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the electric motor for the leading edge slats.

(2) An installation of the electric motor for the leading edge slats.

B. The slat electric motor is installed on the power drive unit (PDU) for the leading edge slats.

TASK 27-81-34-000-801

2. Slat Electric Motor Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)

B. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

C. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

D. Prepare for the Removal

SUBTASK 27-81-34-860-001

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

SUBTASK 27-81-34-040-001

WARNING DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

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SUBTASK 27-81-34-010-001

(3) On the inboard lower leading edge on the left wing, open this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

E. Slat Electric Motor Removal

SUBTASK 27-81-34-020-001

(1) Disconnect the electrical connector [1] from the motor assembly [4].

SUBTASK 27-81-34-020-002

(2) Remove the motor assembly [4]:

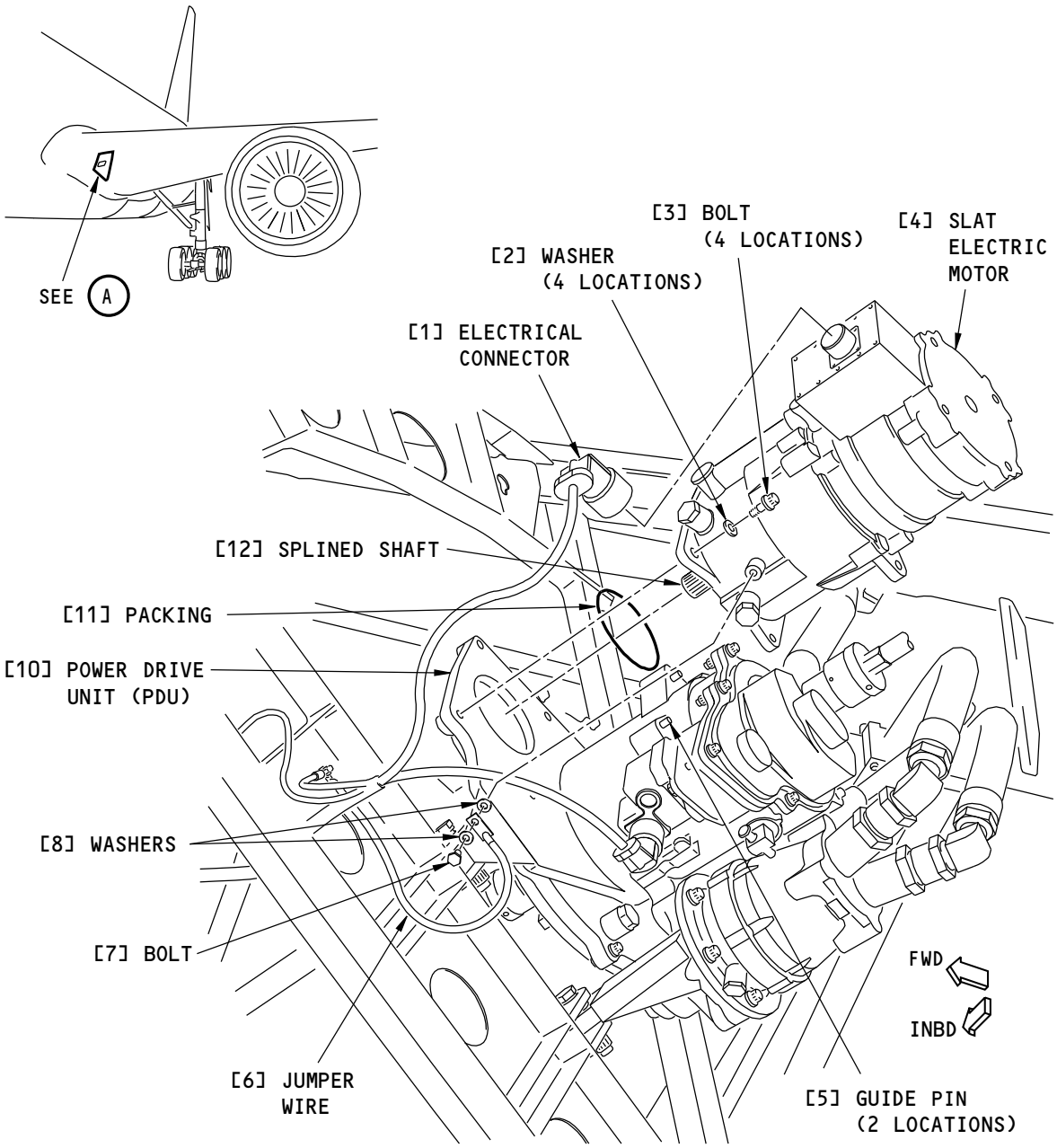
(a) Remove the bolt [7] and washers [8] that attach the jumper wire [6] to the motor assembly [4].

(b) Remove the bolts [3] and washers [2] that attach the motor assembly [4] to the PDU [10].

(c) Remove the motor assembly [4] from the PDU [10].

——— END OF TASK ———

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SLAT ELECTRIC MOTOR
A

C88917 S0006414469_V1

Slat Electric Motor Installation
Figure 401/27-81-34-990-801

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TASK 27-81-34-400-801

3. Slat Electric Motor Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-13-08-610-801	Leading Edge Slat PDU and Electric Motor Servicing (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-740-802	Slat System Secondary Control Test (P/B 501)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Motor assembly	27-81-34-01-025	ARO ALL
11	Packing	27-81-34-01-020	ARO ALL

E. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

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F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel

G. Slat Electric Motor Installation

SUBTASK 27-81-34-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the motor assembly [4]:

(a) Apply fluid, D00070 to the packing [11].

(b) Install the packing [11] on the motor assembly [4].

(c) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces on the motor assembly [4] and the Power Drive Unit (PDU) [10].

(d) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the Guide Pins [5].

(e) Apply a layer of grease, D00013 to the Splined Shaft [12] on the motor assembly [4] and the splines on the Power Drive Unit (PDU) [10].

(f) Install the motor assembly [4] on the Power Drive Unit (PDU) [10]:

1) Engage the Splined Shaft [12] with the splines on the Power Drive Unit (PDU) [10].

2) Engage the Guide Pins [5] with the holes in the motor assembly [4].

(g) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surface on the head of the bolts [3].

(h) Install the bolts [3] and washers [2] to attach the motor assembly [4] to the Power Drive Unit (PDU) [10]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

(i) Install lockwire on the bolts [3].

(j) Connect the Jumper Wire [6] to the motor assembly [4]:

1) Install the bolt [7] and washers [8] to attach the Jumper Wire [6] to the motor assembly [4].

2) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the end terminal of the Jumper Wire [6] and the Power Drive Unit (PDU) [10] is 0.30 milliohms maximum (WDM D6-54446).

3) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the other end terminal of the Jumper Wire [6] and the designated ground stud of the rib assembly is 0.30 milliohms maximum (WDM D6-54446).

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SUBTASK 27-81-34-420-002

(2) Connect the Electrical Connector [1] to the motor assembly [4].

SUBTASK 27-81-34-610-001

(3) If it is necessary, fill the motor assembly [4] with oil. To fill the motor, do this task: Leading Edge Slat PDU and Electric Motor Servicing, TASK 12-13-08-610-801.

H. Slat Electric Motor Installation Test

SUBTASK 27-81-34-440-001

(1) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-34-860-002

(2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

SUBTASK 27-81-34-860-003

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-81-34-210-003

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

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SUBTASK 27-81-34-210-001

CAUTION

MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-34-740-001

(6) Do this task: Slat System Secondary Control Test, TASK 27-81-00-740-802.

NOTE: You can do the test with the FSEU 1 or FSEU 2.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-34-410-001

(1) On the inboard lower leading edge of the left wing, close this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

END OF TASK

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FLOOR ANGLE GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the floor angle gearbox for the leading edge slat drive system.

(2) An installation of the floor angle gearbox for the leading edge slat drive system.

B. The floor angle gearbox is installed in the aft end of the forward cargo compartment.

TASK 27-81-35-000-801

2. Floor Angle Gearbox Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
25-52-06-000-801	Sidewall Liner Removal (P/B 401)
25-52-09-000-801	Ceiling Liner Removal (P/B 401)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

D. Prepare for the Removal

SUBTASK 27-81-35-040-001

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-35-010-001

(2) Do this task: Ceiling Liner Removal, TASK 25-52-09-000-801.

SUBTASK 27-81-35-010-002

(3) Do this task: Sidewall Liner Removal, TASK 25-52-06-000-801.

SUBTASK 27-81-35-010-003

(4) Remove the ECS duct [2] to get access to the floor angle gearbox [1].

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SUBTASK 27-81-35-480-001

(5) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the floor angle gearbox [1].

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

SUBTASK 27-81-35-020-001

(6) Disconnect the torque tubes [3] from the floor angle gearbox [1]:

(a) Remove the screws [5] that attach the coupling sleeves [11] to the splined couplings [4].

(b) Move the coupling sleeves [11] off the splined couplings [4].

SUBTASK 27-81-35-020-002

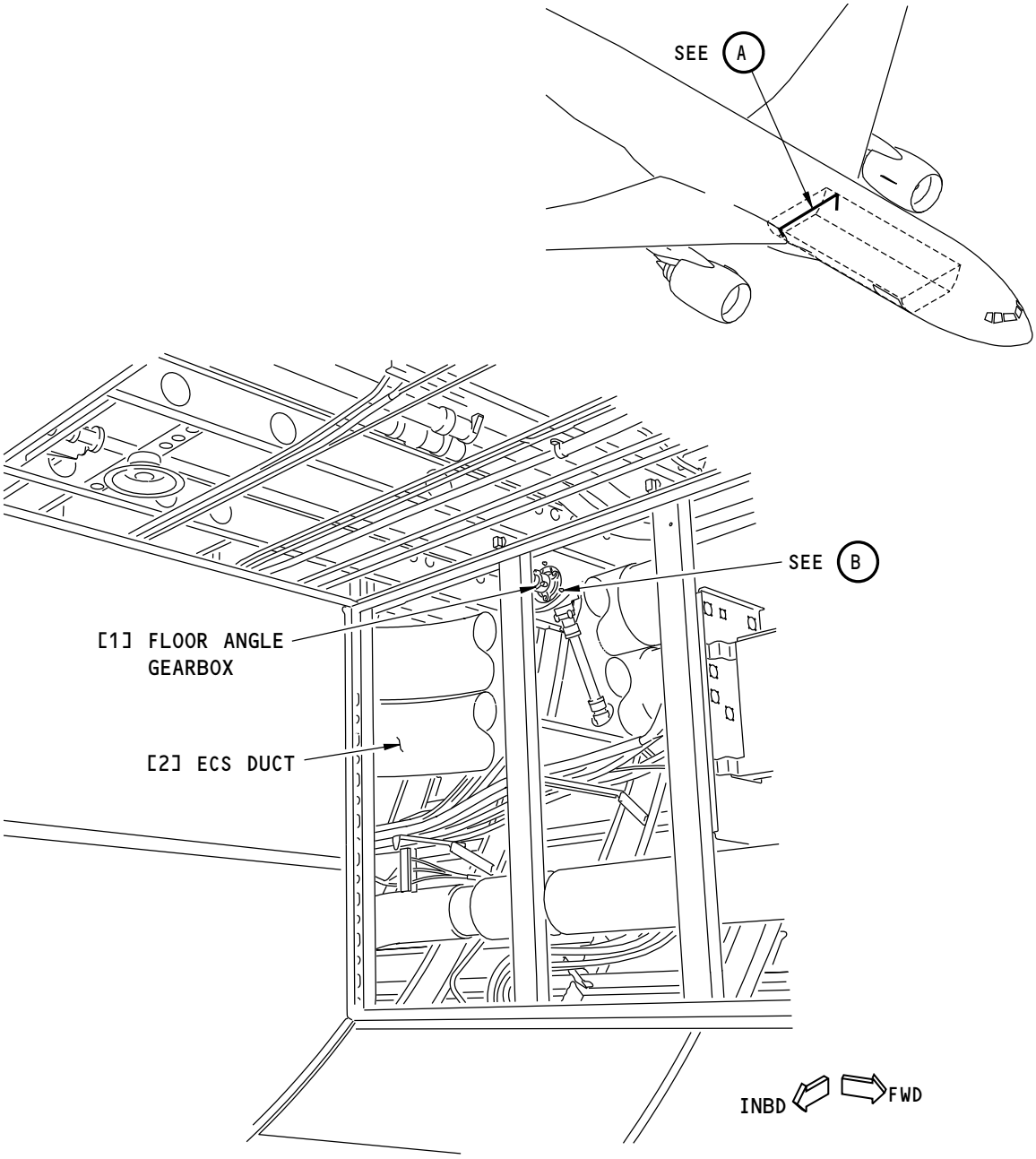
(7) Remove the floor angle gearbox [1]:

(a) Remove the nuts [9], washers [7], washers [8] and bolts [6] that attach the floor angle gearbox [1].

(b) Remove the floor angle gearbox [1] from the bracket [10].

——— END OF TASK ———

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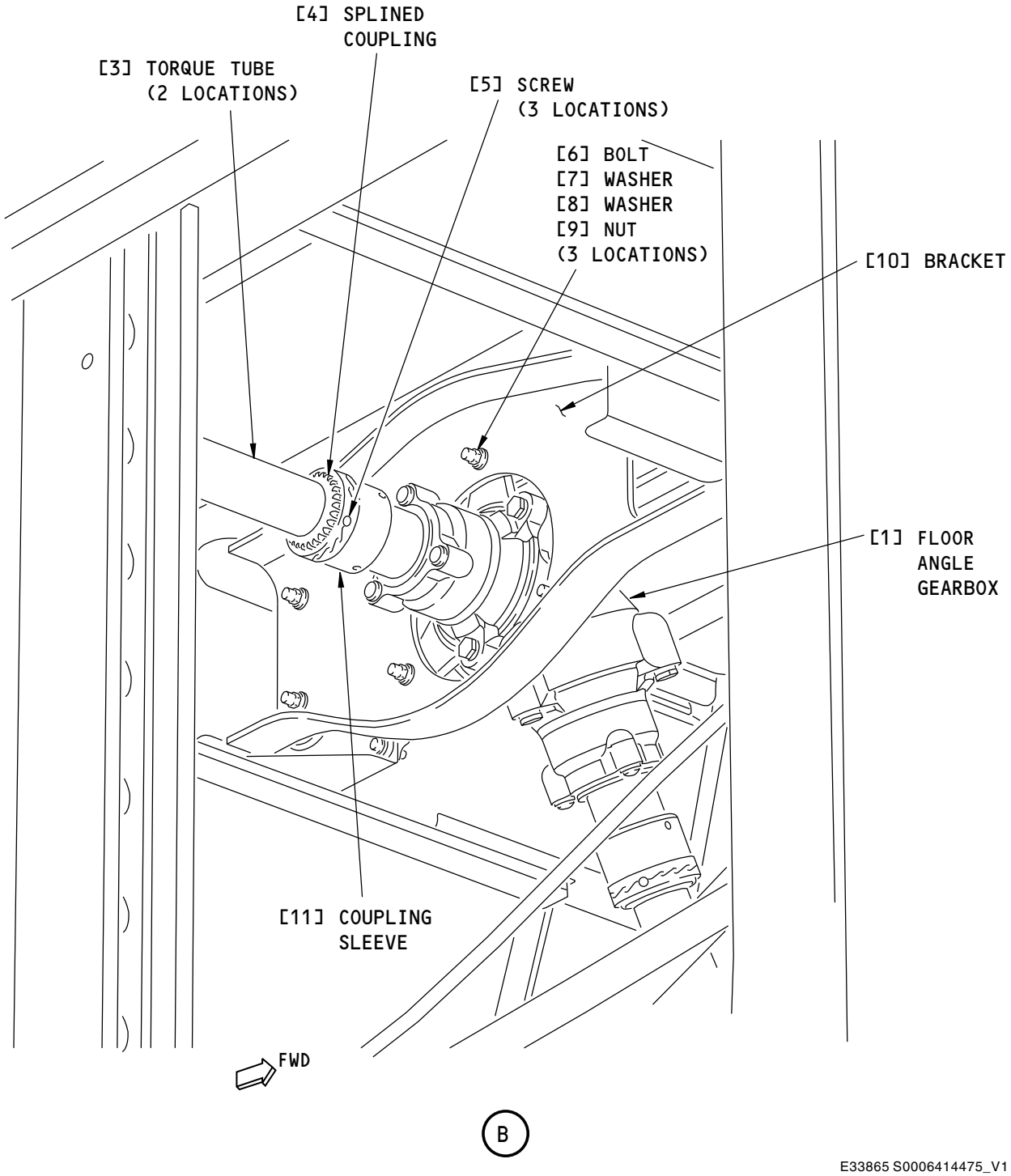
FORWARD CARGO COMPARTMENT
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

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Floor Angle Gearbox Installation
Figure 401/27-81-35-990-801 (Sheet 1 of 2)

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Floor Angle Gearbox Installation
Figure 401/27-81-35-990-801 (Sheet 2 of 2)

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TASK 27-81-35-400-801

3. Floor Angle Gearbox Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-21-08-640-806-006	Cargo Compartment Torque Tube, Support and Pressure Seal Lubrication - 300ER (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
25-52-06-400-801	Sidewall Liner Installation (P/B 401)
25-52-09-400-801	Ceiling Liner - Installation (P/B 401)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Floor angle gearbox	27-81-35-10-005	ARO ALL

E. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

F. Floor Angle Gearbox Installation

SUBTASK 27-81-35-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the floor angle gearbox [1]:

(a) Put the floor angle gearbox [1] in its position on the bracket [10].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [6].

(c) Install the bolts [6], washers [7], washers [8] and nuts [9]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-35-420-002

(2) Connect the torque tubes [3] to the floor angle gearbox [1]:

(a) Apply grease, D00633 to the coupling sleeves [11].

(b) Put the torque tube [3] in its position.

(c) Move the coupling sleeves [11] on the splined couplings [4].

(d) Install the screws [5] to attach the coupling sleeves [11].

(e) Tighten the screws [5].

NOTE: Do not over tighten the screws [5].

(f) Install lockwire on the screws [5].

SUBTASK 27-81-35-080-001

(3) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [3].

SUBTASK 27-81-35-820-001

(4) If the torque tubes turned while they were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-35-640-001

(5) For the applicable torque tubes, do this task: Cargo Compartment Torque Tube, Support and Pressure Seal Lubrication - 300ER, TASK 12-21-08-640-806-006.

SUBTASK 27-81-35-440-001

(6) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-35-210-002

WARNING

MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Make sure the thrust reverser cowls are closed.

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SUBTASK 27-81-35-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(8) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-35-710-001

(9) Use the primary system to extend the slats to the sealed position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-35-710-002

(10) Use the primary system to retract the slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-35-410-001

(1) Install the ECS duct [2] inboard of the floor angle gearbox [1].

SUBTASK 27-81-35-010-004

(2) Do this task: Sidewall Liner Installation, TASK 25-52-06-400-801.

SUBTASK 27-81-35-410-002

(3) Do this task: Ceiling Liner - Installation, TASK 25-52-09-400-801.

END OF TASK

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STRAKELET ANGLE GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the strakelet angle gearbox for the leading edge slat drive system.

(2) An installation of the strakelet angle gearbox for the leading edge slat drive system.

TASK 27-81-36-000-801

2. Strakelet Angle Gearbox Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

D. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

E. Procedure

SUBTASK 27-81-36-040-001

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-36-010-001

(2) From the lower surface of the wing, remove the applicable access panels:

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

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Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-36-480-001

(3) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes [2] inboard and outboard of the strakelet angle gearbox [9].

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

SUBTASK 27-81-36-020-001

(4) Disconnect the torque tubes [2] from the strakelet angle gearbox [9]:

(a) Remove the screws [1] that attach the coupling sleeves [10] to the splined couplings [3].

(b) Move the coupling sleeves [10] off the splined coupling [3].

SUBTASK 27-81-36-020-002

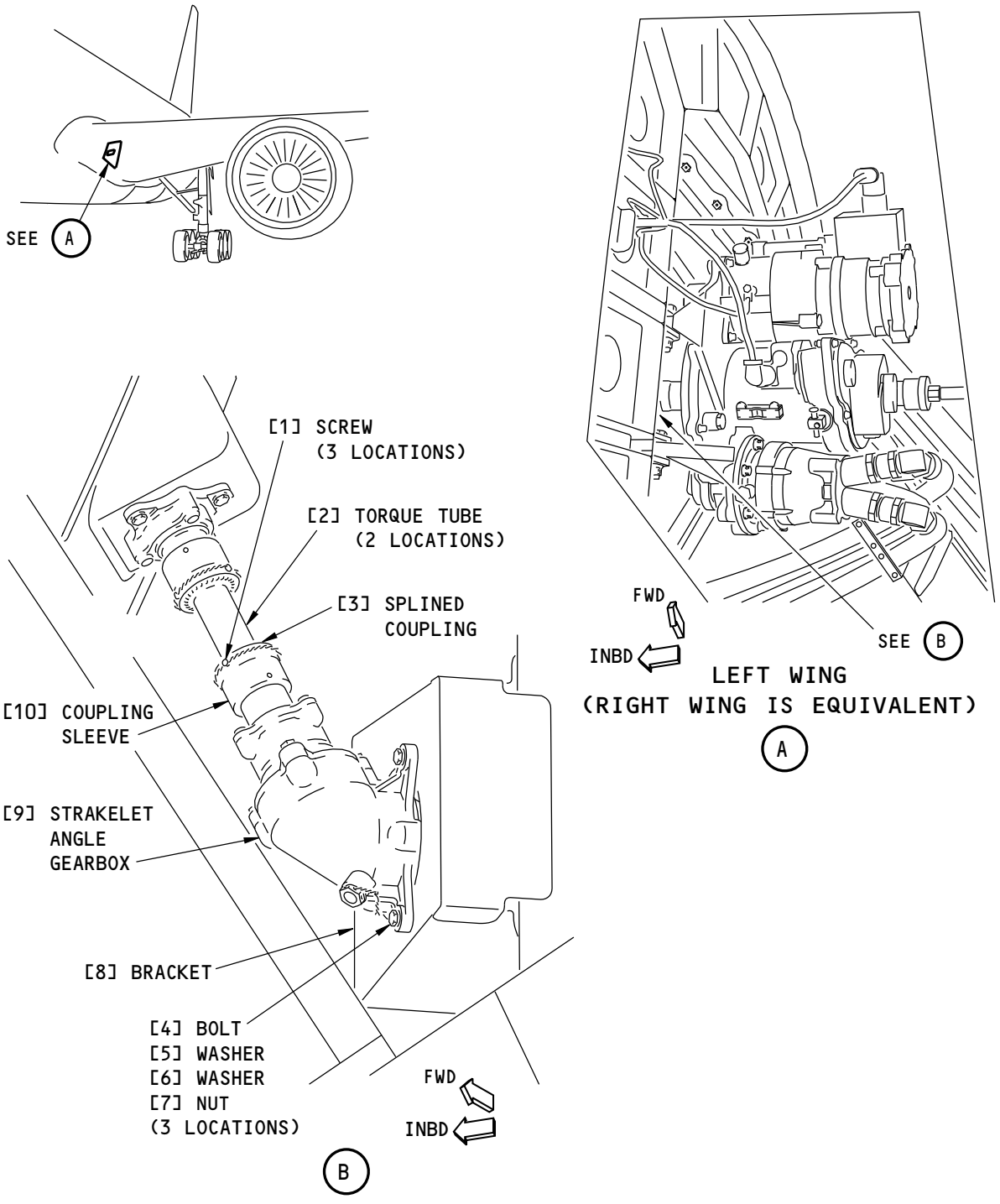
(5) Remove the strakelet angle gearbox [9]:

(a) Remove the nuts [7], washers [5], washers [6] and bolts [4].

(b) Remove the strakelet angle gearbox [9] from the bracket [8].

——— END OF TASK ———

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Strakelet Angle Gearbox Installation
Figure 401/27-81-36-990-801

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TASK 27-81-36-400-801

3. Strakelet Angle Gearbox Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-804	Inboard Leading Edge Torque Tube and Support Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Strakelet angle gearbox	27-81-36-10-005	ARO ALL

E. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

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G. Strakelet Angle Gearbox Installation

SUBTASK 27-81-36-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the strakelet angle gearbox [9]:

(a) Put the strakelet angle gearbox [9] in its position on the bracket [8].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [4].

(c) Install the bolts [4], washers [5], washers [6] and nuts [7]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-36-420-002

(2) Connect the torque tubes [2] to the strakelet angle gearbox [9]:

(a) Apply grease, D00633 to the coupling sleeves [10].

(b) Put the torque tube [2] in its position.

(c) Move the coupling sleeves [10] on the splined couplings [3].

(d) Install the screws [1] to attach the coupling sleeves [10].

(e) Tighten the screws [1].

NOTE: Do not over tighten the screws [1].

(f) Install lockwire on the screws [1].

SUBTASK 27-81-36-080-001

(3) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [2].

SUBTASK 27-81-36-820-001

(4) If the torque tubes turned while they were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-36-640-001

(5) For the applicable torque tubes, do this task: Inboard Leading Edge Torque Tube and Support Lubrication, TASK 12-21-08-640-804.

SUBTASK 27-81-36-440-001

(6) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-36-210-002

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-36-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(8) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-36-710-001

(9) Use the primary system to extend the slats to the sealed position. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-36-710-002

(10) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-36-410-001

(1) On the lower surface of the wing, install the applicable access panels:

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

END OF TASK

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DRIVELINE OFFSET GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the driveline offset gearbox for the leading edge slats

(2) An installation of the driveline offset gearbox for the leading edge slats.

TASK 27-81-37-000-801

2. Driveline Offset Gearbox Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

D. Access Panels

Number	Name/Location
511MB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

E. Prepare for the Removal

SUBTASK 27-81-37-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

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SUBTASK 27-81-37-210-001

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-37-860-001

(3) Extend the leading edge slats to the gapped position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-37-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-37-010-001

(5) From the lower surface of the wing, remove the applicable access panels:

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

Number	Name/Location
511MB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

F. Driveline Offset Gearbox Removal

SUBTASK 27-81-37-480-001

(1) Install the leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the driveline offset gearbox [1].

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

SUBTASK 27-81-37-020-001

(2) Disconnect the torque tubes [8] from the driveline offset gearbox [1]:

(a) Remove the screws [6] that attach the coupling sleeves [5] to the splined couplings [7].

(b) Move the coupling sleeves [5] off the splined coupling [7].

SUBTASK 27-81-37-020-002

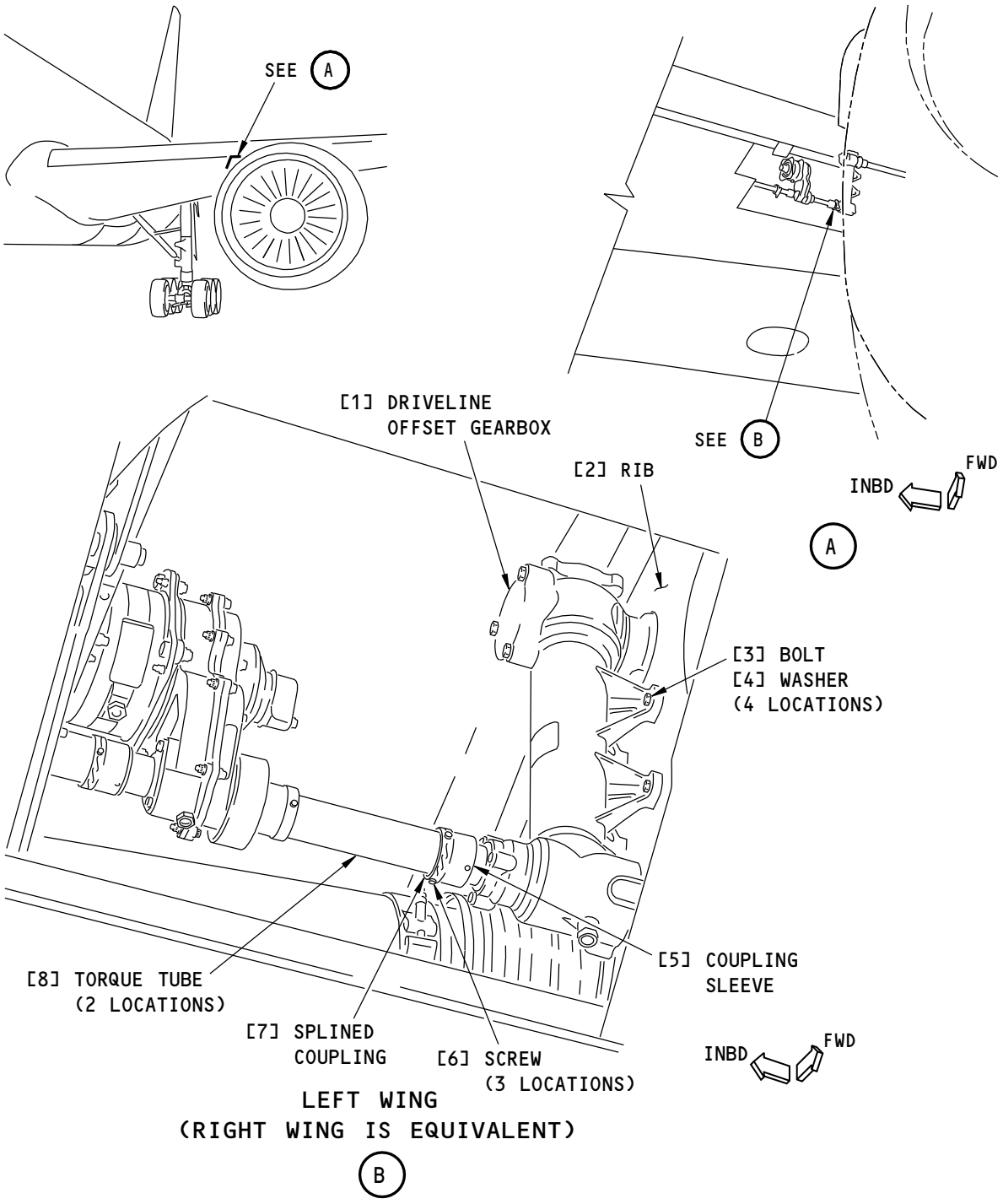
(3) Remove the driveline offset gearbox [1]:

(a) Remove the bolts [3] and washers [4] that attach the driveline offset gearbox [1] to the rib [2].

(b) Remove the driveline offset gearbox [1] from the rib [2].

END OF TASK

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Driveline Offset Gearbox Installation
Figure 401/27-81-37-990-801

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TASK 27-81-37-400-801

3. Driveline Offset Gearbox Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-804	Inboard Leading Edge Torque Tube and Support Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00436	Sealant - Fuel Tank	BMS5-45 (Supersedes BMS5-26)
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Driveline offset gearbox	27-81-37-01-005	ARO ALL

E. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

F. Access Panels

Number	Name/Location
511MB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
611MB	Inboard Fixed Leading Edge Panel

G. Driveline Offset Gearbox Installation

SUBTASK 27-81-37-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the driveline offset gearbox [1]:

(a) Put the driveline offset gearbox [1] in its position on the rib [2].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [3].

(c) Install the bolts [3] and washers [4] that attach the driveline offset gearbox [1] to the rib [2]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-37-390-001

(2) Apply a bead of sealant, A00436 to the outboard side of the driveline offset gearbox [1] where it goes through the rib [2].

SUBTASK 27-81-37-420-002

(3) Connect the torque tubes [8] to the driveline offset gearbox [1]:

(a) Apply grease, D00633 to the coupling sleeves [5].

(b) Put the torque tube [8] in its position.

(c) Move the coupling sleeve [5] on the splined couplings [7].

(d) Install the screws [6] to attach the coupling sleeves [5].

(e) Tighten the screws [6].

NOTE: Do not over tighten the screws [6].

(f) Install lockwire on the screws [6].

SUBTASK 27-81-37-080-001

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [8].

SUBTASK 27-81-37-820-001

(5) If the torque tubes turned while they were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

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SUBTASK 27-81-37-640-001

(6) For the applicable torque tubes, do this task: Inboard Leading Edge Torque Tube and Support Lubrication, TASK 12-21-08-640-804.

SUBTASK 27-81-37-440-001

(7) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-37-710-001

(8) Retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-37-710-002

(9) Use the primary system to extend the slats to the sealed position. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-37-710-003

(10) Use the primary system to retract the slats, to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-37-410-001

(1) On the lower surface of the wing, install the applicable access panel:

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

Number	Name/Location
511MB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-37-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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LEADING EDGE TORQUE TUBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A task to remove the torque tubes on the inboard end of the wing

(2) A task to install the torque tubes on the inboard end of the wing

(3) A task to remove the torque tubes on the outboard end of the wing

(4) A task to install the torque tubes on the outboard end of the wing

(5) A task to remove the torque tubes in the forward cargo area

(6) A task to install the torque tubes in the forward cargo area.

TASK 27-81-38-000-801

2. Inboard Wing Slat Torque Tube Removal

(Figure 401)

A. General

(1) This task applies to the torque tubes between the side of body angle gearbox and the Krueger offset gearbox.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

E. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511FB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
511GB	Inboard Fixed Leading Edge Panel
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel
611AB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611FB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

F. Prepare for the Removal

SUBTASK 27-81-38-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-38-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-38-010-001

(3) Remove the applicable fixed leading edge panels to get access to the torque tubes on the inboard end of the wing:

(a) For the left wing, remove these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511FB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel

(b) For the right wing, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611AB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611FB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

SUBTASK 27-81-38-200-007

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(4) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-38-480-001

(5) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the applicable torque tube (Figure 402).

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

G. Inboard Wing Leading Edge Torque Tube Removal

SUBTASK 27-81-38-020-001

(1) If you will remove the torque tube [5] inboard of the inboard offset gearbox [13], move the seal tube [9] (Figure 401):

(a) Remove the bolts [12], washers [11] and the plate [10] that hold the seal tube [9].

(b) Move the seal tube [9] inboard to get access to the coupling on the torque tube [5].

SUBTASK 27-81-38-020-002

(2) If you will remove the torque tube [4] outboard of the inboard offset gearbox [13], remove the guard [14]:

(a) Remove the nuts [18], washers [17] and bolts [16] that attach the guard [14] to the main track strut [15].

(b) Remove the guard [14] from the torque tube [4].

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SUBTASK 27-81-38-020-003

(3) If you will remove the torque tube [3] inboard of the outboard offset gearbox [19], remove the guard [20]:

(a) Remove the nuts [18], washers [17] and bolts [16] that attach the guard [20] to the main track strut [21].

(b) Remove the guard [20] from the torque tube [3].

SUBTASK 27-81-38-020-004

(4) Remove the applicable torque tube [1], torque tube [2], torque tube [3], torque tube [4], torque tube [5], torque tube [6] or torque tube [7]:

(a) Remove the screws [22] that attach the coupling sleeves [24] to the splined couplings [23].

(b) Move the coupling sleeves [24] off the splined coupling [23].

(c) Remove the torque tube.

SUBTASK 27-81-38-200-008

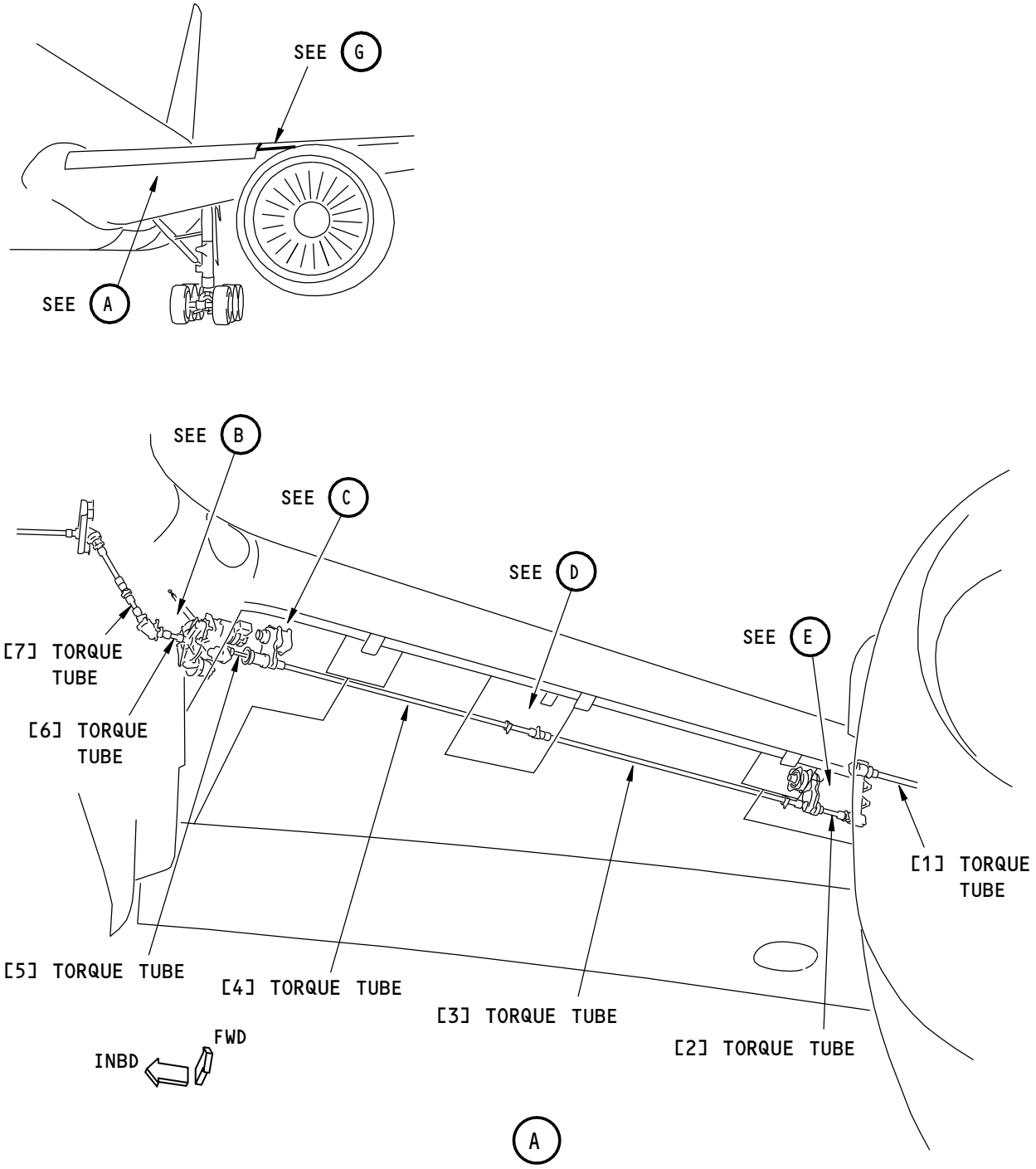
WARNING

DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

END OF TASK

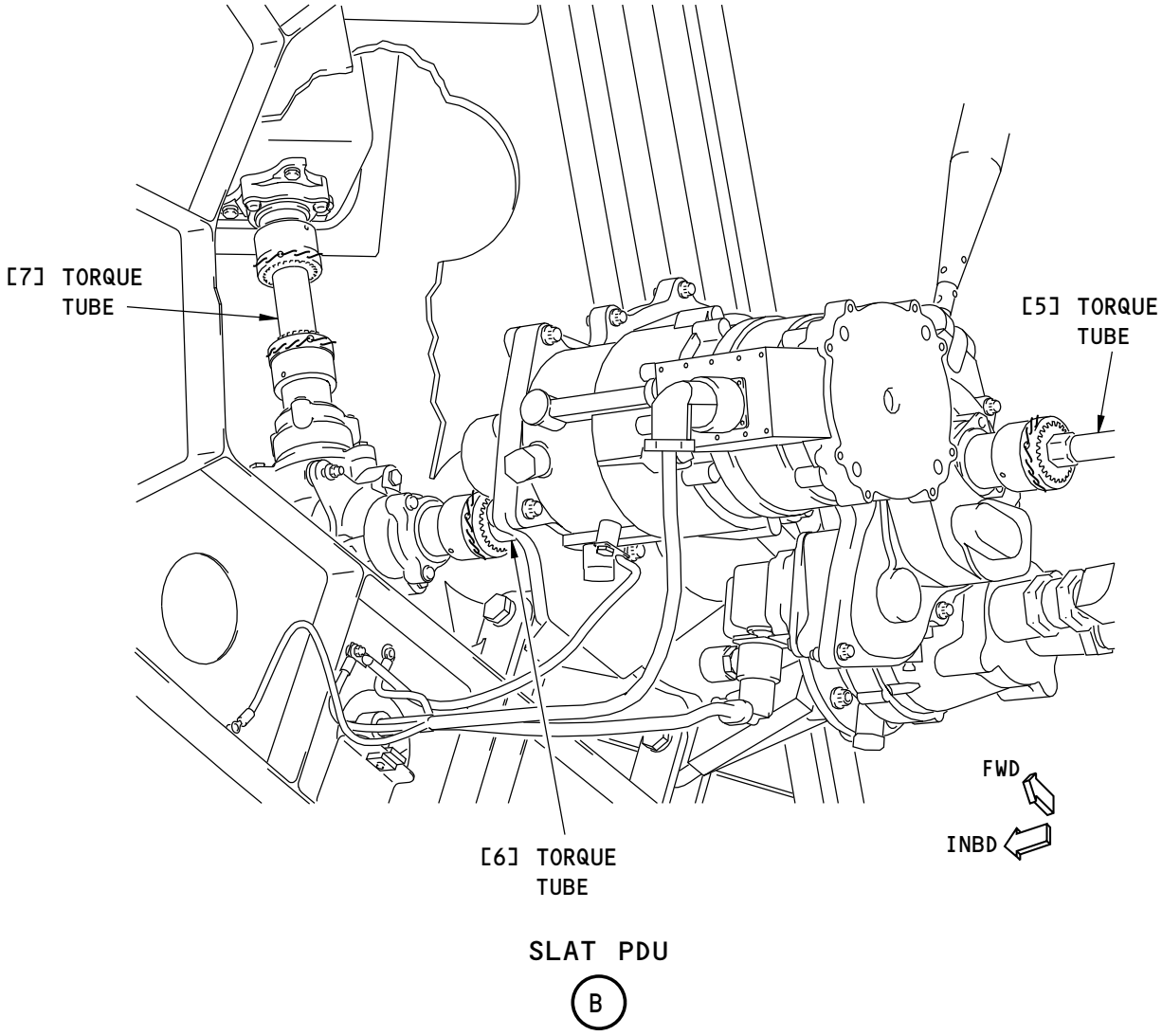
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Inboard Wing Slat Torque Tube Installation
Figure 401/27-81-38-990-801 (Sheet 1 of 6)

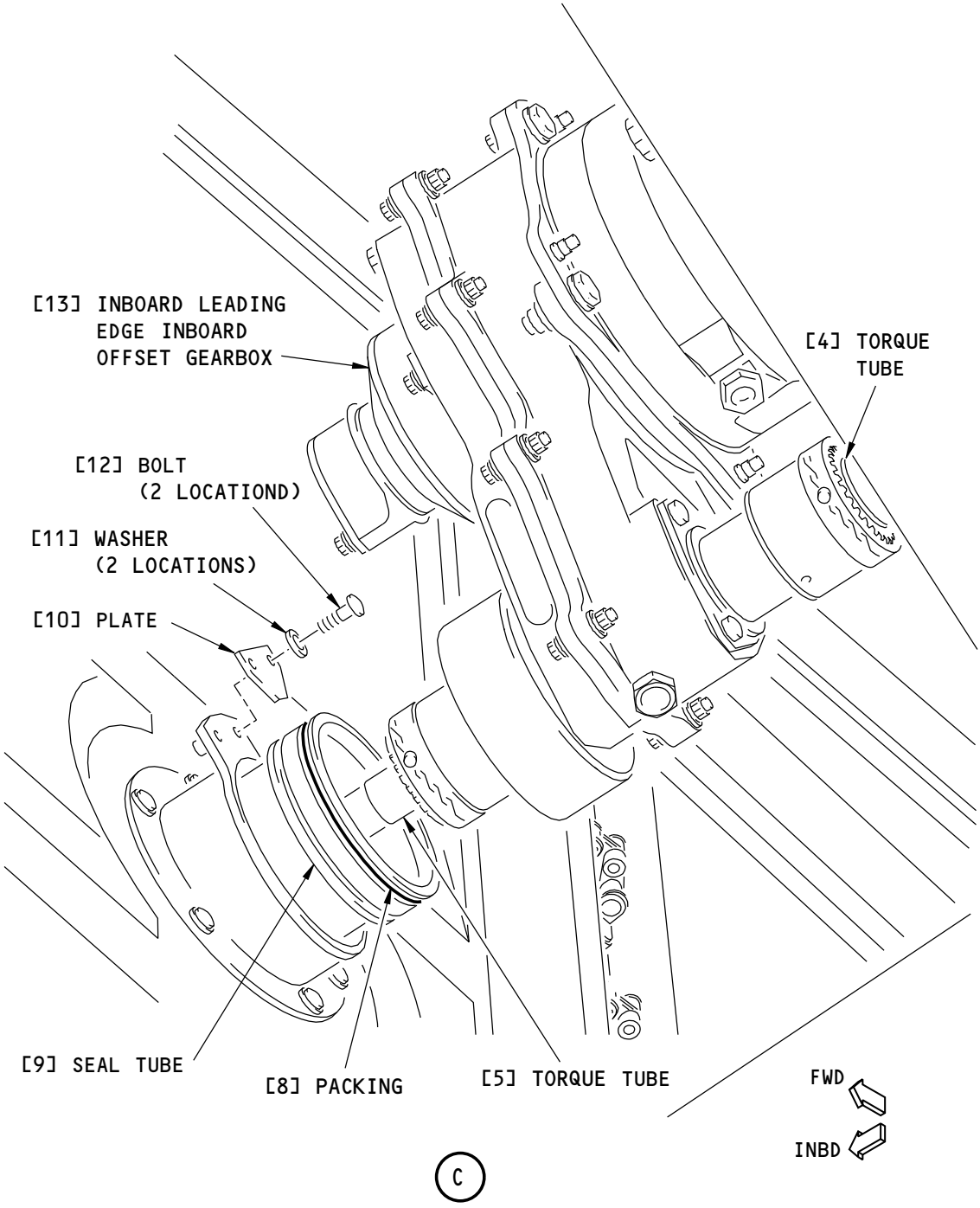
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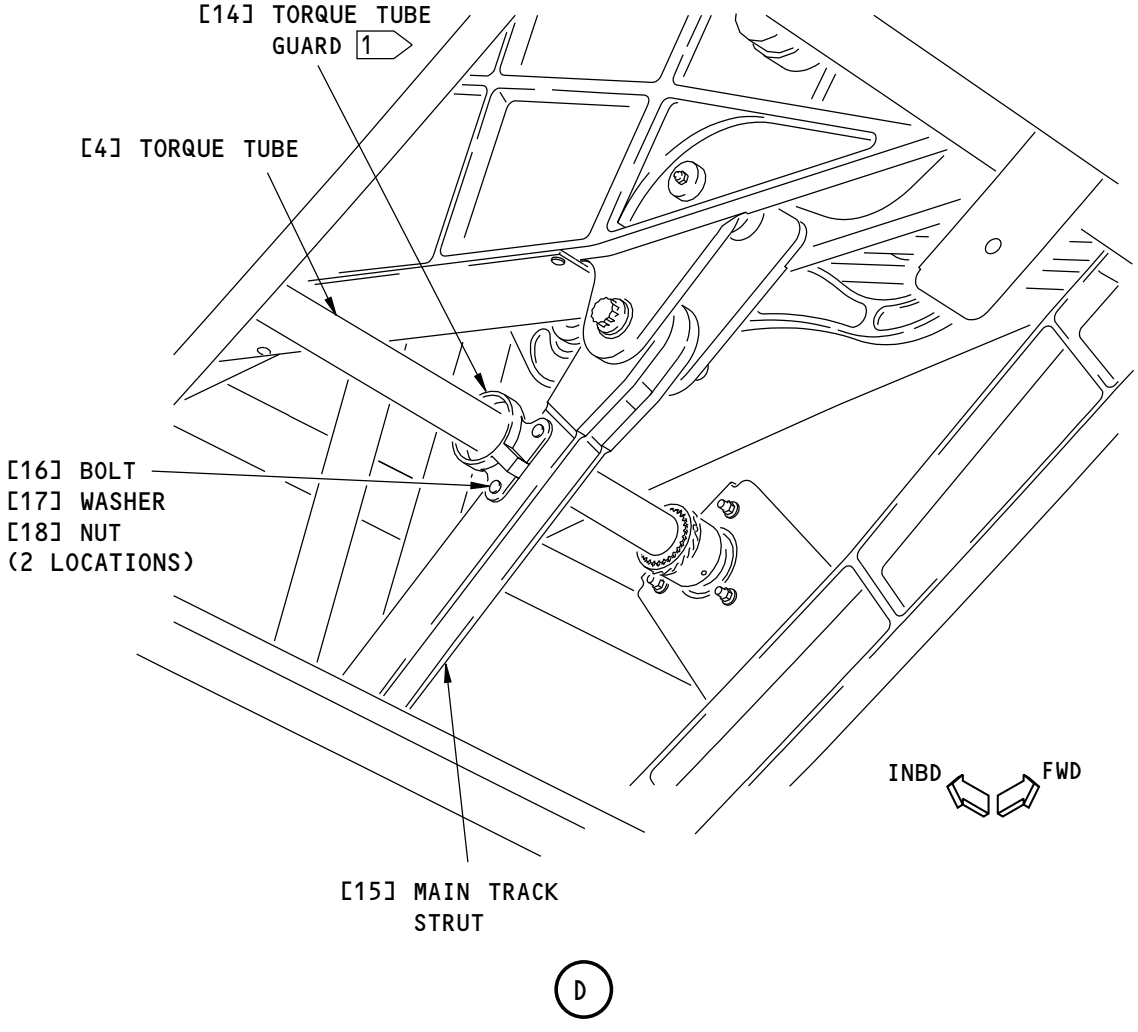
Inboard Wing Slat Torque Tube Installation
Figure 401/27-81-38-990-801 (Sheet 2 of 6)

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Inboard Wing Slat Torque Tube Installation
Figure 401/27-81-38-990-801 (Sheet 3 of 6)

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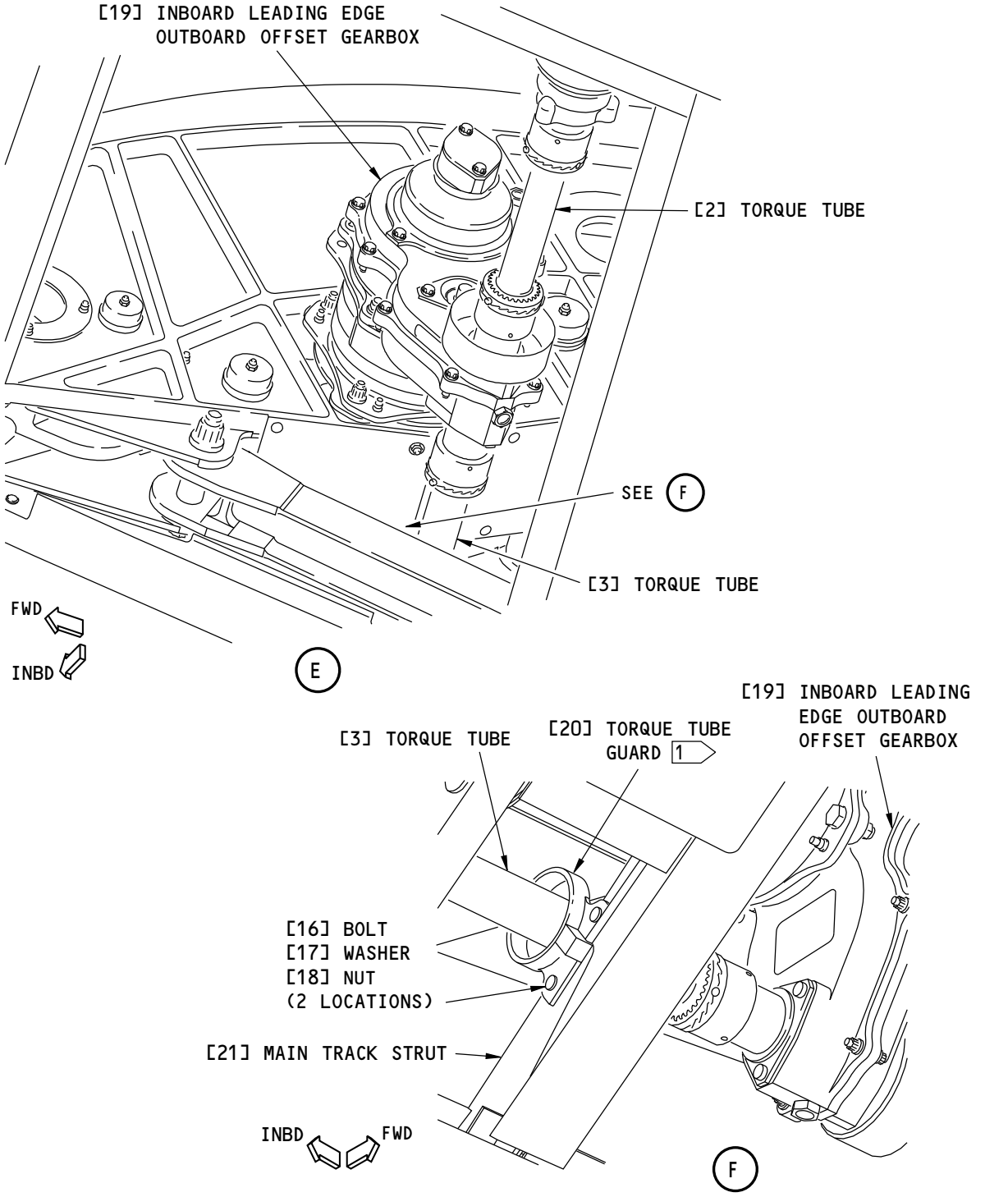


1 THE TORQUE TUBE GUARD IS INSTALLED ON THE INBOARD SIDE OF THE MAIN TRACK STRUT ON THE LEFT WING AND THE OUTBOARD SIDE OF THE MAIN TRACK STRUT ON THE RIGHT WING

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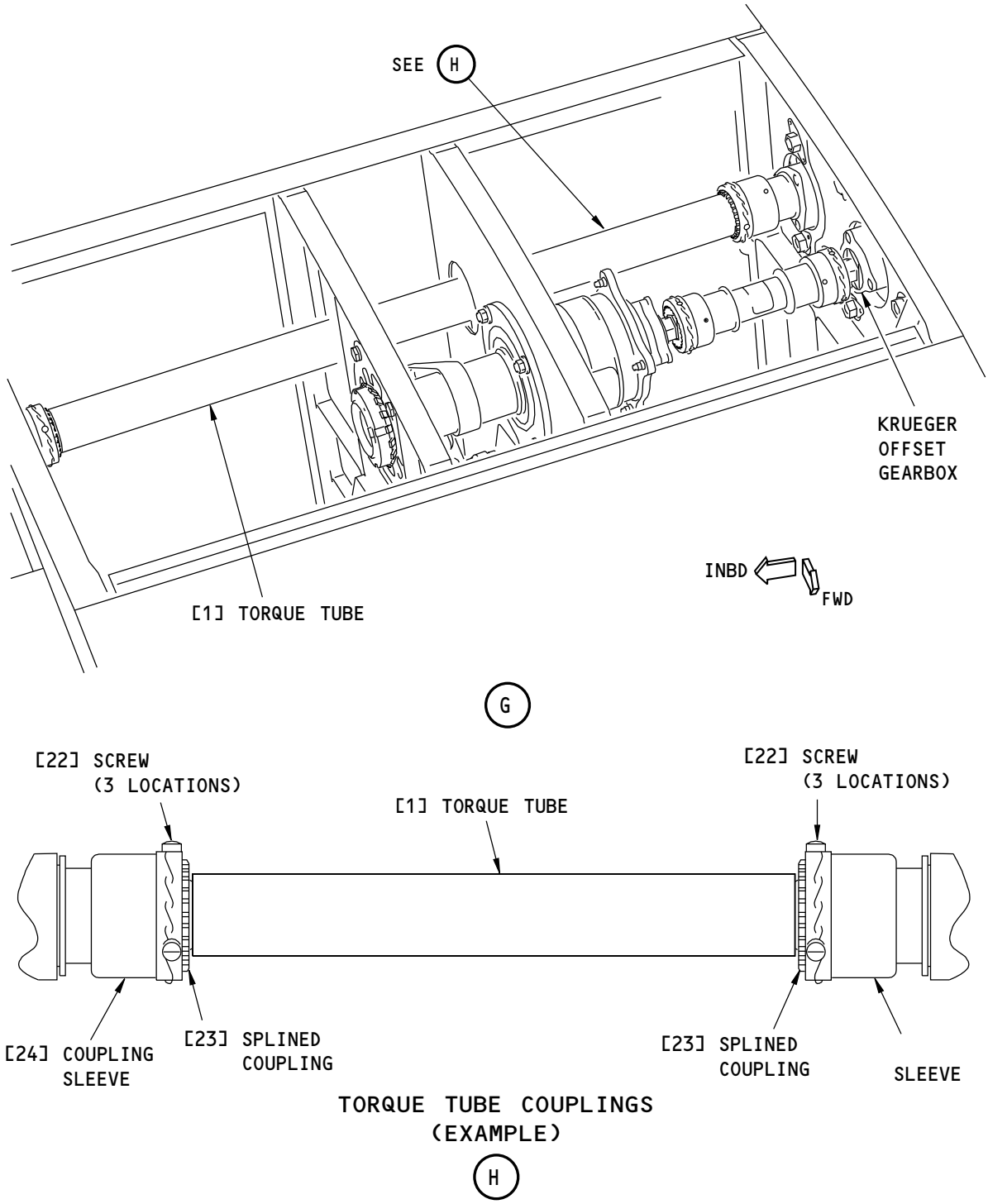
Inboard Wing Slat Torque Tube Installation
Figure 401/27-81-38-990-801 (Sheet 4 of 6)

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Inboard Wing Slat Torque Tube Installation
Figure 401/27-81-38-990-801 (Sheet 5 of 6)

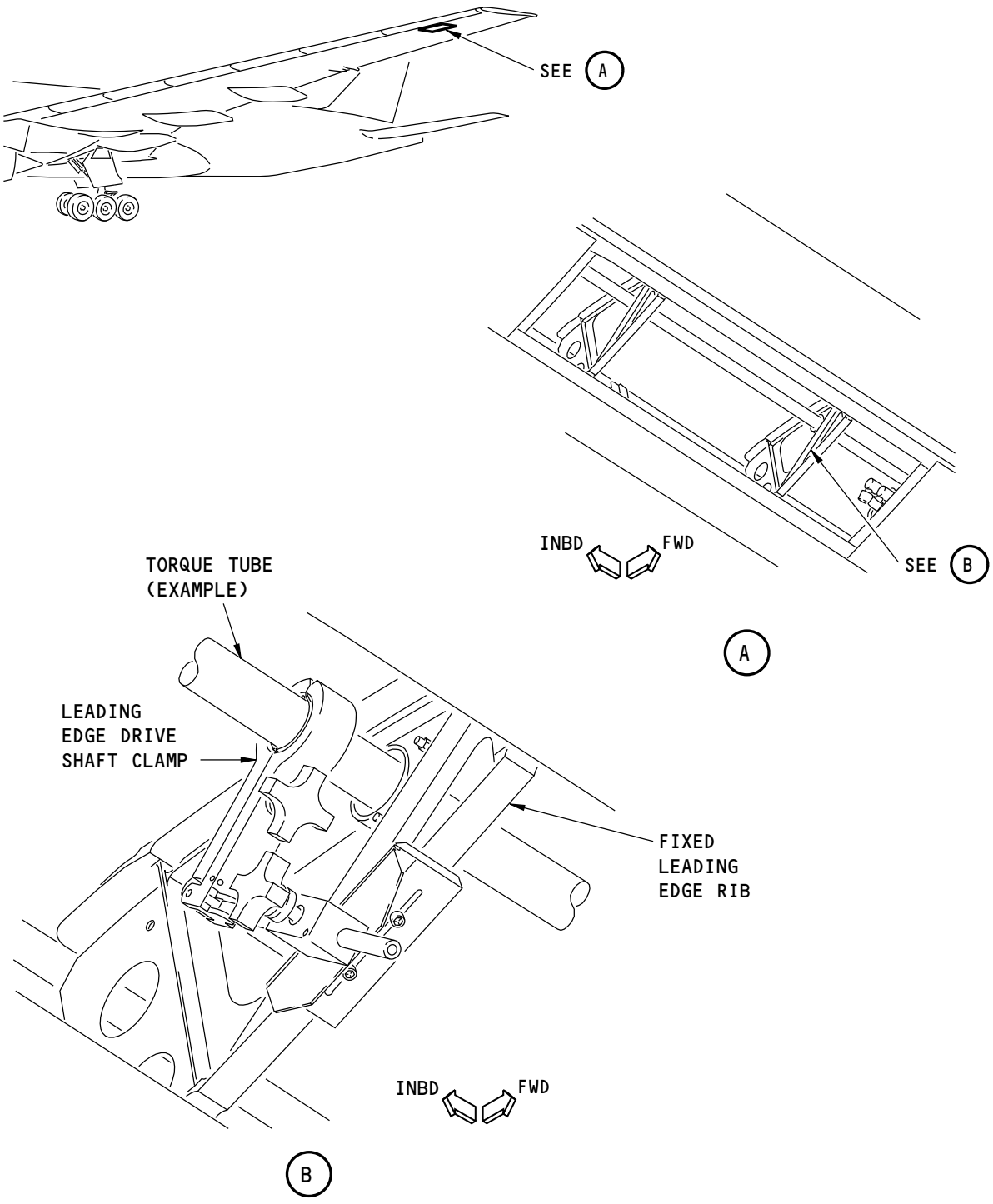
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Inboard Wing Slat Torque Tube Installation
Figure 401/27-81-38-990-801 (Sheet 6 of 6)

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Leading Edge Drive Shaft Clamp
Figure 402/27-81-38-990-802

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TASK 27-81-38-400-801

3. Inboard Wing Slat Torque Tube Installation

(Figure 401)

A. General

(1) This task applies to the torque tubes between the side of body angle gearbox and the Krueger offset gearbox.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Torque tube	27-81-38-01A-230	ARO ALL
2	Torque tube	27-81-38-01A-415	ARO ALL
3	Torque tube	27-81-38-01A-235	ARO ALL
6	Torque tube	27-81-38-01A-255	ARO ALL
		27-81-38-01A-425	ARO ALL
8	Packing	27-81-38-02-015	ARO ALL

F. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing

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G. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511FB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel
611AB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611FB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

H. Inboard Wing Leading Edge Torque Tube Installation

SUBTASK 27-81-38-200-005

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-38-420-001

(2) Install the applicable torque tube [1], torque tube [2], torque tube [3], torque tube [4], torque tube [5], torque tube [6] or torque tube [7]:

(a) Apply grease, D00633 to the coupling sleeves [24].

(b) Put the torque tube [1], torque tube [2], torque tube [3], torque tube [4], torque tube [5], torque tube [6] or torque tube [7] in its position.

(c) Move the coupling sleeves [24] on the splined couplings [23].

(d) If you cannot align the fastener holes on the coupling sleeves [24] to the splined couplings [23], then align the torque tubes:

NOTE: The coupling sleeves [24] can be turned while they are disconnected to align the torque tubes.

1) Move the coupling sleeve [24] off of the splined coupling [23].

2) Turn the coupling sleeve [24] without turning the gearbox until the fastener holes align.

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3) Move the coupling sleeve [24] on the splined couplings [23].

4) If you still cannot get the fastener holes to align, then, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

(e) Install the screws [22] to attach the coupling sleeves [24].

(f) Tighten the screws [22].

NOTE: Do not over tighten the screws [22].

(g) Install lockwire or safety cable on the screws [22].

SUBTASK 27-81-38-820-001

(3) If the torque tubes turned while they were disconnected or if you replaced a broken torque tube, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-38-420-002

(4) If you installed the torque tube [3] inboard of the outboard offset gearbox [19], install the guard [20]:

NOTE: On the left wing, install the guard [20] on the inboard side of the main track strut. On the right wing, install the guard [20] on the outboard side of the main track strut.

(a) Put the guard [20] on the torque tube [3].

(b) Install the bolts [16], washers [17] and nuts [18] that attach the guard [20] to the main track strut [21].

SUBTASK 27-81-38-420-003

(5) If you installed the torque tube [4] outboard of the inboard offset gearbox [13], install the guard [14]:

NOTE: On the left wing, install the guard [14] on the inboard side of the main track strut. On the right wing, install the guard [14] on the outboard side of the main track strut.

(a) Put the guard [14] on the torque tube [4].

(b) Install the bolts [16], washers [17] and nuts [18] that attach the guard [14] to the main track strut [15].

SUBTASK 27-81-38-020-005

(6) If you installed the torque tube [5] inboard of the inboard offset gearbox [13], move the seal tube [9] to its usual position:

(a) If it is necessary, install a new packing [8] on the seal tube [9].

(b) Apply grease, D00013 to the packing [8] on the seal tube [9].

(c) Move the seal tube [9] outboard to the offset gearbox [13].

(d) Apply grease, D00013 to the bolts [12].

(e) Put the plate [10] in its position and install the bolts [12] and washers [11].

SUBTASK 27-81-38-080-001

(7) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes (Figure 402).

I. Inboard Wing Leading Edge Torque Tube Installation Test

SUBTASK 27-81-38-210-001

(1) Make sure there is clearance between the torque tube and the adjacent parts.

SUBTASK 27-81-38-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-38-710-001

(3) Use the primary system to extend the leading edge slats. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the torque tubes do not touch adjacent parts.

SUBTASK 27-81-38-200-006

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(4) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-38-710-002

(5) Use the primary system to retract the leading edge slats. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the torque tubes do not touch adjacent parts.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-38-410-001

(1) Install the applicable fixed leading edge panels on the wing:

(a) For the left wing, install these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511FB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
513AT	Krueger Slat Access Panel

(b) For the right wing, install these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611AB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611FB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
613AT	Krueger Slat Access Panel

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SUBTASK 27-81-38-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

TASK 27-81-38-000-802

4. Outboard Wing Slat Torque Tube Removal

(Figure 403)

A. General

(1) This task applies to the torque tubes outboard of the Krueger offset gearbox.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-39-000-802	Outboard Wing Slat Torque Tube Support Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
521	Leading Edge to Front Spar - Outboard of Nacelle Strut - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing
621	Leading Edge to Front Spar - Outboard of Nacelle Strut - Right Wing

E. Access Panels

Number	Name/Location
513BT	Upper Nacelle Strut Interface (Gap Cover) Panel
521AAB	Outboard Fixed Leading Edge Panel
521AB	Wing Anti-Ice Valve Door
521ABB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521CB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521EB	Outboard Fixed Leading Edge Panel
521FB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521HB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521NB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521SB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521XB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel
613BT	Upper Nacelle Strut Interface (Gap Cover) Panel
621AAB	Outboard Fixed Leading Edge Panel
621AB	Wing Anti-Ice Valve Door
621ABB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621CB	Outboard Fixed Leading Edge Panel
621DB	Refueling Station Door
621EB	Outboard Fixed Leading Edge Panel
621FB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621HB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621NB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621SB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621XB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

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F. Prepare for the Removal

SUBTASK 27-81-38-040-003

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-38-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-38-010-002

(3) Remove the applicable fixed leading edge panels to get access to the torque tubes on the outboard end of the wing:

(a) For the left wing, remove these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
513BT	Upper Nacelle Strut Interface (Gap Cover) Panel
521AAB	Outboard Fixed Leading Edge Panel
521AB	Wing Anti-Ice Valve Door
521ABB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521CB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521EB	Outboard Fixed Leading Edge Panel
521FB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521HB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521NB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521SB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521XB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521YB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel

(b) For the right wing, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
613BT	Upper Nacelle Strut Interface (Gap Cover) Panel
621AAB	Outboard Fixed Leading Edge Panel
621AB	Wing Anti-Ice Valve Door
621ABB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621CB	Outboard Fixed Leading Edge Panel
621DB	Refueling Station Door
621EB	Outboard Fixed Leading Edge Panel
621FB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621HB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621NB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621SB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621XB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-38-200-001

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(4) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-38-480-002

(5) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the applicable torque tube (Figure 402).

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

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G. Outboard Wing Leading Edge Torque Tube Removal

SUBTASK 27-81-38-020-006

(1) Remove the guard [66], guard [70] or guard [71] if it is necessary (Figure 403):

(a) Remove the nuts [69], washers [68] and bolts [67] that attach the guard [66], guard [70] or guard [71] to the structure.

(b) Remove the guard [66], guard [70] or guard [71] from the torque tube.

SUBTASK 27-81-38-020-007

(2) Remove a torque tube [42], torque tube [43], torque tube [45] or torque tube [46]:

NOTE: These torque tubes are between slats 1 and 2, 2 and 3, 12 and 13 or 13 and 14.

(a) Remove the screws [22] that attach the coupling sleeves [24] to the end fittings [72].

(b) Move the coupling sleeves [24] off the end fittings [72].

(c) Remove the torque tube [42], torque tube [43], torque tube [45] or torque tube [46].

SUBTASK 27-81-38-020-013

(3) Remove a torque tube [44], torque tube [47], torque tube [50] or torque tube [53]:

NOTE: These torque tubes are between the offset gearboxes for slats 2, 3, 4, 5, 10, 11, 12 and 13.

(a) Remove the stiffener assembly [64] below the inboard end of the torque tube:

1) Remove the bolts [65] that attach the stiffener assembly [64] to the structure.

(b) Remove the screws [22] that attach the coupling sleeves [24] to the splined couplings [23].

(c) Move the coupling sleeves [24] off the splined coupling [23].

(d) Remove the torque tube [41], torque tube [44], torque tube [47], torque tube [50] or torque tube [53].

SUBTASK 27-81-38-020-014

(4) Remove a torque tube [41] or torque tube [77]:

NOTE: These torque tubes are between the offset gearboxes for slats 1, and 14 and the torque tube support.

(a) Remove the stiffener assembly [64] below the inboard end of the torque tube:

1) Remove the bolts [65] that attach the stiffener assembly [64] to the structure.

(b) Remove the screws [22] that attach the coupling sleeves [24] to the splined couplings [23].

(c) Move the coupling sleeves [24] off the splined coupling [23].

(d) Remove the torque tube [41] or torque tube [77].

SUBTASK 27-81-38-020-009

(5) Remove the torque tube [58] inboard of the offset gearbox on the inboard end of slat No. 6:

(a) Remove the screws [22] that attach the coupling sleeves [24] to the splined couplings [23].

(b) Move the coupling sleeves [24] off the splined coupling [23].

(c) Remove the torque tube support [60]. To remove it, do this task: Outboard Wing Slat Torque Tube Support Removal, TASK 27-81-39-000-802.

(d) Remove the torque tube [58].

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SUBTASK 27-81-38-020-010

(6) Remove the torque tube [48], torque tube [49], torque tube [51], torque tube [52], torque tube [54], torque tube [55], torque tube [56], torque tube [57], torque tube [59] or torque tube [61]:

(a) Remove the screws [22] that attach the coupling sleeves [24] to the splined couplings [23].

(b) Move the coupling sleeves [24] off the splined coupling [23].

(c) Remove the torque tube [48], torque tube [49], torque tube [51], torque tube [52], torque tube [54], torque tube [55], torque tube [56], torque tube [57] or torque tube [59].

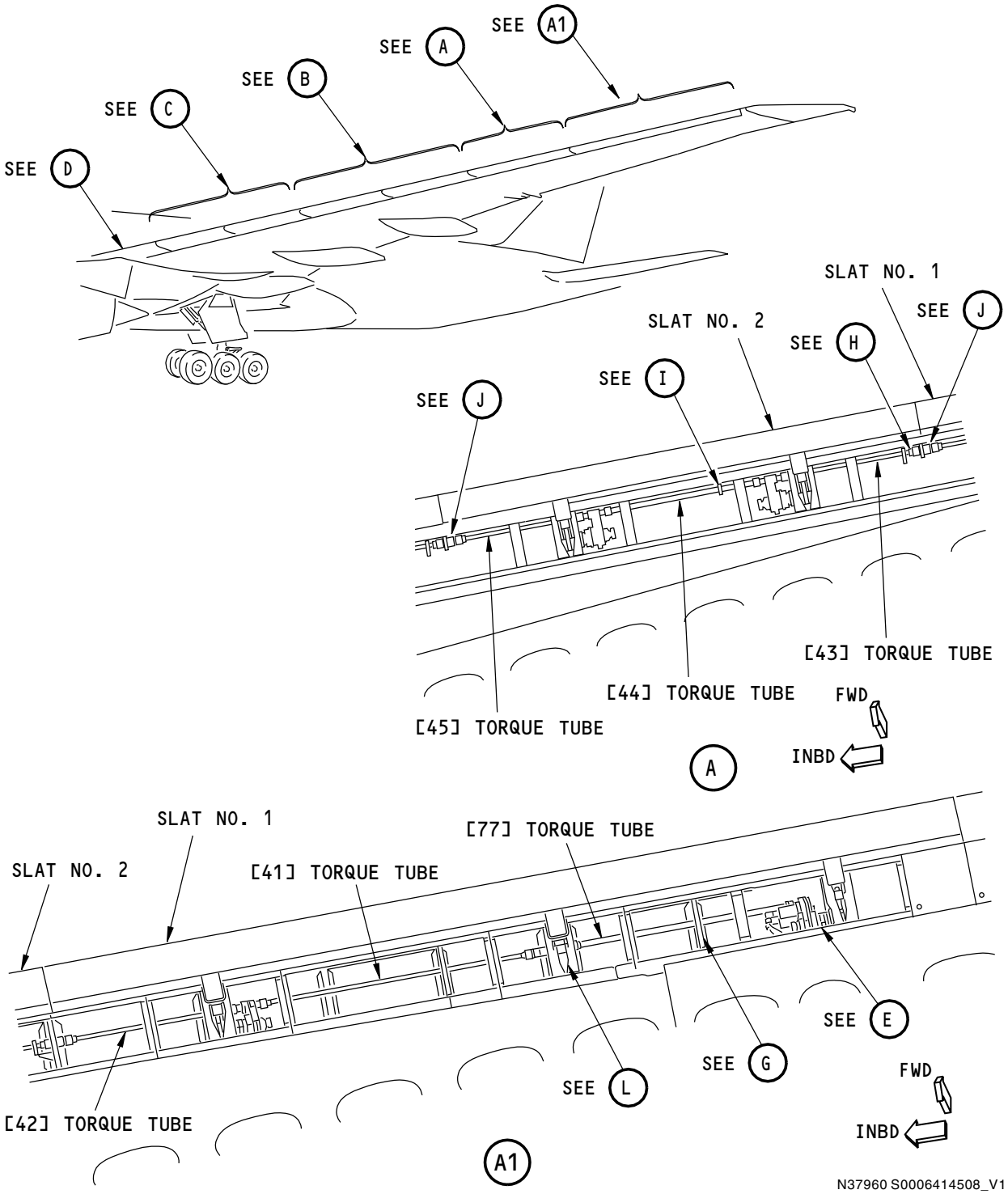
SUBTASK 27-81-38-200-002

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(7) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

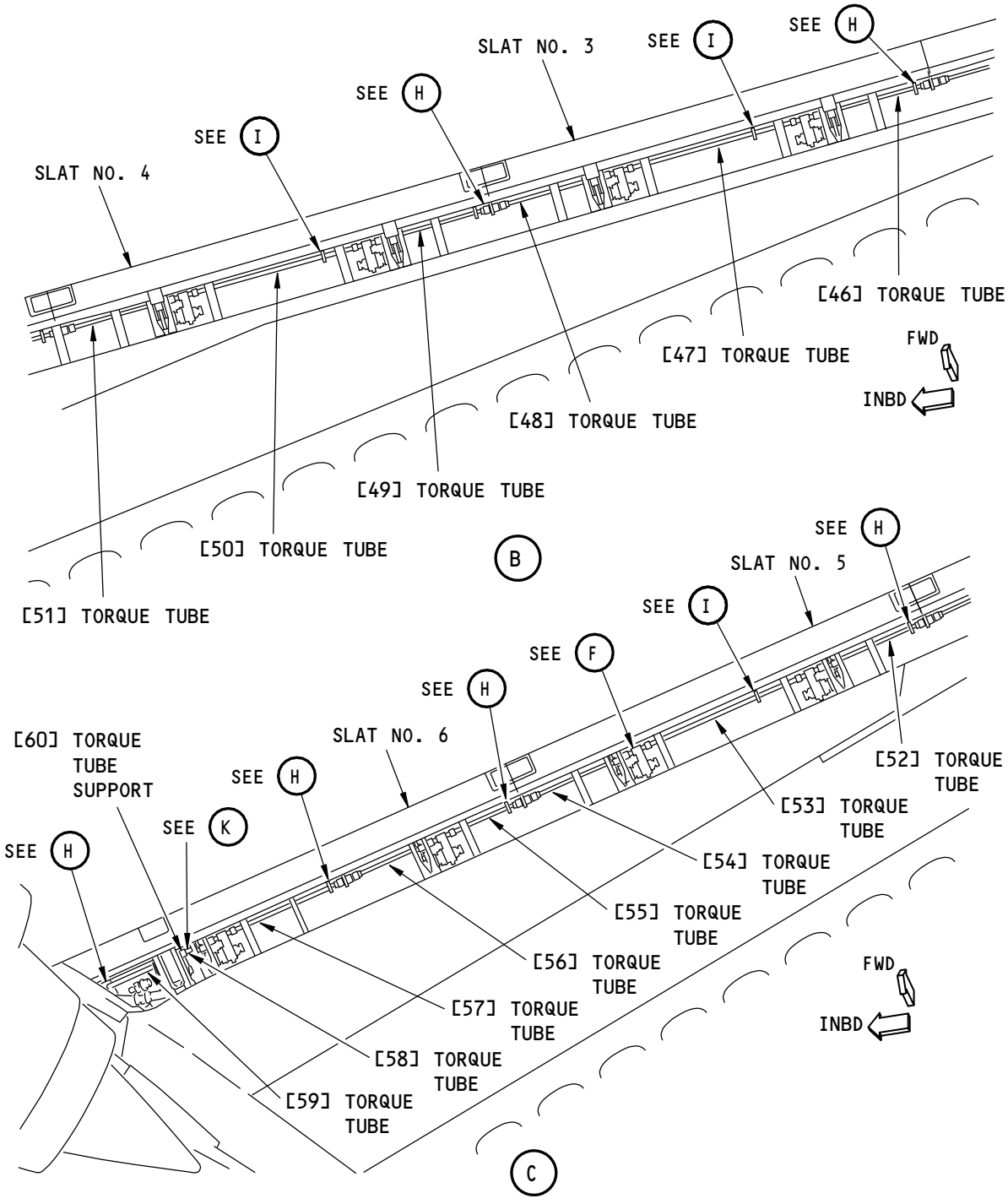
END OF TASK

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Outboard Wing Slat Torque Tube Installation
Figure 403/27-81-38-990-805 (Sheet 1 of 7)

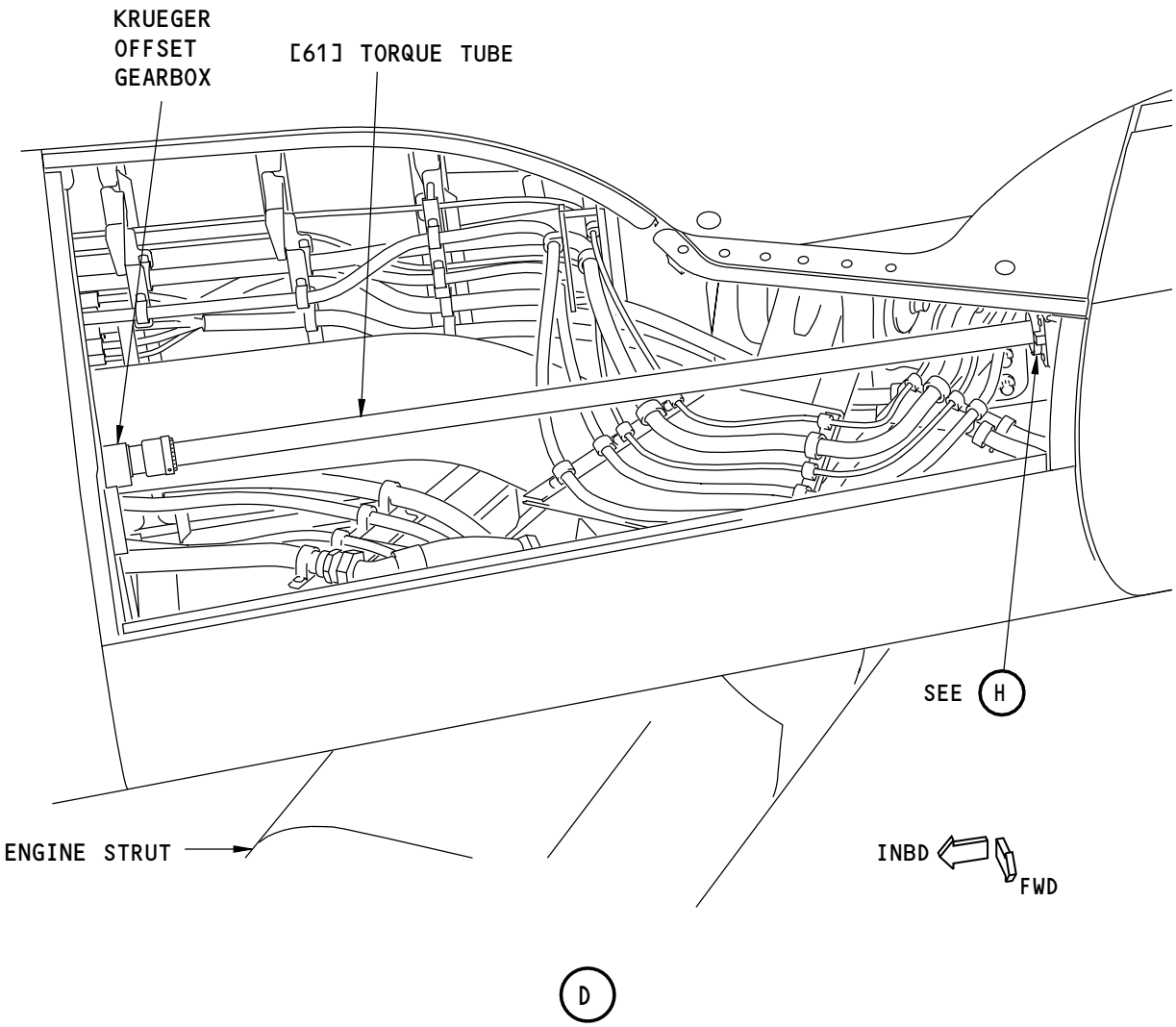
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Outboard Wing Slat Torque Tube Installation
Figure 403/27-81-38-990-805 (Sheet 2 of 7)

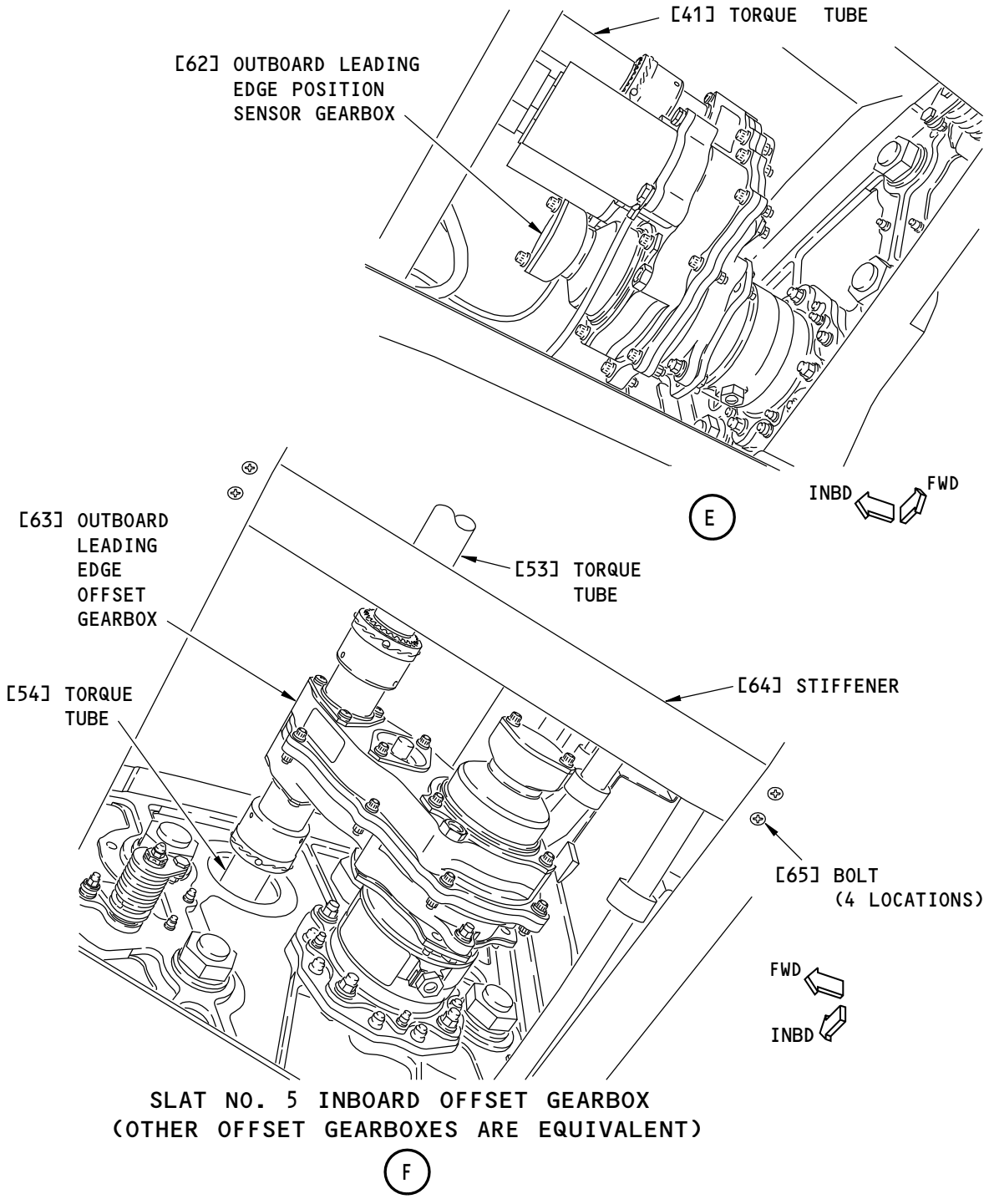
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Outboard Wing Slat Torque Tube Installation
Figure 403/27-81-38-990-805 (Sheet 3 of 7)

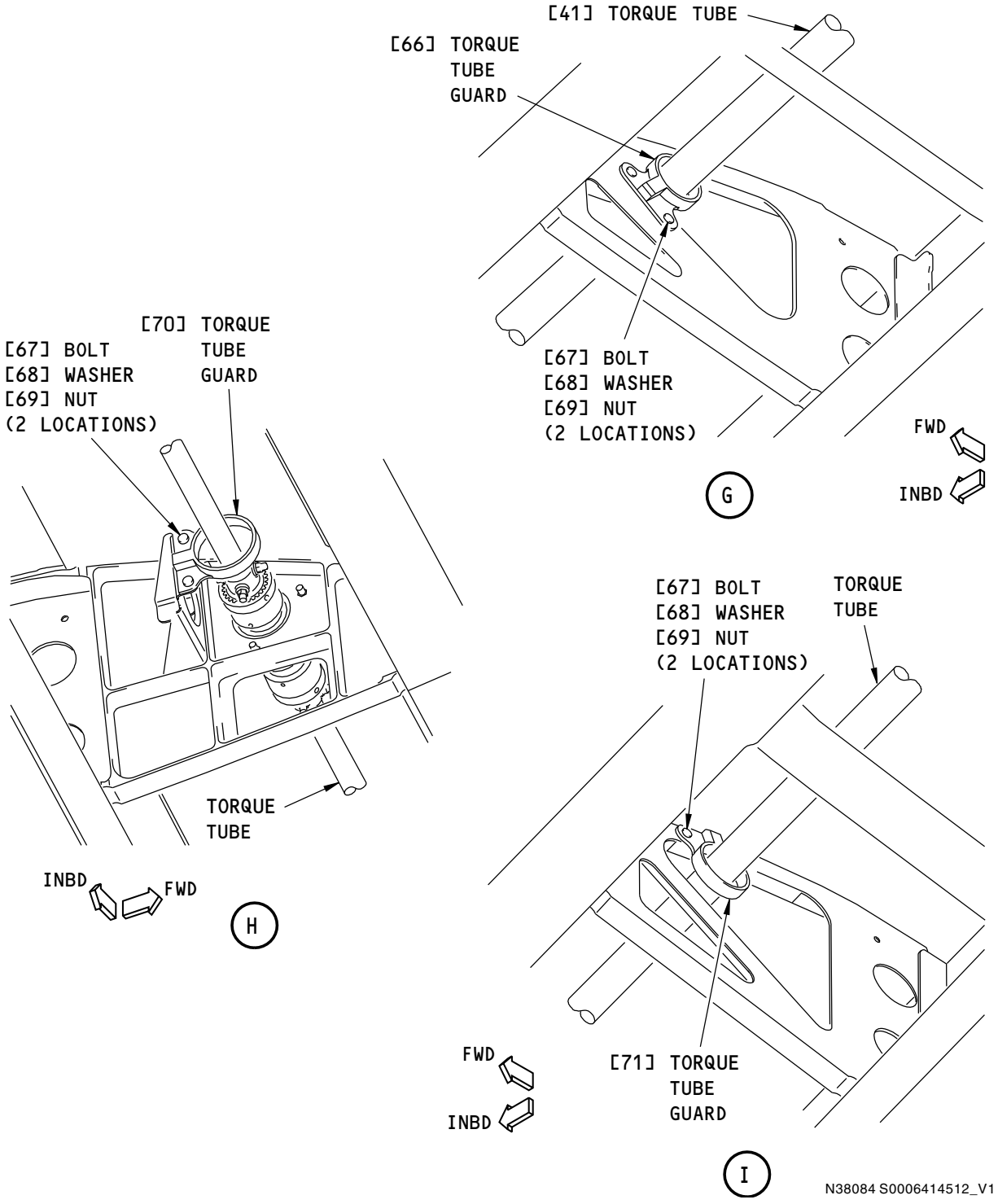
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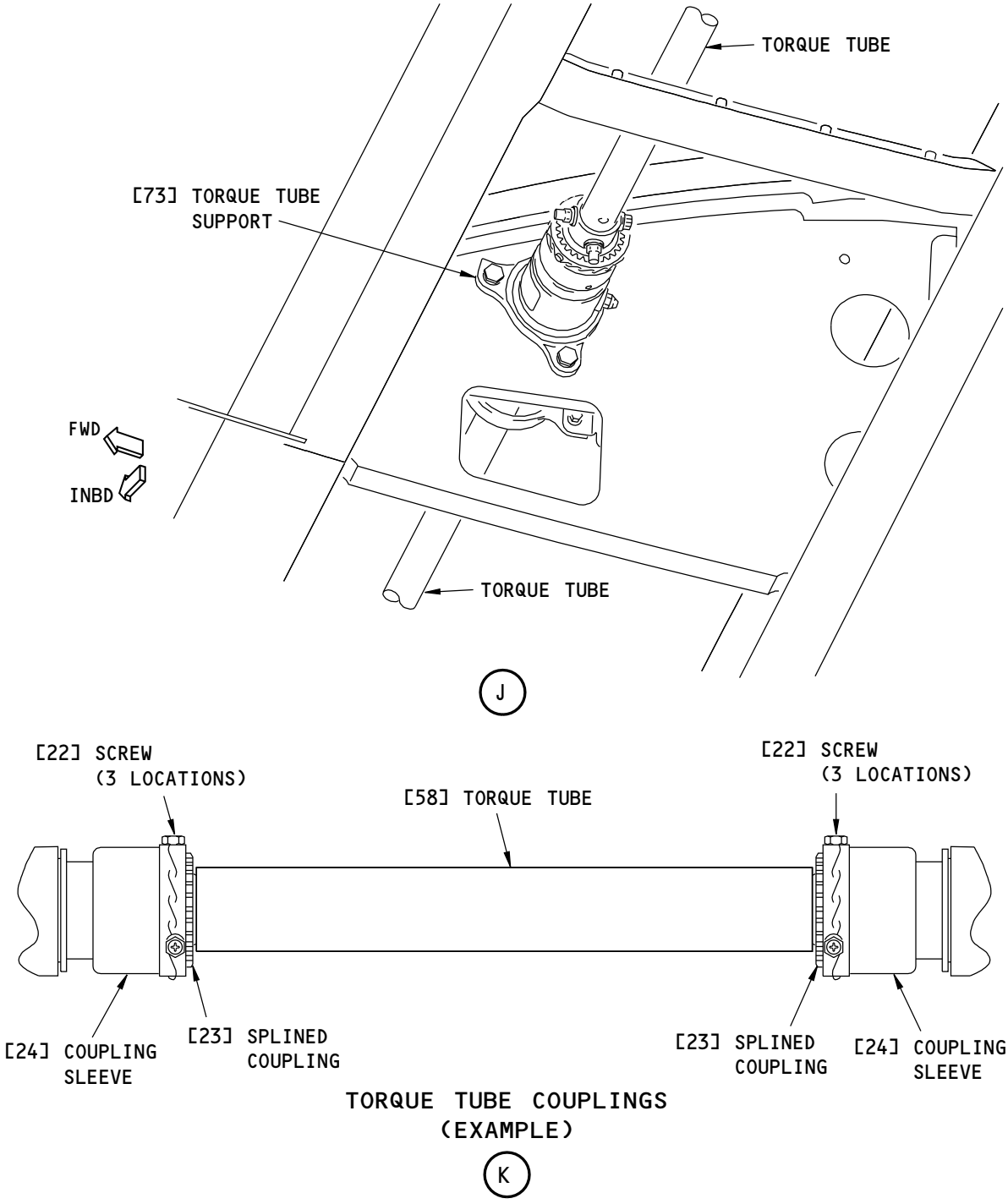
Outboard Wing Slat Torque Tube Installation
Figure 403/27-81-38-990-805 (Sheet 4 of 7)

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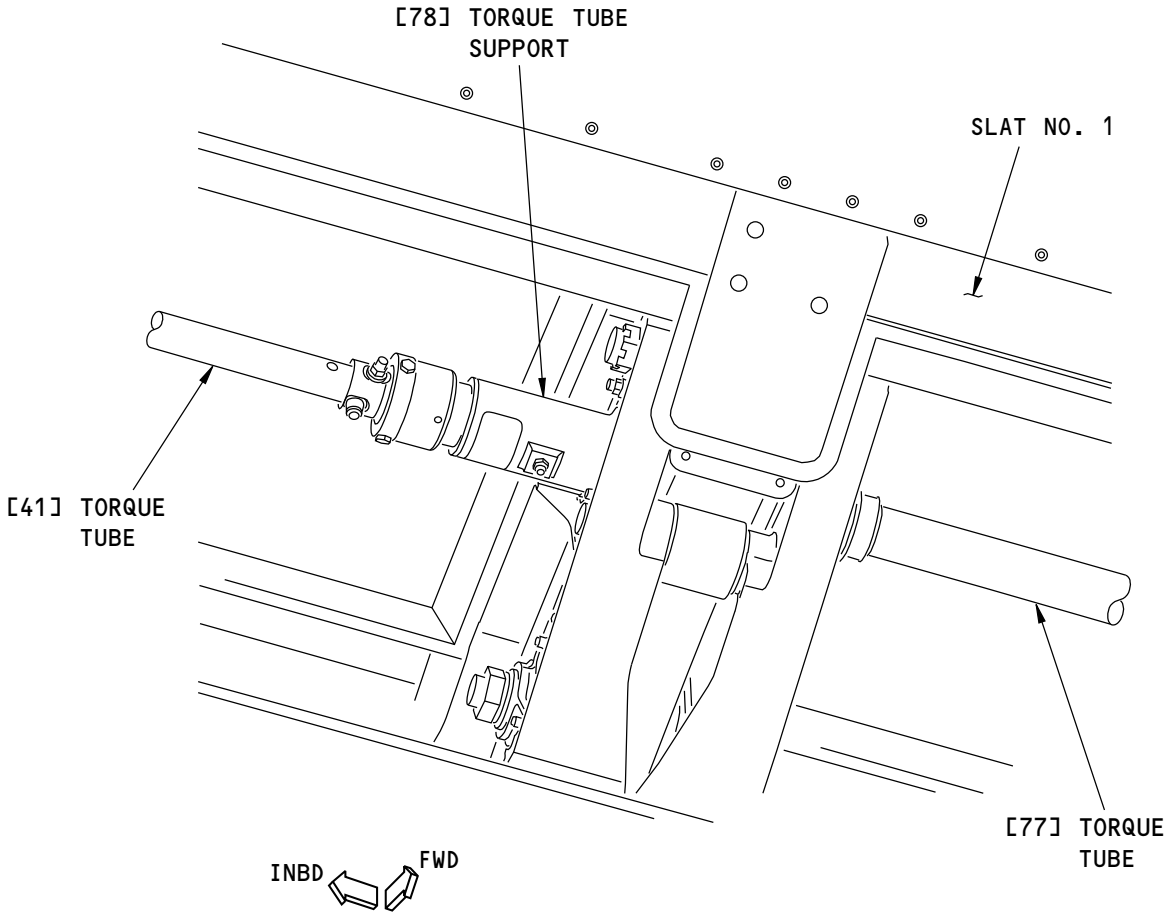
Outboard Wing Slat Torque Tube Installation
Figure 403/27-81-38-990-805 (Sheet 5 of 7)

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Outboard Wing Slat Torque Tube Installation
Figure 403/27-81-38-990-805 (Sheet 6 of 7)

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Outboard Wing Slat Torque Tube Installation
Figure 403/27-81-38-990-805 (Sheet 7 of 7)

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TASK 27-81-38-400-802

5. Outboard Wing Slat Torque Tube Installation

(Figure 403)

A. General

(1) This task applies to the torque tubes outboard of the Krueger offset gearbox.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
27-81-39-400-802	Outboard Wing Slat Torque Tube Support Installation (P/B 401)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
41	Torque tube	27-81-38-01A-060	ARO ALL
42	Torque tube	27-81-38-01A-135	ARO ALL
43	Torque tube	27-81-38-01A-140	ARO ALL
45	Torque tube	27-81-38-01A-145	ARO ALL
46	Torque tube	27-81-38-01A-150	ARO ALL
47	Torque tube	27-81-38-01A-165	ARO ALL
48	Torque tube	27-81-38-01A-170	ARO ALL
49	Torque tube	27-81-38-01A-175	ARO ALL
50	Torque tube	27-81-38-01A-180	ARO ALL
51	Torque tube	27-81-38-01A-185	ARO ALL
52	Torque tube	27-81-38-01A-190	ARO ALL
53	Torque tube	27-81-38-01A-195	ARO ALL
54	Torque tube	27-81-38-01A-200	ARO ALL
55	Torque tube	27-81-38-01A-205	ARO ALL
56	Torque tube	27-81-38-01A-210	ARO ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
57	Torque tube	27-81-38-01A-215	ARO ALL
58	Torque tube	27-81-38-01A-220	ARO ALL
59	Torque tube	27-81-38-01A-225	ARO ALL
61	Torque tube	27-81-38-01A-160	ARO ALL

F. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
521	Leading Edge to Front Spar - Outboard of Nacelle Strut - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing
621	Leading Edge to Front Spar - Outboard of Nacelle Strut - Right Wing

G. Access Panels

Number	Name/Location
513BT	Upper Nacelle Strut Interface (Gap Cover) Panel
521AAB	Outboard Fixed Leading Edge Panel
521AB	Wing Anti-Ice Valve Door
521ABB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521CB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521EB	Outboard Fixed Leading Edge Panel
521FB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521HB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521NB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521SB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521XB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel
613BT	Upper Nacelle Strut Interface (Gap Cover) Panel
621AAB	Outboard Fixed Leading Edge Panel
621AB	Wing Anti-Ice Valve Door

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(Continued)

Number	Name/Location
621ABB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621CB	Outboard Fixed Leading Edge Panel
621DB	Refueling Station Door
621EB	Outboard Fixed Leading Edge Panel
621FB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621HB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621NB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621SB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621XB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

H. Outboard Wing Leading Edge Torque Tube Installation

SUBTASK 27-81-38-200-003

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-38-420-004

(2) Install a torque tube [42], torque tube [43], torque tube [45] or torque tube [46]:

NOTE: These torque tubes are between slats 1 and 2, 2 and 3, 12 and 13 or 13 and 14.

(a) Apply grease, D00633 to the coupling sleeves [24] on the offset gearbox and the torque tube support.

(b) Put the torque tube [42], torque tube [43], torque tube [45] or torque tube [46] in its position between the offset gearbox and the torque tube support.

(c) Install the screws [22] to attach the coupling sleeves [24] to the torque tube.

(d) Tighten the screws [22].

NOTE: Do not over tighten the screws [22].

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(e) Install lockwire or safety cable on the screws [22].

SUBTASK 27-81-38-420-011

(3) Install a torque tube [41] or torque tube [77]:

NOTE: These torque tubes are between the offset gearboxes for slats 1 and 14 and the torque tube support.

(a) Apply grease, D00633 to the coupling sleeves [24].

(b) Put the torque tube [41] or torque tube [77] in its position between the offset gearbox and the torque tube support [78].

(c) Move the coupling sleeves [24] on the splined couplings [23].

(d) If you cannot align the fastener holes on the coupling sleeves [24] to the splined couplings [23], then align the torque tubes:

NOTE: The coupling sleeves [24] can be turned while they are disconnected to align the torque tubes.

1) Move the coupling sleeve [24] off of the splined coupling [23].

2) Turn the coupling sleeve [24] without turning the gearbox until the fastener holes align.

3) Move the coupling sleeve [24] on the splined couplings [23].

4) If you still cannot get the fastener holes to align, then, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

(e) Install the screws [22] to attach the coupling sleeves [24].

(f) Tighten the screws [22].

NOTE: Do not over tighten the screws [22].

(g) Install lockwire or safety cable on the screws [22].

(h) Install the stiffener assembly [64] below the inboard end of the torque tube:

1) Put the stiffener assembly [64] in its position.

2) Install the bolts [65].

SUBTASK 27-81-38-420-012

(4) Install a torque tube [44], torque tube [47], torque tube [50], or torque tube [53]:

NOTE: These torque tubes are between the offset gearboxes for slats 2, 3, 4, 5, 10, 11, 12 and 13.

(a) Apply grease, D00633 to the coupling sleeves [24].

(b) Put the torque tube [44], torque tube [47], torque tube [50], or torque tube [53] in its position between the offset gearboxes:

(c) Move the coupling sleeves [24] on the splined couplings [23].

(d) If you cannot align the fastener holes on the coupling sleeves [24] to the splined couplings [23], then align the torque tubes:

NOTE: The coupling sleeves [24] can be turned while they are disconnected to align the torque tubes.

1) Move the coupling sleeve [24] off of the splined coupling [23].

2) Turn the coupling sleeve [24] without turning the gearbox until the fastener holes align.

3) Move the coupling sleeve [24] on the splined couplings [23].

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4) If you still cannot get the fastener holes to align, then, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

(e) Install the screws [22] to attach the coupling sleeves [24].

(f) Tighten the screws [22].

NOTE: Do not over tighten the screws [22].

(g) Install lockwire or safety cable on the screws [22].

(h) Install the stiffener assembly [64] below the inboard end of the torque tube:

1) Put the stiffener assembly [64] in its position.

2) Install the bolts [65].

SUBTASK 27-81-38-420-006

(5) Install the torque tube [58] inboard of the offset gearbox on the inboard end of slat No. 6:

(a) Apply grease, D00633 to the coupling sleeve [24] on the offset gearbox.

(b) Put the torque tube [58] in its position on the offset gearbox.

(c) Install the torque tube support [60]. To install it, do this task: Outboard Wing Slat Torque Tube Support Installation, TASK 27-81-39-400-802.

(d) Move the coupling sleeves [24] on the splined couplings [23].

(e) Install the screws [22] to attach the coupling sleeves [24].

(f) Tighten the screws [22].

NOTE: Do not over tighten the screws [22].

(g) Install lockwire or safety cable on the screws [22].

SUBTASK 27-81-38-420-007

(6) Install the torque tube [48], torque tube [49], torque tube [51], torque tube [52], torque tube [54], torque tube [55], torque tube [56], torque tube [57], torque tube [59] or torque tube [61]:

(a) Apply grease, D00633 to the coupling sleeves [24].

(b) Put the torque tube [48], torque tube [49], torque tube [51], torque tube [52], torque tube [54], torque tube [55], torque tube [56], torque tube [57], torque tube [59] or torque tube [61] in its position.

(c) Move the coupling sleeves [24] on the splined couplings [23].

(d) Install the screws [22] to attach the coupling sleeves [24].

(e) Tighten the screws [22].

NOTE: Do not over tighten the screws [22].

(f) Install lockwire or safety cable on the screws [22].

SUBTASK 27-81-38-820-002

(7) If the torque tubes turned while they were disconnected or if you replaced a broken torque tube, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-38-420-008

(8) Install the guard [66], guard [70] or guard [71] if it is necessary:

(a) Put the guard [66], guard [70] or guard [71] on the torque tube.

(b) Install the bolts [67], washers [68] and nuts [69] that attach the guard to the structure.

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SUBTASK 27-81-38-080-002

(9) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes (Figure 402).

I. Outboard Wing Leading Edge Torque Tube Installation Test

SUBTASK 27-81-38-210-002

(1) Make sure there is clearance between the torque tube and the adjacent parts.

SUBTASK 27-81-38-440-003

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-38-710-003

(3) Use the primary system to extend the leading edge slats. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the torque tubes do not touch adjacent parts.

SUBTASK 27-81-38-710-004

(4) Use the primary system to retract the leading edge slats. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the torque tubes do not touch adjacent parts.

SUBTASK 27-81-38-200-004

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-38-410-002

(1) Install the applicable fixed leading edge panels on the wing:

(a) For the left wing, install these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
513BT	Upper Nacelle Strut Interface (Gap Cover) Panel
521AAB	Outboard Fixed Leading Edge Panel
521AB	Wing Anti-Ice Valve Door
521ABB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521CB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521EB	Outboard Fixed Leading Edge Panel
521FB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521HB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel

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Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521NB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521SB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521XB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel

(b) For the right wing, install these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
613BT	Upper Nacelle Strut Interface (Gap Cover) Panel
621AAB	Outboard Fixed Leading Edge Panel
621AB	Wing Anti-Ice Valve Door
621ABB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621CB	Outboard Fixed Leading Edge Panel
621DB	Refueling Station Door
621EB	Outboard Fixed Leading Edge Panel
621FB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621HB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621NB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621SB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621XB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

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SUBTASK 27-81-38-440-004

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

TASK 27-81-38-000-803

6. Cargo Compartment Slat Torque Tube Removal

(Figure 404)

A. General

(1) This task applies to the torque tubes in the aft end of the forward cargo compartment.

B. References

Reference	Title
25-52-06-000-801	Sidewall Liner Removal (P/B 401)
25-52-09-000-801	Ceiling Liner Removal (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

E. Prepare for the Removal

SUBTASK 27-81-38-010-003

(1) For torque tube [92], do this task: Sidewall Liner Removal, TASK 25-52-06-000-801.

SUBTASK 27-81-38-010-005

(2) For torque tube [91] or torque tube [93], do this task: Ceiling Liner Removal, TASK 25-52-09-000-801.

SUBTASK 27-81-38-480-003

(3) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the applicable torque tube (Figure 402).

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

F. Cargo Compartment Slat Torque Tube Removal

SUBTASK 27-81-38-020-011

(1) Remove the guard [94] from the torque tube if it is necessary (Figure 404):

(a) Remove the nuts [97], washers [96] and bolts [95] that attach the guard [94] to the structure.

(b) Remove the guard [94] from the torque tube.

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SUBTASK 27-81-38-010-004

(2) If you will remove torque tube [92], remove the ECS duct to get access.

SUBTASK 27-81-38-020-012

(3) Remove the applicable torque tube [91], torque tube [92] or torque tube [93]:

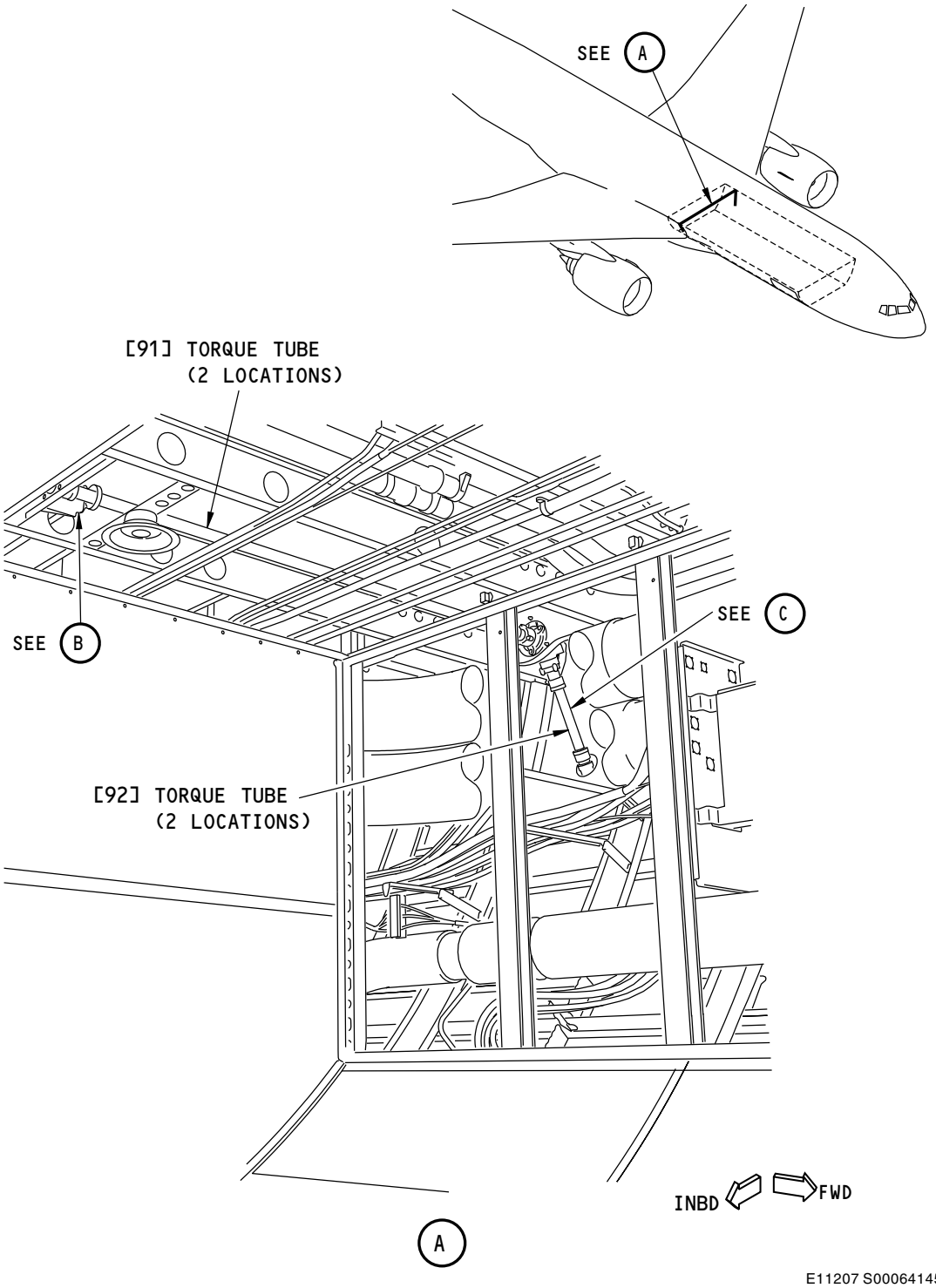
(a) Remove the screws [22] that attach the coupling sleeves [24] to the splined couplings [23].

(b) Move the coupling sleeves [24] off the splined coupling [23].

(c) Remove the torque tube [91], torque tube [92] or torque tube [93].

——— END OF TASK ———

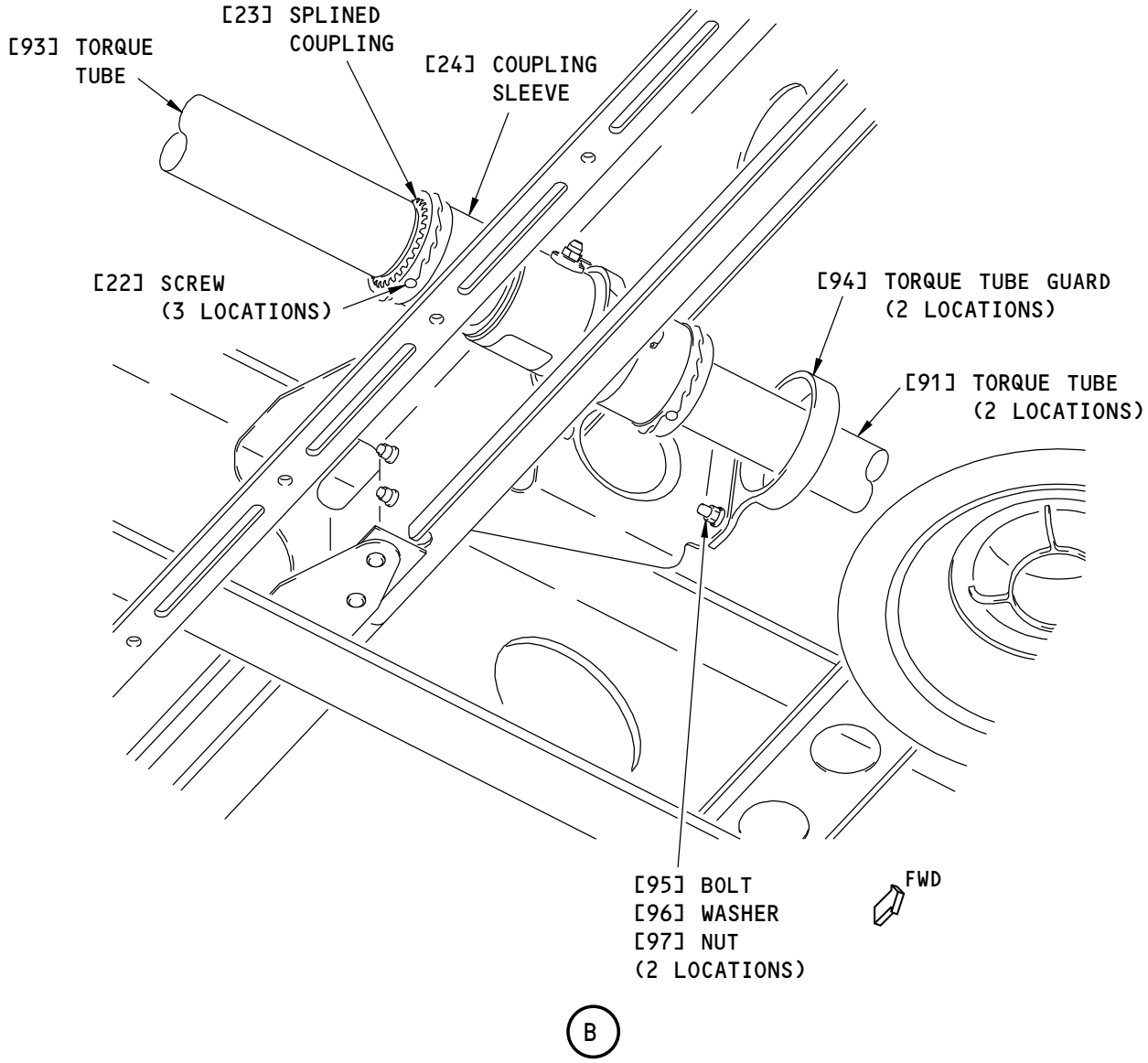
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Cargo Compartment Slat Torque Tube Installation
Figure 404/27-81-38-990-804 (Sheet 1 of 3)

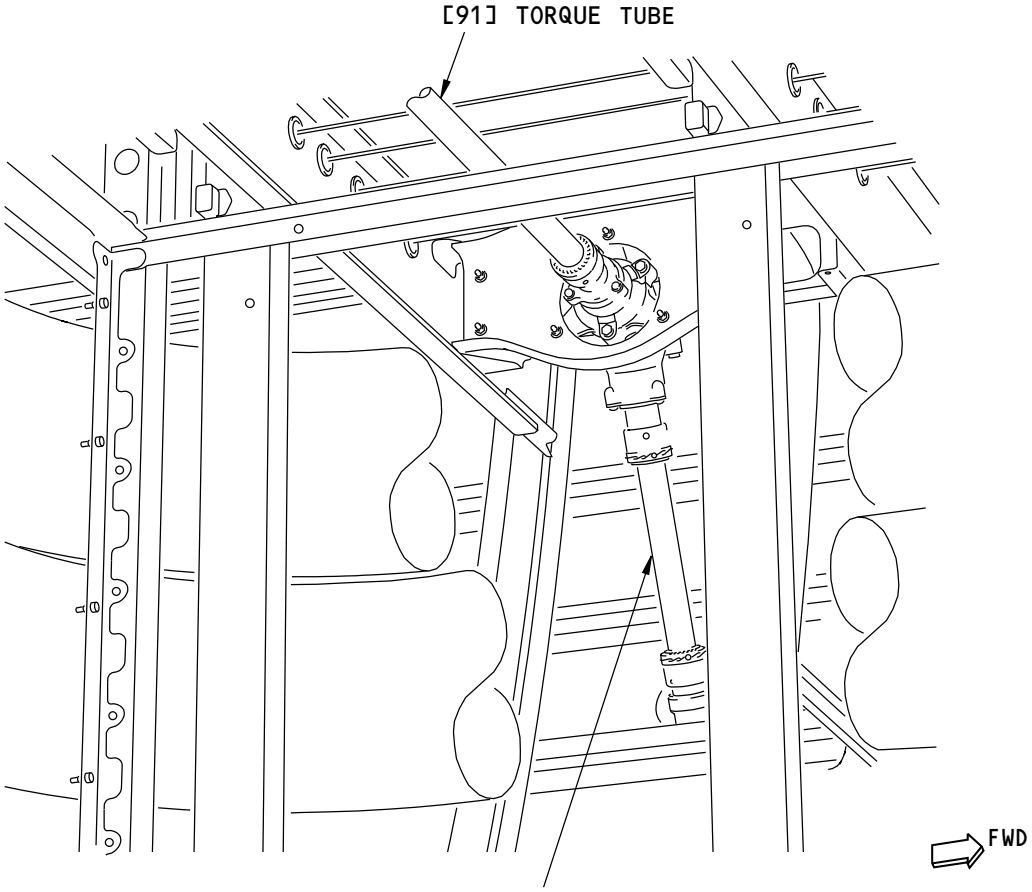
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Cargo Compartment Slat Torque Tube Installation
Figure 404/27-81-38-990-804 (Sheet 2 of 3)

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CARGO COMPARTMENT SIDE WALL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

C

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Cargo Compartment Slat Torque Tube Installation
Figure 404/27-81-38-990-804 (Sheet 3 of 3)

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TASK 27-81-38-400-803

7. Cargo Compartment Slat Torque Tube Installation

(Figure 404)

A. General

(1) This task applies to the torque tubes in the aft end of the forward cargo compartment.

B. References

Reference	Title
25-52-06-400-801	Sidewall Liner Installation (P/B 401)
25-52-09-400-801	Ceiling Liner - Installation (P/B 401)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
91	Torque tube	27-81-38-01A-245	ARO ALL
92	Torque tube	27-81-38-01A-240	ARO ALL
93	Torque tube	27-81-38-01A-250	ARO ALL

F. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

G. Cargo Compartment Leading Edge Torque Tube Installation

SUBTASK 27-81-38-420-009

(1) Install the applicable torque tube [91], torque tube [92] or torque tube [93]:

(a) Apply grease, D00633 to the coupling sleeves [24].

(b) Put the torque tube [91], torque tube [92] or torque tube [93] in its position.

(c) Move the coupling sleeves [24] on the splined couplings [23].

(d) If you cannot align the fastener holes on the coupling sleeves [24] to the splined couplings [23], then align the torque tubes:

NOTE: The coupling sleeves [24] attached to torque tube [91] and torque tube [92] can be turned while they are disconnected to align the torque tubes.

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1) For torque tube [93], use the adjustable coupling on the outboard end of torque tube [91] to try to align the fastener holes.
2) Move the coupling sleeve [24] off of the splined coupling [23].
3) Turn the coupling sleeve [24] without turning the gearbox until the fastener holes align.
4) Move the coupling sleeve [24] on the splined coupling [23].
5) If you still cannot get the fastener holes to align, then, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

(e) Install the screws [22] to attach the coupling sleeves [24].

(f) Tighten the screws [22].

NOTE: Do not over tighten the screws [22].

(g) Install lockwire or safety cable on the screws [22].

SUBTASK 27-81-38-820-003

(2) If the torque tubes turned while they were disconnected or if you replaced a broken torque tube, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-38-420-010

(3) If necessary, install the guard [94]:

(a) Put the guard [94] on the torque tube.

(b) Install the bolts [95], washers [96] and nuts [97] that attach the guard [94] to the structure.

SUBTASK 27-81-38-080-003

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes (Figure 402).

H. Cargo Compartment Leading Edge Torque Tube Installation Test

SUBTASK 27-81-38-210-003

(1) Make sure there is clearance between the torque tube and the adjacent parts.

SUBTASK 27-81-38-440-005

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-38-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

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(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-81-38-210-004

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-81-38-710-005

(5) Use the primary system to extend the leading edge slats. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the torque tubes do not touch adjacent parts.

SUBTASK 27-81-38-710-006

(6) Use the primary system to retract the leading edge slats. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

(a) Make sure the torque tubes do not touch adjacent parts.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-38-410-003

(1) If you installed torque tube [92], do these steps:

(a) Install the ECS duct outboard of the torque tube.

(b) Do this task: Sidewall Liner Installation, TASK 25-52-06-400-801.

SUBTASK 27-81-38-410-004

(2) If you installed torque tube [91] or torque tube [93], do this task: Ceiling Liner - Installation, TASK 25-52-09-400-801.

END OF TASK

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LEADING EDGE TORQUE TUBE SUPPORTS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the torque tube supports on the inboard end of the wing

(2) An installation of the torque tube supports on the inboard end of the wing

(3) A removal of the torque tube supports on the outboard end of the wing

(4) An installation of the torque tube supports on the outboard end of the wing

(5) A removal of the torque tube supports in the forward cargo area

(6) An installation of the torque tube supports in the forward cargo area.

(7) A removal of the pressure seals for the leading edge slats.

(8) An installation of the pressure seals for the leading edge slats.

TASK 27-81-39-000-801

2. Inboard Wing Slat Torque Tube Support Removal

(Figure 401)

A. General

(1) This task applies to the torque tube supports between the inboard offset gearboxes.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

E. Access Panels

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel

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F. Prepare for the Removal

SUBTASK 27-81-39-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-39-040-003

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-39-010-001

(3) Remove the applicable panels from the lower surface of the wing:

(a) For the left wing, remove these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel

(b) For the right wing, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel

G. Inboard Wing Slat Torque Tube Support Removal

SUBTASK 27-81-39-480-001

(1) Install the leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes [7] inboard and outboard of the support assembly [5].

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

SUBTASK 27-81-39-020-001

(2) Disconnect the torque tubes [7] from the support assembly [5]:

(a) Remove the screws [9] that attach the coupling sleeves [6] to the splined couplings [8].

(b) Move the coupling sleeves [6] off the splined coupling [8].

SUBTASK 27-81-39-020-002

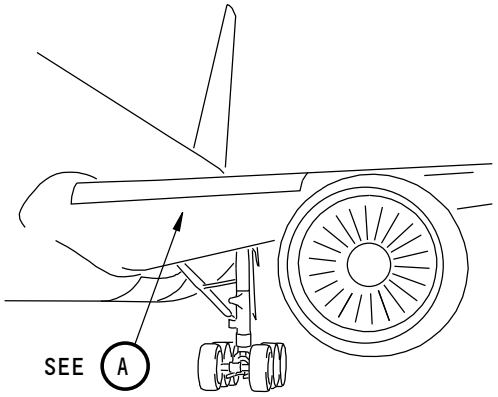
(3) Remove the support assembly [5]:

(a) Remove the nuts [4], washers [2], washers [3] and bolts [1] that attach the support assembly [5].

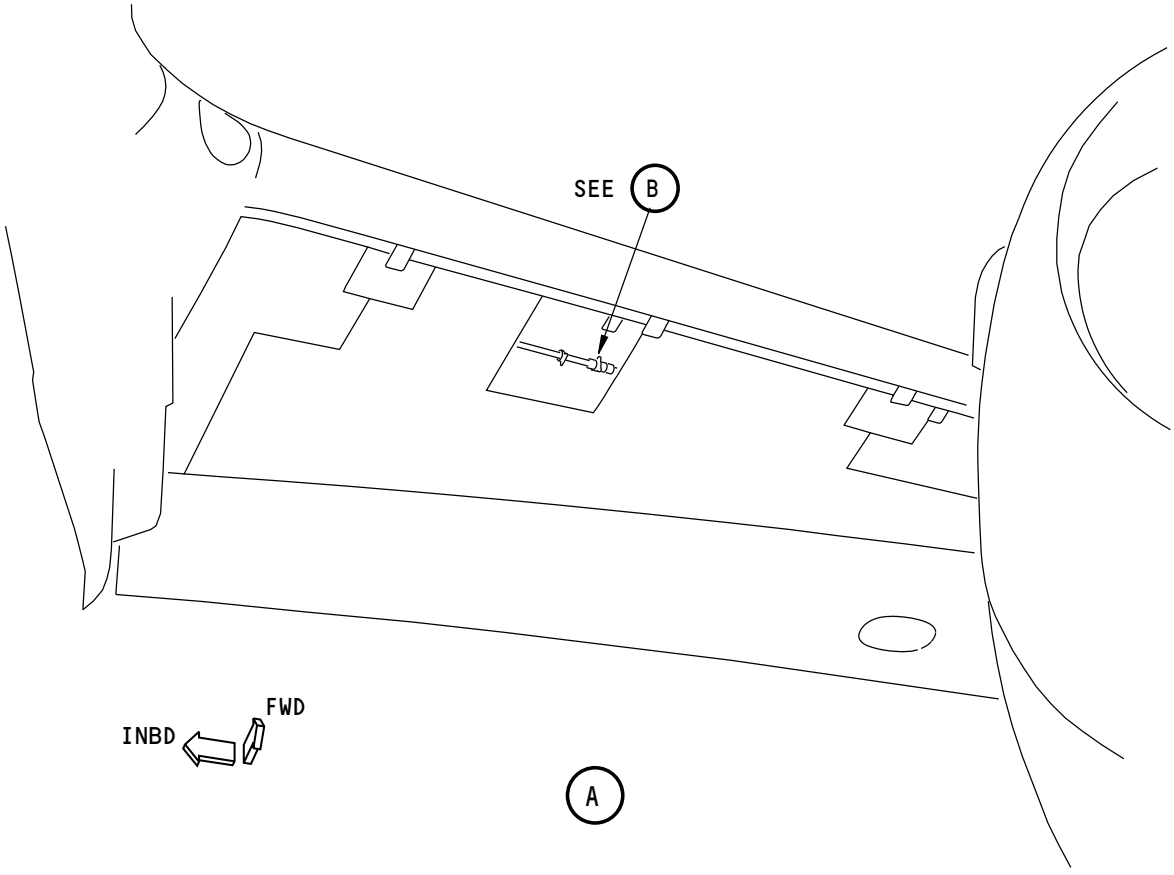
(b) Remove the support assembly [5] from the bracket.

END OF TASK

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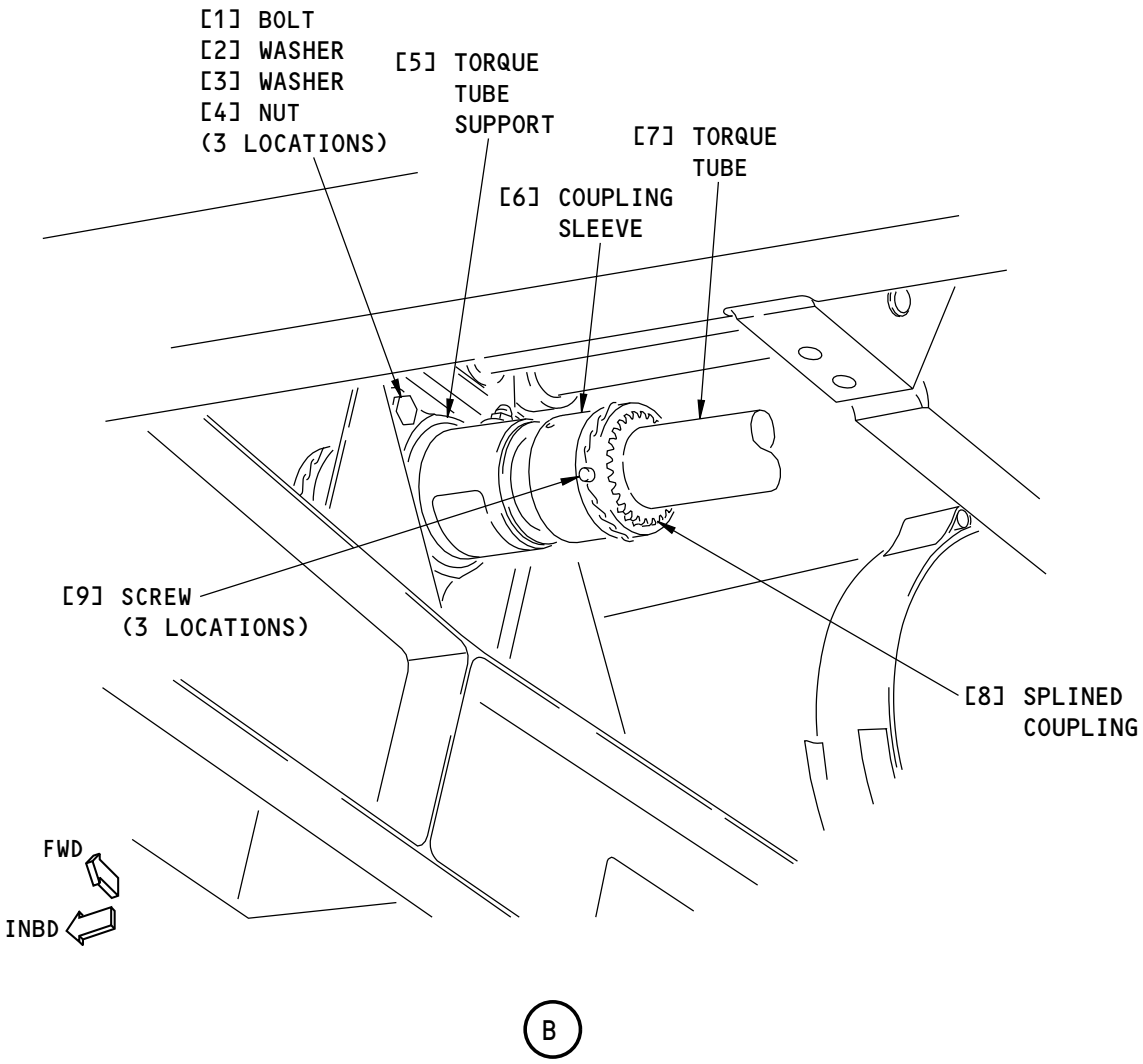
LEFT WING
(RIGHT WING IS EQUIVALENT)



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Inboard Wing Slat Torque Tube Support Installation
Figure 401/27-81-39-990-801 (Sheet 1 of 2)

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Inboard Wing Slat Torque Tube Support Installation
Figure 401/27-81-39-990-801 (Sheet 2 of 2)

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TASK 27-81-39-400-801

3. Inboard Wing Slat Torque Tube Support Installation

(Figure 401)

A. General

(1) This task applies to the torque tube supports between the inboard offset gearboxes.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-804	Inboard Leading Edge Torque Tube and Support Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Support assembly	27-81-39-10A-035	ARO ALL
		27-81-39-10A-040	ARO ALL

F. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

G. Access Panels

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel

H. Inboard Wing Slat Torque Tube Support Installation

SUBTASK 27-81-39-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the support assembly [5]:

(a) Put the support assembly [5] in its position on the bracket.

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [1].

(c) Install the bolts [1], washers [2], washers [3] and nuts [4]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

NOTE: Install the washers [2] with the countersink on the head of the bolt.

SUBTASK 27-81-39-420-002

(2) Connect the torque tube [7] to the support assembly [5]:

(a) Apply grease, D00633 to the coupling sleeve [6].

(b) Put the torque tube [7] in its position.

(c) Move the coupling sleeve [6] on the splined coupling [8].

(d) Install the screws [9] to attach the coupling sleeve [6].

(e) Tighten the screws [9].

NOTE: Do not over tighten the screws [9].

(f) Install lockwire on the screws [9].

SUBTASK 27-81-39-820-001

(3) If the torque tubes turned while they were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-39-080-001

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [7].

SUBTASK 27-81-39-640-001

(5) For the applicable torque tubes and torque tube support, do this task: Inboard Leading Edge Torque Tube and Support Lubrication, TASK 12-21-08-640-804.

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SUBTASK 27-81-39-440-001

(6) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-39-710-001

(7) Use the primary system to extend the slats. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-39-710-002

(8) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-39-410-001

(1) Install the applicable leading edge panel:

(a) For the left wing, install these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel
511KB	Inboard Fixed Leading Edge Panel

(b) For the right wing, install these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611JB	Inboard Fixed Leading Edge Panel
611KB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-39-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

TASK 27-81-39-000-802

4. Outboard Wing Slat Torque Tube Support Removal

(Figure 402)

A. General

(1) This task applies to the torque tube supports outboard of the engine strut.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
521	Leading Edge to Front Spar - Outboard of Nacelle Strut - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing
621	Leading Edge to Front Spar - Outboard of Nacelle Strut - Right Wing

E. Access Panels

Number	Name/Location
521AB	Wing Anti-Ice Valve Door
521BB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521FB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel
621AB	Wing Anti-Ice Valve Door
621BB	Outboard Fixed Leading Edge Panel
621DB	Refueling Station Door
621FB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

F. Prepare for the Removal

SUBTASK 27-81-39-040-002

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-39-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

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SUBTASK 27-81-39-010-002

(3) Remove the applicable access panel on the lower surface of the wing:

(a) For the left wing, remove the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
521AB	Wing Anti-Ice Valve Door
521BB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521FB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel

(b) For the right wing, do this step:

For the right wing, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
621AB	Wing Anti-Ice Valve Door
621BB	Outboard Fixed Leading Edge Panel
621DB	Refueling Station Door
621FB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

G. outboard Wing Slat Torque Tube Support Removal

SUBTASK 27-81-39-480-002

(1) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the applicable support assembly [21] or support assembly [28].

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

SUBTASK 27-81-39-020-003

(2) For support assembly [21], disconnect the torque tubes [7]:

(a) Remove the screws [9] that attach the coupling sleeves [6] to the splined couplings [8].

(b) Move the coupling sleeves [6] off the splined coupling [8].

SUBTASK 27-81-39-020-010

(3) For support assy [31], disconnect the torque tubes [7] and [32]:

(a) Remove the screws [9] that attach the coupling sleeves [6] to the splined couplings [8].

(b) Move the coupling sleeves [6] off the splined coupling [8].

SUBTASK 27-81-39-020-009

(4) For support assembly [28], disconnect the inboard torque tube [7] and remove the outboard torque tube [30]:

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(a) Remove the screws [9] that attach the coupling sleeves [6] to the splined couplings [8].

(b) Move the coupling sleeves [6] off the splined coupling [8].

(c) Remove torque tube [30].

SUBTASK 27-81-39-020-004

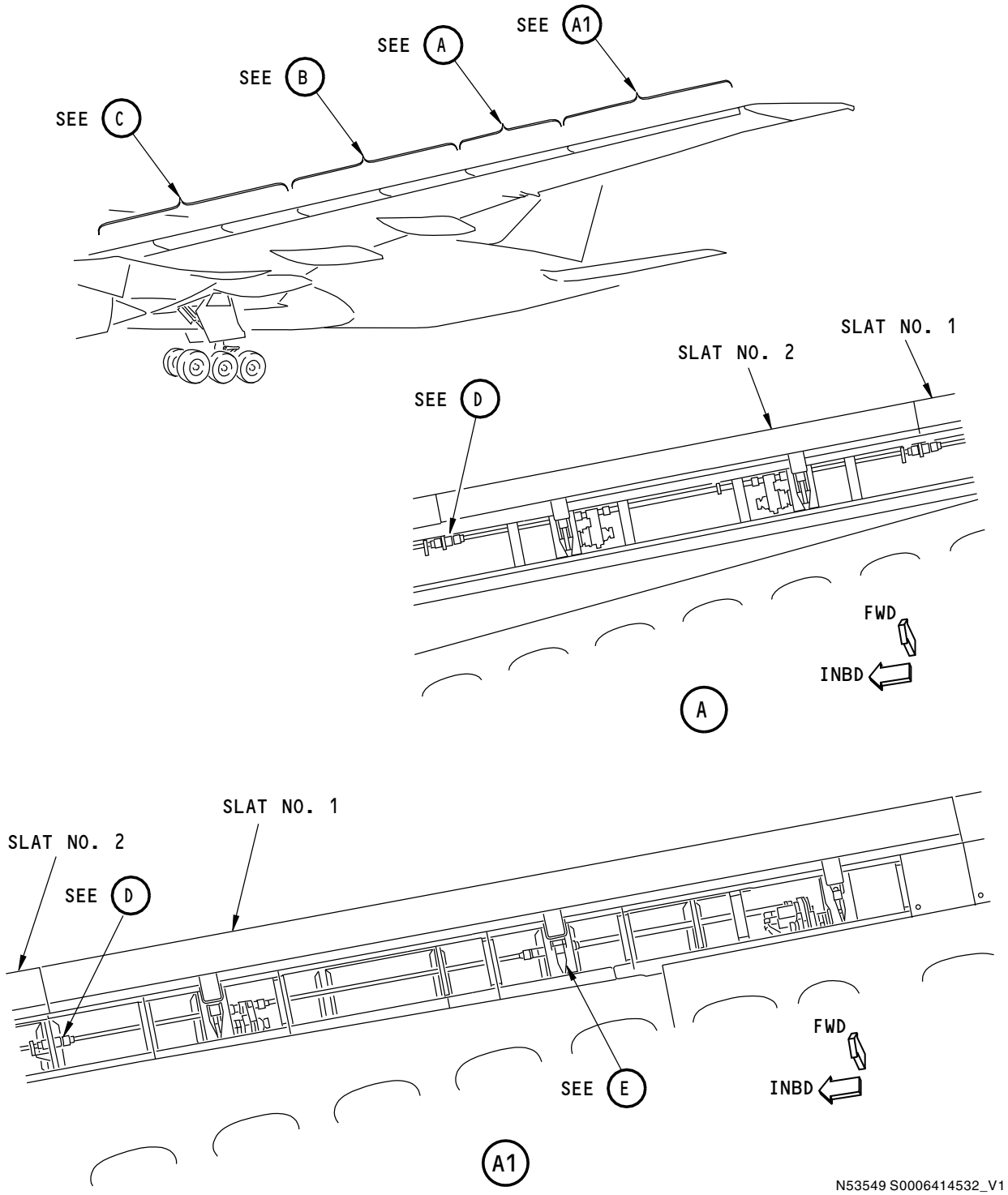
(5) Remove the support assembly [21] or support assembly [28]:

(a) Remove the nuts [26], washers [24], washers [25] and bolts [23] or bolts [27] that attach the support assembly [21] or support assembly [28].

(b) Remove the support assembly [21] or support assembly [28] from the bracket [29] or rib [22].

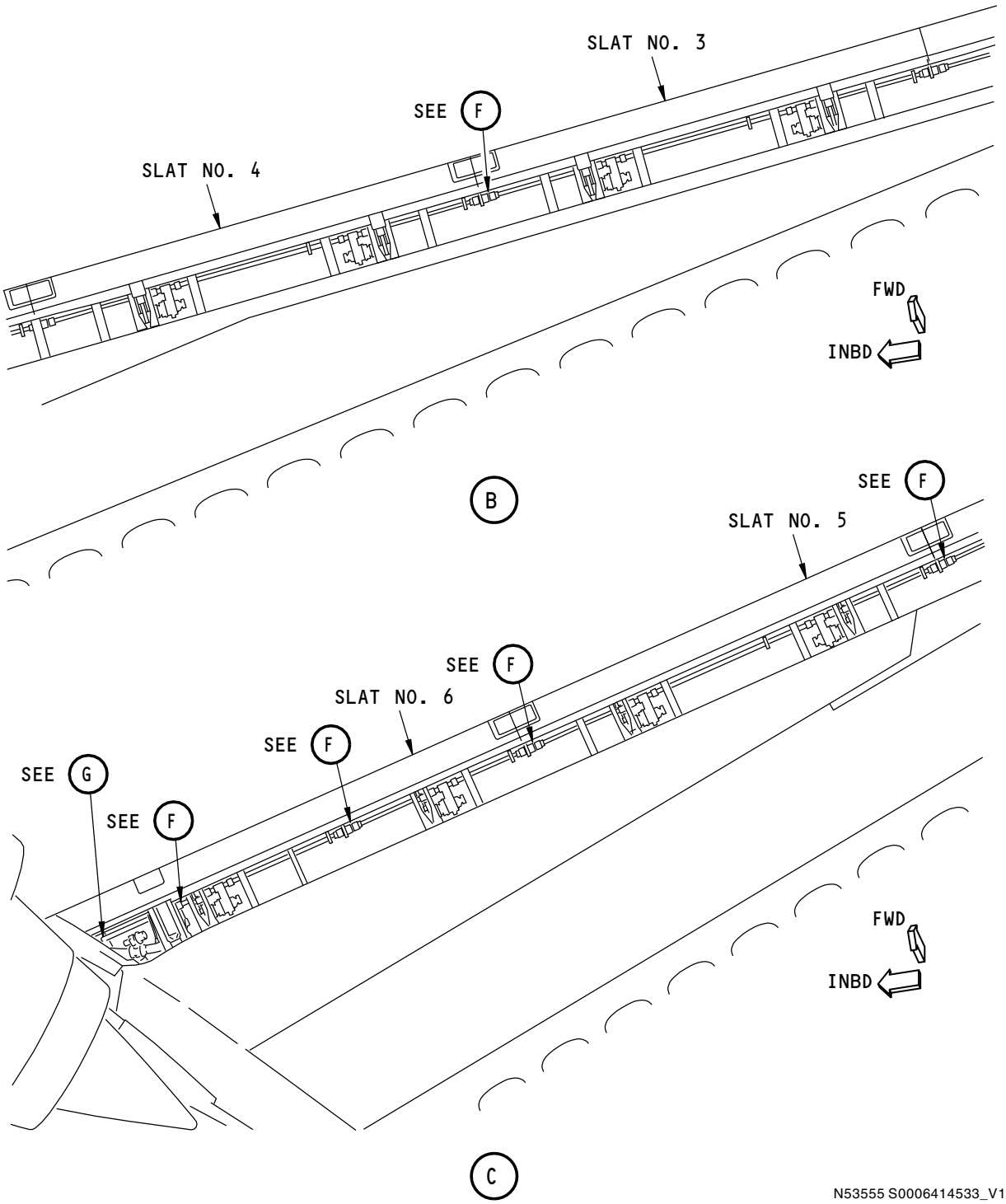
——— END OF TASK ———

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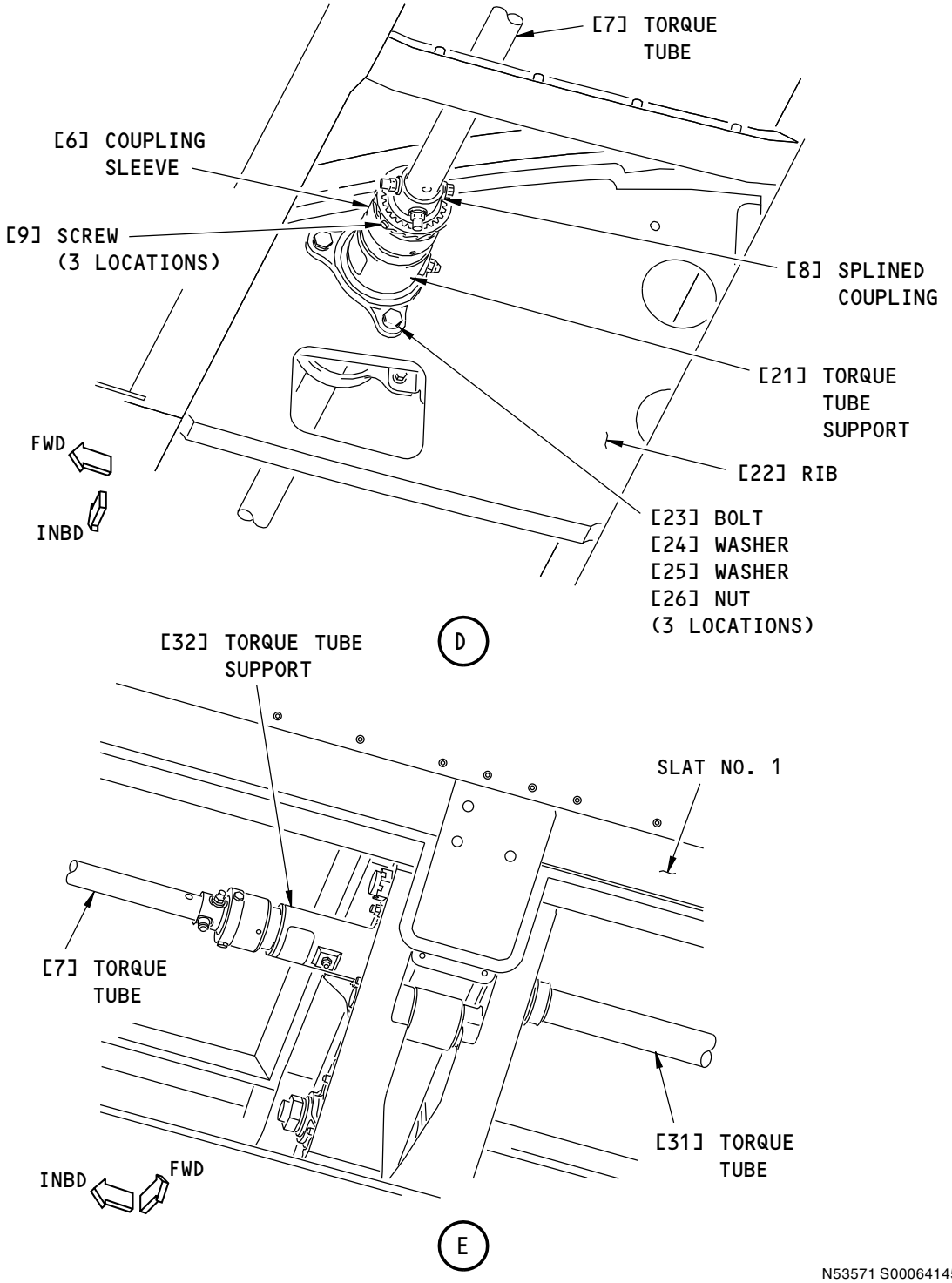
Outboard Wing Slat Torque Tube Support Installation
Figure 402/27-81-39-990-805 (Sheet 1 of 4)

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Outboard Wing Slat Torque Tube Support Installation
Figure 402/27-81-39-990-805 (Sheet 2 of 4)

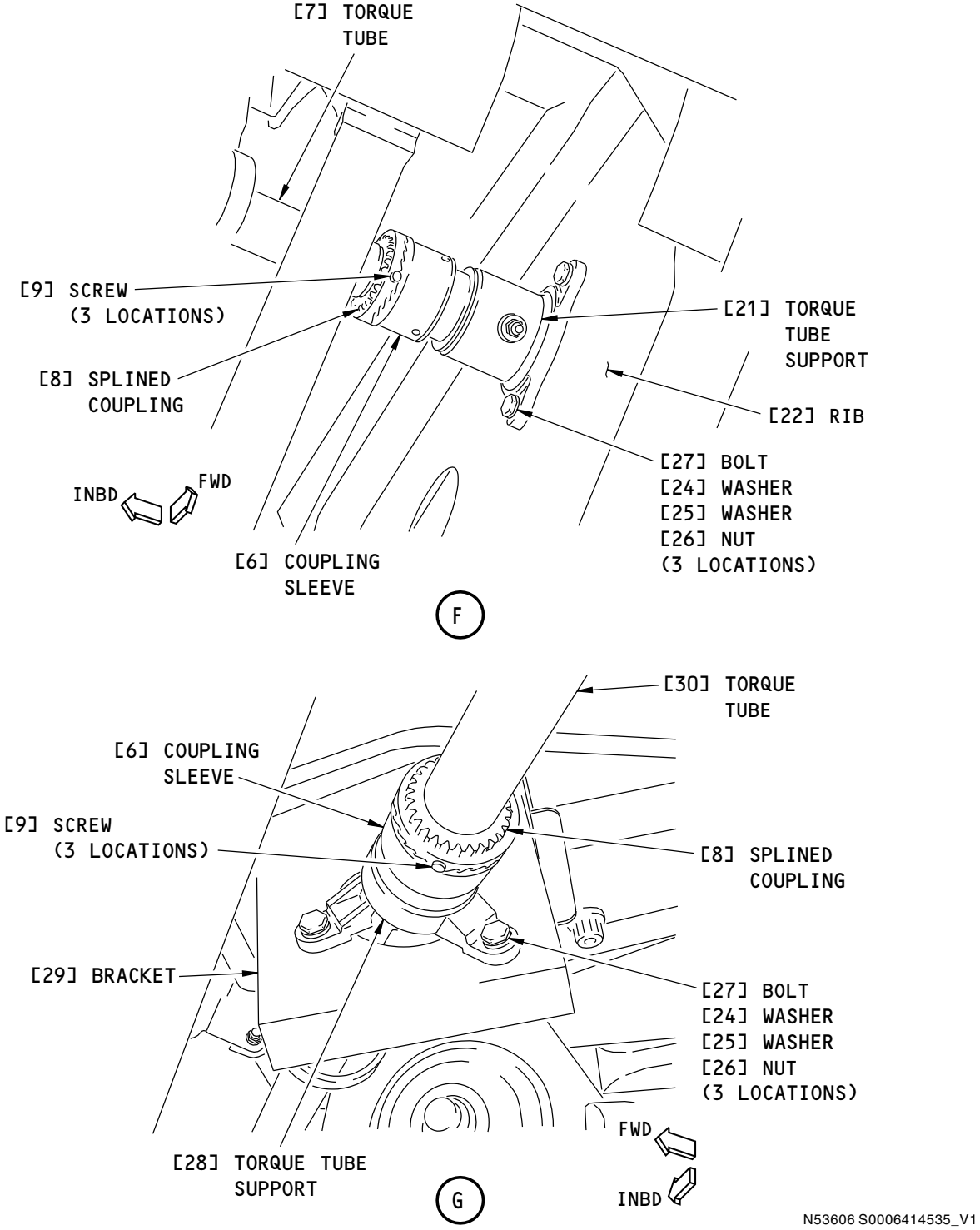
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Outboard Wing Slat Torque Tube Support Installation
Figure 402/27-81-39-990-805 (Sheet 3 of 4)

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Outboard Wing Slat Torque Tube Support Installation
Figure 402/27-81-39-990-805 (Sheet 4 of 4)

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TASK 27-81-39-400-802

5. Outboard Wing Slat Torque Tube Support Installation

(Figure 402)

A. General

(1) This task applies to the torque tube supports outboard of the engine strut.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
12-21-08-640-805	Outboard Leading Edge Torque Tube and Support Lubrication (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
21	Support assembly	27-81-39-10A-035	ARO ALL
		27-81-39-10A-040	ARO ALL
28	Support assembly	27-81-39-10A-040	ARO ALL

F. Location Zones

Zone	Area
513	Krueger Seal Flap/Nacelle Gap Cover Area - Left Wing
521	Leading Edge to Front Spar - Outboard of Nacelle Strut - Left Wing
613	Krueger Seal Flap/Nacelle Gap Cover Area - Right Wing
621	Leading Edge to Front Spar - Outboard of Nacelle Strut - Right Wing

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G. Access Panels

Number	Name/Location
521AB	Wing Anti-Ice Valve Door
521BB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521FB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel
621AB	Wing Anti-Ice Valve Door
621BB	Outboard Fixed Leading Edge Panel
621DB	Refueling Station Door
621FB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

H. Outboard Wing Slat Torque Tube Support Installation

SUBTASK 27-81-39-420-003

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the support assembly [21] or support assembly [28]:

(a) Put the support assembly [21] or support assembly [28] in its position on the rib [22] or bracket [29].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 on the shank and threads of the bolts [23] or bolts [27].

(c) Install the bolts [23] or bolts [27], washers [24], washers [25] and nuts [26]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

NOTE: Install the washers [24] with the countersink on the head of the bolt.

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SUBTASK 27-81-39-420-010

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Install the support assembly [21]:

(a) Put the support assembly [21] in its position on the rib [22].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 on the shank and threads of the bolts [23] or bolts [27].

(c) Install the bolts [23] or bolts [27], washers [24] and washers [25].

NOTE: Install the washers [24] with the countersink on the head of the bolt.

(d) Install the nuts [26]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-39-420-004

(3) Connect the torque tube [7] to the support assembly [21]:

(a) Apply grease, D00633 to the coupling sleeve [6].

(b) Put the torque tube [7] in its position.

(c) Move the coupling sleeve [6] on the splined coupling [8].

(d) Install the screws [9] to attach the coupling sleeve [6].

(e) Tighten the screws [9].

NOTE: Do not over tighten the screws [9].

(f) Install lockwire on the screws [9].

SUBTASK 27-81-39-420-011

(4) Connect the torque tube [7] and [32] to the support assembly [21]:

(a) Apply grease, D00633 to the coupling sleeves [6].

(b) Put the torque tube [7] in its position.

(c) Move the coupling sleeve [6] on the splined coupling [8].

(d) Install the screws [9] to attach the coupling sleeve [6].

(e) Tighten the screws [9].

NOTE: Do not over tighten the screws [9].

(f) Install lockwire on the screws [9].

SUBTASK 27-81-39-420-009

(5) Install torque tube [30] and connect torque tube [7] to the support assembly [28]:

(a) Apply grease, D00633 to the coupling sleeve [6].

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(b) Put the torque tube [30] in its position.

(c) Put the torque tube [7] in its position.

(d) Move the coupling sleeve [6] on the splined coupling [8].

(e) Install the screws [9] to attach the coupling sleeve [6].

(f) Tighten the screws [9].

NOTE: Do not over tighten the screws [9].

(g) Install lockwire on the screws [9].

SUBTASK 27-81-39-820-002

(6) If the torque tubes turned while they were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-39-080-002

(7) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube [7].

SUBTASK 27-81-39-640-002

(8) For the applicable torque tubes and torque tube support, do this task: Outboard Leading Edge Torque Tube and Support Lubrication, TASK 12-21-08-640-805.

SUBTASK 27-81-39-440-003

(9) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-39-710-003

(10) Use the primary system to extend the slats. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-39-710-004

(11) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-39-410-002

(1) Install the applicable leading edge panels:

(a) On the left wing, install the applicable access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
521AB	Wing Anti-Ice Valve Door
521BB	Outboard Fixed Leading Edge Panel
521DB	Refueling Station Door
521FB	Outboard Fixed Leading Edge Panel
521KB	Outboard Fixed Leading Edge Panel
521LB	Outboard Fixed Leading Edge Panel
521QB	Outboard Fixed Leading Edge Panel
521VB	Outboard Fixed Leading Edge Panel
521ZB	Outboard Fixed Leading Edge Panel

(b) On the right wing, install the applicable access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
621AB	Wing Anti-Ice Valve Door
621BB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
621DB	Refueling Station Door
621FB	Outboard Fixed Leading Edge Panel
621KB	Outboard Fixed Leading Edge Panel
621LB	Outboard Fixed Leading Edge Panel
621QB	Outboard Fixed Leading Edge Panel
621VB	Outboard Fixed Leading Edge Panel
621ZB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-39-440-004

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

TASK 27-81-39-000-803

6. Cargo Compartment Slat Torque Tube Support Removal

(Figure 403)

A. General

(1) This task applies to the torque tube supports in the aft end of the forward cargo compartment.

B. References

Reference	Title
25-52-09-000-801	Ceiling Liner Removal (P/B 401)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

E. Prepare for the Removal

SUBTASK 27-81-39-040-005

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-39-010-003

(2) Do this task: Ceiling Liner Removal, TASK 25-52-09-000-801.

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F. Cargo Compartment Torque Tube Support Removal

SUBTASK 27-81-39-480-003

(1) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes [7] inboard and outboard of the support assembly [41].

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

SUBTASK 27-81-39-020-005

(2) Disconnect the torque tubes [7] from the support assembly [41]:

(a) Remove the screws [9] that attach the coupling sleeves [6] to the splined couplings [8].

(b) Move the coupling sleeves [6] off the splined coupling [8].

SUBTASK 27-81-39-020-006

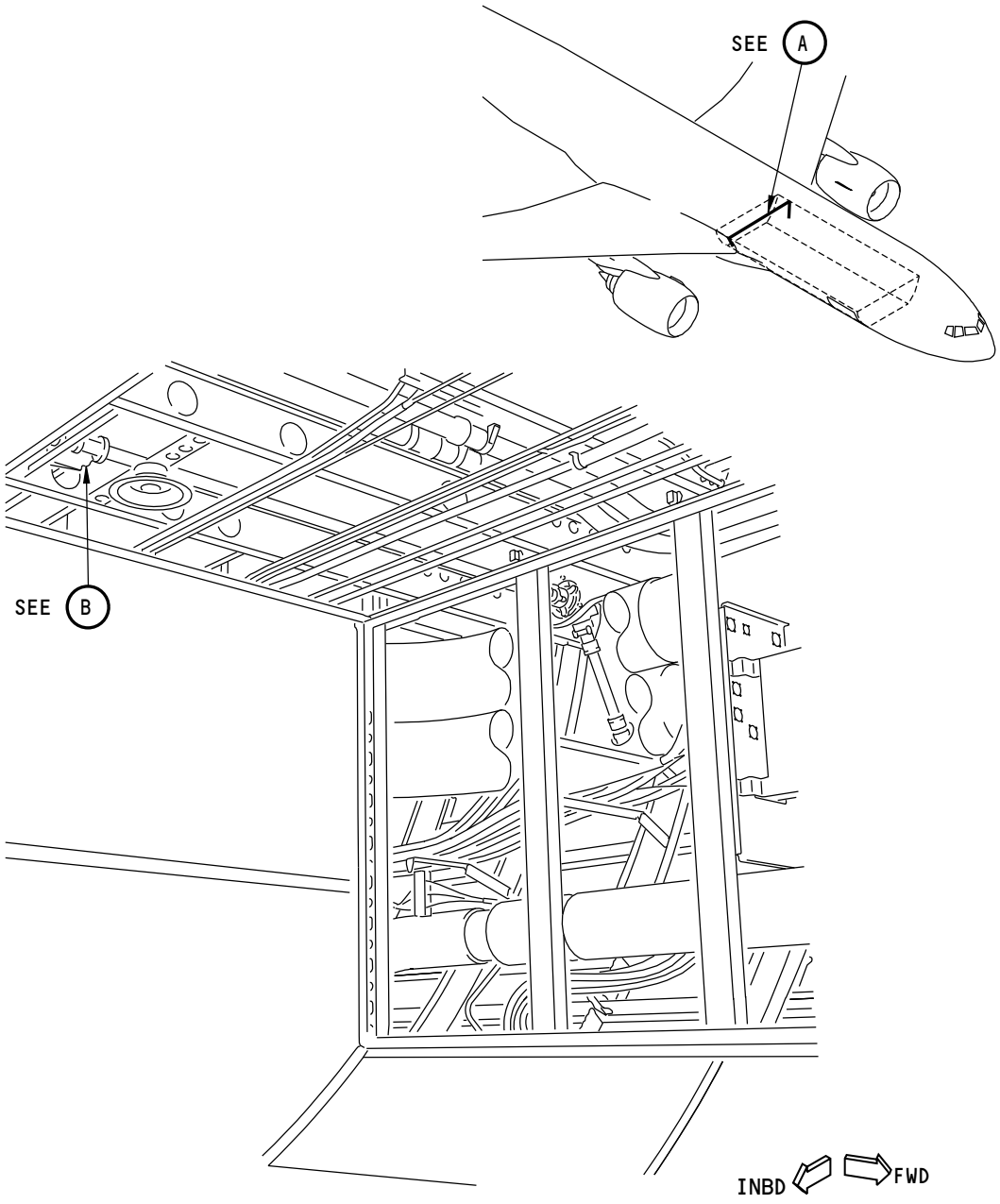
(3) Remove the support assembly [41]:

(a) Remove the nuts [45], washers [43], washers [44] and bolts [42] that attach the support assembly [41].

(b) Remove the support assembly [41] from the bracket [46].

——— END OF TASK ———

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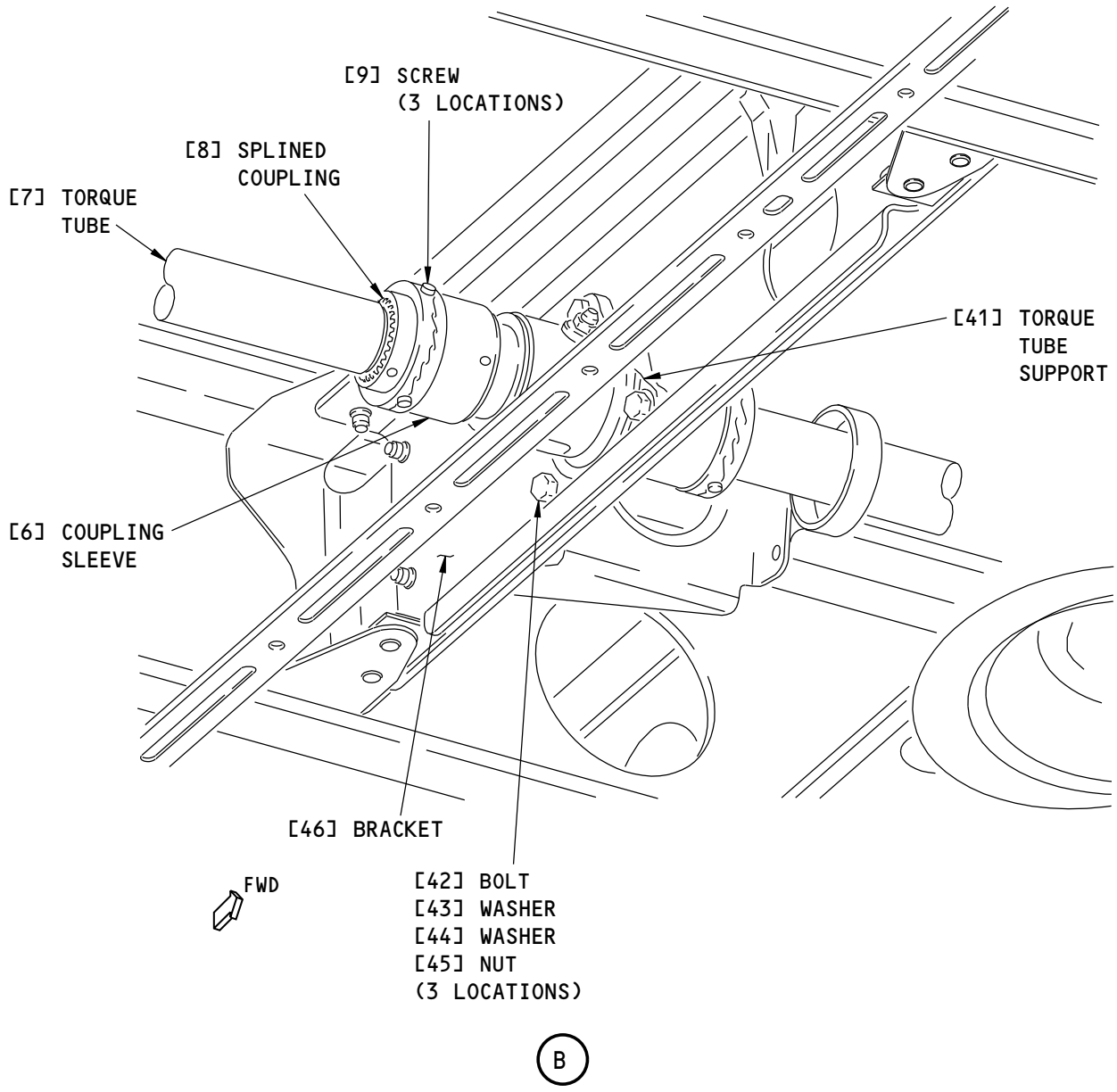
FORWARD CARGO COMPARTMENT
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

E27976 S0006414538_V1

Cargo Compartment Slat Torque Tube Support Installation
Figure 403/27-81-39-990-803 (Sheet 1 of 2)

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Cargo Compartment Slat Torque Tube Support Installation
Figure 403/27-81-39-990-803 (Sheet 2 of 2)

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TASK 27-81-39-400-803

7. Cargo Compartment Torque Tube Support Installation

(Figure 403)

A. General

(1) This task applies to the torque tube supports in the aft end of the forward cargo compartment.

B. References

Reference	Title
12-21-08-640-806-006	Cargo Compartment Torque Tube, Support and Pressure Seal Lubrication - 300ER (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
25-52-09-400-801	Ceiling Liner - Installation (P/B 401)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
41	Support assembly	27-81-39-10A-035	ARO ALL

F. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right

G. Cargo Compartment Torque Tube Support Installation

SUBTASK 27-81-39-420-005



WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the support assembly [41]:

(a) Put the support assembly [41] in its position on the bracket [46].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [42].

(c) Install the bolts [42], washers [43], washers [44] and nuts [45]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

NOTE: Install the washers [43] with the countersink on the head of the bolt.

SUBTASK 27-81-39-420-006

(2) Connect the torque tube [7] to the support assembly [41]:

(a) Apply grease, D00633 to the coupling sleeves [6].

(b) Put the torque tube [7] in its position.

(c) Move the coupling sleeves [6] on the splined couplings [8].

(d) Install the screws [9] to attach the coupling sleeves [6].

(e) Tighten the screws [9].

NOTE: Do not over tighten the screws [9].

(f) Install lockwire on the screws [9].

SUBTASK 27-81-39-820-003

(3) If the torque tubes turned while they were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-39-080-003

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [7].

SUBTASK 27-81-39-640-003

(5) For the applicable torque tubes and torque tube support, do this task: Cargo Compartment Torque Tube, Support and Pressure Seal Lubrication - 300ER, TASK 12-21-08-640-806-006.

SUBTASK 27-81-39-440-005

(6) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-39-710-005

(7) Use the primary system to extend the slats. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-39-710-006

(8) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-39-010-004

(1) Do this task: Ceiling Liner - Installation, TASK 25-52-09-400-801.

——— END OF TASK ———

TASK 27-81-39-000-804

8. Leading Edge Pressure Seal Removal

(Figure 404)

A. References

Reference	Title
25-52-06-000-801	Sidewall Liner Removal (P/B 401)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

D. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

E. Procedure

SUBTASK 27-81-39-040-006

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-39-010-005

(2) Remove the applicable access panels to get access to the outboard end of the seal assembly [61]:

Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

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SUBTASK 27-81-39-010-006

(3) Do this task: Sidewall Liner Removal, TASK 25-52-06-000-801.

SUBTASK 27-81-39-010-007

(4) Remove the ECS duct [62] to get access to the seal assembly [61].

SUBTASK 27-81-39-480-004

(5) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes inboard and outboard of the seal assembly [61].

NOTE: If the slat drive system moves while a torque tube is disconnected, it will be necessary to do the leading edge slat system adjustment.

SUBTASK 27-81-39-020-007

(6) Disconnect the torque tubes [7] from the seal assembly [61]:

(a) Remove the screws [9] that attach the coupling sleeves [6] to the splined couplings [8].

(b) Move the coupling sleeves [6] off the splined coupling [8].

SUBTASK 27-81-39-020-008

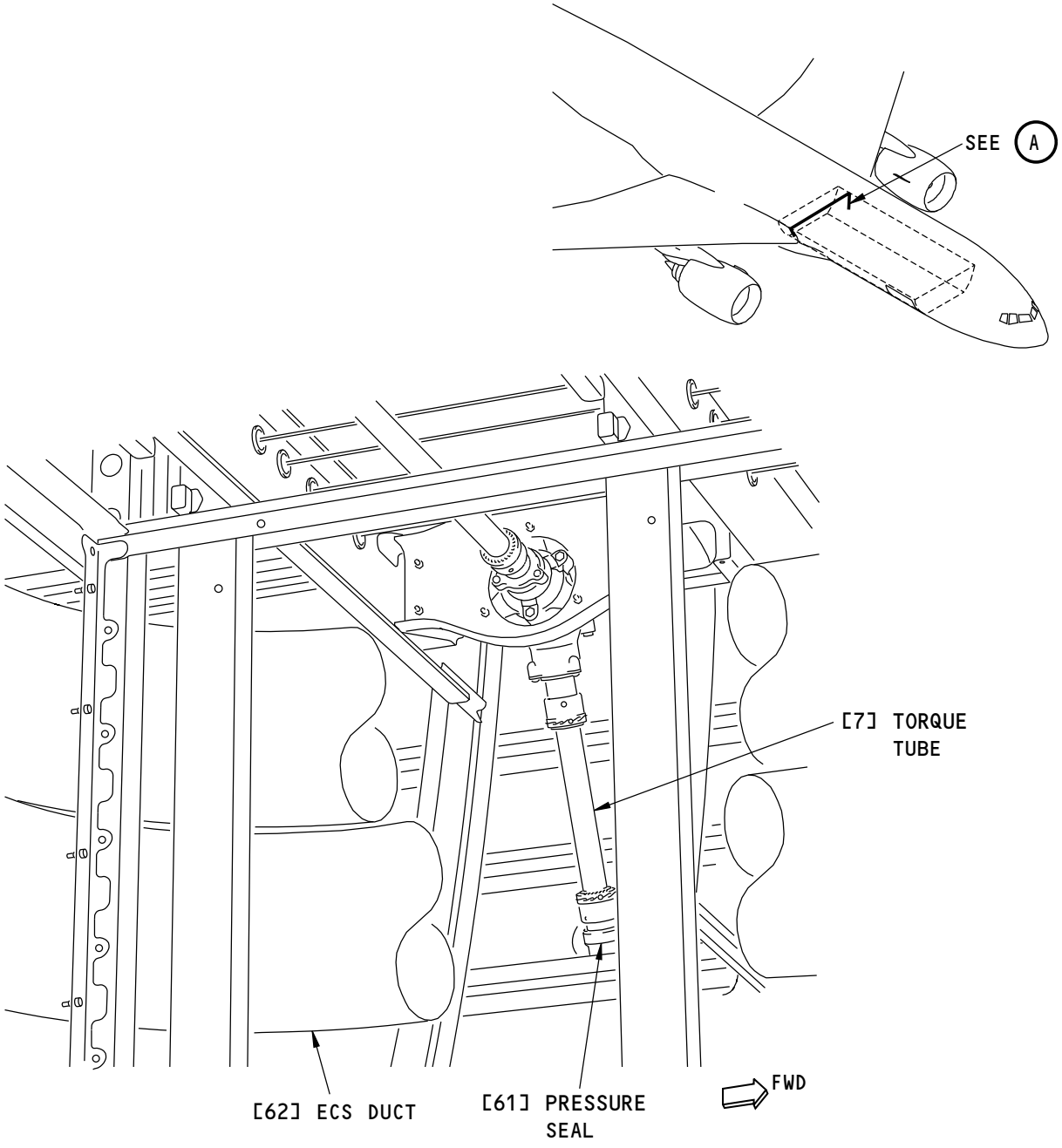
(7) Remove the seal assembly [61]:

(a) From the outboard side of the seal assembly [61], remove the bolts [64] and washers [65].

(b) Remove the seal assembly [61] from the bracket [63].

——— END OF TASK ———

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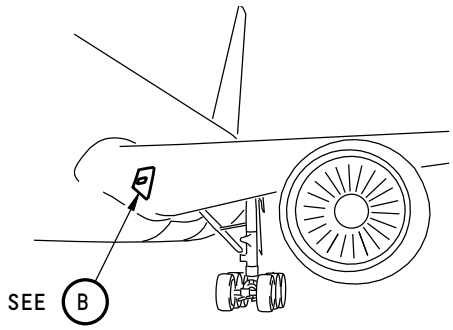
FORWARD CARGO COMPARTMENT SIDEWALL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

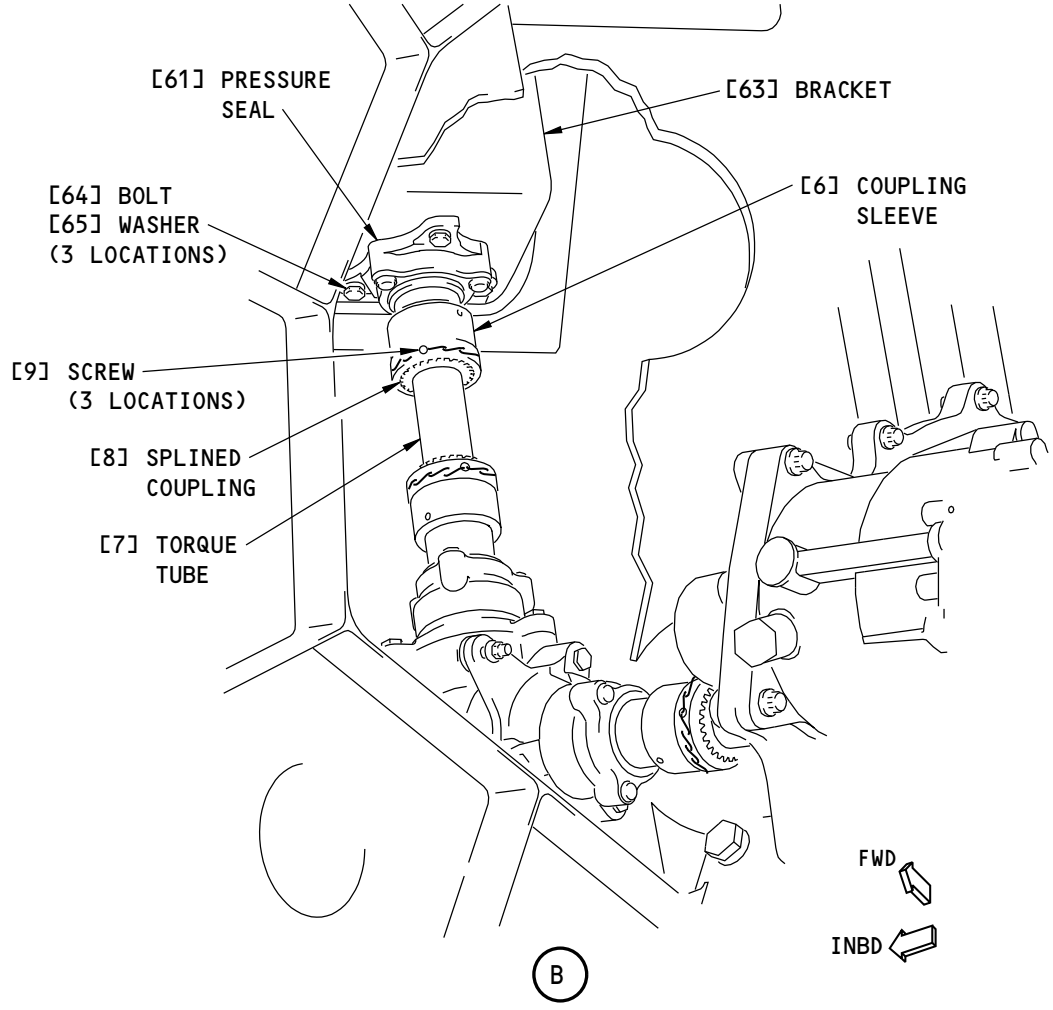
E27865 S0006414542_V1

Leading Edge Torque Tube Pressure Seal Installation
Figure 404/27-81-39-990-804 (Sheet 1 of 2)

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LEFT WING
(RIGHT WING IS EQUIVALENT)



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Leading Edge Torque Tube Pressure Seal Installation
Figure 404/27-81-39-990-804 (Sheet 2 of 2)

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TASK 27-81-39-400-804

9. Leading Edge Pressure Seal Installation

(Figure 404)

A. References

Reference	Title
12-21-08-640-806-006	Cargo Compartment Torque Tube, Support and Pressure Seal Lubrication - 300ER (P/B 301)
20-11-00-910-801	Standard Torque Values (P/B 201)
25-52-06-400-801	Sidewall Liner Installation (P/B 401)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-820-801	Leading Edge Slat Drive System Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Slat System Operation With Primary Control (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
61	Seal assembly	27-81-39-01-005	ARO ALL

E. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

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G. Leading Edge Pressure Seal Installation

SUBTASK 27-81-39-420-007

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the seal assembly [61]:

(a) Put the seal assembly [61] in its position on the bracket [63].

(b) Apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the bolts [64].

(c) Install the bolts [64] and washers [65]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

NOTE: Install the washers [65] with the countersink on the head of the bolt.

(d) Apply a bead of sealant, A00247 around the seal assembly [61].

SUBTASK 27-81-39-420-008

(2) Connect the torque tubes [7] to the seal assembly [61]:

(a) Apply grease, D00633 to the coupling sleeves [6].

(b) Put the torque tube [7] in its position.

(c) Move the coupling sleeves [6] on the splined couplings [8].

(d) Install the screws [9] to attach the coupling sleeves [6].

(e) Tighten the screws [9].

NOTE: Do not over tighten the screws [9].

(f) Install lockwire on the screws [9].

SUBTASK 27-81-39-820-004

(3) If the torque tubes turned while they were disconnected, do this task: Leading Edge Slat Drive System Adjustment, TASK 27-81-00-820-801.

SUBTASK 27-81-39-080-004

(4) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tubes [7].

SUBTASK 27-81-39-640-004

(5) Lubricate the applicable torque tubes and seal assembly [61], do this task: Cargo Compartment Torque Tube, Support and Pressure Seal Lubrication - 300ER, TASK 12-21-08-640-806-006.

SUBTASK 27-81-39-440-006

(6) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-39-710-007

(7) Use the primary system to extend the slats. To extend the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

SUBTASK 27-81-39-710-008

(8) Use the primary system to retract the slats to the retracted position. To retract the slats, do this task: Leading Edge Slat System Operation With Primary Control, TASK 27-81-00-860-803.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-39-410-003

(1) Install the applicable access panels:

Number	Name/Location
511AB	Leading Edge PDU Panel
611AB	Inboard Fixed Leading Edge Panel

SUBTASK 27-81-39-410-004

(2) Install the ECS duct [62].

SUBTASK 27-81-39-010-008

(3) Do this task: Sidewall Liner Installation, TASK 25-52-06-400-801.

——— END OF TASK ———

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INBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the main tracks for the inboard slats.

(2) An installation of the main tracks for the inboard slats.

B. These procedures apply to the three main tracks on the two inboard slats.

C. It is necessary to remove the inboard slat before you remove the main tracks.

TASK 27-81-42-000-801

2. Inboard Slat Main Track Removal

A. General

(1) You can remove each of the main tracks independently of the others.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-10-000-801	Inboard Leading Edge Slat Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

D. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

E. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
521ADB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

F. Prepare for the Removal

SUBTASK 27-81-42-040-002

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-42-860-002

(2) Retract the slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-42-040-001

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-42-010-001

(4) Remove the applicable fixed leading edge panels from the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 7, remove these access panels:

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, remove these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) Remove this access panel to get access to the power drive unit:

Number	Name/Location
511AB	Leading Edge PDU Panel

(d) Remove the applicable access panels to get access to the torque tubes outboard of the applicable inboard slat:

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-42-200-004

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-42-820-001

(6) Make sure power drive unit (PDU) [12] is in the retracted position (Figure 401):

(a) Push in the rig pin [13] and install the ground lockpin [14], which is a part of leading edge slat installation rigging equipment, SPL-1721, in the Power Drive Unit (PDU) [12].

NOTE: This will make sure the slat drive system is in the retracted position. When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [13].

(b) If you cannot push in the rig pin [13], then adjust the position of the slat power drive unit (PDU) [12]:

1) Use the wrench flats on the torque tube to manually turn the PDU [12] in the extend direction approximately one turn of the torque tube.

NOTE: This step is necessary to remove the backlash in the slat drive system.

2) Manually turn the PDU [12] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

3) Push in the rig pin [13] on the PDU [12] and hold it.

4) Install the ground lockpin [14] in the rig pin [13].

5) Make sure the PDU [12] is locked in this position:

NOTE: If the PDU [12] is not locked in this position, move the PDU [12] to the retracted position again.

a) Manually try to turn the PDU [12] in the retract direction.

b) Manually try to turn the PDU [12] in the extend direction.

SUBTASK 27-81-42-860-001

(7) Manually extend the applicable inboard slat (Figure 401):

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(a) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube [3] outboard of the applicable inboard slat [1].

(b) Disconnect the inboard torque tube [3] from the inboard offset gearbox [2] and the outboard torque tube [3] from the outboard offset gearbox [2] for the inboard slat [1]:

1) Move the seal tube [8] inboard of the inboard offset gearbox to get access to the torque tube [3]:

a) Remove the bolts [11], washers [10] and plate [9] that hold the seal tube [8].

b) Move the seal tube [8] inboard to get access to the coupling sleeve [5].

2) Remove the screws [6] from the coupling sleeves [5].

3) Move the coupling sleeves [5] off the splined couplings [4].

WARNING MOVE ALL PERSONS AWAY FROM THE SLAT. THE SLAT WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION DO NOT TURN THE OFFSET GEARBOX WITH MORE THAN 190 POUND-INCHES TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

CAUTION DO NOT LET THE MAIN TRACKS HIT THE DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

(c) Use the LE slat drive torque tube coupling adapter, SPL-1694 on one of the offset gearboxes [2] to extend the inboard slat [1] to the extended position.

NOTE: To move the inboard slat from the retracted position to the extended position, you must turn the coupling approximately 138 turns. You can use an air drive motor to extend the slat.

G. Inboard Slat Main Track Removal

SUBTASK 27-81-42-200-003

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-42-010-002

(2) Do this task: Inboard Leading Edge Slat Removal, TASK 27-81-10-000-801.

SUBTASK 27-81-42-020-001

(3) Remove the center track assembly [22] (Figure 402):

(a) Move the center track assembly [22] forward and down until it is clear of the rollers.

SUBTASK 27-81-42-020-002

(4) Remove the outboard track assembly [21] or inboard track assembly [23]:

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(a) Disconnect the torque tubes [3] between the offset gearboxes [2] on the inboard slat [1] (Figure 401):

1) Remove the screws [6] from the coupling sleeves [5].

2) Move the coupling sleeves [5] off the splined couplings [4].

(b) Turn the offset gearbox [2] to retract the track assembly [21] or track assembly [23] until you can get access to the stop fitting in the stop fitting hole (Figure 402).

(c) Remove the stop fitting from the track assembly [21] or track assembly [23]:

1) Remove the nut [28] and bolt [24] that attach the stop [25] and stop [27] to the track assembly [21] or track assembly [23].

2) Remove the stop [25] and stop [27] from the track assembly [21] or track assembly [23].

CAUTION

DO NOT LET THE BUSHING [26] IN THE MAIN TRACK TOUCH THE TEETH OF THE PINION GEAR. THE TEETH CAN CAUSE DAMAGE TO THE BUSHING.

(d) Turn the offset gearbox to extend the track assembly [21] or track assembly [23] until it is out of the rollers.

(e) Loosely install the stop [25], stop [27], bolt [24] and nut [28] in the track assembly [21] or track assembly [23] that you removed.

SUBTASK 27-81-42-200-005

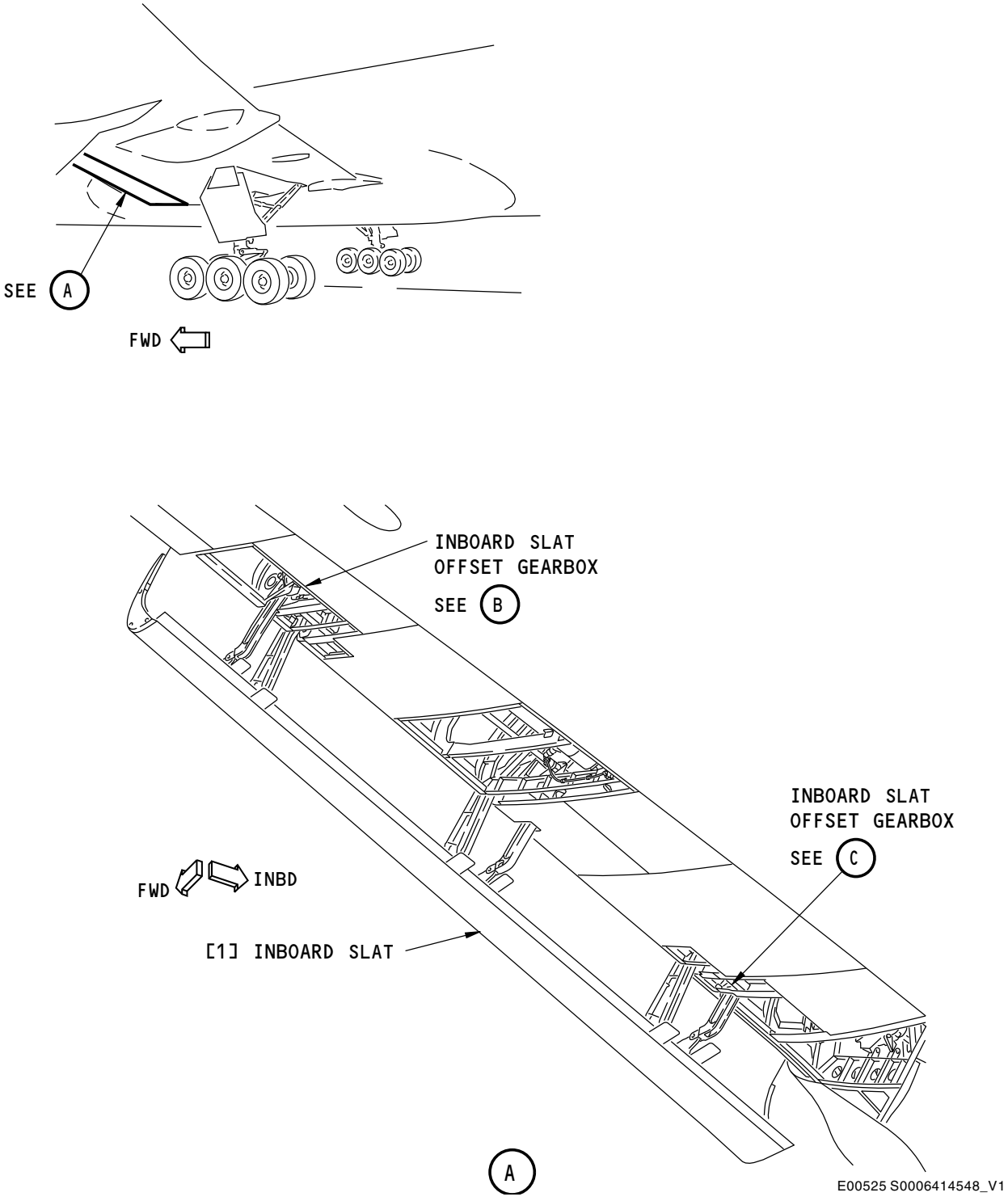
WARNING

DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

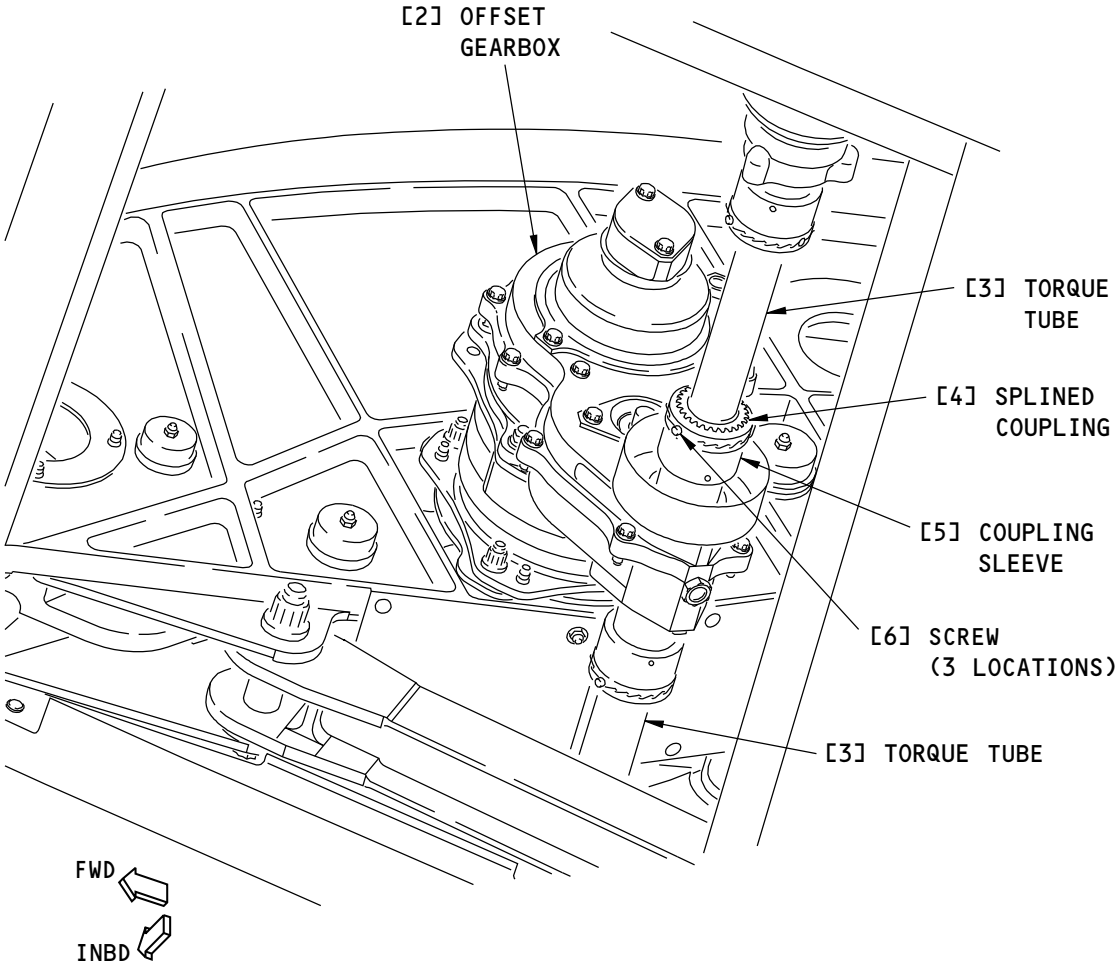
END OF TASK

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Inboard Slat Manual Operation
Figure 401/27-81-42-990-801 (Sheet 1 of 4)

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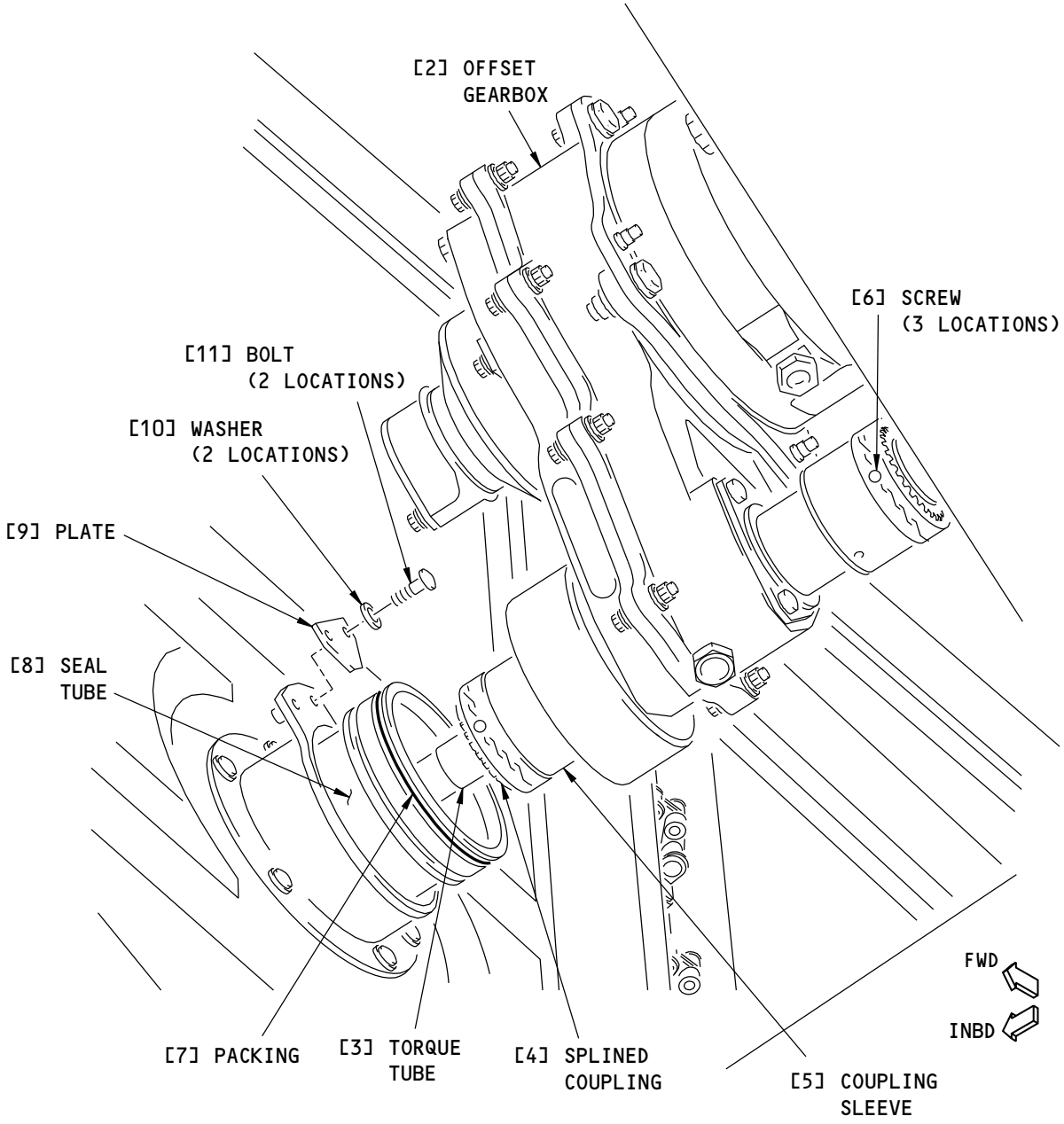
OUTBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

B

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Inboard Slat Manual Operation
Figure 401/27-81-42-990-801 (Sheet 2 of 4)

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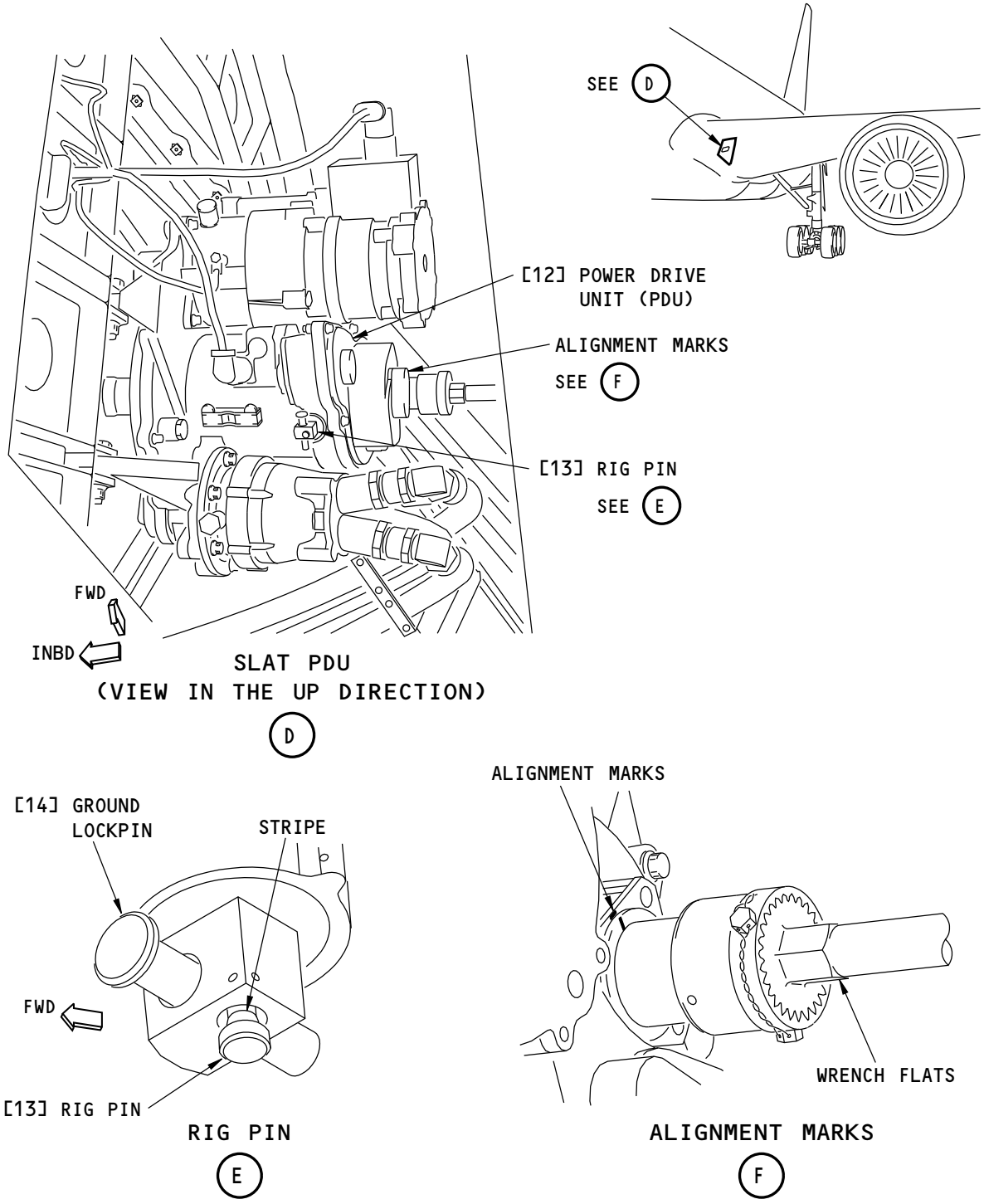
INBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

C

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Inboard Slat Manual Operation
Figure 401/27-81-42-990-801 (Sheet 3 of 4)

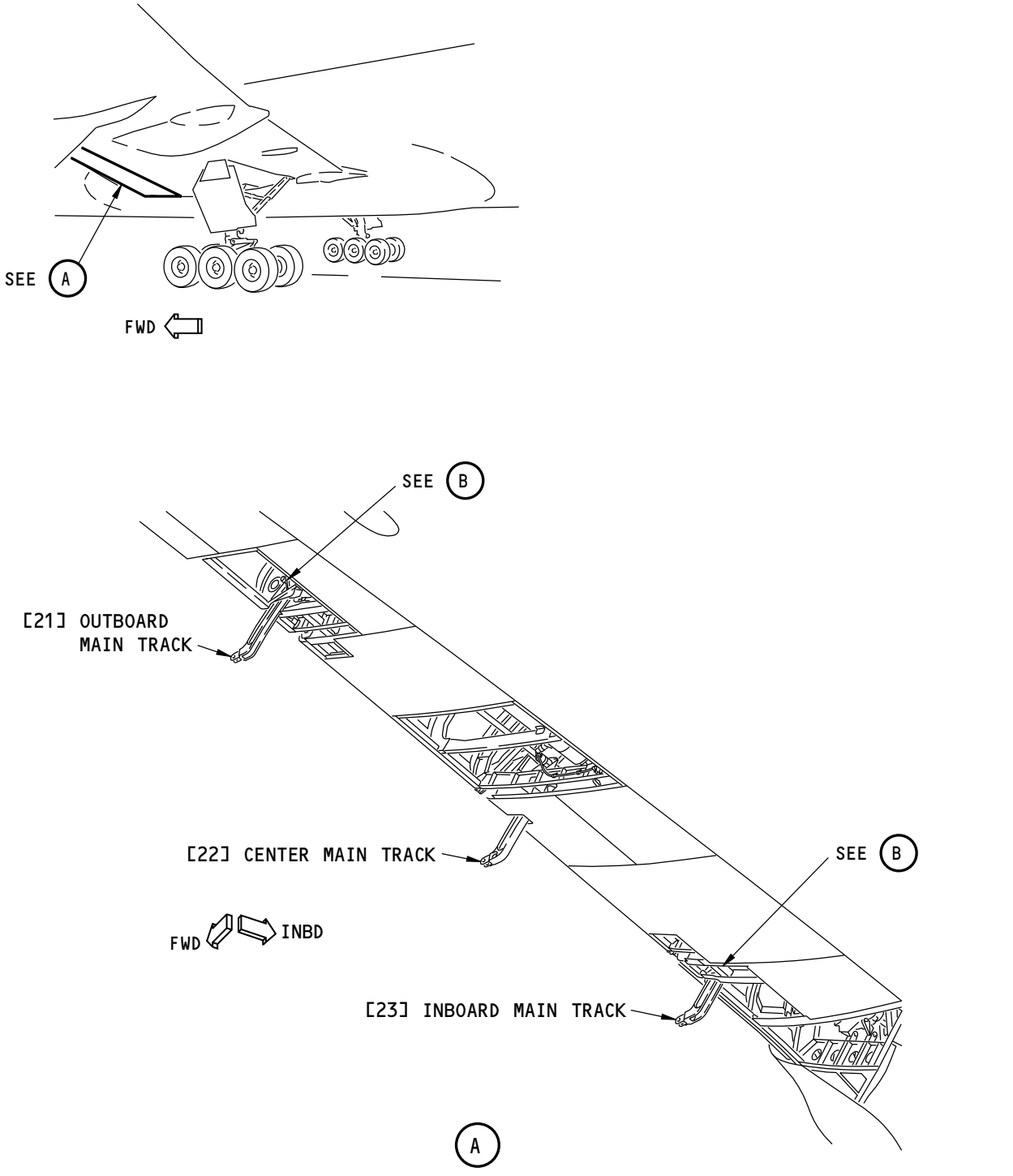
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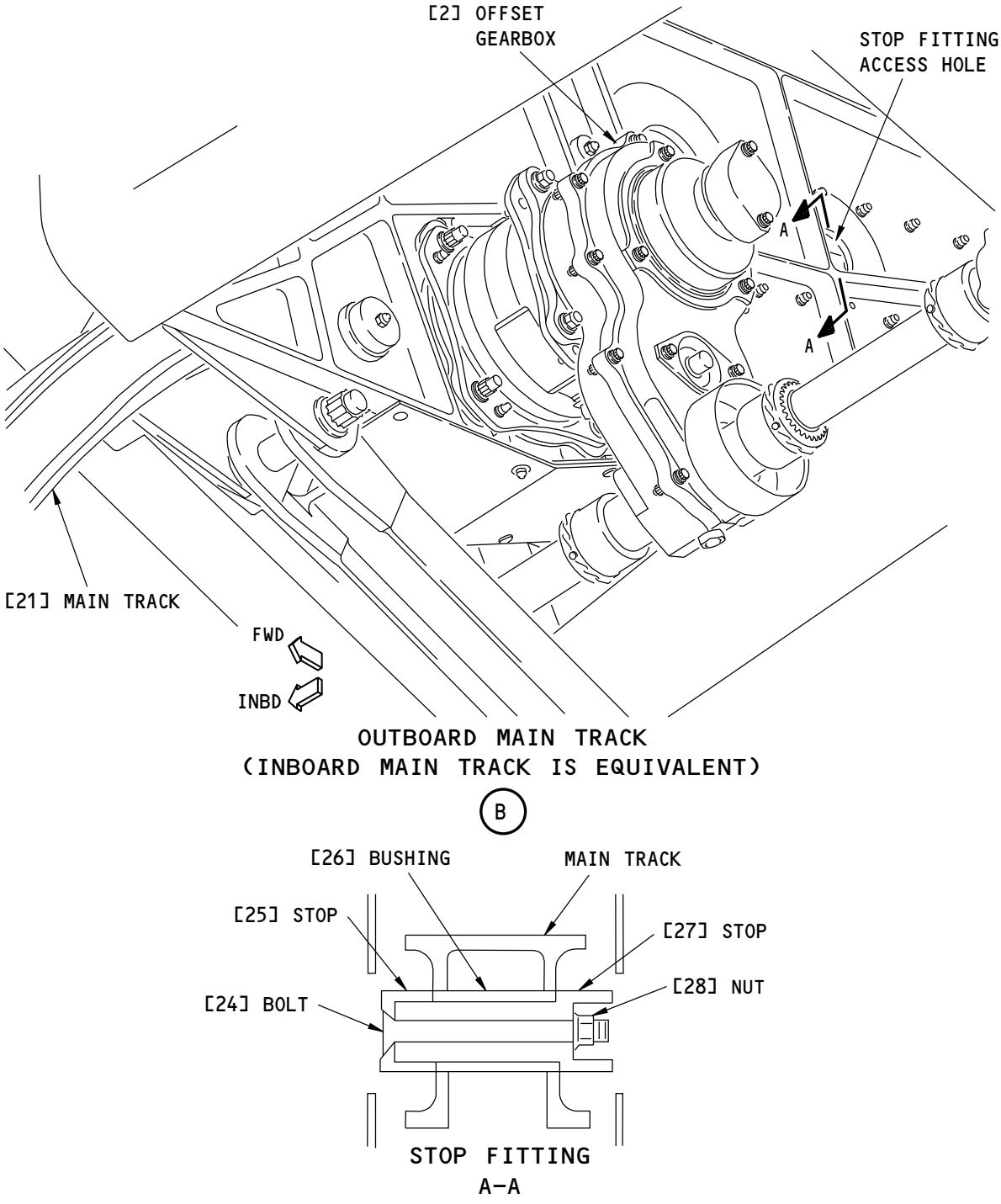
Inboard Slat Manual Operation
Figure 401/27-81-42-990-801 (Sheet 4 of 4)

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Inboard Slat Main Track Installation
Figure 402/27-81-42-990-802 (Sheet 1 of 2)

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Inboard Slat Main Track Installation
Figure 402/27-81-42-990-802 (Sheet 2 of 2)

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TASK 27-81-42-400-801

3. Inboard Slat Main Track Installation

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-10-400-801	Inboard Leading Edge Slat Installation (P/B 401)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Packing	27-81-38-02-015	ARO ALL
21	Track assembly	27-81-10-02-120	ARO ALL
22	Track assembly	27-81-10-02-125	ARO ALL
23	Track assembly	27-81-10-02-130	ARO ALL

E. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

G. Inboard Slat Main Track Installation

SUBTASK 27-81-42-200-006

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-42-420-001

(2) Install the outboard track assembly [21] or inboard track assembly [23] for the inboard slat [1] (Figure 402):

(a) Remove the nut [28], bolt [24], stop [25] and stop [27] from the track assembly [21] or track assembly [23].

CAUTION DO NOT LET THE BUSHING [26] IN THE MAIN TRACK TOUCH THE TEETH OF THE PINION GEAR. THE TEETH CAN CAUSE DAMAGE TO THE BUSHING.

(b) Put the track assembly [21] or track assembly [23] in its position between the rollers.

CAUTION DO NOT TURN THE OFFSET GEARBOX WITH MORE THAN 190 POUND-INCHES TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

(c) Use the LE slat drive torque tube coupling adapter, SPL-1694 to turn the offset gearbox [2] to retract the track assembly [21] or track assembly [23] until you can get access to the stop fitting in the stop fitting access hole.

(d) Install the stop fitting on the track assembly [21] or track assembly [23]:

1) Put the stop [25] and stop [27] in their positions on the track assembly [21] or track assembly [23].

2) Install the bolt [24] and nut [28] that attach the stop [25] and stop [27].

3) Tighten the nut [28] to 65-100 pound-inches.

(e) Install the rig pins, which are part of the leading edge slat installation rigging equipment, SPL-1721, in the rig pin holes for the outboard track assembly [21] and inboard track assembly [23] (Figure 403).

(f) Use the LE slat drive torque tube coupling adapter, SPL-1694 to carefully retract each track assembly [21] and track assembly [23] until they touch the rig pins.

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(g) Connect the torque tube [3] between the offset gearboxes [2] for the inboard slat [1] (Figure 401):

1) Apply grease, D00633 to the coupling sleeve [5].
2) Move the coupling sleeve [5] on the splined coupling [4].
3) Install the screws [6].
4) Tighten the screws [6].

NOTE: Do not over tighten the screws [6].

5) Install lockwire on the screws [6].

(h) Remove the rig pins from the rig pin holes.

SUBTASK 27-81-42-420-002

(3) Install the center track assembly [22] for the inboard slat [1]:

(a) Put the center track assembly [22] in its position between the rollers.
(b) Make sure the center track assembly [22] moves freely on the rollers.

SUBTASK 27-81-42-640-001

(4) Apply compound, C00528 to the top and bottom surface of the track assembly [21], track assembly [22], or track assembly [23].

SUBTASK 27-81-42-410-003

(5) Connect the inboard torque tube [3] to the inboard offset gearbox [2] and the outboard torque tube [3] to the outboard offset gearbox [2] for the inboard slat [1] (Figure 401):

(a) Apply grease, D00633 to the coupling sleeve [5].
(b) Move the coupling sleeve [5] on the splined coupling [4].
(c) Install the screws [6].
(d) Tighten the screws [6].

NOTE: Do not over tighten the screws [6].

(e) Install lockwire on the screws [6].
(f) Move the seal tube [8] to its usual position on the inboard offset gearbox [2]:

1) If it is necessary, install a new packing [7] on the seal tube [8].
2) Apply grease, D00013 to the packing [7] on the seal tube [8].
3) Move the seal tube [8] outboard to the offset gearbox [2].
4) Apply grease, D00013 to the bolts [11].
5) Put the plate [9] in its position and install the bolts [11] and washers [10].

SUBTASK 27-81-42-080-001

(6) Remove the ground lockpin [14] and make sure the rig pin [13] comes out of the PDU [12].

(a) Make sure you can see the stripe on the rig pin [13].

SUBTASK 27-81-42-200-002

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(7) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

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SUBTASK 27-81-42-410-001

(8) Do this task: Inboard Leading Edge Slat Installation, TASK 27-81-10-400-801.

NOTE: It is necessary to do the preload adjustment and the slat alignment when you install the slat. The procedure to install the inboard slat will include the steps to connect the torque tubes.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-42-410-002

(1) Install the fixed leading edge panels (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 7, install these access panels:

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, install these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) Install the applicable access panels:

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

(d) Install this access panel:

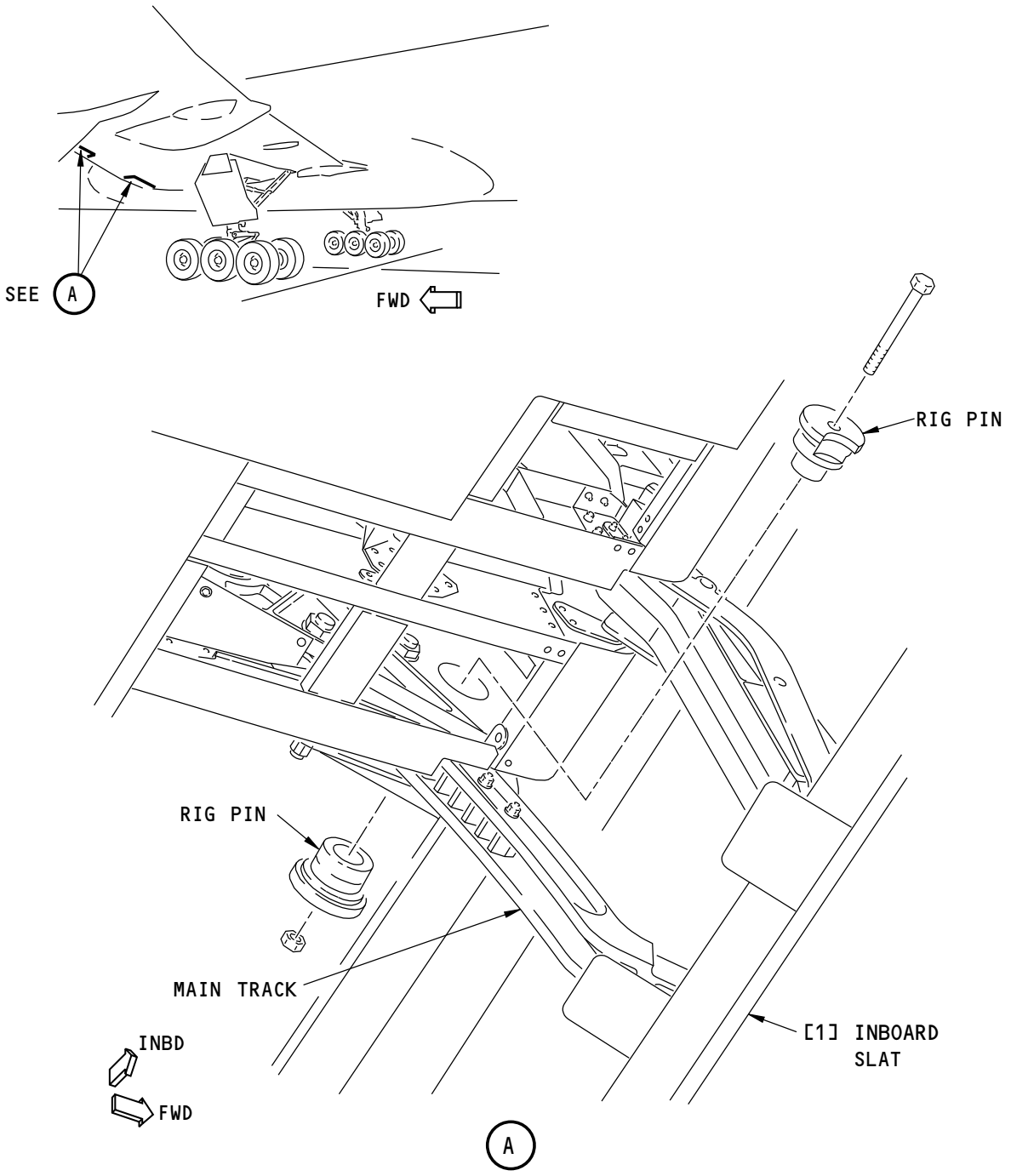
Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-42-440-001

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

END OF TASK

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Inboard Slat Rig Pin Installation
Figure 403/27-81-42-990-803

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OUTBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the main tracks for the outboard slats.

(2) An installation of the main tracks for the outboard slats.

B. These procedures apply to all of the main track assemblies on all of the outboard slats.

C. It is necessary to remove the outboard slat before you remove a main track.

TASK 27-81-43-000-801

2. Outboard Slat Main Track Removal

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-15-000-801	Outboard Leading Edge Slat Removal (P/B 401)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205

C. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

D. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

E. Prepare for the Removal

SUBTASK 27-81-43-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-43-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-43-860-001

(3) If you will remove a main track from slat No. 2 or 13; open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

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SUBTASK 27-81-43-010-003

(4) Remove the applicable fixed leading edge panels from the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) For slat No. 1, remove the applicable access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

(b) For slat No. 2, remove the applicable access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(c) For slat No. 3, remove the applicable access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(d) For slat No. 4, remove the applicable access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(e) For slat No. 5, remove the applicable access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(f) For slat No. 6, remove the applicable access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(g) For slat No. 9, remove the applicable access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 10, remove the applicable access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(i) For slat No. 11, remove the applicable access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

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(j) For slat No. 12, remove the applicable access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(k) For slat No. 13, remove the applicable access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(l) For slat No. 14, remove the applicable access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

(m) Remove this access panel to get access to the power drive unit:

Number	Name/Location
511AB	Leading Edge PDU Panel

(n) Remove the applicable access panel:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-43-200-006

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Make sure that the housing (can) assemblies of the slat track assemblies [1] are kept clean and free of all unwanted objects (FOD), at all time.

F. Outboard Slat Main Track Removal

SUBTASK 27-81-43-010-001

(1) For the applicable outboard slat, do this task: Outboard Leading Edge Slat Removal, TASK 27-81-15-000-801.

NOTE: The slat removal/Installation task is not required for the removal of the center main tracks from the slats 1 and 14.

WARNING ATTACH THE CENTER MAIN TRACK TO THE FIXED LEADING EDGE BEFORE YOU DISCONNECT IT FROM THE SLAT ASSY. IF YOU DO NOT, THE CENTER MAIN TRACK CAN FALL FROM THE AIRPLANE WHEN YOU DISCONNECT IT. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Secure the center main track to the structure to make sure it cannot fall from the airplane

SUBTASK 27-81-43-020-001

(2) If you will remove a track assembly [1] for slat No. 2 or 13, disconnect the electrical connector [9] from the aft end of the track assembly [1] (Figure 401).

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SUBTASK 27-81-43-020-002

(3) Disconnect the torque tubes [21] between the offset gearboxes [2] for the applicable slat (Figure 402):

(a) Install leading edge slat drive shaft clamp equipment, SPL-1696 on torque tubes [21] inboard and outboard of the offset gearbox [2].

(b) Remove the screws [25] from the coupling sleeves [23].

(c) Move the coupling sleeves [23] off the splined couplings [22].

SUBTASK 27-81-43-980-001

CAUTION

DO NOT TURN THE OFFSET GEARBOX WITH MORE THAN 190 POUND-INCHES TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOX.

CAUTION

DO NOT LET THE MAIN TRACKS HIT THE UPSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

(4) Use the LE slat drive torque tube coupling adapter, SPL-1694 to retract the track assembly [1] until you can get access to the stop fitting in the stop fitting hole (Figure 401).

SUBTASK 27-81-43-020-003

(5) Remove the stop fitting from the track assembly [1]:

(a) Remove the nut [8] and bolt [6] that attach the fitting [5] and the fitting [7] to the track assembly [1].

(b) Remove the fitting [5] and the fitting [7] from the track assembly [1].

SUBTASK 27-81-43-020-004

CAUTION

DO NOT LET THE BUSHING [4] IN THE MAIN TRACK TOUCH THE TEETH OF THE PINION GEAR. THE TEETH CAN CAUSE DAMAGE TO THE BUSHING.

(6) Turn the offset gearbox to extend the track assembly [1] until it is out of the rollers.

SUBTASK 27-81-43-420-001

(7) Loosely install the fitting [5], fitting [7], bolt [6] and nut [8] in the track assembly [1].

SUBTASK 27-81-43-200-002

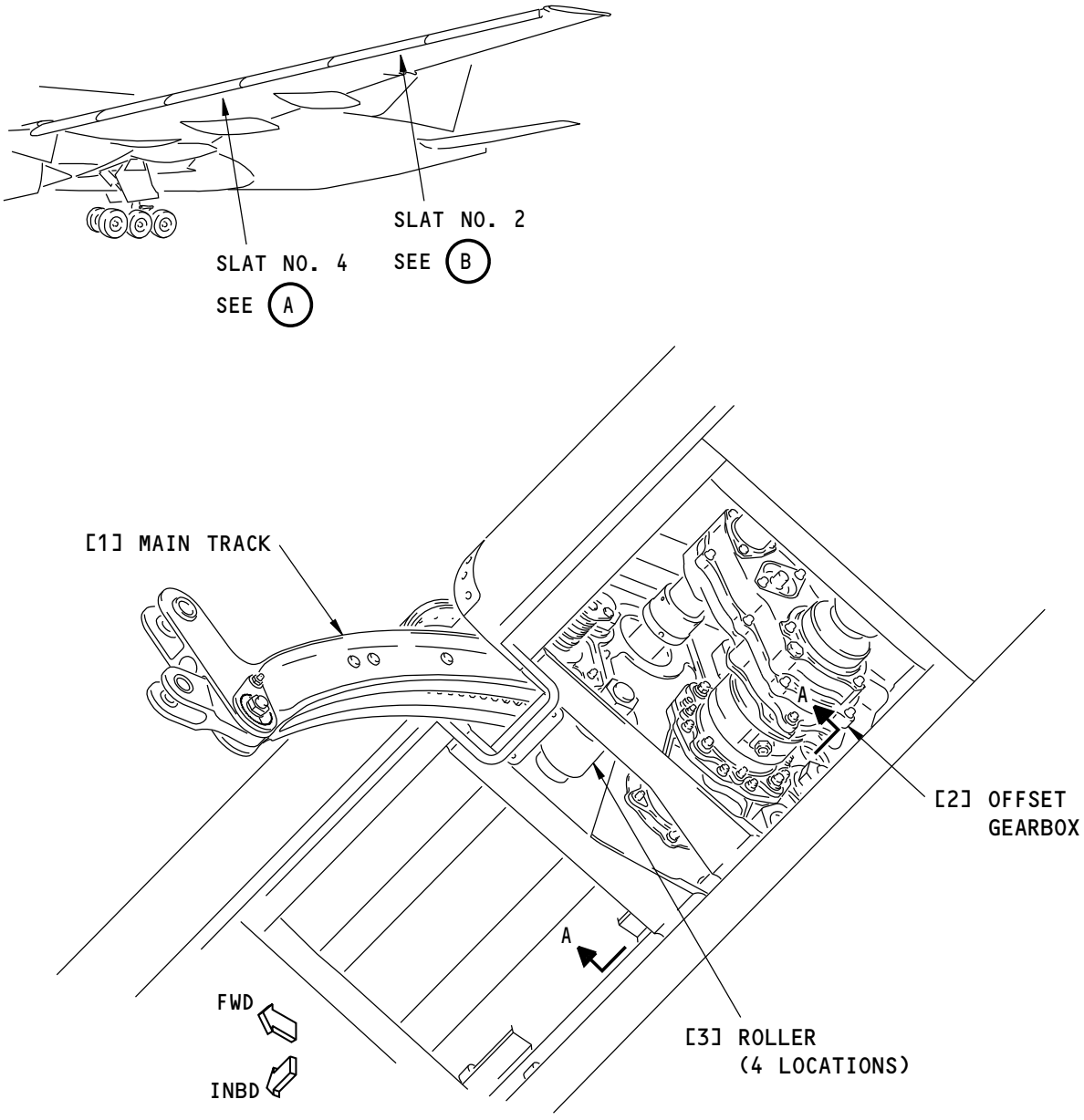
WARNING

DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(8) Make sure that the housing (can) assemblies of the slat track assemblies [1] are kept clean and free of all unwanted objects (FOD), at all time.

END OF TASK

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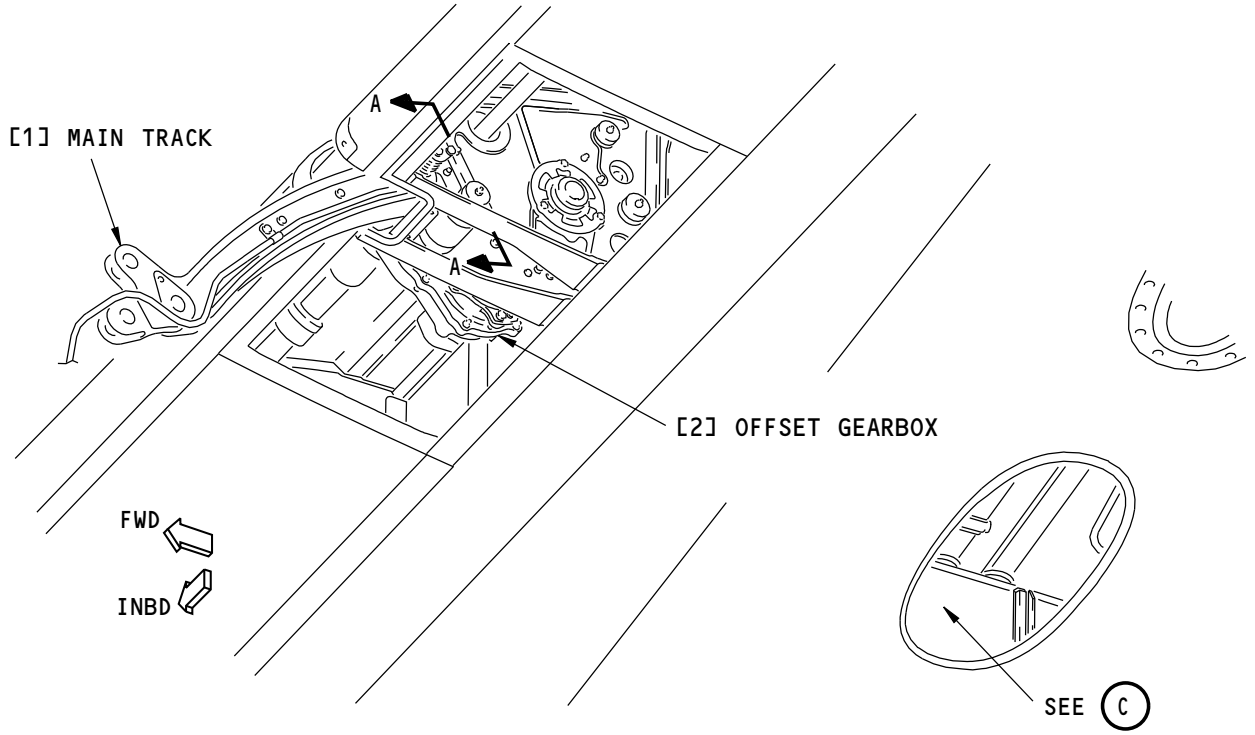


SLAT NO. 4 OUTBOARD MAIN TRACK
(OTHER MAIN TRACKS ARE EQUIVALENT)
A

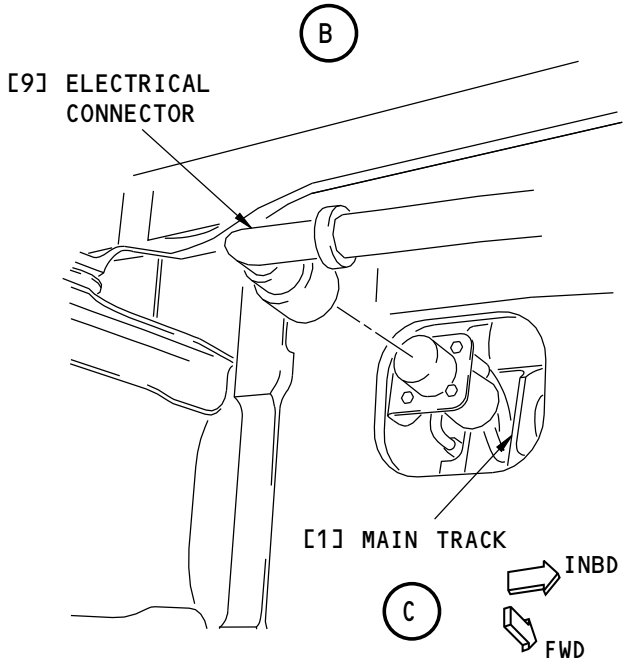
E10750 S0006414559_V1

Outboard Slat Main Track Installation
Figure 401/27-81-43-990-801 (Sheet 1 of 4)

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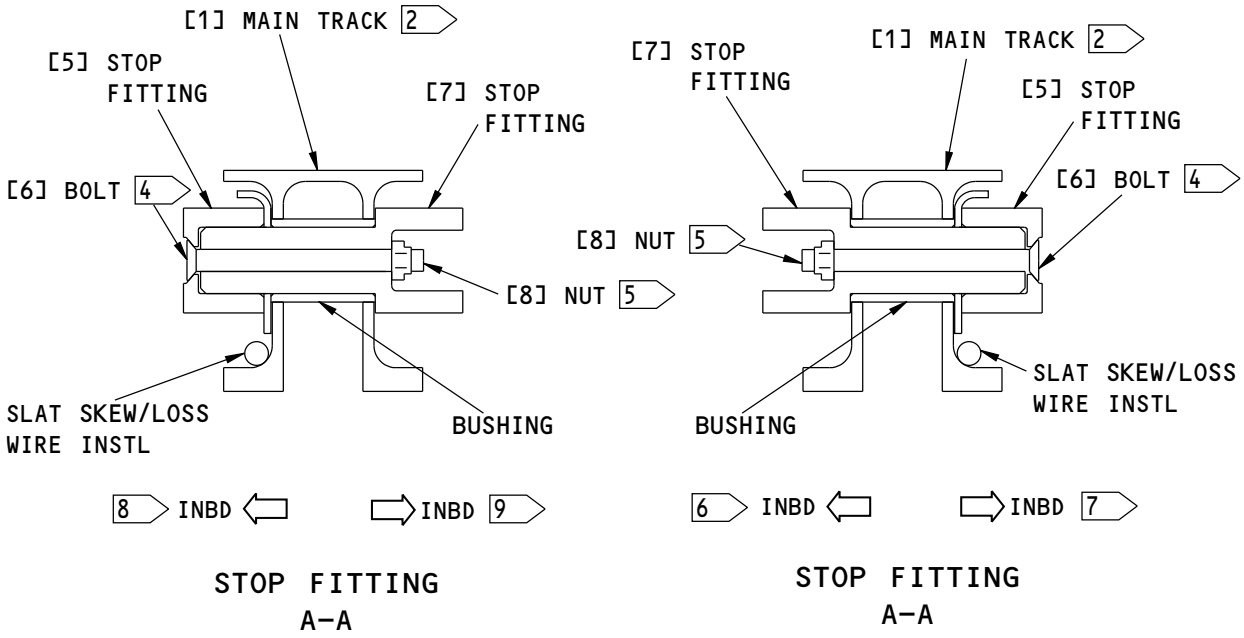
OUTBOARD MAIN TRACK FOR SLAT NO. 2
(INBOARD MAIN TRACK IS EQUIVALENT)



E10898 S0006414560_V3

Outboard Slat Main Track Installation
Figure 401/27-81-43-990-801 (Sheet 2 of 4)

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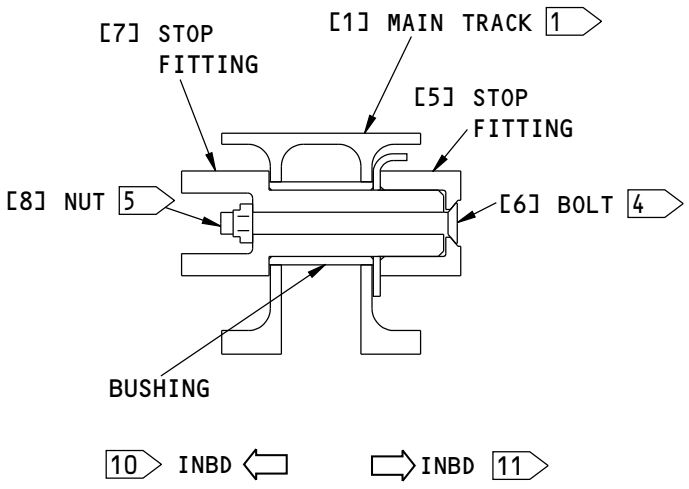


1. SLATS 1 THROUGH 6 (114W4010, 114W4020, 114W5010 MAIN TRACK ASSEMBLIES) AND SLATS 9 THROUGH 14 WITHOUT SLAT SKEW/LOSS WIRE INSTALLATION.
2. SLATS 2 AND 13, 114W4015 MAIN TRACK ASSEMBLY WITH SLAT SKEW/LOSS WIRE INSTALLATION.
3. SLATS 1 AND 14, 114W5015 MAIN TRACK ASSEMBLY WITH SLAT SKEW/LOSS WIRE INSTALLATION.
4. END OF BOLT MUST NOT PROTUDE BEYOND THE STOP FITTING. UP TO FOUR THREADS IN BEARING ARE PERMITTED.
5. TORQUE THE NUT 50 TO 80 POUND-INCHES
6. SLAT 2 OUTBOARD FOR INSTALLATIONS -37, -41
7. SLAT 13 INBOARD FOR INSTALLATIONS -38, -42
8. SLAT 2 INBOARD FOR INSTALLATIONS -37, -41
9. SLAT 13 OUTBOARD FOR INSTALLATIONS -38, -42
10. SLATS 1 THROUGH 6 FOR INSTALLATIONS -37, -41
11. SLATS 9 THROUGH 14 FOR INSTALLATIONS -38, -42

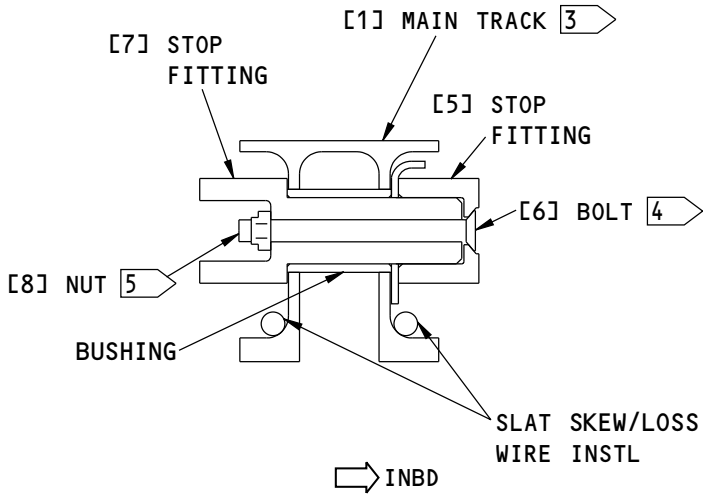
1563708 S0000289212_V3

Outboard Slat Main Track Installation
Figure 401/27-81-43-990-801 (Sheet 3 of 4)

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STOP FITTING
A–A

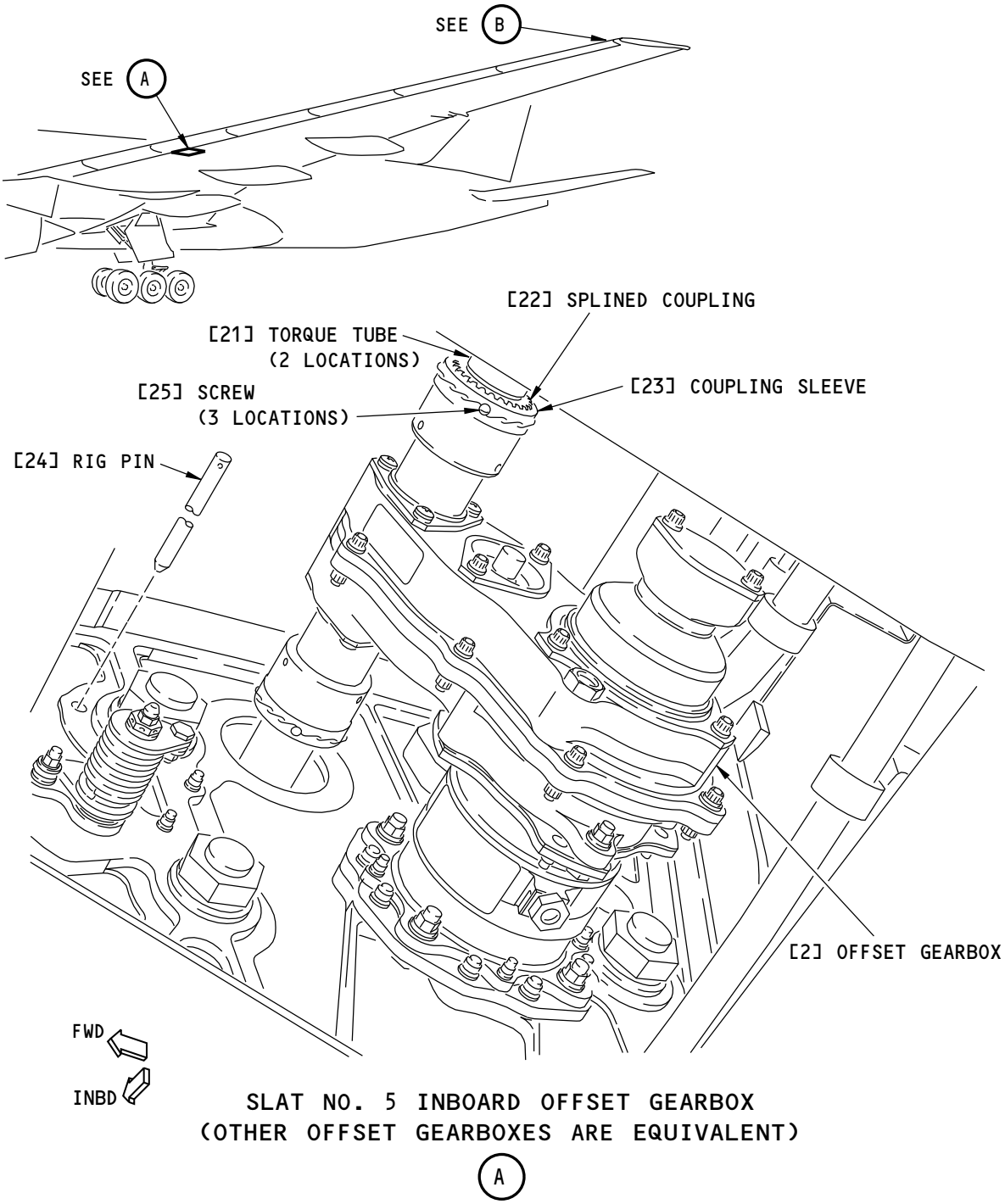


STOP FITTING
A–A

1563710 S0000290014_V2

Outboard Slat Main Track Installation
Figure 401/27-81-43-990-801 (Sheet 4 of 4)

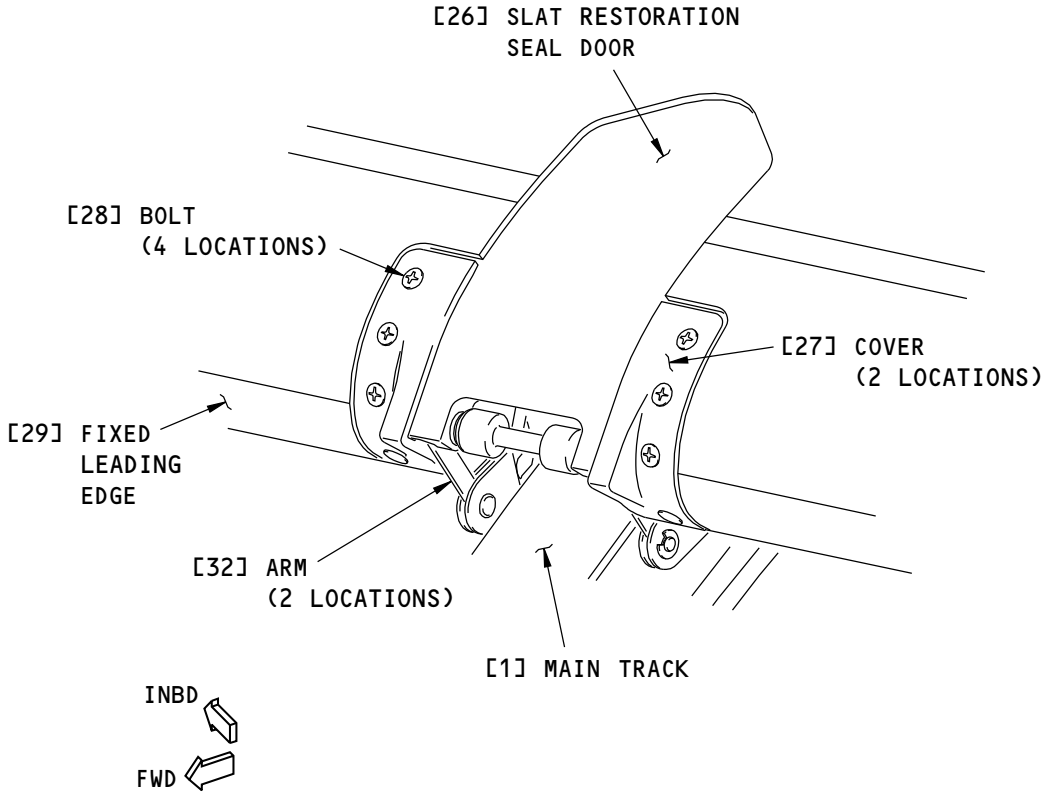
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G91345 S0006414562_V1

Outboard Slat Drive Position Adjustment
Figure 402/27-81-43-990-802 (Sheet 1 of 2)

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RESTORATION SEAL DOOR

B

G91593 S0006414563_V1

Outboard Slat Drive Position Adjustment
Figure 402/27-81-43-990-802 (Sheet 2 of 2)

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TASK 27-81-43-400-801

3. Outboard Slat Main Track Installation

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-15-400-801	Outboard Leading Edge Slat Installation (P/B 401)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1694	Adapter - Drive, Torque Tube Coupling, L.E. Slat Part #: J27003-1 Supplier: 81205
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Track assembly	27-81-15-01A-805	ARO ALL
		27-81-15-01A-812	ARO ALL
		27-81-15-01A-813	ARO ALL
		27-81-15-01A-815	ARO ALL
		27-81-15-01A-820	ARO ALL
		27-81-15-01A-825	ARO ALL
		27-81-15-01A-830	ARO ALL

E. Location Zones

Zone	Area
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

G. Outboard Slat Main Track Installation

SUBTASK 27-81-43-020-005

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Make sure that the housing (can) assemblies of the slat main track assemblies [1] are kept clean and free of all unwanted objects (FOD), at all time.

(2) Remove the nut [8], bolt [6], fitting [5] and fitting [7] from the track assembly [1] (Figure 401).

SUBTASK 27-81-43-420-002

CAUTION DO NOT LET THE BUSHING [4] IN THE MAIN TRACK TOUCH THE TEETH OF THE PINION GEAR. THE TEETH CAN CAUSE DAMAGE TO THE BUSHING.

(3) Put the track assembly [1] in its position between the rollers [3].

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SUBTASK 27-81-43-980-002

CAUTION DO NOT TURN THE OFFSET GEARBOX WITH MORE THAN 190 POUND-INCHES TORQUE OR FASTER THAN 110 RPM. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE OFFSET GEARBOXES.

(4) Use the LE slat drive torque tube coupling adapter, SPL-1694 to turn the offset gearbox [2] to retract the track assembly [1] until you can get access to the stop fitting in the stop fitting hole (Figure 402).

SUBTASK 27-81-43-420-003

(5) Install the stop fitting on the track assembly [1] (Figure 401):

NOTE: Use the Illustrated Part Catalog for recommended downstop fittings and hardware.

NOTE: The direction of the downstop fitting and the bolt stack up is optional.

(a) Put the fitting [5] and fitting [7] in their position on the track assembly [1].

(b) Install the bolt [6] and nut [8] that attach fitting [5] and fitting [7] to the track assembly [1].

(c) Apply a self locking (run-on) torque of 3.5 pound-inches to the nut [8]. Replace the nut [8] if it does not meet the minimum self locking torque.

(d) Tighten the nut [8] to 50-80 pound-inches.

(e) Make sure that there is a minimum of one thread plus the chamfer on the bolt protruding beyond the nut [8].

(f) Apply a 30 pound-inches torque to the nut [8] without holding the bolt [6] head to make sure the fitting [7] does not turn and is seated correctly.

NOTE: The torque requirement is not met if the nut turns.

SUBTASK 27-81-43-480-001

(6) Install the rig pins, which are part of leading edge slat installation rigging equipment, SPL-1721, in the rig pin holes for the inboard and outboard track assemblies [1].

NOTE: If you installed a track assembly [1] for slat No. 1, 2, 13 or 14, make sure you use the applicable bushings with the rig pin. Use the large outside bushings for the inboard track assemblies [1] on slats No. 2 and 13. Use the small outside diameter bushings for the track assemblies [1] on the slats No. 1 and 14, and for the outboard track assemblies on the slats No. 2 and 13. When the slat is installed on the track assembly [1], you must not use the bushings on the rig pins.

SUBTASK 27-81-43-980-003

(7) Use the LE slat drive torque tube coupling adapter, SPL-1694 to carefully retract the track assemblies [1] for the applicable slat until they touch the rig pins.

SUBTASK 27-81-43-420-004

(8) Connect the torque tube [21] between the offset gearboxes [2] for the slat:

(a) Apply grease, D00633 to the coupling sleeve [23].

(b) Move the coupling sleeve [23] on the splined coupling [22].

(c) Install the screws [25] to attach the coupling sleeves [23].

(d) Tighten the screws [25].

NOTE: Do not over tighten the screws [25].

(e) Install lockwire on the screws [25].

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SUBTASK 27-81-43-980-004

(9) Turn the coupling on an offset gearbox [2] to extend the track assemblies [1] to the extended position.

NOTE: To move the track assemblies [1] from the retracted position to the extended position, you must turn the coupling approximately 138 turns.

SUBTASK 27-81-43-080-001

(10) Remove the rig pins, and the bushings if applicable, from the rig pin holes.

SUBTASK 27-81-43-710-001

(11) With the track assembly [1] fully extended, make sure the rollers on the slat restoration seal door [26] touch the track assembly [1].

NOTE: You can apply a maximum of 5 pound force by hand to fully extend the slat restoration seal door [26].

SUBTASK 27-81-43-420-005

(12) For the applicable outboard slat, do this task: Outboard Leading Edge Slat Installation, TASK 27-81-15-400-801.

NOTE: It is necessary to do the preload adjustment and the slat alignment when you install the slat.

SUBTASK 27-81-43-640-001

(13) Apply compound, C00528 to the top and bottom surface of the track assembly [1].

SUBTASK 27-81-43-420-006

(14) If you installed a track assembly [1] on slat No. 2 or 13, connect the electrical connector [9] on the aft end of the track assembly [1] (Figure 401).

SUBTASK 27-81-43-200-001

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(15) Make sure that the housing (can) assemblies of the slat main track assemblies [1] are kept clean and free of all unwanted objects (FOD), at all time.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-43-410-002

(1) Install the applicable fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807):

(a) Install this access panel below the power drive unit:

Number	Name/Location
511AB	Leading Edge PDU Panel

(b) For slat No. 1, install the applicable access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel

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(c) For slat No. 2, install the applicable access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(d) For slat No. 3, install the applicable access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(e) For slat No. 4, install the applicable access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(f) For slat No. 5, install the applicable access panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(g) For slat No. 6, install the applicable access panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(h) For slat No. 9, install the applicable access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

(i) For slat No. 10, install the applicable access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(j) For slat No. 11, install the applicable access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(k) For slat No. 12, install the applicable access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(l) For slat No. 13, install the applicable access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

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(m) For slat No. 14, install the applicable access panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-43-860-002

(2) If you installed a track assembly [1] for slat No. 2 or 13,

SUBTASK 27-81-43-865-001

(3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-81-43-440-001

(4) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-43-860-003

(5) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-43-440-002

(6) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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Slat Main Track - Inspection/Check

1. General

A. This procedure has an inspection of the slat main tracks

B. This procedure applies to all of the slat main tracks.

TASK 27-81-43-200-801

2. Slat Main Track Inspection

A. References

Reference	Title
06-44-00-800-802	Finding an Access Door or Panel on the Wings (P/B 201)
12-21-08-640-807	Inboard Slat Main Track Lubrication (P/B 301)
12-21-08-640-808	Outboard Slat Main Track Lubrication (P/B 301)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-81-42 P/B 401	INBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION
27-81-43 P/B 401	OUTBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
NDT Part 6, 51-00-04, #1	Steel Part Surface Inspection (Meter Display)
NDT Part 6, 51-00-04, #2	Steel Part Surface Inspection (Impedance Plane Display)

B. Location Zones

Zone	Area
512	Slat No. 7
520	Subzone 520 - Wing Leading Edge - Forward of Front Spar
612	Slat No. 8
620	Subzone 620 - Wing Leading Edge - Forward of Front Spar

C. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

D. Prepare for Inspection

SUBTASK 27-81-43-040-003

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Do this task Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-43-860-004

(2) Extend the leading edge slat system to the gapped position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-43-040-004

WARNING DO THE DEACTIVATION PROCEDURE FOR THE LEADING EDGE SLATS. THE SLATS RETRACT QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(3) Do this task Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-43-010-005

(4) Remove the applicable fixed leading edge panels from the lower surface of the wing, do this task: Finding an Access Door or Panel on the Wings, TASK 06-44-00-800-802.

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(a) For slat No. 7, remove these access panels:

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) 0

For slat No. 8, remove these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) For slat No. 1, remove these access panels:

Number	Name/Location
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

(d) For slat No. 2, remove these access panels:

Number	Name/Location
521WB	Outboard Fixed Leading Edge Panel
521YB	Outboard Fixed Leading Edge Panel

(e) For slat No. 3, remove these access panels:

Number	Name/Location
521RB	Outboard Fixed Leading Edge Panel
521TB	Outboard Fixed Leading Edge Panel

(f) For slat No.4, remove these access panels:

Number	Name/Location
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(g) For slat No. 5, remove these panels:

Number	Name/Location
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel

(h) For slat No. 6, remove these panels:

Number	Name/Location
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel

(i) For slat No. 9, remove these access panels:

Number	Name/Location
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel

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(j) For slat No. 10, remove these access panels:

Number	Name/Location
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel

(k) For slat No. 11, remove these access panels:

Number	Name/Location
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(l) For slat No. 12, remove these access panels:

Number	Name/Location
621RB	Outboard Fixed Leading Edge Panel
621TB	Outboard Fixed Leading Edge Panel

(m) For slat No. 13, remove these access panels:

Number	Name/Location
621WB	Outboard Fixed Leading Edge Panel
621YB	Outboard Fixed Leading Edge Panel

(n) For slat No. 14, remove these panels:

Number	Name/Location
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel

(o) Remove the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-43-200-005

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(5) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

E. Slat Main Track Inspection

Figure 601

SUBTASK 27-81-43-210-001

(1) Do a detailed (on wing) visual inspection of the slat main tracks for signs of corrosion or wear on its roller bearing surfaces.

(2) If you find light corrosion on the roller bearing surface of the slat main track, do this procedure Inboard Slat Main Track Lubrication, TASK 12-21-08-640-807 or this procedure Outboard Slat Main Track Lubrication, TASK 12-21-08-640-808.

NOTE: Corrosion causes bearing seizure that results in wear flat spot on the slat main track surfaces at the dwell areas. Replace the rollers with evidence of seized bearings. There are recommended (corrosion resistant) roller bearings made from stainless steel listed in the Illustrated Part Catalog.

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(3) If you find wear with obvious step on the main track surfaces, do the steps that follow:

NOTE: Track wear up to 0.020 inch (after clean up) with smooth transition and/or no step at the flat spot is permitted for continued service.

(a) Remove the slat main track per these procedures: INBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION, PAGEBLOCK 27-81-42/401 or OUTBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION, PAGEBLOCK 27-81-43/401.

SUBTASK 27-81-43-820-001

(4) Table 601 for Figure 601 shows design dimension of main track.

Table 601/27-81-43-993-801 FITS AND CLEARANCES

Ref letter	Mating item	Design dimension			
		Dimension		Assembly clearance	
		MIN	MAX	MIN	MAX
Dimension and wear limit [A]	ID	0.5000 in. (12.7000 mm)	0.5007 in. (12.7178 mm)	0.0005 in. (0.0127 mm)	0.0022 in. (0.0559 mm)
	OD	0.4985 in. (12.6619 mm)	0.4995 in. (12.6873 mm)		
Dimension and wear limit [B]	ID	0.6870 in. (17.4498 mm)	0.6877 in. (17.4676 mm)	0.0005 in. (0.0127 mm)	0.0017 in. (0.0432 mm)
	OD	0.6860 in. (17.4244 mm)	0.6865 in. (17.4371 mm)		
Dimension and wear limit [C]	ID	0.5000 in. (12.7000 mm)	0.5005 in. (12.7127 mm)	0.0005 in. (0.0127 mm)	0.0020 in. (0.0508 mm)
	OD	0.4985 in. (12.6619 mm)	0.4995 in. (12.6873 mm)		
Dimension and wear limit [D]	ID	0.6245 in. (15.8623 mm)	0.6252 in. (15.8801 mm)	0.0005 in. (0.0127 mm)	0.0022 in. (0.0559 mm)
	OD	0.6230 in. (15.8242 mm)	0.6240 in. (15.8496 mm)		
Dimension and wear limit [E]	ID	0.8745 in. (22.2123 mm)	0.8753 in. (22.2326 mm)	0.0005 in. (0.0127 mm)	0.0018 in. (0.0457 mm)
	OD	0.8735 in. (22.1869 mm)	0.8740 in. (22.1996 mm)		
Dimension and wear limit [F]	ID	0.6245 in. (15.8623 mm)	0.6250 in. (15.8750 mm)	0.0005 in. (0.0127 mm)	0.0020 in. (0.0508 mm)
	OD	0.6230 in. (15.8242 mm)	0.6240 in. (15.8496 mm)		
Dimension and wear limit [G]	ID	0.3750 in. (9.5250 mm)	0.3765 in. (9.5631 mm)	0.0005 in. (0.0127 mm)	0.030 in. (0.762 mm)
	OD	0.3735 in. (9.4869 mm)	0.3745 in. (9.5123 mm)		

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Table 601/27-81-43-993-801 FITS AND CLEARANCES (Continued)

Dimension and wear limit [H]	ID	0.7500 in. (19.0500 mm)	0.7515 in. (19.0881 mm)	0.0005 in. (0.0127 mm)	0.030 in. (0.762 mm)
	OD	0.7485 in. (19.0119 mm)	0.7495 in. (19.0373 mm)		
Dimension and wear limit [I]	ID	0.6245 in. (15.8623 mm)	0.6252 in. (15.8801 mm)	0.0005 in. (0.0127 mm)	0.0022 in. (0.0559 mm)
	OD	0.6230 in. (15.8242 mm)	0.6240 in. (15.8496 mm)		
Dimension and wear limit [J]	ID	0.8745 in. (22.2123 mm)	0.8753 in. (22.2326 mm)	0.0005 in. (0.0127 mm)	0.0018 in. (0.0457 mm)
	OD	0.8735 in. (22.1869 mm)	0.8740 in. (22.1996 mm)		
Dimension and wear limit [K]	ID	0.6245 in. (15.8623 mm)	0.6250 in. (15.8750 mm)	0.0005 in. (0.0127 mm)	0.0020 in. (0.0508 mm)
	OD	0.6230 in. (15.8242 mm)	0.6240 in. (15.8496 mm)		
Dimension and wear limit [L]	ID	0.4375 in. (11.1125 mm)	0.4382 in. (11.1303 mm)	0.0005 in. (0.0127 mm)	0.0022 in. (0.0559 mm)
	OD	0.4360 in. (11.0744 mm)	0.4370 in. (11.0998 mm)		
Dimension and wear limit [M]	ID	0.6245 in. (15.8623 mm)	0.6252 in. (15.8801 mm)	0.0005 in. (0.0127 mm)	0.0017 in. (0.0432 mm)
	OD	0.6235 in. (15.8369 mm)	0.6240 in. (15.8496 mm)		
Dimension and wear limit [N]	ID	0.4375 in. (11.1125 mm)	0.4380 in. (11.1252 mm)	0.0005 in. (0.0127 mm)	0.0020 in. (0.0508 mm)
	OD	0.4360 in. (11.0744 mm)	0.4370 in. (11.0998 mm)		
Dimension and wear limit [P]	ID	0.5000 in. (12.7000 mm)	0.5005 in. (12.7127 mm)	0.0005 in. (0.0127 mm)	0.0022 in. (0.0559 mm)
	OD	0.4985 in. (12.6619 mm)	0.4995 in. (12.6873 mm)		
Dimension and wear limit [Q]	ID	0.3125 in. (7.9375 mm)	0.3140 in. (7.9756 mm)	0.0005 in. (0.0127 mm)	0.0017 in. (0.0432 mm)
	OD	0.3110 in. (7.8994 mm)	0.3120 in. (7.9248 mm)		
Dimension and wear limit [R]	ID	0.5000 in. (12.7000 mm)	0.5005 in. (12.7127 mm)	0.0005 in. (0.0127 mm)	0.0020 in. (0.0508 mm)
	OD	0.4985 in. (12.6619 mm)	0.4995 in. (12.6873 mm)		

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Table 601/27-81-43-993-801 FITS AND CLEARANCES (Continued)

Dimension and wear limit [S]	ID	0.3125 in. (7.9375 mm)	0.3140 in. (7.9756 mm)	0.0005 in. (0.0127 mm)	0.030 in. (0.762 mm)
	OD	0.3110 in. (7.8994 mm)	0.3120 in. (7.9248 mm)		
Dimension and wear limit [T]	ID	0.7500 in. (19.0500 mm)	0.7515 in. (19.0881 mm)	0.0005 in. (0.0127 mm)	0.030 in. (0.762 mm)
	OD	0.7485 in. (19.0119 mm)	0.7490 in. (19.0246 mm)		

SUBTASK 27-81-43-820-002

(5) Table 602 for Figure 601 shows service wear limit of main track.

Table 602/27-81-43-993-802 FITS AND CLEARANCES

Ref letter	Mating item	Service wear limit		
		Dimension		Maximum clearance
		MIN	MAX	
Dimension and wear limit [A]	ID		0.5057 in. (12.8448 mm)	0.005 in. (0.127 mm)
	OD	0.4935 in. (12.5349 mm)		
Dimension and wear limit [B]	ID		0.6927 in. (17.5946 mm)	0.005 in. (0.127 mm)
	OD	0.6810 in. (17.2974 mm)		
Dimension and wear limit [C]	ID		0.5055 in. (12.8397 mm)	0.005 in. (0.127 mm)
	OD	0.4935 in. (12.5349 mm)		
Dimension and wear limit [D]	ID		0.6302 in. (16.0071 mm)	0.005 in. (0.127 mm)
	OD	0.6180 in. (15.6972 mm)		
Dimension and wear limit [E]	ID		0.8803 in. (22.3596 mm)	0.005 in. (0.127 mm)
	OD	0.8685 in. (22.0599 mm)		
Dimension and wear limit [F]	ID		0.6302 in. (16.0071 mm)	0.005 in. (0.127 mm)
	OD	0.6180 in. (15.6972 mm)		
Dimension and wear limit [G]	ID		0.3815 in. (9.6901 mm)	0.005 in. (0.127 mm)
	OD	0.3685 in. (9.3599 mm)		
Dimension and wear limit [H]	ID		0.7565 in. (19.2151 mm)	0.005 in. (0.127 mm)
	OD	0.7435 in. (18.8849 mm)		
Dimension and wear limit [I]	ID		0.6302 in. (16.0071 mm)	0.005 in. (0.127 mm)
	OD	0.6180 in. (15.6972 mm)		
Dimension and wear limit [J]	ID		0.8803 in. (22.3596 mm)	0.005 in. (0.127 mm)
	OD	0.8685 in. (22.0599 mm)		
Dimension and wear limit [K]	ID		0.7565 in. (19.2151 mm)	0.005 in. (0.127 mm)
	OD	0.7435 in. (18.8849 mm)		

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Table 602/27-81-43-993-802 FITS AND CLEARANCES (Continued)

Dimension and wear limit [L]	ID		0.4432 in. (11.2573 mm)	0.005 in. (0.127 mm)
	OD	0.4310 in. (10.9474 mm)		
Dimension and wear limit [M]	ID		0.6302 in. (16.0071 mm)	0.005 in. (0.127 mm)
	OD	0.6180 in. (15.6972 mm)		
Dimension and wear limit [N]	ID		0.4430 in. (11.2522 mm)	0.005 in. (0.127 mm)
	OD	0.4310 in. (10.9474 mm)		
Dimension and wear limit [P]	ID		0.5057 in. (12.8448 mm)	0.005 in. (0.127 mm)
	OD	0.4935 in. (12.5349 mm)		
Dimension and wear limit [Q]	ID		0.6927 in. (17.5946 mm)	0.005 in. (0.127 mm)
	OD	0.6810 in. (17.2974 mm)		
Dimension and wear limit [R]	ID		0.5057 in. (12.8448 mm)	0.005 in. (0.127 mm)
	OD	0.4935 in. (12.5349 mm)		
Dimension and wear limit [S]	ID		0.3190 in. (8.1026 mm)	0.005 in. (0.127 mm)
	OD	0.3060 in. (7.7724 mm)		
Dimension and wear limit [T]	ID		0.7565 in. (19.2151 mm)	0.005 in. (0.127 mm)
	OD	0.7435 in. (18.8849 mm)		

SUBTASK 27-81-43-200-007

(6) Repair the slat main track per the applicable component maintenance manual, to make sure that there is a smooth transition in the flat spot areas.

SUBTASK 27-81-43-250-001

(7) Make sure a high frequency eddy current inspection for cracks on the slat main track is completed. To do the inspection, use NDT Part 6, 51-00-04, #2 or NDT Part 6, 51-00-04, #1..

(a) If you find cracks in the slat main track, replace it per these procedures: INBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION, PAGEBLOCK 27-81-42/401 or OUTBOARD SLAT MAIN TRACK - REMOVAL/INSTALLATION, PAGEBLOCK 27-81-43/401.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-43-200-004

WARNING DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-43-410-004

(2) Install the fixed leading edge panels, do this task: Finding an Access Door or Panel on the Wings, Finding an Access Door or Panel on the Wings, TASK 06-44-00-800-802.

(a) Install the access panels you removed in the SUBTASK 27-81-43-010-005 above.

SUBTASK 27-81-43-440-003

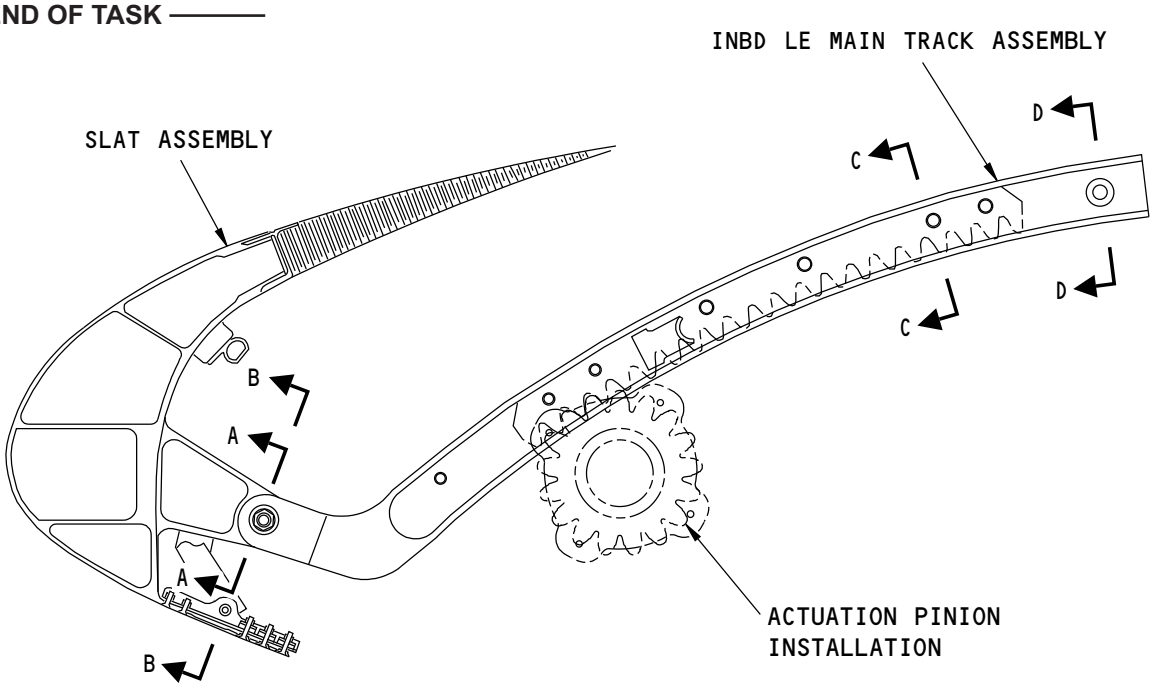
(3) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-43-860-005

(4) Retract the leading edge slats. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

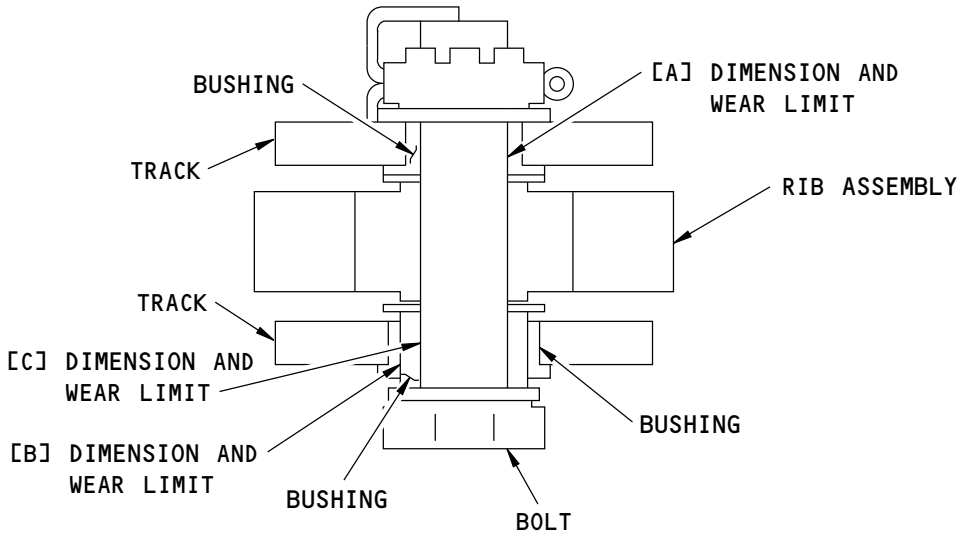
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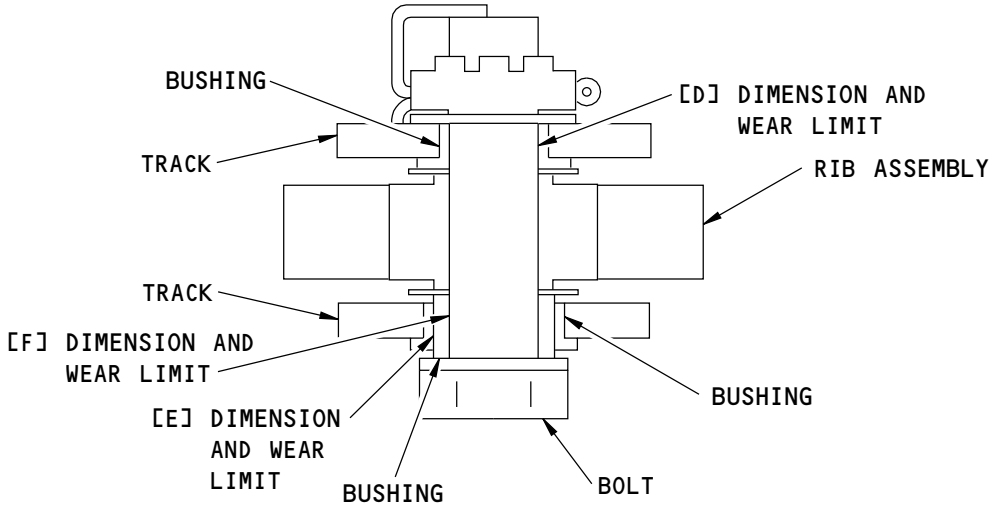
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FITS AND CLEARANCES
Figure 601/27-81-43-990-803 (Sheet 1 of 7)

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(ROTATED)
A-A

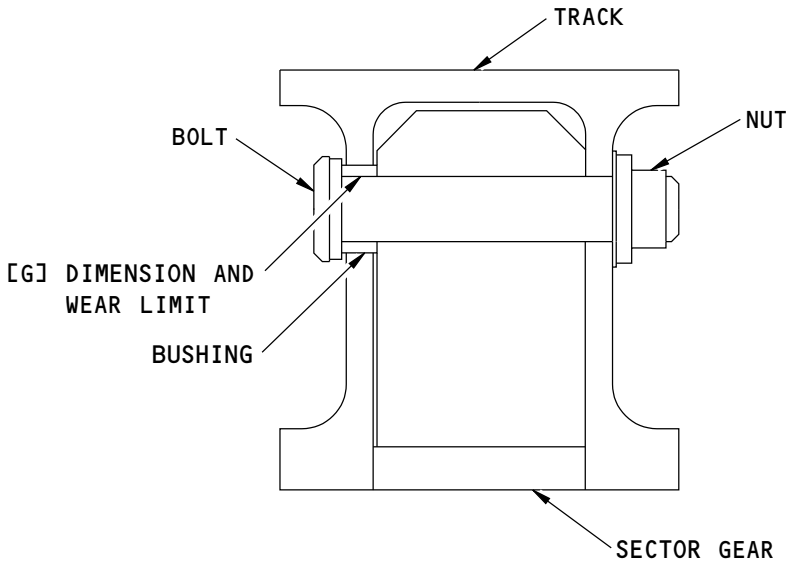


(ROTATED)
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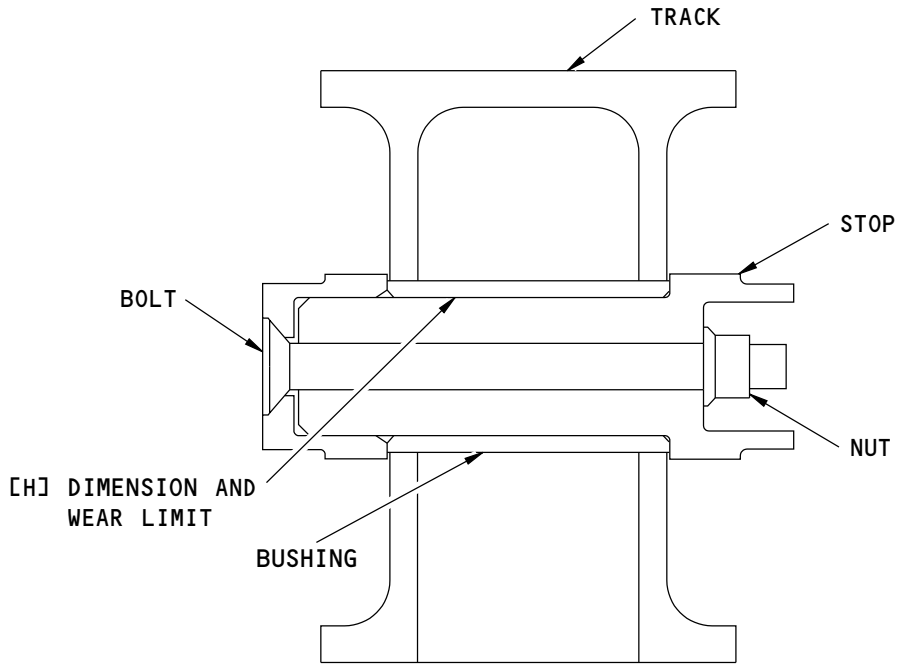
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FITS AND CLEARANCES
Figure 601/27-81-43-990-803 (Sheet 2 of 7)

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C–C

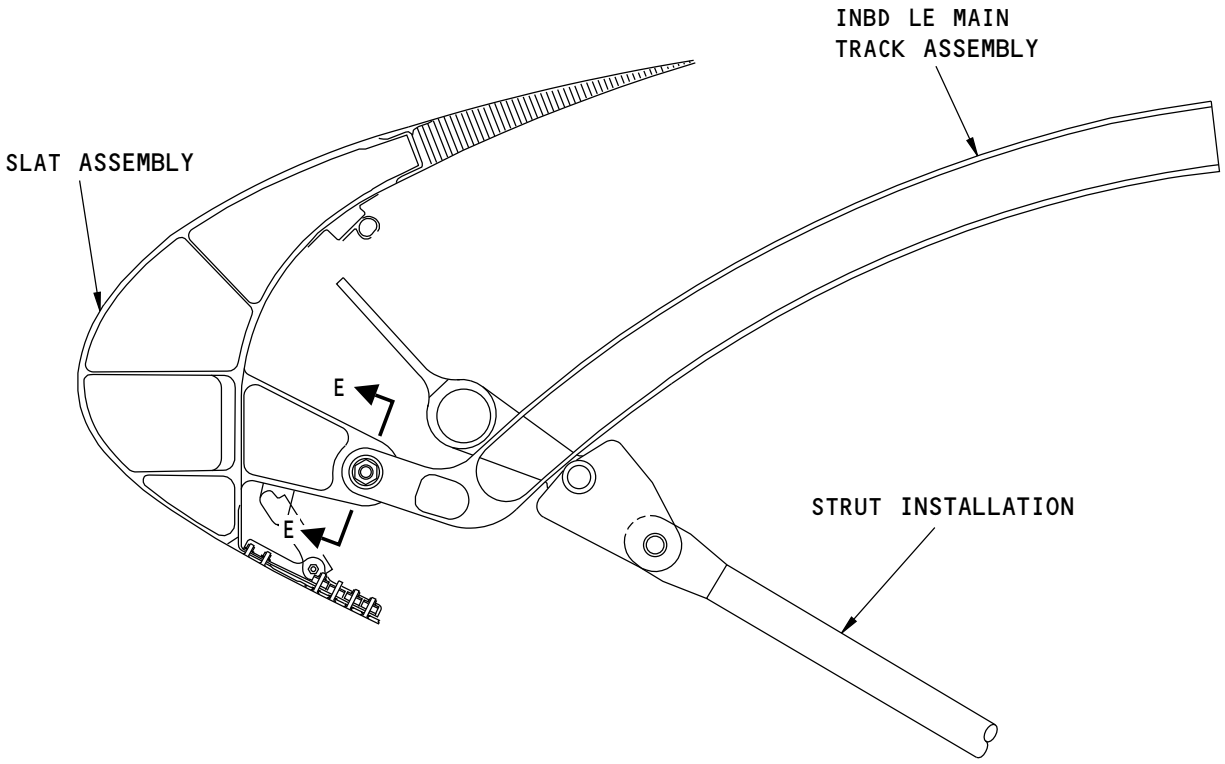


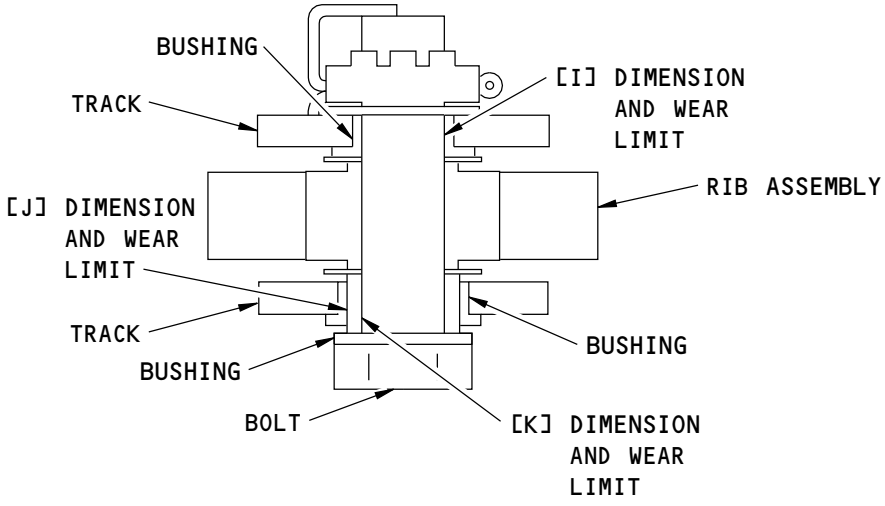
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FITS AND CLEARANCES
Figure 601/27-81-43-990-803 (Sheet 3 of 7)

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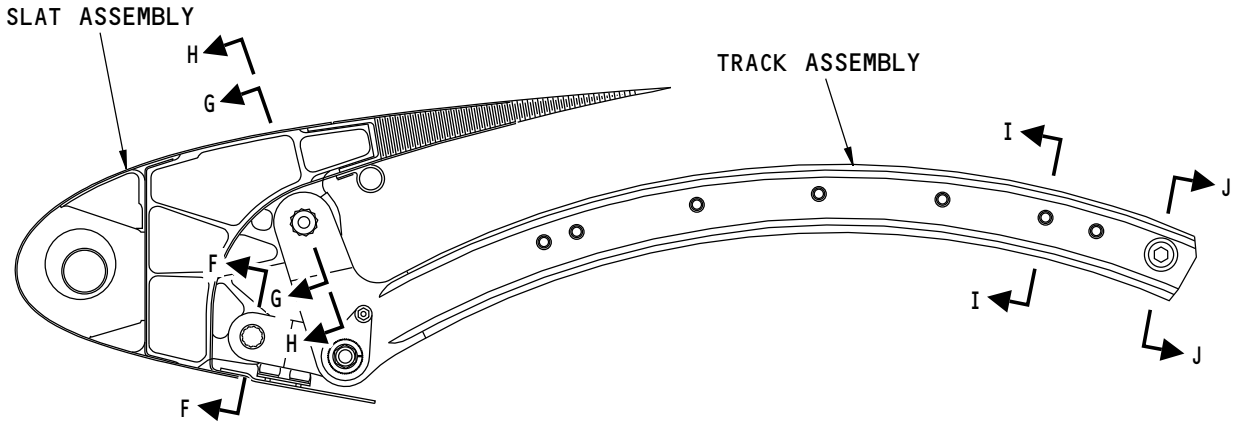


(ROTATED)
E-E

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FITS AND CLEARANCES
Figure 601/27-81-43-990-803 (Sheet 4 of 7)

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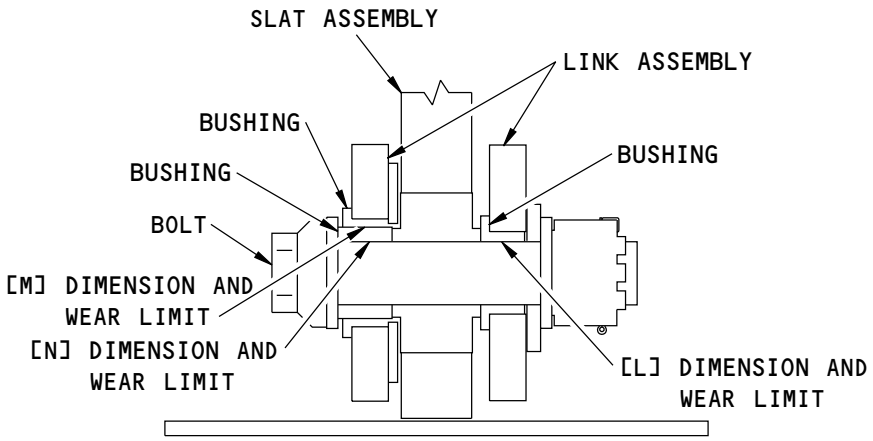


TRACK ASSEMBLY

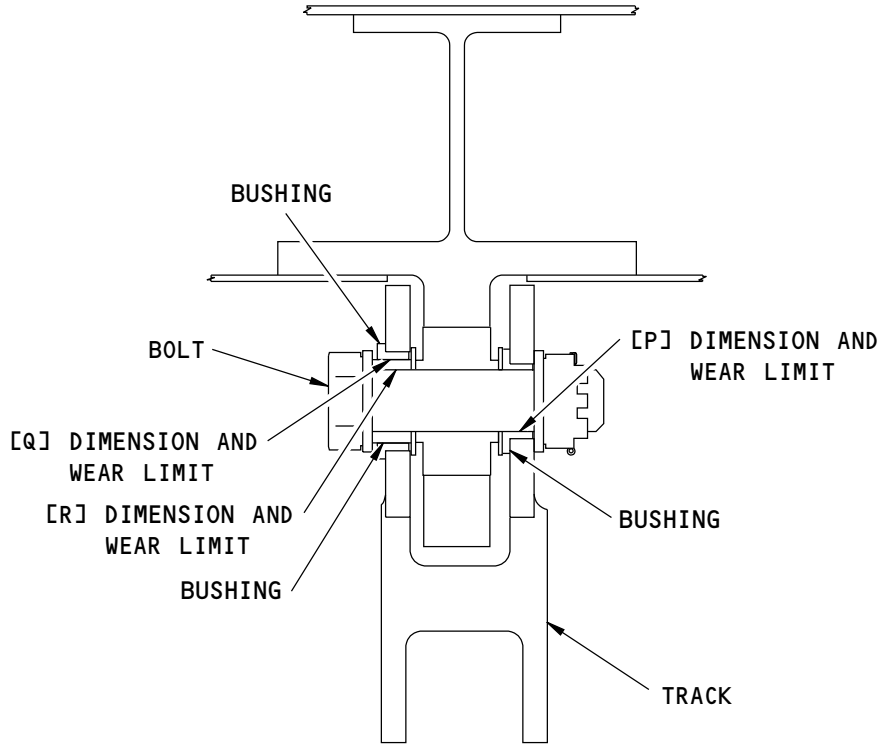
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FITS AND CLEARANCES
Figure 601/27-81-43-990-803 (Sheet 5 of 7)

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F–F

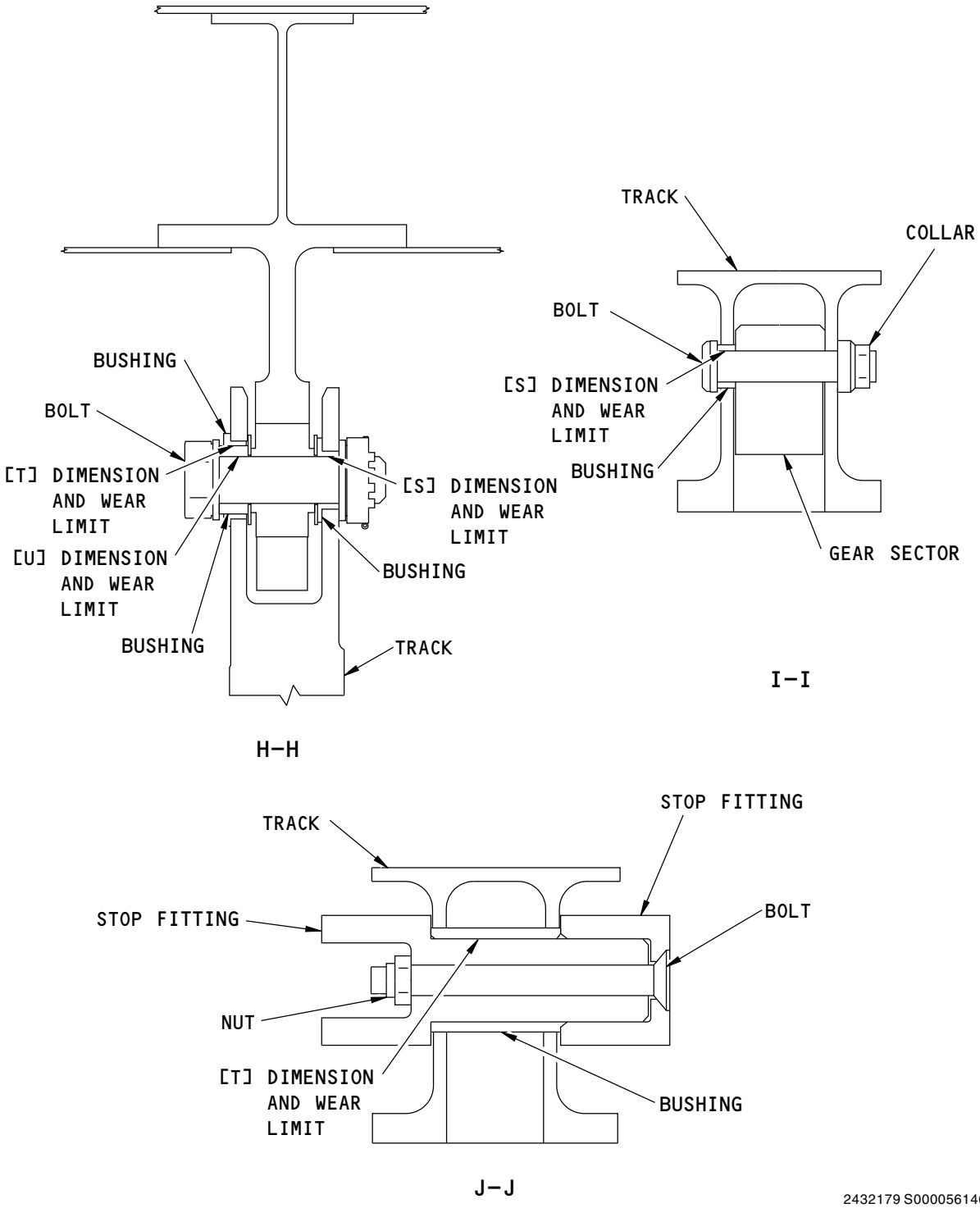


G–G

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FITS AND CLEARANCES
Figure 601/27-81-43-990-803 (Sheet 6 of 7)

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FITS AND CLEARANCES
Figure 601/27-81-43-990-803 (Sheet 7 of 7)

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INBOARD LEADING EDGE SLAT AUXILIARY TRACK - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the auxiliary tracks for the inboard leading edge slat.

(2) An installation of the auxiliary tracks for the inboard leading edge slat.

B. These procedures apply to the three auxiliary tracks on the inboard slats.

TASK 27-81-46-000-801

2. Inboard Leading Edge Slat Auxiliary Track Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

C. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

D. Prepare for the Removal

SUBTASK 27-81-46-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

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SUBTASK 27-81-46-860-002

(2) Extend the leading edge slat system to the gapped position to get access to the auxiliary tracks. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-46-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-46-010-001

(4) Remove the applicable fixed leading edge panels from the lower surface of the wing:

(a) For slat No. 7, remove these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, remove these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

E. Inboard Slat Auxiliary Track Removal

SUBTASK 27-81-46-020-001

(1) Disconnect the applicable auxiliary arm [2], [3] or [4] from the track assembly [5], track assembly [6] or track assembly [7]:

(a) Remove the nut [11], washer [9], washer [10] and bolt assembly [8] that attach the auxiliary arm roller [13] to the applicable auxiliary arms [2], [3] or [4].

(b) Remove the auxiliary arm roller [13] from the track assembly [5], track assembly [6] or track assembly [7].

SUBTASK 27-81-46-020-002

(2) Remove the outboard track assembly [5]:

(a) Remove the nut [17], washer [16], washer [25] and bolt [24] that attach the track assembly [5] to the clevis assembly [15].

(b) Remove the bushing [14] from the clevis assembly [15].

(c) Remove the nut [53], washer [50], washer [52] and bolt [49] that attach the track assembly [5] to the hanger link [46].

(d) Remove the bushing [51] from the hanger link [46].

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(e) Remove the outboard track assembly [5].

SUBTASK 27-81-46-020-003

(3) Remove the center track assembly [6]:

(a) Remove the nut [31], washer [32], washer [35] and bolt [36] that attach the track assembly [6] to the clevis assembly [34].

(b) Remove the bushing [33] from the clevis assembly [34].

(c) Remove the nut [53], washer [50], washer [52] and bolt [49] that attach the track assembly [6] to the hanger link [46].

(d) Remove the bushing [51] from the hanger link [46].

(e) Remove the center track assembly [6].

SUBTASK 27-81-46-020-004

(4) Remove the inboard track assembly [7]:

(a) Remove the nut [40], washer [41], washer [43] and bolt [44] that attach the track assembly [7] to the clevis assembly [34].

(b) Remove the bushing [42] from the clevis assembly [34].

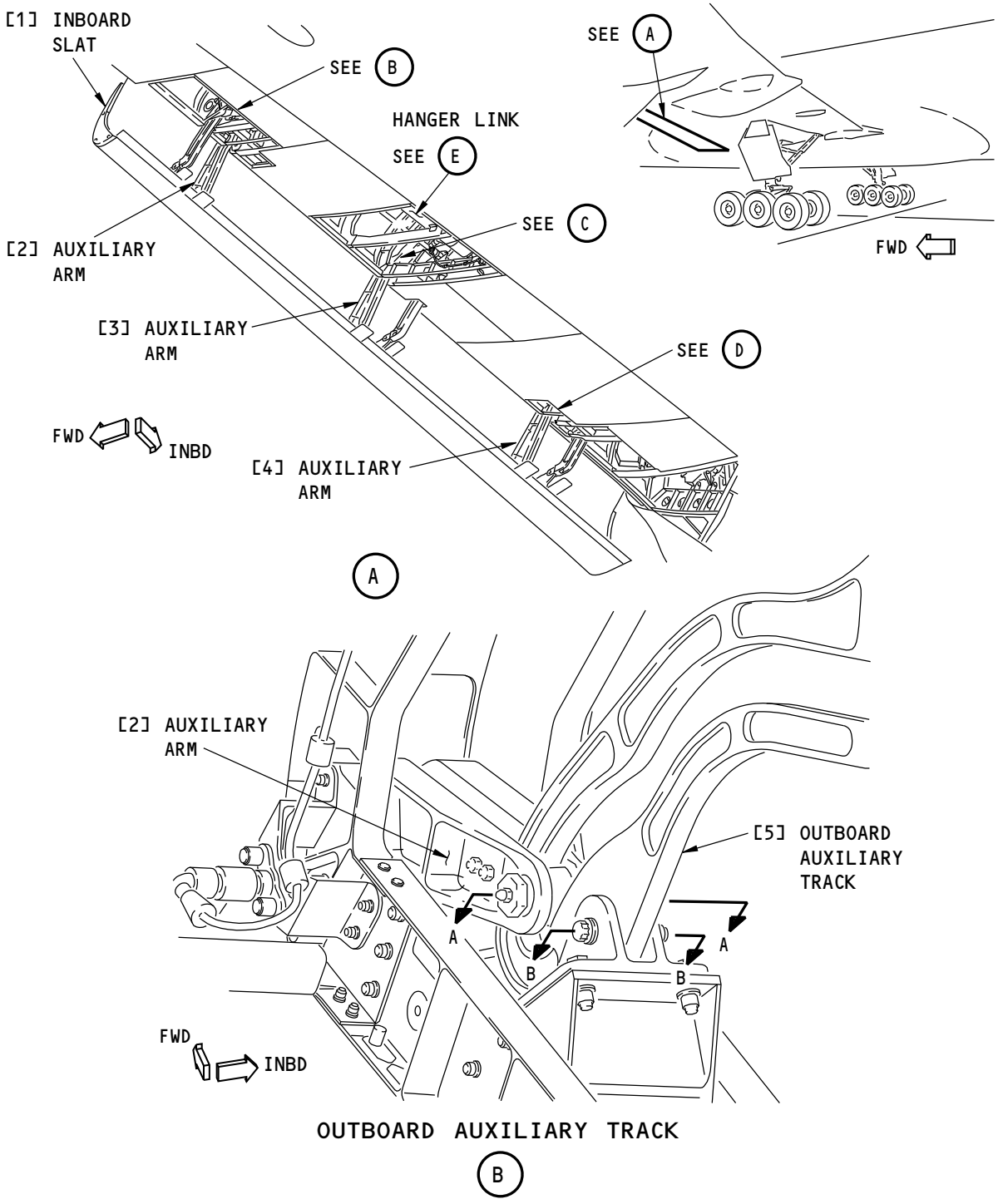
(c) Remove the nut [53], washer [50], washer [52] and bolt [49] that attach the track assembly [7] to the hanger link [46].

(d) Remove the bushing [51] from the hanger link [46].

(e) Remove the inboard track assembly [7].

——— END OF TASK ———

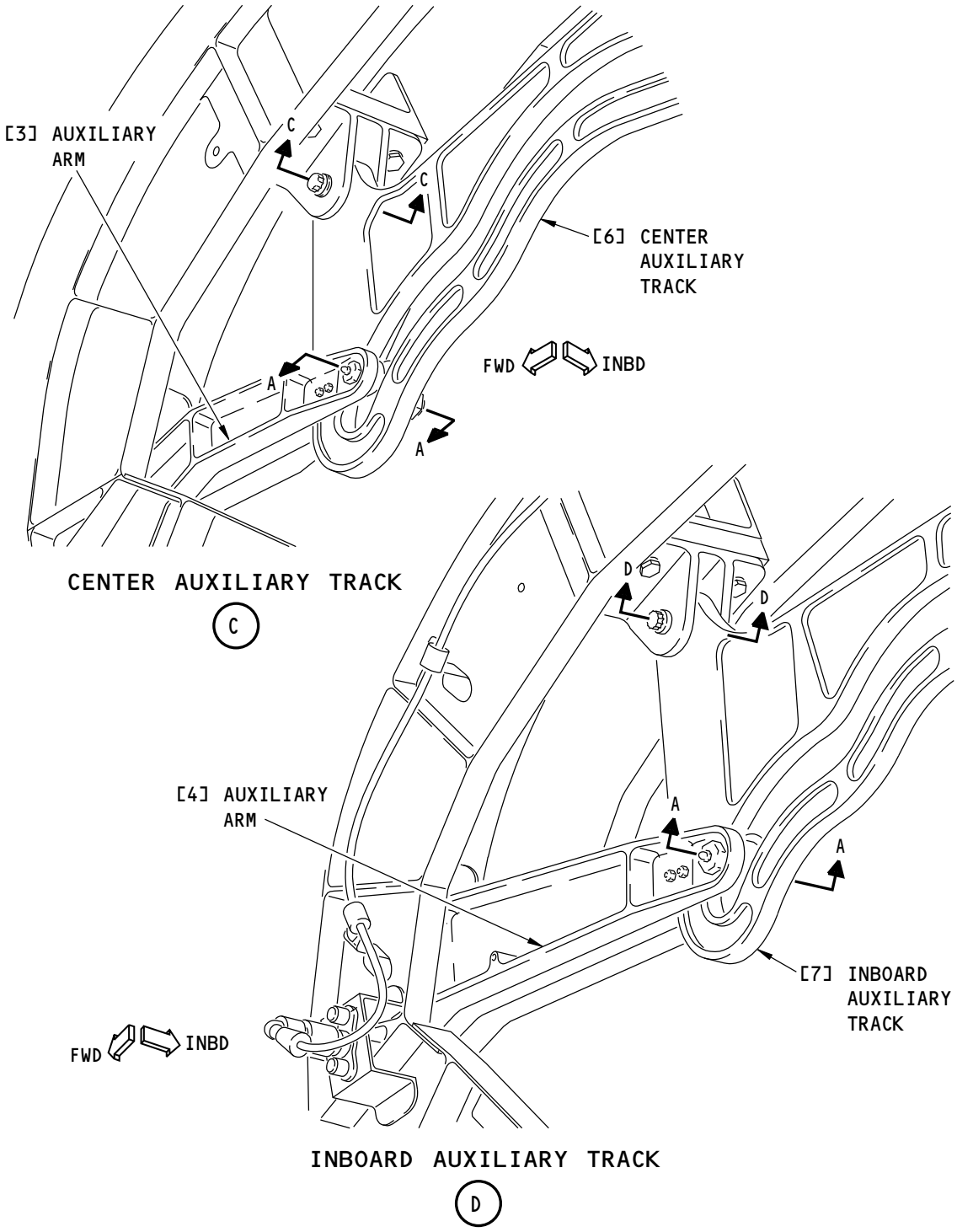
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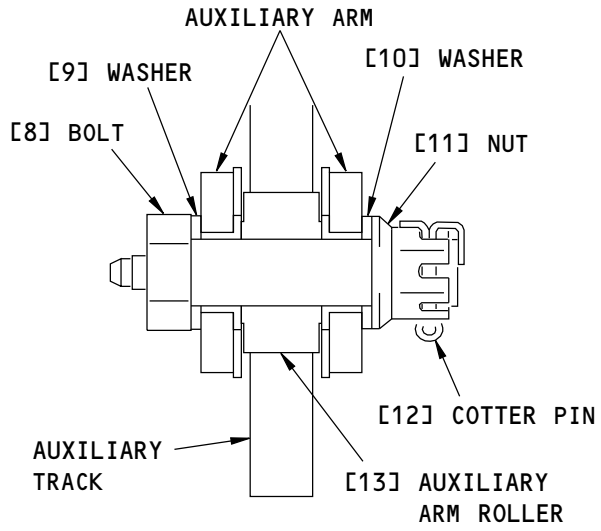
Inboard Slat Auxiliary Track Installation
Figure 401/27-81-46-990-801 (Sheet 1 of 5)

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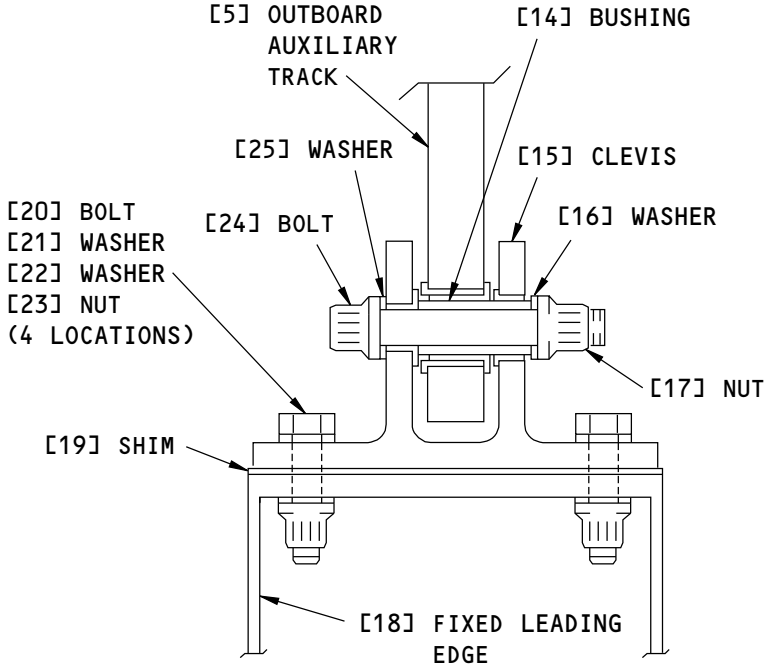


Inboard Slat Auxiliary Track Installation
Figure 401/27-81-46-990-801 (Sheet 2 of 5)

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A–A

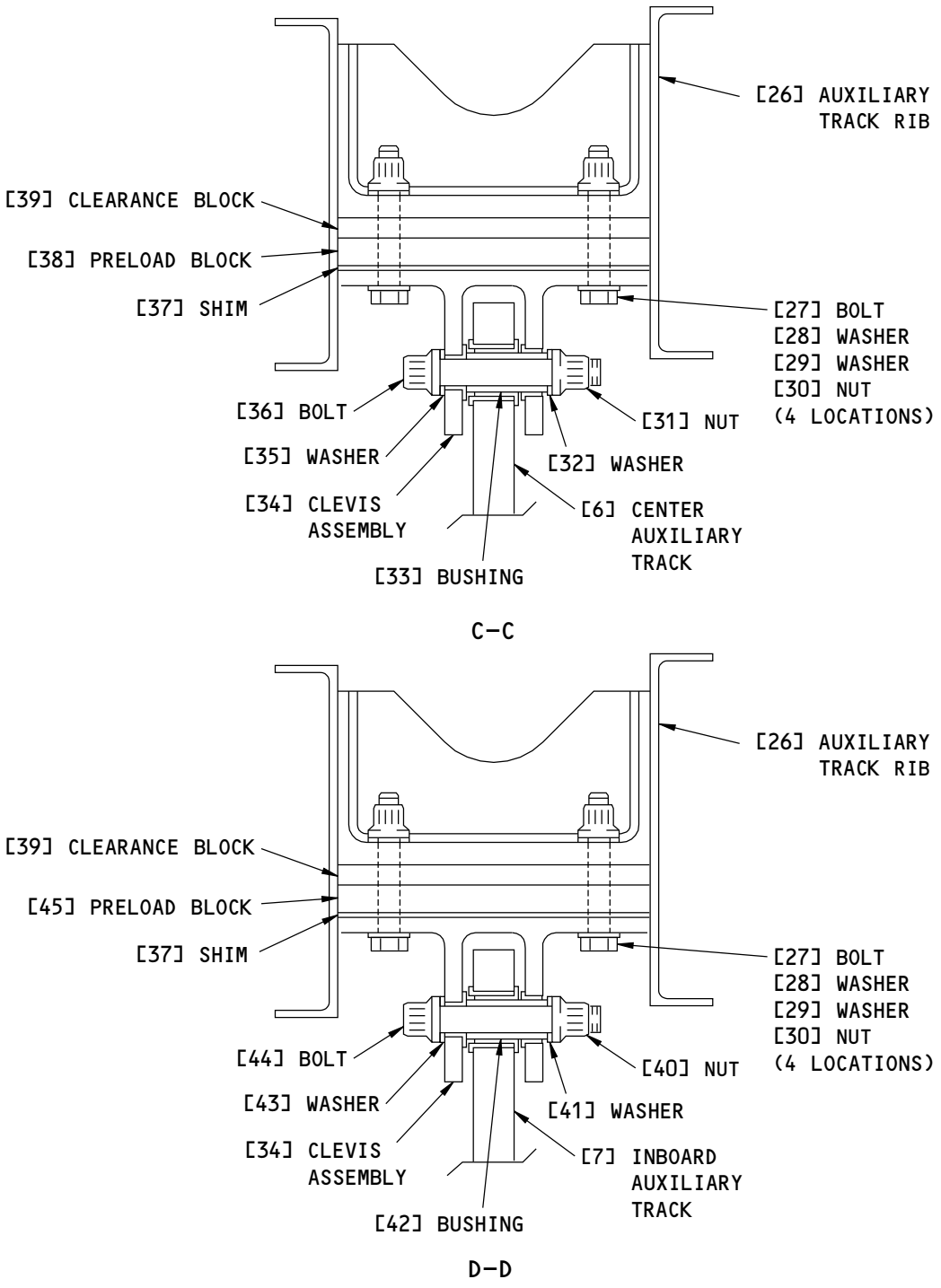


B–B

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Inboard Slat Auxiliary Track Installation
Figure 401/27-81-46-990-801 (Sheet 3 of 5)

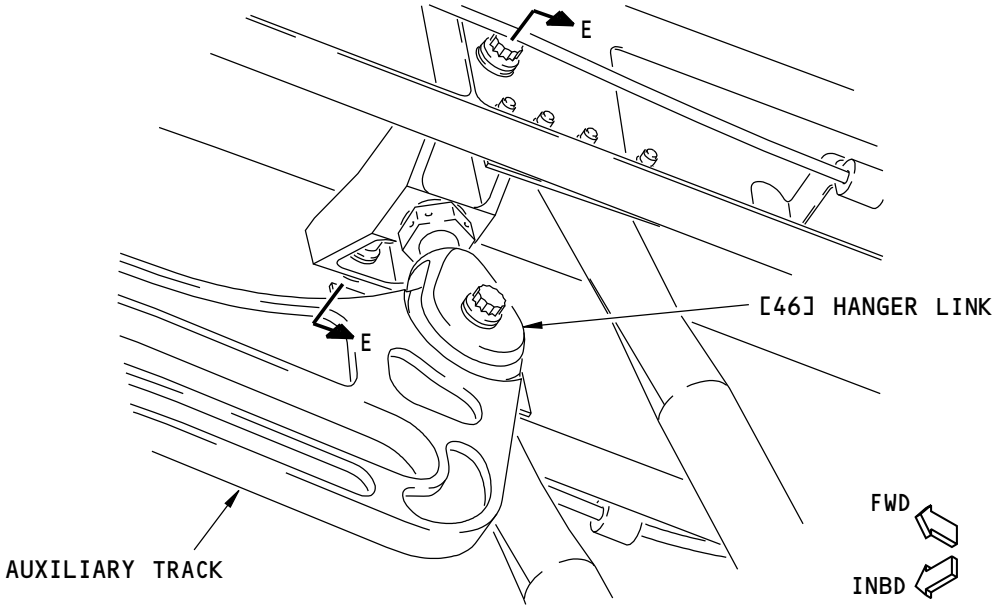
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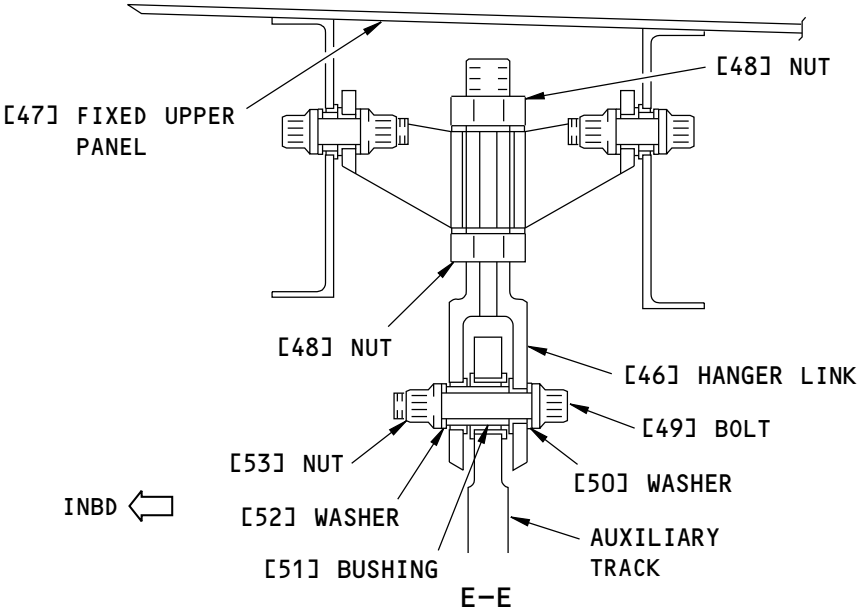
Inboard Slat Auxiliary Track Installation
Figure 401/27-81-46-990-801 (Sheet 4 of 5)

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HANGER LINK
(CENTER HANGER LINK IS SHOWN, INBOARD
AND OUTBOARD HANGER LINKS ARE EQUIVALENT)

E



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Inboard Slat Auxiliary Track Installation
Figure 401/27-81-46-990-801 (Sheet 5 of 5)

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TASK 27-81-46-400-801

3. Inboard Leading Edge Slat Auxiliary Track Installation

A. General

(1) It will be necessary to do the preload adjustment of the inboard slat after you install an auxiliary track.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
D50004	Compound - Antiseize	BMS3-28
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Track assembly	57-41-05-04-075	ARO ALL
6	Track assembly	57-41-05-04-150	ARO ALL
7	Track assembly	57-41-05-04-225	ARO ALL
12	Pin	27-81-10-02-085	ARO ALL
13	Auxiliary arm roller	57-43-10-04A-450	ARO ALL
15	Clevis assembly	57-22-10-25A-095	ARO 005-015
		57-22-10-28E-110	ARO 001-004
77	Packing	27-81-38-02-015	ARO ALL

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F. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

G. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
521ADB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

H. Inboard Slat Auxiliary Track Installation

SUBTASK 27-81-46-820-001

(1) Change the position of the clevis assembly [15] and clevis assemblies [34] for the track assembly [5], track assembly [6] or track assembly [7] (Figure 401):

NOTE: If you do not change the position of all of the tracks, the slat will be preloaded against the fixed leading edge when you retract it.

(a) Install the spacer block and the preload block tools, which are part of the leading edge slat installation rigging equipment, SPL-1721, at the forward fitting for the outboard track assembly [5]:

1) Remove the nuts [23], washers [21], washers [22] and bolts [20] that attach the clevis assembly [15] to the fixed leading edge [18].

2) Put the spacer block and the preload block tools between the fixed leading edge [18] and the clevis assembly [15].

3) Install the bolts in the position of bolts [20] with washers and nuts to attach the clevis assembly [15] to the fixed leading edge [18] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block and spacer block tools installed.

(b) Remove the clearance blocks [39] and the preload block [38] and preload block [45] from the forward fittings for the center track assembly [6] and inboard track assembly [7]:

1) Remove the nuts [30], washers [28], washers [29] and bolts [27] that attach the clevis assemblies [34] to the auxiliary track ribs [26].

2) Remove the clearance blocks [39] and the preload block [38] and preload block [45] from the auxiliary track ribs [26].

NOTE: Do not remove the shims [37] from the clevis assemblies [34]. The preload block [38] and preload block [45] are thicker than the clearance blocks [39].

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3) Install the bolts in the position of bolts [27] with washers and nuts to attach the clevis assemblies [34] to the auxiliary track ribs [26] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload blocks and clearance blocks removed.

Table 401/27-81-46-993-804 Approximate Bolt Length During Track Adjustment

Condition	Outboard Bolt [20]	Center Bolt [27]	Inboard Bolt {27]
Preload Block and Spacer Block Tools Installed	23/16 inch		
Preload Block Tool Installed	18/16 inch		
Preload Block and Clearance Block Removed		12/16 inch	13/16 inch
Clearance Block Removed and Preload Block Installed		17/16 inch	20/16 inch

SUBTASK 27-81-46-820-002

(2) Adjust the clearance between the hanger links [46] for all of the track assembly [5], track assembly [6] or track assembly [7] and the fixed upper panel [47]:

NOTE: This will move the tracks to a preliminary position.

(a) Loosen the nuts [48] on the hanger links [46].

(b) Turn the nuts [48] on the hanger link [46] for the inboard track assembly [7] until the clearance between the hanger link [46] and the fixed upper panel [47] is 0.30 inch.

(c) Turn the nuts [48] on the hanger link [46] for the center track assembly [6] until the clearance between the hanger link [46] and the fixed upper panel [47] is 0.19 inch.

(d) Turn the nuts [48] on the hanger link [46] for the outboard track assembly [5] until the clearance between the hanger link [46] and the fixed upper panel [47] is 0.45 inch.

(e) Tighten the nuts [48] on the hanger links [46].

1) Apply compound, D50004 to the threads to prevent thread galling.

SUBTASK 27-81-46-420-001

(3) Install the outboard track assembly [5]:

(a) Put the track assembly [5] in its position on the hanger link [46] and the hanger link [46].

(b) Install the bushing [51] in the hanger link [46].

(c) Install the bolt [49], washer [50], washer [52] and nut [53] that attach the track assembly [5] to the hanger link [46].

(d) Install the bushing [14] in the clevis assembly [15].

(e) Install the bolt [24], washer [25], washer [16] and nut [17] that attach the track assembly [5] to the clevis assembly [15].

(f) Tighten the nut [17] and nut [53] to 220-410 pound-inches.

SUBTASK 27-81-46-420-002

(4) Install the center track assembly [6]:

(a) Put the track assembly [6] in its position on the hanger link [46] and the clevis assembly [34].

(b) Install the bushing [51] in the hanger link [46].

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(c) Install the bolt [49], washer [50], washer [52] and nut [53] that attach the track assembly [6] to the hanger link [46].

(d) Install the bushing [33] in the clevis assembly [34].

(e) Install the bolt [36], washer [32], washer [35] and nut [31] that attach the track assembly [6] to the clevis assembly [34].

(f) Tighten the nut [31] and nut [53] to 220-410 pound-inches.

SUBTASK 27-81-46-420-003

(5) Install the inboard track assembly [7]:

(a) Put the track assembly [7] in its position on the hanger link [46] and the clevis assembly [34].

(b) Install the bushing [51] in the hanger link [46].

(c) Install the bolt [49], washer [50], washer [52] and nut [53] that attach the track assembly [7] to the hanger link [46].

(d) Install the bushing [42] in the clevis assembly [34].

(e) Install the bolt [44], washer [41], washer [43] and nut [40] that attach the track assembly [7]] to the clevis assembly [34].

(f) Tighten the nut [40] and nut [53] to 220-410 pound-inches.

SUBTASK 27-81-46-420-004

(6) Connect the applicable auxiliary arm [2], [3] or [4] to the track assembly [5], track assembly [6] or track assembly [7]:

(a) Put the auxiliary arm roller [13] in its location on the track assembly [5], track assembly [6] or track assembly [7] between the auxiliary arms [2], [3] or [4].

(b) Install the bolt assembly [8], washer [9], washer [10] and nut [11] that attach the auxiliary arm roller [13] to the auxiliary arm [2], [3] or [4].

(c) Tighten the nut [11] to 500-760 pound-inches.

(d) Install the pin [12].

I. Inboard Slat Auxiliary Track Adjustment

SUBTASK 27-81-46-480-001

(1) Install the rig pins, which are part of the leading edge slat installation rigging equipment, SPL-1721, in the rig pin holes for the inboard and outboard main tracks (Figure 402).

NOTE: You will not be able to install the rig pins after the slats are retracted. There will not be sufficient clearance between with the main tracks.

SUBTASK 27-81-46-860-001

(2) Retract the slat to the retracted position:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

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(d) Push in the rig pin [83] and install the ground lockpin [84] in the Power Drive Unit (PDU) [82].

NOTE: This will make sure the slat drive system is in the retracted position. When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [83].

(e) If you cannot push in the rig pin [83], then adjust the position of the slat power drive unit (PDU) [82]:

1) Use the wrench flats on the torque tube to manually turn the PDU [82] in the extend direction approximately one turn of the torque tube.

NOTE: This step is necessary to remove the backlash in the slat drive system.

2) Manually turn the PDU [82] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

3) Push in the rig pin [83] on the PDU [82] and hold it.

4) Install the ground lockpin [84] in the rig pin [83].

5) Make sure the PDU [82] is locked in this position:

NOTE: If the PDU [82] is not locked in this position, move the PDU [82] to the retracted position again.

a) Manually try to turn the PDU [82] in the retract direction.

b) Manually try to turn the PDU [82] in the extend direction.

(f) If the inboard and outboard main tracks do not touch the rig pins, retract the main track that does not touch the rig pin:

1) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube outboard of the offset gearbox.

2) Disconnect the torque tubes [76] from the offset gearbox [71] for the main track that does not touch the rig pin:

a) For the inboard offset gearbox, remove the bolts [81], washers [80] and plate [79] that hold the seal tube [78].

b) Move the seal tube [78] inboard to get access to the inboard coupling.

c) Remove the screws [75] from the coupling sleeves [74].

d) Move the coupling sleeves [74] off the splined couplings [73].

3) Carefully turn the coupling sleeve [74] on the offset gearbox [71] to retract the main track until it touches the rig pin.

4) Connect the torque tubes [76] to the offset gearbox [71]:

a) Apply grease, D00633 to the coupling sleeve [74].

b) Move the coupling sleeve [74] on the splined coupling [73].

c) Install the screws [75].

d) Tighten the screws [75].

NOTE: Do not over tighten the screws [75].

e) Install lockwire on the screws [75].

f) For the inboard offset gearbox, if it is necessary, install a new packing [77] on the seal tube [78].

g) For the inboard offset gearbox, apply grease, D00013 to the packing [77] on the seal tube [78].

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h) Move the seal tube [78] outboard on the inboard offset gearbox [71].

i) Install the plate [79], washers [80] and bolts [81] that hold the seal tube [78].

5) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube.

(g) Remove the ground lockpin [84] and make sure the rig pin [83] comes out of the PDU [82].

1) Make sure you can see the stripe on the rig pin [83].

SUBTASK 27-81-46-820-003

(3) Remove the spacer block tool from the clevis assembly [15] for the outboard track assembly [5] (Figure 401):

(a) Remove the nuts, washers and bolts that attach the clevis assembly [15] to the fixed leading edge [18].

(b) Remove the spacer block tool from the fixed leading edge [18] and the clevis assembly [15].

NOTE: Do not remove the preload block tool at this time.

(c) Install the bolts in the position of bolts [20] with washers and nuts to attach the clevis assembly [15] to the fixed leading edge [18] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block tool installed.

SUBTASK 27-81-46-820-004

(4) Install the clearance blocks [39] on the forward fittings for the center track assembly [6] and the inboard track assembly [7]:

NOTE: The preload block [38] and preload block [45] are thicker than the clearance blocks [39].

(a) Remove the nuts, washers and bolts that attach the clearance blocks [39] to the auxiliary track ribs [26].

(b) Install the clearance blocks [39] on the auxiliary track ribs [26].

NOTE: Do not install the preload block [38] and preload block [45] at this time.

(c) Install the bolts in the position of bolts [27] with washers and nuts to attach the clevis assemblies [34] to the auxiliary track ribs [26] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block tool installed.

SUBTASK 27-81-46-220-001

(5) Measure the clearance between the trailing edge of the slat and the fixed upper panel aft of the auxiliary tracks (View C-C) (Figure 403):

NOTE: Measure the clearance at the highest point on the fixed upper panel in the limit of 3.0 inches of the center of the auxiliary tracks.

SUBTASK 27-81-46-820-005

(6) If the clearance is not in the limit of 0.0010 to 0.0400 inch, adjust the hanger link [46] for the applicable track assembly [5], track assembly [6] or track assembly [7] (Figure 401):

NOTE: This will change the clearance between the hanger link [46] and the fixed upper panel from the preliminary position.

(a) Loosen the nuts [48] on the hanger link [46].

(b) Turn the nuts [48] on the hanger link [46] until the clearance is in the limit.

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(c) Tighten the nuts [48] on the hanger link [46].

SUBTASK 27-81-46-440-001

(7) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-46-860-003

(8) Extend the leading edge slat system to the sealed position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-46-040-003

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-46-080-001

(10) Remove the rig pins from the inboard and outboard main tracks (Figure 402).

SUBTASK 27-81-46-220-002

(11) Measure the clearance between the trailing edge of the slat and the fixed upper panel aft of the auxiliary tracks (View C-C) (Figure 403):

NOTE: Measure the clearance at the highest point on the fixed upper panel in the limit of 3.0 inches of the center of the auxiliary tracks.

SUBTASK 27-81-46-820-006

(12) If the clearance is not in the limit of 0.0010 to 0.0400 inch at the outboard track assembly [5], adjust the shim [19] (Figure 401):

(a) Remove the nuts, washers and bolts that attach the clevis assembly [15] to the fixed leading edge [18].

(b) Change the thickness of the shim [19] between the clevis assembly [15] and the fixed leading edge [18].

NOTE: Do not remove the preload block tool at this time.

(c) Install the bolts, washers and nuts that attach the clevis assembly [15] and shim [19] to the fixed leading edge [18].

SUBTASK 27-81-46-820-007

(13) If the clearance is not in the limit of 0.0010 to 0.0400 inch at the center track assembly [6] or the inboard track assembly [7], adjust the applicable shim [37]:

(a) Remove the nuts, washers and bolts that attach the clevis assembly [34] to the auxiliary track rib [26].

(b) Change the thickness of the shim [37] between the clevis assembly [34] and the auxiliary track ribs [26].

NOTE: Do not install the preload block [38] or preload block [45] at this time.

(c) Install the bolts, washers and nuts that attach the clevis assembly [34] and shim [37] to the auxiliary track rib [26].

SUBTASK 27-81-46-440-002

(14) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-46-860-004

(15) Extend the leading edge slat system to the gapped position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-46-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(16) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-46-820-008

(17) Adjust the hanger links [46] for the track assembly [5], track assembly [6] or track assembly [7] to move the auxiliary tracks down the distance shown in (Table 402):

NOTE: This will change the clearance between the hanger link [46] and the fixed upper panel [47].

Table 402/27-81-46-993-805 Hanger Link Adjustment

Auxiliary Track	Distance (Inch)	Turns of Nut [48]
Inboard	0.215 ±0.0200	3.5 to 4.0
Center	0.180 ±0.0200	2.9 to 3.6
Outboard	0.140 ±0.0200	2.2 to 2.9

(a) Turn the top nuts [48] on the hanger links [46] the applicable number of turns.

(b) Tighten the lower nuts [48] on the hanger links [46] to 660-980 pound-inches.

(c) Install lockwire on the nuts [48].

SUBTASK 27-81-46-820-009

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(18) Remove the preload block tool from the clevis assembly [15] for the outboard track assembly [5]:

(a) Remove the nuts, washers and bolts that attach the clevis assembly [15] to the fixed leading edge [18].

(b) Remove the preload block tool from the fixed leading edge [18] and the clevis assembly [15].

(c) Apply a layer of Cor-Ban 27L Compound, G50237 to the clevis assembly [15], shim [19] and fixed leading edge [18].

(d) Apply a layer of Cor-Ban 27L Compound, G50237 to the mating surfaces on the bolts [20], washers [21], washers [22] and nuts [23].

(e) Install the bolts [20], washers [21], washers [22] and nuts [23] to attach the clevis assembly [15] to the fixed leading edge [18].

NOTE: Install the correct fasteners for the final position of the clevis assembly [15].

(f) Tighten the nuts [23] to 90 in-lb (10.2 N·m) - 125 in-lb (14.1 N·m).

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SUBTASK 27-81-46-820-010

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(19) Install the preload block [38] and preload block [45] on the clevis assemblies [34] for the center track assembly [6] and inboard track assembly [7]:

(a) Remove the nuts, washers and bolts that attach the clevis assemblies [34] to the auxiliary track ribs [26].

(b) Apply a layer of Cor-Ban 27L Compound, G50237 to the clevis assemblies [34], shims [37], preload block [38] and preload block [45], clearance blocks [39] and auxiliary track ribs [26].

(c) Install the preload block [38] and preload block [45] on the auxiliary track ribs [26].

(d) Apply a layer of Cor-Ban 27L Compound, G50237 to the mating surfaces of the bolts [27], washers [28], washers [29] and nuts [30].

(e) Install the bolts [27], washers [28], washers [29] and nuts [30] to attach the clevis assemblies [34] to the auxiliary track ribs [26].

NOTE: Install the correct fasteners for the final position of the clevis assemblies [34].

(f) Tighten the nuts [30] to 90 in-lb (10.2 N·m) - 125 in-lb (14.1 N·m).

SUBTASK 27-81-46-440-003

(20) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-46-860-005

(21) Retract the leading edge slats to the sealed position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-46-210-001

(22) Make sure the trailing edge of the slat touches the fixed leading edge.

SUBTASK 27-81-46-860-006

(23) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-46-210-002

(24) Make sure the trailing edge of the slat touches the fixed leading edge.

SUBTASK 27-81-46-040-005

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(25) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-46-220-003

(26) At the inboard and outboard ends of the slat, measure the mismatch between the slat and the fixed structure (View D-D) (Figure 403):

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SUBTASK 27-81-46-820-011

(27) If the mismatch is not in the limit of 0.00 ±0.10 inch, adjust the position of the slat (Figure 402):

NOTE: The maximum permitted adjustment of the inboard slat is 0.10 inch (0.73 torque tube turns) in the extend direction. This adjustment will not change the preload adjustments.

(a) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube [72] outboard of the offset gearbox [71].

(b) Disconnect the torque tubes [72] from the offset gearbox [71] on the end of the slat [1] that does not align:

1) For the inboard offset gearbox, remove the bolts [81], washers [80] and plate [79] that hold the seal tube [78].

2) Move the seal tube [78] inboard to get access to the inboard coupling.

3) Remove the screws [75] from the coupling sleeves [74].

4) Move the coupling sleeves [74] off the splined couplings [73].

(c) Adjust the position of the slat:

1) Turn the coupling sleeve [74] on the offset gearbox [71] in the extend direction to move the slat 0.22 to 0.35 inch (1.6 to 2.5 torque tube turns).

NOTE: This step is necessary to extend the slat past the adjacent structure so you can retract it until it aligns.

2) Manually turn the coupling sleeve [74] in the retract direction until the mismatch is in the limit.

(d) Connect the torque tubes [72] to the applicable offset gearbox [71]:

1) Apply grease, D00633 to the coupling sleeves [74].

2) Put the coupling sleeves [74] on the splined couplings [73].

3) Install the screws [75] in the coupling sleeves [74].

4) Tighten the screws [75].

NOTE: Do not over tighten the screws [75].

5) Install lockwire on the screws [75].

6) For the inboard offset gearbox, install the seal tube [78]:

a) If it is necessary, install a new packing [77] on the seal tube [78].

b) Apply grease, D00013 to the packing [77] on the seal tube [78].

c) Move the seal tube [78] outboard on the inboard offset gearbox.

d) Apply grease, D00013 to the bolts [81].

e) Install the plate [79], bolts [81] and washers [80] that hold the seal tube [78].

(e) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube.

SUBTASK 27-81-46-410-001

(28) Install the fixed leading edge panels:

(a) For slat No. 7, install these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, install these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) Install the applicable access panels:

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-46-210-003

(29) Make sure the main track doors [92] are adjusted correctly (Figure 403):

(a) Make sure the doors [92] align with the fixed leading edge panels.

(b) Make sure the clearance between the doors [92] and the fixed leading edge panels is even.

SUBTASK 27-81-46-820-012

(30) If it is necessary, adjust the doors [92]:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Loosen the nuts [94] that attach the door [92] to the bracket [93].

(e) Adjust the position of the door [92].

(f) Tighten the nuts [94].

(g) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(h) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

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WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(i) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-46-210-004

(31) Make sure the inboard blade seals [97] touch the fixed structure.

SUBTASK 27-81-46-820-013

(32) If the blade seals [97] do not touch the fixed structure, adjust the seals:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Loosen the bolts [98] on the seal retainer [99].

(e) Adjust the position of the blade seals [97].

(f) Tighten the bolts [98] on the seal retainer [99].

(g) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(h) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-46-410-002

(1) Install this access panel:

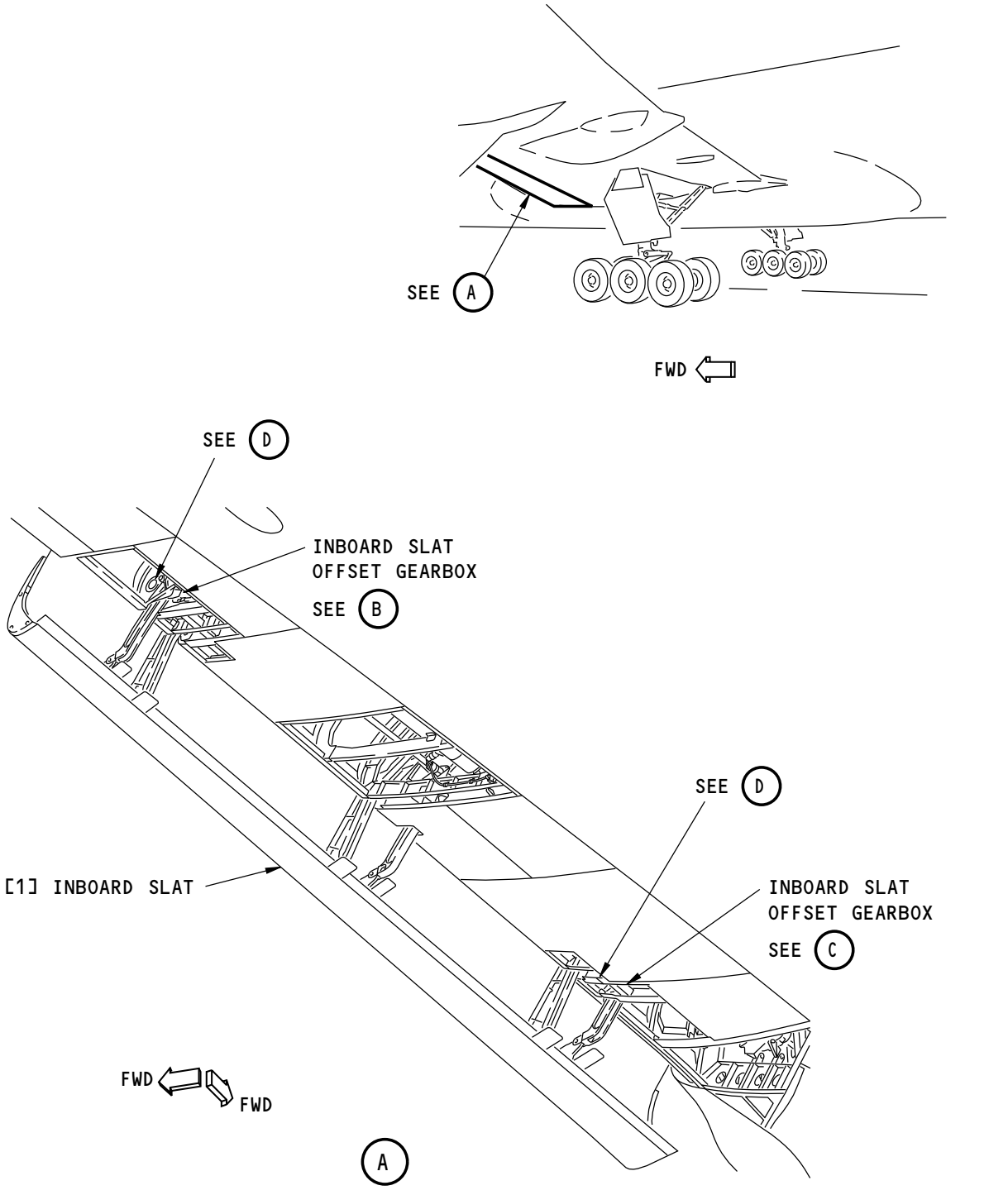
Number	Name/Location
511AB	Leading Edge PDU Panel

SUBTASK 27-81-46-440-004

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

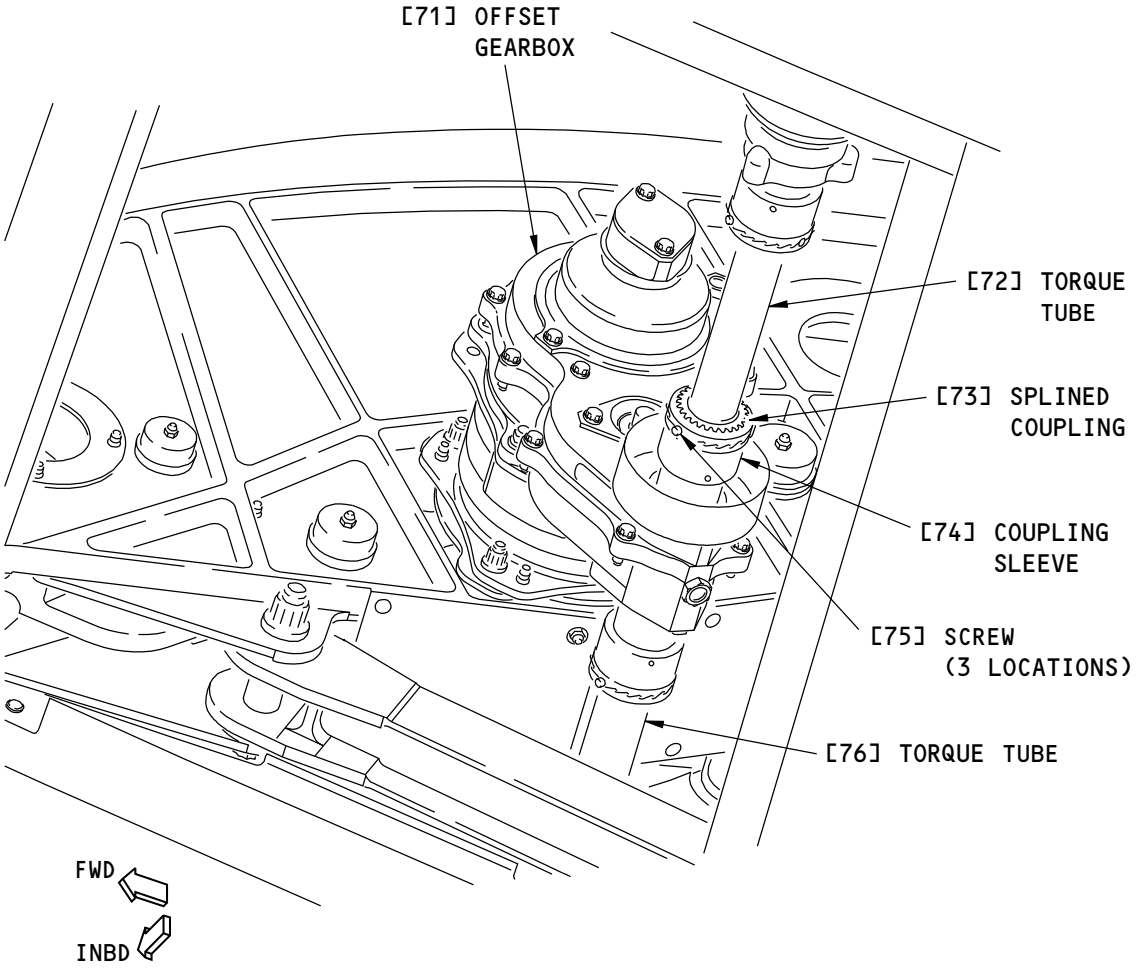
——— END OF TASK ———

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Inboard Slat Drive System
Figure 402/27-81-46-990-802 (Sheet 1 of 5)

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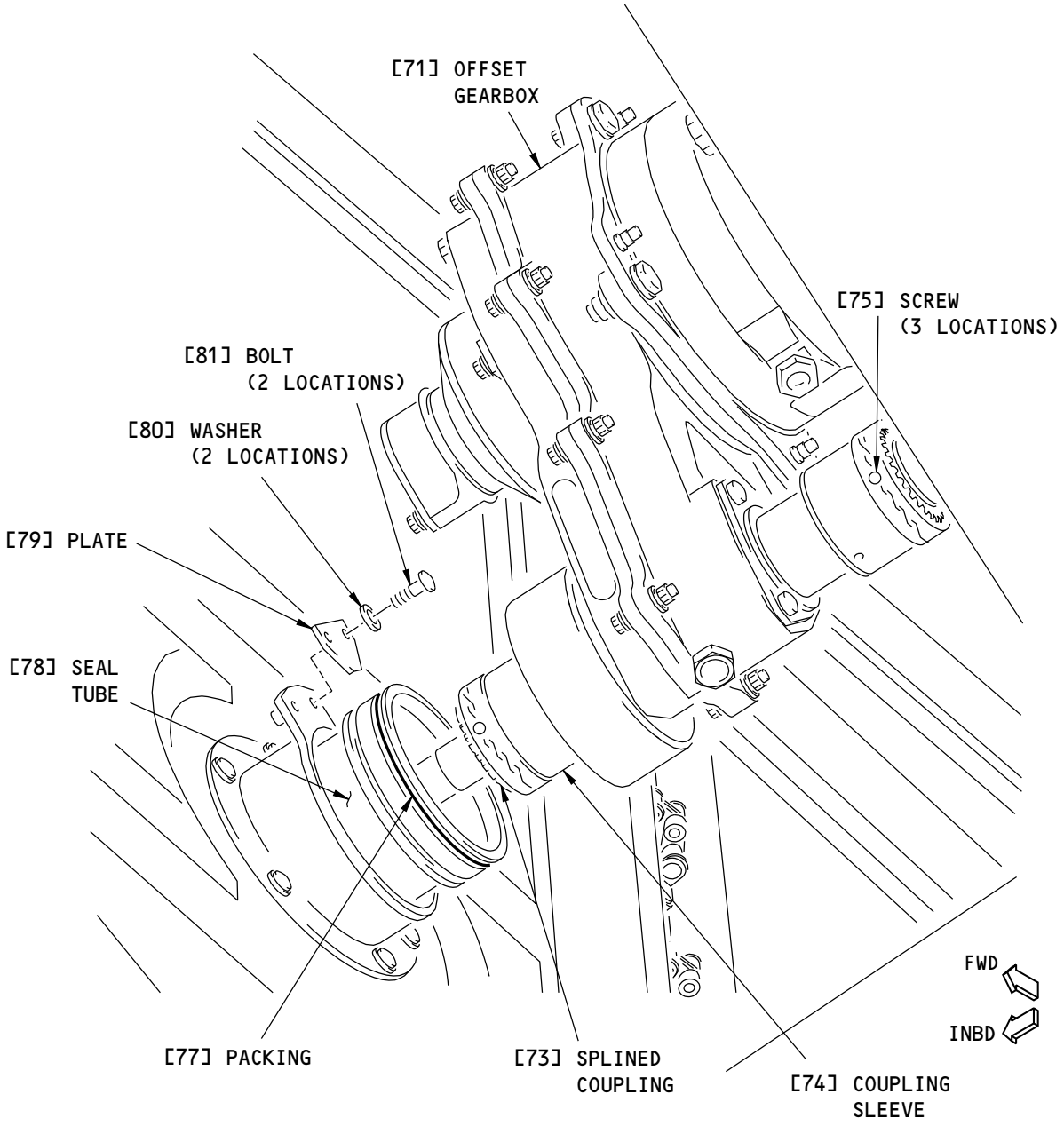
OUTBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

B

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Inboard Slat Drive System
Figure 402/27-81-46-990-802 (Sheet 2 of 5)

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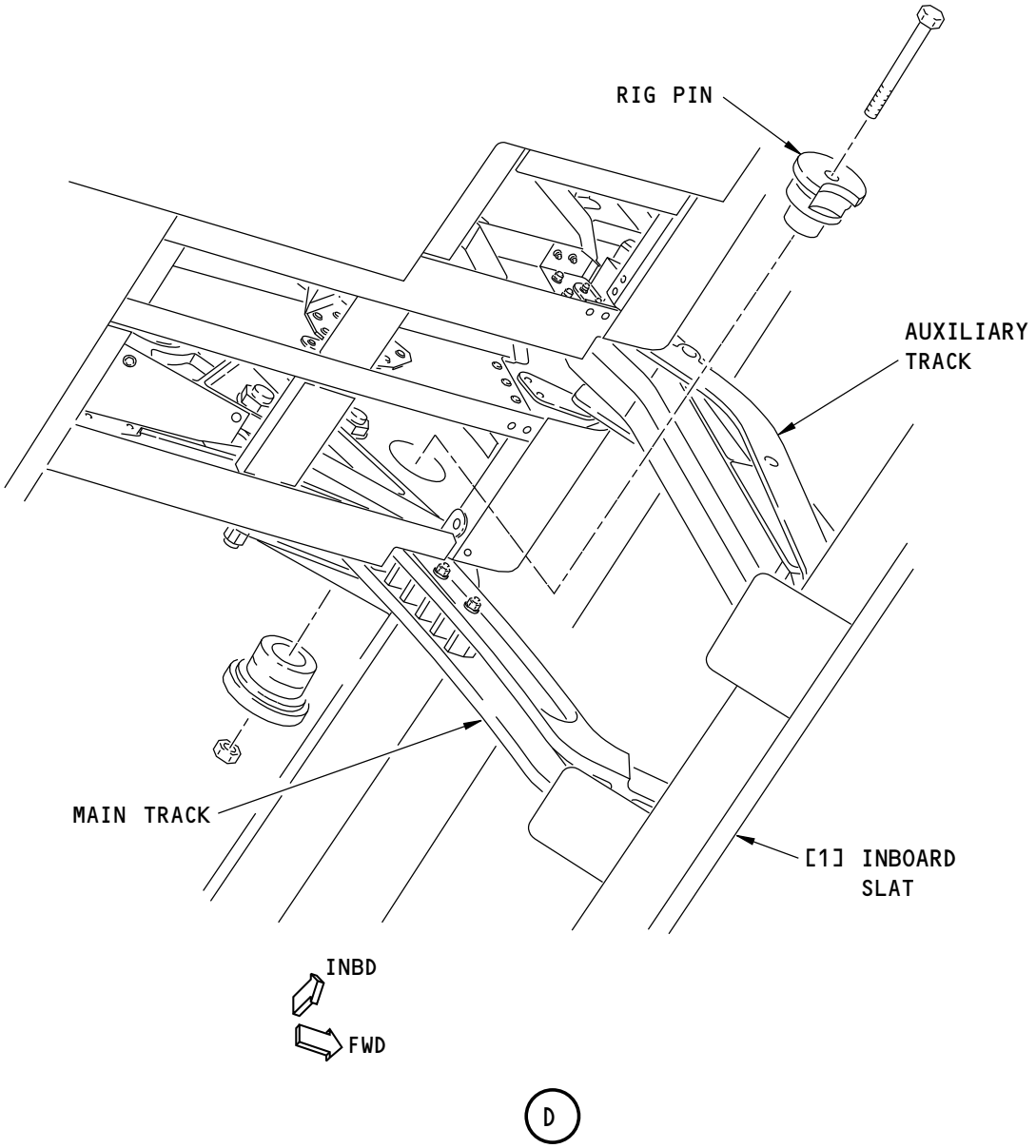
INBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

C

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Inboard Slat Drive System
Figure 402/27-81-46-990-802 (Sheet 3 of 5)

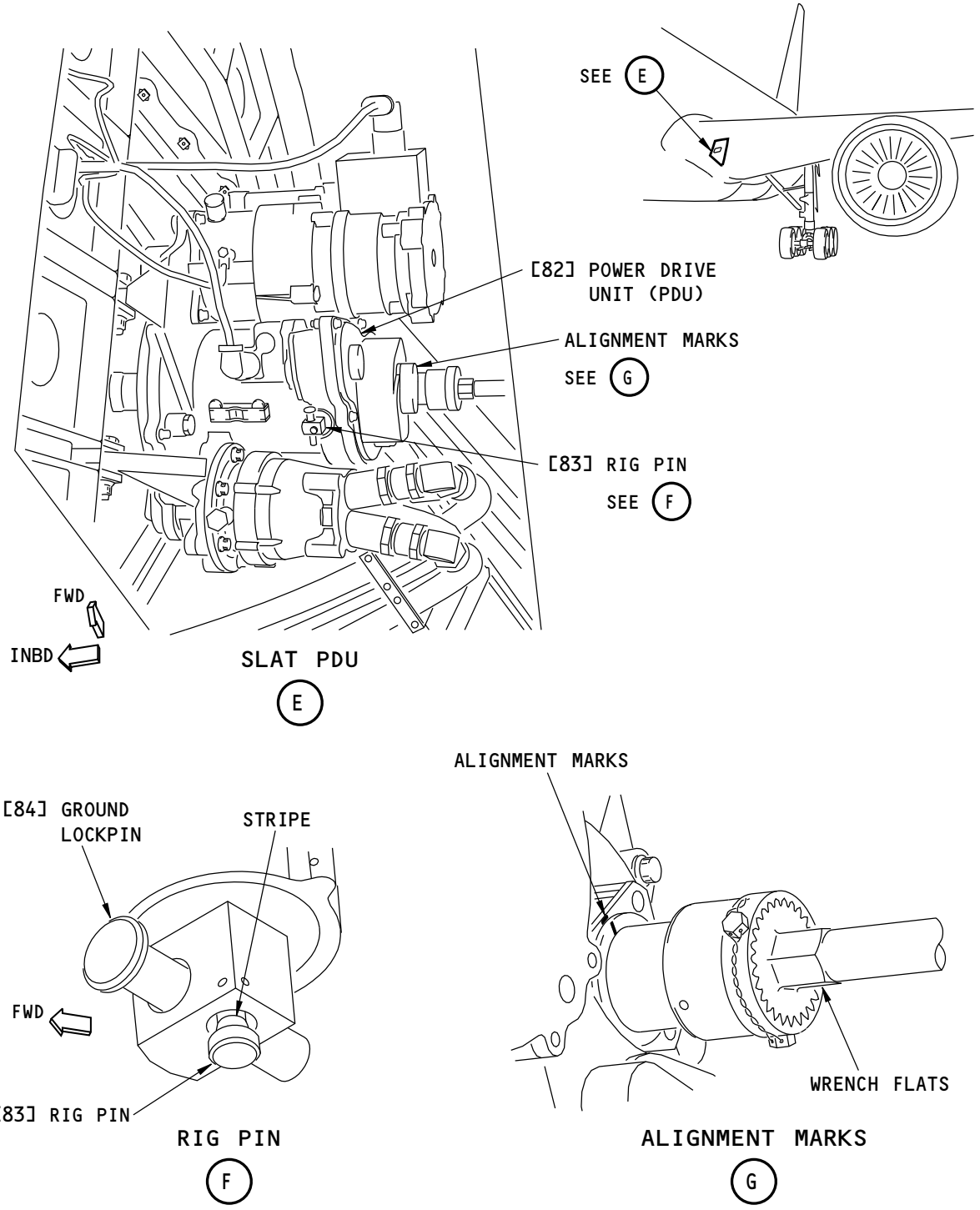
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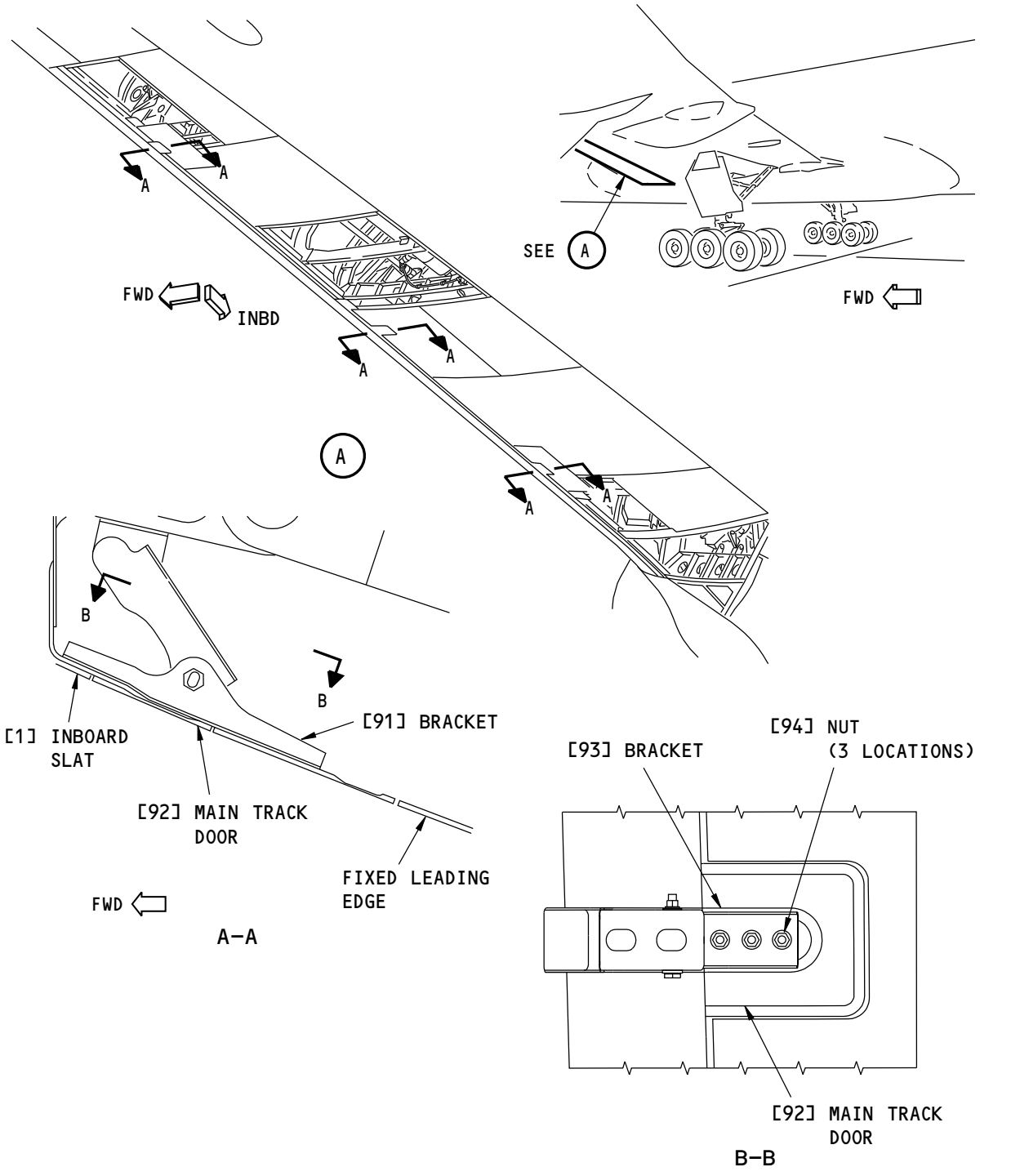
Inboard Slat Drive System
Figure 402/27-81-46-990-802 (Sheet 4 of 5)

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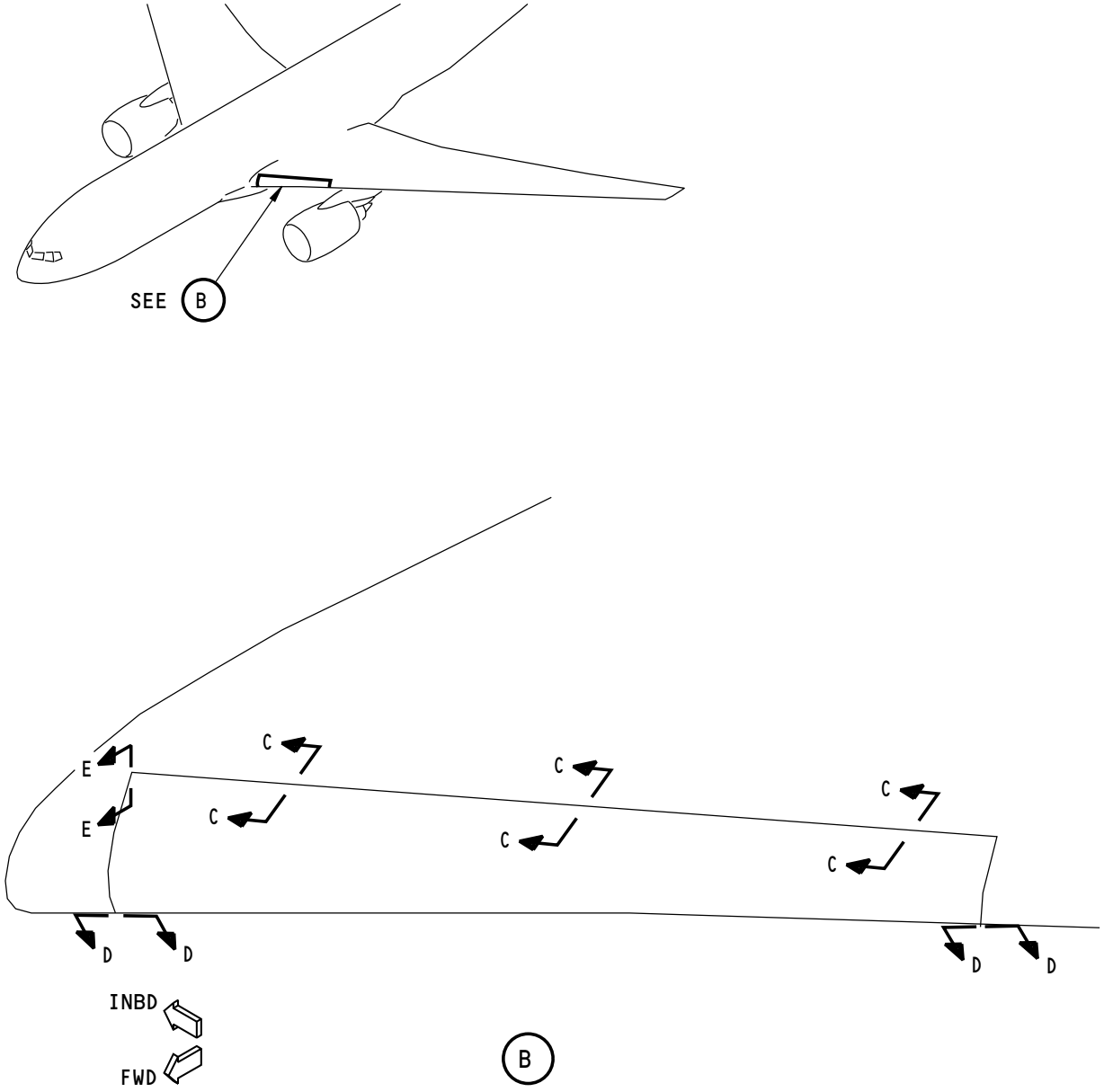
Inboard Slat Drive System
Figure 402/27-81-46-990-802 (Sheet 5 of 5)

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Inboard Slat Clearance
Figure 403/27-81-46-990-803 (Sheet 1 of 3)

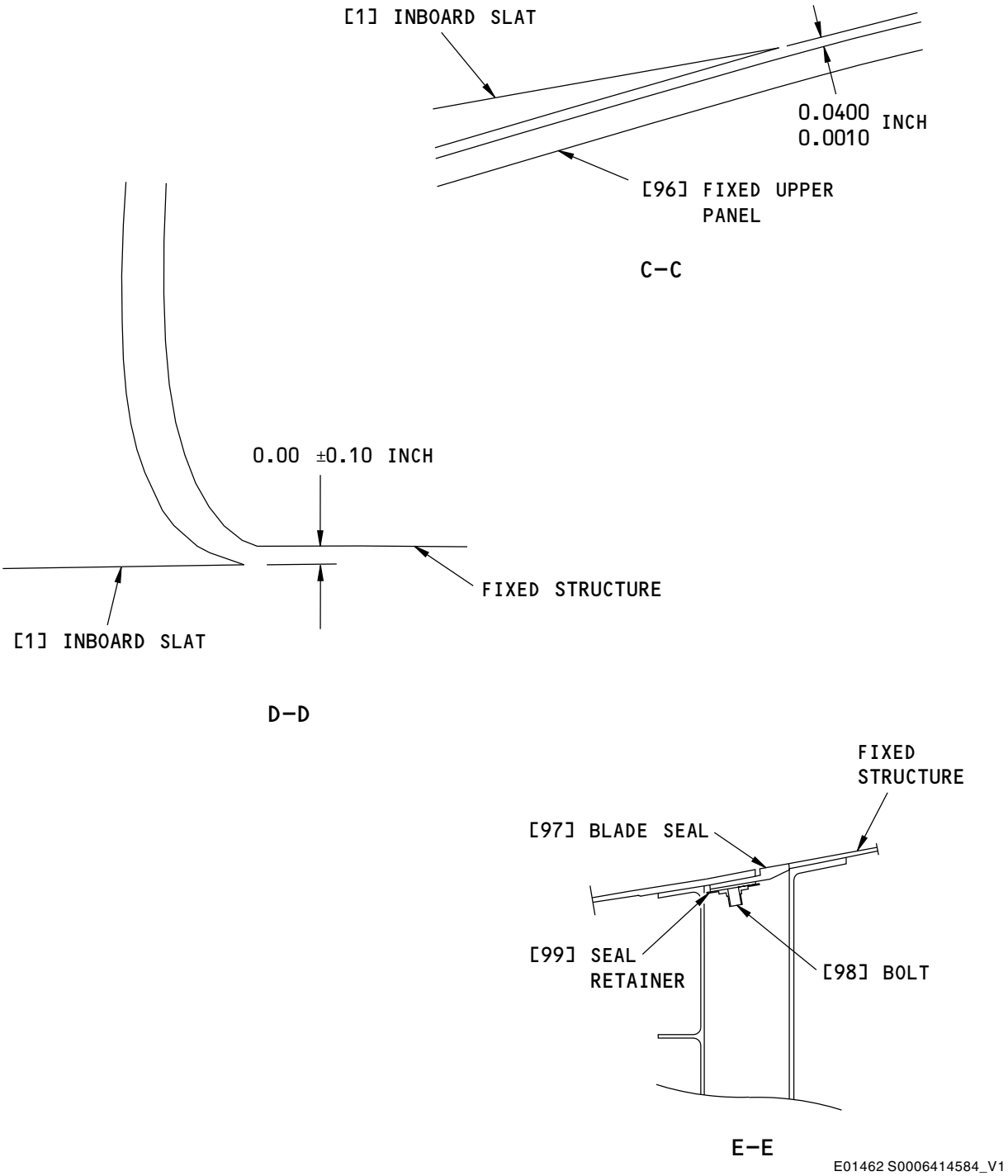
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Inboard Slat Clearance
Figure 403/27-81-46-990-803 (Sheet 2 of 3)

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Inboard Slat Clearance
Figure 403/27-81-46-990-803 (Sheet 3 of 3)

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INBOARD LEADING EDGE SLAT AUXILIARY ARM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the auxiliary arms for the inboard leading edge slat.

(2) An installation of the auxiliary arms for the inboard leading edge slat.

B. There are two arms at each of three locations on the inboard slat. These procedures apply to pairs of auxiliary arms.

TASK 27-81-47-000-801

2. Inboard Leading Edge Slat Auxiliary Arm Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-802	Leading Edge Slat System Operation With Alternate Control (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

C. Access Panels

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

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D. Prepare for the Removal

SUBTASK 27-81-47-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-81-47-860-001

CAUTION DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(2) Use the alternate system to extend the leading edge slat system to a position between the UP and sealed positions. To extend them, do this task: Leading Edge Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

NOTE: With the inboard slat in other positions, the inboard slat will be preloaded against the fixed leading edge. This will make it difficult to remove the rollers from the auxiliary arms. The SLAT POS indication on the HIGH LIFT maintenance page will be in the range of 100 to 150 with the slats in the correct position.

SUBTASK 27-81-47-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-47-010-001

(4) Remove the applicable fixed leading edge panels from the lower surface of the wing:

(a) For slat No. 7, remove these access panels:

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(TASK 06-30-00-800-806)

(b) For slat No. 8, remove these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel

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(Continued)

Number	Name/Location
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(TASK 06-30-00-800-807)

E. Inboard Slat Auxiliary Track Removal

SUBTASK 27-81-47-020-001

(1) Disconnect the applicable auxiliary arm assemblies [2], arm assemblies [3] or arm assemblies [4] from the track assembly [5], track assembly [6] or track assembly [7]:

(a) Remove the nut [28], washer [27], washer [26] and bolt assembly [25] that attach the auxiliary arm roller [30] to the applicable auxiliary arm assemblies [2], arm assemblies [3] or arm assemblies [4].

(b) Remove the auxiliary arm roller [30] from the track assembly [5], track assembly [6] or track assembly [7].

SUBTASK 27-81-47-020-002

(2) Remove the outboard auxiliary arm assemblies [2]:

(a) Remove the rivets [12] that hold the bracket [11] to the arm assemblies [2].

(b) Remove the nuts [17], washers [16], washers [15] and bolts [14] that attach the auxiliary arm assemblies [2] to the inboard slat [1].

(c) Remove the outboard auxiliary arm assemblies [2].

(d) Remove the screws [9], screws [13] and washers [10] that attach the slat skew targets [8] to the outboard auxiliary arm assemblies [2].

SUBTASK 27-81-47-020-003

(3) Remove the center auxiliary arm assemblies [3]:

(a) Remove the rivets [18] that hold the bracket [19] to the arm assemblies [3].

(b) Remove the nuts [17], washers [16], washers [15] and bolts [14] that attach the auxiliary arm assemblies [3] to the inboard slat [1].

(c) Remove the center auxiliary arm assemblies [3].

SUBTASK 27-81-47-020-004

(4) Remove the inboard arm assemblies [4]:

(a) Remove the screws [21] and washers [22] that attach the slat skew targets [20] to the inboard auxiliary arm assemblies [4].

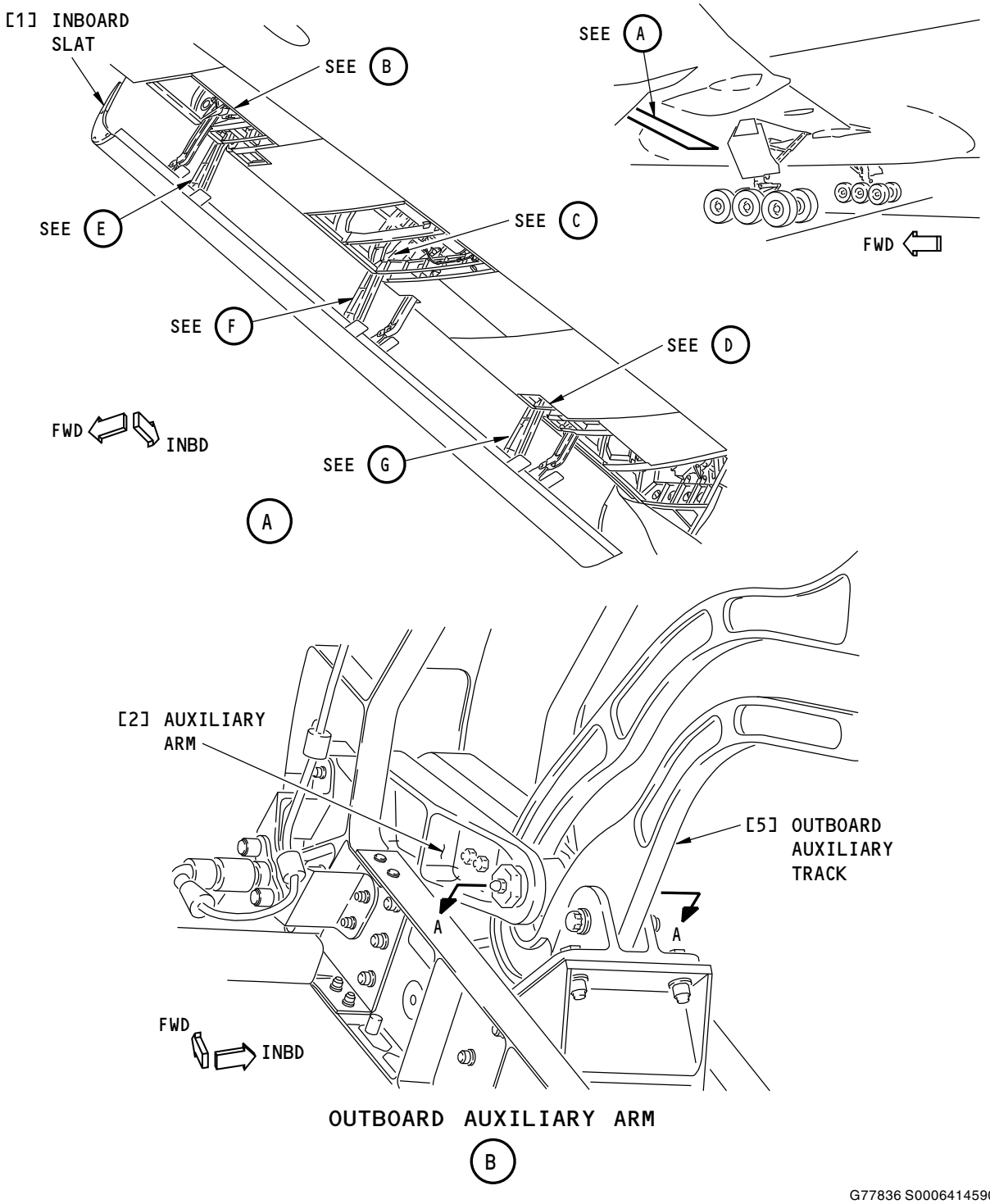
(b) Remove the rivets [24] that hold the bracket [23] to the arm assemblies [4].

(c) Remove the nuts [17], washers [16], washers [15] and bolts [14] that attach the auxiliary arm assemblies [4] to the inboard slat [1].

(d) Remove the outboard auxiliary arm assemblies [4].

END OF TASK

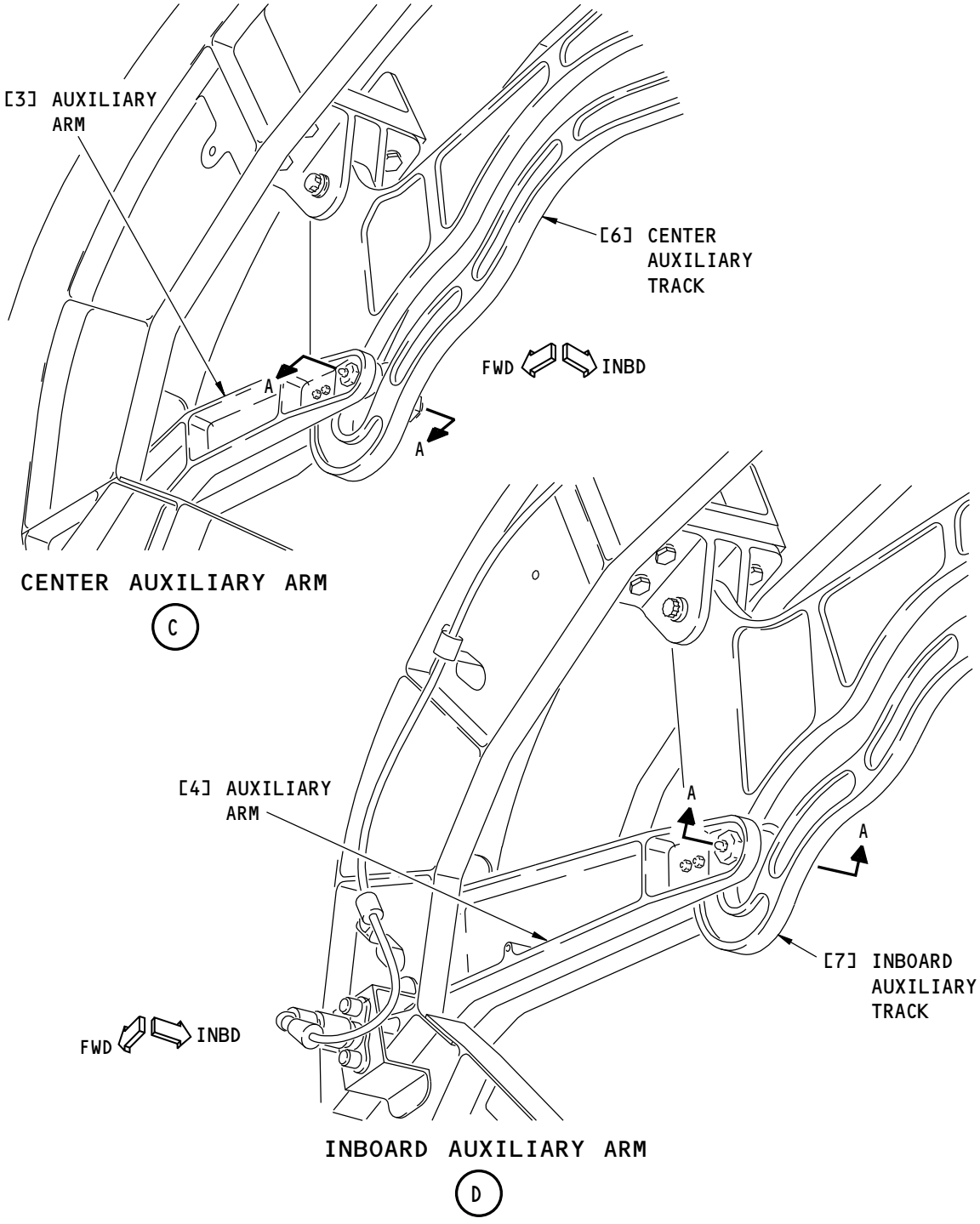
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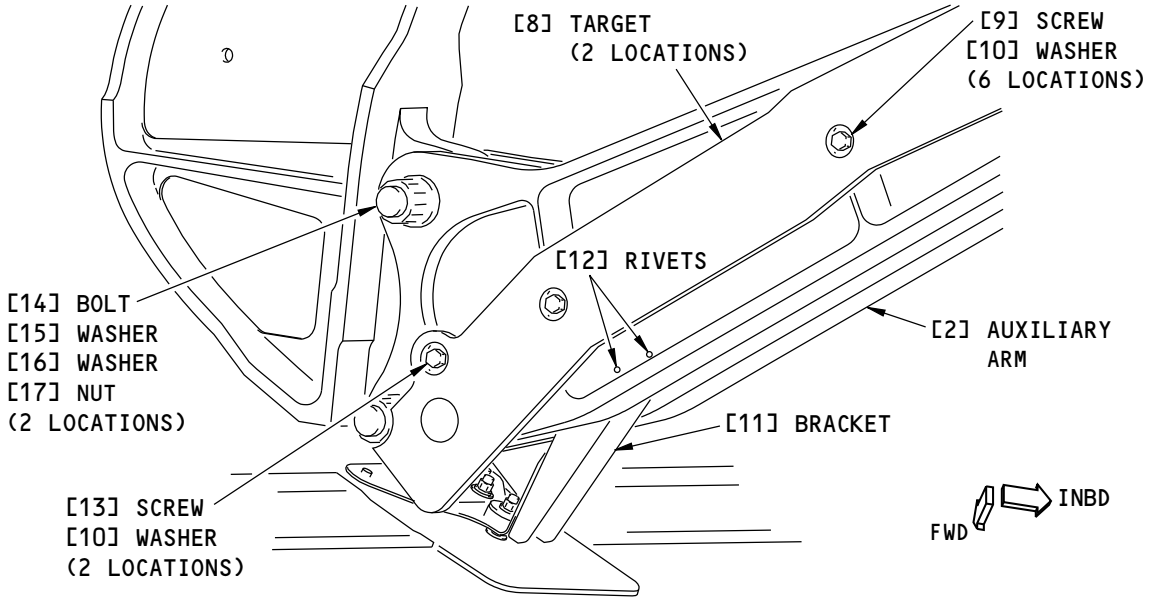
Inboard Slat Auxiliary Arm Installation
Figure 401/27-81-47-990-801 (Sheet 1 of 4)

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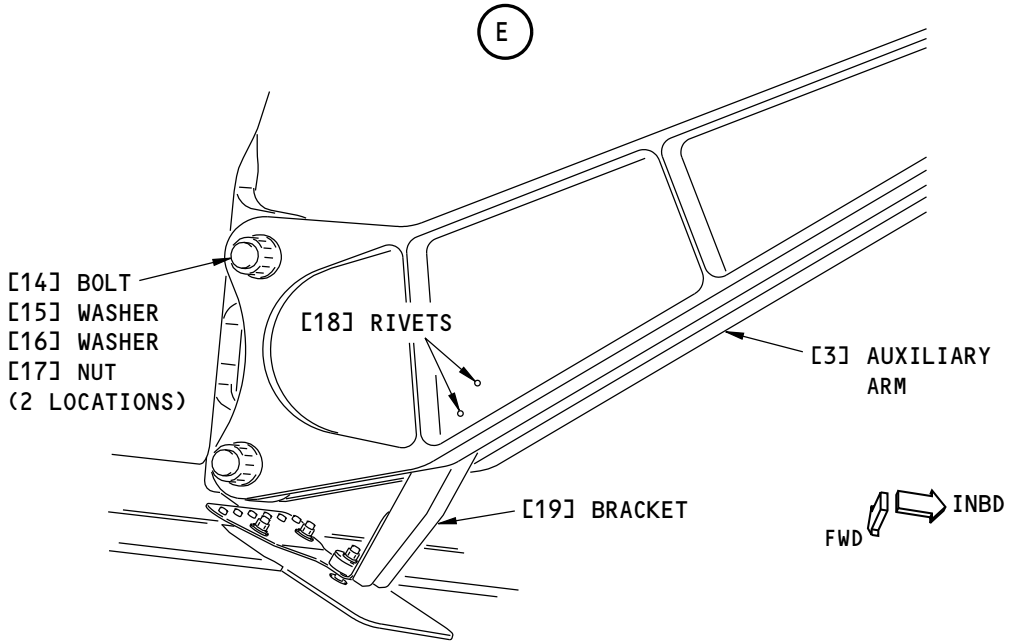
Inboard Slat Auxiliary Arm Installation
Figure 401/27-81-47-990-801 (Sheet 2 of 4)

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OUTBOARD AUXILIARY ARM

E



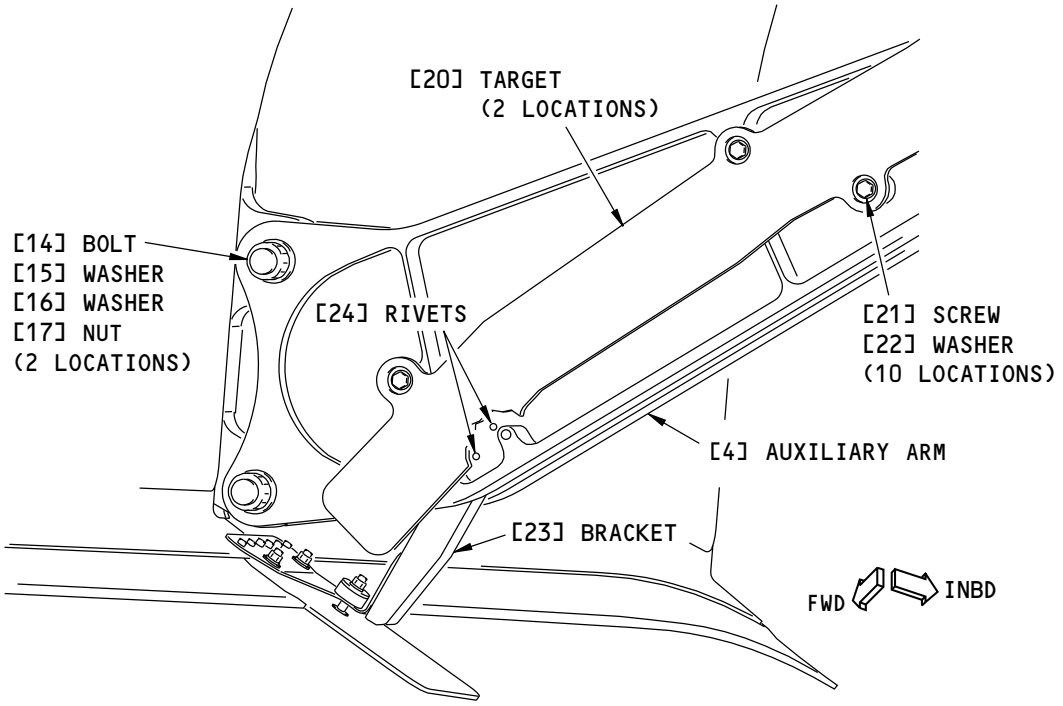
CENTER AUXILIARY ARM

F

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Inboard Slat Auxiliary Arm Installation
Figure 401/27-81-47-990-801 (Sheet 3 of 4)

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Inboard Slat Auxiliary Arm Installation
Figure 401/27-81-47-990-801 (Sheet 4 of 4)

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TASK 27-81-47-400-801

3. Inboard Leading Edge Slat Auxiliary Arm Installation

A. General

(1) If you will install more than one pair of auxiliary arms, or if the auxiliary arm roller does not go into the auxiliary track easily, then it will be necessary to do the preload adjustment of the inboard slat after you install the auxiliary arms.

B. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1696	Equipment - Clamp, Leading Edge Slat Drive Shaft Part #: J27046-1 Supplier: 81205
SPL-1721	Equipment - Rigging, Leading Edge Slat Installation Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Arm assembly	57-43-10-04A-475	ARO ALL
		57-43-10-04A-480	ARO ALL
3	Arm assembly	57-43-10-04A-520	ARO ALL
		57-43-10-04A-525	ARO ALL
4	Arm assembly	57-43-10-04A-560	ARO ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
4 (cont.)		57-43-10-04A-565	ARO ALL
8	Target	27-89-01-01-095	ARO ALL
		27-89-01-01-100	ARO ALL
20	Target	27-89-01-01-085	ARO ALL
		27-89-01-01-090	ARO ALL
29	Pin	27-81-10-02-085	ARO ALL
30	Auxiliary arm roller	57-43-10-04A-450	ARO ALL
55	Clevis assembly	57-22-10-25A-095	ARO 005-015
		57-22-10-28E-110	ARO 001-004
64	Clevis assembly	57-22-10-25A-480	ARO 005-015
		57-22-10-28E-480	ARO 001-004
97	Packing	27-81-38-02-015	ARO ALL

F. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

G. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel
521ADB	Outboard Fixed Leading Edge Panel
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

H. Prepare for the Auxiliary Arm Installation

NOTE: It is necessary to do these steps if you will install more than one pair of auxiliary arms, or if auxiliary arm roller [30] does not go into the auxiliary track easily.

SUBTASK 27-81-47-820-001

(1) Change the position of the clevis assembly [55], clevis assembly [64] and clevis assembly [67] for the track assembly [5], track assembly [6] or track assembly [7] (Figure 402):

NOTE: If you do not change the position of all of the tracks, the slat will be preloaded against the fixed leading edge when you retract it.

(a) Install the spacer block and the preload block tools, which are part of the leading edge slat installation rigging equipment, SPL-1721, at the forward fitting for the outboard track assembly [5]:

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1) Remove the nuts [54], washers [53], washers [52] and bolts [51] that attach the clevis assembly [55] to the fixed leading edge [56].

2) Put the spacer block and the preload block tools between the fixed leading edge [56] and the clevis assembly [55].

3) Install the bolts in the position of bolts [51] with washers and nuts to attach the clevis assembly [55] to the fixed leading edge [56] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block and spacer block tools installed.

(b) Remove the clearance blocks [58] and the preload block [66] and preload block [68] from the forward fittings for the center track assembly [6] and inboard track assembly [7]:

1) Remove the nuts [63], washers [62], washers [61] and bolts [60] that attach the clevis assembly [64] and clevis assembly [67] to the auxiliary track ribs [59].

2) Remove the clearance blocks [58] and the preload block [66] and preload block [68] from the auxiliary track ribs [59].

NOTE: Do not remove the shims [65] from the clevis assembly [64] and clevis assembly [67]. The preload block [66] and preload block [68] are thicker than the clearance blocks [58].

3) Install the bolts in the position of bolts [60] with washers and nuts to attach the clevis assembly [64] and clevis assembly [67] to the auxiliary track ribs [59] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload blocks and clearance blocks removed.

Table 401/27-81-47-993-805 Approximate Bolt Length During Track Adjustment

Condition	Outboard Bolt [51]	Center Bolt [60]	Inboard Bolt [60]
Preload Block and Spacer Block Tools Installed	23/16 inch		
Preload Block Tool Installed	18/16 inch		
Preload Block and Clearance Block Removed		12/16 inch	13/16 inch
Clearance Block Removed and Preload Block Installed		17/16 inch	20/16 inch

SUBTASK 27-81-47-820-002

(2) Adjust the clearance between the hanger links [69] for all of the track assembly [5], track assembly [6] or track assembly [7] and the fixed upper panel [47]:

NOTE: This will move the tracks to a preliminary position.

(a) Loosen the nuts [71] on the hanger links [69].

(b) Turn the nuts [71] on the hanger link [69] for the inboard track assembly [7] until the clearance between the hanger link [69] and the fixed upper panel [70] is 0.30 inch.

(c) Turn the nuts [71] on the hanger link [69] for the center track assembly [6] until the clearance between the hanger link [69] and the fixed upper panel [70] is 0.19 inch.

(d) Turn the nuts [71] on the hanger link [69] for the outboard track assembly [5] until the clearance between the hanger link [69] and the fixed upper panel [85] is 0.45 inch.

(e) Tighten the nuts [71] on the hanger links [69].

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I. Inboard Slat Auxiliary Arm Installation

SUBTASK 27-81-47-420-001

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the outboard auxiliary arm assembly [2] (Figure 401):

(a) Put the auxiliary arm assembly [2] in position on the inboard slat [1].

(b) Install the bolts [14], washers [15], washers [16] and nuts [17] to attach the auxiliary arm assembly [2].

(c) Apply a fillet seal of sealant, A00247 to the heads of the bolts [14] and to the nuts [17].

(d) Install the rivets [12] that hold the bracket [11] to the arm assembly [2].

(e) Install the slat skew targets [8] on the auxiliary arm assembly [2]:

1) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the screws [9] and screws [13].

2) Put the slat skew target [8] in their location on the auxiliary arm assembly [2].

3) Install the screws [9], screws [13] and washers [10] to attach the slat skew targets [8]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-47-420-002

(2) Install the center auxiliary arm assembly [3]:

(a) Put the auxiliary arm assembly [3] in position on the inboard slat [1].

(b) Install the bolts [14], washers [15], washers [16] and nuts [17] to attach the auxiliary arm assembly [3].

(c) Apply a fillet seal of sealant, A00247 to the heads of the bolts [14] and to the nuts [17].

(d) Install the rivets [18] that hold the bracket [19] to the arm assembly [3].

SUBTASK 27-81-47-420-003

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING	DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Install the inboard auxiliary arm assembly [4]:

(a) Put the auxiliary arm assembly [4] in position on the inboard slat [1].

(b) Install the bolts [14], washers [15], washers [16] and nuts [17] to attach the auxiliary arm assembly [4].

(c) Apply a fillet seal of sealant, A00247 to the heads of the bolts [14] and to the nuts [17].

(d) Install the rivets [24] that hold the bracket [23] to the arm assembly [4].

(e) Install the slat skew targets [20] on the auxiliary arm assembly [4]:

1) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the shank and threads of the screws [21].

2) Put the slat skew targets [20] in their location on the auxiliary arm assembly [4].

3) Install the screws [21] and washers [22] to attach the slat skew targets [20]. Refer to Standard Torque Values, TASK 20-11-00-910-801.

SUBTASK 27-81-47-420-004

(4) Connect the applicable auxiliary arm assembly [2], arm assembly [3] or arm assembly [4] to the track assembly [5], track assembly [6] or track assembly [7]:

NOTE: If you cannot install the auxiliary arm roller [30] easily, then do the inboard slat auxiliary track adjustment below.

(a) Put the auxiliary arm roller [30] in its location on the track assembly [5], track assembly [6] or track assembly [7] between the auxiliary arm assemblies [2], arm assemblies [3] or arm assemblies [4].

(b) Install the bolt assembly [25], washer [26], washer [27] and nut [28] that attach the auxiliary arm roller [30] to the auxiliary arm assembly [2], arm assembly [3] or arm assembly [4].

(c) Tighten the nut [28] to 500 in-lb (56 N·m) - 760 in-lb (86 N·m).

(d) Install the pin [29].

J. Inboard Slat Auxiliary Track Adjustment

NOTE: It is necessary to do these steps if you installed more than one pair of auxiliary arms, or if the auxiliary arm roller [30] does not go into the auxiliary track easily.

SUBTASK 27-81-47-480-001

(1) Install the rig pins, which are part of the leading edge slat installation rigging equipment, SPL-1721, in the rig pin holes for the inboard and outboard main tracks (Figure 403).

NOTE: You will not be able to install the rig pins after the slats are retracted. There will not be sufficient clearance between with the main tracks.

SUBTASK 27-81-47-860-002

(2) Retract the slat to the retracted position:

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(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Push in the rig pin [103] and install the ground lockpin [104] in the Power Drive Unit PDU [102].

NOTE: This will make sure the slat drive system is in the retracted position. When you retract the slats with the primary, secondary or alternate system, the PDU may not be in the retracted position where you can push in the rig pin [103].

(e) If you cannot push in the rig pin [103], then adjust the position of the slat power drive unit PDU [102]:

1) Use the wrench flats on the torque tube to manually turn the PDU [102] in the extend direction approximately one turn of the torque tube.

NOTE: This step is necessary to remove the backlash in the slat drive system.

2) Manually turn the PDU [102] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

3) Push in the rig pin [103] on the PDU [102] and hold it.

4) Install the ground lockpin [104] in the rig pin [103].

5) Make sure the PDU [102] is locked in this position:

NOTE: If the PDU [102] is not locked in this position, move the PDU [102] to the retracted position again.

a) Manually try to turn the PDU [102] in the retract direction.

b) Manually try to turn the PDU [102] in the extend direction.

(f) If the inboard and outboard main tracks do not touch the rig pins, retract the main track that does not touch the rig pin:

1) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube outboard of the offset gearbox.

2) Disconnect the torque tubes [96] from the offset gearbox [91] for the main track that does not touch the rig pin:

a) For the inboard offset gearbox, remove the bolts [101], washers [100] and plate [99] that hold the seal tube [98].

b) Move the seal tube [98] inboard to get access to the inboard coupling.

c) Remove the screws [95] from the coupling sleeves [94].

d) Move the coupling sleeves [94] off the splined couplings [93].

3) Carefully turn the coupling sleeve [94] on the offset gearbox [91] to retract the main track until it touches the rig pin.

4) Connect the torque tubes [96] to the offset gearbox [91]:

a) Apply grease, D00633 to the coupling sleeve [94].

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b) Move the coupling sleeve [94] on the splined coupling [93].

c) Install the screws [95].

d) Tighten the screws [95].

NOTE: Do not over tighten the screws [95].

e) Install lockwire on the screws [95].

f) For the inboard offset gearbox, if it is necessary, install a new packing [97] on the seal tube [78].

g) For the inboard offset gearbox, apply grease, D00013 to the packing [97] on the seal tube [98].

h) Move the seal tube [98] outboard on the inboard offset gearbox [91].

i) Install the plate [99], washers [100] and bolts [101] that hold the seal tube [98].

5) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube.

(g) Remove the ground lockpin [104] and make sure the rig pin [103] comes out of the PDU [102].

1) Make sure you can see the stripe on the rig pin [103].

SUBTASK 27-81-47-820-003

(3) Remove the spacer block tool from the clevis assembly [55] for the outboard track assembly [5] (Figure 402):

(a) Remove the nuts [54],washers [52], washers [53] and bolts [51] that attach the clevis assembly [55] to the fixed leading edge [56].

(b) Remove the spacer block tool from the fixed leading edge [56] and the clevis assembly [55].

NOTE: Do not remove the preload block tool at this time.

(c) Install the bolts in the position of bolts [51] with washers [52], washers [53] and nuts [54] to attach the clevis assembly [55] to the fixed leading edge [56] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block tool installed.

SUBTASK 27-81-47-820-004

(4) Install the clearance block [58] on the forward fittings for the center track assembly [6] and the inboard track assembly [7]:

NOTE: The preload block [66] and preload block [68] are thicker than the clearance block [58].

(a) Remove the nuts, washers and bolts that attach the clearance block [58] to the auxiliary track rib [59].

(b) Install the clearance block [58] on the auxiliary track rib [59].

NOTE: Do not install the preload block [66] and preload block [68] at this time.

(c) Install the bolts in the position of bolts [60] with washers and nuts to attach the clevis assembly [64] and clevis assembly [67] to the auxiliary track rib [59] (Table 401).

NOTE: Install the correct length of bolts for the condition with the preload block tool installed.

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SUBTASK 27-81-47-220-001

(5) Measure the clearance between the trailing edge of the inboard slat [1] and the fixed upper panel aft of the auxiliary tracks (View C-C) (Figure 404):

NOTE: Measure the clearance at the highest point on the fixed upper panel in the limit of 3.0 inches of the center of the auxiliary tracks.

SUBTASK 27-81-47-820-005

(6) If the clearance is not in the limit of 0.0010 to 0.0090 inch, adjust the hanger link [69] for the applicable track assembly [5], track assembly [6] or track assembly [7] (Figure 402):

NOTE: This will change the clearance between the hanger link [69] and the fixed upper panel from the preliminary position.

(a) Loosen the nuts [71] on the hanger link [69].

(b) Turn the nuts [71] on the hanger link [69] until the clearance is in the limit.

(c) Tighten the nuts [71] on the hanger link [69].

SUBTASK 27-81-47-440-001

(7) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-47-860-003

(8) Extend the leading edge slat system to the sealed position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-47-040-003

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-47-080-001

(10) Remove the rig pins from the inboard and outboard main tracks (Figure 403).

SUBTASK 27-81-47-220-002

(11) Measure the clearance between the trailing edge of the slat and the fixed upper panel aft of the auxiliary tracks (View C-C) (Figure 404):

NOTE: Measure the clearance at the highest point on the fixed upper panel in the limit of 3.0 inches of the center of the auxiliary tracks.

SUBTASK 27-81-47-820-006

(12) If the clearance is not in the limit of 0.0010 to 0.0090 inch at the outboard track assembly [5], adjust the shim [57] (Figure 402):

(a) Remove the nuts [54], washers [52], washers [53] and bolts [51] that attach the clevis assembly [55] to the fixed leading edge [56].

(b) Change the thickness of the shim [57] between the clevis assembly [55] and the fixed leading edge [56].

NOTE: Do not remove the preload block tool at this time.

(c) Install the bolts [51], washers [52], washers [53] and nuts [54] that attach the clevis assembly [55] and shim [57] to the fixed leading edge [56].

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SUBTASK 27-81-47-820-007

(13) If the clearance is not in the limit of 0.0010 to 0.0090 inch at the center track assembly [6] or the inboard track assembly [7], adjust the applicable shim [65]:

(a) Remove the nuts, washers and bolts that attach the clevis assembly [64] or clevis assembly [67] to the auxiliary track rib [59].

(b) Change the thickness of the shim [65] between the clevis assembly [64] or clevis assembly [67] and the auxiliary track rib [59].

NOTE: Do not install the preload block [66] or preload block [68] at this time.

(c) Install the bolts, washers and nuts that attach the clevis assembly [64] or clevis assembly [67] and shim [65] to the auxiliary track rib [59].

SUBTASK 27-81-47-440-002

(14) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-47-860-004

(15) Extend the leading edge slat system to the gapped position. To extend the slats, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-81-47-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(16) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-47-820-008

(17) Adjust the hanger links [69] for the track assembly [5], track assembly [6] or track assembly [7] to move the auxiliary tracks down the distance shown in (Table 402):

NOTE: This will change the clearance between the hanger link [69] and the fixed upper panel [70].

Table 402/27-81-47-993-806 Hanger Link Adjustment

Auxiliary Track	Distance (Inch)	Turns of Nut [71]
Inboard	0.215 ±0.0200	3.5 to 4.0
Center	0.180 ±0.0200	2.9 to 3.6
Outboard	0.140 ±0.0200	2.2 to 2.9

(a) Turn the top nuts [71] on the hanger links [69] the applicable number of turns.

(b) Tighten the lower nuts [71] on the hanger links [69] to 660 in-lb (75 N·m) - 980 in-lb (111 N·m).

(c) Install lockwire on the nuts [71].

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SUBTASK 27-81-47-820-009

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(18) Remove the preload block tool from the clevis assembly [55] for the outboard track assembly [5]:

(a) Remove the nuts [54], washers [52], washers [53] and bolts [51] that attach the clevis assembly [55] to the fixed leading edge [56].

(b) Remove the preload block tool from the fixed leading edge [56] and the clevis assembly [55].

(c) Apply a layer of Cor-Ban 27L Compound, G50237 to the clevis assembly [55], shim [57] and fixed leading edge [56].

(d) Apply a layer of Cor-Ban 27L Compound, G50237 to the mating surfaces on the bolts [51], washers [52], washers [53] and nuts [54].

(e) Install the bolts [51], washers [52], washers [53] and nuts [54] to attach the clevis assembly [55] to the fixed leading edge [56].

NOTE: Install the correct fasteners for the final position of the clevis assembly [55].

(f) Tighten the nuts [54] to 90 in-lb (10.2 N·m) - 125 in-lb (14.1 N·m).

SUBTASK 27-81-47-820-010

WARNING USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(19) Install the preload block [66] and preload block [68] on the clevis assembly [64] and clevis assembly [67] for the center track assembly [6] and inboard track assembly [7]:

(a) Remove the nuts, washers and bolts that attach the clevis assembly [64] and clevis assembly [67] to the auxiliary track rib [59].

(b) Apply a layer of Cor-Ban 27L Compound, G50237 to the clevis assembly [64] and clevis assembly [67], shims [65], preload block [66] and preload block [68], clearance blocks [58] and auxiliary track ribs [59].

(c) Install the preload block [66] and preload block [68] on the auxiliary track rib [59].

(d) Apply a layer of Cor-Ban 27L Compound, G50237 to the mating surfaces of the bolts [60], washers [61], washers [62] and nuts [63].

(e) Install the bolts [60], washers [61], washers [62] and nuts [63] to attach the clevis assembly [64] and clevis assembly [67] to the auxiliary track rib [59].

NOTE: Install the correct fasteners for the final position of the clevis assembly [64] and clevis assembly [67].

(f) Tighten the nuts [63] to 90 in-lb (10.2 N·m) - 125 in-lb (14.1 N·m).

SUBTASK 27-81-47-440-003

(20) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-81-47-860-005

(21) Retract the leading edge slats to the sealed position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-47-210-001

(22) Make sure the trailing edge of the slat touches the fixed leading edge.

SUBTASK 27-81-47-860-006

(23) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-47-210-002

(24) Make sure the trailing edge of the slat touches the fixed leading edge.

SUBTASK 27-81-47-040-005

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(25) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-47-220-003

(26) At the inboard and outboard ends of the slat, measure the mismatch between the slat and the fixed structure (View D-D) (Figure 404):

SUBTASK 27-81-47-820-011

(27) If the mismatch is not in the limit of 0.00 ±0.10 inch, adjust the position of the slat (Figure 403):

NOTE: The maximum permitted adjustment of the inboard slat is 0.10 inch (0.73 torque tube turns) in the extend direction. This adjustment will not change the preload adjustments.

(a) Install a leading edge slat drive shaft clamp equipment, SPL-1696 on a torque tube [92] outboard of the offset gearbox [91].

(b) Disconnect the torque tube [92] from the offset gearbox [91] on the end of the inboard slat [1] that does not align:

1) For the inboard offset gearbox [91], remove the bolts [101], washers [100] and plate [99] that hold the seal tube [98].

2) Move the seal tube [98] inboard to get access to the inboard coupling.

3) Remove the screws [95] from the coupling sleeve [94].

4) Move the coupling sleeve [94] off the splined coupling [93].

(c) Adjust the position of the inboard slat [1]:

1) Turn the coupling sleeve [94] on the offset gearbox [91] in the extend direction to move the slat 0.22 to 0.35 inch (1.6 to 2.5 torque tube turns).

NOTE: This step is necessary to extend the slat past the adjacent structure so you can retract it until it aligns.

2) Manually turn the coupling sleeve [94] in the retract direction until the mismatch is in the limit.

(d) Connect the torque tube [92] to the applicable offset gearbox [91]:

1) Apply grease, D00633 to the coupling sleeve [94].

2) Put the coupling sleeve [94] on the splined coupling [93].

3) Install the screws [95] in the coupling sleeve [94].

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4) Tighten the screws [95].

NOTE: Do not over tighten the screws [95].

5) Install lockwire on the screws [95].

6) For the inboard offset gearbox [91], install the seal tube [98]:

a) If it is necessary, install a new packing [97] on the seal tube [98].

b) Apply grease, D00013 to the packing [97] on the seal tube [98].

c) Move the seal tube [98] outboard on the inboard offset gearbox [91].

d) Apply grease, D00013 to the bolts [101].

e) Install the plate [99], bolts [101] and washers [100] that hold the seal tube [98].

(e) Remove the leading edge slat drive shaft clamp equipment, SPL-1696 from the torque tube.

SUBTASK 27-81-47-410-001

(28) Install the fixed leading edge panels:

(a) For slat No. 7, install these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, install these access panels:

(TASK 06-30-00-800-807)

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) Install the applicable access panels:

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-47-210-003

(29) Make sure the main track doors [122] are adjusted correctly (Figure 404):

(a) Make sure the main track doors [122] align with the fixed leading edge panels.

(b) Make sure the clearance between the main track doors [122] and the fixed leading edge panels is even.

SUBTASK 27-81-47-820-012

(30) If it is necessary, adjust the main track doors [122]:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Loosen the nuts [124] that attach the main track door [122] to the bracket [123].

(e) Adjust the position of the main track door [122].

(f) Tighten the nuts [124].

(g) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(h) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(i) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-81-47-210-004

(31) Make sure the inboard blade seals [126] touch the fixed structure.

SUBTASK 27-81-47-820-013

(32) If the blade seals [126] do not touch the fixed structure, adjust the seals:

(a) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(b) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Loosen the bolts [127] on the seal retainer [128].

(e) Adjust the position of the blade seal [126].

(f) Tighten the bolts [127] on the seal retainer [128].

(g) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(h) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-81-47-410-002

(33) Install this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

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K. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-47-410-003

(1) If they are not installed, install the fixed leading edge panels:

(a) For slat No. 7, install these access panels:

(TASK 06-30-00-800-806)

Number	Name/Location
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

(b) For slat No. 8, install these access panels:

Number	Name/Location
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

(c) Install the applicable access panels:

Number	Name/Location
521ADB	Outboard Fixed Leading Edge Panel
621ADB	Outboard Fixed Leading Edge Panel

SUBTASK 27-81-47-440-004

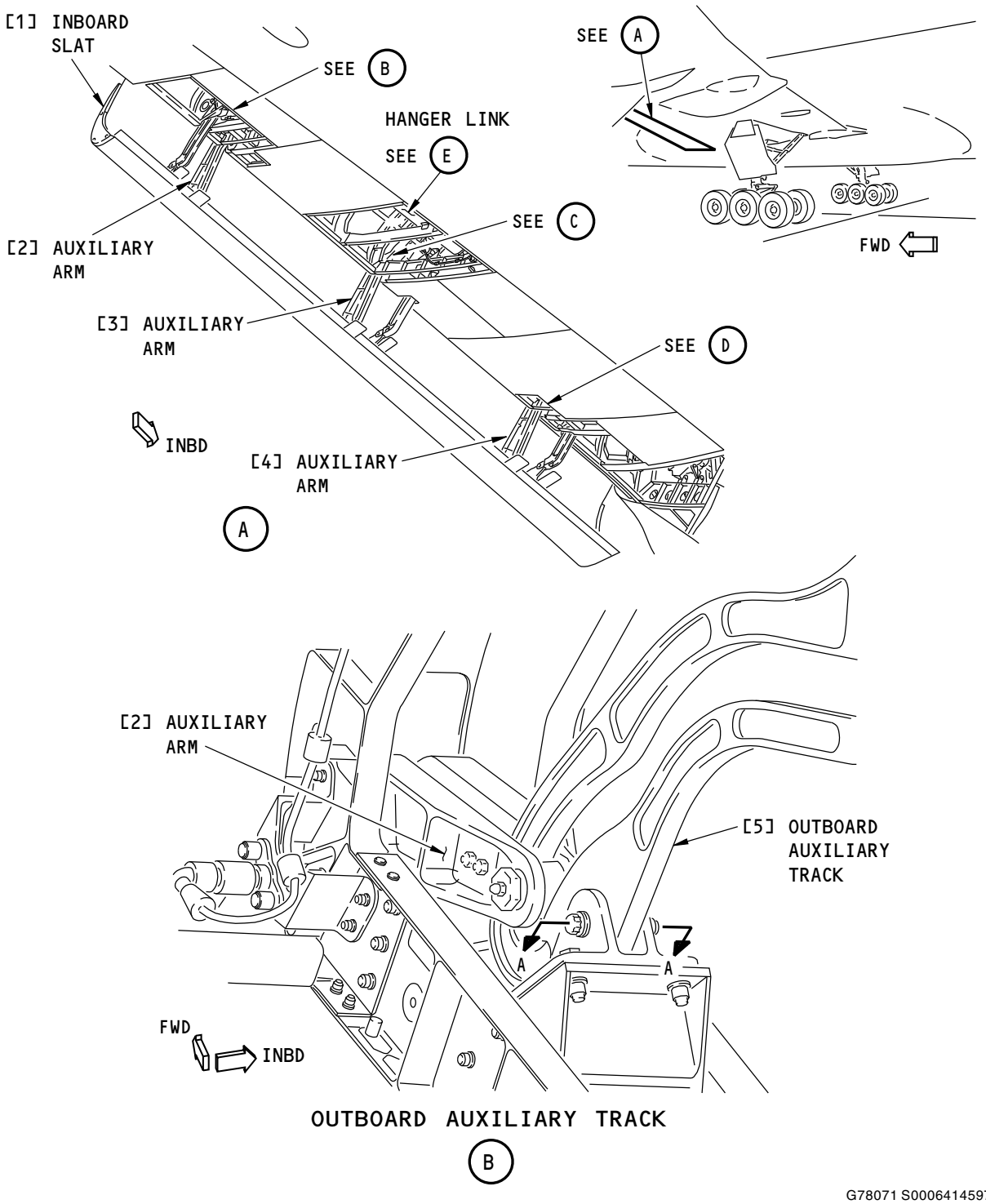
(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-81-47-860-007

(3) If the leading edge slats are not in the retracted position, then retract the leading edge slats. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

——— END OF TASK ———

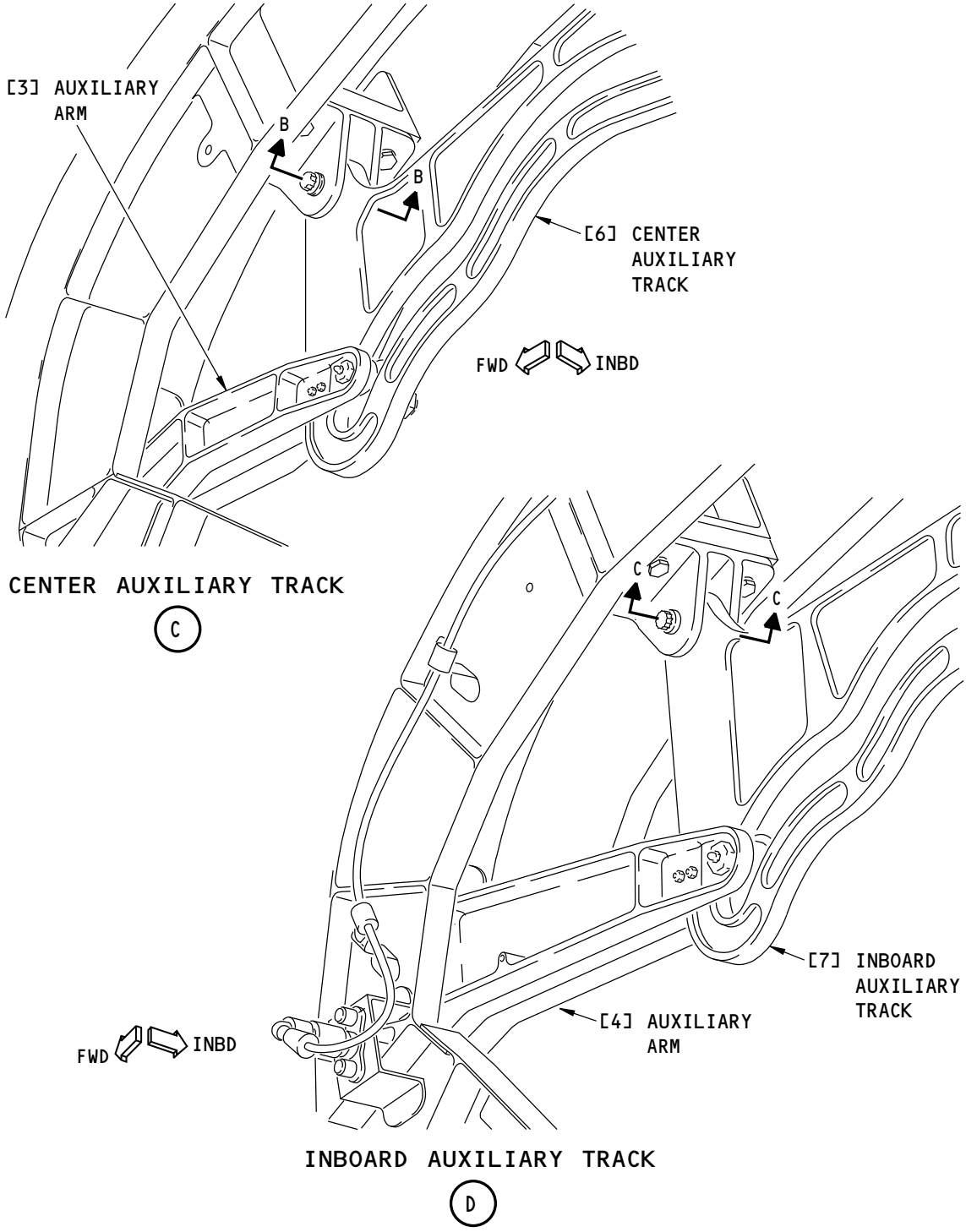
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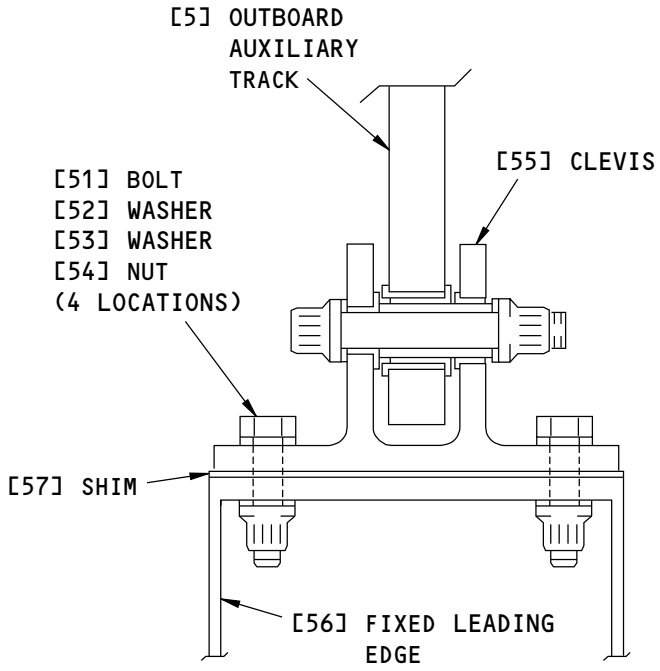
Inboard Slat Auxiliary Track Adjustment
Figure 402/27-81-47-990-802 (Sheet 1 of 5)

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Inboard Slat Auxiliary Track Adjustment
Figure 402/27-81-47-990-802 (Sheet 2 of 5)

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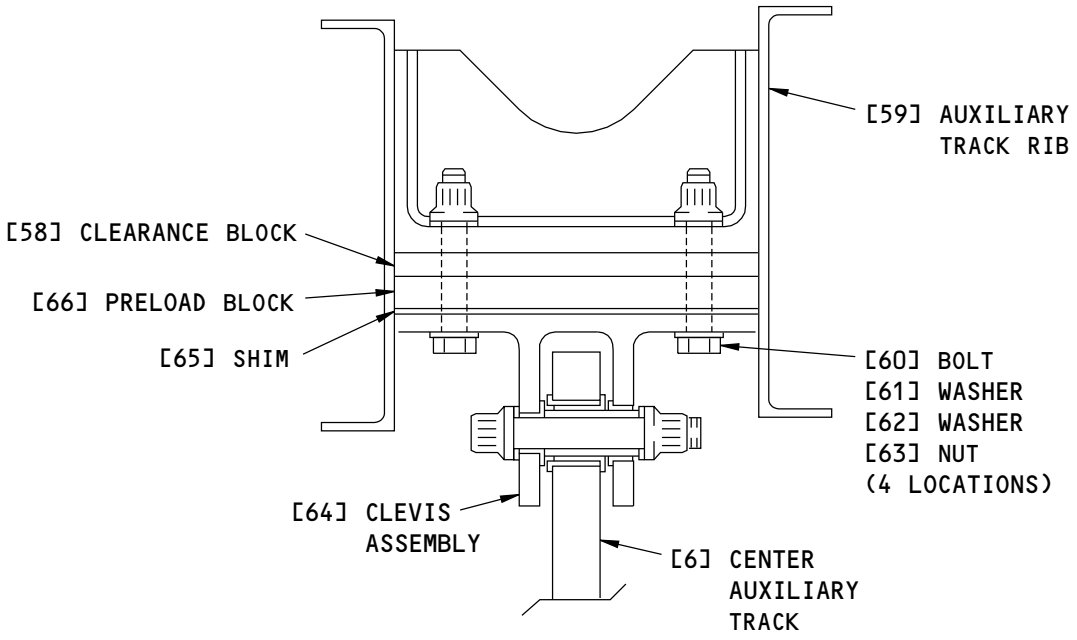


A–A

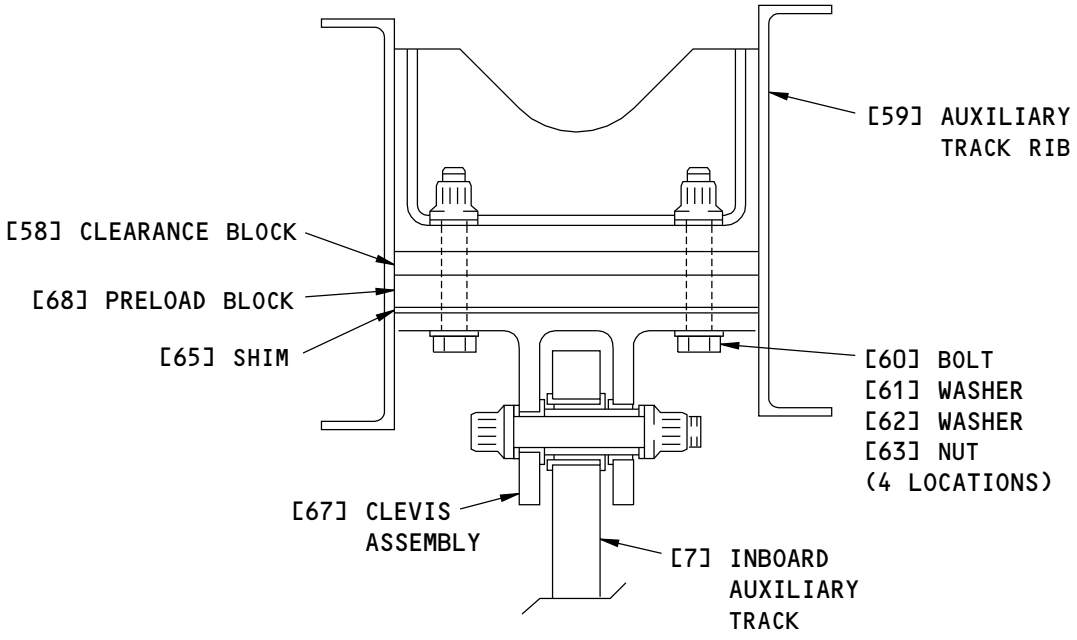
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Inboard Slat Auxiliary Track Adjustment
Figure 402/27-81-47-990-802 (Sheet 3 of 5)

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B–B

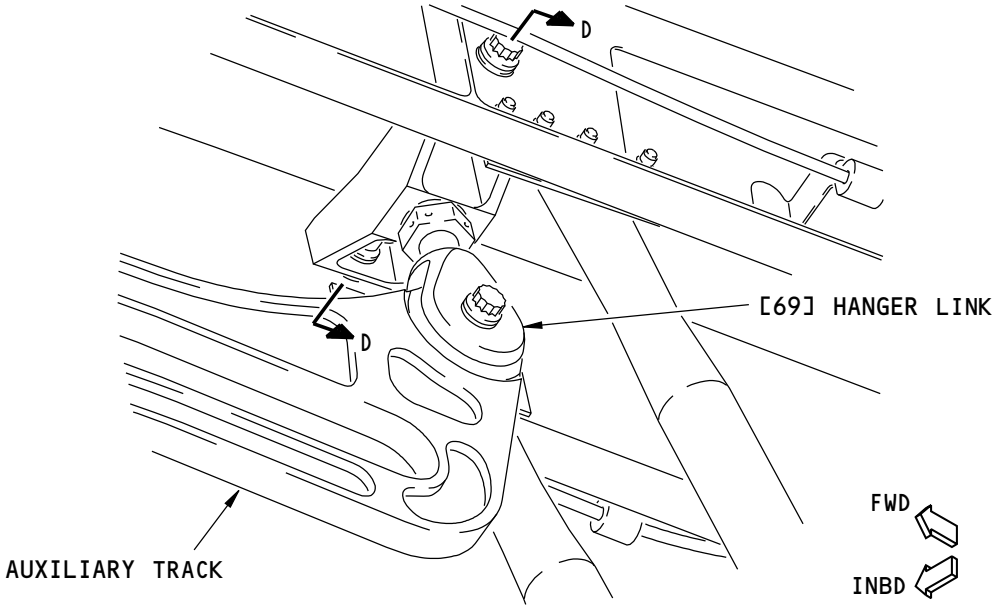


C–C

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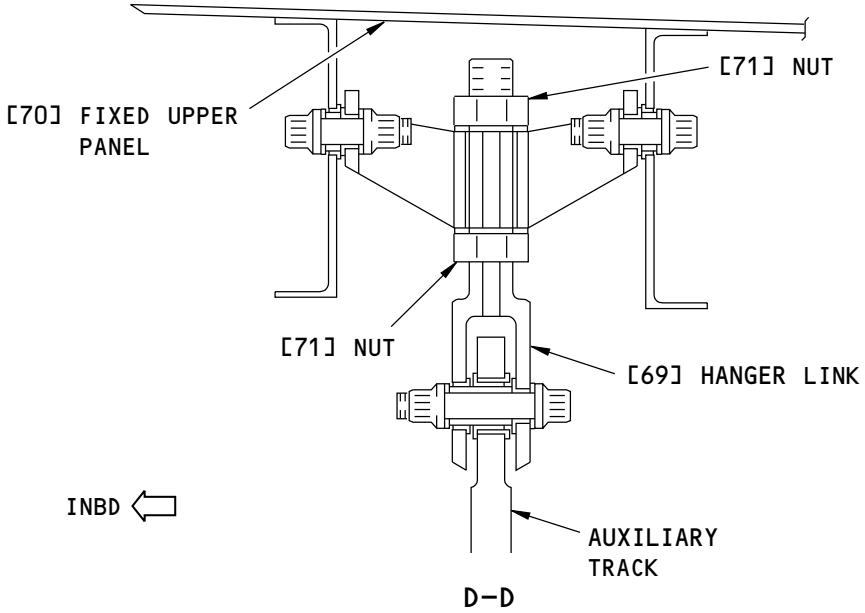
Inboard Slat Auxiliary Track Adjustment
Figure 402/27-81-47-990-802 (Sheet 4 of 5)

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HANGER LINK
(CENTER HANGER LINK IS SHOWN, INBOARD
AND OUTBOARD HANGER LINKS ARE EQUIVALENT)

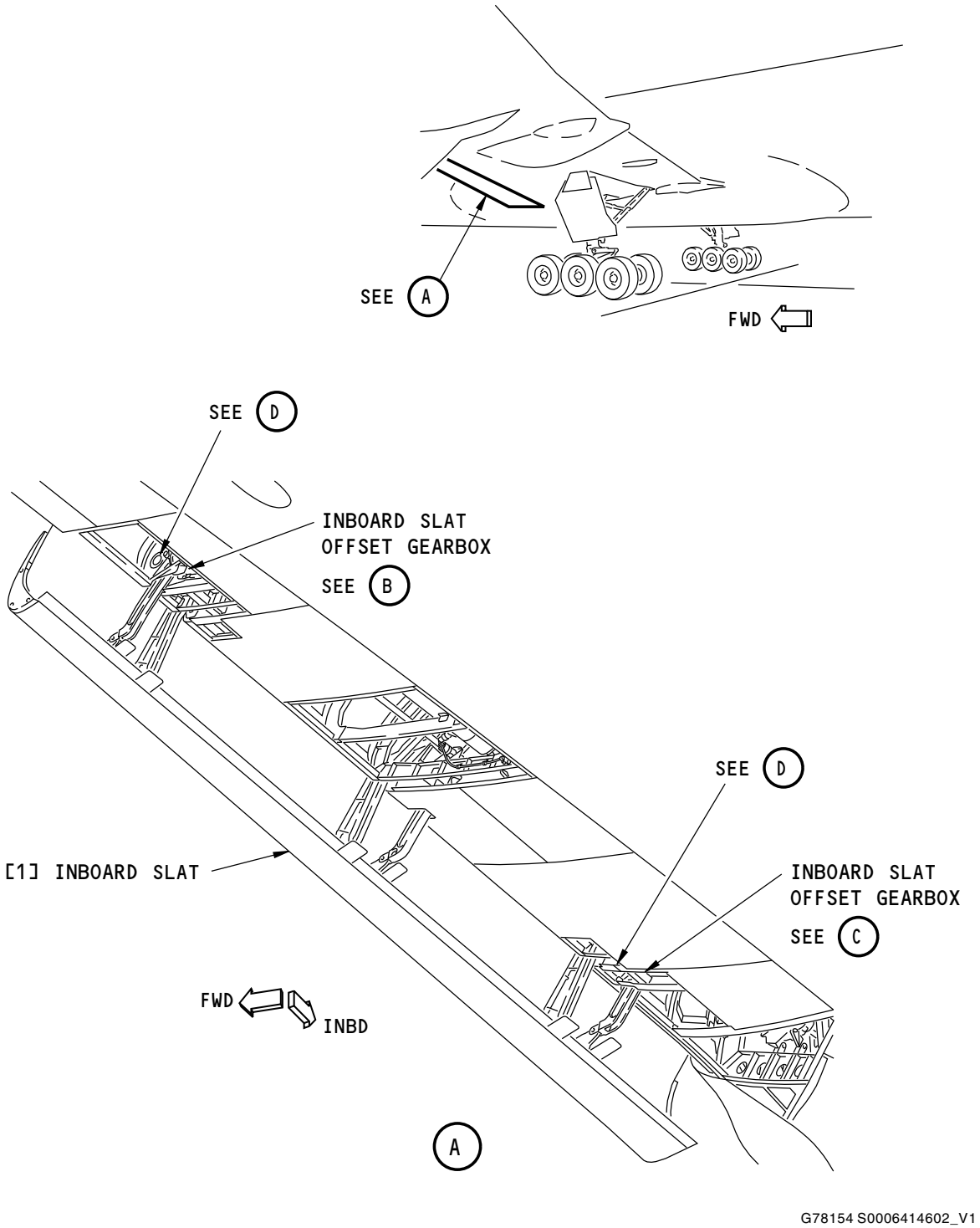
E



G78149 S0006414601_V1

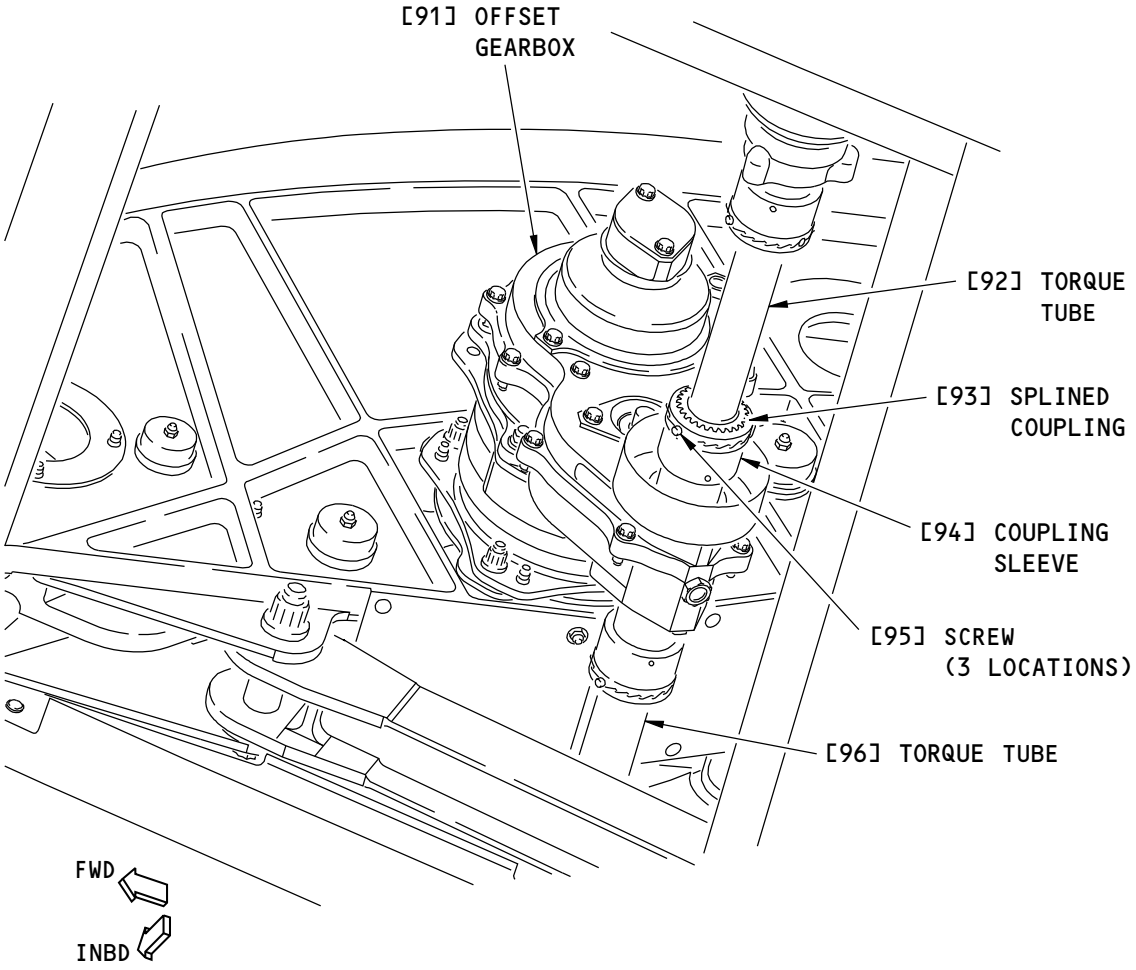
Inboard Slat Auxiliary Track Adjustment
Figure 402/27-81-47-990-802 (Sheet 5 of 5)

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Inboard Slat Drive System
Figure 403/27-81-47-990-803 (Sheet 1 of 5)

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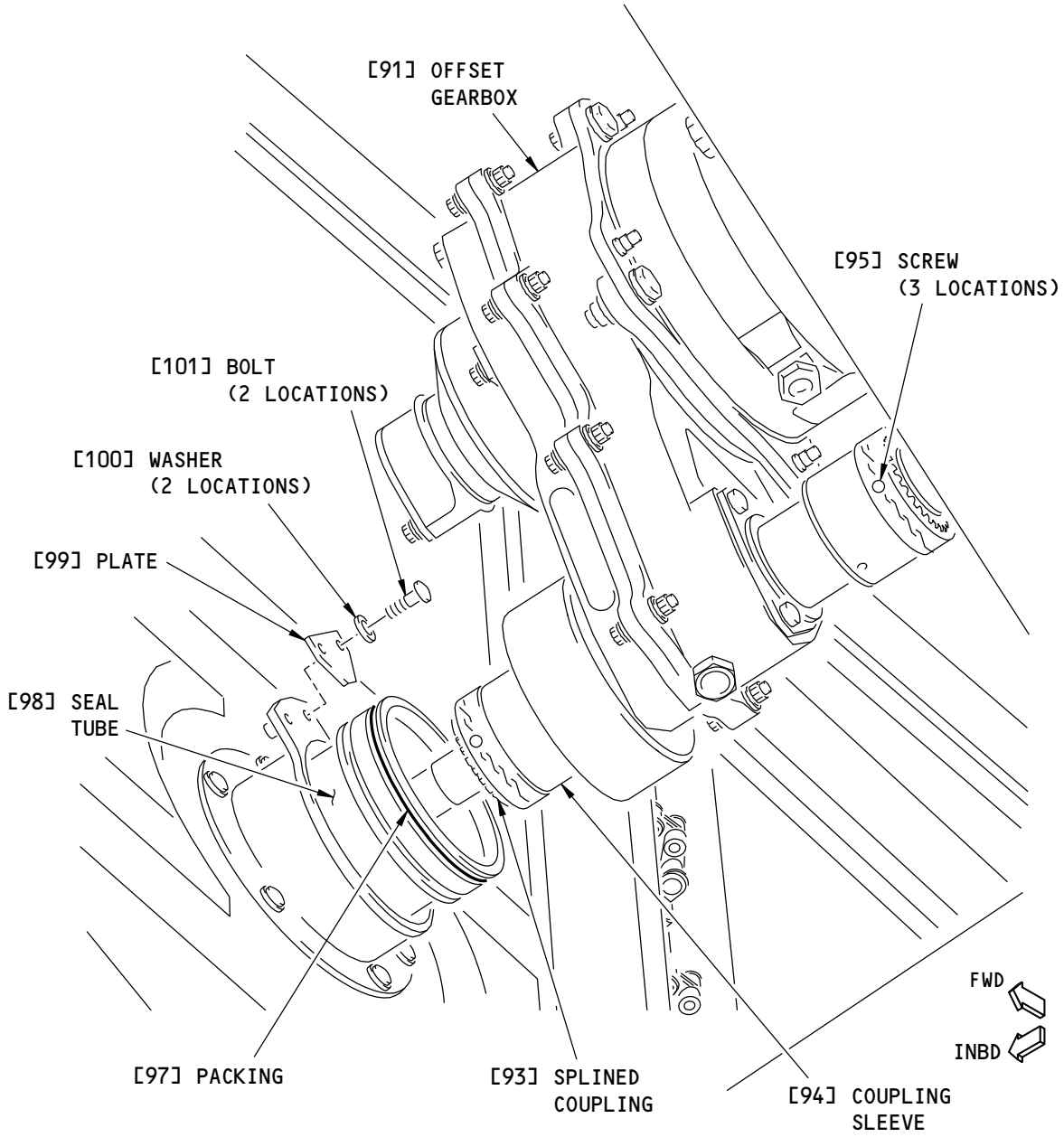
OUTBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

B

G78157 S0006414603_V1

Inboard Slat Drive System
Figure 403/27-81-47-990-803 (Sheet 2 of 5)

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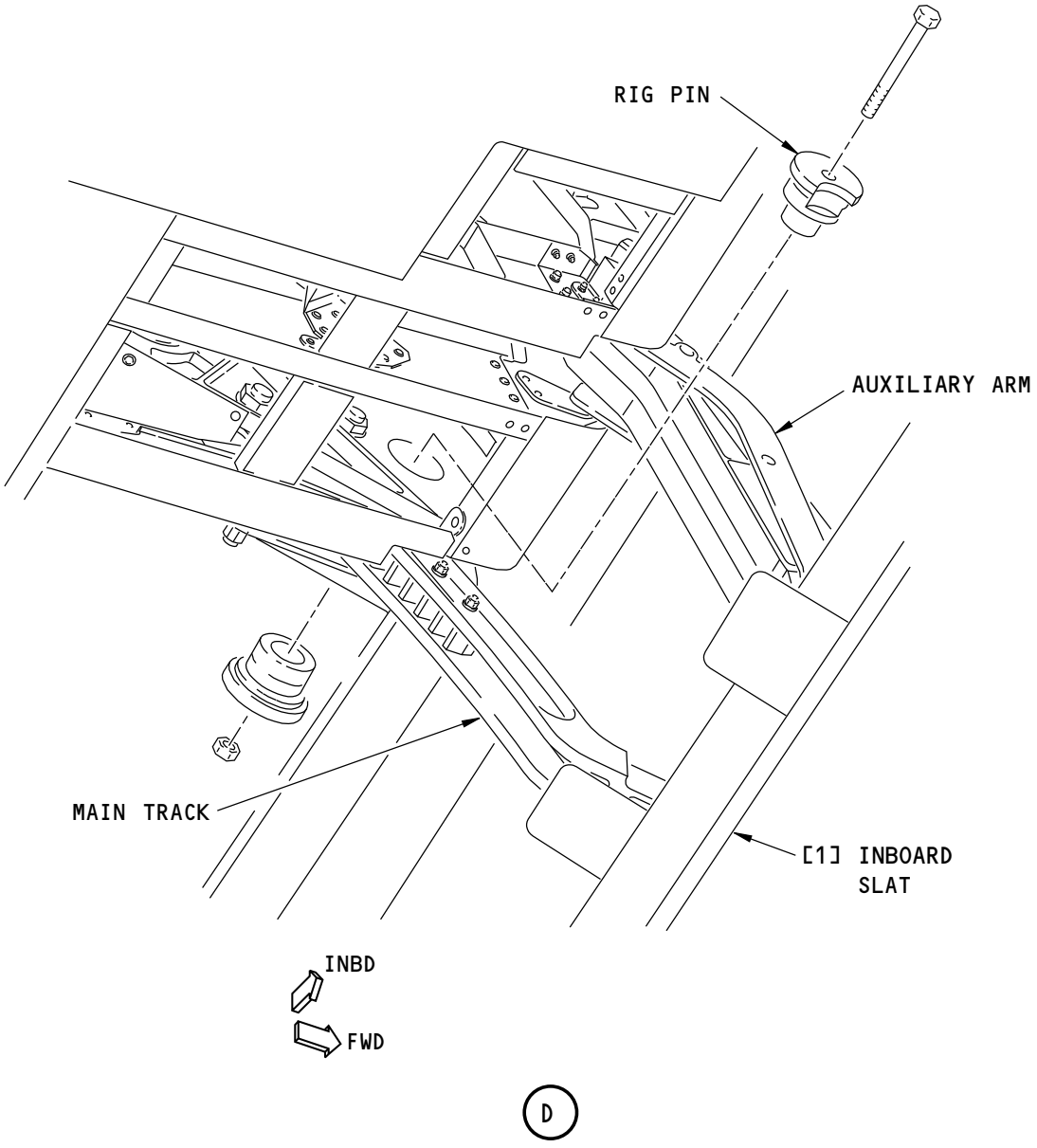
INBOARD OFFSET GEARBOX FOR THE INBOARD SLAT

C

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Inboard Slat Drive System
Figure 403/27-81-47-990-803 (Sheet 3 of 5)

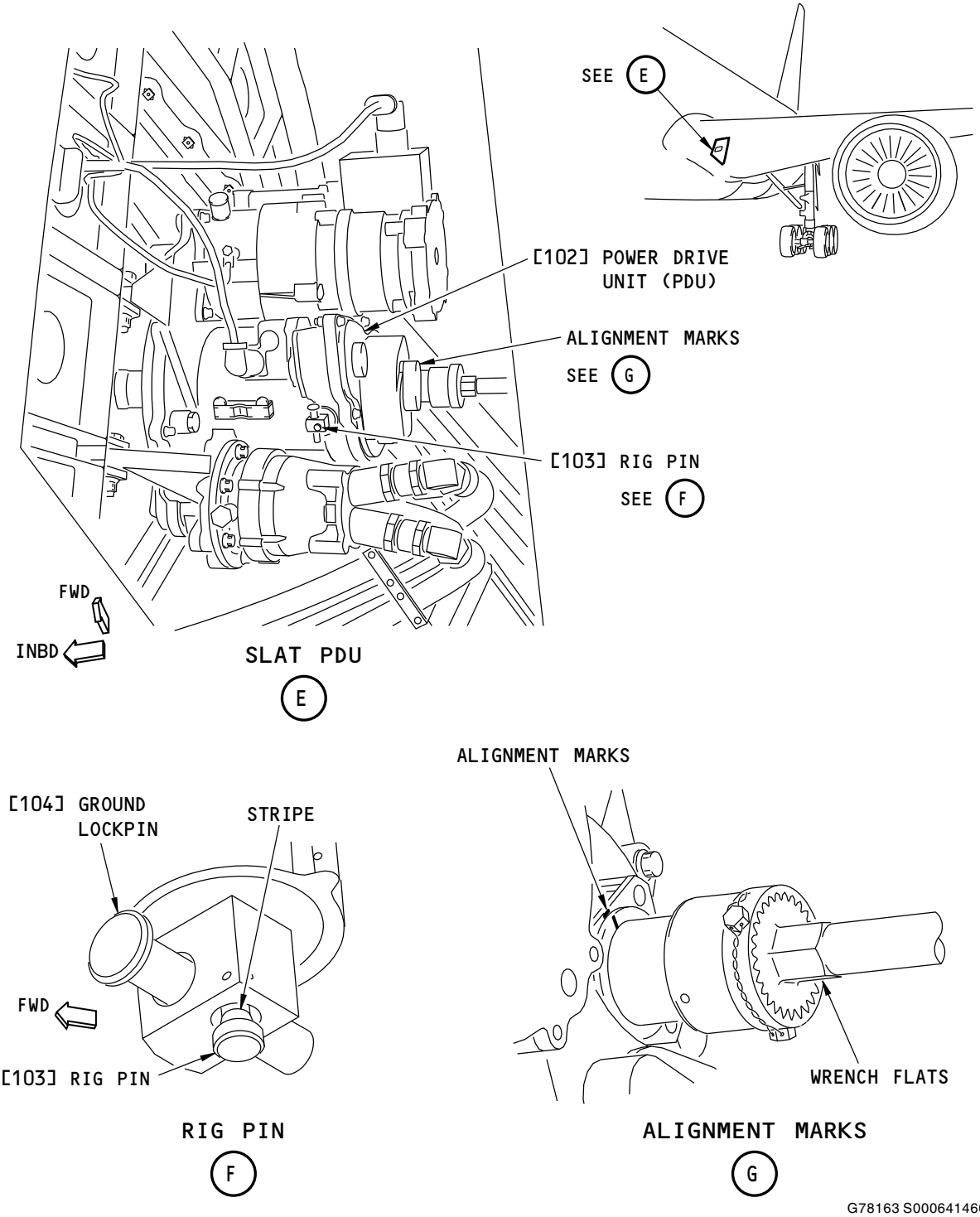
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Inboard Slat Drive System
Figure 403/27-81-47-990-803 (Sheet 4 of 5)

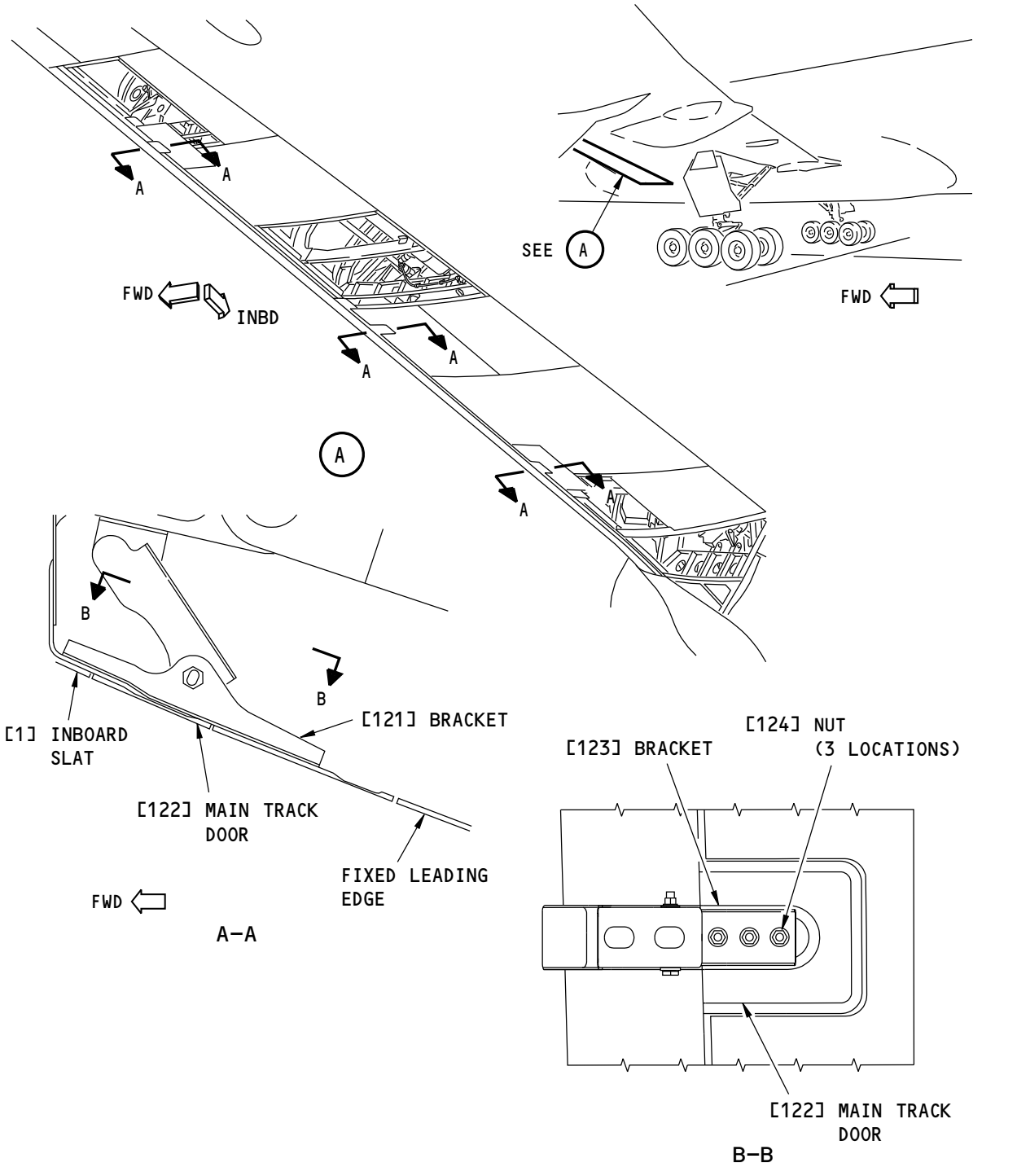
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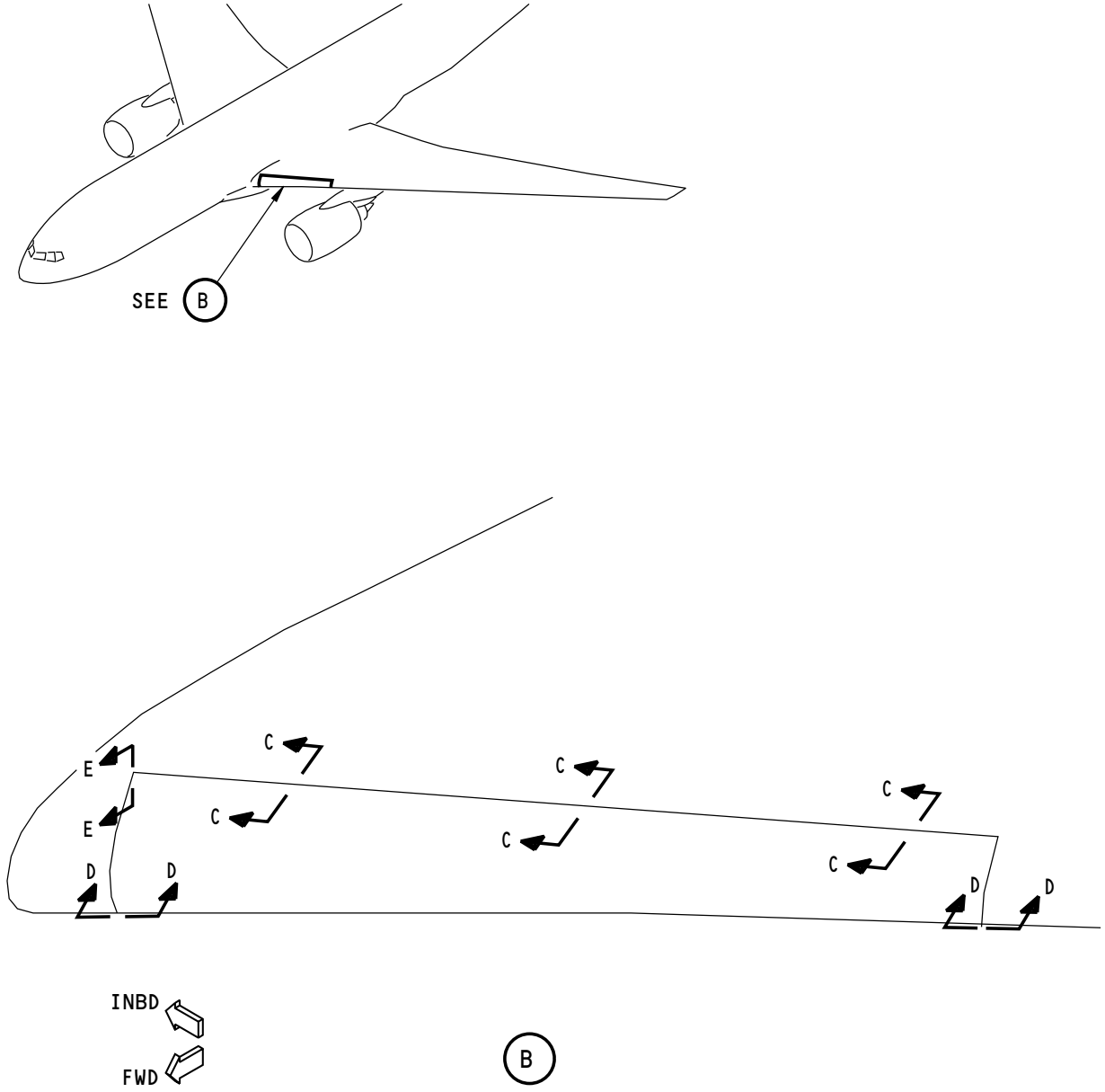
Inboard Slat Drive System
Figure 403/27-81-47-990-803 (Sheet 5 of 5)

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Inboard Slat Clearance
Figure 404/27-81-47-990-804 (Sheet 1 of 3)

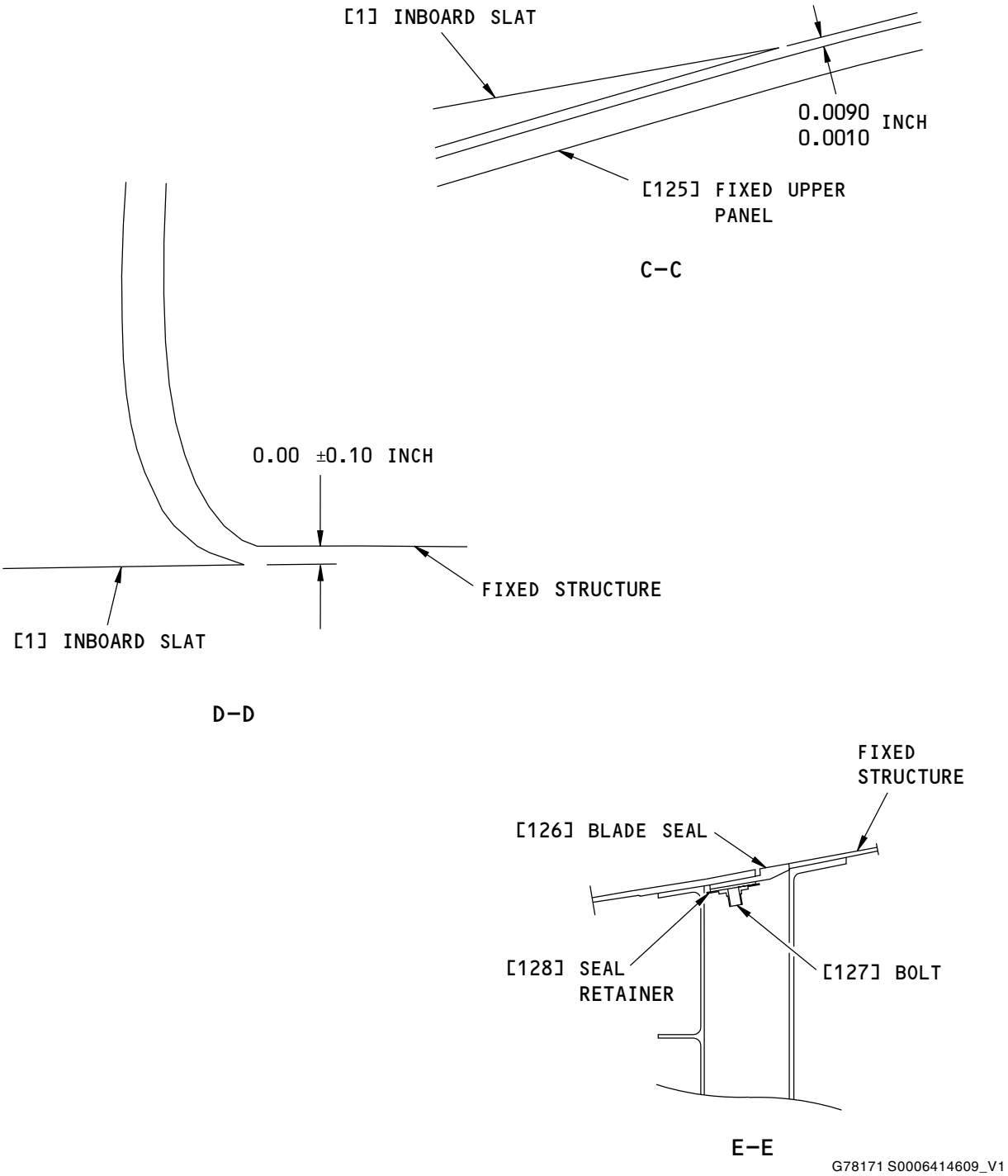
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Inboard Slat Clearance
Figure 404/27-81-47-990-804 (Sheet 2 of 3)

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Inboard Slat Clearance
Figure 404/27-81-47-990-804 (Sheet 3 of 3)

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LEADING EDGE SLAT POSITION INDICATION SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has an operational test of the position indication system for the leading edge slats.

TASK 27-88-00-710-801

2. Slat Position Indication System - Operational Test

(Figure 501)

A. General

(1) This procedure does a test of the primary, secondary and alternate display modes for the slat position indication system.

(2) A maintenance access terminal (MAT) is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 27-88-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-88-00-210-001

(2) Make sure the electrical ground safety locks for the flaps and slats are not installed on the primary control valves or the electric motors.

SUBTASK 27-88-00-210-006

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

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(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-88-00-210-004

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

E. Primary Mode Display Test

SUBTASK 27-88-00-860-002

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-88-00-710-001

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the 1-unit position.

NOTE: The slats will move to the sealed position with the flap control lever in the 1-unit position. The flaps will not move.

(a) Make sure the slat command bars on the FLAPS display show in magenta while the slats move.

(b) Make sure the slat command bars on the FLAPS display change to green when the slats get to the sealed position.

SUBTASK 27-88-00-710-002

(3) Move the flap control lever to the 25-unit position.

NOTE: The slats will move to the gapped position when the flap control lever is in the 25-unit position.

(a) Make sure the flap and slat command bars on the FLAPS display show in magenta while the flaps and slats move.

(b) Make sure the flap and slat command bars on the FLAPS display change to green when the slats get to the gapped position and the flaps get to the 25-unit position.

SUBTASK 27-88-00-710-003

(4) Move the flap control lever to the UP position.

(a) Make sure the flap and slat command bars on the FLAPS display show in magenta while the flaps and slats move.

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(b) Make sure the flap and slat command bars on the FLAPS display change to green when the flaps and slats get to the fully retracted position.

(c) Make sure the FLAPS display does not show approximately 10 seconds after the flaps get to the fully retracted position.

SUBTASK 27-88-00-860-003

(5) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

F. Secondary Mode Display Test

SUBTASK 27-88-00-860-009

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

SUBTASK 27-88-00-710-008

(2) Move the flap control lever to the 1-unit position.

NOTE: The SLATS PRIMARY FAIL message will show on EICAS. This is necessary to cause the secondary display mode to show.

SUBTASK 27-88-00-860-004

(3) Use a maintenance access terminal (MAT) to override the secondary mode inhibit:

NOTE: After you override the secondary mode inhibit, you have 15 seconds to move the flap control lever. It will be necessary to override the secondary mode inhibit again before you can move the slats to another position.

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Make these selections on the MAT:

1) OTHER FUNCTIONS
2) SPECIAL FUNCTIONS
3) 27 HIGH LIFT SYSTEM
4) SECONDARY MODE INHIBIT OVERRIDE-FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE-FSEU 2
5) CONTINUE
6) CONTINUE
7) START FUNCTION
8) CONTINUE

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SUBTASK 27-88-00-710-004

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS, SLATS, FLAPERONS AND AILERONS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Move the flap control lever to the 1-unit position.

NOTE: In secondary mode, the slats will move to the gapped position with the flap control lever in the 1-unit position. The flaps will not move.

(a) Make sure the secondary display mode shows on the EICAS.

(b) Make sure the slat command bars on the FLAPS display show in magenta while the slats move.

(c) Make sure the slat command bars on the FLAPS display change to green when the slats get to the gapped position.

SUBTASK 27-88-00-860-005

(5) Use the MAT to override the secondary mode inhibit again.

SUBTASK 27-88-00-710-005

(6) Move the flap control lever to the UP position.

(a) Make sure the flap and slat command bars on the FLAPS display show in magenta while the flap and slats move.

(b) Make sure the flap and slat command bars on the FLAPS display change to green when the flap and slats get to the fully retracted position.

SUBTASK 27-88-00-860-010

(7) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	5	C27607	SLATS PRI DR CTRL 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

G. Alternate Mode Display Test

SUBTASK 27-88-00-860-006

WARNING MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS AND SLATS. THE FLAPS AND SLATS WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(1) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-88-00-210-002

(2) Make sure the FLAPS display changes to the alternate mode display.

SUBTASK 27-88-00-710-006

(3) Move the ALTN FLAPS control switch to EXT to extend the flaps and slats.

(a) Make sure the FLAPS display shows the position of the flaps and slats.

SUBTASK 27-88-00-710-007

(4) Move the ALTN FLAPS control switch to RET to retract the flaps and slats to the fully retracted position.

(a) Make sure the FLAPS display shows the position of the flaps and slats.

(b) Move the ALT FLAPS control switch to OFF.

H. Put Airplane Back to its Usual Condition

SUBTASK 27-88-00-860-011

WARNING

MAKE SURE THAT THE POSITION OF THE FLAPS AND SLATS APPROXIMATELY AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Move the ALTN FLAPS control switch until the slats and flaps are in the same position as the flap control lever or move the flap control lever to the position of the flaps and slats Table 501.

Table 501/27-88-00-993-801 Flap and Slat Position Indications

Flap Control Lever Position	SLAT POS EICAS Maintenance Page Indication	FLAP POS EICAS Maintenance Page Indication
UP	8.35 to 11.65	8.97 to 11.03
1	245.13 to 252.31	10.00 to 12.03
5	245.13 to 252.31	163.19 to 171.34
15	245.13 to 252.31	200.53 to 208.67
20	245.13 to 252.31	238.78 to 246.92
25	346.51 to 355.89	298.84 to 306.99
30	346.51 to 355.89	344.13 to 353.07

SUBTASK 27-88-00-860-012

(2) Move the ALTN FLAPS control switch to OFF.

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SUBTASK 27-88-00-860-014

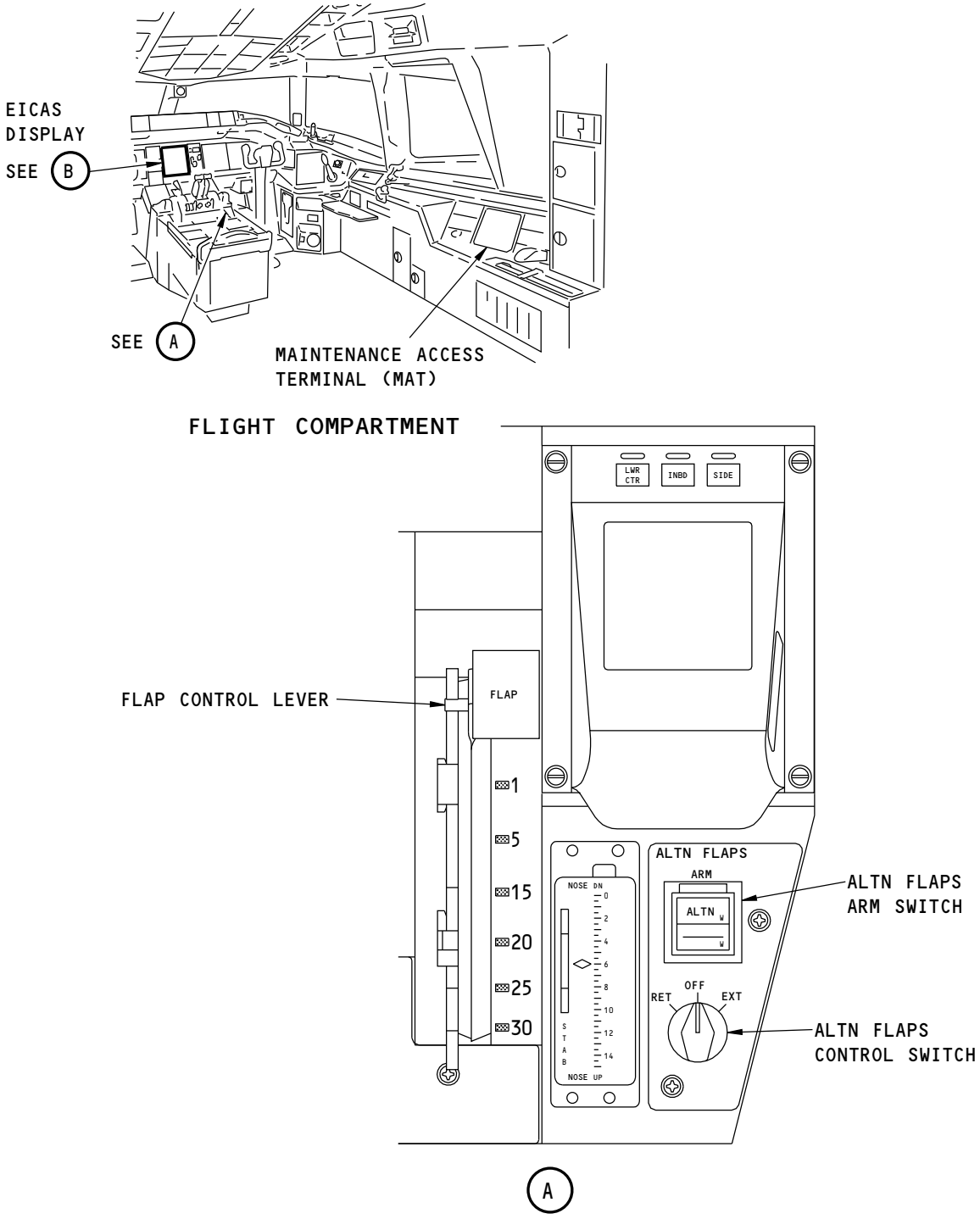
(3) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

SUBTASK 27-88-00-210-007

(4) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

——— END OF TASK ———

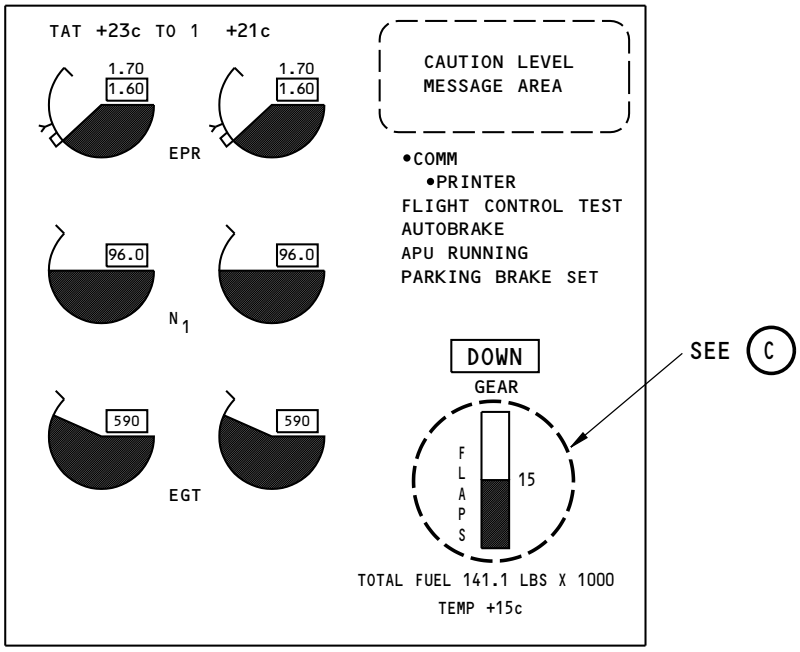
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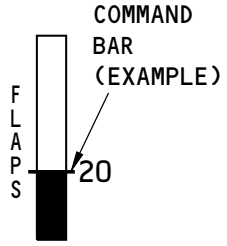
Slat Position Indication System
Figure 501/27-88-00-990-801 (Sheet 1 of 2)

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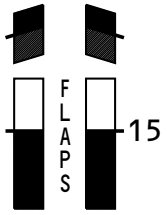
EICAS DISPLAY

B



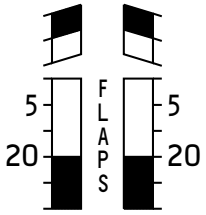
PRIMARY
MODE DISPLAY

C



SECONDARY
MODE DISPLAY
(SLATS SHOWN IN
GAPPED POSITION)

C



ALTERNATE
MODE DISPLAY
(SLATS SHOWN IN
SEALED POSITION)

C

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Slat Position Indication System
Figure 501/27-88-00-990-801 (Sheet 2 of 2)

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SLAT POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the slat position sensors.

(2) An installation of the slat position sensors.

B. The slat position sensors are installed on the outboard no-back brake, offset gearboxes at slats No. 1 and 14. There are two sensors on each offset gearbox.

C. The slat position sensors must be installed with the slats in the fully retracted position. Use the rig pin in the PDU to make sure that the slats are retracted. Make sure the rig indicator on the position sensor is in the rigged position before you install it. Do not try to turn the sensor shaft with the sensor removed. The shaft unlocks when the sensor is installed against its mating surface.

TASK 27-88-03-000-801

2. Slat Position Sensor Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
527	Slat No. 1
627	Slat No. 14

C. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

D. Prepare for the Removal

SUBTASK 27-88-03-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

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SUBTASK 27-88-03-860-008

(2) Retract the slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-88-03-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-88-03-010-001

(4) Remove the applicable fixed leading edge panels from the lower surface of the wing, (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807), do this step:

(a) To get access to the power drive unit [13], do this step:

Remove this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

(b) For slat No.1, remove this access panel:

Number	Name/Location
521ACB	Outboard Fixed Leading Edge Panel

(c) For slat No.14, remove this access panel:

Number	Name/Location
621ACB	Outboard Fixed Leading Edge Panel

(d) For slat No.1, remove this panel:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel

(e) For slat No.14, remove this panel:

Number	Name/Location
621AFB	Outboard Fixed Leading Edge Panel

E. Slat Position Sensor Removal

SUBTASK 27-88-03-860-001

(1) Make sure the leading edge slats are in the retracted position:

(a) Push in the rig pin [14] in the power drive unit [13].

(b) If you cannot push in the rig pin [14], then adjust the position of the slat power drive unit (PDU) [13]:

1) Use the wrench flats on the torque tube to manually turn the power drive unit [13] in the extend direction approximately one turn of the torque tube.

NOTE: This step is necessary to remove the backlash in the slat drive system.

2) Manually turn the power drive unit [13] in the retract direction approximately one turn until the alignment mark on the output shaft aligns with the mark on the housing.

3) Push in the rig pin [14] on the power drive unit [13] and hold it.

4) Install the ground lock pin [15] in the rig pin [14].

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5) Make sure the power drive unit [13] is locked in this position:

NOTE: If the power drive unit [13] is not locked in this position, move the power drive unit [13] to the retracted position again.

a) Manually try to turn the power drive unit [13] in the retract direction.

b) Manually try to turn the power drive unit [13] in the extend direction.

SUBTASK 27-88-03-860-002

(2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-88-03-020-001

(3) Remove the slat position sensor [2]:

(a) Disconnect the electrical connector [1] from the slat position sensor [2].

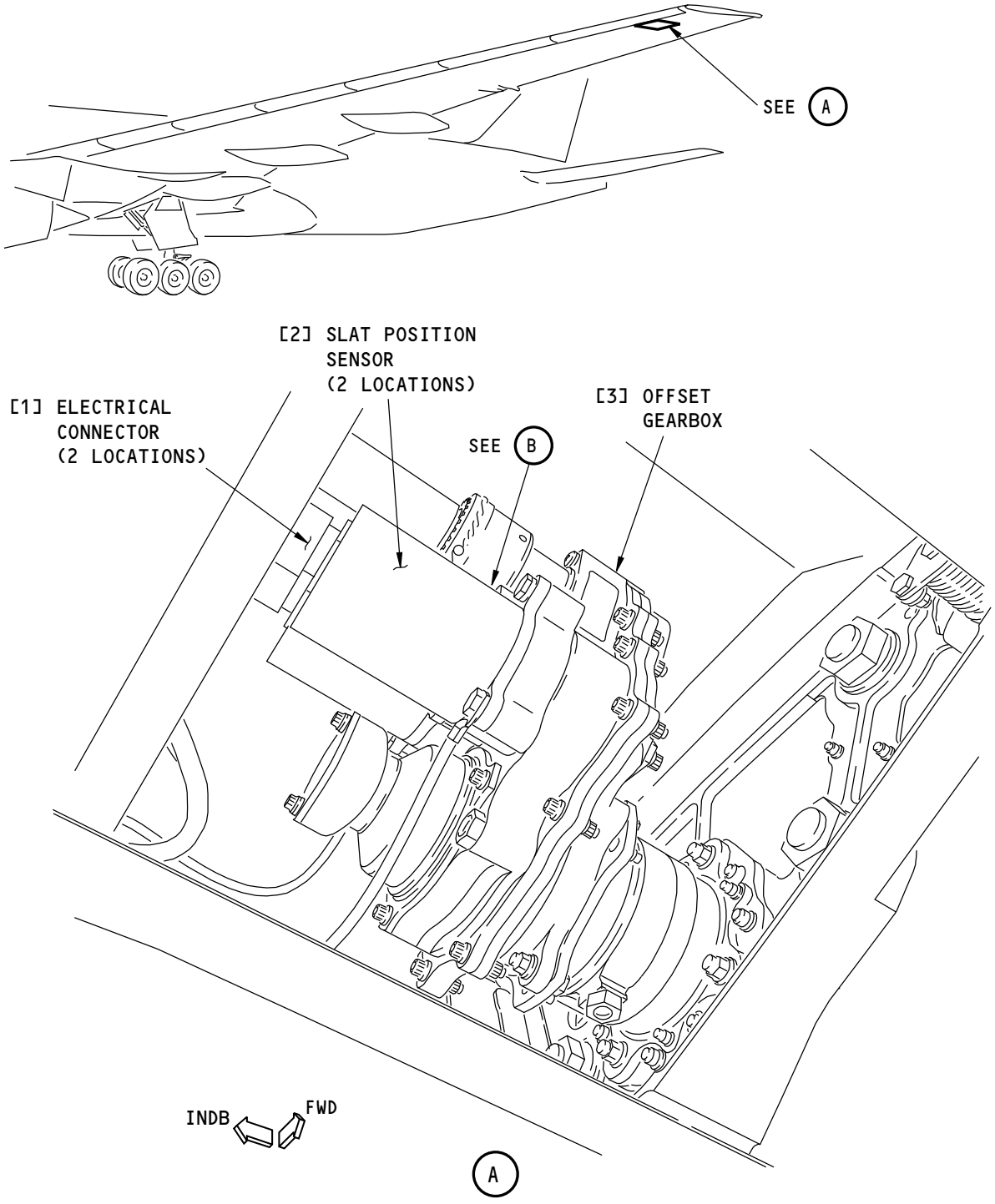
(b) Remove the bolt [9] and washers [7] that attach the jumper wire [8] to the slat position sensor [2].

(c) Remove the bolts [4] and washers [5] that attach the slat position sensor [2] to the offset gearbox [3].

(d) Remove the slat position sensor [2] from the offset gearbox [3].

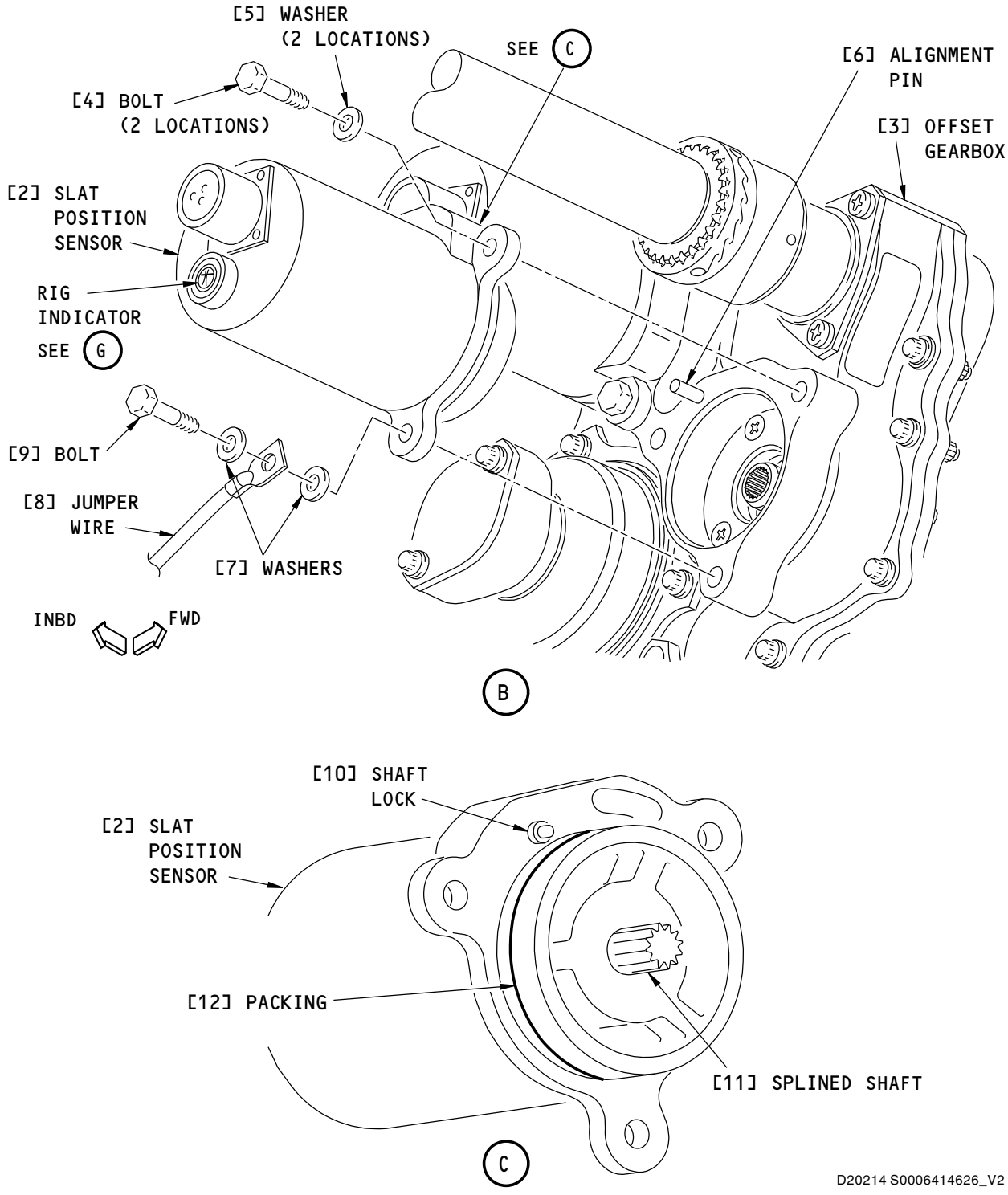
——— END OF TASK ———

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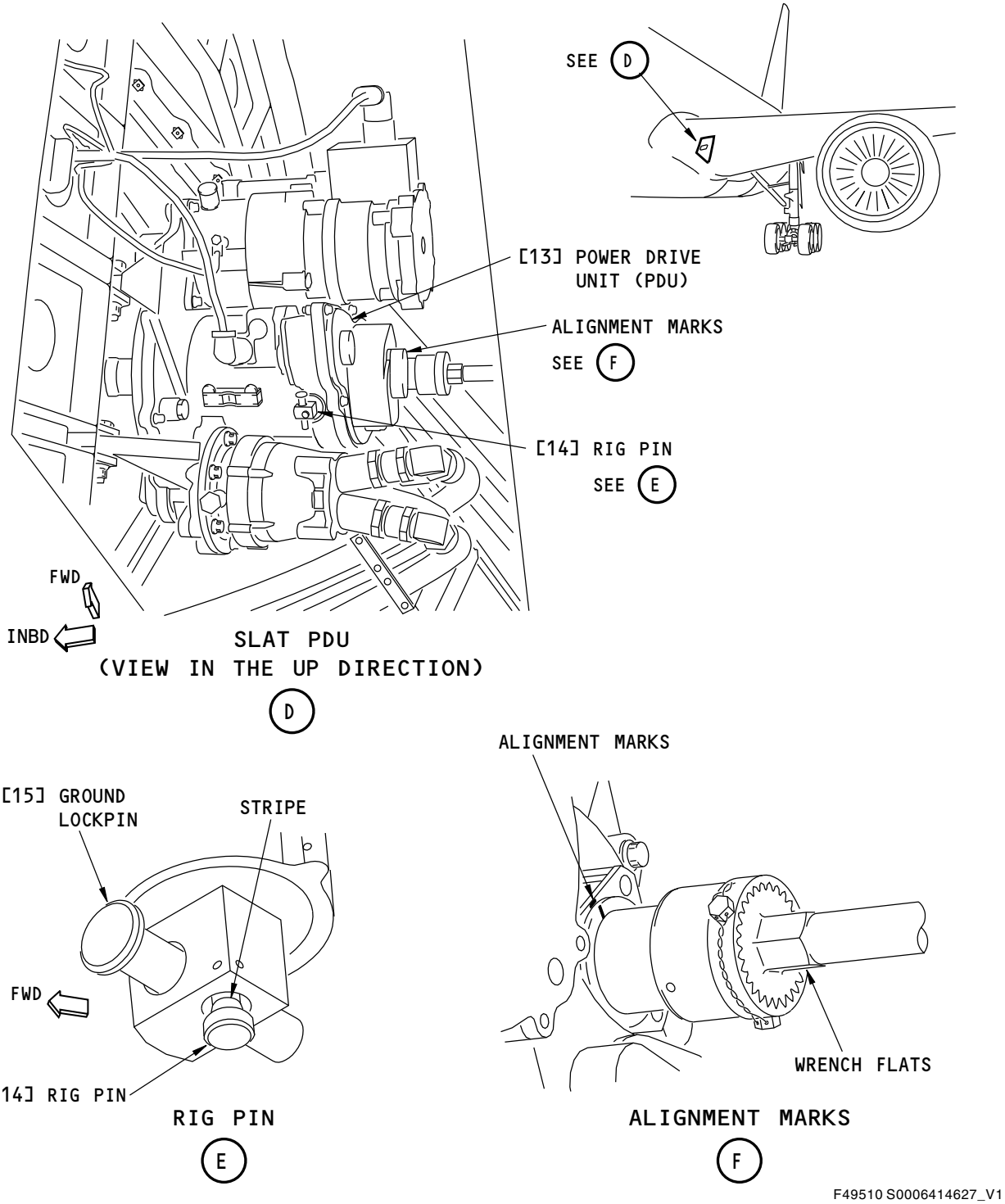
Slat Position Sensor Installation
Figure 401/27-88-03-990-801 (Sheet 1 of 4)

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Slat Position Sensor Installation
Figure 401/27-88-03-990-801 (Sheet 2 of 4)

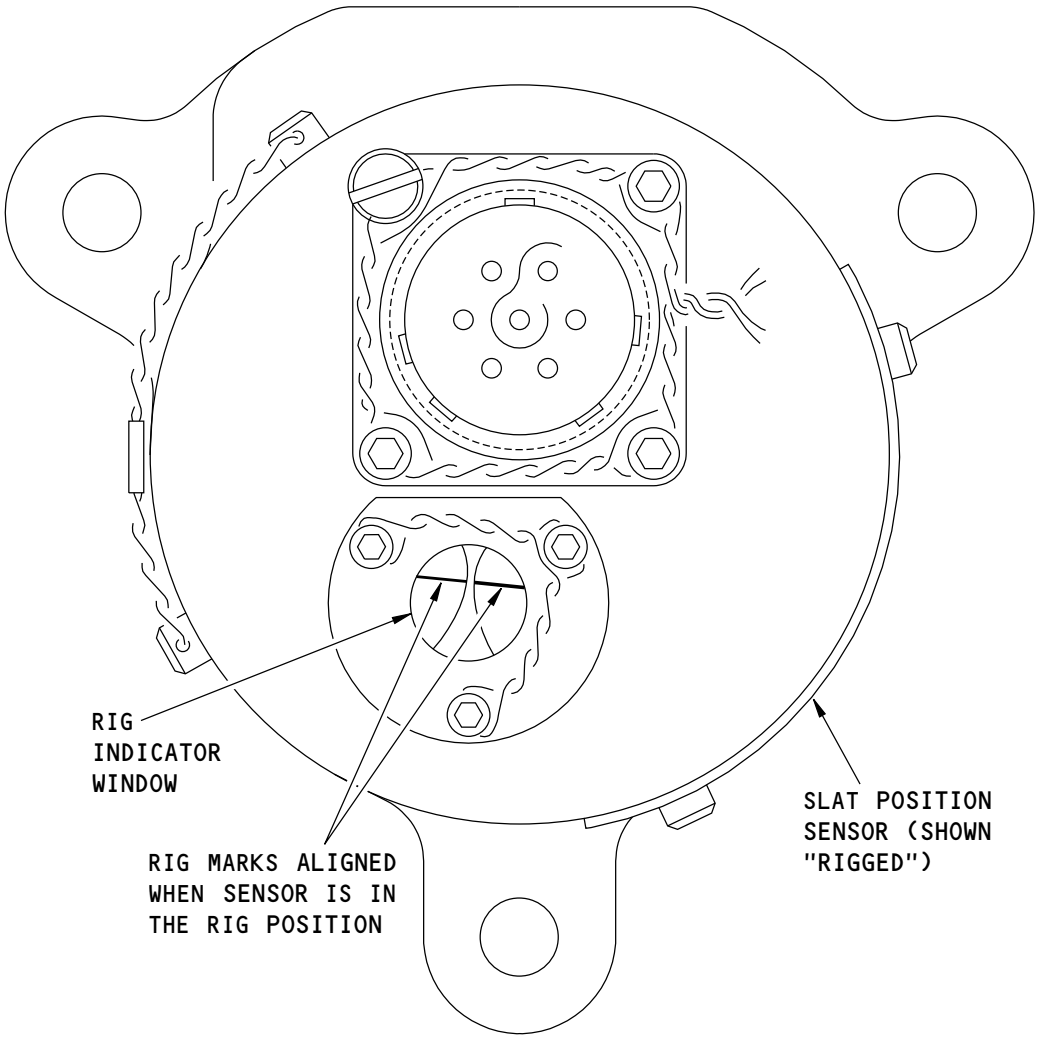
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Slat Position Sensor Installation
Figure 401/27-88-03-990-801 (Sheet 3 of 4)

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Slat Position Sensor Installation
Figure 401/27-88-03-990-801 (Sheet 4 of 4)

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TASK 27-88-03-400-801

3. Slat Position Sensor Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-88-00-710-801	Slat Position Indication System - Operational Test (P/B 501)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)
WDM D6-54446	Wiring Diagram Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
SPL-1756	Pin - Ground Lock (J27030-2 Included in Kits J27030-1 and J27030-29) Part #: J27030-29 Supplier: 81205 Opt Part #: J27030-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Slat position sensor	27-88-03-01A-055	ARO ALL
12	Packing	27-88-03-01A-060	ARO ALL
		27-88-03-01A-070	ARO ALL

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E. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
527	Slat No. 1
627	Slat No. 14

F. Access Panels

Number	Name/Location
511AB	Leading Edge PDU Panel
521ACB	Outboard Fixed Leading Edge Panel
521AFB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

G. Slat Position Sensor Installation

SUBTASK 27-88-03-860-005

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

SUBTASK 27-88-03-860-003

(2) Make sure the leading edge slats are in the retracted position:

(a) Make sure the rig pin [14] is pushed in and the ground lock pin (J27030-2 Included in Kits J27030-1 and J27030-29), SPL-1756 [15] is installed in the power drive unit [13].

SUBTASK 27-88-03-210-001

(3) Make sure the index marks for the rig indicator on the slat position sensor [2] are aligned.

SUBTASK 27-88-03-820-001

(4) If the index marks are not aligned, adjust the slat position sensor [2]:

(a) Push in the shaft lock [10] on the slat position sensor [2].

(b) Turn the splined shaft [11] on the slat position sensor [2] until the index marks align.

(c) Release the shaft lock [10].

SUBTASK 27-88-03-420-001

(5) Install the slat position sensor [2]:

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE CORBAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surface of the slat position sensor [2].

(b) If it is necessary, install a new packing [12] on the slat position sensor [2].

(c) Apply grease, D00013 to the packing [12] and the splined shaft [11] on the slat position sensor [2].

(d) Align the slot in the base of the slat position sensor [2] with the alignment pin [6] on the offset gearbox [3].

(e) Engage the splined shaft [11] with the offset gearbox [3].

NOTE: You can turn the body of the sensor enough to engage the splines.

(f) Apply grease, D00633 to the shank and threads of the bolts [4] and bolt [9].

(g) Install the bolts [4] and washer [5] to connect the slat position sensor [2] to the offset gearbox [3].

(h) Install the bolt [9] and washers [7] to connect the jumper wire [8] to the slat position sensor [2].

(i) With the intrinsically safe approved bonding meter, COM-1550, make sure the resistance across the jumper wire [8] is less than 8 milliohms, (WDM D6-54446).

SUBTASK 27-88-03-420-002

(6) Connect the electrical connector [1] to the slat position sensor [2].

SUBTASK 27-88-03-860-004

(7) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

H. Slat Position Sensor Installation Test

SUBTASK 27-88-03-860-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-88-03-080-001

(2) Remove the ground lock pin [15] and make sure the rig pin [14] comes out of the power drive unit [13].

(a) Make sure you can see the stripe on the rig pin [14].

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SUBTASK 27-88-03-440-001

(3) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-88-03-710-001

(4) Do this task: Slat Position Indication System - Operational Test, TASK 27-88-00-710-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-88-03-410-001

(1) Install the fixed leading edge panels on the lower surface of the wing (TASK 06-30-00-800-806) or (TASK 06-30-00-800-807), do this step:

(a) close access to below the power drive unit [13], do this step:

Install this access panel:

Number	Name/Location
511AB	Leading Edge PDU Panel

(b) For slat No.1, install this access panel:

Number	Name/Location
521ACB	Outboard Fixed Leading Edge Panel

(c) For slat No. 14, install this access panel:

Number	Name/Location
621ACB	Outboard Fixed Leading Edge Panel

(d) For slat No.1, install this access panel:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel

(e) For slat No.14, install this access panel:

Number	Name/Location
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-88-03-440-002

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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SLAT SKEW DETECTION SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An automatic test of the skew detection system for the inboard slat.

(2) A test of the skew detection system for the outboard slats.

TASK 27-89-00-740-801

2. Inboard Slat Skew Detection System Test

(Figure 501)

A. General

(1) Use this test to do a check of the inboard slat skew detection system. The test will extend and retract the slats.

(2) During this test you must select which FSEU will do the test. FSEU 1 will test the sensors S27013, S27014, S27017 and S27018. FSEU 2 will test the sensors S27015, S27016, S27019 and S27020.

(3) A maintenance access terminal (MAT) is necessary for this procedure. To get more information on how to use a MAT or how to find existing faults, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(4) These EICAS CAUTION messages can show during this test:

(a) FLAP/SLAT CONTROL

(b) NO AUTOLAND

(5) These EICAS STATUS messages can show during this test:

(a) FLAP/SLAT CONTROL 1

(b) FLAP/SLAT CONTROL 2

(c) NO AUTOLAND

(d) FLIGHT CONTROL SYS

(e) PFC INTERFACE

(6) This EICAS ADVISORY message can show during this test:

(a) NO AUTOLAND

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

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D. Procedure

SUBTASK 27-89-00-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-89-00-860-001

(2) Make sure the flaps and the slats are in the retracted position.

SUBTASK 27-89-00-860-002

(3) Make sure the flap control lever is in the UP position.

SUBTASK 27-89-00-210-005

WARNING MAKE SURE THE THRUST REVERSER COWLS ARE CLOSED WHEN YOU OPERATE THE FLAPS AND SLATS. THE SLATS CAN HIT THE THRUST REVERSER COWLS IF THEY ARE OPEN. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Make sure the thrust reverser cowls are closed.

(a) If the thrust reversers are not closed and deactivated before performing maintenance tasks in these or other sections of the airplane then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

NOTE: In the even that this potential damage of the airplane occurred then immediate repair (s) of the damaged section (s) that include the immediate replacement of the rotary actuator (s) of the krueger flap (s) will be necessary to complete.

(b) If the thrust reversers are not closed and deactivated before extending the leading edge flaps and slats then potential serious damage to the slats, krueger flaps and thrust reverser assemblies of the airplane can occur, as warned in the Fleet Team Digest: 777-FTD-27-11002.

SUBTASK 27-89-00-210-003

CAUTION MAKE SURE THE ADP ACCESS DOOR IS FULLY OPEN OR FULLY CLOSED WHEN YOU MOVE THE TRAILING EDGE FLAPS. THE FLAPS CAN HIT THE DOOR IF IT IS NOT FULLY OPEN OR CLOSED. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Make sure the Air-Driven Pump (ADP) door is fully open or fully closed.

SUBTASK 27-89-00-860-004

WARNING KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must use the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

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SUBTASK 27-89-00-740-001

WARNING MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE SLATS DURING THIS TEST. THE SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Use a maintenance access terminal (MAT) to do the System test of the inboard slat skew system:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 27 HIGH LIFT SYSTEM
5) LRU REPLACEMENT TEST
6) Inboard Slat Skew Test-FSEU 1 (Inboard Slat Skew Test-FSEU 2)

NOTE: Use FSEU 1 to test sensors S27013, S27014, S27017 and S27018. Use FSEU 2 to test sensors S27015, S27016, S27019 and S27020.

To do a full test of the inboard slat skew system, you must do the test with FSEU 1 and FSEU 2.

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 27-89-00-860-005

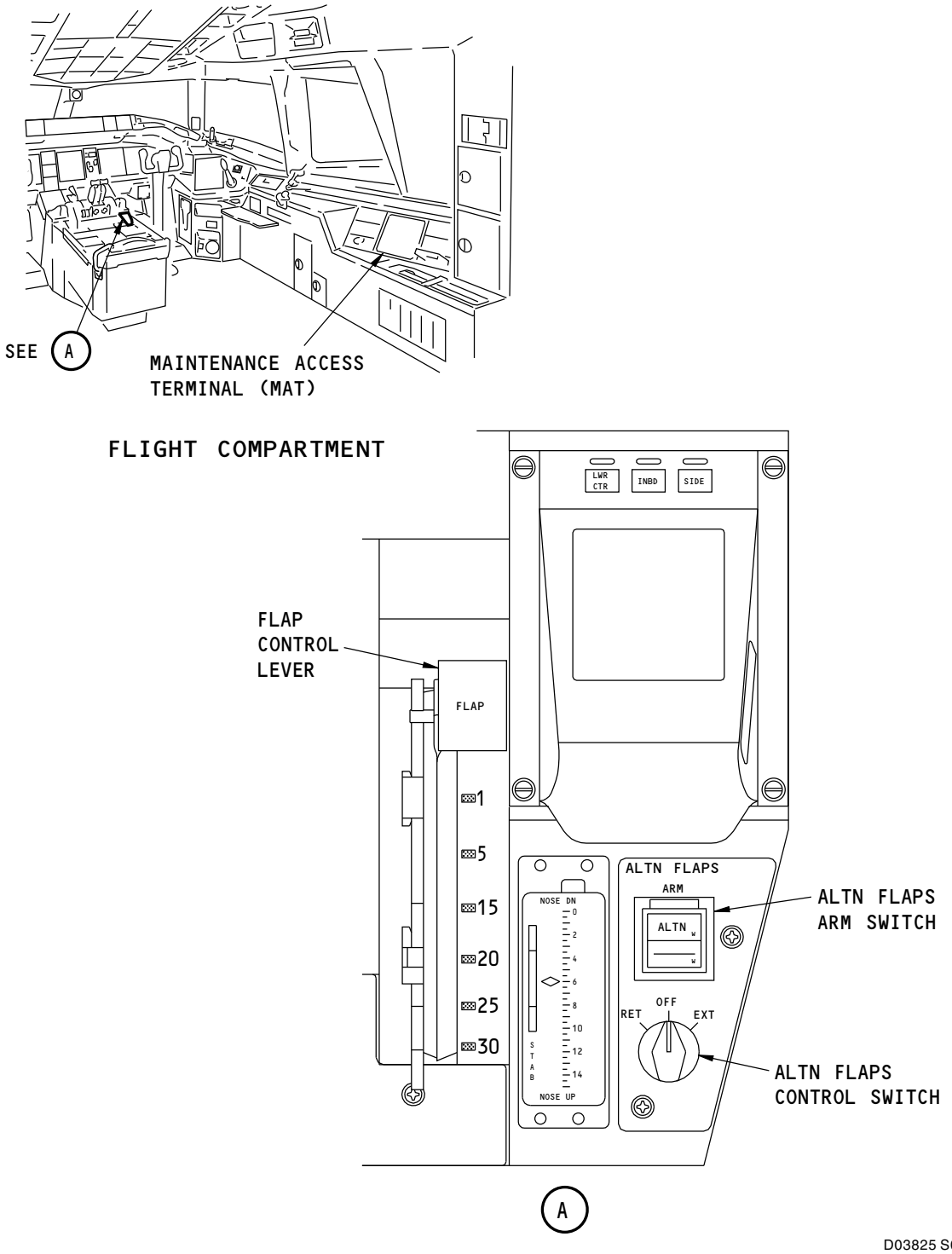
(8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 27-89-00-860-006

(9) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

END OF TASK

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Slat System Operation
Figure 501/27-89-00-990-801

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27-CMR-04

TASK 27-89-00-730-801

3. Outboard Slat Skew Detection System Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) In this task, this test is to be performed at both wings when an operational test is required by a certification maintenance requirement (CMR). If you replace any part of the slat skew detection mechanism on one wing, you perform this test on that wing only.

(2) Slat skew sensors S27009 and S27011 are on the left wing. Slat skew sensors S27010 and S27012 are in the right wing.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1184	Scale - Spring, 0-100 Lbs, Tension

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Cotter pin	27-89-13-01-210	ARO ALL

E. Location Zones

Zone	Area
212	Flight Compartment, Right
522	Slat No. 6
526	Slat No. 2
622	Slat No. 9
626	Slat No. 13

F. Access Panels

Number	Name/Location
526CB	Slat No. 2 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

G. Prepare for the Test

SUBTASK 27-89-00-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

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SUBTASK 27-89-00-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-89-00-860-008

(3) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-89-00-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

H. Outboard Slat Skew Detection System Test

SUBTASK 27-89-00-210-001

(1) Make sure the EICAS CAUTION message SLATS DRIVE does not show.

SUBTASK 27-89-00-210-002

(2) Make sure the EICAS STATUS message FLAP/SLAT SKEW SNSRS does not show.

SUBTASK 27-89-00-020-001

(3) Remove the cotter pin [1] from the cable anchor on slat No. 6 or 9 (Figure 502).

SUBTASK 27-89-00-020-002

(4) Remove the bolt [3] and the clamp [2] from the end of the cable assy.

SUBTASK 27-89-00-730-001

(5) Use the spring scale (0-100 Lbs), STD-1184 to pull the end of the cable assy inboard 1.0 to 1.2 inches from its usual position in the cable anchor.

(a) Make sure the force necessary to pull the cable assy is less than 35 pounds.

(b) Make sure the EICAS CAUTION message SLATS DRIVE does not show.

(c) Make sure the EICAS STATUS message FLAP/SLAT SKEW SNSRS does not show.

SUBTASK 27-89-00-730-002

(6) Use the spring scale (0-100 Lbs), STD-1184 to pull the end of the cable assy inboard until the following EICAS messages show:.

(a) EICAS CAUTION message SLATS DRIVE.

(b) EICAS STATUS message FLAP/SLAT SKEW SNSRS.

1) Verify that these messages show before the cable is pull 4.2 inches from it usual position.

2) Verify that the force necessary to pull the cable assy is less than 80 pounds.

SUBTASK 27-89-00-420-001

(7) Connect the cable assy to the cable anchor:

(a) Put the cable assy in its usual position in the cable anchor.

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(b) Install the cotter pin [1].

SUBTASK 27-89-00-400-001

(8) Install the clamp [2] and the bolt [3] on the end of the cable assy.

SUBTASK 27-89-00-010-001

(9) To get access to the slat skew mechanism on the cove areas of slats No. 2 or 13, do this step:

Open this access panel:

Number	Name/Location
526CB	Slat No. 2 Cove Access Panel

or open this access panel:

Number	Name/Location
626CB	Slat No. 13 Cove Access Panel

SUBTASK 27-89-00-730-003

(10) Make sure the slider on the slat skew mechanism is in the latched position:

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(a) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system (Figure 501).

NOTE: The EICAS CAUTION message FLAP/SLAT CONTROL will show.

(b) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

(c) Make sure the EICAS CAUTION message SLATS DRIVE and the EICAS STATUS message FLAP/SLAT SKEW SNSRS show.

NOTE: If the slider is not in the latched position, these EICAS messages will not show.

(d) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

SUBTASK 27-89-00-710-001

WARNING

KEEP ALL PERSONNEL CLEAR OF THE SPACE BETWEEN THE SLIDER AND THE SENSORS ON THE SLAT SKEW MECHANISM. WHEN YOU RELEASE THE LATCHES, THE SLIDER WILL QUICKLY MOVE OUTBOARD. THIS CAN CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(11) Release the latches on the slat skew mechanism to permit the slider to move outboard (Figure 502).

SUBTASK 27-89-00-010-002

(12) On the cove areas of slats No. 2 or 13.

Close this access panel:

Number	Name/Location
526CB	Slat No. 2 Cove Access Panel

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or close this access panel:

Number	Name/Location
626CB	Slat No. 13 Cove Access Panel

SUBTASK 27-89-00-730-004

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(13) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system (Figure 501).

NOTE: The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-89-00-730-005

(14) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

(a) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

(b) Make sure the EICAS CAUTION message SLATS DRIVE does not show.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-89-00-440-001

(1) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-89-00-860-009

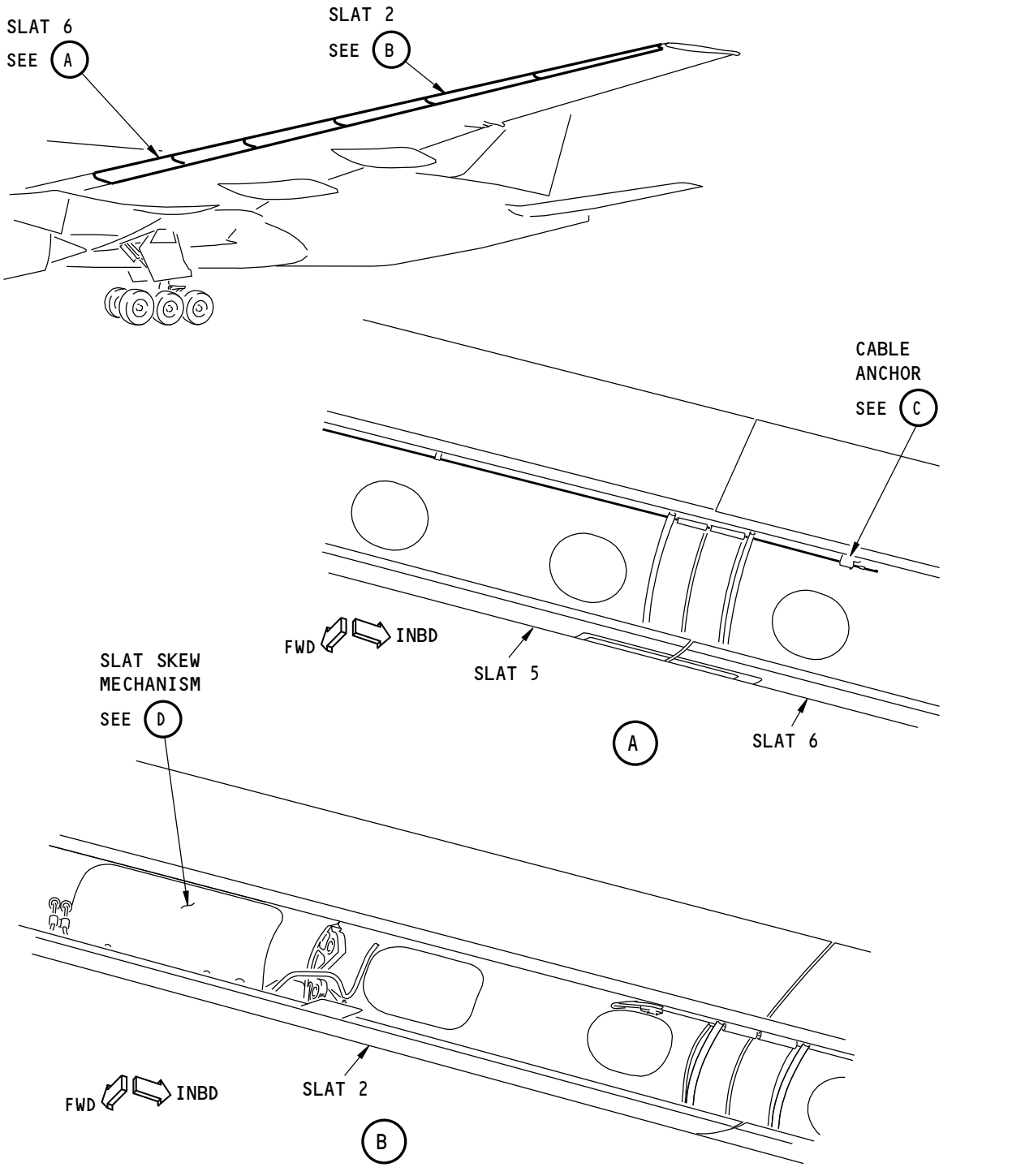
(2) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-89-00-440-002

(3) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

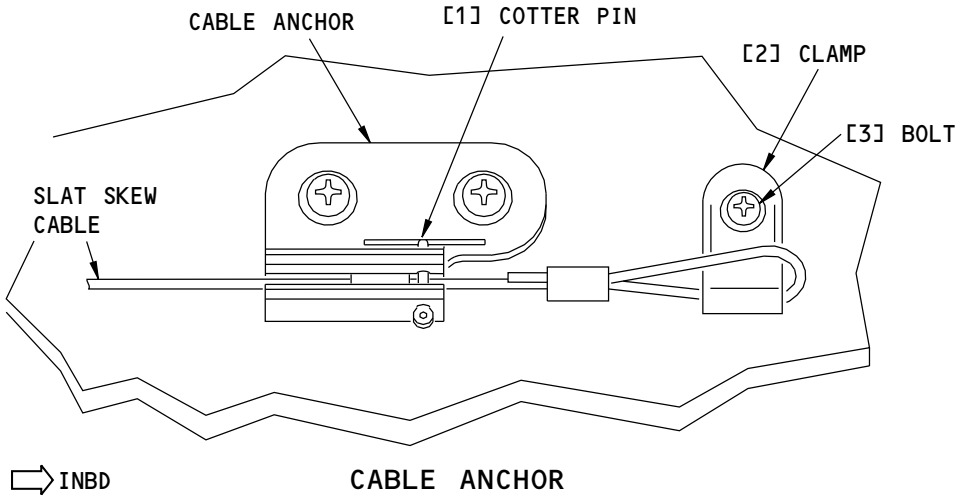
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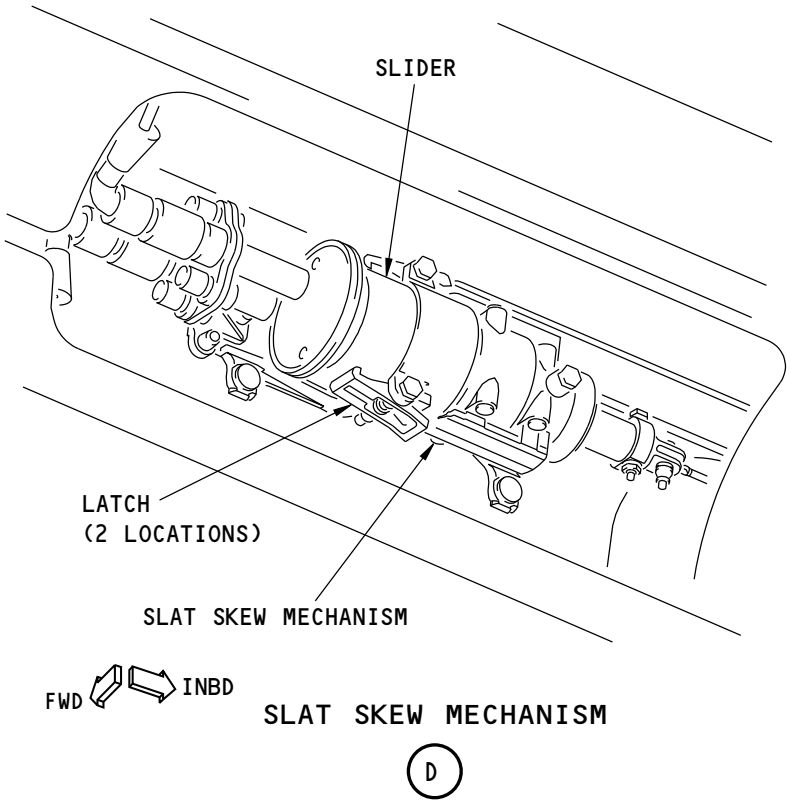


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Outboard Slat Skew System Test
Figure 502/27-89-00-990-802 (Sheet 1 of 2)

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Outboard Slat Skew System Test
Figure 502/27-89-00-990-802 (Sheet 2 of 2)

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INBOARD SLAT SKEW SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the slat skew sensors for the inboard slats.

(2) An installation of the slat skew sensors for the inboard slats.

B. These procedures apply to all eight of the slat skew sensors for the inboard slats.

TASK 27-89-01-000-801

2. Inboard Slat Skew Sensor Removal

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

C. Access Panels

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel

D. Prepare for the Removal

NOTE: The slats can be either extended or retracted when you do this procedure.

SUBTASK 27-89-01-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-89-01-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

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SUBTASK 27-89-01-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 27-89-01-010-001

(4) To get access to the applicable slat skew sensor [1], do this step:(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807).

Remove these access panels:

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel

or remove this access panel:

Number	Name/Location
611LB	Inboard Fixed Leading Edge Panel

E. Inboard Slat Skew Sensor Removal

SUBTASK 27-89-01-860-001

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-01-020-001

(2) Disconnect the electrical connector [5] from the slat skew sensor [1].

SUBTASK 27-89-01-020-002

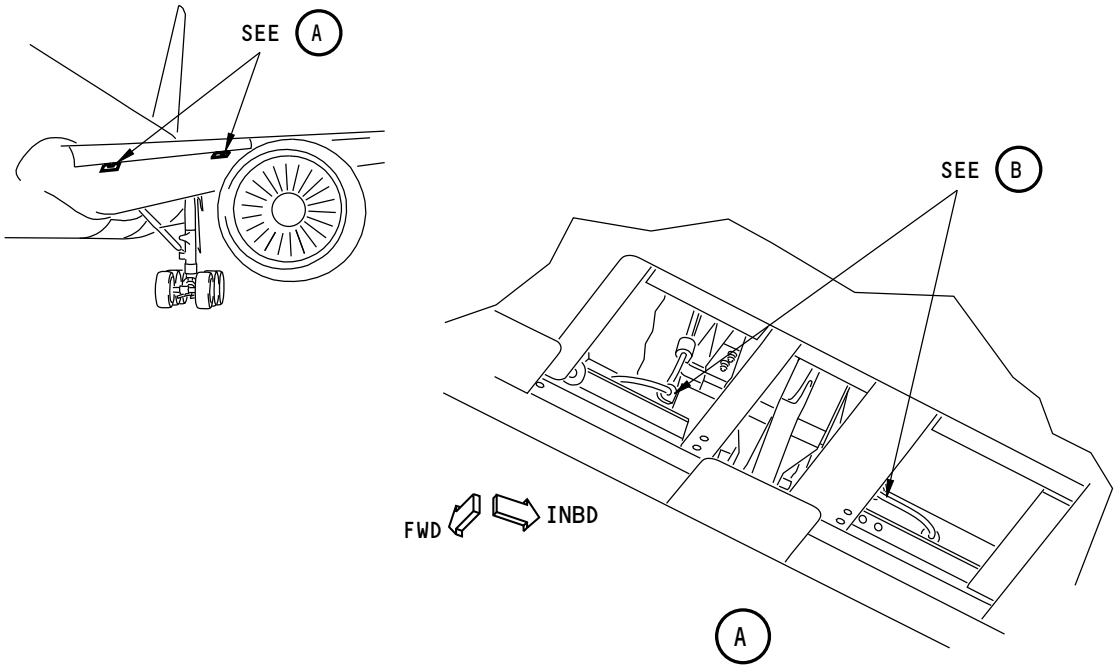
(3) Remove the slat skew sensor [1]:

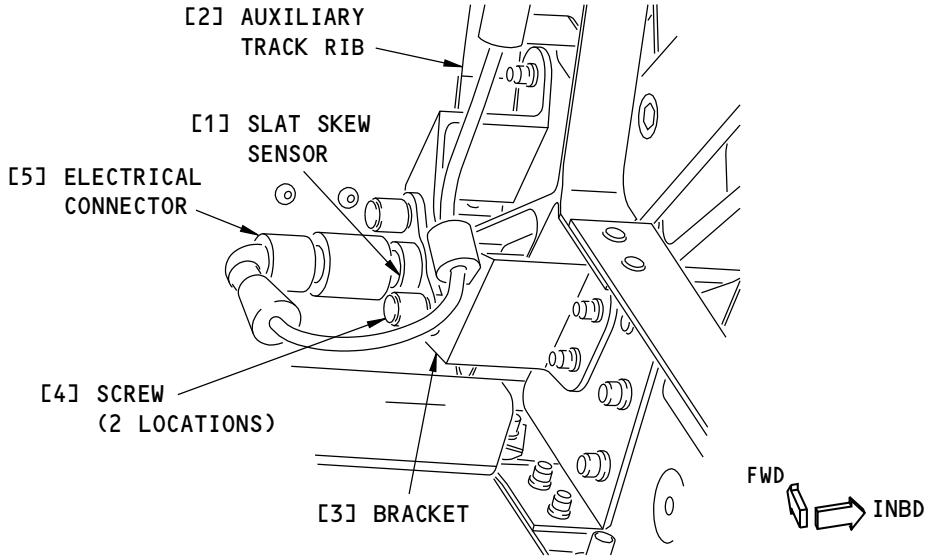
(a) Loosen the screws [4] that hold the slat skew sensor [1] to the bracket [3] on the auxiliary track rib [2].

(b) Remove the slat skew sensor [1].

END OF TASK

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(OUTBOARD SLAT SKEW/SENSOR FOR THE OUTBOARD AUXILIARY TRACK SHOWN. OTHER SENSORS EQUIVALENT)

B

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Inboard Slat Skew Sensor Installation
Figure 401/27-89-01-990-801

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TASK 27-89-01-400-801

3. Inboard Slat Skew Sensor Installation

(Figure 401)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-89-00-740-801	Inboard Slat Skew Detection System Test (P/B 501)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D50004	Compound - Antiseize	BMS3-28
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Slat skew sensor	27-89-01-01-080	ARO ALL

D. Location Zones

Zone	Area
512	Slat No. 7
612	Slat No. 8

E. Access Panels

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel

F. Inboard Slat Skew Sensor Installation

SUBTASK 27-89-01-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Install the slat skew sensor [1]:

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the slat skew sensor [1] and the bracket [3] on the auxiliary track rib [2].

(b) Install the slat skew sensor [1] on the bracket [3].

1) Apply a thin film of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the pilot hole in the bracket [3] (or on the pilot diameter on the slat skew sensor [1]) and to the faying surface of the slat skew sensor [1] before installation.

a) Make sure the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 is not applied on the attach fastener hole or on the fastener threads.

2) Apply a thin film of compound, D50004 to the threads of the attach fasteners before installation.

(c) Tighten the screws [4] that attach the slat skew sensor [1] to the bracket [3].

1) Torque to 24 in-lb (3 N·m) minimum to 38 in-lb (4 N·m) to eliminate gapping between the slat skew sensor [1] and the structure.

(d) Remove the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 around the slat skew sensor [1].

SUBTASK 27-89-01-420-002

(2) Install the electrical connector [5] on the slat skew sensor [1].

SUBTASK 27-89-01-860-002

(3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-01-440-002

(4) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-89-01-740-001

(5) Do this task: Inboard Slat Skew Detection System Test, TASK 27-89-00-740-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-89-01-410-001

(1) On the lower surface of the wing, do this step:(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807)

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Install these access panels:

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel

or install this access panel:

Number	Name/Location
611LB	Inboard Fixed Leading Edge Panel

SUBTASK 27-89-01-440-001

(2) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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OUTBOARD SLAT SKEW SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the skew sensors for the outboard slats.

(2) An installation of the skew sensors for the outboard slats.

B. The skew sensors are installed in the cove area of slats No. 2 and 13.

TASK 27-89-11-000-801

2. Outboard Slat Skew Sensor Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
526	Slat No. 2
626	Slat No. 13

C. Access Panels

Number	Name/Location
526CB	Slat No. 2 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

D. Prepare for the Removal

SUBTASK 27-89-11-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-89-11-040-002

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-89-11-860-004

(3) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

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SUBTASK 27-89-11-040-001

WARNING DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

E. Outboard Slat Skew Sensor Removal

SUBTASK 27-89-11-860-001

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-11-010-001

(2) To get access to the slat skew mechanism [4] in slat No. 2 or 13, do this step:

Open this access panel:

Number	Name/Location
526CB	Slat No. 2 Cove Access Panel

or open this access panel:

Number	Name/Location
626CB	Slat No. 13 Cove Access Panel

SUBTASK 27-89-11-020-001

(3) Remove the electrical connector [1] from the applicable skew sensor [3].

SUBTASK 27-89-11-020-002

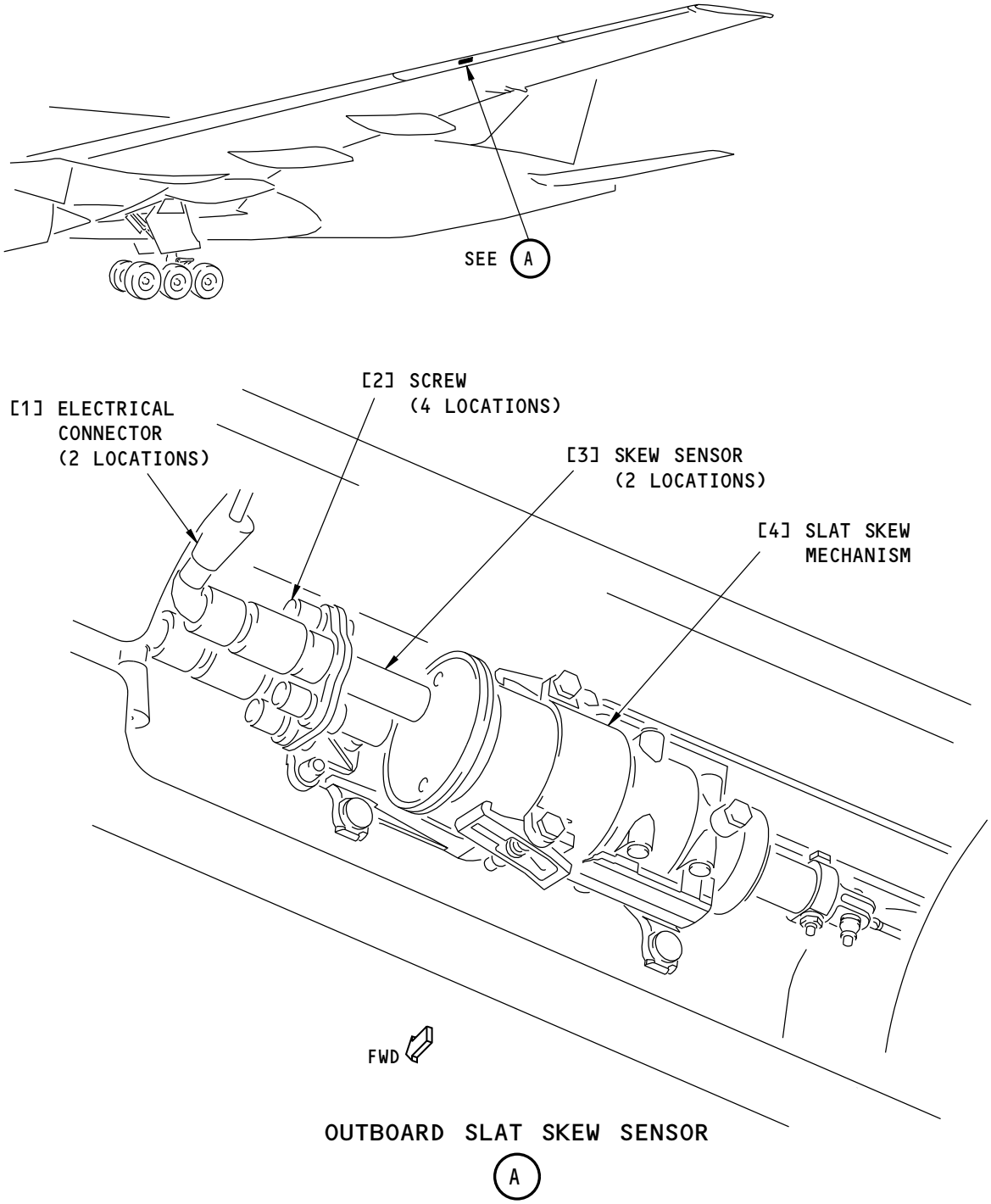
(4) Remove the skew sensor [3]:

(a) Loosen the screws [2] that hold the skew sensor [3] to the slat skew mechanism [4].

(b) Remove the skew sensor [3] from the slat skew mechanism [4].

——— END OF TASK ———

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Outboard Slat Skew Sensor Installation
Figure 401/27-89-11-990-801

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TASK 27-89-11-400-801

3. Outboard Slat Skew Sensor Installation

(Figure 401)

A. References

Reference	Title
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-89-00-730-801	Outboard Slat Skew Detection System Test (P/B 501)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Skew sensor	27-89-11-01-025	ARO ALL

D. Location Zones

Zone	Area
526	Slat No. 2
626	Slat No. 13

E. Access Panels

Number	Name/Location
526CB	Slat No. 2 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

F. Outboard Slat Skew Sensor Installation

SUBTASK 27-89-11-860-006

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-11-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

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(WARNING PRECEDES)

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Install the skew sensor [3]:

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the skew sensor [3] and the slat skew mechanism [4].

(b) Install the skew sensor [3] on the slat skew mechanism [4].

(c) Tighten the screws [2] that attach the skew sensor [3] to the slat skew mechanism [4] to 24 in-lb (2.7 N·m)-26 in-lb (2.9 N·m).

(d) Remove the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 around the skew sensor [3].

SUBTASK 27-89-11-420-002

(3) Connect the electrical connector [1] to the skew sensor [3].

SUBTASK 27-89-11-860-002

(4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-11-720-001

(5) Do this task: Outboard Slat Skew Detection System Test, TASK 27-89-00-730-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-89-11-410-001

(1) In slat No. 2 or 13, do this step:

Close this access panel:

Number	Name/Location
526CB	Slat No. 2 Cove Access Panel

or close this access panel:

Number	Name/Location
626CB	Slat No. 13 Cove Access Panel

SUBTASK 27-89-11-440-002

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-89-11-860-007

(3) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

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SUBTASK 27-89-11-440-001

(4) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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OUTBOARD SLAT SKEW MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the skew detection mechanism for the outboard slats.

(2) An installation of the skew detection mechanism for the outboard slats.

B. The outboard slat skew mechanisms are installed in the cove area of slats No. 2 and 13.

TASK 27-89-12-000-801

2. Outboard Slat Skew Mechanism Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
526	Slat No. 2
626	Slat No. 13

C. Access Panels

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

D. Prepare for the Removal

SUBTASK 27-89-12-860-009

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-89-12-040-004

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-89-12-860-001

(3) Extend the leading edge slats to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

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SUBTASK 27-89-12-040-001

WARNING DO THE DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

E. Outboard Slat Skew Mechanism Removal

SUBTASK 27-89-12-860-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-12-010-001

(2) To get access to the slat skew mechanism [5] in No. 2 or 13 slat [3], do this step:

Open these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or open these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

SUBTASK 27-89-12-020-001

(3) Remove the slat skew mechanism [5]:

(a) Remove the clips [9] from the turnbuckle [10].

(b) Disconnect the cable [4] at the turnbuckle [10].

(c) Carefully pull the end of the cable [4] through the turn guide.

(d) Disconnect the electrical connectors [1] from the skew sensors [2].

(e) Remove the bolts [6] and washers [7] that attach the slat skew mechanism [5].

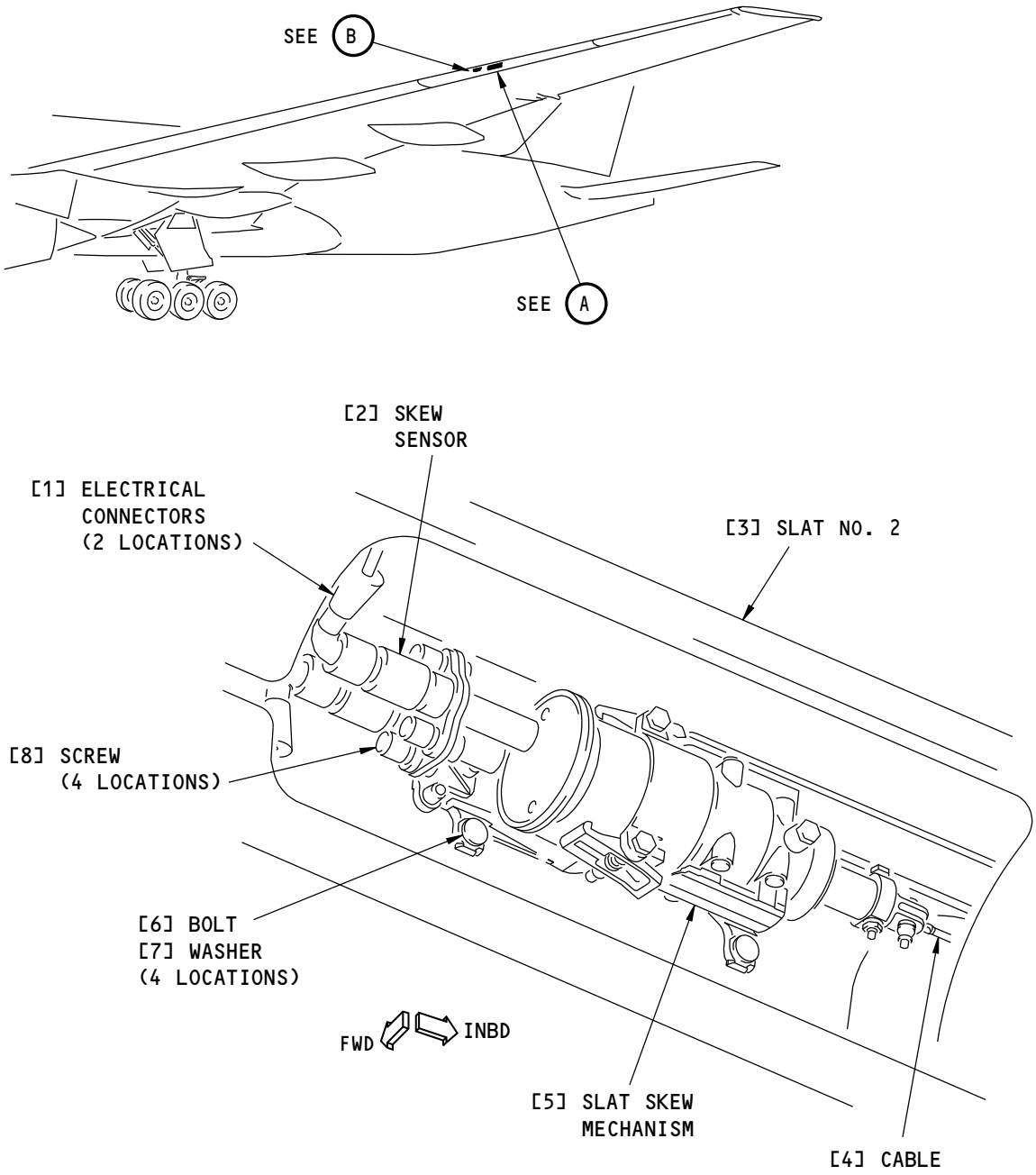
(f) Remove the slat skew mechanism [5] from the slat [3].

SUBTASK 27-89-12-020-002

(4) If you will install a new slat skew mechanism [5], remove the skew sensors [2].

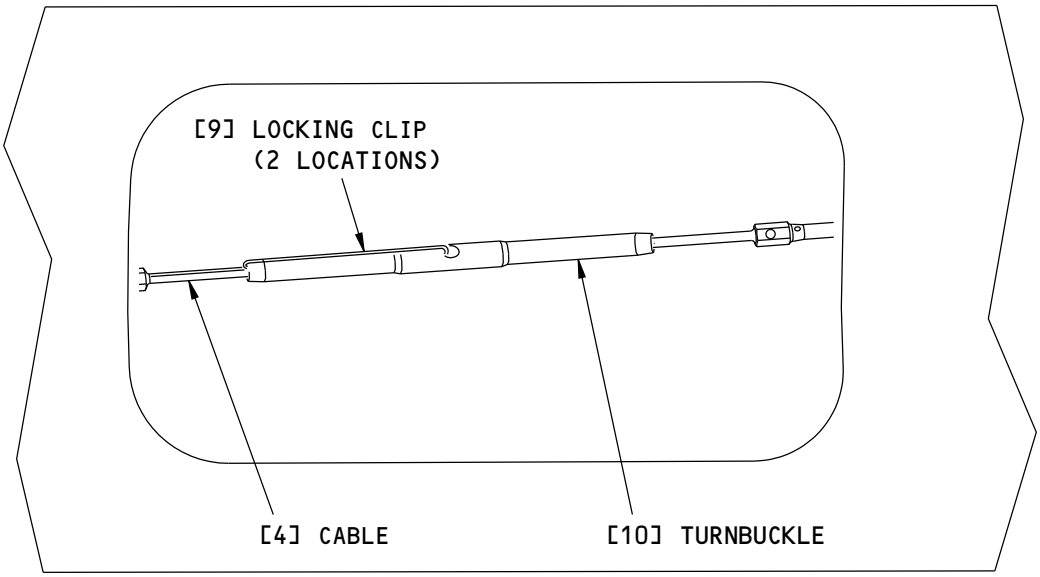
END OF TASK

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Outboard Slat Skew Mechanism Installation
Figure 401/27-89-12-990-801 (Sheet 1 of 2)

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B

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Outboard Slat Skew Mechanism Installation
Figure 401/27-89-12-990-801 (Sheet 2 of 2)

TASK 27-89-12-400-801

3. Outboard Slat Skew Mechanism Installation

(Figure 401)

A. References

Reference	Title
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-89-00-730-801	Outboard Slat Skew Detection System Test (P/B 501)
27-89-13-820-801	Outboard Slat Skew Cable Adjustment (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Skew sensor	27-89-11-01-025	ARO ALL
5	Slat skew mechanism	27-89-11-01-020	ARO ALL
		27-89-12-01-019	ARO 001-014

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Clip	27-89-13-01-205	ARO ALL

D. Location Zones

Zone	Area
526	Slat No. 2
626	Slat No. 13

E. Access Panels

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

F. Outboard Slat Skew Mechanism Installation

SUBTASK 27-89-12-860-011

(1) Make sure that these circuit breakers are open:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-12-420-001

WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) If the skew sensors [2] are not installed, install the skew sensors on the slat skew mechanism [5]:

(a) Apply a thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913 to the mating surfaces of the skew sensors [2] and the slat skew mechanism [5].

(b) Install the skew sensors [2] on the slat skew mechanism [5].

(c) Tighten the screws [8] that attach the skew sensors [2] to 24 in-lb (2.7 N·m)-26 in-lb (2.9 N·m).

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SUBTASK 27-89-12-420-002

(3) Install the slat skew mechanism [5]:

(a) Put the slat skew mechanism [5] in its location on the slat [3] and install the bolts [6] and washers [7].

(b) Carefully move the end of the cable [4] through the turn guide.

(c) Connect the ends of the cable [4] at the turnbuckle [10].

(d) Connect the electrical connectors [1] to the skew sensors [2].

SUBTASK 27-89-12-820-001

(4) Do this task: Outboard Slat Skew Cable Adjustment, TASK 27-89-13-820-801.

SUBTASK 27-89-12-420-004

(5) Install the clips [9] on the turnbuckle [10].

SUBTASK 27-89-12-860-003

(6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-12-720-001

(7) Do this task: Outboard Slat Skew Detection System Test, TASK 27-89-00-730-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-89-12-410-001

(1) In slat No. 2 or 13, do this step:

Close these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or close these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

SUBTASK 27-89-12-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-89-12-860-004

(3) Retract the slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-89-12-440-002

(4) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

END OF TASK

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OUTBOARD SLAT SKEW CABLE - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the slat skew cable for the outboard slats.

(2) An installation of the slat skew cable for the outboard slats.

(3) An adjustment of the slat skew cable for the outboard slats.

(4) A test of the slat skew cable.

B. The routing of the outboard slat skew cables is through the cove area of slats No. 2 to 6 and 9 to 13.

TASK 27-89-13-000-801

2. Outboard Slat Skew Cable Removal

(Figure 201)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
522	Slat No. 6
523	Slat No. 5
524	Slat No. 4
525	Slat No. 3
526	Slat No. 2
622	Slat No. 9
623	Slat No. 10
624	Slat No. 11
625	Slat No. 12
626	Slat No. 13

C. Access Panels

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
621AFB	Outboard Fixed Leading Edge Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

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D. Prepare for the Removal

SUBTASK 27-89-13-040-001

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-89-13-860-001

(2) Extend the leading edge slats to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-89-13-040-002

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

E. Outboard Slat Skew Cable Removal

SUBTASK 27-89-13-860-002

(1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-13-020-001

(2) Disconnect the slat skew cable [1] from the cable anchor [2]:

(a) Get access to the cable anchor [2] in slat 6 or 9.

(b) Remove the cotter pin [3] from the cable anchor [2].

(c) Remove the bolt [18] and the clamp [17] from the end of the slat skew cable [1].

SUBTASK 27-89-13-010-005

(3) On the cove areas of slats No. 2 or 13 to get access to the slat skew mechanism [9] and the turnbuckle [10], do this step:

Open these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or open these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel

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(Continued)

Number	Name/Location
626CB	Slat No. 13 Cove Access Panel

Remove the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-89-13-020-003

(4) Remove the slat skew cable [1] from the turn guide [11]:

(a) Remove the bolts [13] that attach the turn guide [11] to slat No. 2.

(b) Remove the cotter pins [15] and pin [14] and pins [16] from the turn guide [11].

(c) Remove the slat skew cable [1] from the cable guide [19] and the turn guide [11].

SUBTASK 27-89-13-020-002

(5) Remove the slat skew cable [1]:

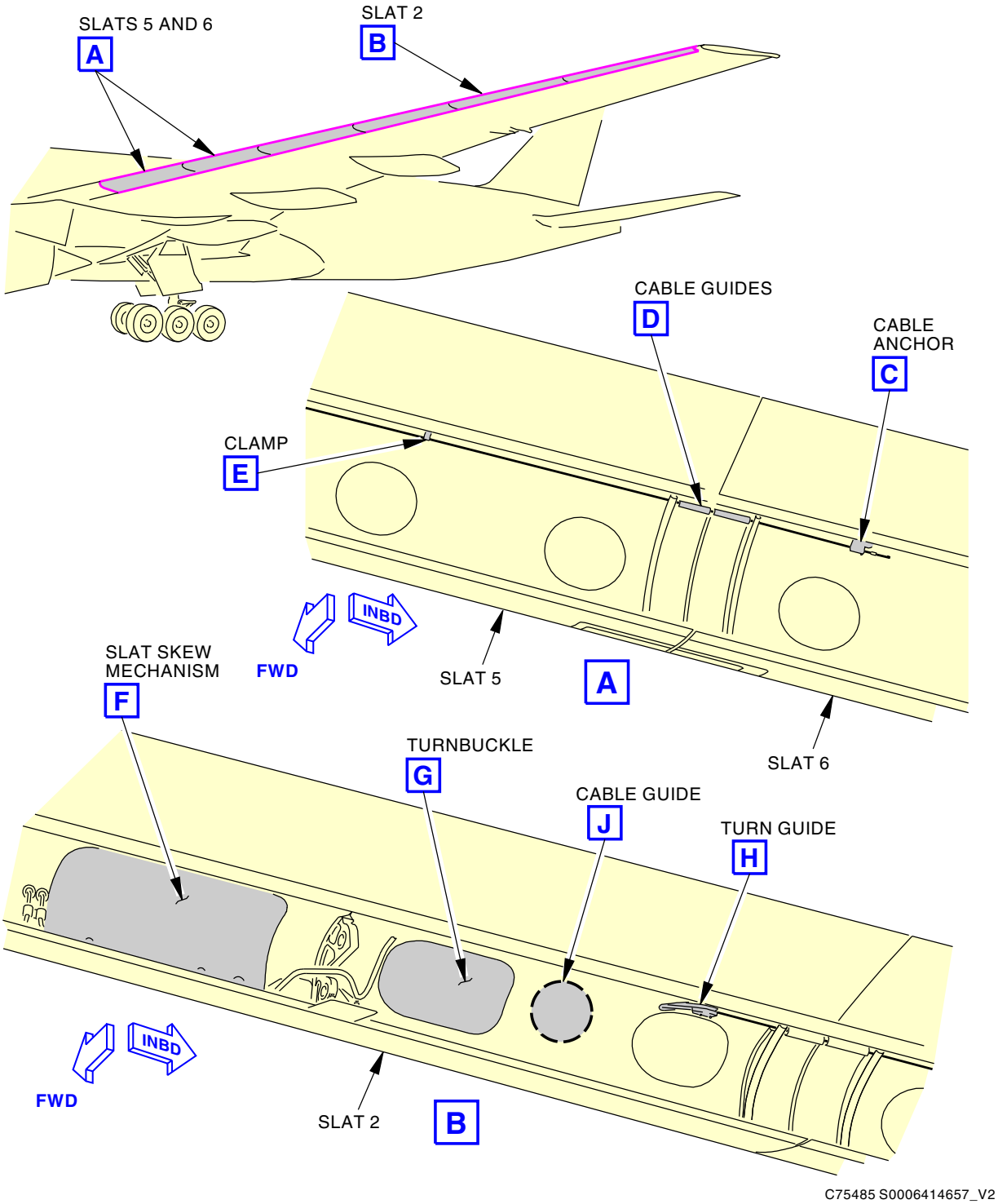
(a) Remove the clips [12] from the turnbuckle [10].

(b) Disconnect the slat skew cable [1] at the turnbuckle [10] in slat No. 2 or 13.

(c) Carefully pull the slat skew cable [1] through the slats.

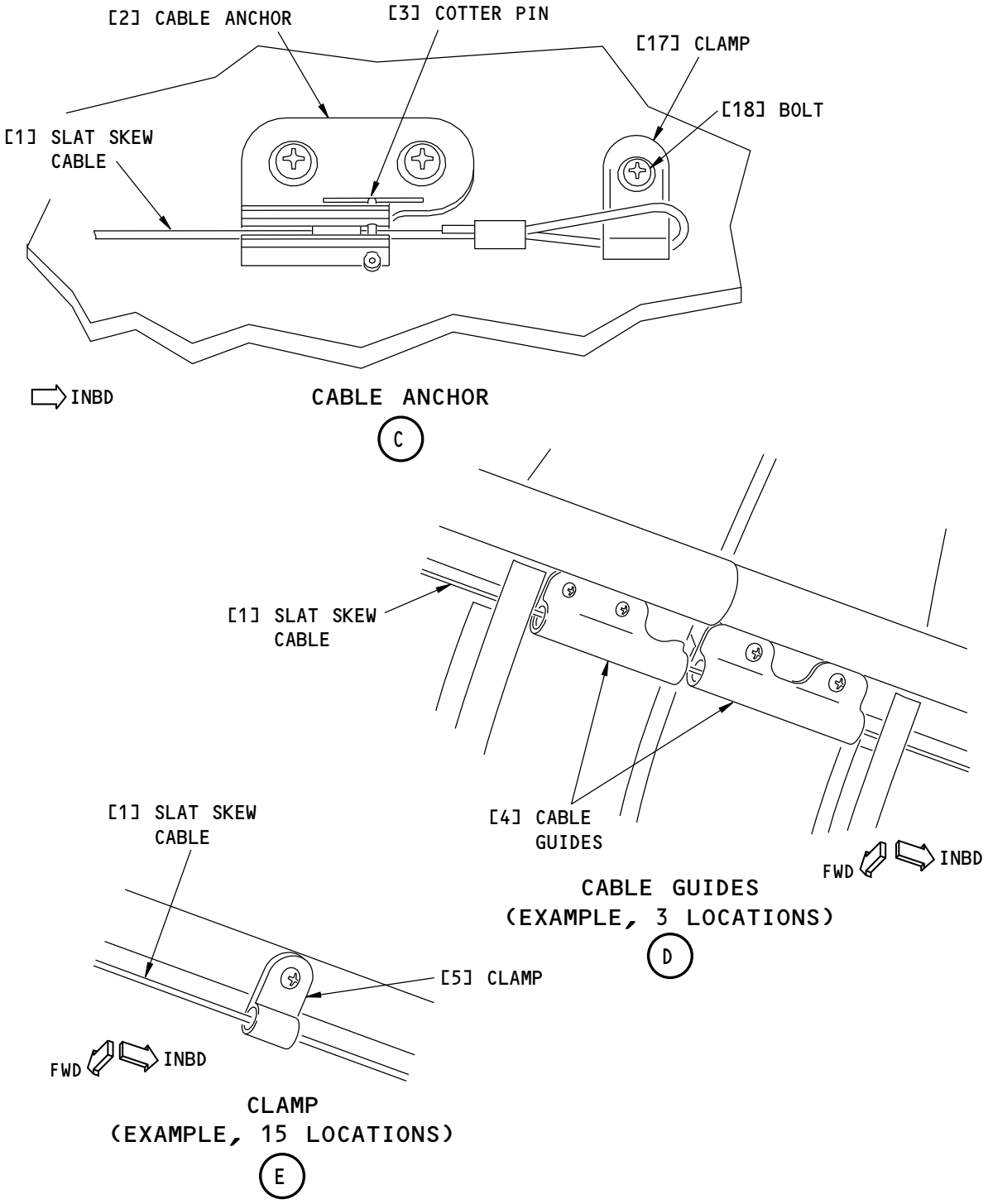
END OF TASK

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Outboard Slat Skew Cable Installation
Figure 201/27-89-13-990-801 (Sheet 1 of 4)

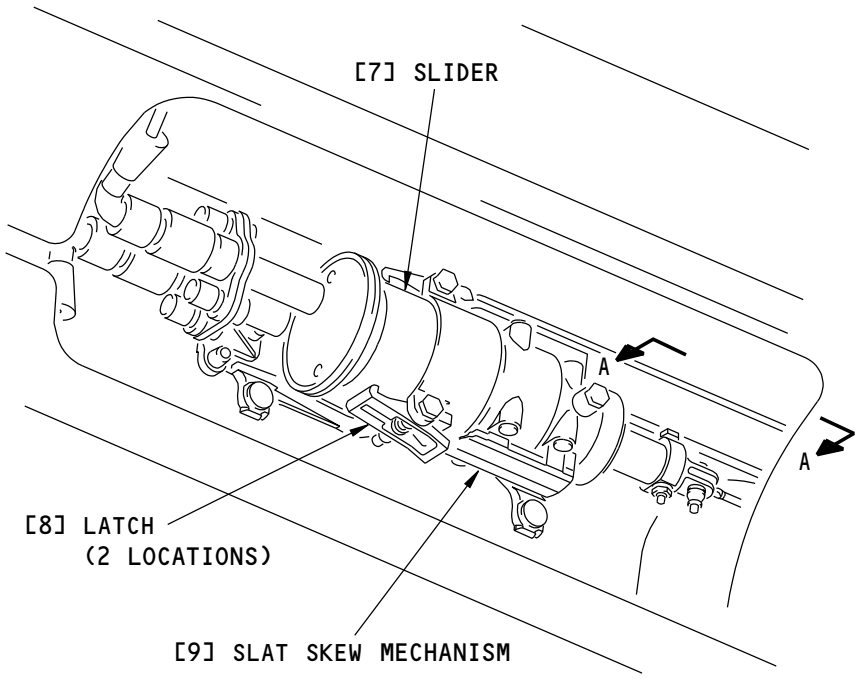
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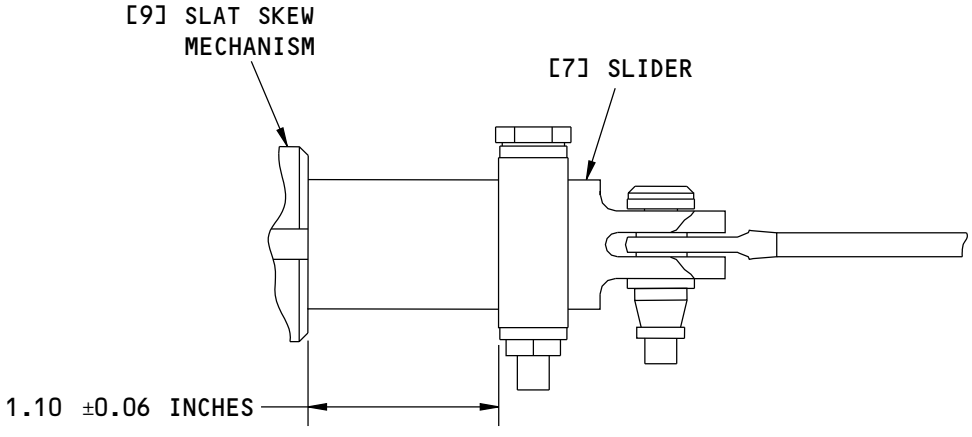
Outboard Slat Skew Cable Installation
Figure 201/27-89-13-990-801 (Sheet 2 of 4)

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SLAT SKEW MECHANISM

F

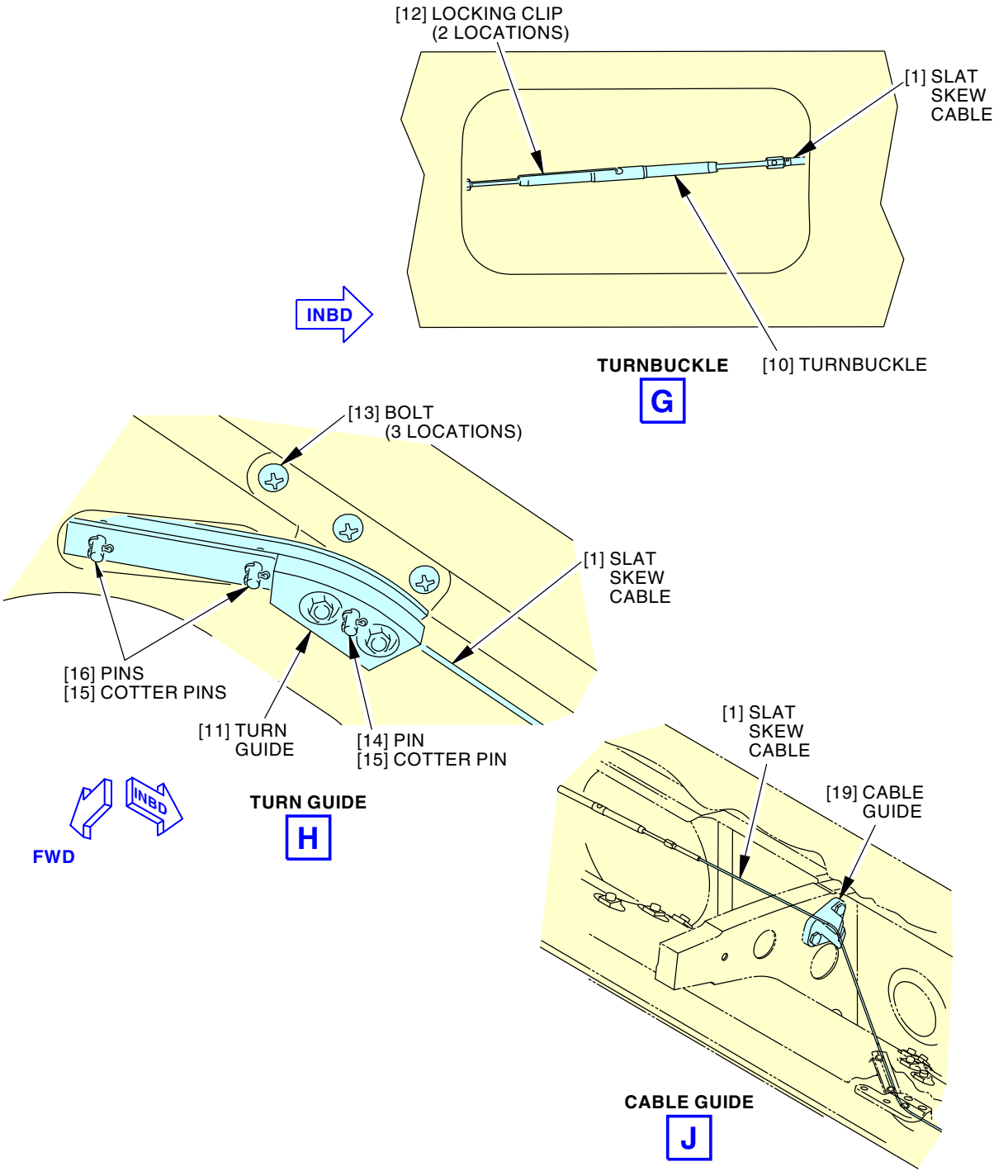


A–A

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Outboard Slat Skew Cable Installation
Figure 201/27-89-13-990-801 (Sheet 3 of 4)

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Outboard Slat Skew Cable Installation
Figure 201/27-89-13-990-801 (Sheet 4 of 4)

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TASK 27-89-13-400-801

3. Outboard Slat Skew Cable Installation

(Figure 201)

A. References

Reference	Title
06-30-00-800-806	Finding a Zone in Left Wing - Major Zone 500 (P/B 201)
06-30-00-800-807	Finding a Zone in Right Wing - Major Zone 600 (P/B 201)
27-89-00-730-801	Outboard Slat Skew Detection System Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Slat skew cable	27-89-13-01-060	ARO ALL
3	Cotter pin	27-89-13-01-210	ARO ALL
14	Pin	27-89-13-01-090	ARO ALL
		27-89-13-01-092	ARO ALL
15	Cotter pin	27-89-13-01-085	ARO 011-999
		27-89-13-01-087	ARO ALL
16	Pin	27-89-13-01-095	ARO ALL

C. Location Zones

Zone	Area
522	Slat No. 6
523	Slat No. 5
524	Slat No. 4
525	Slat No. 3
526	Slat No. 2
622	Slat No. 9
623	Slat No. 10
624	Slat No. 11
625	Slat No. 12
626	Slat No. 13

D. Access Panels

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
621AFB	Outboard Fixed Leading Edge Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

E. Outboard Slat Skew Cable Installation

SUBTASK 27-89-13-420-001

(1) Connect the slat skew cable [1] to the turnbuckle [10] in slat No. 2 or 13.

NOTE: Do not install the clips [12] on the turnbuckle [10].

(a) Make sure each end of the slat skew cable [1] is threaded in the turnbuckle [10] a minimum of 1/2 of the threads.

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SUBTASK 27-89-13-420-003

(2) Install the slat skew cable [1] in the turn guide [11]:

(a) Put the slat skew cable [1] through the cable guide [19] and the turn guide [11].

(b) Install the pins [16] and pin [14] and cotter pins [15].

(c) Install the bolts [13] to attach the turn guide [11] to slat No. 2.

SUBTASK 27-89-13-420-004

(3) Put the slat skew cable [1] through the slats inboard to slat No. 6 or 9.

NOTE: Make sure the slat skew cable [1] goes through the cable guides [4].

SUBTASK 27-89-13-420-002

(4) Connect the inboard end of the slat skew cable [1] to the cable anchor [2] in slat No. 6 or 9.

(a) Put the slat skew cable [1] in the cable anchor [2].

(b) Install the cotter pin [3].

SUBTASK 27-89-13-820-001

(5) Do this task: Outboard Slat Skew Cable Adjustment, TASK 27-89-13-820-801.

SUBTASK 27-89-13-730-001

(6) Do this task: Outboard Slat Skew Detection System Test, TASK 27-89-00-730-801.

SUBTASK 27-89-13-420-005

(7) Install the clamp [17] and the bolt [18] on the end of the slat skew cable [1].

F. Put the Airplane Back to Usual Condition

SUBTASK 27-89-13-860-014

(1) Close these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or close these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

Install the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

(TASK 06-30-00-800-806) or (TASK 06-30-00-800-807).

SUBTASK 27-89-13-860-013

(2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

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Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

END OF TASK

TASK 27-89-13-820-801

4. Outboard Slat Skew Cable Adjustment

(Figure 201)

A. General

(1) The load condition of the airplane (fuel quantity, on or off jacks, engines installed or not installed) has no effect on the adjustment dimensions in this task.

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
27-89-00-730-801	Outboard Slat Skew Detection System Test (P/B 501)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
12	Clip	27-89-13-01-205	ARO ALL

D. Location Zones

Zone	Area
526	Slat No. 2
626	Slat No. 13

E. Access Panels

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
621AFB	Outboard Fixed Leading Edge Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

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F. Prepare for the Adjustment

SUBTASK 27-89-13-040-003

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-89-13-860-003

(2) Extend the leading edge slats to the gapped position if it is necessary. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-89-13-040-004

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

G. Outboard Slat Skew Cable Adjustment

SUBTASK 27-89-13-010-006

(1) To get access to the slat skew mechanism [9] and the turnbuckle [10] on the cove areas of slats No. 2 or 13, do this step:

Open these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or open these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

Remove the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-89-13-820-002

(2) Adjust the slat skew cable [1]:

(a) Remove the clips [12] from the turnbuckle [10].

(b) Use the turnbuckle [10] to adjust the slat skew cable [1] until the slider [7] on the slat skew mechanism [9] extends 1.10 ±0.06 inch as shown in View A-A.

(c) Install the clips [12] on the turnbuckle [10].

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SUBTASK 27-89-13-860-004

(3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
D	3	C27601	FSEU 1

SUBTASK 27-89-13-730-002

(4) Do this task: Outboard Slat Skew Detection System Test, TASK 27-89-00-730-801.

SUBTASK 27-89-13-410-003

(5) On the cove areas of slats No. 2 or 13, do this step:

Close these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or close these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

Install the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-89-13-440-001

(6) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

SUBTASK 27-89-13-860-005

(7) Retract the slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-89-13-440-003

(8) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

TASK 27-89-13-710-801

5. Outboard Slat Skew Cable Test

(Figure 201)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)

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(Continued)

Reference	Title
27-81-00-860-804	Extend the Leading Edge Slats (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force Part #: DG-200 Supplier: 92456 Part #: FDIX 100 Supplier: 0BFD9 Part #: FDIX 50 Supplier: 0BFD9 Part #: LG-010 Supplier: 92456 Part #: LG-050 Supplier: 92456 Part #: LG-100 Supplier: 92456 Opt Part #: DPP-500G Supplier: 92456 Opt Part #: DPPH-150 Supplier: 92456 Opt Part #: DPPH-200 Supplier: 92456 Opt Part #: DPPH-50 Supplier: 92456 Opt Part #: FDI 100 Supplier: 0BFD9 Opt Part #: FDI 50 Supplier: 0BFD9 Opt Part #: FDV 100 Supplier: 0BFD9 Opt Part #: FDV 50 Supplier: 0BFD9

C. Location Zones

Zone	Area
522	Slat No. 6
523	Slat No. 5
524	Slat No. 4
525	Slat No. 3
526	Slat No. 2
622	Slat No. 9
623	Slat No. 10
624	Slat No. 11
625	Slat No. 12
626	Slat No. 13

D. Access Panels

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel
621AFB	Outboard Fixed Leading Edge Panel
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

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E. Prepare for the Test

SUBTASK 27-89-13-860-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 27-89-13-040-005

WARNING DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

SUBTASK 27-89-13-860-010

(3) Extend the leading edge slat system to the gapped position. To extend them, do this task: Extend the Leading Edge Slats, TASK 27-81-00-860-804.

SUBTASK 27-89-13-040-006

WARNING DO THE LEADING EDGE SLAT DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE SLAT SYSTEM. WITH THE SLATS ACTIVATED, THE SLATS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

F. Outboard Slat Skew Cable Test

SUBTASK 27-89-13-010-003

(1) Get access to the slat skew cable [1] in one of the outboard slats.

(a) Remove the cotter pin [3] from the cable anchor [2].

(b) Remove the bolt [18] and the clamp [17] from the end of the slat skew cable [1].

SUBTASK 27-89-13-710-001

(2) Use a force gauge, COM-1557 to pull on the slat skew cable [1] with 70 pounds of force.

SUBTASK 27-89-13-010-007

(3) To get access to the slat skew mechanism [9] on the cove areas of slats No. 2 or 13, do this step:

Open these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or open these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

Remove the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

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SUBTASK 27-89-13-710-002

(4) Make sure the slider [7] on the slat skew mechanism [9] is in the latched position.

SUBTASK 27-89-13-710-003

(5) Make sure the EICAS CAUTION message SLATS DRIVE shows.

SUBTASK 27-89-13-710-004

(6) Release the latches [8] on the slat skew mechanism [9] to permit the slider [7] to move outboard.

SUBTASK 27-89-13-710-005

(7) Make sure the EICAS CAUTION message SLATS DRIVE shows.

SUBTASK 27-89-13-860-007

CAUTION

DO AN EICAS CHECK BEFORE OPERATION OF THE SLAT IN THE ALTERNATE MODE AND MAKE SURE THERE ARE NO FAULT MESSAGES THAT SHOW A SLAT SYSTEM OR COMPONENT FAILURE. SLAT SKEW AND ASYMMETRY PROTECTION IS NOT SUPPLIED IN THE ALTERNATE MODE. OPERATION OF SLATS IN THE ALTERNATE MODE WITH A FAILURE CAN CAUSE DAMAGE TO THE AIRPLANE.

(8) Push the ALTN FLAPS ARM switch to arm the alternate control system.

(a) The EICAS CAUTION message FLAP/SLAT CONTROL will show.

SUBTASK 27-89-13-860-008

(9) Push the ALTN FLAPS ARM switch to disarm the alternate control system.

(a) Make sure the EICAS CAUTION message SLATS DRIVE does not show.

(b) Make sure the EICAS CAUTION message FLAP/SLAT CONTROL does not show.

SUBTASK 27-89-13-420-007

(10) Install the clamp [17] and the bolt [18] on the end of the slat skew cable [1].

SUBTASK 27-89-13-410-004

(11) On the cove areas of slats No. 2 or 13, do this step:

Close these access panels:

Number	Name/Location
526BB	Slat No. 2 Cove Access Panel
526CB	Slat No. 2 Cove Access Panel

or close these access panels:

Number	Name/Location
626BB	Slat No. 13 Cove Access Panel
626CB	Slat No. 13 Cove Access Panel

Install the applicable access panels:

Number	Name/Location
521AFB	Outboard Fixed Leading Edge Panel
621AFB	Outboard Fixed Leading Edge Panel

SUBTASK 27-89-13-440-002

(12) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

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SUBTASK 27-89-13-860-011

(13) Retract the leading edge slats to the retracted position. To retract them, do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 27-89-13-440-004

(14) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

——— END OF TASK ———

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