

CHAPTER

31

**INDICATING/
RECORDING
SYSTEMS**



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

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O 2	Sep 15/2023		101	Sep 15/2021		R 506	Sep 15/2023	
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101	Sep 15/2021		R 204	Sep 15/2023		O 528	Sep 15/2023	
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102	Sep 15/2021		A 211	Sep 15/2023		R 535	Sep 15/2023	
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104	BLANK		31-31-00			O 537	Sep 15/2023	
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O 540	Sep 15/2023		31-31-09			215	Sep 15/2021	
O 541	Sep 15/2023		501	Jan 15/2023		216	May 15/2022	
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O 545	Sep 15/2023		505	Sep 15/2022		220	Jan 15/2023	
O 546	Sep 15/2023		506	Sep 15/2022		221	Jan 15/2023	
O 547	Sep 15/2023		507	Sep 15/2022		222	BLANK	
O 548	Sep 15/2023		508	Sep 15/2022		31-31-22		
O 549	Sep 15/2023		31-31-09			401	Jan 15/2023	
O 550	Sep 15/2023		701	Sep 15/2021		402	Sep 15/2021	
O 551	Sep 15/2023		702	BLANK		403	Sep 15/2021	
O 552	Sep 15/2023		31-31-11			404	Sep 15/2021	
O 553	Sep 15/2023		401	Jan 15/2022		405	Sep 15/2021	
O 554	Sep 15/2023		402	Jan 15/2022		406	BLANK	
O 555	Sep 15/2023		403	Jan 15/2022		31-31-31		
O 556	Sep 15/2023		404	Jan 15/2022		401	Sep 15/2021	
D 557	Sep 15/2023		31-31-12			402	Sep 15/2021	
D 558	BLANK		401	Jan 15/2023		403	Sep 15/2021	
31-31-09			402	Jan 15/2023		404	Sep 15/2021	
201	Jan 15/2023		403	Jan 15/2023		405	Sep 15/2021	
202	Sep 15/2021		404	May 15/2023		406	Sep 15/2021	
203	Sep 15/2021		31-31-22			R 407	Sep 15/2023	
204	Sep 15/2021		201	Jan 15/2023		R 408	Sep 15/2023	
205	Sep 15/2021		202	Jan 15/2023		R 409	Sep 15/2023	
206	Sep 15/2021		203	Jan 15/2023		R 410	Sep 15/2023	
207	Jan 15/2022		204	Jan 15/2023		O 411	Sep 15/2023	
208	Jan 15/2022		R 205	Sep 15/2023		412	BLANK	
209	Jan 15/2022		R 206	Sep 15/2023		31-31-32		
210	Jan 15/2022		207	May 15/2023		401	Sep 15/2021	
31-31-09			208	May 15/2022		402	Sep 15/2021	
401	May 15/2023		209	Sep 15/2021		403	Sep 15/2021	
402	Sep 15/2021		R 210	Sep 15/2023		404	Sep 15/2021	
403	Jan 15/2022		211	May 15/2022		405	Sep 15/2021	
404	May 15/2023		212	May 15/2022		406	Sep 15/2021	
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R 409	Sep 15/2023		404	Sep 15/2021		O 413	Sep 15/2023	
R 410	Sep 15/2023		405	Sep 15/2021		O 414	Sep 15/2023	
O 411	Sep 15/2023		406	Sep 15/2021		O 415	Sep 15/2023	
412	BLANK		407	Sep 15/2021		O 416	BLANK	
31-31-41			R 408	Sep 15/2023		31-31-61		
401	Sep 15/2021		R 409	Sep 15/2023		401	May 15/2023	
402	Sep 15/2021		R 410	Sep 15/2023		402	Sep 15/2021	
403	Sep 15/2021		O 411	Sep 15/2023		403	Sep 15/2021	
404	Sep 15/2021		O 412	Sep 15/2023		404	Sep 15/2021	
405	Sep 15/2021		31-31-51			405	May 15/2023	
R 406	Sep 15/2023		401	Sep 15/2021		R 406	Sep 15/2023	
R 407	Sep 15/2023		402	Sep 15/2021		R 407	Sep 15/2023	
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O 410	Sep 15/2023		405	Sep 15/2021		O 410	Sep 15/2023	
31-31-42			406	Sep 15/2021		O 411	Sep 15/2023	
401	Sep 15/2021		R 407	Sep 15/2023		O 412	Sep 15/2023	
402	Sep 15/2021		R 408	Sep 15/2023		D 413	Sep 15/2023	
403	Sep 15/2021		R 409	Sep 15/2023		D 414	BLANK	
404	Sep 15/2021		O 410	Sep 15/2023		31-31-81		
405	Sep 15/2021		O 411	Sep 15/2023		401	Sep 15/2021	
406	Sep 15/2021		O 412	Sep 15/2023		402	Sep 15/2021	
407	Sep 15/2021		413	Sep 15/2021		R 403	Sep 15/2023	
408	Sep 15/2021		414	Sep 15/2021		R 404	Sep 15/2023	
409	Sep 15/2021		31-31-52			R 405	Sep 15/2023	
410	Sep 15/2021		401	Sep 15/2021		R 406	Sep 15/2023	
31-31-42			402	Sep 15/2021		R 407	Sep 15/2023	
R 501	Sep 15/2023		403	Sep 15/2021		O 408	Sep 15/2023	
R 502	Sep 15/2023		404	Sep 15/2021		D 409	Sep 15/2023	
R 503	Sep 15/2023		405	Sep 15/2021		D 410	BLANK	
O 504	Sep 15/2023		406	Sep 15/2021		31-33-00		
D 505	Sep 15/2023		R 407	Sep 15/2023		201	Sep 15/2021	
D 506	BLANK		R 408	Sep 15/2023		202	BLANK	
31-31-43			R 409	Sep 15/2023		31-33-00		
401	Sep 15/2021		O 410	Sep 15/2023		301	Sep 15/2021	
402	Sep 15/2021		O 411	Sep 15/2023		302	Sep 15/2021	

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303	Sep 15/2021		401	Sep 15/2021		405	Sep 15/2021	
304	BLANK		402	Sep 15/2021		406	BLANK	
31-33-01			403	Sep 15/2021		31-65-00		
401	Sep 15/2021		404	Sep 15/2021		201	Sep 15/2021	
402	Sep 15/2021		405	Sep 15/2021		202	Sep 15/2021	
403	Sep 15/2022		406	Sep 15/2021		203	Sep 15/2021	
404	BLANK		407	Sep 15/2021		204	Sep 15/2021	
31-51-00			408	May 15/2023		205	Sep 15/2021	
201	Sep 15/2021		409	Sep 15/2021		206	Sep 15/2021	
202	Sep 15/2021		410	Sep 15/2022		207	Sep 15/2021	
203	Sep 15/2021		411	May 15/2023		208	Sep 15/2021	
204	Sep 15/2021		412	May 15/2023		209	Sep 15/2021	
31-51-00			413	Sep 15/2021		210	Sep 15/2021	
501	Sep 15/2021		414	BLANK		211	Sep 15/2021	
502	Jan 15/2022		31-51-02			212	Sep 15/2021	
503	May 15/2023		401	Jan 15/2023		213	Sep 15/2021	
504	Jan 15/2022		402	Jan 15/2023		214	Sep 15/2021	
505	Jan 15/2022		403	Sep 15/2022		215	Sep 15/2021	
506	Jan 15/2022		404	Sep 15/2022		216	Sep 15/2021	
507	Jan 15/2022		405	Sep 15/2022		217	Sep 15/2021	
R 508	Sep 15/2023		406	Sep 15/2022		218	Sep 15/2021	
509	Jan 15/2022		407	Sep 15/2022		219	Sep 15/2021	
510	May 15/2022		408	BLANK		220	Sep 15/2021	
511	Jan 15/2022		31-51-02			221	Sep 15/2021	
512	Jan 15/2022		501	Sep 15/2021		R 222	Sep 15/2023	
513	Sep 15/2021		502	Sep 15/2021		R 223	Sep 15/2023	
514	Sep 15/2021		503	Sep 15/2021		R 224	Sep 15/2023	
515	Jan 15/2022		504	Sep 15/2021		R 225	Sep 15/2023	
516	Sep 15/2022		505	Sep 15/2022		226	Sep 15/2021	
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518	Sep 15/2022		507	Sep 15/2022		R 228	Sep 15/2023	
519	Sep 15/2021		508	Sep 15/2022		31-65-00		
520	Sep 15/2021		31-51-04			R 501	Sep 15/2023	
521	Sep 15/2022		401	Sep 15/2021		R 502	Sep 15/2023	
522	Sep 15/2022		402	Sep 15/2021		R 503	Sep 15/2023	
523	Jan 15/2023		403	Sep 15/2021		504	Sep 15/2021	
524	Jan 15/2023		404	Sep 15/2021		505	Sep 15/2021	

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506	Sep 15/2021		542	Jan 15/2023		406	Sep 15/2021	
507	Sep 15/2021		543	Jan 15/2023		31-65-03		
508	Sep 15/2021		544	Jan 15/2023		501	Sep 15/2021	
509	Jan 15/2023		R 545	Sep 15/2023		502	Sep 15/2021	
510	Jan 15/2023		R 546	Sep 15/2023		503	Sep 15/2021	
511	Jan 15/2023		R 547	Sep 15/2023		504	Sep 15/2021	
512	Jan 15/2023		R 548	Sep 15/2023		505	Sep 15/2021	
513	Jan 15/2023		A 549	Sep 15/2023		506	BLANK	
514	Jan 15/2023		A 550	Sep 15/2023		31-65-04		
515	Jan 15/2023		A 551	Sep 15/2023		401	May 15/2023	
516	Jan 15/2023		A 552	Sep 15/2023		402	Sep 15/2021	
517	Jan 15/2023		A 553	Sep 15/2023		403	May 15/2023	
518	Jan 15/2023		A 554	Sep 15/2023		404	Sep 15/2021	
519	Jan 15/2023		A 555	Sep 15/2023		405	Sep 15/2021	
520	Jan 15/2023		A 556	Sep 15/2023		406	BLANK	
521	Jan 15/2023		A 557	Sep 15/2023		31-65-04		
522	Jan 15/2023		A 558	BLANK		501	Sep 15/2021	
523	Jan 15/2023		31-65-02			502	Sep 15/2021	
524	Jan 15/2023		201	May 15/2023		503	Sep 15/2021	
525	Jan 15/2023		202	Jan 15/2023		504	Sep 15/2021	
526	Jan 15/2023		203	Sep 15/2021		31-65-11		
527	Jan 15/2023		204	Sep 15/2022		401	Sep 15/2021	
528	Jan 15/2023		31-65-02			402	Sep 15/2021	
529	Jan 15/2023		401	Sep 15/2021		403	Sep 15/2021	
530	Jan 15/2023		402	Sep 15/2021		404	Sep 15/2021	
531	Jan 15/2023		403	Sep 15/2021		405	Sep 15/2021	
532	Jan 15/2023		404	Sep 15/2021		406	Sep 15/2021	
533	Jan 15/2023		405	Jan 15/2023		407	Jan 15/2023	
534	Jan 15/2023		406	Jan 15/2023		408	Jan 15/2023	
535	Jan 15/2023		407	Jan 15/2023		409	Jan 15/2023	
536	Jan 15/2023		408	BLANK		410	BLANK	
537	Jan 15/2023		31-65-03			31-65-11		
538	Jan 15/2023		401	Sep 15/2021		701	Sep 15/2021	
539	Jan 15/2023		402	Sep 15/2021		702	Sep 15/2021	
540	Jan 15/2023		403	Sep 15/2021		703	Jan 15/2023	
541	Jan 15/2023		404	Sep 15/2021		704	Jan 15/2022	
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406	Sep 15/2021							
31-65-13								
401	Sep 15/2021							
402	Sep 15/2021							
403	Sep 15/2021							
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405	Sep 15/2021							
406	BLANK							
31-65-14								
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402	Sep 15/2021							
403	Sep 15/2021							
404	Sep 15/2021							
405	Sep 15/2021							
406	Sep 15/2021							
407	May 15/2023							
408	Sep 15/2021							
409	Sep 15/2021							
410	BLANK							

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DDG 31-62-01-01-01 Outboard Display Unit Inoperative - Preparation TASK 31-00-00-040-802			901	SIA ALL
DDG 31-62-01-01-01 Outboard Display Unit Inoperative - Restoration TASK 31-00-00-440-802			902	SIA ALL
DDG 31-62-01-01-02 Inboard Display Unit Inoperative - Preparation TASK 31-00-00-040-803			903	SIA ALL
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<u>CAPTAIN'S PANEL - COMPONENT LOCATION</u>	31-11-21		101	SIA ALL
<u>CENTER PANEL - COMPONENT LOCATION</u>	31-11-31		101	SIA ALL
<u>PILOT'S GLARESHIELD - COMPONENT LOCATION</u>	31-11-41		101	SIA ALL
<u>FIRST OFFICER'S PANEL - COMPONENT LOCATION</u>	31-11-51		101	SIA ALL
<u>PILOT'S CONTROL STAND - COMPONENT LOCATION</u>	31-11-71		101	SIA ALL
<u>FORWARD ELECTRONIC PANEL - COMPONENT LOCATION</u>	31-11-81		101	SIA ALL
<u>AFT ELECTRONIC PANEL - COMPONENT LOCATION</u>	31-11-91		101	SIA ALL
<u>FORWARD OVERHEAD PANEL - COMPONENT LOCATION</u>	31-11-94		101	SIA ALL
<u>AFT OVERHEAD PANEL - COMPONENT LOCATION</u>	31-11-95		101	SIA ALL
<u>AUXILIARY PANELS - COMPONENT LOCATION</u>	31-11-98		101	SIA ALL
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L-3 Underwater Locator Beacon Battery - Replacement TASK 31-31-09-960-803		207	SIA ALL
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INDICATING/RECORDING SYSTEMS - 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 components that are 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 indicating/recording system:
 - (1) DDG 31-62-01-01-01 Outboard Display Unit Inoperative - Preparation
 - (2) DDG 31-62-01-01-01 Outboard Display Unit Inoperative - Restoration
 - (3) DDG 31-62-01-01-02 Inboard Display Unit Inoperative - Preparation
 - (4) DDG 31-62-01-01-02 Inboard Display Unit Inoperative - Restoration

TASK 31-00-00-040-802

2. **DDG 31-62-01-01-01 Outboard Display Unit Inoperative - Preparation**

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the Captain's or First Officer's Outboard Display Unit Inoperative.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)

C. Location Zones

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

D. Dispatch the Airplane with Captain's Outboard Display Unit Inoperative

NOTE: For an inoperative outboard display unit, the associated side's Remote Light Sensor (RLS) will also be inoperative.

SUBTASK 31-00-00-860-003

- (1) Open this circuit breaker and install safety lock:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	4	C04027	DISPLAY LEFT OUTBOARD

SUBTASK 31-00-00-850-001

- (2) On the Captain's Display Select Module P1-9, set the PFD/MFD switch to INBD.
 - (a) Make sure that the PFD/MFD changes to INBD.

NOTE: The Captain's Outboard Display Unit goes blank and a compacted version of the formats show on the Captain's Inboard Display Unit.

E. Dispatch the Airplane with First Officer's Outboard Display Unit Inoperative

NOTE: For an inoperative outboard display unit, the associated side's Remote Light Sensor (RLS) will also be inoperative.

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SUBTASK 31-00-00-860-004

- (1) Open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	10	C04029	DISPLAY RIGHT OUTBOARD

SUBTASK 31-00-00-850-002

- (2) On the First Officer's Display Select Module P3-4, set the PFD/MFD switch to INBD.
 - (a) Make sure that the PFD/MFD changes to INBD.

NOTE: The First Officer's Outboard Display Unit goes blank and a compacted version of the formats show on the First Officer's Inboard Display Unit.

F. Extinguish the MAINT Light

SUBTASK 31-00-00-810-005

- (1) If necessary, extinguish the MAINT light on the P5-1 panel. Do this task: Fault Interrogation for a Maintenance Message, TASK 31-65-00-750-801.

————— END OF TASK —————

TASK 31-00-00-440-802

3. DDG 31-62-01-01-01 Outboard Display Unit Inoperative - Restoration

A. General

- (1) This task gives the maintenance steps to put the airplane back to it's usual condition after operation with the Captain's or First Officer's Outboard Display Unit Inoperative.

B. References

<u>Reference</u>	<u>Title</u>
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)

C. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Put the Airplane Back to It's Usual Condition with the Captain's Outboard Display Unit Inoperative

SUBTASK 31-00-00-860-005

- (1) Remove the safety lock and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C04027	DISPLAY LEFT OUTBOARD

SUBTASK 31-00-00-850-003

- (2) On the Captain's Display Select Module P1-9, set the PFD/MFD to NORM.

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E. Put the Airplane Back to It's Usual Condition with the First Officer's Outboard Display Unit Inoperative

SUBTASK 31-00-00-860-006

- (1) Remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	10	C04029	DISPLAY RIGHT OUTBOARD

SUBTASK 31-00-00-850-004

- (2) On the First Officer's Display Select Module P3-4, set the PFD/MFD to NORM.

F. MAINT Light Status Message

SUBTASK 31-00-00-750-001

- (1) Uncheck the applicable MAINT light Status Message(s) on the MAINT LIGHT menu (TASK 31-65-00-750-801).

————— END OF TASK —————

TASK 31-00-00-040-803

4. DDG 31-62-01-01-02 Inboard Display Unit Inoperative - Preparation

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the Captain's or First Officer's Inboard Display Unit Inoperative.

B. References

<u>Reference</u>	<u>Title</u>
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)

C. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Dispatch the Airplane with Captain's Inboard Display Unit Inoperative

SUBTASK 31-00-00-860-007

- (1) Open this circuit breaker and install safety lock:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C04026	DISPLAY LEFT INBOARD

SUBTASK 31-00-00-850-005

- (2) On the Captain's Display Select Module P1-9, set the PFD/MFD to OUTBD.

- (a) Make sure that the PFD/MFD changes to OUTBD.

NOTE: The Captain's Inboard Display Unit goes blank and a compacted version of the formats show on the Captain's Outboard Display Unit.

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E. Dispatch the Airplane with First Officer's Inboard Display Unit Inoperative

SUBTASK 31-00-00-860-008

- (1) Open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	11	C04028	DISPLAY RIGHT INBOARD

SUBTASK 31-00-00-850-006

- (2) On the First Officer's Display Select Module P3-4, set the PFD/MFD to OUTBD.
(a) Make sure that the PFD/MFD changes to OUTBD.

NOTE: The First Officer's Inboard Display Unit goes blank and a compacted version of the format's show on the First Officer's Outboard Display Unit.

F. Engine Transfer of the Opposite Inboard Display Unit

SUBTASK 31-00-00-850-007

- (1) On the Multi-Function Panel P9-82, push the ENG TFR button.

NOTE: The Engine Format will transfer to the left or right inboard display unit and the Maintenance Page will go out of view. The Systems Format will show on the left or right inboard display unit.

G. Extinguish the MAINT Light

SUBTASK 31-00-00-810-006

- (1) If necessary, extinguish the MAINT light on the P5-1 panel. Do this task: Fault Interrogation for a Maintenance Message, TASK 31-65-00-750-801.

————— **END OF TASK** —————

TASK 31-00-00-440-803

5. DDG 31-62-01-01-02 Inboard Display Unit Inoperative - Restoration

A. General

- (1) This task gives the maintenance steps to put the airplane back to it's usual condition after operation with the Captain's or First Officer's Inboard Display Unit inoperative.

B. References

<u>Reference</u>	<u>Title</u>
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)

C. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Put the Airplane Back to It's Usual Condition with the Captain's Inboard Display Unit Inoperative

SUBTASK 31-00-00-860-009

- (1) Remove the safety lock and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C04026	DISPLAY LEFT INBOARD

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SUBTASK 31-00-00-850-008

- (2) On the Captain's Display Select Module P1-9, set the PFD/MFD to NORM.

E. Put the Airplane Back to It's Usual Condition with the First Officer's Inboard Display Unit Inoperative

SUBTASK 31-00-00-860-010

- (1) Remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	11	C04028	DISPLAY RIGHT INBOARD

SUBTASK 31-00-00-850-009

- (2) On the First Officer's Display Select Module P3-4, set the PFD/MFD to NORM.

F. MAINT Light Status Message

SUBTASK 31-00-00-750-002

- (1) Uncheck the applicable MAINT light Status Message(s) on the MAINT LIGHT menu (TASK 31-65-00-750-801).

————— END OF TASK —————

EFFECTIVITY
SIA ALL

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CAPTAIN'S PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Captain's Panel.

EFFECTIVITY
SIA ALL

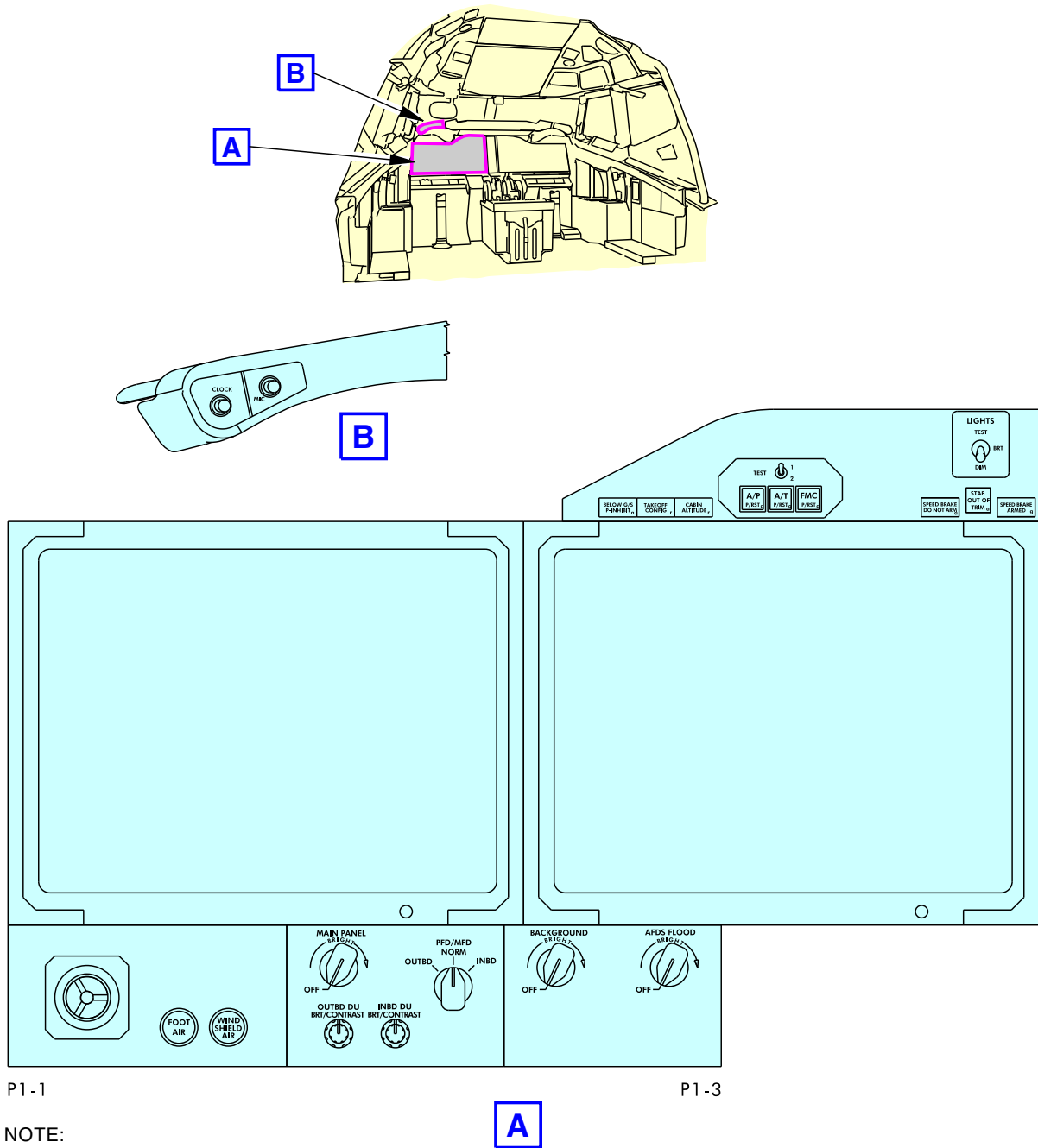
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NOTE:
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MARKERS. THE CUSTOMER'S
CONFIGURATION COULD HAVE INOP
MARKERS INSTALLED.

2550806 S0000607742_V2

Captain's Panel - Component Location
Figure 101/31-11-21-990-801

EFFECTIVITY
SIA ALL

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CENTER PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Center Panel.

EFFECTIVITY
SIA ALL

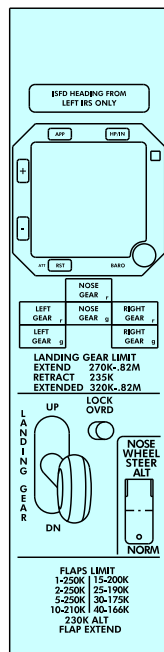
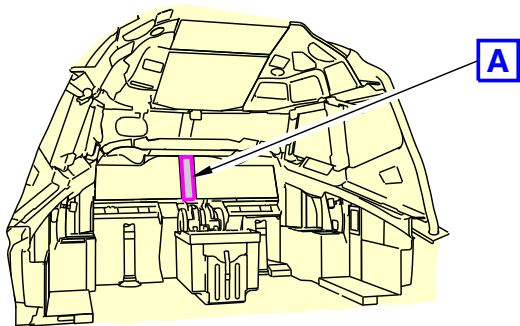
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P2



NOTE:
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2550814 S0000607745_V2

Center Panel - Component Location
Figure 101/31-11-31-990-801

EFFECTIVITY
SIA ALL

31-11-31



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AIRCRAFT MAINTENANCE MANUAL

PILOT'S GLARESHIELD - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Pilot's Glareshield.

EFFECTIVITY
SIA ALL

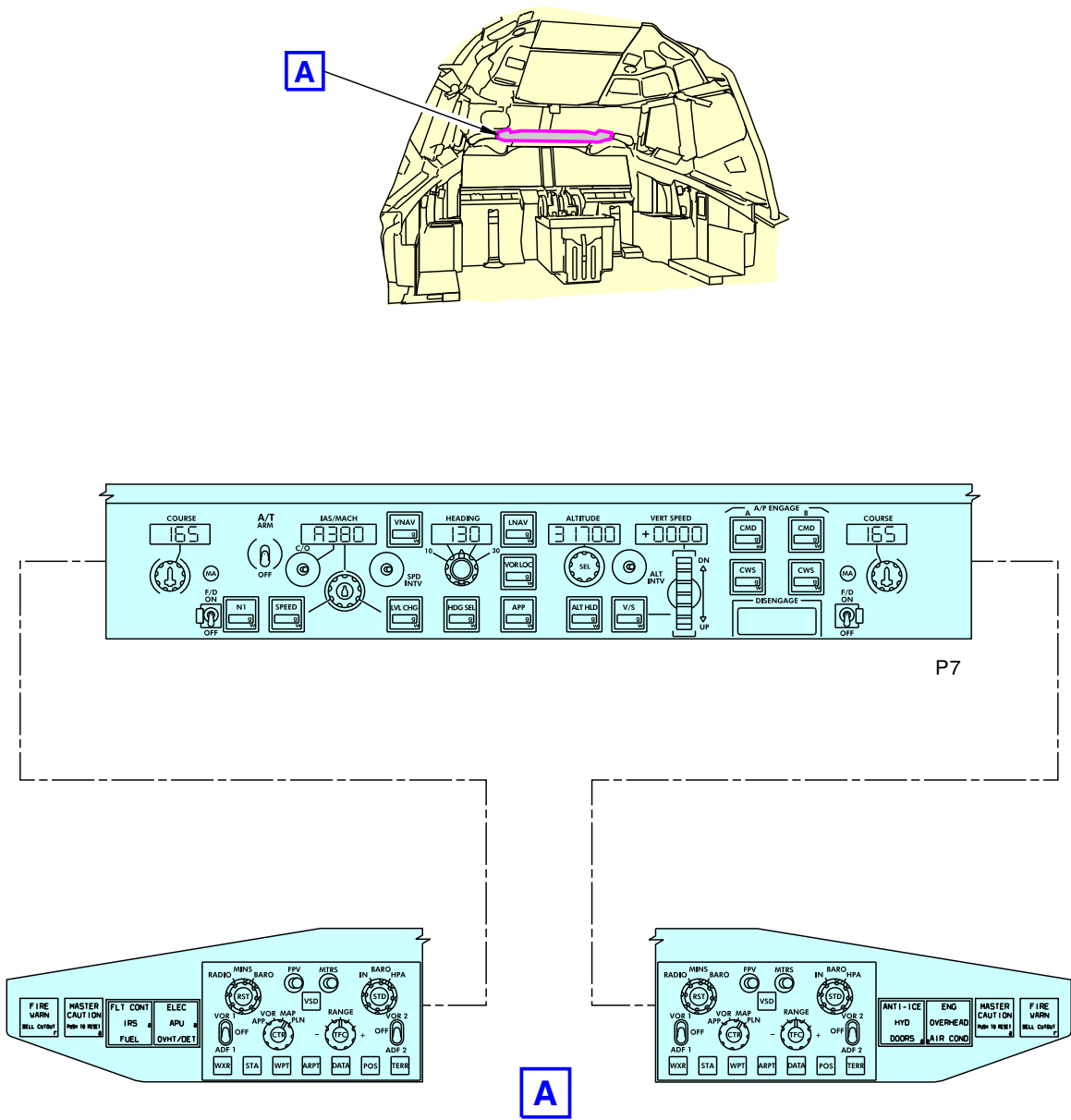
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NOTE:
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MARKERS. THE CUSTOMER'S
CONFIGURATION COULD HAVE INOP
MARKERS INSTALLED.

2550819 S0000607750_V2

Pilot's Glareshield - Component Location
Figure 101/31-11-41-990-801

EFFECTIVITY
SIA ALL

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FIRST OFFICER'S PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the First Officer's Panel.

EFFECTIVITY
SIA ALL

D633AM101-SIA

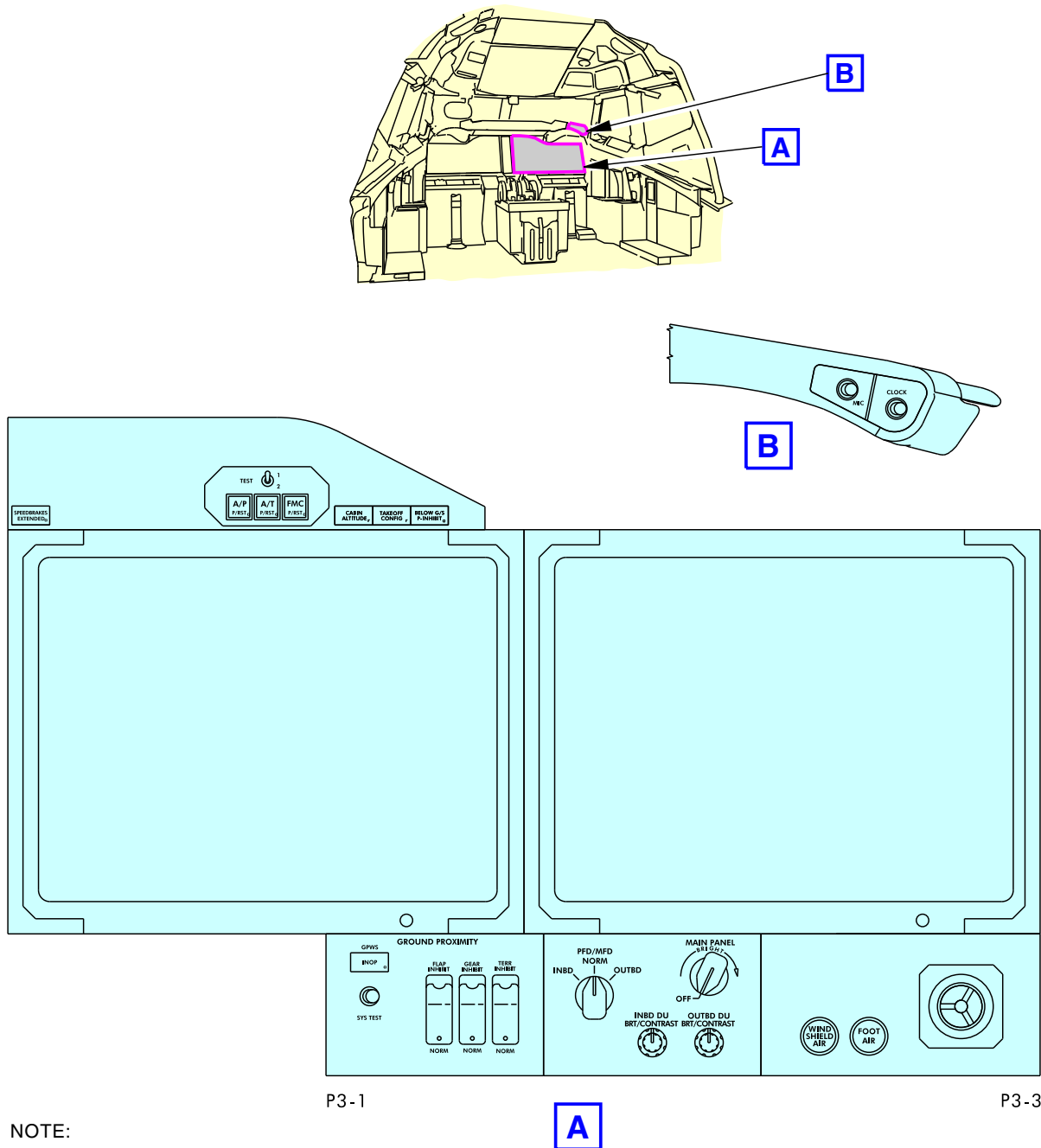
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NOTE:
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MARKERS. THE CUSTOMER'S
CONFIGURATION COULD HAVE INOP
MARKERS INSTALLED.

2550822 S0000607754_V2

First Officer's Panel - Component Location
Figure 101/31-11-51-990-801 (Sheet 1 of 2)

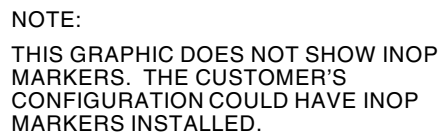
EFFECTIVITY
SIA 001-014

D633AM101-SIA

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First Officer's Panel - Component Location
Figure 101/31-11-51-990-801 (Sheet 2 of 2)

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AIRCRAFT MAINTENANCE MANUAL

PILOT'S CONTROL STAND - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Pilot's Control Stand.

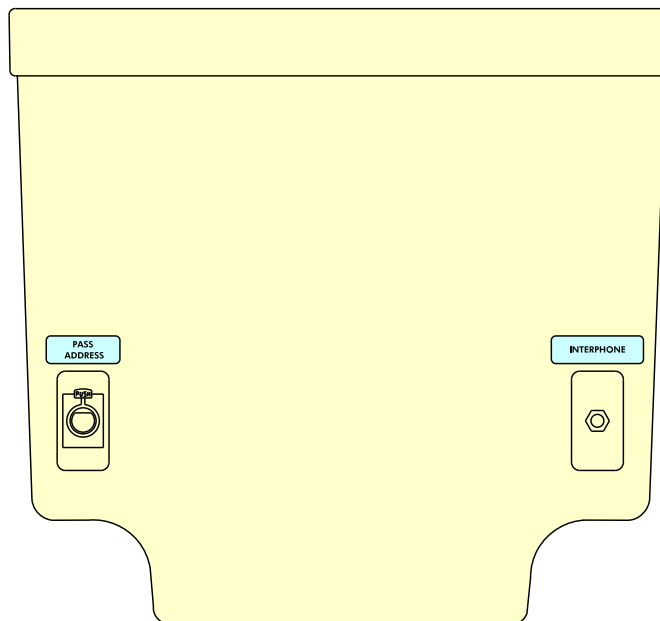
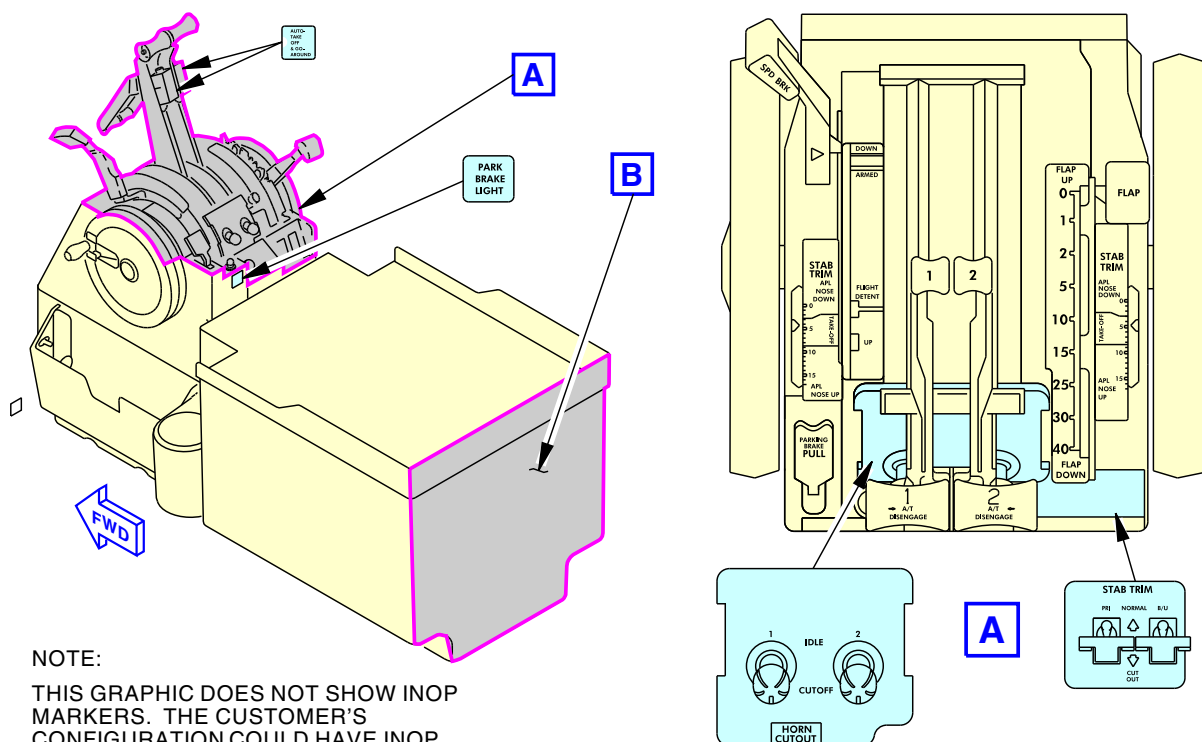
EFFECTIVITY
SIA ALL

D633AM101-SIA

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B

2550825 S0000607762_V1

Pilot's Control Stand - Component Location
Figure 101/31-11-71-990-801

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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FORWARD ELECTRONIC PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Forward Electronic Panel.

EFFECTIVITY
SIA ALL

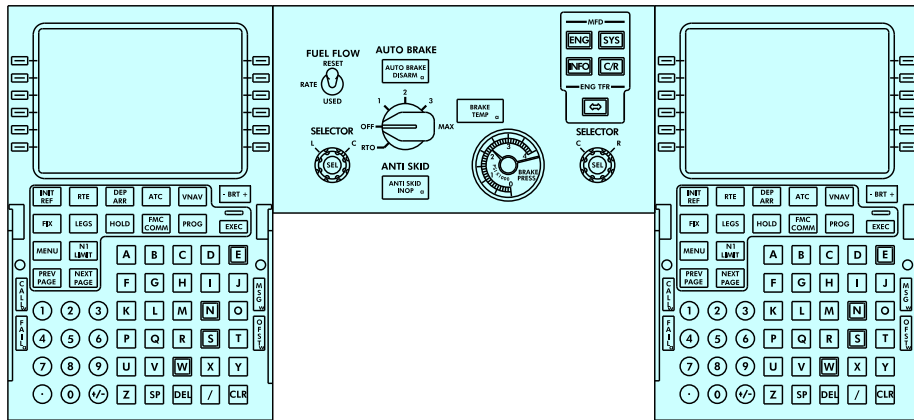
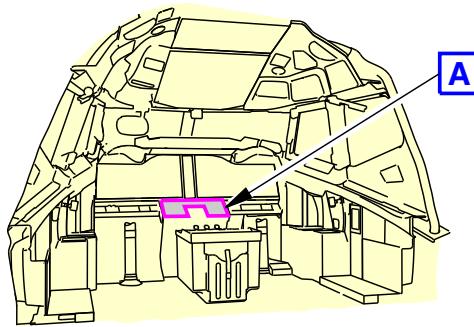
D633AM101-SIA

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P9

A

NOTE:

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2550985 S0000607811_V2

Forward Electronic Panel - Component Location
Figure 101/31-11-81-990-801

EFFECTIVITY
SIA ALL

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AFT ELECTRONIC PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Aft Electronic Panel.

EFFECTIVITY
SIA ALL

D633AM101-SIA

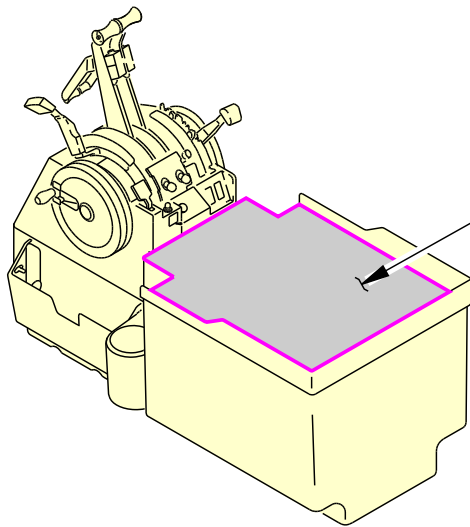
ECCN 9E991 BOEING PROPRIETARY - See title page for details

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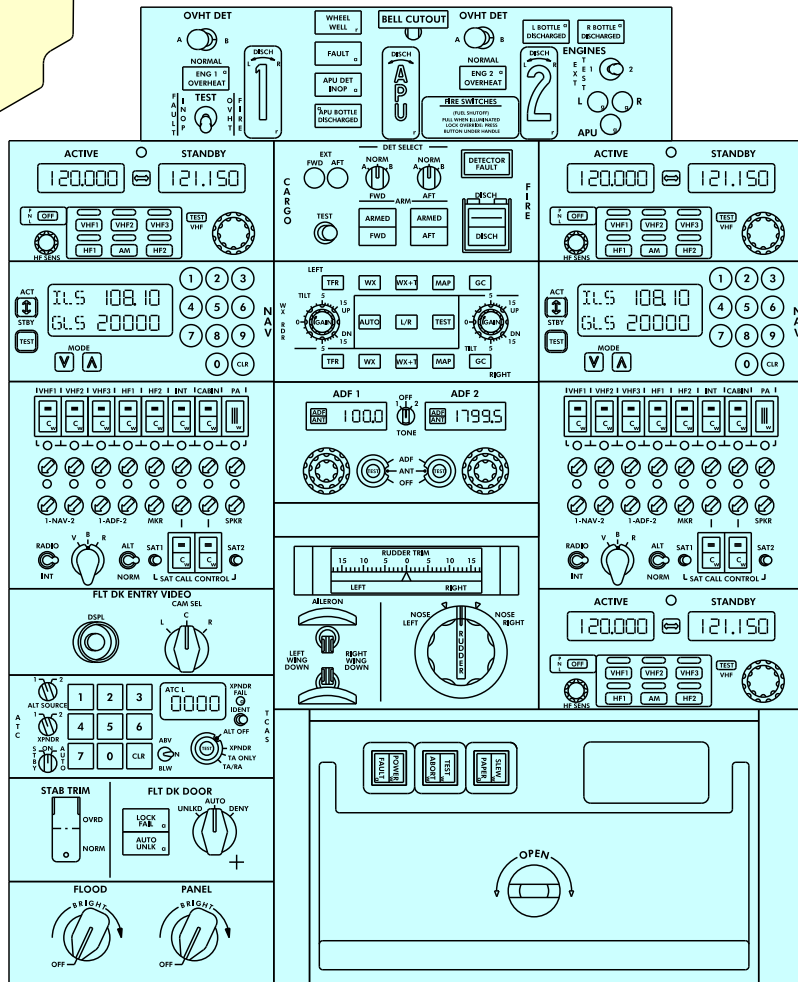


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NOTE:

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A

P8

2551001 S0000607816_V3

Aft Electronic Panel - Component Location
Figure 101/31-11-91-990-801

EFFECTIVITY
SIA ALL

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FORWARD OVERHEAD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Forward Overhead Panel.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

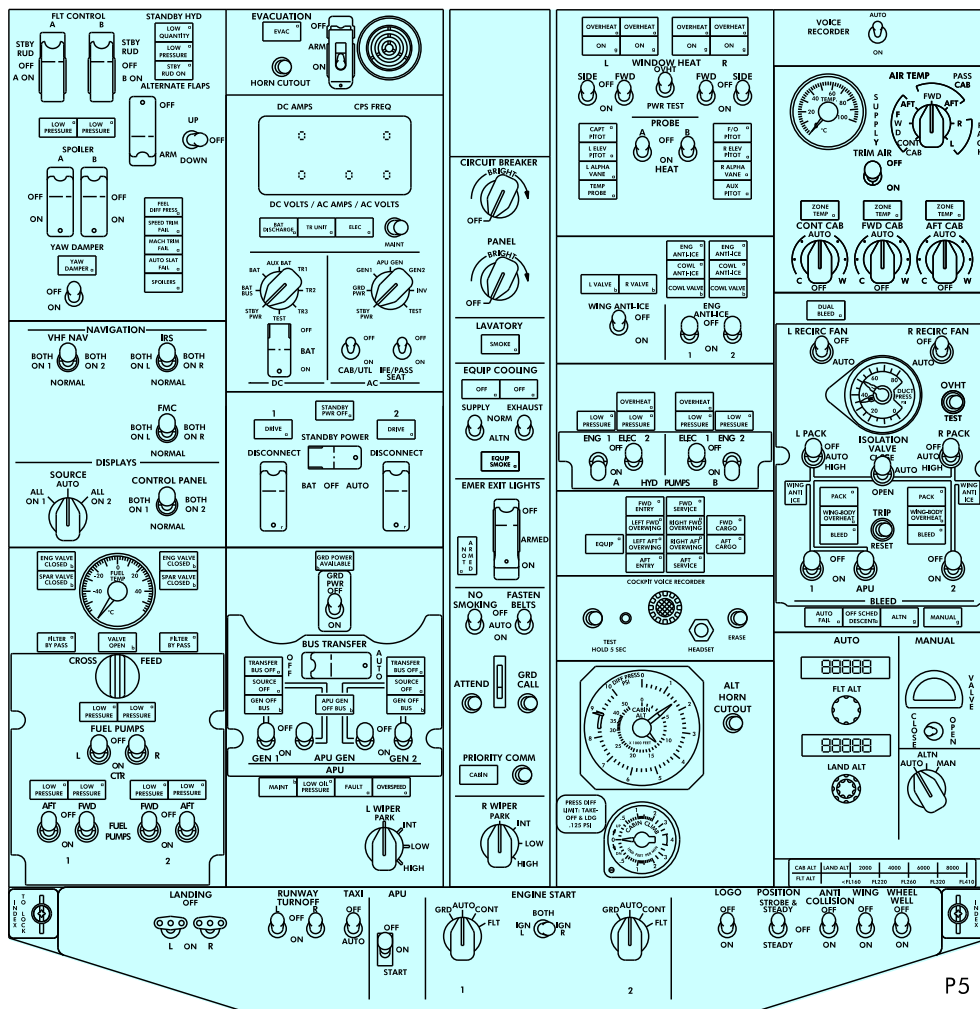
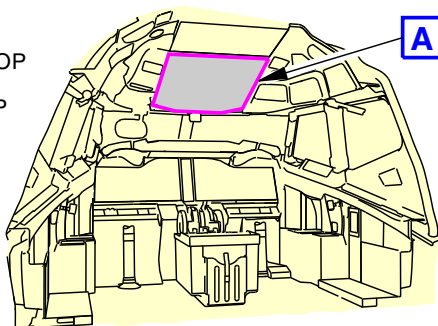
31-11-94

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NOTE:

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P5



2551023 S0000607820_V3

Forward Overhead Panel - Component Location
Figure 101/31-11-94-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA 001-015

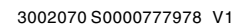
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Forward Overhead Panel - Component Location
Figure 101/31-11-94-990-801 (Sheet 2 of 2)

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AFT OVERHEAD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Aft Overhead Panel.

EFFECTIVITY
SIA ALL

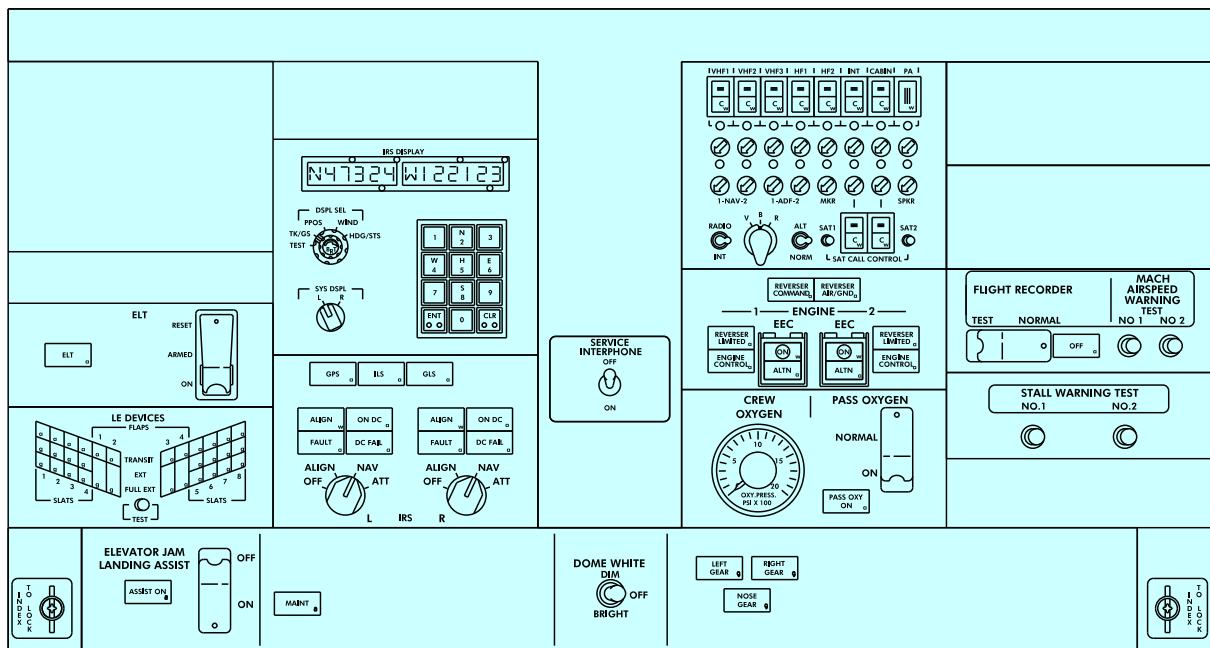
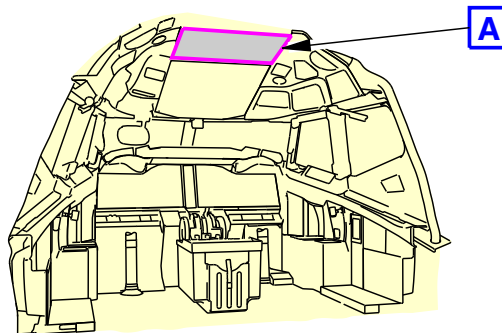
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A

P5

NOTE:

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2551008 S0000607825_V1

Aft Overhead Panel - Component Location
Figure 101/31-11-95-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA 001-014

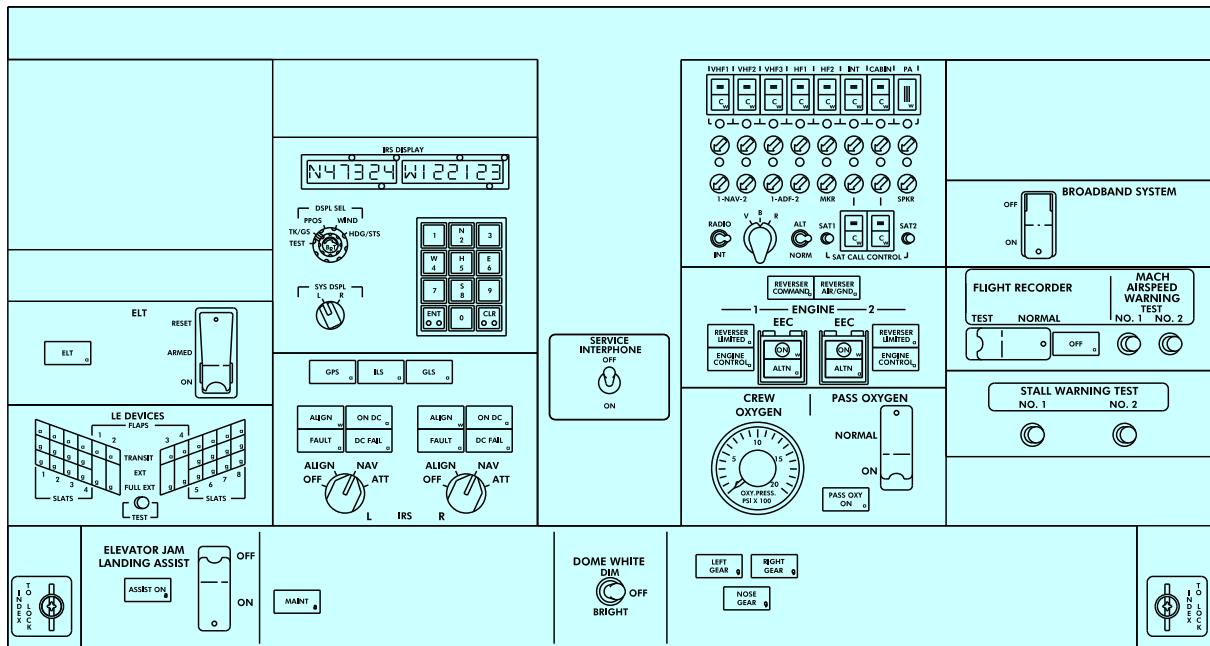
31-11-95

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BOEING
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P5



NOTE:

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3002071 S0000777980_V1

Aft Overhead Panel - Component Location
Figure 101/31-11-95-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA 015-999

31-11-95

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AIRCRAFT MAINTENANCE MANUAL
AUXILIARY PANELS - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Auxiliary Panels.

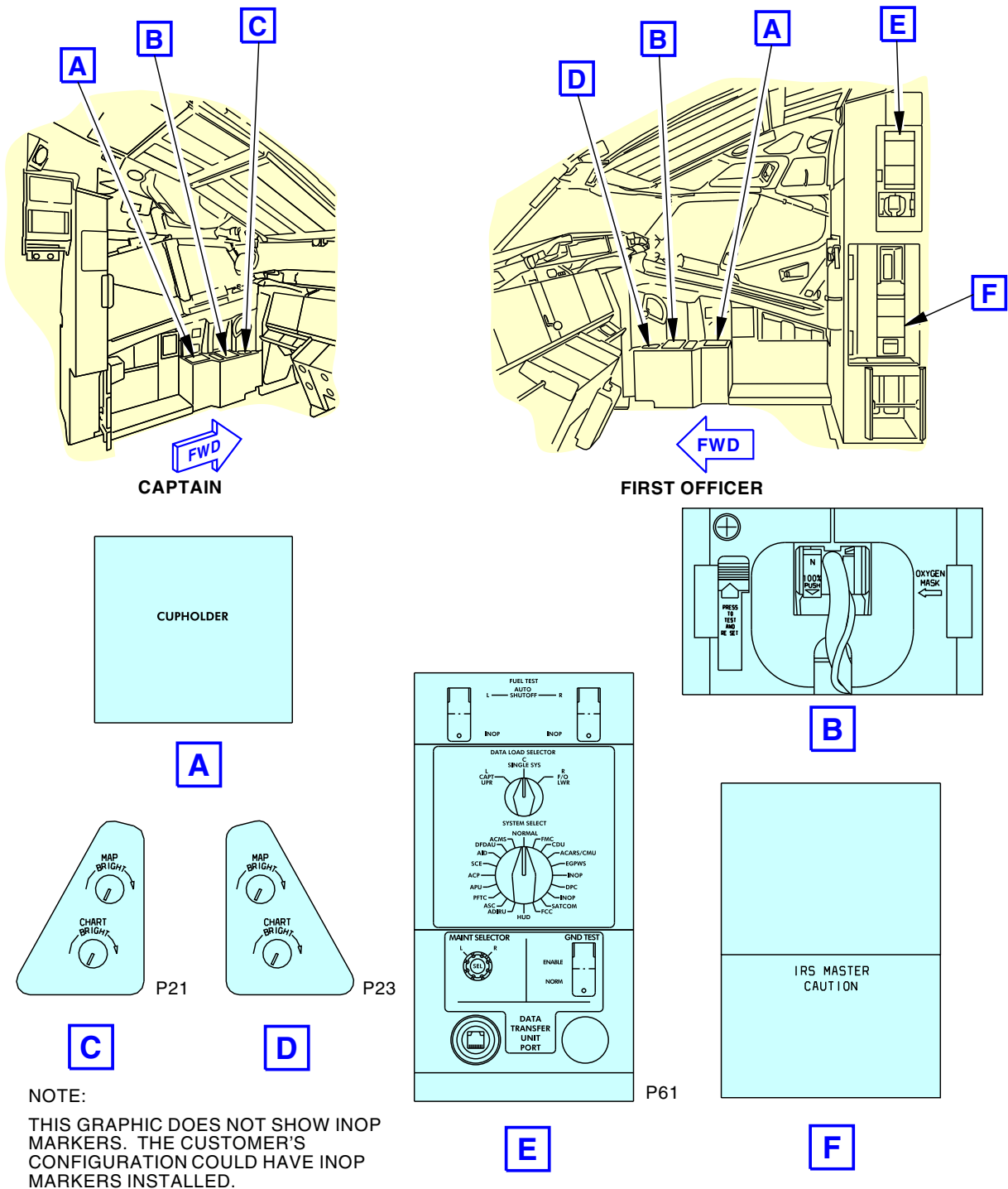
EFFECTIVITY
SIA ALL

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2550830 S0000607765_V6

Auxiliary Panels - Component Location
Figure 101/31-11-98-990-801

EFFECTIVITY
SIA ALL

31-11-98



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AIRCRAFT MAINTENANCE MANUAL

FLIGHT DATA RECORDER (FDR) - MAINTENANCE PRACTICES

1. General

A. This procedure contains:

- (1) Flight Data Recorder System Deactivation
- (2) Flight Data Recorder System Activation
- (3) Flight Data Recorder Single State Analog Discrete Parameter Test
- (4) Data Download From Flight Data Recorder System (Selection)
- (5) Make a Copy of the FDR Data with the Hand Held Multi Purpose Interface (HHMPI) or Portable Interface (PI)
- (6) Make a Copy of the FDR Data with the Recorder Data Interface (RDI)

TASK 31-31-00-040-801

2. Flight Data Recorder System - Deactivation

A. **General**

- (1) This procedure removes electrical power to the Flight Data Recorder System.

B. **Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. **Flight Data Recorder System Deactivation**

SUBTASK 31-31-00-860-001

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

D. **Flight Data Recorder System - Tryout**

NOTE: This tryout is to make sure the Flight Data Recorder system is in a zero energy state.

SUBTASK 31-31-00-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-710-001

- (2) Move the NORMAL/TEST switch on the Flight Recorder panel, P5, to the TEST position.
 - (a) Make sure the OFF light on the Flight Recorder panel, P5, is on.
 - (b) Make sure all of the fault lights on the DFDAU front panel do not come on.

SUBTASK 31-31-00-710-002

- (3) Move the NORMAL/TEST switch on the Flight Recorder panel, P5, to the NORMAL position.

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- (a) Push one of the MASTER CAUTION lights on the Glareshield panel, P7.
- 1) Make sure the two MASTER CAUTION lights are off.
 - 2) Make sure the OFF light on the Flight Recorder panel, P5, is off.

————— **END OF TASK** —————

TASK 31-31-00-440-801

3. Flight Data Recorder System - Activation

A. General

- (1) This procedure adds power to the Flight Data Recorder System.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Flight Data Recorder Activation

SUBTASK 31-31-00-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

————— **END OF TASK** —————

TASK 31-31-00-700-801

4. Flight Data Recorder - Single State Analog Discrete Parameter Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task includes the steps to set parameters recorded by the Solid-State Flight Data Recorder (SSFDR) before the data is downloaded.

B. References

Reference	Title
24-22-00-860-801	Supply Electrical Power (P/B 201)
24-22-00-860-802	Remove Electrical Power (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

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SIA ALL

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D. Access Panels

Number	Name/Location
--------	---------------

117A	Electronic Equipment Access Door
------	----------------------------------

E. Prepare for the test

SUBTASK 31-31-00-700-001

- (1) Move the NORMAL/TEST switch, on the P5 Flight Recorder panel, to the TEST position.

F. Flight Data Recorder - Single State Analog Discrete Parameter Test

SUBTASK 31-31-00-700-010

- (1) Do these steps to set the applicable overheat/fire discrete signals:

- (a) Move the TEST switch, on the P8 Engine and APU Fire Control panel, to the OVHT/FIRE position and hold for at least 4 seconds.
- 1) Make sure that these lights, on the P8 Engine and APU Fire Control panel, come on:
- a) ENG 1 Fire Handle light
 - b) ENG 2 Fire Handle light
 - c) WHEEL WELL light
 - d) APU Fire Handle light.

SUBTASK 31-31-00-700-011

- (2) Push and hold the cargo smoke detection and fire suppression test button, on the P8 Cargo Fire Control panel, for at least 4 seconds.
- (a) Make sure that these lights, on the P8 Cargo Fire Control panel, come on:
- 1) EXT FWD and EXT AFT green lights come on.
 - 2) FWD and AFT red switchlights come on.
 - 3) DISCH amber light comes on.
 - 4) The DETECTOR FAULT light is off.
- (b) Make sure that these lights, on the P7 Pilot's Lightshield panel, come on:
- 1) The Captain's and First Officer's FIRE WARN red lights come on.
- (c) Aural warning unit gives the bell sound.

SUBTASK 31-31-00-700-012

- (3) Do these steps to set the stall warning discrete signal:
- (a) Push the NO. 1 STALL WARNING TEST switch.
- 1) Make sure that the Captain's shaker operates.
- (b) Push the NO. 2 STALL WARNING TEST switch.
- 1) Make sure that the First Officer's shaker operates.

SUBTASK 31-31-00-700-013

- (4) Do these steps to set the applicable hydraulic system low pressure discrete signals:
- (a) Make sure that the A and B hydraulic systems are not pressurized. To remove hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
- (b) Make sure that the STBY hydraulic system is not pressurized. To remove hydraulic pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

EFFECTIVITY
SIA ALL

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- (c) Do these steps to set the low hydraulic pressure system A engine 1 discrete signal:
- 1) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.
 - 2) Remove connector D2684 from the SYS A ENG 1 PUMP LOW PRESS switch, S796.
 - 3) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.
 - 4) Make sure that the ENG 1 LOW PRESSURE light of System A, on the P5 HYD PUMPS panel, is OFF.
 - 5) Wait at least 4 seconds.
- NOTE: The test can take up to a few minutes.
- 6) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.
 - 7) Install connector D2684 to the SYS A ENG 1 PUMP LOW PRESS switch, S796.
 - 8) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.
 - 9) Make sure that the ENG 1 LOW PRESSURE light of System A, on the P5 HYD PUMPS panel, is ON.

- (d) Do these steps to set the low hydraulic pressure system B engine 2 discrete signal:
- 1) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.
 - 2) Remove connector D2686 from the SYS B ENG 2 PUMP LOW PRESS switch, S797.
 - 3) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.
 - 4) Make sure that the ENG 2 LOW PRESSURE light of system B, on the P5 HYD PUMPS panel, is OFF.
 - 5) Wait at least 4 seconds.
- NOTE: The test can take up to a few minutes.
- 6) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.
 - 7) Install connector D2686 to the SYS B ENG 2 PUMP LOW PRESS switch, S797.
 - 8) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.
 - 9) Make sure that the ENG 2 LOW PRESSURE light of System B, on the P5 HYD PUMPS panel, is ON.

- (e) Do these steps to set the standby hydraulic pressure transmitter discrete signal:

 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
---	---

- 1) Make sure that the FLT CONTROL hydraulic pressure system switches A and B, on the P5 HYD PUMPS panel, are not in the STBY RUD position.
- 2) Set the FLT CONTROL switch A, on the P5 HYD PUMPS panel, to STBY RUD.
 - a) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 HYD PUMPS panel, is OFF.

NOTE: The STANDBY HYD LOW PRESSURE light may come ON briefly when the FLT CONTROL switch is set to STBY RUD.

EFFECTIVITY
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- 3) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- 4) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

- a) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 HYD PUMPS panel, is ON.

- 5) Wait at least 4 seconds.

NOTE: The test can take up to a few minutes.

- 6) Set the FLT CONTROL switch A, on the P5 HYD PUMPS panel, to the ON position.



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

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(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- 7) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

- 8) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 31-31-00-700-014

- (5) Do these steps to set the cabin altitude > 10K discrete signal:
- (a) Do this step: Remove Electrical Power, TASK 24-22-00-860-802.
 - (b) Remove connector D776 from the CABIN PRESSURE SWITCH (S128).
 - (c) Do this step: Supply Electrical Power, TASK 24-22-00-860-801.
 - (d) Apply a ground to pin A of D776 connector.
 - 1) Make sure that the Aural Warning Module horn in the flight compartment comes ON.
 - (e) Wait at least 4 seconds.
 - (f) Remove the ground from pin A of D776 connector.
 - (g) Do this step: Remove Electrical Power, TASK 24-22-00-860-802.
 - (h) Install connector D776 to the CABIN PRESSURE SWITCH (S128).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-00-700-003

- (1) Move the NORMAL/TEST switch, on the P5 Flight Recorder panel, to the NORMAL position.

————— END OF TASK —————

TASK 31-31-00-970-803

5. Data Download From Flight Data Recorder System (Selection)

A. General

- (1) This procedure gives the task selection to download the data from the Flight Data Recorder with different methods.

B. Data Download From Flight Data Recorder System (Selection)

SUBTASK 31-31-00-970-002

- (1) Do one of these tasks to download the data from the Flight Data Recorder:
- Make a Copy of the FDR Data with the HHMPI or PI, TASK 31-31-00-970-802

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- Make a Copy of the FDR Data with the RDI, TASK 31-31-00-970-805

— END OF TASK —

TASK 31-31-00-970-802

6. Make a Copy of the FDR Data with the HHMPI or PI

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the steps on how to use the Hand Held Multipurpose Interface (HHMPI) or Portable Interface (PI) unit to make a copy of the Flight Data Recorder (FDR) data.
- (2) The copied data then can be analyzed at a different location by the applicable airline personnel.

B. References

Reference	Title
31-31-11-000-801	Flight Data Recorder Removal (P/B 401)
31-31-11-400-801	Flight Data Recorder 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-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70

D. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Prepare to Make a Copy of the FDR Data

SUBTASK 31-31-00-840-004

- (1) Move the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.

SUBTASK 31-31-00-010-002

- (2) Get access to the FDR (TASK 31-31-11-000-801).

SUBTASK 31-31-00-840-001

- (3) Make sure that the interface unit is OFF.

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SUBTASK 31-31-00-480-002

- (4) If it is necessary, install the removable media into the interface unit.

NOTE: The downloaded FDR data can be stored on its internal memory, a USB flash drive, a compact flash card, SD card, or an optional PCMCIA card.

SUBTASK 31-31-00-840-002

- (5) Connect the interface unit as follows:

- (a) Connect the HHMPI interface cable (L-3 Comm FA2100), COM-13697, to the FDR front connector.
- (b) Connect the HHMPI interface cable (L-3 Comm FA2100), COM-13697, to the interface unit.

SUBTASK 31-31-00-480-006

- (6) Turn on the Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694, as follows:

- (a) Press CANCEL or OK for 2-3 seconds until the unit beeps.

NOTE: The interface cable is detected automatically. A blue aircraft icon will show in the status bar of the display to indicate correct connection to the CVR.

F. Make a Copy of the FDR Data

SUBTASK 31-31-00-970-007

- (1) Make a copy of the FDR data with the portable interface unit, COM-2553, as follows:

- (a) Make these selections on the portable interface unit, COM-2553:

NOTE: The arrow switches move the cursor; the SELECT switch makes a selection; the DELETE switch goes back one selection; the HOME/MENU switch shows the FDR main menu.

- 1) Select COPY from the FDR main menu.
- 2) Select a maximum of 11 letters, numbers, and symbols to make a name (file ID) for the data copy.
- 3) Select START.
- 4) Select START COPY.

NOTE: The portable interface unit, COM-2553, shows the remaining time to make the copy of the data.

SUBTASK 31-31-00-970-001

- (2) Make a copy of the FDR data with the Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694, as follows:

- (a) If it is necessary, select the aircraft type, model, and tail number.
- (b) If it is necessary, select the memory storage device.

NOTE: The option to download to the HHMPI Internal Memory will not appear if an SD card is connected. Remove the SD storage card if access to the internal memory is required.

- (c) Select DOWNLOAD OPERATIONS from the main menu.
- (d) Select DOWNLOAD ALL.
- (e) Push the OK button when the download has completed.



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G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-00-040-003

- (1) Turn off the Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694, as follows:
 - (a) Press CANCEL until the CONFIRM POWER OFF alert is on the display.
 - (b) Press OK to confirm.

SUBTASK 31-31-00-080-001

- (2) Disconnect the interface unit as follows:
 - (a) Disconnect the HHMPI interface cable (L-3 Comm FA2100), COM-13697, from the interface unit.
 - (b) Disconnect the HHMPI interface cable (L-3 Comm FA2100), COM-13697, from the FDR front connector.

SUBTASK 31-31-00-410-002

- (3) Close access to the FDR (TASK 31-31-11-400-801).

SUBTASK 31-31-00-840-006

- (4) Move the NORMAL/TEST switch on the Flight Recorder panel, P5, to the NORMAL position.

————— END OF TASK —————

TASK 31-31-00-970-805

7. Make a Copy of the FDR Data with the RDI

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the steps on how to use the Recorder Data Interface (RDI) to make a copy of the Flight Data Recorder (FDR) data.
- (2) The copied data then can be analyzed at a different location by the applicable airline personnel.

B. References

Reference	Title
31-31-11-000-801	Flight Data Recorder Removal (P/B 401)
31-31-11-400-801	Flight Data Recorder 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-20023	Kit - Recorder Data Interface (For L-3 SRVIVR25) Part #: 17TES0900 Supplier: 06141 Part #: 17TES0901 Supplier: 06141

D. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Prepare to Make a Copy of the FDR Data

SUBTASK 31-31-00-860-383

- (1) Move the NORMAL/TEST switch, on the P5 flight recorder panel, to the TEST position.

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SUBTASK 31-31-00-010-005

- (2) Get access to the FDR (TASK 31-31-11-000-801).

SUBTASK 31-31-00-480-004

- (3) Connect the recorder data interface kit, COM-20023, as follows:
 - (a) Connect the cable of the recorder data interface kit, COM-20023, to the FDR front connector.
 - (b) Connect the cable of the recorder data interface kit, COM-20023, to the handheld unit.

SUBTASK 31-31-00-480-005

- (4) Start the RDI application on the handheld unit of the recorder data interface kit, COM-20023.
 - (a) Push the P1 button on the handheld unit of the recorder data interface kit, COM-20023.
 - (b) Make sure that the home screen of the RDI application shows on the handheld unit of the recorder data interface kit, COM-20023.
 - (c) On the handheld unit of the recorder data interface kit, COM-20023, make sure that the connection status on the home screen of the RDI application shows CONNECTED.

F. Make a Copy of the FDR Data

SUBTASK 31-31-00-700-015

- (1) On the RDI home screen, select DOWNLOAD.

SUBTASK 31-31-00-700-016

- (2) To download a fault log or an event log, select FAULT LOG or EVENT LOG.

NOTE: The data download starts immediately and the data is saved on the recorder data interface installation directory.

SUBTASK 31-31-00-700-017

- (3) To download flight data, do these steps:

- (a) Select FLIGHT DATA.
- (b) If it is necessary, check the box for file conversion.

NOTE: File conversion is a separate option and some devices do not have this feature available.

NOTE: File conversion is an optional feature that requires decryption, the optional feature needs to be purchased from supplier.

NOTE: The RDI encrypts the data coming off the FDR and a license is required to decrypt it.

- (c) Select a download type (FULL, FROM LAST, MARKER, or TIME).

NOTE: The FULL option downloads all the data. The FROM LAST option downloads all data since the last data download. The MARKER option downloads the data from a set marker. The TIME option downloads the data from a selection of hours and minutes.

- 1) For MARKER or TIME download types, set the time or marker selections.

- (d) Select VERIFY TAIL NUMBER.

- 1) Enter the tail number.

NOTE: If the tail number field is left empty, there will be no tail number on the data file name.

- (e) Select START DOWNLOAD.

NOTE: Data is saved on the recorder data interface installation directory.

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- (f) Make sure that a DOWNLOAD COMPLETE screen is shown.

G. Convert the FDR Data Format

SUBTASK 31-31-00-700-018

- (1) On the RDI home screen, Select FILES.

NOTE: The files to convert must be on the internal storage of the unit.

NOTE: File conversion is a separate option and some devices do not have this feature available.

NOTE: File conversion is an optional feature that requires decryption, the optional feature needs to be purchased from supplier.

NOTE: The RDI encrypts the data coming off the FDR and a license is required to decrypt it.

SUBTASK 31-31-00-700-019

- (2) To convert data, do these steps:

- (a) Select CONVERT.

- (b) Select FDR.

- (c) Select the file(s) to convert.

- NOTE: More than one file can be selected.

- (d) Select CONVERT.

- (e) Make sure that a CONVERSION COMPLETE screen is shown.

H. Transfer the FDR Data

SUBTASK 31-31-00-700-020

- (1) On the RDI home screen, select FILES.

SUBTASK 31-31-00-700-021

- (2) To move data from the handheld unit of the recorder data interface kit, COM-20023, to a different location, do these steps:

- (a) Select TRANSFER.

- (b) Select USB.

- (c) Select a drive from the list.

- (d) Select SELECT DRIVE.

- (e) Select the file(s) to transfer.

- NOTE: More than one file can be selected.

- (f) Select TRANSFER.

- (g) Make sure that a TRANSFER COMPLETE screen is shown.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-00-080-003

- (1) Disconnect the recorder data interface kit, COM-20023, as follows:

- (a) Disconnect the cable of the recorder data interface kit, COM-20023, from the handheld unit.

- (b) Disconnect the cable of the recorder data interface kit, COM-20023, from the FDR front connector.

SUBTASK 31-31-00-410-005

- (2) Close access to the FDR (TASK 31-31-11-400-801).

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SUBTASK 31-31-00-860-384

- (3) Move the NORMAL/TEST switch, on the P5 flight recorder panel, to the NORMAL position.

————— **END OF TASK** —————

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FLIGHT DATA RECORDER SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) An operational test of the flight data recorder system.
- (2) A system test of the flight data recorder system.

TASK 31-31-00-710-801

2. Flight Data Recorder System - Operational Test

A. **General**

- (1) The flight recorder/march airspeed warning test panel is located on the P5 aft overhead panel.
- (2) The flight recorder panel is located on the P5 aft overhead panel.

B. **References**

Reference	Title
31-31-11-000-801	Flight Data Recorder Removal (P/B 401)
31-31-11-400-801	Flight Data Recorder Installation (P/B 401)
31-31-22-000-801	Digital Flight Data Acquisition Unit (DFDAU) Removal (P/B 401)
31-31-22-400-801	Digital Flight Data Acquisition Unit (DFDAU) Installation (P/B 401)
31-31-22-470-802	Digital Flight Data Acquisition Unit (DFDAU) Software Installation (P/B 201)
32-09-00-840-801	Prepare to Put the Airplane in the Air Mode (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201)

C. **Location Zones**

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

D. **Software Verification Test**

SUBTASK 31-31-00-020-001

- (1) Do these steps to do a software configuration check of the Digital Flight Data Acquisition Unit (DFDAU):
 - (a) Make sure that the correct software part number is known for the DFDAU.
NOTE: For the DFDAU to be an approved installation, the correct software part number must be installed.
 - (b) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-5

Row	Col	Number	Name
C	1	C01958	NETWORK FILE SERVER

- (c) Do these steps at the upper DATA LOAD SELECTOR, on the P61 panel:
 - 1) Set the upper switch to the SINGLE SYS position.
 - 2) Set the SYSTEM SELECT switch to the applicable position.
 - a) DFDAU position for the DFDAU mandatory software.

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- b) ACMS position for the DFDAU non-mandatory software.
- (d) Do these steps at the Control Display Unit (CDU).
 - 1) Select the MENU key on the CDU.
 - 2) Select the LSK adjacent to the ACMS prompt on the CDU.
 - 3) Select the LSK adjacent to the CONFIGURATION prompt on the CDU.
 - 4) Select the LSK adjacent to the SOFTWARE prompt on the CDU.

NOTE: The Versions Page will be displayed.

 - 5) Make sure that the software part number information displayed on the CDU for the DFDAU mandatory is correct.
 - 6) Make sure that the software part number information displayed on the CDU for the DFDAU non-mandatory is correct.
 - 7) If the displayed software part number information is not correct, install the correct software (TASK 31-31-22-470-802).

E. Flight Data Recorder (FDR) Maintenance Flag and Digital Flight Data Acquisition Unit (DFDAU) BITE Test

SUBTASK 31-31-00-710-003

- (1) Put the NORMAL/TEST switch on the flight recorder/march airspeed warning test panel to the TEST position.
 - (a) Make sure that the OFF light on the flight recorder panel is off.
 - (b) Make sure that the DFDAU FAULT light on the DFDAU front panel is off.

SUBTASK 31-31-00-710-004

- (2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-710-005

- (3) Remove the Solid-State Flight Data Recorder (SSFDR), M96 (TASK 31-31-11-000-801).

SUBTASK 31-31-00-860-026

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC

- (a) Do these steps at the L FMC CDU:
 - 1) Select the MENU key on the CDU.
 - 2) Select LSK L3 adjacent to the ACMS prompt on the CDU.
 - 3) Select the LSK L2 adjacent to the MAINTENANCE prompt on the CDU.
 - 4) Select the LSK L1 adjacent to the CURRENT FAULTS prompt on the CDU.

NOTE: The CURRENT FAULTS Page will be displayed.

 - 5) Make sure that the EXT DFDR FLG (Code 017) is displayed on the CDU as a current fault.

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- a) If the Code is not displayed, select the NEXT PAGE button on the CDU to check another page for the Code.

SUBTASK 31-31-00-710-006

- (5) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC

SUBTASK 31-31-00-860-027

- (6) Install the SSFDR, M96 (TASK 31-31-11-400-801).

SUBTASK 31-31-00-860-368

- (7) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-00-710-007

- (8) Remove the DFDAU, M675 (TASK 31-31-22-000-801).

SUBTASK 31-31-00-710-008

- (9) Remove safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- (a) Make sure that the NORMAL/TEST switch on the flight recorder/march airspeed warning test panel is in the TEST position.
- (b) Make sure that the OFF light on the flight recorder/march airspeed warning test panel comes on.

SUBTASK 31-31-00-860-029

- (10) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-860-030

- (11) Install the DFDAU, M675 (TASK 31-31-22-400-801).

SUBTASK 31-31-00-860-031

- (12) Remove safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

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- (a) Make sure that the OFF light on the flight recorder/march airspeed warning test panel goes off.
- (b) Make sure that the DFDAU FAULT light on the DFDAU front panel is off.

SUBTASK 31-31-00-860-032

- (13) Put the NORMAL/TEST switch on the flight recorder/march airspeed warning test panel to the NORMAL position.
 - (a) Do these steps at the L FMC CDU:
 - 1) Select the MENU key on the CDU.
 - 2) Select the LSK L3 adjacent to the ACMS prompt on the CDU.
 - 3) Select the LSK L2 adjacent to the MAINTENANCE prompt on the CDU.
 - 4) Select the LSK L1 adjacent to the CURRENT FAULTS prompt on the CDU.
NOTE: The CURRENT FAULTS Page will be displayed.
 - 5) Make sure that the EXT DFDR FLG (Code 017) is not displayed on the CDU as a current fault.
 - a) If the Code is not displayed, select the NEXT PAGE button on the CDU to check that the Code is not listed on another page.
 - (b) Make sure that the OFF light on the flight recorder/march airspeed warning test panel is on.

F. Flight Data Recorder Activation by the NORMAL/TEST Switch Test

SUBTASK 31-31-00-710-009

- (1) Put the NORMAL/TEST switch on the flight recorder panel to the NORMAL position.

SUBTASK 31-31-00-710-010

- (2) Push one of the MASTER CAUTION lights on the P7 glareshield panel.
 - (a) Make sure that the two MASTER CAUTION lights are off.
 - (b) Make sure that the OFF light on the flight recorder panel is on.

SUBTASK 31-31-00-710-011

- (3) Put the NORMAL/TEST switch on the flight recorder panel to the TEST position.
 - (a) Make sure that the OFF light on the flight recorder panel is off.

SUBTASK 31-31-00-710-012

- (4) Put the NORMAL/TEST switch on the flight recorder panel to the NORMAL position.
 - (a) Make sure that the OFF light on the flight recorder panel is on.
 - (b) Make sure that the two MASTER CAUTION lights are on.

SUBTASK 31-31-00-860-033

- (5) Push one of the MASTER CAUTION lights.

G. Flight Data Recorder Activation by the Engine Running Relay (Oil Pressure Switch Test)

SUBTASK 31-31-00-860-370

- (1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

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Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 31-31-00-860-371

- (2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT

Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A

SUBTASK 31-31-00-710-013

- (3) Make sure that the NORMAL/TEST switch on the flight recorder/march airspeed warning test panel is set to the NORMAL position.

SUBTASK 31-31-00-710-014

- (4) Put the Engine 1 Start Lever to the IDLE position.

SUBTASK 31-31-00-710-015

- (5) Wait for a minimum of 5 minutes.
- (a) Make sure that the OFF light on the flight recorder/march airspeed warning test panel is off.
- (b) Make sure that the two MASTER CAUTION lights are off.

SUBTASK 31-31-00-710-016

- (6) Put the Engine 1 Start Lever to the CUTOFF position.
- (a) Make sure that the OFF light on the flight recorder panel comes on.
- (b) Make sure that the two MASTER CAUTION lights come on.

SUBTASK 31-31-00-860-034

- (7) Push one of the MASTER CAUTION lights.

SUBTASK 31-31-00-860-035

- (8) Put the Engine 2 Start Lever to the IDLE position.

SUBTASK 31-31-00-710-017

- (9) Wait for a minimum of 5 minutes.
- (a) Make sure that the OFF light on the flight recorder panel is off.
- (b) Make sure that the two MASTER CAUTION lights are off.

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SUBTASK 31-31-00-710-018

- (10) Put the Engine 2 Start Lever to the CUTOFF position.
 - (a) Make sure that the OFF light on the flight recorder panel comes on.
 - (b) Make sure that the two MASTER CAUTION lights come on.

SUBTASK 31-31-00-860-036

- (11) Push one of the MASTER CAUTION lights.

SUBTASK 31-31-00-860-378

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

H. Flight Data Recorder Activation by the AIR Switch Test

SUBTASK 31-31-00-860-374

- (1) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

SUBTASK 31-31-00-860-369

- (2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

SUBTASK 31-31-00-710-019



MAKE SURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES AND LANDING GEAR DOOR AREAS BEFORE YOU SIMULATE THE AIRPLANE TO THE AIR MODE. THE SIMULATED AIR MODE CAN CAUSE MOVEMENT TO CONTROL SURFACES, LANDING GEAR, AND LANDING GEAR DOORS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Put the GND TEST switch, on the P61-4 maintenance bite panel, to the ENABLE position.

SUBTASK 31-31-00-710-020

- (4) Do these steps at the Multi Function Display (MFD) panel:
 - (a) Select SYS on the MFD panel.
 - (b) Select MAINT -> ONBD MAINT -> OTHER FUNCTIONS -> SPECIAL FUNCTIONS -> ATA System 32: Proximity Switch Electronic Unit (PSEU) -> CONTINUE
 - (c) Select AIR/GND OVERRIDE.
 - 1) Then select CONTINUE.
 - (d) Push the ON/OFF key to turn on the PSEU.

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- (e) Select Set SYS 2 only IN AIR.
 - 1) Then select CONTINUE.
- (f) Make sure that the MFD shows AIR/GND OVERRIDE is ACTIVE and that SYS 1 shows GND mode and that SYS 2 shows AIR mode.

SUBTASK 31-31-00-710-024

- (5) Make sure that the OFF light on the flight recorder/march airspeed warning test panel is off.

SUBTASK 31-31-00-710-025

- (6) At the MFD, select Set SYS 2 only ON GND.
 - (a) Then select CONTINUE.
 - (b) Make sure that the MFD shows AIR/GND OVERRIDE is NOT ACTIVE and that SYS 1 and that SYS 2 shows GND mode.

SUBTASK 31-31-00-710-058

- (7) Make sure that the OFF light on the flight recorder/march airspeed warning test panel is on.

SUBTASK 31-31-00-860-375

- (8) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

————— END OF TASK —————

TASK 31-31-00-730-801

3. Flight Data Recorder System - System Test

A. General

- (1) The system test has procedures to do a check of the inputs to the flight data recorder system. You can do the tests out of sequence and you can do each test independently.
- (2) The tests in this procedure are written to the standard Boeing application software. If customized software is installed, part of the test may not look the same. Installation of the Boeing application software may be necessary.
- (3) The flight recorder panel is located on the P5 aft overhead panel.
- (4) The mode control panel is located on the P7 glareshield panel.
- (5) The engine and APU fire control panel and radio control panel are located on the P8 aft electronic panel.
- (6) The instrument switching panel and hydraulic panel are located on the P5 forward overhead panel.
- (7) The aileron and trim rudder module is located on the P8 aft electronic panel.
- (8) The center main panel is located on the P9 forward electronic panel.

B. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
31-31-11-000-801	Flight Data Recorder Removal (P/B 401)
31-31-11-400-801	Flight Data Recorder Installation (P/B 401)
31-31-22-000-801	Digital Flight Data Acquisition Unit (DFDAU) Removal (P/B 401)

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Reference	Title
31-31-22-400-801	Digital Flight Data Acquisition Unit (DFDAU) Installation (P/B 401)
31-31-81-000-801	Flight Data Recorder Accelerometer - Removal (P/B 401)
31-31-81-400-801	Flight Data Recorder Accelerometer - Installation (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
WDM 34-53-11	D000534521

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-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70
SPL-1585	Kit - Rigging Pin Part #: F70207-151 Supplier: 81205
SPL-1680	Protractor Assembly - Control Column Part #: A27021-29 Supplier: 81205 Part #: G76002-42 Supplier: 81205 Opt Part #: 4MIT65B80307-1 Supplier: 81205 Opt Part #: F52485-500 Supplier: 81205 Opt Part #: G76002-19 Supplier: 81205 Opt Part #: G76002-37 Supplier: 81205
SPL-1690	Actuators/Deactuators Set - Proximity Sensor Part #: 8-758-01 Supplier: 08748 Part #: A27092-139 Supplier: 81205 Opt Part #: A27092-106 Supplier: 81205

D. Location Zones

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

E. Prepare for the System Test

SUBTASK 31-31-00-710-029

(1) Do this task: Flight Data Recorder System - Operational Test, TASK 31-31-00-710-801.

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SUBTASK 31-31-00-710-030

(2) Use one of the Portable Testers listed below to do the test:

(a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697.
- HHMPI interface cable (Honeywell HFR5-D), COM-13696.

3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

4) Put the TEST-NORMAL switch in the TEST position.

5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

(b) Do the steps below to prepare the Handheld Download handheld download unit, COM-913, for the system test:

NOTE: These steps are only applicable to airplanes with a Honeywell SSFDR installed.

1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

2) Connect the Handheld Download handheld download unit, COM-913, to the connector on the Flight Data Recorder (FDR).

3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

4) Put the NORMAL/TEST switch on the flight recorder panel to the TEST position.

5) Push the button that energizes the handheld download unit, COM-913.

6) Set the DSDU switch on the handheld download unit, COM-913.

7) Set the BASE switch handheld download unit, COM-913.

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8) Set the WORD and SUBFRAME as specified.

F. DFDR Maintenance Flag and DFDAU Bite Output Test

SUBTASK 31-31-00-710-038

- (1) Put the TEST-NORMAL switch on the P5-19 flight recorder and march airspeed panel to the TEST position.
 - (a) Make sure that the FLIGHT RECORDER OFF light on the flight recorder and march airspeed panel goes out.
 - (b) Make sure that the fail light on the Digital Flight Data Acquisition Unit (DFDAU) is not on.

SUBTASK 31-31-00-000-001

- (2) Remove the Digital Flight Data Recorder (DFDR) (TASK 31-31-11-000-801).

SUBTASK 31-31-00-860-356

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC

Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

- (4) Make sure that pneumatic pressure is not available for both engines.
- (5) Make sure that the fire handles are in normal position.
- (6) On the P10 pilot's control stand set Engine 1 Start Lever switch to IDLE position.
- (7) Make sure that the NORMAL/TEST switch on the flight recorder and march airspeed panel is in TEST position.

SUBTASK 31-31-00-710-039

- (8) Push the MENU key on the First Officer's Control Display Unit (CDU).
 - (a) Make sure that the ACMS prompt is one of the menu selections on the CDU menu page.

SUBTASK 31-31-00-730-127

- (9) Push Line Select Key (LSK) L3 on the F/O's CDU.

SUBTASK 31-31-00-730-128

- (10) Push LSK L2.

SUBTASK 31-31-00-730-129

- (11) Push LSK L1.
 - (a) Make sure that the EXT DFDR FLG is listed as a current fault.

NOTE: Code 017 is associated with EXT DFDR FLG fault. If a code is not listed, use the NEXT PAGE button on the CDU to make sure the fault is not listed in another page.

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- (12) On the P10 pilot's control stand set Engine 1 Start Lever switch to CUTOFF position.

SUBTASK 31-31-00-860-357

- (13) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT

SUBTASK 31-31-00-000-002

- (14) Remove the DFDAU (TASK 31-31-22-000-801).

SUBTASK 31-31-00-860-358

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-710-040

- (16) Make sure that the TEST-NORMAL switch on the P5-19 flight recorder and march airspeed panel is in TEST position.

- (a) Make sure that the FLIGHT RECORDER OFF light on the flight recorder and march airspeed panel is on.

SUBTASK 31-31-00-860-359

- (17) Open this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC

SUBTASK 31-31-00-400-001

- (18) Install the DFDAU (TASK 31-31-22-400-801).

SUBTASK 31-31-00-860-360

- (19) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-00-710-041

- (20) Make sure that the FLIGHT RECORDER OFF light is not on.

SUBTASK 31-31-00-400-002

- (21) Install the DFDR (TASK 31-31-11-400-801).

SUBTASK 31-31-00-710-042

- (22) Push the MENU key on the First Officer's CDU.

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- (a) Make sure that the ACMS prompt is one of the menu selections on the CDU menu page.

SUBTASK 31-31-00-730-130

- (23) Push LSK L3 on the F/O's CDU.

SUBTASK 31-31-00-730-131

- (24) Push LSK L2.

SUBTASK 31-31-00-730-132

- (25) Push LSK L1.

SUBTASK 31-31-00-860-385

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT

SUBTASK 31-31-00-710-061

- (27) On the P10 pilot's control stand set Engine 1 Start Lever switch to IDLE position.

- (a) Make sure that EXT DFDR FLG is not listed as a Current Fault.

NOTE: Code 017 is associated with EXT DFDR FLG fault. If code is not listed, use the NEXT PAGE button on the CDU to make sure the fault is not listed in another page.

SUBTASK 31-31-00-710-060

- (28) On the P10 pilot's control stand set Engine 1 Start Lever switch to CUTOFF position.

SUBTASK 31-31-00-710-043

- (29) Make sure that the fail light in front of the DFDAU front panel is off.

SUBTASK 31-31-00-710-044

- (30) Put the NORMAL-TEST switch on the flight recorder and march airspeed panel to NORMAL position.

- (a) Make sure that the FLIGHT RECORDER OFF light is on.

G. Master Caution, FDR Annunciation and Power Control Test

SUBTASK 31-31-00-710-045

- (1) Put the NORMAL-TEST switch on the flight recorder and march airspeed panel to NORMAL position.

SUBTASK 31-31-00-730-133

- (2) Push Captain's or First Officer's MASTER CAUTION light.

- (a) Make sure that the both MASTER CAUTION light goes out.

- (b) Make sure that the OFF light on the flight recorder and march airspeed panel remains on.

SUBTASK 31-31-00-730-134

- (3) Put the NORMAL-TEST switch on the flight recorder and march airspeed panel to TEST position.

- (a) Make sure that the OFF light on the flight recorder and march airspeed panel goes off.

SUBTASK 31-31-00-730-135

- (4) Put the NORMAL-TEST switch on the flight recorder and march airspeed panel to NORMAL position.

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- (a) Make sure that the OFF light on the flight recorder and march airspeed panel comes on.
- (b) Make sure that the both MASTER CAUTION lights come on.

SUBTASK 31-31-00-730-136

- (5) Push Captain's or First Officer's MASTER CAUTION light.

SUBTASK 31-31-00-040-001

- (6) Make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 31-31-00-710-046

- (7) On the P10 pilot's control stand put Engine 1 start lever to IDLE and wait 5 minutes.
 - (a) Make sure that the FLIGHT RECORDER OFF light, on the P5 aft overhead panel, is off.
 - (b) Make sure that the both MASTER CAUTION lights are off.

SUBTASK 31-31-00-730-137

- (8) On the P10 pilot's control stand put the Engine 1 start lever to CUTOFF.
 - (a) Make sure that the FLIGHT RECORDER OFF light, on the P5 aft overhead panel, is on.
 - (b) Make sure that the both MASTER CAUTION lights are on.

SUBTASK 31-31-00-710-047

- (9) Push either Captain's or First Officer's MASTER CAUTION light.

SUBTASK 31-31-00-710-048

- (10) On the P10 pilot's control stand put Engine 2 start lever to IDLE and wait 5 minutes.
 - (a) Make sure that the FLIGHT RECORDER OFF light, on the P5 aft overhead panel, is off.
 - (b) Make sure that the both MASTER CAUTION lights are off.

SUBTASK 31-31-00-730-138

- (11) On the P10 pilot's control stand put the Engine 2 start lever to CUTOFF position.
 - (a) Make sure that the FLIGHT RECORDER OFF light, on the P5 aft overhead panel, is on.
 - (b) Make sure that the both MASTER CAUTION lights are on.

SUBTASK 31-31-00-710-049

- (12) Push either Captain's or First Officer's MASTER CAUTION light.

SUBTASK 31-31-00-710-059

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

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F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 31-31-00-710-050



MAKE SURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES AND LANDING GEAR DOOR AREAS BEFORE YOU SIMULATE THE AIRPLANE TO THE AIR MODE. THE SIMULATED AIR MODE CAN CAUSE MOVEMENT TO CONTROL SURFACES, LANDING GEAR, AND LANDING GEAR DOORS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (14) Put GND TEST Switch on the P61-4 maintenance bite test panel to ENABLE position.

SUBTASK 31-31-00-860-361

- (15) Do the Air/Gnd Override special function on the PSEU:
- (a) Make these selections on the MFD main function menu:
 - 1) ONBOARD MAINTENANCE.
 - 2) OTHER FUNCTIONS.
 - 3) SPECIAL FUNCTIONS.
 - 4) 32 PROXIMITY SWITCH ELECTRONIC UNIT.
 - 5) PSEU - AIR/GND OVERRIDE.
 - 6) CONTINUE.
 - 7) ON to turn PSEU to ON.
 - 8) Set SYS 2 only to IN AIR.
 - 9) CONTINUE.
 - (b) Make sure that MFD shows the subsequent:
 - 1) AIR/GND OVERRIDE is ACTIVE.
 - 2) SYS 1 shows GND.
 - 3) SYS 2 shows AIR mode.
 - (c) Make sure that the FLIGHT RECORDER OFF light, on the P5-19 aft overhead panel, is off.
 - (d) Set SYS 2 to ON GND on MFD and select CONTINUE.
 - 1) Make sure that the FLIGHT RECORDER OFF light, on the P5-19 aft overhead panel, is on.

H. DFDAU Configuration Test.

SUBTASK 31-31-00-700-009

- (1) Set the tester to subframe 4, word 1005.
- (a) If applicable, set SPF to 1.
NOTE: SPF is a superframe.
 - (b) Make sure that the value displayed on tester is 604X.
NOTE: Data repeats once every 64 seconds and last 4 seconds.
The value of X can be disregarded.

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SUBTASK 31-31-00-730-139

(2) If applicable, set tester to SPF, then select ALL (0) to exit superframe mode.

I. Digital Data Bus Signal Test

SUBTASK 31-31-00-040-002

(1) Open these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
SIA 001-005			
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
SIA ALL			
A	2	C01479	RADIO NAVIGATION MMR 1
B	3	C00190	RADIO NAVIGATION DME 1
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1
B	5	C00186	ATC 1
B	6	C01195	TCAS
B	7	C00629	GND PROX WARN
D	1	C01049	AFCS SYS A WARN LIGHT (BAT)
D	2	C01045	AFCS SYS A FCC DC
E	1	C00721	AUTOTHROTTLE DC 1
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
D	5	C04023	DISPLAY DPC 1 PRI
E	5	C01204	SMYD-1 CMPTR DC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
SIA 001-005			
A	12	C01375	RADIO NAVIGATION VOR 2
SIA ALL			
A	13	C01480	RADIO NAVIGATION MMR 2
A	14	C00192	RADIO NAVIGATION DME 2
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
B	5	C01206	SMYD-2 CMPTR DC
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
D	16	C01262	FMCS CMPTR 2

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F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT
A	22	C00407	FIRE PROTECTION DETECTION ENG 2
A	23	C00403	FIRE PROTECTION DETECTION APU
A	24	C00405	FIRE PROTECTION DETECTION ENG 1
B	3	C01046	AFCS SYS B FCC DC

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00033	AUX POWER UNIT CONT

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C04032	SPOILER CONTROL ELEC PWR A
C	12	C04033	SPOILER CONTROL ELEC PWR B

These circuit breakers are inoperative and should remain open:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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SIA 006, 007

A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1 (INOP)
---	---	--------	---------------------------------------

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2 (INOP)

SIA ALL

SUBTASK 31-31-00-730-140

(2) Push MENU key on Captain's and F/O's CDU.

- (a) Make sure that the ACMS prompt is one of the menu selections on the CDU's MENU page.

SUBTASK 31-31-00-710-051

(3) Make these selection on the Captain's CDU:

- (a) ACMS.
- (b) DISPLAY DATA.
- (c) BUS ACTIVITY.
 - 1) Make sure that the status under each port number listed show “—”.

NOTE: Status of “—” denotes an INACTIVE input to the DFDAU.

Ports 1-20 status is shown between LSK L1 and LSK R1.

Ports 21-40 status is shown between LSK 2 L2 and LSK R2.

Ports 41-60 is shown between LSK L3 and LSK R3.

Ports 61-80 status is shown between LSK L4 and LSK R4.

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NOMENCLATURE	PORT	STATUS
A/T-1	1	—
FMC-01	2	—
GPWC-L-1	4	—
ADR-4	5	—
MMR L-2	6	—
CAPT CLOCK	7	—
FCC-R-1	8	—
MMR R-2	9	—
VOR-R-2	10	—
VOR-L-2	11	—
DSWC-L-1	12	—
FCC-L-1	13	—
FMC-08	14	—
DME-R	15	—
MDS1-GP1	16	—
MDS2-GP1	17	—
TCAS	18	—
DSWC-R-1	19	—
FSEU	20	—
LRRA-L-2	21	—
LRRA-R-2	22	—
FCC-L-T	23	—
FCC-R-T	24	—
DME-L	25	—
IR-3	26	—
APU	27	—
SCE-1	29	—
ATC B	31	—
SCE-2	62	—
SCE-3	71	—
EFDCU	72	—

SUBTASK 31-31-00-440-001

(4) Close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01049	AFCS SYS A WARN LIGHT (BAT)

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CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C01045	AFCS SYS A FCC DC
E	1	C00721	AUTOTHROTTLE DC 1

- (a) Make sure that the status for Port 1 on CDU changes from — to L.
- (b) Make sure that the status for Port 13 on CDU changes from — to L.
- (c) Make sure that the status for Port 23 on CDU changes from — to H.

SUBTASK 31-31-00-710-052

- (5) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

- (a) Make sure that the status for Port 2 on CDU changes from — to L.
- (b) Make sure that the status for Port 14 on CDU changes from — to H.

SUBTASK 31-31-00-710-053

- (6) Open this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

- (a) Make sure that the status for Port 2 on CDU changes from L to —.
- (b) Make sure that the status for Port 14 on CDU changes from H to —.

SUBTASK 31-31-00-710-054

- (7) Close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

SUBTASK 31-31-00-710-055

- (8) Put FMC selector switch on P5-28 overhead panel to BOTH ON RIGHT position.
 - (a) Make sure that the status for Port 2 on CDU changes from — to L.
 - (b) Make sure that the status for Port 14 on CDU changes from — to H.

SUBTASK 31-31-00-440-002

- (9) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

- (a) Make sure that the status for Port 4 on CDU changes from — to L.

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SUBTASK 31-31-00-440-003

- (10) Close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (a) Make sure that the status for Port 5 on CDU changes from — to L.

SUBTASK 31-31-00-710-056

- (11) Put the left IRS switch on the P5-69 aft overhead panel to the ALIGN position.

- (a) Make sure that the status for Port 26 on CDU changes from — to H.

SUBTASK 31-31-00-710-057

- (12) Open these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (a) Make sure that the status for Port 5 on CDU changes from L to —.
- (b) Make sure that the status for Port 26 on CDU changes from H to —.

SUBTASK 31-31-00-730-071

- (13) Close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 31-31-00-730-072

- (14) Put the IRS switch on the P5-28 aft overhead panel to BOTH on R.
- (15) Put the IRS switch on the P5-69 aft overhead panel to ALIGN position.
- (a) Make sure that the status for Port 26 on CDU changes from — to H.

SUBTASK 31-31-00-730-073

- (16) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

- (a) Make sure that the status for Port 6 on CDU changes from — to L.

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SUBTASK 31-31-00-730-074

(17) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP

- (a) Make sure that the status for Port 7 on CDU changes from — to L.
- (b) Make sure that the status for Port 16 on CDU changes from — to H.

SUBTASK 31-31-00-730-075

(18) Close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

- (a) Make sure that the status for Port 8 on CDU changes from — to L.
- (b) Make sure that the status for Port 24 on CDU changes from — to H.

SUBTASK 31-31-00-730-076

(19) Close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

- (a) Make sure that the status for Port 9 on CDU changes from — to L.

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SUBTASK 31-31-00-730-077

(20) Close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

- (a) Make sure that the status for Port 10 on CDU changes from — to L.

SUBTASK 31-31-00-730-078

(21) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

- (a) Make sure that the status for Port 11 on CDU changes from — to L.

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SUBTASK 31-31-00-730-079

(22) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01204	SMYD-1 CMPTR DC

(a) Make sure that the status for Port 12 on CDU changes from — to L.

SUBTASK 31-31-00-730-080

(23) Close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00192	RADIO NAVIGATION DME 2

(a) Make sure that the status for Port 15 on CDU changes from — to L.

SUBTASK 31-31-00-730-081

(24) Close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI

(a) Make sure that the status for Port 17 on CDU changes from — to H.

SUBTASK 31-31-00-730-082

(25) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS

(a) Make sure that the status for Port 18 on CDU changes from — to H.

SUBTASK 31-31-00-730-083

(26) Close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01206	SMYD-2 CMPTR DC

(a) Make sure that the status for Port 19 on CDU changes from — to L.

SUBTASK 31-31-00-730-084

(27) Close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2

(a) Make sure that the status for Port 20 on CDU changes from — to H.

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SUBTASK 31-31-00-730-085

- (28) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

- (a) Make sure that the status for Port 21 on CDU changes from — to L.

SUBTASK 31-31-00-730-086

- (29) Close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

- (a) Make sure that the status for Port 22 on CDU changes from — to L.

SUBTASK 31-31-00-730-087

- (30) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00190	RADIO NAVIGATION DME 1

- (a) Make sure that the status for Port 25 on CDU changes from — to L.

SUBTASK 31-31-00-730-088

- (31) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00033	AUX POWER UNIT CONT

SUBTASK 31-31-00-730-089

- (32) Put APU MASTER switch on P5 forward overhead panel to the ON position.

- (a) Make sure that the status for Port 27 on CDU changes from — to H.

SUBTASK 31-31-00-730-090

- (33) Close these circuit breakers:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C04032	SPOILER CONTROL ELEC PWR A
C	12	C04033	SPOILER CONTROL ELEC PWR B

- (a) Make sure that the status for Port 29 on CDU changes from — to H.
(b) Make sure that the status for Port 62 on CDU changes from — to H.
(c) Make sure that the status for Port 71 on CDU changes from — to H.

SUBTASK 31-31-00-730-091

- (34) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

- (a) Make sure that the status for Port 31 on CDU changes from — to H.

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SUBTASK 31-31-00-730-092

- (35) Close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT
A	22	C00407	FIRE PROTECTION DETECTION ENG 2
A	23	C00403	FIRE PROTECTION DETECTION APU
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

- (a) Make sure that the status for Port 72 on CDU changes from — to H.

J. Aircraft Identification Discrete Signal Test

SUBTASK 31-31-00-730-120

- (1) Set the tester to subframe 2, word 1005.

- (a) If applicable, set SPF to 15.

NOTE: SPF is a superframe.

- (b) Make sure that the test bits 12 through 9 and 4 through 1 matches with table:

NOTE: Data repeats once every 64 seconds and lasts 4 seconds.

The value of X can be disregarded.

Tester bits 12 through 9 convey SPF CYCLE count 14 value.

TESTER BIT	12	11	10	9	8	7	6	5	4	3	2	1
	1	1	1	0	X	X	X	X	0	0	0	0

SUBTASK 31-31-00-730-141

- (2) If applicable, set tester to SPF 16 and push ENTER.

- (a) Make sure that the test bits 12 through 1 matches with the table

NOTE: Tester bits 12 through 9 convey SPF CYCLE COUNT 15 value.

TESTER BIT	12	11	10	9	8	7	6	5	4	3	2	1
	1	1	1	1	0	0	0	0	0	0	0	0

SUBTASK 31-31-00-730-142

- (3) If applicable, set tester to SPF, then select ALL (0) and press ENTER to exit superframe mode.

SUBTASK 31-31-00-730-143

- (4) Set tester to subframe 3, word 862.

- (a) Make sure that the tester bit 1 is a 1.

SUBTASK 31-31-00-730-121

- (5) Set tester to subframe 2, word 223.

- (a) Make sure that the tester bit 2 is a 1.

SUBTASK 31-31-00-730-144

- (6) Set tester to subframe 3, word 619.

- (a) Make sure that the tester bit 2 is a 1.

SUBTASK 31-31-00-730-145

- (7) Set tester to subframe 3, word 498.

- (a) Make sure that the tester bit 2 is a 1.

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SUBTASK 31-31-00-730-122

- (8) Do these steps at the left CDU:
 - (a) Push the LSK adjacent to ACMS.
 - (b) Push the LSK adjacent to CONFIGURATION.
 - (c) Push the LSK adjacent to INITIALIZATION.
 - (d) Push the LSK adjacent to AIRCRAFT INFORMATION.
 - 1) Make sure that the value shown adjacent to A/C REG matches the Airplane Registry ID in WDM 34-53-11.

NOTE: The Registry ID shown on the CDU is in Hexadecimal format.

K. Autothrottle Warning Discrete Signal Test

SUBTASK 31-31-00-860-045

- (1) Do these steps from the CDU:
 - (a) Push the LSK next to INDEX.
 - (b) Push the LSK next to MAINT.
 - (c) Push the LSK next to A/T.
 - (d) Push LSK next to INTERACTIVE.
 - (e) Push the LSK next to the DISENG/WARNINGS.

SUBTASK 31-31-00-730-093

- (2) Put A/T switch on mode control panel (MCP) to ARM position.

SUBTASK 31-31-00-860-046

- (3) Set the tester to subframe 0, word 432.
 - (a) Make sure that the A/T Warning light, on the P1 captain instrument panel, is off.
 - (b) Make sure that the bit 10 and bit 9 on the tester is a 1.

SUBTASK 31-31-00-860-048

- (4) Push the A/T disconnect switch on the thrust reverser lever.
 - (a) Make sure that the A/T warning light, on the P1 captain instrument panel, is flashing.
 - (b) Make sure that the bit 10 and bit 9 on the tester changes from a bit state 1 to 0.

SUBTASK 31-31-00-730-094

- (5) Push INIT REF button on CDU to exit BITE.

L. Master Caution Annunciation Discrete Signal Test

SUBTASK 31-31-00-730-095

- (1) Push the left MASTER CAUTION light, on the P7 glareshield panel, to reset.
 - (a) Make sure that the left MASTER CAUTION light is off.

SUBTASK 31-31-00-730-055

- (2) Set the tester to subframe 0, word 459.

SUBTASK 31-31-00-730-057

- (3) Make sure that the IRS SW is in the NORMAL position.

SUBTASK 31-31-00-730-096

- (4) Put LEFT IRS switch to the ATT position.

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SUBTASK 31-31-00-730-056

- (5) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC

SUBTASK 31-31-00-730-058

- (6) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

- (a) Make sure that the left MASTER CAUTION light is on.
(b) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-059

- (7) Remove safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

SUBTASK 31-31-00-730-123

- (8) Push the MASTER CAUTION RESET light, on the P7 glareshield panel.
(a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-097

- (9) Put the LEFT IRS switch to the OFF position and wait until ALIGN light goes off.

SUBTASK 31-31-00-730-146

- (10) Put the LEFT IRS switch to NAV.

M. Fire Warning Discrete Signal Test

SUBTASK 31-31-00-730-015

- (1) Do these steps to do a check of the wheel well fire discrete:
(a) Open these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	22	C00407	FIRE PROTECTION DETECTION ENG 2
A	23	C00403	FIRE PROTECTION DETECTION APU
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

SUBTASK 31-31-00-730-124

- (2) Set the tester to subframe 0, word 432.

SUBTASK 31-31-00-730-125

- (3) Put the fire test switch on the engine and APU fire control panel to the OVHT/FIRE position.
(a) Make sure that the WHEEL WELL light on the engine and APU fire control panel is on.
(b) Make sure that the bit 5 on the tester is a 1.

SUBTASK 31-31-00-730-147

- (4) Release the fire test switch.

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- (a) Make sure that the WHEEL WELL light on the engine and APU fire control panel is off.
- (b) Make sure that the bit 5 on the tester is a 0.

SUBTASK 31-31-00-730-126

- (5) Open this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C00388	FIRE PROTECTION DET OVHT WW WING BODY

SUBTASK 31-31-00-730-148

- (6) Close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	23	C00403	FIRE PROTECTION DETECTION APU

SUBTASK 31-31-00-860-050

- (7) Do these steps to do a check of the APU fire discrete:

- (a) Make sure that the tester is set to subframe 0, word 432.
- (b) Put the fire test switch on the engine and APU fire control panel to the OVHT/FIRE position.
 - 1) Make sure that the APU fire light on the engine and APU fire control panel is on.
 - 2) Make sure that the bit 6 on the tester is a 1.
- (c) Release the fire test switch.
 - 1) Make sure that the APU fire light on the engine and APU fire control panel is off.
 - 2) Make sure that the bit 6 on the tester is a 0.
- (d) Open this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	23	C00403	FIRE PROTECTION DETECTION APU

- (e) Close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

SUBTASK 31-31-00-860-051

- (8) Do these steps to do a check of the engine 1 fire discrete:

- (a) Make sure that the tester is set to subframe 0, word 432.
- (b) Push the fire test switch on the engine and APU fire control panel to the OVHT/FIRE position.
 - 1) Make sure that the ENG 1 fire handle light on the engine and APU fire control panel is on.
 - 2) Make sure that the bit 8 on the tester is a 1.
- (c) Release the fire test switch.
 - 1) Make sure that the ENG 1 fire handle light on the P8-1 overheat/fire detection panel is off.

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- 2) Make sure that the bit 8 on the tester is a 0.
- (d) Open this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

- (e) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	22	C00407	FIRE PROTECTION DETECTION ENG 2

SUBTASK 31-31-00-730-016

- (9) Do these steps to do a check of the engine 2 fire discrete:
 - (a) Make sure that the tester is set to subframe 0, word 432.
 - (b) Push the fire test switch on the engine and APU fire control panel to the OVHT/FIRE position.
 - 1) Make sure that the ENG 2 fire handle light on the engine and APU fire control panel is on.
 - 2) Make sure that the bit 7 on the tester is a 1.
 - (c) Release the fire test switch.
 - 1) Make sure that the ENG 2 fire light on the engine and APU fire control panel is off.
 - 2) Make sure that the bit 7 on the tester is a 0.
 - (d) Close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C00388	FIRE PROTECTION DET OVHT WW WING BODY
A	23	C00403	FIRE PROTECTION DETECTION APU
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

N. IRS Both-On-System 2 Discrete Signal Test

SUBTASK 31-31-00-730-020

- (1) Set the tester to subframe 0, word 348.

SUBTASK 31-31-00-860-064

- (2) Put the IRS switch on the instrument switching panel to the BOTH-ON-R position.
 - (a) Make sure that the BIT 2 on the tester is a 1.

SUBTASK 31-31-00-860-065

- (3) Put the IRS switch on the instrument switching panel to the NORMAL position.
 - (a) Make sure that the BIT 2 on the tester is a 0.

O. Aileron Trim Command Discrete Signal Test

SUBTASK 31-31-00-860-092

- (1) Set the tester to subframe 0, word 33.
 - (a) Make sure that the bit 1 and 2 on the tester is a 0.

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SUBTASK 31-31-00-860-093

- (2) Push and hold the aileron trim control switches on the aileron and rudder trim module to the RIGHT WING DOWN position.
 - (a) Make sure that the bit 1 on the tester is 1.
 - (b) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-094

- (3) Release the aileron trim control switches.
 - (a) Make sure that the bit 1 and 2 on the tester is a 0.

SUBTASK 31-31-00-860-095

- (4) Push and hold the aileron trim control switches on the aileron and rudder trim module to the LEFT WING DOWN position.
 - (a) Make sure that the bit 1 on the tester is a 0.
 - (b) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-096

- (5) Release the aileron trim control switches.
 - (a) Make sure that the bit 1 and 2 on the tester is a 0.

P. Rudder Trim Command Discrete Signal Test

SUBTASK 31-31-00-860-234

- (1) Set the tester to subframe 0, word 197.
 - (a) Make sure that the bit 1 & 2 on the tester is a 1.

SUBTASK 31-31-00-860-235

- (2) Turn and hold the rudder trim control switch on the aileron and rudder trim module to the NOSE RIGHT position.
 - (a) Make sure that the bit 1 on the tester is a 0 and bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-236

- (3) Release the rudder trim control switch.
 - (a) Make sure that the bit 1 & 2 on the tester is a 1.

SUBTASK 31-31-00-860-237

- (4) Turn and hold the rudder trim control switch on the aileron and rudder trim module to the NOSE LEFT position.
 - (a) Make sure that the bit 1 on the tester is a 1 and bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-238

- (5) Release the rudder trim control switch.
 - (a) Make sure that the bit 1 & 2 on the tester is a 1.

Q. VHF Radio Keying Discrete Signal Test

SUBTASK 31-31-00-860-105

- (1) Do these steps to do a check of the VHF-1 signal:
 - (a) Use the radio control panel to tune the VHF-1 transceiver to an authorized test frequency.
 - (b) Set the tester to subframe 0, word 27.
 - (c) Push the captain's PTT button.
 - 1) Make sure that the bit 1 on the tester is a 0.

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- (d) Release the captain's PTT button.
 - 1) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-106

- (2) Do these steps to do a check of the VHF-2 signal:
 - (a) Use the radio control panel to set the VHF-2 transceiver to an authorized frequency.
 - (b) Set the tester to subframe 0, word 27.
 - (c) Push the captain's PTT button.
 - 1) Make sure that the bit 2 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-107

- (3) Do these steps to check VHF-3 signal (if it is installed):
 - (a) Use the radio control panel to set the VHF-3 transceiver to an authorized test frequency.
 - (b) Set the tester to subframe 0, word 26.
 - (c) Push the captain's PTT button.
 - 1) Make sure that the bit 1 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure that the bit 1 on the tester is a 1.

R. HF Radio Keying Discrete Signal Test

SUBTASK 31-31-00-860-372

- (1) Do these steps to do a check of the HF-1 signal (if installed):
 - (a) Use the radio control panel to tune the HF-1 transceiver to an authorized test frequency.
 - (b) Set the tester to subframe 0, word 35.
 - (c) Push the captain's PTT button.
 - 1) Make sure that the bit 1 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-373

- (2) Do these steps to do a check of the HF-2 signal (if installed):
 - (a) Use the radio control panel to set the HF-2 transceiver to an authorized frequency.
 - (b) Set the tester to subframe 0, word 35.
 - (c) Push the captain's PTT button.
 - 1) Make sure that the bit 2 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure that the bit 2 on the tester is a 1.

S. AC and DC Bus Indication Discrete Signal Test

SUBTASK 31-31-00-730-032

- (1) Set the tester to subframe 0, word 212.

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SUBTASK 31-31-00-730-033

- (2) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C01467	AC BUS XFR BUS 2 115V AC IND

- (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-034

- (3) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C01467	AC BUS XFR BUS 2 115V AC IND

- (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-035

- (4) Set the tester to subframe 0, word 468.

SUBTASK 31-31-00-730-036

- (5) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C00072	AC BUS STBY BUS 115V AC IND

- (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-037

- (6) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C00072	AC BUS STBY BUS 115V AC IND

- (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-038

- (7) Set the tester to subframe 0, word 166.

SUBTASK 31-31-00-730-039

- (8) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	16	C00023	DC BUS INDICATION BUS 1

- (a) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-040

- (9) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	16	C00023	DC BUS INDICATION BUS 1

- (a) Make sure that the bit 2 on the tester is a 1.

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SUBTASK 31-31-00-730-053

- (10) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	18	C01338	DC BUS INDICATION BUS 2

- (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-054

- (11) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	18	C01338	DC BUS INDICATION BUS 2

- (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-041

- (12) Set the tester to subframe 0, word 801.

SUBTASK 31-31-00-730-042

- (13) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	14	C00026	DC BUS INDICATION BAT

- (a) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-043

- (14) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	14	C00026	DC BUS INDICATION BAT

- (a) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-050

- (15) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	18	C00136	DC BUS INDICATION STBY

- (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-051

- (16) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	18	C00136	DC BUS INDICATION STBY

- (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-044

- (17) Set the tester to subframe 0, word 174.

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SUBTASK 31-31-00-730-045

- (18) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	15	C00134	DC BUS INDICATION HOT BAT

- (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-046

- (19) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	15	C00134	DC BUS INDICATION HOT BAT

- (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-047

- (20) Open this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	16	C01466	DC BUS INDICATION SW HOT BAT

- (a) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-048

- (21) Close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	16	C01466	DC BUS INDICATION SW HOT BAT

- (a) Make sure that the bit 2 on the tester is a 1.

T. Forward Cargo Smoke Detection Signal Test

SUBTASK 31-31-00-860-365

- (1) Open these circuit breakers:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C01525	CARGO FIRE AFT DET B
C	19	C01524	CARGO FIRE AFT DET A

SUBTASK 31-31-00-860-331

- (2) Set the tester to subframe 0, word 810.

- (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-332

- (3) Push and hold the cargo smoke detection and fire suppression test button, on the P8-75 aft electronic panel, for at least 4 seconds.

- (a) Make sure that the bit 1 on the tester is 0.

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SUBTASK 31-31-00-860-366

- (4) Close these circuit breakers:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C01525	CARGO FIRE AFT DET B
C	19	C01524	CARGO FIRE AFT DET A

U. Aft Cargo Smoke Detection Signal Test

SUBTASK 31-31-00-860-333

- (1) Set the tester to subframe 0, word 298.
(a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-334

- (2) Push and hold the cargo smoke detection and fire suppression test button, P8-75 aft electronic panel, for at least 4 seconds.
(a) Make sure that the bit 1 on the tester is a 0.

V. Fuel Cutoff Discrete Signal Test

SUBTASK 31-31-00-860-052

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 31-31-00-860-053

- (2) Make sure that the pneumatic pressure is off for both engines.

SUBTASK 31-31-00-860-054

- (3) Make sure that the fire handles are in the NORMAL position.

SUBTASK 31-31-00-730-017

- (4) Do these steps to do a check of the engine 1 fuel cutoff discrete:
(a) Set the tester to subframe 0, word 597.
(b) Put the engine 1 start lever to the IDLE position.
1) Make sure that the bit 1 on the tester is a 0.
(c) Put the engine 1 start lever to the CUTOFF position.
1) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-055

- (5) Do these steps to do a check of the engine 2 fuel cutoff discrete:
(a) Set the tester to subframe 0, word 597.
(b) Put the engine 2 start lever to the IDLE position.
1) Make sure that the bit 2 on the tester is a 0.

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- (c) Put the engine 2 start lever to the CUTOFF position.
 - 1) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-056

- (6) Remove safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

W. ACARS/MU Verification Test

SUBTASK 31-31-00-730-098

- (1) Make these selections on the Captain's CDU:
 - (a) Push MENU button.
 - (b) ACMS.
 - (c) MAINTENANCE.
 - (d) INTERFACE TESTS.
 - (e) ACARS.
 - (f) UPLINK.
 - (g) SEND RTS TO CMU.
 - 1) Make sure that the CTS RECEIVED FROM CMDU message is displayed on Captain's CDU.

X. Landing Gear Position Discrete Signal Test

SUBTASK 31-31-00-860-066

- (1) Make sure that the airplane is in the ground mode.

SUBTASK 31-31-00-860-067

- (2) Make sure that the three landing gears are down and locked.

SUBTASK 31-31-00-480-001

 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.
---	---

- (3) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 31-31-00-730-021

- (4) Set the tester to subframe 0, word 105.
 - (a) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-149

- (5) Set the tester to subframe 0, word 38.

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- (a) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-022

- (6) Move landing gear control lever to UP position.

SUBTASK 31-31-00-860-068

- (7) Set the tester to subframe 0, word 105.

- (a) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-150

- (8) Set the tester to subframe 0, word 38.

- (a) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-069

- (9) Move landing gear control lever to DN position.

Y. AIR/GROUND Logic Discrete Signal Test

SUBTASK 31-31-00-710-031

- (1) Set the tester to subframe 0, word 11.

SUBTASK 31-31-00-730-007



MAKE SURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES AND LANDING GEAR DOOR AREAS BEFORE YOU SIMULATE THE AIRPLANE TO THE AIR MODE. THE SIMULATED AIR MODE CAN CAUSE MOVEMENT TO CONTROL SURFACES, LANDING GEAR, AND LANDING GEAR DOORS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Put GND TEST Switch on the Maintenance Bite Test Panel, P61-4, to ENABLE position.

SUBTASK 31-31-00-860-362

- (3) Do the Air/Gnd Override special function on the PSEU:
 - (a) Make these selections on the MFD main function menu:
 - 1) ONBOARD MAINTENANCE.
 - 2) OTHER FUNCTIONS.
 - 3) SPECIAL FUNCTIONS.
 - 4) 32 PROXIMITY SWITCH ELECTRONIC UNIT.
 - 5) PSEU - AIR/GND OVERRIDE.
 - 6) CONTINUE.
 - 7) ON to turn PSEU to ON.
 - 8) Set SYS 2 only to IN AIR.
 - 9) CONTINUE.
 - (b) Make sure that the MFD shows the following:
 - 1) AIR/GND OVERRIDE is ACTIVE.
 - 2) SYS 1 shows GND.
 - 3) SYS 2 shows AIR mode.
 - (c) Make sure that the bit 2 on the tester is a 1.
 - (d) Set SYS 2 to ON GND on MFD and select CONTINUE.
 - 1) Make sure that the MFD shows the following:

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- a) AIR/GND OVERRIDE is NOT ACTIVE.
- b) SYS 1 shows GND.
- c) SYS 2 shows GND.

(e) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-710-035

(4) Put a deactuator from the proximity sensor test set, SPL-1690, between the face and the steel target of the nose gear air/ground sensors, S1014 and S1015.

(a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-710-036

(5) Remove the deactuator from nose gear air/ground sensors, S1014 and S1015.

(a) Make sure that the bit 1 on the tester is a 1.

Z. Cabin Altitude > 10K ft Discrete Signal Test

SUBTASK 31-31-00-860-049

(1) Set the tester to subframe 0, word 602.

SUBTASK 31-31-00-710-037

(2) Disconnect electrical connector D776 from the cabin pressure switch (S128).

SUBTASK 31-31-00-730-013

(3) Apply a ground to pin A of D776 connector.

(a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-014

(4) Remove the ground from pin A of D776 connector.

(a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-420-001

(5) Install connector D776 to the cabin pressure switch, S128.

AA. Accelerometer Analog Signal and DFDR Playback Test

SUBTASK 31-31-00-860-319

(1) Put the NORM/TEST switch on the flight recorder panel to the TEST position.

SUBTASK 31-31-00-860-320

(2) Make sure that the flight recorder OFF light is off.

SUBTASK 31-31-00-860-321

(3) Loosen the accelerometer, but do not disconnect the electrical connector (TASK 31-31-81-000-801).

SUBTASK 31-31-00-860-322

(4) Use an inclinometer to put the accelerometer in the inverted position.

(a) Set the tester to subframe 0, word 66.

(b) Make sure that the tester shows 1737 to 2061.

SUBTASK 31-31-00-860-323

(5) Use an inclinometer to put the accelerometer in the L Face Up position.

(a) Set the tester to subframe 0, word 32.

(b) Make sure that the tester shows 0153 - 0335.

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SUBTASK 31-31-00-860-324

- (6) Use an inclinometer to put the accelerometer in the Fwd Face Up position.
 - (a) Set the tester to subframe 0, word 85.
 - (b) Make sure that the tester shows 7707 - 7777.

SUBTASK 31-31-00-420-002

- (7) Install the accelerometer (TASK 31-31-81-400-801).

SUBTASK 31-31-00-860-325

- (8) Set the tester to subframe 0, word 66.
 - (a) Make sure that the tester shows 3514 to 3636.

SUBTASK 31-31-00-860-326

- (9) Set the tester to subframe 0, word 32.
 - (a) Make sure that the tester shows 4031 to 4213.

SUBTASK 31-31-00-860-327

- (10) Set the tester to subframe 0, word 85.
 - (a) Make sure that the tester shows 4031 to 4213.

AB. Autobrake Application Discrete Signal Test

SUBTASK 31-31-00-860-097



WARNING

MAKE SURE LANDING GEAR WHEELS ARE CHOCKED, BEFORE PARKING BRAKE LEVER IS RELEASED. INJURIES TO PERSONNEL AND DAMAGE TO THE AIRCRAFT CAN OCCUR.

- (1) Install chocks at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 31-31-00-860-367

- (2) Make sure that the parking brakes are released.

SUBTASK 31-31-00-860-098



WARNING

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES, CABLES, AND LANDING GEAR AREAS. PRESSURIZATION OF A HYDRAULIC SYSTEM CAN MOVE CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS. MOVEMENT OF CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



CAUTION

MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

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DO NOT OPERATE THE EMDP FOR MORE THAN 2 MINUTES UNLESS THE APPLICABLE FUEL TANK HAS A MINIMUM OF 1675 LBS (760 KG) OF FUEL IN IT. IF YOU OPERATE THE EMDP FOR 2 MINUTES WITHOUT FUEL IN THE TANK, LET THE RESERVOIR GO BACK TO AMBIENT TEMPERATURE BEFORE YOU CONTINUE WITH THE TEST. IF YOU CONTINUE TO OPERATE THE EMDP, THE HYDRAULIC FLUID CAN BECOME TOO HOT.

- (3) Put the system B ELEC 1 hydraulic pump switch on the hydraulic pump panel to the ON position.

SUBTASK 31-31-00-860-099

- (4) Put the rotary switch on the M162 antiskid/autobrake control module in the E1-3 electronic equipment rack to the A/B.

SUBTASK 31-31-00-860-100

- (5) Put the autobrake selector switch on the center main panel to the 1 position.

SUBTASK 31-31-00-860-101

- (6) Set the tester to subframe 0, word 161.
(a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-102

- (7) Push and hold the ENABLE/VERIFY switch on the Antiskid/Autobrake Control Unit, in the E1-3 electronic equipment rack.
(a) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the Antiskid/Autobrake Control Unit.
1) Make sure that the bit 1 on the tester is a 1.
2) Make sure that the display on Antiskid/Autobrake Control Unit, in the E1-3 electronic equipment rack, show BRK A/B1.

SUBTASK 31-31-00-730-151

- (8) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.
(a) Make sure that the AUTOBRAKE DISARM light on the P9 panel comes on.

SUBTASK 31-31-00-860-103

- (9) Put the rotary switch on the M162 antiskid/autobrake control module to the NORM position.

SUBTASK 31-31-00-860-104

- (10) Push and release the RESET button on the M162 antiskid/autobrake control module.
(a) Make sure that the front panel of the M162 antiskid/autobrake control module shows MEM CLR.

SUBTASK 31-31-00-860-363

- (11) Put the system B ELEC 1 hydraulic pump switch on the hydraulic pump panel to the OFF position.

AC. A/P Warning and Stabilizer Trim Discrete Signal Test

SUBTASK 31-31-00-730-060

- (1) Push the INT/REF prompt on the CDU keyboard.

SUBTASK 31-31-00-730-061

- (2) Push the Capt autopilot warn light on the instrument panel.

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- (a) Make sure that the captain's and F/O warn lights on the P1 and P3 instrument panels are off.

SUBTASK 31-31-00-730-062

- (3) Set the tester to subframe 0, word 432.
 - (a) Make sure that the bit 11 and 12 on the tester are 1.

SUBTASK 31-31-00-730-063

- (4) Make these selections from the CDU display:
 - (a) INDEX.
 - (b) MAINT.
 - (c) DFCS.
 - (d) Make sure that the captain's and F/O warn lights on the P1 and P3 instrument panels are on.

SUBTASK 31-31-00-730-064

- (5) Set the tester to subframe 0, word 432.
 - (a) Make sure that the bit 11 and 12 on the tester are 0.

SUBTASK 31-31-00-730-065

- (6) Make these selections from the CDU display:
 - (a) EXTENDED MAINTENANCE.
 - (b) RIGGING.
 - (c) STABILIZER.
 - (d) CONTINUE.

SUBTASK 31-31-00-730-066

- (7) Select NO to the message 'Do you want to check the nose up/nose down limit switch again'.

SUBTASK 31-31-00-730-067

- (8) Set the tester to subframe 0, word 75.

SUBTASK 31-31-00-730-068

- (9) Select Test 54.01 from the CDU display.
 - (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-069

- (10) Select line-select-key next to the continue prompt for test 54.02.
 - (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-070

- (11) Set the tester to subframe 0, word 331.

SUBTASK 31-31-00-730-152

- (12) Select Test 54.03 from the CDU display.
 - (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-153

- (13) Select line-select-key next to the CONTINUE prompt on test 54.04.
 - (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-154

- (14) Select line-select-key next to the CONTINUE prompt on test 54.05.

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- (a) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-086

- (15) Make these selections from the CDU display:
 - (a) PREV MENU from the END OF STAB RIG screen.
 - (b) CONTINUE from the RIGGING INDEX screen.
 - (c) EXIT from the TEST COMPLETE screen.
 - (d) EXIT after you comply with the instructions on the END OF DFCS BITE screen.

AD. Manual Stab Trim Switch Discrete Signal Test

SUBTASK 31-31-00-860-087

- (1) Set the tester to subframe 0, word 268.

SUBTASK 31-31-00-860-088

- (2) Push and hold the trim switch on the control wheel to the TRIM NOSE UP position.
 - (a) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-089

- (3) Release the trim switch.
 - (a) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-090

- (4) Push and hold the trim switch on the control wheel to the TRIM NOSE DOWN position.
 - (a) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-091

- (5) Release the trim switch.
 - (a) Make sure that the bit 1 on the tester is a 0.

AE. Standby Hydraulic Pressure Transmitter Analog Signal Test

SUBTASK 31-31-00-860-346



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Make sure that the FLT CONTROL hydraulic pressure system switches A and B on the P5 panel are not in standby position (STBY RUD).

SUBTASK 31-31-00-860-347

- (2) Set the tester to subframe 0, word 442.

SUBTASK 31-31-00-860-348

- (3) Make sure that the tester display is 6265 to 6336.

SUBTASK 31-31-00-860-349

- (4) Set FLT CONTROL switch A on the P5 overhead panel to STBY RUD position.

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SUBTASK 31-31-00-860-350

- (5) Make sure that the STANDBY HYD low pressure light on the P5 overhead panel is off.

NOTE: The STANDBY HYD low pressure light may come on briefly when it is switched to standby.

SUBTASK 31-31-00-860-351

- (6) Make sure that the tester display shows 5577 to 5717.

SUBTASK 31-31-00-860-352

- (7) Set FLT CONTROL switch A on the P5 overhead panel to the OFF position.

AF. Standby Hydraulic System Low Pressure Discrete Signal Test

SUBTASK 31-31-00-730-099



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CLOSE ENGINE AND THRUST REVERSER COWLS. IF YOU DO NOT CLOSE THE COWLS, THEY CAN HIT THE SLATS DURING SLAT OPERATION. THIS WILL CAUSE DAMAGE TO THE SLATS AND TO COWLS.



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- (1) Make sure that the hydraulic system A & B ELEC pump are the ON position.

SUBTASK 31-31-00-730-100

- (2) Set the portable tester to subframe 0, word 351.

SUBTASK 31-31-00-730-101

- (3) Set the FLT CONT SYS A (S3) switch on the flight control panel to the ON position.

SUBTASK 31-31-00-730-102

- (4) Set the FLT CONT SYS B (S4) switch on the flight control panel to the ON position.
- (a) Make sure that the FLT CONT SYS A low pressure light is off.
- (b) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-103

- (5) Set the FLT CONT SYS A (S3) switch on the flight control panel to the OFF position.
- (a) Make sure that the FLT CONT SYS A low pressure light comes on.
- (b) Make sure that the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-104

- (6) Set the FLT CONT SYS A (S3) switch on the flight control panel to the ON position.
- (a) Make sure that the FLT CONT SYS B low pressure light is off.

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- (b) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-105

- (7) Set the FLT CONT SYS B (S4) switch on the flight control panel to the OFF position.
 - (a) Make sure that the FLT CONT SYS B low pressure light comes on.
 - (b) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-106

- (8) Set the portable tester to subframe 0, word 195.

SUBTASK 31-31-00-730-107

- (9) Set the FLT CONT SYS B (S4) switch on the flight control panel to the ON position.
 - (a) Make sure that the FLT CONT SYS A low pressure light is off.
 - (b) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-108

- (10) Set the FLT CONT SYS A (S3) switch on the flight control panel to the STBY RUD position and FLT CONT SYS B (S4) switch to the ON position.
 - (a) Make sure that the FLT CONT SYS A low pressure light is off.

NOTE: The FLY CONT SYS A low pressure light may come on momentarily.
 - (b) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-109

- (11) Set the FLT CONT SYS A (S3) switch on the flight control panel to the OFF position and FLT CONT SYS B (S4) switch to the OFF position.

AG. Hydraulic System Low Pressure Discrete Signal Test

SUBTASK 31-31-00-860-057



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- (1) Make sure that the A and B hydraulic systems are not pressurized (TASK 29-11-00-860-805).

SUBTASK 31-31-00-860-058

- (2) Make sure that the STBY hydraulic system is not pressurized (TASK 29-21-00-000-802).

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SUBTASK 31-31-00-730-018

- (3) Do these steps to do a check of the low hydraulic pressure discrete of system A engine 1:
- (a) Set the tester to subframe 0, word 368.
 - (b) Disconnect connector D2684 from the system A engine 1 low pressure switch, S796 (main wheel well station 664).
 - 1) Make sure that the ENG 1 LOW PRESSURE light of system A on the hydraulic pump panel, is off.
 - 2) Make sure that the bit 1 on the tester is a 1.
 - (c) Install connector D2684 to the system A engine 1 low pressure switch, S796 (main wheel well station 664).
 - 1) Make sure that the ENG 1 LOW PRESSURE light of system A on the hydraulic pump panel is on.
 - 2) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-059

- (4) Do these steps to do a check of the low hydraulic pressure discrete for system B engine 2:
- (a) Set the tester to subframe 0, word 369.
 - (b) Disconnect connector D2686 from the system B engine 2 low pressure switch, S797 (main wheel well station 664).
 - 1) Make sure that the ENG 2 LOW PRESSURE light of system B on the hydraulic pump panel is off.
 - 2) Make sure that the bit 1 on the tester is a 1.
 - (c) Install connector D2686 to the system B engine 2 low pressure switch, S797 (main wheel well station 664).
 - 1) Make sure that the ENG 2 LOW PRESSURE light of system B on the hydraulic pump panel, is on.
 - 2) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-060

- (5) Do these steps to do a check of the low hydraulic pressure discrete signal of system B electric 1:
- (a) Set the tester to subframe 0, word 369 (Dataframe 7).



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- (b) Put the system B ELEC 1 switch on the hydraulic pump panel, P5, to the ON position.
 - 1) Make sure that the ELEC 1 LOW PRESSURE light of system B on the hydraulic pump panel is off.
 - 2) Make sure that the bit 2 on the tester is a 1.
- (c) Put the system B ELEC 1 switch on the hydraulic pump panel to the OFF position.
 - 1) Make sure that the ELEC 1 LOW PRESSURE light of system B on the hydraulic pump panel is on.
 - 2) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-061

- (6) Do these steps to do a check of the low hydraulic pressure discrete signal of the system A electric 2:
 - (a) Set the tester to subframe 0, word 368.



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- (b) Put the system A ELEC 2 switch on the hydraulic pump panel to the ON position.
 - 1) Make sure that the ELEC 2 LOW PRESSURE light of system A on the hydraulic pump panel, is off.
 - 2) Make sure that the bit 2 on the tester is a 1.
- (c) Put the system A ELEC 2 switch on the hydraulic pump panel to the OFF position.

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- 1) Make sure that the ELEC 2 LOW PRESSURE light of system A on the hydraulic pump panel, P5, is on.
- 2) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-019

- (7) Do these steps to do a check of the low hydraulic pressure discrete signal of the standby hydraulic system:
- (a) Set the tester to subframe 0, word 370.
 - (b) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



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- (c) Put the system A FLT CONTROL switch on the flight control panel to the STBY RUD position.
- 1) Make sure that the LOW PRESSURE light of the standby hydraulic system on the flight control panel is off.
 - 2) Make sure that the bit 1 on the tester is a 1.
- (d) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

- 1) Make sure that the LOW PRESSURE light of the standby hydraulic system on the flight control panel is on.
- 2) Make sure that the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-062

- (8) Put the system A FLT CONTROL switch on the flight control panel, to the ON position.

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SUBTASK 31-31-00-860-063

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

AH. Speedbrake Arm, Speedbrake Do Not Arm, Autospeedbrake Extend Command, and Panel Up Discrete Signals Test

SUBTASK 31-31-00-730-110



MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES AND LANDING GEAR DOOR AREAS. THE CONTROL SURFACES, THE LANDING GEAR, AND THE LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.



MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Supply hydraulic pressure for system A and B (TASK 29-11-00-860-801).

SUBTASK 31-31-00-730-111

- (2) Make sure that the thrust levers are at IDLE position.

NOTE: This procedure will check auto speedbrake operation. If the airplane is on jacks, make sure there are steel targets against the Main Landing Gear (MLG) proximity sensor, as the PSEU must be in ground mode. The PSEU Air/Ground Override is not effective for AutoSpeedBrakes. The MLG proximity sensors must be actuated from the weight on wheels or steel targets.

SUBTASK 31-31-00-730-112

- (3) Set flaps to any setting greater than 0.

SUBTASK 31-31-00-730-113

- (4) Make sure that the Speed Brake lever is in the down and locked position (speedbrake not armed).
- (a) Make sure that the speedbrake panels are not up.

SUBTASK 31-31-00-730-114

- (5) Set the tester to subframe 0, word 405.

SUBTASK 31-31-00-730-115

- (6) Put speedbrake lever in the armed detent position.
- (a) Make sure that the SPEEDBRAKE ARMED light comes on.
- (b) Make sure that the bit 1 on the tester is a 0.

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SUBTASK 31-31-00-730-116



BEFORE YOU OPERATE THE SPOILERS, MAKE SURE ALL PERSONS AND EQUIPMENT ARE MOVED AWAY FROM THE AREA NEAR THE SPOILERS. THIS WILL PREVENT INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) Put the rotary switch on the M162 antiskid/autobrake control in the E1-3 electronic equipment rack to the OUTBD position.

SUBTASK 31-31-00-730-155

- (8) Push the ENABLE button and TEST HOLD switch on the antiskid/autobrake control module in the E1-3 electronic equipment rack at the same time.
 - (a) Make sure that the flight and ground spoiler panels moves from full down to full up.
 - (b) Make sure that the bit 1 on the tester is 1 for a few seconds.

SUBTASK 31-31-00-730-117

- (9) Move the speedbrake lever to down and locked position.

SUBTASK 31-31-00-730-118

- (10) Release ENABLE button and TEST HOLD switch on the antiskid/autobrake control module, in the E1-3 electronic equipment rack.

SUBTASK 31-31-00-730-119

- (11) Remove hydraulic pressure (TASK 29-11-00-860-805).

Al. Main/Alt Brake Select Discrete Signal Test

SUBTASK 31-31-00-730-026

- (1) Make sure that the parking brakes are not set.

SUBTASK 31-31-00-730-027

- (2) Set the tester to subframe 0, word 62.

SUBTASK 31-31-00-730-028



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



CLOSE ENGINE AND THRUST REVERSER COWLS. IF YOU DO NOT CLOSE THE COWLS, THEY CAN HIT THE SLATS DURING SLAT OPERATION. THIS WILL CAUSE DAMAGE TO THE SLATS AND TO COWLS.



DO NOT OPERATE THE EMDP FOR MORE THAN 2 MINUTES UNLESS THE APPLICABLE FUEL TANK HAS A MINIMUM OF 1675 LBS (760 KG) OF FUEL IN IT. IF YOU OPERATE THE EMDP FOR 2 MINUTES WITHOUT FUEL IN THE TANK, LET THE RESERVOIR GO BACK TO AMBIENT TEMPERATURE BEFORE YOU CONTINUE WITH THE TEST. IF YOU CONTINUE TO OPERATE THE EMDP, THE HYDRAULIC FLUID CAN BECOME TOO HOT.

- (3) Put the ELEC 1 system B switch on the hydraulic pump panel to the ON position.
 - (a) Make sure that the hydraulic systems A and Standby are off.

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- (b) Make sure that the bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-029

- (4) Put the ELEC 1 system B switch on the hydraulic pump panel to the OFF position.

SUBTASK 31-31-00-730-030

- (5) Put the ELEC 2 system A switch on the hydraulic pump panel to the ON position.
 - (a) Make sure that the hydraulic systems B and Standby are off.
 - (b) Make sure that the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-031

- (6) Put the system A ELEC 2 switch on the hydraulic pump panel to the OFF position.

AJ. Brake Pressure Analog Signal Test

SUBTASK 31-31-00-860-148



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



CLOSE ENGINE AND THRUST REVERSER COWLS. IF YOU DO NOT CLOSE THE COWLS, THEY CAN HIT THE SLATS DURING SLAT OPERATION. THIS WILL CAUSE DAMAGE TO THE SLATS AND TO COWLS.



DO NOT OPERATE THE EMDP FOR MORE THAN 2 MINUTES UNLESS THE APPLICABLE FUEL TANK HAS A MINIMUM OF 1675 LBS (760 KG) OF FUEL IN IT. IF YOU OPERATE THE EMDP FOR 2 MINUTES WITHOUT FUEL IN THE TANK, LET THE RESERVOIR GO BACK TO AMBIENT TEMPERATURE BEFORE YOU CONTINUE WITH THE TEST. IF YOU CONTINUE TO OPERATE THE EMDP, THE HYDRAULIC FLUID CAN BECOME TOO HOT.

- (1) Supply hydraulic pressure for system B (TASK 29-11-00-860-801)..
 - (a) Make sure that the system A does not have hydraulic pressure.
 - 1) If system A has hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) Make sure that the standby hydraulic system does not have hydraulic pressure.
 - 1) If the standby hydraulic system has pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
 - (c) Make sure that the parking brakes are not set.

SUBTASK 31-31-00-860-149

- (2) Push and hold the captain's left brake pedal fully against the stop.

SUBTASK 31-31-00-860-150

- (3) Set the tester to subframe 0, word 190.

SUBTASK 31-31-00-860-151

- (4) Find a value in Table 501 that best agrees with the value for the hydraulic system pressure.

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- (a) Make sure that the octal value that shows on the tester agrees with the octal value shown in Table 501.

Table 501/31-31-00-993-801

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-152

- (5) Release the captain's left brake pedal.

SUBTASK 31-31-00-860-153

- (6) Push and hold the captain's right brake pedal fully against the stop.

SUBTASK 31-31-00-860-154

- (7) Set the tester to subframe 0, word 446.

SUBTASK 31-31-00-860-155

- (8) Find a value in Table 502 that best agrees with the value for the hydraulic system pressure.
- (a) Make sure that the octal value that shows on the tester agrees with the octal value shown in Table 502.

Table 502/31-31-00-993-802

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-156

- (9) Release the captain's right brake pedal.

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SUBTASK 31-31-00-860-157

- (10) Remove hydraulic pressure from system B (TASK 29-11-00-860-805).

SUBTASK 31-31-00-860-158

- (11) Push the brake pedals at least 6 times to fully deplete the accumulator.

SUBTASK 31-31-00-860-159

- (12) Supply hydraulic pressure for system A (TASK 29-11-00-860-801).

SUBTASK 31-31-00-860-160

- (13) Push and hold the captain's left brake pedal fully against the stop.

SUBTASK 31-31-00-860-161

- (14) Set the tester to subframe 0, word 62 (Dataframe 7).

SUBTASK 31-31-00-860-162

- (15) Find a value in Table 503 that best agrees with the value for the hydraulic system pressure.
- (a) Make sure that the octal value that shows on the tester agrees with the octal value shown in Table 503.

Table 503/31-31-00-993-803

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-163

- (16) Release the captain's left brake pedal.

SUBTASK 31-31-00-860-164

- (17) Push and hold the captain's right brake pedal fully against the stop.

SUBTASK 31-31-00-860-165

- (18) Set the tester to subframe 0, word 318.

SUBTASK 31-31-00-860-166

- (19) Find a value in Table 504 that best agrees with the value for the hydraulic system pressure.
- (a) Make sure that the octal value that shows on the tester agrees with the octal value shown in Table 504.

Table 504/31-31-00-993-804

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)

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Table 504/31-31-00-993-804 (Continued)

Hydraulic Pressure	Tester Display (octal)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-167

- (20) Release the captain's right brake pedal.

SUBTASK 31-31-00-860-168

- (21) Remove hydraulic pressure from system A (TASK 29-11-00-860-805).

AK. Stabilizer Position Analog Signal Test

SUBTASK 31-31-00-860-239

- (1) Set the tester to subframe 0, word 25.

SUBTASK 31-31-00-860-240

- (2) Set the B dimension to 39.89 inch (4 units of trim).
(a) Make sure that the tester shows 7705 to 0074.

SUBTASK 31-31-00-860-241

- (3) Set the B dimension to 25.53 inch (14 units of trim).
(a) Make sure that the tester shows 0437 to 0660.

AL. Control Column Position Analog Signal Test

SUBTASK 31-31-00-860-169

- (1) Supply hydraulic pressure for system A (TASK 29-11-00-860-801).

SUBTASK 31-31-00-860-170

- (2) Install E1 rigging pin kit, SPL-1585, into the captain's control column to set the control column in the neutral position.

SUBTASK 31-31-00-860-171

- (3) Set the tester to subframe 0, word 10.
(a) Make sure that the tester shows 7765 to 0013.

SUBTASK 31-31-00-860-172

- (4) Set the tester to subframe 0, word 20.
(a) Make sure that the tester shows 7765 to 0013.

SUBTASK 31-31-00-860-173

- (5) Remove rig pin E1.

SUBTASK 31-31-00-860-174

- (6) Set the tester to subframe 0, word 10.

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SUBTASK 31-31-00-860-175

- (7) Push the captain's control column full forward against stop.
 - (a) Make sure that the tester shows 1625 to 2422.

SUBTASK 31-31-00-860-176

- (8) Pull the captain's control column full aft against stop.
 - (a) Make sure that the tester shows 5006 to 5603.

SUBTASK 31-31-00-860-177

- (9) Set the tester to subframe 0, word 20.

SUBTASK 31-31-00-860-178

- (10) Push the first officer's control column full forward against the stop.
 - (a) Make sure that the tester shows 5330 to 6125.

SUBTASK 31-31-00-860-179

- (11) Pull the first officer's control column full aft against the stop.
 - (a) Make sure that the tester shows 2122 to 2716.

SUBTASK 31-31-00-860-180

- (12) Remove hydraulic pressure from system A (TASK 29-11-00-860-805)..

AM. Elevator Position Analog Signal Test

SUBTASK 31-31-00-860-194

- (1) Supply hydraulic pressure for system A or B (TASK 29-11-00-860-801).

SUBTASK 31-31-00-860-195

- (2) Use the stabilizer trim control switch on the control wheel to set the horizontal stabilizer to 4 units of trim.

SUBTASK 31-31-00-860-196

- (3) Set the tester to subframe 0, word 5.

SUBTASK 31-31-00-860-197

- (4) Move the control column full aft against stop.
 - (a) Make sure that the tester shows 6710 to 7056.

SUBTASK 31-31-00-860-198

- (5) Move the control column full forward against stop.
 - (a) Make sure that the tester shows 0500 to 0646.

SUBTASK 31-31-00-860-199

- (6) Set the tester to subframe 0, word 15.

SUBTASK 31-31-00-860-200

- (7) Move the control column full aft against stop.
 - (a) Make sure that the tester shows 0730 to 1056.

SUBTASK 31-31-00-860-201

- (8) Move the control column full forward against stop.
 - (a) Make sure that the tester shows 7140 to 7266.

SUBTASK 31-31-00-860-202

- (9) Remove hydraulic pressure for system A or B (TASK 29-11-00-860-805)..

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AN. Aileron Position Analog Signal Test

SUBTASK 31-31-00-860-138

- (1) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-139

- (2) Set the tester to subframe 0, word 30.

SUBTASK 31-31-00-860-140

- (3) Put the captain's control wheel in the center position.
(a) Make sure that the tester display shows octal value of 7741 to 0037.

SUBTASK 31-31-00-860-141

- (4) Turn the captain's control wheel fully to the left position.
(a) Make sure that the tester shows 7172 to 7314.

SUBTASK 31-31-00-860-142

- (5) Turn the captain's control wheel fully to the right position.
(a) Make sure that the tester shows 0466 to 0610.

SUBTASK 31-31-00-860-143

- (6) Set the tester to subframe 0, word 40.

SUBTASK 31-31-00-860-144

- (7) Put the captain's control wheel in the center position.
(a) Make sure that the tester shows 7741 to 0037.

SUBTASK 31-31-00-860-145

- (8) Turn the captain's control wheel fully to the left position.
(a) Make sure that the tester shows 7167 to 7311.

SUBTASK 31-31-00-860-146

- (9) Turn the captain's control wheel fully to the right position.
(a) Make sure that the tester shows 0463 to 0605.

SUBTASK 31-31-00-860-147

- (10) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

AO. Control Wheel Position Analog Signal Test

SUBTASK 31-31-00-860-181

- (1) Install A/S-1 and A/S-1A rigging pin kit, SPL-1585, into the aileron transfer mechanism.

SUBTASK 31-31-00-860-182

- (2) Install a protractor, SPL-1680, on the captain's control wheel.

SUBTASK 31-31-00-860-183

- (3) Adjust the protractor, SPL-1680, to read 0°.

SUBTASK 31-31-00-860-184

- (4) Set the tester to subframe 0, word 35.
(a) Make sure that the tester shows 7771-0007.

SUBTASK 31-31-00-860-185

- (5) Remove the rig pins A/S-1 and A/S-1A of the rigging pin kit, SPL-1585, from the aileron transfer mechanism.

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SUBTASK 31-31-00-860-186

- (6) Turn the captain's control wheel 50° clockwise.
 - (a) Make sure that the tester shows 6654 to 6741.

SUBTASK 31-31-00-860-187

- (7) Turn the captain's control wheel 50° in the counterclockwise direction.
 - (a) Make sure that the tester shows 1036 to 1123.

SUBTASK 31-31-00-860-188

- (8) Install a protractor, SPL-1680, to the first officer's control wheel.

SUBTASK 31-31-00-860-189

- (9) Install the rig pins A/S-1 and A/S-1A of the rigging pin kit, SPL-1585, into the aileron transfer mechanism.

SUBTASK 31-31-00-860-190

- (10) Set the tester to subframe 0, word 35.
 - (a) Make sure that the tester shows 7771-0007.

SUBTASK 31-31-00-860-191

- (11) Remove the rig pins A/S-1 and A/S-1A of the rigging pin kit, SPL-1585, from the aileron transfer mechanism.

SUBTASK 31-31-00-860-192

- (12) Turn the first officer's control wheel 50° in the clockwise direction.
 - (a) Make sure that the tester shows 6654 to 6741.

SUBTASK 31-31-00-860-193

- (13) Turn the first officer's control wheel 50° in the counterclockwise direction.
 - (a) Make sure that the tester shows 1036 to 1123.

AP. Rudder Position Analog Signal Test

SUBTASK 31-31-00-860-364

- (1) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-208

- (2) Set the tester to subframe 0, word 70.

SUBTASK 31-31-00-860-209

- (3) Put the rudder at the index mark.
 - (a) Make sure that the tester shows 7741 to 0037.

SUBTASK 31-31-00-860-210

- (4) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-730-156

- (5) Put the rudder to the full left position.
 - (a) Make sure that the tester shows 7092 to 7192.

SUBTASK 31-31-00-860-211

- (6) Put the rudder to the full right position.
 - (a) Make sure that the tester shows 0584 to 0684.

SUBTASK 31-31-00-730-157

- (7) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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AQ. Rudder Pedal Position Analog Signal Test

SUBTASK 31-31-00-860-203

- (1) Install rig pin R2 from rigging pin kit, SPL-1585, into the first officer's rudder pedal.

SUBTASK 31-31-00-860-204

- (2) Set the tester to subframe 0, word 75.
 - (a) Make sure that the tester shows 7751 to 0027.

SUBTASK 31-31-00-860-205

- (3) Remove rig pin R2 from the first officer's rudder pedal.

SUBTASK 31-31-00-860-206

- (4) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801

SUBTASK 31-31-00-730-158

- (5) Push the captain's right rudder pedal full forward against stop.
 - (a) Make sure that the tester shows 5763 to 6423.

SUBTASK 31-31-00-860-207

- (6) Push the captain's left rudder pedal full forward against stop.
 - (a) Make sure that the tester shows 1354 to 2014.

SUBTASK 31-31-00-730-159

- (7) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

AR. Rudder Pedal Force Analog Signal Test

SUBTASK 31-31-00-840-007

- (1) Make sure that the hydraulic systems A, B and STBY are off.

SUBTASK 31-31-00-860-328

- (2) Set the tester to subframe 0, word 80.

SUBTASK 31-31-00-860-329

- (3) With no pressure to the left or right rudder pedals, make sure the tester shows 3012 to 4112.

SUBTASK 31-31-00-840-008

- (4) Put pressure to the left rudder pedal.
 - (a) Make sure that the tester octal value increases.

NOTE: It may take 1 to 4 seconds to update.

 - 1) Hold the rudder pedal until a reading is shown.

SUBTASK 31-31-00-840-009

- (5) Release pressure from the left rudder pedal.

SUBTASK 31-31-00-860-330

- (6) Put firm pressure to the right rudder pedal.
 - (a) Make sure that the tester octal value decreases.

AS. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-00-840-010

- (1) Put the flight data recorder TEST-NORMAL switch to the NORMAL position.

SUBTASK 31-31-00-860-353

- (2) Remove power from the tester.

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SUBTASK 31-31-00-860-354

(3) Disconnect the tester.

SUBTASK 31-31-00-420-003

(4) Install the shorting plug on the system test plug on the P18 panel.

———— **END OF TASK** ————

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UNDERWATER LOCATOR BEACON - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Dukane Underwater Locator Beacon Battery - Replacement
 - (2) L-3 Underwater Beacon Battery - Replacement
- B. The underwater locator beacon (ULB) is attached to the front of the flight data recorder. The flight data recorder is located above the aft lowered ceiling panel No. 2 in the passenger compartment.

TASK 31-31-09-960-801

2. Dukane Underwater Locator Beacon Battery - Replacement

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. **General**

- (1) This procedure contains the steps to replace the Dukane Underwater Locator Beacon (ULB) Battery.

B. **References**

Reference	Title
31-31-09-000-801	Underwater Locator Beacon Removal (P/B 401)
31-31-09-400-801	Underwater Locator Beacon 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-1619	Wrench - Spanner, Underwater Locator Beacon Part #: 810-2005 Supplier: 94970 Part #: 810-2007/KVS Supplier: 94970 Part #: 810-325 Supplier: 94970 Part #: B362-09111 Supplier: 61257 Opt Part #: 008407 Supplier: 26858 Opt Part #: B362-04180A Supplier: 26858
COM-15496	Clamp - Vise Part #: 810-546 Supplier: 94970 Part #: 9809800002 Supplier: 06141
STD-1066	Hose - Radiator, Split, 1-1/4 Inch Diameter, 5 Inch Length

D. **Consumable Materials**

Reference	Description	Specification
D50082	Lubricant - 810-346	
G51422	Kit - Lithium Battery, 810-2042/K	
G51671	Kit - Lithium Battery, 810-2050K	

E. **Removal Procedure**

SUBTASK 31-31-09-010-003

- (1) Remove the Underwater Locator Beacon (ULB), do this task: Underwater Locator Beacon Removal, TASK 31-31-09-000-801.

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SUBTASK 31-31-09-800-001



WARNING

DO NOT REMOVE THE BATTERY FROM THE UNDERWATER LOCATOR BEACON. THE BATTERY HAS DANGEROUS MATERIALS AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

- (2) If you have a DK100/90 or DK130/90 ULB, send it to the manufacturer for servicing.

SUBTASK 31-31-09-020-001

- (3) If you have a DK120/90 or DK140/90 ULB, remove the battery [28] as follows:



CAUTION

DO NOT PUT THE UNDERWATER LOCATOR BEACON IN A VISE. DAMAGE TO THE UNDERWATER LOCATOR BEACON CAN OCCUR.

- (a) Hold the ULB [4] with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066.
- (b) Use the spanner wrench, COM-1619, to remove the end cap [25] that is identified BATTERY ACCESS.
- (c) Remove the rubber shock cushion [27] from the battery end if it is not removed with the end cap [25].
- (d) Remove and discard the o-ring [26] from the end cap [25].
- (e) Hit the ULB [4] lightly to remove the battery [28].

SUBTASK 31-31-09-020-006

- (4) If you have a DK290 ULB, remove the batteries [28] as follows:



CAUTION

DO NOT CLAMP THE BEACON IN A VISE, UNLESS YOU USE VISE CLAMP COM-15496. IF YOU DO NOT, IT CAN CAUSE DAMAGE.

- (a) Hold the ULB [4] with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066 or vise clamp, COM-15496.
- (b) Use the spanner wrench, COM-1619, to remove the end caps [25].



CAUTION

DO NOT USE A STEEL SCREWDRIVER OR SHARP TOOL. THIS WILL PREVENT DAMAGE TO THE O-RING GROOVE.

- (c) Remove and discard the o-rings [26] from the end caps [25].
- (d) Hit the ULB [4] lightly to remove the batteries [28].

F. Installation Procedure

SUBTASK 31-31-09-420-001

- (1) If you have a DK120/90 or DK140/90 ULB, install the new battery [28] as follows:
- (a) Make sure that the new battery is the same as the battery code on the ULB label. See the table below.

BATTERY CODE	REQUIRED BATTERY KIT
F	810-2042/K

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NOTE: The Dukane 810-2042/K battery is a 7 year lithium battery used in the Dukane model DK120/90 and DK140/90 ULB.

NOTE: The battery, o-ring and lubricant are provided in the battery replacement kit, G51422.



CAUTION

DO NOT REVERSE THE POLARITY OF THE UNDERWATER LOCATOR BEACON BATTERY. DAMAGE TO THE UNDERWATER BEACON WILL OCCUR.

- (b) Put the new battery [28] in the ULB [4] with the end identified INSERT THIS END in first.



CAUTION

DO NOT GET DIRT OR UNWANTED MATERIALS NEAR THE O-RING. DAMAGE TO THE O-RING AND THREADS CAN CAUSE DAMAGE TO THE UNDERWATER LOCATOR BEACON.

- (c) Clean the threads and the o-ring groove in the ULB [4].
- (d) Apply a thin layer of lubricant, D50082, to the new o-ring [26], o-ring groove, and threads.
- (e) Install the new o-ring [26] on the end cap [25].
- (f) Put the rubber shock cushion [27] smoothly on the end cap [25].
- (g) Hold the ULB [4] with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066.
- (h) Put the end cap [25] into the ULB [4].
- (i) Hand tighten the end cap [25] with a spanner wrench, COM-1619, until the cap flange touches the ULB [4].
- (j) Put a new battery replacement label [23] on the ULB [4].
- (k) On the battery replacement label [23], write the next scheduled replacement date for the new battery [28].

NOTE: The battery replacement label [23] is blank so you can write in a replacement date based on your maintenance schedule.

SUBTASK 31-31-09-420-006

- (2) If you have a DK290 ULB, install the new batteries [28] as follows:

- (a) Make sure that the new batteries are the same as the battery code on the ULB label.

NOTE: The Dukane 810-2050K batteries are 6 year lithium batteries used in the Dukane model DK290 ULB.

NOTE: The battery, o-ring and lubricant are provided in the battery replacement kit, G51671.



CAUTION

DO NOT GET DIRT OR UNWANTED MATERIALS NEAR THE O-RING. DAMAGE TO THE O-RING AND THREADS CAN CAUSE DAMAGE TO THE UNDERWATER LOCATOR BEACON.

- (b) Clean the threads and the o-ring grooves in the ULB [4] and end caps [25].
- (c) Apply a thin layer of lubricant, D50082, to the new o-rings [26], o-ring grooves, and threads.
- (d) Install the new o-rings [26] on the end caps [25].
- (e) For each battery [28], do these steps:

NOTE: There are two batteries [28], one at each end of the ULB [4].

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DO NOT REVERSE THE POLARITY OF THE UNDERWATER LOCATOR BEACON BATTERY. DAMAGE TO THE UNDERWATER BEACON WILL OCCUR.

- 1) Put the new battery [28] in the ULB [4].
 - a) Make sure that the bullseye pattern side of the battery [28] is inserted first into the ULB [4].



DO NOT CLAMP THE BEACON IN A VISE, UNLESS YOU USE VISE CLAMP COM-15496. IF YOU DO NOT, IT CAN CAUSE DAMAGE.

- 2) Hold the ULB [4] with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066 or vise clamp, COM-15496.
 - 3) Put the end cap [25] into the ULB [4].
 - 4) Hand tighten the end cap [25] with a spanner wrench, COM-1619, until the cap flange touches the ULB [4] or has a clearance of 0.003 in. (0.076 mm) or less.
- (f) Put a new battery replacement label [23] on the ULB [4].
- (g) On the battery replacement label [23], write the next scheduled replacement date for the new batteries [28].

NOTE: The battery replacement label [23] is blank so you can write in a replacement date based on your maintenance schedule.

SUBTASK 31-31-09-410-002

- (3) Install the ULB, do this task: Underwater Locator Beacon Installation, TASK 31-31-09-400-801.

————— **END OF TASK** —————

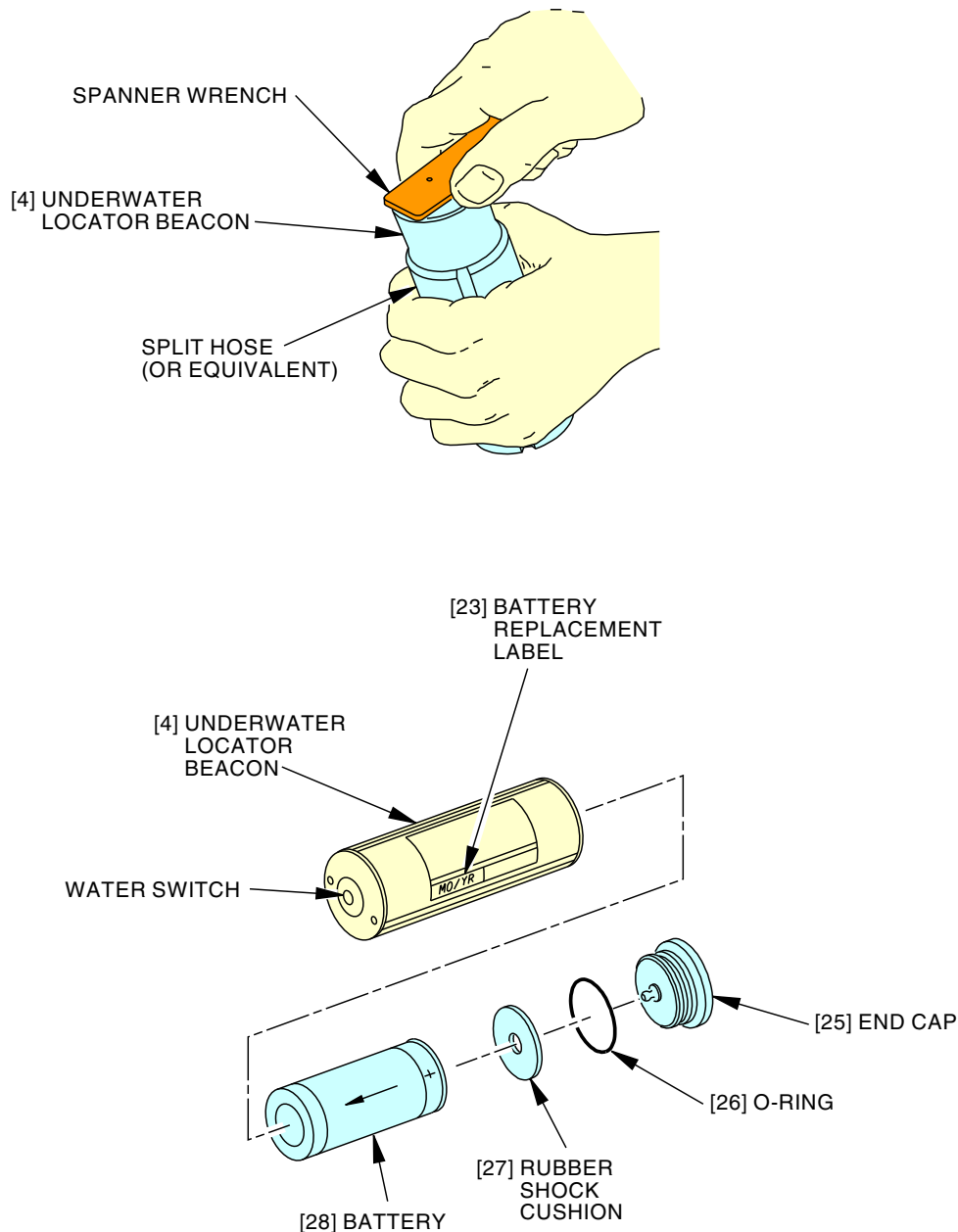
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2411722 S00061528828_V2

Underwater Locator Beacon Battery Replacement
Figure 201/31-31-09-990-802 (Sheet 1 of 2)

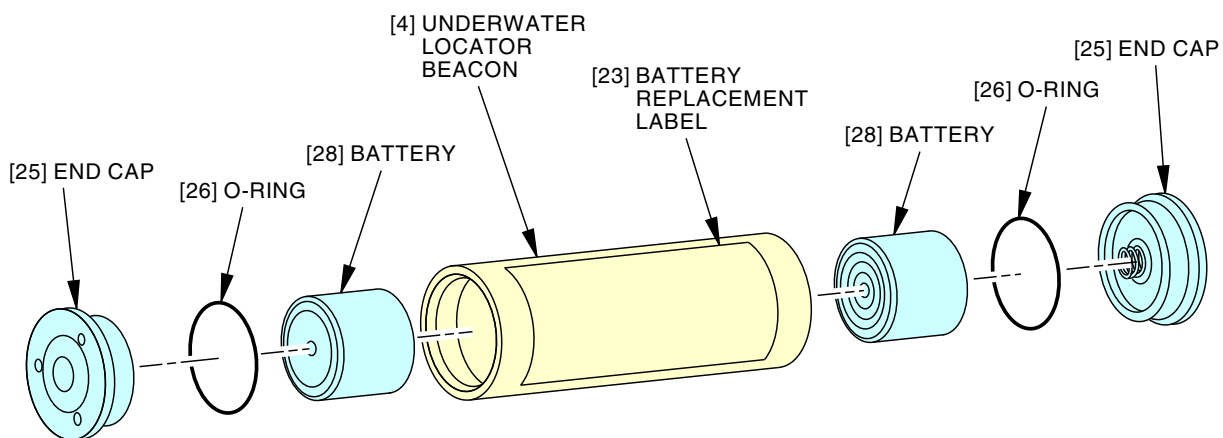
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2954530 S0000732223_V2

Underwater Locator Beacon Battery Replacement
Figure 201/31-31-09-990-802 (Sheet 2 of 2)

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TASK 31-31-09-960-803

3. **L-3 Underwater Locator Beacon Battery - Replacement**

(Figure 202)

A. General

(1) This task gives the instruction to replace the L-3 Underwater Locator Beacon (ULB) battery.

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-15071	Wrench - Spanner Part #: 810-325 Supplier: 94970 Part #: 9809800007 Supplier: 06141
COM-15496	Clamp - Vise Part #: 810-546 Supplier: 94970 Part #: 9809800002 Supplier: 06141

C. Consumable Materials

Reference	Description	Specification
D50082	Lubricant - 810-346	

D. L-3 Underwater Locator Beacon Battery - Removal

SUBTASK 31-31-09-000-001



REMOVE ALL OF THE CONTAMINATION FROM THE THREADS AND THE O-RING GROOVES. CONTAMINATION CAN CAUSE DAMAGE TO THE THREADS. THREAD DAMAGE CAN CAUSE LEAKS.

- (1) Remove the battery [28] from the L-3 ULB [4].
- (a) Secure the L-3 ULB [4] with the vise clamp, COM-15496.



DO NOT GET DIRT OR UNWANTED MATERIALS NEAR THE O-RING. DAMAGE TO THE O-RING AND THREADS CAN CAUSE DAMAGE TO THE UNDERWATER LOCATOR BEACON.

- (b) Use the spanner wrench, COM-15071, to remove the battery end cap [25] with two wrench holes by unscrewing counterclockwise.
- NOTE:** The breakaway torque is usually high, so the spanner wrench should be held firmly in contact with the battery end cap in order to prevent damage to wrench holes.
- (c) Remove the rubber shock cushion [27] from the battery end if it is not removed with the battery end cap [25].



DO NOT USE A STEEL SCREWDRIVER OR SHARP TOOL. THIS WILL PREVENT DAMAGE TO THE O-RING GROOVE.

- (d) Remove the o-ring [26] from the end cap [25].

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- (e) Remove the battery [28].
- (f) Ensure the rubber shock cushion [27] remains in the battery end cap [25].

E. L-3 Underwater Locator Beacon Battery - Installation

SUBTASK 31-31-09-480-003



DO NOT INSTALL A BATTERY OTHER THAN THAT FROM THE BATTERY REPLACEMENT KIT. IF YOU DO NOT FOLLOW THIS CAUTION, IT CAN CAUSE DAMAGE.



DO NOT INSTALL A 90-DAY BATTERY IN A 30-DAY BEACON OR A 30-DAY BATTERY IN A 90-DAY BEACON. IF YOU DO, IT CAN CAUSE DAMAGE.

- (1) Make sure that the new battery [28] is the same as the battery on the battery replacement label [23] (Table 201).

Table 201/31-31-09-993-801 Beacon Battery Replacement Kits

Description	Kit Part Number
30-Day Battery	147E030500
90-Day Battery	147E554200

SUBTASK 31-31-09-400-001



REMOVE ALL OF THE CONTAMINATION FROM THE THREADS AND THE O-RING GROOVES. CONTAMINATION CAN CAUSE DAMAGE TO THE THREADS. THREAD DAMAGE CAN CAUSE LEAKS.



MAKE SURE THAT YOU INSTALL THE BATTERY CORRECTLY. INCORRECT INSTALLATION OF THE BATTERY WILL CAUSE PERMANENT DAMAGE TO THE BEACON.



DO NOT CLAMP THE BEACON IN A VISE, UNLESS YOU USE VISE CLAMP COM-15496. IF YOU DO NOT, IT CAN CAUSE DAMAGE.

- (2) Install the L-3 ULB battery [28].
 - (a) Apply a thin coating of lubricant, D50082, to the new o-ring [26], o-ring groove, and threads on the battery end cap [25].
 - (b) Carefully install the new o-ring [26] on the battery end cap [25].
 - (c) Install the new battery [28].
 - 1) Make sure that the end marked "INSERT THIS END FIRST" goes in first.
 - (d) Position the rubber shock cushion [27] around contact spring and on the inside of the battery end cap [25].
 - (e) Install the battery end cap [25] and tighten it until the cover flange contacts the body or leaves less than a 0.003 in. (0.076 mm) gap.
 - 1) Hold the L-3 ULB [4] in the vise clamp, COM-15496, use only hand force to tighten.

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- (f) Clean the L-3 ULB [4] exterior of excess lubricant.
- (g) Install the battery replacement label [23] on the outside of the L-3 ULB [4] case with the new label that is supplied with the battery.
 - 1) Locate the battery replacement label [23] on the L-3 ULB [4] body in the space provided.
 - a) Do not put label on the water switch end of the beacon.

———— **END OF TASK** ————

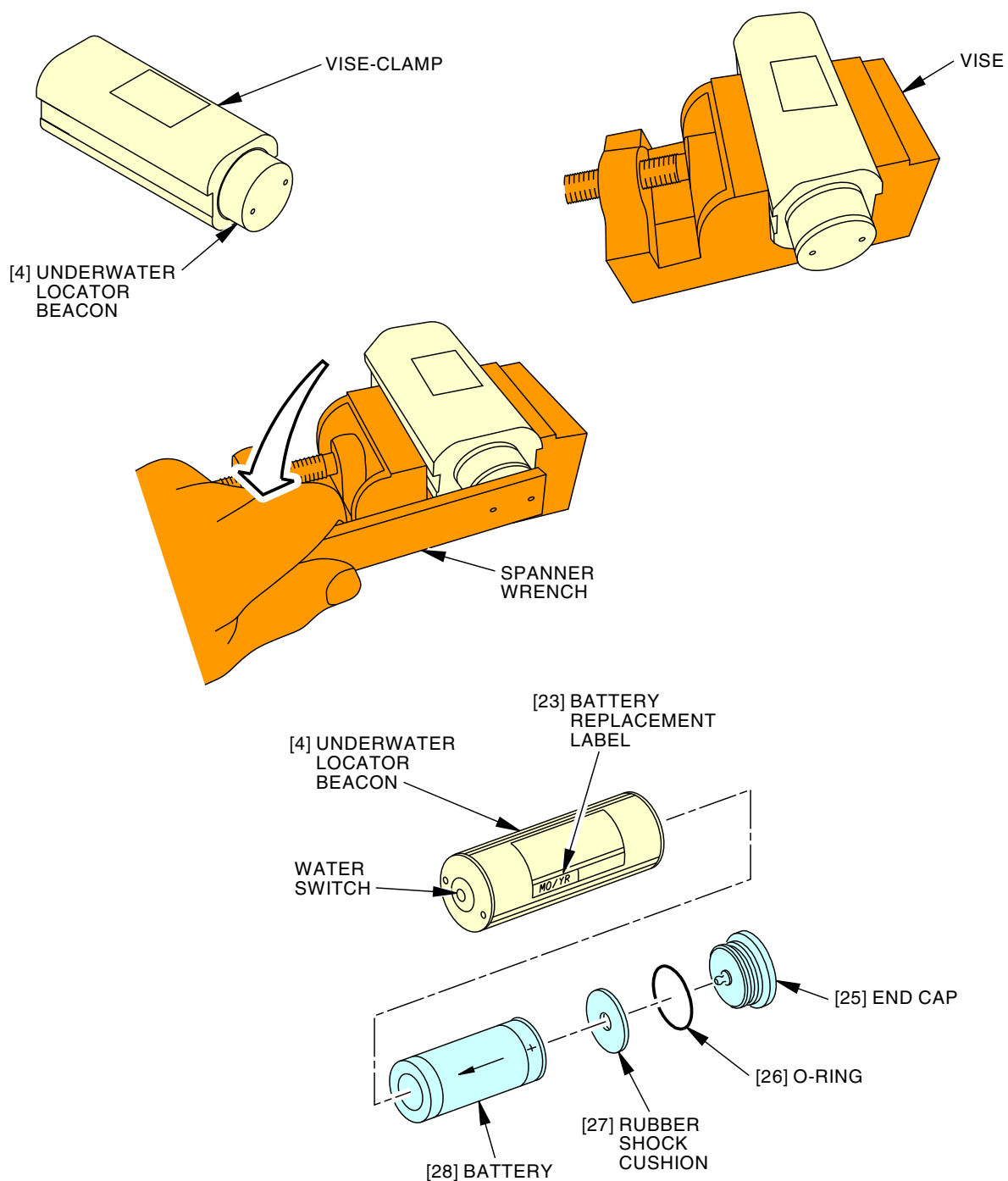
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2797221 S0000638845_V1

Underwater Locator Beacon Battery Replacement
Figure 202/31-31-09-990-805

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UNDERWATER LOCATOR BEACON - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

- (1) A removal of the Underwater Locator Beacon (ULB)
- (2) An installation of the ULB.

TASK 31-31-09-000-801

2. **Underwater Locator Beacon Removal**

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure has steps to remove the Underwater Locator Beacon (ULB) from the Flight Data Recorder (FDR).
- (2) The ULB has a battery as the power source.

B. References

Reference	Title
31-31-11-000-801	Flight Data Recorder Removal (P/B 401)

C. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. Underwater Locator Beacon Removal

SUBTASK 31-31-09-020-010

- (1) If it is necessary, do this task: Flight Data Recorder Removal, TASK 31-31-11-000-801.

SUBTASK 31-31-09-020-013

- (2) Remove the ULB [1] from the FDR:
 - (a) Remove the screws [3] from the left bracket [2].
 - 1) If the new 30-day ULB [1] will be installed, it is recommended to discard the screws [3].
 - 2) If the new 90-day ULB [1] will be installed, it is recommended to discard the screws [3].
 - 3) If the new 90-day ULB [1] replaces 30-day ULB [1], discard the screws [3].
 - (b) Loosen the screws [3] on the right bracket.
 - (c) Remove the ULB [1].

———— **END OF TASK** ————

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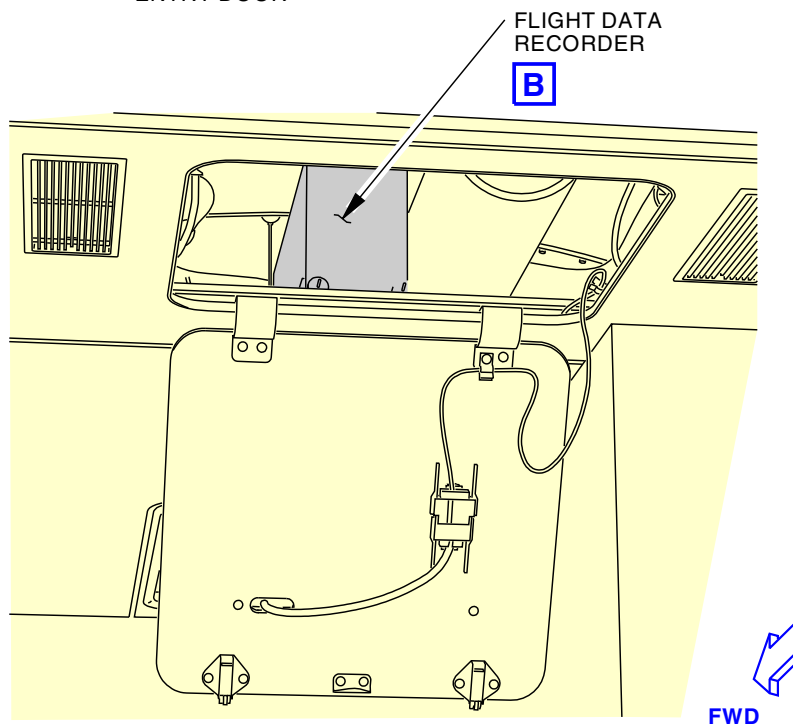
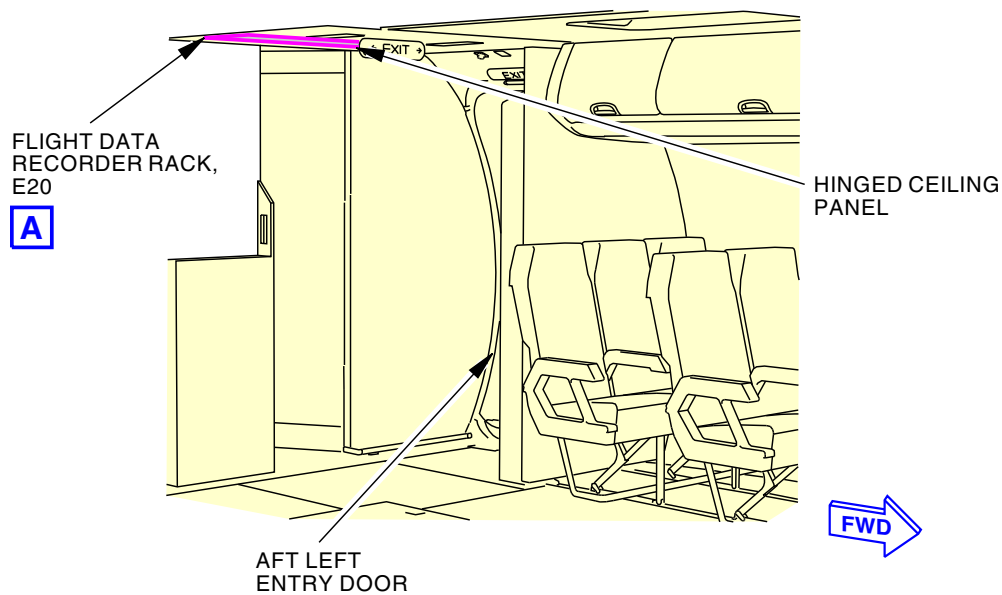
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FLIGHT DATA RECORDER RACK, E20

A

2918344 S0000702234_V1

Underwater Locator Beacon Installation
Figure 401/31-31-09-990-801 (Sheet 1 of 2)

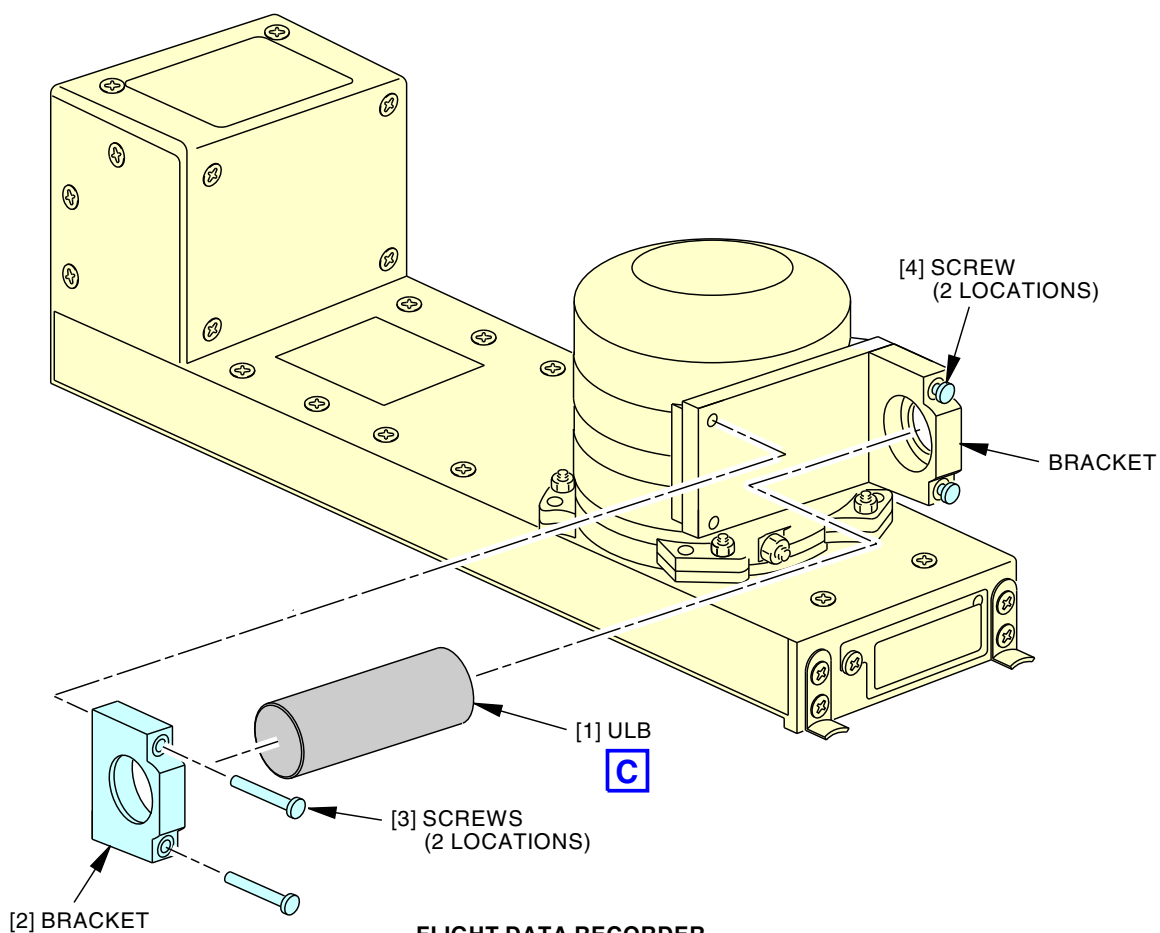
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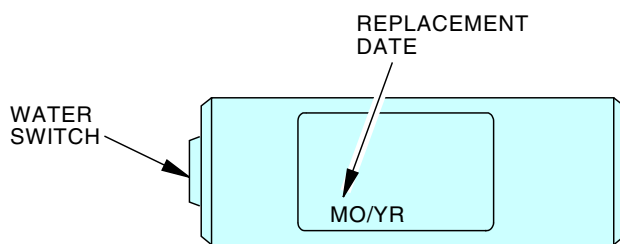
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FLIGHT DATA RECORDER

B



**UNDERWATER LOCATOR BEACON
(EXAMPLE)**

C

2990542 S0000767515_V1

**Underwater Locator Beacon Installation
Figure 401/31-31-09-990-801 (Sheet 2 of 2)**

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TASK 31-31-09-400-801

3. Underwater Locator Beacon Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task has steps to install the Underwater Locator Beacon (ULB) to the Flight Data Recorder (FDR).
- (2) The ULB only has a battery as the power source.

B. References

Reference	Title
31-31-09-730-801	Underwater Locator Beacon Test with a 42A12 Test Set (P/B 501)
31-31-09-730-802	Underwater Locator Beacon Test with a PL1 Test Set (P/B 501)
31-31-09-730-803	Underwater Locator Beacon Test with a PL3 Test Set (P/B 501)
31-31-09-730-806	Underwater Locator Beacon Test with a TS200 Test Set (P/B 501)
31-31-09-730-808	Underwater Locator Beacon Test with a TS500 Test Set (P/B 501)
31-31-11-400-801	Flight Data Recorder Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ULB	31-31-09-02-030	SIA ALL

E. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

F. Underwater Locator Beacon Pre-Installation Test

SUBTASK 31-31-09-720-002

- (1) If the ULB is repaired or replaced, do the ULB test with applicable test set (Underwater Locator Beacon Test with a 42A12 Test Set, TASK 31-31-09-730-801 or Underwater Locator Beacon Test with a PL1 Test Set, TASK 31-31-09-730-802 or Underwater Locator Beacon Test with a PL3 Test Set, TASK 31-31-09-730-803 or Underwater Locator Beacon Test with a TS200 Test Set, TASK 31-31-09-730-806 or Underwater Locator Beacon Test with a TS500 Test Set, TASK 31-31-09-730-808).

G. Underwater Locator Beacon Installation

SUBTASK 31-31-09-420-012

- (1) Install the ULB [1] on the FDR:
 - (a) Make sure that the water switch of the ULB [1] has no grease or dirt.
 - 1) Clean the water switch with a weak general purpose household detergent cleaner, B00541.
 - (b) Put the ULB [1] into the right bracket and hold it.

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- (c) Install the left bracket [2] with the screws [3].
 - 1) If the new 30-day ULB [1] is installed, it is recommended to use the new screws [3].
 - 2) If the new 90-day ULB [1] is installed, it is recommended to use the new screws [3].
 - 3) If the new 90-day ULB [1] replaces 30-day ULB [1], use the new screws [3].
- (d) Make sure that you can read the replacement date on the ULB [1].
- (e) Tighten the screws [3] and screws [4] to 75 in-lb (8.47 N·m).

SUBTASK 31-31-09-420-014

- (2) If it is necessary, do this task: Flight Data Recorder Installation, TASK 31-31-11-400-801.

———— **END OF TASK** ————

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UNDERWATER LOCATOR BEACON - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) Underwater Locator Beacon Test with a 42A12 Test Set
- (2) Underwater Locator Beacon Test with a PL1 Test Set
- (3) Underwater Locator Beacon Test with a PL3 Test Set
- (4) Underwater Locator Beacon Test with a TS200 Test Set
- (5) Underwater Locator Beacon with a L-3AR Test Set
- (6) Underwater Locator Beacon Test with a TS500 Test Set
- (7) Underwater Locator Beacon Operational Test with a TS500 Test Set
- (8) Underwater Locator Beacon Voltage Test with a TS500 Test Set

TASK 31-31-09-730-801

2. Underwater Locator Beacon Test with a 42A12 Test Set

NOTE: This procedure is a scheduled maintenance task.

A. **General**

- (1) This procedure has steps to do a test of the Underwater Locator Beacon (ULB) with a 42A12 Test Set.

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-10768	Test Set - 42A12, Underwater Locator Beacon (ULB) Opt Part #: 42A12-1 Supplier: 94970
STD-11018	Voltmeter - High Impedance (Minimum 10Mohm Input Impedance)

C. **Battery Test**

SUBTASK 31-31-09-760-001

- (1) Do a check of the battery voltage:
 - (a) Make sure the case and water switch are clean and dry.
 - (b) Place the negative lead of the high impedance voltmeter, STD-11018, on the water switch pin and the positive of the meter on the beacon case or mounting kit.
 - (c) Measure the battery voltage.
 - 1) Refer to the ULB label for the minimum permitted range of the beacon battery voltage:
 - a) Code F: 2.97 Volts.

D. **Operation Test**

SUBTASK 31-31-09-730-001

- (1) If you have a 42A12 ULB Test Set, COM-10768, do this test of the ULB:

NOTE: 42A12 can do a test for all ULBs.

- (a) Put the 42A12 ULB Test Set, COM-10768 as close as possible to the ULB.

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- (b) Set the GAIN control switch on the 42A12 ULB Test Set, COM-10768 to the maximum clockwise position.
NOTE: A background noise is heard. If you do not hear noise from the test set, replace the test set battery.
- (c) Set the TUNING control switch to the middle position.
- (d) Make sure that the 42A12 ULB Test Set, COM-10768 operates correctly.
 - 1) Rub your thumb and fingers together in front of the microphone to make sure that it operates.
NOTE: This will produce a rushing noise from the speaker.
 - a) Make sure that you hear sounds through the speaker.
- (e) Use tape to attach a piece of wire, a shorting tab, or other conductive material to the ULB case and to the center of the water switch.
NOTE: This will make a short circuit from the center of the water switch to the outer part of the ULB.
- (f) Set the GAIN control switch to a comfortable listening level.
- (g) Point the microphone of the test set towards the water switch end of the beacon for best results.
 - 1) Make sure you hear a pulse tone.
- (h) Remove the wire, shorting tab, or other conducting material from the ULB case and the center of the water switch.
- (i) Set the GAIN control switch to the OFF position.
- (j) Make sure that the water switch on the ULB has no grease or dirt.
- (k) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

———— **END OF TASK** ————

TASK 31-31-09-730-802

3. Underwater Locator Beacon Test with a PL1 Test Set

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure has steps to do a test of the Underwater Locator Beacon with a PL1 Test Set.

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-10771	Test Set - PL1, Underwater Locator Beacon (ULB) Opt Part #: PL1 Supplier: 94970

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C. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

D. Procedure

SUBTASK 31-31-09-730-002

- (1) If you have a PL1 ULB test set, COM-10771, do this test of the underwater locator beacon (ULB):

NOTE: PL1 can only do a test for the DK100–90 and DK120–90 ULB.

- (a) Use Scotch Flatback Masking Tape 250, G00270 to attach a piece of wire or other conductive material to the ULB case and the center of the water switch.

NOTE: This will make a short circuit from the center of the water switch to the outer part of the ULB.

- (b) Put the end of the PL1 ULB test set, COM-10771 against the ULB, approximately one inch from the water switch.
- (c) Push and hold the operation switch on the PL1 ULB test set, COM-10771.
- 1) Make sure that the BEACON ACTIVE WHEN FLASHING light flashes.
 - 2) Remove the piece of wire or other conductive material from the ULB case and the center of the water switch.
 - 3) Make sure that the BEACON ACTIVE WHEN FLASHING light does not flash.
- (d) Release the operation switch on the PL1 ULB test set, COM-10771.
- (e) Remove the PL1 ULB test set, COM-10771.
- (f) Make sure that the water switch end of the ULB has no grease or dirt.
- (g) If necessary, do the steps that follow:
- 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

————— **END OF TASK** —————

TASK 31-31-09-730-803

4. Underwater Locator Beacon Test with a PL3 Test Set

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure has steps to do a test of the Underwater Locator Beacon with a PL3 Test Set.

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-10772	Test Set - PL3, Underwater Locator Beacon (ULB) Opt Part #: PL3 Supplier: 94970

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C. Procedure

SUBTASK 31-31-09-730-003

- (1) If you have a PL3 ULB test set, COM-10772, do this test of the underwater locator beacon (ULB):

NOTE: PL3 can only do a test for the DK100–90 and DK120–90 ULBs.

- (a) Push and hold the PL3 ULB test set, COM-10772 against the ULB water switch.
 - 1) Make sure that you hear a pulse sound.
 - 2) Make sure that you see the LED light comes on and off.
- (b) Remove the PL3 ULB test set, COM-10772.
- (c) Make sure that the water switch end of the ULB has no grease or dirt.
- (d) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

————— **END OF TASK** —————

TASK 31-31-09-730-806

5. Underwater Locator Beacon Test with a TS200 Test Set

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure has steps to do a test of the Underwater Locator Beacon with a TS200 Test Set.

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-10770	Test Set - TS200, Underwater Locator Beacon (ULB) Opt Part #: TS200 Supplier: 94970

C. Procedure

SUBTASK 31-31-09-730-006

- (1) If you have a TS200 ULB test set, COM-10770, do this test of the underwater locator beacon (ULB):

NOTE: TS200 can do a test for all Dukane ULBs.

- (a) Attach the test probe clip of the TS200 ULB test set, COM-10770 to the beacon in its mount.
- (b) Put the tip of the probe on the silver pad of the water switch at the end of the beacon.
 - 1) The LCD display will show the battery voltage of the beacon.
- (c) Refer to the applicable battery code for the minimum permitted range of the beacon battery voltage:

NOTE: Examine the battery replacement label to find the battery code.

- 1) Code F – 2.97 Volts
- (d) Push the red button on the TS200 ULB test set, COM-10770.

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- 1) The beacon starts and you hear a pinging noise from the TS200 ULB test set, COM-10770.
- (e) Remove the test probe clip of the TS200 ULB test set, COM-10770.
- (f) Replace the ULB if necessary.
- (g) Make sure that the water switch end of the ULB has no grease or dirt.
- (h) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

———— **END OF TASK** ————

TASK 31-31-09-730-807

6. Underwater Locator Beacon Test with a L-3AR Test Set

A. General

- (1) This procedure has steps to do a test of the Underwater Locator Beacon with a L-3AR Test Set.

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-15070	Test Set - 17TES0015, Underwater Locator Beacon (ULB) Part #: 17TES0015 Supplier: 06141

C. Procedure

SUBTASK 31-31-09-730-007

- (1) If you have a underwater locator beacon test set, COM-15070, do this test of the underwater locator beacon (ULB):

NOTE: L-3AR ULB test set can only do a test for the L-3 266-E5542-00 ULBs.

- (a) Attach the test probe clip of the test set to the beacon case.
- (b) Place the tip of the probe in contact with the metal pad at the end of the water switch.
 - 1) The display will show the battery voltage of the beacon.
 - 2) The minimum permitted voltage of the battery is 2.97 Volts.
- (c) Press and hold the red button on the test set.
 - 1) The beacon starts and you hear a pinging noise from the test set.
- (d) Remove the test probe of the test set.
- (e) Replace the ULB if necessary.
- (f) Make sure that the water switch end of the ULB has no grease or dirt.
- (g) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

———— **END OF TASK** ————

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TASK 31-31-09-730-808

7. Underwater Locator Beacon Test with a TS500 Test Set

A. General

- (1) This procedure has steps to do a test of the Underwater Locator Beacon (ULB) with a TS500 Test Set.

NOTE: TS500 can do a test for all ULBs.

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-19623	Test Set - TS500, Underwater Locator Beacon (ULB) Part #: TS500 Supplier: 94970

C. Procedure

SUBTASK 31-31-09-730-008

- (1) Testing for the ULB battery voltage:
- Attach the test probe clip of the TS500 underwater locator beacon test set, COM-19623 to the beacon in its mount.
 - Put the tip of the probe on the silver pad of the water switch at the end of the beacon.
 - The LCD display will show the battery voltage of the beacon.
 - Refer to the ULB label for the minimum permitted range of the beacon battery voltage:
 - Code: F - 2.97 Volts
 - P/N: DK290 - 2.75 Volts
- (2) Testing for the operation of the ULB:
- Keep the probes connected to the ULB.

NOTE: The test set display will remain blank during this test.
 - Push the red button on the TS500 underwater locator beacon test set, COM-19623.
 - The beacon starts and you hear a pinging noise from the TS500 underwater locator beacon test set, COM-19623.
 - The TS500 underwater locator beacon test set, COM-19623 LED indicator will light up red every time the ULB pings.
 - Remove the test probe clip of the TS500 underwater locator beacon test set, COM-19623.
- (3) If voltage or operation test does not pass, replace the ULB if necessary.
- Make sure that the water switch end of the ULB has no grease or dirt.
 - If necessary, do the steps that follow:
 - Clean the switch with water and detergent.
 - Dry the switch with a clean cloth.

————— END OF TASK —————

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TASK 31-31-09-710-801

8. Underwater Locator Beacon Operational Test with a TS500 Test Set

A. General

- (1) This procedure has steps to do the operational test of the Underwater Locator Beacon (ULB) with a TS500 Test Set.

B. References

Reference	Title
31-31-09-000-801	Underwater Locator Beacon Removal (P/B 401)
31-31-09-400-801	Underwater Locator Beacon 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-19623	Test Set - TS500, Underwater Locator Beacon (ULB) Part #: TS500 Supplier: 94970

D. Prepare for the ULB Operation Test

SUBTASK 31-31-09-020-008

- (1) If it is necessary, remove the ULB (TASK 31-31-09-000-801).

SUBTASK 31-31-09-480-001

- (2) Set the TS500 underwater locator beacon test set, COM-19623, power switch to ON.

E. ULB Operation Test

SUBTASK 31-31-09-710-001

- (1) Do the operational test of the ULB:
- (a) Hold the TS500 underwater locator beacon test set, COM-19623, test probes onto the ULB water switch caps.
NOTE: The polarity is shown on the ULB label.
 - (b) Push the red button on the TS500 underwater locator beacon test set, COM-19623.
NOTE: The test set display will remain blank during this test.
 - 1) Make sure that you hear the beep from the TS500 underwater locator beacon test set, COM-19623.
NOTE: The test set red LED indicator will come on with every beep.
 - (c) Remove the test probes.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-09-080-001

- (1) Set the TS500 underwater locator beacon test set, COM-19623, power switch to OFF.

SUBTASK 31-31-09-420-008

- (2) If removed, install the ULB (TASK 31-31-09-400-801).

————— END OF TASK —————

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TASK 31-31-09-720-801

9. Underwater Locator Beacon Voltage Test with a TS500 Test Set

A. General

- (1) This procedure has steps to do the voltage test of the Underwater Locator Beacon (ULB) with a TS500 Test Set.

B. References

Reference	Title
31-31-09-000-801	Underwater Locator Beacon Removal (P/B 401)
31-31-09-400-801	Underwater Locator Beacon 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-19623	Test Set - TS500, Underwater Locator Beacon (ULB) Part #: TS500 Supplier: 94970

D. Prepare for the ULB Voltage Test

SUBTASK 31-31-09-020-009

- (1) If it is necessary, remove the ULB (TASK 31-31-09-000-801).

SUBTASK 31-31-09-480-002

- (2) Set the TS500 underwater locator beacon test set, COM-19623, power switch to ON.

E. ULB Voltage Test

SUBTASK 31-31-09-720-001

- (1) Do the voltage test of the ULB:

- (a) Refer to the ULB label to get the minimum required voltage:

- 1) Code: F - 2.97 Volts
- 2) P/N: DK290 - 2.75 Volts

- (b) Hold the TS500 underwater locator beacon test set, COM-19623, test probes onto the ULB water switch caps.

NOTE: The polarity is shown on the ULB label.

- 1) Make sure that the voltage shown on the TS500 underwater locator beacon test set, COM-19623, display is not below the minimum requirement.

- (c) Remove the test probes.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-09-080-002

- (1) Set the TS500 underwater locator beacon test set, COM-19623, power switch to OFF.

SUBTASK 31-31-09-420-009

- (2) If removed, install the ULB (TASK 31-31-09-400-801).

————— END OF TASK —————

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UNDERWATER LOCATOR BEACON - CLEANING/PAINTING

1. General

- A. This procedure has the task to clean the underwater locator beacon.

TASK 31-31-09-100-801

2. Underwater Locator Beacon Cleaning

A. **General**

- (1) This procedure has steps to clean the Underwater Locator Beacon (ULB).

B. **References**

Reference	Title
31-31-09-000-801	Underwater Locator Beacon Removal (P/B 401)
31-31-09-400-801	Underwater Locator Beacon Installation (P/B 401)

C. **Prepare to clean the ULB**

SUBTASK 31-31-09-020-007

- (1) If it is necessary, remove the ULB (TASK 31-31-09-000-801).

D. **Clean the ULB**

SUBTASK 31-31-09-100-001

- (1) Clean the ULB switch caps as follows:
- (a) Clean the switch caps with a soft cloth with water and detergent.
 - (b) Dry the switch caps with a clean cloth.
 - (c) Make sure that the switch caps do not have grease or dirt.

E. **Put the Airplane Back to Its Usual Condition**

SUBTASK 31-31-09-420-007

- (1) If removed, install the ULB (TASK 31-31-09-400-801).

———— **END OF TASK** ————

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FLIGHT DATA RECORDER (FDR) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the flight data recorder.
 - (2) An installation of the flight data recorder.
- B. The flight data recorder is in the aft cabin overhead.

TASK 31-31-11-000-801

2. Flight Data Recorder Removal

(Figure 401)

A. **References**

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 401)
31-31-09-000-801	Underwater Locator Beacon Removal (P/B 401)

B. **Tools/Equipment**

Reference	Description
STD-1048	Stepladder - 6 foot (1.83m)

C. **Location Zones**

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. **Removal Procedure**

SUBTASK 31-31-11-860-001

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-11-010-001

- (2) To get access to the flight data recorder [1] in the aft cabin overhead, open the hinged ceiling panel.

SUBTASK 31-31-11-800-001

- (3) Use a 6 foot (1.83m) stepladder, STD-1048 to access the flight data recorder [1].

SUBTASK 31-31-11-020-001

 CAUTION	DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.
---	--

- (4) To remove the flight data recorder [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

SUBTASK 31-31-11-020-002

- (5) If the recorder [1] will be repaired or replaced, do this task: Underwater Locator Beacon Removal, TASK 31-31-09-000-801.

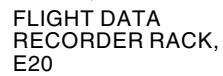
———— **END OF TASK** ————

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A

HINGED CEILING
PANEL

AFT LEFT
ENTRY DOOR

[1] RECORDER



FLIGHT DATA RECORDER RACK, E20

A

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Flight Data Recorder Installation

Figure 401/31-31-11-990-801

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TASK 31-31-11-400-801

3. Flight Data Recorder Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 401)
31-31-09-400-801	Underwater Locator Beacon Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Recorder	31-31-11-09-075	SIA ALL

D. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Installation Procedure

SUBTASK 31-31-11-010-002

- (1) Make sure that the hinged ceiling panel is open.

SUBTASK 31-31-11-860-002

- (2) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-11-420-001

- (3) If removed, install the Underwater Locator Beacon (ULB) to the recorder [1], do this task: Underwater Locator Beacon Installation, TASK 31-31-09-400-801.

SUBTASK 31-31-11-420-002



CAUTION

DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (4) To install the flight data recorder [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 31-31-11-410-001

- (5) Prior to closing ceiling panel, make sure that all foreign objects in the compartment have been removed and clean the ceiling panel and surrounding area to remove any dirt or adhesive residue using Isopropyl alcohol, B00130.

SUBTASK 31-31-11-410-002

- (6) Close the hinged ceiling panel.

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F. Installation Test

SUBTASK 31-31-11-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

NOTE: There can be a delay approximately from 90 seconds and up to 5 minutes before it becomes available to conduct the installation test after circuit breakers closure.

SUBTASK 31-31-11-740-001

- (2) Do this test of the flight data recorder [1]:
- (a) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5, to the TEST position.
 - 1) Make sure the FLIGHT RECORDER OFF light goes OFF.
 - (b) Put the TEST-NORMAL switch on the flight recorder panel, P5, to the NORMAL position.
 - 1) Make sure that the FLIGHT RECORDER OFF light comes ON.

———— **END OF TASK** ————

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FLIGHT RECORDER/MACH AIRSPEED WARNING TEST MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the flight recorder/mach airspeed warning test module.
- (2) An installation of the flight recorder/mach airspeed warning test module.

B. The flight recorder/mach airspeed warning test module is installed on the P5, aft overhead panel.

TASK 31-31-12-000-801

2. Flight Recorder/Mach Airspeed Warning Test Module Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
-------------	-------------

211	Flight Compartment - Left
-----	---------------------------

B. Flight Recorder/Mach Airspeed Warning Test Module Removal

SUBTASK 31-31-12-860-001

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4

SUBTASK 31-31-12-020-001

- (2) Loosen the quarter-turn fasteners [3] on the flight recorder/mach airspeed warning test module [1].

SUBTASK 31-31-12-010-001

- (3) Remove the flight recorder/mach airspeed warning test module [1] from the P5, aft overhead panel.

SUBTASK 31-31-12-020-002

- (4) Disconnect the electrical connector [2] from the rear of the flight recorder/mach airspeed warning test module [1].

————— **END OF TASK** —————

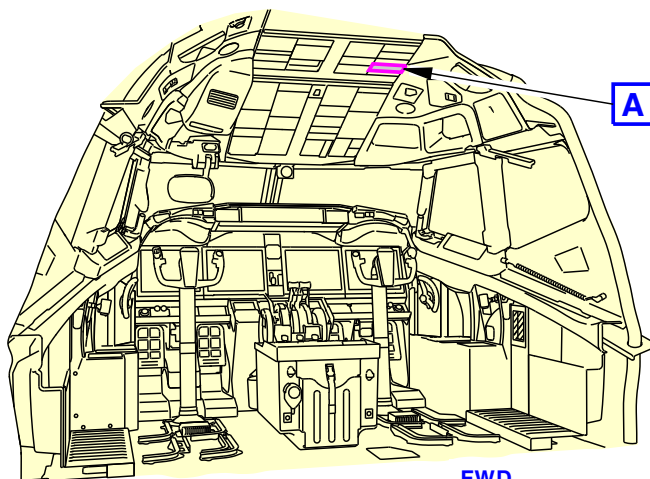
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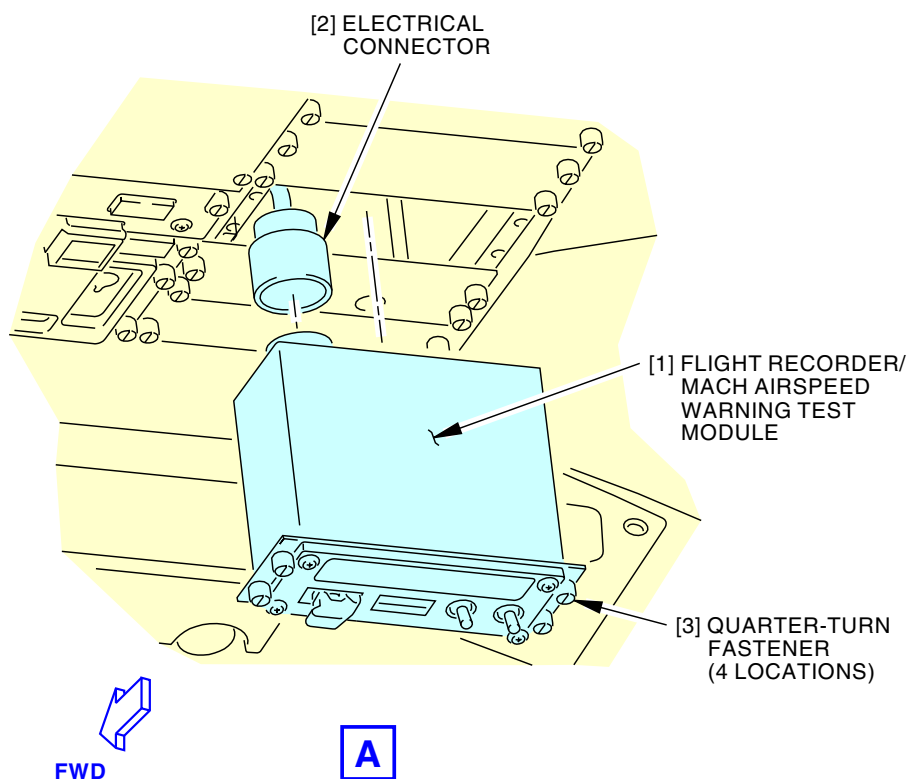
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FLIGHT COMPARTMENT



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Flight Recorder/Mach Airspeed Warning Test Module Installation
Figure 401/31-31-12-990-801

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TASK 31-31-12-400-801

3. **Flight Recorder/Mach Airspeed Warning Test Module Installation**

(Figure 401)

A. **References**

Reference	Title
24-22-00-860-801	Supply Electrical Power (P/B 201)
34-16-00-730-801	Mach Airspeed Warning System - Aural Warning Discrete Output Test (P/B 501)

B. **Location Zones**

Zone	Area
211	Flight Compartment - Left

C. **Flight Recorder/Mach Airspeed Warning Test Module Installation**

SUBTASK 31-31-12-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4

SUBTASK 31-31-12-420-001

- (2) Connect the electrical connector [2] to the rear of the flight recorder/mach airspeed warning test module [1].

SUBTASK 31-31-12-410-001

- (3) Install the flight recorder/mach airspeed warning test module [1] into the P5, aft overhead panel.

SUBTASK 31-31-12-420-002

- (4) Tighten the quarter-turn fasteners [3] on the flight recorder/mach airspeed warning test module [1].

SUBTASK 31-31-12-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4

D. **Flight Recorder/Mach Airspeed Warning Test Module Installation Test**

SUBTASK 31-31-12-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

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SUBTASK 31-31-12-710-001

- (2) Do this test of the flight recorder/mach airspeed warning test module [1]:
 - (a) Put the TEST-NORMAL switch for the flight data recorder to the TEST position.
 - 1) Make sure that the flight recorder OFF light is off.
 - (b) Put the TEST-NORMAL switch for the flight data recorder to the NORMAL position.
 - 1) Make sure that the flight recorder OFF light is on.

SUBTASK 31-31-12-730-001

- (3) Do this task: Mach Airspeed Warning System - Aural Warning Discrete Output Test, TASK 34-16-00-730-801.

———— **END OF TASK** ————

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DIGITAL FLIGHT DATA ACQUISITION UNIT (DFDAU) - MAINTENANCE PRACTICES

1. General

A. This procedure contains these tasks:

- (1) A software configuration check of the Digital Flight Data Acquisition Unit (DFDAU).
- (2) A software installation of the DFDAU.
- (3) A task to download of the maintenance data from the DFDAU to the CFast Card.
- (4) Quick Access Recorder (QAR) Airplane Condition And Monitoring System (ACMS) Data Output From Onboard Network System (ONS) - DFDAU.
- (5) QAR to ONS Interface Check - DFDAU.
- (6) A task to configure the ACMS ACARS reports for automatic downlink.
- (7) A task to activate the Digital ACMS Recorder (DAR) 717.
- (8) A task to configure the ACMS reports function.
- (9) A task to use the DFDAU for input monitoring with Digital Information Transfer System (DITS) or Mnemonics.

TASK 31-31-22-470-801

2. Digital Flight Data Acquisition Unit (DFDAU) Software Configuration Check

A. **General**

- (1) This task does a check of the software configuration installed in the Digital Flight Data Acquisition Unit (DFDAU).
- (2) The airplane must be on the ground with the engines shutdown before you can do the software configuration check.

B. **References**

Reference	Title
46-13-00-860-803	Client Credentials Check (P/B 201)

C. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
212	Flight Compartment - Right

D. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

E. **Procedure**

SUBTASK 31-31-22-860-021

- (1) If a new DFDAU was installed, generate a new Client Credential for the DFDAU so that it can communicate with the Network File Server (NFS).
 - (a) Do this task: Client Credentials Check, TASK 46-13-00-860-803

SUBTASK 31-31-22-970-001

- (2) If necessary, check the software default units and change it.
 - (a) Press the MENU function key on the CDU.
 - (b) Select the ACMS Line Select Key (LSK).
 - (c) Select the CONFIGURATION LSK.

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- (d) Select INITIALIZATION LSK.
- (e) Select UNIT CONVERSION LSK.
- (f) Ensure that CURRENT UNITS lists the desired units (metric or standard).
 - 1) If desired units are not selected, select Right LSK [R3] for YES>.
 - 2) Ensure desired units are now displayed under CURRENT UNITS.

SUBTASK 31-31-22-410-001

- (3) Do these steps for the software configuration check:

NOTE: Loaded software varies with option selections. Optionally installed parts are ACMS AHM DB's, ACMS SERV ENGR and ACMS OPERATOR. If no software part is loaded in the database slot, a XXXXX-XXXX-XXXX will appear in place of the software.

- (a) Make sure that you know the correct software part numbers for the DFDAU. For the DFDAU to be an approved installation, the correct software part number must be installed.

- (b) Do either step (c) or (d) below to do the software check.

- (c) Do the software check with the CDU:

- 1) Push the MENU function key on the CDU.
- 2) Select the ACMS Line Select Key (LSK).
- 3) Select the CONFIGURATION LSK.
- 4) Select SOFTWARE LSK.
- 5) Make sure that the following software part numbers are correct:

NOTE: Use the NEXT PAGE key for more part number checks.

NOTE: For DB parts, a NG and a MAX part number may be installed. An asterisk will be displayed after the software part number of the active database.

NOTE: If no software part is loaded in the database slot, a XXXXX-XXXX-XXXX will appear in place of the software part number.

- OPTION SELECTION S/W
- MANDATORY OPS, AVIONICS DATA STREAM OPS, and ACMS OPS
- MANDATORY DB
- ACMS BASELINE DB, ACMS DAR AMI, and ACMS AHM DB
- ACMS SERV ENGR and ACMS OPERATOR
- Check the remaining software parts.
 - a) If the software part numbers do not match, software installation is required.
 - <1> Do the Digital Flight Data Acquisition Unit (DFDAU) Software Installation, TASK 31-31-22-470-802.
 - b) If the software part numbers match, then continue.

- (d) Do the software check with the DFDAU:

- 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

- 2) Push the ON/OFF button on the DFDAU to turn on the display.

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- 3) Select the MAIN MENU? using the UP/DOWN Arrow Buttons.

NOTE: The YES key displays results for the ? (highlighted menu).

The NO key goes down to the next option (?) in the menu.

NOTE: The UP/DOWN arrows may need to be used to scroll through the loaded software parts list.

- 4) Select OTHER FUNCTIONS?

- 5) Go to the DFDAU CONFIGURATION screen.

- 6) Make sure that the following software part numbers are correct if installed:

NOTE: For DB parts, a NG and a MAX part number may be installed. An asterisk will be displayed after the software part number of the active database.

- OPTION SELECTION S/W (ACMS OSS)
- MAND OPS, ADS OPS, and ACMS OPS
- MANDATORY DB
- MAX BASE, MAX DAR, and MAX AHM
- MAX SERV ENGR, MAX OPER and ACMS OSS
- Check the remaining software parts.

- a) If the software part numbers do not match, software installation is required.

<1> Do the Digital Flight Data Acquisition Unit (DFDAU) Software Installation, TASK 31-31-22-470-802.

- b) If the software part numbers match, then continue.

SUBTASK 31-31-22-860-040

- (4) Do this task: Airplane Condition and Monitoring System (ACMS) Report Status Configuration, TASK 31-31-22-860-804.

SUBTASK 31-31-22-860-041

- (5) Do this task: Airplane Condition and Monitoring System (ACMS) ACARS Downlink Configuration, TASK 31-31-22-860-801.

SUBTASK 31-31-22-020-001

- (6) Do these step to put the airplane back to its usual condition:

- (7) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

————— END OF TASK —————

TASK 31-31-22-470-802

3. Digital Flight Data Acquisition Unit (DFDAU) Software Installation

A. General

- (1) This task tells you how to install the software in the Digital Flight Data Acquisition Unit (DFDAU) with the Onboard Network System (ONS).
- (2) The DFDAU contains two load targets, DFDAU and Airplane Condition And Monitoring System (ACMS). The software for each DFDAU processor can be loaded independently from the other processor if one processor needs to be loaded. If both processors need to be loaded then they must be loaded in the order that follows:

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- (a) Mandatory DFDAU software
- (b) ACMS software
- (3) The airplane must be on the ground with the engines shutdown before you can do the software installation.

B. References

Reference	Title
46-13-00-470-801	LRU Software Parts Installation (P/B 201)
46-13-00-860-803	Client Credentials Check (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Procedure

SUBTASK 31-31-22-860-022

- (1) Make sure that the engine start levers on the control stand are in the CUTOFF position.

SUBTASK 31-31-22-410-002

- (2) Do the Digital Flight Data Acquisition Unit (DFDAU) Software Configuration Check, TASK 31-31-22-470-801.
 - (a) Make sure that you know the correct software part number for the DFDAU. For the DFDAU to be an approved installation, the correct software part number must be installed.

SUBTASK 31-31-22-860-023

- (3) Do these steps at the Data Loader Control Panel (DLCP), P61:
 - (a) Set the DATA LOAD SELECTOR switch (upper switch) to the C SINGLE SYS position.

SUBTASK 31-31-22-470-001

- (4) If loading the Mandatory DFDAU software do these steps:
 - (a) Set the SYSTEM SELECT switch at the DLCP to the DFDAU position.
 - (b) Do this task: LRU Software Parts Installation, TASK 46-13-00-470-801.
 - 1) Only one part can be loaded at a time, and parts must be loaded in the following order:
 - a) First load MANDATORY OPS
 - b) Second, load AVIONICS DATA STREAM OPS
 - c) Third, load MANDATORY DB.
 - (c) If you load AVIONICS DATA STREAM (ADS) OPS, a new Client Credential needs to be generated so the DFDAU can communicate with the Network File Server (NFS).
 - 1) Do this task after ADS part is loaded: Client Credentials Check, TASK 46-13-00-860-803.

SUBTASK 31-31-22-470-002

- (5) If loading the ACMS software do these steps:
 - (a) Set the SYSTEM SELECT switch at the DLCP to the ACMS position.
 - (b) Do this task: LRU Software Parts Installation, TASK 46-13-00-470-801.
 - 1) Only one part can be loaded at a time, and ACMS OPS must be installed first.
 - 2) The following required parts can be installed in any order:

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- ACMS BASELINE DB
 - ACMS DAR AMI
 - ACMS OSS.
- 3) The following optional parts can be installed in any order:
- AHM DB
 - ACMS SERV ENGR
 - ACMS OPERATOR.

NOTE: Optional parts are based on customer operational requirements.

SUBTASK 31-31-22-970-002

- (6) If necessary, check the software default units and change it.
- (a) Press the MENU function key on the CDU.
 - (b) Select the ACMS Line Select Key (LSK).
 - (c) Select the CONFIGURATION LSK.
 - (d) Select INITIALIZATION LSK.
 - (e) Select UNIT CONVERSION LSK.
 - (f) Ensure that CURRENT UNITS lists the desired units (metric or standard).
 - 1) If desired units are not selected, select Right LSK [R3] for YES>.
 - 2) Ensure desired units are now displayed under CURRENT UNITS.

SUBTASK 31-31-22-860-003

- (7) Set the SYSTEM SELECT switch on the data loader control panel, P61, to NORMAL

SUBTASK 31-31-22-700-002

- (8) Do this task: Digital Flight Data Acquisition Unit (DFDAU) Software Configuration Check, TASK 31-31-22-470-801.

— END OF TASK —

TASK 31-31-22-470-803

4. Maintenance Data Download with the Use of the CFast Card

A. General

- (1) This procedure tells you how to make a copy of the Airplane Condition And Monitoring System (ACMS) data in the Digital Flight Data Acquisition Unit (DFDAU) with a CFast Card.
- (2) The DFDAU automatically sends data to the CFast Card in real time when the DFDAU is in operation. There is no data to be manually downloaded to the card.

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-11321	Device - Universal Maintenance (UMD) Part #: G45004-3 Supplier: 81205 Part #: G45004-31 Supplier: 81205 Opt Part #: G45003-3 Supplier: 81205 Opt Part #: G45004-1 Supplier: 81205

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(Continued)

Reference	Description
STD-14840	Card Reader/Writer - Minimum USB 2.0, 16GB, CFAST

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Procedure

SUBTASK 31-31-22-860-014

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-020-004

- (2) Push the EJECT button at the bottom of the CFast Card slot.

SUBTASK 31-31-22-020-005

- (3) Remove the CFast Card.

SUBTASK 31-31-22-860-005



CAUTION

DO NOT CHANGE THE FILE STRUCTURE ON THE CFAST CARD. IF YOU CHANGE THE FILE STRUCTURE ON THE CFAST CARD, THE DFDAU WILL NOT BE ABLE TO LOCATE THE FILES AND THE RETEST WILL FAIL WHEN YOU RE-INSTALL THE CFAST CARD.

- (4) Do the following steps to copy files from CFast card to the universal maintenance device, SPL-11321:

- (a) Connect CFAST card reader/writer, STD-14840 to the universal maintenance device, SPL-11321.
- (b) Power up the universal maintenance device, SPL-11321 and log in.
- (c) Insert CFast card into the CFAST card reader/writer, STD-14840.
- (d) Open Windows Explorer and access CFast card data files/folders.

NOTE: There five data folders that are in the CFast card that can be copied.

- (e) Copy and paste all five folders of data files to the desired location on the universal maintenance device, SPL-11321.

- 1) Make sure that all the desired files were copied to the universal maintenance device, SPL-11321.

- (f) Exit Windows Explorer and shutoff the universal maintenance device, SPL-11321.

NOTE: Data copied to the universal maintenance device, SPL-11321 can be reviewed for later analysis. An example is the MSG.DAT file, it is the file that contain the flight data. This file can be viewed using Notepad or Notepad++.

- (g) Remove the CFast Card from the CFAST card reader/writer, STD-14840.

SUBTASK 31-31-22-400-001

- (5) Install the CFast Card to the DFDAU.

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SUBTASK 31-31-22-860-007

- (6) If the CFast Card is a first time use, do this task: Installation of a New CFast Card, TASK 31-31-22-470-804.

SUBTASK 31-31-22-860-015

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-710-002

- (8) Do a test of the disk with the CDU:
- (a) Push the MENU key on the CDU.
 - (b) Select the LSK L3 adjacent to the ACMS prompt on the CDU.
 - (c) Select the LSK L2 adjacent to the MAINTENANCE prompt on the CDU.
 - (d) Select the LSK L4 adjacent to the INTERFACE TESTS prompt on the CDU.
 - (e) Select the LSK L4 adjacent to the RECORDER prompt on the CDU.
 - (f) Select the LSK L3 adjacent to the REMOVABLE MEDIA prompt on the CDU.
 - (g) Make sure that INSTALLED shows on line 3.
 - (h) Select the LSK L2 adjacent to the DISK TEST prompt on the CDU.
 - (i) Make sure that PASSED shows on line 5.

————— **END OF TASK** —————

TASK 31-31-22-470-804

5. Installation of a New CFast Card

A. General

- (1) This task tells you how to install a new CFast Card in the Digital Flight Data Acquisition Unit (DFDAU).

B. Procedure

SUBTASK 31-31-22-840-001

- (1) Make sure that the CFast Card is formatted.
- (a) Refer to your DFDAU vendor's instructions on how to format the CFast Card.

SUBTASK 31-31-22-860-032

- (2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-010-002

- (3) Open the access door:
- (a) Rotate the thumbscrew counterclockwise and move the access door down.

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SUBTASK 31-31-22-420-001



MAKE SURE THAT THE CFAST CARD IS IN THE CORRECT DIRECTION WHEN YOU INSERT IT INTO THE SLOT. THE CARD SEATS IN ONLY ONE DIRECTION. THE CARD LABEL CONTAINS ARROWS WHICH WILL SHOW THE CORRECT DIRECTION. IF YOU DO NOT OBEY INSTRUCTIONS, EQUIPMENT DAMAGE CAN OCCUR.

- (4) Put the formatted CFast card into the DFDAU CFast slot.
 - (a) Make sure that the indentations on the edges of the CFast card correctly align with the CFast slot.

SUBTASK 31-31-22-410-005

- (5) Close the access door:
 - (a) Move the access door up and rotate the thumbscrew clockwise.

SUBTASK 31-31-22-860-033

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-710-003

- (7) Do a test of the disk with the CDU:
 - (a) Push the MENU key on the CDU.
 - (b) Select the LSK L3 adjacent to the ACMS prompt on the CDU.
 - (c) Select the LSK L2 adjacent to the MAINTENANCE prompt on the CDU.
 - (d) Select the LSK L4 adjacent to the INTERFACE TESTS prompt on the CDU.
 - (e) Select the LSK L4 adjacent to the RECORDER prompt on the CDU.
 - (f) Select the LSK L3 adjacent to the REMOVABLE MEDIA prompt on the CDU.
 - (g) Make sure INSTALLED shows on line 3.
 - (h) Select the LSK L2 adjacent to the DISK TEST prompt on the CDU.
 - (i) Make sure PASSED shows on line 5.

———— **END OF TASK** ————

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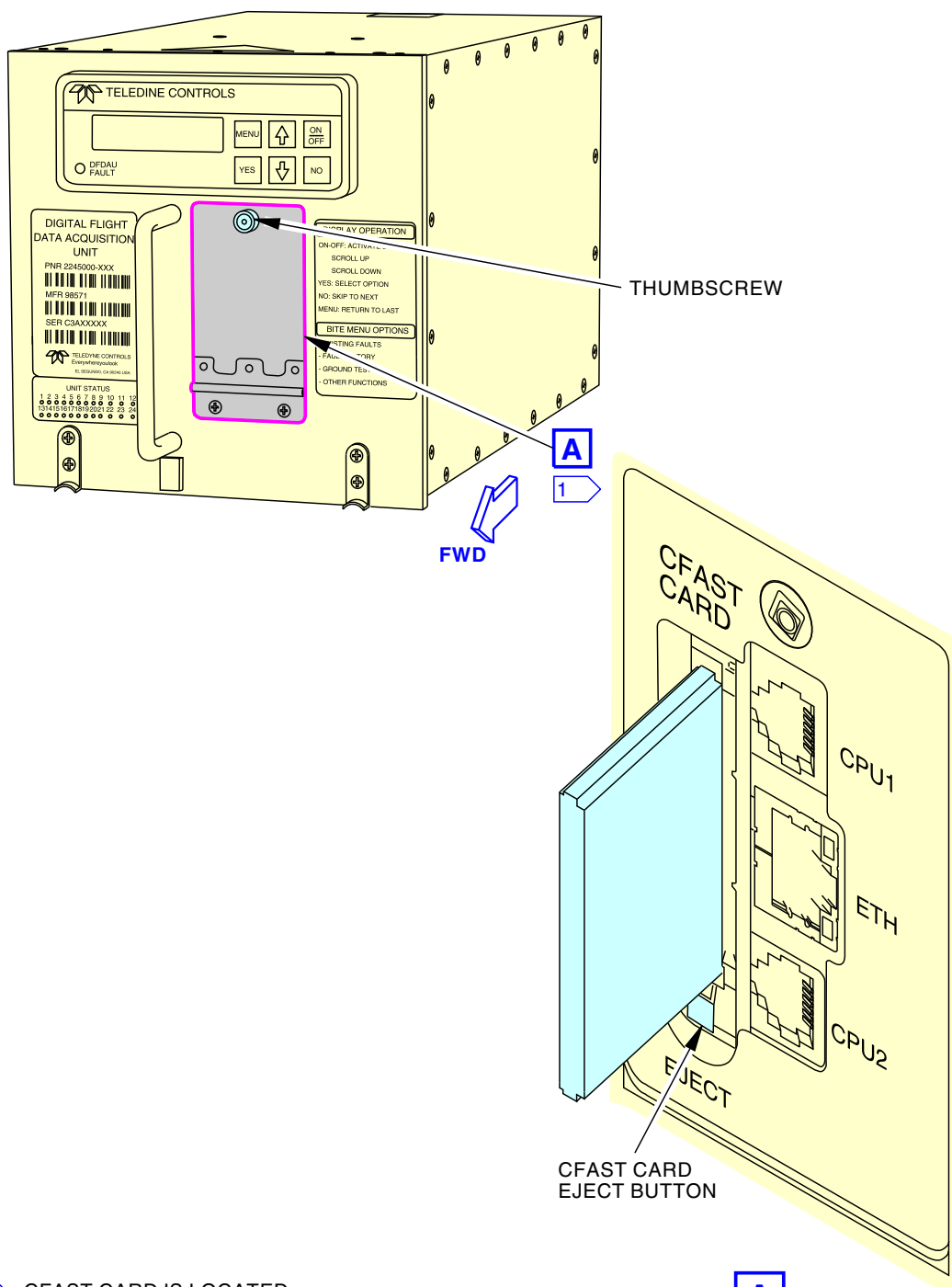
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1 CFAST CARD IS LOCATED
BEHIND THIS ACCESS DOOR.

A

2889569 S0000687505_V1

Installation of a New CFast Card
Figure 201/31-31-22-990-804

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TASK 31-31-22-970-801

6. QAR ACMS Data Output from ONS - DFDAU

A. General

- (1) This procedure gives access to the Network File Server (NFS) Quick Access Recorder (QAR) Airplane Condition And Monitoring System (ACMS) Data files. You can do six tasks as follows:
 - (a) View a record of available ACMS Data files.
 - (b) Make a copy of one or more ACMS Data files to the laptop's internal drive, or removable media.
 - (c) Delete (or, erase) one or more ACMS Data files from the NFS.
 - (d) View a record of available QAR Data files.
 - (e) Make a copy of one or more QAR Data files to the laptop's internal drive, or removable media.
 - (f) Delete (or erase) one or more QAR Data files from the NFS.
- (2) To do this procedure, you will operate the Onboard Network System (ONS) maintenance browser using the universal maintenance device, SPL-11321.
- (3) To do this procedure, the weight-on-wheels discrete must be in the ground condition.

B. References

Reference	Title
46-13-00-480-801	Maintenance Laptop Connection (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-11321	Device - Universal Maintenance (UMD) Part #: G45004-3 Supplier: 81205 Part #: G45004-31 Supplier: 81205 Opt Part #: G45003-3 Supplier: 81205 Opt Part #: G45004-1 Supplier: 81205

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Before ACMS and/or QAR Data File Output Procedure

SUBTASK 31-31-22-480-001

- (1) Do this task: (Maintenance Laptop Connection, TASK 46-13-00-480-801).
 - (a) Using the universal maintenance device, SPL-11321, activate the ONS maintenance browser.

F. ACMS Data File Output Procedure

SUBTASK 31-31-22-860-016

- (1) Set the ONS maintenance browser to show the NFS ACMS page:
 - (a) Make your selection: LINE MAINTENANCE > DOWNLOAD MANAGER.
 - (b) Make sure the FILTERS tab shows green in color.

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- (c) Under the Filter by Application and File Type heading, make your selection:
 - 1) Click once on the desired file types:
 - ACMS:printReady
 - 2) Click once on the FILES button below the page header or on the CONTINUE button at the lower right of the page.

SUBTASK 31-31-22-860-017

- (2) Do this step to get the current ACMS Data files:
 - (a) Make your selection: FILE TYPE, in the Filtered Files header to select all files.
NOTE: GET CURRENT at the lower left of page shows in white if enabled.

SUBTASK 31-31-22-860-018

- (3) Select and transfer the applicable ACMS Data files to a portable maintenance device. These are the steps:
 - (a) Click once on the check box adjacent to your target ACMS Data file.
 - 1) You can select one, some, or all of the log files to transfer at one time.
 - (b) Make your selection: REPORT using the icon in the lower right corner.
 - 1) A pop-up box shows with the words REPORT, and Select Destination.
 - (c) Click once on the radio button adjacent to Portable Maintenance Device.
 - (d) Make your selection: SEND.
 - 1) The system shows your browser's file navigation window.
 - (e) Save the ACMS Data files to a directory on the portable maintenance device, or external media.
 - (f) When COMPLETED shows, make your selection: CLOSE to return to the application screen.

SUBTASK 31-31-22-070-001

- (4) To erase ACMS Data file(s) from the NFS, do the steps that follow:
 - (a) Click once on the check box adjacent to your target file.
 - 1) You can select one, some, or all of the ACMS data files to erase at one time.
 - 2) The FILE TYPE selection adds, or removes the check marks for all files shown.
 - (b) Make your selection: DELETE using the icon in the lower right corner.
 - 1) A confirmation box shows.
 - (c) Make your selection: CONTINUE to delete the file(s).
 - (d) When the action completes, the files list updates and deleted file(s) are removed from the list.

G. QAR Data File Output Procedure

SUBTASK 31-31-22-860-027

- (1) Set the ONS maintenance browser to show the NFS ACMS page:
 - (a) Make your selection: LINE MAINTENANCE > DOWNLOAD MANAGER.
 - (b) Make sure the FILTERS tab shows green in color.
 - (c) Under the Filter by Application and File Type heading, make your selection:
 - 1) Click once on the desired file types:
 - ADR.QAR

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- 2) Click once on the FILES button below the page header or on the CONTINUE button at the lower right of the page.

SUBTASK 31-31-22-860-028

- (2) Do this step to get the current QAR Data files:
 - (a) Make your selection: FILE TYPE, in the Filtered Files header to select all files.
NOTE: GET CURRENT at the lower left of page shows in white if enabled.

SUBTASK 31-31-22-860-029

- (3) Select and transfer the applicable QAR Data files to a portable maintenance device. These are the steps:
 - (a) Click once on the check box adjacent to your target QAR Data file.
 - 1) You can select one, some, or all of the log files to transfer at one time.
 - (b) Make your selection: REPORT using the icon in the lower right corner.
 - 1) A pop-up box shows with the words REPORT, and Select Destination.
 - (c) Click once on the radio button adjacent to Portable Maintenance Device.
 - (d) Make your selection: SEND.
 - 1) The system shows your browser's file navigation window.
 - (e) Save the QAR Data files to a directory on the portable maintenance device, or external media.
 - (f) When COMPLETED shows, make your selection: CLOSE to return to the application screen.

SUBTASK 31-31-22-070-002

- (4) To erase QAR Data file(s) from the NFS, do the steps that follow:
 - (a) Click once on the check box adjacent to your target file.
 - 1) You can select one, some, or all of the QAR data files to erase at one time.
 - 2) The FILE TYPE selection adds, or removes the check marks for all files shown.
 - (b) Make your selection: DELETE using the icon in the lower right corner.
 - 1) A confirmation box shows.
 - (c) Make your selection: CONTINUE to delete the file(s).
 - (d) When the action completes, the files list updates and deleted file(s) are removed from the list.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-22-080-002

- (1) If the universal maintenance device, SPL-11321 is no longer required, stop the ONS maintenance browser, and disconnect the laptop.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

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TASK 31-31-22-700-801

7. QAR to ONS Interface Check

A. General

- (1) This task gives the steps to make sure that the interface between the Quick Access Recorder (QAR) and the Onboard Network System (ONS) is serviceable.
 - (a) This check will verify the connection between the Digital Flight Data Acquisition Unit (DFDAU) ARINC 717 and the Network File Server (NFS).

B. References

Reference	Title
46-13-00-710-801	Input Monitoring Check (P/B 201)

C. QAR to ONS Interface Test Procedure

SUBTASK 31-31-22-860-019

- (1) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-5

Row	Col	Number	Name
C	1	C01958	NETWORK FILE SERVER

SUBTASK 31-31-22-700-001

- (2) Do a check of the input monitor for NFS 717 RECEIVE BUS 1 (Input Monitoring Check, TASK 46-13-00-710-801).
 - (a) Make sure that the condition for the bus shows as ACTIVE.

NOTE: Wait for a maximum of 60 seconds to monitor changes in the link condition.

D. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-22-080-003

- (1) Exit the ONS browser, and disconnect the maintenance laptop, if not necessary for a different task.

————— **END OF TASK** —————

TASK 31-31-22-860-801

8. Airplane Condition and Monitoring System (ACMS) ACARS Downlink Configuration

A. General

- (1) This task configures the airplane to enable/disable automatic Aircraft Communications Addressing And Reporting System (ACARS) downlink of the Airplane Condition And Monitoring System (ACMS) reports.
- (2) This task is only effective for ACMS reports that transfer on ACARS.

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Airplane Condition and Monitoring System (ACMS) ACARS Downlink Configuration

SUBTASK 31-31-22-820-001

- (1) Push the MENU key on the Control Display Unit (CDU).
- (2) Push the ACMS Line Select Key (LSK).
- (3) Push the REPROGRAM LSK.

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(4) Push the REPORT DOWNLINK STATUS LSK.

(a) RPT DOWNLINKS page is displayed on CDU.

NOTE: Lines 2, 4, 6, 8, and 10 display report name and number of flights remaining (for automatic down link) of all ACMS reports contained in all four ACMS report Loadable Software Airplane Parts (LSAP) (if installed), in alphabetical order by report name.

NOTE: If automatic downlink of the report is disabled, the number of flights field will display "0".

NOTE: Lines 3, 5, 7, 9, and 11 display the application code in which the report is hosted:

- B - Boeing Baseline
- A - AHM
- O - Operator
- S - Service Engineering

(5) Push appropriate left LSK ([L1], [L2], [L3], [L4], or [L5]) to enable automatic downlinks of the selected report.

NOTE: Setting to AUTO will automatically downlink ACMS report.

NOTE: The number of flights for automatic downlink for each enables report will be updated to ALL.

(6) Push [R1], [R2], [R3], [R4], or [R5] to disable automatic downlinks of the selected report.

NOTE: The "number of flights remaining" field in the preceding line will be updated to "0".

(7) Push NEXT PAGE or PREVIOUS PAGE to scroll though the ACMS report pages.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

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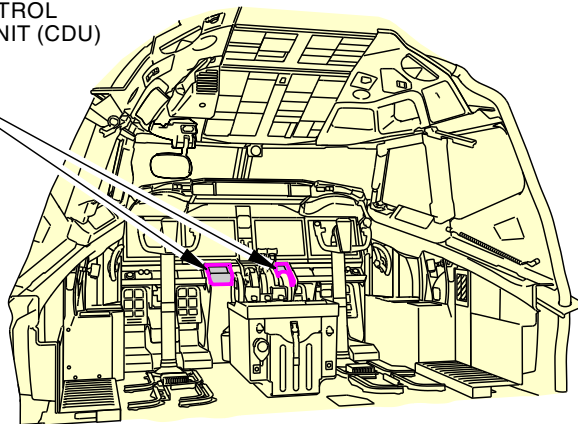
31-31-22

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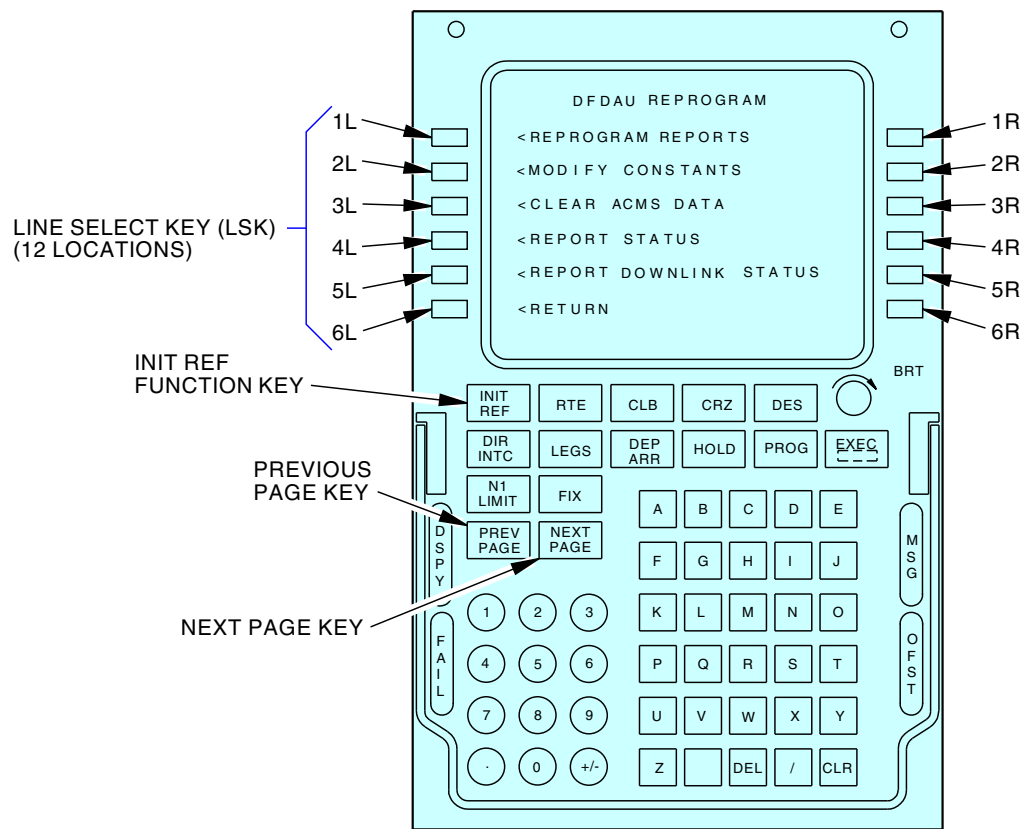
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FMCS CONTROL
DISPLAY UNIT (CDU)

A



FLIGHT COMPARTMENT



FMCS CONTROL DISPLAY UNIT (CDU)
(EXAMPLE)

A

2967779 S0000747180_V1

Flight Management Computer (FMC)/Control Display Unit (CDU)
Figure 202/31-31-22-990-802

EFFECTIVITY
SIA ALL

D633AM101-SIA

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TASK 31-31-22-860-802

9. Digital ACMS Recorder (DAR) 717 Activation

Figure 203

A. General

- (1) This following procedure temporarily turns on the Digital ACMS Recorder (DAR) 717 function of the Digital Flight Data Acquisition Unit (DFDAU) using the Control Display Unit (CDU).
- (2) This procedure is used to avoid running the engine to turn on the DAR 717.

B. Location Zones

Zone	Area
------	------

211	Flight Compartment - Left
-----	---------------------------

C. Procedure

SUBTASK 31-31-22-440-001

- (1) Make these selections on the Captain's CDU.
 - (a) Push the MENU button.
 - (b) Select Line Select Key (LSK) adjacent to ACMS.
 - (c) Select LSK adjacent to MAINTENANCE.
 - (d) Select LSK adjacent to INTERFACE TESTS.
 - (e) Select LSK adjacent to RECORDERS.
 - (f) Select LSK adjacent to CONFIGURE DAR OUTPUT.
 - (g) Select LSK adjacent to ON to turn on the DAR output.
 - 1) Make sure that DAR OUTPUT status is ON.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

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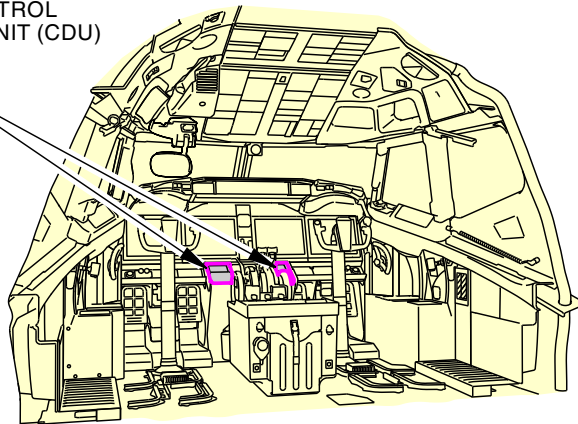
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FMCS CONTROL
DISPLAY UNIT (CDU)

A



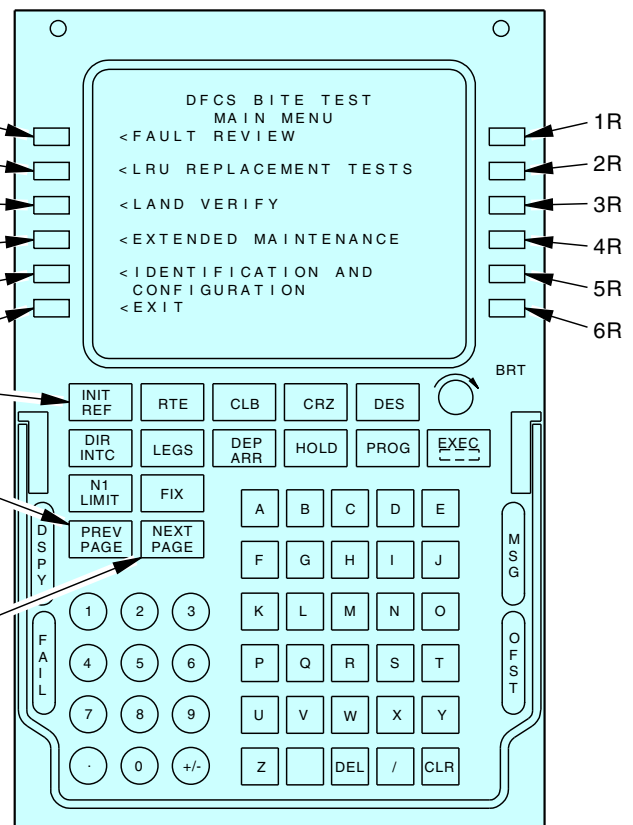
FLIGHT COMPARTMENT

LINE SELECT KEY (LSK)
(12 LOCATIONS)

INIT REF
FUNCTION KEY

PREVIOUS
PAGE KEY

NEXT PAGE KEY



FMCS CONTROL DISPLAY UNIT (CDU)

A

2411549 S00061528183_V2

Flight Management Computer (FMC)/Control Display Unit (CDU)
Figure 203/31-31-22-990-803

EFFECTIVITY
SIA ALL

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TASK 31-31-22-860-804

10. Airplane Condition and Monitoring System (ACMS) Report Status Configuration

(Figure 204)

A. General

- (1) This task configures airplane to enable/disable reports generation in the Airplane Condition And Monitoring System (ACMS).

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Procedure

SUBTASK 31-31-22-860-034

- (1) Do these steps to get access to the ACMS REPORT STATUS menu.

- (a) Push the MENU key on the Control Display Unit (CDU).
- (b) Push the <ACMS Line Select Key (LSK).
- (c) Push the <REPROGRAM LSK.
- (d) Push the <REPORT STATUS LSK.

- 1) Make sure that the ACMS REPORT STATUS page shows on the CDU.

NOTE: Lines 2, 4, 6, 8, and 10 display report name and number of flights remaining of all ACMS reports contained in all four ACMS report LSAPs (if installed), in alphabetical order by report name. If the report is disabled, the number of flights field will display "0".

NOTE: Lines 3, 5, 7, 9, and 11 display the application code in which the report is hosted (B - Boeing Baseline, A - AHM, O - Operator, S - Service Engineering)

SUBTASK 31-31-22-860-037

- (2) Do this step to enable reports:

- (a) Enter the number of flights (NNN format or "ALL") and select [L1], [L2], [L3], [L4], or [L5] to enable the selected report for that number of flight legs.

NOTE: The "number of flights remaining" field in the preceding line will be updated accordingly.

NOTE: If no number is entered and the [LSK] is selected, the default will be "ALL" flight legs.

SUBTASK 31-31-22-860-038

- (3) Do this step to disable reports:

- (a) Select [R1], [R2], [R3], [R4], or [R5] to disable the selected report.

NOTE: The "number of flights remaining" field in the preceding line will be updated to "0".

SUBTASK 31-31-22-860-039

- (4) Press NEXT PAGE or PREVIOUS PAGE to scroll though the ACMS report pages.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

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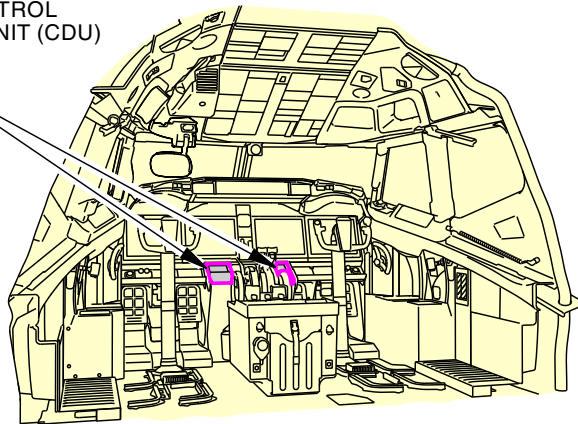
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FMCS CONTROL
DISPLAY UNIT (CDU)

A



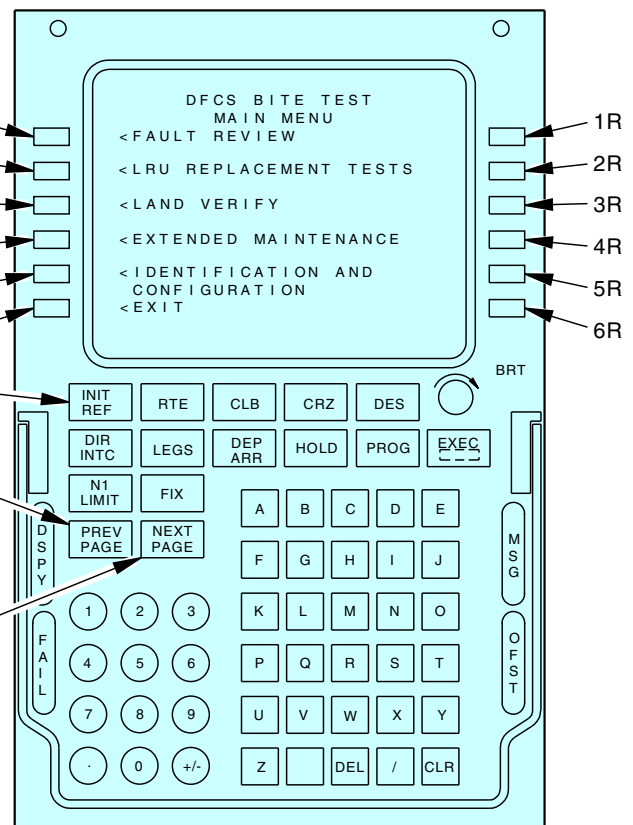
FLIGHT COMPARTMENT

LINE SELECT KEY (LSK)
(12 LOCATIONS)

INIT REF
FUNCTION KEY

PREVIOUS
PAGE KEY

NEXT PAGE KEY



FMCS CONTROL DISPLAY UNIT (CDU)

A

2411549 S00061528183_V2

Flight Management Computer Control Display Unit
Figure 204/31-31-22-990-805

EFFECTIVITY
SIA ALL

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TASK 31-31-22-970-802

11. DFDAU Input Monitoring Maintenance Practices with DITS or Mnemonics

A. General

- (1) A task to use the Digital Flight Data Acquisition Unit (DFDAU) for input monitoring with Digital Information Transfer System (DITS) or Mnemonics.
- (2) For DITS the labels, Source Destination Identifier (SDI) and bit definitions are contained in the Interconnect document for that Line Replaceable Unit (LRU). The label and bit definitions are necessary for this task. If necessary, speak to your engineering department for specific information.

B. Location Zones

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

C. Procedures for DITS

SUBTASK 31-31-22-970-003

- (1) Do these steps on the Multifunction Control Display Unit (MCDU) for input monitoring.
 - (a) Select the MENU key on the Control Display Unit (CDU).
 - (b) Select the <ACMS line select key.
 - (c) Select the <DISPLAY DATA line select key.
 - (d) Select the <DISP line select key adjacent to DITS.

NOTE: XXX is the DFDAU port number.

YYY is the label for the bus.

ZZ is the SDI (01 is sys 1, 10 is sys 2 and 11 is sys 3 or center).

F is the Format of the data (B is Binary and H is Hex).

Example 066/271/01/B. This example is to request data from port 66, label 271, SDI 01, Binary format.

- (e) Put the information in the scratchpad in this format XXX/YYY/ZZ/F.
- (f) Push an active line select key.

NOTE: The data can show in real time, or you can PRINT> line select key.

D. Procedures for Mnemonics

SUBTASK 31-31-22-970-004

- (1) Do these steps on the MCDU to monitor inputs.
 - (a) Select the MENU key on the CDU.
 - (b) Select the <ACMS line select key.
 - (c) Select the <DISPLAY DATA line select key.
 - (d) Select the <DISP line select key adjacent to MNEMONIC.

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- (e) Put the MNEMONIC name into the scratchpad and push an active line select key.

NOTE: The data will then be displayed in engineering units such as knots or PSI. For example if you enter TAT.L for the Mnemonic, total air temperature will show in degrees.

NOTE: The Mnemonics are programmed in the ACMS database and can change based on customization of the database.

———— **END OF TASK** ————

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DIGITAL FLIGHT DATA ACQUISITION UNIT (DFDAU) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of the DFDAU.
 - (2) Installation of the DFDAU.
- B. The DFDAU is installed in the E3 electronics equipment rack, shelf No. 2, in the main equipment center.

TASK 31-31-22-000-801

2. Digital Flight Data Acquisition Unit (DFDAU) Removal

(Figure 401)

A. **References**

<u>Reference</u>	<u>Title</u>
20-10-07-000-801	E/E Box Removal (P/B 401)

B. **Location Zones**

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left

C. **Access Panels**

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

D. **DFDAU Removal**

SUBTASK 31-31-22-860-009

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-010-001

- (2) Open this access door:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 31-31-22-000-001

- (3) Remove the CFast card from the Digital Flight Data Acquisition Unit (DFDAU), if one is installed.

SUBTASK 31-31-22-000-002



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (4) Remove the DFDAU [1] (TASK 20-10-07-000-801).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

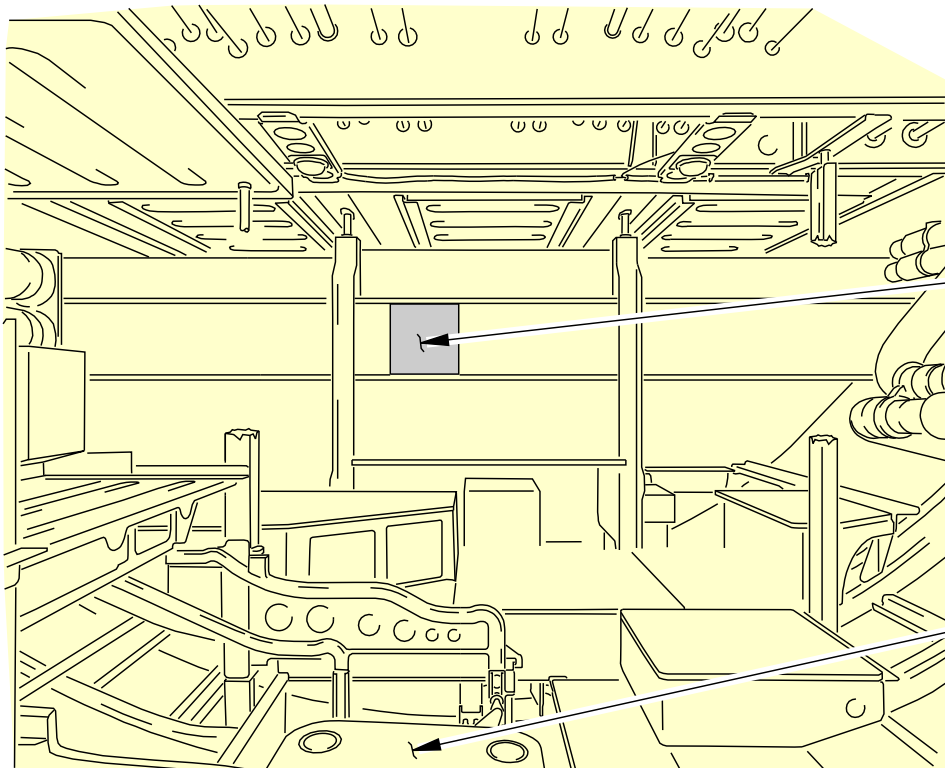
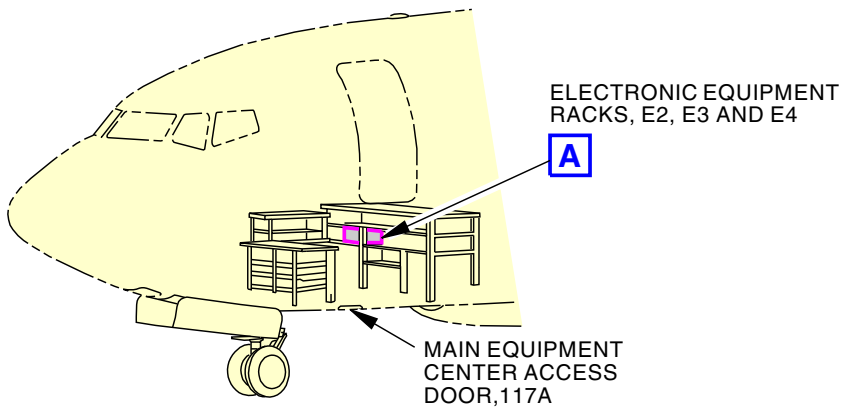
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ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4

A



2413959 S00061533978_V4

Digital Flight Data Acquisition Unit Installation
Figure 401/31-31-22-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

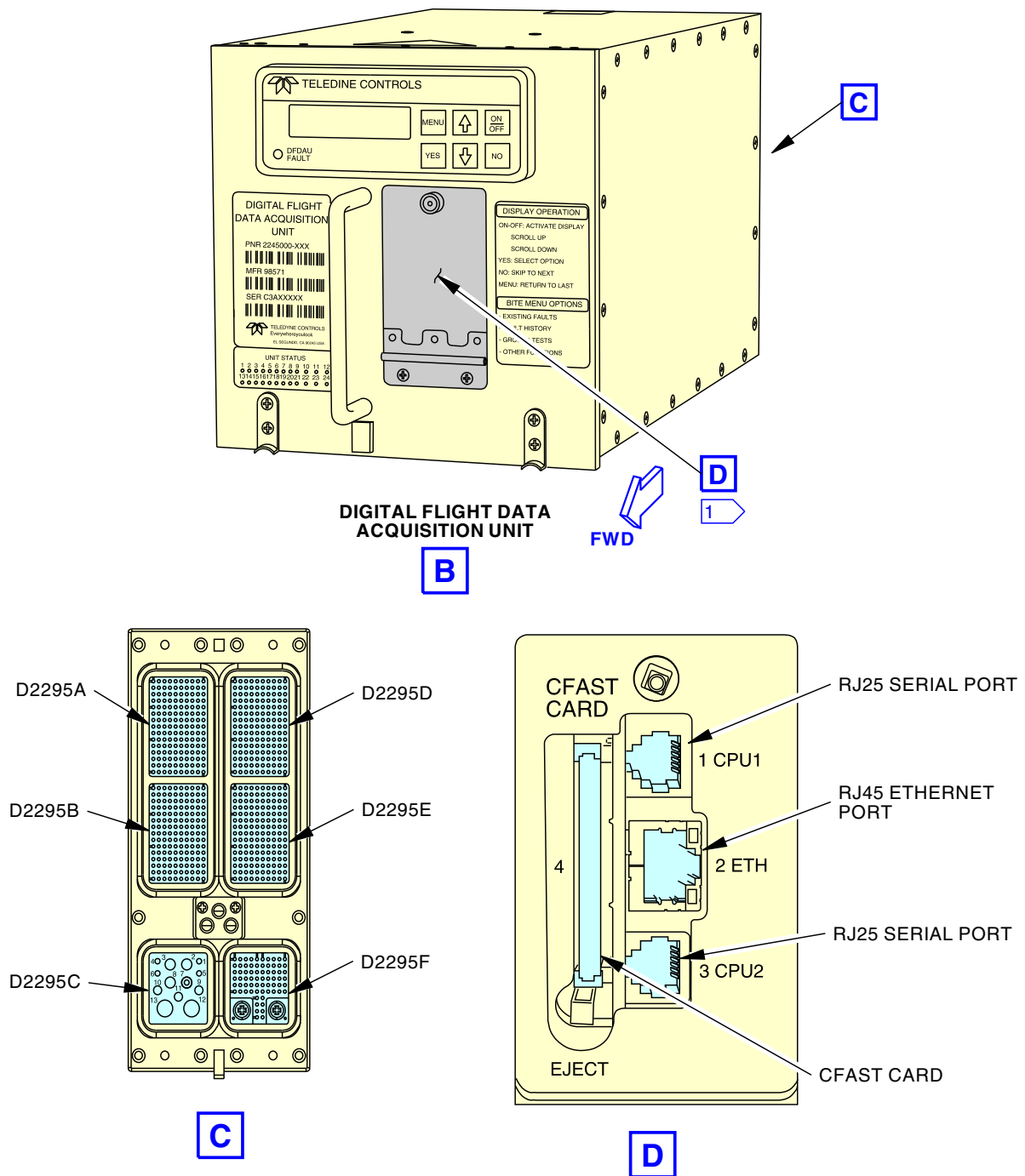
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1 FRONT PANEL PORTS ARE LOCATED BEHIND THIS DOOR.

2457718 S0000572113_V2

**Digital Flight Data Acquisition Unit Installation
Figure 401/31-31-22-990-801 (Sheet 2 of 2)**

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TASK 31-31-22-400-801

3. Digital Flight Data Acquisition Unit (DFDAU) Installation
(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 401)
31-31-11-000-801	Flight Data Recorder Removal (P/B 401)
31-31-11-400-801	Flight Data Recorder Installation (P/B 401)
31-31-22-470-801	Digital Flight Data Acquisition Unit (DFDAU) Software Configuration Check (P/B 201)
46-13-00-860-803	Client Credentials Check (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	DFDAU	31-31-22-01-005	SIA ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Digital Flight Data Acquisition Unit (DFDAU) Installation

SUBTASK 31-31-22-860-010

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-400-002



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (2) To install the DFDAU [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.
- (3) Install the CFast card in the Digital Flight Data Acquisition Unit (DFDAU) if one is provided.
- (a) Make sure that the indentations on the edges of the CFast card correctly align with the CFast slot.

NOTE: If you do not install a CFast correctly, damage to DFDAU can occur.

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F. Digital Flight Data Acquisition Unit (DFDAU) Installation Test

SUBTASK 31-31-22-860-012

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

NOTE: There can be a delay approximately from 90 seconds and up to 5 minutes before it becomes available to conduct the installation test after circuit breakers closure.

SUBTASK 31-31-22-860-020

- (2) Generate a new Client Credential for the DFDAU so that it can communicate with the Network File Server (NFS).

(a) Do this task: Client Credentials Check, TASK 46-13-00-860-803

SUBTASK 31-31-22-710-001

- (3) Do this task: Digital Flight Data Acquisition Unit (DFDAU) Software Configuration Check, TASK 31-31-22-470-801.

SUBTASK 31-31-22-740-001

- (4) Do this test of the DFDAU:

NOTE: Wait a minimum of 1 minute after closing the breakers in step (1) before proceeding to step (a).

- (a) Put the TEST-NORMAL switch on the FLIGHT RECORDER/MACH AIRSPEED WARNING TEST Panel, P5, to the TEST position.

1) Make sure that the FLIGHT RECORDER OFF light on the P5 panel is OFF.

- (b) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- (c) Remove the Solid-State Flight Data Recorder (SSFDR) (TASK 31-31-11-000-801).

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

1) Make sure that the FLIGHT RECORDER OFF light on the P5 panel comes ON.

- (e) Install the SSFDR (TASK 31-31-11-400-801).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-22-410-004

- (1) Close this access door:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

————— END OF TASK —————

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AILERON POSITION TRANSMITTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the aileron position transmitter.
- (2) An installation of the aileron position transmitter.
- (3) An installation test of the aileron position transmitter.

TASK 31-31-31-000-801

2. Aileron Position Transmitter Removal

(Figure 401)

A. **References**

<u>Reference</u>	<u>Title</u>
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. **Location Zones**

<u>Zone</u>	<u>Area</u>
572	Left Wing - Aileron
672	Right Wing - Aileron

C. **Access Panels**

<u>Number</u>	<u>Name/Location</u>
571BB	Lower Outboard Fixed Trailing Edge Access Panel

D. **Aileron Position Transmitter Removal**

SUBTASK 31-31-31-840-001

- (1) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-31-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-31-020-001

- (3) Remove the screws [2] and [3] from this access panel:

<u>Number</u>	<u>Name/Location</u>
571BB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 31-31-31-010-001

- (4) Remove this access panel:

<u>Number</u>	<u>Name/Location</u>
571BB	Lower Outboard Fixed Trailing Edge Access Panel

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SUBTASK 31-31-31-020-002



WARNING

PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (5) Remove the aileron position transmitter [9]:
- (a) Disconnect the electrical connector [4] from the aileron position transmitter [9].
 - (b) Loosen the crank clamping screw [6] and the support bracket support bracket clamping screw [8].
 - (c) Remove the aileron position transmitter [9] from the airplane.

———— **END OF TASK** ————

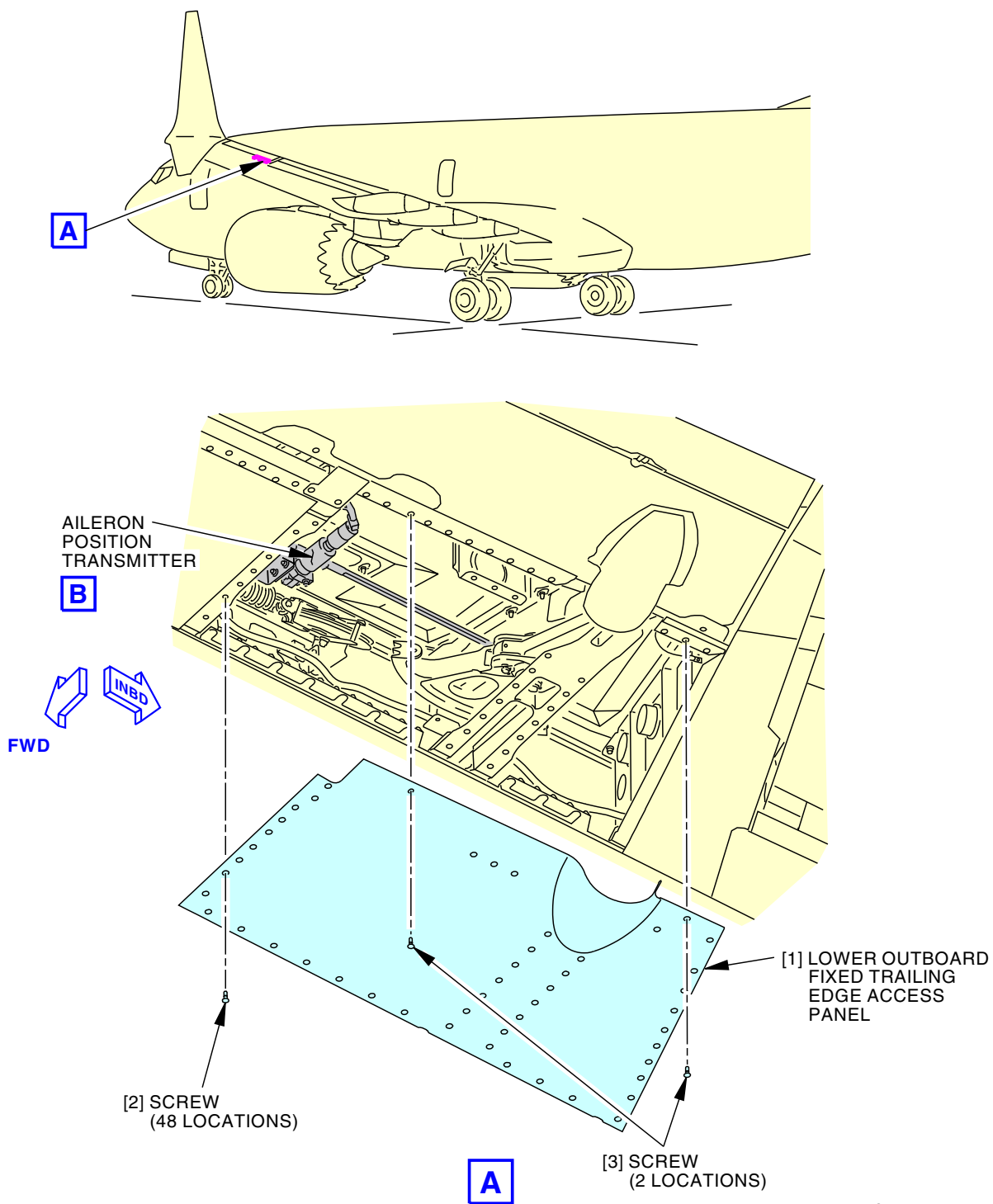
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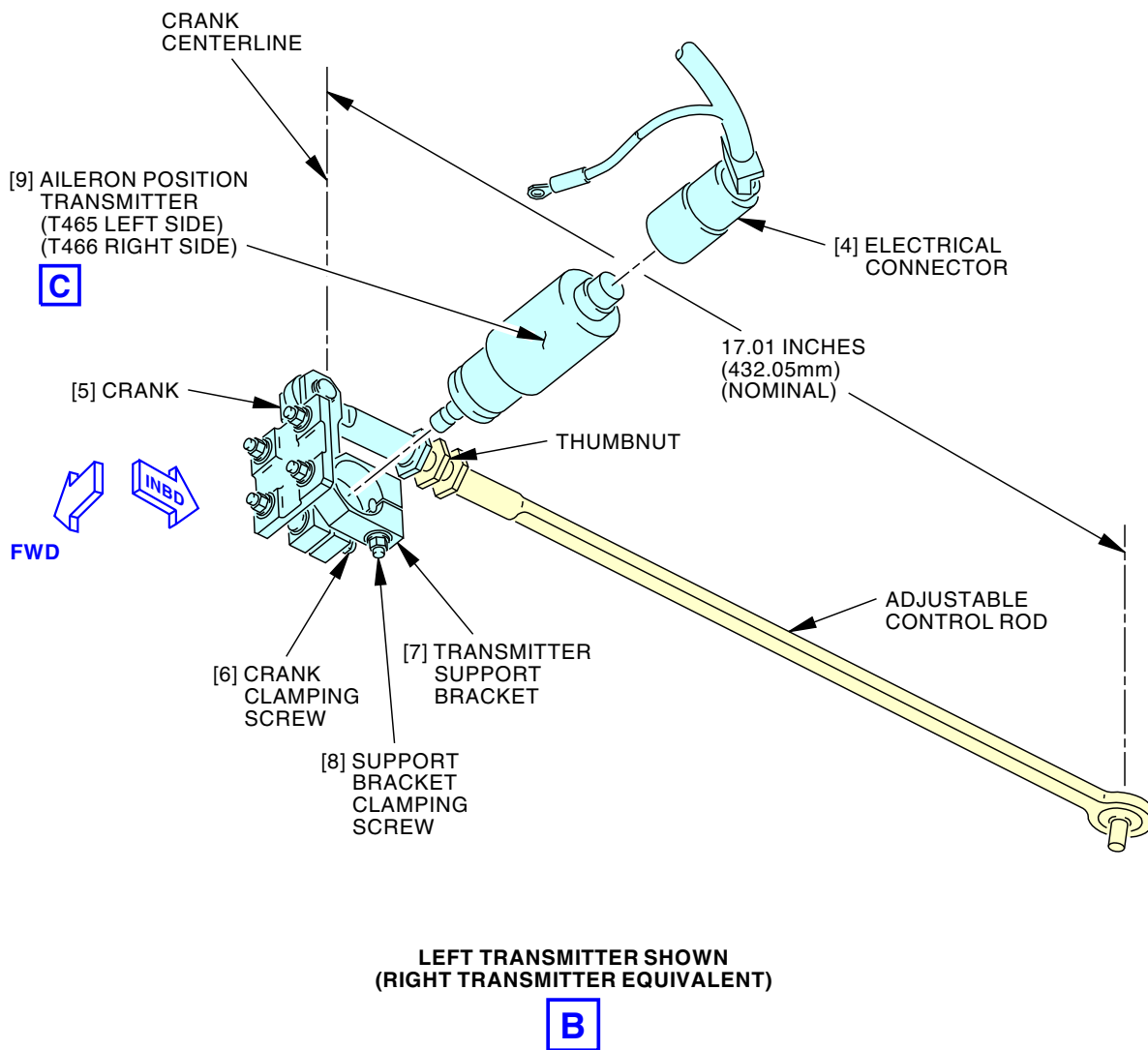
Aileron Position Transmitter Installation
Figure 401/31-31-31-990-801 (Sheet 1 of 3)

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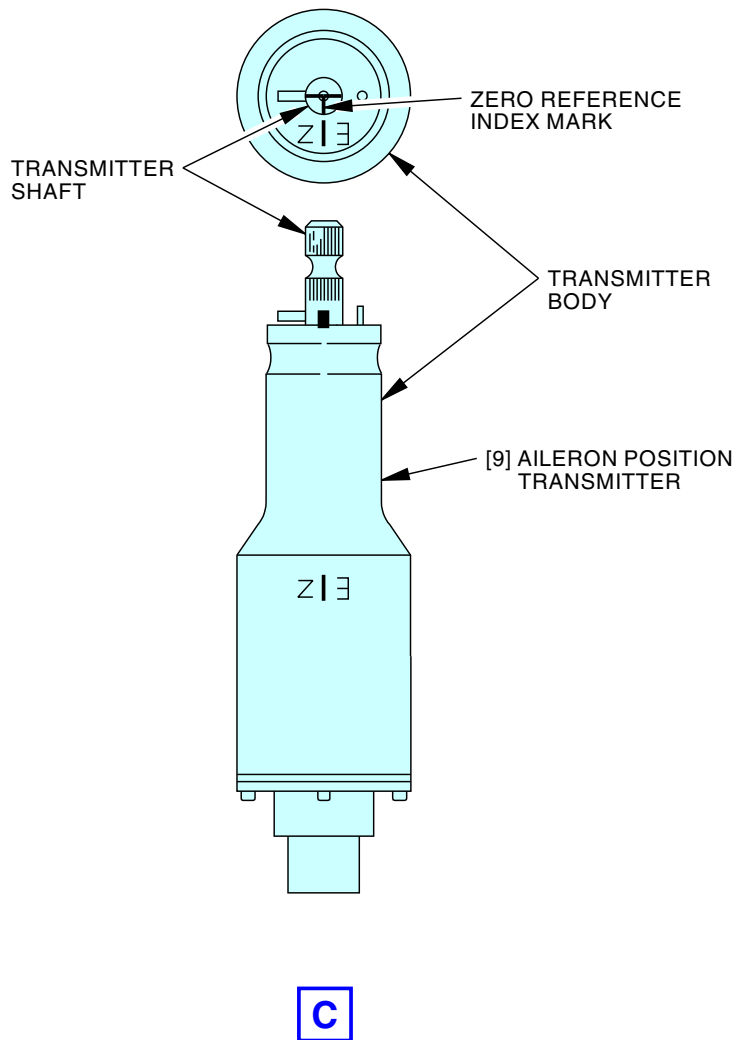
Aileron Position Transmitter Installation
Figure 401/31-31-31-990-801 (Sheet 2 of 3)

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Aileron Position Transmitter Installation
Figure 401/31-31-31-990-801 (Sheet 3 of 3)

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TASK 31-31-31-400-801

3. Aileron Position Transmitter Installation

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-11-00-860-802	Pressure to the Aileron Hydraulic Systems A and B - Activation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Transmitter	31-31-31-01-135	SIA ALL

C. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Aileron Position Transmitter Installation

SUBTASK 31-31-31-860-002

- (1) Make sure that this circuit breaker is open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-31-860-003



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the Ailerons Hydraulic Systems are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-31-020-003

- (3) Install the aileron position transmitter [9]:
- (a) Make sure that the adjustable rod is set at 17.01 in. (432.05 mm).
 - (b) Install the aileron position transmitter [9] into the transmitter support bracket [7] and crank [5].
 - (c) Align the EZ marks on the aileron position transmitter [9] body and the index mark on the transmitter shaft with the centerline of the crank [5].
 - (d) Tighten the crank clamping screw [6] and the transmitter support bracket clamping screw [8] to 32.5 ±2.5 in-lb (3.67 ±0.28 N·m).
 - (e) Install the electrical connector [4] onto the aileron position transmitter [9].
- (4) Do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802.

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SUBTASK 31-31-31-700-001

(5) Do this task: Aileron Position Transmitter Installation Test, TASK 31-31-31-700-801.

END OF TASK

TASK 31-31-31-700-801

4. Aileron Position Transmitter Installation Test

A. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B 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-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70

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
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III

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D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Access Panels

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel

F. Aileron Position Transmitter Installation Test

SUBTASK 31-31-31-710-001

- (1) Use one of the testers listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697
- HHMPI interface cable (Honeywell SSDFDR), COM-13695
- HHMPI interface cable (Honeywell HFR5-D), COM-13696

- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Select LIVE DATA VIEW.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553, to the connector on the SSFDR.

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- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the flight recorder panel on aft overhead panel, P5, to the TEST position.
- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.
- (c) Do the steps below to prepare the handheld download unit, COM-913, for the system test.

NOTE: The handheld download unit, COM-913, can only be used on airplanes with AlliedSignal/Honeywell SSFDR installed.

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913, to the connector on the SSFDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the flight recorder panel on the aft overhead panel, P5, to the TEST position.
- 5) Push the red button on the tester.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

NOTE: The Hand Held Down-load Unit (HHDLU) does not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

SUBTASK 31-31-31-860-005

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-31-860-006

- (3) Make sure that the FLIGHT RECORDER TEST-NORMAL switch on the aft overhead panel, P5, is in the TEST position.

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SUBTASK 31-31-31-860-007



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-31-860-008

- (5) Make sure that the aileron is set at the zero unit of trim.

SUBTASK 31-31-31-820-001

- (6) Do these steps to test the aileron position transmitter [9]:
- Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - Set the FLT CONTROL A and B switches, on the forward overhead panel, P5, to the OFF position.
 - Loosen the support bracket clamping screw [8] on the transmitter transmitter support bracket [7].
 - Set the tester to the following subframe and word:
 - For the left aileron, set to subframe 0, word 30.
 - For the right aileron, set to subframe 0, word 40.
 - Rotate the aileron position transmitter [9] slowly in each direction until you get an octal value of between 7741-0037 on the portable tester.
 - Tighten the transmitter support bracket [7] to 30 in-lb (3.4 N·m) - 35 in-lb (4.0 N·m).
 - Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
 - Set the FLT CONTROL A and B switches, on the forward overhead panel, P5, to the ON position.
 - Do these steps to test a left aileron position transmitter [9] installation:
 - Rotate the captain's control wheel to the full left position (left aileron full up).
 - Make sure that you get an octal value between 7172 -7314.
 - Rotate the captain's control wheel to the full right position (left aileron full down).
 - Make sure that you get an octal value between 0466 - 0610.
 - Do these steps to test a right aileron position transmitter [9] installation:
 - Rotate the captain's control wheel to the full left position (right aileron down).
 - Make sure that you get an octal value between 7167 - 7311.
 - Rotate the captain's control wheel to the full right position (right aileron full up).
 - Make sure that you get an octal value between 0463 - 0605.
 - Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

SUBTASK 31-31-31-410-001

- (7) Do these steps to install this access panel:

<u>Number</u>	<u>Name/Location</u>
571BB	Lower Outboard Fixed Trailing Edge Access Panel

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- (a) Apply sealant, A00247, to the surfaces of the access panel [1] that will come in contact with the skin surfaces of the lower wing.
- (b) Put the access panel [1] into position in the lower wing.
- (c) Apply primer, C00259, to the holes of the access panel.
- (d) Apply compound, C00528, to the screws [2] and screws [3].
- (e) Install the screws [2] and screws [3].
- (f) Tighten the screws [2] and screws [3] to 32.5 ± 2.5 in-lb (3.7 ± 0.3 N·m).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-31-860-009

- (1) Put the FLIGHT RECORDER TEST-NORMAL switch on the aft overhead panel, P5, to the NORMAL position.

SUBTASK 31-31-31-840-002

- (2) Remove power from the tester.

SUBTASK 31-31-31-860-010

- (3) Remove the tester from the flight data recorder system.

SUBTASK 31-31-31-420-001

- (4) Install the shorting plug on the system test plug on the P18 panel.

———— **END OF TASK** ————

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CONTROL WHEEL POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the control wheel position sensor.
- (2) An installation of the control wheel position sensor.
- (3) An installation test of the control wheel position sensor.

TASK 31-31-32-000-801

2. Control Wheel Position Sensor Removal

(Figure 401)

A. **References**

<u>Reference</u>	<u>Title</u>
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. **Location Zones**

<u>Zone</u>	<u>Area</u>
112	Area Forward of Nose Landing Gear Wheel Well

C. **Access Panels**

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

D. **Prepare for the Control Wheel Position Sensor Removal**

SUBTASK 31-31-32-840-001

- (1) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-32-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-32-010-001

- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

E. **Procedure**

SUBTASK 31-31-32-020-001



PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (1) Remove the control wheel position sensor [5]:
 - (a) Disconnect the electrical connector [1].

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- (b) Remove the screws [6], washers [7], and clamps [8].
- (c) Loosen the flex coupling screw [4] and the mounting bolts [2] and washers [3].
- (d) Remove the control wheel position sensor [5].

———— **END OF TASK** ————

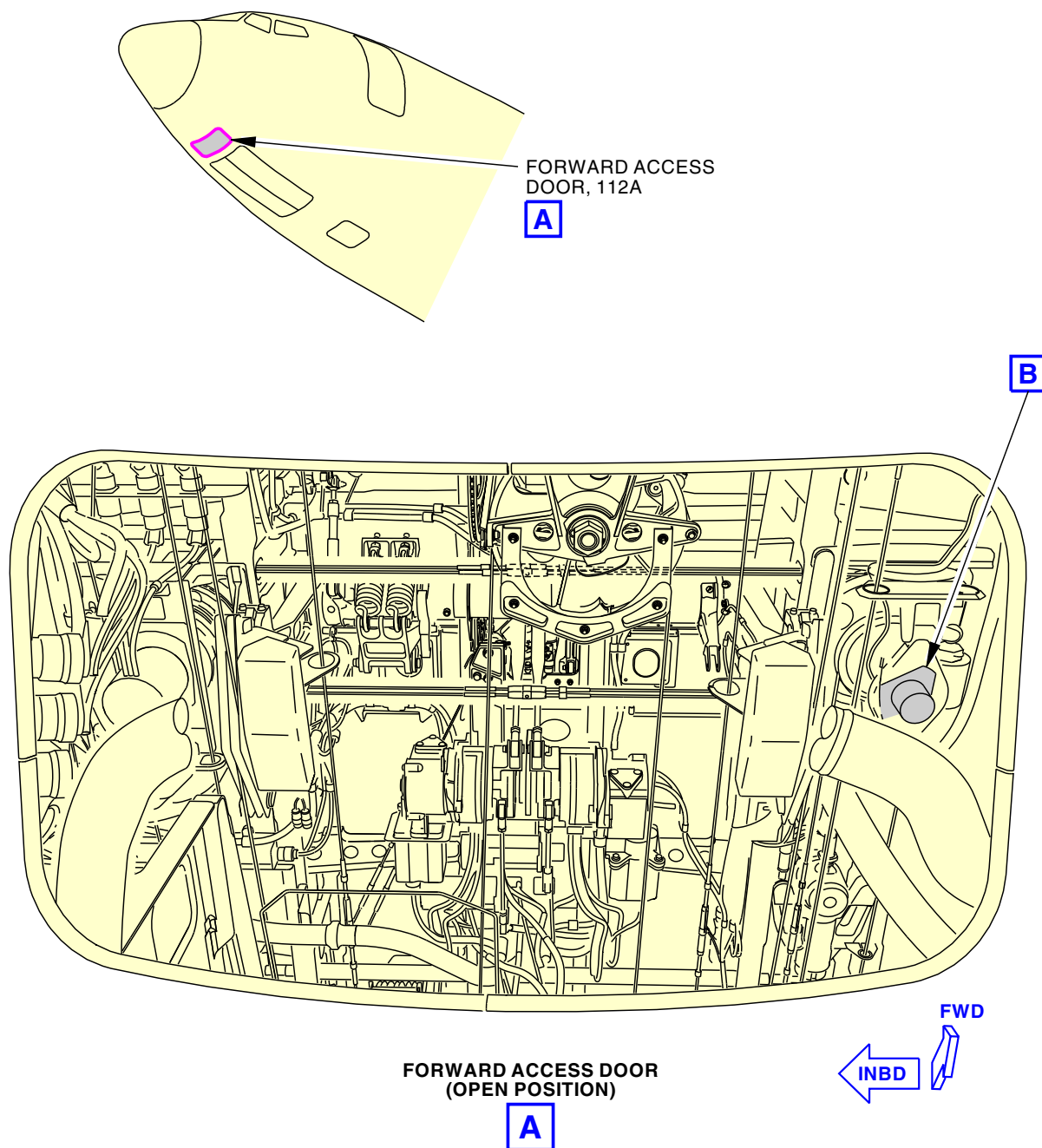
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Control Wheel Position Sensor Installation
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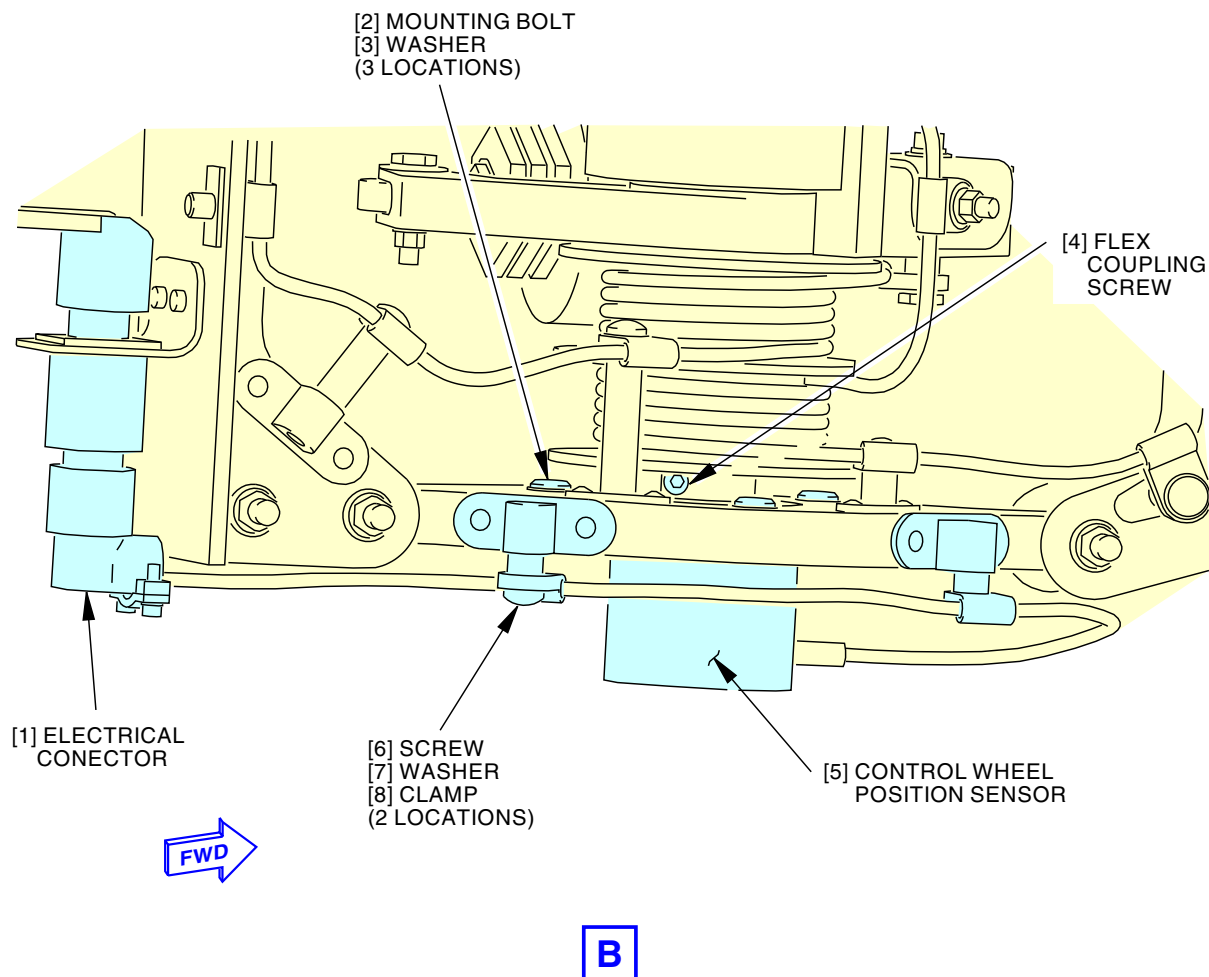
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Control Wheel Position Sensor Installation
Figure 401/31-31-32-990-801 (Sheet 2 of 2)

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TASK 31-31-32-400-801

3. Control Wheel Position Sensor Installation

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. Consumable Materials

Reference	Description	Specification
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Sensor	31-31-32-01-055	SIA ALL

D. Location Zones

Zone	Area
110	Subzone - Body Station 130 to Station 396
112	Area Forward of Nose Landing Gear Wheel Well

E. Prepare for the Control Wheel Position Sensor Installation

SUBTASK 31-31-32-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-32-860-003

- (2) If the hydraulic system are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

F. Procedure

SUBTASK 31-31-32-020-002



PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (1) Install the control wheel position sensor [5]:

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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.

- (a) Apply Cor-Ban 27L Compound, G50237 to the shaft of the sensor.
NOTE: Make sure the compound does not get on the sensor bearing. This can cause friction on the bearing.
- (b) Make a pencil line on the sensor mounting bracket so that the line is center and perpendicular to the flat side of the flex coupling hole.
NOTE: This will help to align the index mark on the sensor body to the center line of the sensor shaft.
- (c) Insert the shaft of the sensor into the hole of the flex coupling.
- (d) Install the mounting bolts [2] and washers [3].
- (e) Thread the mounting bolts [2] until they clamp down on the sensor body.
- (f) Align the index mark on the sensor body to the pencil line on the sensor mounting bracket.
- (g) Tighten the 3 sensor mounting bolts [2] to 27.5 ± 2.5 in-lb (3.1 ± 0.3 N·m).
- (h) Tighten the flex coupling screw [4] to 13.5 ± 1.5 in-lb (1.5 ± 0.2 N·m).
- (i) Install the cable clamps [8], screws [6], and washers [7].
- (j) Install the electrical connector [1].

G. Control Wheel Position Sensor Installation Test

SUBTASK 31-31-32-710-001

- (1) Do this task: Control Wheel Position Sensor Installation Test, TASK 31-31-32-820-801.

————— END OF TASK —————

TASK 31-31-32-820-801

4. Control Wheel Position Sensor Installation Test

(Figure 401)

A. References

Reference	Title
27-11-00-860-802	Pressure to the Aileron Hydraulic Systems A and B - Activation (P/B 201)
27-21-00-700-808	Wheel to Rudder Interconnect System 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.

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Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70
SPL-1670	Mount - Control Wheel Protractor Part #: F72790 Supplier: 81205
SPL-1680	Protractor Assembly - Control Column Part #: A27021-29 Supplier: 81205 Part #: G76002-42 Supplier: 81205 Opt Part #: 4MIT65B80307-1 Supplier: 81205 Opt Part #: F52485-500 Supplier: 81205 Opt Part #: G76002-19 Supplier: 81205 Opt Part #: G76002-37 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770

D. Location Zones

Zone	Area
110	Subzone - Body Station 130 to Station 396
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Installation Test

SUBTASK 31-31-32-710-002

(1) Use one of the testers listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

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- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697
- HHMPI interface cable (Honeywell SSDFDR), COM-13695
- HHMPI interface cable (Honeywell HFR5-D), COM-13696

- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the SSFDR.

- 3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.

- 5) Put the cursor on Flight Data Recorder (FDR): Word Monitor in the Main Menu and push SELECT.

- 6) Set the WORD and SUBFRAME as specified.

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- (c) Do the steps below to prepare the handheld download unit, COM-913 for the system test.

NOTE: The handheld download unit, COM-913 can only be used on airplanes with Allied Signal SSFDR installed.

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the SSFDR.
3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.
5) Push the POWER button on the handheld download unit, COM-913.
6) Set the DSDU switch.
7) Set the BASE switch.
8) Set the WORD and SUBFRAME as specified.

NOTE: The Hand Held Down-load Unit (HHDLU) does not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

SUBTASK 31-31-32-860-005

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-32-860-006

- (3) Make sure that the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, is set to the TEST position.

SUBTASK 31-31-32-860-007



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802.

SUBTASK 31-31-32-420-002

- (5) If necessary, install rigging pin A/S-15 in the aileron feel and centering unit in the Main Landing Gear (MLG) wheel well.

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SUBTASK 31-31-32-020-004

- (6) Remove the map holder assembly from the control wheel.

SUBTASK 31-31-32-490-001

- (7) Install the mount, SPL-1670 and the protractor, SPL-1680 on the control wheel.
 - (a) Set the indicator on the protractor, SPL-1680 to zero degree.

NOTE: The intent is to make sure that the control wheel is in the neutral position ("0" on control wheel) prior to adjustment of the control wheel position sensor.

SUBTASK 31-31-32-820-001

- (8) Do these steps to adjust the control wheel position sensor:
 - (a) Loosen the sensor mounting bolts [2].
 - (b) Do this step to adjust the left control wheel position transmitter:
 - 1) Set the tester to subframe 0, word 35.
 - (c) Rotate the body of the control wheel position sensor [5] slowly in each direction until you get an octal value between 7771 to 0007 on the tester.
 - (d) Tighten the sensor mounting bolts [2] to 32.5 $\pm$ 2.5 in-lb (3.7 $\pm$ 0.3 N·m).

SUBTASK 31-31-32-020-005

- (9) If applicable, remove the rigging pin A/S-15 from the aileron feel and centering unit in the MLG wheel well.

SUBTASK 31-31-32-090-001

- (10) Rotate the Captain's Control Wheel clockwise 50 degrees (8.5 units).
 - (a) Octal value is between 6654 to 6741 on tester.
- (11) Rotate Captain's Control Wheel counterclockwise 50 degrees (8.5 units).
 - (a) Octal value is between 1036 to 1123 on tester.

SUBTASK 31-31-32-020-003

- (12) Remove the mount, SPL-1670 and the protractor, SPL-1680 from the control wheel.

SUBTASK 31-31-32-420-001

- (13) Install the map holder assembly.

SUBTASK 31-31-32-410-001

- (14) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-32-860-008

- (1) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the NORMAL position.

SUBTASK 31-31-32-840-002

- (2) Remove power from the tester.

SUBTASK 31-31-32-860-009

- (3) Remove the tester from the flight data recorder system.

SUBTASK 31-31-32-420-003

- (4) Install the shorting plug on the system test plug on the P18 panel.

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SUBTASK 31-31-32-400-001

- (5) Prior to closing the ceiling panel, ensure all foreign objects in the compartment have been removed and clean the ceiling panel and surrounding area to remove any dirt or adhesive residue using alcohol, B50073.

SUBTASK 31-31-32-860-011

- (6) Do this task: Wheel to Rudder Interconnect System Test, TASK 27-21-00-700-808.

———— **END OF TASK** ————

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RUDDER POSITION TRANSMITTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the rudder position transmitter.
- (2) An installation of the rudder position transmitter.
- (3) An installation test of the rudder position transmitter.

TASK 31-31-41-000-801

2. Rudder Position Transmitter Removal

(Figure 401)

A. **References**

<u>Reference</u>	<u>Title</u>
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. **Location Zones**

<u>Zone</u>	<u>Area</u>
325	Vertical Fin - Rudder

C. **Access Panels**

<u>Number</u>	<u>Name/Location</u>
324HL	Vertical Fin, Access

D. **Rudder Position Transmitter Removal**

SUBTASK 31-31-41-840-001

- (1) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-41-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-41-010-001

- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
324HL	Vertical Fin, Access

SUBTASK 31-31-41-020-001

 WARNING	PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.
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- (4) Remove the rudder position transmitter [1]:
 - (a) Disconnect the electrical connector [2] from the rudder position transmitter [1].
 - (b) Loosen the support bracket clamping screw [3].

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- (c) Remove the crank screw [6].
- (d) Remove the rudder position transmitter [1] from the airplane.

———— **END OF TASK** ————

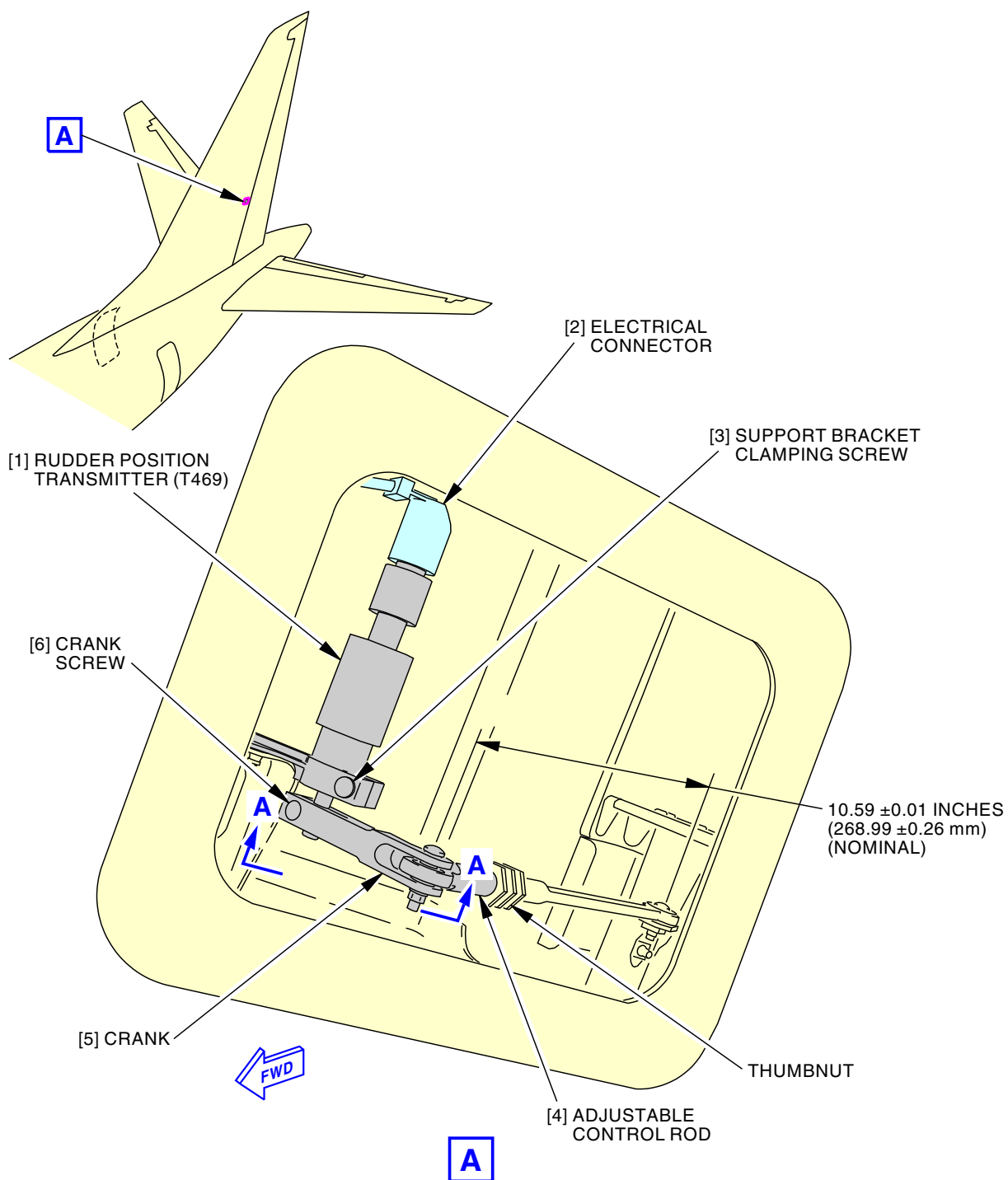
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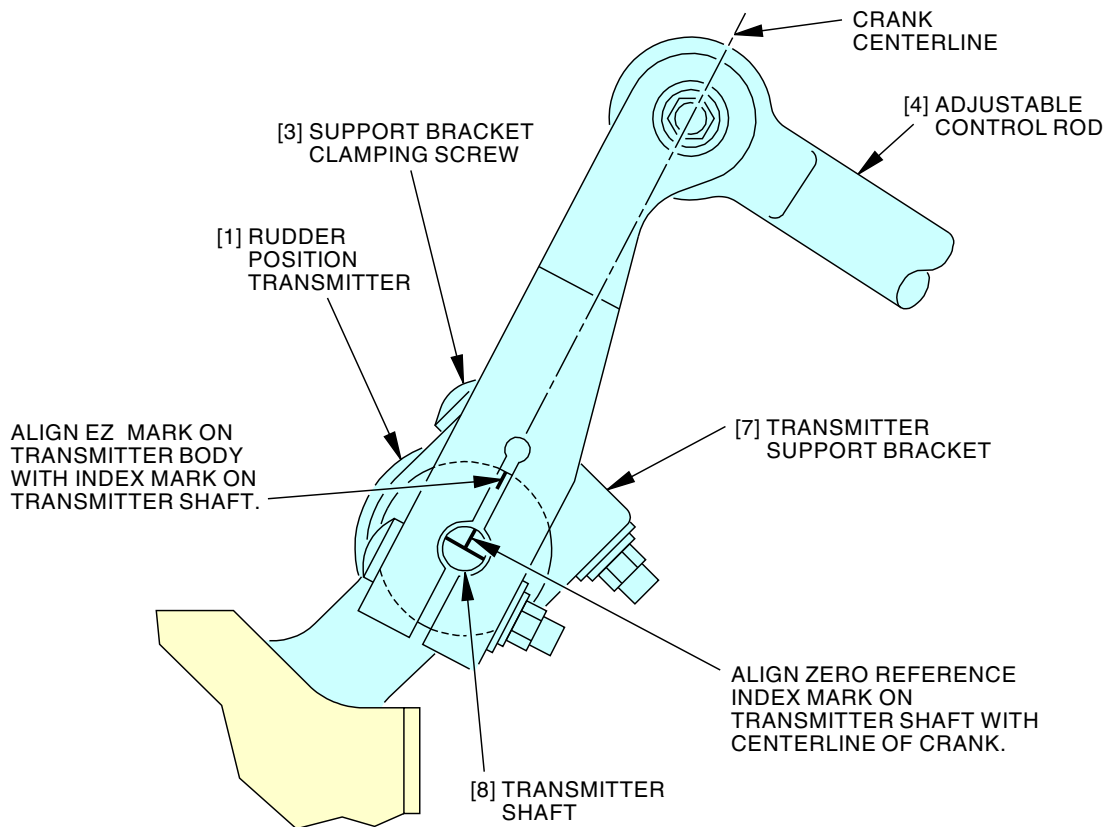
Rudder Position Transmitter Installation
Figure 401/31-31-41-990-801 (Sheet 1 of 2)

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A-A

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Rudder Position Transmitter Installation
Figure 401/31-31-41-990-801 (Sheet 2 of 2)

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TASK 31-31-41-400-801

3. Rudder Position Transmitter Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Transmitter	31-31-41-01-020	SIA ALL

C. Location Zones

Zone	Area
325	Vertical Fin - Rudder

D. Rudder Position Transmitter Installation

SUBTASK 31-31-41-860-002

- (1) Make sure that this circuit breaker is open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-41-860-003

- (2) If the rudder hydraulic systems are not depressurized, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-41-020-002

 WARNING	PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.
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- (3) Install the rudder position transmitter [1]:
- (a) Make sure that the adjustable control rod [4] is set at 10.59 ±0.01 in. (268.99 ±0.26 mm).
 - (b) Install the rudder position transmitter [1] into the support bracket [7] and crank [5] with the transmitter shaft pointing downward.
 - (c) Align the EZ marks on the rudder position transmitter [1] body and the index mark on the transmitter shaft [8] with the centerline of the crank [5].
 - (d) Install the crank screw [6].
 - (e) Tighten the transmitter support bracket clamping screw [3] and the crank screw [6] to 32.5 ±2.5 in-lb (3.67 ±0.28 N·m).
 - (f) Install the electrical connector [2] to the rudder position transmitter.

SUBTASK 31-31-41-860-004

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

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SUBTASK 31-31-41-700-001

(5) Do this task: Rudder Position Transmitter Installation Test, TASK 31-31-41-700-801.

END OF TASK

TASK 31-31-41-700-801

4. Rudder Position Transmitter Installation Test

(Figure 401)

A. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B 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-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70
COM-13750	Cable - Interface, HHMPI (L-3 Comm F1000 DFDR only)

C. Consumable Materials

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770

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D. Location Zones

Zone	Area
325	Vertical Fin - Rudder

E. Access Panels

Number	Name/Location
324HL	Vertical Fin, Access

F. Rudder Position Transmitter Installation Test

SUBTASK 31-31-41-710-001

- (1) Use one of the testers listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697
- HHMPI interface cable (Honeywell SSDFDR), COM-13695
- HHMPI interface cable (Honeywell HFR5-D), COM-13696
- HHMPI interface cable (L-3 Comm F1000 DFDR), COM-13750

- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch to the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

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- 2) Connect the L3 portable interface unit, COM-2553, to the connector on the Flight Data Recorder (FDR).
- 3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
 - 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
 - 6) Set the WORD and SUBFRAME as specified.
- (c) Do the steps below to prepare the handheld download unit, COM-913, for the system test.

NOTE: These steps are only applicable to airplanes with AlliedSignal SSFDR.

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913, to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the tester.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

NOTE: The Hand Held Down-load Unit (HHDLU) does not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

SUBTASK 31-31-41-860-006

- (2) Make sure that the flight data recorder TEST-NORM switch on the aft overhead panel, P5, to the TEST position.

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SUBTASK 31-31-41-860-007



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 31-31-41-860-008

- (4) Make sure that the rudder is set to zero unit of trim position.

SUBTASK 31-31-41-860-009

- (5) Move the rudder pedal to make sure the system is at the center.

SUBTASK 31-31-41-860-010

- (6) Make sure that the trailing edge of the rudder is in neutral position.

SUBTASK 31-31-41-820-001

- (7) Do these steps to adjust the rudder position sensor:
- (a) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) Loosen the transmitter support bracket clamping screw [3] on the transmitter support brackets.
 - (c) Set the tester to subframe 0, word 70.
 - (d) Rotate the body of the rudder position transmitter slowly in each direction until you get an octal value between 7741 to 0037 on the tester.
 - (e) Tighten the transmitter support bracket clamping screw [3] to 32.5 ± 2.5 in-lb (3.7 ± 0.3 N·m).
 - (f) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801
 - (g) Put the rudder to the full left position.
 - 1) Make sure that the tester shows 7100 to 7201.
 - (h) Put the rudder to the full right position.
 - 1) Make sure that the tester shows 0575 to 0677.
 - (i) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

SUBTASK 31-31-41-410-001

- (8) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
324HL	Vertical Fin, Access

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-41-860-011

- (1) Put the flight data recorder TEST-NORMAL switch on the aft overhead panel, P5, to the NORM position.

SUBTASK 31-31-41-840-002

- (2) Remove power from the tester.

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SUBTASK 31-31-41-860-012

- (3) Remove the tester from the flight data recorder system.

SUBTASK 31-31-41-420-001

- (4) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-41-400-001

- (5) Prior to closing ceiling panel, ensure all foreign objects in the compartment have been removed and clean ceiling panel and surrounding area to remove any dirt or adhesive residue using alcohol, B50073.

———— **END OF TASK** ————

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RUDDER PEDAL POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the rudder pedal position sensor.
- (2) An installation of the rudder pedal position sensor.

TASK 31-31-42-000-801

2. Rudder Pedal Position Sensor Removal

(Figure 401)

A. **References**

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. **Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. **Access Panels**

Number	Name/Location
112A	Forward Access Door

D. **Rudder Pedal Position Sensor Removal**

SUBTASK 31-31-42-840-001

- (1) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-42-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-42-010-001

- (3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 31-31-42-020-001

 WARNING	PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.
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- (4) Remove the rudder pedal position sensor [2]:
 - (a) Disconnect the electrical connector [1] from the rudder pedal position sensor [2].
 - (b) Remove the nut [13], washers [12], and screw [4].
 - (c) Remove the sensor clamp screw [3] and washers [11].

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- (d) Remove the cable drum [6] from the sensor shaft.
- (e) Remove cotter pin [9] and cotter pin [10].
- (f) Remove the cables.
- (g) Remove the rudder pedal position sensor [2] from the airplane.

———— **END OF TASK** ————

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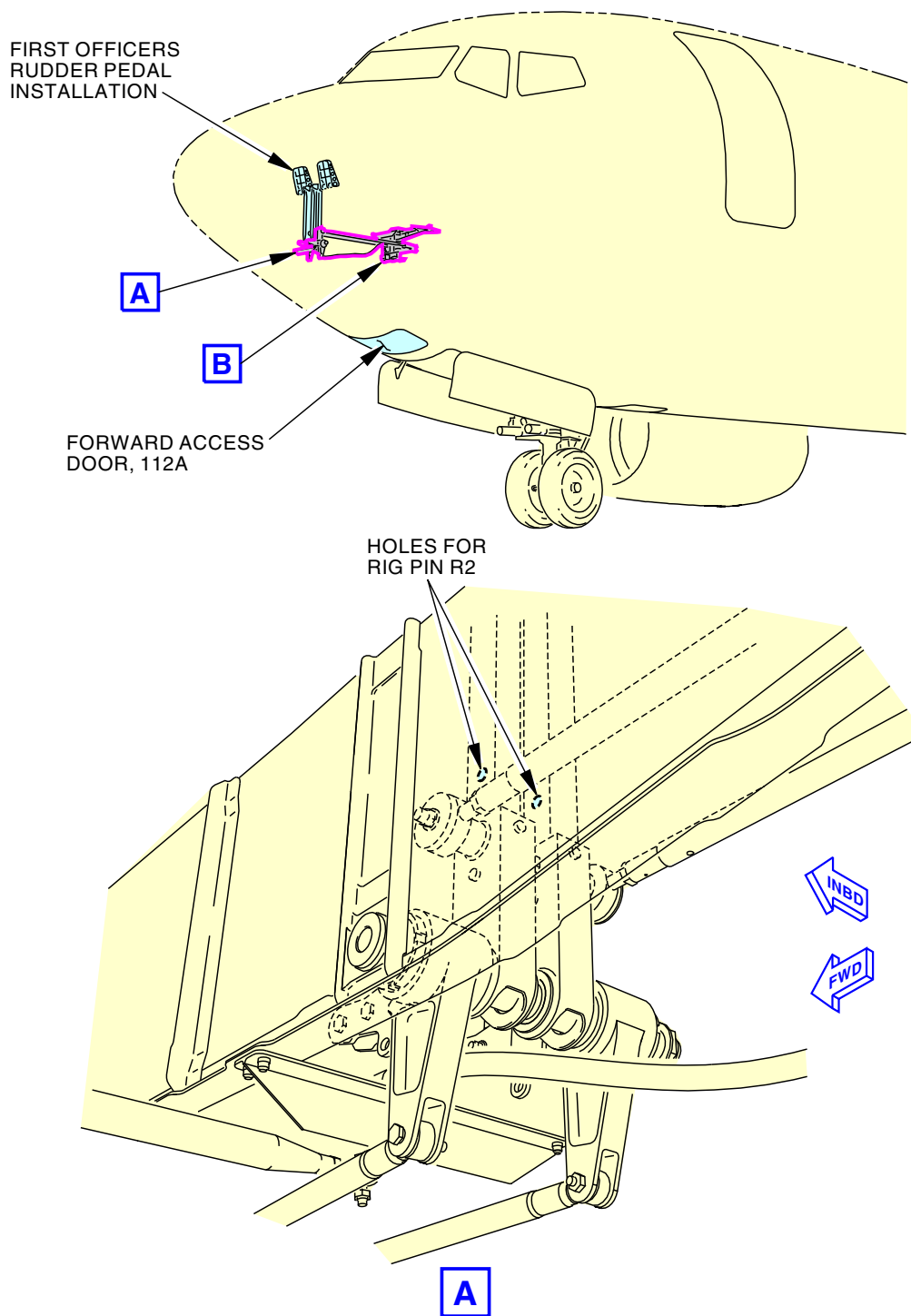
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Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 1 of 5)

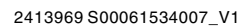
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Rudder Pedal Position Sensor Installation

Figure 401/31-31-42-990-801 (Sheet 2 of 5)

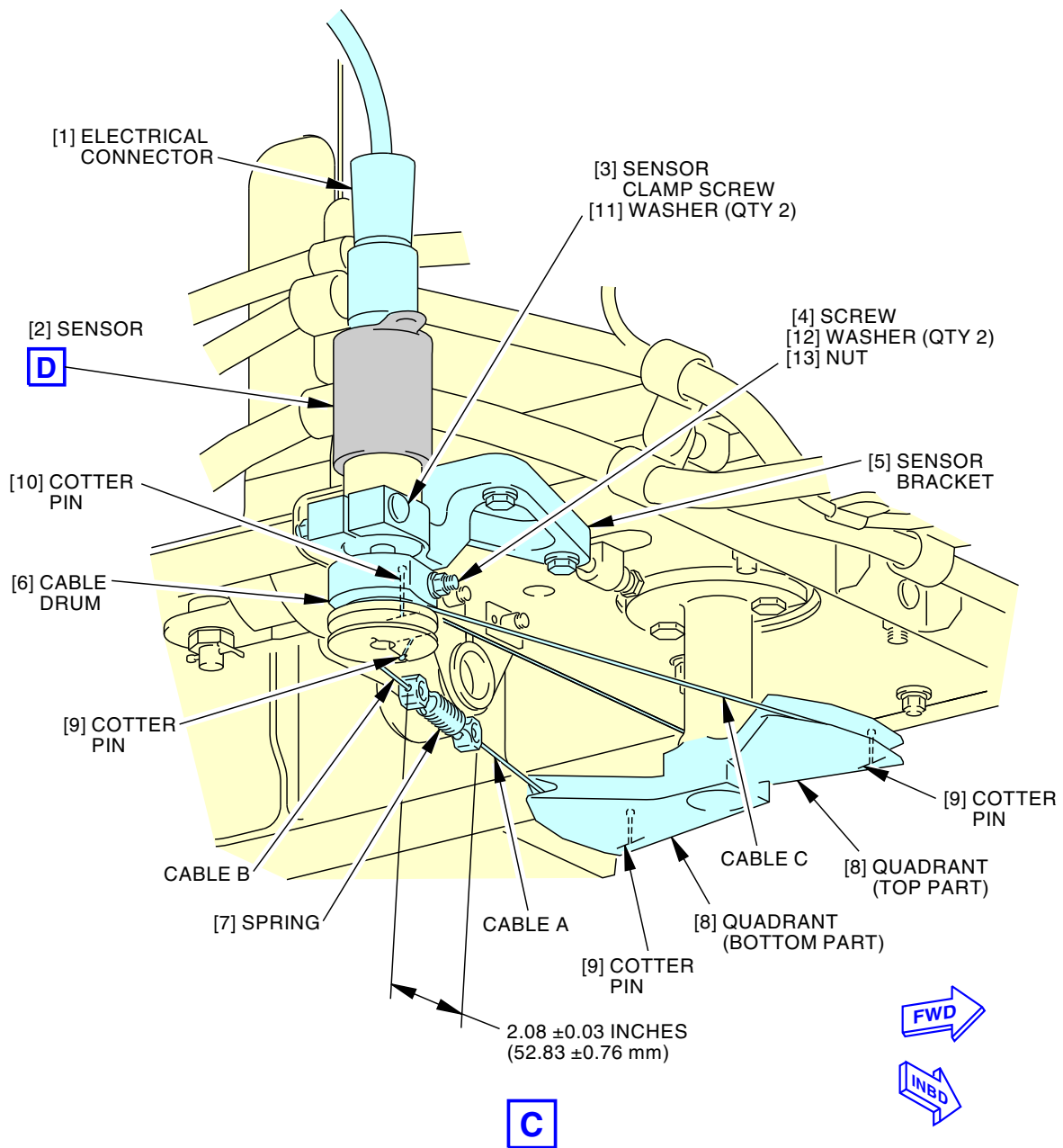
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Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 3 of 5)

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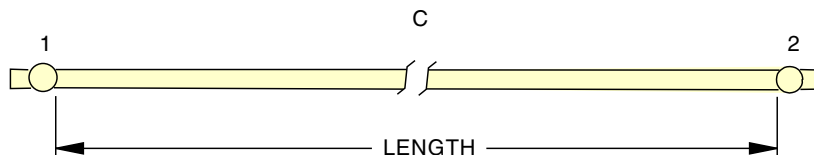
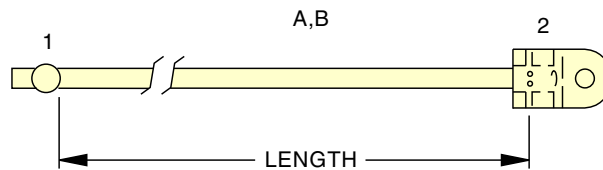


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CABLE REF	DRAWING NUMBER	NO. REQ	LENGTH	CABLE SIZE	FITTINGS	
					1	2
A	69-40951-31	1	3.97 IN (100.84 mm)	3/64 7 X 7	RA2487-047	RA2487-047 and 69-40947-1
B	69-40951-31	1	3.97 IN (100.84 mm)	3/64 7 X 7	RA2487-047	RA2487-047 and 69-40947-1
C	69-40951-35	1	9.77 IN (248.16 mm)	3/64 7 X 7	RA2487-047	RA2487-047

MATERIAL - CABLE STAINLESS STEEL CABLE, AIRCRAFT QUALITY,
CAROLINA STEEL & WIRE CORP., LEXINGTON, CA, OR EQUIV

TERMINALS AMERICAN CHAIN AND CABLE CO., BRIDGEPORT, CT



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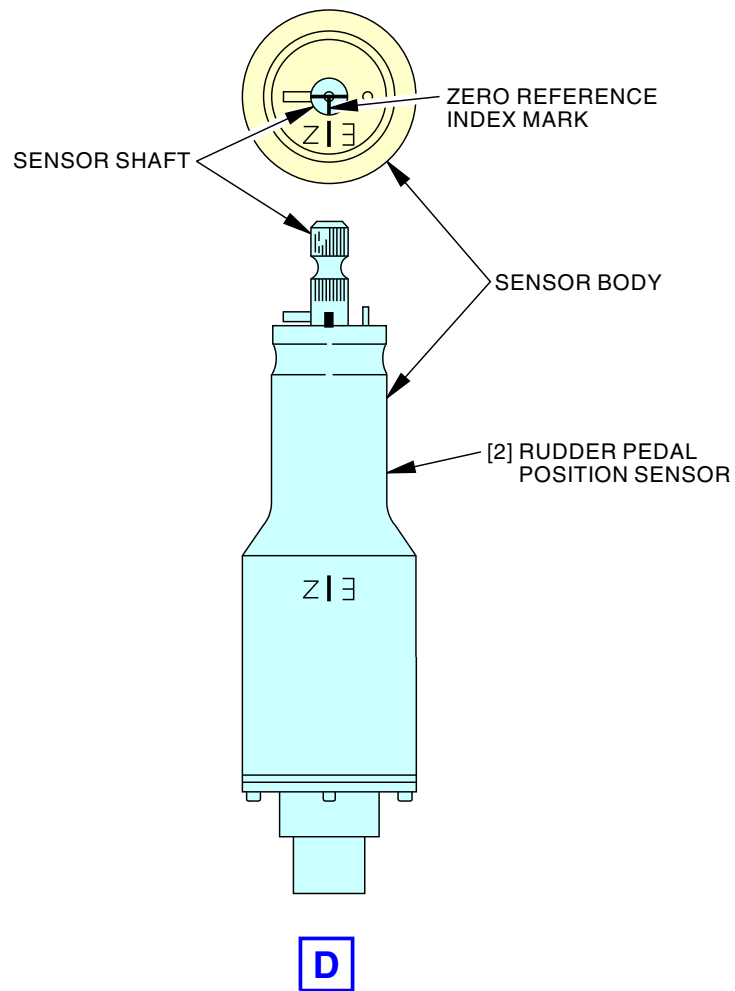
Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 4 of 5)

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Rudder Pedal Position Sensor Installation
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TASK 31-31-42-400-801

3. Rudder Pedal Position Sensor Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
31-31-42-700-802	Rudder Pedal Position Sensor Installation 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-1585	Kit - Rigging Pin Part #: F70207-151 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
D00016	Grease - Aircraft, General Purpose, Wide Temperature Range	MIL-PRF-81322

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Sensor	31-31-42-02-130	SIA ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

F. Access Panels

Number	Name/Location
112A	Forward Access Door

G. Rudder Pedal Position Sensor Installation

SUBTASK 31-31-42-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-42-860-003

- (2) If the rudder hydraulic systems are not depressurized, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

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SUBTASK 31-31-42-020-002



WARNING

PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (3) Install the rudder pedal position sensor [2]:
- Set the rudder pedals to the neutral position.
 - Install R2 rigging pin kit, SPL-1585, into the first officer rudder pedal.
 - Turn the sensor until the mark on the shaft of the sensor aligns with the EZ mark on the sensor body.
 - Install the rudder pedal position sensor [2] into the sensor bracket [5].
 - Apply a thin layer of compound, C00174, on the internal and external surfaces of the thread on the sensor clamp screw [3].
 - Install the sensor clamp screw [3] and washers [11].
 - Tighten the clamp screw [3] to 32.5 ± 2.5 in-lb (3.7 ± 0.3 N·m).
 - Install the cable drum [6] to the sensor shaft.
 - Install screw [4], washers [12], and nut [13].
 - Tighten the screw [4] to 32.5 ± 2.5 in-lb (3.7 ± 0.3 N·m).
 - Do these steps to install the cable C:
 - Install cable C between the top part of the quadrant [8] and the top spool on the cable drum [6].
 - Install the cotter pin [9] to the top part of quadrant [8].
 - Install the cotter pin [10] to the top spool on the cable drum [6].
 - Do these steps to install cable A and B:
 - Install the ball terminal of cable A and the cotter pin [9] to the lower part of the quadrant [8].



CAUTION

THE HEAD OF THE COTTER PIN SHOULD BE VISIBLE ON THE LOWER, OUTER SURFACE OF THE CABLE DRUM. IF THE COTTER PIN IS NOT INSTALLED CORRECTLY, DAMAGE TO THE RUDDER PEDAL POSITION SENSOR CABLE CAN OCCUR.

- Install the ball terminal cable B and the cotter pin [9] to the lower spool of the cable drum [6] (View C, Figure 401).
 - Install the spring [7] between the loose ends of cable A and B.
 - Lubricate the cables with grease, D00016.
 - Make sure that the dimension across the spring [7] between the cable terminal is 2.08 ± 0.03 in. (52.83 ± 0.76 mm).
 - Tighten the two sensor clamp screws [3] to 32.5 ± 2.5 in-lb (3.7 ± 0.3 N·m).
- (m) Install the electrical connector [1] onto the rudder pedal position sensor [2].

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SUBTASK 31-31-42-410-001

- (4) If you do not accomplish the installation test immediately, close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 31-31-42-410-002

- (5) Do this task: Rudder Pedal Position Sensor Installation Test, TASK 31-31-42-700-802.

———— **END OF TASK** ————

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RUDDER PEDAL POSITION SENSOR - ADJUSTMENT/TEST

1. General

A. This procedure has this task:

- (1) An installation test of the rudder pedal position sensor.

TASK 31-31-42-700-802

2. Rudder Pedal Position Sensor Installation Test

(Figure 31-31-42-990-801)

A. **References**

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
31-31-42-990-801	Figure: Rudder Pedal Position Sensor 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
COM-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70
SPL-1585	Kit - Rigging Pin Part #: F70207-151 Supplier: 81205

C. **Consumable Materials**

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770

D. **Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left

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(Continued)

Zone	Area
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Rudder Pedal Position Sensor Installation Test

SUBTASK 31-31-42-010-003

- (1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 31-31-42-710-002

- (2) Use one of the testers listed below to perform the system test:

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697
- HHMPI interface cable (Honeywell SSDFDR), COM-13695
- HHMPI interface cable (Honeywell HFR5-D), COM-13696

- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the FLIGHT RECORDER TEST-NORMAL switch, on the aft overhead panel, P5, in the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do the steps below to prepare the handheld download unit, COM-913, for the system test.

NOTE: The handheld download unit, COM-913, can only be used on airplanes with AlliedSignal SSFDR installed.

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- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913, to the connector on the SSFDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the flight recorder panel on the aft overhead panel, P5, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

SUBTASK 31-31-42-860-011

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-42-860-012

- (4) Put the FLIGHT RECORDER TEST-NORMAL switch on the aft overhead panel, P5, to the TEST position.

SUBTASK 31-31-42-860-013



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 31-31-42-820-002

- (6) Do these steps to adjust the rudder pedal position sensor [2]:
 - (a) Make sure that the rudder pedal is set in the neutral position.
 - (b) Loosen the sensor clamp screw [3].
 - (c) Set the portable tester to subframe 0, word 75.
 - (d) Hold the cable drum and rotate the rudder pedal position sensor [2] body slowly in each direction until you get an octal value between 7751 to 0027 on the tester.
 - (e) Tighten the sensor clamp screw [3] to 32.5 ±2.5 in-lb (3.7 ±0.3 N·m).

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- (f) Remove R2 rigging pin kit, SPL-1585, from the first officer rudder pedal.
- (g) Push the captain's right rudder pedal full forward against the stop.
 - 1) Make sure that the tester shows 5763 to 6423.
- (h) Push the captain's left rudder pedal full forward against the stop.
 - 1) Make sure that the tester shows 1354 to 2014.
- (i) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-42-410-004

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 31-31-42-860-014

- (2) Put the FLIGHT RECORDER TEST-NORMAL switch on the aft overhead panel, P5, to the NORMAL position.

SUBTASK 31-31-42-840-003

- (3) Remove power from the tester.

SUBTASK 31-31-42-860-015

- (4) Remove the tester from the flight data recorder system.

SUBTASK 31-31-42-420-001

- (5) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-42-400-002

- (6) Prior to closing ceiling panel, ensure all foreign objects in the compartment have been removed and clean ceiling panel and surrounding area to remove any dirt or adhesive residue using alcohol, B50073.

———— **END OF TASK** ————

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RUDDER PEDAL FORCE TRANSMITTER ROD - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) Removal of the rudder pedal force transmitter rod.
- (2) Installation of the rudder pedal force transmitter rod.
- (3) Installation test of the rudder pedal force transmitter.

TASK 31-31-43-000-801

2. Rudder Pedal Force Transmitter Rod Removal

(Figure 401)

A. **References**

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - 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-1585	Kit - Rigging Pin Part #: F70207-151 Supplier: 81205

C. **Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
323	Vertical Fin - Front Spar To Rear Spar

D. **Access Panels**

Number	Name/Location
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

E. **Rudder Pedal Force Transmitter Rod Removal**

SUBTASK 31-31-43-840-001

- (1) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-43-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

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SUBTASK 31-31-43-010-001

- (3) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

SUBTASK 31-31-43-410-001

- (4) Install the rig pins A/S-3 and A/S-4 from the test set rigging pin kit, SPL-1585, into the R3 and R4 rig pin holes in the rudder forward quadrant.

SUBTASK 31-31-43-410-002

- (5) Install the rig pins R5 from the test set rigging pin kit, SPL-1585, into the R-5 rig pin hole in the feel and centering unit.

SUBTASK 31-31-43-020-001



BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Do these steps to remove the rudder pedal force transmitter rod [2] :
- (a) Disconnect the electrical connector [1] from the rudder pedal force transmitter rod [2].
 - (b) Do these steps to disconnect the electrical ground [6]:
 - 1) Remove the bolt [3].
 - 2) Remove the washer [4], washer [5], and washer [7].
 - 3) Remove the nut [8].
 - (c) Remove the bolt [9], washer [10], and nut [11].
 - (d) Remove the bolt [12], washer [13], and nut [14].
 - (e) Remove the rudder pedal force transmitter rod [2].

————— **END OF TASK** —————

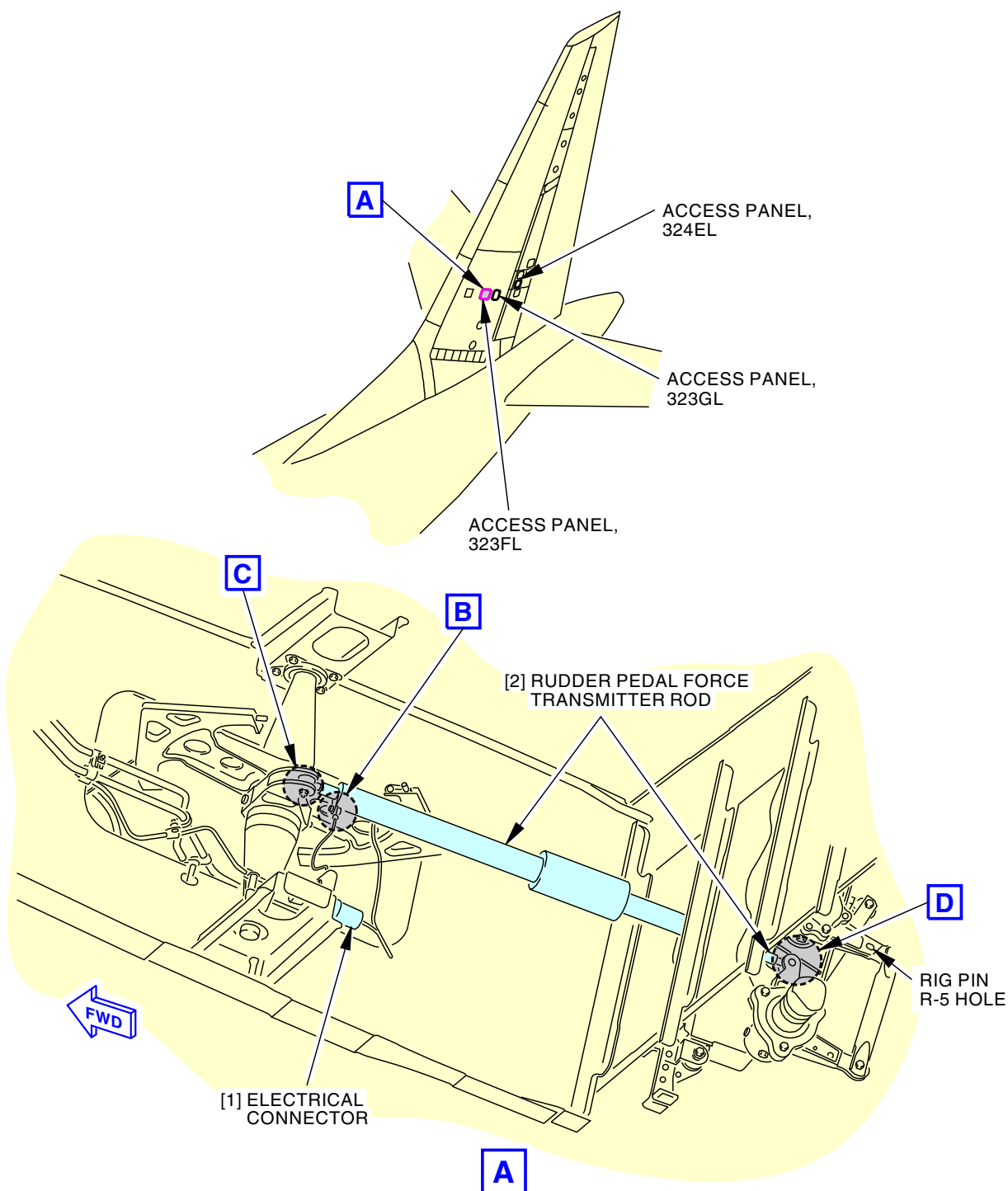
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Rudder Pedal Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 1 of 4)

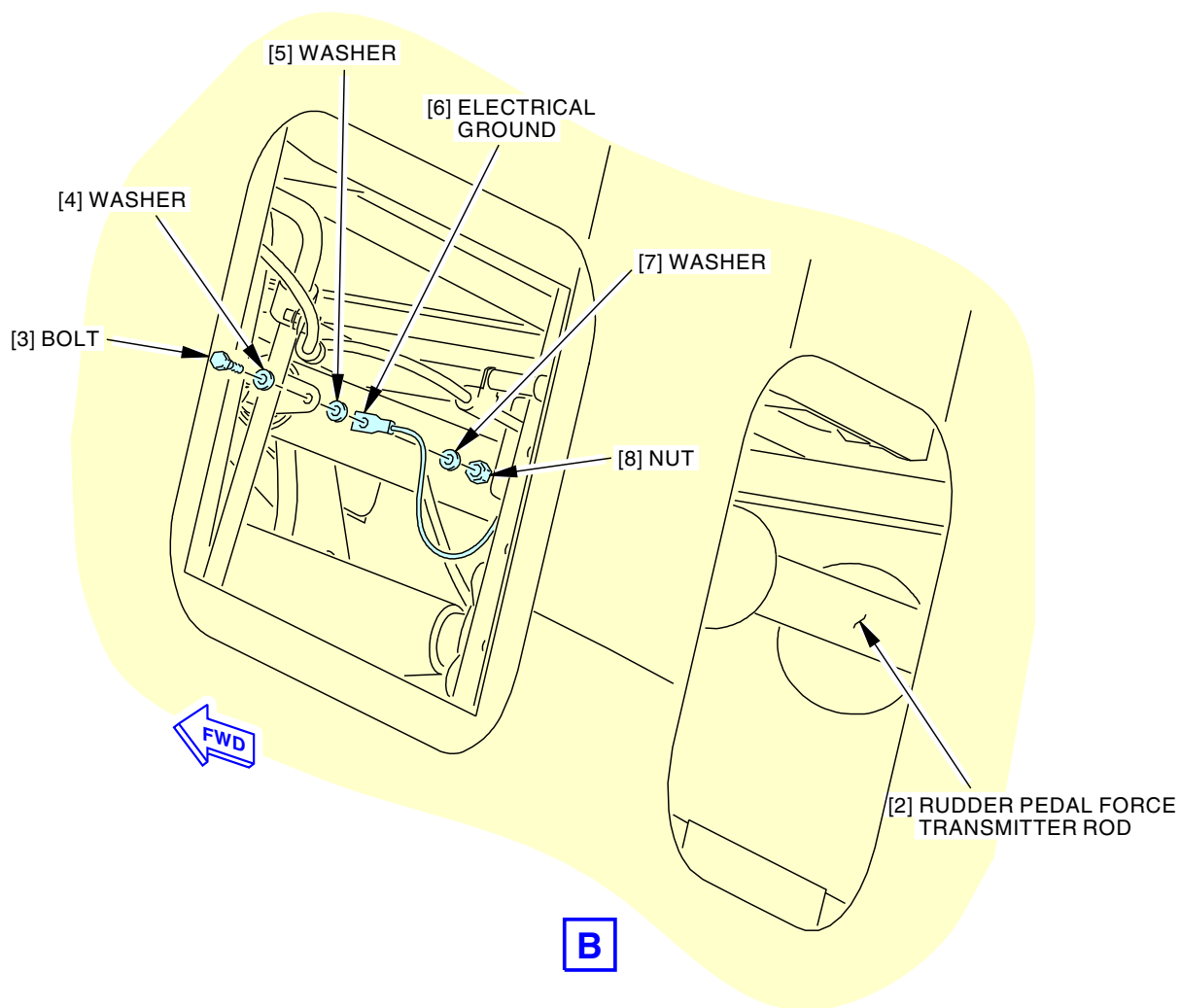
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Rudder Pedal Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 2 of 4)

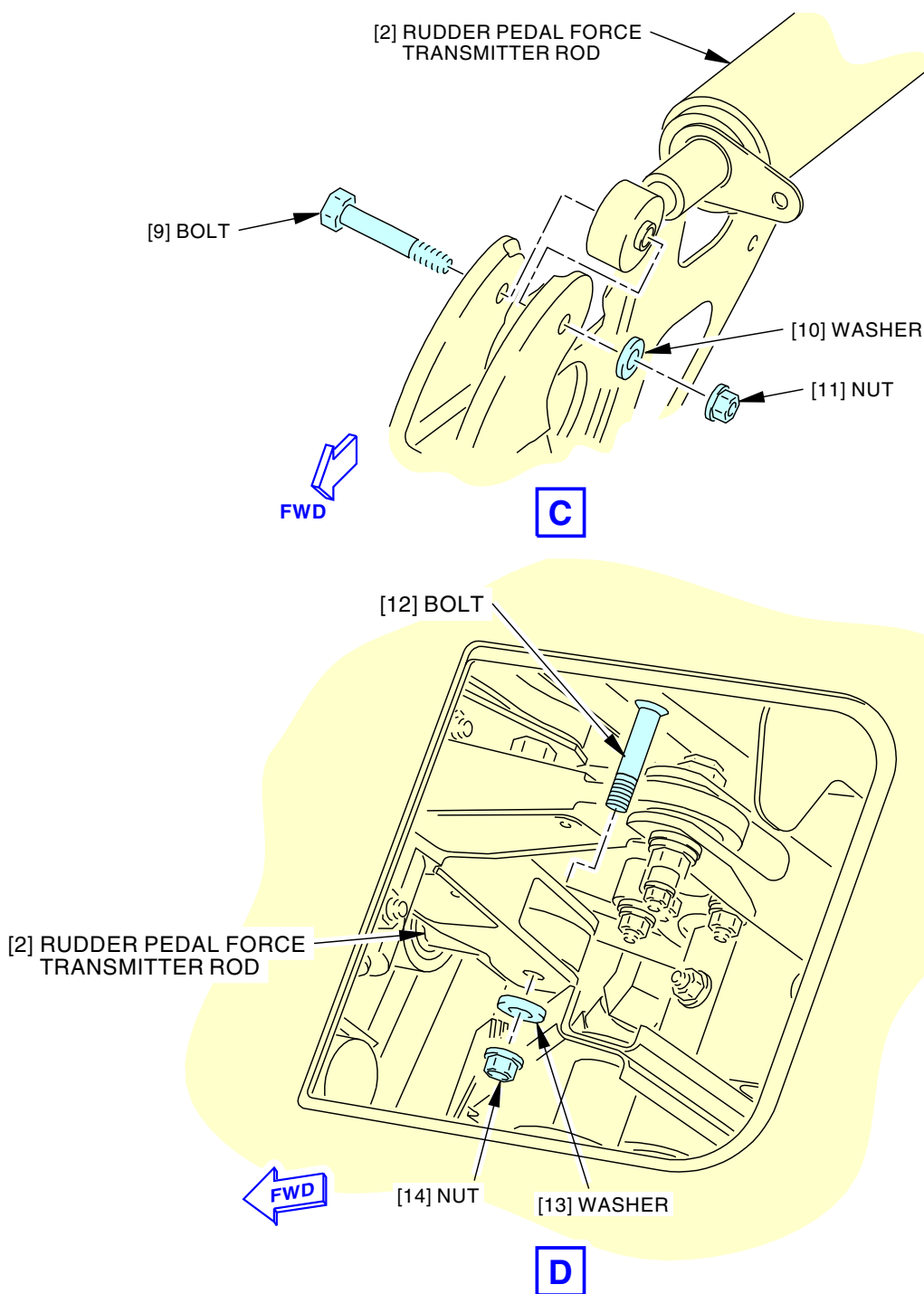
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Rudder Pedal Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 3 of 4)

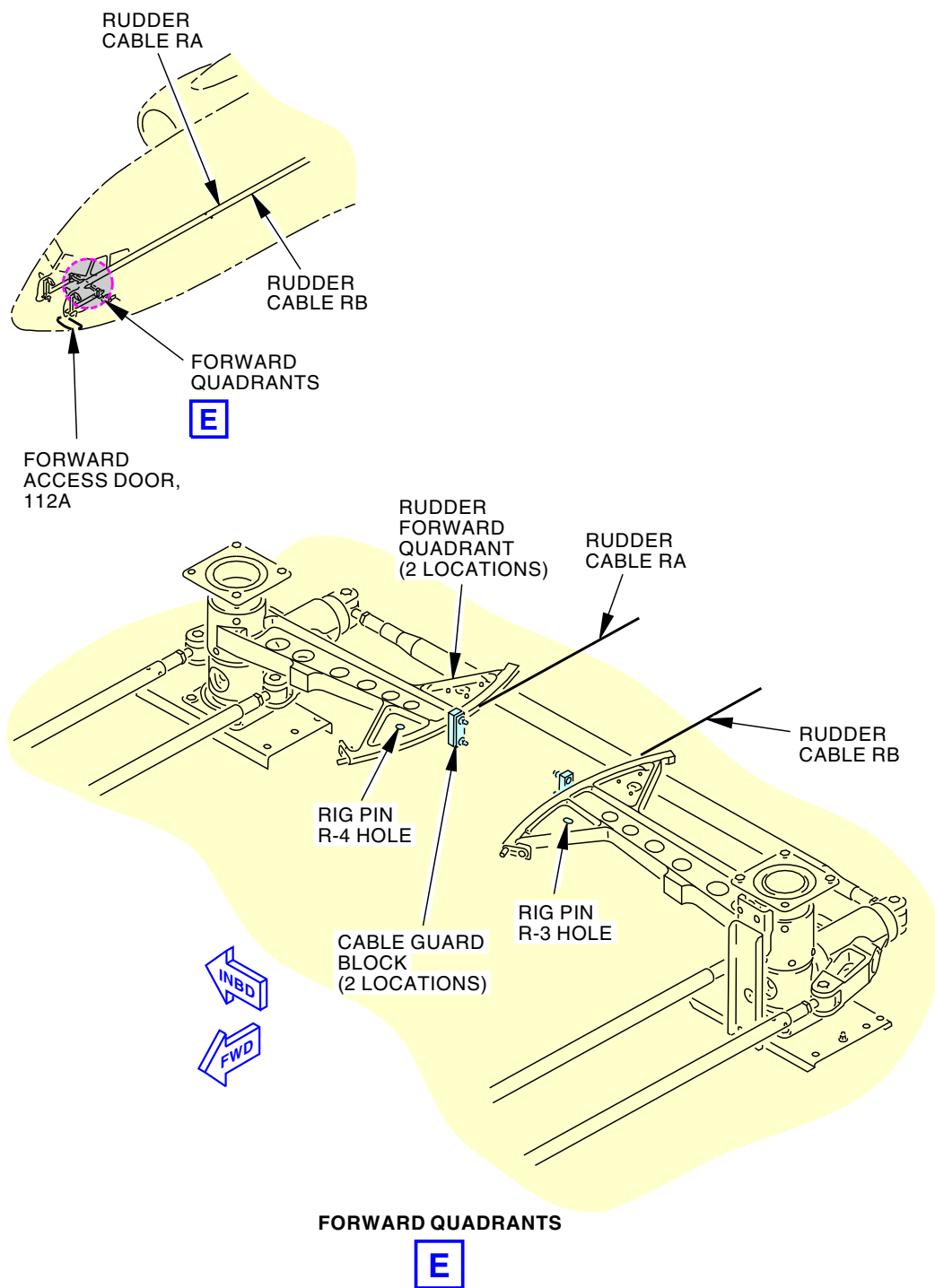
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Rudder Pedal Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 4 of 4)

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TASK 31-31-43-400-801

3. Rudder Pedal Force Transmitter Rod Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Rudder pedal force transmitter rod	31-31-43-01-065	SIA ALL

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
323	Vertical Fin - Front Spar To Rear Spar

D. Access Panels

Number	Name/Location
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

E. Rudder Pedal Force Transmitter Rod Installation

SUBTASK 31-31-43-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-43-860-003

- (2) If the rudder hydraulic systems are not depressurized, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-43-020-002



BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do these steps to install the rudder pedal force transmitter rod [2]:
- Install the rudder pedal force transmitter rod [2].
 - Install the bolt [12], washer [13], and nut [14].
 - Install the bolt [9], washer [10], and nut [11].
 - Tighten the nut [11] to 32.5 ±2.5 in-lb (3.7 ±0.3 N·m).
 - Do these steps to install the electrical ground [6]:
 - Install the bolt [3], washer [4], and washer [5].
 - Install the electrical ground [6].

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- 3) Install the washer [7], and nut [8].
- 4) Tighten the nut [8] to 32.5 ±2.5 in-lb (3.7 ±0.3 N·m).
- (f) Install the electrical connector [1].

F. Rudder Pedal Force Transmitter Rod Installation Test

SUBTASK 31-31-43-410-003

- (1) Close these panels:

<u>Number</u>	<u>Name/Location</u>
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

SUBTASK 31-31-43-010-002

- (2) Remove the rig pins A/S-3 and A/S-4 from the rig pin hole R3 and R4 in rudder forward quadrant.

SUBTASK 31-31-43-010-003

- (3) Remove the rig pins A/S-5 from the feel and centering unit.

SUBTASK 31-31-43-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-43-410-004

- (5) Do this task: Rudder Pedal Force Transmitter Installation Test, TASK 31-31-43-700-801.

————— END OF TASK —————

TASK 31-31-43-700-801

4. Rudder Pedal Force Transmitter Installation Test

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (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.

<u>Reference</u>	<u>Description</u>
COM-913	Download Unit - Handheld
	Part #: 69001074-080 Supplier: 97896
	Opt Part #: 69001074-001 Supplier: 97896
	Opt Part #: 69001074-060 Supplier: 97896
	Opt Part #: 69001074-070 Supplier: 97896

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Reference	Description
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70

C. Consumable Materials

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770

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
112A	Forward Access Door

F. Rudder Pedal Force Transmitter Installation Test

SUBTASK 31-31-43-710-001

(1) Use one of the testers listed below to do the installation test:

(a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697
- HHMPI interface cable (Honeywell SSDFDR), COM-13695
- HHMPI interface cable (Honeywell HFR5-D), COM-13696

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- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the FLIGHT RECORDER TEST-NORMAL switch, on the aft overhead panel, P5, to the TEST position.
- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553, to the connector on the SSFDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the flight recorder panel, on the aft overhead panel, P5, to the TEST position.
- 5) Put the cursor on Flight Data Recorder (FDR): Word Monitor in the Main Menu and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.

- (c) Do these steps to prepare the handheld download unit, COM-913:

NOTE: The handheld download unit, COM-913, can only be used on airplanes installed with AlliedSignal SSFDR.

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913, to the connector on the SSFDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

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- 4) Put the TEST-NORMAL switch on the flight recorder panel, on the aft overhead panel, P5, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

SUBTASK 31-31-43-860-006

- (2) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-43-860-007

- (3) Make sure that the FLIGHT RECORDER TEST-NORMAL switch on the aft overhead panel, P5, is set to the TEST position.

SUBTASK 31-31-43-860-008



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 31-31-43-840-002

- (5) Make sure that the hydraulic systems A, B and STBY, on the forward overhead panel, P5, are OFF.

SUBTASK 31-31-43-860-009

- (6) Set the tester subframe 0, word 80.
- (7) With no pressure to the left or right rudder pedals, make sure the tester shows an octal value between 3012 to 4112.

SUBTASK 31-31-43-840-003

- (8) Put pressure to the left rudder pedal.
 - (a) Make sure that the octal value increases.

NOTE: It may take 1 to 4 seconds to update. Hold the rudder pedal until an octal value shows on the display.

SUBTASK 31-31-43-840-004

- (9) Put pressure to the right rudder pedal.
 - (a) Make sure that the octal value decreases.

NOTE: It may take 1-4 seconds to update. Hold the rudder pedal until an octal value shows on the display.

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-43-410-005

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 31-31-43-860-010

- (2) Put the FLIGHT RECORDER TEST-NORMAL switch on the aft overhead panel, P5, to the NORMAL position.

SUBTASK 31-31-43-840-005

- (3) Remove power from the tester.

SUBTASK 31-31-43-860-011

- (4) Remove the tester from the flight data recorder system.

SUBTASK 31-31-43-420-001

- (5) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-43-400-001

- (6) Before the ceiling panel is closed, make sure that all foreign objects in the compartment have been removed and clean ceiling panel and surrounding area to remove all dirt or adhesive residue with alcohol, B50073.

————— **END OF TASK** —————

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ELEVATOR POSITION TRANSMITTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) Removal of the elevator position transmitter.
- (2) Installation of the elevator position transmitter.
- (3) Installation test of the elevator position transmitter.

TASK 31-31-51-000-801

2. Elevator Position Transmitter Removal

(Figure 401)

A. **References**

Reference	Title
27-31-00-800-802	Pressure from the Elevator Hydraulic Systems A and B Removal (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-7394	Cap - Dust, Electrical Connector

C. **Location Zones**

Zone	Area
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

D. **Access Panels**

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343CB	Horizontal Stabilizer, Access Panel - T.E. Area

E. **Elevator Position Transmitter Removal**

SUBTASK 31-31-51-840-001

- (1) Do this task: Pressure from the Elevator Hydraulic Systems A and B Removal, TASK 27-31-00-800-802.

SUBTASK 31-31-51-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-51-010-001

- (3) For the right elevator position, open this panel:

Number	Name/Location
343CB	Horizontal Stabilizer, Access Panel - T.E. Area

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SUBTASK 31-31-51-010-002

- (4) For the left elevator position, open this panel:

<u>Number</u>	<u>Name/Location</u>
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 31-31-51-020-001



PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (5) Remove the elevator position transmitter [1]:
- (a) Disconnect the electrical connector [2] from the elevator position transmitter [1].
 - (b) Put a dust cap, STD-7394, on the electrical connector [2].
 - (c) Loosen the screw [3] and screw [4].
 - (d) Remove the elevator position transmitter [1].

———— **END OF TASK** ————

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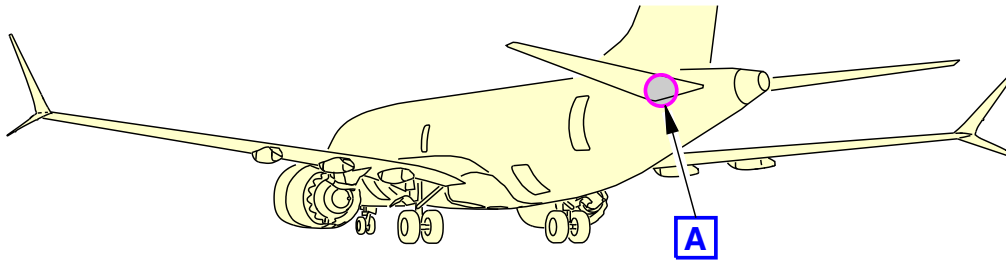
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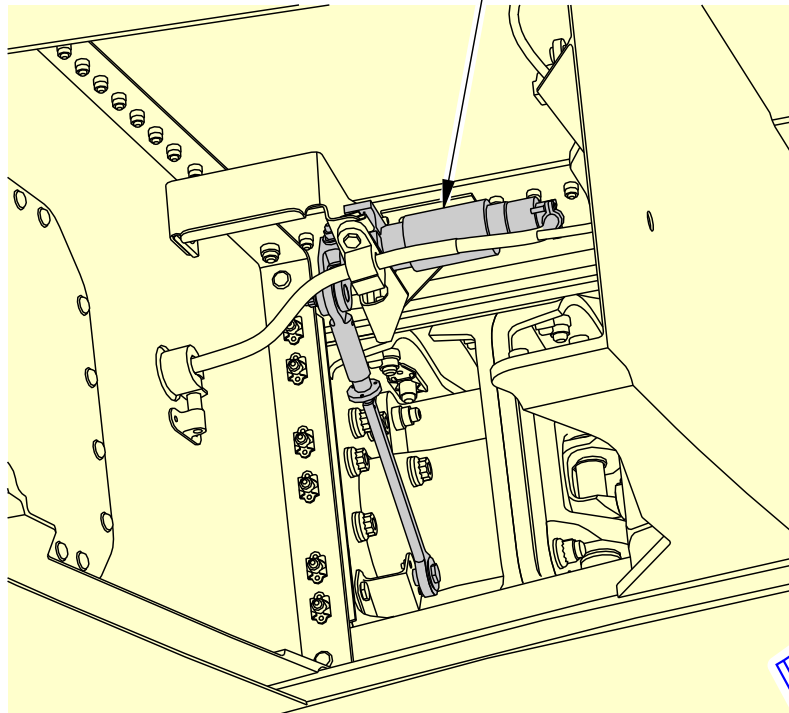
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ELEVATOR
POSITION
TRANSMITTER

B



(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

A

2413977 S00061534025_V3

Elevator Position Transmitter Installation
Figure 401/31-31-51-990-801 (Sheet 1 of 3)

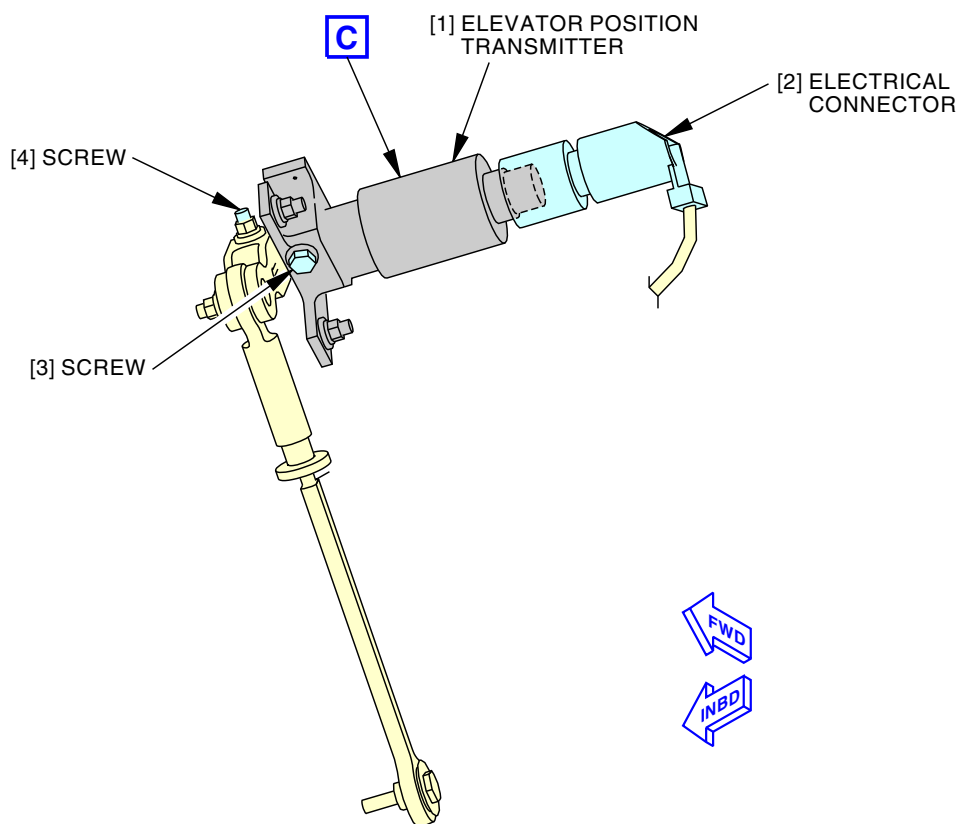
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ELEVATOR POSITION TRANSMITTER

B

3009567 S0000783251_V1

Elevator Position Transmitter Installation
Figure 401/31-31-51-990-801 (Sheet 2 of 3)

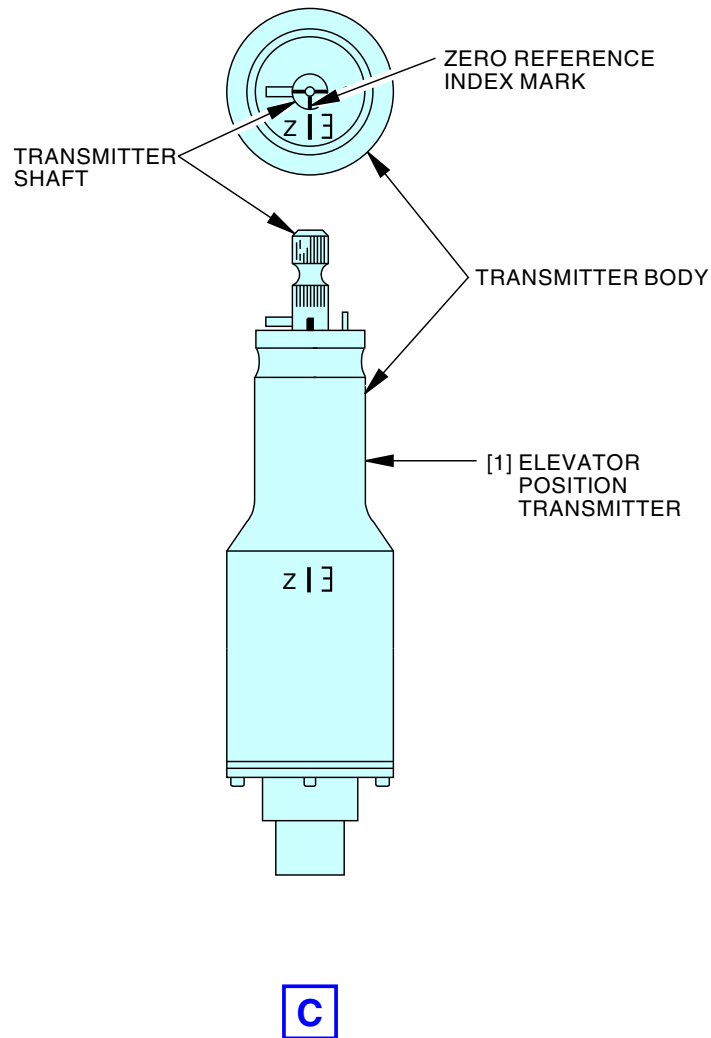
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2413979 S00061534027_V1

Elevator Position Transmitter Installation
Figure 401/31-31-51-990-801 (Sheet 3 of 3)

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TASK 31-31-51-400-801

3. Elevator Position Transmitter Installation

(Figure 401)

A. References

Reference	Title
27-31-00-800-802	Pressure from the Elevator Hydraulic Systems A and B Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Elevator position transmitter	31-31-51-01-115	SIA ALL

D. Location Zones

Zone	Area
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Elevator Position Transmitter Installation

SUBTASK 31-31-51-860-002

- (1) If the elevator hydraulic systems are not depressurized, do this task: Pressure from the Elevator Hydraulic Systems A and B Removal, TASK 27-31-00-800-802.

SUBTASK 31-31-51-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-51-020-002



PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (3) Install the elevator position transmitter [1]:
- (a) Install the shaft of the elevator position transmitter [1] into the support bracket.
 - (b) Align the EZ marks on the elevator position transmitter [1] body and the index mark on the shaft of the transmitter.
 - (c) Tighten the screw [3] and screw [4].
 - (d) Remove the dust cap, STD-7394, from the electrical connector [2].
 - (e) Install the electrical connector [2] onto the elevator position transmitter [1].

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F. Elevator Position Transmitter Installation Test

SUBTASK 31-31-51-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-51-860-005

- (2) Do this task: Elevator Position Transmitter Installation Test, TASK 31-31-51-700-801.

————— END OF TASK —————

TASK 31-31-51-700-801

4. Elevator Position Transmitter Installation Test

(Figure 401, Figure 402)

A. General

- (1) This task gives the instructions to do a test of the elevator position transmitter.

B. References

<u>Reference</u>	<u>Title</u>
22-11-30-400-801	Elevator Position Sensor Installation (P/B 401)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Pressure from the Elevator Hydraulic Systems A and B 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.

<u>Reference</u>	<u>Description</u>
COM-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70

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Reference	Description
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator Part #: F80055-36 Supplier: 81205 Opt Part #: F80055-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770

E. Location Zones

Zone	Area
211	Flight Compartment - Left
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343CB	Horizontal Stabilizer, Access Panel - T.E. Area

G. Prepare for the Test

SUBTASK 31-31-51-860-006

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-51-710-001

- (2) Use one of these testers listed to do the system test:

NOTE: When a task uses subframe 0 it shows that a parameter is on all 4 subframes. Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 through 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:
- 1) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):
 - HHMPI interface cable (L-3 Comm FA2100), COM-13697
 - HHMPI interface cable (Honeywell SSDFDR), COM-13695
 - HHMPI interface cable (Honeywell HFR5-D), COM-13696

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- 2) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.
- 3) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading, scroll through each data sub frame with the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:

- 1) Connect the L3 portable interface unit, COM-2553, to the connector on the SSFDR.
- 2) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.
- 3) Put the cursor on Flight Data Recorder (FDR): Word Monitor in the Main Menu and push SELECT.
- 4) Set the WORD and SUBFRAME as specified.

- (c) Do the steps below to prepare the handheld download unit, COM-913, for the installation test:

NOTE: These steps are only applicable to airplanes with a Honeywell SSFDR installed.

- 1) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 2) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.
- 3) Push the red button on the handheld download unit, COM-913.
- 4) Set the DSDU switch.
- 5) Set the BASE switch.
- 6) Set the WORD and SUBFRAME as specified.

NOTE: The Hand Held Down-load Unit (HHDLU) does not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 through 4 when a task uses subframe 0.

SUBTASK 31-31-51-860-008

- (3) If the elevator hydraulic systems are not depressurized, do this task: Pressure from the Elevator Hydraulic Systems A and B Removal, TASK 27-31-00-800-802.

SUBTASK 31-31-51-010-003

- (4) To get access to the stabilizer trim jackscrew, do this step:

- (a) Remove this access panel:

<u>Number</u>	<u>Name/Location</u>
311BL	Stabilizer Trim Access Door

H. Elevator Position Transmitter Installation Test

SUBTASK 31-31-51-980-001

- (1) Do these steps to set the B dimension (Figure 402):

NOTE: The B dimension measures the distance between the center of the upper and lower Gimbal pins on the stabilizer trim jackscrew. To do this, one person must be in the tail of the airplane with a headset and the other person in the flight compartment.

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- (a) Turn the stab trim wheel handle on the control stand to set the horizontal stabilizer to 4 units of trim.

NOTE: This B dimension is equivalent to the horizontal stabilizer at 4 units of trim (zero degree).

- (b) Use the trammel bar, SPL-1677, to measure the B dimension.
- 1) Make sure that the B dimension is 39.17 ± 0.01 in. (994.92 ± 0.26 mm).

SUBTASK 31-31-51-820-001

- (2) Make sure that the mach trim actuator is at the null position (TASK 22-11-30-400-801).

SUBTASK 31-31-51-860-009

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-51-860-010

- (4) Make sure that the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, is set to the TEST position.

SUBTASK 31-31-51-700-001

- (5) Do these steps to adjust the elevator position transmitter [1]:
- (a) Make sure that the elevator trailing edge is positioned in line with index on tailcone within ± 0.06 in. (1.52 mm) .
- (b) Make sure that the length of the linkage rod from center to center is 7.25 ± 0.02 in. (184.15 ± 0.51 mm).
- (c) Loosen the screw [3].
- (d) Set the tester subframe and word:
- 1) For the left elevator position transmitter [1], set the tester to subframe 0, word 5.
- 2) For the right elevator position transmitter [1], set the tester to subframe 0, word 15.
- (e) Turn the elevator position transmitter [1] slowly in each direction until you get an octal value between 7733 to 7777 or 0000 to 0044 on the tester.
- (f) Tighten the screw [3].
- (g) Turn the thumb wheel on the linkage rod slowly in each direction until you get an octal value between 7733 to 7777 or 0000 to 0044 on the tester.
- (h) Install lockwire on the thumb wheel.

NOTE: After final adjustments are made, the tester should read between 7733 to 7777 or 0000 to 0044 octal when stabilizer is set to 39.17 ± 0.01 in. (994.92 ± 0.26 mm) and elevators are faired to neutral within 0.06 in. (1.52 mm) of the index on the tailcone.

SUBTASK 31-31-51-700-002

- (6) Do these steps to do a test of the elevator position transmitter [1] signal:

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MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



DO NOT OPERATE THE HYDRAULIC SYSTEM IF THERE IS LESS THAN A SUFFICIENT QUANTITY OF FUEL IN THE APPLICABLE TANK. DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.
- (b) Make sure that the horizontal stabilizer is at 4 units of trim.
- (c) Set the tester to subframe 0, word 5.
- (d) Move the control column full aft against stop.
 - 1) Make sure that the tester shows 6710 to 7056.
- (e) Move the control column full forward against stop.
 - 1) Make sure that the tester shows 0500 to 0646.
- (f) Set the tester to subframe 0, word 15.
- (g) Move the control column full aft against stop.
 - 1) Make sure that the tester shows 0730 to 1056.
- (h) Move the control column full forward against stop.
 - 1) Make sure that the tester shows 7140 to 7266.
- (i) Do this task: Pressure from the Elevator Hydraulic Systems A and B Removal, TASK 27-31-00-800-802.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-51-410-001

- (1) For the left elevator position, close this panel:

<u>Number</u>	<u>Name/Location</u>
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

For the right elevator position, close this panel:

<u>Number</u>	<u>Name/Location</u>
343CB	Horizontal Stabilizer, Access Panel - T.E. Area

Close this panel:

<u>Number</u>	<u>Name/Location</u>
311BL	Stabilizer Trim Access Door

SUBTASK 31-31-51-840-002

- (2) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the NORMAL position.

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SUBTASK 31-31-51-860-014

- (3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-51-860-012

- (4) Remove the tester from the flight data recorder system.

SUBTASK 31-31-51-420-001

- (5) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-51-860-013

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-51-400-001

- (7) Before you close the ceiling panel, make sure all foreign objects in the compartment have been removed and clean the ceiling panel and surrounding area to remove all dirt or adhesive residue with alcohol, B50073.

SUBTASK 31-31-51-010-005

- (8) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
318BR	Tailcone Access Door

————— **END OF TASK** —————

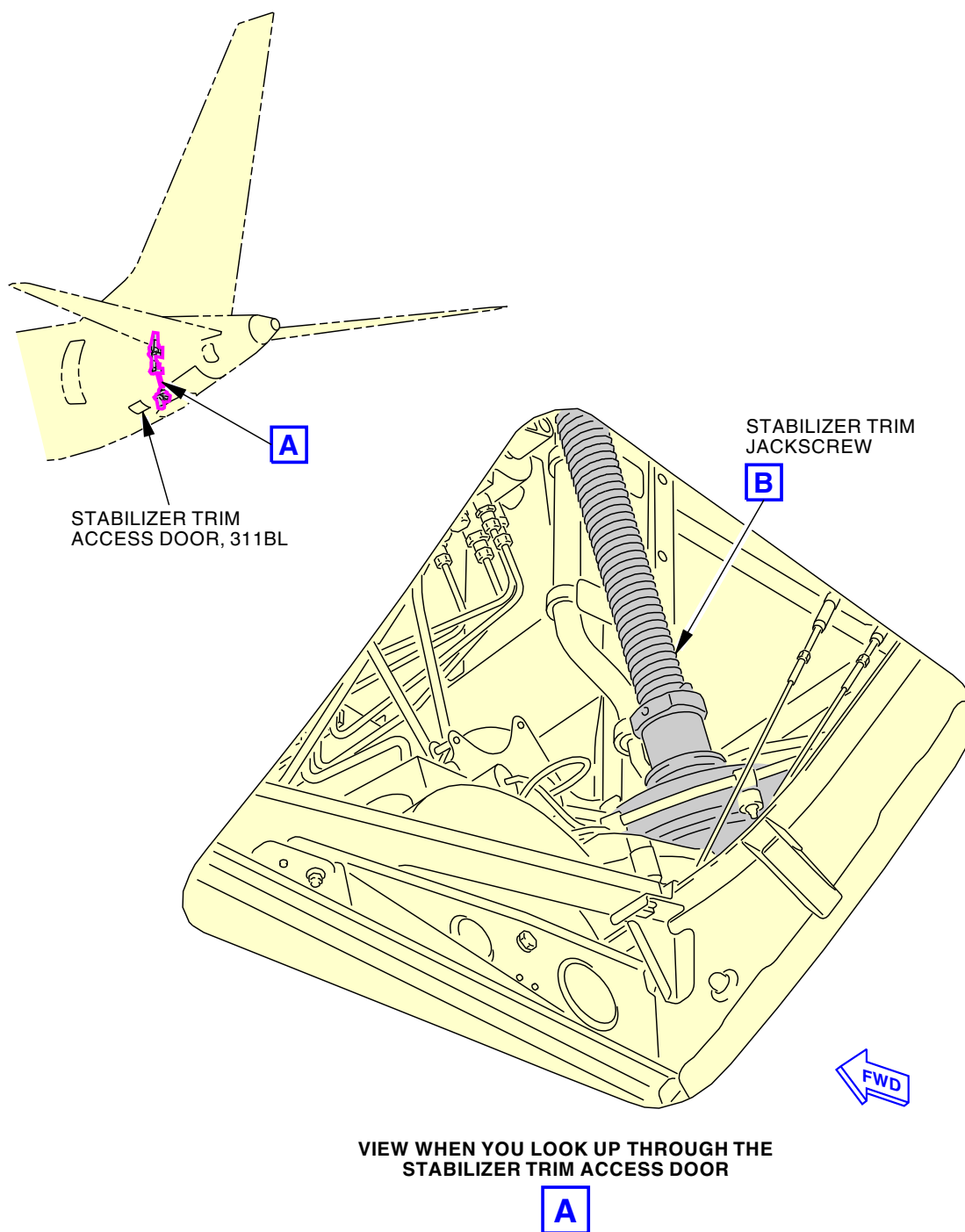
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2411551 S00061528200_V1

Stabilizer Trim Jackscrew Setting
Figure 402/31-31-51-990-802 (Sheet 1 of 2)

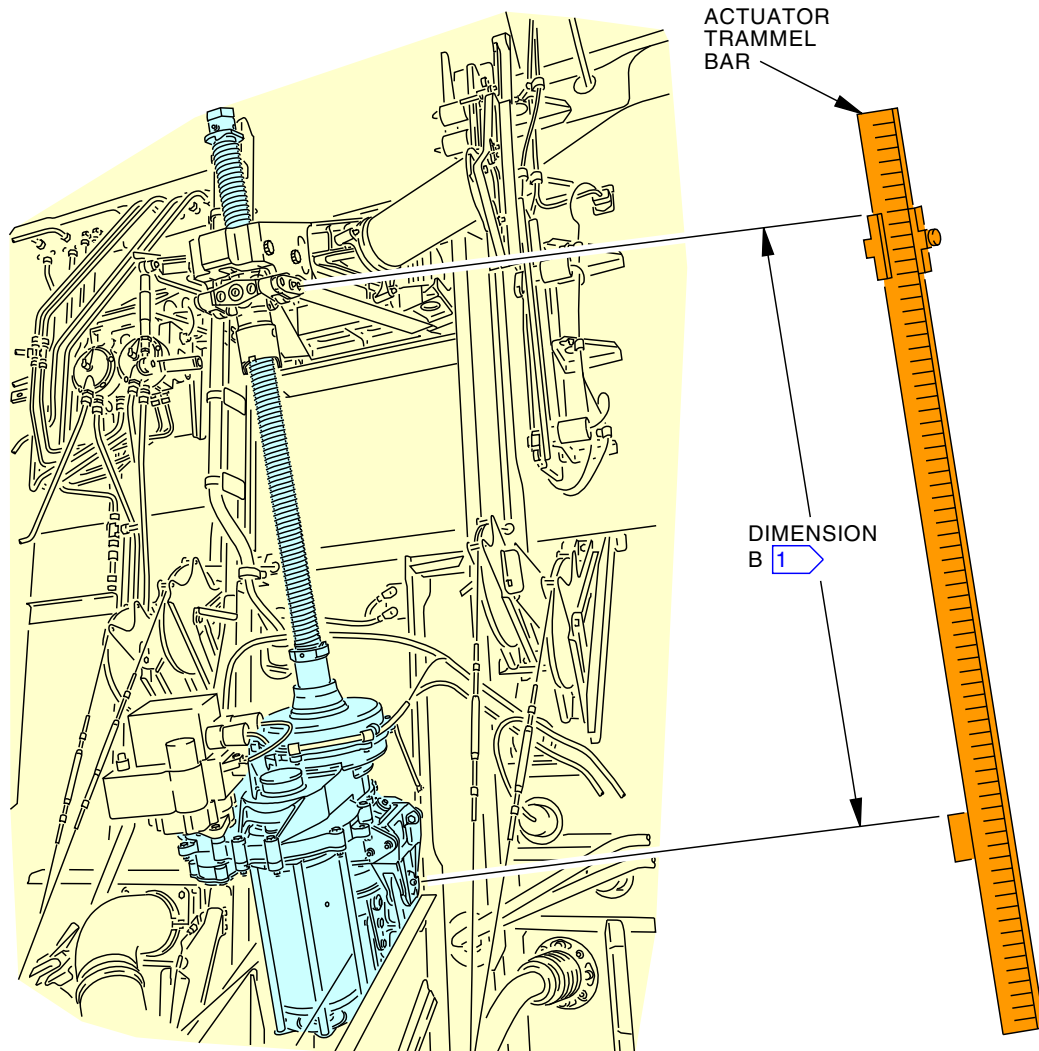
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FWD

STABILIZER TRIM JACKSCREW



NOTE:

THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREE.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS.

2411552 S00061528201_V1

Stabilizer Trim Jackscrew Setting
Figure 402/31-31-51-990-802 (Sheet 2 of 2)

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CONTROL COLUMN POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the control column position sensor.
- (2) An installation of the control column position sensor.
- (3) An installation test of the control column position sensor.

TASK 31-31-52-000-801

2. Control Column Position Sensor Removal

(Figure 401)

A. **References**

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-41-51-000-801	Column Cutout Switch Removal (P/B 401)

B. **Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. **Access Panels**

Number	Name/Location
112A	Forward Access Door

D. **Removal Procedure**

SUBTASK 31-31-52-860-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-52-860-002

- (2) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-52-010-001

- (3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 31-31-52-020-001



MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE AREAS AROUND THE CONTROL SURFACES. IF POWER IS SUPPLIED TO THE CAD/C, THE AIRCRAFT CONTROL SURFACES CAN MOVE. SUDDEN MOVEMENT OF THE CONTROL SURFACES CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Column Cutout Switch Removal, TASK 27-41-51-000-801.

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SUBTASK 31-31-52-020-002

- (5) Remove the control column position sensor [1] from the Control Cutoff Switch Module:
- (a) Turn the electrical connector [6] counterclockwise to remove the connector.
 - (b) Loosen the flex coupling screw [7].
 - (c) Remove the bolts [2] and washers [3].
 - (d) Remove the bolt [4] and clamp [5] to remove the cable from its mounting.
 - (e) Remove the control column position sensor [1] from the control cutoff switch module.

———— **END OF TASK** ————

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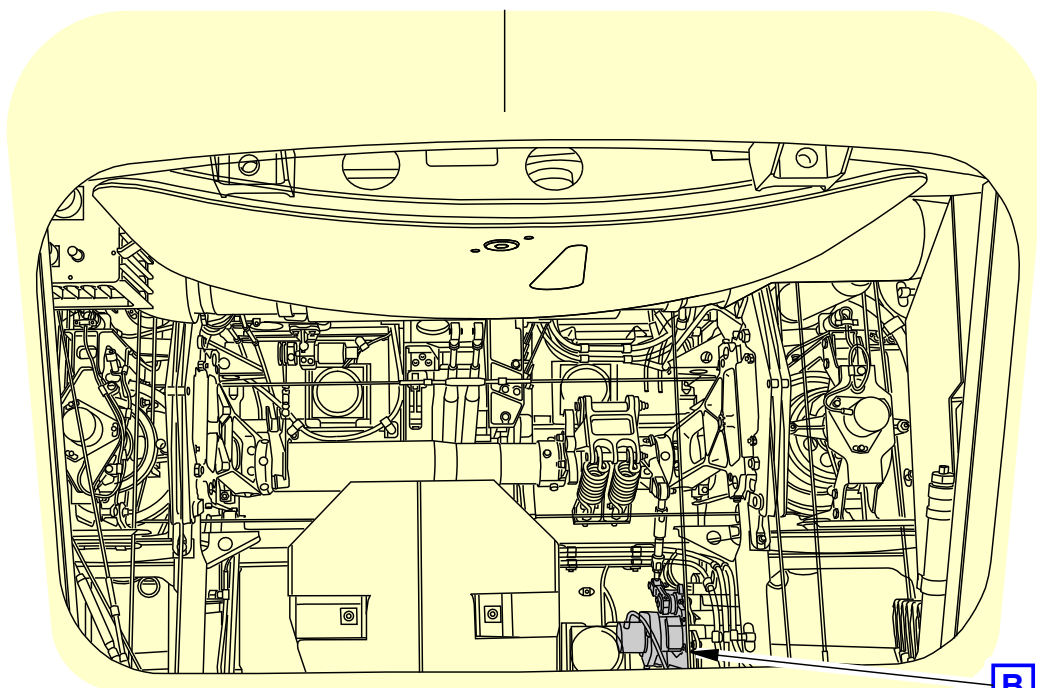
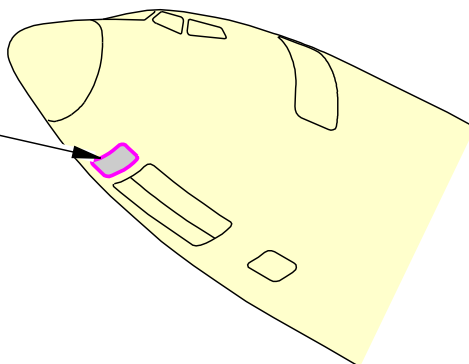
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FORWARD
ACCESS
DOOR, 112A

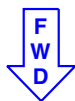
A



B

FORWARD ACCESS DOOR
(OPEN POSITION)

A



2413982 S00061534035_V1

Control Column Position Sensor Installation
Figure 401/31-31-52-990-801 (Sheet 1 of 2)

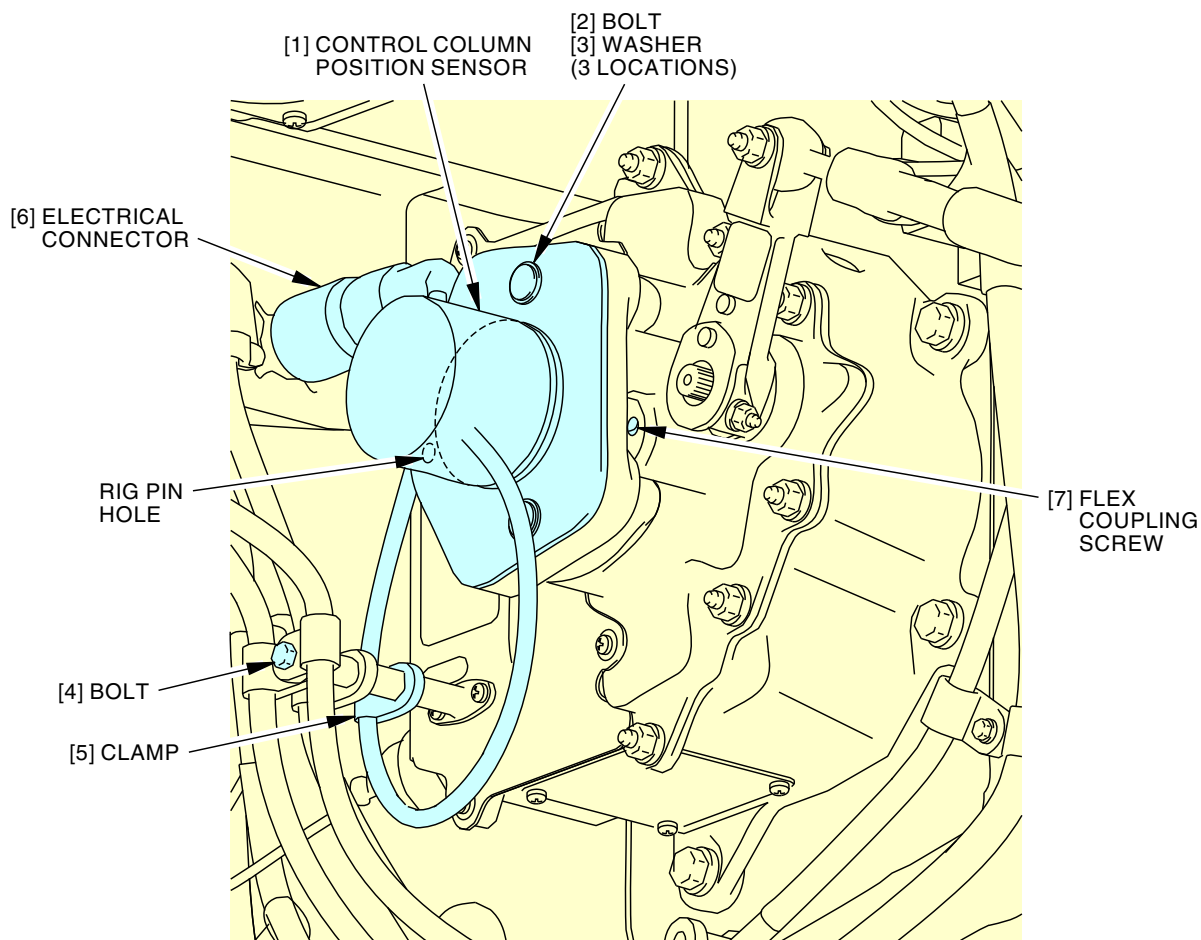
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CONTROL CUTOFF SWITCH
(EXAMPLE)

B

2413983 S00061534036_V1

Control Column Position Sensor Installation
Figure 401/31-31-52-990-801 (Sheet 2 of 2)

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TASK 31-31-52-400-801

3. Control Column Position Sensor Installation

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-41-51-400-801	Column Cutout Switch Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Sensor	27-41-51-02-160	SIA ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Installation Procedure

SUBTASK 31-31-52-860-003

- (1) If hydraulic systems are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-52-860-004

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-52-020-003

- (3) Install the control column position sensor [1]:



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.

- (a) Apply Cor-Ban 27L Compound, G50237 to the shaft of the sensor [1].

NOTE: Make sure the compound does not get on the sensor bearing. This can cause friction on the bearing.

- (b) Insert the shaft of the sensor [1] into the flex coupling.

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- (c) Install the bolts [2] and washers [3].
- (d) Tighten the flex coupling screw [7] to 13.5 ± 1.5 in-lb (1.5 ± 0.2 N·m).
- (e) Install the cable, clamp [5], and bolt [4].
- (f) Install the sensor electrical connector [6].

SUBTASK 31-31-52-420-001



WARNING

MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE AREAS AROUND THE CONTROL SURFACES. IF POWER IS SUPPLIED TO THE CADC, THE AIRCRAFT CONTROL SURFACES CAN MOVE. SUDDEN MOVEMENT OF THE CONTROL SURFACES CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Column Cutout Switch Installation, TASK 27-41-51-400-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-52-840-001

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-52-410-001

- (2) If you do not accomplish the installation test immediately, close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

H. Control Column Position Sensor Installation Test

SUBTASK 31-31-52-410-002

- (1) Do this task: Control Column Position Sensor Installation Test, TASK 31-31-52-820-801.

————— END OF TASK —————

TASK 31-31-52-820-801

4. Control Column Position Sensor Installation Test

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-11-00-860-802	Pressure to the Aileron Hydraulic Systems A and B - Activation (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-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70
SPL-1585	Kit - Rigging Pin Part #: F70207-151 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Prepare for the Installation Test

SUBTASK 31-31-52-410-003

- (1) Open this access door:

Number	Name/Location
112A	Forward Access Door

SUBTASK 31-31-52-860-006

- (2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

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G. Control Column Position Sensor Installation Test

SUBTASK 31-31-52-710-001

- (1) Use one of these testers to do the installation test:

NOTE: When a task uses subframe 0 it shows that a parameter is on all 4 subframes. Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 through 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697
- HHMPI interface cable (Honeywell SSDFDR), COM-13695
- HHMPI interface cable (Honeywell HFR5-D), COM-13696

- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading, scroll through each data sub frame with the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553, to the connector on the Flight Data Recorder (FDR).

- 3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

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- 4) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.
- 5) Put the cursor on FDR: Word Monitor in the Main Menu, and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.

- (c) Do the steps below to prepare the handheld download unit, COM-913, for the installation test.

NOTE: These steps are only applicable to airplanes with AlliedSignal SSFDR installed.

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

NOTE: The Hand Held Down-load Unit (HHDLU) does not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 through 4 when a task uses subframe 0.

SUBTASK 31-31-52-860-007

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-52-860-008

- (3) Make sure that the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, is set to the TEST position.

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SUBTASK 31-31-52-420-002



MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE AREAS AROUND THE CONTROL SURFACES. IF POWER IS SUPPLIED TO THE CADC, THE AIRCRAFT CONTROL SURFACES CAN MOVE. SUDDEN MOVEMENT OF THE CONTROL SURFACES CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Make sure that the captain's control column is in the neutral position.
 - (a) Install rigging pin kit, SPL-1585, rigging pin E-1 in the elevator forward quadrant, on the captains side (Figure 402).
 - (b) Install rigging pin kit, SPL-1585, rigging pin ST-4 in the captains column, actuated cutout switch module (Figure 402).

SUBTASK 31-31-52-863-001



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.

- (5) Do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802.

SUBTASK 31-31-52-820-001

- (6) Do these steps to adjust the captain's control column position sensor [1]:
 - (a) Loosen the bolts [2].
 - (b) Set the tester to subframe 0, word 10.
 - (c) Turn the body of the control column position sensor [1] slowly in each direction until you get an octal value between 7765 to 0013 on the tester.
 - (d) Tighten the bolts [2] to 32.5 ± 2.5 in-lb (3.7 ± 0.3 N·m).

SUBTASK 31-31-52-020-004

- (7) Remove rigging pin kit, SPL-1585, rigging pin ST-4 from the captain's control column, actuated cutout switch module.

SUBTASK 31-31-52-420-003



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.

- (8) Make sure the first officer's control column is in the neutral position.
 - (a) Make sure the rigging pin kit, SPL-1585, rigging pin E-1 is in the elevator forward quadrant, on the captains side (Figure 402).
 - (b) Install rigging pin kit, SPL-1585, rigging pin ST-4 in the first officers column, actuated cutout switch module (Figure 403).

SUBTASK 31-31-52-820-002

- (9) Do this step for the first officer's control column position sensor [1]:
 - (a) Set the tester to subframe 0, word 20.

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- (b) Turn the body of the control column position sensor [1] slowly in each direction until you get an octal value between 7765 to 0013 on the tester.
- (c) Tighten the bolts [2] to 32.5 ± 2.5 in-lb (3.7 ± 0.3 N·m).

SUBTASK 31-31-52-030-001

- (10) Remove the rigging pins.

SUBTASK 31-31-52-864-001

 WARNING	MAKE SURE YOU REMOVE HYDRAULIC PRESSURE FROM ALL HYDRAULIC SYSTEMS BEFORE YOU DO THIS PROCEDURE. THIS WILL HELP PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.
---	--

- (11) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-52-410-004

- (12) Close this access door:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

H. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-52-860-009

- (1) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the NORMAL position.

SUBTASK 31-31-52-840-002

- (2) Remove power from the tester.

SUBTASK 31-31-52-860-010

- (3) Remove the tester.

SUBTASK 31-31-52-420-004

- (4) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-52-400-001

- (5) Before you close the ceiling panel, make sure that all foreign objects in the compartment have been removed and clean the ceiling panel and surrounding area to remove all dirt or adhesive residue with alcohol, B50073.

———— **END OF TASK** ————

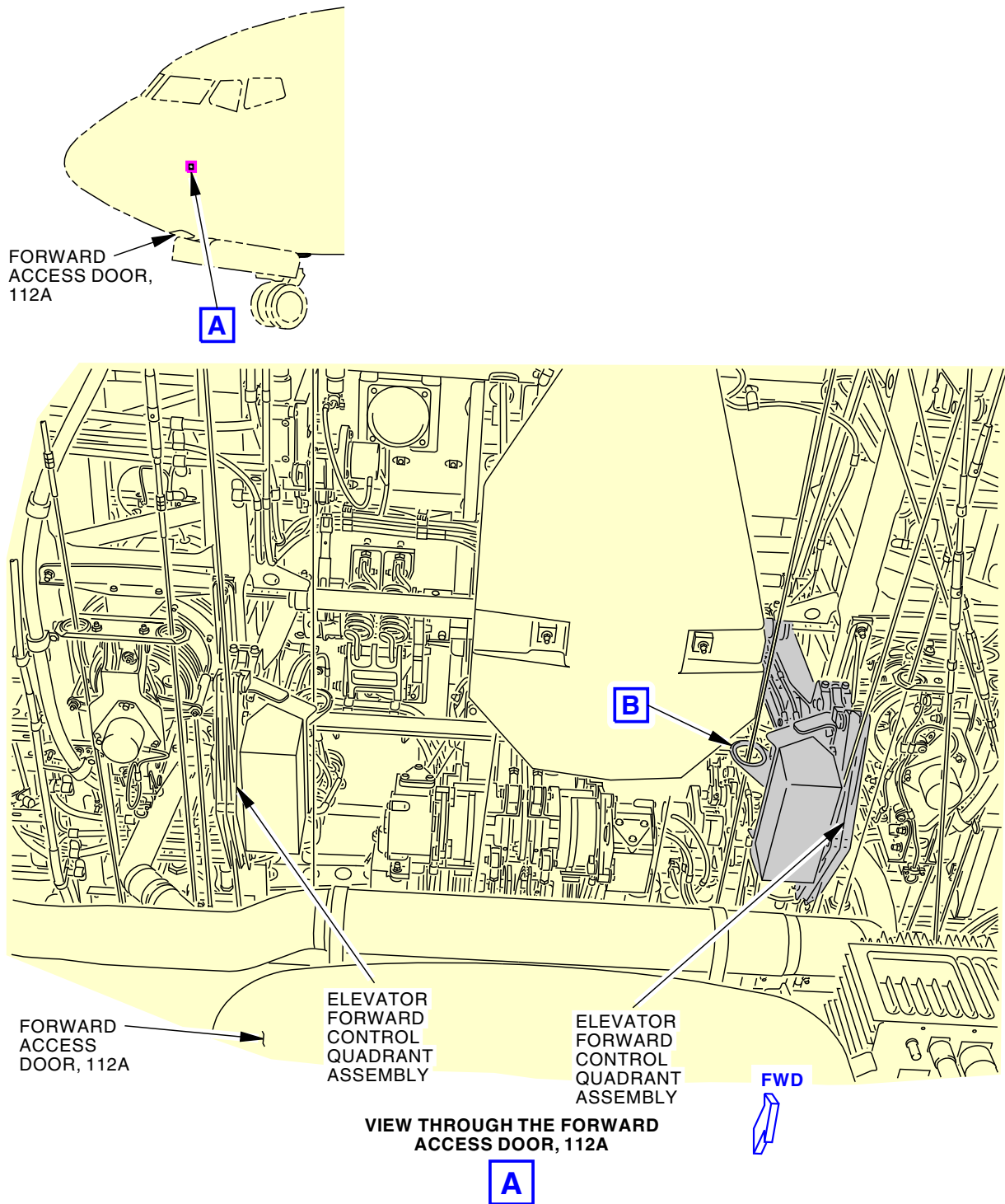
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2412574 S00061530927_V1

Elevator Forward Control Quadrant - Rig Pin Location - E-1
Figure 402/31-31-52-990-802 (Sheet 1 of 2)

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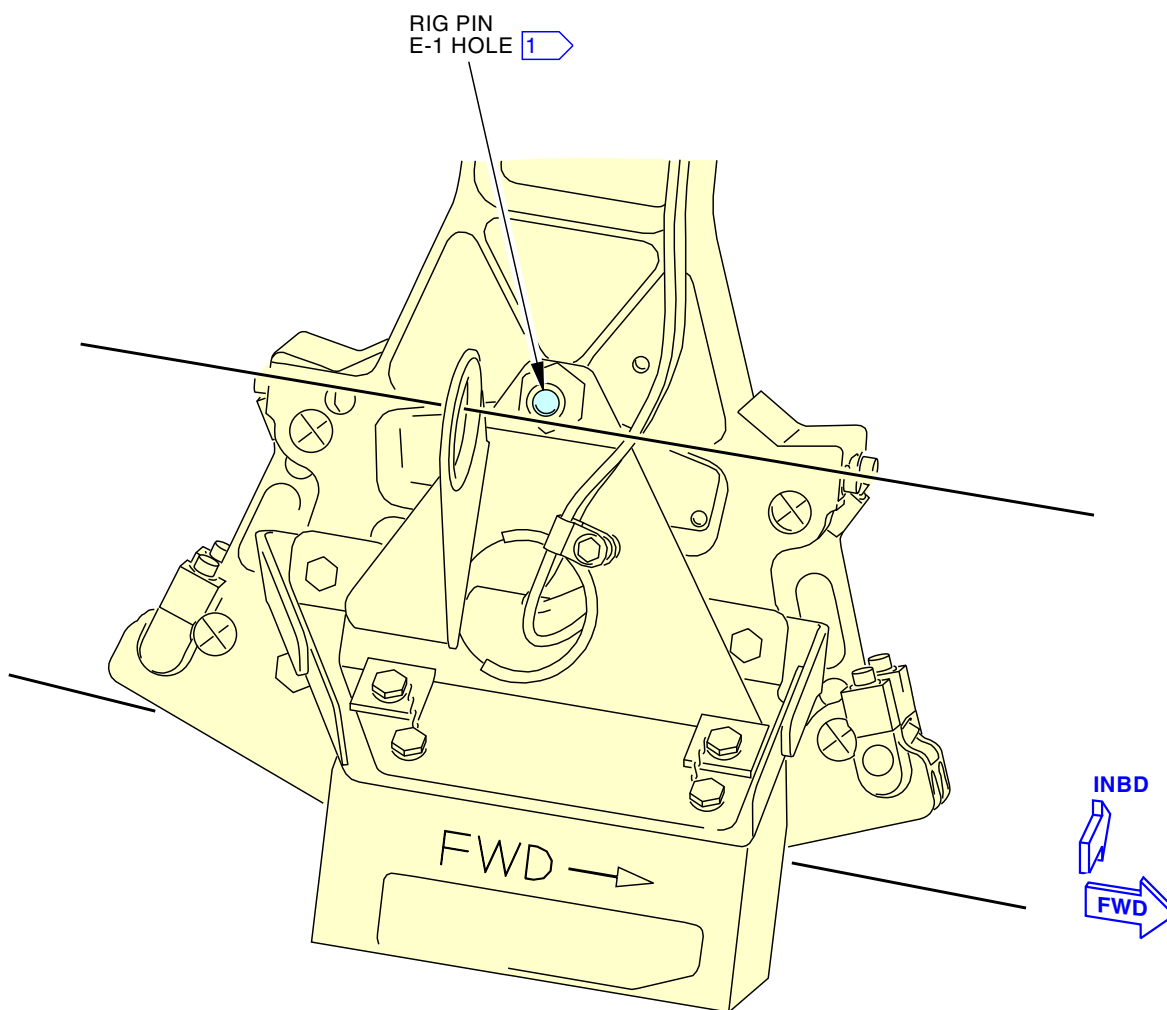
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MASS BALANCE WEIGHT

B

1 LEFT SIDE OF FORWARD
QUADRANT ASSEMBLY ONLY

2541451 S0000604574_V1

Elevator Forward Control Quadrant - Rig Pin Location - E-1
Figure 402/31-31-52-990-802 (Sheet 2 of 2)

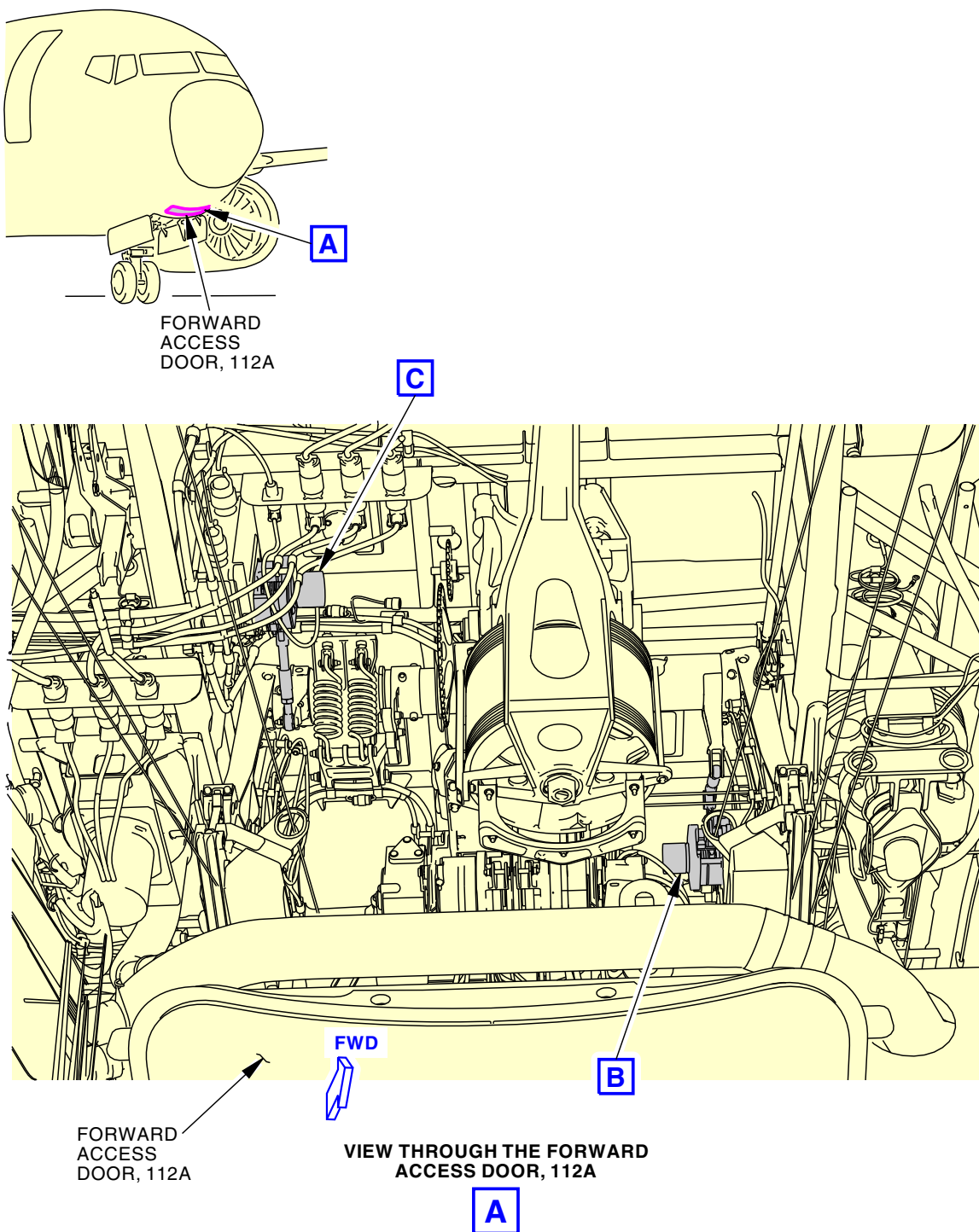
EFFECTIVITY
SIA ALL

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2541454 S0000604575_V1

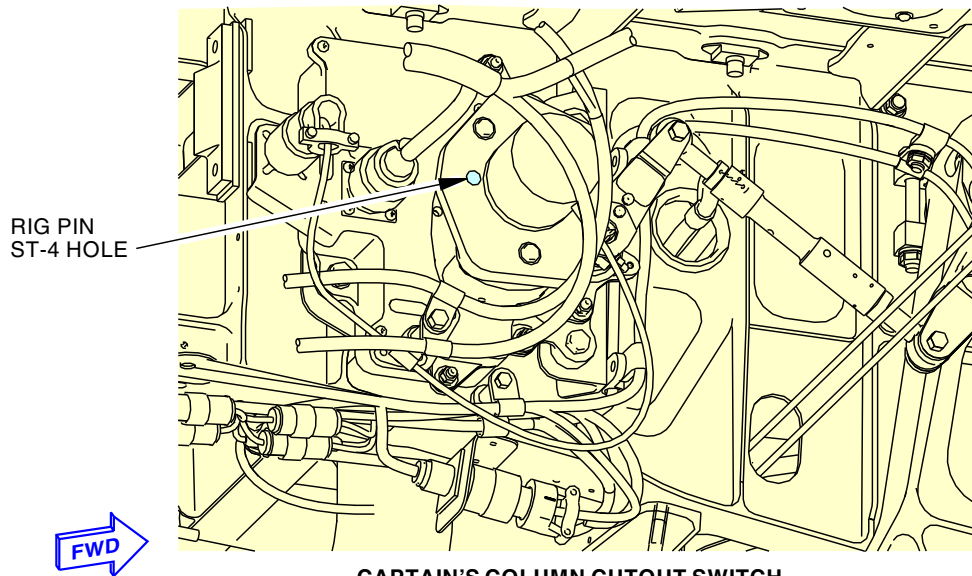
Column Cutout Switch - Rig Pin Location - ST-4
Figure 403/31-31-52-990-803 (Sheet 1 of 2)

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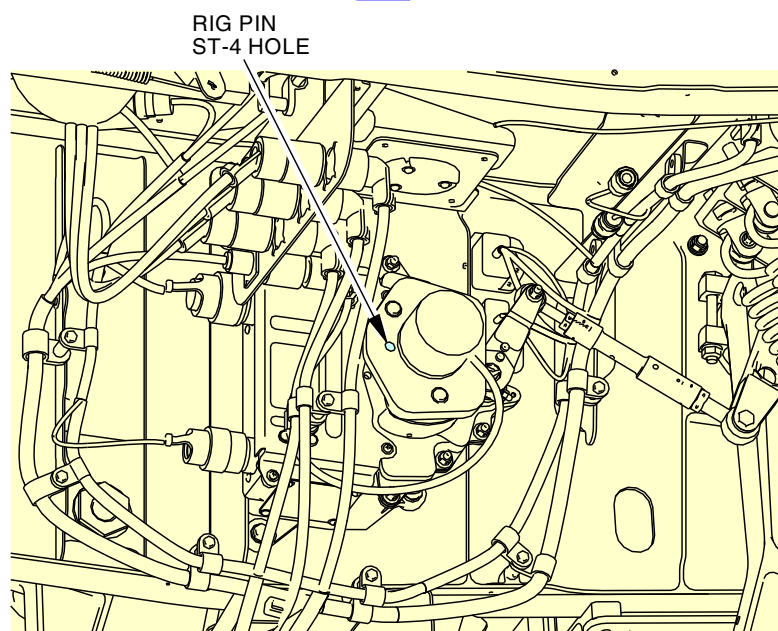
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CAPTAIN'S COLUMN CUTOUT SWITCH

B



**FIRST OFFICER'S COLUMN
CUTOUT SWITCH**

C

2541456 S0000604579_V1

Column Cutout Switch - Rig Pin Location - ST-4
Figure 403/31-31-52-990-803 (Sheet 2 of 2)

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BRAKE PRESSURE TRANSMITTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) Removal of the brake pressure transmitters (T492, T493, T494, T495).
- (2) Installation of the brake pressure transmitters (T492, T493, T494, T495).
- (3) Installation test of the main and alternate brake pressure transmitters.

TASK 31-31-61-000-801

2. Brake Pressure Transmitter Removal

(Figure 401)

A. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Brake Pressure Transmitter Removal

SUBTASK 31-31-61-860-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-61-020-001



WARNING

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

- (2) Make sure the downlocks for the main landing gear are installed in the nose and the main landing gear.

SUBTASK 31-31-61-020-002

- (3) Make sure to put chocks on the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 31-31-61-020-003

- (4) Remove pressure from the left, right and center hydraulic system and the hydraulic reservoirs (TASK 27-11-00-860-801).

SUBTASK 31-31-61-020-004

- (5) Pump the brake pedal fully seven to eight times to let out the hydraulic pressure from the brake accumulator.

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SUBTASK 31-31-61-020-005

- (6) Do these steps to remove the alternate brake transmitter (T494 or T495):
- (a) Disconnect the electrical connector [3] from the brake pressure transmitter [1].
 - (b) Loosen the hydraulic tube b-nut [6].
 - (c) Pull the hydraulic tube [4] away from the brake pressure transmitter [1].
 - (d) Install a cap/plug, STD-14686, to the hydraulic tube [4].
 - (e) Remove the lockwire [7] from the brake pressure transmitter [1].
 - (f) Remove nut [2] and washer [5].
 - (g) Remove the brake pressure transmitter [1].

SUBTASK 31-31-61-020-006

- (7) Do these steps to remove the main brake pressure transmitter (T492 or T493):
- (a) Disconnect the electrical connector [8] from the brake pressure transmitter [1].
 - (b) Loosen the hydraulic tube b-nut [12].
 - (c) Pull the hydraulic tube [9] away from the brake pressure transmitter [1].
 - (d) Install a cap/plug, STD-14686, to the hydraulic tube [9].
 - (e) Remove the lockwire [13] from the brake pressure transmitter [1].
 - (f) Remove nut [11] and washer [10].
 - (g) Remove the brake pressure transmitter [1].

———— **END OF TASK** ————

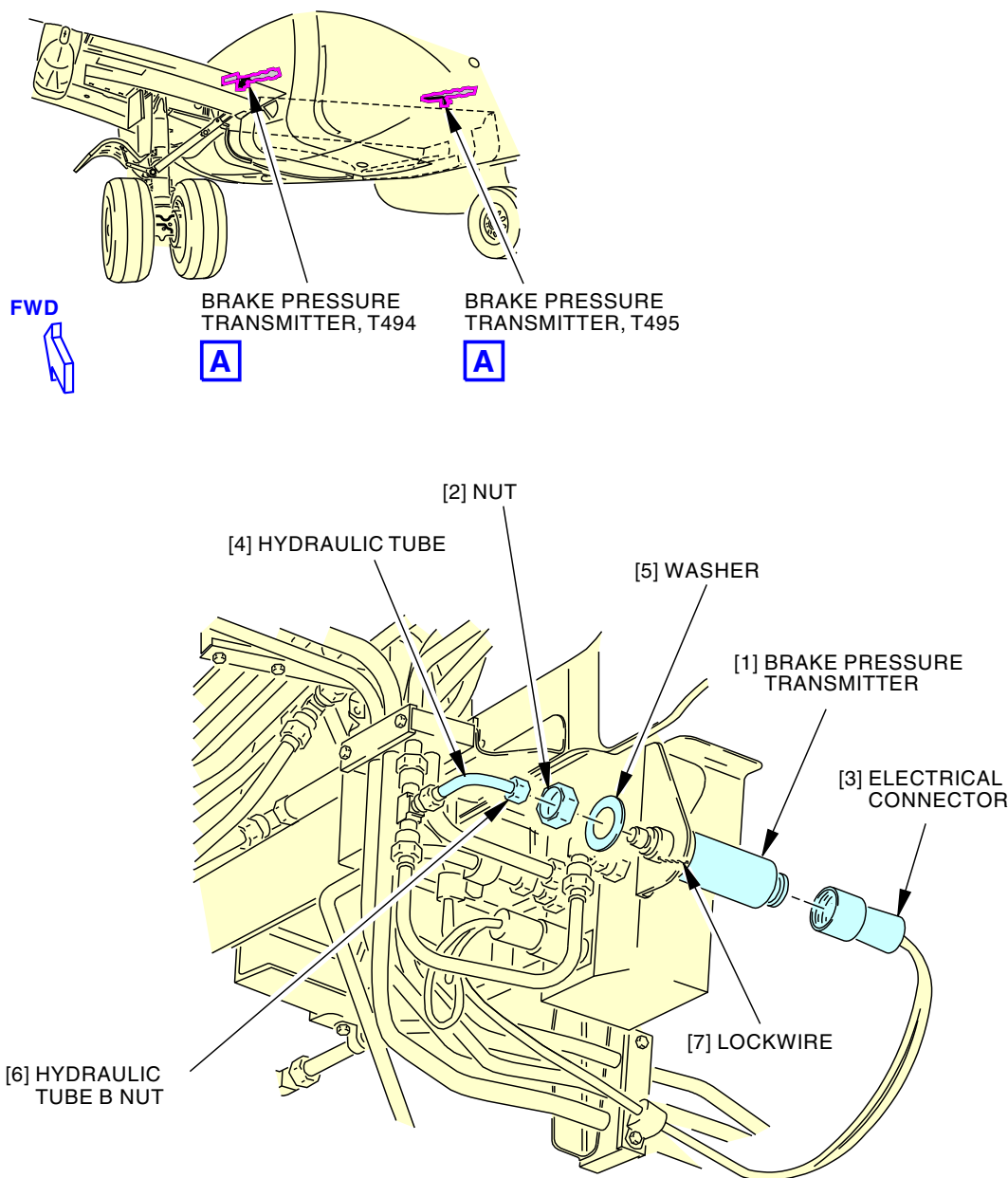
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ALTERNATE BRAKE PRESSURE TRANSMITTER
(EXAMPLE)

A

2413984 S00061534042_V1

Brake Pressure Transducer Installation
Figure 401/31-31-61-990-801 (Sheet 1 of 2)

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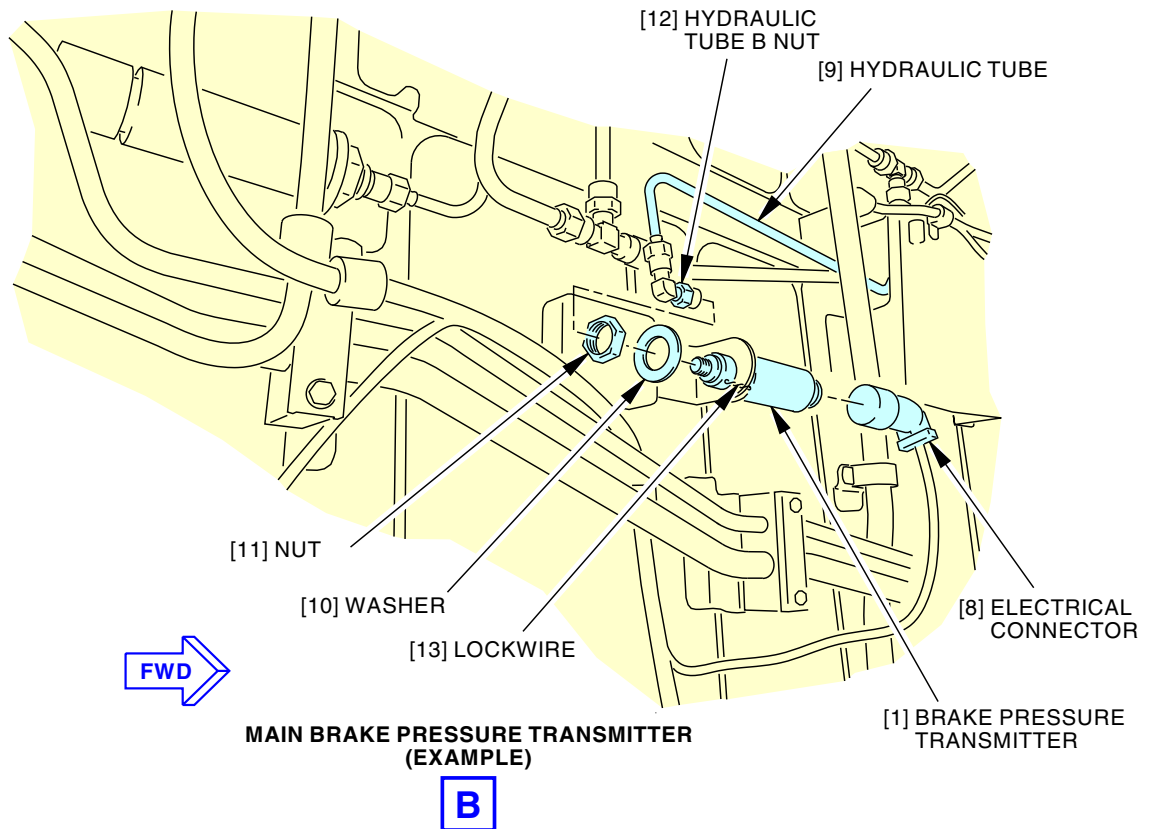
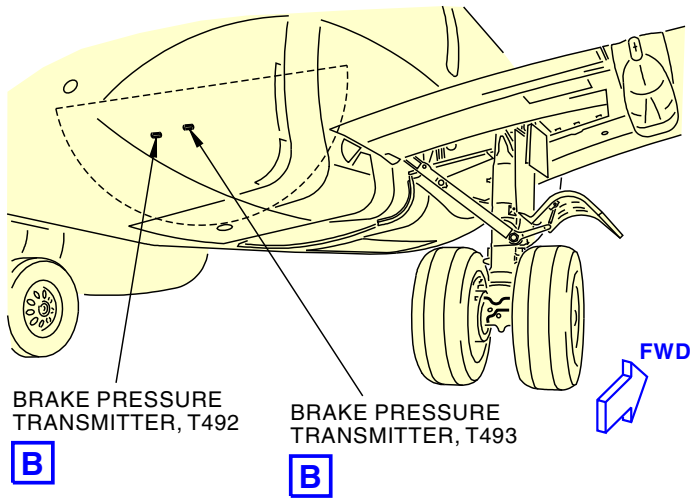
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2413985 S00061534043_V1

Brake Pressure Transducer Installation
Figure 401/31-31-61-990-801 (Sheet 2 of 2)

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TASK 31-31-61-400-801

3. **Brake Pressure Transmitter Installation**

(Figure 401)

A. References

Reference	Title
20-10-34-110-801	Remove Paint from Metal Surfaces with Lacquer Thinner or Solvent (P/B 701)
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - 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
COM-1550	Bonding Meter - 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 #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Brake pressure transmitter	29-31-12-01-030	SIA ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

F. Brake Pressure Transmitter Installation

SUBTASK 31-31-61-860-002

- (1) If hydraulic systems are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

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SUBTASK 31-31-61-860-003

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-61-100-001



MAKE SURE THE GROUND LOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE GROUND LOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do these steps to prepare the bonding areas for installation:
- (a) Clean the bonding surfaces to remove paint or alodine from metal surfaces (TASK 20-10-34-110-801).
 - (b) Apply solvent, B00083, to the bonding surfaces with a cotton wiper, G00034.
 - (c) Rub the necessary force to remove contamination you can see.
 - (d) Immediately dry the surfaces with a cotton wiper, G00034.
- SUBTASK 31-31-61-020-007
- (4) Do these steps to install the alternate brake pressure transmitter [1]:
- (a) Install the brake pressure transmitter [1] to the bracket.
 - (b) Install washer [5] and nut [2].
 - (c) Tighten the nut [2] to 360 $\pm$ 36 in-lb (41 $\pm$ 4 N·m).
 - (d) Apply sealant, A00247, along the edges of the joint between the electrical faying surface to form a fillet seal.
 - (e) Apply chemical conversion coating manually to the bare aluminum surfaces that is not covered by electrical faying surfaces.
 - (f) Apply primer, C00259, to the bonding surfaces.
 - (g) Measure the resistance between the structure and the bracket with an intrinsically safe approved bonding meter, COM-1550.
 - 1) Make sure the resistance value is less than 0.025 ohm (25 milliohms).
 - (h) Install lockwire [7].
 - (i) Remove the cap/plug, STD-14686, from the hydraulic tube [4].
 - (j) Install the hydraulic tube [4] to the brake pressure transmitter [1].
 - (k) Tighten the hydraulic tube b-nut [6].
 - (l) Install the electrical connector [3] to the brake pressure transmitter [1].

SUBTASK 31-31-61-020-008

- (5) Do these steps to install the main brake pressure transmitter [1] (T492, T493):
- (a) Install the main brake pressure transmitter [1] to the bracket.
 - (b) Install washer [10] and nut [11].
 - (c) Tighten the nut [11] to 360 $\pm$ 36 in-lb (41 $\pm$ 4 N·m).
 - (d) Apply sealant, A00247, along the edges of the joint between the electrical faying surface to form a fillet seal.

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- (e) Apply chemical conversion coating manually to the bare aluminum surfaces that is not covered by electrical faying surfaces.
- (f) Apply primer, C00259, to the bonding surfaces.
- (g) Measure the resistance between the structure and the bracket with an intrinsically safe approved bonding meter, COM-1550.
 - 1) Make sure the resistance value is less than 0.025 ohm (25 milliohms).
- (h) Install lockwire [13].
 - (i) Remove the cap/plug, STD-14686, from the hydraulic tube [9].
 - (j) Install the hydraulic tube [9] to the brake pressure transmitter [1].
 - (k) Tighten the hydraulic tube b-nut [12].
 - (l) Install the electrical connector [8] to the brake pressure transmitter [1].

G. Brake Pressure Transmitter Installation Test

SUBTASK 31-31-61-840-001

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-61-410-001

- (2) Do this task: Brake Pressure Transmitter Installation Test, TASK 31-31-61-820-801.

————— END OF TASK —————

TASK 31-31-61-820-801

4. Brake Pressure Transmitter Installation Test

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby 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.

<u>Reference</u>	<u>Description</u>
COM-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70

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Reference	Description
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70

C. Consumable Materials

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Brake Pressure Transmitter Installation Test

SUBTASK 31-31-61-710-001

- (1) Use one of these testers listed to do the installation test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):

- HHMPI interface cable (L-3 Comm FA2100), COM-13697
- HHMPI interface cable (Honeywell SSDFDR), COM-13695
- HHMPI interface cable (Honeywell HFR5-D), COM-13696

- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, in the TEST position.

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- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading, scroll through each data sub frame with the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the Flight Data Recorder (FDR).

- 3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.

- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.

- 6) Set the WORD and SUBFRAME as specified.

- (c) Do these steps to prepare the handheld download unit, COM-913:

NOTE: These steps are only applicable to airplanes with AlliedSignal SSFDR.

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913, to the connector on the SSFDR.

- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Push the red button on the handheld download unit, COM-913.

- 5) Set the DSDU switch.

- 6) Set the BASE switch.

- 7) Set the WORD and SUBFRAME as specified.

NOTE: The Hand Held Down-load Unit (HHDLU) does not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 through 4 when a task uses subframe 0.



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SUBTASK 31-31-61-860-005

- (2) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the TEST position.

SUBTASK 31-31-61-860-006

- (3) Make sure the PARKING BRAKE is OFF.

SUBTASK 31-31-61-860-007

- (4) Do these steps to do an installation test of the alternate brake pressure transmitters, T494 or T495:



MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES, CABLES, AND LANDING GEAR AREAS. PRESSURIZATION OF A HYDRAULIC SYSTEM CAN MOVE CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS. MOVEMENT OF CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



MAKE SURE THAT THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

- (a) Supply hydraulic pressure for system A (TASK 29-11-00-860-801).
 - 1) Make sure that system B does not have hydraulic pressure.
 - a) If system B has hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - 2) Make sure that the standby hydraulic system does not have hydraulic pressure.
 - a) If the standby hydraulic system has pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
- (b) For T494, left alternate brake pressure transmitter, do these steps:
 - 1) Set the tester to subframe 0, word 62 (Dataframe 7).
 - 2) Push and hold the captain's left brake pedal fully against the stop.
- (c) For T495, right alternate brake pressure transmitter, do these steps:
 - 1) Set the tester to subframe 0, word 318 (Dataframe 7).
 - 2) Push and hold the captain's right brake pedal fully against the stop.
- (d) Find a value in the table below that best agrees with the value for the hydraulic system pressure.
 - 1) Make sure the octal value that shows on the tester agrees with the octal value shown in Table 401:

Table 401/31-31-61-993-801

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)

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Table 401/31-31-61-993-801 (Continued)

Hydraulic Pressure	Tester Display (octal)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

- (e) Release the captain's brake pedal.

SUBTASK 31-31-61-860-008

- (5) Do these steps to do an installation test of the main brake transmitters (T492 or T493):



MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES, CABLES, AND LANDING GEAR AREAS. PRESSURIZATION OF A HYDRAULIC SYSTEM CAN MOVE CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS. MOVEMENT OF CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



MAKE SURE THAT THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

- (a) Supply hydraulic pressure for system B (TASK 29-11-00-860-801).
- 1) Make sure system A does not have hydraulic pressure.
 - a) If system A has hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - 2) Make sure the standby hydraulic system does not have hydraulic pressure.
 - a) If the standby hydraulic system has pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
- (b) Do these steps for the left main brake transmitter, T492;
- 1) Set the tester to subframe 0, word 190 (Dataframe 7).
 - 2) Push and hold the captain's left brake pedal fully against the stop.
- (c) Do these steps for the right main brake transmitter, T493:
- 1) Set the tester to subframe 0, word 446 (Dataframe 7).
 - 2) Push and hold the captain's right pedal fully against the stop.
- (d) Find a value in Table 402 that best agrees with the value for the hydraulic system pressure.
- 1) Make sure the octal value that shows on the tester agrees with the octal value shown in Table 402:

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Table 402/31-31-61-993-802

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

(e) Release the captain's brake pedal.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-61-860-009

- (1) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the NORMAL position.

SUBTASK 31-31-61-840-002

- (2) Remove power from the tester.

SUBTASK 31-31-61-860-010

- (3) Remove the tester.

SUBTASK 31-31-61-420-001

- (4) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-61-400-001

- (5) Before you close the ceiling panel, make sure all foreign objects in the compartment have been removed and clean the ceiling panel and surrounding area to remove all dirt or adhesive residue with alcohol, B50073.

————— **END OF TASK** —————

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FLIGHT DATA RECORDER ACCELEROMETER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) Removal of the flight data recorder accelerometer
- (2) Installation of the flight data recorder accelerometer.

TASK 31-31-81-000-801

2. Flight Data Recorder Accelerometer - Removal

(Figure 401)

A. **Tools/Equipment**

Reference	Description
STD-764	Scraper - Non-metallic

B. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. **Flight Data Recorder Accelerometer Removal**

SUBTASK 31-31-81-860-001

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-81-020-001

- (2) Remove the flight data recorder accelerometer [1].
 - (a) Disconnect the electrical connector [3] from the flight data recorder accelerometer [1].
 - (b) Remove the bolts [2] and washers [4].
 - (c) Remove the flight data recorder accelerometer [1].

SUBTASK 31-31-81-140-001

- (3) Remove the sealant from the joint between flight data recorder accelerometer [1] and bracket.
 - (a) Use non-metallic scraper, STD-764.

———— **END OF TASK** ————

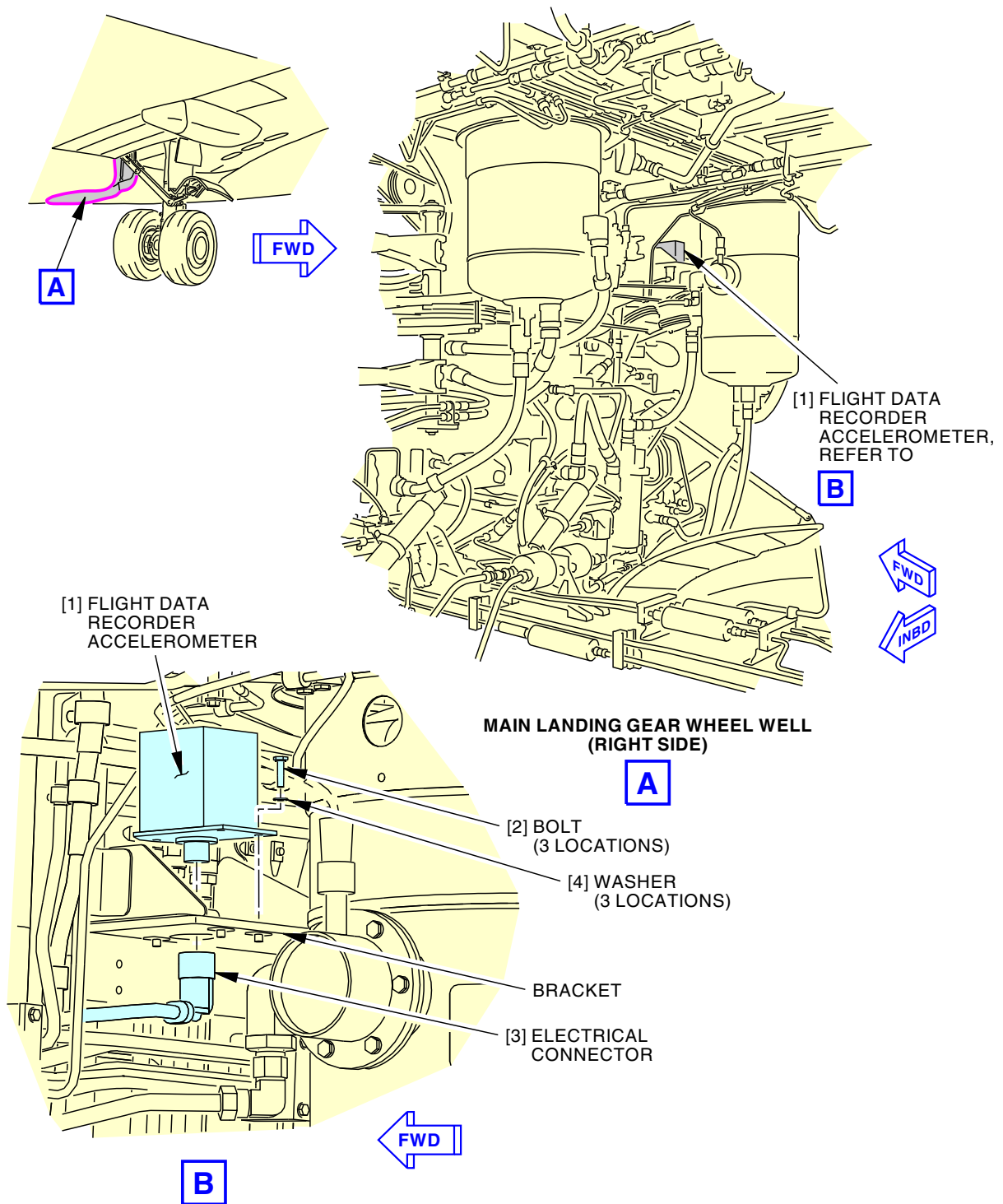
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Flight Data Recorder Accelerometer Installation
Figure 401/31-31-81-990-801

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TASK 31-31-81-400-801

3. Flight Data Recorder Accelerometer - Installation

(Figure 401)

A. References

Reference	Title
31-31-00-730-801	Flight Data Recorder System - System Test (P/B 501)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

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-913	Download Unit - Handheld Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-1550	Bonding Meter - 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 #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-2550	Unit - Download, Hand-Held (Solid State DFDR only) Part #: 69001074-080 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 69001074-070 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0043 Supplier: 06141 Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: 17TES0065 Supplier: 06141 Opt Part #: FDS400-301 Supplier: Z7C70
COM-4132	Multi-Purpose AIDS Display Unit (MADU) Part #: FAA-0032-005 Supplier: 4Z487
COM-10631	Display Unit - Digital, Signal Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: HT717-1 Supplier: 0H231
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only)
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70

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(Continued)

Reference	Description
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70

C. Consumable Materials

Reference	Description	Specification
A50110	Sealant - Fuel Tank	BMS5-45 Class B-2
A50231	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class B
A50296	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class C
B50073	Alcohol - Isopropyl	ASTM D 770
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Flight Data Recorder Accelerometer Installation

SUBTASK 31-31-81-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-81-200-001

- (2) Make sure that the flight data recorder accelerometer [1] does not have external damage.

SUBTASK 31-31-81-100-001

- (3) Prepare a fay surface bond between the mating surfaces of the flight data recorder accelerometer [1] and the bracket (SWPM 20-20-00).
 - (a) Do the abrasive cleaning procedure for bonding surface of the flight data recorder accelerometer [1] and the bracket.
 - (b) Do the solvent cleaning procedure for the bonding surfaces of the flight data recorder accelerometer [1] and the bracket.
 - (c) Install a fay surface bond between the flight data recorder accelerometer [1] and the bracket (SWPM 20-20-00).
 - (d) Apply sealant, A50110, sealant, A50231, or sealant, A50296, to one of the mating surfaces.

SUBTASK 31-31-81-020-002

- (4) Install the flight data recorder accelerometer [1].
 - (a) Install the flight data recorder accelerometer [1] onto the mounting bracket.

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- 1) Make sure that the sealant squeeze-out must show continuously along the full edge of the fay seal joint.
- 2) Remove the unwanted sealant from the flight data recorder accelerometer [1] and the bracket.
- (b) Install the washers [4] and bolts [2].
- (c) Install the electrical connector [3].

SUBTASK 31-31-81-760-001

- (5) Measure the electrical bonding resistance between the flight data recorder accelerometer [1] and the bracket (SWPM 20-20-00).
- (a) Use intrinsically safe approved bonding meter, COM-1550.

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- 1) Make sure that the electrical bonding resistance is 0.001 ohm (1.0 milliohms) or less.

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- 2) Make sure that the electrical bonding resistance is 0.0005 ohm (0.5 milliohms) or less.

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SUBTASK 31-31-81-600-001

- (6) Manually apply coating, C00064, to the remaining bare aluminium areas on the structure.

SUBTASK 31-31-81-600-002

- (7) Apply one coat of primer, C00259, to cover all exposed bare areas on the bracket around the bolt [2].

F. Flight Data Recorder Accelerometer Installation Test

NOTE: This is not a full system test. If the full system test is necessary, refer to Flight Data Recorder System - System Test, TASK 31-31-00-730-801.

SUBTASK 31-31-81-710-001

- (1) Use one of these testers listed to do the installation test:
 - (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:
 - 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Hand Held Multi-Purpose Interface (HHMPI) cable to the Solid-State Flight Data Recorder (SSFDR):
 - HHMPI interface cable (L-3 Comm FA2100), COM-13697
 - HHMPI interface cable (Honeywell SSDFDR), COM-13695
 - HHMPI interface cable (Honeywell HFR5-D), COM-13696

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- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading, scroll through each data sub frame with the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553, to the connector on the SSFDR.

- 3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.

- 5) Put the cursor on Flight Data Recorder (FDR): Word Monitor in the Main Menu and push SELECT.

- 6) Set the WORD and SUBFRAME as specified.

- (c) If you use the STP tester, set the control switches as follows:

- 1) Set the ON/OFF power switch to the ON position.
- 2) Push the STP TEST switch and make sure there is no failure message on the tester.
- 3) Push the CLR switch.
- 4) Push the FDAU switch.
- 5) Set the UPDATE switch to the AUTO position.
- 6) Set the SUBFRAME and WORD as specified.

- (d) If you use the digital signal display unit, COM-10631, set the control switches as follows:

- 1) Set the ON/OFF power switch to the on Position.
- 2) Set the SYNC switch to SYNC B.
- 3) Set the INPUT switch to the ARINC INPUT DATA position.
- 4) Set the OCTAL DISPLAY switch to 12 BITS.
- 5) Set the PARAMETER DATA/DOC DATA switch to the PARAMETER DATA position.



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- 6) Set the SUBFRAME and WORD as specified.
- (e) If you use the handheld download unit, COM-2550, do the steps that follow:
NOTE: These steps are for airplanes equipped with Alliedsignal SSFDR only.
- 1) Set the function switch on the flight recorder control panel to the ON position.
 - 2) Push the red button on top of the handheld download unit, COM-2550.
 - 3) Set the DSDU switch.
 - 4) Set the BASE switch.
 - 5) In the BASE SELECT menu, set OCT for octal values.
 - 6) Set the SUBFRAME and WORD as specified.
- NOTE: For SUBFRAME 0, select ALL.
- (f) If you use the MADU, COM-4132, set the control switches as follows:
- 1) Set the ON/OFF power switch to the ON position.
 - 2) Push the FUN switch, then enter numeric 5 on the Multi-function AIDS Display Unit (MADU).
 - 3) Push the DATA switch, then numeric 03.
 - 4) Push the FUN switch, then numeric 03 for SUBFRAME.
 - 5) Push the DATA switch, then numeric 4 for WORD.
 - 6) Set the SUBFRAME and WORD as specified.
- (g) Do the steps below to prepare the handheld download unit, COM-913, for the system test.

NOTE: These steps are only applicable to airplanes with AlliedSignal SSFDR.

- 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913, to the connector on the SSFDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch on the FLIGHT RECORDER panel, P5 AFT, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

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SUBTASK 31-31-81-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-81-700-001

- (3) Do this test of the flight data recorder accelerometer [1].
- (a) For Vertical Acceleration, set the portable tester to subframe 0, word 66.
 - 1) Make sure that the octal value 3514 to 3636 shows on the tester.
 - (b) For Lateral Acceleration, set the tester to subframe 0, word 32.
 - 1) Make sure that the tester shows 4031 to 4213.
 - (c) For Longitudinal Acceleration, set the portable tester to subframe 0, word 85.
 - 1) Make sure that the octal value 4031 to 4213 shows on the tester.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-81-840-001

- (1) Put the FLIGHT RECORDER TEST-NORMAL switch, on the P5 AFT panel, to the NORMAL position.

SUBTASK 31-31-81-860-005

- (2) Remove power from the tester.

SUBTASK 31-31-81-860-006

- (3) Remove the tester from the airplane.

SUBTASK 31-31-81-420-001

- (4) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-81-400-001

- (5) Prior to closing ceiling panel, ensure all foreign objects in the compartment have been removed and clean the ceiling panel and surrounding area to remove any dirt or adhesive residue using alcohol, B50073.

————— END OF TASK —————

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PRINTER - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) Printer Deactivation
- (2) Printer Activation.

TASK 31-33-00-040-801

2. Printer Deactivation

A. **General**

- (1) This procedure removes electrical power to the printer.

B. **Location Zones**

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

C. **Procedure**

SUBTASK 31-33-00-860-001

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

D. **Printer - Tryout**

NOTE: This tryout is to make sure the Printer is in a zero energy state.

SUBTASK 31-33-00-860-003

- (1) Make sure that the power on light on the front of the printer is off.

———— **END OF TASK** ————

TASK 31-33-00-440-801

3. Printer Activation

A. **General**

- (1) This procedure adds electrical power to the printer.

B. **Location Zones**

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

C. **Procedure**

SUBTASK 31-33-00-860-004

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

———— **END OF TASK** ————

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PRINTER - SERVICING

1. General

- A. This procedure has this task:
(1) Printer paper installation.

TASK 31-33-00-400-801

2. Printer Paper Installation

(Figure 301)

A. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

B. **Installation Procedure**

SUBTASK 31-33-00-860-007

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

SUBTASK 31-33-00-420-003

- (2) Do these steps to install the printer paper:
- (a) Make sure that the printer is off and wait for the printhead to cool.
 - (b) Turn the door latch [2] handle 1/4 turn clockwise or counterclockwise, and pull upwards to open the door [1] to the full open position.
 - (c) Grasp the bracket roll support [7], and move it outward until the empty roll disengages from the roll supports [7].
 - (d) Lift the empty paper spool [4], out of the printer and discard.
 - (e) Insert the left side of the new paper roll [5] onto the roll support [7].
 - 1) Make sure that the paper rolls off from the top.
 - (f) Lower the right side of the new paper roll [5] into the bracket roll support [7], while sliding the roll support [7] toward the roll.
 - 1) Let the bracket roll support [7] return to natural position.
 - 2) Make sure that the new paper roll [5] turns freely, and is horizontal.
 - (g) Close the door [1] until an audible click is heard.

NOTE: The audible click signals the latches have fully engaged.

NOTE: If interference occurs during the close procedure, do not force close. Some adjustment of the drive roll may be required to ensure proper engagement of the gears of the drive roll system.

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SUBTASK 31-33-00-860-008

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

SUBTASK 31-33-00-710-003

- (4) Turn the printer on.
- (a) Push the slew switch [6] on the front of the printer.
 - (b) Make sure that the printer paper advances.

———— **END OF TASK** ————

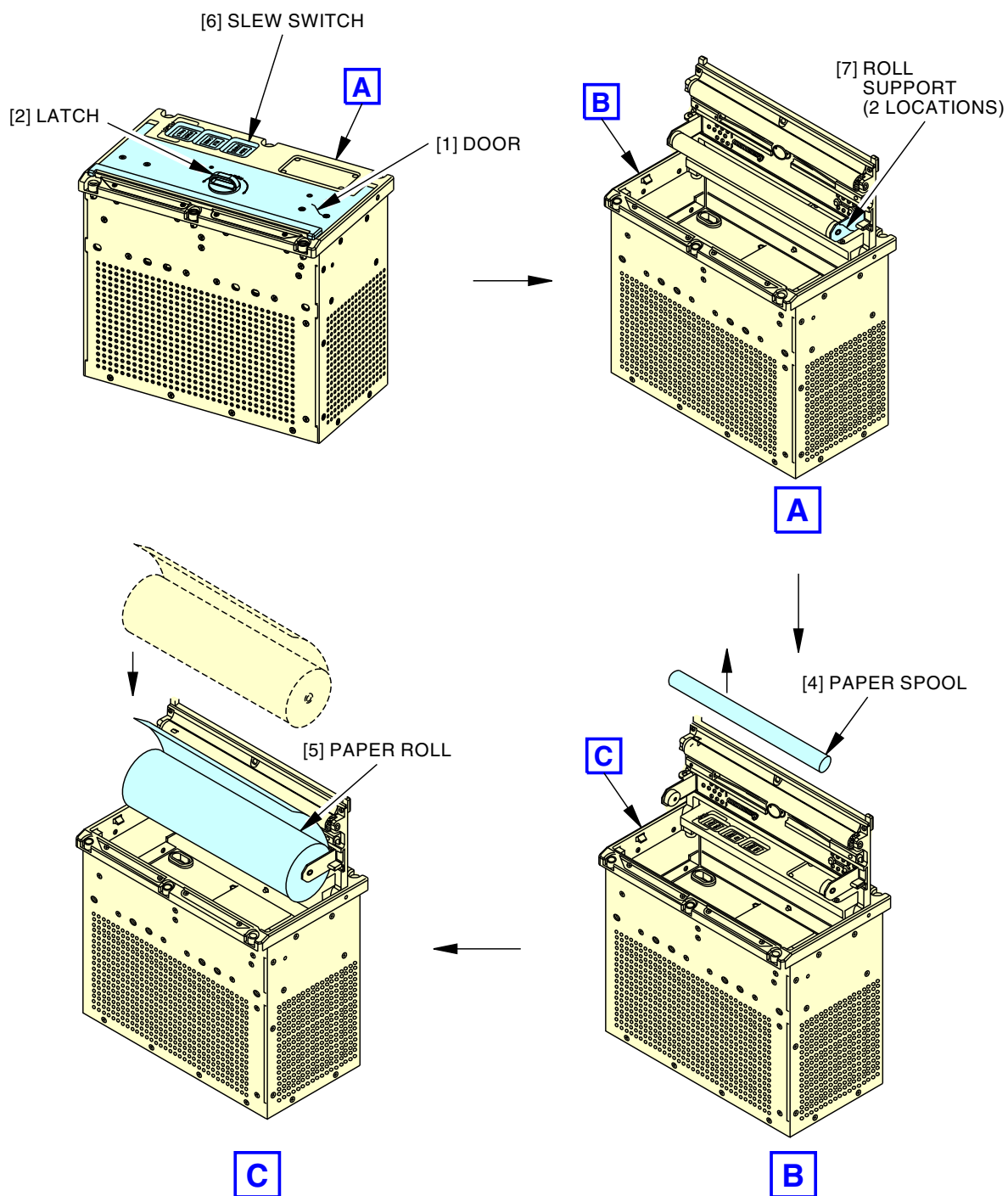
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Printer Servicing
Figure 301/31-33-00-990-801

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COCKPIT AISLE PRINTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) Printer removal
- (2) Printer installation.

TASK 31-33-01-000-801

2. Printer Removal

(Figure 401)

A. **General**

- (1) The printer is on the aisle stand, P8.

B. **Location Zones**

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

C. **Printer Removal**

SUBTASK 31-33-01-860-001

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

SUBTASK 31-33-01-020-001

- (2) Loosen the quarter-turn fasteners [2] that hold the printer [1] to the panel.

SUBTASK 31-33-01-020-002

- (3) Remove the printer [1] from the panel.

SUBTASK 31-33-01-020-003



PUT A TAG ON THE CONNECTOR IF YOU REMOVE MORE THAN ONE CONNECTOR IN THE SAME AREA. IF YOU INCORRECTLY CONNECT THE CONNECTORS, IT CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (4) Disconnect the electrical connector [3] from the printer [1].

———— **END OF TASK** ————

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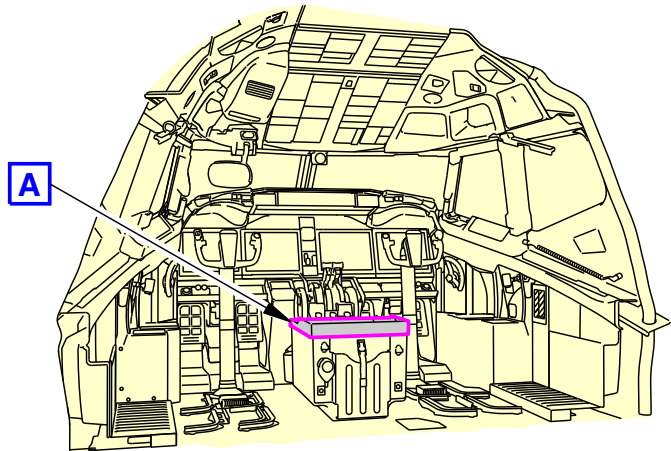
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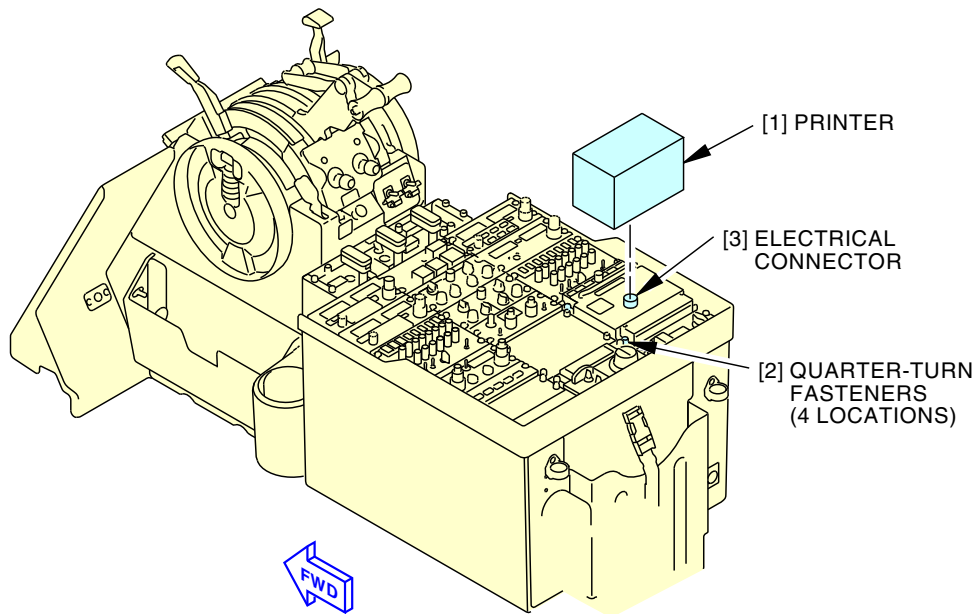
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FLIGHT COMPARTMENT



AISLE STAND

NOTE:
THE LOCATION OF THE PRINTER
CAN VARY ON THE AISLE STAND



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Printer Installation
Figure 401/31-33-01-990-801

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TASK 31-33-01-400-801

3. **Printer Installation**

(Figure 401)

A. References

Reference	Title
31-33-00-400-801	Printer Paper Installation (P/B 301)
SWPM 20-10-11	WIRING ASSEMBLY AND INSTALLATION CONFIGURATION

B. Location Zones

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

C. Printer Installation

SUBTASK 31-33-01-420-003

(1) Connect the electrical connector [3] to the printer [1].

- (a) Make sure that the wire bundle does not have excessive slack and can maintain clearance.

NOTE: The wire should be adjusted to maintain clearance from the printer and its connector backshell. If it is necessary, a protective sleeve can be installed on the wire bundle in accordance with SWPM 20-10-11.

SUBTASK 31-33-01-420-001

(2) Install the printer [1].

SUBTASK 31-33-01-420-002

(3) Tighten the quarter-turn fasteners [2] that hold the printer [1].

D. Installation Test

SUBTASK 31-33-01-860-004

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	5	C01216	PRINTER

SUBTASK 31-33-01-730-003

(2) Do these steps to do an installation test of the printer:

- (a) Make sure that the printer [1] is turned on.
(b) Push the SLEW switch to make sure that the printer [1] has paper.

NOTE: If there is a red stripe on the printer paper, there is less than 20 feet of paper on the printer paper roll.

- 1) If there is not sufficient paper in the printer, install paper in the printer (TASK 31-33-00-400-801).

(c) Push the TEST switch on the front of the printer [1] for more than two seconds.

NOTE: A self-test will be performed for several seconds, followed by the printing of a two-page printout.

- 1) Make sure that the printer prints a two-page printout of test symbols.

————— **END OF TASK** —————

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AURAL WARNING SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Aural Warning System Deactivation.
 - (2) Aural Warning System Activation.

TASK 31-51-00-040-801

2. Aural Warning System - Deactivation

(Figure 201)

A. **General**

- (1) This procedure removes electrical power from the Aural Warning System.

B. **Location Zones**

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Procedure**

SUBTASK 31-51-00-860-001

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
D	18	C00451	LANDING GEAR AURAL WARN

D. **Aural Warning System - Tryout**

NOTE: This tryout is to make sure the Aural Warning System is in a zero energy state.

SUBTASK 31-51-00-860-002

- (1)

Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1

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F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-00-700-001

- (2) Do the following steps at the aural warning module:
- (a) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the A position.
 - 1) Make sure you do not hear the intermittent horn.
 - (b) Release the ROTATE TO TEST switch.
 - 1) Make sure you do not hear the clacker.
 - (c) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the B position.
 - 1) Make sure you do not hear the intermittent horn.
 - (d) Release the ROTATE TO TEST switch.
 - 1) Make sure you do not hear the clacker.

———— **END OF TASK** ————

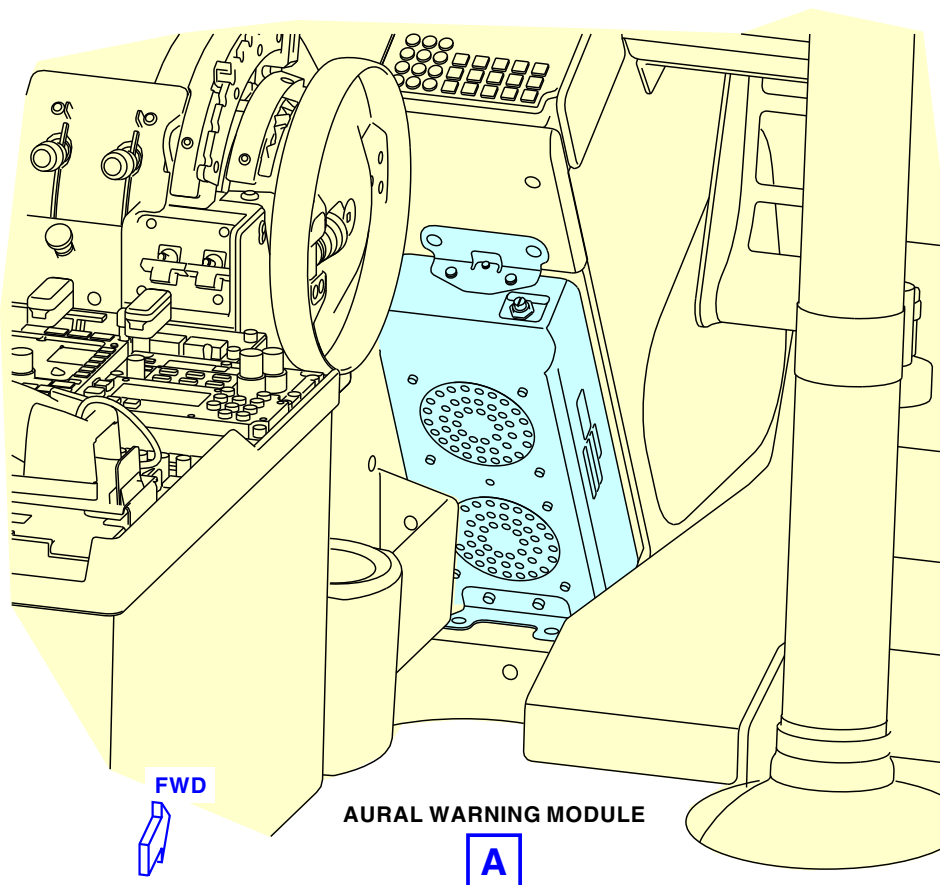
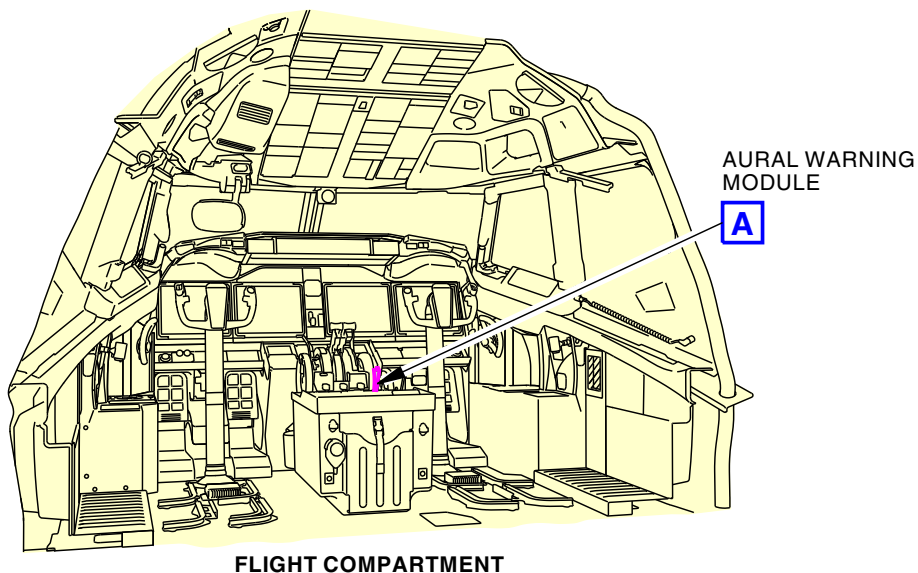
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Aural Warning Module
Figure 201/31-51-00-990-801

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TASK 31-51-00-440-801

3. Aural Warning System - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Aural Warning System.

B. Location Zones

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

C. Procedure

SUBTASK 31-51-00-860-003

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
D	18	C00451	LANDING GEAR AURAL WARN

————— END OF TASK —————

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AURAL WARNING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) An aural warning module BITE test
- (2) A system test
- (3) A landing warning system test
- (4) A takeoff warning system test
- (5) An autothrottle switchpack test

TASK 31-51-00-740-801

2. Aural Warning Module BITE Test

NOTE: This procedure is a scheduled maintenance task.

A. **General**

- (1) The BITE does an operational check of the two channels within the aural warning module. You need to do a test of channel A and channel B separately. Failure of this BITE test indicates a failure of the module only.

B. **Location Zones**

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

C. **Aural Warning Module BITE Test**

SUBTASK 31-51-00-860-005

- (1) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-00-740-001

- (2) Do the channel A BITE test as follows:

- (a) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the A position.
 - 1) Make sure that you hear the intermittent horn.
- (b) Release the ROTATE TO TEST switch.
 - 1) Make sure that you hear the clacker for approximately 5 seconds.

SUBTASK 31-51-00-740-002

- (3) Do the channel B BITE test as follows:

- (a) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the B position.
 - 1) Make sure that you hear the intermittent horn.
- (b) Release the ROTATE TO TEST switch.
 - 1) Make sure that you hear the clacker for approximately 5 seconds.

———— **END OF TASK** ————

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TASK 31-51-00-730-801

3. Aural Warning System - System Test

A. General

- (1) The System Test does an operational test of the takeoff and landing aural warning systems.
 - (a) You can do the entire system test or the individual takeoff warning and landing warning system tests.

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
713	Nose Landing Gear

C. Aural Warning System System Test

SUBTASK 31-51-00-740-003

- (1) Do this task: Aural Warning Module BITE Test, TASK 31-51-00-740-801.

SUBTASK 31-51-00-730-001

- (2) Do this task: Landing Warning System Test, TASK 31-51-00-730-802.

SUBTASK 31-51-00-730-002

- (3) Do this task: Takeoff Warning System Test, TASK 31-51-00-730-803.

SUBTASK 31-51-00-741-001

- (4) Do this task: Autothrottle Switchpack Test, TASK 31-51-00-741-801

————— **END OF TASK** —————

TASK 31-51-00-730-802

4. Landing Warning System Test

(Figure 501, Figure 502)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The Landing Warning System (LWS) will come ON if the airplane is in a landing configuration and any of the gear is not down and locked. The landing warning horn that you will hear is continuous.
- (2) The LWS receives inputs from the gear down lock sensors, the landing gear lever position, radio altimeters, thrust lever position switches, flap landing warning switch (S138), Stall Warning Yaw Damper (SWYD) computers, horn cutout switch, and engine running relays.
- (3) The continuous landing warning horn will sound when a gear is not down and locked and one of these conditions exist:
 - (a) The trailing edge flaps are from 0 and 10 units when one thrust lever is set to a Thrust Lever Angle (TLA) that is less than 21 degrees of thrust, while the other thrust lever is set to a TLA that is less than 34 degree of thrust and the radio altitude is less than 800 ft (244 m).

NOTE: The horn can be silenced with the horn cutout switch only when the radio altitude is between 200 ft (61 m) and 800 ft (244 m).

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- (b) The trailing edge flaps are positioned from 15 to 25 units with one of the TLA is at less than 21 degrees of thrust and the other TLA is at less than 34 degrees of thrust. The horn cannot be stopped with the horn cutout switch.

NOTE: The thrust lever settings are different during a one engine landing.

- (c) The trailing edge flaps are at more than 25 units. The position of the TLAs does not matter. The horn cannot be stopped with the horn cutout switch.

B. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
31-65-00-970-801	System Maintenance Data Pages Function (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-33-00-700-801	Radio Altitude Simulation Test (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
46-13-02-710-801	Onboard Maintenance Function 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
SPL-706	Protractor - Thrust Reverser Levers, Digital Readout Part #: G76002-42 Supplier: 81205 Opt Part #: G76002-19 Supplier: 81205 Opt Part #: G76002-37 Supplier: 81205
SPL-1680	Protractor Assembly - Control Column Part #: A27021-29 Supplier: 81205 Part #: G76002-42 Supplier: 81205 Opt Part #: 4MIT65B80307-1 Supplier: 81205 Opt Part #: F52485-500 Supplier: 81205 Opt Part #: G76002-19 Supplier: 81205 Opt Part #: G76002-37 Supplier: 81205
SPL-1690	Actuators/Deactuators Set - Proximity Sensor Part #: 8-758-01 Supplier: 08748 Part #: A27092-139 Supplier: 81205 Opt Part #: A27092-106 Supplier: 81205

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
713	Nose Landing Gear

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E. Prepare for the Test

SUBTASK 31-51-00-860-008

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01399	PSEU PRI

SUBTASK 31-51-00-420-001

- (2) Use one of the methods below to set the thrust levers:
- (a) Install the thrust reverser lever protractor, SPL-706, or protractor, SPL-1680, on the thrust levers No. 1 and 2 to measure the TLA.
- NOTE: IDLE = 0 degree
- NOTE: The value that shows on the digital protractor is measured in TLA.
- (b) Use the Thrust Resolver Angle (TRA) value on the MAX Display System (MDS) to set the thrust levers.
- NOTE: The value that shows on the MDS is measured in TRA.
- 1) On the MDS, go to PG 1 OF 4 on the 71 Engine Propulsion Control System (EPCS) display under the MAINT DATA PGS button (TASK 31-65-00-970-801).

F. Landing Warning System Test

SUBTASK 31-51-00-860-009

- (1) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 31-51-00-860-010

- (2) Make sure that the trailing edge flaps (FLAP lever) are in the 1 unit position.
 - (a) Set the stabilizer (STAB TRIM) within 1 unit center of the green band.
 - (b) Set the SPD BRK lever to the DOWN position.
 - (c) Release the PARKING BRAKE.

SUBTASK 31-51-00-420-002



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.

- (3) Make sure that the LANDING GEAR lever is in the DOWN position.
 - (a) Make sure that the green NOSE GEAR light is on.

SUBTASK 31-51-00-700-002

- (4) Do these steps to simulate the engine operations:
 - (a) Make sure that the pneumatic power is OFF to the engine starters.
 - 1) If it is necessary, do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.
 - (b) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2
B	4	C00359	FUEL SPAR VALVE ENG 1

- (c) Set the two engine start levers to the IDLE position.
 - 1) Wait a minimum of 5 minutes before proceeding to the next step.

SUBTASK 31-51-00-860-012



WARNING

MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (5) Move the thrust levers No. 1 and 2 to the full forward thrust position.

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SUBTASK 31-51-00-480-001

- (6) Put deactuators from the proximity sensor test set, SPL-1690, between the sensor and target for these switches to simulate a NOSE GEAR not down condition (Figure 501):
- (a) The #1 NOSE GEAR DOWN SENSOR, S845
 - (b) The #2 NOSE GEAR DOWN SENSOR, S853.

SUBTASK 31-51-00-210-001

- (7) Make sure that the green NOSE GEAR light is off and that the red NOSE GEAR light is on.
- NOTE: If the green NOSE GEAR light does not go off, add additional deactuators as necessary until the green light goes off.

NOTE: Nuisance message related to the gear sensors can appear. These messages will go away at the end of the test.

SUBTASK 31-51-00-750-001

- (8) Do a radio simulation of 700 ft (213.4 m) at the no.1 radio altimeters, do this task: Radio Altitude Simulation Test, TASK 34-33-00-700-801.

NOTE: A nuisance GROUND SPOILER CONTROL fault messages related to the MAIN GEAR ON GROUND may appear when simulating the radio altitude.

SUBTASK 31-51-00-750-002

- (9) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-750-003



MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (10) Set thrust lever no. 1 to 30 degree TLA or 61 degree TRA.

SUBTASK 31-51-00-750-004

- (11) Move the thrust lever no. 2 to the IDLE position.
- (a) Make sure that the continuous horn comes on when the TLA is approximately less than 20 degree TLA or 52 degree TRA forward of IDLE.

NOTE: The horn has a 20 sec delay.

SUBTASK 31-51-00-750-005

- (12) Push the HORN CUTOFF switch.
- (a) Make sure that the continuous horn stops.

SUBTASK 31-51-00-750-006

- (13) Move the thrust levers no. 1 and 2 to the full forward thrust position.

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SUBTASK 31-51-00-750-007

- (14) Set thrust lever no. 2 to 30 degree TLA or 61 degree TRA.

SUBTASK 31-51-00-750-008

- (15) Move the thrust lever no. 1 to the IDLE position.
- (a) Make sure that a continuous horn comes on when the TLA is approximately less than 20 degree TLA or 52 degree TRA forward of IDLE.

NOTE: The horn has a 20 sec delay.

SUBTASK 31-51-00-750-009

- (16) Push the HORN CUTOUT switch.
- (a) Make sure that the continuous horn stops.

SUBTASK 31-51-00-860-013

- (17) Move the thrust lever no. 1 to the full forward thrust position.

SUBTASK 31-51-00-860-014

- (18) Set thrust lever no. 2 to 30 degree TLA or 61 degree TRA.

SUBTASK 31-51-00-860-015

- (19) Set the radio altitude simulation test set to an altitude that is less than 200 ft (61.0 m).

SUBTASK 31-51-00-860-016

- (20) Set the thrust lever no. 1 to a position that is less than 20 degree TLA or 52 degree TRA.
- (a) Make sure that a continuous horn comes on.

NOTE: The horn has a 20 sec delay.

SUBTASK 31-51-00-860-017

- (21) Push the HORN CUTOUT switch.
- (a) Make sure that the continuous horn stays on.

SUBTASK 31-51-00-860-018

- (22) Move the thrust lever no. 1 to the full forward thrust position.
- (a) Make sure that a continuous horn stops.

SUBTASK 31-51-00-860-019

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-750-010

- (24) Do a radio simulation of 700 ft (213.4 m) at the no. 2 radio altimeters, do this task: Radio Altitude Simulation Test, TASK 34-33-00-700-801.

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SUBTASK 31-51-00-860-020

- (25) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1
D	2	C01045	AFCS SYS A FCC DC

SUBTASK 31-51-00-860-021



MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (26) Set thrust lever no. 1 to 30 degree TLA, or 61 degree TRA.

SUBTASK 31-51-00-750-011

- (27) Move the thrust lever no. 2 to the IDLE position.

- (a) Make sure that the continuous horn comes on when the TLA is approximately less than 20 degree TLA or 52 degree TRA forward of IDLE.

NOTE: The horn has a 20 sec delay.

SUBTASK 31-51-00-730-003

- (28) Push the HORN CUTOFF switch.

- (a) Make sure that the continuous horn stops.

SUBTASK 31-51-00-860-022

- (29) Move the thrust levers no. 1 and 2 to the full forward thrust position.

SUBTASK 31-51-00-860-023

- (30) Set thrust lever no. 2 to 30 degree TLA or 61 degree TRA.

SUBTASK 31-51-00-750-012

- (31) Move the thrust lever no. 1 to the IDLE position.

- (a) Make sure that a continuous horn comes on when the TLA is approximately less than 20 degree TLA or 52 degree TRA forward of IDLE.

NOTE: The horn has a 20 sec delay.

SUBTASK 31-51-00-750-013

- (32) Push the HORN CUTOFF switch.

- (a) Make sure that the continuous horn stops.

SUBTASK 31-51-00-860-024

- (33) Move the thrust lever no. 1 to the full forward thrust position.

SUBTASK 31-51-00-860-025

- (34) Set thrust lever no. 2 to 30 degree TLA or 61 degree TRA.

SUBTASK 31-51-00-860-026

- (35) Set the radio altitude simulation test set to an altitude that is less than 200 ft (61.0 m).

SUBTASK 31-51-00-860-027

- (36) Set the thrust lever no. 1 to a position that is less than 20 degree TLA or 52 degree TRA.

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- (a) Make sure that a continuous horn comes on.

NOTE: The horn has a 20 sec delay.

SUBTASK 31-51-00-860-028

- (37) Push the HORN CUTOFF switch.

- (a) Make sure that the continuous horn stays on.

SUBTASK 31-51-00-860-029

- (38) Move the thrust lever no. 1 to the full forward thrust position.

- (a) Make sure that a continuous horn stops.

SUBTASK 31-51-00-860-030

- (39) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-750-014

- (40) Set thrust lever no. 2 to 30 degree TLA or 61 degree TRA.

- (a) Move the thrust lever no. 1 to the IDLE position.

- 1) Make sure that the horn does not come on.

- (b) Move the thrust lever no. 1 to the full forward position.

SUBTASK 31-51-00-750-015

- (41) Move the trailing edge flaps to the 15 unit position.

SUBTASK 31-51-00-750-016

- (42) Move thrust lever no. 1 to the IDLE position.

- (a) Make sure that the continuous horn comes on when the TLA is less than 20 degree TLA or 52 degree TRA forward of IDLE.

NOTE: The horn has a 20 sec delay.

SUBTASK 31-51-00-750-017

- (43) Push the HORN CUTOFF switch.

- (a) Make sure that the continuous horn stays on.

SUBTASK 31-51-00-860-031

- (44) Move the thrust lever no. 1 to the full forward thrust position.

- (a) Make sure that the continuous horn stops.

SUBTASK 31-51-00-860-032

- (45) Move thrust lever no. 2 to the full forward thrust position.

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SUBTASK 31-51-00-860-033

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1
D	2	C01045	AFCS SYS A FCC DC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-710-001

- (47) Use the Onboard Maintenance Function (OMF) to do this ground test: 27 - Spoiler Control, OPERATIONAL TEST, SCE Test (TASK 46-13-02-710-801).
- (a) Make sure that the nuisance GROUND SPOILER CONTROL fault messages are not shown after the test is complete.

SUBTASK 31-51-00-860-034



MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES AND LANDING GEAR DOOR AREAS. THE CONTROL SURFACES, THE LANDING GEAR, AND THE LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (48) Set PSEU SYS 1 and SYS 2 to the air mode, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 31-51-00-400-001

- (49) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-00-860-035

- (50) Move the trailing edge flaps to any position that is greater than 25 units.
- (a) Make sure that the continuous horn comes on when the trailing edge flaps go past 25 units.
- NOTE:** The horn has a 20 sec delay.

SUBTASK 31-51-00-750-018

- (51) Move the thrust lever no. 1 to the IDLE position.
- (a) Make sure that the continuous horn stays on.

SUBTASK 31-51-00-750-019

- (52) Move the thrust lever no. 2 to the IDLE position.
- (a) Make sure that the continuous horn stays on.

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SUBTASK 31-51-00-750-020

(53) Push the HORN CUTOFF switch.

(a) Make sure that the continuous horn stays on.

SUBTASK 31-51-00-750-021

(54) Move the thrust lever no. 1 and 2 to the full forward thrust position.

SUBTASK 31-51-00-750-022

(55) Move the trailing edge flaps to the 1 unit position.

(a) Make sure that the continuous horn has stopped when the trailing edge flaps are at 25 units.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-00-860-036

(1) Set the two engine start levers to the CUTOFF position.

SUBTASK 31-51-00-860-037

(2) Move the trailing edge flaps to the 0 units position.

SUBTASK 31-51-00-860-038

(3) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-51-00-480-002

(4) Remove the deactuator from these switches:

(a) The #1 NOSE GEAR DOWN SENSOR, S845

(b) The #2 NOSE GEAR DOWN SENSOR, S853.

SUBTASK 31-51-00-860-039

(5) Set PSEU SYS 1 and SYS 2 to the ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 31-51-00-420-003

(6) Move the thrust levers no. 1 and 2 to the IDLE position.

SUBTASK 31-51-00-420-004

(7) If installed, remove the thrust reverser lever protractor, SPL-706 or protractor, SPL-1680.

SUBTASK 31-51-00-420-005

(8) If installed, remove the radio altimeter test set, do this task: Radio Altitude Simulation Test, TASK 34-33-00-700-801.

SUBTASK 31-51-00-860-040

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

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CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2
B	4	C00359	FUEL SPAR VALVE ENG 1
D	1	C01399	PSEU PRI

———— **END OF TASK** ————

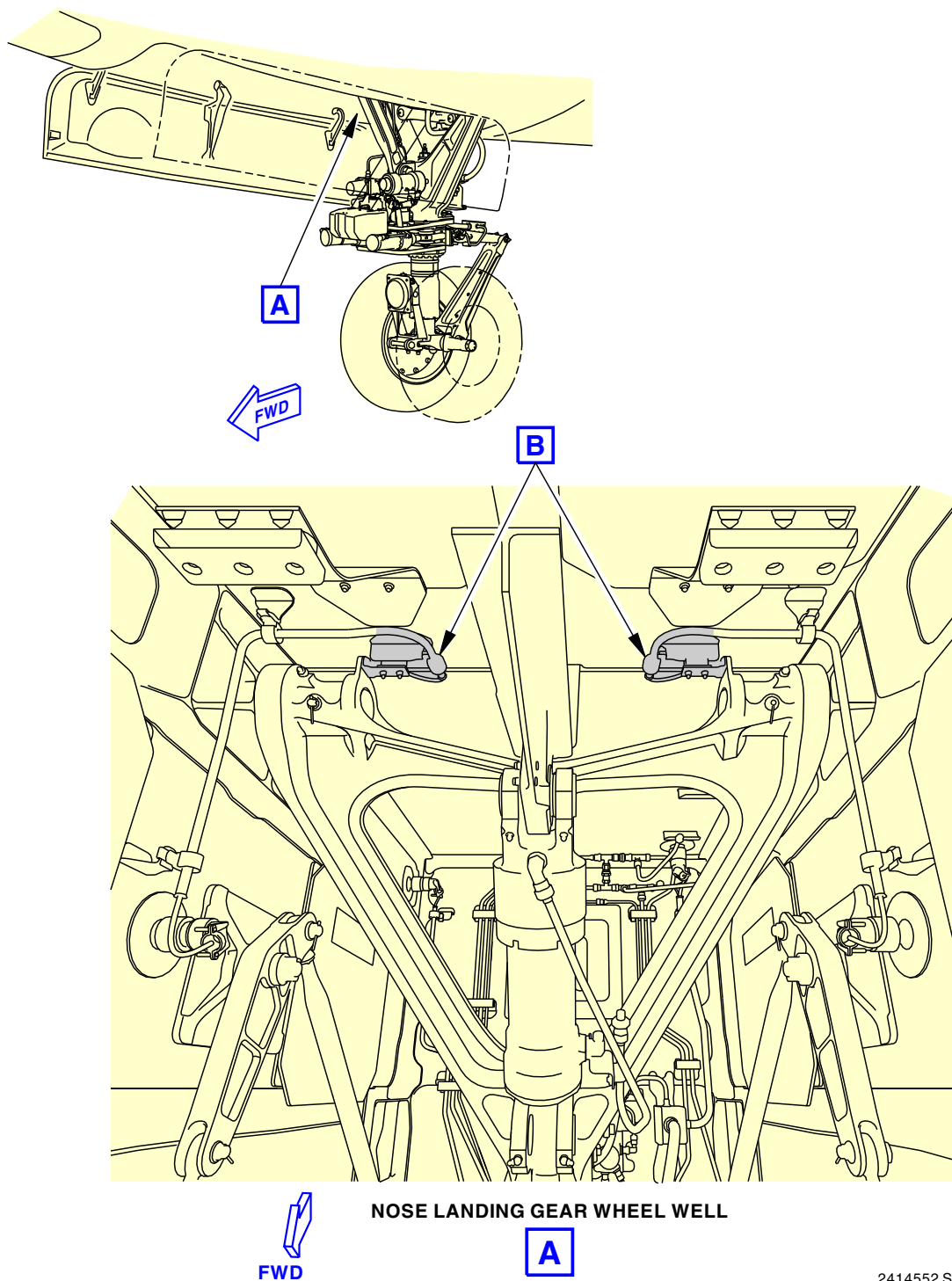
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2414552 S00061535420_V1

Nose Landing Gear Down Sensor
Figure 501/31-51-00-990-802 (Sheet 1 of 2)

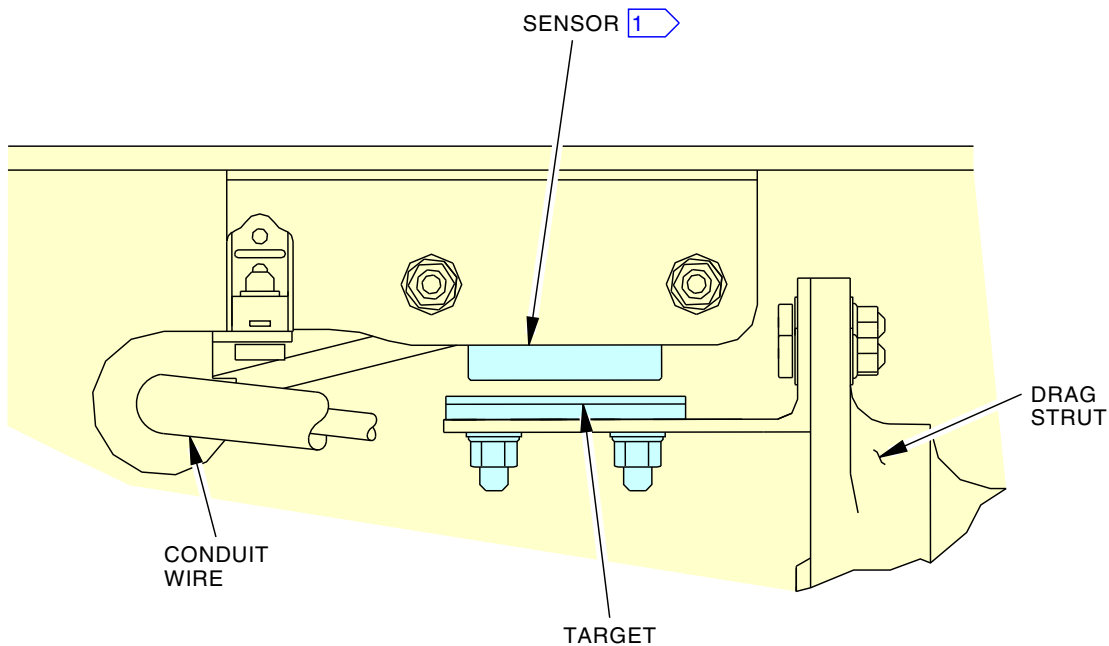
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(EXAMPLE)

B

1

SYSTEM NO.	SENSOR NO.	LOCATION
1	S845	L
2	S853	R

2566250 S0000614157_V1

Nose Landing Gear Down Sensor
Figure 501/31-51-00-990-802 (Sheet 2 of 2)

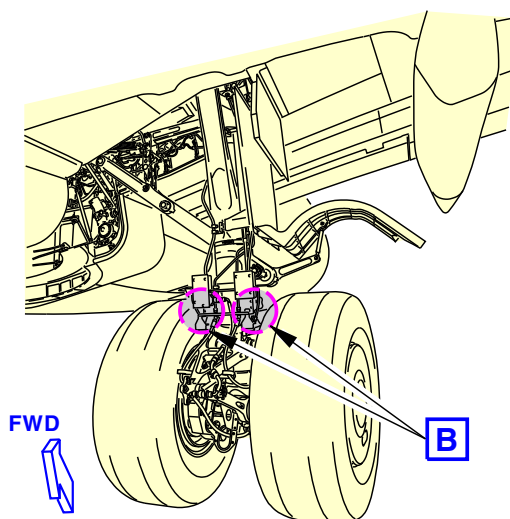
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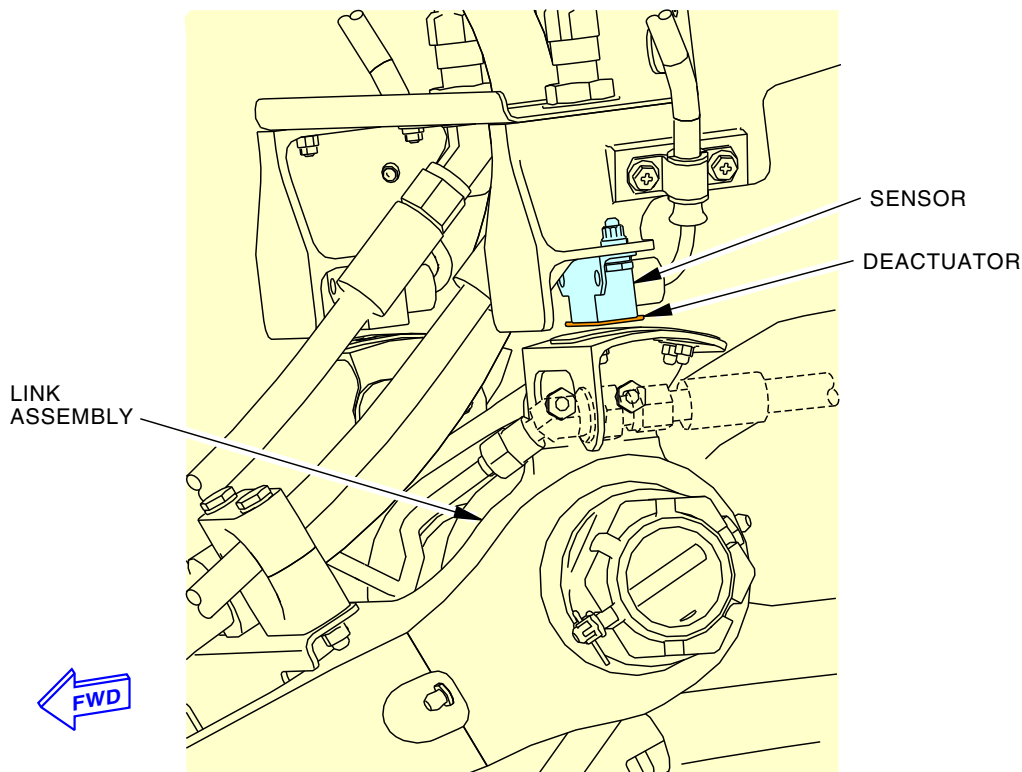
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LEFT MAIN LANDING GEAR
(RIGHT MAIN LANDING GEAR IS OPPOSITE)



(EXAMPLE)

B

2414031 S00061534250_V3

Main Landing Gear Air/Ground Sensor
Figure 502/31-51-00-990-804

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TASK 31-51-00-730-803

5. Takeoff Warning System Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) TAKEOFF CONFIG indicator lights are installed on the Captains instrument panel, P1-3, and the First Officer's instrument panel, P3-1. They will come ON when the takeoff warning horn comes ON.
- (2) The Takeoff Warning System (TWS) will come ON if the airplane is not in a takeoff configuration and you move the THRUST levers FORWARD for takeoff. The takeoff warning horn that you will hear is intermittent.
- (3) The PARKING BRAKE is released during the takeoff warning test. This prevents the PARKING BRAKE function of the takeoff warning horn from overriding the tests. Put chocks on the landing gear wheels.
- (4) The intermittent takeoff warning horn will sound when the airplane is on the ground and you move one or both of the THRUST levers FORWARD for takeoff and at least one of these conditions exist:
 - (a) The STAB TRIM is not in the green band
 - (b) The trailing edge flaps (FLAP lever) are at less than 1 unit or more than 15 units
 - (c) The leading edge flaps/slats are not in the extend or full extend position, or are in a Uncommanded Motion (UCM) condition

SIA 007-999; SIA 001-006 POST SB 737-32-1555

- (d) The overwing exit door is not closed, latched, and locked, and ground speed is less than 40 knots

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- (e) The SPD BRK handle is not DOWN
- (f) The PARKING BRAKE is set.
- (5) The TWS has these inputs:
 - (a) A left throttle FORWARD input from the L AUTOTHROTTLE MICROSW PACK ASSEMBLY, M1766
 - (b) A right throttle FORWARD input from the R AUTOTHROTTLE MICROSW PACK ASSEMBLY, M1767
 - (c) A logic input from the FLAP SLAT ELEC UNIT, M1746
 - (d) A logic input from the STALL MANAGEMENT YAW DMPR CMPTR 2, M1748
 - (e) The SPD BRK DOWN/UP logic is provided by the SPLR CNTRL ELECTRONICS unit, M2940
 - (f) The airplane TAKE OFF WARNING NOSE UP (stabilizer leading edge down) switches, S132 & S1184
 - (g) The airplane TAKE OFF WARNING NOSE DOWN (stabilizer leading edge up) switches, S546 & S1183
 - (h) A PARKING BRAKE input.

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B. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
31-65-00-970-801	System Maintenance Data Pages Function (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
52-22-00-580-801	Open the Emergency Exit Door (P/B 201)
52-22-00-580-803	Close the Emergency Exit Door (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-706	Protractor - Thrust Reverser Levers, Digital Readout Part #: G76002-42 Supplier: 81205 Opt Part #: G76002-19 Supplier: 81205 Opt Part #: G76002-37 Supplier: 81205

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
713	Nose Landing Gear

E. Prepare for the Test

SUBTASK 31-51-00-860-043

- (1) Use the Proximity Switch Electronic Unit (PSEU) function of the MAX Display System (MSD) to make sure that SYS 1 and SYS 2 are in the ground mode.
 - (a) To set the airplane in the ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 31-51-00-860-044

- (2) Install chocks on the landing gear wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 31-51-00-860-045

- (3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
C	7	C01678	WEATHER RADAR RT RIGHT

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT

SUBTASK 31-51-00-420-006

- (4) Use one of the methods below to set the THRUST levers:

NOTE: The value that shows on the digital protractor is measured in Thrust Lever Angle (TLA).

NOTE: The value that shows on the MAX Display System (MDS) is measured in Thrust Resolver Angle (TRA).

- (a) Install a thrust reverser lever protractor, SPL-706, on the THRUST levers No. 1 and 2 to measure the Thrust Lever Angle (TLA).

NOTE: IDLE = 0 degree

- (b) Use the TRA value on the MDS to set the thrust levers.

- 1) On the MDS, go to PG 1 OF 4 on the 71 EPCS (Engine Propulsion Control System) display under the MAINT DATA PGS button (TASK 31-65-00-970-801).

SUBTASK 31-51-00-860-046



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) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-51-00-860-047

- (6) Do these steps to set the airplane in the takeoff configuration:

- (a) Move the trailing edge FLAP lever to the 15 unit position.
(b) Set the STAB TRIM within 1 unit center of the green band.
(c) Set the SPD BRK lever to the DOWN position.

SIA 007-999; SIA 001-006 POST SB 737-32-1555

- (d) Make sure that the overwing exit doors are closed, latched, and locked (TASK 52-22-00-580-803).

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- (e) Release the PARKING BRAKE.
(f) Set the THRUST lever no. 2 to the IDLE position.

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MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (g) Set the THRUST lever no. 1 to the FULL FORWARD thrust position.

F. Takeoff Warning System Test

SUBTASK 31-51-00-750-024

- (1) Do these steps to do a test of the autothrottle inputs to the TWS:

- (a) Make sure that you did the Prepare for Test.
- (b) Set the PARKING BRAKE.
 - 1) Make sure that the intermittent horn comes on.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
- (c) Move the THRUST lever no. 1 to the IDLE position.
 - 1) Make sure that the intermittent horn stops when the THRUST lever is approximately less than 20 degrees TLA (52 degrees TRA) FORWARD of IDLE.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.



MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (d) Move the THRUST lever no. 2 to the FULL FORWARD thrust position.
 - 1) Make sure that the intermittent horn comes on when the THRUST lever is more than approximately 20 degrees TLA (52 degrees TRA) forward of IDLE.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
- (e) Move the THRUST lever no. 2 to the IDLE position.
 - 1) Make sure that the intermittent horn stops when the THRUST lever is approximately less than 20 degrees TLA (52 degrees TRA) forward of IDLE.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.
- (f) Release the PARKING BRAKE.
- (g) Move the THRUST lever no. 1 to the FULL FORWARD thrust position.

SUBTASK 31-51-00-750-025

- (2) Do these steps to do a test of the trailing edge flaps input to the TWS:

- (a) If the airplane is not in the takeoff configuration, do the steps in the Prepare for the Test that put the airplane into the takeoff configuration.
- (b) Move the trailing edge flaps to the 0 unit position.

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- 1) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
- 2) Make sure that the intermittent horn comes on.
NOTE: The intermittent horn can sound when the leading edge flaps are in transit.
- (c) Move the THRUST lever no. 1 to the IDLE position.
 - 1) Make sure that the intermittent horn stops.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.
- (d) Move the trailing edge flaps (FLAP lever) to a position in the takeoff range (1, 2, 5, 10, 15, or 25 units detent).
- (e) Move the THRUST lever no. 1 to the FULL FORWARD thrust position.
 - 1) Make sure that the intermittent horn does not come on.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, do not come on.
- (f) Move the trailing edge flaps (FLAP lever) to a position more than 25 units.
 - 1) Make sure that the intermittent horn comes on.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
- (g) Move the trailing edge flaps (FLAP lever) to the 15 unit position.
 - 1) Make sure that the intermittent horn stops when the trailing edge flaps are in a position in the takeoff range.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.

SUBTASK 31-51-00-750-028

- (3) Do these steps to do a check of the stabilizer input (STAB TRIM) to the TWS:
 - (a) If the airplane is not in the takeoff configuration, do the steps in the Prepare for the Test that put the airplane into the takeoff configuration.
 - (b) Move the stabilizer through the full range of motion.
 - 1) Make sure that the intermittent horn comes on when the green band pointer is outside of the green band range by $\pm 1/2$ unit.
 - a) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
 - 2) Set the stabilizer outside the green band range by more than 1 unit toward the nose down position.
 - 3) Do these steps on the MDS:
 - a) Go to PG 2 OF 2 on the ATA System 32: Proximity Switch Electronic Unit (PSEU) display under the MAINT DATA PGS button (TASK 31-65-00-970-801).
NOTE: The display will show a table of Input/Output (I/O) with PSEU 1 (D10982) and PSEU 2 (D10984) listed along with other I/O's and their PINS.
 - b) On the PSEU display, find PSEU 1: D10982, PIN 51.
<1> Make sure that, D10982, pin 51 is set to 0.

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- c) On the PSEU display, find PSEU 2: D10984, PIN 51.
 - <1> Make sure that, D10984, pin 51 is set to 0.
- 4) Set the stabilizer outside the green band range by more than 1 unit toward the nose UP position.
- 5) Do the steps that follow at the PSEU MAINT DATA PGS display:
 - a) On the PSEU display, find PSEU 1: D10982, PIN 51.
 - <1> Make sure that, D10982, pin 51 is set to 0.
 - b) On the PSEU display, find PSEU 2: D10984, PIN 51.
 - <1> Make sure that, D10984, pin 51 is set to 0.
- 6) Set the stabilizer to within 1 unit center of the green band.
- 7) Do the steps that follow at the PSEU MAINT DATA PGS display:
 - a) On the PSEU display, find PSEU 1: D10982, PIN 51.
 - <1> Make sure that, D10982, pin 51 is set to 1.
 - b) On the PSEU display, find PSEU 2: D10984, PIN 51.
 - <1> Make sure that, D10984, pin 51 is set to 1.
- (c) Set the THRUST lever No. 1 to the IDLE position.
- (d) Set the trailing edge flaps to the 0 unit position.

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SUBTASK 31-51-00-750-030

- (4) Do these steps to do a check of the overwing exit door:
 - (a) If the airplane is not in the takeoff configuration, do the steps in the Prepare for the Test that put the airplane into the takeoff configuration.
 - (b) Open the overwing exit door (TASK 52-22-00-580-801).
 - 1) Make sure that the intermittent horn comes on when the overwing exit door is opened.
 - 2) Make sure that the applicable door warning lights on the P5 panel comes on.
 - (c) Close the overwing exit door (TASK 52-22-00-580-803).
 - 1) Make sure that the intermittent horn stops.
 - 2) Make sure that the applicable door warning lights on the P5 panel goes off.

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-00-020-001

- (1) Remove the thrust reverser lever protractor, SPL-706.

SUBTASK 31-51-00-860-048

- (2) Set the PARKING BRAKE.

SUBTASK 31-51-00-020-002

- (3) Remove the chocks from the landing gear wheels.

SUBTASK 31-51-00-860-049

- (4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 31-51-00-860-050

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT

————— **END OF TASK** —————

TASK 31-51-00-741-801

6. Autothrottle Switchpack Test

A. General

- (1) The autothrottle switch pack replacement test does a return to service test for switches S1, S8, and S9 interface with the Proximity Switch Electronic Unit (PSEU).

B. References

<u>Reference</u>	<u>Title</u>
31-65-00-970-801	System Maintenance Data Pages Function (P/B 201)

C. Location Zones

<u>Zone</u>	<u>Area</u>
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
211	Flight Compartment - Left

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D. Autothrottle Switchpack Test

SUBTASK 31-51-00-860-053

- (1) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

SUBTASK 31-51-00-741-002

- (2) Do the autothrottle switch pack replacement test as follows:

- (a) On the MAX Display System (MDS), go to PG 2 OF 2 on the ATA System 32: PSEU display under the MAINT DATA PGS button (TASK 31-65-00-970-801).

NOTE: The display will show a table with PSEU 1: D10982 CONNECTOR listed along with other CONNECTORS and their PINS.

SUBTASK 31-51-00-741-003

- (3) Do the test for M1766, S1 (Left Thrust Lever < 44 Degrees Resolver Angle) as follows:

- (a) On the PSEU display find PSEU 1: D10982, PIN 40.
- (b) Place the left thrust lever in a fully retarded position.
- 1) Make sure that the display shows PIN 40 set to 1 (GND).
- (c) Advance the left thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
- 1) Make sure that the display shows PIN 40 set to 0 (NO GND).

SUBTASK 31-51-00-741-004

- (4) Do the test for M1766, S8 (Left Thrust Lever > 53 Degrees Resolver Angle) as follows:

- (a) On the PSEU display find PSEU 1: D10982, PIN 42.
- (b) Advance the left thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
- 1) Make sure that the display shows PIN 42 set to 1 (NO GND).
- (c) Advance the left thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
- 1) Make sure that the display shows PIN 42 set to 0 (GND).

SUBTASK 31-51-00-741-005

- (5) Do the test for M1766, S9 (Left Thrust Lever < 64 Degrees Resolver Angle) as follows:

- (a) On the PSEU display find PSEU 1: D10982, PIN 41.
- (b) Advance the left thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
- 1) Make sure that the display shows PIN 41 set to 1 (GND).
- (c) Advance the left thrust lever greater than 66 degrees thrust resolver angle.
- 1) Make sure that the display shows PIN 41 set to 0 (NO GND).

SUBTASK 31-51-00-741-006

- (6) Do the test for M1767, S1 (Right Thrust Lever < 44 Degrees Resolver Angle) as follows:

- (a) On the PSEU display find PSEU 2: D10984, PIN 40.
- (b) Place the right thrust lever in a fully retarded position.

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- 1) Make sure that the display shows PIN 40 set to 1 (GND).
- (c) Advance the right thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
 - 1) Make sure that the display shows PIN 40 set to 0 (NO GND).

SUBTASK 31-51-00-741-007

- (7) Do the test for M1767, S8 (Right Thrust Lever > 53 Degrees Resolver Angle) as follows:
 - (a) On the PSEU display find PSEU 2: D10984, PIN 42.
 - (b) Advance the right thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
 - 1) Make sure that the display shows PIN 42 set to 1 (NO GND).
 - (c) Advance the right thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
 - 1) Make sure that the display shows PIN 42 set to 0 (GND).

SUBTASK 31-51-00-741-008

- (8) Do the test for M1767, S9 (Right Thrust Lever < 64 Degrees Resolver Angle) as follows:
 - (a) On the PSEU display find PSEU 2: D10984, PIN 41.
 - (b) Advance the right thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
 - 1) Make sure that the display shows PIN 41 set to 1 (GND).
 - (c) Advance the right thrust lever greater than 66 degrees.
 - 1) Make sure that the display shows PIN 41 set to 0 (NO GND).
 - (d) The test is completed.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-00-860-055

- (1) Turn the selector knob clockwise or counter clockwise to highlight the SYS MENU button on the Menu Bar located at the top of the PSEU maintenance page.
 - (a) Push the SEL button to return to the SYS MENU page.

SUBTASK 31-51-00-860-056

- (2) Push the SYS button on the Multi Function Display (MFD), P9-82 to stop.

SUBTASK 31-51-00-860-058

- (3) Move the thrust levers no.1 and 2 to the IDLE position.

———— **END OF TASK** ————

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FLAP LANDING WARNING SWITCH - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

- (1) A removal of the flap landing warning switch
- (2) An installation of the flap landing warning switch
- (3) An adjustment of the flap landing warning switch.

B. The flap landing warning switch, S138, is on the flap control unit in the right main landing gear wheel well.

- (1) Use the table below to replace the flap landing warning switch, S138.

Table 401/31-51-01-993-801 Flap Landing Warning Switch, S138

WIRE CONTACT NO.	WIRE IDENTIFICATION	DESTINATION	WDM REF	PURPOSE	POST INSTALLATION TEST
1	W8124-A-AA	GD332-DC	32-64-21	Landing Flaps A	AMM 31-51-01
2	A-BB	CAPPED AND STOWED	32-64-21	N/A	
3	A-CC	D46040P/8	32-64-21	Landing Flaps A	AMM 31-51-01
4	A-DD	CAPPED AND STOWED	32-64-21	N/A	
5	A-EE	CAPPED AND STOWED	32-64-21	N/A	
6	A-FF	CAPPED AND STOWED	32-64-21	N/A	
7	A-GG	D46040P/19	29-25-11	S1051/18	AMM 31-51-01
8	A-HH	D46040P/9	29-25-11		AMM 31-51-01
9	A-JJ	D46040P/6	29-25-11	PTU Control Valve	AMM 31-51-01
10	A-KK	CAPPED AND STOWED	32-64-21	N/A	
11	A-LL	CAPPED AND STOWED	32-64-21	N/A	
12	A-MM	CAPPED AND STOWED	32-64-21	N/A	
13	A-NN	CAPPED AND STOWED	32-64-21	N/A	
14	A-PP	CAPPED AND STOWED	32-64-21	N/A	
15	A-RR	CAPPED AND STOWED	32-64-21	N/A	
16	A-SS	GD332-DC	32-64-21	Landing Flaps B	AMM 31-51-01
17	A-TT	CAPPED AND STOWED	32-64-21	N/A	

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Table 401/31-51-01-993-801 Flap Landing Warning Switch, S138 (Continued)

18	A-UU	D46040P/10	32-64-21	Landing Flaps B	AMM 31-51-01
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TASK 31-51-01-000-801

2. Flap Landing Warning Switch Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
32-00-01-480-801	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-4962	Wrench - Limit Switch, Flap Control Unit Part #: F80197-5 Supplier: 81205

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 31-51-01-860-001

- (1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 31-51-01-040-001

- (2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 31-51-01-480-001



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.

- (3) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

E. Removal Procedure

SUBTASK 31-51-01-860-002

- (1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

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F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-01-020-001

- (2) Remove the screws [3] and washers [4] that attach the switch cover [5].

SUBTASK 31-51-01-010-001

- (3) Remove the switch cover [5] from the flap control unit.

SUBTASK 31-51-01-020-002

- (4) Disconnect the electrical connector [2] from the flap landing warning switch [1].

SUBTASK 31-51-01-020-003

- (5) To remove the flap landing warning switch [1], use tool set FCU limit switch wrench, SPL-4962:
- (a) Remove the lockwire from the nut [9] and nut [12]. [15].
 - (b) Remove the roller guide lock ring [8] from the roller guide [7].
 - (c) Remove the roller guide [7] from the switch [1].
 - (d) Remove the nut [9] and washer [10] from the flap landing warning switch [1].
 - (e) Remove the switch [1] with the washer [11] and nut [12] from the flap control unit.
 - (f) Put the nut [9], washer [10], roller guide [7], and roller guide lock ring [8] on the switch [1] to keep the parts together.

————— END OF TASK —————

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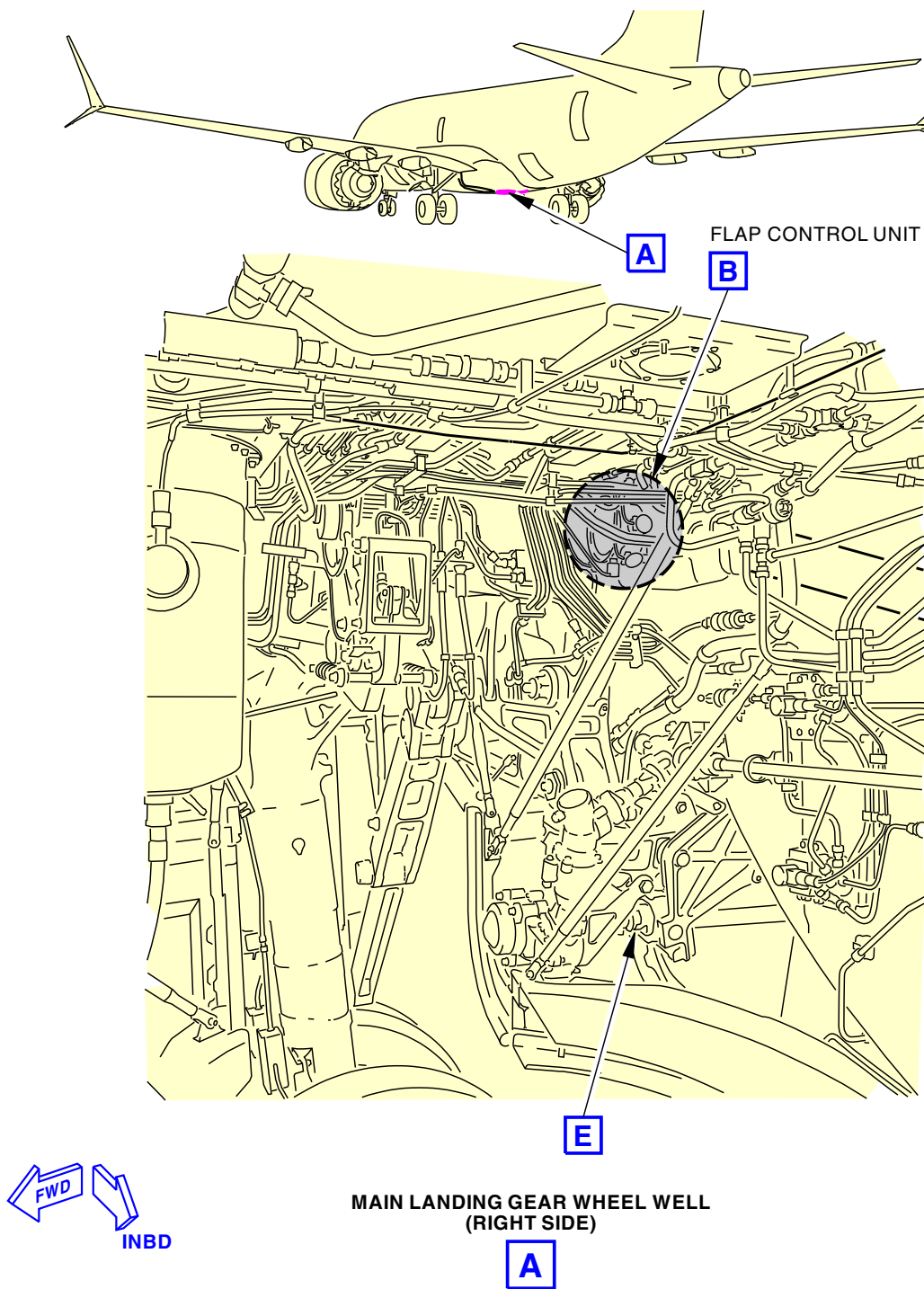
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2413990 S00061534078_V1

Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 1 of 4)

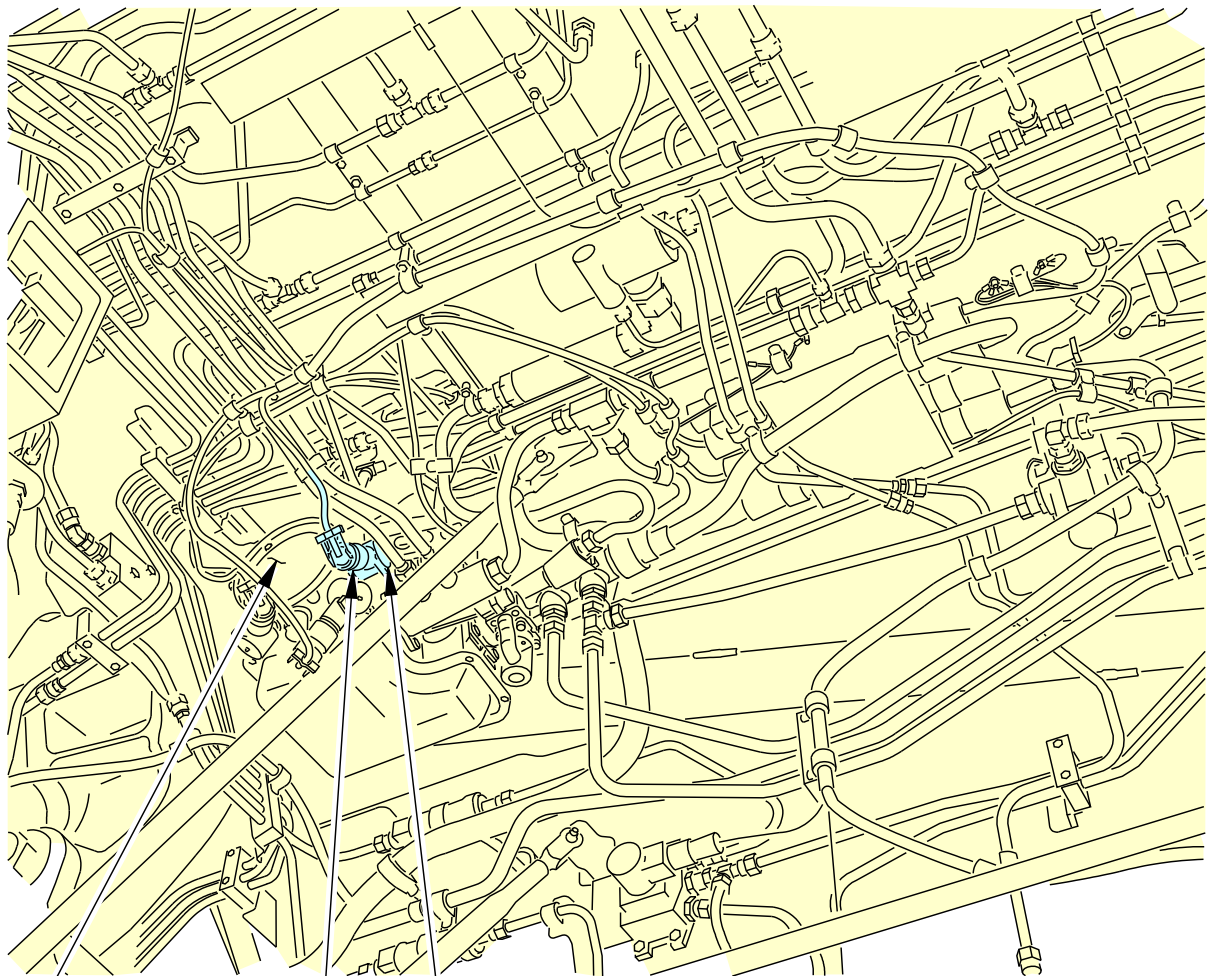
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FLAP
CONTROL
UNIT

[2] CONNECTOR

[1] FLAP LANDING
WARNING SWITCH

C



FLAP CONTROL UNIT

B

2413992 S00061534080_V1

Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 2 of 4)

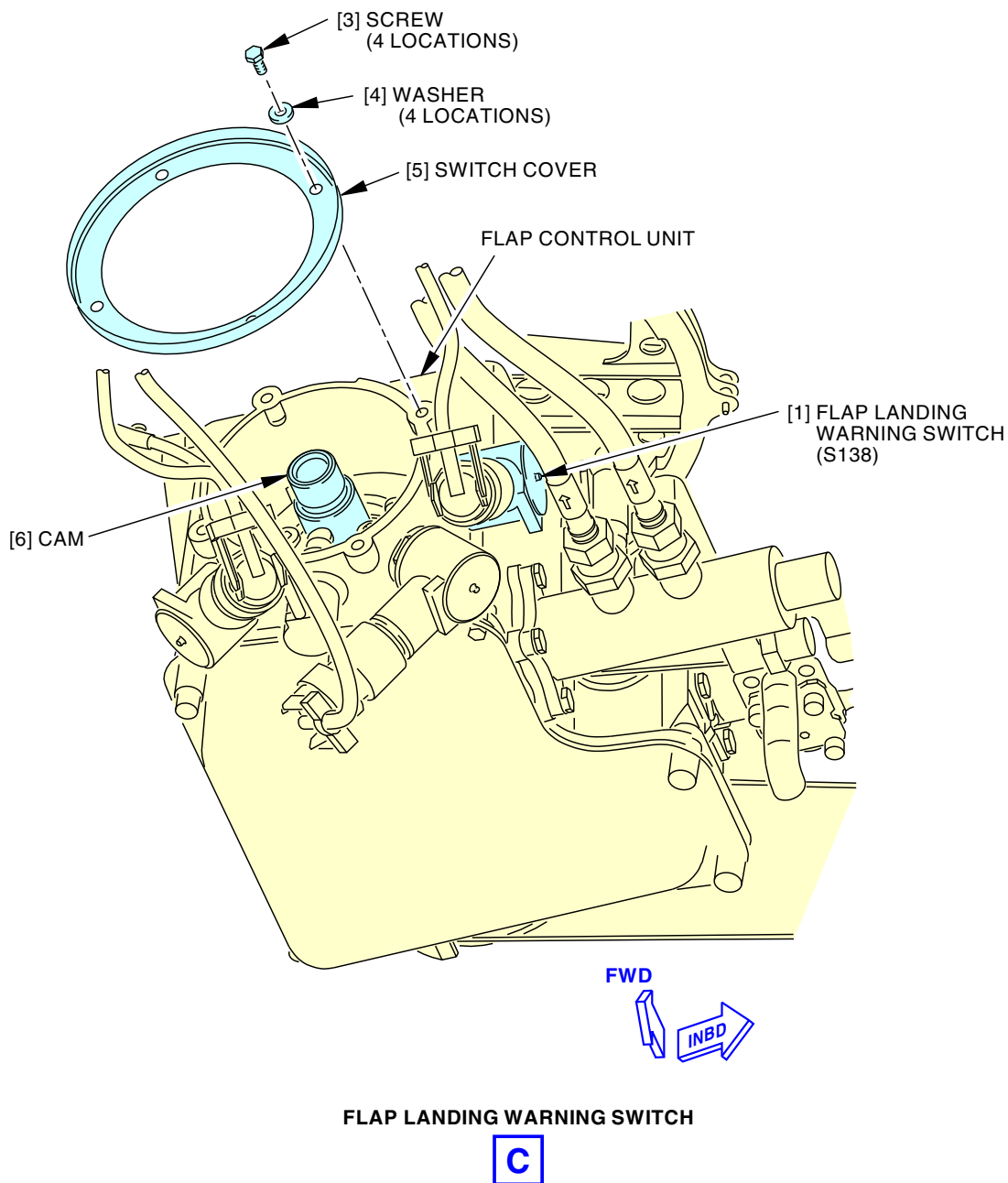
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2413993 S00061534081_V1

Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 3 of 4)

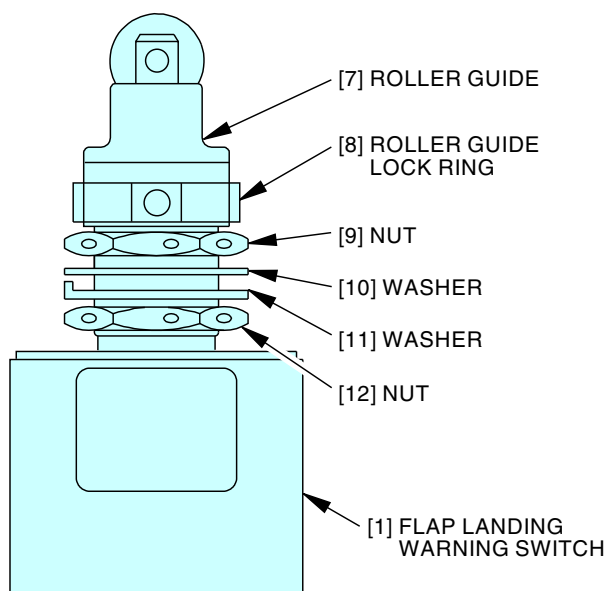
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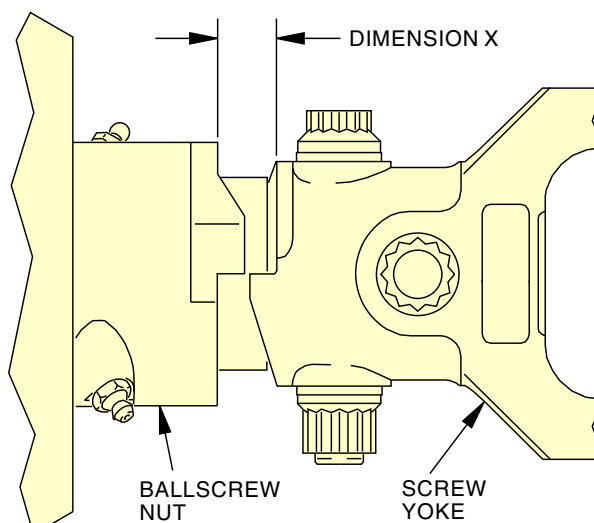
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FLAP LANDING WARNING SWITCH, S138

D



DIMENSION X ADJUSTMENT

E



2413991 S00061534079_V1

Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 4 of 4)

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TASK 31-51-01-400-801

3. Flap Landing Warning Switch Installation

(Figure 401)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
32-00-01-080-801	Landing Gear Downlock 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 Meter - 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 #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
SPL-4962	Wrench - Limit Switch, Flap Control Unit Part #: F80197-5 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Switch	27-51-63-01B-010 31-51-01-01B-010	SIA ALL SIA ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
741	Right Main Landing Gear - Outboard Door

F. Installation Procedure

SUBTASK 31-51-01-860-003

(1) Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

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F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-01-420-001

- (2) To install the flap landing warning switch [1], use tool set FCU limit switch wrench, SPL-4962:
- (a) Remove the roller guide lock ring [8], roller guide [7], nut [9], and washer [10] from the switch [1].
 - (b) Put the nut [12] on the switch [1] with approximately 3 threads showing.
 - (c) Put the washer [11] on the switch [1] and put the switch into position on the flap control unit.
 - (d) Install the washer [10] and the nut [9] to the flap landing warning switch [1].
 - (e) Put the roller guide [7] into position on the switch [1].
 - (f) Install the roller guide to hold the roller guide [7].

SUBTASK 31-51-01-760-001

- (3) With the electrical bonding intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the switch [1] and the flap control unit is less than 0.0025 ohms.

SUBTASK 31-51-01-420-002

- (4) Connect the electrical connector [2] to the flap landing warning switch [1] at the flap control unit.

SUBTASK 31-51-01-860-004

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-01-820-001

- (6) Do this task: Flap Landing Warning Switch Adjustment and Test, TASK 31-51-01-820-801.

SUBTASK 31-51-01-390-001

- (7) Apply fillet seal with sealant, A02315.

SUBTASK 31-51-01-410-001

- (8) Install the switch cover [5] on the flap control unit:
- (a) Put the switch cover [5] into position on the flap control unit.



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.

- (b) Apply Cor-Ban 27L Compound, G50237 to the shank and threads of the screws [3].

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(c) Install the screws [3] and washer [4] that attach the switch cover [5].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-01-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 31-51-01-080-001

(2) If the downlock pins are no longer necessary, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

————— END OF TASK —————

TASK 31-51-01-820-801

4. Flap Landing Warning Switch Adjustment and Test

(Figure 401, Figure 402)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-22-00-710-801	Power Transfer Unit Operational Test (P/B 501)
31-65-00-970-801	System Maintenance Data Pages Function (P/B 201)
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins 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
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Flap Landing Warning Switch Adjustment

SUBTASK 31-51-01-860-006



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the hydraulic system for system B to 3000 psi (TASK 29-11-00-860-801).

SUBTASK 31-51-01-220-001

(2) Move the FLAP control lever to the 15 unit position.

SUBTASK 31-51-01-220-002

(3) Depressurize the hydraulic system for the system B (TASK 29-11-00-860-805).

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SUBTASK 31-51-01-220-003

- (4) Position the flaps electrically until dimension X is 8.09 ± 0.03 in. (205.49 ± 0.76 mm).

NOTE: The dimension X of 8.09 ± 0.03 in. (205.49 ± 0.76 mm) corresponds to a flap position that is between 10 and 15 units.

SUBTASK 31-51-01-820-002

- (5) Adjust the flap landing warning switch [1]:
- (a) Turn the inner nut [9] to temporarily adjust the switch [1] in the direction of the cam [6] until you hear a click.
 - (b) Turn the inner nut to move the switch away from the cam [6] until you hear a click.
NOTE: There will be continuity between pins A and B on the limit switch connector.
There will be continuity between pins S and T on the limit switch connector.
 - (c) Tighten and torque the nut [12] on switch [1] to 30 ± 15 in-lb (3 ± 2 N·m).
 - (d) Install MS20995C32 lockwire, G01048, on the nut [9] and nut [12] (TASK 20-10-44-400-801).
 - (e) Do a check of the switch continuity or push on the switch roller and listen for the switch [1] until you hear a click.

SUBTASK 31-51-01-410-002

- (6) Put the switch cover [5] on the flap control unit.

E. Prepare for the Installation Test

SUBTASK 31-51-01-860-007

- (1) Make sure that the engines are shutdown.

SUBTASK 31-51-01-860-008



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Pressurize the hydraulic system for system B to 3000 psi (TASK 29-11-00-860-801).

SUBTASK 31-51-01-860-009

- (3) Move the FLAP control lever to the 0 unit position.

SUBTASK 31-51-01-480-002



MAKE SURE THAT YOU INSTALL THE DOWNLOCK PINS ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

F. Installation Test

SUBTASK 31-51-01-720-001

- (1) Do the interface test between the S138 switch and the Proximity Switch Electronic Unit (PSEU) below:

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- (a) On the MAX Display System (MDS), go to PG 2 OF 2 on the ATA System 32: PSEU display under the MAINT DATA PGS button (Ref: TASK 31-65-00-970-801).
NOTE: The display will show a table with PSEU 2: D10984 CONNECTOR listed along with other CONNECTORS and their PINS.
- (b) On the PSEU display find PSEU 2: D10984, PIN 48.
- (c) Move the FLAP lever to Full "UP" position.
- (d) Make sure that the PSEU display shows PIN 48 set to 0 (NO GND).
- (e) Make sure that the PSEU display shows PIN 49 set to 0 (NO GND).
- (f) Move the FLAP lever to position 15.
 - 1) Make sure that the PSEU display shows PIN 49 set to 1 (GND).
- (g) Make sure that the PSEU display shows PIN 48 set to 1 (GND).

SUBTASK 31-51-01-710-001

- (2) Do this task: Power Transfer Unit Operational Test, TASK 29-22-00-710-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-01-860-010

- (1) Turn the selector knob clockwise or counter clockwise to highlight the SYS MENU button on the Menu Bar located at the top of the PSEU maintenance page and then push the SEL button to return to the SYS MENU page.
- (2) Push the SYS button on the Multi Function Display (MFD), P9-82 to stop.

SUBTASK 31-51-01-860-011

- (3) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-51-01-080-002

- (4) If the downlock pins are no longer necessary, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

————— **END OF TASK** —————

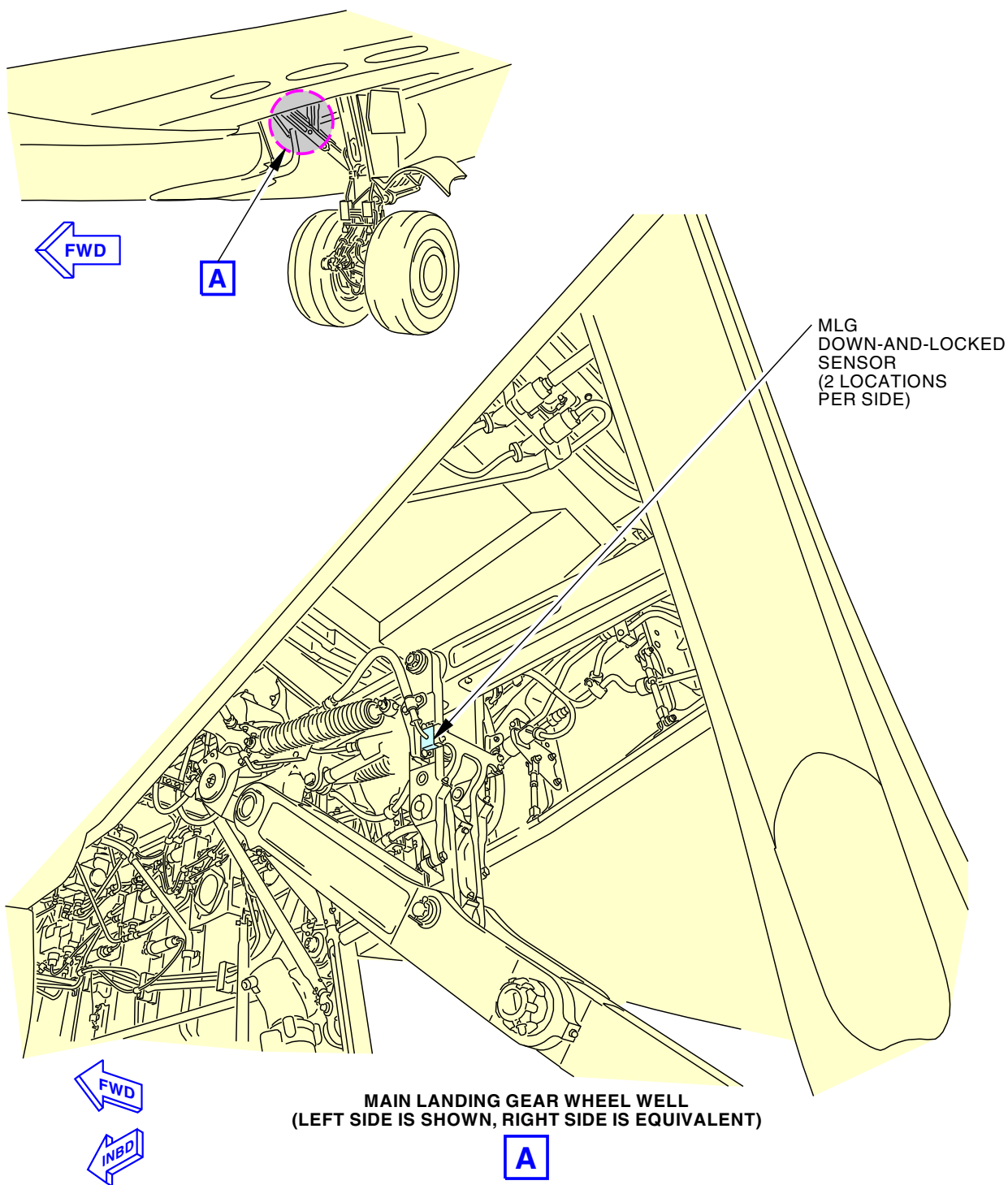
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Main Landing Gear Down-and-Locked Sensor Location
Figure 402/31-51-01-990-802

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STABILIZER TAKEOFF WARNING SWITCHES - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the four stabilizer takeoff warning switches
 - (2) An installation of the four stabilizer takeoff warning switches.
- B. There are four stabilizer takeoff warning switches (S132, S1184, S546, and S1183) on the brackets along the stabilizer jackscrew.
- C. Each switch is operated by an upper and a lower limit switch cam.

TASK 31-51-02-000-801

2. Stabilizer Takeoff Warning Switch Removal

(Figure 401)

A. **References**

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)

B. **Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

C. **Access Panels**

Number	Name/Location
311BL	Stabilizer Trim Access Door

D. **Prepare for the Removal**

SUBTASK 31-51-02-860-001

- (1) Set the stabilizer trim cutout switches to the CUTOUT position.

E. **Stabilizer Takeoff Warning Switch Removal**

SUBTASK 31-51-02-860-002

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-02-010-001

- (2) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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SUBTASK 31-51-02-010-002



YOU MUST PREVENT ALL POSSIBLE OPERATION OF THE HORIZONTAL STABILIZER WHEN YOU WORK ON OR NEAR IT. THE HORIZONTAL STABILIZER MOVES QUICKLY AND WITH FORCE. IF THE STABILIZER MOVES WHEN PERSONS ARE IN THE TORSION BOX COMPARTMENT OR NEAR THE STABILIZER, YOU CAN CAUSE INJURY TO THEM.

- (3) Find the applicable stabilizer takeoff warning takeoff warning switch [1].

SUBTASK 31-51-02-020-001

- (4) Remove the takeoff warning switch [1]:
- (a) Disconnect and label the wires for the takeoff warning switch [1].
 - (b) Loosen the lockscrew [3] and remove the locknut [5] and washer [4] that attach the switch arm [6] to the takeoff warning switch [1].
 - (c) Remove the switch arm [6] from the shaft of the takeoff warning switch [1].
 - (d) Remove the lockwire from the jam nut [8] (TASK 20-10-44-000-801).
 - (e) Remove the lockwasher [7] and jam nut [8] that attach the takeoff warning switch [1] to the bracket assembly [2].
 - (f) Remove the takeoff warning switch [1] from the bracket assembly [2].

————— END OF TASK —————

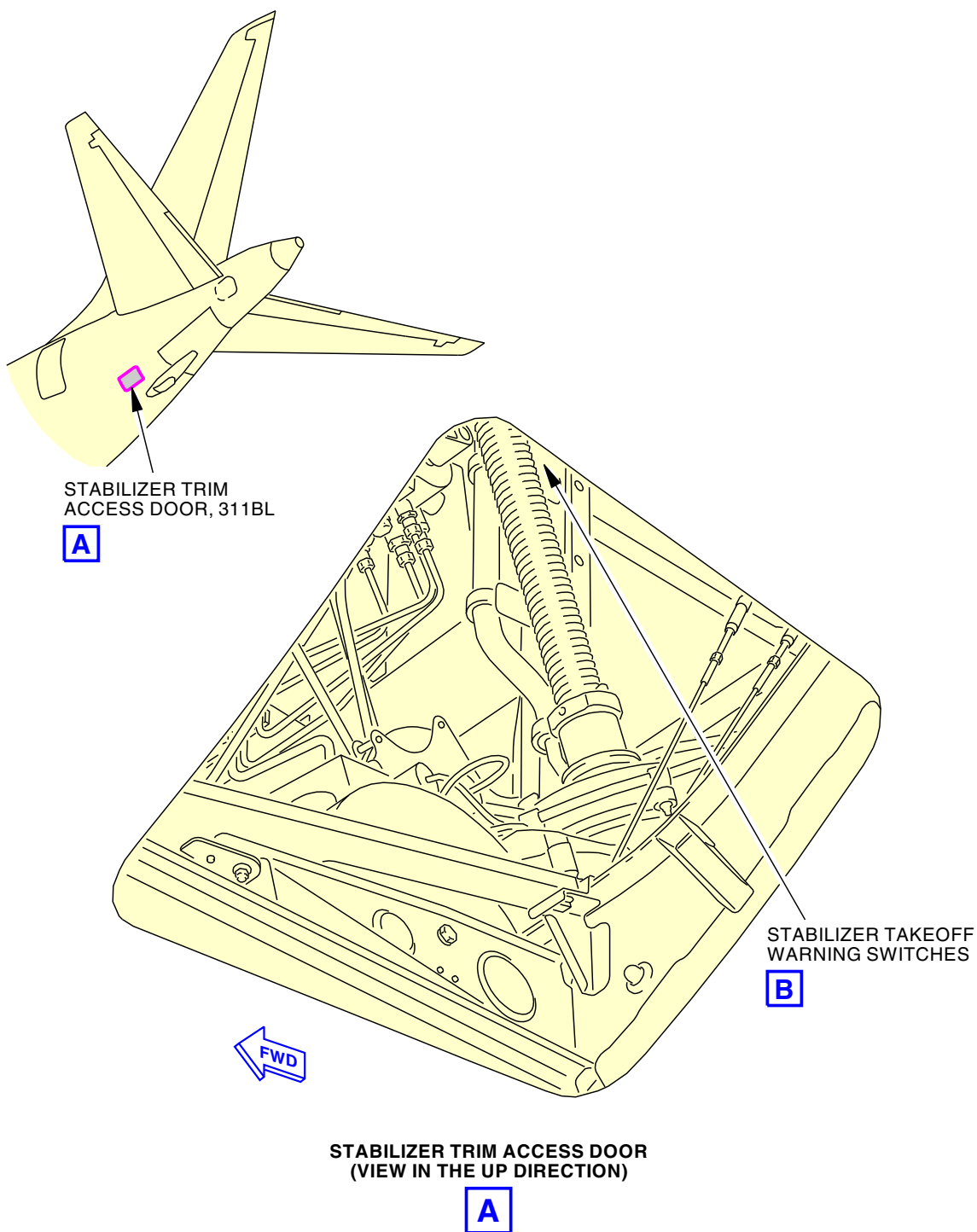
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Stabilizer Takeoff Warning Switches Installation
Figure 401/31-51-02-990-801 (Sheet 1 of 3)

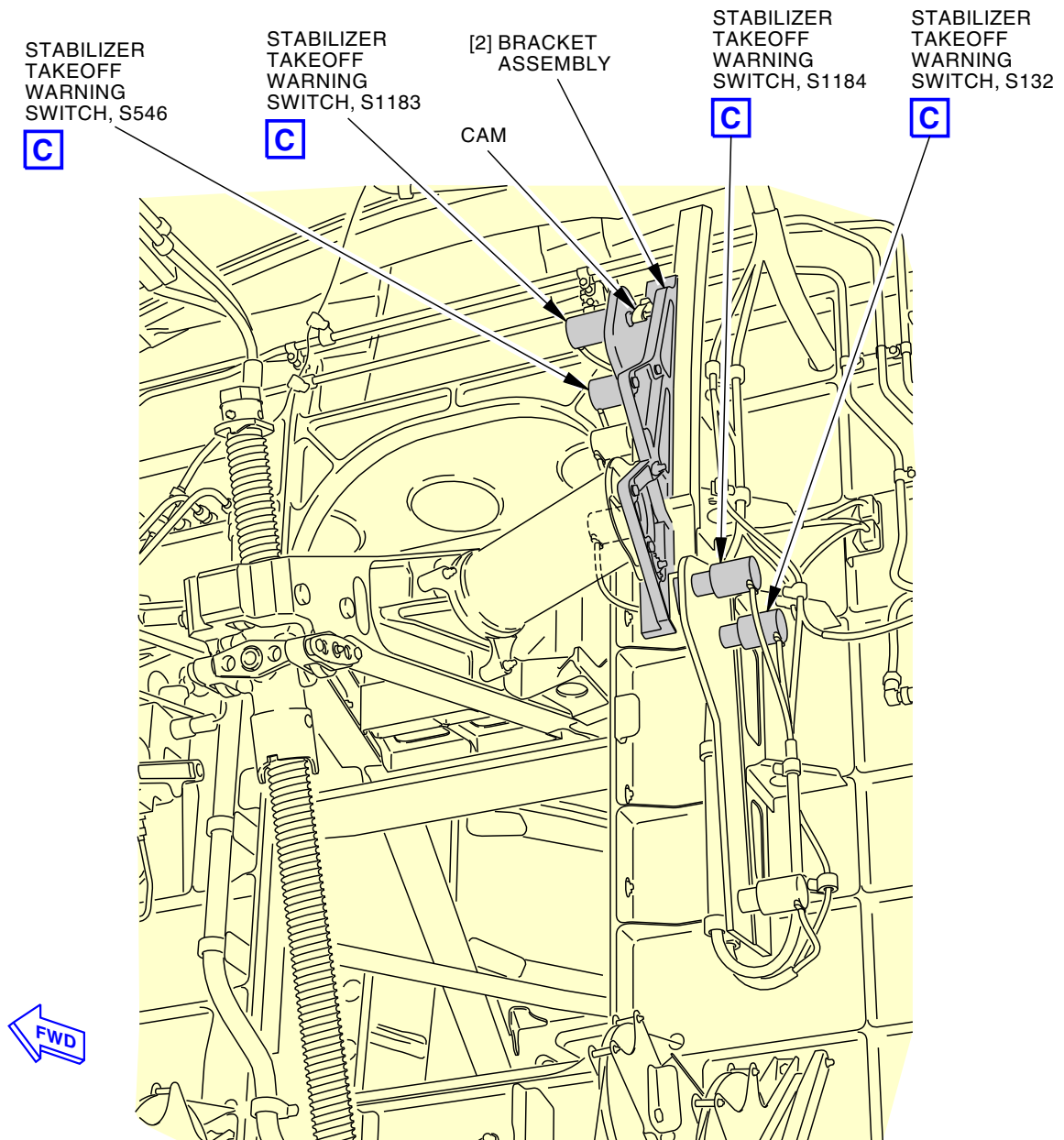
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STABILIZER TAKEOFF WARNING SWITCHES

B

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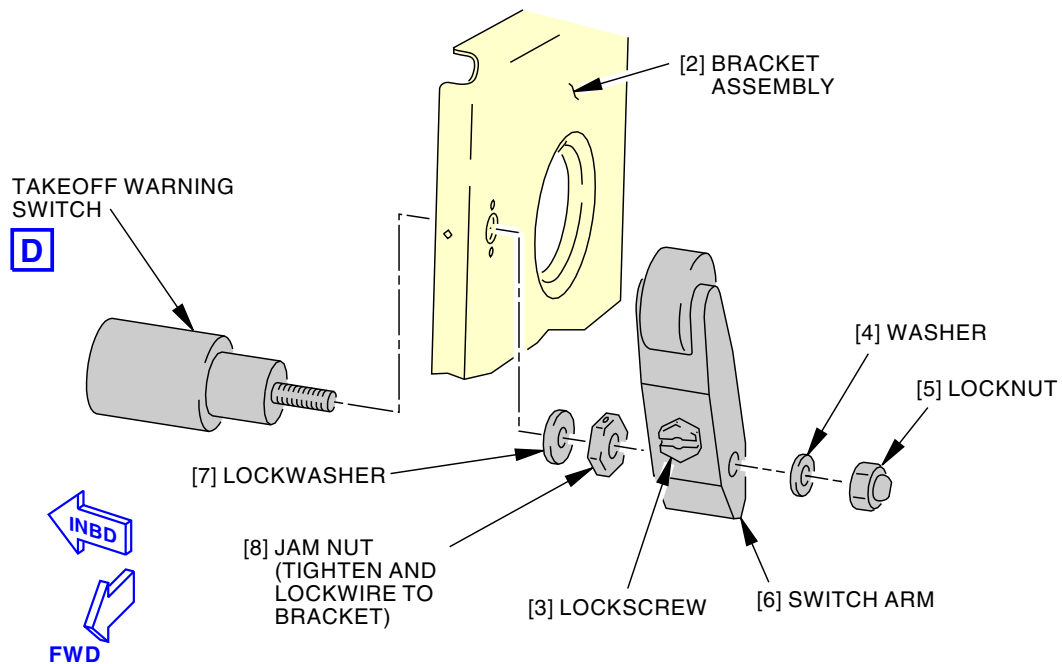
Stabilizer Takeoff Warning Switches Installation
Figure 401/31-51-02-990-801 (Sheet 2 of 3)

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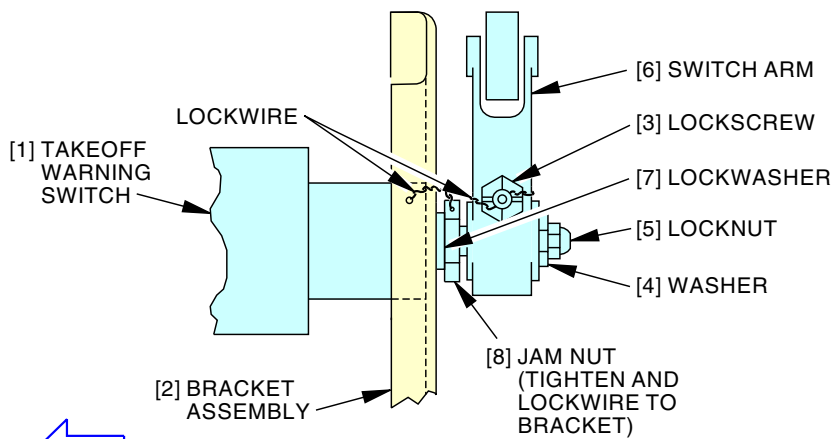
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STABILIZER TAKEOFF WARNING SWITCHES
(EXAMPLE)

C



TAKEOFF WARNING SWITCH
(EXAMPLE)

D

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Stabilizer Takeoff Warning Switches Installation
Figure 401/31-51-02-990-801 (Sheet 3 of 3)

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TASK 31-51-02-400-801

3. Stabilizer Takeoff Warning Switch Installation

(Figure 401)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
31-51-02-700-801	Stabilizer Takeoff Warning Switches Test (P/B 501)
31-51-02-820-801	Stabilizer Takeoff Warning Switches Adjustment (P/B 501)
WDM 31-53-11	Wiring Diagram Manual

B. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Takeoff warning switch	31-51-02-01-010	SIA ALL
		31-51-02-01-015	SIA ALL

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Stabilizer Takeoff Warning Switch Installation

SUBTASK 31-51-02-860-003

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-02-420-001

- (2) Install the takeoff warning switch [1]:
- (a) Put the shaft of the takeoff warning switch [1] through the bracket assembly [2].
 - (b) Install the jam nut [8] and lockwasher [7] to attach the takeoff warning switch [1] to the bracket assembly [2].
 - (c) Tighten the jam nut [8] to the 15 in-lb (1.7 N·m) - 25 in-lb (2.8 N·m).
 - (d) Install MS20995NC32 lockwire, G01912, to attach the jam nut [8] to the bracket assembly [2] (TASK 20-10-44-400-801).
 - (e) Install the switch arm [6] on the shaft of the takeoff warning switch [1].
 - (f) Turn the switch arm [6] to the approximate position for installation.

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- (g) Put the switch arm [6] on the takeoff warning switch [1] to engage the serrations.
- (h) Install the washer [4] and locknut [5] to attach the switch arm [6] to the takeoff warning switch [1].
 - 1) Tighten the locknut [5] by hand.

NOTE: The locknut will be tightened after the switch adjustment.
- (i) Connect the wires to the takeoff warning switch [1] (WDM 31-53-11).
 - 1) Make sure that the wires go through the wire bundle clamps.
- (j) Do this task: Stabilizer Takeoff Warning Switches Adjustment, TASK 31-51-02-820-801.
- (k) Do this task: Stabilizer Takeoff Warning Switches Test, TASK 31-51-02-700-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-02-860-004

- (1) Move the thrust lever to the IDLE position.

SUBTASK 31-51-02-860-005

- (2) Set the stabilizer trim cutout switches to the NORMAL position.

SUBTASK 31-51-02-410-001

- (3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
311BL	Stabilizer Trim Access Door

SUBTASK 31-51-02-860-013

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

———— **END OF TASK** ————

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STABILIZER TAKEOFF WARNING SWITCHES - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
- (1) An adjustment of the stabilizer takeoff warning switches
 - (2) A test of the stabilizer takeoff warning switches
- B. The stabilizer takeoff warning switch is referred to as the limit switch in this procedure.
- C. There are four stabilizer takeoff warning switches (S132, S1184, S546, and S1183) on the brackets along the stabilizer jackscrew.

TASK 31-51-02-820-801

2. Stabilizer Takeoff Warning Switches Adjustment

(Figure 501)

A. **References**

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)

B. **Tools/Equipment**

Reference	Description
STD-1107	Gauge - Feeler, 0.0 - 0.5 Inch, Readable to 1/1000th
STD-1330	Wrench - Hexdrive, Allen Wrench
STD-13571	Screwdriver - Flat Tip

C. **Consumable Materials**

Reference	Description	Specification
G02166	Lockwire - MS20995NC20, Monel - 0.020 Inch (0.508 mm) Diameter	NASM20995

D. **Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

E. **Stabilizer Takeoff Warning Switches Adjustment**

SUBTASK 31-51-02-820-001

- (1) Adjust the applicable takeoff warning switch:
- (a) Loosen the locking nut [2] and lock screw [3].
 - 1) Do not remove the locking nut [2] or lock screw [3].

NOTE: The adjustment gear must be adjusted when the switch is not loaded by the actuating cam.
 - (b) Hand-adjust the stabilizer jackscrew to the necessary position so that the switch is not loaded.

NOTE: Clockwise movement of the jackscrew crank results in a decrease in the "B" dimension.

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- (c) Adjust the switch roller arm position on the switch spline shaft to the approximate switch actuation position.
- (d) Hand-tighten the locking nut [2] and lock screws [3].
- (e) Rotate the stabilizer jackscrew until the switch actuates.

NOTE: The audible “click” at the point of actuation is very subtle. The switch actuating can be sensed by placing your fingers on the switch housing while adjusting to feel the switch actuate.

- (f) Make sure that the “B” dimension is in the correct range for the upper (S546 and S1183) and lower (S132 and S1184) switches (Table 501 or Table 502).

Table 501/31-51-02-993-801

S546 and S1183 STAB LIMIT SWITCHES	
TRIM UNITS	B DIMENSION
2.75	40.95 ±0.03 in. (104.01 ±0.08 cm) ^{*[1]}

^{*[1]} Switches S546 and S1183 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

Table 502/31-51-02-993-802

S132 and S1184 STAB LIMIT SWITCHES	
TRIM UNITS	B-DIMENSION
8.75	32.38 ±0.03 in. (82.25 ±0.08 cm) ^{*[1]}

^{*[1]} Switches S132 and S1184 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

- 1) If the “B” dimension is not within the correct tolerance at the actuation point, back the cam off by adjusting the stabilizer jackscrew until the switch is unloaded, loosen the locking nut [2] and lock screws [3], and repeat the roller arm adjustment until the correct “B” dimension is obtained.
 - (g) Tighten the two lock screws [3] on the lever.
 - (h) Tighten the locking nut [2] to 22.5 ±2.5 in-lb (2.5 ±0.3 N·m).
 - (i) Use a hexdrive allen wrench, STD-1330, or a Flat Tip Screwdriver, STD-13571, to turn the worm gear [1] with no more than 6 in-lb (1 N·m) until the “B” dimension within tolerances per Table 501 or Table 502.
- NOTE:** Clockwise movement of the worm gear results in a decrease of the “B” dimension for the adjusted switch.
- (j) Install a MS20995NC20 lockwire, G02166, between the two lock screws [3] (TASK 20-10-44-400-801).
 - (k) With the stabilizer leading edge in the full down position (airplane nose up), use a 0.0 - 0.5 Inch feeler gauge, STD-1107, to make sure that the nose up switches, S132 and S1184, can be rotated away from the cam surface by a minimum of 0.05 in. (1.27 mm).
 - (l) With the stabilizer leading edge in the full up position (airplane nose down), use a 0.0 - 0.5 Inch feeler gauge, STD-1107, to make sure that the nose down switches, S546 and S1183, can be rotated away from the cam surface by a minimum of 0.05 in. (1.27 mm).

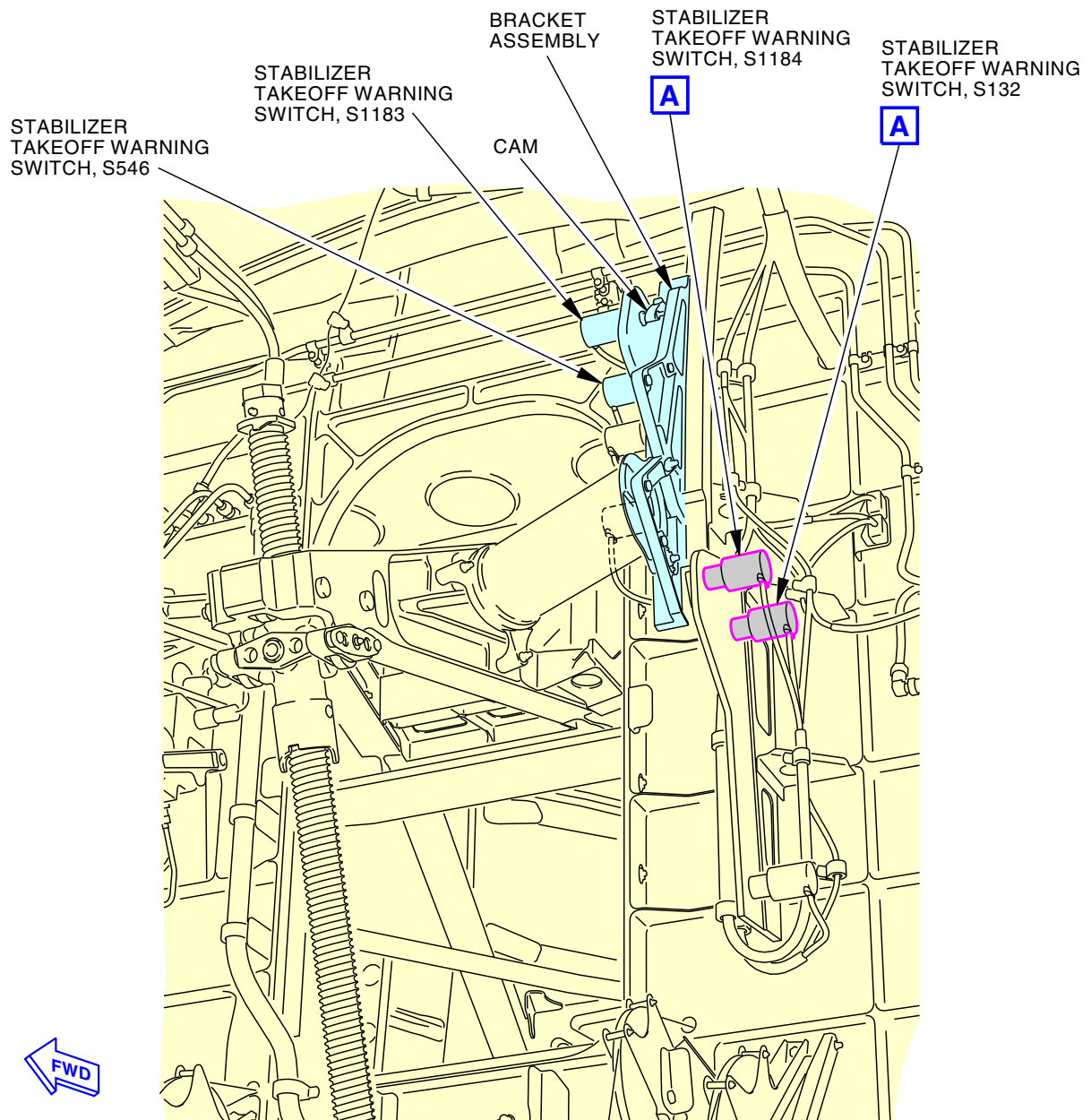
————— **END OF TASK** —————

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Stabilizer Takeoff Warning Switches Adjustment
Figure 501/31-51-02-990-802 (Sheet 1 of 2)

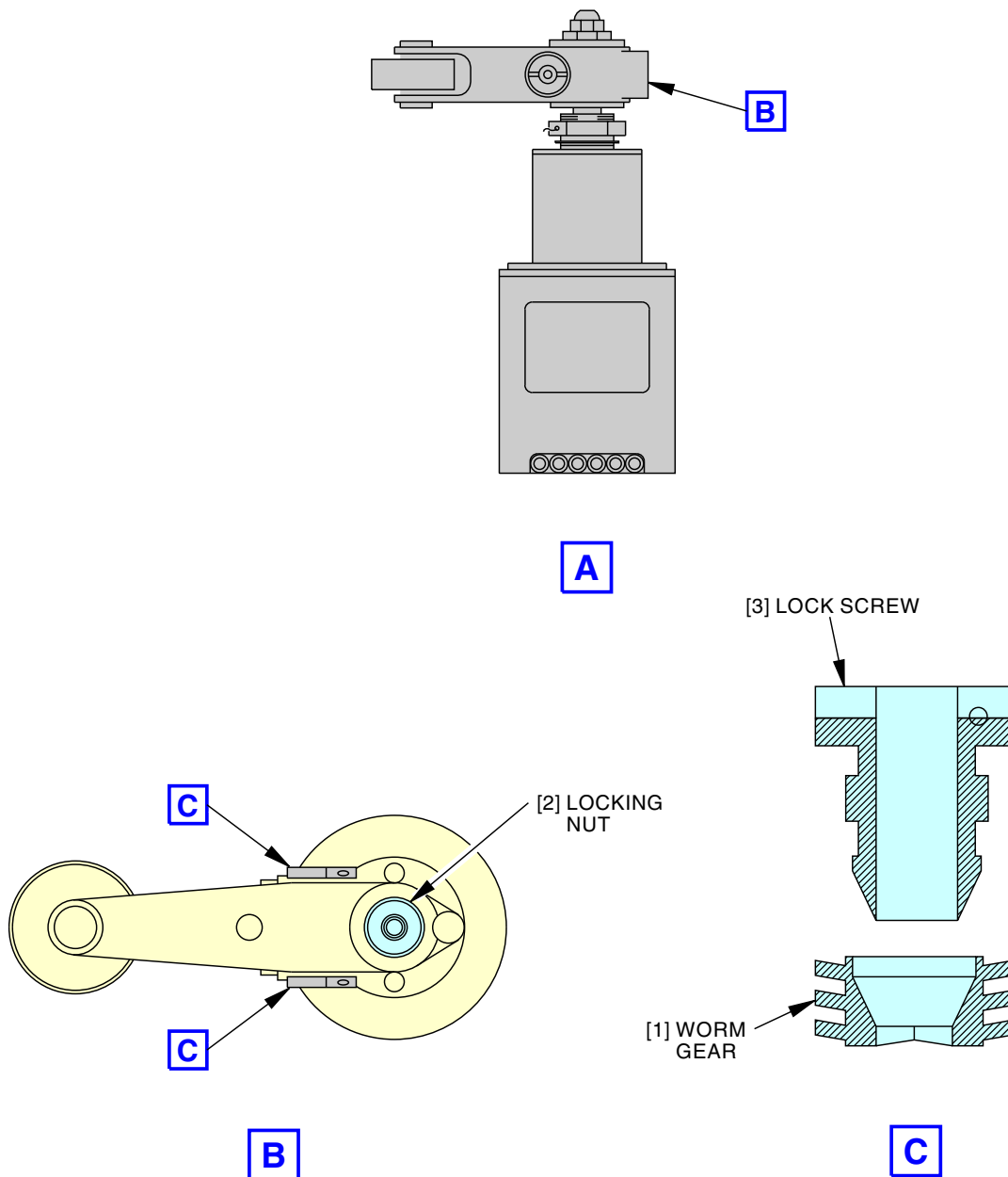
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Stabilizer Takeoff Warning Switches Adjustment
Figure 501/31-51-02-990-802 (Sheet 2 of 2)

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TASK 31-51-02-700-801

3. **Stabilizer Takeoff Warning Switches Test**

(Figure 502)

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-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator Part #: F80055-36 Supplier: 81205 Opt Part #: F80055-1 Supplier: 81205

B. **Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

C. **Stabilizer Takeoff Warning Switches Test**

SUBTASK 31-51-02-860-008

- (1) Make sure that the speed brakes are down.

SUBTASK 31-51-02-860-009

- (2) Make sure that the flaps are in the takeoff range of 1 to 15 units.

SUBTASK 31-51-02-860-010

- (3) Move one of the thrust levers full forward.

SUBTASK 31-51-02-860-011

- (4) Do this test for the upper switches, S546 and S1183:
- (a) Move the stabilizer in the leading edge up direction (airplane nose down) until you hear the warning horn.
 - (b) Use the bar, SPL-1677, to make sure that dimension "B" is in the correct range for the upper switch (Table 503).

Table 503/31-51-02-993-803

S546 and S1183 STAB LIMIT SWITCHES	
TRIM UNITS	B DIMENSION
2.75	40.95 ±0.03 in. (104.01 ±0.08 cm) ^{*[1]}

*[1] Switches S546 and S1183 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

SUBTASK 31-51-02-860-012

- (5) Do this test for the lower switches, S132 and S1184:
- (a) Move the stabilizer in the leading edge down direction (airplane nose up) until you hear the warning horn.
 - (b) Use the bar, SPL-1677, to make sure that dimension "B" is in the correct range for the lower switch (Table 504).

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Table 504/31-51-02-993-804

S132 and S1184 STAB LIMIT SWITCHES	
TRIM UNITS	B-DIMENSION
8.75	32.38 ±0.03 in. (82.25 ±0.08 cm) ^{*[1]}

*[1] Switches S132 and S1184 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

————— END OF TASK —————

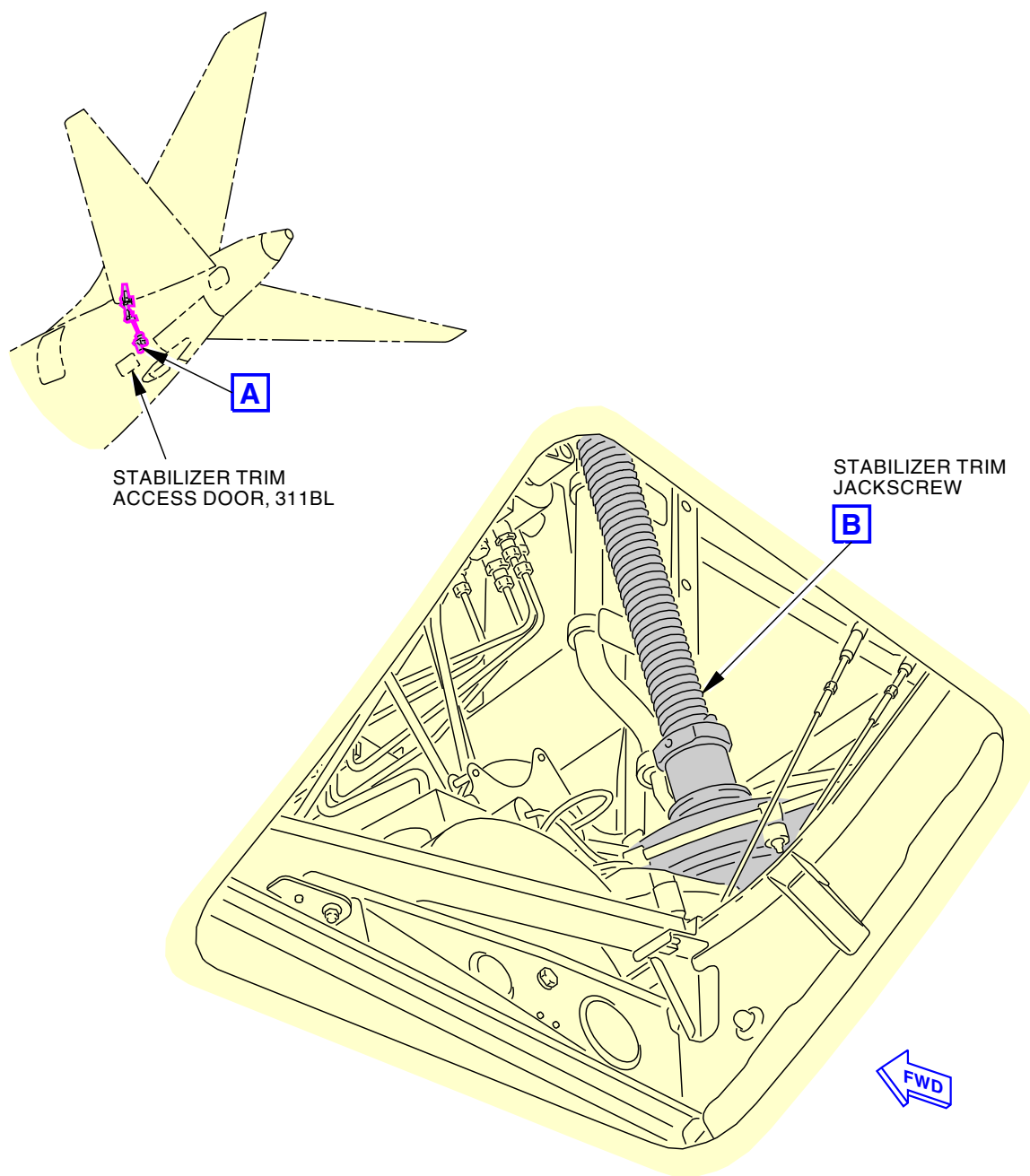
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VIEW WHEN YOU LOOK UP THROUGH THE STABILIZER
TRIM ACCESS DOOR

A

2411627 S00061528382_V1

Stabilizer Trim Jackscrew Setting
Figure 502/31-51-02-990-804 (Sheet 1 of 2)

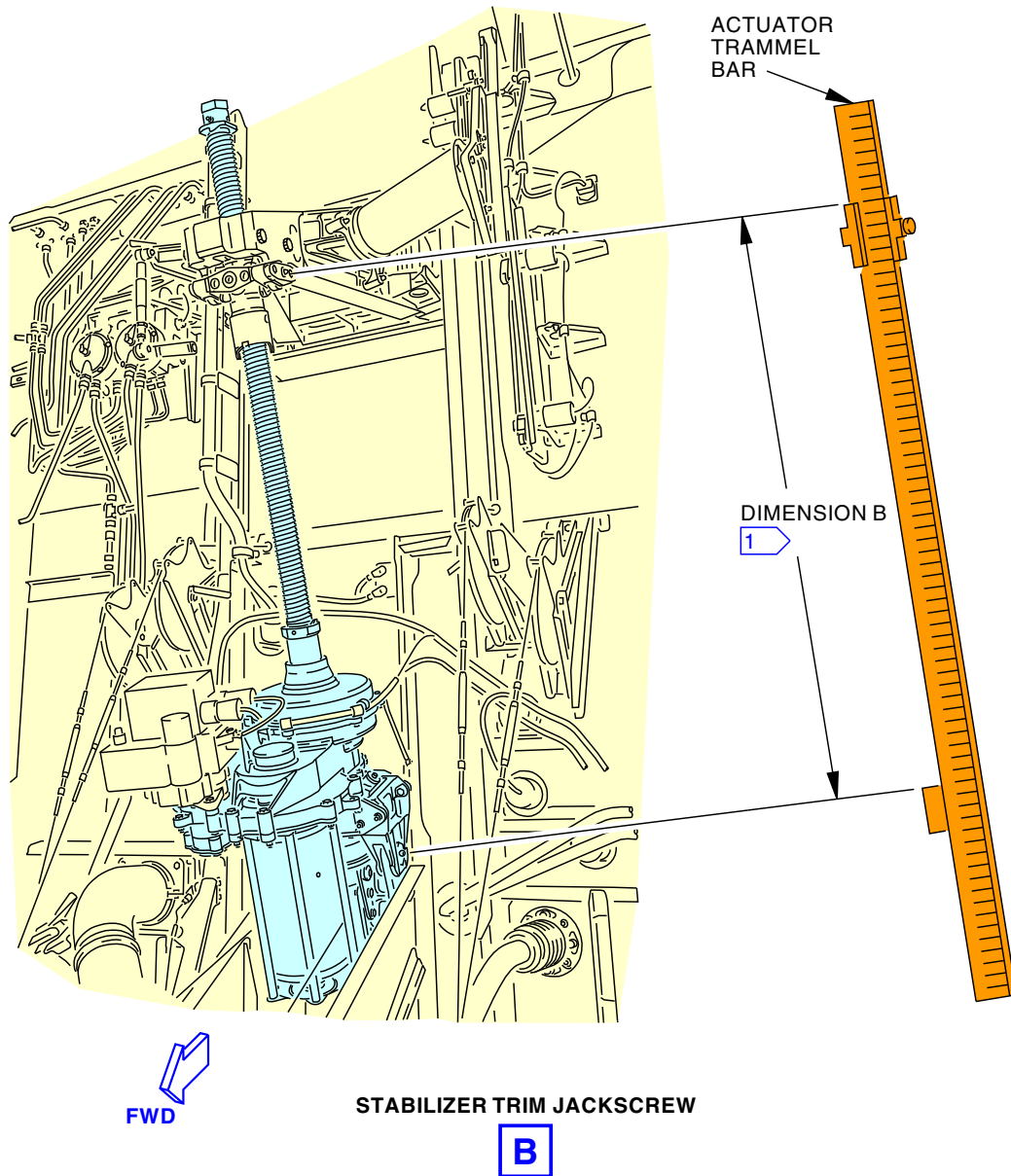
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NOTE:

THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREE.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS.

2411628 S00061528383_V1

Stabilizer Trim Jackscrew Setting
Figure 502/31-51-02-990-804 (Sheet 2 of 2)

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AURAL WARNING MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the aural warning module
 - (2) An installation of the aural warning module.
- B. The aural warning module, M315, is on the control stand.

TASK 31-51-04-000-801

2. Aural Warning Module Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Aural Warning Module Removal

SUBTASK 31-51-04-860-001

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00549	MACH WARN SYS -2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-04-040-001

- (2) Remove the screws [2] and screws [3].

SUBTASK 31-51-04-860-002

- (3) Disconnect the electrical connectors [4].

SUBTASK 31-51-04-480-001

- (4) Remove the aural warning module [1].

———— **END OF TASK** ————

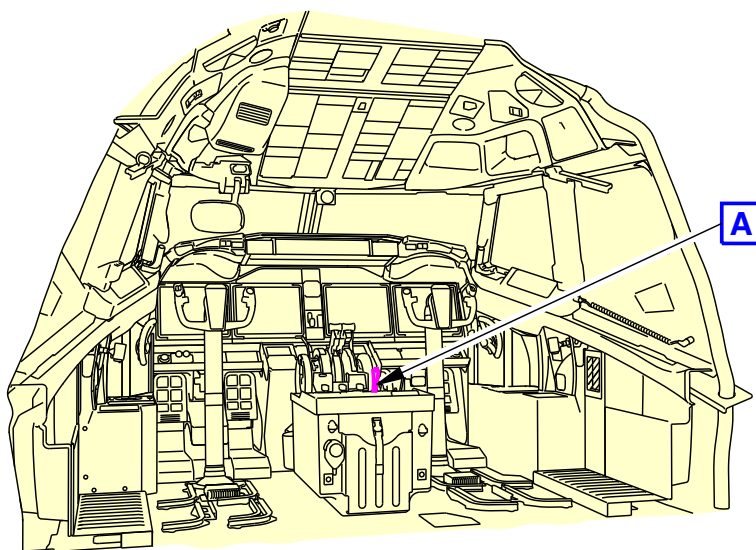
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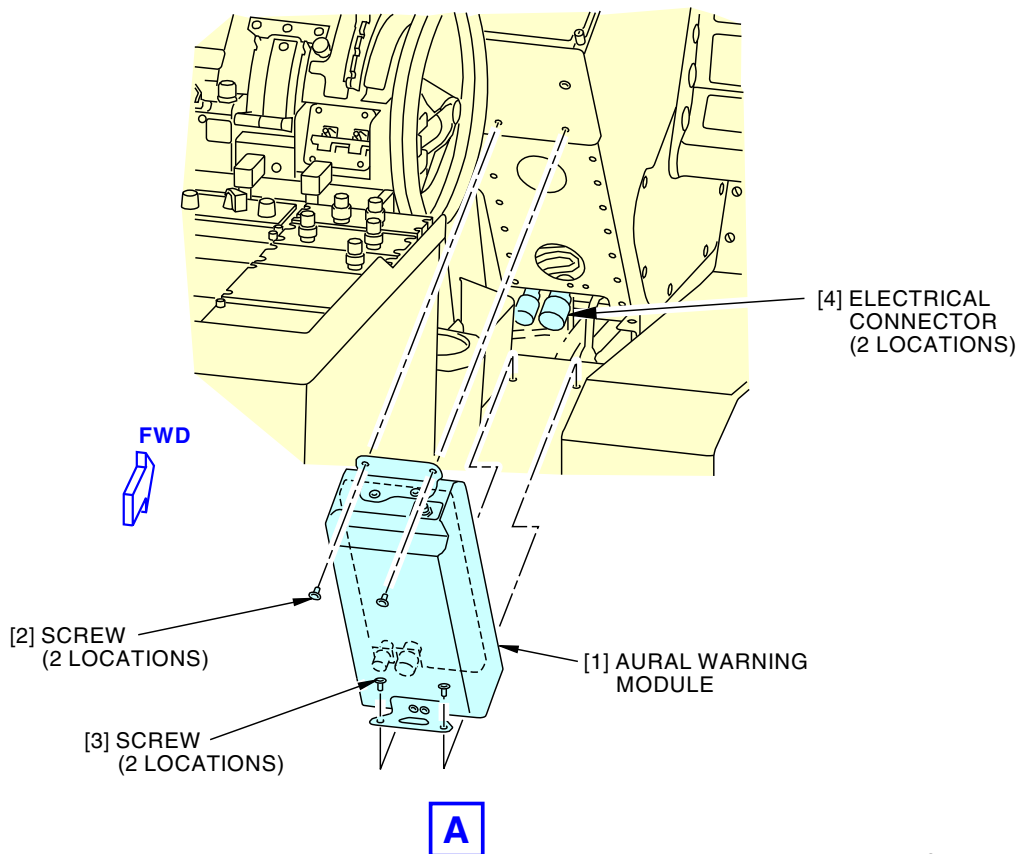
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FLIGHT COMPARTMENT



2414005 S00061534109_V2

Aural Warning Module Installation
Figure 401/31-51-04-990-801

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TASK 31-51-04-400-801

3. **Aural Warning Module Installation**

(Figure 401)

A. References

Reference	Title
31-51-00-740-801	Aural Warning Module BITE Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Aural warning module	31-51-04-01-025	SIA 001-012
		31-51-04-02-250	SIA 013-999

C. Location Zones

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

D. Aural Warning Module Installation

SUBTASK 31-51-04-860-003

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	7	C00549	MACH WARN SYS -2

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-04-420-001

- (2) Put the aural warning module [1] on the forward section of the control stand.

SUBTASK 31-51-04-420-002

- (3) Connect the electrical connectors [4].

SUBTASK 31-51-04-760-001

- (4) Install the screws [2] and screws [3].

SUBTASK 31-51-04-860-004

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	3	C00170	MACH WARN SYS-1

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00549	MACH WARN SYS -2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
D	18	C00451	LANDING GEAR AURAL WARN

E. Installation Test

SUBTASK 31-51-04-410-001

- (1) Make sure that the airplane is in the ground mode.

SUBTASK 31-51-04-740-001

- (2) Do this task: Aural Warning Module BITE Test, TASK 31-51-00-740-801.

SUBTASK 31-51-04-410-002

- (3) Set the PARKING BRAKE.

SUBTASK 31-51-04-860-005

- (4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 31-51-04-410-003



MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (5) Move the thrust levers to the takeoff position.
(a) Make sure that you hear an intermittent horn.

SUBTASK 31-51-04-410-004

- (6) Move the thrust levers to the idle position.
(a) Make sure that the intermittent horn stops.

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SUBTASK 31-51-04-860-006

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

————— **END OF TASK** —————

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MAX DISPLAY SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) A fault log check, to examine faults recorded by the MAX Display System (MDS).
- (2) Function to select and display the airplane system maintenance data pages.
- (3) Function to display the INFO page to manually set the N1 thrust reference or the speed reference.
- (4) Function to display the SYS page which shows the system synoptic page.
- (5) Function to display, enter, and sync the Airplane Configuration Data (ACD).
- (6) Function for Miscellaneous System Controls (MSC).
 - (a) Gives controls to put these aircraft system components into the test mode:
 - APU Maintenance
 - EEC Maintenance
 - (b) Gives controls for these:
 - Single or Dual MFD Mode
 - Enable or Disable of Maintenance Page Access in Air
 - Enable Landing Capability Placard
- (7) Check Scheduled Maintenance Task (SMT).

TASK 31-65-00-750-801

2. Fault Interrogation for a Maintenance Message

A. General

- (1) This task gives the instructions on how to interrogate for a maintenance message.
- (2) The MAINT light on the overhead panel is used to indicate whether the airplane can be dispatched. If the light is illuminated, then there are active unconfirmed messages that need to be evaluated by airplane maintenance to either repair the fault to clear the Status message (Figure 202) or that the MMEL allows dispatch relief and the maintenance crew selects the confirmation state on the MAINT LIGHT page.
- (3) To view which Status message(s) are triggering the MAINT light, airplane maintenance needs to display the MAINT LIGHT page and evaluate the Status messages that are not confirmed (confirmation box is unchecked and white text).
- (4) The MAX Display System (MDS) menus screen buttons are selectable. The green button indicates the current selection. The magenta highlight on a button indicates the cursor has captured the button and is ready to select it. The cyan buttons are not available from that screen. The cyan buttons are disabled based on airplane operating conditions. For example, some of the buttons are disabled when the airplane is in air.
- (5) The maintenance data pages (MAINT DATA PGS) provide these capability options: REAL, MANUAL and AUTO for snapshot data. The REAL allows users to view the system data in real-time. The MANUAL and AUTO allow users to view up to five recorded messages.

B. References

Reference	Title
05-00-00-750-801	Scheduled Maintenance Task (SMT) - Repair Time Limits (P/B 201)

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(Continued)

Reference	Title
46-13-02-700-803	Existing Flight Deck Effects Check (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

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

E. Prepare for the Fault Interrogation

SUBTASK 31-65-00-710-002

- (1) Do these steps to make sure that both ENGINE START switches and the Engine Start Levers are not operated:
 - (a) On the pilot's overhead panel, P5, make sure that the ENGINE START switches are in the OFF position.
 - 1) Put DO NOT OPERATE tags, STD-858, on both ENGINE START switches.
 - (b) On the pilot's aisle control stand, make sure that both Engine Start Levers are in the CUTOFF position.
 - 1) Put DO NOT OPERATE tags, STD-858, on both Engine Start Levers.

SUBTASK 31-65-00-710-006

- (2) Push the SYS button on the Multi-Functional Panel (MFP).

SUBTASK 31-65-00-710-007

- (3) Make sure that the GND TEST switch is in the NORM position.

F. How to Find Maintenance Messages Correlated to Active or Latched Status Messages

SUBTASK 31-65-00-710-008

- (1) Do this task: Existing Flight Deck Effects Check, TASK 46-13-02-700-803 (Figure 201):
 - (a) Find the faults and make a record of them, if necessary.

NOTE: It is possible to look at correlated flight deck effects (FDE's). These are FDEs with a corresponding maintenance message. You can also look at all FDEs that do not have a correlated maintenance message.
 - (b) Faults correlated to a status message will have an FDE type of [STATUS].
 - (c) If applicable, select the REPORT button or icon to make a record of the existing FDE's.
 - (d) If applicable, use the Interactive Fault Isolation Manual (IFIM) to troubleshoot and correct the faults that show.
 - (e) If scheduled maintenance task (SMT) maintenance messages are found, go to the task: Scheduled Maintenance Task (SMT) - Repair Time Limits, TASK 05-00-00-750-801).

G. How to Extinguish the MAINT Light

SUBTASK 31-65-00-710-009

NOTE: Conditions causing the appearance of the MAINT light must be corrected or the Minimum Equipment List (MEL) must be consulted to determine possible dispatch relief.

- (1) Select the MAINT button on the SYS page.

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- (2) Select MAINT CTRL PGS on the Menu bar.
 - (a) Select MAINT LIGHT (Figure 203).
 - (b) Evaluate every Status message displayed on the MAINT LIGHT page for dispatch.
 - 1) If the Status message is no dispatch, then airplane maintenance needs to repair the fault and clear the status message
 - a) Use the IFIM to troubleshoot and correct the faults that show.
<1> Use the faults recorded from the step above: "How to Find Maintenance Messages Correlated to Active or Latched Status Messages".
 - 2) If the fault is dispatchable for a period of time, then the associated confirmation box is selected for that message (check box and message will turn green when selected).
 - 3) Make sure the MAINT light on the P5-1 panel is off.
NOTE: The MAINT LIGHT page does not refresh real time. If all the active Status messages are confirmed and the MAINT light is still on, then select the PREV MENU button and then reselect the MAINT LIGHT page to refresh the page. There most likely is an active Status message that was not active when the MAINT LIGHT page was initially displayed.

H. How to Erase Latched Status Messages

NOTE: Conditions causing the appearance of the Latched STATUS message must be corrected prior to erasing the message. Refer to How to Find Maintenance Messages Correlated to Active or Latched Status Messages.

SUBTASK 31-65-00-710-010

- (1) Select the MAINT button on the SYS page.
- (2) Select MAINT CTRL PGS on the Menu bar.
 - (a) Select LATCHED MESSAGE ERASE.
 - (b) Select an applicable latched message on screen.
 - 1) Select the applicable ERASE button on screen.
 - 2) Push the NEXT PAGE to update the screen.

I. How to Erase Scheduled Maintenance Task Message

SUBTASK 31-65-00-710-011

NOTE: On the lower portion of the LATCHED MESSAGE ERASE page, there is/are SCHEDULED MAINTENANCE TASK (SMT) messages displayed. The SMT message is displayed when the SMT message is active. When the SMT message is active, the associated ERASE button is disabled. When the SMT message is no longer active, the ERASE button is enabled. Conditions causing the appearance of the SMT message must be corrected prior to erasing the message.

- (1) Select the MAINT button on the SYS page.
- (2) Select MAINT CTRL PGS on the Menu bar.
- (3) Select an applicable non-active SMT message on the screen.
- (4) Select the applicable ERASE button on screen.
 - (a) Select the applicable ERASE button on screen.
 - (b) Push the NEXT PAGE to update the screen.

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J. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-002

- (1) Push the SYS button on the MFP.

SUBTASK 31-65-00-080-001

- (2) Remove the DO NOT OPERATE tags, STD-858, from the ENGINE START switches on the overhead panel P5.

SUBTASK 31-65-00-080-002

- (3) Remove the DO NOT OPERATE tags, STD-858, from the START LEVER switches on the aisle control stand.

————— **END OF TASK** —————

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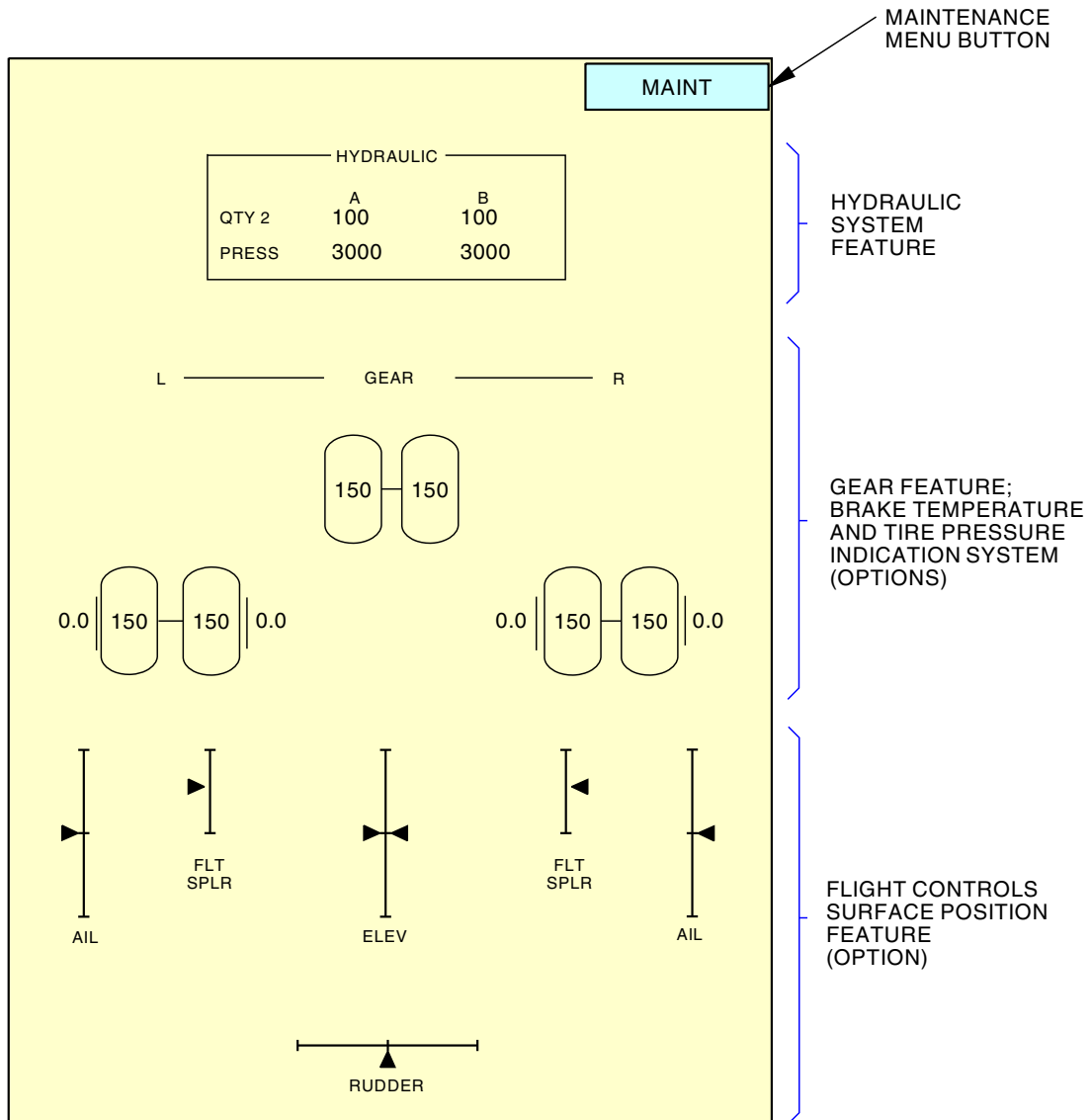
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(TYPICAL)

2474272 S0000580111_V4

MDS Systems Page
Figure 201/31-65-00-990-803

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
---	--------	-------------------	-------------------	---------------

STATUS MESSAGES

STALL WARNING SYS L
ALTIN NOSE STEERING
APU DOOR
DPC 1 HOT BATTERY
TIRE PRESS SYS
TAT DISAGREE
GEAR CONTROL 2
YAW DAMPER SYS
BLD CTRL BACKUP PROTECT L
MLG L SENSOR
TAKEOFF CONFIG
DOOR FWD CARGO
PACK FLOW CTRL SENSOR R
DISPLAY UNIT INTERFACE
ENG 1 IGNITER R
SPOILER PAIR 3/10
ENG 2 FUEL MAIN HX SENSOR
BLEED CTRL LIGHT OUTPUT L

NEXT
PAGE

2474274 S0000580032_V4

Status Messages Page
Figure 202/31-65-00-990-824

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
AIRPLANE CONFIG DATA (ACD)				
MISC SYSTEM CTRLS (MSC)				
LATCHED MESSAGE ERASE				
MAINT LIGHT				

2474275 S0000580035_V3

Maintenance Control Pages
Figure 203/31-65-00-990-825 (Sheet 1 of 3)

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
---	--------	-------------------	-------------------	---------------

MAINT LIGHT

- ☒ ENG LPTACC VALVE L
- ☒ APU DOOR
- ☒ BLEED FAMV L
- ☒ SPOILER ACTUATOR 4&9
- ☒ PACK ACM L
- ☐ PSEU 1 CHANNEL
- ☐ EFIS CONTROL PNL R
- ☐ CONTROL WHEEL XDCR

PG 1 OF 1

NEXT
PAGE

2474277 S0000580036_V3

Maintenance Control Pages
Figure 203/31-65-00-990-825 (Sheet 2 of 3)

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
---	--------	-------------------	-------------------	---------------

ERASABLE STATUS MESSAGES

ENG LPTACC VALVE L	ERASE
APU DOOR	ERASE
BLEED FAMV L	ERASE
SPOILER ACTUATOR 4&9	ERASE

PAGE DOES NOT AUTO-REFRESH - CHANGE PAGE TO UPDATE

PG 1 OF 1

NEXT PAGE ERASE ALL

SCHEDULED MAINTENANCE TASK MESSAGES

ENG 1 EEC C2	ERASE
BLEED TM SENSOR 1 L	ERASE
AIR/GND SENSOR	ERASE

PREV MENU NEXT PAGE

PG 1 OF 2

2474278 S0000580039_V4

Maintenance Control Pages
Figure 203/31-65-00-990-825 (Sheet 3 of 3)

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TASK 31-65-00-970-801

3. System Maintenance Data Pages Function

A. General

- (1) The Max Display System (MDS) has a function to show the maintenance data pages for some airplane systems. These data pages give additional information to help ground maintenance operators document, analyze and repair those airplane systems.
- (2) This task gives these instructions:
 - (a) Maintenance Data Page Procedure
 - (b) Display Selection
 - (c) Print Selection
 - (d) Data Link Selection
 - (e) Erase Selection
- (3) This procedure uses the controls on the P9-82 Multi-Function Display (MFD) panel that is located on the forward instrument panel or the P61-4 Maintenance/BITE right side panel.
 - To navigate/tab through the selectable elements on the MFD, turn either rotary SELECTOR knob on the P9-82 multi-function panel or the MAINT SELECTOR knob on the P61-4 maintenance BITE panel clockwise or counter-clockwise until the desired element is highlighted.
 - Each SELECTOR has a different shaped cursor shown on the maintenance pages. The cursor for the P61-4 MAINT SELECTOR is in the shape of crossed wrenches. The cursor for the P9-82 F/O SELECTOR is in the shape of a hollow plus sign (+). The cursor for the P9-82 CAPT SELECTOR is in the shape of an open sight cross hairs.(Figure 204)
 - To make a selection on the MFD, push the center selection button "SEL" of either rotary SELECTOR knob on the P9-82 multi-function panel or the MAINT SELECTOR knob on the P61-4 maintenance BITE panel.
- (4) The data shown on the maintenance data pages can be real time.
- (5) A manual or automatic snapshot can record some data pages. The MDS will store the last 5 manual snapshots and the first 5 automatic snapshots. The real time data and snapshot data can be printed or transmitted by data link. The snapshots have these characteristics:
 - Manual Snapshots - First in First out, oldest snapshot will be removed if a 6th snapshot is attempted
 - Auto Snapshot - First 5 are retained, they need to be deleted to save a new one
 - Use the ERASE button to remove snapshots

B. References

Reference	Title
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
46-13-02-970-802	Download Manager (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 31-65-00-860-012

- (1) Make sure that no other MAX Display System (MDS) maintenance test function is active.

SUBTASK 31-65-00-860-013

- (2) Make sure the air/ground system is in ground mode. This is the task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 31-65-00-860-030

- (3) You can transfer data from the ONS to the portable maintenance device (PMD). This is the task: Download Manager, TASK 46-13-02-970-802.

E. Maintenance Data Page Procedure

SUBTASK 31-65-00-860-014

- (1) Push the SYS button on the Multi-Function Display Panel (MFP), P9-82.

SUBTASK 31-65-00-860-018

- (2) Push the SEL button in the center of the SELECTOR knob to select the MAINT button.

SUBTASK 31-65-00-860-019

- (3) Turn the SELECTOR knob clockwise or counter-clockwise to highlight the MAINT DATA PGS button on the Menu Bar at the top of the page.

SUBTASK 31-65-00-860-020

- (4) Push the SEL button in the center of the SELECTOR knob to select the MAINT DATA PGS button.
 - (a) These submenu button selections can be made from the MAINT DATA PGS selection:
 - DISPLAY SELECTION
 - PRINT SELECTION
 - DATALINK SELECTION
 - ERASE SELECTION

F. Display Selection

SUBTASK 31-65-00-860-021

- (1) Use the SELECTOR knob to highlight the DISPLAY SELECTION button on the Maintenance Data Page and then push the SEL button (Figure 205).

NOTE: The DISPLAY SELECTION Menu page is shown. The ATA Systems and three columns, REAL, MANUAL, AUTO are shown on the Maintenance Data Page. The REAL column buttons are shown as DISPLAY. The MANUAL and AUTO column buttons are either DISPLAY or SHOW LIST. The DISPLAY button is shown when only one Manual Event or Auto Event available for display. The SHOW LIST button is shown when there is more than one Manual Event or Auto Event is available for display for the listed system.

- 21 AIR CONDITIONING
- 27 FLIGHT CONTROLS
- 27 SMYD (Stall Management Yaw Damper)
- 31 MDS (Max Display System)
- 32 PSEU (Proximity Sensor Electronics Unit)
- 36 AIR SUPPLY
- 49 APU (Auxiliary Power Unit)

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- 71 PERFORMANCE
- 71 EPCS (Engine Propulsion Control System)
- 71 ENGINE 1 EXCEEDANCE
- 71 ENGINE 2 EXCEEDANCE

SUBTASK 31-65-00-970-001

- (2) For the DISPLAY button on the REAL column next to the applicable airplane system, do these steps:
- Use the SELECTOR knob to highlight the DISPLAY button on the REAL column next to the applicable airplane system.
 - Push the SEL button in the center of the applicable SELECTOR knob to show the applicable system maintenance data page.

SUBTASK 31-65-00-970-002

- (3) For the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system, do these steps:
- Use the SELECTOR knob to highlight the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system.
 - Push the SEL button in the center of the applicable SELECTOR knob to show the display selection page.
- NOTE: A MANUAL EVENTS DISPLAY SELECTION page or AUTO EVENTS DISPLAY SELECTION page is shown for the applicable ATA Systems. The DATE and TIME (UTC) and DISPLAY button is shown for each event.
- Use the SELECTOR knob to highlight the DISPLAY button next to the applicable event.
 - Push the SEL button in the center of the applicable SELECTOR knob to show the event.

NOTE: MAN or AUTO is shown next to the Maintenance Page title to show the page display was recorded and not a Real Time view.

SUBTASK 31-65-00-970-003

- (4) As necessary, use the SELECTOR knob to highlight the NEXT PAGE or PREV PAGE button on the Menu Bar located at the bottom of the applicable system maintenance page and then push the SEL button to go to the page.

SUBTASK 31-65-00-970-007

- (5) Use the SELECTOR knob to highlight the PREV MENU button on the Menu Bar located at the bottom of the applicable system maintenance page and then push the SEL button to return to the DISPLAY SELECTION menu page.

G. Print Selection

SUBTASK 31-65-00-970-004

- (1) Use the SELECTOR knob to highlight the PRINT SELECTION button and then push the SEL button.

NOTE: The PRINT SELECTION menu page is shown. The REAL column buttons will change to PRINT. The MANUAL and AUTO column buttons will change to PRINT or SHOW LIST. The PRINT button is shown when only one Manual Event or Auto Event available to print. The SHOW LIST button is shown when there is more than one Manual Event or Auto Event available to print for the listed system.

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SUBTASK 31-65-00-970-008

- (2) For the PRINT button on the REAL column next to the applicable airplane system, do these steps:

NOTE: All pages of the selected System Maintenance page are printed when the PRINT button is selected except the 31 MDS system which goes to the MDS Maint Page Print Index.

- (a) Use the SELECTOR knob to highlight the PRINT button on the REAL column next to the applicable airplane system.
- (b) Push the SEL button in the center of the applicable SELECTOR knob to print the applicable system maintenance data pages.

SUBTASK 31-65-00-970-009

- (3) For the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system, do these steps:

- (a) Use the SELECTOR knob to highlight the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system.
- (b) Push the SEL button in the center of the applicable SELECTOR knob to show the print selection page.

NOTE: A MANUAL EVENTS PRINT SELECTION page or AUTO EVENTS PRINT SELECTION page is shown for the applicable ATA Systems. The DATE and TIME (UTC) and PRINT button is shown for each event.

- (c) Use the SELECTOR knob to highlight the PRINT button next to the applicable event.
- (d) Push the SEL button in the center of the applicable SELECTOR knob to print the event.

NOTE: MAN or AUTO is shown next to the Maintenance Page title to show the printed page was recorded and not a Real Time view.

SUBTASK 31-65-00-970-010

- (4) Highlight and select the PRINT ALL button to print all pages for the MANUAL events or AUTO events for the applicable ATA system.

NOTE: The PRINT ALL button is on the Menu Bar located at the bottom of the MANUAL EVENTS PRINT SELECTION page or the AUTO EVENTS PRINT SELECTION page.

SUBTASK 31-65-00-970-005

- (5) Use the SELECTOR knob to highlight the PREV MENU button on the Menu Bar located at the bottom of the maintenance page and then push the SEL button to return to the PRINT SELECTION menu page.

H. Data Link Selection

SUBTASK 31-65-00-970-011

- (1) Use the SELECTOR knob to highlight the DATA LINK SELECTION button and then push the SEL button.

NOTE: The DATA LINK SELECTION menu page is shown. The REAL column buttons will change to SEND. The MANUAL and AUTO column buttons will change to SEND or SHOW LIST. The SEND button is shown when only one Manual Event or Auto Event available to send. The SHOW LIST button is shown when there is more than one Manual Event or Auto Event available to send for the listed system.

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SUBTASK 31-65-00-970-012

- (2) For the SEND button on the REAL column next to the applicable airplane system, do these steps:

NOTE: All pages of the selected System Maintenance page are sent when the SEND button is selected.

- (a) Use the SELECTOR knob to highlight the SEND button on the REAL column next to the applicable airplane system.
- (b) Push the SEL button in the center of the applicable SELECTOR knob to send the applicable system maintenance data pages.

SUBTASK 31-65-00-970-013

- (3) For the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system, do these steps:

- (a) Use the SELECTOR knob to highlight the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system.
- (b) Push the SEL button in the center of the applicable SELECTOR knob to show the send selection page.

NOTE: A MANUAL EVENTS SEND SELECTION page or AUTO EVENTS SEND SELECTION page is shown for the applicable ATA Systems. The MANUAL EVENTS SEND SELECTION page will show the DATE and TIME (UTC) and SEND button for each manual event. The AUTO EVENTS SEND SELECTION page will show the MSG, DATE and TIME (UTC) and SEND button for each auto event.

- (c) Use the SELECTOR knob to highlight the SEND button next to the applicable event.
- (d) Push the SEL button in the center of the applicable SELECTOR knob to send the event.

NOTE: MAN or AUTO is shown next to the Maintenance Page title to show the sent page was recorded and not a Real Time view.

SUBTASK 31-65-00-970-006

- (4) Highlight and select the SEND ALL button to send all pages for the MANUAL events or AUTO events for the applicable ATA system.

NOTE: The SEND ALL button is on the Menu Bar located at the bottom of the MANUAL EVENTS SEND SELECTION page or the AUTO EVENTS SEND SELECTION page.

SUBTASK 31-65-00-970-014

- (5) Use the SELECTOR knob to highlight the PREV MENU button on the Menu Bar located at the bottom of the maintenance page and then push the SEL button to return to the DATA LINK SELECTION menu page.



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I. Erase Selection

SUBTASK 31-65-00-970-015

- (1) Use the SELECTOR knob to highlight the ERASE SELECTION button and then push the SEL button.

NOTE: The ERASE SELECTION menu page is shown. The MANUAL and AUTO column buttons for snapshot recorded data will change to ERASE or SHOW LIST. The SEND button is shown when only one Manual Event or Auto Event available to send. The SHOW LIST button is shown when there is more than one Manual Event or Auto Event available to erase for the listed system. The REAL column buttons for real time data are not shown. There is an ERASE ALL button, ERASE ALL MANUAL button and ERASE ALL AUTO button on the Menu Bar located at the bottom of the ERASE SELECTION menu page.

SUBTASK 31-65-00-970-016

- (2) For the ERASE button on the MANUAL or AUTO column next to the applicable airplane system, do these steps:

NOTE: All pages of the selected System Maintenance page are erased when the ERASE button is selected.

- (a) Use the SELECTOR knob to highlight the ERASE button on the MANUAL or AUTO column next to the applicable airplane system.
- (b) Push the SEL button in the center of the applicable SELECTOR knob to erase the applicable system maintenance data pages.

SUBTASK 31-65-00-970-017

- (3) For the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system, do these steps:

- (a) Use the SELECTOR knob to highlight the SHOW LIST button on the MANUAL or AUTO column next to the applicable airplane system.
- (b) Push the SEL button in the center of the applicable SELECTOR knob to show the erase selection page.

NOTE: A MANUAL EVENTS ERASE SELECTION page or AUTO EVENTS ERASE SELECTION page is shown for the applicable ATA Systems. The MANUAL EVENTS ERASE SELECTION page will show the DATE and TIME (UTC) and ERASE button for each manual event. The AUTO EVENTS ERASE SELECTION page will show the MSG, DATE and TIME (UTC) and ERASE button for each auto event.

- (c) Use the SELECTOR knob to highlight the ERASE button next to the applicable event.
- (d) Push the SEL button in the center of the applicable SELECTOR knob to erase the event.

NOTE: MAN or AUTO is shown next to the Maintenance Page title to show the erased page was recorded and not a Real Time view.

SUBTASK 31-65-00-970-018

- (4) Do these steps to erase pages:

- (a) Highlight and select the ERASE ALL button to erase all pages for the MANUAL events and AUTO events.
- (b) Highlight and select the ERASE ALL MANUAL button to erase all pages for the MANUAL events.
- (c) Highlight and select the ERASE ALL AUTO button to erase all pages for the AUTO events.

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SUBTASK 31-65-00-970-019

- (5) Use the SELECTOR knob to highlight the PREV MENU button on the Menu Bar located at the bottom of the maintenance page and then push the SEL button to return to the ERASE SELECTION menu page.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-022

- (1) Turn the SELECTOR knob clockwise or counter clockwise to highlight the SYS MENU button on the Menu Bar located at the top of the applicable system maintenance page and then push the SEL button to return to the SYS MENU page.

SUBTASK 31-65-00-860-023

- (2) Push the SYS button on the Multi-Function Display Panel (MFP), P9-82 to stop.

———— **END OF TASK** ————

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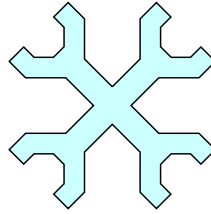
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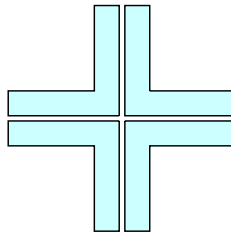
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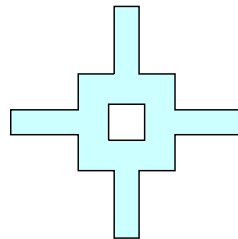
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[1] CROSSED WRENCHES



[2] HOLLOW "+"



[3] OPEN SIGHT CROSSHAIRS

2477836 S0000581336_V1

Cursor Shapes
Figure 204/31-65-00-990-830

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SYS MENU		STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
DISPLAY SELECTION		PRINT SELECTION	DATALINK SELECTION	ERASE SELECTION	
ATA SYSTEM		REAL	MANUAL	AUTO	
21	AIR CONDITIONING	DISPLAY	SHOW LIST	SHOW LIST	
27	FLIGHT CONTROL	DISPLAY	SHOW LIST	SHOW LIST	
27	SMYO	DISPLAY	SHOW LIST	SHOW LIST	
31	MDS	DISPLAY			
32	PSEU	DISPLAY	SHOW LIST	SHOW LIST	
36	AIR SUPPLY	DISPLAY	SHOW LIST	SHOW LIST	
49	APU	DISPLAY	SHOW LIST	SHOW LIST	
71	PERFORMANCE	DISPLAY	SHOW LIST	SHOW LIST	
71	EPCS	DISPLAY	SHOW LIST	SHOW LIST	
71	ENGINE 1 EXCEEDANCE			DISPLAY	
71	ENGINE 2 EXCEEDANCE			DISPLAY	

2478060 S0000581532_V2

ATA System Page
Figure 205/31-65-00-990-831

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TASK 31-65-00-970-802

4. INFO Page Function

A. General

- (1) The INFO page lets you manually set the N1 thrust reference setting or the takeoff target speed reference setting that is usually calculated by the Flight Management Computer (FMC).
- (2) The N1 thrust reference can be manually set for some engine run tests.
- (3) This procedure uses the controls on the P9-82 Multi-Function Display (MFD) panel that is located on the forward instrument panel.

B. References

Reference	Title
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Prepare for the Procedure

SUBTASK 31-65-00-860-049

- (1) Make sure that no other MAX Display System (MDS) maintenance test function is active.

SUBTASK 31-65-00-860-050

- (2) Make sure the air/ground system is in ground mode. This is the task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

D. Procedure

SUBTASK 31-65-00-860-025

- (1) Push the INFO button on the Multi-Function Display (MFD) control panel, P9-82.

SUBTASK 31-65-00-860-026

- (2) Turn the CAPT SELECTOR L/C knob or turn the F/O SELECTOR C/R knob on the Multi-Functional Display Panel (MFP), P9-82 to move the cursor.

NOTE: These SELECTOR knobs are used to make the necessary selections on the forward displays.

NOTE: Each SELECTOR has a different shaped cursor shown on the maintenance pages. The cursor for the P9-82 F/O SELECTOR is in the shape of a hollow plus sign (+). The cursor for the P9-82 CAPT SELECTOR is in the shape of an open sight cross hairs.

SUBTASK 31-65-00-860-027

- (3) Move the cursor to highlight the screen buttons under N1 SET or SPD REF on the INFO display page.
 - (a) N1 SET has these buttons and box to show the applicable value next to the button:
 - AUTO (N1 target speed calculated by FMC)
 - BOTH
 - ENG 1
 - ENG 2
 - SET
 - (b) SPD SET has these buttons and box to show the applicable value next to the button:
 - AUTO (V1, VR and VREF target speed calculated by FMC)
 - V1 (Decision Speed)
 - VR (Rotation Speed)
 - WT LBS

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- VREF (Approach Reference Speed)
 - SET
- (c) Push the SEL button in the center of the SELECTOR knob to select the applicable screen button.

SUBTASK 31-65-00-860-028

- (4) Turn the applicable SELECTOR knob clockwise or counter-clockwise to enter the applicable target values in the box.

NOTE: The N1 SET value is shown as the N1 target bug (a green carrot or V shape) on the outside of the N1 display dials.

NOTE: Takeoff airspeed bugs for V1 and VR are displayed on the left side airspeed tape on the primary flight display from the values entered. If the values are not within the displayed range of the tape, the V1 value is shown at the top of the airspeed tape. An invalid entry annunciation reminds the crew that the VSPEEDS are not being driven by the FMC and the VSPEEDS were manually entered into the INFO page but the SET button was not selected. A NO VSPD message on the side of the airspeed tape annunciates that V1 and VR are not set. The landing airspeed bug VREF is shown on the left side airspeed tape on the primary flight display from the values entered. VREF is shown when V1 and VR are not shown.

SUBTASK 31-65-00-860-029

- (5) Move the cursor to the SET button and push the SEL button in the center of the SELECTOR knob to set the values selected.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-051

- (1) Turn the SELECTOR knob clockwise or counter clockwise to highlight the SYS MENU button on the Menu Bar located at the top of the applicable system maintenance page and then push the SEL button to return to the SYS MENU page.

SUBTASK 31-65-00-860-052

- (2) Push the SYS button on the Multi-Function Display Panel (MFP), P9-82 to stop.

————— END OF TASK —————

TASK 31-65-00-970-803

5. SYS Page Function

A. General

- (1) The SYS page shows the system synoptic:
- Hydraulic
 - Brake Temperature
 - Flight Controls Surface Position
- (2) The synoptic page can be used to monitor the system during the operational test.

B. Procedure

SUBTASK 31-65-00-860-031

- (1) Push the SYS button on the Multi-Function Display (MFD) control panel, P9-82.

SUBTASK 31-65-00-860-035

- (2) Hydraulic Synoptic Function
- (a) The Hydraulic Oil Quantity readout is shown in percent full

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- 1) Display range is 0 to 106 %.
 - 2) A refill message, RF shows next to the quantity readout when the hydraulic oil quantity is less than the refill limit and the airplane is on the ground with flaps retracted or both engines are shut down.
 - 3) If the hydraulic oil quantity data is not valid, the readout is blank.
- (b) The Hydraulic Pressure for hydraulic system A and B is shown in pounds per square inch (psi) to the nearest 10 psi.
- 1) Display range is 0 to 4000 psi.
 - 2) If the hydraulic pressure data is not valid, the readout is blank.

SUBTASK 31-65-00-860-036

(3) Brake Temperature Synoptic Function

- (a) The brake temperatures readout is displayed next to each wheel symbol. The display range is 0.0 to 9.9.
- (b) The brake temperature readouts and brake symbols are displayed in white with no fill applied to the brake symbols.
- (c) If a brake temperature exceeds the hot condition threshold, the hot brake readout is displayed in amber text with amber fill.
 - 1) The hot brake symbol is displayed when the brake normalized temperature is 5.0 to 9.9.
 - 2) More than one hot brake symbol can be displayed per truck.
- (d) If no brake on a truck is hot, the brake temperature that exceeds the warm condition threshold, the warm brake readout is displayed in white and its brake symbol is displayed in white with white fill.
 - 1) The warm brake symbol is displayed when the brake normalized temperature is 3.0 to 4.9.
 - 2) Only one warm brake symbol can be displayed per truck. The warm brake symbol is not shown on a truck with a hot brake condition.
 - 3) If both brakes on a truck are above the warm threshold, the white fill is only applied to the symbol of the brake that shows the highest temperature.

SUBTASK 31-65-00-860-038

(4) Flight Control Surface Position Synoptic Function

- (a) The vertical scales show a graphic picture of the left aileron, right aileron, left flight spoiler, right flight spoiler, and elevator surface positions.
- (b) The horizontal scale shows a graphic picture of the rudder surface position.
- (c) The pointers show the relative surface position, the ends of the scales show the full range deflection and the tick mark in the center of the scale shows the zero deflection position..
- (d) If the flight control surface data is not valid, the pointer is removed.

C. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-045

- (1) Push the SYS button on the Multi-Function Display Panel (MFP), P9-82 to stop.

———— **END OF TASK** ————

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TASK 31-65-00-970-804

6. Airplane Config Data (ACD) Page Function

A. General

- (1) The Airplane Configuration Data (ACD) page lets maintenance set airplane data such as the Tail Number, Airplane ID, SELCAL Code, UTC Time and Date.

NOTE: Do not put a "." or a "space" as the first character in the data field when you enter the Tail Number, Airplane ID, or SELCAL Code. If you use a ".", the ACD page will invalidate the data entry and reset the value to the previous entry. If you use a "space", the ACD page will accept the data entry but downstream errors will occur in the Onboard Network System (ONS) Network File Server (NFS). If the last character of your entry is a ".", replace it with a "space". Also the entry is seven (7) characters, if your entry is less than seven (7) characters, add "spaces" to the end of your entry to complete the seven (7) characters.

NOTE: The ACD page requires that both the Date and Time fields have a valid entry before you lock the page. If only one of the fields (Date or Time) is entered, the ACD page will reset both fields to the previous entry when you lock the page. The UTC Time and Date are editable only if there is not an active Multimode Receiver (MMR)-Global Positioning System (GPS) source. Ensure correct UTC is entered, an incorrect time entry can cause the ONS to list inactive faults once the GPS time is received.

NOTE: When you change the Tail Number, this clears the OMF fault history.

NOTE: After saving a new Tail Number, wait 2 minutes and then power cycle the NFS. The NFS will take approximately 10 minutes to reboot.

- (2) This page also shows the ICAO ID, Airplane Config Data, ACD Data Source and Program Pin settings for the Display Processing Computers (DPCs).
- (3) When loading DPC OPS to the Display Processing Computers, all stored non-volatile memory (NVM) pertaining to data on the "Aircraft Config Data" (ACD) maintenance page, maintenance snapshots, and latched status messages will be cleared.
- (4) When an ACD mis-compare Fault is present, the DISPLAYS CONFIG DATA status message should be active. This is a non-dispatch fault that may produce erroneous STATUS message and MAINT Light behavior and should be corrected prior to resolving other airplane faults.
- (5) This task can also be used if the airplane ID info is changed by transfer of ownership etc.

B. Procedure

SUBTASK 31-65-00-970-020

- (1) To restore the ACD data to the applicable (DPC) and the MDS, do one of these methods.

- (a) Use the SYNC ACD DATA button.

- 1) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to the DPC with the correct data.

NOTE: When DISPLAY SOURCE switch is set to ALL ON 1, DPC 1 will be the source of the ACD data. When DISPLAY SOURCE switch is set to ALL ON 2, DPC 2 will be the source of the ACD data.

- a) Make sure that the ACD DATA SOURCE is the DPC with the correct data.
 - 2) Push SYS button on the P9-82 MFP.
 - 3) Make these selections on the MFD main function menu:
 - a) MAINT
 - b) MAINT CTRL PGS

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- c) AIRPLANE CONFIG DATA (ACD)
 - 4) Use the SYNC ACD DATA button to “push” the ACD data from the DPC with the correct data to the DPC that needs to be updated.
 - 5) Select the CONFIRM on the window that comes up to continue
 - 6) Make sure that the ACD is the same for both DPCs by one of these methods:
NOTE: The first two methods are recommended.
 - a) Make sure that all of the data fields have white text and not amber text.
 - b) Make sure there is not an ACD data error message at the bottom of the page.
 - c) Make sure the DISPLAYS CONFIG DATA status message is not displayed.
 - 7) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to AUTO.
- (b) Manually enter the correct data.
- 1) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to the DPC with the correct data.
NOTE: When DISPLAY SOURCE switch is set to ALL ON 1, DPC 1 ACD data is displayed on the MDS. When DISPLAY SOURCE switch is set to ALL ON 2, ACD data is displayed on the MDS.
 - 2) Push SYS button on the P9-82 MFP.
 - 3) Make these selections on the MFD main function menu:
 - a) MAINT
 - b) MAINT CTRL PGS
 - c) AIRPLANE CONFIG DATA (ACD)
 - 4) Make sure that the ACD DATA SOURCE is the DPC with the correct data.
 - 5) Record the correct data.
 - 6) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to the DPC that needs to be updated.
 - a) Make sure that the ACD DATA SOURCE displayed is the DPC that needs to be updated.
 - 7) Push the UNLOCK PAGE button.
 - 8) Manually enter the correct data you recorded.
 - 9) Push the LOCK PAGE button.
 - 10) Make sure that the ACD is the same for both DPCs by one of these methods:
NOTE: The first two methods are recommended.
 - a) Make sure that all of the data fields have white text and not amber text.
 - b) Make sure there is not an ACD data error message at the bottom of the page.
 - c) Make sure the DISPLAYS CONFIG DATA status message is not displayed.
 - 11) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to AUTO.



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SUBTASK 31-65-00-970-021

- (2) Manually set the UTC time and date, if necessary.

NOTE: The UTC Time and Date are editable only if there is not an active Multimode Receiver (MMR) - Global Positioning System (GPS) source.

NOTE: The ACD page requires that both the Date and Time fields have a valid entry before you lock the page. If only one of the fields (Date or Time) is entered, the ACD page will reset both fields to the previous entry when you lock the page.

- (a) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to DPC 1 or DPC 2.
- (b) Push SYS button on the P9-82 MFP.
- (c) Make these selections on the MFD main function menu:
 - 1) MAINT,
 - 2) MAINT CTRL PGS,
 - 3) AIRPLANE CONFIG DATA (ACD).
- (d) Push UNLOCK PAGE button.
- (e) Manually enter the UTC Time and Date.
- (f) Push the SYNC ACD DATA button.
 - 1) Select the CONFIRM on the window that comes up to continue.
- (g) Push the LOCK PAGE button.
- (h) Make sure that the ACD is the same for both DPCs by one of these methods:

NOTE: The first two methods are recommended.

- 1) Make sure that all of the data fields have white text and not amber text.
 - 2) Make sure there is no ACD data error message at the bottom of the page.
 - 3) Make sure the DISPLAYS CONFIG DATA status message is not displayed.
- (i) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to AUTO.

————— **END OF TASK** —————

TASK 31-65-00-860-801

7. Miscellaneous System Controls (MSC) Page Function

(Figure 206)

A. General

- (1) The Miscellaneous System Control page provides controls for setting the following aircraft system components into test mode:
 - Auxiliary Power Unit (APU) Maintenance.
 - Electronic Engine Control (EEC) Maintenance.
- (2) This page also provides settings for controlling the following:
 - Single or Dual Multi Function Display (MFD) Mode.
 - Enable or Disable of Maintenance Page Access in Air.
 - Enable Landing Capability Placard (Optional).

B. Procedure

SUBTASK 31-65-00-860-055

- (1) Push the MAINT CTRL PGS button.

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- (2) Push the MISC SYSTEM CTRLS (MSC) button.

SUBTASK 31-65-00-860-056

- (3) EEC MAINT POWER

- (a) To put the ENG 1 or ENG 2 EEC MAINT POWER in TEST mode, select TEST for the applicable ENG.
- (b) To put the ENG 1 or ENG 2 EEC MAINT POWER in NORM mode, select NORM for the applicable ENG.

- (4) APU MAINT POWER

- (a) To put the APU MAINT POWER in TEST mode, select TEST.
- (b) To put the APU MAINT POWER in NORM mode, select NORM.

SUBTASK 31-65-00-860-057

- (5) MFD MODE

- (a) To put the MFD MODE in SINGLE MFD mode, select SINGLE MFD.
- (b) To put the MFD MODE in DUAL MFD mode, select DUAL MFD.

NOTE: The selection will reset to single MFD upon loss of a DPC, source select switch set to "All on 1" or All on 2", or airplane transitions to air.

- (6) IN AIR MAINTENANCE

- (a) To enable IN AIR MAINTENANCE, select ENABLE.

NOTE: This enables all MDS Maintenance page functions in air mode.

NOTE: The IN-AIR MAINTENANCE selection is reset to DISABLE upon airplane touchdown (or landing).

- (b) To disable IN AIR MAINTENANCE, select DISABLE.

NOTE: This disables all MDS Maintenance page functions in air mode.

———— **END OF TASK** ————

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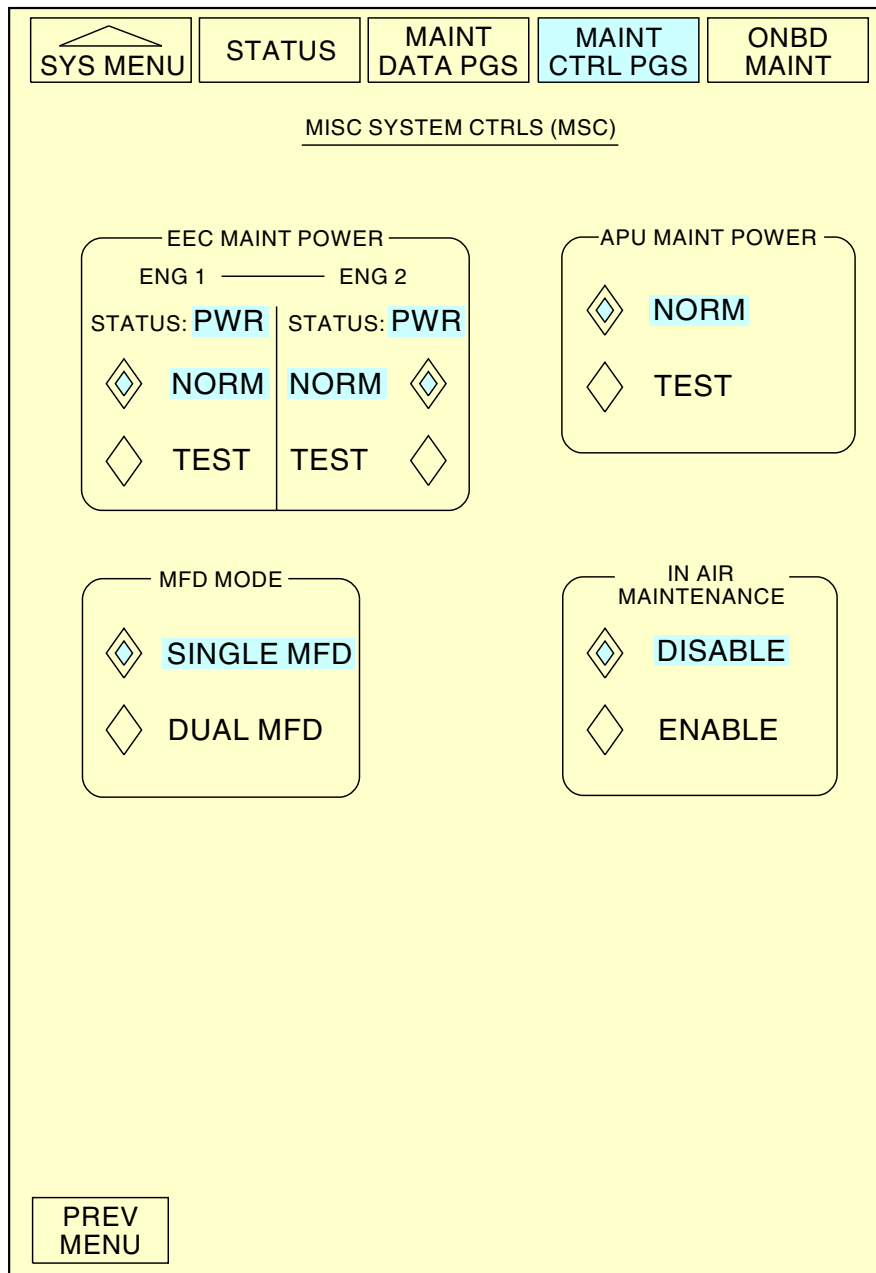
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(EXAMPLE)

2794783 S0000636222_V1

Miscellaneous System Controls
Figure 206/31-65-00-990-829

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TASK 31-65-00-860-802

8. **Scheduled Maintenance Task (SMT) Messages Check**

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the instructions on how to check the STATUS messages and the scheduled maintenance task (SMT) messages on the MAX Display System (MDS) Multi Function Display (MFD).

B. References

Reference	Title
05-00-00-750-801	Scheduled Maintenance Task (SMT) - Repair Time Limits (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

C. Location Zones

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

D. Prepare for the Check

SUBTASK 31-65-00-860-058

- (1) Do these steps to get access to the MAINT page:
 - (a) If the MAINT button does not show on the MDS, push the SYS key on the Multi-Functional Panel (P9-82).
 - 1) To navigate/tab through the selectable elements on the MFD, turn the Rotary Selector knob on the P9-82 panel or the MAINT SELECTOR knob on the P61-4 panel clockwise or counter-clockwise until the desired element is highlighted.
 - 2) To make a selection on the MFD, push the center selection button SEL of the Rotary Selector knob on the P9-82 panel or the MAINT SELECTOR knob on the P61-4 panel.
 - (b) When the MAINT button shows, select the MAINT button.

E. Procedure

SUBTASK 31-65-00-860-059

- (1) Do a check of the current STATUS message and MAINT light:
 - (a) Select STATUS page from the Menu bar.
 - (b) If a STATUS message is present, then do the following:
 - 1) Verify that the MAINT light is illuminated on the overhead panel.
 - 2) Do this task: Fault Interrogation for a Maintenance Message, TASK 31-65-00-750-801.

SUBTASK 31-65-00-860-060

- (2) Do a check of the scheduled maintenance task (SMT) messages:
 - (a) Push the SYS key on the Multi-Functional Panel (P9-82).
 - (b) Select the MAINT button on the SYS page.
 - (c) Select MAINT CTRL PGS page on the Menu bar.

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- (d) Select LATCHED MESSAGE ERASE.
- (e) Make sure that the SCHEDULED MAINTENANCE TASK MESSAGES display is shown.
 - 1) For repair limits, go to Scheduled Maintenance Task (SMT) - Repair Time Limits, TASK 05-00-00-750-801.
 - 2) To correct the fault, go to the IFIM and do the applicable procedure(s).

———— **END OF TASK** ————

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MAX DISPLAY 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 display system.
 - (2) A system test of the display system.

TASK 31-65-00-710-801

2. MAX Display System - Operational Test

A. General

- (1) The operational test does a check of the display system. The test makes sure that the system is serviceable.
- (2) You can do the tests in a sequence or one test at a time. But the "Prepare For Test" must complete before other tests.
- (3) The Display Unit (DU) is necessary for this procedure. Each Loadable Software Airplane Part (LSAP) contained in the Display Processing Computer (DPC) supplies the graphics for the DUs.
- (4) The DPC contains the loadable software. The software parts are Operational Program Software (OPS), Operational Selectable Software Options (DPC OSS), or Onboard Maintenance Function (OMF) Definition File (DF).
- (5) The EFIS CONTROL PANEL is also known as the DISPLAYS CONTROL PANEL.

B. References

Reference	Title
32-09-10-750-801	Proximity Switch Electronics Unit Special Functions (P/B 501)
46-13-00-470-801	LRU Software Parts Installation (P/B 201)
46-13-02-700-805	Existing Faults Check (P/B 201)

C. Location Zones

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

D. Prepare For Test

SUBTASK 31-65-00-860-004

- (1) On the pilot's aisle control stand, P10, make sure that the START LEVERS are in the CUTOFF position.

NOTE: The DPC can take up to a minute to do its Power Up BITE.

- (a) If a DPC does not power up within one minute, make sure that the Proximity Sensing Electronics Unit (PSEU) shows that the aircraft is on the ground (Proximity Switch Electronics Unit Special Functions, TASK 32-09-10-750-801).
 - 1) Make sure that the START LEVERS are in the CUTOFF position.
 - 2) Then cycle the Primary Circuit Breaker (CB) for the applicable DPC.
 - a) For display processing computer (DPC) 1, cycle the Primary CB below:

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Open and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

- b) For DPC 2, cycle the Primary CB below:

Open and close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

E. MDS Maintenance Pages Check

SUBTASK 31-65-00-750-001

- (1) Do these steps to do a system health check of the MAX Display System (MDS).

- (a) Set the DISPLAYS SOURCE switch on the fwd overhead panel, P5, to AUTO.
- (b) Set the DISPLAYS CONTROL PANEL switch on the fwd overhead panel, P5, to NORMAL.

NOTE: DISPLAYS CONTROL PANEL is the nomenclature on the panel. This switch is called the S4 EFIS CONT PNL SEL SW on the P5-28 INSTRUMENT SWITCHING MODULE in the Wiring Diagram Manual (WDM).

- 1) Make sure that a DSPLY SOURCE 1 or DSPLY SOURCE 2 amber color message is not shown on the lower left of the PFD format.

NOTE: The message is below the Airspeed Tape.

NOTE: During normal operation, the “default” of the Outboard DU's on both the pilot's and first officer's displays shows a combination of PFD/Mini Map and the Auxiliary screens.

- (c) Push the SYS button on the Multi Function Panel (MFP).

NOTE: The screen elements on the MDS are enabled from the Maintenance Control Panel.

NOTE: Use the MAINT SELECTOR knob on the P61-4 MAINTENANCE BITE PANEL (MBP), or the FO SELECTOR knob on the P9-82 MFP, or the CAPT SELECTOR knob on the P9-82 MFP to move the cursor and select the buttons on the forward displays.

NOTE: The SYS button activates the Systems Display Application screen which has a menu bar at the top providing access to the Maintenance format pages. The MAINT button of the menu is available only on the ground.

- (d) Select the MAINT button on the MENU bar at the top right of the System Page.
- (e) Push SEL on the end of the SELECTOR knob.
- (f) Rotate the rotary SELECTOR knob clockwise or counterclockwise to select MAINT DATA PGS on the Maintenance menu.
- (g) Move the cursor down and then select the ATA 31 MDS DISPLAY button below the REAL column on the MAINT DATA PGS menu.

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- (h) The MDS MAINT PAGE - INDEX shows.

NOTE: The index lists seven functional status areas of the Maintenance Display System (MDS) which can be checked: BRIGHTNESS, DISPLAYS, DPC DIGITAL INPUTS, DPC DISCRETE/POWER INPUTS, DPC DISCRETE OUTPUTS, EFIS CP TEST, and MDS CONFIGURATION. The button adjacent to the seven functions shows FAULT, NORMAL, or CONFIG status.

- 1) If the button next to DISPLAYS shows NORMAL, the system has no faults.
 - a) No more tests are necessary.
- 2) If FAULT shows, select that status button to view the MDS MAINT PAGE of the applicable ATA System.

NOTE: This is only applicable to DPC DIGITAL INPUTS, DPC DISCRETE/POWER INPUTS, and DPC DISCRETE OUTPUTS.

- a) Make sure that all installed Line Replaceable Unit (LRU)s are powered.
 - b) If necessary, do this task: Existing Faults Check, TASK 46-13-02-700-805.
- 3) Select the status button next to MDS CONFIGURATION.

NOTE: If there are no issues with the software part numbers NORMAL will be displayed. CONFIG will be displayed if there is an issue with the software part numbers.

- a) Verify software part numbers.
 - b) If the correct software part numbers are not loaded, load the necessary part numbers (LRU Software Parts Installation, TASK 46-13-00-470-801).
- 4) Push the SYS button on the MFP to put the displays back to normal,.

———— **END OF TASK** ————

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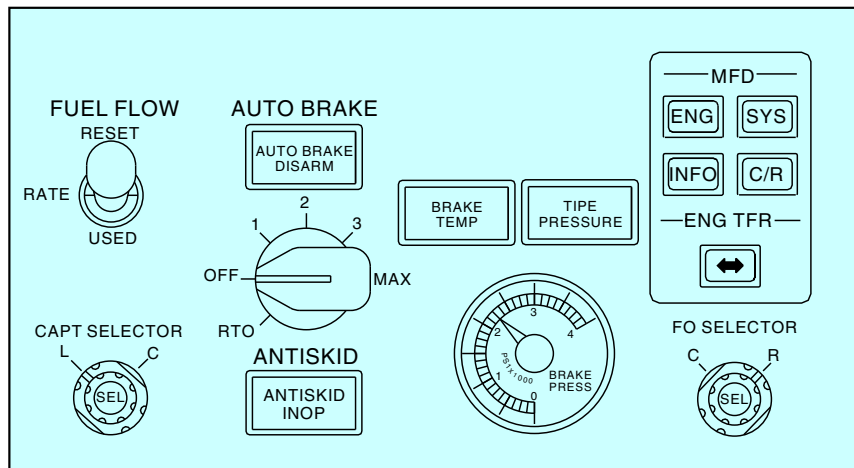
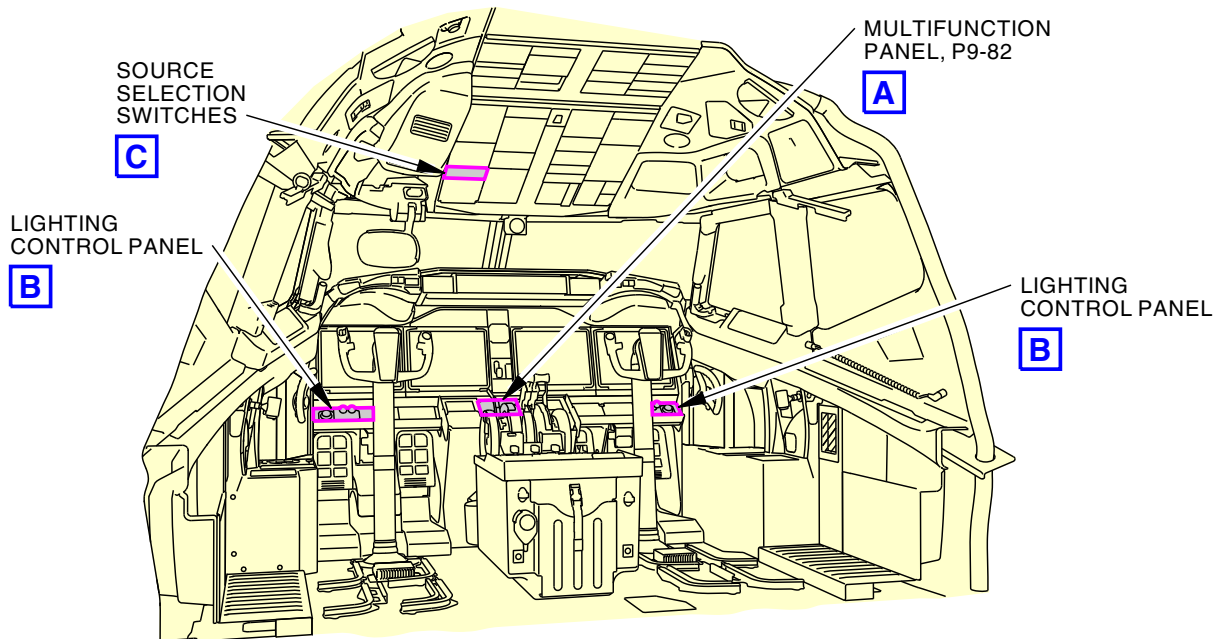
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MULTIFUNCTION PANEL, P9-82

A

2478019 S0000581530_V2

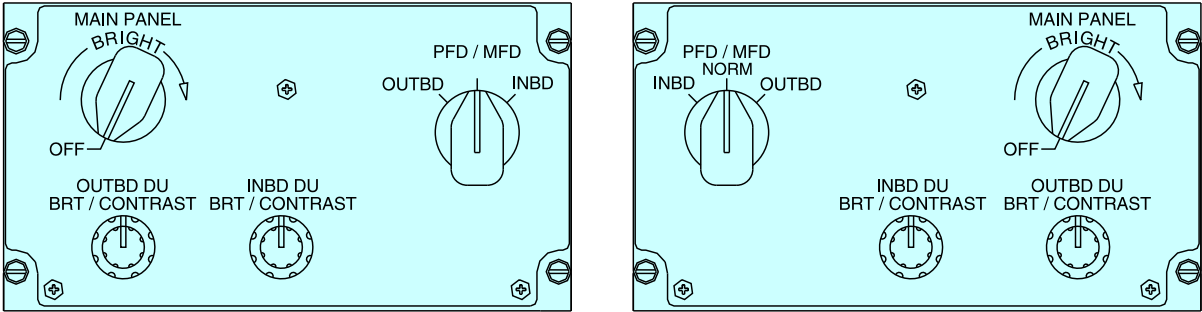
**Multiple Display System Controls
Figure 501/31-65-00-990-806 (Sheet 1 of 2)**

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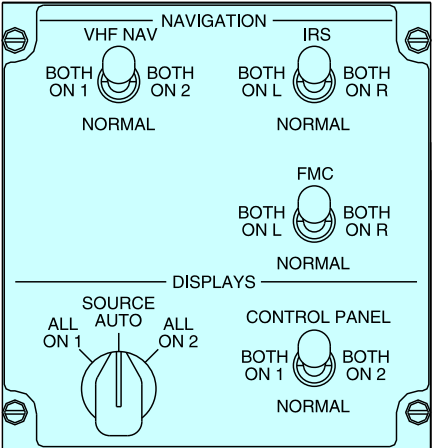
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CAPTAIN'S AND F/O'S LIGHTING CONTROL PANELS

B



SOURCE SELECTION SWITCHES

C

2478051 S0000581603_V1

Multiple Display System Controls
Figure 501/31-65-00-990-806 (Sheet 2 of 2)

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SYS MENU		STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
DISPLAY SELECTION		PRINT SELECTION	DATALINK SELECTION	ERASE SELECTION	
ATA SYSTEM		REAL	MANUAL	AUTO	
21	AIR CONDITIONING	DISPLAY	SHOW LIST	SHOW LIST	
27	FLIGHT CONTROL	DISPLAY	SHOW LIST	SHOW LIST	
27	SMYO	DISPLAY	SHOW LIST	SHOW LIST	
31	MDS	DISPLAY			
32	PSEU	DISPLAY	SHOW LIST	SHOW LIST	
36	AIR SUPPLY	DISPLAY	SHOW LIST	SHOW LIST	
49	APU	DISPLAY	SHOW LIST	SHOW LIST	
71	PERFORMANCE	DISPLAY	SHOW LIST	SHOW LIST	
71	EPCS	DISPLAY	SHOW LIST	SHOW LIST	
71	ENGINE 1 EXCEEDANCE			DISPLAY	
71	ENGINE 2 EXCEEDANCE			DISPLAY	

2478060 S0000581532_V2

ATA System Page
Figure 502/31-65-00-990-809

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	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
MDS MAINT PAGE - INDEX		PG 1 OF 19		
BRIGHTNESS		DISPLAY		
DISPLAYS		NORMAL		
DPC DIGITAL INPUTS		NORMAL		
DPC DISCRETE/POWER INPUTS		NORMAL		
DPC DISCRETE OUTPUTS		DISPLAY		
EFIS CP TEST		DISPLAY		
MDS CONFIGURATION		NORMAL		
DATE XX XXX XX		UTC XX:XX:XX		
PREV MENU	PREV PAGE		NEXT PAGE	

2478061 S0000581536_V3

MAINT Index Page
Figure 503/31-65-00-990-810 (Sheet 1 of 2)

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	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
MDS MAINT PAGE - INDEX		PG 1 OF 19		
BRIGHTNESS	DISPLAY			
DISPLAYS	FAULT			
DPC DIGITAL INPUTS	NORMAL			
DPC DISCRETE/POWER INPUTS	NORMAL			
DPC DISCRETE OUTPUTS	DISPLAY			
EFIS CP TEST	DISPLAY			
MDS CONFIGURATION	NORMAL			
DATE XX XXX XX		UTC XX:XX:XX		
PREV MENU	PREV PAGE		NEXT PAGE	

2532537 S0000599792_V1

MAINT Index Page
Figure 503/31-65-00-990-810 (Sheet 2 of 2)

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TASK 31-65-00-730-801

3. **MAX Display System - System Test**

A. General

- (1) The system test does a completed check of the MAX display system (MDS). The test makes sure that the system operates satisfactorily.
- (2) This System Test has these tests:
 - (a) Display Processing Computer 1 Interface Test
 - (b) Display Processing Computer 2 Interface Test
 - (c) Program Pin Test
 - (d) Display Switch Test
 - (e) Display Select Module and Clock Test
 - (f) Display Unit Brightness Control Test
 - (g) Display Unit Standby Power Test
- (3) You can do test (c) to (g) in a sequence or one test at a time. However, you must do the Interface Tests (a, b) and Prepare For Test (B) first.

B. References

Reference	Title
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual
WDM 31-65-15	Wiring Diagram Manual
WDM 31-65-16	Wiring Diagram Manual
WDM 31-65-25	Wiring Diagram Manual
WDM 31-65-26	Wiring Diagram Manual
WDM 31-65-41	Wiring Diagram Manual

C. Location Zones

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

D. Prepare For Test

SUBTASK 31-65-00-760-002



COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

- (1) Make sure that the DUs and DPC have power and are serviceable.

NOTE: The DUs will show standard formats.

SUBTASK 31-65-00-730-002

- (2) Make sure that the AIR/GROUND PSEU SYS 1 and 2 in the MAINT DATA PGS show GND (airplane ground mode).

E. Display Processing Computer 1 Interface Test

SUBTASK 31-65-00-730-004

- (1) Set the DISPLAYS SOURCE switch on the P5-28 overhead panel to the AUTO position.

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SUBTASK 31-65-00-730-005

- (2) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the NORMAL position.

SUBTASK 31-65-00-730-006

- (3) Set the ND format switch on the P7-1 Captain's and P7-2 First Officer's EFIS Control Panel (EFIS CP), to the MAP position.

SUBTASK 31-65-00-730-007

- (4) Make sure that the start levers are in the CUTOFF position.

SUBTASK 31-65-00-860-005

- (5) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

NOTE: The Circuit Breaker (CB)s energize the start lever relays which send the start lever position to the Display Processing Computer (DPC). Inputs from start levers control the DPC ground test access.

SUBTASK 31-65-00-860-061

- (6) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C01958	NETWORK FILE SERVER
C	10	C04032	SPOILER CONTROL ELEC PWR A
C	12	C04033	SPOILER CONTROL ELEC PWR B

SUBTASK 31-65-00-860-006



CAUTION

MAKE SURE THAT YOU CLOSE THE CIRCUIT BREAKERS IN THE SPECIFIED SEQUENCE. IF YOU DO NOT CLOSE THEM IN THE SPECIFIED SEQUENCE, THE DPC CAN POSSIBLY BECOME CORRUPT AND A REPLACEMENT WILL BE NECESSARY.

- (7) Make sure to close the DPC HOLDUP power first before the DPC primary power.
(a) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI

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(Continued)

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	12	C04002	MAINT/BITE PANEL
E	13	C04031	DSP F/O EFIS CONT PNL

SUBTASK 31-65-00-860-007

- (8) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C04030	DSP CAPT EFIS CONT PNL
D	2	C04003	MULTI FUNCTION PANEL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

- (a) If the DPC does not power up in 1 minute, do these steps:

- 1) Make sure that the AIR/GROUND PSEU SYS 1 and 2 in the MAINT DATA PGS show GND (airplane ground mode).
- 2) Make sure that the two start levers are in the CUTOFF position.
- 3) Cycle the primary CB for the applicable DPC:
 - a) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

SUBTASK 31-65-00-730-008

- (9) Do these steps to make sure that the DPC 2 passes the ground test and to examine the interfaces for DPC 1.

- (a) Set the DISPLAYS SOURCE switch on the P5-28 overhead panel to the ALL ON 1 position.

- 1) Make sure that a DSPLY SOURCE 2 Amber message is shown on the lower left of the Primary Flight Display (PFD) format.

NOTE: The message is below the Airspeed Tape.

- 2) Push the SYS button on the P9-82 MFP.

SUBTASK 31-65-00-730-009

- (10) Do these steps to examine the interface for the MAINT SELECTOR on the P61-4 MFP to DPC 1 (WDM 31-65-16) (WDM 31-65-26).

- (a) Set the MAINT SELECTOR knob, on the P61-4 MBP, to L.

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- (b) Move the cursor to the MAINT button on the MENU bar at the top of the system page.
NOTE: Turn the MAINT SELECTOR knob on the P61-4 MBP clockwise or counterclockwise to move the cursor.
- (c) Push SEL on the P61-4 MBP MAINT SELECTOR knob to set the MAINT button.
 - 1) Make sure that the cursor on the MDS is in the shape of Crossed wrenches [1].

SUBTASK 31-65-00-740-001

- (11) Do these steps to examine the BITE test on DPC 2.

NOTE: These steps make sure the Display Processing Computer 2 passes Ground Test and checks the interfaces for DPC 1.

- (a) Move the cursor to the ONBD MAINT button on the menu bar at the top of the status messages page and press SEL.
- (b) Move the cursor to the LINE MAINT button on the second Menu bar at the top of the Page and press SEL.
- (c) Move the cursor to the GROUND TESTS button from the drop down Menu bar and press SEL.
- (d) Move the cursor to the 31 INDICATING SYSTEMS in the Select ATA System box and press SEL.
NOTE: You can use the page buttons on the right side of the select ATA System box to show more Systems for testing.
- (e) Move the cursor to the LRU REPLACEMENT TEST button on the Select Test Type Menu bar in the center of the Page and press SEL.
- (f) Move the cursor to the DPC 2 Replacement Test in the Select System Test box and press SEL.
- (g) Move the cursor to the CONTINUE button on the menu bar at the bottom of the GROUND TESTS Page and press SEL.
- (h) Set the GND TEST switch on the P61-4 MBP to the ENABLE position.
- (i) Move the cursor to the CONTINUE button on the menu bar at the bottom of the GROUND TESTS page and press SEL.
- (j) Move the cursor to the START TEST button on the GROUND TESTS page and press SEL.

NOTE: The DPC will go into the BITE Test with a Ground Test Started message and then a in progress screen in 20 – 30 seconds.

- 1) Make sure that the DPC 2 BITE Test Condition shows PASS.
 - a) If the Test Condition shows FAIL, complete the IFIM for the maintenance messages shown.
- (k) Move the cursor to the NEW TEST button on the MENU bar at the bottom of the GROUND TESTS page and press SEL.
- (l) Set the GND TEST switch on the P61-4 MBP to the NORM position.
- (m) Move the cursor to the MAINT DATA PGS button on the Menu bar at the top of the Page and press SEL.

SUBTASK 31-65-00-730-010

- (12) Do these steps to examine the interface of the F/O's SELECTOR on the P9-82 MFP to DPC 1 (WDM 31-65-16).
 - (a) Set the FO SELECTOR knob outer ring, on the P9-82 MFP, to C.

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- (b) Move the cursor to the DISPLAY button adjacent to the 31 MDS caption on the DISPLAY SELECTION page.

NOTE: Turn the FO SELECTOR knob on the P9-82 MFP clockwise or counterclockwise to move the cursor.

- (c) Push SEL on the end of the P9-82 MFP FO SELECTOR knob to set the DISPLAY button.
- 1) Make sure that the cursor is in the shape of a Hollow plus [2] sign.
- (d) Move the cursor to the button adjacent to the DPC DISCRETE/POWER INPUTS caption on the MDS MAINT PAGE - INDEX page and press SEL.
- (e) Move the cursor to the NEXT PAGE button on the Menu bar at the bottom of the page and press SEL until the INSERT B page shows.
- 1) Make sure that the STATE of the pins for INSERT B shows:
 - a) DPC-1 Pin A11 is OPEN and DPC-2 Pin A11 is OPEN.
 - b) DPC-1 Pin D11 is OPEN and DPC-2 Pin D11 is OPEN.
 - c) DPC-1 Pin F9 is GND and DPC-2 Pin F9 is GND.
- (f) Move the cursor to the PREV MENU button on the MENU bar at the bottom of the page and press SEL.

SUBTASK 31-65-00-730-011

- (13) Do these steps to examine the interface for the Captain's SELECTOR on the P9-82 MFP to DPC 1 (WDM 31-65-16).
- (a) Set the CAPT SELECTOR knob outer ring, on the P9-82 MFP, to C.
 - (b) Move the cursor to the button adjacent to the DISPLAYS caption on the MDS MAINT PAGE - INDEX page.
- NOTE: Turn the CAPT SELECTOR knob on the P9-82 MFP clockwise or counterclockwise to move the cursor.
- (c) Push SEL on the end of the P9-82 MFP CAPT SELECTOR knob to set the button.
- 1) Make sure that the cursor on the screen is in the shape of an Open sight crosshairs [3].
 - 2) Make sure that all of the status boxes, A429 and FIBER X-TALK buses, are green and ACTIVE, and the right inputs on each DU are white, on the MDS MAINT PAGE - DISPLAYS page.

SUBTASK 31-65-00-860-054

- (14) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

SUBTASK 31-65-00-980-001

- (15) Wait 15 seconds.

SUBTASK 31-65-00-730-012

- (16) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP

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- (a) Make sure that the DSDLY SOURCE 2 failed message shows on the lower left of the PFD format.

SUBTASK 31-65-00-730-013

- (17) Do these steps to examine the inputs and outputs for DPC 1:
 - (a) Make sure that the status shows as follows:
 - 1) The DPC 2 status box changes to FAILED.
 - 2) The A429 X-TALK shows INACTIVE for DPC 1 and blank for DPC 2.
 - 3) The FIBER X-TALK buses between DPCs turned white, and
 - 4) The right inputs on each DU turned amber.
 - (b) Make sure that the status shows as follows:
 - 1) CAPT PFD/MFD status shows NORM.
 - 2) DISPLAY SOURCE status shows ALL ON 1.
 - 3) EFIS CP SOURCE status shows NORMAL.
 - 4) F/O PFD/MFD status shows NORM.

SUBTASK 31-65-00-730-014

- (18) Make sure to close the DPC HOLDUP power first before the DPC primary power.
 - (a) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI

NOTE: The DPC can take up to a minute to do its Power Up BITE.

SUBTASK 31-65-00-730-015

- (19) Make sure that the status shows as follows:
 - (a) The DPC-2 status box, A429 and FIBER X-TALK buses, change to green and ACTIVE.
 - (b) The right inputs on each DU change to white.
 - (c) The DPC-2 outputs 1-4 are white.

SUBTASK 31-65-00-860-088

- (20) Move the cursor to the PREV MENU button on the menu bar at the bottom of the page and press SEL.

SUBTASK 31-65-00-730-016

- (21) Do these steps to examine the interface of the EFIS control panel:
 - (a) Move the cursor to the button adjacent to the EFIS CP TEST caption on the MDS MAINT PAGE - INDEX page and press SEL.

NOTE: The MDS Maintenance EFIS CP Test Page shows an interactive screen of the EFIS CP buttons and switches. When you push a button or set a switch, the related icon on the page may turn green or change indicated position to let the user examine the health of EFIS CP data transmission and reception.
 - (b) Set the ND format switch on the Captain's EFIS control panel to the VOR position.
 - (c) Make sure that the ND format switch on the EFIS CP-L shows VOR, and that a VOR compass rose is shown on the Captain's navigation display.
 - (d) Set the ND format switch on the F/O's EFIS control panel to the PLAN position.

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- (e) Make sure that the ND format switch on the EFIS CP-R shows PLN, and that PLAN mode is shown on the F/O's navigation display.
- (f) Set the ND format switch on the Captain's and F/O's EFIS Control Panels to the MAP position.
- (g) Make sure that the ND format switch on the EFIS CP-L and EFIS CP-R shows MAP, and that MAP Mode is shown on the Captain's and F/O's Navigation Display.
- (h) Move the cursor to the SYS MENU button on the Menu bar at the top of the MDS MAINT PAGE - EFIS CP TEST page and press SEL.

F. Display Processing Computer 2 Interface Test



COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

SUBTASK 31-65-00-730-017

- (1) Do these steps to examine the Ground Test of DPC 1 and the interfaces for DPC 2.
 - (a) Set the DISPLAYS SOURCE switch on the P5-28 overhead panel to ALL ON 2.
 - 1) Make sure that a DSPLY SOURCE 1 Amber message is shown on the lower left of the PFD format.

NOTE: The PFD format display is below the Airspeed Tape.
 - 2) Push the SYS button on the P9-82 MFP until the System Page format shows.

SUBTASK 31-65-00-740-002

- (2) Do these steps to examine the interface for the MAINT SELECTOR on the P61-4 MFP to DPC 1 (WDM 31-65-16) (WDM 31-65-26).
 - (a) Set the MAINT SELECTOR knob outer ring, on the P61-4 MBP, to R.
 - (b) Move the cursor to the MAINT button on the MENU bar at the top of the System Page.

NOTE: Turn the MAINT SELECTOR knob on the P61-4 MBP clockwise or counterclockwise to move the cursor.
 - (c) Push SEL on the P61-4 MBP MAINT SELECTOR knob to set the MAINT button.
 - 1) Make sure that the cursor is in the shape of Crossed wrenches [1].
 - (d) Move the cursor to the ONBD MAINT button on the menu bar at the top of the Status Messages Page and press SEL.
 - (e) Move the cursor to the LINE MAINT button on the second menu bar at the top of the Page and press SEL.
 - (f) Move the cursor to the GROUND TESTS button from the drop down menu bar and press SEL.
 - 1) Move the cursor to the 31 INDICATING SYSTEMS in the Select ATA System box and press SEL.

NOTE: You can use the page buttons on the right side of the select ATA System box to show more Systems for testing.
 - (g) Move the cursor to the LRU REPLACEMENT TEST button on the Select Test Type Menu bar in the center of the Page and press SEL.
 - (h) Move the cursor to DPC 1 Replacement Test in the Select System Test box and press SEL.

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- (i) Move the cursor to the CONTINUE button on the Menu bar at the bottom of the GROUND TESTS Page and press SEL.
- (j) Set the GND TEST switch on the P61-4 MBP to the ENABLE position.
- (k) Move the cursor to the CONTINUE button on the MENU bar at the bottom of the GROUND TESTS page and press SEL.
- (l) Move the cursor to the START TEST button on the GROUND TESTS page and press SEL.

NOTE: The DPC will go into BITE Test with a Ground Test Started message, and then a progress screen in 10 — 15 seconds.

- 1) Make sure that the DPC 1 BITE Test shows PASS.
 - a) If the Test Condition shows FAIL, complete the IFIM for the maintenance message shown.

SUBTASK 31-65-00-730-018

- (3) Do these steps to examine the DPC 1 MAINT Light Test Condition:
 - (a) Move the cursor to the NEW TEST button on the MENU bar at the bottom of the GROUND TESTS page and press SEL.
 - (b) Move the cursor to 31 INDICATING SYSTEMS in the Select ATA System box and press SEL.
 - (c) Move the cursor to the SYSTEM TEST button on the Select Test Type MENU bar at the center of the page and press SEL.
 - (d) Move the cursor to DPC 1 MAINT Light Test in the Select System Test box and press SEL.
 - (e) Move the cursor to the CONTINUE button on the menu bar at the bottom of the page and press SEL.
 - (f) Move the cursor to the CONTINUE button again on the menu bar at the bottom of the page and press SEL.
 - (g) Move the cursor to the START TEST button on the GROUND TESTS, TEST page and press SEL.

NOTE: Select the applicable responses to the questions shown.

- 1) Make sure that the DPC 1 MAINT Light Test shows Pass.
 - a) If the Test Condition shows FAIL, complete the IFIM for the maintenance message shown.

SUBTASK 31-65-00-730-019

- (4) Do these steps to examine the DPC 2 MAINT Light Test Condition:
 - (a) Move the cursor to the NEW TEST button on the MENU bar at the bottom of the GROUND TESTS page and press SEL.
 - (b) Move the cursor to 31 INDICATING SYSTEMS in the Select ATA System box and press SEL.
 - (c) Move the cursor to the SYSTEM TEST button on the Select Test Type MENU bar at the center of the page and press SEL.
 - (d) Move the cursor to DPC 2 MAINT Light Test in the Select System Test box and press SEL.
 - (e) Move the cursor to the CONTINUE button on the menu bar at the bottom of the page and press SEL.

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- (f) Move the cursor to the CONTINUE button again on the menu bar at the bottom of the page and press SEL.
- (g) Move the cursor to the START TEST button on the GROUND TESTS, TEST page and press SEL.

NOTE: Select the appropriate responses to the questions shown.

- 1) Make sure that the DPC 2 MAINT Light Test shows Pass.
 - a) If the Test Condition shows FAIL, complete the IFIM for the maintenance message shown.

SUBTASK 31-65-00-730-069

- (5) Do these steps to examine the DPC-1 CMU Chime Test:

- (a) Move the cursor to the NEW TEST button on the menu bar at the bottom of the page and press SEL.
- (b) Move the cursor to 31 INDICATING SYSTEMS in the Select ATA System box and press SEL.
- (c) Move the cursor to SYSTEM TEST on the Select Test Type menu bar at the center of the page and press SEL.
- (d) Move the cursor to DPC-1 CMU Chime Test in the Select System Test box and press SEL.
- (e) Move the cursor to the CONTINUE button at the bottom of the page and press SEL.
- (f) Move the cursor to START TEST button on the GROUND TESTS, TEST page and press SEL.

NOTE: Select the appropriate responses to the questions shown.

- 1) Make sure that the DPC 1 CHIME Test shows Pass.
 - a) If the Test Condition shows FAIL, refer to the IFIM and do the applicable procedure(s) for the maintenance message shown.

SUBTASK 31-65-00-730-070

- (6) Do these steps to examine the DPC-2 CMU Chime Test:

- (a) Move the cursor to the NEW TEST button on the menu bar at the bottom of the page and press SEL.
- (b) Move the cursor to 31 INDICATING SYSTEMS in the Select ATA System box and press SEL.
- (c) Move the cursor to SYSTEM TEST on the Select Test Type menu bar at the center of the page and press SEL.
- (d) Move the cursor to DPC-2 CMU Chime Test in the Select System Test box and press SEL.
- (e) Move the cursor to the CONTINUE button at the bottom of the page and press SEL.
- (f) Move the cursor to START TEST button on the GROUND TESTS, TEST page and press SEL.

NOTE: Select the appropriate responses to the questions shown.

- 1) Make sure that the DPC 2 CMU CHIME Test shows Pass.
 - a) If the Test Condition shows FAIL, refer to the IFIM and do the applicable procedure(s) for the maintenance message shown.

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SUBTASK 31-65-00-730-020

- (7) Do these steps to examine the interface for the F/O's SELECTOR on the P9-82 MFP to DPC 2 (WDM 31-65-26).
- Move the cursor to the NEW TEST button on the menu bar at the bottom of the page and press SEL.
 - Set the GND TEST switch on the P61-4 MBP to the NORM position.
 - Move the cursor to the MAINT DATA PGS button on the menu bar at the top of the page and press SEL.
 - Set the FO SELECTOR knob outer ring, on the P9-82 MFP, to C.
 - Move the cursor to the DISPLAY button adjacent to the 31 MDS caption on the DISPLAY SELECTION page.
NOTE: Turn the FO SELECTOR knob on the P9-82 MFP clockwise or counterclockwise to move the cursor.
 - Push SEL on the end of the P9-82 MFP FO SELECTOR knob to set the DISPLAY button.
 - Make sure that the cursor is in the shape of a Hollow plus [2] sign.

SUBTASK 31-65-00-730-021

- (8) Do these steps to examine the INSERT B pins:
- Move the cursor to the button adjacent to the DPC DISCRETE/POWER INPUTS caption on the MDS MAINT PAGE - INDEX page and press SEL.
 - Move the cursor to the NEXT PAGE button on the menu bar at the bottom of the page and press SEL until the INSERT B page is shown.
 - Make sure that the state of the pins on the page for INSERT B are as follows:
 - DPC-1 Pin A11 is GND and DPC-2 Pin A11 is GND.
 - DPC-1 Pin D11 is OPEN and DPC-2 Pin D11 is OPEN.
 - DPC-1 Pin F9 is OPEN and DPC-2 Pin F9 is OPEN.
 - Move the cursor to the PREV MENU button on the menu bar at the bottom of the page and press SEL.

SUBTASK 31-65-00-730-022

- (9) Do these steps to examine the interface for the Captain's SELECTOR on the P9-82 MFP to DPC -2 (WDM 31-65-26).
- Set the CAPT SELECTOR knob outer ring, on the P9-82 MFP, to C.
 - Move the cursor to the button adjacent to the DISPLAYS caption on the MDS MAINT PAGE-INDEX page.
NOTE: Turn the CAPT SELECTOR knob on the P9-82 MFP clockwise or counterclockwise to move the cursor.
 - Push SEL on the end of the P9-82 MFP CAPT SELECTOR knob to set the button.
 - Make sure that the cursor is in the shape of an Open sight crosshairs [3].
 - Make sure that all of the status boxes, A429 and FIBER X-TALK buses, are Green and ACTIVE.
NOTE: The Left inputs on each DU are White. The DPC-1 outputs 1-4 are White, on the MDS MAINT PAGE - DISPLAYS page.

SUBTASK 31-65-00-980-002

- (10) Wait 15 seconds.

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SUBTASK 31-65-00-730-023

- (11) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

NOTE: The DSPLY SOURCE 1 failed message will stay on the lower left of the PFD format.

SUBTASK 31-65-00-730-024

- (12) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP

SUBTASK 31-65-00-980-003

- (13) Wait 15 seconds.

SUBTASK 31-65-00-730-025

- (14) These steps examine the inputs and outputs for DPC 2:

- (a) Make sure that the status shows as follows:
 - 1) DPC-1 status box changes to FAILED.
 - 2) The A429 X-TALK shows INACTIVE for DPC-2 and blank for DPC-1.
 - 3) The FIBER X-TALK buses between DPCs turned White.
 - 4) The Left inputs on each DU turned Amber.
- (b) Make sure that the status shows as follows:
 - 1) CAPT PFD/MFD status shows NORM.
 - 2) DISPLAY SOURCE status shows ALL ON 2.
 - 3) EFIS CP SOURCE status shows NORMAL.
 - 4) F/O PFD/MFD status shows NORM.

SUBTASK 31-65-00-730-026

- (15) Make sure to close the DPC HOLDUP power first before the DPC primary power.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP

SUBTASK 31-65-00-730-027

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

NOTE: The DPC can take up to a minute to go through its power up BITE routine.

- (a) Make sure that the status shows as follows:
 - 1) The DPC-1 status box, A429 and FIBER X-TALK buses, change to Green and ACTIVE.
 - 2) The Left inputs on each DU change to White.

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- 3) The DPC-1 outputs 1-4 are White.
- (b) Move the cursor to the PREV MENU button on the Menu bar at the bottom of the page and press SEL.

SUBTASK 31-65-00-730-028

- (17) Do these steps to examine the mode switch on the EFIS Control Panel.
 - (a) Move the cursor to the button adjacent to the EFIS CP TEST caption on the MDS MAINT PAGE - INDEX page and press SEL.

NOTE: The MDS Maintenance EFIS CP Test Page shows an interactive screen of the EFIS CP buttons and switches. When you push a button or set a switch, the related icon on the page may turn green or change indicated position to let the user to examine the health of EFIS CP data transmission and reception.
 - (b) Set the ND format switch on the Captain's EFIS Control Panel to the VOR position.
 - 1) Make sure that the ND format switch on the EFIS CP-L shows VOR, on the MDS MAINT PAGE - EFIS CP TEST page.
 - (c) Set the ND format switch on the F/O's EFIS Control Panel to the PLAN position.
 - 1) Make sure that the ND format switch on the EFIS CP-R shows PLN, on the MDS MAINT PAGE - EFIS CP TEST page.
 - (d) Set the ND format switch on the Captain's and F/O's EFIS Control Panels to the MAP position.
 - 1) Make sure that the ND format switch on the EFIS CP-L and EFIS CP-R shows MAP, on the MDS MAINT PAGE - EFIS CP TEST page.
 - (e) Move the cursor to the SYS MENU button on the Menu bar at the top of the MDS MAINT PAGE - EFIS CP TEST page and press SEL.

G. Program Pin Test

SUBTASK 31-65-00-730-029

- (1) Do these steps to check the wired states of the DPC program pins (DPC Position, Airplane models, and Head-Up Display (HUD) installed) (WDM 31-65-15) (WDM 31-65-25) (WDM 31-65-41):
 - (a) Set the DISPLAY SOURCE switch on the P5-28 overhead panel to the AUTO position.
 - (b) Push the SYS button on the P9-82 MFP until the Systems Page format shows.
 - (c) Move the cursor to the MAINT button on the menu bar at the top of the systems page and press SEL.
 - (d) Move the cursor to the MAINT DATA PGS button on the menu bar at the top of the status messages page and press SEL.
 - (e) Move the cursor to the DISPLAY button adjacent to the 31 MDS caption on the DISPLAY SELECTION page and press SEL.
 - (f) Move the cursor to the button adjacent to the DPC DISCRETE/POWER INPUTS caption on the MDS MAINT PAGE - INDEX page and press SEL.
 - (g) Move the cursor to the NEXT PAGE or PREV PAGE button on the menu bar at the bottom of the page and press SEL until the INSERT A page is shown.
 - (h) Make sure that the status on INSERT A show as follows:
 - 1) DPC-1 pin B11 is GND.
 - 2) DPC-2 pin B11 is OPEN (DPC Position 1).
 - 3) DPC-1 pin E10 is OPEN.

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- 4) DPC-2 pin E10 is OPEN.

SUBTASK 31-65-00-730-030

- (2) Move the cursor to the NEXT PAGE or PREV PAGE button on the MENU bar at the bottom of the page and press SEL until the INSERT B page is shown.

SUBTASK 31-65-00-210-016

- (3) Make sure that the status on INSERT B show as follows:
- (a) DPC-1 pin H10 is GND.
 - (b) DPC-2 pin H10 is GND.

SUBTASK 31-65-00-730-031

- (4) Move the cursor to the NEXT PAGE or PREV PAGE button on the MENU bar at the bottom of the page and press SEL until the INSERT D page is shown.
- (a) Make sure that the status show as follows:
 - 1) DPC-1 pin H10 is OPEN.
 - 2) DPC-2 pin H10 is OPEN.

SUBTASK 31-65-00-730-032

- (5) Move the cursor to the NEXT PAGE or PREV PAGE button on the MENU bar at the bottom of the page and press SEL until the INSERT E page is shown.
- (a) Make sure that the status show as follows:
 - 1) DPC-1 pin K10 is OPEN.
 - 2) DPC-2 pin K10 is GND (DPC Position 2).
 - (b) Make sure that the status shows as follows:
 - 1) DPC-1 pin H09 is OPEN.
 - 2) DPC-2 pin H09 is OPEN.

SUBTASK 31-65-00-750-002



MAKE SURE THAT YOU CLOSE THE CIRCUIT BREAKERS IN THE SPECIFIED SEQUENCE. IF YOU DO NOT CLOSE THEM IN THE SPECIFIED SEQUENCE, THE DPC CAN POSSIBLY BECOME CORRUPT AND A REPLACEMENT WILL BE NECESSARY.

- (6) Check the AIRPLANE CONFIG DATA (ACD) page to make sure that both DPCs have been power cycled so that the A/P MODEL PROG PINS states stored in NVM are correct.
- (a) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

- (b) Wait 10 seconds before proceeding to the next step.

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- (c) Open these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP

- (d) Close these circuit breakers. Make sure to close the DPC HOLDUP Power first before the DPC Primary Power:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP

- (e) Close these circuit breakers. Make sure to close the DPC HOLDUP Power first before the DPC Primary Power:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

- (f) Make sure that the A/P MODEL PROG PINS states stored in NVM are correct.

H. Displays Switch Test

SUBTASK 31-65-00-730-033

- (1) These steps do the check of the DISPLAYS SOURCE switch and the DISPLAY CONTROL PANEL (also known as the EFIS CP SOURCE) interfaces with the DPC. The DISPLAYS SOURCE, DISPLAY CONTROL PANEL are found on the P5-28 Overhead Panel (WDM 31-65-15) (WDM 31-65-25).
- (2) Move the cursor to the NEXT PAGE or PREV PAGE button on the Menu bar at the bottom of the MDS MAINT PAGE - DPC DISCRETE INPUTS page and press SEL until the INSERT A page is shown.
 - (a) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the NORMAL position.
 - 1) Make sure that the STATE of DPC-1 pin C8 is OPEN.
 - 2) Make sure that the STATE of DPC-2 pin C8 is OPEN.

SUBTASK 31-65-00-730-034

- (3) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the BOTH ON 2 position.
 - (a) Make sure that the STATE of DPC-1 pin C8 is GND.
 - (b) Make sure that the STATE of DPC-2 pin C8 is GND.

SUBTASK 31-65-00-730-035

- (4) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the BOTH ON 1 position.
 - (a) Make sure that the STATE of DPC-1 pin C8 is OPEN.

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- (b) Make sure that the STATE of DPC-2 pin C8 is OPEN.

SUBTASK 31-65-00-730-036

- (5) Move the cursor to the NEXT PAGE or PREV PAGE button on the Menu bar at the bottom of the MDS MAINT PAGE - DPC DISCRETE INPUTS page and press SEL until the INSERT B page is shown.
- (a) Set the DISPLAYS SOURCE switch on the P5-28 overhead panel to the AUTO position.
- 1) Make sure that the STATE of DPC-1 pin A11 is OPEN.
 - 2) Make sure that the STATE of DPC-2 pin A11 is OPEN.
 - 3) Make sure that the STATE of DPC-1 pin D11 is GND.
 - 4) Make sure that the STATE of DPC-2 pin D11 is GND.
 - 5) Make sure that the STATE of DPC-1 pin F9 is OPEN.
 - 6) Make sure that the STATE of DPC-2 pin F9 is OPEN.

SUBTASK 31-65-00-730-037

- (6) Move the cursor to the NEXT PAGE or PREV PAGE button on the Menu bar at the bottom of the MDS MAINT PAGE - DPC DISCRETE INPUTS page and press SEL until the INSERT D page is shown.
- (a) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the NORMAL position.
- 1) Make sure that the STATE of DPC-1 pin F2 is OPEN.
 - 2) Make sure that the STATE of DPC-2 pin F2 is OPEN.

SUBTASK 31-65-00-730-038

- (7) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the BOTH ON 1 position.
- (a) Make sure that the STATE of DPC-1 pin F2 is GND.
- (b) Make sure that the STATE of DPC-2 pin F2 is GND.

SUBTASK 31-65-00-730-039

- (8) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the BOTH ON 2 position.
- (a) Make sure that the STATE of DPC-1 pin F2 is OPEN.
- (b) Make sure that the STATE of DPC-2 pin F2 is OPEN.

SUBTASK 31-65-00-860-009

- (9) Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the NORMAL position.
- (10) Move the cursor to the PREV PAGE button on the Menu bar at the bottom of the MDS MAINT PAGE - DPC DISCRETE INPUTS page and press SEL.

I. Lighting Control Module and Clock Test

SUBTASK 31-65-00-730-040

- (1) Do the test for the lighting control module and the EFIS displays (TASK 31-65-00-710-802).

SUBTASK 31-65-00-730-045

- (2) Do the test of the ENG TFR button on the P9-82 MFP as follows:
- (a) Push the ENG TFR button on the P9-82 MFP.



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- (b) Make sure that the engine format transfers to the right inboard DU and the maintenance page disappears.
- (c) Make sure that the systems format appear on the left inboard DU.

SUBTASK 31-65-00-730-044

- (3) Push the CLOCK button on the Captain's Glare Shield.

SUBTASK 31-65-00-210-018

- (4) Make sure that the chronometer display on the Captain's clock starts to count.

SUBTASK 31-65-00-730-060

- (5) Push the CLOCK button on the Captain's Glare Shield.

SUBTASK 31-65-00-210-019

- (6) Make sure that the chronometer display on the Captain's Clock stops.

SUBTASK 31-65-00-860-070

- (7) Push the CLOCK button again on the Captain's Glare Shield.

SUBTASK 31-65-00-210-020

- (8) Make sure that the chronometer display on the Captain's clock goes out of view.

SUBTASK 31-65-00-730-049

- (9) Push the CLOCK button on the First Officer's Glare Shield.

SUBTASK 31-65-00-210-021

- (10) Make sure that the chronometer display on the First Officer's Clock starts to count.

SUBTASK 31-65-00-730-055

- (11) Push the CLOCK button on the F/O's Glare Shield.

SUBTASK 31-65-00-210-022

- (12) Make sure that the chronometer display on the F/O's Clock stops.

SUBTASK 31-65-00-860-090

- (13) Push the CLOCK button again on the F/O's Glare Shield.

SUBTASK 31-65-00-210-023

- (14) Make sure that the chronometer display on the F/O's clock goes out of view.

J. Display Unit (DU) Brightness Control Test

SUBTASK 31-65-00-730-062

- (1) Set DISPLAYS SOURCE switch on the P5-28 overhead panel to the AUTO position.

SUBTASK 31-65-00-730-063

- (2) Set DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to the NORMAL position.

SUBTASK 31-65-00-730-065

- (3) Do the brightness and contrast check of the display units (TASK 31-65-00-710-802).

K. Display Units (DU) Standby Power Test

SUBTASK 31-65-00-730-067

- (1) Do these steps make sure that the Captain's Outboard and Captain's Inboard Display Units are hooked up to the Standby Power Bus:
 - (a) Set the battery switch on the P5-13 Panel to the ON position.
 - (b) Set the ground power switch on the P5-4 panel to the OFF position.
 - (c) Make sure that the Captain's outboard and Inboard DUs show displays.

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- (d) Set the Ground Power Switch on the P5-4 panel to the ON position.
- (e) Make sure that all DUs show data.

———— **END OF TASK** ————

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SIA ALL

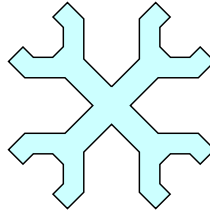
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

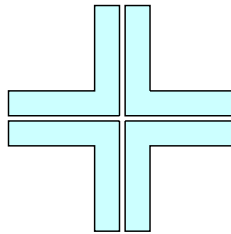
31-65-00

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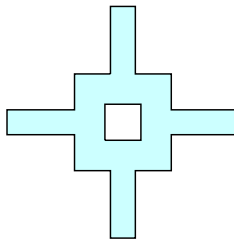
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[1] **CROSSED WRENCHES**



[2] **HOLLOW "+"**



[3] **OPEN SIGHT CROSSHAIRS**

2477836 S0000581336_V1

Cursor Shapes
Figure 504/31-65-00-990-811

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
MDS MAINT PAGE - INDEX			PG 1 OF 19	
BRIGHTNESS			DISPLAY	
DISPLAYS			NORMAL	
DPC DIGITAL INPUTS			NORMAL	
DPC DISCRETE/POWER INPUTS			NORMAL	
DPC DISCRETE OUTPUTS			DISPLAY	
EFIS CP TEST			DISPLAY	
MDS CONFIGURATION			NORMAL	
DATE XX XXX XX			UTC XX:XX:XX	
PREV MENU		PREV PAGE		NEXT PAGE

2478061 S0000581536_V3

Maint Page - Index
Figure 505/31-65-00-990-812

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
MDS MAINT PAGE - INDEX			PG 1 OF 19	
BRIGHTNESS			DISPLAY	
DISPLAYS			FAULT	
DPC DIGITAL INPUTS			NORMAL	
DPC DISCRETE/POWER INPUTS			NORMAL	
DPC DISCRETE OUTPUTS			DISPLAY	
EFIS CP TEST			DISPLAY	
MDS CONFIGURATION			NORMAL	
DATE XX XXX XX			UTC XX:XX:XX	
PREV MENU		PREV PAGE		NEXT PAGE

2532537 S0000599792_V1

Maint Page - Index - Fault
Figure 506/31-65-00-990-826

EFFECTIVITY
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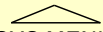
ECCN 9E991 BOEING PROPRIETARY - See title page for details

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AIRCRAFT MAINTENANCE MANUAL

 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
<u>MDS MAINT PAGE - BRIGHTNESS</u>				PG X OF Y
<u>INPUTS</u>				
	LOB	LIB	RIB	ROB
BRT CTRL (%)	XXX	XXX	XXX	XXX
CONTRAST CTRL (%)	XXX	XXX	XXX	XXX
BLS (FC)	XXXXXX.X	XXXXXX.X	XXXXXX.X	XXXXXX.X
RLS (FC)	XXXXXX			XXXXXX
<u>OUTPUTS</u>				
COMMANDED BRIGHTNESS (%)	XXX	XXX	XXX	XXX
COMMANDED CONTRAST (%)	XXX	XXX	XXX	XXX
DATE XX XXX XX UTC XX:XX:XX				
PREV MENU	PRINT	SEND	PREV PAGE	NEXT PAGE

2457569 S0000570830_V2

Display Unit Brightness Format
Figure 507/31-65-00-990-813

EFFECTIVITY
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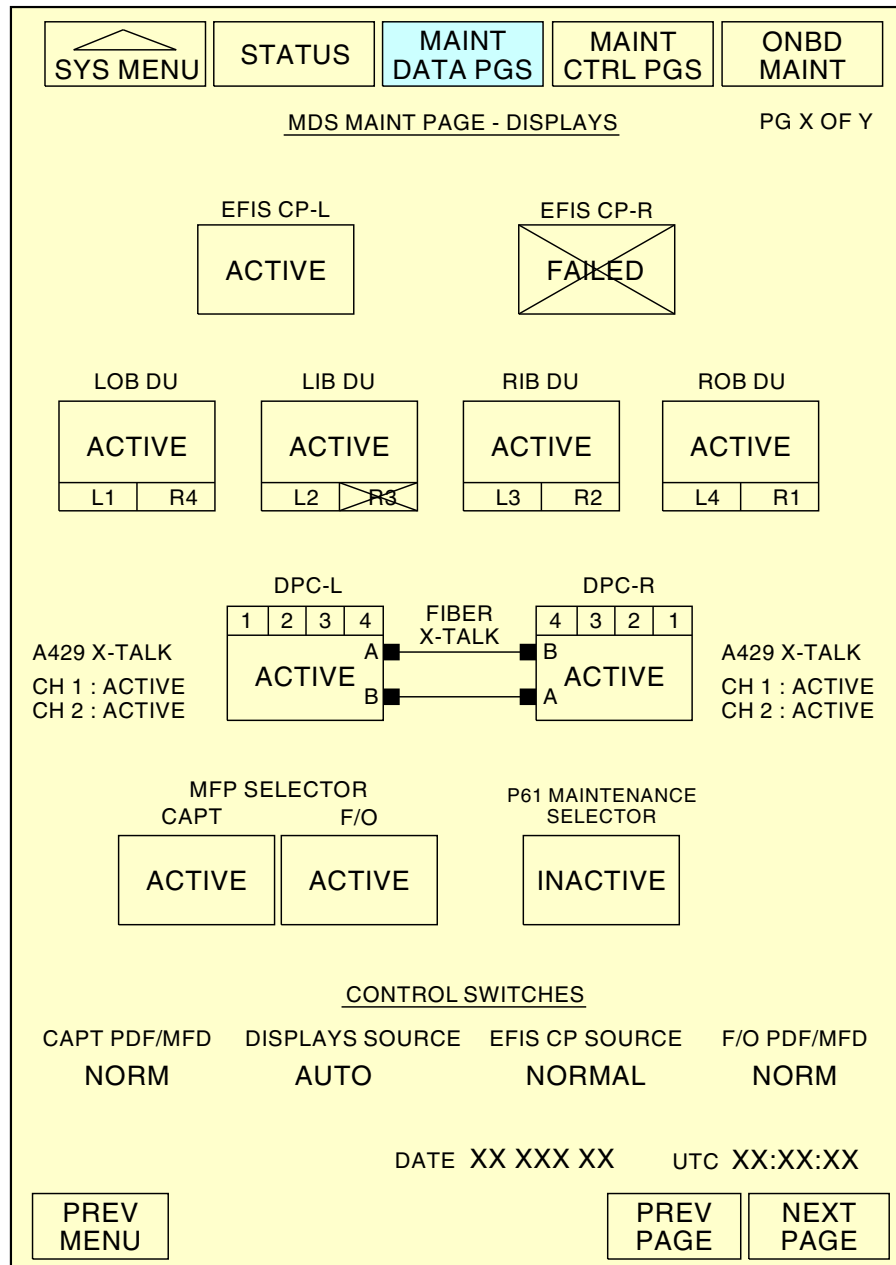
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(EXAMPLE)

2477867 S0000581617_V2

Displays
Figure 508/31-65-00-990-814

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SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT		
MDS MAINT PAGE - DPC DIGITAL INPUTS				PG X OF Y		
INSERT A						
DPC-L			DPC-R			
A PIN	B PIN	STATUS	A PIN	B PIN	STATUS	BUS DESCRIPTION
A01	A02	SPARE	A01	A02	SPARE	--
A03	A04	ACTIVE	A03	A04	ACTIVE	WXR 1-01-CAPT
A09	A10	SPARE	A09	A10	SPARE	--
A11	A12	SPARE	A11	A12	SPARE	--
B03	B04	INACTIVE	B03	B04	ACTIVE	DU LOB
B05	B06	ACTIVE	B05	B06	ACTIVE	ENG 1 EEC CH A
B09	B10	ACTIVE	B09	B10	ACTIVE	FQIS-2
B13	B14	ACTIVE	B13	B14	ACTIVE	MMR-1 ILS
C01	C02	ACTIVE	C01	C02	ACTIVE	FCC-L
C03	C04	ACTIVE	C03	C04	ACTIVE	IASC PFTC-L
C09	C10	SPARE	C09	C10	SPARE	--
D01	D02	SPARE	D01	D02	SPARE	--
D03	D04	ACTIVE	D03	D04	ACTIVE	VOR-1
E01	E02	NOT INSTLD	E01	E02	NOT INSTLD	PSEU SYS-1 (OPTIONAL)
E03	E04	SPARE	E03	E04	SPARE	--
E08	E09	ACTIVE	E08	E09	ACTIVE	GPWC
E11	E12	SPARE	E11	E12	SPARE	--
F01	F02	ACTIVE	F01	F02	ACTIVE	SMC-1
F08	F09	ACTIVE	F08	F09	ACTIVE	HUD
F11	F12	SPARE	F11	F12	SPARE	--
G01	G02	ACTIVE	G01	G02	ACTIVE	CMU
G03	G04	ACTIVE	G03	G04	ACTIVE	RA-1
G08	G09	SPARE	G08	G09	SPARE	--
H03	H04	ACTIVE	H03	H04	ACTIVE	MFP-1
J01	J02	ACTIVE	J01	J02	ACTIVE	EFIS CP CAPT
J03	J04	SPARE	J03	J04	SPARE	--
J08	J09	SPARE	J08	J09	SPARE	--
K01	K02	ACTIVE	K01	K02	ACTIVE	ADR-L-2/ADR-R-4
K03	K04	ACTIVE	K03	K04	ACTIVE	TERRAIN 1
K14	K15	ACTIVE	K14	K15	ACTIVE	ADR-L-4/ADR-R-2
DATE XX XXX XX UTC XX:XX:XX						
PREV MENU	PRINT	SEND	PREV PAGE	NEXT PAGE		

(EXAMPLE)

NOTE: SMC REFERS TO STALL MANAGEMENT YAW DAMPENER (SMYD) COMPUTER

2477868 S0000581618_V3

Digital Inputs
Figure 509/31-65-00-990-815 (Sheet 1 of 2)

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AIRCRAFT MAINTENANCE MANUAL

 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT																																																							
<u>MDS MAINT PAGE - DPC DIGITAL INPUTS</u>				PG X OF Y																																																							
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 10%;">INSERT</th><th style="width: 5%;">PIN</th><th style="width: 25%;">DPC-L LINK STATUS</th><th style="width: 25%;">DPC-R LINK STATUS</th><th style="width: 35%;">FIBER PIN DESCRIPTION</th></tr></thead><tbody><tr><td>C</td><td>5</td><td>CALIBRATING</td><td>ACTIVE</td><td>DU LOB</td></tr><tr><td>C</td><td>6</td><td>DEGRADED - SEE OMF</td><td>DEGRADEDE - SEE OMF</td><td>DU LIB</td></tr><tr><td>F</td><td>5</td><td>ACTIVE</td><td>ACTIVE</td><td>DU RIB</td></tr><tr><td>F</td><td>6</td><td>INACTIVE - SEE OMF</td><td>FAILED - SEE OMF</td><td>DU ROB</td></tr></tbody></table> <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 10%;">INSERT</th><th style="width: 10%;">A PIN</th><th style="width: 10%;">B PIN</th><th style="width: 15%;">DPC-L STATUS</th><th style="width: 15%;">DPC-R STATUS</th><th style="width: 40%;">ETHERNET PIN DESCRIPTION</th></tr></thead><tbody><tr><td>C</td><td>16-2</td><td>16-4</td><td>SPARE</td><td>SPARE</td><td>SPARE</td></tr><tr><td>C</td><td>17-2</td><td>17-4</td><td>ACTIVE</td><td>DISABLED</td><td>NFS-L</td></tr><tr><td>F</td><td>16-2</td><td>16-4</td><td>INACTIVE</td><td>NOT INSTLD</td><td>NFS-R</td></tr><tr><td>F</td><td>17-2</td><td>17-4</td><td>SPARE</td><td>SPARE</td><td>SPARE</td></tr></tbody></table> INSERT C & F 1 2 3 4 5 6 7 8 9 10 11 12 13 15 14 12 43 16 23 14 17					INSERT	PIN	DPC-L LINK STATUS	DPC-R LINK STATUS	FIBER PIN DESCRIPTION	C	5	CALIBRATING	ACTIVE	DU LOB	C	6	DEGRADED - SEE OMF	DEGRADEDE - SEE OMF	DU LIB	F	5	ACTIVE	ACTIVE	DU RIB	F	6	INACTIVE - SEE OMF	FAILED - SEE OMF	DU ROB	INSERT	A PIN	B PIN	DPC-L STATUS	DPC-R STATUS	ETHERNET PIN DESCRIPTION	C	16-2	16-4	SPARE	SPARE	SPARE	C	17-2	17-4	ACTIVE	DISABLED	NFS-L	F	16-2	16-4	INACTIVE	NOT INSTLD	NFS-R	F	17-2	17-4	SPARE	SPARE	SPARE
INSERT	PIN	DPC-L LINK STATUS	DPC-R LINK STATUS	FIBER PIN DESCRIPTION																																																							
C	5	CALIBRATING	ACTIVE	DU LOB																																																							
C	6	DEGRADED - SEE OMF	DEGRADEDE - SEE OMF	DU LIB																																																							
F	5	ACTIVE	ACTIVE	DU RIB																																																							
F	6	INACTIVE - SEE OMF	FAILED - SEE OMF	DU ROB																																																							
INSERT	A PIN	B PIN	DPC-L STATUS	DPC-R STATUS	ETHERNET PIN DESCRIPTION																																																						
C	16-2	16-4	SPARE	SPARE	SPARE																																																						
C	17-2	17-4	ACTIVE	DISABLED	NFS-L																																																						
F	16-2	16-4	INACTIVE	NOT INSTLD	NFS-R																																																						
F	17-2	17-4	SPARE	SPARE	SPARE																																																						

(EXAMPLE)

2477870 S0000581619_V2

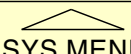
Digital Inputs
Figure 509/31-65-00-990-815 (Sheet 2 of 2)

EFFECTIVITY	
SIA ALL	

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AIRCRAFT MAINTENANCE MANUAL

 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
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MDS MAINT PAGE - DPC DISCRETE INPUTS PG X OF Y

INSERT A

DPC-L		DPC-R		PIN DESCRIPTION
PIN	STATE	PIN	STATE	
A05	SPARE	A05	SPARE	--
A06	GND	A06	OPEN	AT THR HOLD ANN
B11	GND	B11	GND	DPC PP POS 1
B12	SPARE	B12	SPARE	--
C05	SPARE	C05	SPARE	--
C06	SPARE	C06	SPARE	--
C07	SPARE	C07	SPARE	--
C08	GND	C08	GND	EFISCP SOURCE L SEL
D05	SPARE	D05	SPARE	--
D07	GND	D07	GND	START SW IN GRD/CONT L
D08	GND	D08	GND	CTAI 1 VALVE OPEN
D10	GND	D10	GND	WING ANTI-ICE SW OFF
E05	GND	E05	GND	ENG ALT MODE SEL LEFT
E06	GND	E06	GND	ENG 1 BLEED AIR SW OFF
E07	GND	E07	GND	START SW IN FLT L
E10	SPARE	E10	SPARE	--
F10	GND	F10	GND	FUEL SW IN RUN L INPUT 2
G05	VOLT	G05	OPEN	FIRE SW PULLED L
G06	SPARE	G06	SPARE	--
G10	GND	G10	GND	AIR/GND LOGIC SYS 1 (AIR)
H07	GND	H07	GND	IRS-L SELECT
J06	GND	J06	GND	NAV SRC L SEL
J10	GND	J10	GND	WXR PWS FAIL
K05	GND	K05	GND	IGN SW - LEFT IGNITOR

DATE XX XXX XX UTC XX:XX:XX

PREV MENU	PRINT	SEND	PREV PAGE	NEXT PAGE
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(EXAMPLE)

2477871 S0000581620_V2

Discrete Inputs
Figure 510/31-65-00-990-816

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT																								
MDS MAINT PAGE - DPC POWER INPUTS			PG X OF Y																									
PRIMARY POWER INSERT C <table style="width: 100%; border-collapse: collapse;"><tr><th colspan="2" style="text-align: left;">DPC-L</th><th colspan="2" style="text-align: left;">DPC-R</th></tr><tr><th style="text-align: left;">PIN</th><th style="text-align: left;">STATE</th><th style="text-align: left;">PIN</th><th style="text-align: left;">STATE</th></tr><tr><td>15</td><td>NORM</td><td>15</td><td>NORM</td></tr></table> PINS 1-4, 6, 7 - FIBER PIN 13 - 28VDC RETURN PIN 14 - CHASSIS GROUND 2 PINS 16, 17 - ETHERNET		DPC-L		DPC-R		PIN	STATE	PIN	STATE	15	NORM	15	NORM	SECONDARY POWER INSERT F <table style="width: 100%; border-collapse: collapse;"><tr><th colspan="2" style="text-align: left;">DPC-L</th><th colspan="2" style="text-align: left;">DPC-R</th></tr><tr><th style="text-align: left;">PIN</th><th style="text-align: left;">STATE</th><th style="text-align: left;">PIN</th><th style="text-align: left;">STATE</th></tr><tr><td>15</td><td>NORM</td><td>15</td><td>NORM</td></tr></table> PINS 1-4, 6, 7 - FIBER PIN 13 - 28VDC BAT RETURN PIN 14 - CHASSIS GROUND 1 PINS 16, 17 - ETHERNET			DPC-L		DPC-R		PIN	STATE	PIN	STATE	15	NORM	15	NORM
DPC-L		DPC-R																										
PIN	STATE	PIN	STATE																									
15	NORM	15	NORM																									
DPC-L		DPC-R																										
PIN	STATE	PIN	STATE																									
15	NORM	15	NORM																									
INSERT C & F 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17																												
DATE XX XXX XX			UTC XX:XX:XX																									
PREV MENU	PRINT	SEND	PREV PAGE	NEXT PAGE																								

(EXAMPLE)

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Power Inputs
Figure 511/31-65-00-990-817

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
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MDS MAINT PAGE - DPC DISCRETE OUTPUTS PG X OF Y

INSERT A

DPC-L		DPC-R		PIN DESCRIPTION
PIN	STATE	PIN	STATE	
D06	GND	D06	GND	STARTER CUTOUT ENG 1
D09	SPARE	D09	SPARE	--
F05	GND	F05	GND	EEC BACKUP POWER ON L
F06	SPARE	F06	SPARE	--
F07	SPARE	F07	SPARE	--
G07	SPARE	G07	SPARE	--
H05	GND	H05	GND	ENG RUNNING WITH SIM L
H06	SPARE	H06	SPARE	--
H10	VOLT	H10	VOLT	HIGH/LOW CHIME
J05	GND	J05	OPEN	ENG VALVE CLOSED LIGHT L
J07	SPARE	J07	SPARE	--
K06	SPARE	K06	SPARE	--
K07	SPARE	K07	SPARE	--
K10	OPEN	K10	VOLT	APU MAINT POWER CTRL

DATE XX XXX XX UTC XX:XX:XX

PREV MENU	PRINT	SEND	PREV PAGE	NEXT PAGE
--------------	-------	------	--------------	--------------

(EXAMPLE)

2477968 S0000581635_V3

Discrete Outputs
Figure 512/31-65-00-990-818

EFFECTIVITY
SIA ALL

D633AM101-SIA

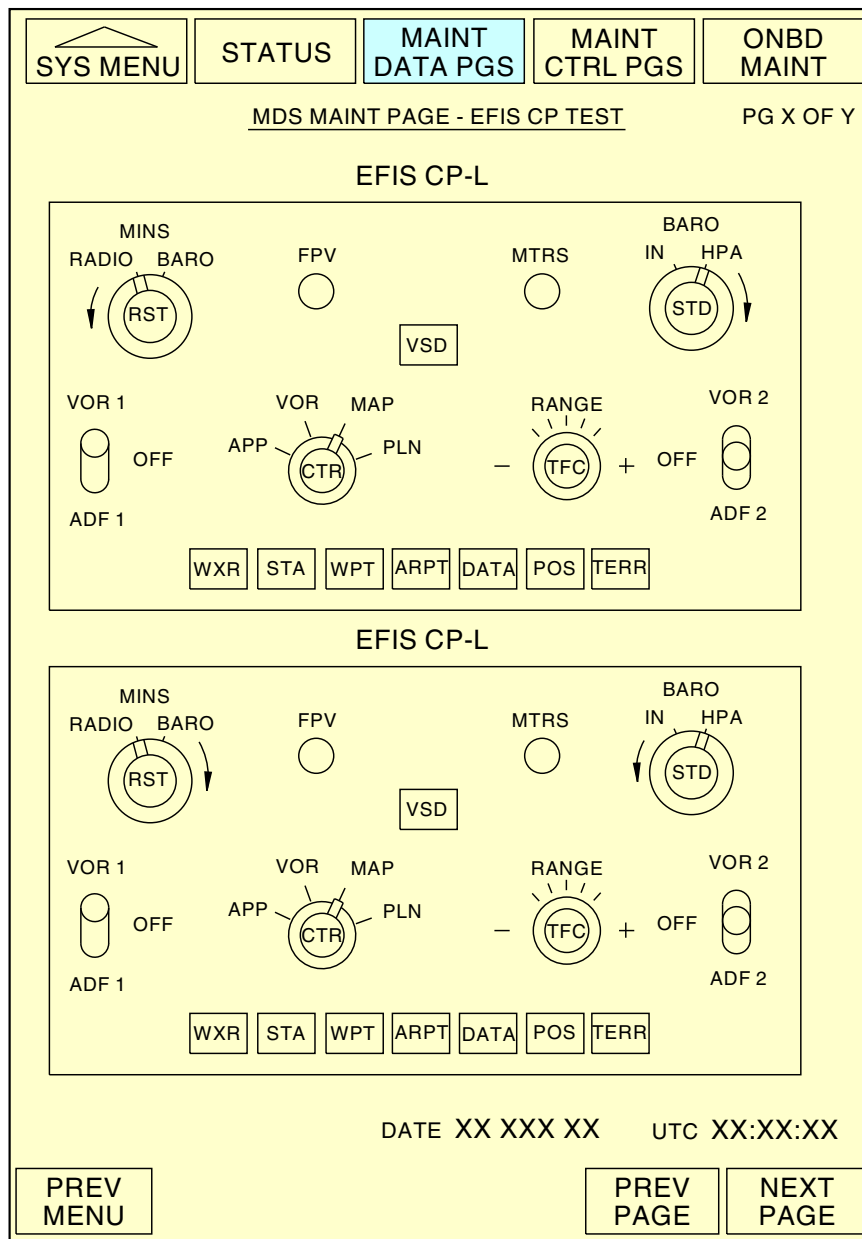
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(EXAMPLE)

2477973 S0000581640_V2

EFIS Control Panel Test
Figure 513/31-65-00-990-819

EFFECTIVITY
SIA ALL

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
---	--------	-------------------	-------------------	---------------

MDS MAINT PAGE - CONFIG PG X OF Y

DU LOB HW: 822-YYYY-ZZZ EFIS CP-L HW: 822-YYYY-ZZZ
DU LIB HW: 822-YYYY-ZZZ EFIS CP-R HW: 822-YYYY-ZZZ
DU RIB HW: 822-YYYY-ZZZ
DU ROB HW: 822-YYYY-ZZZ

	<u>DPC-L PART NUMBERS</u>	<u>DPC-R PART NUMBERS</u>
DPC HARDWARE:	822-YYYY-ZZZ	822-YYYY-ZZZ
31 DPC OPS:	COLXX-ZZZZ-YYYY	COLXX-YYYY-ZZZZ
31 DPC OSS:	BOEXX-YYYY-ZZZZ	BOEXX-YYYY-ZZZZ
31 DPC OMD DF:	BOEXX-YYYY-ZZZZ	BOEXX-YYYY-ZZZZ
31 CREW ALERT DB:	COLXX-YYYY-ZZZZ	COLXX-YYYY-ZZZZ
31 ORE DB:	BOEXX-YYYY-ZZZZ	BOEXX-YYYY-ZZZZ
31 TERRAIN DB:	COLXX-YYYY-ZZZZ	COLXX-YYYY-ZZZZ
31 AIRPRT/RWY DB:	COLXX-YYYY-ZZZZ	COLXX-YYYY-ZZZZ
31 FIR/SUA DB:	COLXX-YYYY-ZZZZ	COLXX-YYYY-ZZZZ
31 OBSTACLES DB:	COLXX-YYYY-ZZZZ	COLXX-YYYY-ZZZZ
31 ECL AMI DB 1:	BFTXX-YYYY-ZZZZ	BFTXX-YYYY-ZZZZ
31 ECL AMI DB 2:	BFTXX-YYYY-ZZZZ	BFTXX-YYYY-ZZZZ
31 AIRPRT MAP DB:	COLXX-YYYY-ZZZZ	COLXX-YYYY-ZZZZ

DATE XX XXX XX UTC XX:XX:XX

PREV MENU	PRINT	SEND	PREV PAGE	NEXT PAGE
--------------	-------	------	--------------	--------------

(EXAMPLE)

2477976 S0000581651_V2

Display Configuration
Figure 514/31-65-00-990-820

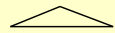
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SIA ALL

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AIRCRAFT MAINTENANCE MANUAL

 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
AIRPLANE CONFIG DATA (ACD)				
MISC SYSTEM CTRLS (MSC)				
LATCHED MESSAGE ERASE				
MAINT LIGHT				

(EXAMPLE)

2477982 S0000581659_V2

Maintenance Control Page
Figure 515/31-65-00-990-821

EFFECTIVITY	
SIA ALL	

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
--------------	--------	-------------------	-------------------	---------------

AIRPLANE CONFIG DATA (ACD)

<u>AIRCRAFT IDENTIFICATION</u>		<u>ACD DATA SOURCE</u>	
TAIL NUMBER	XXXXXXX	DPC	XXXXX
AIRLINE ID	XX		
MODE A ID	XXXX		
SELCAL CODE	XX-XX		
		<u>MDS CONFIG DATA</u>	
		ENGINE UNITS	XXXXXXX
		ECS UNITS	XXXXXXX
<u>DATE/TIME</u>		<u>A/P MODEL PROG PINS</u>	
TIME	XX:XX	DPC 1	¹ XXXX ⁴ XXX-X
DATA	XX XXX XX	DPC 2	XXXXXXX-X

--- ACD DATA PAGE MISMATCH. ---

SELECT SYNC ACD DATA BUTTON TO COPY
DISPLAYED VALUES TO THE OFFSIDE DPC
OR
UNLOCK PAGE TO ENTER CORRECT DATA.

PREV MENU	UNLOCK PAGE	PRINT PAGE	SYNC ACD DATA
--------------	-------------	------------	------------------

(EXAMPLE)

NOTE:

EXAMPLE OF ACD PAGE WITH DATA MISMATCH. AMBER COLOR INDICATES MISMATCH.
FOLLOW INSTRUCTIONS ON SCREEN TO SYNC OR ENTER CORRECT DATA.

2477991 S0000581660_V5

Airplane Config Data
Figure 516/31-65-00-990-822 (Sheet 1 of 3)

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
--------------	--------	-------------------	-------------------	---------------

AIRPLANE CONFIG DATA (ACD)

<u>AIRCRAFT IDENTIFICATION</u>		<u>ACD DATA SOURCE</u>	
TAIL NUMBER		DPC	XXXXX
AIRLINE ID	. .		
MODE A ID	XXXX	<u>MDS CONFIG DATA</u>	
SELCAL CODE	. . - . .	ENGINE UNITS	XXXXXXXX
		ECS UNITS	XXXXXXXX
<u>DATE/TIME</u>		<u>A/P MODEL PROG PINS</u>	
TIME	XX:XX	DPC 1	¹ XXXX ⁴ XXX-X
DATA	XX XXX XX	DPC 2	XXXXXXX-X

--- ACD DATA PAGE MISSING DATA. ---

UNLOCK PAGE TO ENTER DATA THEN
LOCK PAGE AND SELECT
THE SYNC ACD DATA BUTTON.

PREV MENU	UNLOCK PAGE	PRINT PAGE	SYNC ACD DATA
--------------	-------------	------------	------------------

(EXAMPLE)

NOTE:

EXAMPLE OF ACD PAGE WITH TAIL NUMBER, AIRLINE ID AND SELCAL CODE MISSING.
FOLLOW INSTRUCTIONS ON SCREEN TO ENTER DATA.

2478005 S0000581661_V5

Airplane Config Data
Figure 516/31-65-00-990-822 (Sheet 2 of 3)

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
--------------	--------	-------------------	-------------------	---------------

AIRPLANE CONFIG DATA (ACD)

<u>AIRCRAFT IDENTIFICATION</u>		<u>ACD DATA SOURCE</u>	
TAIL NUMBER		DPC	XXXXX
AIRLINE ID	XX		
MODE A ID	XXXX		
SELCAL CODE	XX-XX		
		<u>MDS CONFIG DATA</u>	
		ENGINE UNITS	XXXXXXXX
		ECS UNITS	XXXXXXXX
<u>DATE/TIME</u>		<u>A/P MODEL PROG PINS</u>	
TIME	XX:XX	DPC 1	¹ XXXX ⁴ XXX-X
DATA	XX XXX XX	DPC 2	XXXXXXX-X

--- INVALID DATA ENTERED. ---

UNLOCK PAGE TO RE-ENTER DATA THEN
LOCK PAGE AND SELECT
THE SYNC ACD DATA BUTTON.

PREV MENU	UNLOCK PAGE	PRINT PAGE	SYNC ACD DATA
--------------	-------------	------------	------------------

(EXAMPLE)

NOTE:

EXAMPLE OF ACD PAGE WITH INVALID TAIL NUMBER, SHOWN IN AMBER COLOR.
FOLLOW INSTRUCTIONS ON SCREEN TO RE-ENTER DATA.

2478006 S0000581662_V5

Airplane Config Data
Figure 516/31-65-00-990-822 (Sheet 3 of 3)

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
--------------	--------	-------------------	-------------------	---------------

MISC SYSTEM CTRLS (MSC)

EEC MAINT POWER

ENG 1	ENG 2
STATUS: PWR	STATUS: PWR
NORM	NORM
TEST	TEST

APU MAINT POWER

NORM

TEST

MFD MODE

SINGLE MFD

DUAL MFD

IN AIR
MAINTENANCE

DISABLE

ENABLE

LANDING PLACARD

DISABLE

OPTION 1 XXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

OPTION 2 XXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

OPTION 3 XXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

PREV
MENU

(EXAMPLE)

2478016 S0000581663_V4

Miscellaneous System Controls
Figure 517/31-65-00-990-823

EFFECTIVITY
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AIRCRAFT MAINTENANCE MANUAL

 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
---	--------	-------------------	-------------------	---------------

MAINT LIGHT

- ☐ STALL WARNING SYS L
- ☐ ALTIN NOSE STEERING
- ☐ APU DOOR
- ☐ OPC 1 HOT BATTERY
- ☐ TIRE PRESS SYS
- ☐ TAT DISAGREE
- ☐ GEAR CONTROL 2
- ☐ YAW DAMPER SYS
- ☐ BLD CTRL BACKUP PROTECT L
- ☐ MLG L SENSOR
- ☐ TAKEOFF CONFIG
- ☐ DOOR FWD CARGO
- ☒ PACK FLOW CTRL SENSOR R
- ☒ DISPLAY UNIT INTERFACE
- ☒ ENG 1 IGNITER R
- ☒ SPOLER PAIR 3/10
- ☒ ENG 2 FUEL MAIN HX SENSOR

PAGE DOES NOT AUTO - REFRESH - CHANGE PAGE TO UPDATE

PREV MENU	NEXT PAGE
--------------	--------------

2532840 S0000598977_V2

Maintenance Light Page
Figure 518/31-65-00-990-827

EFFECTIVITY
SIA ALL

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
---	--------	-------------------	-------------------	---------------

ERASABLE STATUS MESSAGES

BLD CTRL BACKUP PROTECT L	ERASE
TAT DISAGREE	ERASE

PAGE DOES NOT AUTO - REFRESH - CHANGE PAGE TO UPDATE

PG 1 OF 1

NEXT
PAGE

SCHEDULED MAINTENANCE TASK MESSAGES

ENG 1 EEC C2	ERASE
BLEED TM SENSOR 1 L	ERASE
AIR/GND SENSOR	ERASE

PREV
MENU

NEXT
PAGE

(EXAMPLE)

2532539 S0000598979_V3

Erasable Status Messages and Scheduled Maintenance Task Messages
Figure 519/31-65-00-990-828

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TASK 31-65-00-710-802

4. **Display Brightness Panel PFD/MFD Switch Test**

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task is for the test of the captain and First Officer (F/O) Display Select Module (DSM) interfaces. The captain DSM is located below the left outboard display. The F/O DSM is located below the right outboard display.

B. Location Zones

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

C. Display Brightness Panel PFD/MFD Switch Test

SUBTASK 31-65-00-860-072

- (1) Set the DISPLAYS SOURCE switch, on the P5-28 overhead panel, to the AUTO position.

SUBTASK 31-65-00-860-073

- (2) Set the DISPLAYS CONTROL PANEL switch, on the P5-28 overhead panel, to the NORMAL position.

SUBTASK 31-65-00-210-001

- (3) Make sure that NORMAL is displayed adjacent to DISPLAYS on the MAINT PAGE - INDEX page.

SUBTASK 31-65-00-860-074

- (4) Open this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	13	C04031	DSP F/O EFIS CONT PNL

SUBTASK 31-65-00-210-002

- (5) Make sure that the F/O altimeter has an ALT flag and a DISPLAYS CONTROL PANEL fail message below the flag.

SUBTASK 31-65-00-860-084

- (6) Select the MAINT button on the menu bar at the top of the systems page.

SUBTASK 31-65-00-860-085

- (7) Select the MAINT DATA PGS button on the menu bar at the top of the status messages page.

SUBTASK 31-65-00-860-086

- (8) Select the DISPLAY button adjacent to the 31 MDS caption on the DISPLAY SELECTION page.

SUBTASK 31-65-00-860-087

- (9) Select the button adjacent to the DISPLAYS caption on the MDS MAINT PAGE - INDEX page.

SUBTASK 31-65-00-210-003

- (10) Make sure that the EFIS CP-R status box on the MDS MAINT PAGE - DISPLAYS changes to FAILED.

SUBTASK 31-65-00-860-075

- (11) Set the PFD/MFD switch, on the captain lighting control module, to the OUTBD position.

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SUBTASK 31-65-00-210-004

- (12) Make sure that the captain Display Units (DU) change as follows:
- (a) Make sure that the captain inboard DU blanks.
 - (b) Make sure that the captain inboard DU data compacts to the outboard DU.

SUBTASK 31-65-00-860-076

- (13) Set the PFD/MFD switch, on the captain lighting control module, to the INBD position.

SUBTASK 31-65-00-210-005

- (14) Make sure that the captain DU change as follows:
- (a) Make sure that the captain outboard DU blanks.
 - (b) Make sure that the captain outboard DU data compacts to the inboard DU.

SUBTASK 31-65-00-860-077

- (15) Set the PFD/MFD switch, on the captain lighting control module, to the NORM position.

SUBTASK 31-65-00-210-006

- (16) Make sure that the captain outboard DU and inboard DU return to normal.

SUBTASK 31-65-00-860-078

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	13	C04031	DSP F/O EFIS CONT PNL

SUBTASK 31-65-00-210-007

- (18) Make sure that the EFIS CP-R status box on the MDS MAIN PAGE - DISPLAYS changes to ACTIVE.

SUBTASK 31-65-00-860-079

- (19) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C04030	DSP CAPT EFIS CONT PNL

SUBTASK 31-65-00-210-008

- (20) Make sure that the captain altimeter has an ALT flag and a DISPLAYS CONTROL PANEL fail message below the flag.

SUBTASK 31-65-00-210-009

- (21) Make sure that the EFIS CP-L status box on the MDS MAINT PAGE - DISPLAYS changes to FAILED.

SUBTASK 31-65-00-860-080

- (22) Set the PFD/MFD switch, on the F/O lighting control module, to the OUTBD position.

SUBTASK 31-65-00-210-010

- (23) Make sure that the F/O DU change as follows:
- (a) Make sure that the F/O inboard DU blanks.
 - (b) Make sure that the F/O inboard DU data compacts to the outboard DU.

SUBTASK 31-65-00-860-081

- (24) Set the PFD/MFD switch, on the F/O lighting control module, to the INBD position.

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SUBTASK 31-65-00-210-011

- (25) Make sure that the F/O DU change as follows:
- (a) Make sure that the F/O outboard DU blanks.
 - (b) Make sure that the F/O outboard DU data compacts to the inboard DU.

SUBTASK 31-65-00-860-082

- (26) Set the PFD/MFD switch, on the F/O lighting control module, to the NORM position.

SUBTASK 31-65-00-210-012

- (27) Make sure that the F/O outboard DU and inboard DU return to normal.

SUBTASK 31-65-00-210-013

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C04030	DSP CAPT EFIS CONT PNL

SUBTASK 31-65-00-210-014

- (29) Make sure that the EFIS CP-L status box on the MDS MAIN PAGE - DISPLAYS changes to ACTIVE.

SUBTASK 31-65-00-860-083

- (30) Select the PREV MENU button on the menu bar at the bottom of the MDS MAINT PAGE - DISPLAYS page.

SUBTASK 31-65-00-860-089

- (31) Select the button next to BRIGHTNESS caption on the MDS MAINT PAGE - INDEX page.

SUBTASK 31-65-00-710-012

- (32) Do these steps to check the brightness and contrast of the DU from the captain lighting control module:
- (a) Rotate OUTBD DU BRT/CONTRAST knob outer ring Counter-Clockwise (CCW) or Clockwise (CW).
 - (b) Make sure that LOB BRT CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate it CW.
 - (c) Rotate OUTBD DU BRT/CONTRAST inner knob CCW or CW.
 - (d) Make sure that LOB CONTRAST CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate it CW.
 - (e) Rotate INBD DU BRT/CONTRAST knob outer ring CCW or CW.
 - (f) Make sure that LIB BRT CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate CW.
 - (g) Rotate INBD DU BRT/CONTRAST inner knob CCW or CW.
 - (h) Make sure that LIB CONTRAST CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate CW.

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SUBTASK 31-65-00-710-013

- (33) Do these steps to check the brightness and contrast of the DU from the F/O lighting control module:
- (a) Rotate INBD DU BRT/CONTRAST knob outer ring CCW or CW.
 - (b) Make sure that RIB BRT CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate it CW.
 - (c) Rotate INBD DU BRT/CONTRAST inner knob CCW or CW.
 - (d) Make sure that RIB CONTRAST CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate it CW.
 - (e) Rotate OUTBD DU BRT/CONTRAST knob outer ring CCW or CW.
 - (f) Make sure that ROB BRT CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate it CW.
 - (g) Rotate OUTBD DU BRT/CONTRAST inner knob CCW or CW.
 - (h) Make sure that ROB CONTRAST CTRL (%) value changes.
NOTE: The value will decrease when you rotate the knob CCW or increase when you rotate it CW.

————— END OF TASK —————

 31-CMR-01

TASK 31-65-00-720-801

5. DPC Discrete Output and Engine Transfer Switch Check

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives instructions to do a check of the wiring between the Display Processing Computer (DPC) and these annunciators:
 - (a) Lights on the P5 overhead panel:
 - MAINT
 - REVERSER COMMAND
 - REVERSER AIR/GRD
 - REVERSER LIMITED
 - ENGINE CONTROL
 - ALTN
 - ENG ANTI-ICE
 - FILTER BYPASS
 - (b) Alert messages on the Multi Function Display (MFD):
 - OIL FILTER BYPASS
 - THRUST

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- (2) This task does a check of the annunciators by using one DPC at a time. If the annunciator(s) does not operate correctly, then there may be a latent failure of the discrete signals.
- (3) Do this task for both engines.

B. References

Reference	Title
31-65-00-860-801	Miscellaneous System Controls (MSC) Page Function (P/B 201)
46-13-02-700-802	Inbound Flight Deck Effects Check (P/B 201)
71-00-00-700-803-G00	Test No. 27 - Clear Engine SMT Message (P/B 501)
71-00-00-700-809-G00	Test No. 33 - Lamp Check Out Special Functions Test (P/B 501)

C. Location Zones

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

D. Prepare for the Test

SUBTASK 31-65-00-860-091

- (1) Set the GND TEST switch to the ENABLE position.

NOTE: This will cause the MAINT light to illuminate on the overhead panel.

SUBTASK 31-65-00-860-092

- (2) On the MFD, go to the Miscellaneous System Controls Page Function (TASK 31-65-00-860-801).
 - (a) Select TEST for the ENG 1 (ENG 2) EEC MAINT POWER.

E. DPC Discrete Output and Engine Transfer Switch Check

SUBTASK 31-65-00-860-122

- (1) Examine the DPC 1 discrete output.
 - (a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI

NOTE: The engines will go to ALTN mode and the ALTN indicator will illuminate on the overhead Engine EEC panel.

- (b) Make sure that the MAINT light is illuminated on the overhead panel.

NOTE: If the MAINT light is illuminated, there is wire continuity between DPC 1 and the MAINT light.

- (c) For the DPC 1, do the applicable steps in this task to check the EEC lights on both channel A and B. This is the task: Test No. 33 - Lamp Check Out Special Functions Test, TASK 71-00-00-700-809-G00.
 - 1) Make sure that these annunciator lights illuminate on the P5 overhead panel:
 - REVERSER COMMAND
 - REVERSER AIR/GRD
 - REVERSER LIMITED
 - ENGINE CONTROL

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- ALTN
 - ENG ANTI-ICE
 - FILTER BYPASS
- 2) Make sure that these alert messages show on the MFD:
- OIL FILTER BYPASS
 - THRUST

NOTE: If the annunciators come on, then there is wire continuity between the DPC 1 and the annunciators on the applicable channel.

- (d) Select STOP FUNCTION to stop the function.



MAKE SURE THAT YOU CLOSE THE CIRCUIT BREAKERS IN THE SPECIFIED SEQUENCE. IF YOU DO NOT CLOSE THEM IN THE SPECIFIED SEQUENCE, THE DPC CAN POSSIBLY BECOME CORRUPT AND A REPLACEMENT WILL BE NECESSARY.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

- 1) Wait a minimum of 45 seconds for the DPC 2 to power up.

NOTE: The engines will return to Normal operation and the ALTN light will extinguish once power returns to the DPC 2.

SUBTASK 31-65-00-860-123

- (2) Examine the DPC 2 discrete output.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP

NOTE: The engines will go to ALTN mode and the ALTN indicator will illuminate on the overhead Engine EEC panel.

- (b) Make sure that the MAINT light is illuminated on the overhead panel.

NOTE: If the MAINT light is illuminated, there is wire continuity between DPC 2 and the MAINT light.

- (c) For the DPC 2, do the applicable steps in this task to check the EEC lights on both channel A and B. This is the task: Test No. 33 - Lamp Check Out Special Functions Test, TASK 71-00-00-700-809-G00.

EFFECTIVITY
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- 1) Make sure that these annunciator lights illuminate on the P5 overhead panel:
 - REVERSER COMMAND
 - REVERSER AIR/GRD
 - REVERSER LIMITED
 - ENGINE CONTROL
 - ALTN
 - ENG ANTI-ICE
 - FILTER BYPASS
- 2) Make sure that these alert messages show on the MFD:
 - OIL FILTER BYPASS
 - THRUST

NOTE: If the annunciators come on, then there is wire continuity between the DPC 2 and the annunciators on the applicable channel.

- (d) Select STOP FUNCTION to stop the function.



CAUTION

MAKE SURE THAT YOU CLOSE THE CIRCUIT BREAKERS IN THE SPECIFIED SEQUENCE. IF YOU DO NOT CLOSE THEM IN THE SPECIFIED SEQUENCE, THE DPC CAN POSSIBLY BECOME CORRUPT AND A REPLACEMENT WILL BE NECESSARY.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

- 1) Wait a minimum of 45 seconds for the DPC 1 to power up.

NOTE: The engines will return to Normal operation and the ALTN light will extinguish once power returns to the DPC 1.

SUBTASK 31-65-00-860-133

- (3) Do a test of the ENG TFR button on the P9-82 panel.
 - (a) Push the ENG TFR button on the P9-82 Multi Function Panel (MFP).
 - 1) Make sure that the engine format transfers to the right inboard DU and the maintenance page disappears.
 - 2) Make sure that the systems format appear on the left inboard DU.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-125

- (1) Set the GND TEST switch to the NORM position.
- (2) If necessary, erase the C2 Scheduled Maintenance Task (SMT).

NOTE: The procedure may result in a C2 Scheduled Maintenance Task (SMT).

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- (a) Verify that the C2 SMT is correlated to Maintenance Messages 31-90011 or 31-90012. Do this task: Inbound Flight Deck Effects Check, TASK 46-13-02-700-802.
- (b) Erase the C2 SMT. Do this task: Test No. 27 - Clear Engine SMT Message, TASK 71-00-00-700-803-G00.
- (3) On the MFD, go to the Miscellaneous System Controls (MSC) Page Function (TASK 31-65-00-860-801.).
 - (a) Select NORM for the ENG 1 (ENG 2) EEC MAINT POWER.

————— END OF TASK —————

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TASK 31-65-00-720-802

6. Engine Anti-Ice Switch Operational Check

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the instructions to do an operational check of the ENG ANTI-ICE 1 (2) switch and its associated wiring to the Display Processing Computer (DPC).

B. References

Reference	Title
31-65-00-860-801	Miscellaneous System Controls (MSC) Page Function (P/B 201)

C. Location Zones

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

D. Prepare for the Test

SUBTASK 31-65-00-860-110

- (1) Make sure that the Network File Server (NFS) is operational.
 - (a) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-5

Row	Col	Number	Name
C	1	C01958	NETWORK FILE SERVER

SUBTASK 31-65-00-860-111

- (2) On the P61 Panel, set the GND TEST switch to the ENABLE position.

NOTE: This will cause the MAINT light to illuminate on the overhead panel.

SUBTASK 31-65-00-860-112

- (3) On the MAX Display System (MDS) Multi Function Display (MFD), go to the MISC SYSTEM CTRLS (MSC) page (TASK 31-65-00-860-801).
 - (a) Select TEST for the ENG 1 and ENG 2 EEC MAINT POWER.

E. Operational Check of the Engine Anti-Ice Switch

SUBTASK 31-65-00-860-113

- (1) Examine the condition of the ENG 1 ANTI-ICE SW OFF discrete signal.
 - (a) Set the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 switches in the OFF position.
 - 1) On the MDS MFD, go to the MAINT DATA PGS.

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- 2) Select 31 MDS > DPC DISCRETE/POWER INPUTS.
- 3) Go to page 10/19 - INSERT B.
- 4) Make sure that the DPC-1, pin D05 shows GND.
- 5) Make sure that the DPC-2, pin D05 shows GND.
- (b) Set the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 switches in the ON position.
NOTE: The COWL VALVE light will come ON when the switches are put to the ON position, the Master Caution light may also come ON.
 - 1) Make sure that the DPC-1, pin D05 shows OPEN.
 - 2) Make sure that the DPC-2, pin D05 shows OPEN.

SUBTASK 31-65-00-860-114

- (2) Examine the condition of the ENG 2 ANTI-ICE SW OFF discrete signal.
 - (a) Make sure that the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 switches are in the ON position.
 - 1) On the MDS MFD, go to the MAINT DATA PGS.
 - 2) Select 31 MDS > DPC DISCRETE/POWER INPUTS.
 - 3) Go to page 13/19 - INSERT E.
 - 4) Make sure that the DPC-1, pin A03 shows OPEN.
 - 5) Make sure that the DPC-2, pin A03 shows OPEN.
 - (b) Set the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 switches in the OFF position.
NOTE: The COWL VALVE light will come OFF when the switches are put to the OFF position.
 - 1) Make sure that the DPC-1, pin A03 shows GND.
 - 2) Make sure that the DPC-2, pin A03 shows GND.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-115

- (1) On the P61 Panel, set the GND TEST switch to the NORM position.

SUBTASK 31-65-00-860-116

- (2) On the MDS MFD, go back to the MAINT SELECT page.
 - (a) Go to the MISC SYSTEM CTRLS (MSC) page (TASK 31-65-00-860-801).
 - (b) Select NORM for the ENG 1 and ENG 2 EEC MAINT POWER.

———— **END OF TASK** ————

 31-CMR-03

TASK 31-65-00-720-803

7. PSEU Air/Ground Discrete Signal Operational Check

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the instructions to do an operational check of the PSEU's On-Ground and In-Air status, and its associated wiring to the Display Processing Computer (DPC).

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B. References

Reference	Title
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Location Zones

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

D. Prepare for the Test

SUBTASK 31-65-00-860-118

- (1) Make sure that the Network File Server (NFS) is operational.
 - (a) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-5

Row	Col	Number	Name
C	1	C01958	NETWORK FILE SERVER

E. Operational Check of the PSEU Air/Ground Discrete Signal

SUBTASK 31-65-00-860-119

- (1) Examine the On-Ground discrete signals.
 - (a) On the MAX Display System (MDS) Multi Function Display (MFD), go to the MAINT DATA PGS.
 - (b) Select 31 MDS > DPC DISCRETE INPUTS.
 - (c) Go to page 9/19 - INSERT A for the AIR/GND LOGIC SYS 1 (AIR).
 - 1) Make sure that the DPC-1, pin G10 shows GND.
 - 2) Make sure that the DPC-2, pin G10 shows GND.
 - (d) Go to page 10/19 - INSERT B for the AIR/GND LOGIC SYS 1 (GND).
 - 1) Make sure that the DPC-1, pin G10 shows GND.
 - 2) Make sure that the DPC-2, pin G10 shows GND.
 - (e) Go to page 12/19 - INSERT D for the AIR/GND LOGIC SYS 2 (AIR).
 - 1) Make sure that the DPC-1, pin G10 shows GND.
 - 2) Make sure that the DPC-2, pin G10 shows GND.
 - (f) Go to page 13/19 - INSERT E for the AIR/GND LOGIC SYS 2 (GND).
 - 1) Make sure that the DPC-1, pin G10 shows GND.
 - 2) Make sure that the DPC-2, pin G10 shows GND.

SUBTASK 31-65-00-860-120

- (2) Examine the In-Air discrete signals.
 - (a) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
 - (b) On the MDS MFD, go to the MAINT DATA PGS.
 - (c) Select 31 MDS > DPC DISCRETE OUTPUTS.
 - (d) Go to page 9/19 - INSERT A for the AIR/GND LOGIC SYS 1 (AIR).
 - 1) Make sure that the DPC-1, pin G10 shows OPEN.
 - 2) Make sure that the DPC-2, pin G10 shows OPEN.

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- (e) Go to page 10/19 - INSERT B for the AIR/GND LOGIC SYS 1 (GND).
 - 1) Make sure that the DPC-1, pin G10 shows OPEN.
 - 2) Make sure that the DPC-2, pin G10 shows OPEN.
- (f) Go to page 12/19 - INSERT D for the AIR/GND LOGIC SYS 2 (AIR).
 - 1) Make sure that the DPC-1, pin G10 shows OPEN.
 - 2) Make sure that the DPC-2, pin G10 shows OPEN.
- (g) Go to page 13/19 - INSERT E for the AIR/GND LOGIC SYS 2 (GND).
 - 1) Make sure that the DPC-1, pin G10 shows OPEN.
 - 2) Make sure that the DPC-2, pin G10 shows OPEN.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-121

- (1) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

————— **END OF TASK** —————

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TASK 31-65-00-720-804

8. Wheel Speed Discrete Signals Operational Check

A. General

- (1) This task gives the instruction to do an operational check of the 4 anti-skid (Wheel Speed) transducer discretes between the Antiskid/Autobrake Control Unit (AACU) and the Spoiler Control Electronics (SCE) unit.
 - (a) There are four anti-skid (wheel speed) transducers located on the outboard and inboard side of both the left and right MLGs which are monitored by the AACU. The AACU provides a wheel speed indication to the SCE.
 - (b) The wheel speed discretes are processed by the SCE and transmitted to the Display Processing Computers (DPCs) as ARINC-429 discrete signals.
 - (c) The DPCs then transmit the four wheel speed status to the Electronic Engine Control (EEC) via another ARINC-429 data bus where it is utilized in the EEC air/ground determination logic.
- (2) This test requires two (2) maintenance personnel:
 - One person is necessary to initiate the test on the front of the AACU located in the EE-Bay.
 - One person is necessary to observe the Wheel Speed display on the Multi Function Display (MFD).

B. References

Reference	Title
29-00-00-800-801	Hydraulic Power System - Deactivation (P/B 201)
46-13-02-700-805	Existing Faults Check (P/B 201)

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

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D. Prepare for the Test

SUBTASK 31-65-00-860-126

- (1) Make sure that the following Maintenance Messages are not present (TASK 46-13-02-700-805):
 - 27-01060 - LEFT OUTBOARD WHEEL SPEED SIGNAL DOES NOT AGREE WITH OTHER WHEEL SPEED SIGNALS | DETECTED BY: SPOILER CONTROL ELECTRONICS (SCE)
 - 27-01070 - LEFT INBOARD WHEEL SPEED SIGNAL DOES NOT AGREE WITH OTHER WHEEL SPEED SIGNALS | DETECTED BY: SPOILER CONTROL ELECTRONICS (SCE)
 - 27-01080 - RIGHT OUTBOARD WHEEL SPEED SIGNAL DOES NOT AGREE WITH OTHER WHEEL SPEED SIGNALS | DETECTED BY: SPOILER CONTROL ELECTRONICS (SCE)
 - 27-01090 - RIGHT INBOARD WHEEL SPEED SIGNAL DOES NOT AGREE WITH OTHER WHEEL SPEED SIGNALS | DETECTED BY: SPOILER CONTROL ELECTRONICS (SCE)
- (2) Make sure that the Speed Brake Lever is down.
- (3) Make sure that hydraulic power is off (TASK 29-00-00-800-801).
- (4) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. Operational Check of the AACU Wheel Speed Discrete Signal

SUBTASK 31-65-00-860-127

- (1) On the MAX Display System (MDS) MFD, go to the MAINT DATA PGS.
 - (a) Select 27 > FLIGHT CONTROL.
 - (b) Verify the WHL SPD display as:

WHL SPD

L/I < 60	L/O < 60
R/I < 60	R/O < 60

- All wheel speeds show < 60.

SUBTASK 31-65-00-860-128

- (2) Do a test of the INBD position.
 - (a) Get access to the AACU test panel in the Electronic Equipment Rack, E1.
 - (b) Move the TEST SELECTOR switch to the INBD position.
 - (c) Push the ENABLE/VERIFY button.
 - (d) Move and hold the toggle switch to the PRESS/TEST position.
 - (e) On the MFD, verify the WHL SPD display as:

WHL SPD

L/I > 60	L/O < 60
R/I > 60	R/O < 60

- The inboard L/I and R/I wheel speeds change from < 60 to > 60.
- The outboard L/O and R/O wheel speeds show < 60.

- (f) Release the ENABLE/VERIFY button and the PRESS/TEST switch.

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SUBTASK 31-65-00-860-129

- (3) Do a test of the OUTBD position.
- (a) Get access to the AACU test panel in the Electronic Equipment Rack, E1.
 - (b) Move the TEST SELECTOR switch to the OUTBD position.
 - (c) Push the ENABLE/VERIFY button.
 - (d) Move and hold the toggle switch to the PRESS/TEST position.
 - (e) On the MFD, verify the WHL SPD display as:

WHL SPD

L/I < 60	L/O > 60
R/I < 60	R/O > 60

- The inboard L/I and R/I wheel speeds show < 60.
 - The outboard L/O and R/O wheel speeds change from < 60 to > 60.
- (f) Release the ENABLE/VERIFY button and the PRESS/TEST switch.
 - (g) Make sure that there are no faults on the EIGHT CHARACTER DISPLAY of the AACU Front Panel.
 - (h) Move the TEST SELECTOR switch to the NORM position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-00-860-132

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

————— END OF TASK —————

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DISPLAY PROCESSING COMPUTER- MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) Display Processing Computer - Software Installation
- (2) Display Processing Computer - Download Shop Faults
- (3) Display Processing Computer - NVM Erase Function
- (4) Display Processing Computer - Replacement Test.
- (5) Display Processing Computer - Configuration Check

TASK 31-65-02-470-801

2. Display Processing Computer - Software Installation

A. **General**

- (1) This task gives instructions on how to install the Display Processing Computer (DPC) software with the Onboard Network System (ONS).
- (2) There are three loadable software parts for each display processing computer (DPC), DPC-1 and DPC-2. When you install the software, follow this order:
 - First: OPS
 - Second: OSS
 - Third: OMF DF
- (3) Record the Airplane Configuration Data (ACD) before the OPS software installation. This record may be needed in case the ACD needs to be reloaded.

SIA 001, 007-010; SIA 002-006 POST SB 737-31-1860

- (4) When installing new software or updating the ACD information, a status message will display in the MAX Display System (MDS) and the MAINT light will illuminate if DPC1 and DPC2 indicate different software part number or ACD information.

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B. **References**

Reference	Title
31-65-00-970-804	Airplane Config Data (ACD) Page Function (P/B 201)
46-13-00-470-801	LRU Software Parts Installation (P/B 201)

C. **Location Zones**

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

D. **Prepare for Software Installation**

SUBTASK 31-65-02-860-018

- (1) Make sure that the engine start levers on the control stand are in the CUTOFF position.

SUBTASK 31-65-02-860-013

- (2) If installing the Operational Program Software (OPS), record the ACD data. Do this task: Airplane Config Data (ACD) Page Function, TASK 31-65-00-970-804.

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CAUTION

MAKE SURE TO RECORD THE AIRPLANE CONFIGURATION DATA (ACD) BEFORE YOU INSTALL THE DPC OPS SOFTWARE. IF THE ACD IS NOT AVAILABLE, THIS CAN CAUSE A DELAY IN-FLIGHT OPERATIONS.

- (a) Do one of the following steps:
 - 1) Write down the following items in the space below from the ACD page in the MDS, MAINT CTRL PGS:
 - a) TAIL NUMBER _____
 - b) AIRLINE ID _____
 - c) SELCAL CODE _____
 - 2) Print the AIRPLANE CONFIG DATA (ACD) page if a printer is installed.
 - 3) Take a photo of the AIRPLANE CONFIG DATA (ACD) page.

E. Display Processing Computer - Software Installation

SUBTASK 31-65-02-860-014

- (1) To data load the DPC-1 computer, do these steps:
 - (a) On the P61 panel, turn the DATA LOAD SELECTOR switch to the L CAPT UPR position.
 - (b) On the P61 panel, turn the SYSTEM SELECT switch to the DPC position.
 - (c) On the P5-28 panel, turn the DISPLAYS SOURCE switch to the ALL ON 2 position.
 - (d) Go to step 3.

SUBTASK 31-65-02-860-015

- (2) To data load the DPC-2 computer, do these steps:
 - (a) On the P61 panel, turn the DATA LOAD SELECTOR switch to the R F/O LWR position.
 - (b) On the P61 panel, turn the SYSTEM SELECT switch to the DPC position.
 - (c) On the P5-28 panel, turn the DISPLAYS SOURCE switch to the ALL ON 1 position.

SUBTASK 31-65-02-470-004

- (3) To install the applicable software in the DPC computer, do this task: LRU Software Parts Installation, TASK 46-13-00-470-801.
 - (a) If installing the OPS, remember to load it first.

NOTE: Perform this step for a single DPC. Then proceed to the next step.

SUBTASK 31-65-02-750-002

- (4) Do this task to verify the software was loaded: Display Processing Computer - Configuration Check, TASK 31-65-02-750-801.

SUBTASK 31-65-02-470-001

- (5) Verify the ACD (TASK 31-65-00-970-804).
 - (a) If ACD is not present, add the previously recorded ACD or sync it from the other DPC.

SUBTASK 31-65-02-470-003

- (6) If loading DPC-2, go to step 2, install the software, verify the loaded software loaded, and verify the ACD.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-02-860-016

- (1) On the P61 panel, turn the SYSTEM SELECT switch to the NORMAL position.

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SUBTASK 31-65-02-860-020

- (2) On the P61 panel, turn the DATA LOAD SELECTOR switch to the SINGLE SYS position.

SUBTASK 31-65-02-860-017

- (3) On the P5-28 panel, turn the DISPLAYS SOURCE switch to the AUTO position.

————— END OF TASK —————

TASK 31-65-02-470-802

3. Display Processing Computer - Download Shop Faults

A. General

- (1) This procedure contains the steps to download shop faults from the Display Processing Computer (DPC)s.

NOTE: Shop faults for the DPC is one of two LRU Reports available through the Onboard Network System (ONS).

B. References

Reference	Title
31-65-00-970-804	Airplane Config Data (ACD) Page Function (P/B 201)
46-13-02-970-803	LRU Reports (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Display Processing Computer - Download Shop Faults

SUBTASK 31-65-02-860-006

- (1) Download the shop faults for the DPC. Do this task: LRU Reports, TASK 46-13-02-970-803.

SUBTASK 31-65-02-970-003

- (2) If the download from the ONS failed, make sure that there is not a leading space (blank character) in the ACD Tail Number (TASK 31-65-00-970-804).

————— END OF TASK —————

TASK 31-65-02-860-801

4. Display Processing Computer - NVM Erase Function

A. General

- (1) This task erases the nonvolatile memory (NVM) of the display processing computer (DPC).

B. References

Reference	Title
31-65-00-970-804	Airplane Config Data (ACD) Page Function (P/B 201)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)

C. Display Processing Computer - NVM Erase Function

SUBTASK 31-65-02-710-001

- (1) Run the DCP-1 or DPC-2 NVM Erase Function ground test (TASK 46-13-02-710-801).

SUBTASK 31-65-02-470-002

- (2) Restore the ACD data (TASK 31-65-00-970-804).

————— END OF TASK —————

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TASK 31-65-02-710-801

5. Display Processing Computer - Replacement Test

A. General

- (1) This task does a replacement test of the display.

B. References

Reference	Title
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)

C. Display Processing Computer Replacement Test

SUBTASK 31-65-02-710-002

- (1) Run the DPC-1 or DPC-2 Replacement Test (TASK 46-13-02-710-801).

————— END OF TASK —————

TASK 31-65-02-750-801

6. Display Processing Computer - Configuration Check

A. General

- (1) This procedure gives the steps to verify the Operational Program Software (OPS), Option Selection Software (OSS) and Onboard Maintenance Function Display Format (OMF DF) software installed in the Display Processing Computer (DPC).
- (2) The aircraft must be on the ground before you can install software.

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Procedure

SUBTASK 31-65-02-860-019

- (1) Make sure that the engine start levers on the control stand are in the CUTOFF position.

SUBTASK 31-65-02-710-003

- (2) Do a check of the DPC software:
- (a) Push the SYS button on the Multi-Function Display (MFD) Panel, P9-82.
 - (b) Select MAINT on the top right corner of the system page and push SEL button.
 - (c) Turn the SELECTOR knob to highlight the MAINT DATA PGS and push SEL button.
 - (d) Turn the SELECTOR knob to highlight 31 MDS DISPLAY and push SEL button.
 - (e) Turn the SELECTOR knob to highlight MDS CONFIGURATION and push SEL button.
 - 1) Record and make sure that the software part numbers are correct.
 - a) If a software part number is not correct, do this task: Display Processing Computer - Software Installation, TASK 31-65-02-470-801.

————— END OF TASK —————

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DISPLAY PROCESSING COMPUTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Display Processing Computer Removal
 - (2) Display Processing Computer Installation.
- B. The two display processing computers (DPCs), DPC-1 and DPC-2, are on the E3 electronic equipment rack, shelf No. 1, in the main equipment center.

TASK 31-65-02-000-801

2. Display Processing Computer Removal

(Figure 401)

A. General

- (1) This task provides the steps to remove a Display Processing Computer (DPC).
- (2) The display processing computer labeled as DPC-1 is also called DPC-L in some procedures or screens. Similarly, DPC-2 may also be referred to as DPC-R.

B. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 401)
20-40-12-400-803	Conductive Dust Cap and Connector Cover Installation (P/B 201)
31-65-00-970-804	Airplane Config Data (ACD) Page Function (P/B 201)
46-13-02-700-807	Shop Faults (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 31-65-02-970-001

- (1) Record the following airplane identification data from the AIRPLANE CONFIG DATA (ACD) page of the MAINT CTRL PGS (TASK 31-65-00-970-804):

NOTE: When loading the DPC OPS software to the replacement DPC, all stored NVM data on the ACD page will be cleared and must be re-entered on the ACD after loading the OPS software.

- (a) TAIL NUMBER (Registry)
- (b) AIRLINE ID (ACARS)
- (c) SELCAL CODE

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SUBTASK 31-65-02-970-002

- (2) If you plan to replace the display processing computer (DPC) [1], download the Shop Faults and save them to a portable device such as a laptop (TASK 46-13-02-700-807).

SUBTASK 31-65-02-040-001

- (3) Open these circuit breakers in the order specified:
- (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

- (b) Wait 20 seconds for the primary circuits to power down then proceed to next step.
- (c) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP

SUBTASK 31-65-02-010-001

- (4) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

F. Display Processing Computer Removal

SUBTASK 31-65-02-020-001



DO NOT LOOK INTO THE END OF A FIBER-OPTIC CABLE. THERE IS A RISK OF LASER RADIATION, WHICH YOU WILL NOT SEE. LASER RADIATION IS DANGEROUS FOR YOUR EYES.



DO NOT LIFT UP, OR MOVE SIDE-TO-SIDE, THE DISPLAY PROCESSING COMPUTER (DPC), DURING REMOVAL OR INSTALLATION. TOO MUCH FORCE OR MOVEMENT OF THE MOUNT CONNECTORS CAN CAUSE DAMAGE TO THE FIBER-OPTIC CONNECTIONS.



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (1) Remove the display processing computer (DPC) [1] (TASK 20-10-07-000-801).

SUBTASK 31-65-02-530-001

- (2) Before you place the display processing computer (DPC) [1] in an ESDS storage bag or box, do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-803.

————— END OF TASK —————

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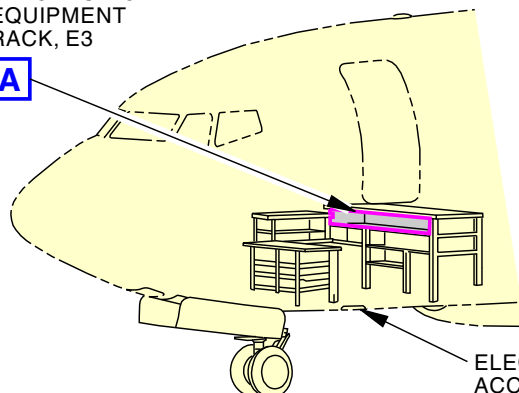
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ELECTRONIC
EQUIPMENT
RACK, E3

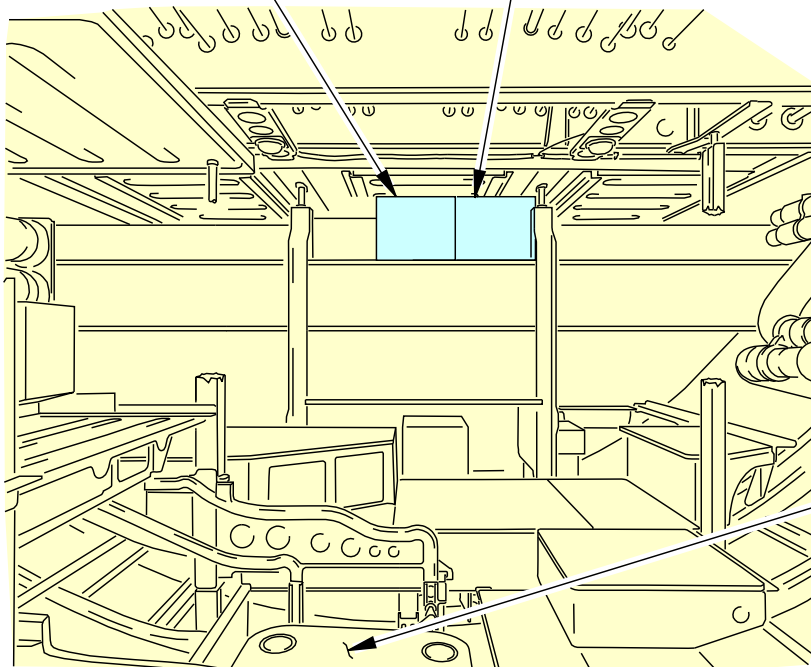
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ELECTRONIC EQUIPMENT
ACCESS DOOR, 117A

[1] DISPLAY
PROCESSING
COMPUTER UNIT 2
(E3-1)

[1] DISPLAY
PROCESSING
COMPUTER UNIT 1
(E3-1)



ELECTRONIC
EQUIPMENT
ACCESS DOOR, 117A

ELECTRONIC EQUIPMENT RACKS E2, E3 AND E4

A



FWD

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Display Processor Computer Installation
Figure 401/31-65-02-990-801

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TASK 31-65-02-400-801

3. Display Processing Computer Installation

(Figure 401)

A. General

- (1) This task installs a Display Processing Computer (DPC).
- (2) The display processing computer labeled as DPC-1 is also called DPC-L in some procedures or screens. Similarly, DPC-2 is also referred to as DPC-R.

B. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 401)
20-10-35-200-802	Fiber Optic Cable on a Module - Special Detailed Inspection (P/B 201)
20-40-12-000-803	Conductive Dust Cap and Connector Cover Removal (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
31-65-00-970-804	Airplane Config Data (ACD) Page Function (P/B 201)
31-65-02-470-801	Display Processing Computer - Software Installation (P/B 201)
31-65-02-750-801	Display Processing Computer - Configuration Check (P/B 201)
31-65-02-860-801	Display Processing Computer - NVM Erase Function (P/B 201)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
SWPM 20-12-20	BACC69A FIBER OPTIC CABLE ASSEMBLIES

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Display processing computer (DPC)	31-65-02-01-020	SIA ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Installation

SUBTASK 31-65-02-860-008

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C04024	DISPLAY DPC 2 HOLDUP

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI

SUBTASK 31-65-02-760-004

- (2) Before you touch the display processing computer (DPC) [1], do the procedure for devices that are sensitive to electrostatic discharge.
 - (a) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

G. Display Processing Computer Installation

SUBTASK 31-65-02-540-001



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (1) Remove the display processing computer (DPC) [1] from the ESDS storage bag or box.
 - (a) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-803.

SUBTASK 31-65-02-860-009



DO NOT LOOK INTO THE END OF A FIBER-OPTIC CABLE. THERE IS A RISK OF LASER RADIATION, WHICH YOU WILL NOT SEE. LASER RADIATION IS DANGEROUS FOR YOUR EYES.



ALWAYS USE GLOVES IF YOU MUST TOUCH BROKEN FIBER-OPTIC CABLES. IF YOU TOUCH CABLES WITH YOUR BARE HANDS, FIBERS CAN GO INTO YOUR BODY THROUGH YOUR SKIN. THIS WILL CAUSE YOU INJURY.



DO NOT PULL OR TWIST THE FIBER-OPTIC CABLE WITH A STRONG OR A SUDDEN FORCE. DAMAGE TO THE CABLE OR THE CONNECTOR CAN OCCUR.



MAKE SURE THAT THE FIBER-OPTIC CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.

- (2) Examine the fiber-optic connectors for damage and contamination:
 - (a) During a normal condition do these steps:
 - 1) For the inspection and cleaning of fiber-optic connector on the display processing computer (DPC) [1], do this task: Fiber Optic Cable on a Module - Special Detailed Inspection, TASK 20-10-35-200-802.
 - 2) For the inspection and cleaning of fiber-optic connector on the airplane side, refer to SWPM 20-12-20.

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- (b) During a limited condition, clean the fiber-optic connectors on the module and the airplane side:

NOTE: A limited condition is when the inspection of the fiber-optic connectors on the module (TASK 20-10-35-200-802) or SWPM 20-12-20 cannot be performed.

NOTE: During the limited condition, it is acceptable to only clean the fiber-optic connectors on the module (TASK 20-10-35-200-802) and SWPM 20-12-20: Clean with Dry Swab, Clean with Wet Swab, or Clean with Cartridge Pen. The inspection of the fiber-optic connectors can be deferred until the next maintenance opportunity. Be aware that dirty fiber-optic connectors can cause damage to the equipment.

- 1) Do the applicable steps to clean the fiber-optic connectors on the module.
- 2) Clean the fiber-optic connectors on the airplane side SWPM 20-12-20.
- 3) Make sure that each fiber-optic end face is cleaned a minimum of three times.

SUBTASK 31-65-02-400-001



CAUTION

DO NOT LIFT UP, OR MOVE SIDE-TO-SIDE, THE DISPLAY PROCESSING COMPUTER (DPC), DURING REMOVAL OR INSTALLATION. TOO MUCH FORCE OR MOVEMENT OF THE MOUNT CONNECTORS CAN CAUSE DAMAGE TO THE FIBER-OPTIC CONNECTIONS.

- (3) Install the display processing computer (DPC) [1] (TASK 20-10-07-400-801).

H. Display Processing Computer Installation Test

SUBTASK 31-65-02-860-010



CAUTION

MAKE SURE THAT YOU CLOSE THE CIRCUIT BREAKERS IN THE SPECIFIED SEQUENCE. IF YOU DO NOT CLOSE THEM IN THE SPECIFIED SEQUENCE, THE DPC CAN POSSIBLY BECOME CORRUPT AND A REPLACEMENT WILL BE NECESSARY.

- (1) Close these circuit breakers in the order specified.
- (a) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

SUBTASK 31-65-02-440-001

- (2) Wait at least three minutes for the MAX Display System (MDS) to complete its internal BITE after you apply power.
- (3) Push MFD SYS button on the P9-82 Multi-Function Panel (MFP).

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- (4) Push SEL button on the SELECTOR knob.
- (a) Make sure that there are no DPC faults shown on the MDS STATUS page.

SUBTASK 31-65-02-860-012

- (5) Do the software configuration check for the display processing computer (DPC) [1], as follows:

NOTE: For the display processing computer (DPC) [1] to be an approved installation, the correct software part numbers must be installed.

- (a) Make sure that you know the current software part number for the display processing computer (DPC) [1].
- (b) Check the display processing computer (DPC) [1] software configuration, do this task: Display Processing Computer - Configuration Check, TASK 31-65-02-750-801.
- (c) If the system software is not correct, install the correct software.
- 1) Record data from the ACD Page (e.g. TAIL NUMBER, AIRLINE ID, SELCAL CODE) until it can be verified or entered manually.
- 2) To install software, do this task: Display Processing Computer - Software Installation, TASK 31-65-02-470-801.

SUBTASK 31-65-02-400-002

- (6) Do the LRU Replacement Test for the applicable display processing computer (DPC) [1], do this task: Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801.

SUBTASK 31-65-02-070-001

- (7) Do the NVM Erase Function for the applicable display processing computer (DPC) [1], do this task: Display Processing Computer - NVM Erase Function, TASK 31-65-02-860-801.

SUBTASK 31-65-02-840-002

- (8) Restore the ACD data to the replacement display processing computer (DPC) [1] and the MDS, do this task: Airplane Config Data (ACD) Page Function, TASK 31-65-00-970-804.

SUBTASK 31-65-02-840-001

- (9) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

———— **END OF TASK** ————

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MULTIFUNCTION PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure contains these tasks:

- (1) Multifunction Panel (P9-82) Removal
- (2) Multifunction Panel (P9-82) Installation

B. The Multifunction Panel is installed between two Cockpit Display Units in the flight compartment.

TASK 31-65-03-000-801

2. Multifunction Panel (P9-82) Removal

A. **General**

- (1) This task has instructions to remove the Multifunction Panel (P9-82).

B. **Location Zones**

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Prepare for the Multifunction Panel (P9-82) Removal**

SUBTASK 31-65-03-860-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C04003	MULTI FUNCTION PANEL

D. **Multifunction Panel (P9-82) Removal**

SUBTASK 31-65-03-020-001

 CAUTION	DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.
---	--

- (1) Do these steps to remove the multifunction panel [1]:
 - (a) Loosen the four quarter-turn fasteners [2] from the multifunction panel [1].
 - (b) Remove the multifunction panel [1] from the console to get access to the electrical connectors.
 - (c) Disconnect the electrical connectors from the multifunction panel [1].

———— **END OF TASK** ————

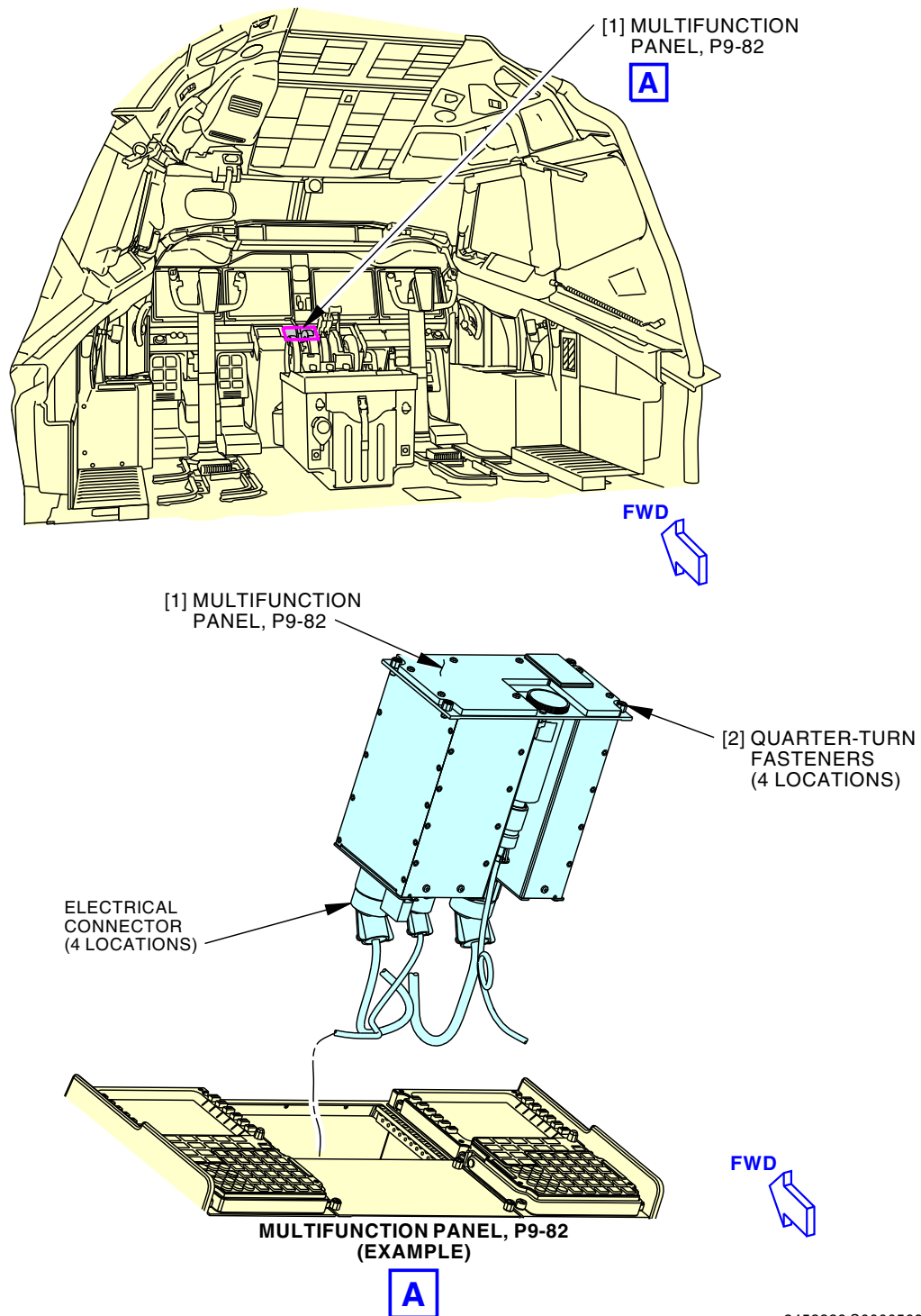
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MULTIFUNCTION PANEL (P9-82) INSTALLATION
Figure 401/31-65-03-990-801

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TASK 31-65-03-400-801

3. **Multifunction Panel (P9-82) Installation**

(Figure 401)

A. General

- (1) This task has instructions to install the Multifunction Panel (P9-82).

B. References

Reference	Title
21-27-00-800-802	Equipment Cooling System - Activation (P/B 201)
31-65-02-400-801	Display Processing Computer Installation (P/B 401)
31-65-11-400-801	MAX Display Unit Installation (P/B 401)
31-65-12-400-801	EFIS Control Panel Installation (P/B 401)
46-13-01-400-801	Network File Server Installation (P/B 401)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Multifunction panel	31-11-81-01-110	SIA ALL
		31-65-03-01-050	SIA ALL

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the Multifunction Panel (P9-82) Installation

SUBTASK 31-65-03-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	2	C04003	MULTI FUNCTION PANEL

F. Multifunction Panel (P9-82) Installation

SUBTASK 31-65-03-420-001

 CAUTION	DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.
---	--

- (1) Do these steps to install the multifunction panel [1]:
- (a) Connect the electrical connectors to the multifunction panel [1].
 - (b) Install the multifunction panel [1] to the console.
 - (c) Tighten the four quarter-turn fasteners [2] to install multifunction panel [1].

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G. Multifunction Panel (P9-82) Installation Test

SUBTASK 31-65-03-860-003

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C04003	MULTI FUNCTION PANEL

SUBTASK 31-65-03-860-005



COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

- (2) Do this task: Equipment Cooling System - Activation, TASK 21-27-00-800-802.

SUBTASK 31-65-03-420-002

- (3) If necessary, install the MAX display unit. (TASK 31-65-11-400-801)

SUBTASK 31-65-03-420-003

- (4) If necessary, install the Display Processor Computer (DPC). (TASK 31-65-02-400-801)

SUBTASK 31-65-03-420-004

- (5) If necessary, install the EFIS Control Panel. (TASK 31-65-12-400-801)

SUBTASK 31-65-03-420-005

- (6) If necessary, install the Network File Server (NFS). (TASK 46-13-01-400-801)

SUBTASK 31-65-03-860-006

- (7) Make sure that the AIR/GROUND SYSTEM (PSEU) shows the aircraft is on the ground.

SUBTASK 31-65-03-860-007

- (8) Set DISPLAYS SOURCE switch on the overhead panel to AUTO.

SUBTASK 31-65-03-860-008

- (9) Set DISPLAYS CONTROL PANEL switch on the overhead panel to NORMAL.

SUBTASK 31-65-03-860-009

- (10) Set MODE switch on the EFIS Control Panels to MAP.

SUBTASK 31-65-03-860-010

- (11) Make sure that the start levers are in the CUTOFF position.

SUBTASK 31-65-03-860-011

- (12) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	12	C04002	MAINT/BITE PANEL
E	13	C04031	DSP F/O EFIS CONT PNL

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C01958	NETWORK FILE SERVER

SUBTASK 31-65-03-860-012

- (13) Make sure that the DISPLAYS SOURCE 1 or DISPLAYS SOURCE 2 AMBER message is not displayed on the Lower Left of the PFD Format.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-03-860-013

- (14) Set DISPLAYS SOURCE switch on the overhead panel to ALL ON 1 (2).

SUBTASK 31-65-03-860-014

- (15) Make sure that the DISPLAY SOURCE 2 (1) AMBER message is displayed on the Lower Left of the PFD Format display.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-03-860-015

- (16) Press SYS button on the Multi-Function Panel (MFP).
- (a) Make sure that the System Page format is displayed.

SUBTASK 31-65-03-710-001

- (17) Do these steps to check the interface between both Display Processing Computers and the MFP:
- (a) Set FO SELECTOR outer ring knob on the MFP to C.
- (b) Rotate FO SELECTOR knob clockwise or counter-clockwise.
- 1) Make sure to move the cursor to DISPLAY button next to the 31 MDS caption on DISPLAY SELECTION page.
- (c) Press SEL on the FO SELECTOR knob.
- 1) Make sure to select DISPLAY button on the Multi-Function Display (MFD).
- (d) Make sure that the cursor displayed on the MFD is in the shape of Hollow "+".
- (e) Set CAPT SELECTOR outer ring knob on the MFP to C.
- (f) Rotate CAPT SELECTOR knob clockwise or counter-clockwise.
- 1) Make sure to move the cursor to the button next to the DISPLAYS caption on the MDS MAINT PAGE - INDEX page.

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- (g) Press SEL on the CAPT SELECTOR knob.
 - 1) Make sure to select the button on the MFD.
- (h) Make sure that the cursor displayed on the MFD is in the shape of Open Sight Cross hairs.

———— **END OF TASK** ————

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MULTIFUNCTION PANEL - ADJUSTMENT/TEST

1. General

A. This procedure contains this task:

- (1) Multifunction Panel (P9-82) - Operational Test

TASK 31-65-03-710-801

2. Multifunction Panel (P9-82) - Operational Test

A. **General**

- (1) This test makes sure the Multi-Function Panel (P9-82) operates properly.

NOTE: This operational test will check the interface between the Display Processing Computers and Multi-Function Panel.

B. **References**

Reference	Title
21-27-00-800-802	Equipment Cooling System - Activation (P/B 201)
24-22-00-860-801	Supply Electrical Power (P/B 201)
31-65-02-400-801	Display Processing Computer Installation (P/B 401)
31-65-11-400-801	MAX Display Unit Installation (P/B 401)
31-65-12-400-801	EFIS Control Panel Installation (P/B 401)
46-13-01-400-801	Network File Server Installation (P/B 401)

C. **Location Zones**

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

D. **Prepare for the Procedure**

SUBTASK 31-65-03-860-017

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 31-65-03-860-018



CAUTION

COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

- (2) Do this task: Equipment Cooling System - Activation, TASK 21-27-00-800-802.

SUBTASK 31-65-03-420-006

- (3) If necessary, install the MAX display unit. (TASK 31-65-11-400-801)

SUBTASK 31-65-03-420-007

- (4) If necessary, install the Display Processor Computer (DPC). (TASK 31-65-02-400-801)

SUBTASK 31-65-03-420-008

- (5) If necessary, install the EFIS Control Panel. (TASK 31-65-12-400-801)

SUBTASK 31-65-03-860-019

- (6) If necessary, install the Network File Server (NFS). (TASK 46-13-01-400-801)

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SUBTASK 31-65-03-860-020

- (7) Make sure the AIR/GROUND SYSTEM (PSEU) shows the aircraft is on the ground.

SUBTASK 31-65-03-860-021

- (8) Set DISPLAYS SOURCE switch on the overhead panel to AUTO.

SUBTASK 31-65-03-860-022

- (9) Set DISPLAYS CONTROL PANEL switch on the overhead panel to NORMAL.

SUBTASK 31-65-03-860-023

- (10) Set MODE switch on the EFIS Control Panels to MAP.

SUBTASK 31-65-03-860-024

- (11) Make sure that the Engine Start Levers are in the CUTOFF position.

SUBTASK 31-65-03-860-025

- (12) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	2	C04003	MULTI FUNCTION PANEL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	12	C04002	MAINT/BITE PANEL
E	13	C04031	DSP F/O EFIS CONT PNL

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C01958	NETWORK FILE SERVER

SUBTASK 31-65-03-860-026

- (13) Make sure that the DISPLAYS SOURCE 1 or DISPLAYS SOURCE 2 AMBER message is not displayed on the Lower Left of the PFD Format.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-03-860-027

- (14) Set DISPLAYS SOURCE switch on the overhead panel to ALL ON 1 (2).

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SUBTASK 31-65-03-860-028

- (15) Make sure that the DISPLAY SOURCE 2 (1) AMBER message is displayed on the Lower Left of the PFD Format display.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-03-860-029

- (16) Press SYS button on the Multi-Function Panel (MFP).
- (a) Make sure that the System Page format is displayed.

E. Procedure

SUBTASK 31-65-03-710-002

- (1) Do these steps to check the interface between both Display Processing Computers and the MFP:
- (a) Set FO SELECTOR outer ring knob on the MFP to C.
- (b) Rotate FO SELECTOR knob clockwise or counter-clockwise.
- 1) Make sure to move the cursor to DISPLAY button next to the 31 MDS caption on DISPLAY SELECTION page.
- (c) Press SEL button on FO SELECTOR knob.
- 1) Make sure to select DISPLAY button on the Multi-Function Display (MFD).
- (d) Make sure the cursor displayed on the MFD is in the shape of Hollow "+".
- (e) Select button next to the DPC DISCRETE/POWER INPUTS caption on the MDS MAINT PAGE - INDEX page.
- (f) Select NEXT PAGE button on the menu bar on the MDS MAINT - INDEX page.
- 1) Make sure INSERT B page displayed.
- (g) Set the DISPLAY SOURCE switch to ALL ON 1 (2).
- 1) Refer to the state of the pins in Table 501 on INSERT B page.

Table 501/31-65-03-993-801 Display Processing Computer (DPC) Pin State

PIN	DPC 1	DPC 2
A11	OPEN	GND
D11	OPEN	OPEN
F9	GND	OPEN

NOTE: Check the DPC 1 pin state when the DISPLAY SOURCE switch has been set to ALL ON 1. Check the DPC 2 pin state when the DISPLAY SOURCE switch has been set to ALL ON 2.

- (h) Select PREV MENU button on the menu bar at the bottom of INSERT B page.
- (i) Set CAPT SELECTOR outer ring knob on the MFP to C.
- (j) Rotate CAPT SELECTOR knob clockwise or counter-clockwise.
- 1) Make sure to move the cursor to the button next to the DISPLAYS caption on the MDS MAINT PAGE - INDEX page.
- (k) Press SEL button on the CAPT SELECTOR knob.
- 1) Make sure to select the button on the MFD.
- (l) Make sure the cursor displayed on the MFD is in the shape of Open Sight Cross hairs.

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- (m) Set the DISPLAY SOURCE switch to ALL ON 1.
- (n) Make sure the following occurs for DPC 1 on the MDS MAINT PAGE - DISPLAYS page:
- DPC 1 status shows GREEN and ACTIVE
 - A429 bus status shows GREEN and ACTIVE
 - FIBER X-TALK bus status shows GREEN and ACTIVE
 - Right Inputs on each Display Unit status shows White
 - DPC 2 - L and DPC 2 - R outputs 1-4 status shows White
- (o) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI

NOTE: The DISPLAYS SOURCE 2 fail message will remain on the Lower Left of the PFD Format.

- (p) Make sure the following occurs for DPC 2 on the MDS MAINT PAGE - DISPLAYS page:
- DPC 2 - R status show FAILED
 - DPC 2 - L status for A429 X - TALK show INACTIVE
 - DPC 2 - R status for A429 X -TALK show blank
 - FIBER X - TALK buses between DPC 1 and DPC 2 status show white
 - Right Inputs on each Display Unit show AMBER
 - CAPT PFD/MFD status show NORM
 - DISPLAYS SOURCE status show ALL ON 1
 - EFIS CP SOURCE status show NORMAL
 - F/O PFD/MFD status show NORM
- (q) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI

NOTE: The DPC may take up to a minute to go through its Power Up BITE routine.

- (r) Set the DISPLAY SOURCE switch to ALL ON 2.
- (s) Make sure the following occurs for DPC 2 on the MDS MAINT PAGE - DISPLAYS page:
- DPC 2 - R status show GREEN and ACTIVE
 - A429 status show GREEN and ACTIVE
 - FIBER X-TALK status show GREEN and ACTIVE
 - Left Inputs on each Display Unit status show White
 - DPC 1 - L and DPC 1 - R outputs 1-4 status show White

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- (t) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP

NOTE: The DISPLAYS SOURCE 1 fail message will remain on the Lower Left of the PFD Format.

- (u) Make sure the following occurs for DPC 1 on the MDS MAINT PAGE - DISPLAYS page:

- DPC 1 - L status box show FAILED
- DPC 1 - R status for A429 X-TALK show INACTIVE
- DPC 1 - L status for A429 X -TALK show blank
- FIBER X - TALK bus between DPC 1 and DPC 2 show white
- Light Inputs on each Display Unit show AMBER
- CAPT PFD/MFD status show NORM
- DISPLAYS SOURCE status show ALL ON 2
- EFIS CP SOURCE status show NORMAL
- F/O PFD/MFD status show NORM

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C04022	DISPLAY DPC 1 HOLDUP

NOTE: The DPC may take up to a minute to go through its Power Up BITE routine.

- (w) Make sure the following occurs for DPC 1 on the MDS MAINT PAGE - DISPLAYS page:

- DPC 1 - L status show GREEN and ACTIVE
- A429 status show GREEN and ACTIVE
- FIBER X - TALK status show GREEN and ACTIVE
- Left Inputs on each Display Unit status show White
- DPC 1 - L outputs 1-4 status show White

- (x) Select PREV MENU on the menu bar on the bottom of the MDS MAINT PAGE - DISPLAYS page.

- (y) Set the DISPLAY SOURCE switch to AUTO.

———— **END OF TASK** ————

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MAINTENANCE BITE PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure contains these tasks:
- (1) Maintenance Bite Panel Removal.
 - (2) Maintenance Bite Panel Installation.
- B. The Maintenance Bite Panel (P61-4) is installed in the Aft Flight Compartment.

TASK 31-65-04-000-801

2. Maintenance Bite Panel Removal

(Figure 401)

A. General

- (1) This task has instructions to remove the Maintenance Bite Panel.

B. Location Zones

Zone	Area
------	------

212	Flight Compartment - Right
-----	----------------------------

C. Prepare for the Maintenance Bite Panel Removal

SUBTASK 31-65-04-860-001

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	12	C04002	MAINT/BITE PANEL

D. Maintenance Bite Panel Removal

SUBTASK 31-65-04-000-001

- (1) If it is necessary, do these steps to remove the protective cap [5]:
 - (a) Remove the upper left corner bolt [4].
 - (b) Remove the protective cap [5] from the Ethernet port.

SUBTASK 31-65-04-020-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (2) Do these steps to remove the P61-4 maintenance/BITE panel [1]:
 - (a) Loosen the four quarter-turn fasteners [2].
 - (b) Remove the P61-4 maintenance/BITE panel [1] from the rack to get access to the electrical connector.
 - (c) Disconnect the electrical connector from the P61-4 maintenance/BITE panel [1].

———— **END OF TASK** ————

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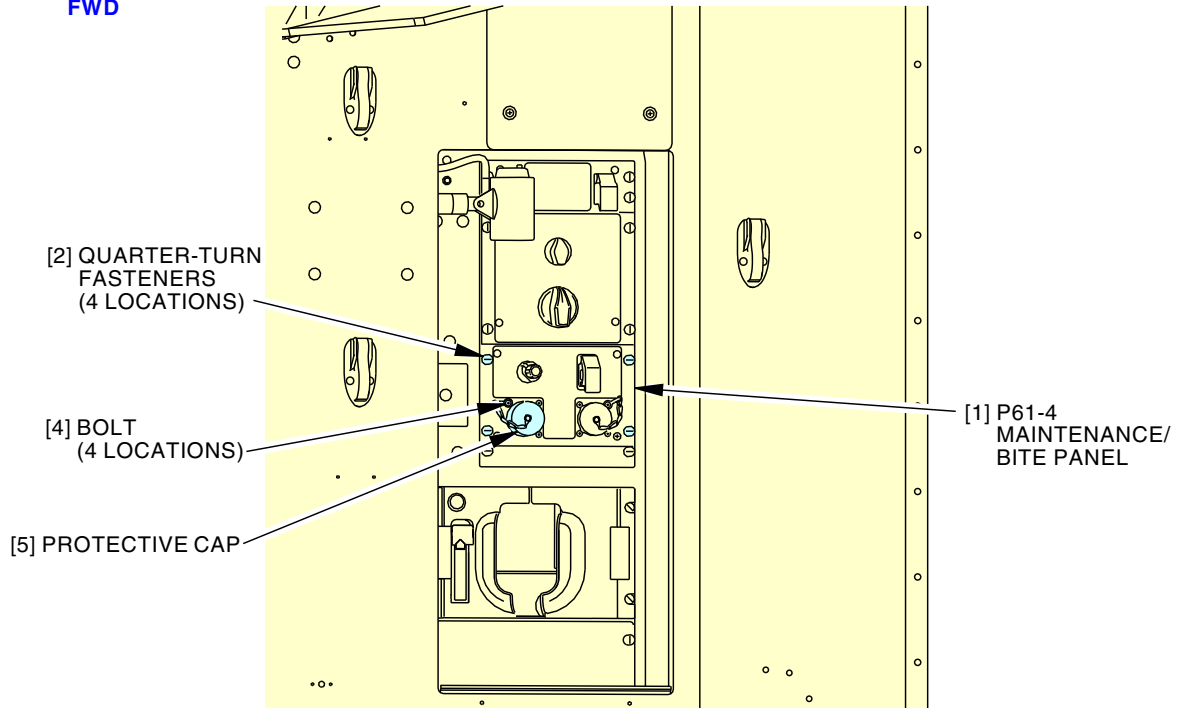
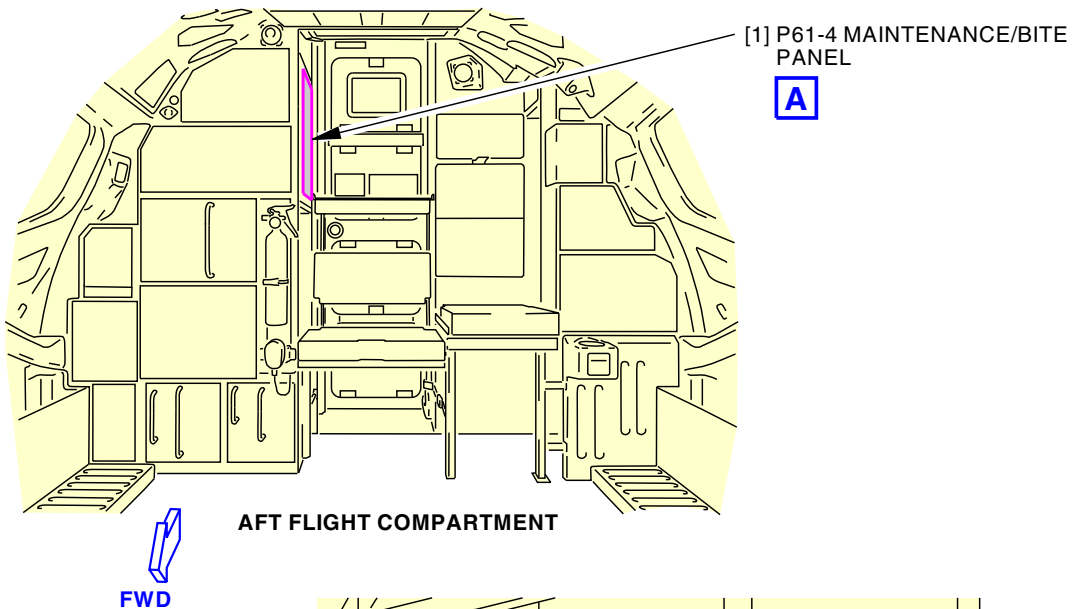
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P61-4 MAINTENANCE/BITE PANEL

A

2452151 S0000569189_V3

MAINTENANCE BITE PANEL (P61-4) INSTALLATION
Figure 401/31-65-04-990-801

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TASK 31-65-04-400-801

3. Maintenance Bite Panel Installation

(Figure 401)

A. General

- (1) This task has instructions to install the Maintenance Bite Panel.

B. References

Reference	Title
21-27-00-800-802	Equipment Cooling System - Activation (P/B 201)
31-65-02-400-801	Display Processing Computer Installation (P/B 401)
31-65-11-400-801	MAX Display Unit Installation (P/B 401)
31-65-12-400-801	EFIS Control Panel Installation (P/B 401)
46-13-01-400-801	Network File Server Installation (P/B 401)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	P61-4 maintenance/BITE panel	31-65-04-01-010	SIA ALL

D. Location Zones

Zone	Area
212	Flight Compartment - Right

E. Prepare for the Maintenance Bite Panel Installation

SUBTASK 31-65-04-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	12	C04002	MAINT/BITE PANEL

F. Maintenance Bite Panel Installation

SUBTASK 31-65-04-420-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (1) Do these steps to install the P61-4 maintenance/BITE panel [1]:
- Connect the electrical connector to the P61-4 maintenance/BITE panel [1].
 - Install the P61-4 maintenance/BITE panel [1] into the rack.
 - Tighten the four quarter-turn fasteners [2] to install the P61-4 maintenance/BITE panel [1].

SUBTASK 31-65-04-410-001

- (2) If it is necessary, do these steps to install the protective cap [5]:
- Install the protective cap [5] on the Ethernet port.
 - Install the upper left corner bolt [4].
 - Torque the bolt [4] to 8 ± 1 in-lb (1 ± 0 N·m).

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G. Maintenance Bite Panel Installation Test

SUBTASK 31-65-04-860-003

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	12	C04002	MAINT/BITE PANEL

SUBTASK 31-65-04-860-005



COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

- (2) Do this task: Equipment Cooling System - Activation, TASK 21-27-00-800-802.

SUBTASK 31-65-04-420-002

- (3) If necessary, install the MAX display unit. (TASK 31-65-11-400-801)

SUBTASK 31-65-04-420-003

- (4) If necessary, install the Display Processor Computer (DPC). (TASK 31-65-02-400-801)

SUBTASK 31-65-04-420-004

- (5) If necessary, install the EFIS Control Panel. (TASK 31-65-12-400-801)

SUBTASK 31-65-04-420-005

- (6) If necessary, install the Network File Server (NFS). (TASK 46-13-01-400-801)

SUBTASK 31-65-04-860-006

- (7) Make sure the AIR/GROUND SYSTEM (PSEU) shows the aircraft is on the ground.

SUBTASK 31-65-04-860-007

- (8) Set DISPLAYS SOURCE switch on the FWD Overhead Panel, P5, to AUTO.

SUBTASK 31-65-04-860-008

- (9) Set DISPLAYS CONTROL PANEL switch on the FWD Overhead Panel to NORMAL.

SUBTASK 31-65-04-860-009

- (10) Set MODE switch on the EFIS Control Panels, P7, to MAP.

SUBTASK 31-65-04-860-010

- (11) Make sure that the Start Levers are in the CUTOFF position.

SUBTASK 31-65-04-860-011

- (12) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	2	C04003	MULTI FUNCTION PANEL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	13	C04031	DSP F/O EFIS CONT PNL

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C01958	NETWORK FILE SERVER

SUBTASK 31-65-04-860-012

- (13) Make sure that the DISPLAYS SOURCE 1 or DISPLAYS SOURCE 2 AMBER message is not displayed on the Lower Left of the PFD Format.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-04-860-013

- (14) Set DISPLAYS SOURCE switch on the FWD Overhead Panel to ALL ON 1 (2).

SUBTASK 31-65-04-860-014

- (15) Make sure that the DISPLAY SOURCE 2 (1) AMBER message is displayed on the Lower Left of the PFD Format display.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-04-860-015

- (16) Press SYS button on the Multi-Function Panel (MFP), P9.
(a) Make sure that the System Page format is displayed.

SUBTASK 31-65-04-710-001

- (17) Do these steps to check the interface between both Display Processing Computer(s) and the Maintenance Bite Panel:
- Set MAINT SELECTOR outer ring knob on the Maintenance Bite Panel to L (R).
 - Rotate MAINT SELECTOR knob clockwise or counter-clockwise.
 - Make sure to move the cursor to MAINT button on the Multi-Function Display (MFD).
 - Press SEL on the MAINT SELECTOR knob.
 - Make sure to select MAINT button on the MFD.
 - Make sure the cursor displayed on the MFD is in the shape of Crossed Wrenches.

———— **END OF TASK** ————

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MAINTENANCE BITE PANEL - ADJUSTMENT/TEST

1. General

A. This procedure contains this task:

- (1) Maintenance Bite Panel - Operational Test

TASK 31-65-04-710-801

2. Maintenance Bite Panel - Operational Test

A. **General**

- (1) This test makes sure the Maintenance Bite Panel operates properly.

NOTE: This operational test will check the interface between the Display Processing Computers and the Maintenance Bite Panel.

B. **References**

Reference	Title
21-27-00-800-802	Equipment Cooling System - Activation (P/B 201)
24-22-00-860-801	Supply Electrical Power (P/B 201)
31-65-02-400-801	Display Processing Computer Installation (P/B 401)
31-65-11-400-801	MAX Display Unit Installation (P/B 401)
31-65-12-400-801	EFIS Control Panel Installation (P/B 401)
46-13-01-400-801	Network File Server Installation (P/B 401)

C. **Location Zones**

Zone	Area
212	Flight Compartment - Right

D. **Prepare for the Procedure**

SUBTASK 31-65-04-860-017

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 31-65-04-860-018



CAUTION

COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

- (2) Do this task: Equipment Cooling System - Activation, TASK 21-27-00-800-802.

SUBTASK 31-65-04-420-006

- (3) If necessary, install the MAX display unit. (TASK 31-65-11-400-801)

SUBTASK 31-65-04-420-007

- (4) If necessary, install the Display Processor Computer (DPC). (TASK 31-65-02-400-801)

SUBTASK 31-65-04-420-008

- (5) If necessary, install the EFIS Control Panel. (TASK 31-65-12-400-801)

SUBTASK 31-65-04-420-009

- (6) If necessary, install the Network File Server (NFS). (TASK 46-13-01-400-801)

SUBTASK 31-65-04-860-019

- (7) Make sure the AIR/GROUND SYSTEM (PSEU) shows the aircraft is on the ground.

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SUBTASK 31-65-04-860-020

- (8) Set DISPLAYS SOURCE switch on the overhead panel to AUTO.

SUBTASK 31-65-04-860-021

- (9) Set DISPLAYS CONTROL PANEL switch on the overhead panel to NORMAL.

SUBTASK 31-65-04-860-022

- (10) Set MODE switch on the EFIS Control Panels to MAP.

SUBTASK 31-65-04-860-023

- (11) Make sure that the Engine Start Levers are in the CUTOFF position.

SUBTASK 31-65-04-860-024

- (12) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	2	C04003	MULTI FUNCTION PANEL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	12	C04002	MAINT/BITE PANEL
E	13	C04031	DSP F/O EFIS CONT PNL

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C01958	NETWORK FILE SERVER

SUBTASK 31-65-04-860-025

- (13) Make sure that the DISPLAYS SOURCE 1 or DISPLAYS SOURCE 2 AMBER message is not displayed on the Lower Left of the PFD Format.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-04-860-026

- (14) Set DISPLAYS SOURCE switch on the overhead panel to ALL ON 1 (2).

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SUBTASK 31-65-04-860-027

- (15) Make sure that the DISPLAY SOURCE 2 (1) AMBER message is displayed on the Lower Left of the PFD Format display.

NOTE: The PFD Format display is below the Airspeed Tape.

SUBTASK 31-65-04-860-028

- (16) Press SYS button on the Multi-Function Panel (MFP).
- (a) Make sure that the System Page format is displayed.

E. Procedure

SUBTASK 31-65-04-710-002

- (1) Do these steps to check the interface between Display Processing Computers and Maintenance Bite Panel:
- (a) Set MAINT SELECTOR outer ring knob on the Maintenance Bite Panel to L (R).
 - (b) Rotate MAINT SELECTOR knob clockwise or counter-clockwise.
 - 1) Make sure to move the cursor to MAINT button on the menu bar located at the top of the Systems page.
 - (c) Press SEL on MAINT SELECTOR knob.
 - 1) Make sure to select MAINT button on Multi-Function Display (MFD).
 - (d) Make sure cursor displayed on MFD is in the shape of Crossed Wrenches.
 - (e) Select ONBD MAINT button from the Maintenance Menu Bar located at the top of the Status Messages Page.
 - (f) Select LINE MAINT button from the Maintenance Menu bar on the 2nd menu bar at the top of the Status Messages Page.
 - (g) Select GROUND TESTS button from the drop down menu bar.
 - (h) Select 31 - Indicating Systems in the Select ATA System Box.
 - (i) Select LRU REPLACEMENT TEST button on the Select Test Type Menu bar of the GROUND TESTS page.
 - (j) Select DPC 2 (1) Replacement Test in the Select System Test Box.
 - (k) Select CONTINUE button on the menu bar located the bottom of the GROUND TESTS page.
 - (l) Set GND TEST switch on the Maintenance Bite Panel to ENABLE.
 - (m) Select CONTINUE button on the menu bar located on the bottom of the GROUND TESTS page.
 - (n) Select START TEST button on the GROUND TESTS page.

NOTE: The Display Processing Computer (DPC) will go into BITE test, briefly displaying a Ground Test Started message, followed 15 to 20 seconds later by a progress screen.

 - 1) Make sure the DPC 2 (1) BITE Test Condition display Pass.
 - (o) Select NEW TEST button on the menu bar located at the bottom of the GROUND TESTS page.
 - (p) Select SYSTEM TEST button in the Select Test Type Menu on the GROUND TESTS page.
 - (q) Select DPC 2 (1) MAINT Light Test in the Select System Test box.

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- (r) Select CONTINUE button on the menu bar on the GROUND TESTS page.
- (s) Select CONTINUE button again on the menu bar on the GROUND TESTS page.
- (t) Select START TEST button on the GROUND TESTS page.
 - 1) Make sure that the DPC 2 (1) MAINT Light Test condition display Pass.
- (u) Select NEW TEST button in the Select Test Type Menu on the bottom of the GROUND TESTS page.
- (v) Select DPC 1 (2) MAINT Light Test in the Select System Test Box.
- (w) Select CONTINUE button on the menu bar on the GROUND TESTS page.
- (x) Select CONTINUE button again on the menu bar on the GROUND TESTS page.
- (y) Select START TEST button on the GROUND TESTS page.
 - 1) Make sure that the DPC 1 (2) MAINT Light Test condition display Pass.
- (z) Select NEW TEST button on the menu bar located at the bottom of the GROUND TESTS page.
- (aa) Set GND TEST switch on the Maintenance Bite Panel to NORM.
- (ab) Select MAINT DATA PGS button on the menu bar located at the top of the GROUND TESTS page.

———— **END OF TASK** ————

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DISPLAY UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Display Unit Removal
 - (2) Display Unit Installation
- B. The four display units are located in the forward instrument panel.

TASK 31-65-11-000-801

2. MAX Display Unit Removal

(Figure 401)

A. General

- (1) This procedure contains the steps to remove the display unit [1].
- (2) The removal procedure is the same for all four displays.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
20-40-12-400-803	Conductive Dust Cap and Connector Cover Installation (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

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

D. Prepare for the Removal

SUBTASK 31-65-11-860-001

- (1) For the applicable display unit open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD

SUBTASK 31-65-11-860-009

- (2) Open these circuit breakers in the order specified:
- (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	5	C04023	DISPLAY DPC 1 PRI

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

- (b) Wait 20 seconds for the primary circuits to power down then proceed to next step.
- (c) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP

SUBTASK 31-65-11-860-007



WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM FLIGHT CONTROL SURFACES. THE ACCIDENTAL ACTIVATION OF THE FLIGHT CONTROL SURFACES CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (3) Do this task to remove hydraulic power from the flight controls: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-65-11-910-001

- (4) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

E. MAX Display Unit Removal

SUBTASK 31-65-11-010-002

- (1) If necessary, remove the lower panel from the glareshield for the left and right outboard display unit [1].

SUBTASK 31-65-11-000-001

- (2) Do these steps to remove the display unit [1]:
 - (a) Loosen the two captive screws [5] on the handles [2] at either side of the display unit [1].
 - (b) Pull the two handles [2] to approximately 90 degrees from the face of the display unit [1].
 - (c) For the left and right outboard display unit [1] loosen the two captive screws [5] on the outboard handles [2] of the adjacent display unit [1].

NOTE: This is to get clearance to remove the display unit [1].

- (d) Loosen the four captive screws [3] that attach the display unit [1] to the front panel.



CAUTION

CAREFULLY PULL OUT THE DISPLAY UNIT TO GET ACCESS TO THE ELECTRICAL AND FIBER-OPTIC CONNECTORS. DAMAGE TO THE CONNECTORS AND WIRE OR FIBER BUNDLES COULD OCCUR IF THE UNIT IS PULLED OUT TOO FAR.

- (e) Use the two handles [2] to pull the display unit [1] from the front panel.



WARNING

DO NOT LOOK INTO THE END OF A FIBER-OPTIC CABLE. THERE IS A RISK OF LASER RADIATION, WHICH YOU WILL NOT SEE. LASER RADIATION IS DANGEROUS FOR YOUR EYES.

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(WARNING PRECEDES)



CAUTION

DO NOT PULL OR TWIST THE FIBER-OPTIC CABLE WITH A STRONG OR A SUDDEN FORCE. DAMAGE TO THE CABLE OR THE CONNECTOR CAN OCCUR.



CAUTION

INSTALL THE PROTECTIVE CAPS IMMEDIATELY AFTER YOU DISCONNECT THE CABLE. IT IS EASY TO CAUSE DAMAGE TO THE FIBER-OPTIC CABLE.



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY UNIT. A ELECTROSTATIC DISCHARGE CAN OCCUR AND DAMAGE THE DISPLAY UNIT.

- (f) Disconnect the electrical connector [6] and the fiber optic cable connector [4] from the rear of the display unit [1].
- (g) Install conductive dust cap and connector covers on the electrical and fiber-optic connectors (TASK 20-40-12-400-803).
- (h) Fold the handles [2] against the display unit [1].
- (i) Tighten the two hold-down, captive screws [5] on each of the handles [2] of the display unit [1].

————— **END OF TASK** —————

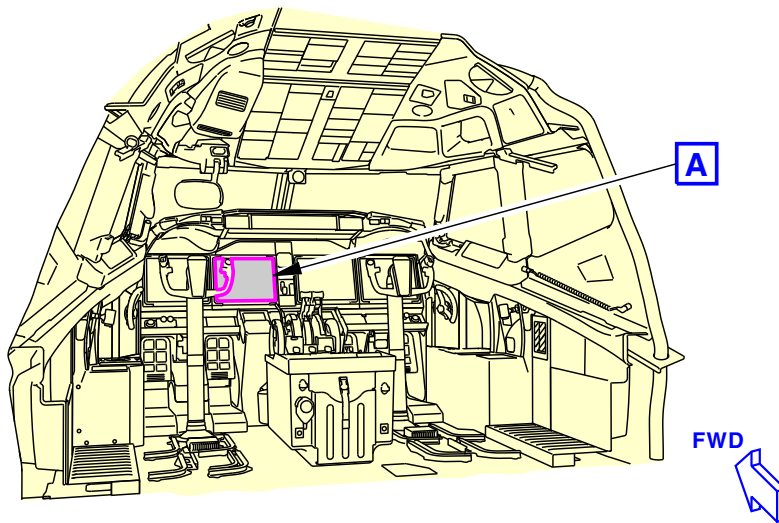
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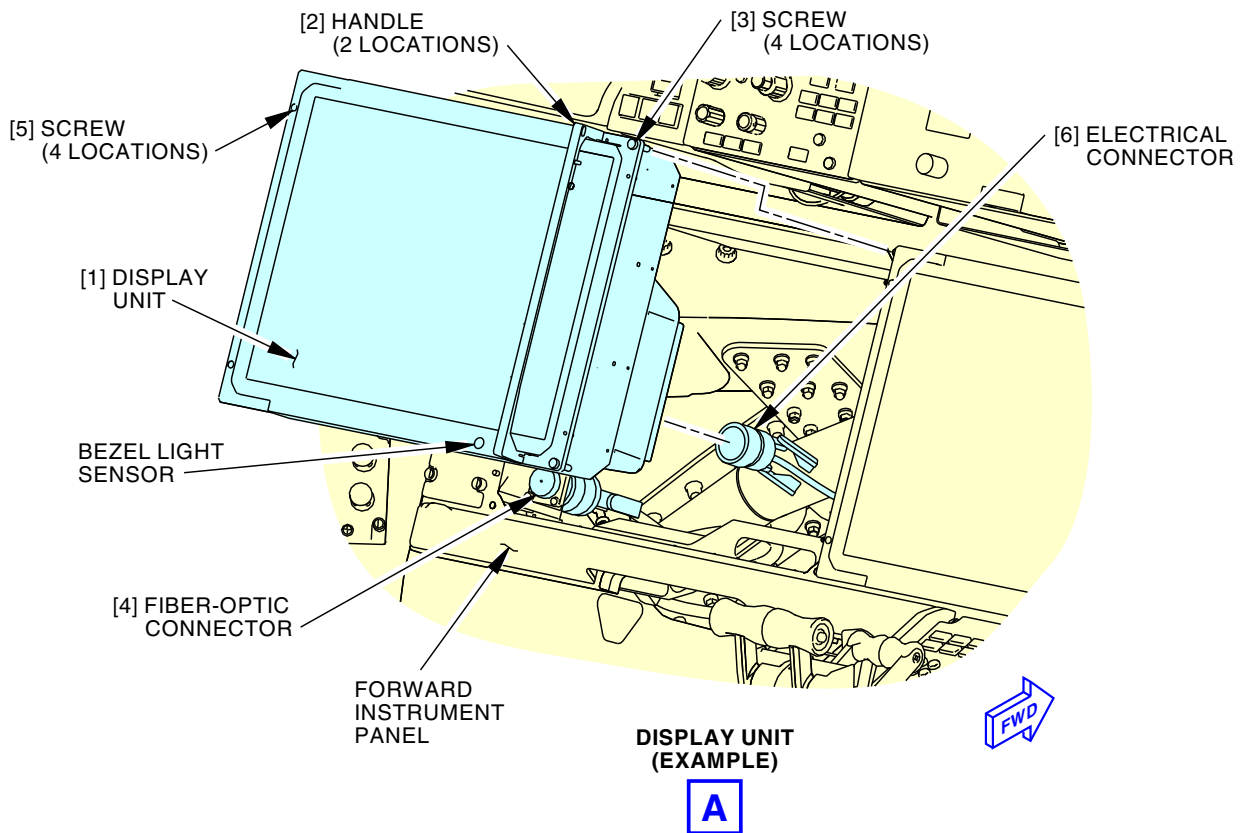
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FLIGHT COMPARTMENT



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MAX Display Unit Installation
Figure 401/31-65-11-990-801

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TASK 31-65-11-400-801

3. **MAX Display Unit Installation**

(Figure 401)

A. General

- (1) This task contains the steps to install a MAX display unit.
- (2) There are four display units located in the main front panel of the flight compartment.
- (3) The installation procedure is the same for all four displays.

B. References

Reference	Title
20-10-35-200-802	Fiber Optic Cable on a Module - Special Detailed Inspection (P/B 201)
20-40-12-000-803	Conductive Dust Cap and Connector Cover Removal (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
31-65-00-970-801	System Maintenance Data Pages Function (P/B 201)
SWPM 20-12-20	BACC69A FIBER OPTIC CABLE ASSEMBLIES

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Display unit	31-65-11-01-020	SIA ALL

E. Location Zones

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

F. Preparation

SUBTASK 31-65-11-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD

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SUBTASK 31-65-11-800-001



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) Make sure hydraulic power is removed from the flight controls (TASK 29-11-00-860-805).

SUBTASK 31-65-11-910-002

- (3) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

G. Installation

SUBTASK 31-65-11-020-001

- (1) Loosen the two captive screws [5] on each of the handles [2] of the display unit [1].

SUBTASK 31-65-11-020-002

- (2) Pull the two handles [2] to approximately 90 degrees from the face of the display unit [1].

SUBTASK 31-65-11-020-003

- (3) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-803.

SUBTASK 31-65-11-210-002



DO NOT LOOK INTO THE END OF A FIBER-OPTIC CABLE. THERE IS A RISK OF LASER RADIATION, WHICH YOU WILL NOT SEE. LASER RADIATION IS DANGEROUS FOR YOUR EYES.



ALWAYS USE GLOVES IF YOU MUST TOUCH BROKEN FIBER-OPTIC CABLES. IF YOU TOUCH CABLES WITH YOUR BARE HANDS, FIBERS CAN GO INTO YOUR BODY THROUGH YOUR SKIN. THIS WILL CAUSE YOU INJURY.



DO NOT PULL OR TWIST THE FIBER-OPTIC CABLE WITH A STRONG OR A SUDDEN FORCE. DAMAGE TO THE CABLE OR THE CONNECTOR CAN OCCUR.



MAKE SURE THAT THE FIBER-OPTIC CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.

- (4) Examine the fiber optic cable connector [4] for damage or contamination.
 - (a) During a normal condition do these steps:
 - 1) For the inspection and cleaning of fiber-optic connector on the module, do this task: Fiber Optic Cable on a Module - Special Detailed Inspection, TASK 20-10-35-200-802.
 - 2) For the inspection and cleaning of the fiber-optic connector on the airplane side, refer to SWPM 20-12-20.

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- (b) During a limited condition, clean the fiber-optic connectors on the module and the airplane side:

NOTE: A limited condition is when the detailed inspection of the fiber-optic connectors on the module (TASK 20-10-35-200-802) cannot be performed.

NOTE: During the limited condition, it is acceptable to only clean the fiber-optic connectors on the module (TASK 20-10-35-200-802): Clean with Dry Swab, Clean with Wet Swab, or Clean with Cartridge Pen. The complete detailed inspection of the fiber-optic connectors can be deferred until the next maintenance opportunity. Be aware that dirty fiber-optic connectors can cause damage to the equipment.

- 1) Do the applicable steps to clean the fiber-optic connectors on the module.
- 2) Clean the fiber-optic connectors on the airplane side SWPM 20-12-20.
- 3) Make sure that each fiber-optic end face is cleaned a minimum of three times.

SUBTASK 31-65-11-420-001



DO NOT PULL OR PUSH THE FIBER-OPTIC CABLE. THE CABLE IS EASILY DAMAGED.



DO NOT LET THE DU HANG BY THE FIBER-OPTIC CABLE. THE WEIGHT OF THE DU CAN CAUSE DAMAGE TO THE FIBER-OPTIC CONNECTOR.

- (5) Connect the fiber optic cable connector [4] to the display unit [1].

SUBTASK 31-65-11-210-003



DO NOT BEND THE ELECTRICAL HARNESSES TOO MUCH WHEN YOU DISCONNECT AND CONNECT THE ELECTRICAL CONNECTORS. THIS CAN CAUSE ELECTRICAL CIRCUIT MALFUNCTIONS. IF YOU BEND THEM TOO MUCH, DAMAGE TO THE HARNESSES CAN OCCUR.



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (6) Examine the electrical connector [6] for bent or broken pins, dirt and damage.

SUBTASK 31-65-11-420-002

- (7) Connect the electrical connector [6] to the display unit [1].

SUBTASK 31-65-11-420-003

- (8) Install the display unit [1]:
- (a) Carefully use the two handles [2] to put the display unit [1] into the panel opening.
 - (b) Tighten the four captive screws [3].
 - (c) Fold the two handles [2] down against the face of the display unit [1].
 - (d) Carefully tighten the two captive screws [5] on each of the two handles [2] of the display unit [1].

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SUBTASK 31-65-11-410-002

- (9) If necessary, fold the two handles [2] down against the face of the adjacent display unit [1] and tighten the two captive screws [5].

SUBTASK 31-65-11-410-003

- (10) If necessary, install the lower panel of the glareshield.

SUBTASK 31-65-11-860-008

- (11) Restore power to the display unit [1]:
- (a) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

SUBTASK 31-65-11-860-003

- (12) Make sure that the Engine Start Levers on the CONTROL STAND are in the CUTOFF position.

SUBTASK 31-65-11-480-001

- (13) Install the DO NOT OPERATE tag, STD-858.

H. Installation Test

SUBTASK 31-65-11-710-001

- (1) Make sure that the applicable display unit [1] is not blank.

SUBTASK 31-65-11-710-002

- (2) Use the MDS Maintenance Page "Display Selection" for ATA SYSTEM 31 MDS to verify that the installed display unit is functional within the MDS system (TASK 31-65-00-970-801):

- (a) On the MDS MAINT PAGE - INDEX, the button to the right of the area, DISPLAYS, should show NORMAL.

NOTE: The MDS MAINT PAGE - INDEX page shows seven functional status areas of the Maintenance Display System (MDS) which can be checked: BRIGHTNESS, DISPLAYS, DPC DIGITAL INPUTS, DPC DISCRETE/POWER INPUTS, DPC DISCRETE OUTPUTS, EFIS CP TEST and MDS CONFIGURATION. The button adjacent to the index name shows FAULT or NORMAL status.

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- (b) Select the NORMAL or FAULT button adjacent to DISPLAYS to view the MDS MAINT PAGE - DISPLAYS map of the components of the display system.
- (c) Make sure that all status boxes and buses (A429 and FIBER X-TALK), of the display unit just installed are green and ACTIVE.

NOTE: Green indicates an active component; amber indicates a fault.

- (d) Select the SYS MENU tab to return to the maintenance menu.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 31-65-11-440-001

- (1) Remove the DO NOT OPERATE tag, STD-858.

————— **END OF TASK** —————

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DISPLAY UNIT - CLEANING/PAINTING

1. General

- A. This procedure has these tasks:
 - (1) Clean the display surface.
 - (2) Clean the display unit light sensor.
 - (3) Clean the display unit cooling air inlet screen.
- B. There are four display units. Four of the display units are in the forward instrument panel.
- C. These tasks are the same for all four display units.

TASK 31-65-11-100-801

2. Clean the Display Surface

A. General

- (1) This task gives two methods to clean the display surface. It is necessary to use only one of the two procedures.
- (2) You can clean the LCD glass surface with common consumable or with the Rockwell Collins display cleaning kit, display cleaning kit, B50233.
- (3) The four display units are the same and are a part of the MAX Display System (MDS).

NOTE: Both options will give the same result.

B. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
B50233	Kit - Rockwell Collins Display Cleaning Kit, RCPN: 005-8414-010 (Contains Removal Wipe, Cleaner Wipe, Streak-Free Wipe)	
G01043	Cloth - Lint-free	
G02418	Water - De-ionized	
G50140	Gloves - Protective, Latex or Nitrile	

C. Location Zones

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

D. Procedure

SUBTASK 31-65-11-100-001



CAUTION

DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE DISPLAY SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE DISPLAY SURFACE.



CAUTION

DO NOT APPLY THE CLEANING SOLUTION DIRECTLY ON THE LCD GLASS SURFACE. DO NOT CLEAN THE LCD GLASS SURFACE WITH A DRY WIPER. THIS CAN CAUSE SCRATCHES ON THE LCD GLASS.

- (1) Do these steps to clean the LCD glass surface with common consumable:

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- (a) Apply a 50/50 solution of de-ionized water, G02418, and alcohol, B00130, to a lint-free cloth, G01043.
 - (b) Carefully clean the LCD glass surface with the lint-free cloth, G01043, in an up and down motion.
NOTE: Use a clean cloth wiper for each third of the glass surface. This is recommended when the surface is dirty.
 - (c) Make sure the glass surface stays wet with the 50/50 solution before cleaning the surface with the isopropyl alcohol.
 - (d) Apply isopropyl alcohol, B00130, to a lint-free cloth, G01043.
NOTE: Use a clean cloth for each solution applied to the LCD glass surface.
 - (e) Carefully clean the LCD glass surface with the treated, lint-free cloth, G01043, in an up and down movement.
NOTE: Use a clean cloth for each third of the glass surface. This is recommended when the glass is dirty.
 - (f) If necessary, clean the glass surface again using a clean lint-free cloth, G01043, with alcohol, B00130.
- (2) Do these steps to clean the LCD glass surface with the Rockwell Collins display cleaning kit, B50233:
- (a) Put on the protective gloves, G50140.
 - (b) Carefully clean the glass surface with the "Contamination Removal Wipe" from the display cleaning kit, B50233, in an up and down movement.
 - (c) Use the "Streak Free Wipe" to clean the glass surface in an up and down movement.
NOTE: Do this step when the surface is still wet.
 - (d) Make sure that the LCD glass surface is free of fingerprints, dirt or streaks.
 - (e) If necessary, clean the LCD glass surface again using a new "Streak Free Wipe".
NOTE: Use a "Streak Free Wipe" each time that the glass surface is cleaned.

———— **END OF TASK** ————

TASK 31-65-11-100-802

3. Display Unit Bezel Light Sensor - Cleaning

A. Consumable Materials

Reference	Description	Specification
G00215	Brush - Soft Bristle Fiber	

B. Location Zones

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

C. General

SUBTASK 31-65-11-100-002

- (1) This task gives instructions to clean the light sensor on the MAX display unit.
- (2) Each of the four display units has a light sensor on the bottom of the bezel faceplate.

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- (3) The bezel light sensor measures ambient light.

NOTE: The ambient light detected by these sensors is combined with light detection data from the two remote light sensors (RLS) in the glareshield to automatically control the brightness of the Primary Flight Displays and the MCP.

D. Procedure

SUBTASK 31-65-11-100-003

- (1) Remove all grit, dirt, and sand from the bezel light sensor with a clean, soft brush, G00215.

————— END OF TASK —————

TASK 31-65-11-100-803

4. Clean the Holes on the Rear of the Display Unit

A. References

Reference	Title
24-22-00-860-802	Remove Electrical Power (P/B 201)
31-65-11-000-801	MAX Display Unit Removal (P/B 401)
31-65-11-400-801	MAX Display Unit 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
COM-2618	Cleaner - Vacuum Part #: 106542 Supplier: 3LFF2 Part #: 98606 Supplier: 08531 Part #: AVQ250-2 Supplier: U1761 Part #: RSV150 Supplier: \$1291 Opt Part #: 02146A Supplier: 0A5X2 Opt Part #: 44SPEC Supplier: 0Y8U0 Opt Part #: 655406-7M Supplier: 0Y8U0 Opt Part #: BP80 Supplier: \$0373 Opt Part #: C-39485-41 Supplier: 16893 Opt Part #: C-39485-42 Supplier: 16893 Opt Part #: R80 Supplier: \$0373 Opt Part #: RSV130 Supplier: \$1291 Opt Part #: WD80 Supplier: \$0373

C. Location Zones

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

D. Procedure

SUBTASK 31-65-11-010-001

- (1) Do this task:MAX Display Unit Removal, TASK 31-65-11-000-801 .

SUBTASK 31-65-11-210-001

- (2) Examine the air holes on the rear of the display unit.

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SUBTASK 31-65-11-100-004

- (3) If contamination causes a blockage of more than 50 percent of the holes, then clean the holes on the rear of the display units.

SUBTASK 31-65-11-100-005



CAUTION

DO NOT USE COMPRESSED AIR TO CLEAN THE HOLES ON THE REAR OF THE DISPLAY UNIT. COMPRESSED AIR WILL PUSH CONTAMINATION INTO THE DISPLAY UNIT. THIS CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (4) Do this step to clean the holes on the rear of the display unit.
- (a) Remove all lint, dust, and debris from the air inlet and exhaust holes on the rear of the display unit with a vacuum cleaner, COM-2618.

NOTE: The vacuum cleaner head should be made of plastic or non-conductive material.

SUBTASK 31-65-11-410-001

- (5) Do this task: MAX Display Unit Installation, TASK 31-65-11-400-801.

SUBTASK 31-65-11-860-006

- (6) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.

———— **END OF TASK** ————

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EFIS CONTROL PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of an EFIS control panel.
 - (2) An installation of an EFIS control panel, which includes an installation test.
- B. There are two EFIS control panels installed on the glareshield panel, P7 in the flight compartment. The captain's EFIS control panel is on the left side of the P7 panel. The first officer's EFIS control panel is on the right side of the P7 panel.

TASK 31-65-12-000-801

2. EFIS Control Panel Removal

(Figure 401)

A. **References**

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. **Location Zones**

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Removal Procedure**

SUBTASK 31-65-12-860-001

- (1) For the applicable control panel:
- Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	1	C04030	DSP CAPT EFIS CONT PNL

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	13	C04031	DSP F/O EFIS CONT PNL

SUBTASK 31-65-12-860-002

- (2) On the Captain's or First Officer's Main Instrument Panel, P1 or P3, turn the knob of the MAIN PANEL control to the OFF position.

SUBTASK 31-65-12-010-001

- (3) Do these steps to get access to the electrical connector [5] for the EFIS control panel [3].
- (a) Loosen the eight quarter-turn fasteners [1] that hold the glareshield access panel [2] to the glareshield, P7.
 - (b) Remove the glareshield access panel [2].
 - (c) Remove the screws [7] that hold the mode control panel [8].
 - (d) Pull the mode control panel [8] out about 7 in. (18 cm) to gain access to the floodlight screws.

NOTE: This will give access to the screws [11] that hold the floodlight.

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- (e) Remove the screws [11] that hold the floodlight [12].
- (f) Remove the screws [10] that hold the panel [9].
NOTE: The panels will stay attached to the floodlight.
- (g) Loosen the five quarter-turn fasteners [1] that hold the lower cover [6] to the P7.
- (h) Remove the lower cover [6].

SUBTASK 31-65-12-020-001

- (4) Before you touch the EFIS control panel [3], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 31-65-12-020-002



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (5) Do these steps to remove the EFIS control panel [3]:
 - (a) Remove the four screws [4] that attach the EFIS control panel [3] to the bottom of the glareshield.
 - (b) Disconnect the electrical connector [5].
NOTE: You can get access to the electrical connector from above the EFIS control panel.
 - (c) Remove the EFIS control panel [3]
 - (d) Put a protective cover on the electrical connector.

———— **END OF TASK** ————

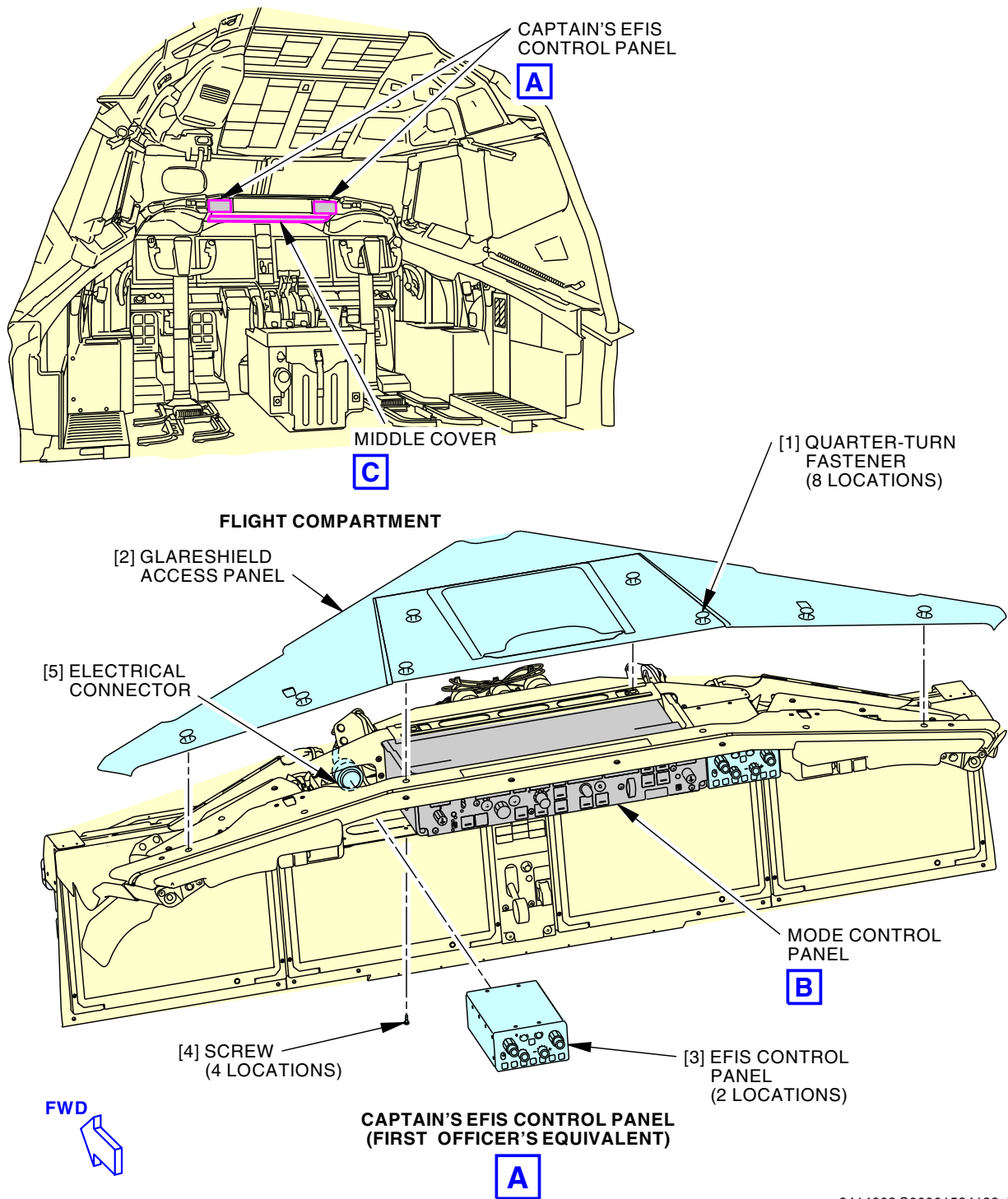
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EFIS Control Panel Installation
Figure 401/31-65-12-990-801 (Sheet 1 of 2)

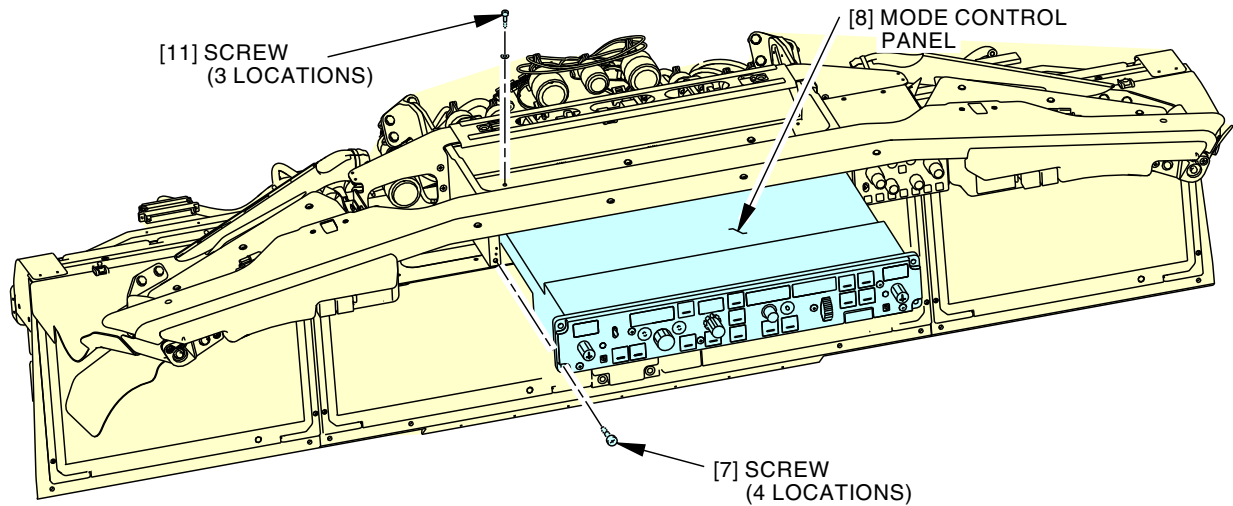
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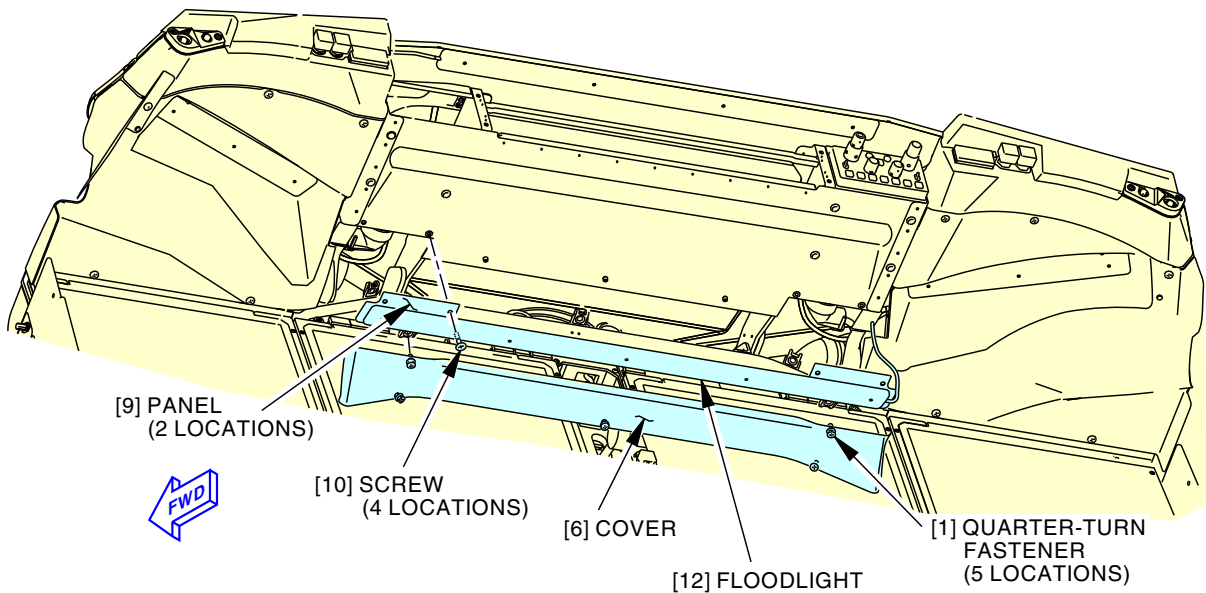
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MODE CONTROL PANEL

B



MIDDLE COVER

C

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EFIS Control Panel Installation
Figure 401/31-65-12-990-801 (Sheet 2 of 2)

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TASK 31-65-12-400-801

3. EFIS Control Panel Installation

(Figure 401)

A. References

Reference	Title
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	EFIS control panel	31-11-41-02-010	SIA ALL
		31-65-12-01-025	SIA ALL

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Installation Procedure

SUBTASK 31-65-12-860-003

- (1) For the applicable control panel:

Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	1	C04030	DSP CAPT EFIS CONT PNL

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	13	C04031	DSP F/O EFIS CONT PNL

SUBTASK 31-65-12-420-001

- (2) Before you touch the new EFIS control panel [3], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 31-65-12-420-002

 CAUTION	DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.
---	--

- (3) Do these steps to install the EFIS control panel [3]:

- (a) Remove the protective cover from the electrical connector.
- (b) Examine the electrical connector for bent or broken pins, dirt, and damage.
- (c) Put the EFIS control panel [3] carefully into its position in the glareshield.
- (d) Connect the electrical connector [5].

NOTE: You can get access to the electrical connector from above the EFIS control panel.

- (e) Make sure that the ND switch APP position is visible and does not have an INOP decal.

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- (f) Install the four screws [4] that attach the EFIS control panel [3] to the bottom of the glareshield.

SUBTASK 31-65-12-410-001

- (4) Do these steps to close access for the EFIS control panel [3].
 - (a) Install the screws [10] to the panels [9].

NOTE: The floodlight is attached to the panels.
 - (b) Install the screws [11].
 - (c) Put the mode control panel [8] into position.
 - (d) Install the screws [7].
 - (e) Install the lower cover [6].
 - (f) Tighten the five quarter-turn fasteners [1] that hold the lower cover [6] to the P7.
 - (g) Put the glareshield access panel [2] in place on top of the glareshield.
 - (h) Tighten the eight quarter-turn fasteners [1] on the glareshield access panel.

SUBTASK 31-65-12-860-004

- (5) For the applicable control panel:
Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C04030	DSP CAPT EFIS CONT PNL

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	13	C04031	DSP F/O EFIS CONT PNL

SUBTASK 31-65-12-860-005

- (6) On the Captain's or First Officer's Main Instrument Panel, P1 or P3, turn the knob of the MAIN PANEL control to the middle position.

E. Installation Test

SUBTASK 31-65-12-750-001

- (1) Press SYS on the Multifunction Display (MFD) control panel, P9-82.
- (2) Press SEL button on the SELECTOR knob of the MFD control panel, P9-82.
- (3) Select the following on the MAX Display System (MDS):
 - (a) MAINT DATA PGS
 - (b) 31 MDS
 - (c) EFIS CP TEST
- (4) Press every button one at a time on the Captain's or First Officer's EFIS control panel, P7.
 - (a) Make sure that the corresponding button displayed lights up on the MDS.
- (5) Turn every knob one at a time on the Captain's or First Officer's EFIS control panel, P7.
 - (a) Make sure that the corresponding knob displayed shows an arrow where the knob is turned to on the MDS.

————— **END OF TASK** —————

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LIGHTING CONTROL MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Lighting Control Module Removal
 - (2) Lighting Control Module Installation
- B. The lighting control module is installed in the flight compartment.

TASK 31-65-13-000-801

2. Lighting Control Module Removal

(Figure 401)

A. **General**

- (1) This task has instructions to remove the lighting control module.

B. **Location Zones**

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

C. **Prepare to Remove the Lighting Control Module**

SUBTASK 31-65-13-860-001

- (1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
B	10	C00335	PANEL & INSTR 28V PRI F/O

D. **Lighting Control Module Removal**

SUBTASK 31-65-13-020-001



CAUTION

DO NOT TOUCH THE ELECTRICAL CONNECTOR. ELECTROSTATIC DAMAGE CAN CAUSE DAMAGE TO THE LIGHTING CONTROL MODULE.

- (1) Remove the lighting control module [1]:
 - (a) Loosen the four quarter-turn fasteners [2].
 - (b) Carefully lift the lighting control module from the main instrument panel to get access to the electrical connectors [3].
 - (c) Disconnect the electrical connectors [3].
 - (d) Put protective covers on the electrical connectors [3].

———— **END OF TASK** ————

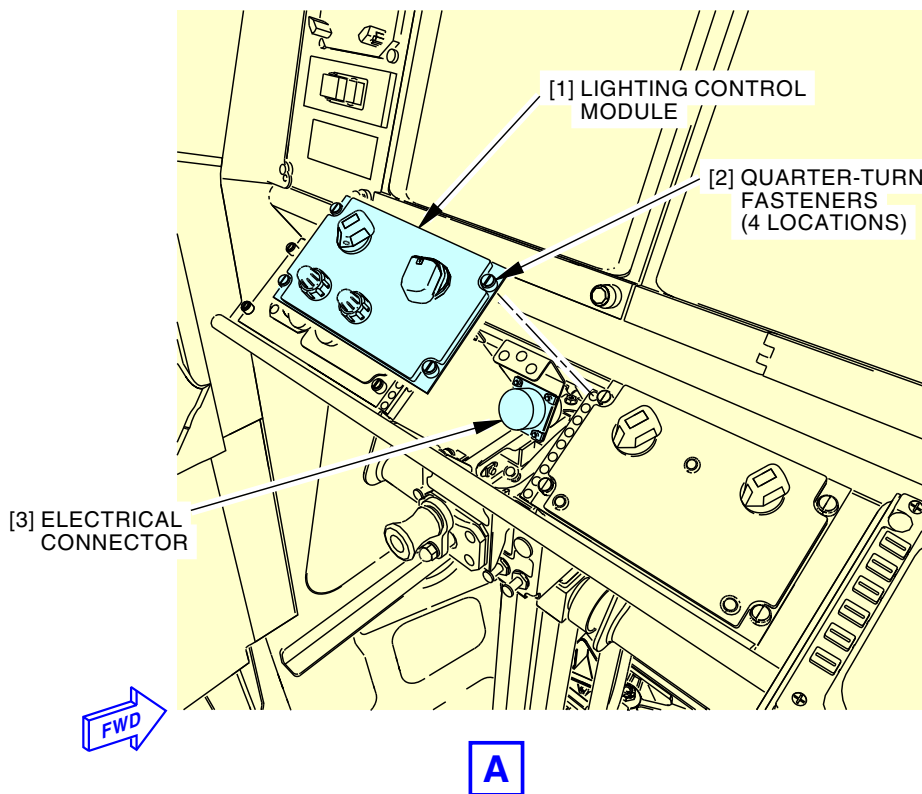
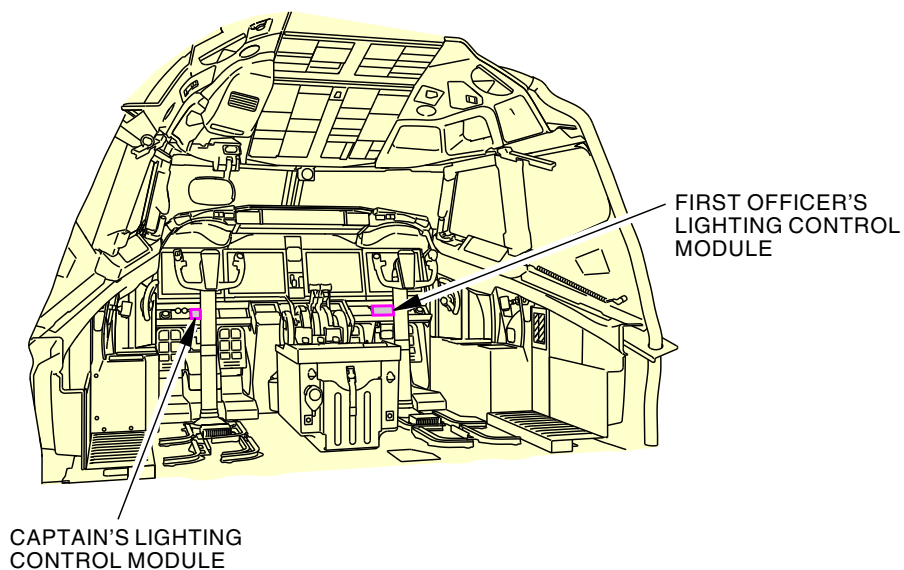
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Lighting Control Module Installation
Figure 401/31-65-13-990-801

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TASK 31-65-13-400-801

3. **Lighting Control Module Installation**

(Figure 401)

A. General

- (1) This task has instructions to install the Lighting Control Module.

B. References

Reference	Title
21-27-00-800-802	Equipment Cooling System - Activation (P/B 201)
31-65-02-400-801	Display Processing Computer Installation (P/B 401)
31-65-11-400-801	MAX Display Unit Installation (P/B 401)
31-65-12-400-801	EFIS Control Panel Installation (P/B 401)
46-13-01-400-801	Network File Server Installation (P/B 401)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Lighting control module	31-65-13-01-050	SIA ALL
		31-65-13-01-300	SIA ALL

D. Location Zones

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

E. Prepare to Install the Lighting Control Module

SUBTASK 31-65-13-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
B	10	C00335	PANEL & INSTR 28V PRI F/O

F. Lighting Control Module Installation

SUBTASK 31-65-13-420-001



DO NOT TOUCH THE ELECTRICAL CONNECTOR. ELECTROSTATIC DAMAGE CAN CAUSE DAMAGE TO THE LIGHTING CONTROL MODULE.

- (1) Install the lighting control module [1]:
- Remove the protective covers from the electrical connectors [3].
 - Examine the electrical connector [3] for bent or broken pins, dirt, and damage.
 - Connect the electrical connectors [3].
 - Put the lighting control module [1] in its position on the main instrument panel.
 - Tighten the four quarter-turn fasteners [2].

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G. Lighting Control Module Installation Test

SUBTASK 31-65-13-860-003

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
B	10	C00335	PANEL & INSTR 28V PRI F/O

SUBTASK 31-65-13-860-005



COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

- (2) Do this task: Equipment Cooling System - Activation, TASK 21-27-00-800-802.

SUBTASK 31-65-13-420-002

- (3) If necessary, install the MAX display unit. (TASK 31-65-11-400-801)

SUBTASK 31-65-13-420-003

- (4) If necessary, install the Display Processor Computer (DPC). (TASK 31-65-02-400-801)

SUBTASK 31-65-13-420-004

- (5) If necessary, install the EFIS Control Panel. (TASK 31-65-12-400-801)

SUBTASK 31-65-13-420-005

- (6) If necessary, install the Network File Server (NFS). (TASK 46-13-01-400-801)

SUBTASK 31-65-13-860-006

- (7) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	13	C04031	DSP F/O EFIS CONT PNL

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	6	C01318	ENGINE 2 START LEVER CHAN A

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F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C01958	NETWORK FILE SERVER

SUBTASK 31-65-13-860-007

- (8) Make sure that the AIR/GROUND SYSTEM (PSEU) shows the aircraft is on the ground.

SUBTASK 31-65-13-860-008

- (9) Set DISPLAYS SOURCE switch on the overhead panel to AUTO.

SUBTASK 31-65-13-860-009

- (10) Set DISPLAYS CONTROL PANEL switch on the overhead panel to NORMAL.

SUBTASK 31-65-13-860-010

- (11) Set MODE switch on the EFIS Control Panels to MAP.

SUBTASK 31-65-13-860-011

- (12) Make sure that the start levers are in the CUTOFF position.

SUBTASK 31-65-13-860-012

- (13) Select the button next to BRIGHTNESS caption on the MDS MAINT PAGE - INDEX page.

SUBTASK 31-65-13-710-001

- (14) Do these steps to check the brightness and contrast of the MAX display unit from the Captain's Lighting Control Module:
- (a) Rotate OUTBD DU BRT/CONTRAST knob outer ring counter-clockwise (clockwise).
 - 1) Make sure that LOB BRT CTRL (%) value decrease (increase).
 - (b) Rotate OUTBD DU BRT/CONTRAST knob counter-clockwise (clockwise).
 - 1) Make sure that LOB CONTRAST CTRL (%) value decrease (increase).
 - (c) Rotate INBD DU BRT/CONTRAST knob outer ring counter-clockwise (clockwise).
 - 1) Make sure that LIB BRT CTRL (%) value decrease (increase).
 - (d) Rotate INBD DU BRT/CONTRAST knob counter-clockwise (clockwise).
 - 1) Make sure that LIB CONTRAST CTRL (%) value decrease (increase).

SUBTASK 31-65-13-710-002

- (15) Do these steps to check the brightness and contrast of the MAX display unit from the F/O's Lighting Control Module:
- (a) Rotate INBD DU BRT/CONTRAST knob outer ring counter-clockwise (clockwise).
 - 1) Make sure that RIB BRT CTRL (%) value decrease (increase).
 - (b) Rotate INBD DU BRT/CONTRAST knob counter-clockwise (clockwise).
 - 1) Make sure that RIB CONTRAST CTRL (%) value decrease (increase).
 - (c) Rotate OUTBD DU BRT/CONTRAST knob outer ring counter-clockwise (clockwise).
 - 1) Make sure that ROB BRT CTRL (%) decrease (increase).
 - (d) Rotate OUTBD DU BRT/CONTRAST knob counter-clockwise (clockwise).
 - 1) Make sure that ROB CONTRAST CTRL (%) decrease (increase).

———— **END OF TASK** ————

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INSTRUMENT SWITCHING MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the instrument switching module.
- (2) An installation of the instrument switching module.

B. The instrument switching module is on the forward overhead panel, P5, in the flight compartment.

TASK 31-65-14-000-801

2. Instrument Switching Module Removal

(Figure 401)

A. **References**

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. **Location Zones**

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

C. **Removal Procedure**

SUBTASK 31-65-14-860-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	2	C00412	INSTR XFR

SUBTASK 31-65-14-010-001

- (2) Do these steps to open the P5 overhead panel.
 - (a) Loosen the quarter turn fasteners on the bottom corners of the P5 overhead panel.



HOLD THE PANEL TIGHTLY BEFORE YOU RELEASE THE LATCH. THE PANEL IS HEAVY. INJURIES CAN OCCUR IF IT HITS YOU.

- (b) Release the panel safety latch.

SUBTASK 31-65-14-860-002

- (3) On the P5 FWD overhead panel, turn the knob of the PANEL control to the OFF position (View B, Figure 401).

SUBTASK 31-65-14-020-001



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (4) Remove the instrument switching module [1] (ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802):
 - (a) Disconnect the electrical connectors [3].

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- (b) Loosen the four quarter-turn fasteners [2].
- (c) Carefully lift the instrument switching module [1] from the P5 FWD overhead panel, to get access to the electrical connectors [3].
- (d) Put protective covers on the electrical connectors [3].

SUBTASK 31-65-14-410-002

- (5) Do these steps to close the P5 overhead panel:

- (a) Raise the P5 overhead panel.



WARNING

HOLD THE PANEL TIGHTLY BEFORE YOU RELEASE THE LATCH. THE PANEL IS HEAVY. INJURIES CAN OCCUR IF IT HITS YOU.

- (b) Make sure the safety latch is in the proper position.
- (c) Tighten the quarter turn fasteners on the bottom corners of the P5 overhead panel.

———— **END OF TASK** ————

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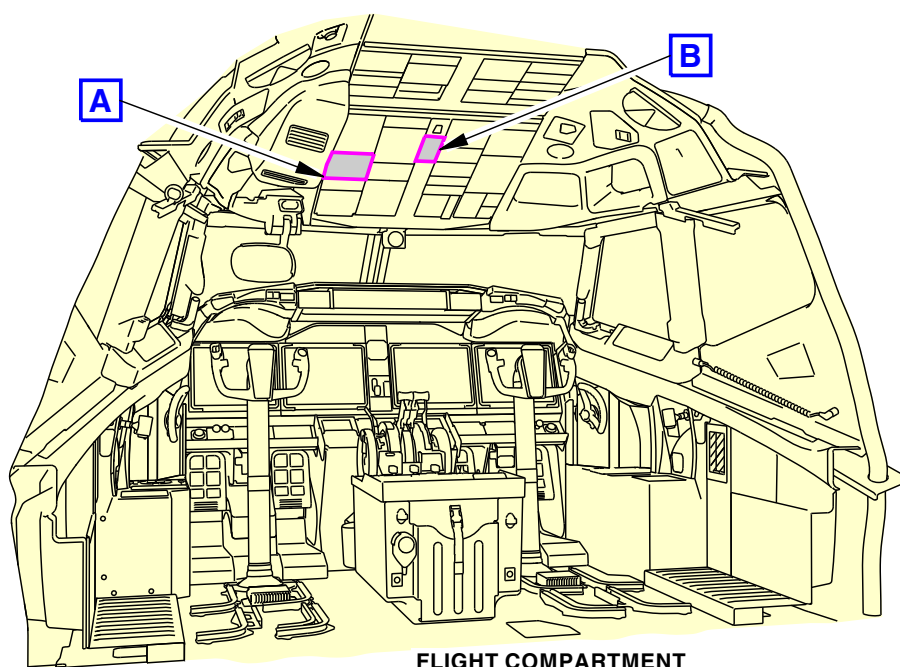
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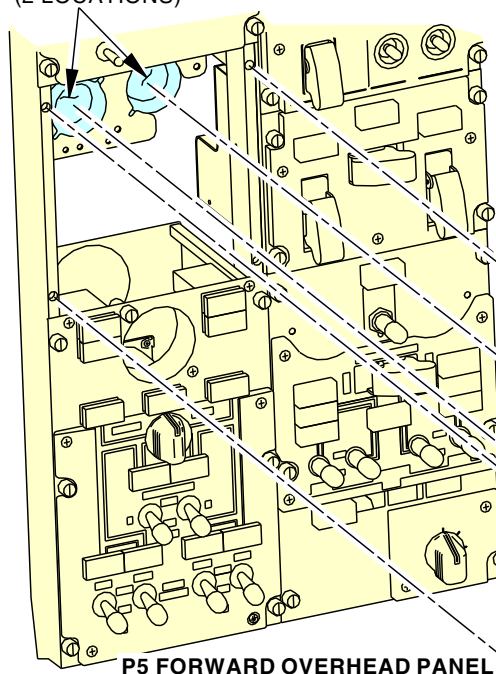
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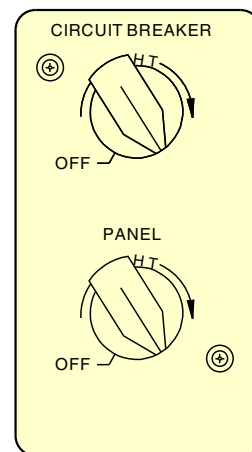


[3] ELECTRICAL CONNECTOR
(2 LOCATIONS)



P5 FORWARD OVERHEAD PANEL

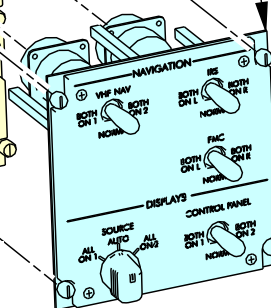
A



P5 FORWARD OVERHEAD PANEL

B

[1] INSTRUMENT
SWITCHING MODULE



FWD

✓ [2] QUARTER-TURN
FASTENER
(4 LOCATIONS)

2414010 S00061534142 V2

Instrument Switching Module Installation

Figure 401/31-65-14-990-801

— EFFECTIVITY
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TASK 31-65-14-400-801

3. Instrument Switching Module Installation

(Figure 401)

A. References

Reference	Title
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Instrument switching module	31-65-14-01-050	SIA ALL

C. Location Zones

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

D. Installation Procedure

SUBTASK 31-65-14-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	2	C00412	INSTR XFR

SUBTASK 31-65-14-010-002

- (2) Do these steps to open the P5 overhead panel.

- (a) Loosen the quarter turn fasteners on the bottom corners of the P5 overhead panel.



WARNING

HOLD THE PANEL TIGHTLY BEFORE YOU RELEASE THE LATCH. THE PANEL IS HEAVY. INJURIES CAN OCCUR IF IT HITS YOU.

- (b) Release the panel safety latch.

SUBTASK 31-65-14-420-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (3) Install the instrument switching module [1] (ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802):

- (a) Remove the protective covers from the electrical connectors [3].
(b) Examine the electrical connectors [3] for bent or broken pins, dirt, and damage.
(c) Put the instrument switching module [1] in its position on the P5 FWD overhead panel.
(d) Connect the electrical connectors [3].
(e) Tighten the four quarter-turn fasteners [2].

SUBTASK 31-65-14-410-001

- (4) Do these steps to close the P5 overhead panel:

- (a) Raise the P5 overhead panel.

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HOLD THE PANEL TIGHTLY BEFORE YOU RELEASE THE LATCH. THE PANEL IS HEAVY. INJURIES CAN OCCUR IF IT HITS YOU.

- (b) Make sure the safety latch is in the proper position.
- (c) Tighten the quarter turn fasteners on the bottom corners of the P5 overhead panel.

SUBTASK 31-65-14-860-007

- (5) On the P5 FWD overhead panel, turn the knob of the PANEL control to the middle position (View B, Figure 401).

SUBTASK 31-65-14-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C00412	INSTR XFR

E. Installation Test

SUBTASK 31-65-14-730-001

- (1) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module [1] to the BOTH ON 1 position.
 - (a) Do these steps at the P7 captain's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - a) Make sure that the barometric pressure shows in inches on the P1 captain's display unit.
 - b) Make sure that the barometric pressure shows in inches on the P3 first officer's display unit.
 - (b) Do these steps at the P7 first officer's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to HPA.
 - a) Make sure that the barometric pressure shows no changes on the P1 captain's display unit.
 - b) Make sure that the barometric pressure shows no changes on the P3 first officer's display unit.

SUBTASK 31-65-14-730-002

- (2) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module [1] to the BOTH ON 2 position.
 - (a) Do these steps at the first officer's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - a) Make sure that the barometric pressure shows in inches on the P1 captain's display unit.
 - b) Make sure that the barometric pressure shows in inches on the P3 first officer's display unit.
 - (b) Do these steps at the P7 captain's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to HPA.
 - a) Make sure that the barometric pressure shows no changes on the P1 captain's display unit.

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- b) Make sure that the barometric pressure shows no changes on the P3 first officer's display unit.

SUBTASK 31-65-14-730-003

- (3) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module [1] to the NORMAL position.

———— **END OF TASK** ————

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REMOTE LIGHT SENSOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Remote light sensor removal.
 - (2) Remote light sensor installation.
- B. There are two remote light sensors. The remote light sensors are on the glareshield in front of the pilots. You remove or install the remote light sensor from above the glareshield.
- C. The captain's outboard display unit supplies power to the left remote light sensor. The first officer's outboard display unit supplies power to the right remote light sensor.

TASK 31-65-41-000-801

2. Remote Light Sensor Removal

(Figure 401)

A. **References**

Reference	Title
31-65-11-000-801	MAX Display Unit Removal (P/B 401)
SWPM 20-61-11	MIL-C-26500 Front Release Connectors

B. **Location Zones**

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

C. **Removal Procedure**

SUBTASK 31-65-41-860-001

- (1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	2	C04003	MULTI FUNCTION PANEL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	12	C04002	MAINT/BITE PANEL
E	13	C04031	DSP F/O EFIS CONT PNL

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F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

SUBTASK 31-65-41-010-001

- (2) Do these steps to get access to the remote light sensor [4]:
- (a) Loosen the quarter-turn fasteners [2] that hold the glareshield access panel [1] to the glareshield, P7.
 - (b) Remove the glareshield access panel [1].

SUBTASK 31-65-41-010-002

- (3) Remove the outboard display unit [6] to get access to the electrical connector [5] for the remote light sensor [4] (TASK 31-65-11-000-801).

SUBTASK 31-65-41-020-001

- (4) Do these steps to remove the remote light sensor [4]:
- (a) Remove the screws [3] that hold the remote light sensor [4] to the glareshield structure.
 - (b) Disconnect the electrical connector [5] at the other end of the wire from the remote light sensor [4].
 - (c) Remove the pins for the remote light sensor [4] wires from the electrical connector [5] (SWPM 20-61-11).
 - (d) Remove the remote light sensor [4] with wires from the airplane.

————— END OF TASK —————

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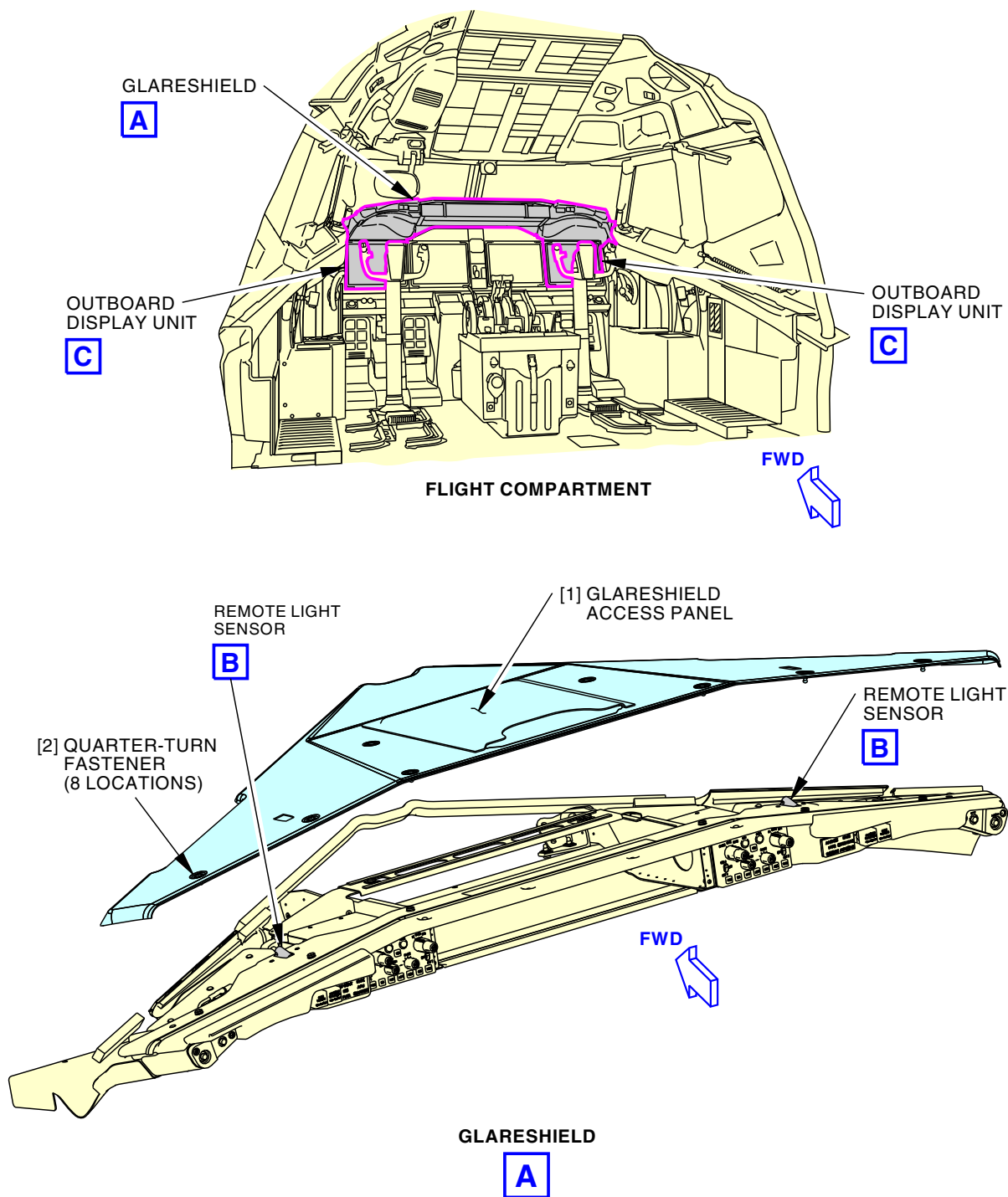
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Remote Light Sensor Installation
Figure 401/31-65-41-990-801 (Sheet 1 of 3)

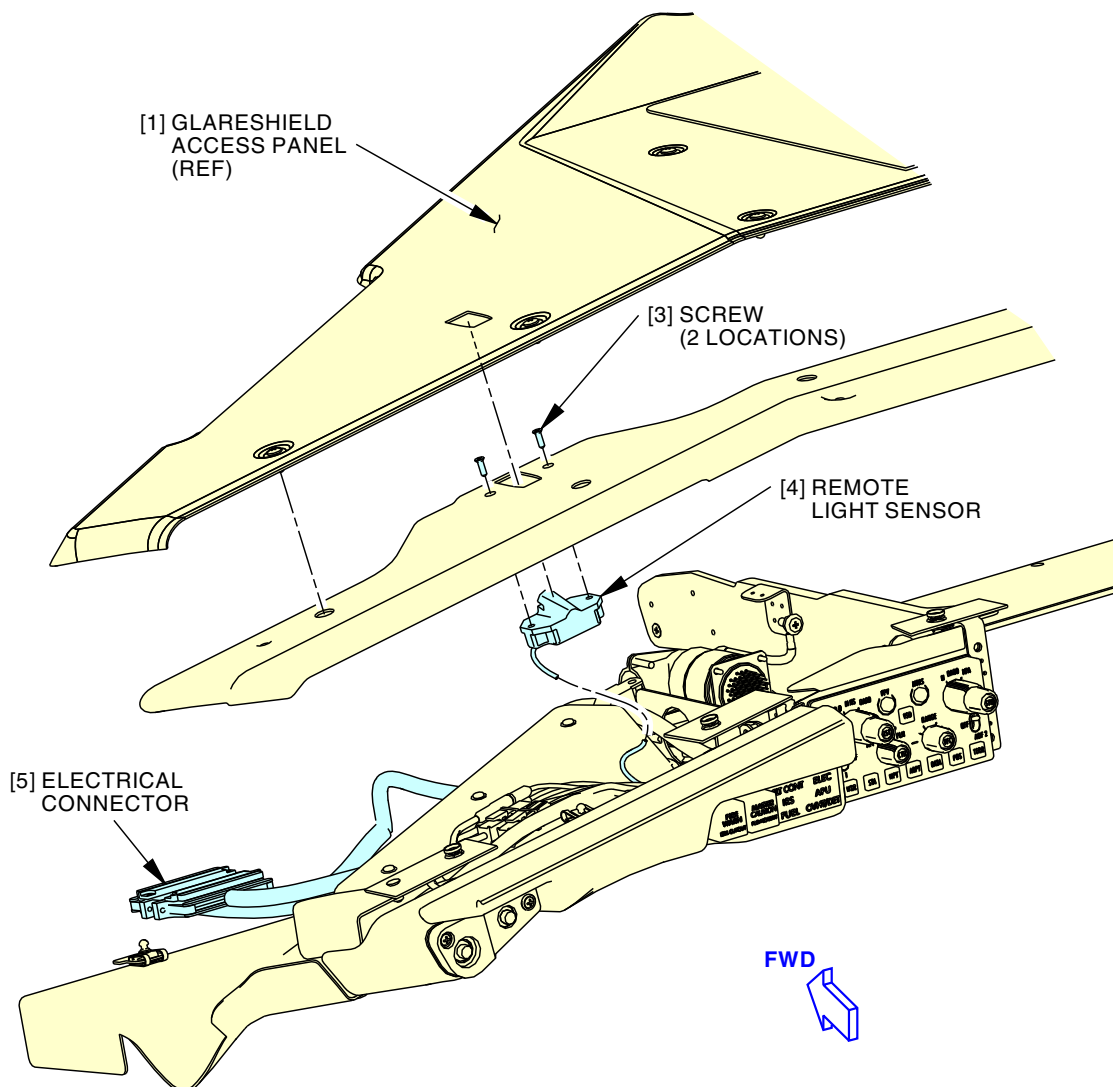
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REMOTE LIGHT SENSOR
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

B

2414017 S00061534166_V1

Remote Light Sensor Installation
Figure 401/31-65-41-990-801 (Sheet 2 of 3)

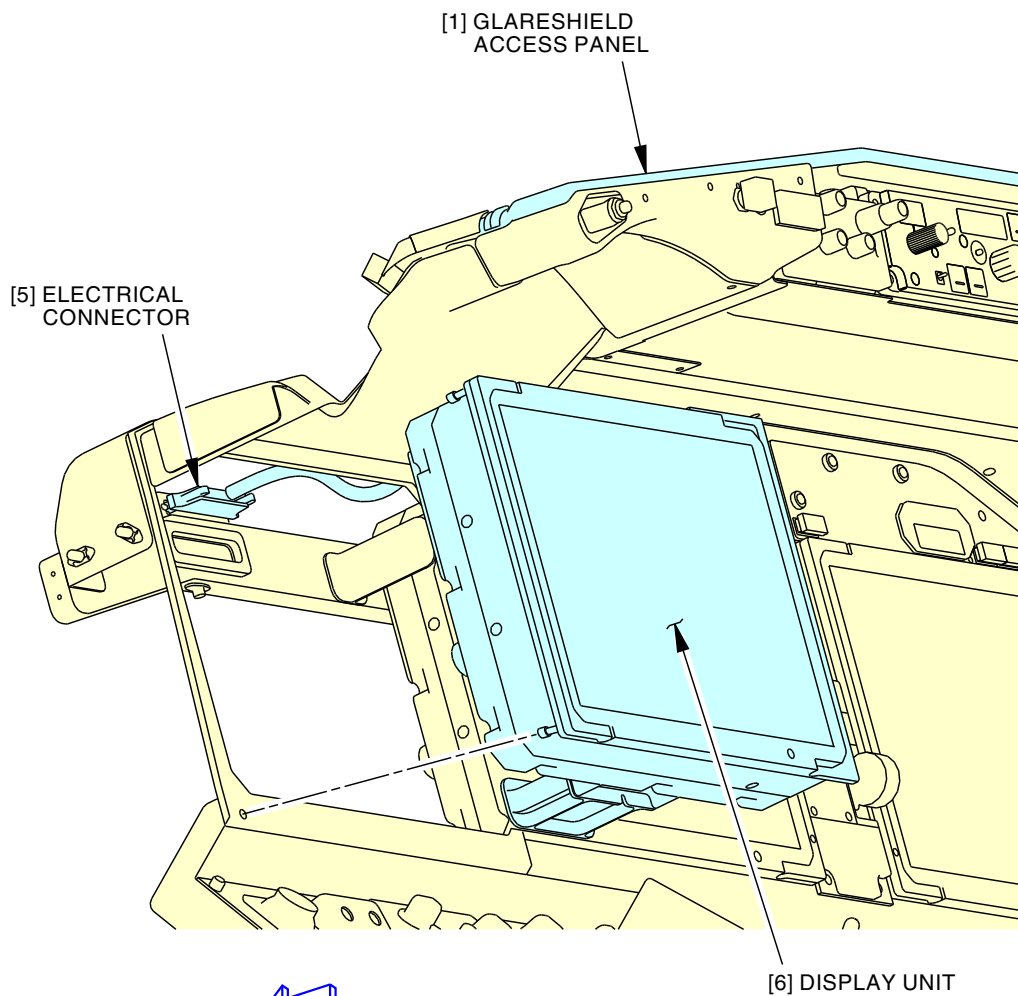
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OUTBOARD DISPLAY UNIT
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

C

2414018 S00061534167_V2

Remote Light Sensor Installation
Figure 401/31-65-41-990-801 (Sheet 3 of 3)

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TASK 31-65-41-400-801

3. **Remote Light Sensor Installation**

(Figure 401, Figure 402)

A. **General**

- (1) The remote light sensor installation test makes sure that the remote light sensor is installed correctly.

B. **References**

Reference	Title
31-65-11-400-801	MAX Display Unit Installation (P/B 401)
SWPM 20-61-11	MIL-C-26500 Front Release Connectors

C. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Remote light sensor	31-65-41-01-010	SIA ALL
		31-65-41-01-210	SIA ALL

D. **Location Zones**

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

E. **Remote Light Sensor Installation**

SUBTASK 31-65-41-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	2	C04003	MULTI FUNCTION PANEL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	12	C04002	MAINT/BITE PANEL
E	13	C04031	DSP F/O EFIS CONT PNL

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	6	C01318	ENGINE 2 START LEVER CHAN A

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SUBTASK 31-65-41-420-001

- (2) Do these steps to install the remote light sensor [4]:
 - (a) If necessary, put the pins on the end of the remote light sensor [4] wires (SWPM 20-61-11).
 - 1) Make sure that the wires of the new remote light sensor [4] have approximately the same length as the one that you removed.
 - (b) Put the remote light sensor [4] and wires into its correct position in the glareshield structure.
 - 1) Make sure that the sensor points forward.
 - (c) Install the pins in the electrical connector [5].
 - (d) Connect the electrical connector [5].
 - (e) Install the screws [3] that hold the remote light sensor [4] to the glareshield structure.

SUBTASK 31-65-41-010-003

- (3) Do these steps to install the glareshield access panel [1]:
 - (a) Put the glareshield access panel [1] into its correct position on the glareshield structure.
 - (b) Tighten the quarter-turn fasteners [2] that hold the glareshield access panel [1] to the glareshield, P7.

SUBTASK 31-65-41-410-001

- (4) Install the outboard display unit [6] (TASK 31-65-11-400-801).

SUBTASK 31-65-41-860-003



COOLING AIR HAS TO BE SUPPLIED WHILE THE MDS SYSTEM IS POWERED ON.

- (5) Make sure that the AIR/GROUND (PSEU) shows that the airplane is on the ground.

SUBTASK 31-65-41-860-004

- (6) Make sure that the Start Levers are in the CUTOFF position.

F. Remote Light Sensor Installation Test

SUBTASK 31-65-41-860-005

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
D	1	C04030	DSP CAPT EFIS CONT PNL
D	2	C04003	MULTI FUNCTION PANEL
D	3	C04026	DISPLAY LEFT INBOARD
D	4	C04027	DISPLAY LEFT OUTBOARD
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C04024	DISPLAY DPC 2 HOLDUP
D	10	C04022	DISPLAY DPC 1 HOLDUP

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(Continued)

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI
E	10	C04029	DISPLAY RIGHT OUTBOARD
E	11	C04028	DISPLAY RIGHT INBOARD
E	12	C04002	MAINT/BITE PANEL
E	13	C04031	DSP F/O EFIS CONT PNL

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

SUBTASK 31-65-41-860-006

- (2) Make sure that the DUs and DPCs have power and are serviceable.

NOTE: The DUs will show standard formats.

SUBTASK 31-65-41-730-001

- (3) Do these steps to do a test of the remote light sensor [4] that you installed:
- Set the DISPLAYS SOURCE switch on the P5-28 overhead panel to AUTO.
 - Set the DISPLAYS CONTROL PANEL switch on the P5-28 overhead panel to NORMAL.
 - Push the SYS button on the P9-82 MFP.
 - Push the MAINT button on the Menu bar at the top of the Systems Page.
 - Push the MAINT DATA PGS button on the Menu bar at the top of the Status Messages Page.
 - Push the DISPLAY button adjacent to the 31 MDS caption on the DISPLAY SELECTION page.
 - Push the button adjacent to the BRIGHTNESS caption on the MDS MAINT PAGE - INDEX page.
 - Put the remote light sensor cover or a lint-free cloth on the left (right) remote light sensor [4].
- NOTE: If you do the test at night, increase the ambient light level in the cockpit. Use the Dome Light or an equivalent light source.
- The remote light sensor [4] value will become stable in 30 to 60 seconds.
 - Make a note of the RLS (FC) value shown on the left (right) outboard display unit.
- (i) Remove the remote light sensor cover or a lint-free cloth from the left (right) remote light sensor [4].
- Make sure the remote light sensor [4] value becomes stable in 30 to 60 seconds.
 - If necessary, point a flashlight into the slit in the left (right) remote light sensor [4].
 - Make sure that the RLS (FC) value increases on the left (right) outboard display unit.
- (j) Push the SYS MENU button on the Menu bar at the top of the Page.

————— **END OF TASK** —————

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 SYS MENU	STATUS	MAINT DATA PGS	MAINT CTRL PGS	ONBD MAINT
MDS MAINT PAGE - BRIGHTNESS			PG X OF Y	
<u>INPUTS</u>				
	LOB	LIB	RIB	ROB
BRT CTRL (%)	XXX	XXX	XXX	XXX
CONTRAST CTRL (%)	XXX	XXX	XXX	XXX
BLS (FC)	XXXXXX.X	XXXXXX.X	XXXXXX.X	XXXXXX.X
RLS (FC)	XXXXXX			XXXXXX
<u>OUTPUTS</u>				
COMMANDED BRIGHTNESS (%)	XXX	XXX	XXX	XXX
COMMANDED CONTRAST (%)	XXX	XXX	XXX	XXX
DATE XX XXX XX UTC XX:XX:XX				
PREV MENU	PRINT	SEND	PREV PAGE	NEXT PAGE

2457569 S0000570830_V2

Display Unit Brightness Format
Figure 402/31-65-41-990-802

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