CHAPTER

36

PNEUMATIC

CHAPTER 36
PNEUMATIC

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

36-EFFECTIVE PAGES

Subject/Page	Date	COC
36-10-00 (cont)		
525	Jul 25/2018	
526	Jul 25/2018	
527	Jul 25/2018	
528	Jul 25/2018	
529	Jul 25/2018	
530	Jul 25/2018	
531	Jul 25/2018	
532	Jul 25/2018	
533	Jul 25/2018	
534	Jul 25/2018	
535	Jul 25/2018	
536	Jul 25/2018	
537	Jul 25/2018	
538	Jul 25/2018	
539	Jul 25/2018	
540	Jul 25/2018	
36-11-01 Config 4		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Sep 05/2017	
408	Sep 05/2017	
409	Sep 05/2017	
410	Sep 05/2017	
411	Sep 05/2017	
412	Sep 05/2017	
413	Sep 05/2017	
414	Sep 05/2017	
36-11-01		
601	Jan 05/2016	
602	Sep 05/2017	
603	Sep 05/2017	
604	Sep 05/2017	

Subject/Page	Date	COC
36-11-01 (cont)		
605	Sep 05/2017	
606	Sep 05/2017	
607	Sep 05/2017	
608	Sep 05/2017	
609	Sep 05/2017	
610	BLANK	
36-11-01		
701	Jan 05/2016	
702	Sep 05/2017	
703	Sep 05/2017	
704	BLANK	
36-11-01		
801	Jan 05/2016	
802	Sep 05/2017	
803	Sep 05/2017	
804	Sep 05/2017	
36-11-03 Config 1		
401	Jul 25/2018	
402	Jul 25/2018	
403	Sep 05/2017	
404	Jul 25/2018	
405	Jul 25/2018	
406	Jul 25/2018	
407	Jul 25/2018	
408	BLANK	
36-11-06 Config 4		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Sep 05/2017	
408	Sep 05/2017	
409	Sep 05/2017	
410	BLANK	

Subject/Page	Date	COC
36-11-06		
601	May 05/2017	
602	May 05/2017	
603	May 05/2017	
604	May 05/2017	
605	May 05/2017	
606	May 05/2017	
36-11-07 Config 4		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Jan 05/2017	
408	Jul 25/2018	
409	Jan 05/2016	
410	Jul 25/2018	
411	Jul 25/2018	
412	BLANK	
36-11-08 Config 2		
201	Sep 05/2017	
202	Sep 05/2017	
203	Sep 05/2017	
204	Jan 05/2017	
205	Jan 05/2016	
206	Jan 05/2015	
36-11-08 Config 2		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	May 05/2017	
406	Jan 05/2016	
407	May 05/2015	
408	May 05/2015	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

36-EFFECTIVE PAGES

Subject/Page	Date	COC
36-11-09 Config 2		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Jul 25/2018	
408	Jul 25/2018	
409	Jul 25/2018	
410	BLANK	
36-11-10		
401	May 05/2015	
402	Sep 05/2017	
403	May 05/2017	
404	May 05/2017	
36-11-15 Config 4		
401	Jan 05/2016	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Sep 05/2017	
408	Sep 05/2017	
409	Sep 05/2017	
410	Jan 05/2016	
411	Sep 05/2017	
412	Sep 05/2017	
413	May 05/2016	
414	Sep 05/2017	
415	Sep 05/2017	
416	Sep 05/2017	
417	Sep 05/2017	
418	Jan 05/2016	
419	Sep 05/2017	
420	Sep 05/2017	
36-11-15 Config 4 (cont)		
421	Sep 05/2017	
422	Sep 05/2017	
423	Sep 05/2017	
424	Sep 05/2017	
425	Sep 05/2017	
426	Sep 05/2017	
427	Sep 05/2017	
428	Sep 05/2017	
429	Sep 05/2017	
430	Jan 05/2016	
431	Jan 05/2015	
432	Jan 05/2016	
433	Jan 05/2015	
434	Sep 05/2017	
435	Jan 05/2015	
436	BLANK	
36-11-16 Config 4		
401	Jan 05/2016	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Jan 05/2016	
408	Jan 05/2016	
409	Jan 05/2016	
410	Sep 05/2017	
36-11-17 Config 2		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Jan 05/2016	
406	Sep 05/2017	
407	Sep 05/2017	
408	BLANK	
36-11-18 Config 2		
201	Sep 05/2017	
202	Sep 05/2017	
203	Sep 05/2017	
204	Sep 05/2017	
205	Jan 05/2016	
206	Jan 05/2016	
207	Jan 05/2015	
208	BLANK	
36-11-18 Config 2		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	May 05/2018	
407	Sep 05/2017	
408	Sep 05/2017	
409	Sep 05/2017	
410	BLANK	
36-11-19 Config 4		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Jan 05/2016	
407	Jan 05/2015	
408	Jan 05/2016	
409	Sep 05/2017	
410	BLANK	
36-11-19		
601	Jan 05/2015	
602	BLANK	
36-11-19		
701	Jan 05/2015	
702	BLANK	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

36-EFFECTIVE PAGES

Subject/Page	Date	COC
36-11-19		
801	Jan 05/2015	
802	BLANK	
36-11-20		
201	Jan 05/2015	
202	Sep 05/2017	
203	May 05/2018	
204	Sep 05/2017	
36-11-20		
401	May 05/2015	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	BLANK	
36-11-21		
201	Sep 05/2017	
202	Sep 05/2015	
203	Sep 05/2017	
204	Sep 05/2017	
205	Jan 05/2016	
206	Sep 05/2017	
207	Sep 05/2017	
208	Sep 05/2015	
36-12-01		
401	Sep 05/2017	
402	Jan 05/2015	
403	Jan 05/2016	
404	Jan 05/2015	
405	Jan 05/2015	
406	Jan 05/2015	
407	Sep 05/2017	
408	Sep 05/2017	
36-12-02		
401	Sep 05/2017	
402	May 05/2017	
403	Jan 05/2016	

Subject/Page	Date	COC
36-12-02 (cont)		
404	May 05/2015	
405	May 05/2015	
406	Sep 05/2017	
407	Sep 05/2017	
408	BLANK	
36-12-03		
401	Sep 05/2017	
402	Jan 05/2018	
403	Jan 05/2018	
404	Sep 05/2017	
405	Sep 05/2017	
406	BLANK	
36-12-04		
401	Sep 05/2017	
402	Jan 05/2016	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Sep 05/2017	
408	Sep 05/2017	
409	Sep 05/2017	
410	Sep 05/2017	
411	Jan 05/2015	
412	Sep 05/2017	
413	Sep 05/2017	
414	Sep 05/2017	
415	Sep 05/2017	
416	Sep 05/2017	
417	Sep 05/2017	
418	Sep 05/2017	
419	Sep 05/2017	
420	Sep 05/2017	
421	May 05/2017	
422	Jan 05/2016	
423	Sep 05/2017	

Subject/Page	Date	COC
36-12-04 (cont)		
424	May 05/2015	
425	Sep 05/2017	
426	Sep 05/2017	
427	Sep 05/2017	
428	Sep 05/2017	
429	Sep 05/2017	
430	Sep 05/2017	
431	Sep 05/2017	
432	Sep 05/2017	
433	Sep 05/2017	
434	Sep 05/2017	
435	Sep 05/2017	
436	Sep 05/2017	
437	Sep 05/2017	
438	BLANK	
36-12-04		
601	Jan 05/2015	
602	Jan 05/2015	
36-12-04		
701	May 05/2018	
702	Sep 05/2015	
703	May 05/2015	
704	BLANK	
36-12-04		
801	Sep 05/2015	
802	Jan 05/2015	
803	Jan 05/2015	
804	Sep 05/2017	
36-12-05		
401	Sep 05/2015	
402	Sep 05/2017	
403	Sep 05/2015	
404	Sep 05/2017	
405	Sep 05/2017	
406	Sep 05/2017	
407	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

36-EFFECTIVE PAGES

Subject/Page	Date	COC
36-12-05 (cont)		
408	Sep 05/2017	
409	Sep 05/2017	
410	Sep 05/2015	
411	Sep 05/2015	
412	BLANK	
36-12-05		
801	May 05/2017	
802	May 05/2017	
803	May 05/2017	
804	Sep 05/2017	
36-20-00		
501	May 05/2015	
502	Jan 05/2015	
36-21-01		
401	Sep 05/2017	
402	Jan 05/2016	
403	Jan 05/2016	
404	Jan 05/2015	
405	Sep 05/2017	
406	BLANK	
36-21-03 Config 2		
401	Sep 05/2017	
402	Jan 05/2015	
403	Sep 05/2017	
404	Jan 05/2016	
405	Jan 05/2015	
406	Jan 05/2015	
36-22-01		
401	Sep 05/2017	
402	Sep 05/2017	
403	Sep 05/2017	
404	Sep 05/2017	
405	Sep 05/2016	
406	Sep 05/2017	

Subject/Page	Date	COC
36-23-01		
401	Sep 05/2017	
402	Jan 05/2016	
403	Jan 05/2016	
404	Jan 05/2015	
405	Sep 05/2017	
406	BLANK	

Subject/Page	Date	COC

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

36-EFFECTIVE PAGES

CHAPTER 36
PNEUMATIC

36-CONTENTS

CHAPTER 36
PNEUMATIC

36-CONTENTS

CHAPTER 36
PNEUMATIC

36-CONTENTS

CHAPTER 36
PNEUMATIC

CHAPTER 36
PNEUMATIC

36-CONTENTS

CHAPTER 36
PNEUMATIC

36-CONTENTS

CHAPTER 36
PNEUMATIC

36-CONTENTS

CHAPTER 36
PNEUMATIC

36-CONTENTS

CHAPTER 36
PNEUMATIC

PNEUMATIC - GENERAL - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Pneumatic System Deactivation

(2) Pneumatic System Activation

(3) Pressurize the Pneumatic System with one of these sources:

(a) Ground Air Source

(b) APU

(c) Engine

(4) Pressurization Upstream of the PRSOV

(5) Depressurize the Pneumatic System

B. The Pneumatic System supplies air to these systems:

(1) Aircraft Pressurization System (ATA 21-30)

(2) Cargo Heating (ATA 21-40)

(3) Air Conditioning System (ATA 21-50)

(4) Air Driven Hydraulic Pump (ATA 29-10)

(5) Hydraulic Reservoir Pressurization (ATA 29-10)

(6) Wing Leading Edge and Cowl Anti-Icing (ATA 30-10, ATA 30-20)

(7) Total Air Temperature Heat (ATA 30-30)

(8) Potable Water Tank Pressurization (ATA 38-40)

(9) Engine Starting (ATA 80-10)

TASK 36-00-00-040-811

2. Pneumatic System - Deactivation

(Figure 201)

A. General

(1) This task includes the steps to deactivate the Pneumatic System.

B. References

Reference	Title
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
49-11-00-860-805	APU Usual Shutdown (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
135	Environmental Control Systems Bay, Left

(Continued)

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

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door
195BL	ECS High Pressure Connection Door

F. Procedure

SUBTASK 36-00-00-040-042

WARNING MAKE SURE THAT THE PNEUMATIC SOURCE IS OFF AND THAT THE PRESSURE IN THE SYSTEM IS RELEASED. IF THE PRESSURE IS NOT RELEASED, IT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) To turn off the ground air source, APU, or engines, do one of these steps:

(a) Make sure that the APU is shut down. If necessary, do this task: (APU Usual Shutdown, TASK 49-11-00-860-805).

(b) Make sure that the engines are shut down. If necessary, do this task: (Usual Engine Stop, TASK 71-00-00-800-837-H00).

(c) Make sure the ground air source is shut down, If necessary, shut down and remove the ground air source at the HP ground connectors.

1) Install a DO NOT OPERATE tag, STD-858, on the HP ground connectors.

2) Close this access panel:

Number	Name/Location
195BL	ECS High Pressure Connection Door

SUBTASK 36-00-00-860-145

(2) Do these steps to release the pressure in the pneumatic system:

(a) Put the L(R) ENG BLEED AIR switch on the P5 panel to the OFF position.

(b) Put the APU switch on the P5 overhead panel to the OFF position and attach a DO NOT OPERATE tag, STD-858 .

(c) Make sure the L, C and R ISLN valves on the P5 panel are in the AUTO mode.

(d) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(e) Make sure the L(R) ENG HIGH STAGE PRESS and INTERIM DUCT PRESS is 0 psig.

(f) Make sure the L(R) MANIFOLD DUCT PRESS is 0 psig before you open a pneumatic system connection.

SUBTASK 36-00-00-010-072

(3) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 36-00-00-860-146

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

G. Pneumatic System - Tryout

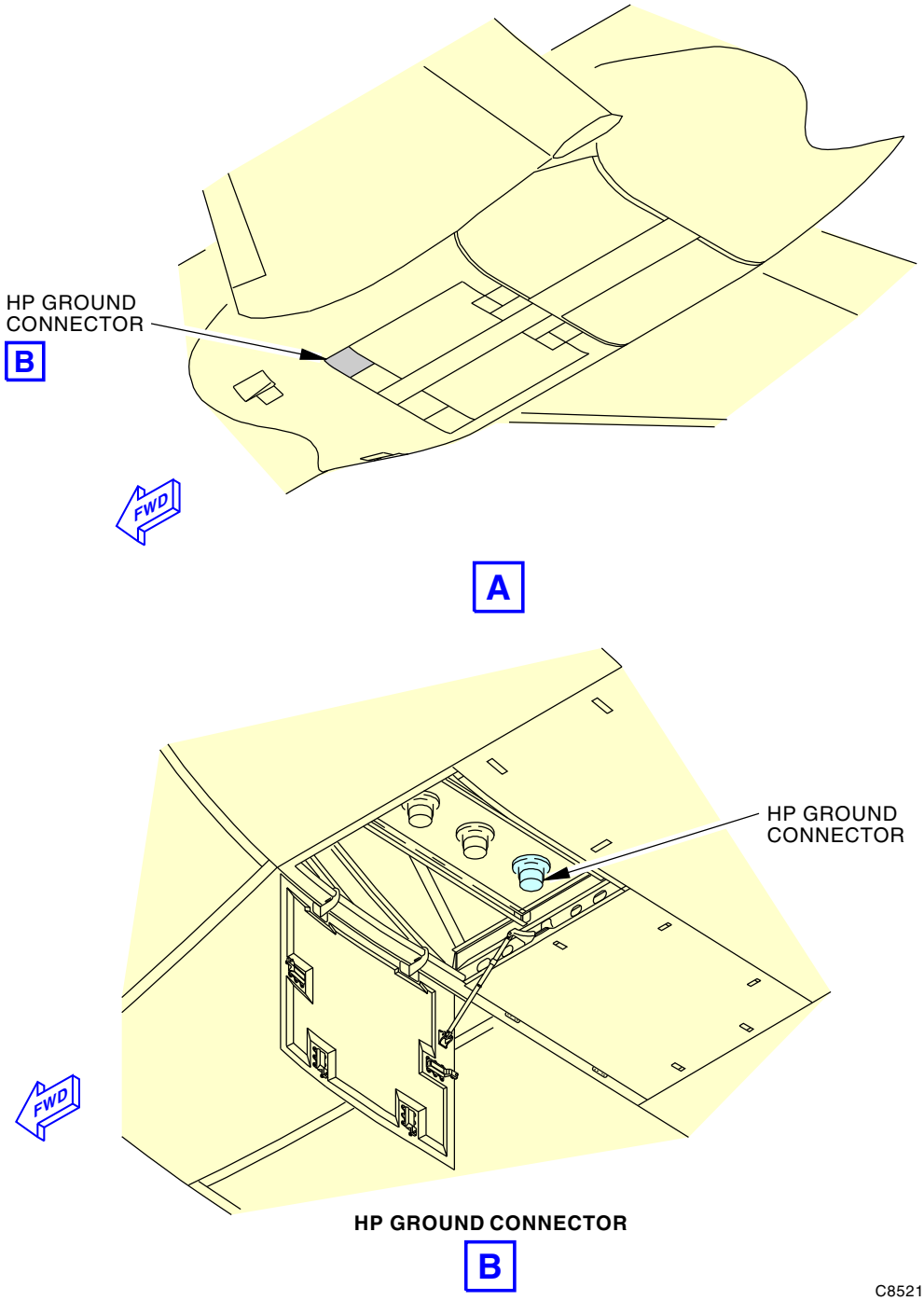
NOTE: This tryout is to make sure the Pneumatic System is in a zero energy state.

SUBTASK 36-00-00-700-001

(1) Make sure that the L(R) ENG HIGH STAGE PRESS, INTERIM DUCT PRESS, and L(R) MANIFOLD PRESS values are all 0.

NOTE: 2) Wait two minutes to make sure there is no residual pressure.

——— END OF TASK ———



HP Ground Connector Access
Figure 201/36-00-00-990-821

TASK 36-00-00-440-811

3. Pneumatic System - Activation

(Figure 201)

A. General

(1) This task includes the steps to activate the Pneumatic System.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
135	Environmental Control Systems Bay, Left
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Procedure

SUBTASK 36-00-00-860-147

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-00-00-410-009

(2) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

SUBTASK 36-00-00-860-148

(3) Remove the DO NOT OPERATE tag, STD-858, on the APU switch on the P5 panel.

SUBTASK 36-00-00-860-149

(4) Remove the DO NOT OPERATE tag, STD-858, on the pneumatic ground air connectors.

——— END OF TASK ———

TASK 36-00-00-860-802

4. Pressurize the Pneumatic System

A. References

Reference	Title
20-41-00-910-801	Static Grounding (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
49-11-00-860-804	APU Starting and Operation (P/B 201)
71-00-00-800-835-H00	Engine Start (Selection) (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1082	Source - Air, Regulated, Dry Filtered, 0-50 PSIG

C. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left

D. Access Panels

Number	Name/Location
195BL	ECS High Pressure Connection Door

E. Prepare to pressurize the pneumatic system

SUBTASK 36-00-00-860-001

(1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

Row	Col	Number	Name
H	2	C21431	L CTC CHAN 1 (AC)
H	3	C21433	L CTC CHAN 2 (AC)
H	24	C21647	L CTC CHAN 2 (DC)
H	25	C21641	L CTC CHAN 1 (DC)

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)
H	3	C21648	R CTC CHAN 2 (DC)
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-00-00-860-002

(2) Put these switches in the OFF position:

(a) On the Forward Overhead Panel P5:

1) L PACK
2) R PACK
3) DEMAND HYD AIR PUMP C1
4) DEMAND HYD AIR PUMP C2
5) ANTI-ICE

(b) On the Aft Overhead Maintenance Panel P61:

1) AFT CGO TEMP SELECT
2) BULK CGO TEMP SELECT

SUBTASK 36-00-00-860-003

(3) Put these switches in the AUTO position:

(a) On the BLEED AIR/PRESSURIZATION module of the Forward Overhead Panel P5:

1) L ISLN
2) R ISLN
3) C ISLN
4) APU

SUBTASK 36-00-00-860-004

(4) Put these switches in the ON position:

(a) On the BLEED AIR/PRESSURIZATION module of the Forward Overhead Panel P5:

1) L ENG AIR
2) R ENG AIR

SUBTASK 36-00-00-860-005

(5) To electrically ground the airplane to an approved grounding connection, do this task: Static Grounding, TASK 20-41-00-910-801.

SUBTASK 36-00-00-860-006

(6) Make sure the L and R ENGINE START selector, on the P5 panel, is in the NORM position.

SUBTASK 36-00-00-860-026

CAUTION

TO PREVENT DAMAGE TO AIR CONDITIONING SYSTEM COMPONENTS, APPLY ELECTRICAL POWER BEFORE YOU APPLY PNEUMATIC POWER AND REMOVE PNEUMATIC POWER BEFORE YOU REMOVE ELECTRICAL POWER.

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

F. Procedure to Pressurize with the Ground Air Source

(Figure 203)

SUBTASK 36-00-00-010-001

(1) Pneumatic Ground Service Connections:

Open this access panel:

Number	Name/Location
195BL	ECS High Pressure Connection Door

SUBTASK 36-00-00-860-007

(2) Connect the 0-50 psig dry filtered regulated air source, STD-1082 to the HP ground connector(s).

SUBTASK 36-00-00-860-008

WARNING

DO NOT SUPPLY GREATER THAN 50 PSIG AND/OR 232 °C (450 °F) TO THE PNEUMATIC SYSTEM. IF YOU SUPPLY TOO MUCH PRESSURE OR TEMPERATURE, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

CAUTION

MAKE SURE THE APU, LEFT AND RIGHT ENGINES ARE NOT OPERATING BEFORE YOU INSTALL THE GROUND AIR SOURCE. THIS CAN CAUSE DAMAGE TO THE GROUND AIR SOURCE EQUIPMENT.

(3) Start the ground air source and do not supply more than 50 psig.

SUBTASK 36-00-00-860-009

(4) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-00-00-860-010

(5) Make sure the L and R MANIFOLD DUCT PRESSURE is more than 22 psig.

NOTE: The pressure shown on the page will be different for each source (ie. APU, Ground Air Source or Engine) used.

G. Procedure to Pressurize Pneumatic System with the APU

SUBTASK 36-00-00-860-011

CAUTION

MAKE SURE A GROUND AIR SOURCE IS NOT CONNECTED AND ON. THIS CAN CAUSE DAMAGE TO THE AIR SUPPLY DUCTS IF THE APU IS STARTED WITH A GROUND SOURCE CONNECTED AND ON.

(1) Do this task: APU Starting and Operation, TASK 49-11-00-860-804.

SUBTASK 36-00-00-860-072

(2) FOR MAINTENANCE ON PNEUMATIC SYSTEM COMPONENTS;

Do the steps that follow:

(a) Remove the DO-NOT-OPERATE tag from the APU switch on the P5 overhead panel.

(b) Put the APU switch on the P5 overhead panel in the AUTO position.

SUBTASK 36-00-00-860-069

(3) Let the APU become stable at the governed speed.

SUBTASK 36-00-00-860-012

(4) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-00-00-860-013

(5) Make sure the L and R MANIFOLD DUCT PRESSURE is more than 22 psig.

NOTE: When the APU is running and the APU shutoff valve open with no downstream bleed air demand selected, the trapped APU bleed air can cause a rumbling noise to be heard in the area near Door 3. This condition is common, and the rumbling noise will go away when a downstream bleed air demand is selected.

H. Procedure to Pressurize the Pneumatic System with One or Two Engines

SUBTASK 36-00-00-860-014

(1) Put the L(R) Pack switch on the P5 panel to the AUTO position.

SUBTASK 36-00-00-860-015

CAUTION

MAKE SURE A GROUND AIR SOURCE IS NOT CONNECTED AND ON. THIS CAN CAUSE DAMAGE TO THE AIR SUPPLY DUCTS IF AN ENGINE IS STARTED WITH A GROUND SOURCE CONNECTED AND ON.

(2) Do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00.

SUBTASK 36-00-00-860-016

(3) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-00-00-860-027

(4) Make sure the flow control valves in the Cabin Air Conditioning and Temperature Control System (CACTCS) are open and there is stable flow to the packs.

SUBTASK 36-00-00-860-017

(5) Make sure the L(R)) MANIFOLD DUCT PRESSURE is more than 22 psig.

END OF TASK

TASK 36-00-00-800-801

5. Pressurization Upstream of the PRSOV

(Figure 202)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1082	Source - Air, Regulated, Dry Filtered, 0-50 PSIG

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00018	Nitrogen - Gaseous, Pressurizing, 99.5 Percent Pure	A-A-59503 Type I Grade B, MIL-PRF-27401 Type I Grade A

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

F. Procedure

SUBTASK 36-00-00-860-018

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-00-00-010-002

(2) Do these steps for the PRSOV on the left engine:

WARNING

DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

3) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

4) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

5) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-003

(3) Do these steps for the PRSOV on the right engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

3) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

4) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

5) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

SUBTASK 36-00-00-860-019

(4) Do these steps to open the PRSOV:

(a) Remove the PRSOV control pressure sense line from the PRSOVC or PRSOV.

(b) Install one of these to the PRSOV control pressure sense line or PRSOV:

1) A source of nitrogen, G00018.

2) An 0-50 psig dry filtered regulated air source, STD-1082.

(c) Supply sufficient pressure from the 0-50 psig dry filtered regulated air source, STD-1082 to open the PRSOV.

(d) Make sure the L(R) PRSOV is open.

SUBTASK 36-00-00-863-001

(5) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

NOTE: Pressurize the pneumatic system with the APU or ground air source.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-00-00-864-001

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-022

(2) Decrease the nitrogen or air supply pressure to 0 Psig.

SUBTASK 36-00-00-080-001

(3) Remove the nitrogen or air supply.

SUBTASK 36-00-00-640-001

(4) Apply anti-seize Never-Seez NSBT compound, D00006 to the control pressure sense line fitting on the PRSOVC or PRSOV.

SUBTASK 36-00-00-420-001

(5) Install the PRSOV control pressure sense line.

SUBTASK 36-00-00-010-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Do these tasks in this sequence to safely close the thrust reverser:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

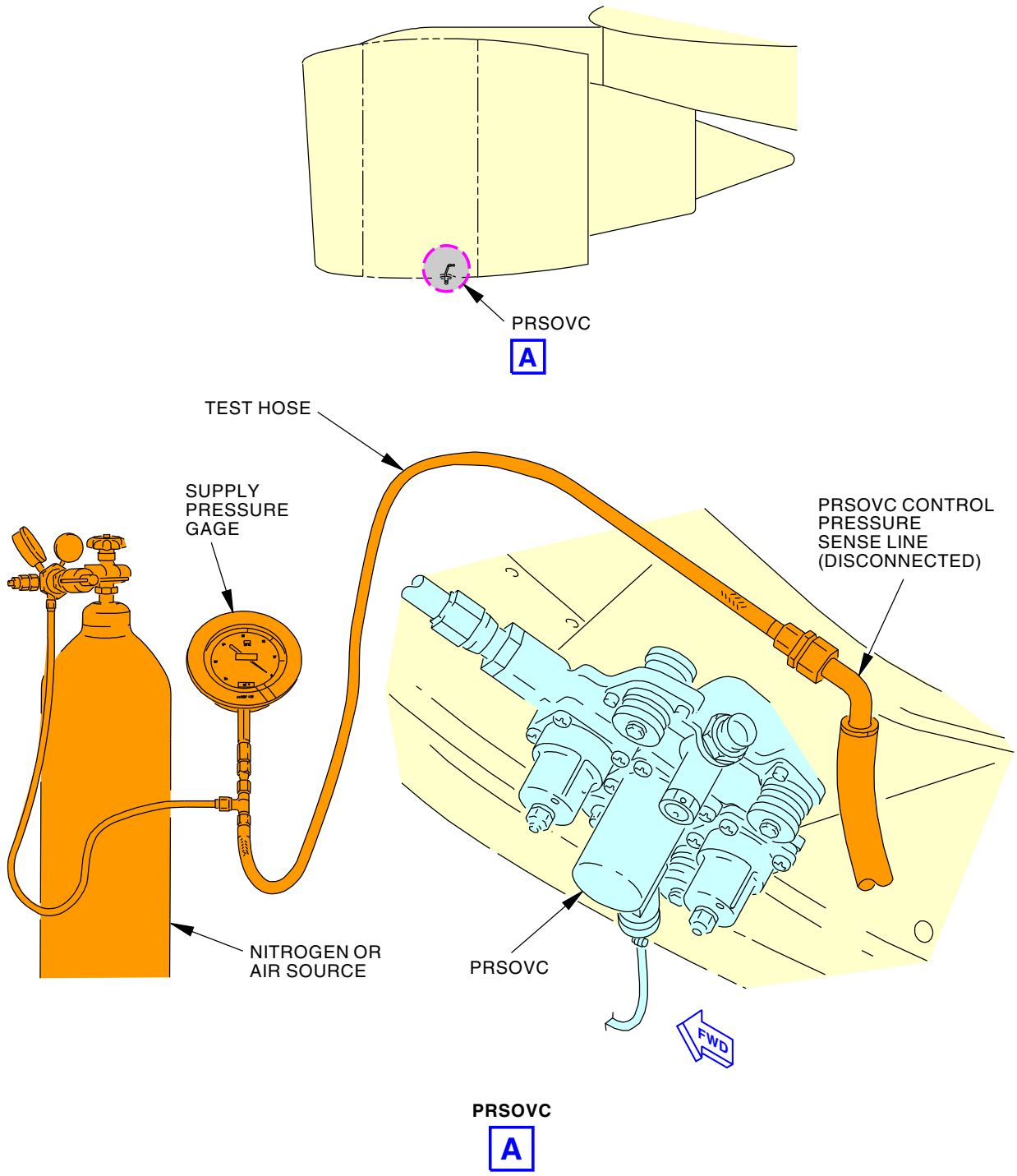
Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

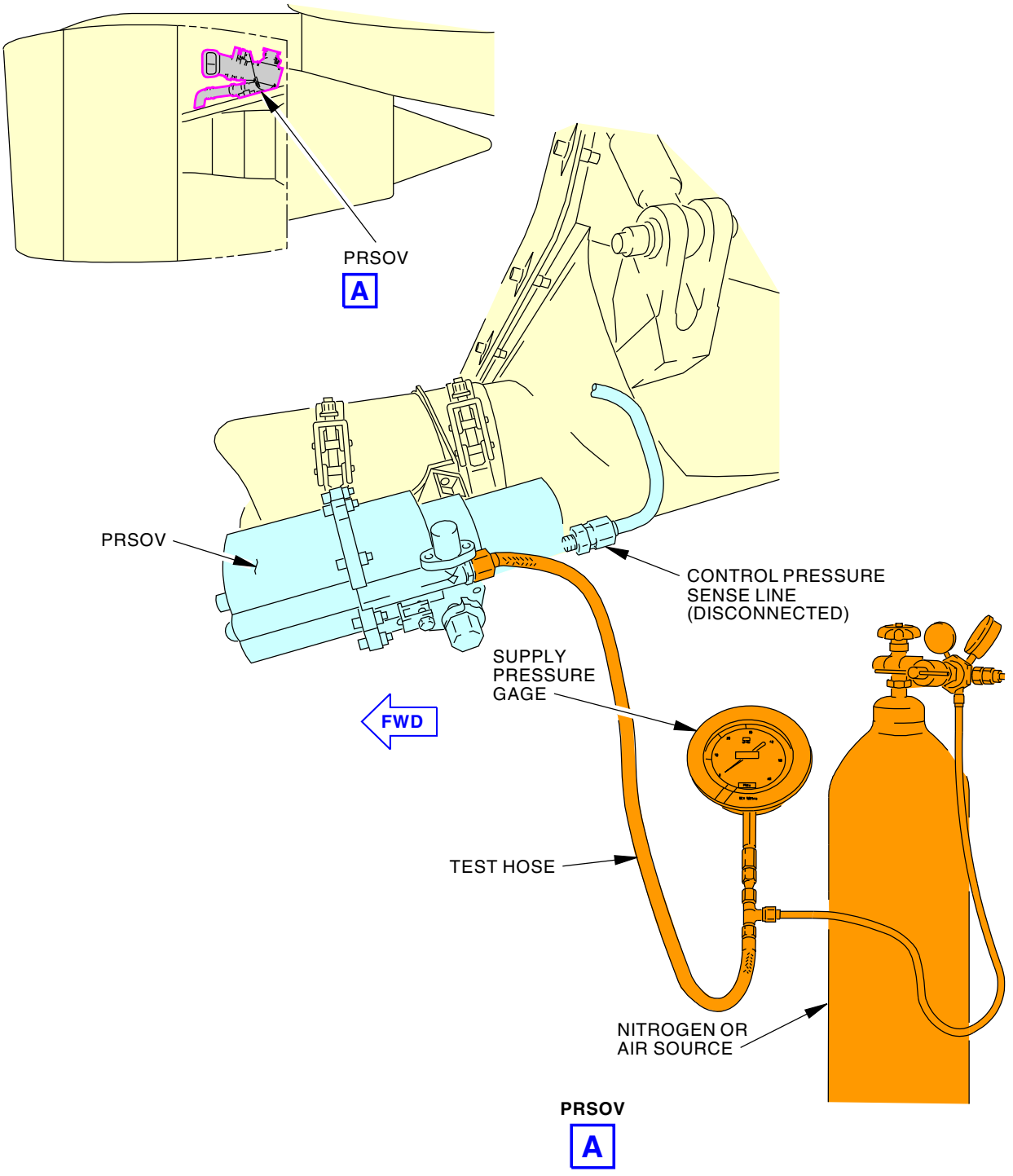
(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

END OF TASK



Pressurization Upstream of the PRSOV
Figure 202/36-00-00-990-817 (Sheet 1 of 2)



Pressurization Upstream of the PRSOV
Figure 202/36-00-00-990-817 (Sheet 2 of 2)

TASK 36-00-00-860-801

6. Depressurize the Pneumatic System

A. References

Reference	Title
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
49-11-00-860-805	APU Usual Shutdown (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)

B. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left

C. Access Panels

Number	Name/Location
195BL	ECS High Pressure Connection Door

D. Procedure to Depressurize the Pneumatic System

SUBTASK 36-00-00-860-023

WARNING TURN OFF THE PNEUMATIC PRESSURE SOURCE AND MAKE SURE THE REMAINING PRESSURE IN THE SYSTEM AND PNEUMATIC PRESSURE SOURCE IS RELEASED. IF YOU DO NOT RELEASE THE PRESSURE, IT WILL CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) To shut down the ground air source, APU, or the engines, do one of these steps:

(a) Shut down the ground air source.

(b) Do this task: APU Usual Shutdown, TASK 49-11-00-860-805.

(c) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-00-00-860-024

(2) Do these steps to release the pressure in the pneumatic system:

WARNING MAKE SURE THAT THE APU DOES NOT SUPPLY PNEUMATIC PRESSURE. THE RELEASE OF PNEUMATIC PRESSURE WILL CAUSE INJURY TO PERSONS.

(a) Do these steps to prepare for maintenance activity on the pneumatic system components:

1) Put the L(R) ENG BLEED AIR switch on the P5 panel to the OFF position.

2) Put the APU switch on the P5 overhead panel to the OFF position and attach a DO-NOT-OPERATE tag.

(b) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(c) Make sure the L(R) Eng High Stage Press and Interim Duct Press is 0 psig.

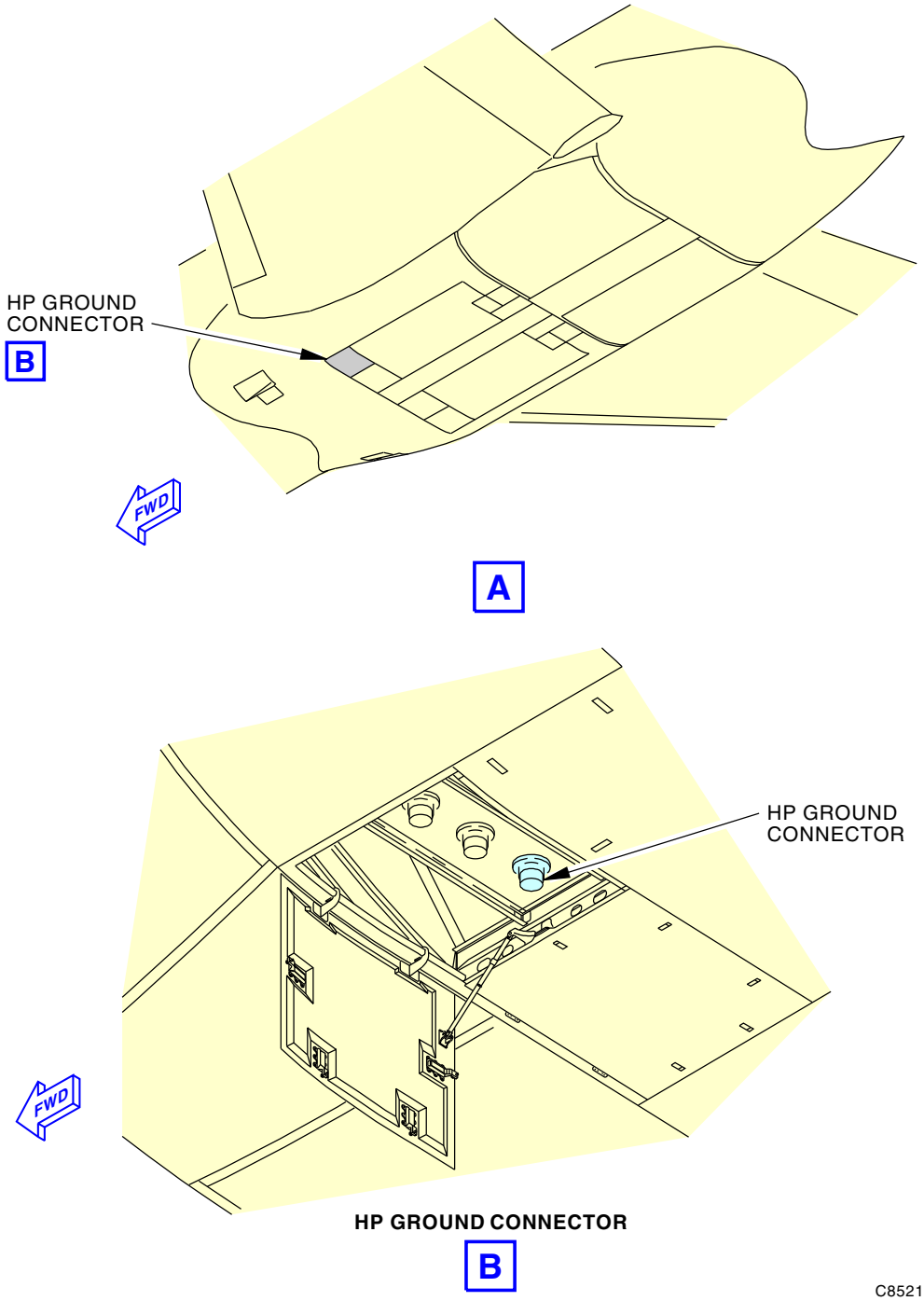
(d) Make sure the L(R) Manifold Duct Press is 0 psig before you open a pneumatic system connection.

(e) If you used the ground air source to pressurize the pneumatic system, then remove the ground air source at the HP ground connectors.

(f) Make sure that this access panel is closed:

Number	Name/Location
195BL	ECS High Pressure Connection Door

——— END OF TASK ———



HP Ground Connector Access
Figure 203/36-00-00-990-807

PNEUMATIC - DDG MAINTENANCE PROCEDURES

1. General

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

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

C. These are the tasks for the components in the pneumatic system:

(1) MMEL 36-00-1 (DDG) Preparation - Air Supply and Cabin Pressure Controllers (ASCPC) Inoperative

(2) MMEL 36-00-1 (DDG) Restoration - Air Supply and Cabin Pressure Controllers (ASCPC) Inoperative

(3) MMEL 36-11-1 (DDG) Preparation - Pressure Regulating and Shutoff Systems (PRSOV, PRSOVC) Inoperative

(4) MMEL 36-11-1 (DDG) Restoration - Pressure Regulating and Shutoff Systems (PRSOV, PRSOVC) Inoperative

(5) MMEL 36-11-2 (DDG) Preparation - High Pressure Shutoff Valves (HPSOV) Inoperative

(6) MMEL 36-11-2 (DDG) Restoration - High Pressure Shutoff Valves (HPSOV) Inoperative

(7) MMEL 36-11-3 (DDG) Preparation - Intermediate Pressure Check Valves (IPCV) Inoperative

(8) MMEL 36-11-3 (DDG) Restoration - Intermediate Pressure Check Valves (IPCV) Inoperative

(9) MMEL 36-11-4 (DDG) Preparation - Precoolers Inoperative

(10) MMEL 36-11-4 (DDG) Restoration - Precoolers Inoperative

(11) MMEL 36-11-5 (DDG) Preparation - Fan Air Modulation Valves (FAMV) Inoperative

(12) MMEL 36-11-5 (DDG) Restoration - Fan Air Modulation Valves (FAMV) Inoperative

(13) MMEL 36-12-1 (DDG) Preparation - Left and Right Isolation Systems (Valve and/or Indication) Inoperative

(14) MMEL 36-12-1 (DDG) Restoration - Left and Right Isolation Systems (Valve and/or Indication) Inoperative

(15) MMEL 36-12-2 (DDG) Preparation - Center Isolation System (Valve and/or Indication) Inoperative

(16) MMEL 36-12-2 (DDG) Restoration - Center Isolation System (Valve and/or Indication) Inoperative

(17) MMEL 36-12-3 (DDG) Preparation - APU Bleed Air Shutoff System (Valve and/or Indication) Inoperative

(18) MMEL 36-12-3 (DDG) Restoration - APU Bleed Air Shutoff System (Valve and/or Indication) Inoperative

(19) MMEL 36-22-1 (DDG) Preparation - Manifold Temperature Sensing Systems Inoperative

(20) MMEL 36-22-1 (DDG) Restoration - Manifold Temperature Sensing Systems Inoperative

TASK 36-00-00-040-809

2. MMEL 36-00-1 (DDG) Preparation - Air Supply and Cabin Pressure Controllers (ASCPC) Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the right Air Supply and Cabin Pressure Controllers (ASCPC) Inoperative.

(2) EICAS Status Messages

(a) ASCP PRIMARY CTRL L

(b) ASCP PRIMARY CTRL R

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
49-11-00-860-805	APU Usual Shutdown (P/B 201)
71-00-00-800-835-H00	Engine Start (Selection) (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. ASCPC Backup Controller Normal Operation Test

SUBTASK 36-00-00-860-065

(1) Start the left engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00.

SUBTASK 36-00-00-860-066

(2) To shutdown the APU or remove the ground air source, do one of these steps:

(a) Do this task: APU Usual Shutdown, TASK 49-11-00-860-805.

(b) Shutdown and disconnect the ground air source.

SUBTASK 36-00-00-040-012

(3) Do these steps to Deactivate the Primary Controller in the L ASCPC:

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

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	3	C36615	AIR SPLY L SOL

SUBTASK 36-00-00-710-007

(4) Do these steps to do a test of the L ASCPC backup controller:

(a) Put the L ENG Bleed switch on the Bleed Air module of the P5 panel to the OFF position.

(b) Make sure the L PACK OFF light illuminates.

(c) Put the L ENG Bleed switch on the Bleed Air module of the P5 panel to the ON position.

(d) Make sure the L PACK OFF light extinguishes.

(e) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-00-00-040-025

(5) Do these steps to Activate the Primary Controller in the L ASCPC:

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

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	3	C36615	AIR SPLY L SOL

SUBTASK 36-00-00-860-067

(6) Start the right engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00.

SUBTASK 36-00-00-860-068

(7) To shutdown the APU or remove the ground air source, do one of these steps:

(a) Do this task: APU Usual Shutdown, TASK 49-11-00-860-805.

(b) Shutdown and disconnect the ground air source.

SUBTASK 36-00-00-040-026

(8) Do these steps to Deactivate the Primary Controller in the R ASCPC:

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-00-00-710-008

(9) Do these steps to do a test of the R ASCPC backup controller:

(a) Put the R ENG Bleed switch on the Bleed Air module of the P5 panel to the OFF position.

(b) Make sure the R PACK OFF light illuminates.

(c) Put the R ENG Bleed switch on the Bleed Air module of the P5 panel to the ON position.

(d) Make sure the R PACK OFF light extinguishes.

(e) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-00-00-040-027

(10) Do these steps to Activate the Primary Controller in the R ASCPC:

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
E	5	C36619	AIR SPLY R SEC

E. Cabin Temperature Controller Normal Operation Test

SUBTASK 36-00-00-710-009

(1) Remove pneumatic power from the airplane. To remove the pneumatic power, do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-00-00-710-011

(2) Do these steps to do a test of the right cabin temperature controller (CTC):

(a) Push the R PACK switch on the Pilot's Overhead Panel, P5, until the OFF light comes on.

(b) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

(c) Do these steps to make sure the right CTC channel 1 operates correctly:

1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
H	3	C21648	R CTC CHAN 2 (DC)

2) After 10 seconds, get access to the glareshield panel, P55.

3) Select the Status (STAT) page on the Display Select Panel.

4) Make sure the CABIN TEMP CTRL R status message does not show on the Status (STAT) page.

5) Use the DSP STAT switch to see each of the Status pages.

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

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
H	3	C21648	R CTC CHAN 2 (DC)

(d) Do these steps to make sure the right CTC channel 2 operates correctly:

1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)

2) After 10 seconds, get access to the glareshield panel, P55.

3) Select the Status (STAT) page on the Display Select Panel.

4) Make sure the CABIN TEMP CTRL R status message does not show on the Status (STAT) page.

5) Use the DSP STAT switch to see each of the Status pages.

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

Right Power Management Panel, P210

Row	Col	Number	Name
G	28	C21432	R CTC CHAN 1 (AC)

(Continued)

Right Power Management Panel, P210

Row	Col	Number	Name
H	2	C21642	R CTC CHAN 1 (DC)

(e) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

F. ASCPC Primary Controller Deactivation

NOTE: If all of the steps in the ASCPC Backup Controller Test and the Cabin Temperature Controller Test were satisfactory you can deactivate the right controller for the ASCPC.

NOTE: You can not deactivate the left ASCPC.

SUBTASK 36-00-00-040-029

(1) If you need to Deactivate the Primary Controller in the R ASCPC, do these steps:

NOTE: The CABIN ALT AUTO R status message will be displayed.

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
E	5	C36619	AIR SPLY R SEC

——— END OF TASK ———

TASK 36-00-00-440-809

3. MMEL 36-00-1 (DDG) Restoration - Air Supply and Cabin Pressure Controllers (ASCPC) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the right Air Supply and Cabin Pressure Controllers (ASCPC) Inoperative.

(2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Procedure to repair the Fault

SUBTASK 36-00-00-860-053

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

SUBTASK 36-00-00-740-016

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

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

SUBTASK 36-00-00-740-017

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

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

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

SUBTASK 36-00-00-740-018

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

D. Procedure to Activate and do a System Test of the R ASCPC

NOTE: Do not do these steps if the R ASCPC was replaced during the Fault Indication Repair section above.

SUBTASK 36-00-00-040-014

(1) Do these steps to Activate the Primary Controller in the R ASCPC:

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-00-00-040-015

(2) Use a maintenance access terminal (MAT) to do the system test of the right Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

——— END OF TASK ———

TASK 36-00-00-040-801

4. MMEL 36-11-1 (DDG) Preparation - Pressure Regulating and Shutoff Systems (PRSOV,PRSOVC) Inoperative

(Figure 901)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Engine Bleed Pressure Regulating and Shutoff Systems Inoperative (PRSOV, PRSOVC).

(2) EICAS Status Messages

(a) BLEED PRSOV L

(b) BLEED PRSOV R

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine

E. Procedure to Lock Closed the PRSOV

SUBTASK 36-00-00-010-005

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in this sequence to safely open the thrust reverser for the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine

(e) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-006

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in this sequence to safely open the thrust reverser for the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine

(e) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine

SUBTASK 36-00-00-040-001

(3) Do the instructions "MANUALLY LOCKING CLOSED" on the PRSOV to put the PRSOV in the locked closed position.

(a) For manually locking closed the valve, it is necessary to rotate the hex in direction of arrow until LOCKED is visible as shown in Figure 901.

(b) Make sure that the slide valve is in the compressed position as shown in Figure 901.

SUBTASK 36-00-00-040-002

(4) Push the L(R) ENG switch on the Bleed Air Module of the P5 panel to the OFF position.

SUBTASK 36-00-00-010-007

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR

(5) Do these tasks in this sequence to safely close the thrust reverser:

(a) To close the left thrust reverser on the applicable engine, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine

(b) To close the left fan cowl panel on the applicable engine, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

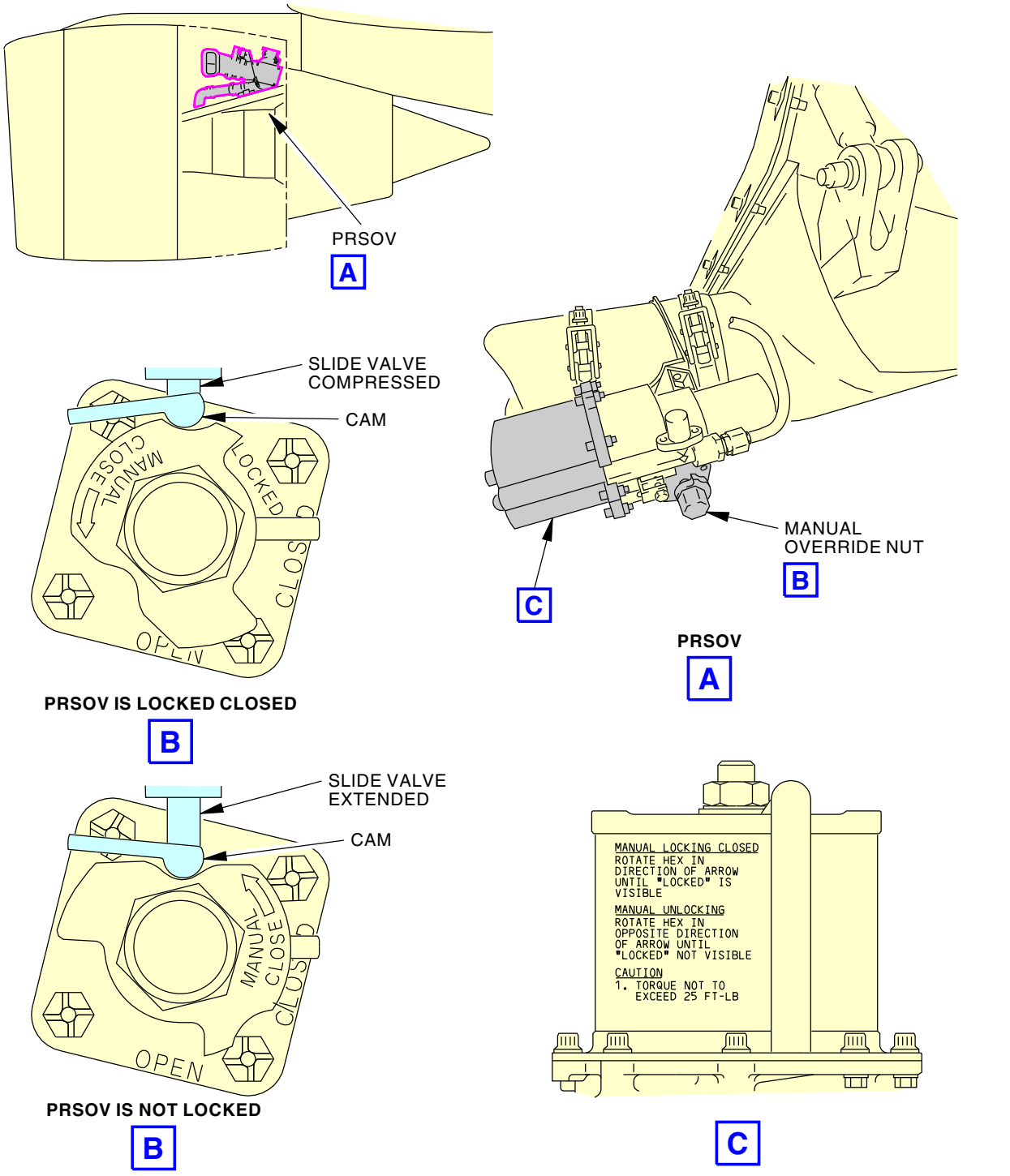
Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

(e) Remove the DO-NOT-OPERATE tag from the flap control lever.

END OF TASK



E04899 S0006421630_V3

PRSOV Deactivation
Figure 901/36-00-00-990-801

TASK 36-00-00-440-801

5. MMEL 36-11-1 (DDG) Restoration - Pressure Regulating and Shutoff Systems (PRSOV,PRSOVC) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Engine Bleed Pressure Regulating and Shutoff Systems Inoperative (PRSOV, PRSOVC).

(2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine

E. Procedure to repair the Fault

SUBTASK 36-00-00-860-030

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

SUBTASK 36-00-00-740-001

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

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

SUBTASK 36-00-00-740-002

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

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

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

SUBTASK 36-00-00-740-003

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

F. Procedure to Unlock and Test the PRSOV

NOTE: Do not do these steps if the PRSOV was replaced during the Fault Indication Repair section above.

SUBTASK 36-00-00-010-008

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER(S). IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR

(1) Do these tasks in this sequence to safely open the thrust reverser for the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine

(e) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-009

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER(S). IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR

(2) Do these tasks in this sequence to safely open the thrust reverser for the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine

(e) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine

SUBTASK 36-00-00-440-001

(3) Do the instructions "MANUALLY UNLOCKING" on the PRSOV to unlock the PRSOV.

NOTE: The HPSOV/PRSOV (-5 assemblies) are equipped with a manual override plunger. A valve that has been manually locked closed will occasionally become stuck in place after it is unlocked. Push the manual override plunger to free the valve that may be stuck in the closed position.

SUBTASK 36-00-00-212-001

(4) Make sure the slide valve moves to the extended position as shown in Figure 901.

NOTE: The slide valve should remain in contact with the cam on the position indicator at all times.

SUBTASK 36-00-00-860-031

(5) Do this task: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802.

SUBTASK 36-00-00-860-144

(6) Get access to the Air Supply Maintenance Page.

(a) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-00-00-710-001

(7) Push the L (R) ENG switch on the Bleed Air Module of the P5 panel to the ON position.

(a) Make sure the PRSOV goes to the fully open position.

NOTE: Use the Air Supply Maintenance Page to view the position of the PRSOV.

SUBTASK 36-00-00-710-002

(8) Push the L (R) ENG switch on the Bleed Air Module of the P5 panel to the OFF position.

(a) Make sure the PRSOV goes to the fully closed position.

NOTE: Use the Air Supply Maintenance Page to view the position of the PRSOV.

SUBTASK 36-00-00-860-032

(9) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-00-00-010-010

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(10) Do these tasks in this sequence to safely close the thrust reverser:

(a) To close the left thrust reverser on the applicable engine, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine

(b) To close the left fan cowl panel on the applicable engine, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

TASK 36-00-00-040-802

6. MMEL 36-11-2 (DDG) Preparation - High Pressure Shutoff Valves (HPSOV) Inoperative

(Figure 902)

A. General

(1) This procedure has maintenance task for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Guide (DDG). This task prepares the airplane for flight with applicable system/components inoperative.

(2) EICAS Status Messages

(a) BLEED HPSOV L

(b) BLEED HPSOV R

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(Continued)

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Procedure to Lock Closed the HPSOV

SUBTASK 36-00-00-010-011

(1) Do these steps for the HPSOV on the left engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801

(b) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(c) If the engine bleed air will not be used, do this step:

1) Set the engine 1 BLEED switch, on the P5-10 Panel, to the OFF position.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-012

(2) Do these steps for the HPSOV on the right engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801

(b) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(c) If the engine bleed air will not be used, do this step:

1) Set the engine 2 BLEED switch, on the P5-10 Panel, to the OFF position.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

SUBTASK 36-00-00-040-003

(3) Do the instructions "MANUALLY LOCKING CLOSED" on the HPSOV to put the HPSOV in the locked closed position.

(a) For manually locking closed the valve, it is necessary to rotate the hex in direction of the arrow until LOCKED is visible as shown in Figure 902.

(b) Make sure that the slide valve is in the compressed position as shown in Figure 902.

SUBTASK 36-00-00-040-040

(4) If the applicable engine bleed air will not be used, do this step:

(a) Do the instructions "MANUALLY LOCKING CLOSED" on the PRSOV to put the PRSOV in the locked closed position.

SUBTASK 36-00-00-010-013

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Do these tasks in this sequence to safely close the thrust reverser:

(a) To close the thrust reversers on the applicable engine, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels on the applicable engine, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

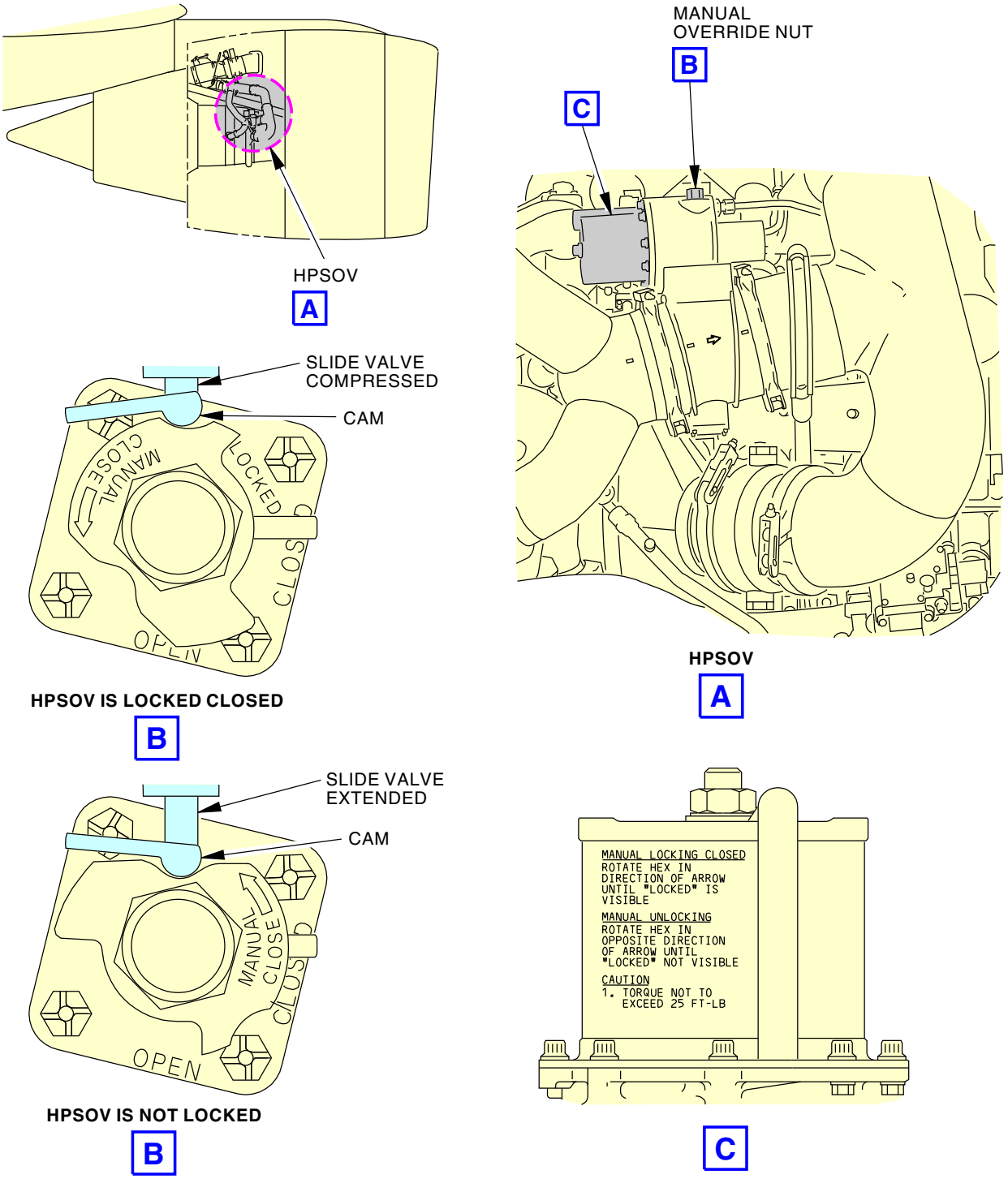
(Continued)

Number	Name/Location
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———



HPSOV Deactivation
Figure 902/36-00-00-990-802

TASK 36-00-00-440-802

7. MMEL 36-11-2 (DDG) Restoration - High Pressure Shutoff Valves (HPSOV) Inoperative

A. General

(1) This procedure has a maintenance task for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Guide (DDG).

(2) This task puts the airplane back to its usual condition after operation with the Engine Bleed High Pressure Shutoff Valves (HPSOV) Inoperative.

(3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Procedure to repair the Fault

SUBTASK 36-00-00-860-033

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

SUBTASK 36-00-00-740-004

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

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

SUBTASK 36-00-00-740-005

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

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

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

SUBTASK 36-00-00-740-006

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

F. Procedure to Unlock and Test the HPSOV

NOTE: Do not do these steps if the HPSOV was replaced during the Fault Indication Repair section above.

SUBTASK 36-00-00-010-014

(1) Do these steps for the HPSOV on the left engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER(S). IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

3) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

4) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

5) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-015

(2) Do these steps for the HPSOV on the right engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER(S). IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(b) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

1) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

2) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

SUBTASK 36-00-00-010-067

(3) Get access to the Air Supply Maintenance Page.

(a) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-00-00-440-002

(4) Do the instructions "MANUALLY UNLOCKING" on the HPSOV to unlock the HPSOV.

SUBTASK 36-00-00-440-013

(5) If not already done, do the instructions "MANUALLY UNLOCKING" on the PRSOV to unlock the PRSOV.

NOTE: The HPSOV/PRSOV (-5 assemblies) are equipped with a manual override plunger. A valve that has been manually locked closed will occasionally become stuck in place after it is unlocked. Push the manual override plunger to free the valve that may be stuck in the closed position.

SUBTASK 36-00-00-212-002

(6) Make sure the slide valve moves to the extended position as shown in Figure 902.

NOTE: The slide valve should remain in contact with the cam on the position indicator at all times.

SUBTASK 36-00-00-860-034

(7) Do this task: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802.

SUBTASK 36-00-00-710-003

(8) Set the engine 1(2) BLEED switch, on the P5-10 Panel, to the ON position.

(a) Make sure the HPSOV goes to the fully open position.

NOTE: Use the Air Supply Maintenance Page to view the position of the HPSOV.

SUBTASK 36-00-00-710-004

(9) Set the engine 1(2) BLEED switch, on the P5-10 Panel, to the OFF position.

(a) Make sure the HPSOV goes to the fully closed position.

NOTE: Use the Air Supply Maintenance Page to view the position of the HPSOV.

SUBTASK 36-00-00-860-035

(10) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-00-00-010-016

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(11) Do these tasks in this sequence to safely close the thrust reverser:

(a) To close the thrust reversers on the applicable engine, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels on the applicable engine, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

TASK 36-00-00-040-803

8. MMEL 36-11-3 (DDG) Preparation - Intermediate Pressure Check Valves (IPCV) Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Engine Bleed Intermediate Pressure Check Valves (IPCV) Inoperative.

B. Procedure to Lock Closed the PRSOV and HPSOV

SUBTASK 36-00-00-040-004

(1) Do this task: MMEL 36-11-1 (DDG) Preparation - Pressure Regulating and Shutoff Systems (PRSOV,PRSOVC) Inoperative, TASK 36-00-00-040-801.

SUBTASK 36-00-00-040-005

(2) Do this task: MMEL 36-11-2 (DDG) Preparation - High Pressure Shutoff Valves (HPSOV) Inoperative, TASK 36-00-00-040-802.

——— END OF TASK ———

TASK 36-00-00-440-803

9. MMEL 36-11-3 (DDG) Restoration - Intermediate Pressure Check Valves (IPCV) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Engine Bleed Intermediate Pressure Check Valves (IPCV) Inoperative.

B. Procedure to Unlock and Test the PRSOV and HPSOV

SUBTASK 36-00-00-440-003

(1) Do this task: MMEL 36-11-1 (DDG) Restoration - Pressure Regulating and Shutoff Systems (PRSOV,PRSOVC) Inoperative, TASK 36-00-00-440-801.

SUBTASK 36-00-00-440-004

(2) Do this task: MMEL 36-11-2 (DDG) Restoration - High Pressure Shutoff Valves (HPSOV) Inoperative, TASK 36-00-00-440-802.

——— END OF TASK ———

TASK 36-00-00-040-810

10. MMEL 36-11-4 (DDG) Preparation - Precoolers Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with a damaged Precooler.

NOTE: The precooler is inoperative if it is fully blocked or has leakage rates which are more than the usual limits (fails the tests below).

If the precooler airflow is fully blocked, the associated engine bleed system is rendered inoperative and must be repaired or dispatched per MMEL 36-11-1.

If the precooler has leakage which is more than the permitted limits, the airplane must be repaired.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
36-10-00-790-804	Air Supply System Decay Test (P/B 501)
36-11-15-000-816-004	Precooler Removal with the Engine Installed (P/B 401)
36-11-15-000-817-004	Precooler Removal with the Engine Removed (P/B 401)
36-11-15-400-816-004	Precooler Installation with the Engine Installed (P/B 401)
36-11-15-400-817-004	Precooler Installation with the Engine Removed (P/B 401)

(Continued)

Reference	Title
71-00-00-800-835-H00	Engine Start (Selection) (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Precooler Operational Test

NOTE: This test will make sure the precooler airflow is not completely blocked

SUBTASK 36-00-00-040-019

(1) Do these steps to make sure the precooler airflow is not completely blocked:

(a) Do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00.

(b) Put one of the ADP switches on the P5 panel to the ON position.

(c) To get access to the 36 AIR SUPPLY and 21 AIR CONDITIONING Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

NOTE: You can find these pages on one of the three control display units on the center aisle stand between the Pilot and First Officer.

(d) Make sure the two packs are operating on FLOW SCHEDULE 1.

(e) Make sure the PRECOOLER OUT TEMP <390 °F (199 °C).

SUBTASK 36-00-00-868-001

(2) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00

F. Precooler Leak Test

NOTE: This test will make sure precooler leakage remains within normal limits.

SUBTASK 36-00-00-860-054

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

SUBTASK 36-00-00-860-055

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

Left Power Management Panel, P110

Row	Col	Number	Name
H	2	C21431	L CTC CHAN 1 (AC)
H	3	C21433	L CTC CHAN 2 (AC)
H	24	C21647	L CTC CHAN 2 (DC)
H	25	C21641	L CTC CHAN 1 (DC)

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)
H	3	C21648	R CTC CHAN 2 (DC)
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-00-00-860-056

(3) Put these switches in the OFF position:

(a) On the Forward Overhead Panel P5:

1) L PACK
2) R PACK
3) DEMAND HYD AIR C1
4) DEMAND HYD AIR C2
5) L TRIM AIR
6) R TRIM AIR
7) WING ANTI-ICE
8) APU
9) L ENG BLEED AIR
10) R ENG BLEED AIR

(b) On the Aft Overhead Maintenance Panel P61:

1) AFT CGO TEMP SELECT
2) BULK CGO TEMP SELECT

SUBTASK 36-00-00-860-057

(4) Put these switches in the AUTO position:

(a) On the Forward Overhead Panel P5:

1) L ISLN
2) R ISLN
3) C ISLN

SUBTASK 36-00-00-860-058

(5) Put these selectors in the NORM position:

(a) On the Forward Overhead Panel P5:

1) L ENGINE START/IGNITION
2) R ENGINE START/IGNITION

SUBTASK 36-00-00-860-060

(6) To supply pneumatic power with the APU, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

SUBTASK 36-00-00-860-061

(7) Make sure the potable water system is not being serviced.

SUBTASK 36-00-00-860-064

(8) To get access to the 36 AIR SUPPLY Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

NOTE: You can find this page on one of the three control display units on the center aisle stand between the Pilot and First Officer.

You will use this page to monitor the manifold duct pressure during the leak test.

SUBTASK 36-00-00-790-001

(9) Put the APU Bleed switch to the auto position and pressurize the manifold duct to a minimum pressure of 25 Psig.

SUBTASK 36-00-00-790-009

(10) With a stopwatch, prepare to keep a record of the time for manifold duct pressure to decrease from 25 psig to 10 psig.

SUBTASK 36-00-00-790-002

(11) If you will do a check of the left precooler, put the APU Bleed switch and the L ISLN Bleed switch in the CLOSED position.

SUBTASK 36-00-00-790-003

(12) If you will do a check of the right precooler, put the APU Bleed switch and the R ISLN Bleed switch in the CLOSED position.

SUBTASK 36-00-00-790-004

(13) Start the stopwatch when the manifold duct pressure reaches 25 psig.

SUBTASK 36-00-00-790-005

(14) Keep a record of the manifold duct pressure for 30 seconds.

SUBTASK 36-00-00-790-006

(15) If the manifold duct pressure is greater than 10 psig after 30 seconds the test is satisfactory.

SUBTASK 36-00-00-040-020

(16) If the test is not satisfactory, do the steps that follow to get access to the applicable precooler to feel for leakage.

SUBTASK 36-00-00-010-033

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(17) Do these tasks in sequence to safely open the left and right thrust reversers for the precooler on the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) For the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-034

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(18) Do these tasks in sequence to safely open the left and right thrust reversers for the precooler on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

SUBTASK 36-00-00-040-031

(19) Supply pneumatic power with the APU, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802

SUBTASK 36-00-00-040-022

(20) Keep your hand 12 inches from the precooler and do a check for leakage around the precooler.

SUBTASK 36-00-00-790-007

(21) Make sure you do not feel leakage.

(a) If there is excessive leakage replace the precooler,

These are the tasks:

Precooler Removal with the Engine Installed, TASK 36-11-15-000-816-004,

Precooler Installation with the Engine Installed, TASK 36-11-15-400-816-004.

Precooler Removal with the Engine Removed, TASK 36-11-15-000-817-004,

Precooler Installation with the Engine Removed, TASK 36-11-15-400-817-004.

SUBTASK 36-00-00-790-011

(22) If you do not feel leakage from the precooler at a distance of 12 inches, do this task: Air Supply System Decay Test, TASK 36-10-00-790-804.

NOTE: There can be other areas of leakage in the air supply system.

SUBTASK 36-00-00-790-008

(23) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-063

(24) Put the switches/selectors back to their usual position.

SUBTASK 36-00-00-010-035

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(25) Do these tasks in sequence to safely close the left and right thrust reversers on the applicable engine:

(a) For the left and right thrust reversers, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) For the left and right fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(Continued)

Number	Name/Location
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

TASK 36-00-00-440-810

11. MMEL 36-11-4 (DDG) Restoration - Precoolers Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with a damaged Precooler.

B. References

Reference	Title
36-11-15-000-816-004	Precooler Removal with the Engine Installed (P/B 401)
36-11-15-000-817-004	Precooler Removal with the Engine Removed (P/B 401)
36-11-15-400-816-004	Precooler Installation with the Engine Installed (P/B 401)
36-11-15-400-817-004	Precooler Installation with the Engine Removed (P/B 401)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Procedure to Replace the Precooler

SUBTASK 36-00-00-440-007

(1) Do the applicable tasks to replace the damaged precooler.

These are the tasks:

Precooler Removal with the Engine Installed, TASK 36-11-15-000-816-004,

Precooler Installation with the Engine Installed, TASK 36-11-15-400-816-004.

Precooler Removal with the Engine Removed, TASK 36-11-15-000-817-004,

Precooler Installation with the Engine Removed, TASK 36-11-15-400-817-004.

——— END OF TASK ———

TASK 36-00-00-040-804

12. MMEL 36-11-5 (DDG) Preparation - Fan Air Modulation Valves (FAMV) Inoperative
(Figure 903)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Fan Air Modulating Valves (FAMV) Inoperative.

(2) EICAS Status Messages

(a) BLEED FAMV L

(b) BLEED FAMV R

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Procedure to Lock Open the FAMV

SUBTASK 36-00-00-010-017

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely open the thrust reverser for the FAMV on the left engine.

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

1) For the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine

2) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-018

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in sequence to safely open the thrust reverser for the FAMV on the right engine.

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

1) For the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine

2) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine

SUBTASK 36-00-00-040-006

(3) Do the instructions on the FAMV to put the FAMV in the locked OPEN position.

SUBTASK 36-00-00-010-019

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Do these tasks in sequence to safely close the thrust reverser on the applicable engine:

(a) To close the thrust reversers on the applicable engine, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels on the applicable engine, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

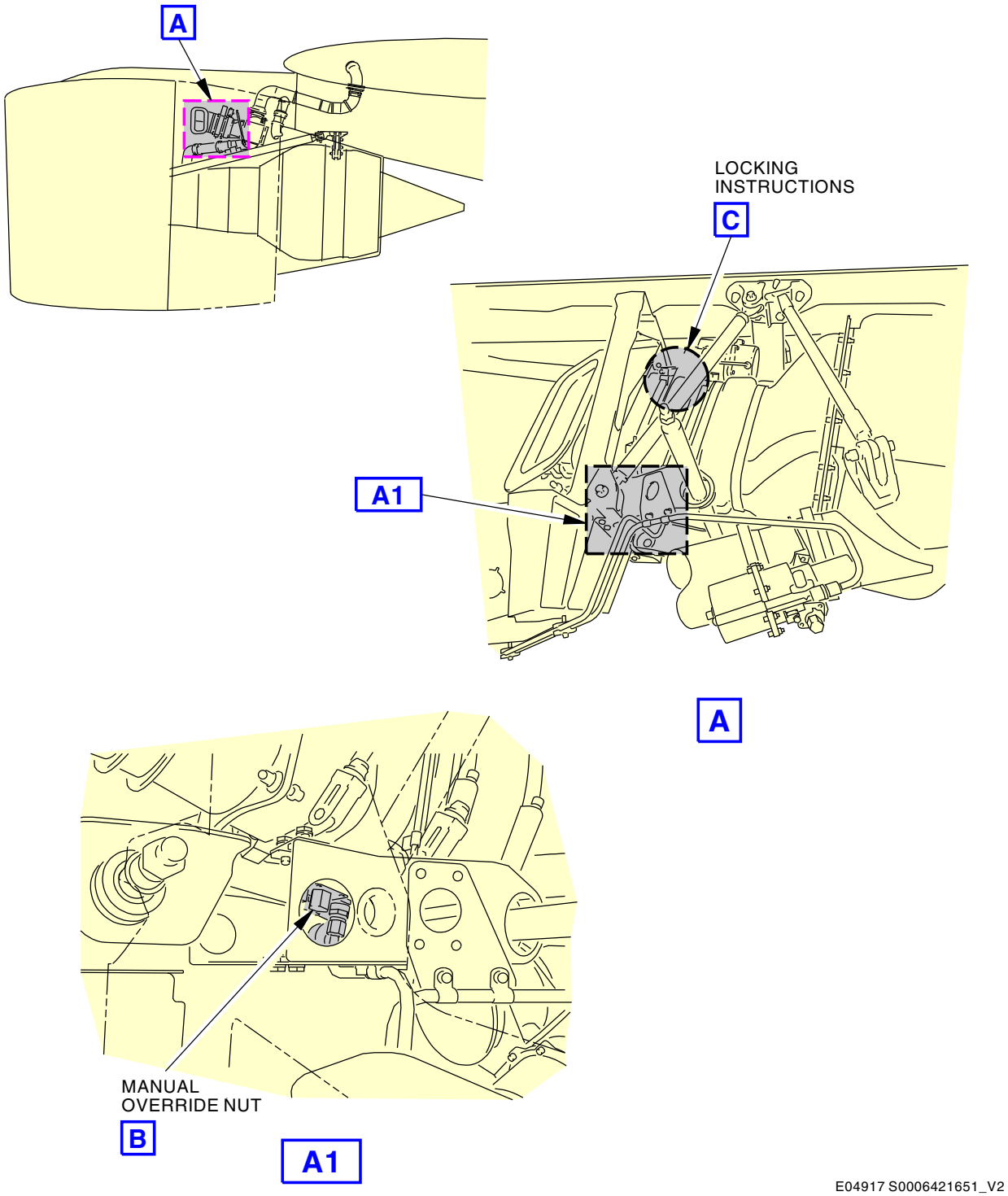
(Continued)

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

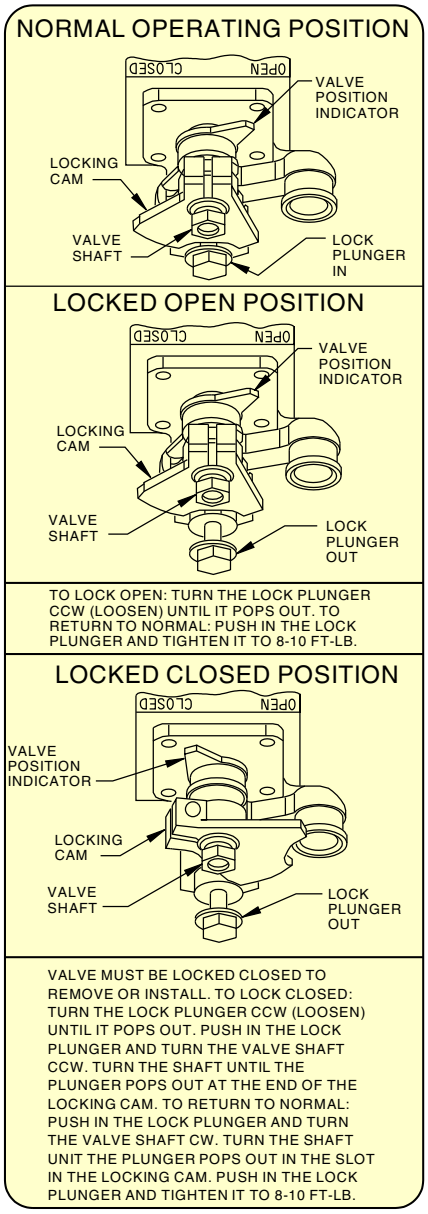
(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

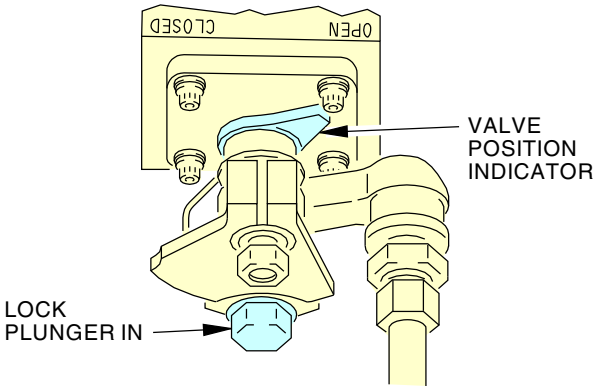


FAMV Deactivation
Figure 903/36-00-00-990-803 (Sheet 1 of 2)



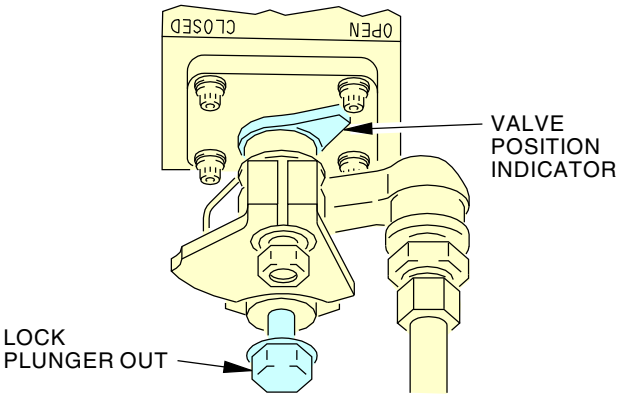
LOCKING INSTRUCTIONS

C



FAMV IS NOT LOCKED

B



FAMV IS LOCKED OPEN

B

F42168 S0006421655_V2

FAMV Deactivation
Figure 903/36-00-00-990-803 (Sheet 2 of 2)

TASK 36-00-00-440-804

13. MMEL 36-11-5 (DDG) Restoration - Fan Air Modulation Valves (FAMV) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Fan Air Modulation Valves (FAMV) Inoperative.

(2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-10-00-700-801	Engine Air Supply Operational Test (P/B 501)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Procedure to repair the Fault

SUBTASK 36-00-00-860-036

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

SUBTASK 36-00-00-740-007

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

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

SUBTASK 36-00-00-740-008

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

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

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

SUBTASK 36-00-00-740-009

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

F. Procedure to Unlock and Test the FAMV

NOTE: Do not do these steps if the FAMV was replaced during the Fault Indication Repair section above.

SUBTASK 36-00-00-010-020

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely open the thrust reverser for the FAMV on the left engine.

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

1) To open the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine

2) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine

SUBTASK 36-00-00-010-021

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in sequence to safely open the thrust reverser for the FAMV on the right engine.

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

1) To open the left fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine

2) For the left thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine

SUBTASK 36-00-00-010-068

(3) Get access to the Air Supply Maintenance Page.

(a) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-00-00-420-002

(4) Do the instructions on the FAMV to put the FAMV in its normal operating position.

SUBTASK 36-00-00-860-037

(5) Do one of the following tasks: .

(a) Preferred Method: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802

(b) Alternate Method:Engine Air Supply Operational Test, TASK 36-10-00-700-801

SUBTASK 36-00-00-710-005

(6) Make sure the FAMV goes to the fully closed position.

NOTE: Use the Air Supply Maintenance Page to view the position of the FAMV.

SUBTASK 36-00-00-860-038

(7) Do one of the following tasks: .

(a) If the Preferred Method was performed in Step 5, then remove the nitrogen bottle.

(b) If the Alternate Method was performed in Step 5, then do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00

SUBTASK 36-00-00-710-006

(8) Make sure the FAMV goes to the fully open position.

NOTE: Use the Air Supply Maintenance Page to view the position of the FAMV.

SUBTASK 36-00-00-010-022

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(9) Do these tasks in sequence to safely close the thrust reverser on the applicable engine:

(a) To close the thrust reversers on the applicable engine, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine

(Continued)

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels on the applicable engine, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

TASK 36-00-00-040-805

14. MMEL 36-12-1 (DDG) Preparation - Left and Right Isolation Systems (Valve and/or Indication) Inoperative

(Figure 904)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Left and Right Bleed Air Isolation Systems Inoperative (Valve and/or Indication).

(2) EICAS Status Messages

(a) BLEED ISLN VALVE L

(b) BLEED ISLN VALVE R

B. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

C. Access Panels

Number	Name/Location
195QL	Blowout Door
196QR	Blowout Door

D. Procedure to Lock Closed or Open the Left or Right Isolation Valve

SUBTASK 36-00-00-010-023

(1) Open this access panel:

Number	Name/Location
195QL	Blowout Door

or open this access panel:

Number	Name/Location
196QR	Blowout Door

SUBTASK 36-00-00-040-007

(2) Do the UNLOCK, LATCH and LOCK instructions (Figure 904) to manually lock the left or right isolation valve in the open or closed position.

SUBTASK 36-00-00-410-004

(3) Close this access panel:

Number	Name/Location
195QL	Blowout Door

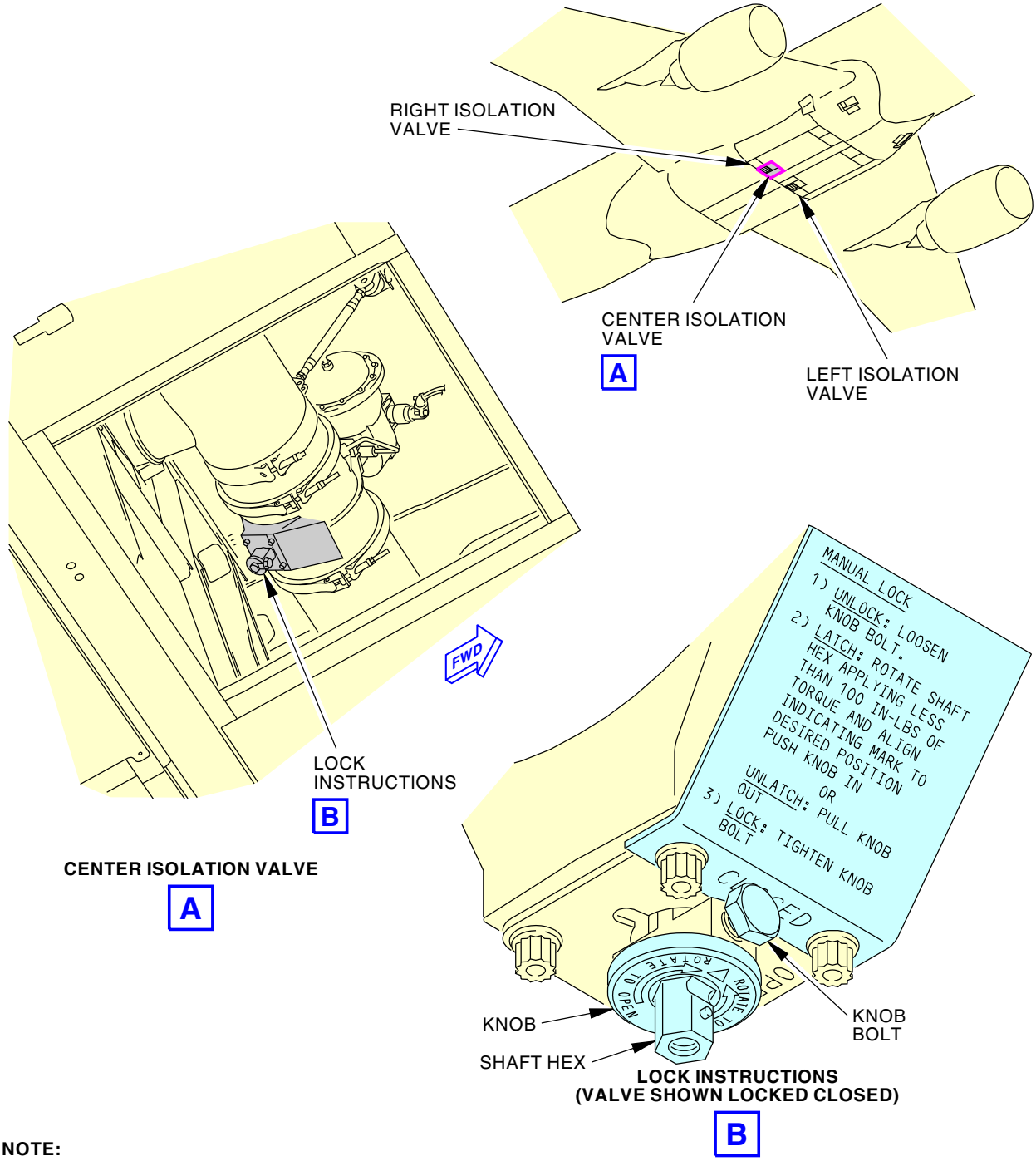
or close this access panel:

Number	Name/Location
196QR	Blowout Door

SUBTASK 36-00-00-860-039

(4) Push the L(R) ISLN switch on the Bleed Air Module of the P5 panel to the AUTO position (if the isolation valve is locked OPEN) or CLOSED position (if the isolation valve is locked CLOSED).

——— END OF TASK ———



NOTE:

CENTER ISOLATION VALVE IS SHOWN. LEFT AND RIGHT ISOLATION VALVES ARE EQUIVALENT.

E04922 S0006421660_V2

Isolation Valve Deactivation
Figure 904/36-00-00-990-804

TASK 36-00-00-440-805

15. MMEL 36-12-1 (DDG) Restoration - Left and Right Isolation Systems (Valve and/or Indication) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Left and Right Bleed Air Isolation Systems Inoperative (Valve and/or Indication).

(2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

D. Access Panels

Number	Name/Location
195QL	Blowout Door
196QR	Blowout Door

E. Procedure to repair the Fault

SUBTASK 36-00-00-860-040

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

SUBTASK 36-00-00-740-010

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

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

SUBTASK 36-00-00-740-011

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

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

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

SUBTASK 36-00-00-740-012

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

F. Procedure to Unlock and Test the Left or Right Isolation Valve

NOTE: Do not do these steps if the Left or Right Isolation Valve was replaced during the Fault Indication Repair section above.

SUBTASK 36-00-00-010-024

(1) Open this access panel:

Number	Name/Location
195QL	Blowout Door

or open this access panel:

Number	Name/Location
196QR	Blowout Door

SUBTASK 36-00-00-440-005

(2) Do the UNLOCK, UNLATCH and LOCK instructions to put the left or right isolation valve in its usual position.

SUBTASK 36-00-00-860-041

(3) Put the L(R) ISLN switch on the Bleed Air module of the P5 panel to the AUTO position.

SUBTASK 36-00-00-860-042

(4) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(a) Make sure the L(R) isolation valve goes to the fully open position.

SUBTASK 36-00-00-860-043

(5) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

(a) Make sure the L(R) isolation valve goes to the fully closed position.

SUBTASK 36-00-00-410-001

(6) Close this access panel:

Number	Name/Location
195QL	Blowout Door

or close this access panel:

Number	Name/Location
196QR	Blowout Door

——— END OF TASK ———

TASK 36-00-00-040-806

16. MMEL 36-12-2 (DDG) Preparation - Center Isolation System (Valve and/or Indication) Inoperative

(Figure 904)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Center Bleed Air Isolation System Inoperative (Valve and/or Indication.

(2) EICAS Status Messages

(a) BLEED ISLN VALVE C

B. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

C. Access Panels

Number	Name/Location
196NR	Underwing Fairing Panel

D. Center Isolation Valve Deactivation

SUBTASK 36-00-00-010-028

(1) Open this access panel:

Number	Name/Location
196NR	Underwing Fairing Panel

SUBTASK 36-00-00-040-008

(2) Do the UNLOCK, LATCH and LOCK instructions (Figure 904) to manually lock the center isolation valve in the open or closed position.

SUBTASK 36-00-00-010-029

(3) Close this access panel:

Number	Name/Location
196NR	Underwing Fairing Panel

SUBTASK 36-00-00-860-044

(4) Put the C ISLN switch on the bleed air Module of the P5 panel to the CLOSED position if the valve is locked closed or to the AUTO position if the valve is locked open.

——— END OF TASK ———

TASK 36-00-00-440-806

17. MMEL 36-12-2 (DDG) Restoration - Center Isolation System (Valve and/or Indication) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Center Bleed Air Isolation System Inoperative (Valve and/or Indication).

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)

C. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

D. Access Panels

Number	Name/Location
196NR	Underwing Fairing Panel

E. Center Isolation Valve Activation

SUBTASK 36-00-00-010-030

(1) Open this access panel:

Number	Name/Location
196NR	Underwing Fairing Panel

SUBTASK 36-00-00-040-009

(2) Do the UNLOCK, UNLATCH and LOCK instructions to put the center isolation valve in its usual position.

SUBTASK 36-00-00-860-045

(3) Put the C ISLN switch on the Bleed Air module of the P5 panel to the AUTO position.

SUBTASK 36-00-00-860-046

(4) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(a) Make sure the Center isolation valve goes to the fully open position.

SUBTASK 36-00-00-860-047

(5) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

(a) Make sure the Center isolation valve goes to the fully closed position.

SUBTASK 36-00-00-410-002

(6) Close this access panel:

Number	Name/Location
196NR	Underwing Fairing Panel

——— END OF TASK ———

TASK 36-00-00-040-807

18. MMEL 36-12-3 (DDG) Preparation - APU Bleed Air Shutoff System (Valve and/or Indication) Inoperative

(Figure 905)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the APU Bleed Air Shutoff Valve Inoperative.

(2) EICAS Status Messages

(a) BLEED VALVE APU

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
49-11-00-860-804	APU Starting and Operation (P/B 201)
49-11-00-860-805	APU Usual Shutdown (P/B 201)

C. Location Zones

Zone	Area
313	Stabilizer Torsion Box Compartment, Left
314	Stabilizer Torsion Box Compartment, Right

D. Access Panels

Number	Name/Location
195QL	Blowout Door
196QR	Blowout Door
313AL	Controls Bay Access Door

E. Procedure to Test the APU Shutoff Valve

SUBTASK 36-00-00-440-012

(1) Operate the APU. To operate the APU, do this task: APU Starting and Operation, TASK 49-11-00-860-804.

SUBTASK 36-00-00-860-108

(2) Remove all the other pneumatic sources:

(a) When connected, remove the ground air supply. To remove a ground air supply source, do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

(b) Put the L and R ENG switch on the Bleed Air module of the P5 panel to the OFF position.

SUBTASK 36-00-00-860-109

(3) Put the APU switch on the Bleed Air module of the P5 panel to the AUTO position.

SUBTASK 36-00-00-010-052

(4) Open this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

SUBTASK 36-00-00-860-110

(5) Make sure the position indicator on the APU shutoff valve is in the OPEN position.

SUBTASK 36-00-00-860-111

(6) Put the APU switch on the Bleed Air module of the P5 panel to the OFF position.

SUBTASK 36-00-00-860-112

(7) Make sure the position indicator on the APU shutoff valve is in the CLOSED position.

SUBTASK 36-00-00-010-053

(8) Close this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

SUBTASK 36-00-00-860-113

(9) Put the APU switch on the Bleed Air module of the P5 panel to the AUTO position.

SUBTASK 36-00-00-860-114

(10) If it is necessary, stop the operation of the APU. To stop the operation of the APU, do this task: APU Usual Shutdown, TASK 49-11-00-860-805.

(a) Make sure the L(R) isolation valve goes to the fully closed position.

SUBTASK 36-00-00-410-006

(11) Close this access panel:

Number	Name/Location
195QL	Blowout Door

or close this access panel:

Number	Name/Location
196QR	Blowout Door

F. Procedure to Lock Closed the APU Shutoff Valve

SUBTASK 36-00-00-010-031

(1) Open this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

SUBTASK 36-00-00-040-010

(2) Do the UNLOCK, LATCH and LOCK instructions (Figure 905) to manually lock the APU shutoff valve in the closed position.

SUBTASK 36-00-00-410-005

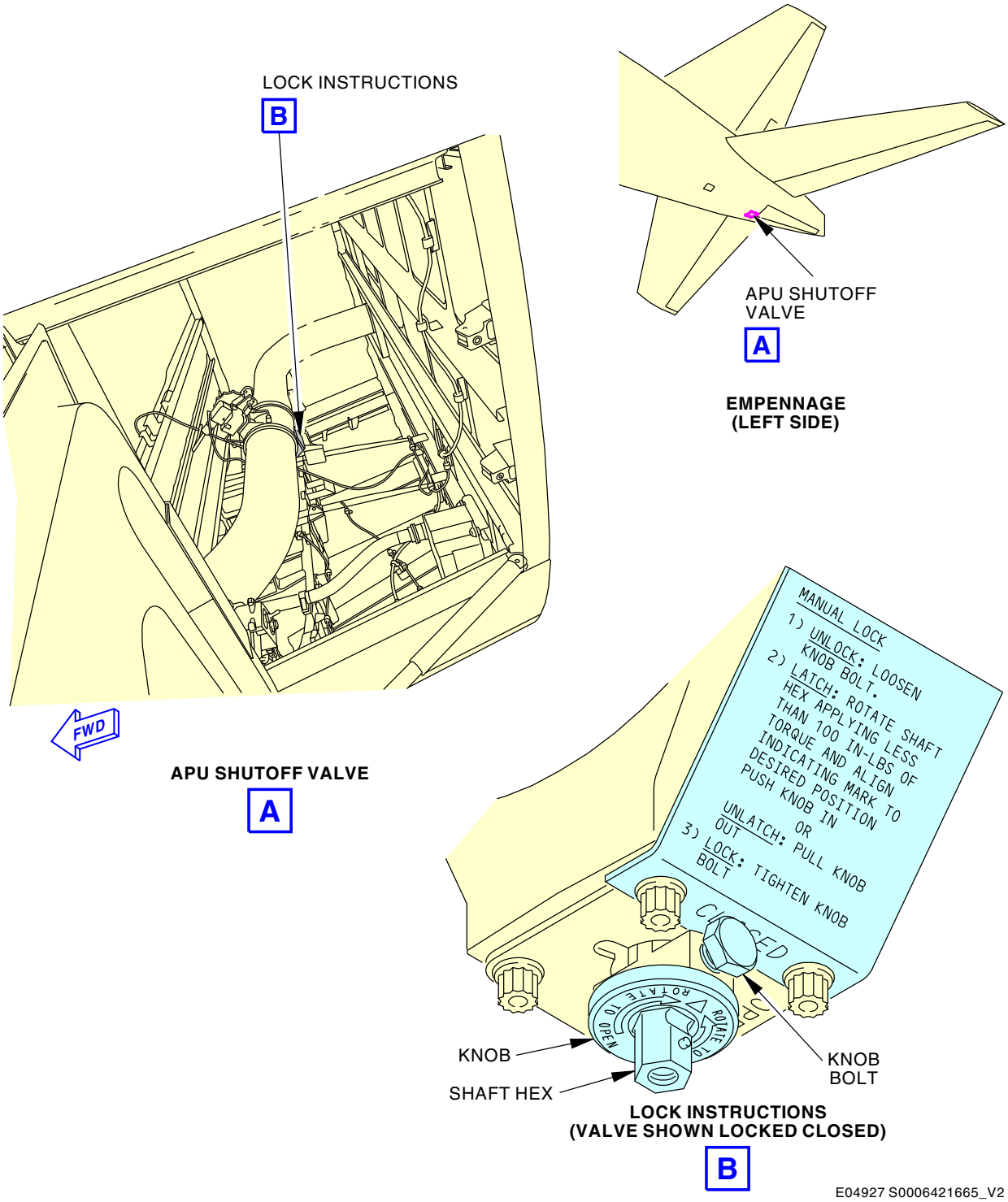
(3) Close this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

SUBTASK 36-00-00-860-048

(4) Push the APU switch on the Bleed Air Module of the P5 panel to the OFF position.

——— END OF TASK ———



APU Shutoff Valve Deactivation
Figure 905/36-00-00-990-805

TASK 36-00-00-440-807

19. MMEL 36-12-3 (DDG) Restoration - APU Bleed Air Shutoff Valve (Valve and/or Indication) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the APU Bleed Air Shutoff Valve Inoperative.

(2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
313	Stabilizer Torsion Box Compartment, Left
314	Stabilizer Torsion Box Compartment, Right

D. Access Panels

Number	Name/Location
313AL	Controls Bay Access Door

E. Procedure to repair the Fault

SUBTASK 36-00-00-860-049

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

SUBTASK 36-00-00-740-013

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

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

SUBTASK 36-00-00-740-014

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

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

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

SUBTASK 36-00-00-740-015

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

F. Procedure to Unlock and Test the APU Shutoff Valve

NOTE: Do not do these steps if the APU Shutoff Valve was replaced during the Fault Indication Repair section above.

SUBTASK 36-00-00-010-032

(1) Open this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

SUBTASK 36-00-00-040-030

(2) Do the UNLOCK, UNLATCH and LOCK instructions to put the APU shutoff valve in its usual position.

SUBTASK 36-00-00-860-050

(3) Put the APU switch on the Bleed Air Module of the P5 panel to the AUTO position.

SUBTASK 36-00-00-860-051

(4) To supply pneumatic power with the APU, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802

(a) Make sure the APUSOV goes to the open position.

SUBTASK 36-00-00-860-052

(5) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

(a) Make sure the APUSOV goes to the closed position.

SUBTASK 36-00-00-410-003

(6) Close this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

——— END OF TASK ———

TASK 36-00-00-040-808

20. MMEL 36-22-1 (DDG) Preparation - Manifold Temperature Sensing Systems Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Engine Bleed Air Temperature Sensing Systems Inoperative.

(2) EICAS Status Messages

(a) BLEED TEMP SENSOR L

(b) BLEED TEMP SENSOR R

B. Procedure to Lock Closed the HPSOV

SUBTASK 36-00-00-040-011

(1) Do this task: MMEL 36-11-2 (DDG) Preparation - High Pressure Shutoff Valves (HPSOV) Inoperative, TASK 36-00-00-040-802.

C. Procedure to Lock Closed the PRSOV

SUBTASK 36-00-00-040-041

(1) Do this task: MMEL 36-11-1 (DDG) Preparation - Pressure Regulating and Shutoff Systems (PRSOV,PRSOVC) Inoperative, TASK 36-00-00-040-801.

NOTE: The PRSOV task is only for airplanes where engine bleed air does not operate.

——— END OF TASK ———

TASK 36-00-00-440-808

21. MMEL 36-22-1 (DDG) Restoration - Manifold Temperature Sensing Systems Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Engine Bleed Air Temperature Sensing Systems Inoperative.

B. Procedure to Unlock and Test the HPSOV

SUBTASK 36-00-00-440-006

(1) Do this task: MMEL 36-11-2 (DDG) Restoration - High Pressure Shutoff Valves (HPSOV) Inoperative, TASK 36-00-00-440-802.

C. Procedure to Unlock and Test the PRSOV

SUBTASK 36-00-00-440-014

(1) Do this task: MMEL 36-11-1 (DDG) Restoration - Pressure Regulating and Shutoff Systems (PRSOV,PRSOVC) Inoperative, TASK 36-00-00-440-801.

NOTE: The PRSOV task is only for airplanes where engine bleed air does not operate.

——— END OF TASK ———

ENGINE AIR SUPPLY - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Engine Air Supply Operational Test

(a) This test will do an operational check of the HPSOV/HPFAC, PRSOV/PRSOVC and FAMV/HPFAC with both engines running.

(2) Isolation Valves and APU Shutoff Valve Operational Test

(a) This test will do an operational check of the left, center and right isolation valves and the APU shutoff valve with the use of the APU or a ground air source.

(3) Engine Air Supply Valves Operational Test

(a) This test will do an operational and leak test of the HPSOV/HPFAC, PRSOV/PRSOVC, FAMV/HPFAC and the associated sense lines. A nitrogen source (or equivalent) is used to supply pressure to the HPFAC and PRSOVC.

(4) Air Supply System Decay Test

(a) This test will do a leak check of the pneumatic system ducts from the APU shutoff valve to the IP Check Valve and the HPSOV.

(b) The pneumatic system ducts that will be tested are as follows:

1) APU air supply

2) Body crossover

3) Wing leading edge

4) Strut duct

5) Engine air supply downstream of the IP check valve and HPSOV.

(5) Engine Air Supply Test for the PRSOV and FAMV.

(a) This test will do an operational check of the PRSOV and FAMV with both engines running at idle speed.

(6) Engine Idle Air Supply Operational Test

(a) This test is performed if the engine air supply system tubing or wiring has been disturbed.

TASK 36-10-00-700-801

2. Engine Air Supply Operational Test

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(2) This task will do an operational check of the HPSOV/HPFAC, PRSOV/PRSOVC and FAMV/HPFAC with both engines running.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

(Continued)

Reference	Title
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-00-00-800-835-H00	Engine Start (Selection) (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)

C. Prepare to do the Engine Air Supply Operational Test

NOTE: If you need to do a test of only one ASCPC, open the applicable circuit breaker for the ASCPC that you will not test.

SUBTASK 36-10-00-860-001

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

SUBTASK 36-10-00-860-002

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

Left Power Management Panel, P110

Row	Col	Number	Name
H	2	C21431	L CTC CHAN 1 (AC)
H	3	C21433	L CTC CHAN 2 (AC)
H	24	C21647	L CTC CHAN 2 (DC)
H	25	C21641	L CTC CHAN 1 (DC)
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)
H	3	C21648	R CTC CHAN 2 (DC)
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-10-00-860-031

(3) To deactivate the aural warning in the flight compartment, open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

SUBTASK 36-10-00-860-003

(4) Put these switches in the OFF position:

(a) On the Forward Overhead Panel P5:

1) L PACK
2) R PACK
3) L TRIM AIR
4) R TRIM AIR
5) APU BLEED
6) DEMAND HYD AIR C1
7) DEMAND HYD AIR C2
8) WING ANTI-ICE
9) L ENGINE ANTI-ICE
10) R ENGINE ANTI-ICE

(b) On the Aft Overhead Maintenance Panel P61:

1) AFT CGO TEMP SELECT
2) BULK CGO TEMP SELECT

SUBTASK 36-10-00-860-004

(5) Put these switches in the AUTO position:

(a) On the Forward Overhead Panel P5:

1) L ISLN
2) R ISLN
3) C ISLN
4) FWD OUTFLOW VALVE
5) AFT OUTFLOW VALVE

SUBTASK 36-10-00-860-005

(6) Put these switches in the ON position:

(a) On the Forward Overhead Panel P5:

1) ADIRU
2) L ENG BLEED AIR
3) R ENG BLEED AIR

SUBTASK 36-10-00-740-001

(7) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

D. Do the Engine Bleed Air Operational Test

SUBTASK 36-10-00-860-100

(1) Get access to the Air Supply Maintenance Page. To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-10-00-860-025

(2) Put the APU Bleed switch on the P5 panel to the AUTO position.

SUBTASK 36-10-00-710-019

(3) Do these steps to do a test of the PRSOV, HPSOV, FAMV, Temperature and Pressure Regulation:

(a) Put the L and R PACK switches on the P5 panel to the AUTO position.

(b) Make sure the flow control valves in the Cabin Air Conditioning and Temperature Control System (CACTCS) are open and there is stable flow to the packs.

(c) Monitor the position of the RIGHT ISO VLV on the Air Supply Maintenance Page.

(d) During the left engine start make sure RIGHT ISO VLV CLOSED is shown on the Air Supply Maintenance Page.

NOTE: When the left engine has completely started the RIGHT ISO VLV will show OPEN on the Air Supply Maintenance Page.

(e) For the left engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00

(f) Make sure the left engine is running at idle.

(g) Make sure these positions show on the Air Supply Maintenance Page:

Table 501/36-10-00-993-821

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		CLOSED
PRESS REG S/O VLV	OPEN		CLOSED
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(h) For the right engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00

NOTE: If you will start the right engine with the left engine make sure the manifold pressure is greater than 45 psig before you start the right engine.

(i) Make sure the right engine is running at idle.

(j) Wait 65 seconds for completion of the Engine Air Supply Preflight BIT.

NOTE: A test of the Engine Air Supply system is performed after the second engine is started. The test requires 20 to 65 seconds for completion, depending on the engine type.

(k) Make sure these positions show on the Air Supply Maintenance Page:

Table 502/36-10-00-993-822

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		OPEN
PRESS REG S/O VLV	OPEN		OPEN
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
LEFT ISO VLV		OPEN	
CENTER ISO VLV		CLOSED	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(l) Put the L and R ENG Bleed AIR on the P5 panel to the OFF position.

(m) Make sure the amber light on the bottom of the L and R ENG Bleed switches is illuminated.

1) The fan air modulating valve (FAMV) will move to the closed position for 12 seconds.

2) Make sure the MAT shows the FAN AIR VLV is in the CLOSED position.

3) After 12 seconds, the FAMV will move back to the open position.

(n) Make sure these positions show on the Air Supply Maintenance Page:

Table 503/36-10-00-993-824

INDICATION	L		R
HIGH PRESS S/O	CLOSED		CLOSED
PRESS REG S/O VLV	CLOSED		CLOSED
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>20 (PSIA)		>20 (PSIA)
INTERIM DUCT PRESS	NA		NA
MANIFOLD DUCT PRESS	NA		NA
PRECOOLER OUT TEMP	NA		NA
BLEED FLOW RATE	<4 (KG/MIN)		<4 (KG/MIN)

Table 503/36-10-00-993-824 (Continued)

INDICATION	L		R
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		OPEN	

(o) Put the L ENG Bleed AIR switch on the P5 panel to the ON position.

(p) Make sure these positions show on the Air Supply Maintenance Page:

Table 504/36-10-00-993-826

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		CLOSED
PRESS REG S/O VLV	OPEN		CLOSED
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>20 (PSIA)		>20 (PSIA)
INTERIM DUCT PRESS	>20 (PSIG)		NA
MANIFOLD DUCT PRESS	>20 (PSIG)		NA
PRECOOLER OUT TEMP	<199 (DEG C)		NA
BLEED FLOW RATE	>29 (KG/MIN)		<4 (KG/MIN)
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(q) Put the R ENG Bleed AIR switch on the P5 panel to the ON position.

(r) Make sure the amber light on the bottom of the L and R ENG Bleed switches is extinguished.

(s) Make sure these positions show on the Air Supply Maintenance Page:

Table 505/36-10-00-993-828

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		OPEN
PRESS REG S/O VLV	OPEN		OPEN
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>20 (PSIA)		>20 (PSIA)
INTERIM DUCT PRESS	>20 (PSIG)		>20 (PSIG)
MANIFOLD DUCT PRESS	>20 (PSIG)		>20 (PSIG)

Table 505/36-10-00-993-828 (Continued)

INDICATION	L		R
PRECOOLER OUT TEMP	<199 (DEG C)		<199 (DEG C)
BLEED FLOW RATE	>29 (KG/MIN)		>29 (KG/MIN)
LEFT ISO VLV		OPEN	
CENTER ISO VLV		CLOSED	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(t) Increase the left and right engine power until the ENG HIGH STAGE PRESS = 75-77 PSIA.

(u) Make sure the engine operation is stable. Let the engines operate in a stable condition for two minutes.

(v) Make sure these positions show on the Air Supply Maintenance Page:

Table 506/36-10-00-993-830

INDICATION	L	R
HIGH PRESS S/O VLV	OPEN	OPEN
PRESS REG S/O VLV	OPEN	OPEN
FAN AIR VLV	OPEN OR CLOSED	OPEN OR CLOSED
STARTER VLV	CLOSED	CLOSED
ENG HIGH STAGE PRESS	>65 (PSIA)	>65 (PSIA)
INTERIM DUCT PRESS	39–49 (PSIG)	39–49 (PSIG)
MANIFOLD DUCT PRESS	>35 (PSIG)	>35 (PSIG)
PRECOOLER OUT TEMP	<210 (DEG C)	<210 (DEG C)
BLEED FLOW RATE	>29 (KG/MIN)	>29 (KG/MIN)

(w) Increase the left engine power until the ENG HIGH STAGE PRESS = 330-332 PSIA.

NOTE: Do not advance the opposite engine to balance the thrust.

(x) Make sure the engine operation is stable for two minutes.

(y) Make sure these positions show on the Air Supply Maintenance Page:

Table 507/36-10-00-993-838

INDICATION	L	R
HIGH PRESS S/O VLV	CLOSED	OPEN
PRESS REG S/O VLV	OPEN	OPEN
FAN AIR VLV	OPEN OR CLOSED	OPEN OR CLOSED
STARTER VLV	CLOSED	CLOSED
ENG HIGH STAGE PRESS	>240 (PSIA)	>65 (PSIA)
INTERIM DUCT PRESS	>55 (PSIG)	39–49 (PSIG)
MANIFOLD DUCT PRESS	45-55 (PSIG)	>35 (PSIG)

Table 507/36-10-00-993-838 (Continued)

INDICATION	L	R
PRECOOLER OUT TEMP	<210 (DEG C)	<210 (DEG C)
BLEED FLOW RATE	>29 (KG/MIN)	>29 (KG/MIN)

(z) Put the left engine power to ENG HIGH STAGE PRESS = 75-77 PSIA.

(aa) Make sure the engine operation is stable for two minutes.

(ab) Put the right engine power to ENG HIGH STAGE PRESS = 330-332 PSIA.

(ac) Make sure the engine operation is stable for two minutes.

(ad) Make sure these positions show on the Air Supply Maintenance Page:

Table 508/36-10-00-993-832

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		CLOSED
PRESS REG S/O VLV	OPEN		OPEN
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>65 (PSIA)		>240 (PSIA)
INTERIM DUCT PRESS	39–49 (PSIG)		>55 (PSIG)
MANIFOLD DUCT PRESS	>35 (PSIG)		45-55 (PSIG)
PRECOOLER OUT TEMP	<210 (DEG C)		<210 (DEG C)
BLEED FLOW RATE	>29 (KG/MIN)		>29 (KG/MIN)

(ae) Put the left and right engine power to idle.

(af) Make sure the engine operation is stable for two minutes.

(ag) Make sure these positions show on the Air Supply Maintenance Page:

Table 509/36-10-00-993-834

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		OPEN
PRESS REG S/O VLV	OPEN		OPEN
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>20 (PSIA)		>20 (PSIA)
INTERIM DUCT PRESS	>20 (PSIG)		>20 (PSIG)
MANIFOLD DUCT PRESS	>20 (PSIG)		>20 (PSIG)
PRECOOLER OUT TEMP	<210 (DEG C)		<210 (DEG C)
BLEED FLOW RATE	>29 (KG/MIN)		>29 (KG/MIN)

(ah) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

(ai) Make sure the engines are not operating.

(aj) Make sure these positions show on the Air Supply Maintenance Page:

Table 510/36-10-00-993-835

INDICATION	L		R
HIGH PRESS S/O VLV	CLOSED		CLOSED
PRESS REG S/O VLV	CLOSED		CLOSED
FAN AIR VLV	OPEN		OPEN
STARTER VLV	CLOSED		CLOSED
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		OPEN	

(ak) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

(al) Make sure these positions show on the Air Supply Maintenance Page:

Table 511/36-10-00-993-836

INDICATION	L		R
HIGH PRESS S/O VLV	CLOSED		CLOSED
PRESS REG S/O VLV	CLOSED		CLOSED
FAN AIR VLV	OPEN		OPEN
STARTER VLV	CLOSED		CLOSED
LEFT ISO VLV		CLOSED	
CENTER ISO VLV		CLOSED	
RIGHT ISO VLV		CLOSED	
APU ISO VLV		CLOSED	

E. Put the Airplane Back to Its Usual Condition

SUBTASK 36-10-00-860-086

(1) Set the ADIRU switch on the overhead panel, P5, to the OFF position if it is not necessary.

SUBTASK 36-10-00-860-032

(2) To activate the aural warning in the flight compartment,

Close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

END OF TASK

TASK 36-10-00-700-803

3. Isolation Valves and APU Shutoff Valve Operational Test

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(2) This task does an operational check of the left, center and right isolation valves and the APU shutoff valve with the use of the APU or a ground air source.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Prepare to do the Isolation Valves and APU Shutoff Valve Operational Test

NOTE: If you need to do a test of only one ASCPC, open the applicable circuit breaker for the ASCPC that you will not test.

SUBTASK 36-10-00-860-033

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

SUBTASK 36-10-00-860-034

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

Left Power Management Panel, P110

Row	Col	Number	Name
H	2	C21431	L CTC CHAN 1 (AC)
H	3	C21433	L CTC CHAN 2 (AC)
H	24	C21647	L CTC CHAN 2 (DC)
H	25	C21641	L CTC CHAN 1 (DC)

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)
H	3	C21648	R CTC CHAN 2 (DC)
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-10-00-860-035

(3) To deactivate the aural warning in the flight compartment,

Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

SUBTASK 36-10-00-860-036

(4) Put these switches in the OFF position:

(a) On the Forward Overhead Panel P5:

1) L PACK
2) R PACK
3) L TRIM AIR
4) R TRIM AIR
5) DEMAND HYD AIR C1
6) DEMAND HYD AIR C2
7) WING ANTI-ICE
8) L ENGINE ANTI-ICE
9) R ENGINE ANTI-ICE

(b) On the Aft Overhead Maintenance Panel P61:

1) AFT CGO TEMP SELECT
2) BULK CGO TEMP SELECT

SUBTASK 36-10-00-860-037

(5) Put these switches in the AUTO position:

(a) On the Forward Overhead Panel P5:

1) L ISLN
2) R ISLN
3) C ISLN
4) APU BLEED
5) FWD OUTFLOW VALVE
6) AFT OUTFLOW VALVE

SUBTASK 36-10-00-860-038

(6) Put these switches in the ON position:

(a) On the Forward Overhead Panel P5:

1) L ENG BLEED AIR
2) R ENG BLEED AIR

SUBTASK 36-10-00-740-002

(7) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

D. Do the Isolation Valves and APU Shutoff Valve Operational Test

SUBTASK 36-10-00-860-039

(1) Do these steps if you will supply pneumatic power with the APU:

(a) To supply pneumatic power with the APU, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802

(b) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(c) Make sure these positions show on the Air Supply Maintenance Page:

Table 512/36-10-00-993-819

INDICATION	VALUE
LEFT ISO VLV	OPEN
CENTER ISO VLV	OPEN
RIGHT ISO VLV	OPEN
APU ISO VLV	OPEN

(d) Make sure the amber lights on the bottom half of the L, C, R ISLN and APU Bleed Air switches are extinguished.

SUBTASK 36-10-00-860-040

(2) Do these steps if you will supply pneumatic power with a ground air source:

NOTE: You will not be able to do a test of the APUSOV if you use a ground air source.

(a) To supply pneumatic power with a ground air source, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802

(b) Put the APU Bleed Air switch on the Bleed Air module of the P5 panel to the OFF position.

(c) To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(d) Make sure these positions show on the Air Supply Maintenance Page:

Table 513/36-10-00-993-820

INDICATION	VALUE
LEFT ISO VLV	OPEN
CENTER ISO VLV	OPEN
RIGHT ISO VLV	OPEN
APU ISO VLV	CLOSED

(e) Make sure the amber lights on the bottom half of the L, C, R ISLN switches are extinguished.

SUBTASK 36-10-00-710-014

(3) Make sure the L and R DUCT PRESS are greater than 20 PSIG on the Air Supply Maintenance Page.

SUBTASK 36-10-00-710-015

(4) Do these steps to do a test of the left isolation valve:

(a) Put the L ISLN Bleed switch on the P5 panel to the CLOSED position.

(b) Make sure the amber light on the bottom of the L ISLN Bleed switch is illuminated.

(c) Make sure LEFT ISO VLV CLOSED is shown on the Air Supply Maintenance Page.

(d) Make sure the EICAS message, BLEED ISLN CLOSED L, is shown on the EICAS display.

(e) If the APU is the pneumatic source, make sure the L DUCT PRESS is less than 5 psig on the Air Supply Maintenance Page.

(f) If a ground air source is the pneumatic source, make sure the R DUCT PRESS is less than 5 psig on the Air Supply Maintenance Page.

(g) Make sure the left isolation valve position indicator is in the CLOSED position.

(h) Put the L ISLN Bleed switch on the P5 panel to the AUTO position.

(i) Make sure the amber light on the bottom of the L ISLN Bleed switch is extinguished.

(j) Make sure LEFT ISO VLV OPEN is shown on the Air Supply Maintenance Page.

(k) Make sure the EICAS message, BLEED ISLN CLOSED L, is not shown on the EICAS display.

(l) Make sure the L and R DUCT PRESS is greater than 20 psig on the Air Supply Maintenance Page.

(m) Make sure the left isolation valve position indicator is in the OPEN position.

SUBTASK 36-10-00-710-016

(5) Do these steps to do a test of the right isolation valve:

(a) Put the R ISLN Bleed switch on the P5 panel to the CLOSED position.

(b) Make sure the amber light on the bottom of the R ISLN Bleed switch is illuminated.

(c) Make sure RIGHT ISO VLV CLOSED is shown on the Air Supply Maintenance Page.

(d) Make sure the EICAS message, BLEED ISLN CLOSED R, is shown on the EICAS display.

(e) Make sure the R DUCT PRESS is less than 5 psig on the Air Supply Maintenance Page.

(f) Make sure the right isolation valve position indicator is in the CLOSED position.

(g) Put the R ISLN Bleed switch on the P5 panel to the AUTO position.

(h) Make sure the amber light on the bottom of the R ISLN Bleed switch is extinguished.

(i) Make sure RIGHT ISO VLV OPEN is shown on the Air Supply Maintenance Page.

(j) Make sure the EICAS message, BLEED ISLN CLOSED R, is not shown on the EICAS display.

(k) Make sure the R DUCT PRESS is greater than 20 psig on the Air Supply Maintenance Page.

(l) Make sure the right isolation valve position indicator is in the OPEN position.

SUBTASK 36-10-00-710-017

(6) Do these steps to do a test of the center isolation valve:

(a) Put the C ISLN Bleed switch on the P5 panel to the CLOSED position.

(b) Make sure the amber light on the bottom of the C ISLN Bleed switch is illuminated.

(c) Make sure CENTER ISO VLV CLOSED is shown on the Air Supply Maintenance Page.

(d) Make sure the EICAS message, BLEED ISLN CLOSED C, is shown on the EICAS display.

(e) Make sure the R DUCT PRESS is less than 5 psig on the Air Supply Maintenance Page.

(f) Make sure the center isolation valve position indicator is in the CLOSED position.

(g) Put the C ISLN Bleed switch on the P5 panel to the AUTO position.

(h) Make sure the white light on the top of the C ISLN Bleed switch is illuminated and the amber light is extinguished.

(i) Make sure CENTER ISO VLV OPEN is shown on the Air Supply Maintenance Page.

(j) Make sure the EICAS message, BLEED ISLN CLOSED C, is not shown on the EICAS display.

(k) Make sure the R DUCT PRESS is greater than 20 psig on the Air Supply Maintenance Page.

(l) Make sure the center isolation valve position indicator is in the OPEN position.

SUBTASK 36-10-00-710-018

(7) Do these steps to do a test of the APU shutoff valve:

(a) Put the APU Bleed switch on the P5 panel to the OFF position.

(b) Make sure the amber light on the bottom of the APU Bleed switch is illuminated.

(c) Make sure APU ISO VLV CLOSED is shown on the Air Supply Maintenance Page.

(d) Make sure the EICAS message, BLEED OFF APU, is shown on the EICAS display.

(e) Make sure the L and R DUCT PRESS is less than 5 psig on the Air Supply Maintenance Page.

(f) Make sure the APU valve position indicator is in the CLOSED position.

(g) Put the APU Bleed switch on the P5 panel to the AUTO position.

(h) Make sure the white light on the top of the APU Bleed switch is illuminated and the amber light is extinguished.

(i) Make sure APU ISO VLV OPEN is shown on the Air Supply Maintenance Page.

(j) Make sure the EICAS message, BLEED OFF APU, is not shown on the EICAS display.

(k) Make sure the L and R DUCT PRESS is greater than 20 psig on the Air Supply Maintenance Page.

(l) Make sure the APU valve position indicator is in the OPEN position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 36-10-00-860-041

(1) To activate the aural warning in the flight compartment, close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

END OF TASK

TASK 36-10-00-700-802

4. Engine Air Supply Valves Operational Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

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

Reference	Description
SPL-16477	RESTRICTOR - FLUID FLOW Part #: 287539-58 Supplier: 06848
STD-1082	Source - Air, Regulated, Dry Filtered, 0-50 PSIG
STD-3942	Hose - Air, Flexible, 3/8 inch (.9525 cm) ID, Length as Needed
STD-13740	Gauge - Pressure, 0-60 PSIG, +/-0.5% Accuracy

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00018	Nitrogen - Gaseous, Pressurizing, 99.5 Percent Pure	A-A-59503 Type I Grade B, MIL-PRF-27401 Type I Grade A

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

F. Prepare for the Operational Test

SUBTASK 36-10-00-860-007

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

SUBTASK 36-10-00-860-008

WARNING MAKE SURE THAT YOU REMOVE PRESSURE FROM THE PNEUMATIC MANIFOLD. IF YOU DO NOT REMOVE PRESSURE, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-10-00-010-001

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely open the right thrust reverser on the applicable engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

G. Engine Air Supply Valves Operational Test

SUBTASK 36-10-00-480-001

(1) Install a source of nitrogen, G00018 or 0-50 psig dry filtered regulated air source, STD-1082, a pressure gauge, STD-13740, and a 3/8 inch (.9525 cm) ID flexible air hose, length as needed, STD-3942 to the supply pressure sense line to the High Pressure Fan Air Controller (HPFAC) and Pressure Regulating and Shutoff Valve Controller (PRSOVC) (See Figure 501).

SUBTASK 36-10-00-860-009

(2) Do these steps to simulate engine operation with Airplane Information Management System (AIMS):

(a) Open the applicable circuit breakers for the L(R) engine:

Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
A	1	C74401	L ENG STBY IGN 1
A	2	C74407	L ENG STBY IGN 2
A	5	C28001	L ENGINE FUEL SPAR VALVE
A	14	C74400	R ENG STBY IGN 1
A	15	C74406	R ENG STBY IGN 2
A	19	C28002	R ENGINE FUEL SPAR VALVE
E	1	C74403	L ENG IGN 1
E	2	C74404	R ENG IGN 2
E	14	C74405	L ENG IGN 2
E	15	C74402	R ENG IGN 1

(b) To get access to the air supply maintenance page and look at the flight phase and the position of the Fan Air Modulating Valve (FAMV), do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

(c) Put the L(R) Fuel Control switch in the RUN position.

(d) Push the L(R) ENG Bleed switch to the ON position.

(e) Make sure the OFF light is illuminated on the L(R) ENG Bleed switch.

(f) Open these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
P	13	C36614	AIR SPLY R BACKUP

Standby Power Management Panel, P310

Row	Col	Number	Name
C	2	C36613	AIR SPLY L BACKUP

(g) Make sure the OFF light extinguishes.

NOTE: This will take approximately 5 minutes.

SUBTASK 36-10-00-710-007

(3) Supply 26 psig (26 psi) to the HPFAC and PRSOVC.

SUBTASK 36-10-00-710-008

(4) Look at the position indicators to make sure the High-Pressure Shutoff Valve (HPSOV) and Pressure Regulating and Shutoff Valve (PRSOV) smoothly to the fully open position.

NOTE: If the HPSOV and PRSOV move smoothly to the fully open position, then the Engine Air Supply Valves are operating properly. If a valve does not move smoothly or does not open fully, then there is a problem with the valve or with its controller.

(a) If the HPSOV did not move smoothly to the fully open position, then do these steps:

1) Adjust the nitrogen source to 0 psig (0 psi).

2) To perform the operational check of the HPSOV, do one of these steps:

a) Perform the operational check of the HPSOV without an orifice:

<1> Remove the nitrogen source test line from the HPFAC and PRSOVC supply pressure sense line and connect it directly to the HPSOV.

<2> Slowly increase the pressure applied to the HPSOV.

<3> Make sure the HPSOV moves smoothly and is fully open at 10 psig (10 psi).

NOTE: The HPSOV is operating properly if it moves smoothly to the fully open position. If the HPSOV does not move smoothly or does not open fully at 10 psig (10 psi), then there is a problem with the HPSOV. If the HPSOV is operating properly, then there may be a problem with the High-Pressure Shutoff Valve Controller (HPSOVC).

b) Perform the operational check of the HPSOV with an orifice:

<1> Install FLUID FLOW RESTRICTOR, SPL-16477 into the orifice in the control port of the HPSOV.

NOTE: FLUID FLOW RESTRICTOR, SPL-16477 is a 0.046 in. (1.168 mm) orifice.

<2> Pressurize the inlet of FLUID FLOW RESTRICTOR, SPL-16477 to 23 psig (23 psi).

<3> Check the HPSOV can open and close normally.

NOTE: If the HPSOV is operating properly, then there may be a problem with the HPSOVC.

(b) If the PRSOV did not move smoothly to the fully open position, then do these steps:

1) Adjust the nitrogen source to 0 psig (0 psi).

2) To perform the operational check of the PRSOV, do one of these steps:

a) Perform the operational check of the PRSOV without an orifice:

<1> Remove the nitrogen source test line from the HPFAC and PRSOVC supply pressure sense line and connect it directly to the PRSOV.

<2> Slowly increase the pressure applied to the PRSOV.

<3> Make sure the PRSOV moves smoothly and is fully open at 10 psig (10 psi).

NOTE: The PRSOV is operating properly if it moves smoothly to the fully open position. If the PRSOV does not move smoothly or does not open fully at 10 psig (10 psi), then there is a problem with the PRSOV. If the PRSOV is operating properly, then there may be a problem with the PRSOVC.

b) Perform the operational check of the PRSOV using an orifice:

<1> Install FLUID FLOW RESTRICTOR, SPL-16477 in to the orifice in the control port of the PRSOV.

NOTE: FLUID FLOW RESTRICTOR, SPL-16477 is a 0.046 in. (1.168 mm) orifice.

<2> Pressurize the inlet of the FLUID FLOW RESTRICTOR, SPL-16477 to 23 psig (23 psi).

<3> Check the PRSOV can open and close normally.

NOTE: If the PRSOV is operating properly, then there may be a problem with the PRSOVC.

SUBTASK 36-10-00-710-009

(5) Make sure the FAMV is in the closed position.

SUBTASK 36-10-00-790-001

(6) Do a check of the sense lines for leakage.

SUBTASK 36-10-00-790-002

(7) Repair all leakage.

NOTE: There is a weep hole or a Tee fitting on the HPFAC Line near the Controller. There will be an audible leak at the bottom of the HPFAC and PRSOVC. This is OK.

SUBTASK 36-10-00-710-010

(8) Push the L(R) ENG Bleed switch to the OFF position.

SUBTASK 36-10-00-710-011

(9) Make sure the HPSOV and PRSOV are closed.

SUBTASK 36-10-00-710-012

(10) Make sure the FAMV is in the open position approximately 12 seconds after the L(R) ENG Bleed switch is in the OFF position.

SUBTASK 36-10-00-710-013

(11) Decrease the nitrogen or air supply pressure to 0 psig (0 psi).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-10-00-080-001

(1) Remove the nitrogen, G00018 or 0-50 psig dry filtered regulated air source, STD-1082, pressure gauge, STD-13740, and 3/8 inch (.9525 cm) ID flexible air hose, length as needed, STD-3942.

SUBTASK 36-10-00-640-001

(2) Apply antiseize Never-Seez NSBT compound, D00006 to the fitting for the supply pressure sense line.

SUBTASK 36-10-00-420-001

(3) Install the supply pressure sense line.

SUBTASK 36-10-00-860-026

(4) Do these steps to remove simulation of engine operation:

(a) Put the L(R) Fuel Control switch in the CUTOFF position.

(b) Close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
A	1	C74401	L ENG STBY IGN 1
A	2	C74407	L ENG STBY IGN 2
A	5	C28001	L ENGINE FUEL SPAR VALVE
A	14	C74400	R ENG STBY IGN 1
A	15	C74406	R ENG STBY IGN 2
A	19	C28002	R ENGINE FUEL SPAR VALVE
E	1	C74403	L ENG IGN 1
E	2	C74404	R ENG IGN 2
E	14	C74405	L ENG IGN 2
E	15	C74402	R ENG IGN 1

Right Power Management Panel, P210

Row	Col	Number	Name
P	13	C36614	AIR SPLY R BACKUP

Standby Power Management Panel, P310

Row	Col	Number	Name
C	2	C36613	AIR SPLY L BACKUP

SUBTASK 36-10-00-010-002

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Do these tasks in sequence to safely close the right thrust reverser on the applicable engine:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

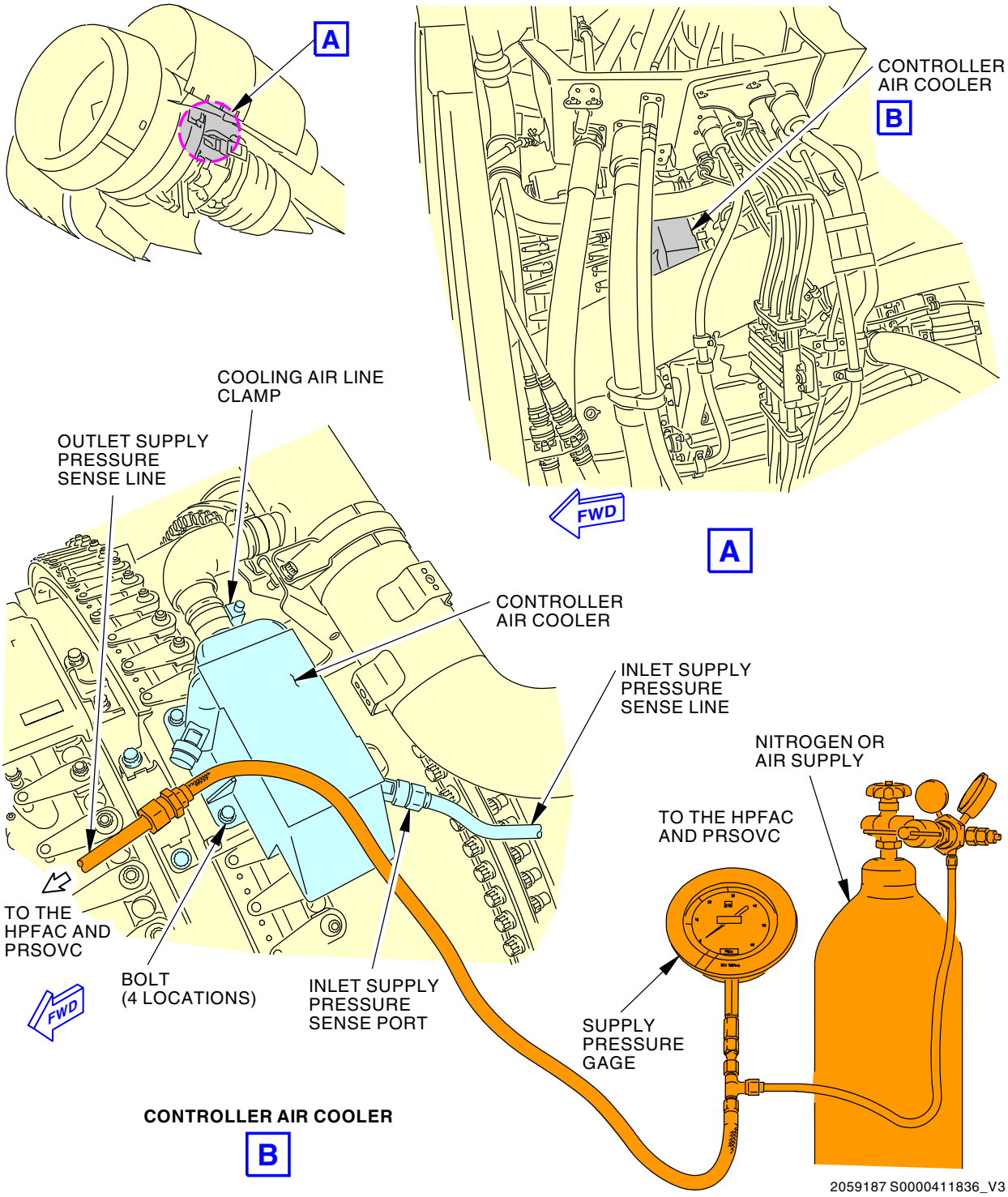
(Continued)

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———



Engine Air Supply Valve Operational Test
Figure 501/36-10-00-990-806

TASK 36-10-00-790-804

5. Air Supply System Decay Test

(Figure 502)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task will do a check of pressure decay in the pneumatic system between the APUSOV and the IP Check Valve and HPSOV

(2) The pressure decay check will use no special equipment and is designed to give you an indication of system leakage.

(3) Make sure the potable water system is not being serviced when you do this test.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-00-00-800-801	Pressurization Upstream of the PRSOV (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
36-11-01-000-806-004	Engine Duct Removal (P/B 401)
36-11-01-400-806-004	Engine Duct Installation (P/B 401)
36-12-04-000-805	Strut Duct Removal (P/B 401)
36-12-04-000-806	Wing Leading Edge Duct Removal (P/B 401)
36-12-04-000-807	Crossover Duct Removal (P/B 401)
36-12-04-000-808	APU Supply Duct Removal (P/B 401)
36-12-04-400-805	Strut Duct Installation (P/B 401)
36-12-04-400-806	Wing Leading Edge Duct Installation (P/B 401)
36-12-04-400-807	Crossover Duct Installation (P/B 401)
36-12-04-400-808	APU Supply Duct Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Prepare for the Decay Test

SUBTASK 36-10-00-860-087

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

SUBTASK 36-10-00-860-089

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

Left Power Management Panel, P110

Row	Col	Number	Name
H	2	C21431	L CTC CHAN 1 (AC)
H	3	C21433	L CTC CHAN 2 (AC)
H	24	C21647	L CTC CHAN 2 (DC)
H	25	C21641	L CTC CHAN 1 (DC)

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)
H	3	C21648	R CTC CHAN 2 (DC)
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-10-00-860-090

(3) Put these switches in the OFF position:

(a) On the Forward Overhead Panel P5:

1) L PACK
2) R PACK
3) DEMAND HYD AIR C1
4) DEMAND HYD AIR C2
5) L TRIM AIR
6) R TRIM AIR
7) WING ANTI-ICE
8) APU BLEED
9) L ENG BLEED AIR
10) R ENG BLEED AIR

(b) On the Aft Overhead Maintenance Panel P61:

1) AFT CGO TEMP SELECT
2) BULK CGO TEMP SELECT

SUBTASK 36-10-00-860-091

(4) Put these switches in the AUTO position:

(a) On the Forward Overhead Panel P5:

1) L ISLN
2) R ISLN
3) C ISLN

SUBTASK 36-10-00-860-092

(5) Put these selectors in the NORM position:

(a) On the Forward Overhead Panel P5:

1) L ENGINE START/IGNITION

2) R ENGINE START/IGNITION

E. Air Supply System Decay Test

SUBTASK 36-10-00-860-093

(1) Get access to the AIR SUPPLY Maintenance Page. To get access to a Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-10-00-860-094

(2) Supply pneumatic power with the ground air source. To supply pneumatic power with the ground air source, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

SUBTASK 36-10-00-790-033

(3) Pressurize the pneumatic duct to a minimum pressure of 25 Psig.

NOTE: If you hear a loud noise there is a leak. Repair the leak if you can find it easily. If you can not easily find the leak, the procedure below will isolate portions of the system to help you find the leak.

SUBTASK 36-10-00-790-034

(4) With a stopwatch, prepare to keep a record of the time for duct pressure to decrease to a given value.

SUBTASK 36-10-00-790-035

(5) Stop the air source.

SUBTASK 36-10-00-790-036

(6) Start the stopwatch when the pressure reaches 25 psig.

SUBTASK 36-10-00-790-037

(7) Keep a record of the pressure for 20 seconds.

SUBTASK 36-10-00-790-038

(8) If the pressure is greater than or equal 10 psig at 20 seconds the test is satisfactory.

SUBTASK 36-10-00-790-039

(9) If the pressure is less than 10 psig at 20 seconds, do these steps to try and isolate the leaks:

(a) Put the C ISLN switch to the CLOSED position.

NOTE: This will do a test of the duct between the left PRSOV, center isolation valve and APU shutoff valve.

(b) Increase the pneumatic pressure to a minimum pressure of 25 psig.

NOTE: If you hear a loud noise there is a leak. Repair the leak if you can find it easily. If you can not easily find the leak, the procedure below will isolate portions of the system to help you find the leak.

(c) With a stopwatch, prepare to keep a record of the time for duct pressure to decrease to a given value.

(d) Stop the air source.

(e) Start the stopwatch when the pressure reaches 25 psig.

(f) Keep a record of the pressure for 20 seconds.

(g) If the pressure is greater than or equal to 10 psig at 20 seconds, do these steps to find the leaks:

NOTE: The duct between the left PRSOV, center isolation valve and APU shutoff valve is OK. The leakage is in the right side duct between the center isolation valve and the right PRSOV.

1) Put the C ISLN switch in the AUTO position.
2) Increase the pneumatic pressure to a minimum pressure of 25 psig.
3) Do a check for leaks between the center isolation valve and the right PRSOV:
   a) Small air leaks at the couplings are satisfactory.
   b) Repair all large air leakage.
      NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint or connection.
   c) No leakage is permitted at sense lines. Apply leak detector Snoop Leak Detector compound, G00091 if it is necessary to find leaks at the sense lines.

(h) If the pressure is less than 10 psig at 20 seconds put the L ISLN switch in the CLOSED position.

NOTE: This will do a test of the duct between the left PRSOV and the left isolation valve.

(i) Increase the pneumatic pressure to a minimum pressure of 25 psig.

(j) With a stopwatch, prepare to keep a record of the time for duct pressure to decrease to a given value.

(k) Stop the air source.

(l) Start the stopwatch when the pressure reaches 25 psig.

(m) Keep a record of the pressure for 30 seconds.

NOTE: The time is longer because you are checking a smaller section of duct.

(n) If the pressure is greater than or equal to 10 psig at 30 seconds, do these steps to find the leaks:

NOTE: The duct between the left PRSOV and the left isolation valve is OK. The leakage is in the duct between the left isolation valve, center isolation valve and APU shutoff valve.

1) Put the L ISLN switch in the AUTO position.
2) Increase the pneumatic pressure to a minimum pressure of 25 psig.
3) Do a check for leaks between the left isolation valve, center isolation valve and the APUSOV.
   a) Small air leaks at the couplings are satisfactory.
   b) Repair all large air leakage.
      NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint or connection.
   c) No leakage is permitted at sense lines. Apply leak detector Snoop Leak Detector compound, G00091 if it is necessary to find leaks at the sense lines.

(o) If the pressure is less than 10 psig at 30 seconds, do these steps to find the leaks:

NOTE: The leakage is in the duct between the left PRSOV and the left isolation valve.

1) Increase the pneumatic pressure to a minimum pressure of 25 psig.
2) Do a check for leaks between the left isolation valve and the left PRSOV.
   a) Small air leaks at the couplings are satisfactory.

b) Repair all large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint or connection.

c) No leakage is permitted at sense lines. Apply leak detector Snoop Leak Detector compound, G00091 if it is necessary to find leaks at the sense lines.

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(p) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

(q) Repair the air leakage by joint or coupling adjustment or replace the duct.

These are the tasks:

Strut Duct Removal, TASK 36-12-04-000-805 or Wing Leading Edge Duct Removal, TASK 36-12-04-000-806 or Crossover Duct Removal, TASK 36-12-04-000-807 or APU Supply Duct Removal, TASK 36-12-04-000-808,

Strut Duct Installation, TASK 36-12-04-400-805 or Wing Leading Edge Duct Installation, TASK 36-12-04-400-806 or Crossover Duct Installation, TASK 36-12-04-400-807 or APU Supply Duct Installation, TASK 36-12-04-400-808.

SUBTASK 36-10-00-860-095

(10) Put the L(R) ENG Bleed switch in the ON position.

SUBTASK 36-10-00-860-096

(11) Open the PRSOV. To open the PRSOV, do this task: Pressurization Upstream of the PRSOV, TASK 36-00-00-800-801.

(a) To supply pneumatic power with the ground air source, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

SUBTASK 36-10-00-790-040

(12) Pressurize the pneumatic duct to a minimum pressure of 25 psig.

SUBTASK 36-10-00-790-041

(13) With a stopwatch, prepare to keep a record of the time for duct pressure to decrease to a given value.

SUBTASK 36-10-00-790-042

(14) Stop the air source.

SUBTASK 36-10-00-790-043

(15) Start the stopwatch when the pressure reaches 25 psig.

SUBTASK 36-10-00-790-044

(16) Keep a record of pressure for 20 seconds.

SUBTASK 36-10-00-790-045

(17) If the pressure is less than 10 psig at 20 seconds, do these steps:

(a) Increase the pneumatic pressure to a minimum pressure of 25 psig.

(b) Do a check for air leakage at the duct sections from the PRSOV to the HPSOV and IP check valve.

1) Small air leaks at the couplings are satisfactory.

2) Repair all large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of greater than 12 inches from a point on the duct joint or connection.

3) No leakage is permitted at sense lines. Apply leak detector Snoop Leak Detector compound, G00091 if it is necessary to find leaks at the sense lines.

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Decrease the pressure to 0 psig.

(d) Repair the air leakage by joint or coupling adjustment or replace the duct. To replace the duct,

These are the tasks:

Engine Duct Removal, TASK 36-11-01-000-806-004,

Engine Duct Installation, TASK 36-11-01-400-806-004.

SUBTASK 36-10-00-710-026

(18) If the test fails, do the Engine Air Supply Operational Test, TASK 36-10-00-700-801 to make sure that all valves are operating properly.

NOTE: The duct could be leak free but a valve could be open or have too much leakage and the decay test would not be passed.

F. Put the Airplane Back to Its Usual Condition

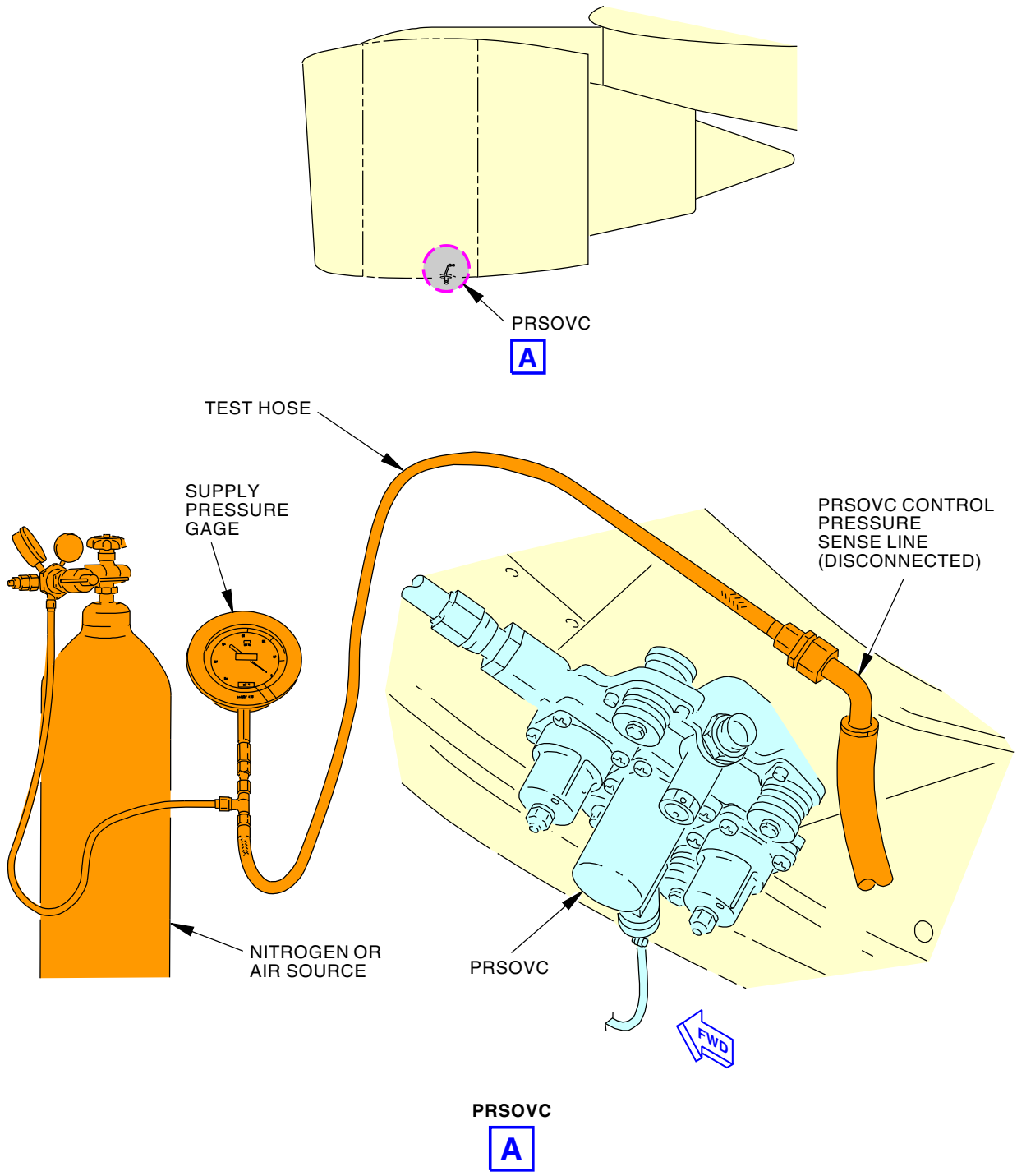
SUBTASK 36-10-00-860-097

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

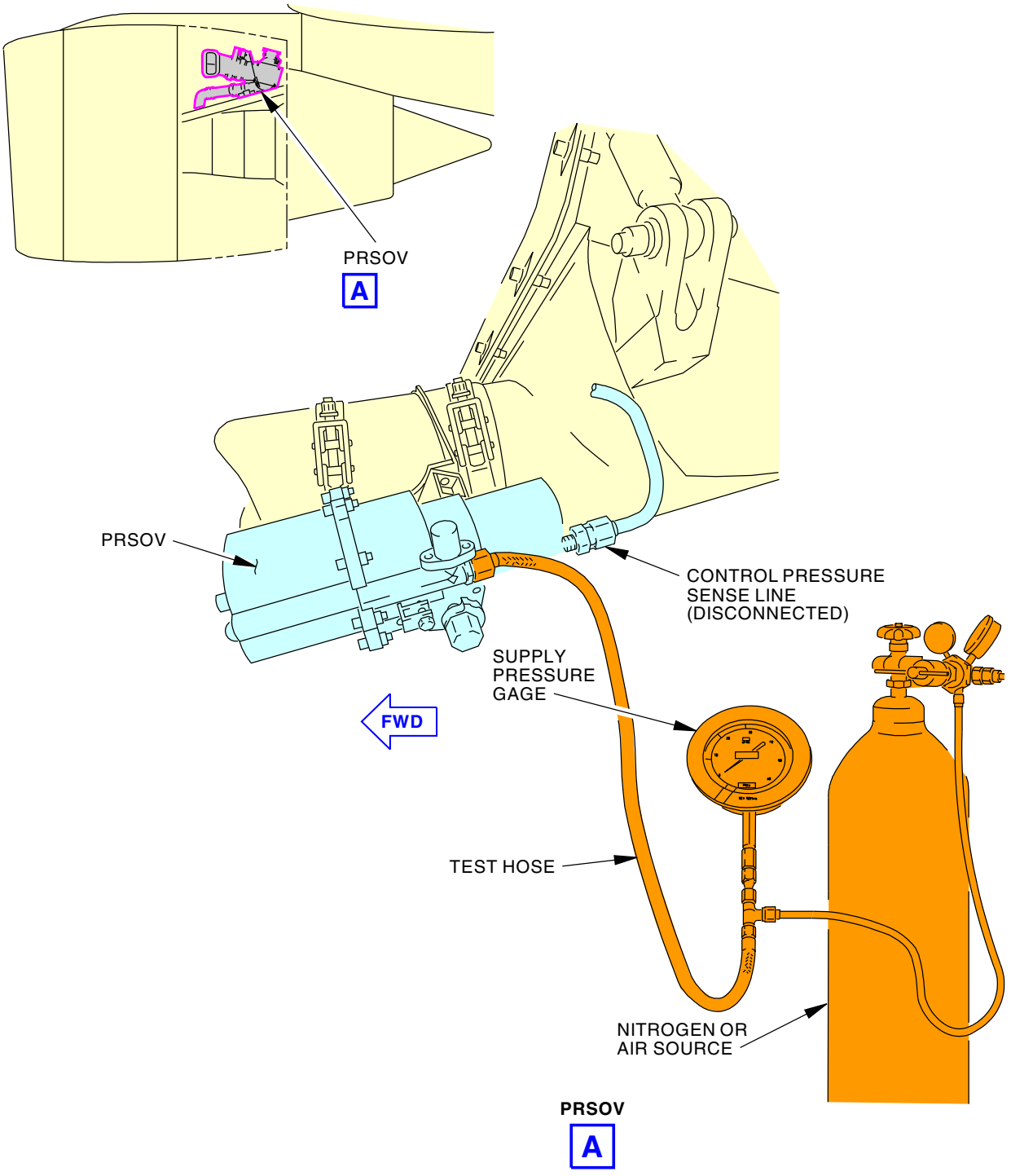
SUBTASK 36-10-00-860-099

(2) Put the switches/selectors back to their usual position.

——— END OF TASK ———



Engine Air Supply Valves Operational Test
Figure 502/36-10-00-990-801 (Sheet 1 of 2)



Engine Air Supply Valves Operational Test
Figure 502/36-10-00-990-801 (Sheet 2 of 2)

TASK 36-10-00-700-804

6. Engine Air Supply Test for the PRSOV and FAMV

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(2) This task will do an operational check of the Pressure Regulating and Shutoff Valve (PRSOV) and Fan Air Modulating Valve (FAMV) with both engines running.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-00-00-800-835-H00	Engine Start (Selection) (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)

C. Prepare to do the Engine Air Supply Test for the PRSOV and FAMV

NOTE: If you need to do a test of only one ASCPC, open the applicable circuit breaker for the ASCPC that you will not test.

SUBTASK 36-10-00-860-101

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

SUBTASK 36-10-00-860-102

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

Left Power Management Panel, P110

Row	Col	Number	Name
H	2	C21431	L CTC CHAN 1 (AC)
H	3	C21433	L CTC CHAN 2 (AC)
H	24	C21647	L CTC CHAN 2 (DC)
H	25	C21641	L CTC CHAN 1 (DC)
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)
H	3	C21648	R CTC CHAN 2 (DC)
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-10-00-860-103

(3) To deactivate the aural warning in the flight compartment, open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

SUBTASK 36-10-00-860-104

(4) Put these switches in the OFF position:

(a) On the Forward Overhead Panel P5:

1) L PACK
2) R PACK
3) L TRIM AIR
4) R TRIM AIR
5) APU BLEED
6) DEMAND HYD AIR C1
7) DEMAND HYD AIR C2
8) WING ANTI-ICE
9) L ENGINE ANTI-ICE
10) R ENGINE ANTI-ICE

(b) On the Aft Overhead Maintenance Panel P61:

1) AFT CGO TEMP SELECT
2) BULK CGO TEMP SELECT

SUBTASK 36-10-00-860-105

(5) Put these switches in the AUTO position:

(a) On the Forward Overhead Panel P5:

1) L ISLN
2) R ISLN
3) C ISLN
4) FWD OUTFLOW VALVE
5) AFT OUTFLOW VALVE

SUBTASK 36-10-00-860-106

(6) Put these switches in the ON position:

(a) On the Forward Overhead Panel P5:

1) ADIRU

2) L ENG BLEED AIR

3) R ENG BLEED AIR

SUBTASK 36-10-00-740-003

(7) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) GROUND TESTS

4) 36 AIR SUPPLY CONTROL SYSTEM

5) SYSTEM TEST

6) Left (Right) AIR SUPPLY CONTROL SYSTEM

7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE

2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) Return all changed switches to their normal conditions.

(e) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

D. Do the Engine Bleed Air Operational Test

SUBTASK 36-10-00-860-107

(1) Get access to the Air Supply Maintenance Page. To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-10-00-860-108

(2) Put the APU Bleed switch on the P5 panel to the AUTO position.

SUBTASK 36-10-00-710-021

(3) Do these steps to do a test of the PRSOV and FAMV:

(a) Put the L and R PACK switches on the P5 panel to the AUTO position.

(b) Make sure the flow control valves in the Cabin Air Conditioning and Temperature Control System (CACTCS) are open and there is stable flow to the packs.

(c) Monitor the position of the RIGHT ISO VLV on the Air Supply Maintenance Page.

(d) During the left engine start make sure RIGHT ISO VLV CLOSED is shown on the Air Supply Maintenance Page.

NOTE: When the left engine has completely started the RIGHT ISO VLV will show OPEN on the Air Supply Maintenance Page.

(e) For the left engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00

(f) Make sure the left engine is running at idle.

(g) Make sure these positions show on the Air Supply Maintenance Page:

Table 514/36-10-00-993-847

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		CLOSED
PRESS REG S/O VLV	OPEN		CLOSED
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(h) For the right engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00

NOTE: If you will start the right engine with the left engine make sure the manifold pressure is greater than 45 psig before you start the right engine.

(i) Make sure the right engine is running at idle.

(j) Make sure these positions show on the Air Supply Maintenance Page:

Table 515/36-10-00-993-848

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		OPEN
PRESS REG S/O VLV	OPEN		OPEN
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
LEFT ISO VLV		OPEN	
CENTER ISO VLV		CLOSED	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(k) Put the L and R ENG Bleed AIR on the P5 panel to the OFF position.

(l) Make sure the amber light on the bottom of the L and R ENG Bleed switches is illuminated.

1) The fan air modulating valve (FAMV) will move to the closed position for 12 seconds.

2) Make sure the Air Supply Maintenance Page shows the FAN AIR VLV is in the CLOSED position.

3) After 12 seconds, the FAMV will move back to the open position.

(m) Make sure these positions show on the Air Supply Maintenance Page:

Table 516/36-10-00-993-850

INDICATION	L		R
HIGH PRESS S/O	CLOSED		CLOSED
PRESS REG S/O VLV	CLOSED		CLOSED

Table 516/36-10-00-993-850 (Continued)

INDICATION	L		R
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>20 (PSIA)		>20 (PSIA)
INTERIM DUCT PRESS	NA		NA
MANIFOLD DUCT PRESS	NA		NA
PRECOOLER OUT TEMP	NA		NA
BLEED FLOW RATE	<4 (KG/MIN)		<4 (KG/MIN)
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		OPEN	

(n) Put the L ENG Bleed AIR switch on the P5 panel to the ON position.

(o) Make sure these positions show on the Air Supply Maintenance Page:

Table 517/36-10-00-993-852

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		CLOSED
PRESS REG S/O VLV	OPEN		CLOSED
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>20 (PSIA)		>20(PSIA)
INTERIM DUCT PRESS	>20 (PSIG)		NA
MANIFOLD DUCT PRESS	>20 (PSIG)		NA
PRECOOLER OUT TEMP	<199 (DEG C)		NA
BLEED FLOW RATE	>29 (KG/MIN)		<4 (KG/MIN)
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(p) Put the R ENG Bleed AIR switch on the P5 panel to the ON position.

(q) Make sure the amber light on the bottom of the L and R ENG Bleed switches are extinguished.

(r) Make sure these positions show on the Air Supply Maintenance Page:

Table 518/36-10-00-993-854

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		OPEN
PRESS REG S/O VLV	OPEN		OPEN
FAN AIR VLV	OPEN OR CLOSED		OPEN OR CLOSED
STARTER VLV	CLOSED		CLOSED
ENG HIGH STAGE PRESS	>20 (PSIA)		>20(PSIA)
INTERIM DUCT PRESS	>20 (PSIG)		>20 (PSIG)
MANIFOLD DUCT PRESS	>20 (PSIG)		>20 (PSIG)
PRECOOLER OUT TEMP	<199 (DEG C)		<199 (DEG C)
BLEED FLOW RATE	>29 (KG/MIN)		>29 (KG/MIN)
LEFT ISO VLV		OPEN	
CENTER ISO VLV		CLOSED	
RIGHT ISO VLV		OPEN	
APU ISO VLV		CLOSED	

(s) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

(t) Make sure the engines are not operating.

(u) Make sure these positions show on the Air Supply Maintenance Page:

Table 519/36-10-00-993-855

INDICATION	L		R
HIGH PRESS S/O VLV	CLOSED		CLOSED
PRESS REG S/O VLV	CLOSED		CLOSED
FAN AIR VLV	OPEN		OPEN
STARTER VLV	CLOSED		CLOSED
LEFT ISO VLV		OPEN	
CENTER ISO VLV		OPEN	
RIGHT ISO VLV		OPEN	
APU ISO VLV		OPEN	

(v) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

(w) Make sure these positions show on the Air Supply Maintenance Page:

Table 520/36-10-00-993-856

INDICATION	L		R
HIGH PRESS S/O VLV	CLOSED		CLOSED
PRESS REG S/O VLV	CLOSED		CLOSED
FAN AIR VLV	OPEN		OPEN
STARTER VLV	CLOSED		CLOSED

Table 520/36-10-00-993-856 (Continued)

INDICATION	L		R
LEFT ISO VLV		CLOSED	
CENTER ISO VLV		CLOSED	
RIGHT ISO VLV		CLOSED	
APU ISO VLV		CLOSED	

E. Put the Airplane Back to Its Usual Condition

SUBTASK 36-10-00-860-109

(1) Set the ADIRU switch on the overhead panel, P5, to the OFF position if it is not necessary.

SUBTASK 36-10-00-860-110

(2) To activate the aural warning in the flight compartment,

Close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

——— END OF TASK ———

TASK 36-10-00-710-801

7. Engine Idle Air Supply Operational Test

A. General

(1) This task is intended for use after the engine air supply system tubing or wiring has been disturbed. It is not acceptable for use as an LRU post installation operational check. This task will do a simplified operational check of the HPSOV/HPFAC, PRSOV/PRSOVC and FAMV/HPFAC with one or both engines running at idle. This task verifies that the valves and controllers can move to the proper positions when pressurized. It does not verify that the valves and controllers can properly regulate system pressures.

NOTE: This procedure is not for use at airport altitudes greater than 6900 feet for airplanes with GE90-115B engines.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-804	Showing a Maintenance Page (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-00-00-800-835-H00	Engine Start (Selection) (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)

C. Prepare to do the Engine Idle Air Supply Operational Test

SUBTASK 36-10-00-860-123

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

SUBTASK 36-10-00-860-124

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

Left Power Management Panel, P110

Row	Col	Number	Name
H	2	C21431	L CTC CHAN 1 (AC)
H	3	C21433	L CTC CHAN 2 (AC)
H	24	C21647	L CTC CHAN 2 (DC)
H	25	C21641	L CTC CHAN 1 (DC)
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
G	27	C21434	R CTC CHAN 2 (AC)
G	28	C21432	R CTC CHAN 1 (AC)
H	2	C21642	R CTC CHAN 1 (DC)
H	3	C21648	R CTC CHAN 2 (DC)
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-10-00-860-126

(3) Put these switches in the OFF position:

(a) On the Forward Overhead Panel P5:

1) DEMAND HYD AIR C1
2) DEMAND HYD AIR C2
3) WING ANTI-ICE
4) L ENGINE ANTI-ICE
5) R ENGINE ANTI-ICE

(b) On the Aft Overhead Maintenance Panel P61:

1) AFT CGO TEMP SELECT
2) BULK CGO TEMP SELECT

SUBTASK 36-10-00-860-127

(4) Put these switches in the AUTO position:

(a) On the Forward Overhead Panel P5:

1) L ISLN
2) R ISLN
3) C ISLN

4) FWD OUTFLOW VALVE

5) AFT OUTFLOW VALVE

SUBTASK 36-10-00-860-128

(5) Put these switches in the ON position:

(a) On the Forward Overhead Panel P5:

1) ADIRU

2) L ENG BLEED AIR

3) R ENG BLEED AIR

D. Do the Engine Idle Air Supply Operational Test

SUBTASK 36-10-00-860-129

(1) Get access to the Air Supply Maintenance Page. To get access to the Air Supply Maintenance Page, do this task: Showing a Maintenance Page, TASK 31-61-00-800-804.

SUBTASK 36-10-00-860-130

(2) Put the APU Bleed switch on the P5 panel to the AUTO position.

SUBTASK 36-10-00-710-024

(3) Do these steps to do a simplified operational test of the PRSOV, PRSOVC, HPSOV, FAMV, and HPFAC:

(a) Put the L and R PACK switches on the P5 panel to the AUTO position.

(b) Make sure the flow control valves in the Cabin Air Conditioning and Temperature Control System (CACTCS) are open and there is stable flow to the packs.

(c) Do the following steps to start the engines.

NOTE: Do not depressurize the pneumatic system as stated in the last step of the Engine Start (Selection), TASK 71-00-00-800-835-H00.

1) For the left engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00

2) Make sure the left engine is running at idle.

3) For the right engine, do this task: Engine Start (Selection), TASK 71-00-00-800-835-H00

NOTE: If you start the right engine with the left engine make sure the manifold pressure is greater than 45 psig before you start the right engine.

4) Make sure the right engine is running at idle.

(d) Wait 65 seconds for completion of the Engine Air Supply Preflight BIT.

NOTE: A test of the Engine Air Supply system is performed after the second engine is started. The test requires 20 to 65 seconds for completion, depending on the engine type.

(e) Make sure these positions show on the Air Supply Maintenance Page:

Table 521/36-10-00-993-886

INDICATION	L		R
HIGH PRESS S/O VLV	OPEN		OPEN
PRESS REG S/O VLV	OPEN		OPEN
FAN AIR VLV	CLOSED [1]		CLOSED [1]

Table 521/36-10-00-993-886 (Continued)

INDICATION	L		R
ENG HIGH STAGE PRESS	>45 (PSIA)		>45 (PSIA)
INTERIM DUCT PRESS	>30 (PSIG)		>30 (PSIG)
MANIFOLD DUCT PRESS	>25 (PSIG)		>25 (PSIG)

1) If FAN AIR VLV is not indicated CLOSED, select the engine bleed switch OFF. FAN AIR VLV must be indicated CLOSED after selecting engine bleed switch OFF. After 12 seconds the FAN AIR VLV is automatically commanded OPEN (while the engine bleed switch is off).

2) Select the engine bleed switch back ON.

(f) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

(g) Make sure the engines are not operating.

(h) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 36-10-00-860-131

(1) Set the ADIRU switch on the overhead panel, P5, to the OFF position if it is not necessary.

SUBTASK 36-10-00-860-132

(2) To activate the aural warning in the flight compartment,

Close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

END OF TASK

ENGINE DUCT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) The removal of the Engine Duct

(2) The installation of the Engine Duct.

TASK 36-11-01-000-806-004

2. Engine Duct Removal

(Figure 401)

A. General

(1) This task removes these duct sections:

(a) High Pressure (HP) Duct (1 section)

(b) HP/IP Manifold (1 section)

(c) PRSOV Inlet (1 section)

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-11-17-000-804-002	Duct Vent Valve Removal (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Prepare for the Removal

SUBTASK 36-11-01-860-042-004

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATICS SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-01-010-031-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in sequence to safely open the right thrust reverser for the engine duct on the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-01-010-032-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely open the right thrust reverser for the engine duct on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

F. HP Duct Removal

SUBTASK 36-11-01-020-092-004

(1) Remove the bolt [29], washer [28], washer [32], bushing [30] and nut [31] that hold the support links [26], [27] to HP duct [6].

NOTE: The bushings [30] will be loose after you remove the bolt, washers and nuts that hold the support link. Make sure the bushings do not fall onto the engine when you remove the bolt, washers and nut.

SUBTASK 36-11-01-020-093-004

(2) Remove the coupling [4] and the couplings [7] from each end of the HP duct [6].

SUBTASK 36-11-01-020-094-004

(3) Remove the HP duct [6] and E-seal [5], E-seal [8].

SUBTASK 36-11-01-480-022-004

(4) Put covers on the openings to keep out unwanted material.

G. HP/IP Manifold Removal

SUBTASK 36-11-01-020-095-004

(1) Disconnect the sense line [22] from the HP/IP manifold [3].

SUBTASK 36-11-01-020-096-004

(2) Remove the nipple [20] and the o-ring [21].

(a) Discard the O-ring and keep the nipple for installation.

SUBTASK 36-11-01-020-097-004

(3) Remove the bolt [11], washer [12], washer [14], bushing [13] and nut [15] that hold the support links [16] to HP/IP manifold [3].

SUBTASK 36-11-01-020-098-004

(4) Hold the HP/IP manifold [3] while you remove the couplings [4].

SUBTASK 36-11-01-020-099-004

(5) Remove the couplings [4] at three locations.

SUBTASK 36-11-01-020-100-004

(6) Remove the HP/IP manifold [3] and E-seal [5].

SUBTASK 36-11-01-480-023-004

(7) Put covers on the openings to keep out unwanted material.

H. PRSOV Inlet Duct Removal

SUBTASK 36-11-01-020-101-004

(1) Remove the couplings [4] at each end of the PRSOV inlet duct assembly [1].

SUBTASK 36-11-01-020-102-004

(2) Remove the PRSOV inlet duct assembly [1] and E-seal [5].

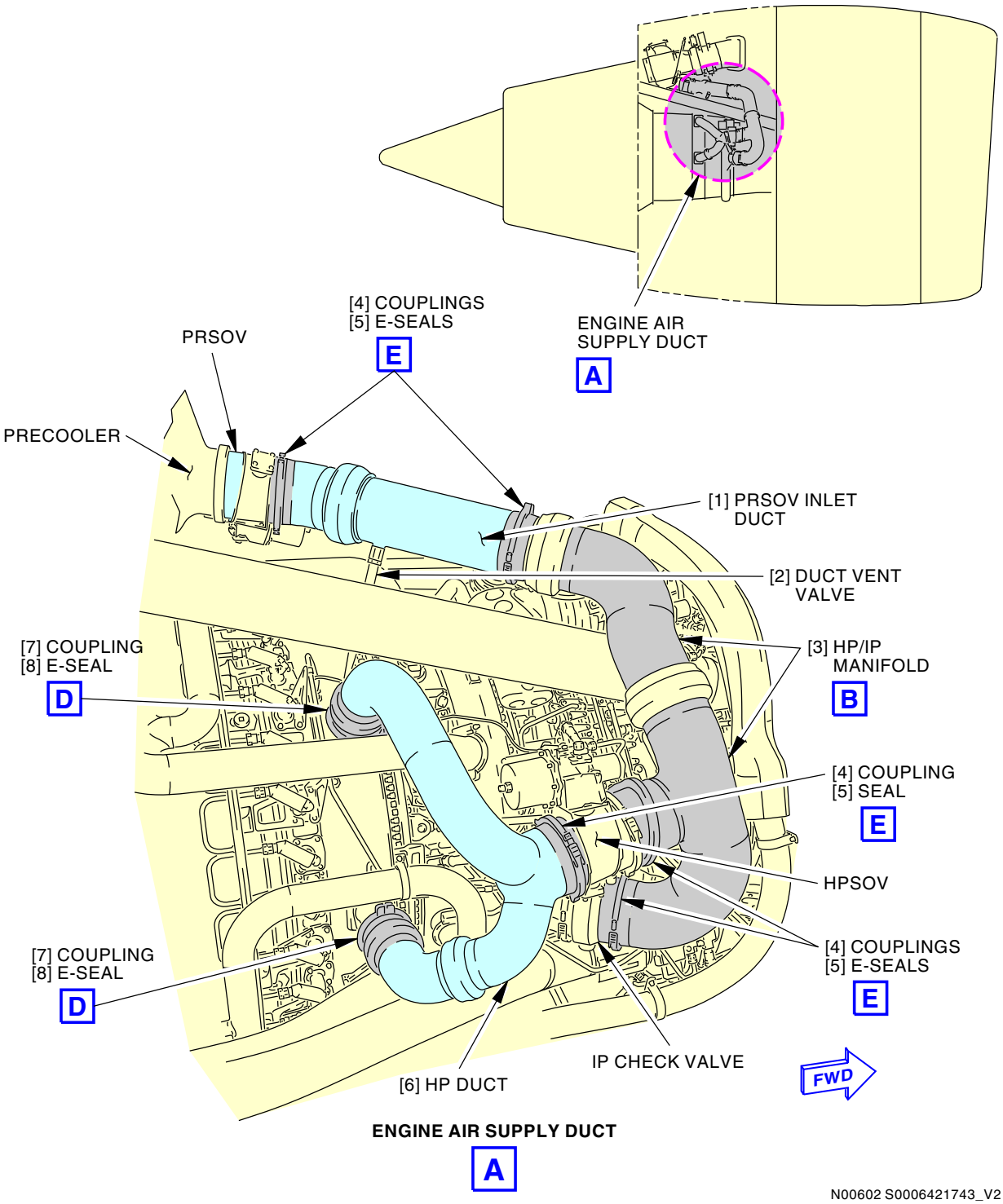
SUBTASK 36-11-01-020-103-004

(3) If it is necessary to remove the duct vent valve [2], do this task: Duct Vent Valve Removal, TASK 36-11-17-000-804-002.

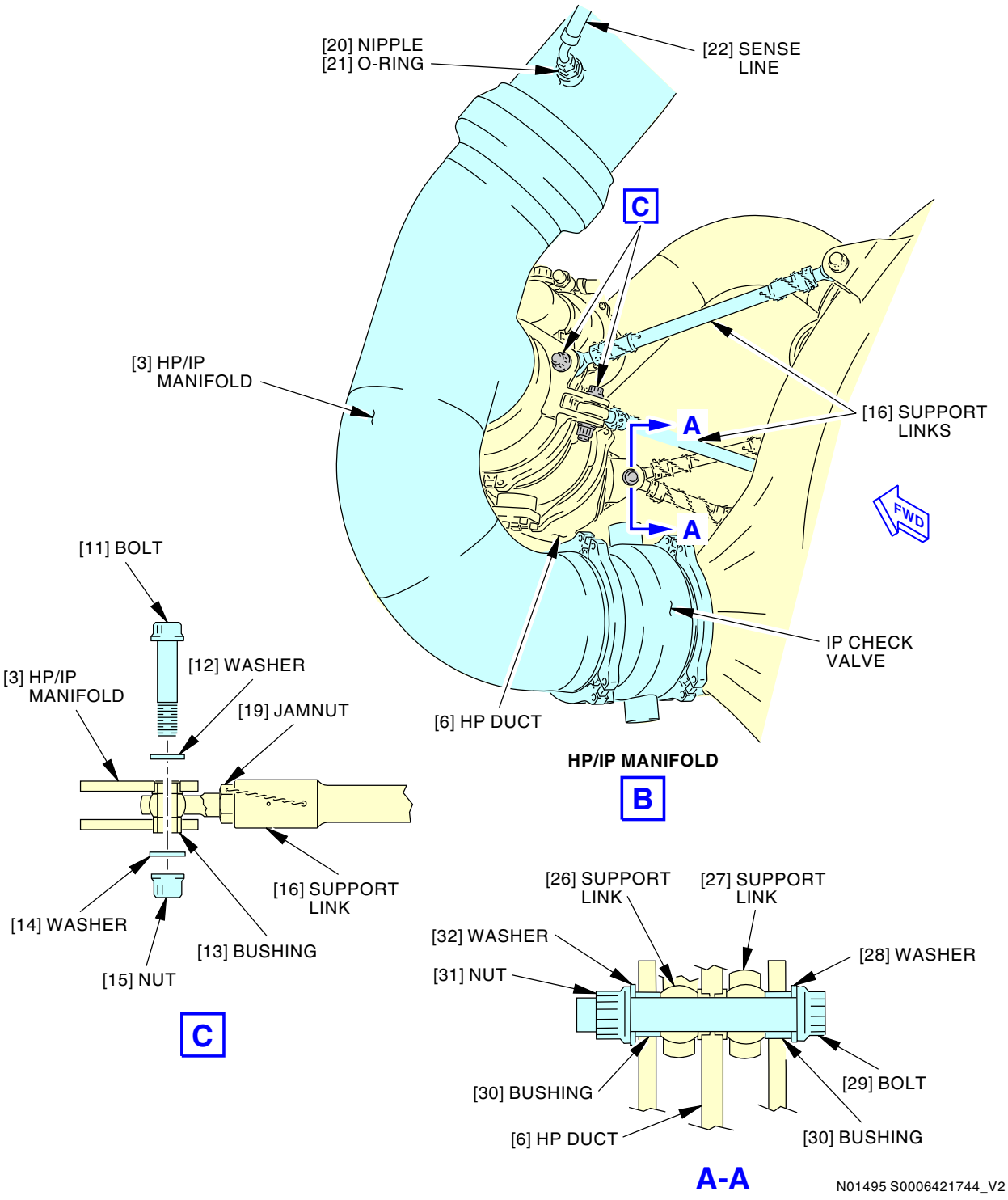
SUBTASK 36-11-01-480-024-004

(4) Put covers on the openings to keep out unwanted material.

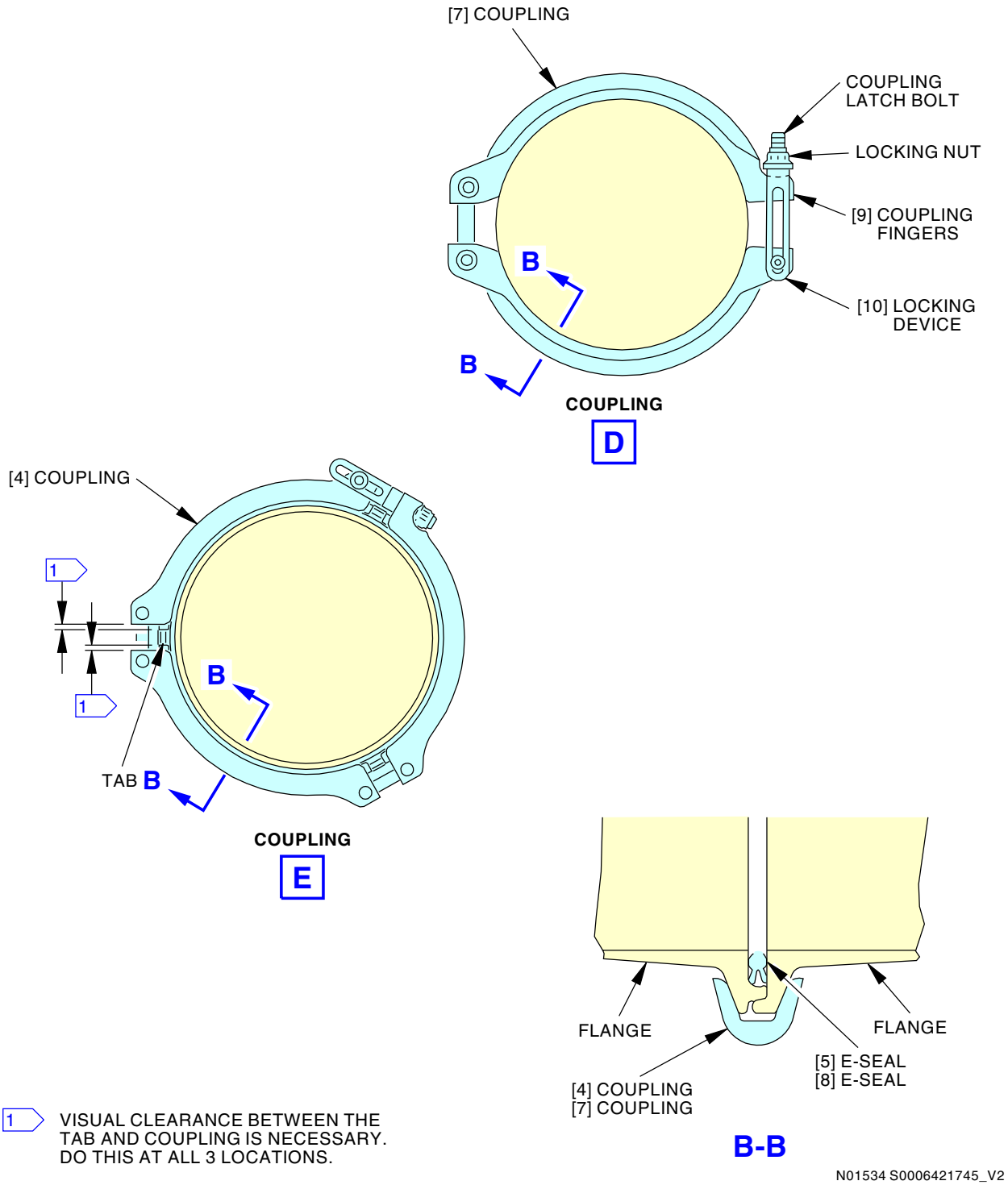
——— END OF TASK ———



Engine Air Supply Duct Installation
Figure 401/36-11-01-990-808-004 (Sheet 1 of 3)



Engine Air Supply Duct Installation
Figure 401/36-11-01-990-808-004 (Sheet 2 of 3)



Engine Air Supply Duct Installation
Figure 401/36-11-01-990-808-004 (Sheet 3 of 3)

TASK 36-11-01-400-806-004

3. Engine Duct Installation

(Figure 401)

A. General

(1) This task installs these duct sections:

(a) High Pressure (HP) Duct

(b) HP/IP Manifold

(c) PRSOV Inlet Duct

B. References

Reference	Title
20-10-23-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
36-11-17-400-805-002	Duct Vent Valve Installation (P/B 401)
71-00-00-800-836-H00	Dry Motor (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

F. HP Duct Installation

SUBTASK 36-11-01-080-022-004

(1) Remove the covers from the duct openings.

SUBTASK 36-11-01-210-036-004

(2) Examine the flanges on the HP duct [6].

(a) Make sure there are no scratches, cuts, dents or unwanted material.

SUBTASK 36-11-01-210-037-004

(3) Examine the E-seal [5], E-seal [8].

(a) Make sure the E-seals do not have cracks, dents or other damage.

(b) Replace all of the damaged E-seals.

SUBTASK 36-11-01-420-186-004

(4) Put the HP duct [6] and E-seal [5], E-seals [8] into position:

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

SUBTASK 36-11-01-410-006-004

CAUTION MAKE SURE YOU INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE THE COUPLING CAN LOOSEN AND CAUSE DAMAGE TO EQUIPMENT.

(5) Install the coupling [4] and the couplings [7] (Figure 401).

(a) If access and component clearances permit, then it is recommended that the couplings be installed with alternating orientation around the flanges.

NOTE: Field experience shows that alternating the orientation of the couplings can prevent the deformation of components and ducts.

(b) Make sure there is visual clearance between the tab and the coupling [4] (see illustration).

(c) Do not tighten the couplings.

SUBTASK 36-11-01-640-029-004

(6) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the bolt [29].

SUBTASK 36-11-01-420-187-004

(7) Install the nut [31], washer [28], washer [32], bushing [30] and bolt [29] to attach the support links [26], [27] to the HP duct [6].

NOTE: Install the countersunk side of the washers against the bolt head.

Do not tighten the nut and bolt.

(a) Loosen the jamnut(s) to adjust the length of the support links [26], [27] if it is necessary.

(b) Make sure the bearing rod assembly on the support link is not too loose or damaged from vibration.

SUBTASK 36-11-01-420-188-004

(8) Do these steps to make sure the coupling [4] is properly installed on the duct flanges:

(a) Tighten the coupling [4] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(b) Hit lightly around the coupling [4] with a rubber mallet.

(c) Tighten the coupling [4] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

NOTE: The above steps will make sure you engage the flanges and torque the coupling correctly to prevent deformation of ducts and components.

SUBTASK 36-11-01-420-189-004

(9) Do these steps to make sure the couplings [7] are properly installed on the duct flanges:

(a) Tighten the couplings [7] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(b) Hit lightly around each coupling [7] with a rubber mallet.

(c) Tighten the couplings [7] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

NOTE: The above steps will make sure you engage the flanges and torque the coupling correctly to prevent deformation of ducts and components.

SUBTASK 36-11-01-420-190-004

(10) If it was necessary to adjust the length of the support link [26], [27], do the steps that follow:

NOTE: Make sure you do not put a load on the other support link or support hardware.

(a) Make sure the rod end bearing is threaded beyond the link inspection hole.

(b) Tighten the jamnut after you have correctly adjusted the length of the support link [26], [27].

(c) Install the lockwire for the support link. To install the lockwire, do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801.

SUBTASK 36-11-01-420-191-004

(11) Tighten the nut [31] and bolt [29].

G. HP/IP Manifold Installation

SUBTASK 36-11-01-080-023-004

(1) Remove the covers from the duct openings.

SUBTASK 36-11-01-210-038-004

(2) Examine the flanges on the HP/IP manifold [3].

NOTE: Make sure there are no scratches, cuts, dents or unwanted material.

SUBTASK 36-11-01-640-030-004

(3) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the nipple [20].

SUBTASK 36-11-01-420-192-004

(4) Install the nipple [20] and new o-ring [21] into the HP/IP manifold [3].

SUBTASK 36-11-01-210-039-004

(5) Examine the E-seal [5].

(a) Make sure the E-seals do not have cracks, dents or other damage.

(b) Replace all of the damaged E-seals.

SUBTASK 36-11-01-420-193-004

(6) Install the HP/IP manifold [3] and E-seals [5] into position:

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

SUBTASK 36-11-01-640-031-004

(7) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the bolts [11].

SUBTASK 36-11-01-420-194-004

(8) Install the nut [15], washer [12], washer [14], bushing [13] and bolt [11] to attach the support links [16] to the HP/IP manifold [3].

NOTE: Make sure the countersunk side of the washer [12] is against the head of the bolt [11]. Do not tighten the nut [15] and bolt [11] at this time.

(a) Loosen the jamnut(s) [19] to adjust the length of the support link [16], if it is necessary.

(b) Make sure the bearing rod assembly on the support link is not too loose or damaged from vibration.

SUBTASK 36-11-01-420-195-004

CAUTION

MAKE SURE YOU INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE THE COUPLING CAN LOOSEN AND CAUSE DAMAGE TO EQUIPMENT.

(9) Install the couplings [4] (Figure 401).

(10) If access and component clearances permit, then it is recommended that the couplings be installed with alternating orientation around the flanges.

NOTE: Field experience shows that alternating the orientation of the couplings can prevent the deformation of components and ducts.

(11) Do not tighten the couplings.

SUBTASK 36-11-01-640-032-004

(12) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the nipple [20].

SUBTASK 36-11-01-420-196-004

CAUTION

MAKE SURE THAT YOU DO NOT TWIST THE SENSE LINE WHEN YOU INSTALL IT. IF YOU TWIST THE LINE, LEAKS IN THE SENSE LINE CAN OCCUR.

(13) Install the sense line [22].

(a) Loosely tighten the nuts at each end of the sense line.

NOTE: If one end of the sense line is attached to the EBU, loosen the nut before you attach the other end to the manifold.

SUBTASK 36-11-01-420-197-004

(14) Do these steps to make sure the couplings [4] are properly installed on the duct flanges:

(a) Tighten the couplings [4] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(b) Hit lightly around each coupling [4] with a rubber mallet.

(c) Tighten the couplings [4] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

NOTE: The above steps will make sure you engage the flanges and torque the coupling correctly to prevent deformation of ducts and components.

SUBTASK 36-11-01-420-198-004

(15) If it was necessary to adjust the length of the support links [16], do the steps that follow:

NOTE: Make sure you do not put a load on the other support link or support hardware.

(a) Make sure the rod end bearing is threaded beyond the link inspection hole.

(b) Tighten the jamnut [19] after you have correctly adjusted the length of the support link [16].

(c) Install the lockwire for the support link [16]. To install the lockwire, do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801.

SUBTASK 36-11-01-420-199-004

(16) Tighten the nut [15] and bolt [11] at each end of the support links [16].

SUBTASK 36-11-01-430-001

(17) Tighten the nut on the straight end of the sense line [22] to 152 to 168 pound-inches (17.2 to 19.0 newton-meters).

SUBTASK 36-11-01-430-002

(18) Tighten the nut on the elbow end of the sense line [22] to 152 to 168 pound-inches (17.2 to 19.0 newton-meters).

NOTE: Do not twist the sense line or let the elbow turn more than 3° when you tighten the nut.

H. PRSOV Inlet Duct Installation

SUBTASK 36-11-01-080-024-004

(1) Remove the covers from the duct openings.

SUBTASK 36-11-01-210-040-004

(2) Examine the flanges on the PRSOV inlet duct assembly [1].

(a) Make sure there are no scratches, cuts, dents or unwanted material.

SUBTASK 36-11-01-420-200-004

(3) If it is necessary, install the duct vent valve [2]. To install the duct vent valve [2], do this task: Duct Vent Valve Installation, TASK 36-11-17-400-805-002.

SUBTASK 36-11-01-210-041-004

(4) Examine the E-seal [5].

(a) Make sure the E-seals do not have cracks, dents or other damage.

(b) Replace all of the damaged E-seals.

SUBTASK 36-11-01-420-201-004

(5) Put the PRSOV inlet duct assembly [1] and E-seals [5] into position:

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

SUBTASK 36-11-01-420-202-004

CAUTION MAKE SURE YOU INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE THE COUPLING CAN LOOSEN AND CAUSE DAMAGE TO EQUIPMENT.

(6) Install the couplings [4] (Figure 401).

(7) If access and component clearances permit, then it is recommended that the couplings be installed with alternating orientation around the flanges.

NOTE: Field experience shows that alternating the orientation of the couplings can prevent the deformation of components and ducts.

(8) Do not tighten the couplings.

SUBTASK 36-11-01-420-203-004

(9) Do these steps to make sure the couplings [4] are properly installed on the duct flanges:

(a) Tighten the couplings [4] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(b) Hit lightly around each coupling [4] with a rubber mallet.

(c) Tighten the couplings [4] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

NOTE: The above steps will make sure you engage the flanges and torque the coupling correctly to prevent deformation of ducts and components.

I. Engine Duct Installation Test

SUBTASK 36-11-01-860-043-004

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-11-01-860-044-004

(2) Do the MANUAL LOCKING CLOSED procedure on the PRSOV to put the PRSOV in the LOCKED CLOSED position.

SUBTASK 36-11-01-790-009-004

(3) Apply leak detector Snoop Leak Detector compound, G00091 to the sense line [22] and/or duct vent valve [2] whichever is applicable.

SUBTASK 36-11-01-860-045-004

(4) Do this task: Dry Motor, TASK 71-00-00-800-836-H00.

SUBTASK 36-11-01-790-010-004

(5) Look for leaks at the couplings, sense line and duct vent valve whichever is applicable.

(a) Small leaks are satisfactory.

NOTE: Small leakage is only permitted with the couplings. You must repair all leakage at the sense line and duct vent valve.

(b) Repair all large leakage.

NOTE: Large air leakage is when you feel the airflow with your hand 12 inches or greater from the coupling joint.

SUBTASK 36-11-01-860-046-004

(6) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-11-01-860-047-004

(7) Do the MANUAL UNLOCKING procedure on the PRSOV to put the PRSOV in the normal position.

SUBTASK 36-11-01-860-048-004

(8) Close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

J. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-01-010-033-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the right thrust reverser on the applicable engine:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

ENGINE AIR SUPPLY PNEUMATIC DUCT - INSPECTION/CHECK

1. General

A. This procedure has the following tasks:

(1) An inspection/check of the engine air supply pneumatic ducts (pneumatic duct).

(a) Definitions:

1) Crack - An opening due to a fracture of the solid metal.

2) Dent - A hollow or a depression in the pneumatic duct wall. The surface of the pneumatic duct wall is not cut or removed.

3) Gouge - A failure of the pneumatic duct wall where the surface is actually broken or removed sufficiently to cause local thinning.

4) Scratch - A mark that may be in any direction. It is a cut or tear in the surface of the metal.

(2) An inspection/check (foil leakage check) of the flexible ducts of the Engine Duct.

TASK 36-11-01-200-801

2. Engine Air Supply Pneumatic Duct Inspection/Check

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-11-01-000-806-004	Engine Duct Removal (P/B 401)
36-11-01-100-801	Pneumatic Duct Cleaning (P/B 701)
36-11-01-200-802	Pneumatic Duct Repair (P/B 801)
36-11-01-400-806-004	Engine Duct Installation (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(Continued)

Number	Name/Location
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

D. Prepare for the Inspection

SUBTASK 36-11-01-010-006

(1) Do these steps for the engine duct on the left engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in sequence to safely open the thrust reverser:

(b) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(e) To open the fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(f) To open the thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-01-010-007

(2) Do these steps for the engine duct on the right engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

(b) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(e) To open the fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(f) To open the thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Examine the Pneumatic Duct

SUBTASK 36-11-01-210-008

(1) Examine the pneumatic ducts for these conditions:

(a) Metal deterioration .

NOTE: A bright metal surface with etching is a sign of deterioration.

(b) Cracks along the pneumatic duct or weld beads.

(c) Signs of leakage.

(d) Dirt, grease or unwanted material.

(e) Dents, pits or corrosion.

(f) Gouges or scratches.

NOTE: If the depth of the gouge or scratch is more than 10 percent of the thickness of the pneumatic duct wall, the gouge or scratch is a crack. If the gouge or scratch is less than 0.25 inches from a primary weld joint, the gouge or scratch is a crack.

(g) Loose duct.

1) Make sure the lockwire is installed and the jamnut is tight.

2) Make sure the rod end bearing is not damaged or worn too much.

SUBTASK 36-11-01-210-009

(2) Repair is not necessary for these conditions:

(a) Very small surface marks and pits

(b) Smooth dents, if you see these conditions:

1) The depth is not larger than 0.05 inches measured from a straight edge that is put longitudinally along the pneumatic duct

2) The dent must be continuous with no sharp intersections

3) The bottom is rounded and there are no cuts.

NOTE: Make sure you check the inside of the pneumatic duct at the dent area.

(c) Scratches and gouges, if you see these conditions:

1) The depth is not larger than 10 percent of the pneumatic duct nominal wall thickness

2) The bottom is smooth and rounded

NOTE: Make sure you check the inside of the pneumatic duct at the dent area.

SUBTASK 36-11-01-350-001

(3) For the temporary repair of the pneumatic ducts, do this task: Pneumatic Duct Repair, TASK 36-11-01-200-802

SUBTASK 36-11-01-350-002

(4) A full repair of the pneumatic ducts can be done off airplane.

SUBTASK 36-11-01-960-001

(5) If you cannot do a temporary repair or full repair,

These are the tasks:

Engine Duct Removal, TASK 36-11-01-000-806-004,

Engine Duct Installation, TASK 36-11-01-400-806-004.

SUBTASK 36-11-01-160-001

(6) To clean the pneumatic ducts, do this task: Pneumatic Duct Cleaning, TASK 36-11-01-100-801

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-01-010-005

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in this sequence to safely close the thrust reverser:

(a) To close the thrust reversers, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

END OF TASK

TASK 36-11-01-200-804

3. Flexible Duct - Leakage Inspection/Check

A. General

(1) This procedure makes sure that leakage from the flexible ducts of the engine duct is not more than permitted limits.

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-11-01 P/B 401 Config 4	ENGINE DUCT - REMOVAL/INSTALLATION
71-00-00 P/B 201	POWER PLANT - MAINTENANCE PRACTICES
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Prepare for the Inspection

SUBTASK 36-11-01-010-037

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these steps for the engine duct on the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) To open fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) To open the thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-01-010-038

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these steps for the engine duct on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) To open fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) To open the thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

F. Flexible Duct Inspection

SUBTASK 36-11-01-480-025

(1) Do these steps for the flexible ducts of the HP/IP Manifold and the PRSOV Inlet Duct:

(a) Install a 4.5 ft (1372 mm) x 2 ft (610 mm) sheet of heavy duty aluminum foil (kitchen type) on the flexible duct:

1) Fold the aluminum foil in half along its length to double the thickness to form a 2.25 ft (686 mm) x 2 ft (610 mm) sheet.

2) Wrap the aluminum foil around the flexible duct and fold the edges of the foil to make a seal.

3) Make sure the aluminum foil is installed completely around the flexible duct and that the foil extends more than one inch beyond each end of the flexible duct.

4) Wrap a wire around the ends of the aluminum foil to install the foil onto the HP/IP Manifold or PRSOV Inlet Duct.

5) Make sure that there are no punctures or tears in the aluminum foil.

SUBTASK 36-11-01-480-026

(2) Do these steps for the flexible ducts located at the HP Duct:

(a) Install a 2 ft (610 mm) x 2 ft (610 mm) sheet of heavy duty aluminum foil (kitchen type) on the flexible duct:

1) Fold the aluminum foil in half to double the thickness.

2) Wrap the aluminum foil around the flexible duct and fold the edges of the foil to make a seal.

3) Make sure the aluminum foil is installed completely around the flexible duct and that the foil extends more than one inch beyond each end of the flexible duct.

4) Wrap a wire around the ends of the aluminum foil to install the foil onto the HP duct.

5) Make sure that there are no punctures or tears in the aluminum foil.

SUBTASK 36-11-01-410-008

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely close the thrust reverser:

(a) To close the thrust reversers, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

SUBTASK 36-11-01-860-049

(4) Start the applicable engine (POWER PLANT - MAINTENANCE PRACTICES, PAGEBLOCK 71-00-00/201).

SUBTASK 36-11-01-860-050

(5) Run the applicable engine at maximum continuous power for 60 to 120 seconds (POWER PLANT - MAINTENANCE PRACTICES, PAGEBLOCK 71-00-00/201).

SUBTASK 36-11-01-860-051

(6) Stop the applicable engine (POWER PLANT - MAINTENANCE PRACTICES, PAGEBLOCK 71-00-00/201).

SUBTASK 36-11-01-860-061

(7) Wait for the engine to cool down sufficiently before you get access to the engine duct again.

SUBTASK 36-11-01-010-039

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(8) Do these tasks in sequence to safely open the thrust reverser:

(a) To open the fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(b) To open the thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

SUBTASK 36-11-01-210-042

(9) Do an inspection of the aluminum foil installed around the flexible duct:

(a) If the aluminum foil shows signs of leakage (large punctures, tears, or foil is missing) replace the applicable section of the Engine Duct (HP Duct, HP/IP Manifold or PRSOV Inlet Duct) (ENGINE DUCT - REMOVAL/INSTALLATION, PAGEBLOCK 36-11-01/401 Config 4).

NOTE: Engine duct replacement is not necessary if punctures and tears are caused by flexing or engine vibration.

NOTE: You must replace the section of the Engine Duct because the maintenance of the flexible duct cannot be done on-aircraft.

(b) If the aluminum foil shows no signs of leakage, remove the wire and the aluminum foil from the flexible duct.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-01-410-009

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the thrust reverser:

(a) To close the thrust reversers, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

ENGINE AIR SUPPLY PNEUMATIC DUCT - CLEANING/PAINTING

1. General

A. The engine air supply duct (pneumatic duct) is made of nickel basealloy.

B. This procedure has one task. The task contains instructions to clean pneumatic ducts.

TASK 36-11-01-100-801

2. Pneumatic Duct Cleaning

A. References

Reference	Title
20-30-02-910-801	Structure Cleaners and Polishes (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00153	Solvent - Toluene, Nitration	JAN-T-171 Grade A
B00342	Alcohol - N-Butyl (Butanol)	ASTM D304
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Prepare for the Engine Air Supply Pneumatic Duct Cleaning

SUBTASK 36-11-01-010-008

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely open the thrust reversers on the applicable engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

F. Engine Air Supply Pneumatic Ducts Cleaning

SUBTASK 36-11-01-110-001

(1) Use one of these applicable alkaline cleaners or manual solvent cleaners to clean the duct.

(a) Alkaline cleaners (Structure Cleaners and Polishes, TASK 20-30-02-910-801).

(b) Manual solvent cleaners:

1) solvent, B00062

2) alcohol, B00342

3) solvent, B00153

SUBTASK 36-11-01-110-002

(2) Remove all oxides from the duct with abrasive mat, G00251 fabric.

SUBTASK 36-11-01-110-003

(3) If necessary, pneumatic duct cleaning procedures for nickel base alloys can be done off airplane.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-01-010-009

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in this sequence to safely close the thrust reverser:

(a) To close the thrust reversers, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

PNEUMATIC DUCT - REPAIRS

1. General

A. You can repair thin wall pneumatic ducts that are damaged.

B. Refer to the Overhaul Manual if you need to weld or do other repairs that are not in this procedure.

C. This procedure has one task. The task contains information to repair the engine air supply pneumatic ducts (pneumatic duct).

TASK 36-11-01-200-802

2. Pneumatic Duct Repair

(Figure 801)

A. General

(1) This task will do these repairs:

(a) Repair a dent in the pneumatic duct

(b) Repair a scratch or gouge in the pneumatic duct

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-11-01-000-806-004	Engine Duct Removal (P/B 401)
36-11-01-200-801	Engine Air Supply Pneumatic Duct Inspection/Check (P/B 601)
36-11-01-400-806-004	Engine Duct Installation (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Prepare for the Repair

SUBTASK 36-11-01-010-010

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely open the thrust reverser on the applicable engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

F. Examine the pneumatic duct.

SUBTASK 36-11-01-200-001

(1) To see if it is necessary to repair the pneumatic duct, do this task: Engine Air Supply Pneumatic Duct Inspection/Check, TASK 36-11-01-200-801.

G. Repair a Dent in the Pneumatic Duct

SUBTASK 36-11-01-350-003

(1) To repair a smooth dent pull a ball mandrel through the dented area of the pneumatic duct or use a hydraulically or mechanically actuated expansion device.

NOTE: To use these procedures make sure the depth of the smooth dent is less than 5 percent of the nominal diameter of the pneumatic duct.

NOTE: Do not use a method that will produce local work-hardening of the pneumatic duct.

H. Repair the Scratch or Gouge in the Pneumatic Duct

NOTE: This repair only applies to a scratch or gouge depth of less than 10 percent of the pneumatic duct wall thickness with rough bottoms or edges.

SUBTASK 36-11-01-220-001

(1) To repair a scratch in the pneumatic duct, remove metal that is adjacent to the scratch, with the conditions that follow:

(a) If you cannot repair the pneumatic duct to the conditions below, replace or weld repair the pneumatic duct. To replace the duct,

NOTE: The pneumatic duct must be removed from the airplane before making a weld repair and then reinstalled.

These are the tasks:

Engine Duct Removal, TASK 36-11-01-000-806-004,

Engine Duct Installation, TASK 36-11-01-400-806-004.

(b) The minimum wall thickness at the bottom of the scratch after it is repaired must not be less than 90 percent of the minimum pneumatic duct wall thickness.

(c) The surface roughness of the repaired area must not be more than 40 microinches (arithmetical average).

(d) The slope of the repaired area must not be more than 10 percent (0.10).

(e) The inner and the outer radius of the repaired area must not be more than 0.12 inch.

(f) The distance between a scratch/gouge and a primary welded joint must be greater than 0.25 inches.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-01-010-011

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the thrust reverser on the applicable engine:

(a) To close the thrust reversers, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) To close the fan cowl panels, do this task:

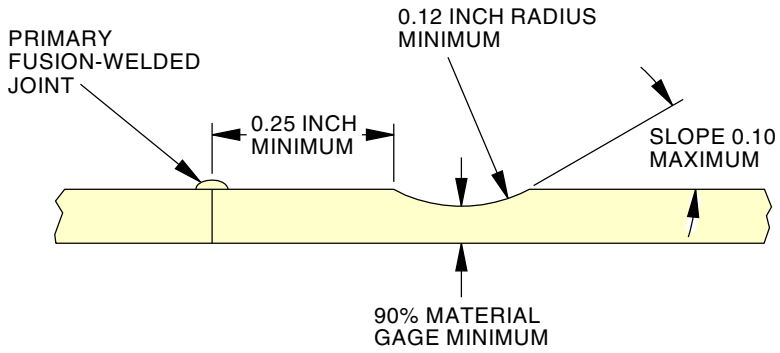
Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

END OF TASK



**SCRATCH/GOUGE REPAIR
(EXAMPLE)**

C63937 S0006421781_V2

**Pneumatic Duct Repairs
Figure 801/36-11-01-990-802**

CONTROLLER AIR COOLER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Controller Air Cooler Removal.

(2) Controller Air Cooler Installation.

TASK 36-11-03-000-801-001

2. Controller Air Cooler Removal

(Figure 401)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

D. Prepare for the Removal

SUBTASK 36-11-03-860-001-001

WARNING

REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-03-010-003-001

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER(S). IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in sequence to safely open the right thrust reverser for the controller air cooler on the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-03-010-001-001

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER(S). IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely open the right thrust reverser for the controller air cooler on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

E. Controller Air Cooler Removal

SUBTASK 36-11-03-020-001-001

(1) Loosen the clamp [4] to disconnect the tube assembly [7] from the cooler [5].

SUBTASK 36-11-03-020-002-001

(2) Disconnect the tube assembly [3] from the cooler [5].

SUBTASK 36-11-03-020-003-001

(3) Disconnect the tube assembly [6] from the cooler [5].

SUBTASK 36-11-03-020-004-001

(4) Remove the 4 bolts [1] to remove the cooler [5].

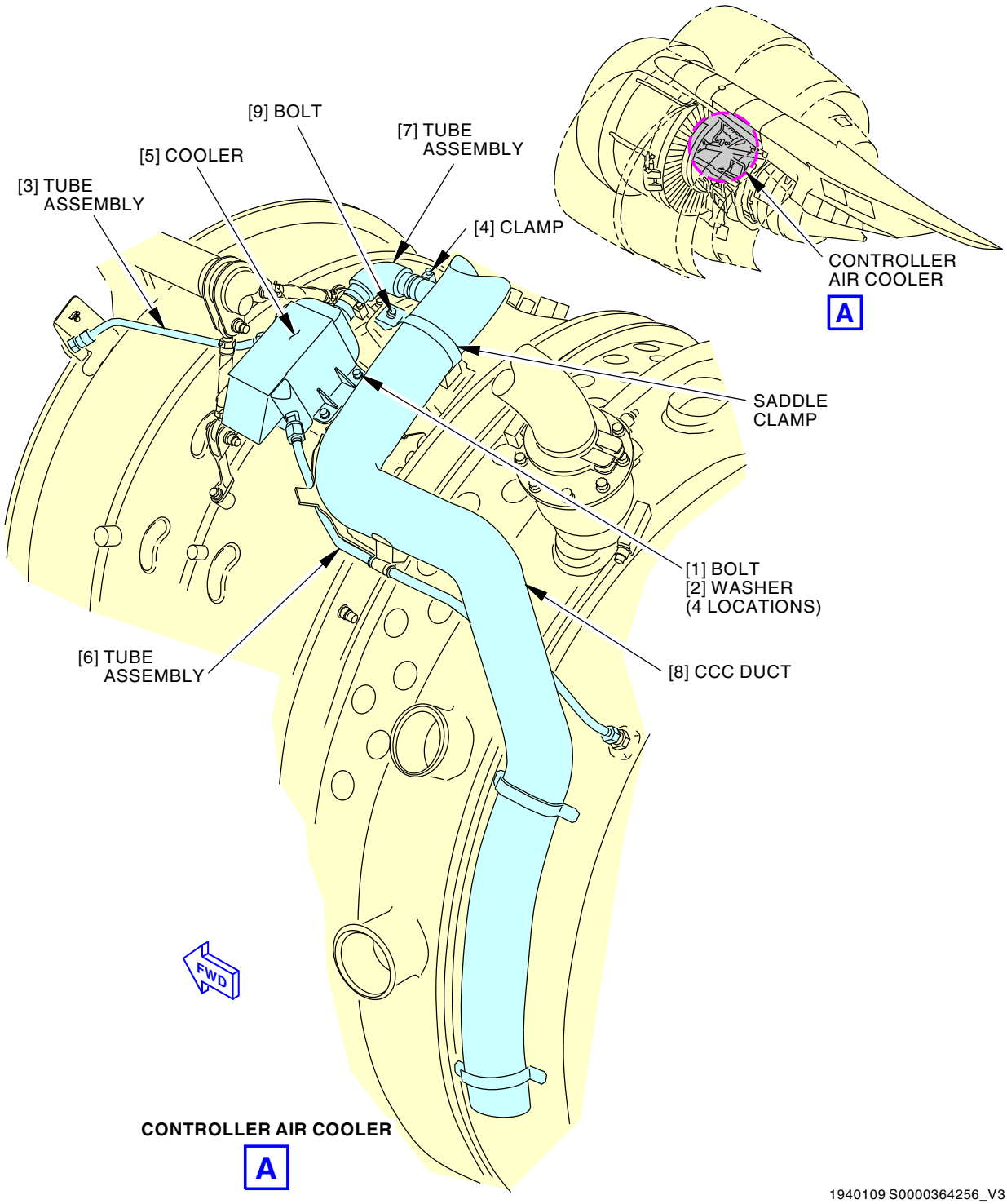
SUBTASK 36-11-03-020-005-001

(5) Remove the controller air cooler [5].

SUBTASK 36-11-03-480-001-001

(6) Put a cover on the openings of the inlet and outlet supply pressure sense lines to keep out unwanted material.

——— END OF TASK ———



Controller Air Cooler Removal/Installation
Figure 401/36-11-03-990-807

TASK 36-11-03-400-806-001

3. Controller Air Cooler Installation

(Figure 401)

A. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
30-21-00-730-804-001	Engine Anti-Ice (engine running) - System Test (P/B 501)
71-00-00-800-836-H00	Dry Motor (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

C. Location Zones

Zone	Area
411	Engine, Left
421	Engine, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine

E. Procedure

SUBTASK 36-11-03-080-005-001

(1) Remove the covers from the tube assemblies.

SUBTASK 36-11-03-480-009-001

(2) Put the controller air cooler [5] into its position.

SUBTASK 36-11-03-420-027-001

(3) Install the cooler [5] with bolts [1] and washers [2].

SUBTASK 36-11-03-420-001-001

(4) Tighten the bolts [1] to 30 in-lb (3 N·m) - 35 in-lb (4 N·m).

SUBTASK 36-11-03-640-005-001

(5) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on all the fittings on the cooler [5].

SUBTASK 36-11-03-420-007-001

(6) Connect the tube assembly [6] to the cooler [5].

(a) Adjust the CCC duct [8], loosen saddle clamp bolts [9] enough to provide movement of the CCC duct [8].

NOTE: Adjust the CCC duct [8] to get the correct position interface.

(b) Attach the tube assembly [6].

(c) Tighten the tube assembly [6]. To tighten it, do this task: Wrench Arc Method, TASK 20-11-10-910-802-001

(d) Tighten saddle clamp bolts [9] to get minimum clearance between strap and support bracket.

(e) Torque saddle clamp bolts [9] to 118 ±9 in-lb (13 ±1 N·m).

SUBTASK 36-11-03-420-008-001

(7) Connect the tube assembly [3] to the cooler [5].

(a) Tighten the nut to 256.5 in-lb (29.0 N·m) - 283.5 in-lb (32.0 N·m).

SUBTASK 36-11-03-420-005-001

(8) Connect the tube assembly [7] to the cooler [5] with the clamp [4].

F. Installation Test

SUBTASK 36-11-03-790-009-001

(1) Apply a leak detector Snoop Leak Detector compound, G00091 to the tube assemblies.

SUBTASK 36-11-03-860-015-001

(2) Do this task: Dry Motor, TASK 71-00-00-800-836-H00.

SUBTASK 36-11-03-790-010-001

(3) Look for leaks.

(a) Repair all leakage.

SUBTASK 36-11-03-860-016-001

(4) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-11-03-410-001-001

WARNING DO ALL THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO PREPARE THE THRUST REVERSER FOR OPERATION. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Do these tasks in sequence to safely close the thrust reverser:

(a) For the left thrust reversers, do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine

(b) For the left fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801

SUBTASK 36-11-03-730-001-001

(6) Do this task: Engine Anti-Ice (engine running) - System Test, TASK 30-21-00-730-804-001

——— END OF TASK ———

INTERMEDIATE PRESSURE (IP) CHECK VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains two tasks.

(1) The first task removes the Intermediate Pressure (IP) check valve.

(2) The second task is to install the IP check valve.

TASK 36-11-06-000-807-004

2. IP Check Valve Removal

(Figure 401)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

D. Prepare for the Removal

SUBTASK 36-11-06-860-019-004

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-06-010-023-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in sequence to safely open the right thrust reverser for the IP check valve on the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-06-010-024-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely open the right thrust reverser for the IP check valve on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

E. Remove the IP Check Valve

SUBTASK 36-11-06-020-020-004

(1) Do the steps that follow to permit movement of the HP/IP manifold [6]:

(a) Remove the coupling [1] which attaches the HPSOV [16] to the HP/IP manifold [6].

(b) Remove the bolt [10], washer [11], washer [15], bushing [13] and nut [14], at 2 locations, that hold the support links [9] to the HP/IP manifold [6].

(c) Loosen the support links [9].

SUBTASK 36-11-06-020-021-004

(2) Remove the couplings [1] for the IP check valve [3].

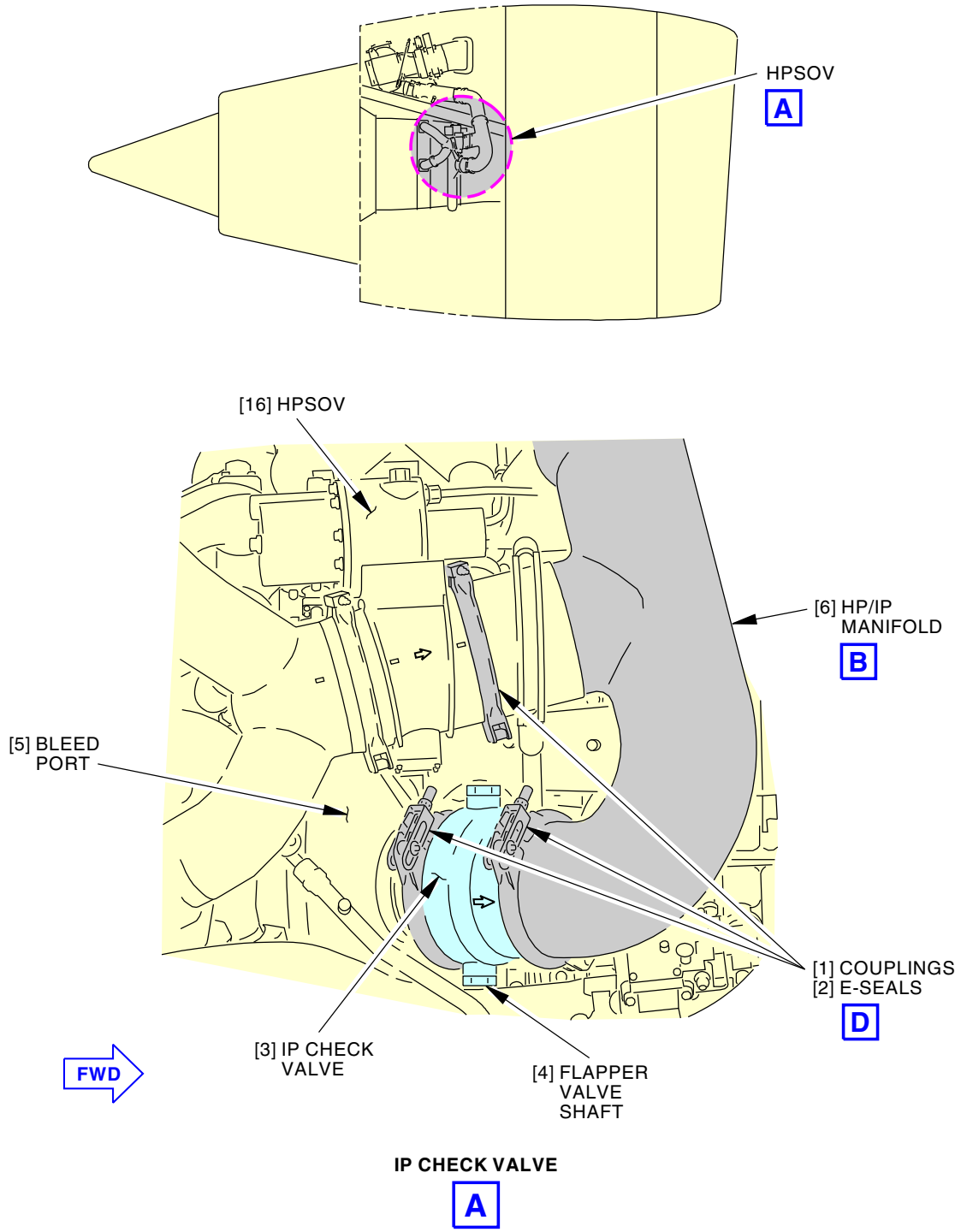
SUBTASK 36-11-06-020-022-004

(3) Remove the IP check valve [3] and the E-seal [2].

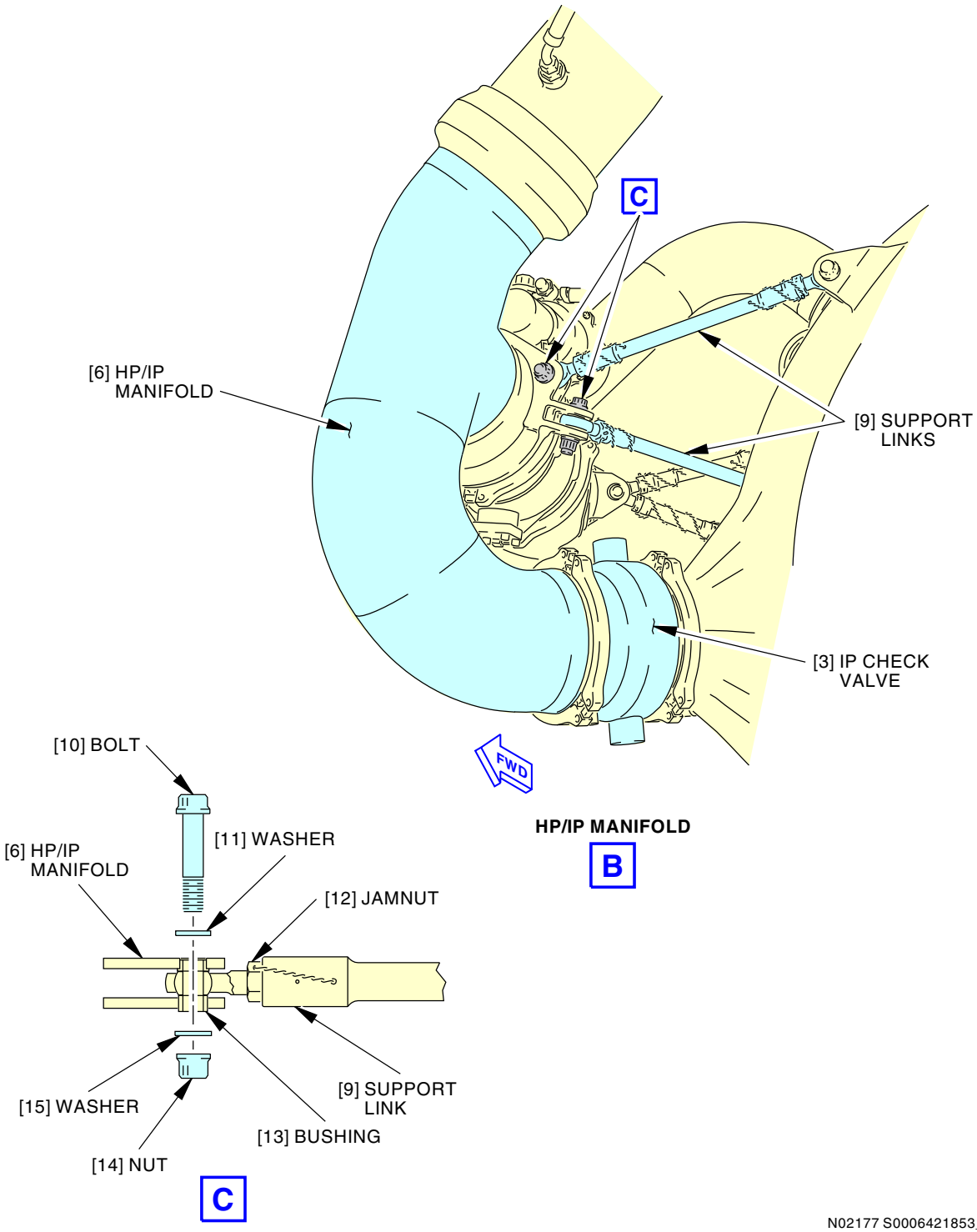
SUBTASK 36-11-06-480-007-004

(4) Put covers on the duct openings to keep out unwanted material.

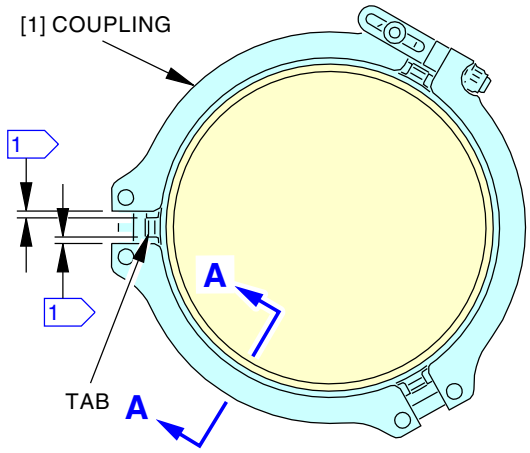
——— END OF TASK ———



IP Check Valve Installation
Figure 401/36-11-06-990-808-004 (Sheet 1 of 3)

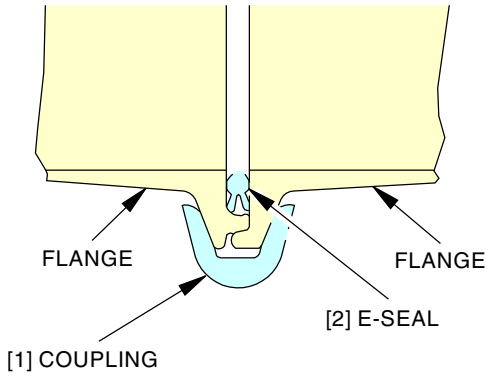


IP Check Valve Installation
Figure 401/36-11-06-990-808-004 (Sheet 2 of 3)



COUPLING

D



A-A

1 VISUAL CLEARANCE BETWEEN THE TAB AND COUPLING IS NECESSARY. DO THIS AT ALL 3 LOCATIONS.

N02166 S0006421854_V2

IP Check Valve Installation
Figure 401/36-11-06-990-808-004 (Sheet 3 of 3)

TASK 36-11-06-400-807-004

3. IP Check Valve Installation

(Figure 401)

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
71-00-00-800-836-H00	Dry Motor (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	E-seal	36-11-06-01B-010	ARO ALL
3	Valve	36-11-06-01B-015	ARO ALL

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. IP Check Valve Installation

SUBTASK 36-11-06-080-007-004

(1) Remove the covers on the duct openings.

SUBTASK 36-11-06-210-008-004

(2) Examine the E-seal [2].

(a) Make sure the E-seals do not have cracks, dents or other damage.

(b) Replace all damaged E-seals.

SUBTASK 36-11-06-420-041-004

(3) Install an E-seals [2] at each end of the IP check valve [3].

SUBTASK 36-11-06-420-042-004

CAUTION

MAKE SURE THAT THE IP CHECK VALVE INSTALLATION IS CORRECT. IF THE IP CHECK VALVE INSTALLATION IS NOT CORRECT, IT CAN STAY OPEN DURING LOW SPEED ENGINE OPERATION. THIS CAN CAUSE DAMAGE TO THE ENGINE.

(4) Put the IP check valve [3] between the ducts:

(a) Make sure the airflow arrow points away from the bleed port [5].

(b) Install the IP check valve [3] with the flapper valve shaft [4] in the vertical position +/- 0.50 inch (12.7 mm).

(c) Make sure the valve and duct flanges make full contact with no gaps around the circumference of the flanges.

(d) Make sure the valve flanges and ducts flanges are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

SUBTASK 36-11-06-420-043-004

CAUTION

MAKE SURE YOU INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE THE COUPLING CAN LOOSEN AND CAUSE DAMAGE TO EQUIPMENT.

(5) Loosely install the couplings [1] at 3 three locations.

(a) Make sure the coupling locking device is installed approximately in the vertical position.

(b) Make sure there is visual clearance between the tab and the coupling [1] (see illustration).

SUBTASK 36-11-06-420-044-004

(6) Do these steps to make sure the couplings [1] are properly installed on the duct flanges:

(a) Tighten the couplings [1] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(b) Hit lightly around each coupling [1] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

(c) Tighten the couplings [1] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-11-06-420-045-004

(7) Install the bolt [10], washer [11], washer [15], bushing [13] and nut [14], at 2 locations, to attach the support link [9] to the HP/IP manifold [6].

NOTE: Install the countersunk side of the washer [11] against the bolt head.

(a) To find the torque values for bolt [10], (TASK 20-11-00-910-801).

F. IP Check Valve Installation Test

SUBTASK 36-11-06-860-020-004

(1) Do this task: Dry Motor, TASK 71-00-00-800-836-H00.

SUBTASK 36-11-06-790-007-004

(2) Look for leaks at the coupling joints.

(a) Small leaks are satisfactory.

(b) Repair all large leakage.

NOTE: Large air leakage is when you feel the airflow with your hand 12 inches or greater from the coupling joint.

SUBTASK 36-11-06-860-021-004

(3) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-06-010-025-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the right thrust reverser on the applicable engine:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

INTERMEDIATE PRESSURE (IP) CHECK VALVE - FUNCTIONAL CHECK

1. General

A. This procedure has one task. The task contains the information to do a Functional Check of the IP check valve.

B. Inspect the IP check valve for:

(1) Flapper plate thickness

(2) Flapper end-play

(3) Flapper radial clearance

(4) Flapper contact with the valve body.

TASK 36-11-06-720-805

2. Intermediate Pressure (IP) Check Valve Functional Check

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
36-11-06-000-807-004	IP Check Valve Removal (P/B 401)
36-11-06-400-807-004	IP Check Valve Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-1107	Gauge - Feeler, 0.0 - 0.5 Inch, Readable to 1/1000th
STD-1303	Caliper - Dial

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Prepare for the Functional Check

SUBTASK 36-11-06-000-004

(1) Remove the IP Check Valve. To remove the IP Check Valve, do this task: IP Check Valve Removal, TASK 36-11-06-000-807-004

E. Functional Check the IP Check Valve

SUBTASK 36-11-06-210-013

(1) Do the steps that follow to check flapper contact with the valve body.

(a) Visually inspect the valve housing interior wall for flapper contact.

NOTE: No wall contact is permitted other than where the closed position housing seat contacts the flapper in the checked position.

(b) If the flapper edge makes contact with the valve wall, then replace the IP Check Valve.

SUBTASK 36-11-06-720-014

(2) Use one of the methods that follow to measure the flapper plate thickness:

(a) When there is a dial caliper, STD-1303 available that will fit in the IP check valve, do the steps that follow:

1) Move the flapper plate up until it touches the flapper stop.

2) Make a note of the area where the flapper plate touches the flapper stop.

3) Use the dial caliper, STD-1303 to measure the flapper plate thickness where the flapper plate touches the flapper stop.

NOTE: Minimum acceptable flapper plate thickness is 0.115 inch (2.92 mm).

4) If the flapper plate thickness is less than 0.115 inch (2.92 mm), then replace the IP check valve.

(b) When there is not a dial caliper, STD-1303 available that will fit in the IP check valve, do the steps that follow:

1) Move the flapper plate up until it touches the flapper stop.

2) Make a note of the area where the flapper plate touches the flapper stop.

3) Put a flat plate on the flapper plate surface where the flapper plate touches the flapper stop.

4) Put a 0.025 inch gage wire between the flat plate and the flapper plate.

5) If the 0.025 inch gage wire can be put between the flat plate and the flapper plate, then replace the IP check valve.

SUBTASK 36-11-06-720-015

(3) Do the steps that follow to measure flapper end-play clearance:

(a) Use a 0.0 - 0.5 Inch feeler gauge, STD-1107 to measure flapper end-play clearance.

(b) With the flappers in the closed position, measure flapper end-play clearance by placing the 0.0 - 0.5 Inch feeler gauge, STD-1107 between the flapper lugs(Figure 601).

NOTE: An acceptable clearance value is a measurement less than 0.030 inch (0.762 mm).

(c) If the measurement is a value greater than 0.030 inch (0.762 mm), then replace the IP Check Valve.

SUBTASK 36-11-06-720-016

(4) Do the steps that follow to measure the flapper radial clearance:

(a) Use a 0.0 - 0.5 Inch feeler gauge, STD-1107 to measure flapper radial clearance.

NOTE: The flapper to hinge pin radial clearance is obtained by measuring the flapper plates total displacement. Two dimensions are to be obtained and the difference calculated to capture the unit's total radial clearance.

(b) Do these steps to get the first radial clearance measure:

1) Apply pressure by hand to compress the leading edges of the flappers together at the hinge point.

2) With the 0.0 - 0.5 Inch feeler gauge, STD-1107 measure the clearance between hinge and flapper edge.

3) Write down the 0.0 - 0.5 Inch feeler gauge, STD-1107 measurement for later reference.

(c) Do these steps to get the second radial clearance measure:

1) Apply pressure by hand to expand the leading edges of the flappers apart at the hinge point.

2) With the 0.0 - 0.5 Inch feeler gauge, STD-1107 measure the clearance between hinge and flapper edge.

3) Write down the 0.0 - 0.5 Inch feeler gauge, STD-1107 measurement for reference.

(d) Calculate the difference between the values of the two measurements.

NOTE: The calculation should provide a maximum acceptable radial clearance of 0.050 inch (1.27 mm).

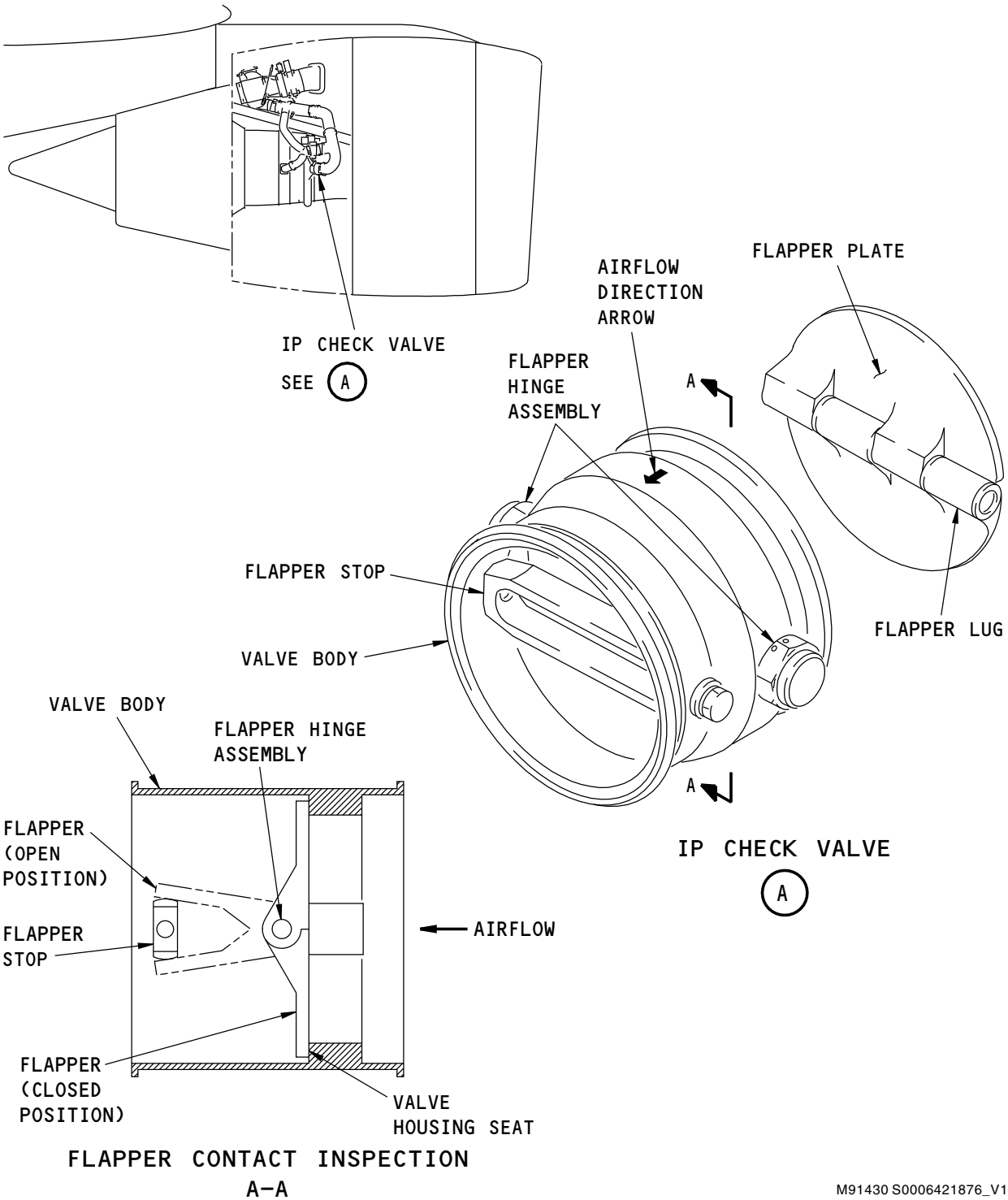
(e) If the radial clearance is greater than 0.050 inch (1.27 mm), then replace the IP Check Valve.

F. Put the Airplane Back to Its Usual Condition

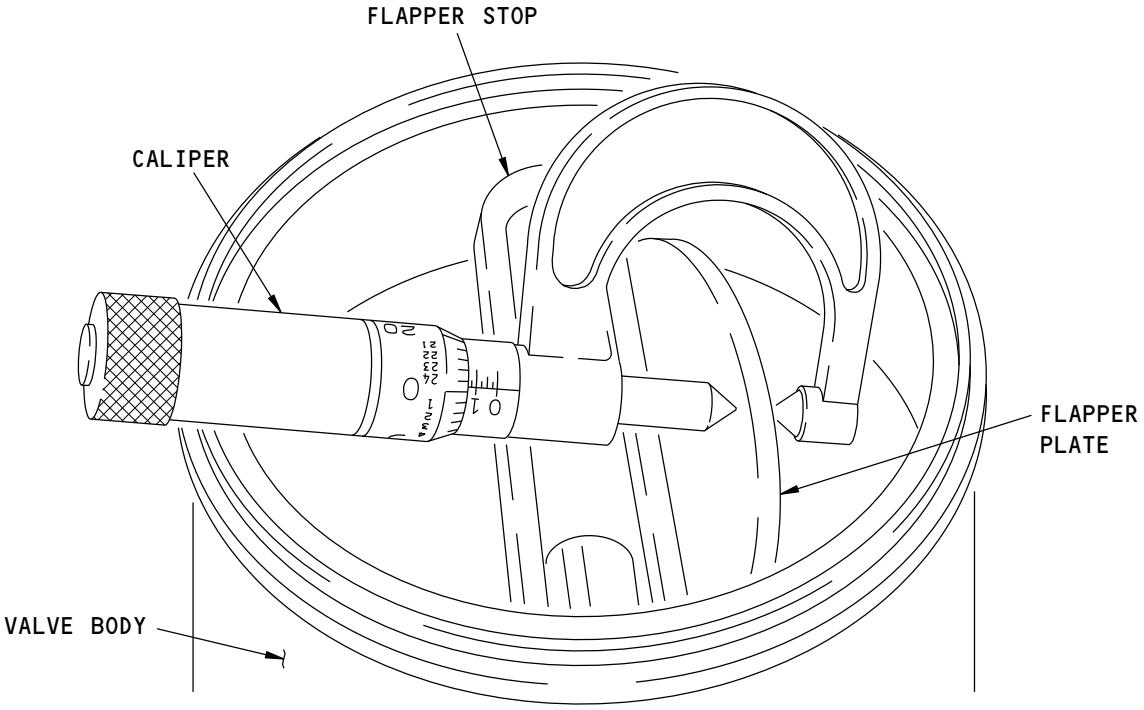
SUBTASK 36-11-06-400-004

(1) Install the IP Check Valve. To install the IP Check Valve, do this task: IP Check Valve Installation, TASK 36-11-06-400-807-004

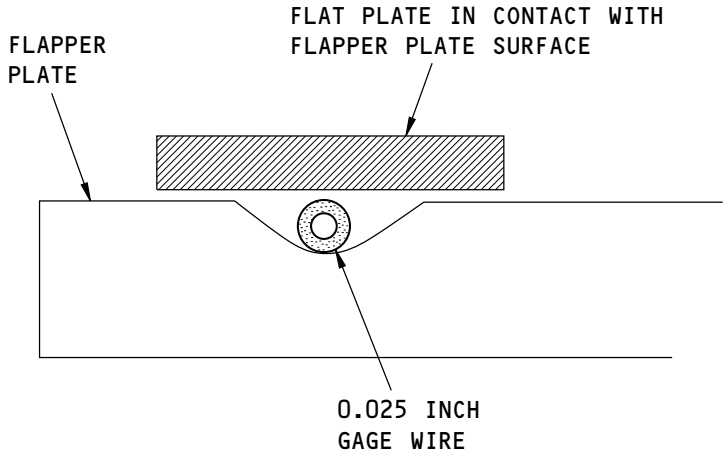
——— END OF TASK ———



Intermediate Pressure (IP) Check Valve Functional Check
Figure 601/36-11-06-990-812 (Sheet 1 of 3)



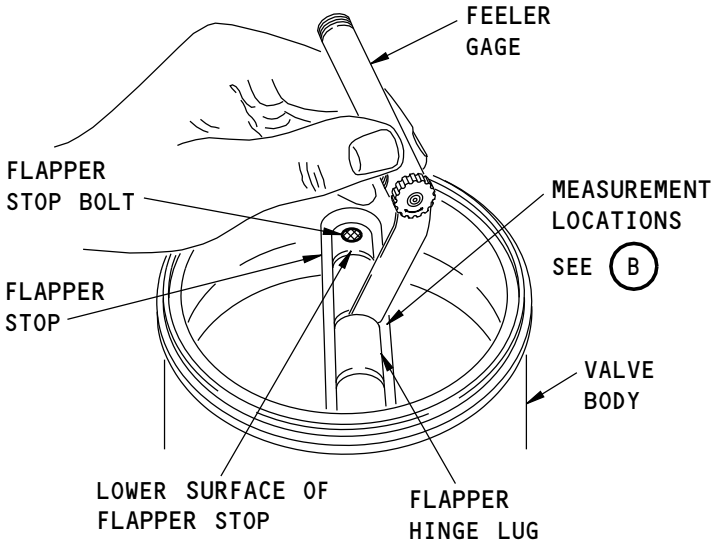
FLAPPER PLATE THICKNESS INSPECTION



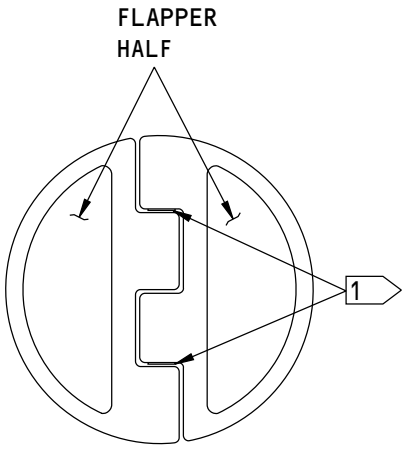
FLAPPER PLATE THICKNESS ALTERNATE INSPECTION METHOD

M38783 S0006421878_V1

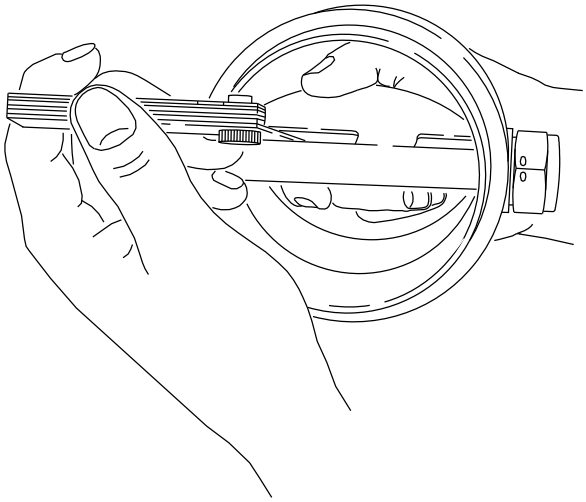
Intermediate Pressure (IP) Check Valve Functional Check
Figure 601/36-11-06-990-812 (Sheet 2 of 3)



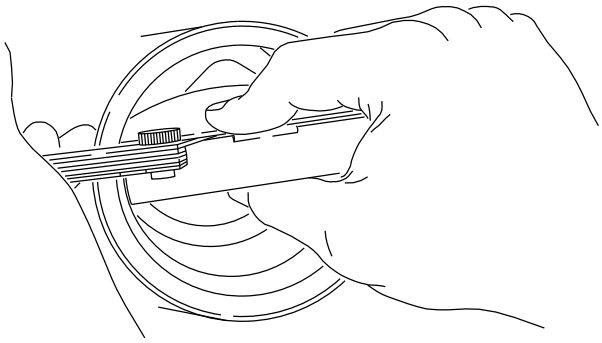
FLAPPER END-PLAY INSPECTION



MEASUREMENT LOCATIONS
B



STEP 2
FLAPPER RADIAL CLEARANCE
(SECOND RADIAL CLEARANCE MEASURE)



STEP 1
FLAPPER RADIAL CLEARANCE
(FIRST RADIAL CLEARANCE MEASURE)

1 GAP BETWEEN FLAPPERS SHALL BE LESS THAN 0.030 INCH (0.762 mm) AT THESE LOCATIONS.

M39284 S0006421879_V2

Intermediate Pressure (IP) Check Valve Functional Check
Figure 601/36-11-06-990-812 (Sheet 3 of 3)

HIGH PRESSURE SHUTOFF VALVE (HPSOV) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the high pressure shutoff valve (HPSOV).

(2) An installation of the HPSOV.

TASK 36-11-07-000-808-004

2. HPSOV Removal

(Figure 401)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

D. Prepare for the Removal

SUBTASK 36-11-07-860-043-004

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-07-010-022-004

(2) Do these steps for the HPSOV on the left engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

3) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

4) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

5) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-07-010-023-004

(3) Do these steps for the HPSOV on the right engine:

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

1) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

2) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

3) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

4) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

5) For the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

E. HPSOV Removal

SUBTASK 36-11-07-020-037-004

(1) Disconnect the control pressure sense line [1].

SUBTASK 36-11-07-020-038-004

(2) Remove the couplings [5] which attach the HPSOV valve [4] to the ducts.

SUBTASK 36-11-07-020-039-004

(3) Loosen the HP/IP manifold duct assembly [10]:

(a) Remove the bolt [12], washer [13], washer [17], bushing [15] and nut [16], that hold the support links [11] to the HP/IP manifold duct assembly [10].

(b) Move the support links [11] away from the HP/IP manifold duct assembly [10].

(c) Remove the coupling [5] and the E-seal [6] where the IP check valve connects to the HP/IP manifold duct assembly [10].

(d) Push the HP/IP manifold duct assembly [10] away from the HPSOV valve [4].

SUBTASK 36-11-07-020-040-004

(4) Remove the HPSOV valve [4] and each E-seal [6].

SUBTASK 36-11-07-020-041-004

(5) Remove the union [2] and o-ring [3].

(a) Discard the O-ring and keep the union for installation.

SUBTASK 36-11-07-170-007-004

(6) Do the steps that follow to remove any unwanted material that may be in the control pressure sense line [1]:

(a) Follow the control pressure sense line [1] to the "HPSOV" outlet port of the HPFAC and disconnect it.

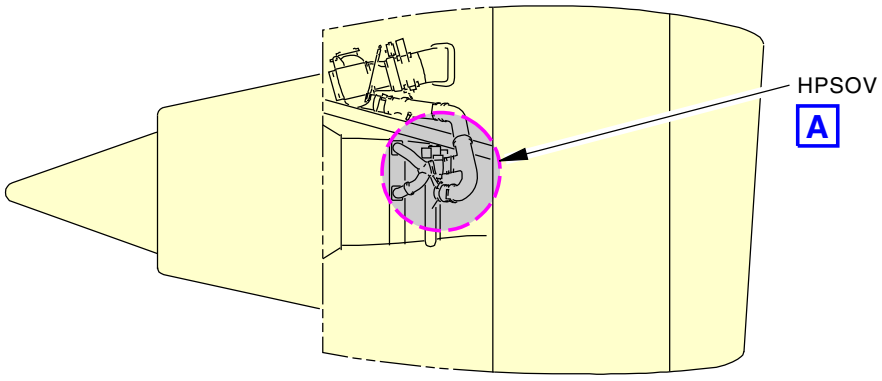
(b) Use clean dry shop air or nitrogen at a minimum of 80 psi for a minimum of 30 seconds to blow into the control pressure sense line [1] to remove any unwanted material.

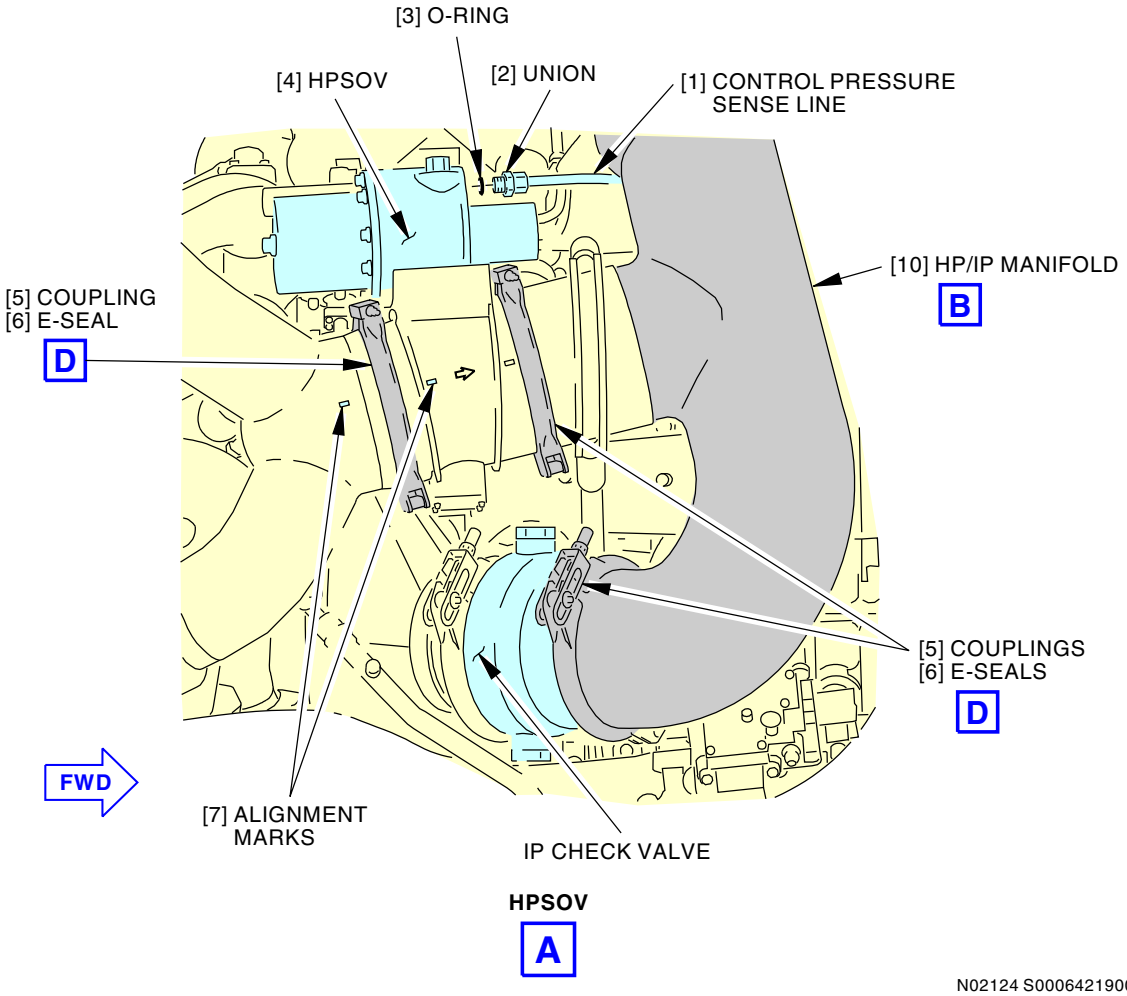
(c) Reconnect the control pressure sense line [1] at the "HPSOV" outlet port of the HPFAC.

SUBTASK 36-11-07-480-008-004

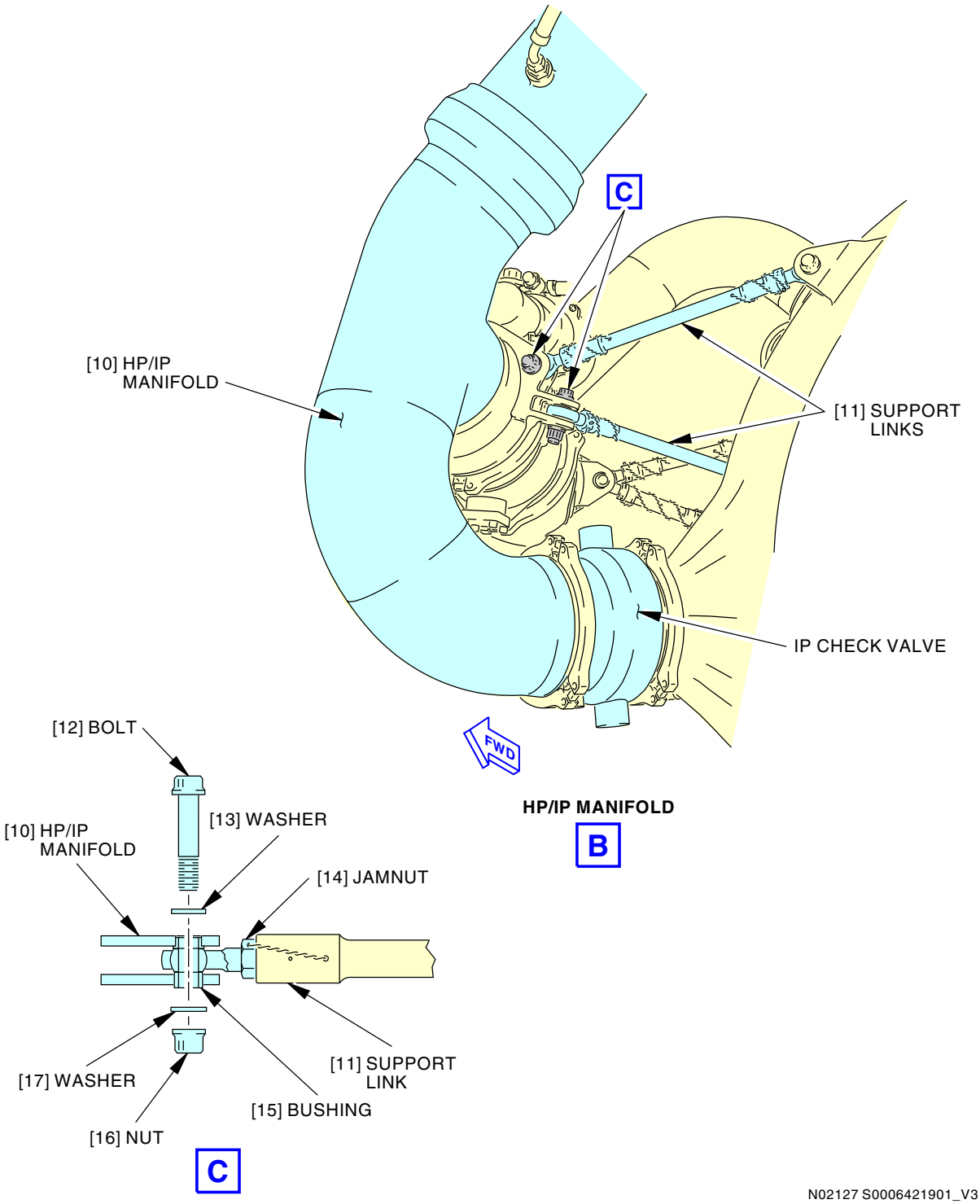
(7) Put covers on the openings for the duct and control pressure sense line to keep out unwanted material.

——— END OF TASK ———

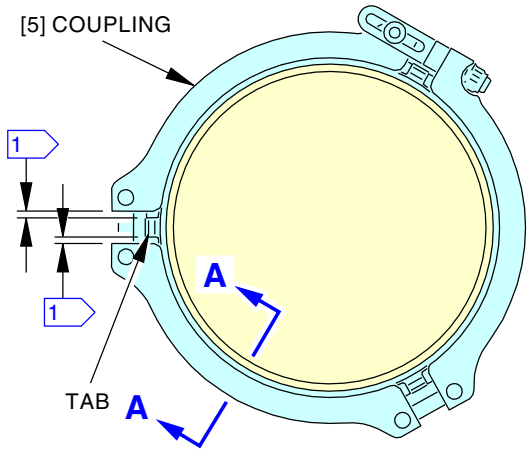




HPSOV Installation
Figure 401/36-11-07-990-812-004 (Sheet 1 of 3)

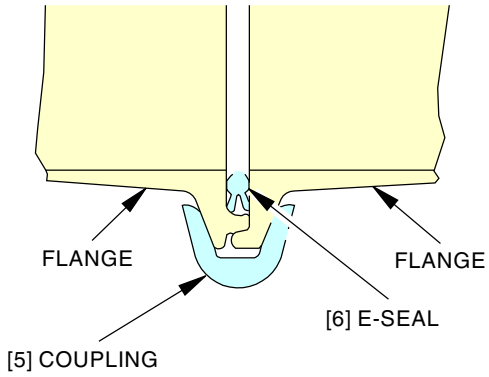


HPSOV Installation
Figure 401/36-11-07-990-812-004 (Sheet 2 of 3)



COUPLING

D



A-A

1 VISUAL CLEARANCE BETWEEN THE TAB AND COUPLING IS NECESSARY. DO THIS AT ALL 3 LOCATIONS.

N02131 S0006421902_V2

HPSOV Installation
Figure 401/36-11-07-990-812-004 (Sheet 3 of 3)

TASK 36-11-07-400-808-004

3. HPSOV Installation

(Figure 401)

A. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
36-10-00-700-801	Engine Air Supply Operational Test (P/B 501)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
71-00-00-800-836-H00	Dry Motor (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	O-ring	36-11-07-01B-185	ARO ALL
4	Valve	36-11-07-01B-190	ARO ALL
5	Coupling	36-11-07-01B-165	ARO ALL
6	E-seal	36-11-07-01B-175	ARO ALL

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

F. HPSOV Installation

SUBTASK 36-11-07-080-008-004

(1) Remove the covers from the duct and control pressure sense line.

SUBTASK 36-11-07-420-067-004

(2) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the union [2].

SUBTASK 36-11-07-420-068-004

(3) Install the union [2] and new o-ring [3].

SUBTASK 36-11-07-860-044-004

(4) Look at the manual override nut and make sure the valve is not in the LOCKED closed position.

NOTE: If the valve is locked the word LOCKED can be seen at the manual override nut.

(a) If the valve is locked do the unlock procedure found on the valve.

SUBTASK 36-11-07-210-013-004

(5) Examine each E-seal [6].

(a) Make sure each E-seal [6] do not have cracks, dents or other damage.

(b) Replace each damaged E-seal [6].

SUBTASK 36-11-07-420-069-004

(6) Install an E-seals [6] at each end of the HPSOV valve [4].

SUBTASK 36-11-07-420-070-004

(7) Install an E-seal [6] at the IP check valve.

SUBTASK 36-11-07-420-071-004

(8) Install the HPSOV valve [4] between the ducts.

(a) Make sure the valve [4] and the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the valve [4] flanges and the duct flanges are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

SUBTASK 36-11-07-210-014-004

(9) Make sure the alignment mark [7] on the HPSOV valve [4] and the alignment mark [7] on the duct are within 0.25 in. (6.35 mm).

SUBTASK 36-11-07-420-072-004

CAUTION

INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY AS SHOWN. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE, THE COUPLING CAN BECOME LOOSE. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(10) Install the coupling [5] at the forward end of the HPSOV valve [4] (Figure 401).

NOTE: Do not tighten the coupling.

(a) Make sure there is visual clearance between the tab and the coupling [5] (Figure 401).

SUBTASK 36-11-07-420-073-004

(11) Install the coupling [5] at the IP check valve.

NOTE: Do not tighten the coupling.

(a) Make sure there is visual clearance between the tab and the coupling [5] (Figure 401).

SUBTASK 36-11-07-420-074-004

(12) Install the coupling [5] at the aft end of the HPSOV valve [4] (Figure 401).

NOTE: Do not tighten the coupling.

(a) Make sure there is visual clearance between the tab and the coupling [5] (Figure 401).

(13) If access and component clearances permit, then it is recommended that the couplings be installed with alternating orientation around the flanges.

NOTE: Field experience shows that alternating the orientation of the couplings can prevent the deformation of components and ducts.

SUBTASK 36-11-07-640-008-004

(14) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the union [2].

SUBTASK 36-11-07-820-008-004

(15) Align the HPSOV valve [4] with the control pressure sense line [1].

SUBTASK 36-11-07-420-075-004

(16) To install and tighten the control pressure sense line [1], do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

SUBTASK 36-11-07-420-076-004

(17) Do these steps to make sure the couplings [5] are properly installed on the duct flanges:

(a) Tighten the couplings [5] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(b) Hit lightly around each coupling [5] with a rubber mallet.

(c) Tighten the couplings [5] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

NOTE: The above steps will make sure you engage the flanges and torque the coupling correctly to prevent deformation of ducts and components.

SUBTASK 36-11-07-420-077-004

(18) Install the bolt [12], washer [13], washer [17], bushing [15] and nut [16], at 2 locations, that hold the support links [11] to the HP/IP manifold duct assembly [10].

NOTE: Install the countersunk side of the washer [13] against the bolt head.

G. HPSOV Installation Test

SUBTASK 36-11-07-790-042-004

(1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-11-07-860-045-004

(2) Do the MANUAL LOCKING CLOSED procedure on the PRSOV to put the PRSOV in the LOCKED CLOSED position.

SUBTASK 36-11-07-790-043-004

(3) Apply leak detector Snoop Leak Detector compound, G00091 to the connection for the control pressure sense line.

SUBTASK 36-11-07-860-046-004

(4) Do this task: Dry Motor, TASK 71-00-00-800-836-H00.

SUBTASK 36-11-07-790-044-004

(5) Put your hand 12 inches from the couplings and feel for leaks at the couplings joints.

SUBTASK 36-11-07-790-045-004

(6) If you feel leakage re-align the coupling, E-seal, HPSOV and duct.

NOTE: If you think there is too much fan air to feel leakage from the coupling joint, use a suitable deflector (wood, sheet metal, rubber mat etc.) to block the fan air.

SUBTASK 36-11-07-790-046-004

(7) Look for leaks at the connection for the control pressure sense line.

(a) Repair all leakage.

SUBTASK 36-11-07-860-047-004

(8) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-11-07-860-048-004

(9) Do the MANUAL UNLOCKING procedure on the PRSOV to put the PRSOV in the normal position.

SUBTASK 36-11-07-710-008-004

(10) To do an operational test of the HPSOV, you can do either one of the steps which follow:

NOTE: The HPSOV/PRSOV (-5 assemblies) are equipped with a manual override plunger. A valve that has been manually locked closed will occasionally become stuck in place after it is unlocked. Push the manual override plunger to free the valve that may be stuck in the closed position.

(a) Do this task: Engine Air Supply Operational Test, TASK 36-10-00-700-801.

NOTE: For this task you will need to operate the engines.

(b) Do this task: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802.

NOTE: For this task you will need to simulate engine operation with AIMS, and also will need a nitrogen source to supply pressure to the HPFAC and PRSOVC.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-07-010-024-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in this sequence to safely close the thrust reverser:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(Continued)

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

HIGH PRESSURE/FAN AIR CONTROLLER (HPFAC) AIR FILTER - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the air filter from the High Pressure Fan Air Controller (HPFAC).

(2) An installation of the air filter in the High Pressure Fan Air Controller (HPFAC).

(3) A cleaning of the air filter from the High Pressure Fan Air Controller (HPFAC).

TASK 36-11-08-000-806-002

2. Air Filter Removal

Figure 201

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

D. Prepare for the Removal

SUBTASK 36-11-08-860-033-002

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-08-860-034-002

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR

SUBTASK 36-11-08-860-035-002

(3) Do the steps that follow to get access to the HPFAC:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) To open the left fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

E. Air Filter Removal

SUBTASK 36-11-08-020-039-002

(1) Remove the supply pressure sense line [1] from the HPFAC.

SUBTASK 36-11-08-020-040-002

(2) Remove the air filter [2].

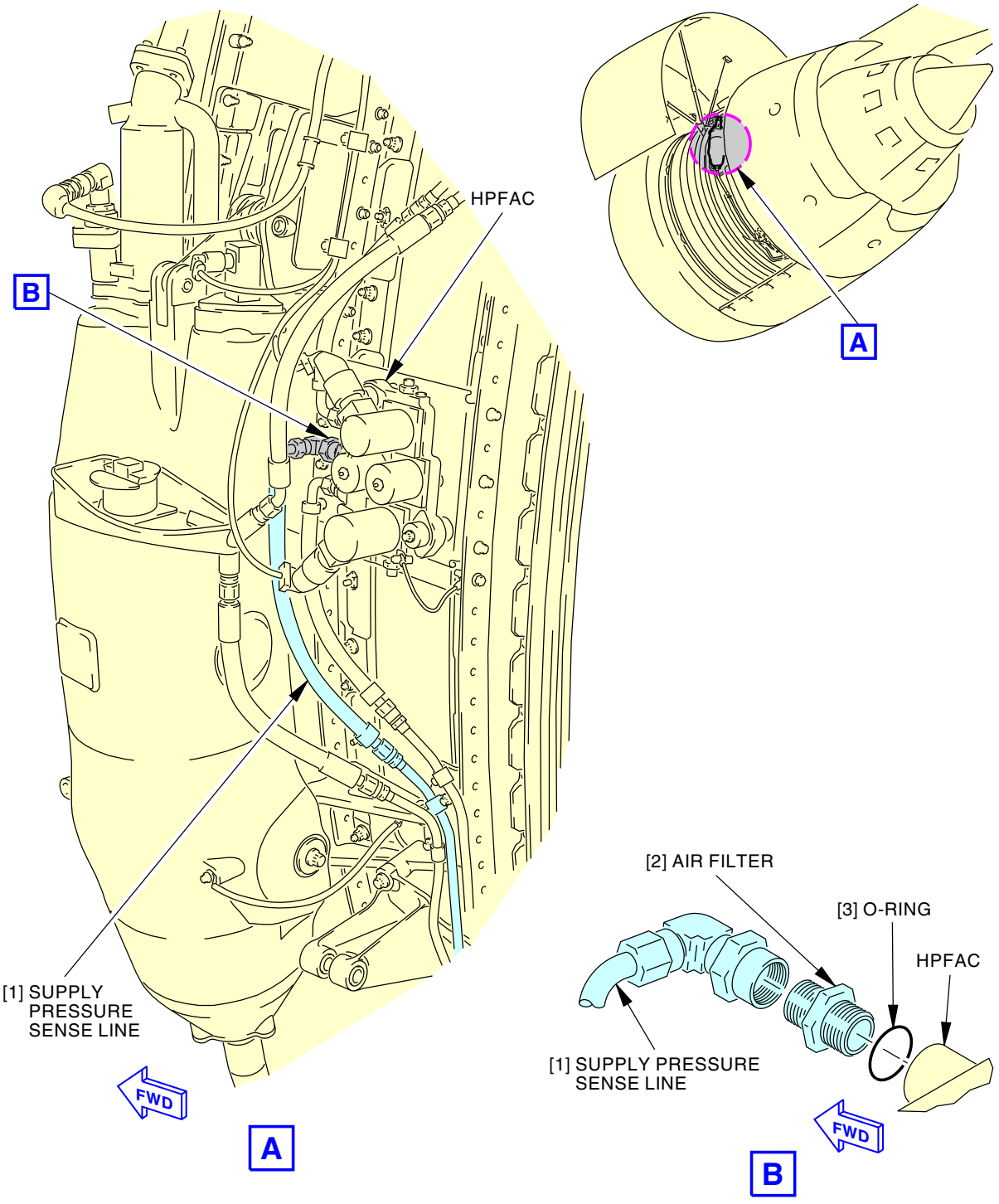
SUBTASK 36-11-08-020-041-002

(3) Remove and discard the o-ring [3].

SUBTASK 36-11-08-490-001-002

(4) Put a cover on the sense lines and controller to keep out unwanted material.

——— END OF TASK ———



HPFAC Air Filter Installation
Figure 201/36-11-08-990-810-002

TASK 36-11-08-400-806-002

3. Air Filter Installation

Figure 201

A. References

Reference	Title
20-10-23-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Air filter	36-11-08-01B-065	ARO ALL
3	O-ring	36-11-08-01B-070	ARO ALL

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

F. Air Filter Installation

SUBTASK 36-11-08-090-002-002

(1) Remove the covers on the supply pressure sense line [1].

SUBTASK 36-11-08-420-056-002

(2) Install a new o-ring [3] on the air filter [2].

(3) Apply antiseize Never-Seez NSBT compound, D00006 or compound, D00010 sparingly to the threads of the air filter [2] that connects to the HPFAC.

(a) Do not let the antiseize enter the air filter [2] hole.

SUBTASK 36-11-08-420-057-002

(4) Install the air filter [2] in the HPFAC.

SUBTASK 36-11-08-420-058-002

(5) Tighten the air filter [2] to 145 in-lb (16 N·m) to 155 in-lb (18 N·m).

SUBTASK 36-11-08-420-059-002

(6) To install the lockwire on the air filter [2], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801.

SUBTASK 36-11-08-640-006-002

(7) Apply antiseize Never-Seez NSBT compound, D00006 or compound, D00010 to the threads of the air filter [2] that connects to the supply pressure sense line [1].

(a) Do not let the antiseize enter the air filter [2] hole.

SUBTASK 36-11-08-420-060-002

(8) To install and tighten the sense line [1] with the wrench arc method, do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

(a) Use a wrench on the sense line and the union to tighten the fittings.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-08-410-013-002

(1) To close the left fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801

SUBTASK 36-11-08-860-036-002

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR

END OF TASK

TASK 36-11-08-100-802-002

4. Air Filter Cleaning

Figure 201

A. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

B. Prepare for Cleaning the Filter

SUBTASK 36-11-08-020-042-002

(1) To remove the air filter [2] from the HPFAC, do this task: (Air Filter Cleaning, TASK 36-11-08-100-802-002).

C. Clean the Filter

SUBTASK 36-11-08-100-002

(1) Clean the air filter air filter [2] off aircraft, per the vendor instructions.

D. Restore the Airplane to its Usual Condition

SUBTASK 36-11-08-420-055-002

(1) To install the air filter [2] in the HPFAC, do this task: (Air Filter Installation, TASK 36-11-08-400-806-002).

——— END OF TASK ———

HIGH PRESSURE/FAN AIR CONTROLLER (HPFAC) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the high pressure/fan air controller (HPFAC)

(2) An installation of the HPFAC.

TASK 36-11-08-000-802-002

2. HPFAC Removal

(Figure 401)

A. General

(1) There is one High Pressure/Fan Air Controller installed on each of the two engines.

B. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-11-07-000-808-004	HPSOV Removal (P/B 401)
36-11-16-000-806-004	FAMV Removal (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

E. Prepare for the Removal

SUBTASK 36-11-08-860-014-002

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-08-860-015-002

(2) Do these steps for the HPFAC on the left engine:

WARNING

REMOVE POWER FROM THE HPFAC HEATER. THE HPFAC IS HOT WHEN IT HAS POWER. IT WILL BURN YOU.

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI

SUBTASK 36-11-08-860-016-002

(3) Do these steps for the HPFAC on the right engine:

WARNING

REMOVE POWER FROM THE HPFAC HEATER. THE HPFAC IS HOT WHEN IT HAS POWER. IT WILL BURN YOU.

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

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-11-08-860-029

CAUTION

RETRACT THE LEADING EDGE SLATS AND DO THE DEACTIVATION PROCEDURE BEFORE YOU OPEN THE FAN COWL PANELS. IF THE LEADING EDGE SLATS ARE NOT RETRACTED, THE FAN COWL PANELS WILL HIT THEM AND CAUSE DAMAGE.

(4) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

SUBTASK 36-11-08-040-001

(5) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

SUBTASK 36-11-08-010-005

(6) For the left fan cowl panel on the applicable engine, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

F. HPFAC Removal

WARNING

DO NOT TOUCH THE HPFAC UNTIL IT BECOMES COOL. IF YOU TOUCH THE HPFAC WHILE IT IS HOT, IT WILL BURN YOU.

SUBTASK 36-11-08-020-014-002

(1) Disconnect the two electrical connectors [1].

SUBTASK 36-11-08-020-015-002

(2) Disconnect the bonding jumper [2] from the HPFAC Controller [3].

SUBTASK 36-11-08-020-016-002

(3) Disconnect the FAMV control pressure sense line [8].

SUBTASK 36-11-08-020-017-002

(4) Disconnect the HPSOV control pressure sense line [6].

NOTE: It is recommended to disconnect the HPFAC sense lines at the controller to make sure that the installation of the new HPFAC is correct.

SUBTASK 36-11-08-020-018-002

(5) Disconnect the supply pressure sense line [7].

NOTE: It is recommended to disconnect the HPFAC sense lines at the controller to make sure that the installation of the new HPFAC is correct.

SUBTASK 36-11-08-020-019-002

(6) Remove the bolts [4], at three locations.

SUBTASK 36-11-08-020-020-002

(7) Remove the HPFAC controller [3].

SUBTASK 36-11-08-170-002-002

(8) Do the steps that follow to remove any unwanted material that may be in the FAMV and HPSOV control pressure sense lines:

(a) Follow the FAMV control pressure sense line [8] to the inlet port of the FAMV and disconnect it. (TASK 36-11-16-000-806-004)

(b) Follow the HPSOV control pressure sense line [6] to the inlet port of the HPSOV and disconnect it. (TASK 36-11-07-000-808-004)

(c) Use clean dry shop air or nitrogen at a minimum of 80 psi for a minimum of 30 seconds to blow into these two control pressure sense lines to remove any unwanted material.

(d) Reconnect the HPSOV control pressure sense line [6] at the inlet port of the HPSOV.

(e) Reconnect the FAMV control pressure sense line [8] at the inlet port of the FAMV.

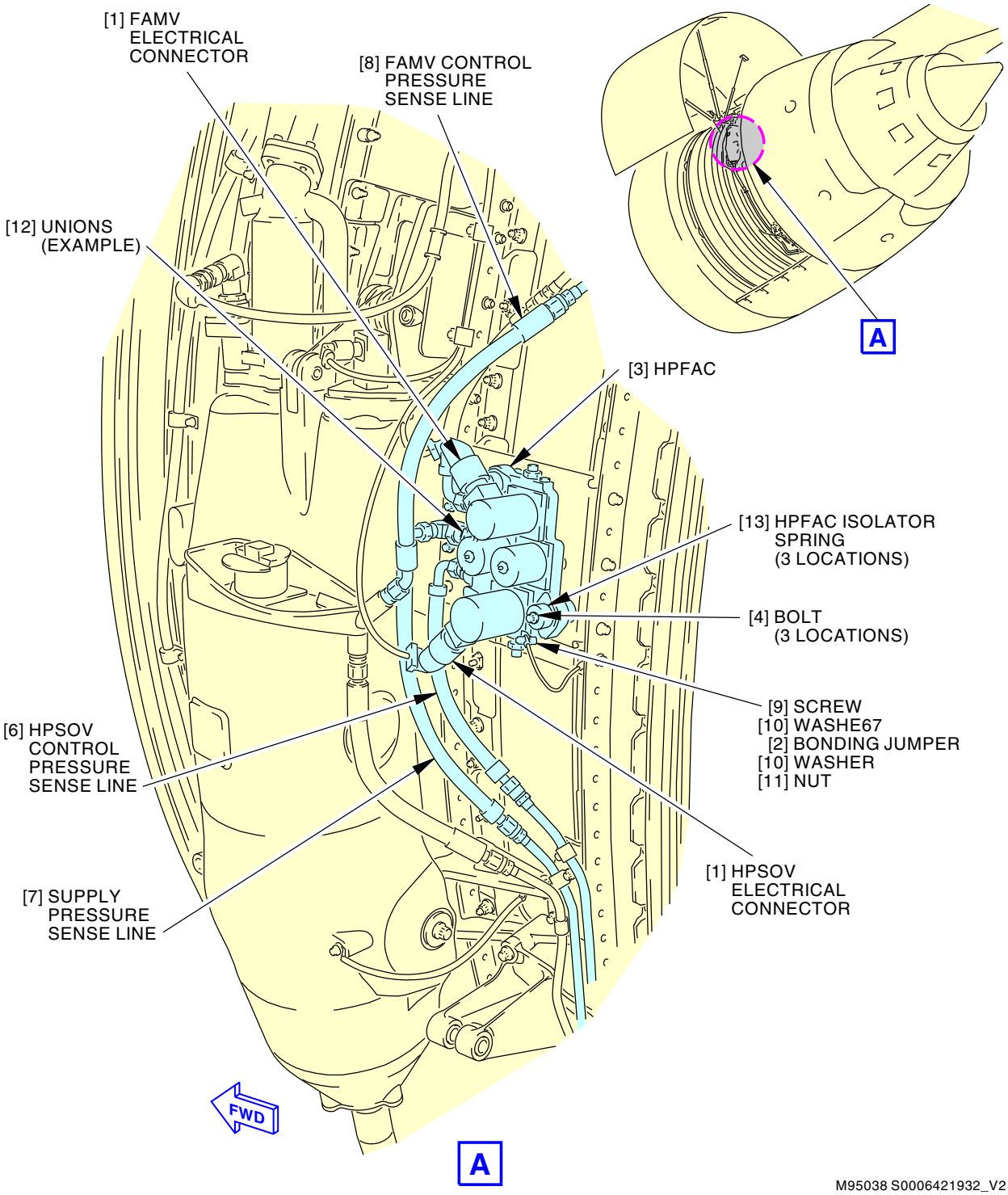
(f) Tighten the sense lines [6] and [8] with the wrench arc method, do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

NOTE: Use a wrench on the sense line and the union.

SUBTASK 36-11-08-410-003-002

(9) Put a cover on the sense lines and electrical connectors to keep out unwanted material.

——— END OF TASK ———



HPFAC Installation
Figure 401/36-11-08-990-803-002

TASK 36-11-08-400-802-002

3. HPFAC Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
36-10-00-700-801	Engine Air Supply Operational Test (P/B 501)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008

E. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

F. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

G. HPFAC Installation

SUBTASK 36-11-08-080-002-002

(1) Remove the covers.

SUBTASK 36-11-08-420-025-002

(2) Put the HPFAC controller [3] into its position.

SUBTASK 36-11-08-420-026-002

(3) Loosely install the bolts [4], at three locations.

SUBTASK 36-11-08-420-027-002

(4) Make sure the HPFAC isolator springs [13] are in the center position and are not preloaded by the pressure sense lines.

NOTE: Adjust the applicable pressure sense lines if it is necessary.

SUBTASK 36-11-08-420-028-002

(5) Do the steps that follow to connect the bonding jumper [2] to the HPFAC [3]:

(a) Make sure the surfaces that touch are clean.

(b) Put the terminal of the bonding jumper [2] in its position on the ground tab of the HPFAC [3].

NOTE: The terminal of the bonding jumper that connects to the HPFAC has a blue marker near it.

(c) Install the bolt [9], washer [10], and the nut [11].

(d) Use an intrinsically safe approved bonding meter, COM-1550 to make sure the resistance between the ground tab of the actuator and the airplane structure is less than 0.008 ohm.

SUBTASK 36-11-08-420-029-002

(6) Tighten the bolts [4].

SUBTASK 36-11-08-640-002-002

(7) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the unions [12].

NOTE: Do not let the antiseize enter the union hole.

SUBTASK 36-11-08-420-030-002

(8) To install and tighten the sense lines [6], [7], [8] with the wrench arc method, do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

NOTE: Use a wrench on the sense line and the union.

SUBTASK 36-11-08-210-002-002

(9) Make sure the electrical connectors [1] are clean and there are no bent pins or other damage.

SUBTASK 36-11-08-420-031-002

(10) Connect the electrical connectors [1].

H. HPFAC Installation Test

SUBTASK 36-11-08-860-017-002

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-11-08-860-018-002

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

SUBTASK 36-11-08-740-002-002

(3) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left (Right) HPFAC.

1) If there is a maintenance message for the Left (Right) HPFAC, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-11-08-710-002-002

(4) To do an operational test of the HPFAC, you can do either one of the steps which follow:

(a) Do this task: Engine Air Supply Operational Test, TASK 36-10-00-700-801.

NOTE: For this task you will need to operate the engines.

(b) Do this task: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802.

NOTE: For this task you will need to simulate engine operation with AIMS, and also will need a nitrogen source to supply pressure to the HPFAC and PRSOVC.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-08-410-007

(1) Do this task: Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00.

(a) Close these access panels:

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

SUBTASK 36-11-08-440-001

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the pressure regulating and shutoff valve (PRSOV)

(2) An installation of the PRSOV.

TASK 36-11-09-000-803-002

2. PRSOV Removal

(Figure 401)

A. General

(1) There is one Pressure Regulating and Shutoff Valve installed on each of the two engines.

B. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-11-18-000-802-002	PRSOVC Removal (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Prepare for the Removal

SUBTASK 36-11-09-860-007-002

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-09-010-013-002

(2) Do these steps for the PRSOV on the left engine:

WARNING

DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

(b) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) For the fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine

If it is necessary to get access to the other side of the couplings, open this access panel:

Number	Name/Location
414AR	Right Fan Cowl Panel, Left Engine

(e) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

For the thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine

If it is necessary to get access to the other side of the couplings, open this access panel:

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-09-010-014-002

(3) Do these steps for the PRSOV on the right engine:

WARNING

DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Do these tasks in this sequence to safely open the thrust reverser:

(b) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(c) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(d) For the fan cowl panel, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine

If it is necessary to get access to the other side of the couplings, open this access panel:

Number	Name/Location
424AR	Right Fan Cowl Panel, Right Engine

(e) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

For the thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine

If it is necessary to get access to the other side of the couplings, open this access panel:

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

F. PRSOV Removal

SUBTASK 36-11-09-020-013-002

(1) Disconnect the control pressure sense line [4].

SUBTASK 36-11-09-020-014-002

CAUTION HOLD THE VALVE DURING THE REMOVAL (OR USE A SUPPORT TO HOLD THE VALVE). IF YOU LET THE VALVE FALL, IT CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Hold the PRSOV [1] while you remove the coupling [12] and coupling [2] which attach the PRSOV [1] to the upstream duct [9] and the precooler [10].

SUBTASK 36-11-09-020-015-002

(3) Remove the PRSOV valve assembly [1] and each E- seal [3].

SUBTASK 36-11-09-020-016-002

(4) Remove the nipple [5] and the o-ring [6].

(a) Discard the O-ring [6] and keep the nipple [5] for installation.

SUBTASK 36-11-09-170-003-002

(5) Do the steps that follow to remove any unwanted material that may be in the control pressure sense line [4]:

(a) Follow the control pressure sense line [4] to the outlet port of the PRSOVC and disconnect it. (TASK 36-11-18-000-802-002)

(b) Use clean dry shop air or nitrogen at a minimum of 80 psi for a minimum of 30 seconds to blow into the control pressure sense line [4] to remove any unwanted material.

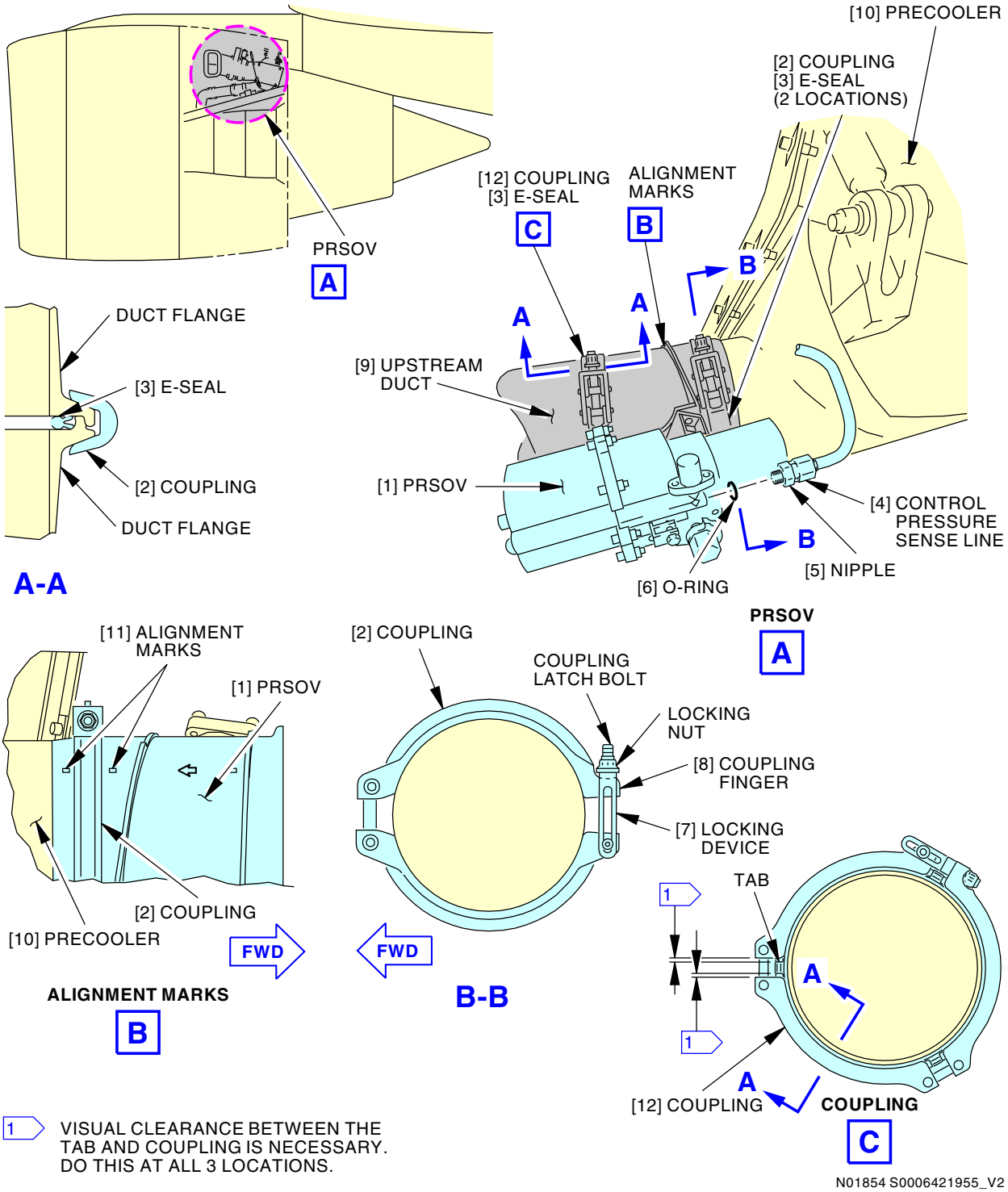
(c) Reconnect the control pressure sense line [4] at the outlet port of the PRSOVC.

(d) To tighten the control pressure sense line [4], do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

SUBTASK 36-11-09-480-005-002

(6) Put covers on the openings for the duct and control pressure sense line to keep out unwanted material.

——— END OF TASK ———



PRSOV Installation
Figure 401/36-11-09-990-805-002

TASK 36-11-09-400-803-002

3. PRSOV Installation

(Figure 401)

A. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
36-00-00-800-801	Pressurization Upstream of the PRSOV (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
36-10-00-700-804	Engine Air Supply Test for the PRSOV and FAMV (P/B 501)
71-00-00-800-836-H00	Dry Motor (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. PRSOV Installation

SUBTASK 36-11-09-480-007-002

(1) Remove the covers on the duct and control pressure sense line.

SUBTASK 36-11-09-420-035-002

(2) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the nipple [5].

NOTE: Do not let the antiseize enter the fitting hole.

SUBTASK 36-11-09-420-036-002

(3) Install the nipple [5] and a new o-ring [6] in the PRSOV valve assembly [1].

SUBTASK 36-11-09-860-010-002

(4) Look at the manual override nut and make sure the valve is not in the LOCKED closed position.

NOTE: If the valve is locked the word LOCKED can be seen.

(a) If the valve is locked do the unlock procedure found on the valve.

SUBTASK 36-11-09-210-007-002

(5) Examine each E- seal [3].

(a) Make sure the E-seals do not have cracks, dents or other damage.

(b) Replace all the damaged E-seals.

SUBTASK 36-11-09-420-037-002

(6) Install an E- seal [3] at each end of the PRSOV valve assembly [1].

SUBTASK 36-11-09-420-038-002

(7) Install the PRSOV valve assembly [1] between the ducts:

NOTE: Do not pry against the fire detector elements that are installed below the PRSOV.

(a) Make sure the valve flanges and the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the valve flanges and the duct flanges are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

SUBTASK 36-11-09-210-008-002

(8) Make sure the alignment mark [11] on the PRSOV valve assembly [1] and the alignment mark [11] on the duct are within +0.25 inches.

SUBTASK 36-11-09-420-039-002

CAUTION

INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY AS SHOWN. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE, THE COUPLING CAN BECOME LOOSE. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(9) Install the coupling [2] that attaches the PRSOV valve assembly [1] to the precooler [10] (Figure 401).

NOTE: Do not tighten the coupling.

SUBTASK 36-11-09-420-040-002

(10) Install the coupling [12] that attaches the PRSOV valve assembly [1] to the upstream duct [9].

NOTE: Do not tighten the coupling.

(a) Make sure there is visual clearance between the tab and the coupling [12] (see illustration).

SUBTASK 36-11-09-640-004-002

(11) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the nipple [5].

NOTE: Do not let the antiseize enter the fitting hole.

SUBTASK 36-11-09-420-041-002

(12) To install and tighten the control pressure sense line [4], do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

SUBTASK 36-11-09-420-042-002

(13) Do these steps to make sure the coupling [12] is properly installed on the duct flanges:

(a) Make sure there is visual clearance between the tabs and the retainers of the coupling (Figure 401).

(b) Tighten the coupling [12] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(c) Hit lightly around each coupling [12] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

(d) Tighten the coupling [12] to 175 to 185 pound-inches (19.8 to 20.1 newton-meters).

(e) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-11-09-420-043-002

(14) Do these steps to make sure the coupling [2] is properly installed on the duct flanges:

(a) Tighten the coupling [2] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(b) Hit lightly around each coupling [2] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

(c) Tighten the coupling [2] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

NOTE: The HPSOV/PRSOV (-5 assemblies) are equipped with a manual override plunger. A valve that has been manually locked closed will occasionally become stuck in place after it is unlocked. Push the manual override plunger to free the valve that may be stuck in the closed position.

F. PRSOV Installation Test

SUBTASK 36-11-09-790-004-002

(1) Do these steps to do a leak test of the PRSOV:

(a) Do one of these tasks:

1) Pressurization Upstream of the PRSOV, TASK 36-00-00-800-801

2) Dry Motor, TASK 71-00-00-800-836-H00

(b) Apply leak detector Snoop Leak Detector compound, G00091 to the connection for the control pressure sense line.

(c) Look for leaks at the coupling joints.

1) Small leakage is satisfactory.

2) Repair all large leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

(d) Look for leaks at the connection for the control pressure sense line.

1) You must repair all leakage.

(e) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-09-710-004-002

(2) To do an operational test of the PRSOV, you can do either one of the steps which follow:

(a) Do this task: Engine Air Supply Test for the PRSOV and FAMV, TASK 36-10-00-700-804.

NOTE: For this task you will need to operate the engines.

(b) Do this task: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802.

NOTE: For this task you will need to simulate engine operation with AIMS, and also will need a nitrogen source to supply pressure to the HPFAC and PRSOVC.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-09-010-016-002

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in this sequence to safely close the thrust reverser:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine

If it is necessary, close these access panels:

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine

If it is necessary, close this access panel:

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine

If it is necessary, close these access panels:

Number	Name/Location
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

If it is necessary, close this access panel:

Number	Name/Location
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

END OF TASK

BLEED AIR/PRESSURIZATION MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Bleed Air/Pressurization Module Removal

(2) Bleed Air/Pressurization Module Installation

B. The Bleed Air/Pressurization module is found on the pilot's overhead panel (P5) in the flight compartment. This module has these controls:

(1) L, R, C ISLN switches

(2) APU check valve switch

(3) L, R ENG bleed switch

(4) FWD, AFT OUTFLOW VALVE switches

(5) MANUAL cabin pressure mode switch

(6) LDG ALT manual select switch

TASK 36-11-10-020-801

2. Bleed Air/Pressurization Module Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-806	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
212	Flight Compartment, Right

C. Prepare for the Removal

SUBTASK 36-11-10-860-001

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

D. Bleed Air/Pressurization Module Removal

SUBTASK 36-11-10-020-001

(1) Do these steps to remove the BLEED AIR/PRESSURIZATION module found on the pilot's overhead panel (P5):

(a) Turn the quarter-turn fasteners [1] (6 locations) which hold the BLEED AIR/PRESSURIZATION module [2] to the pilot's overhead panel (P5).

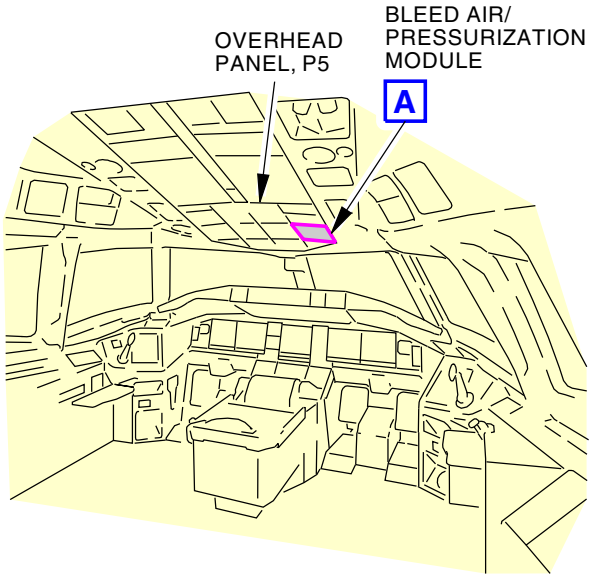
(b) Carefully pull the BLEED AIR/PRESSURIZATION module [2] out of the overhead panel (P5).

(c) Disconnect the electrical connector [3].

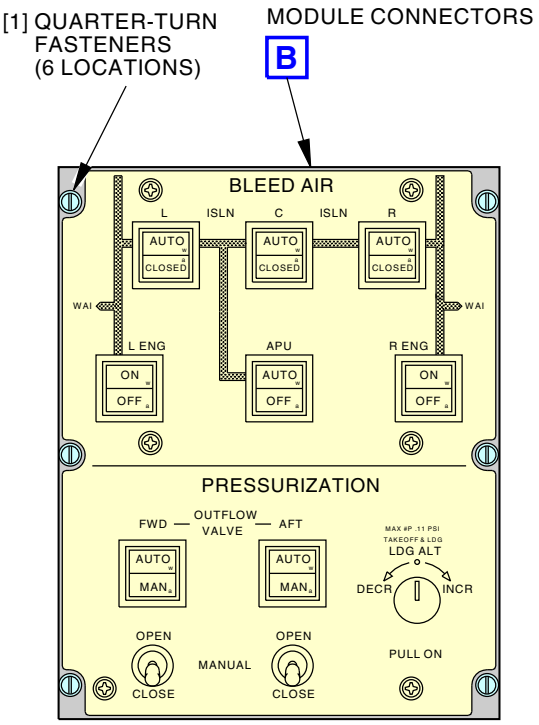
(d) Disconnect the electrical connector [4].

(e) Remove the BLEED AIR/PRESSURIZATION module [2].

END OF TASK

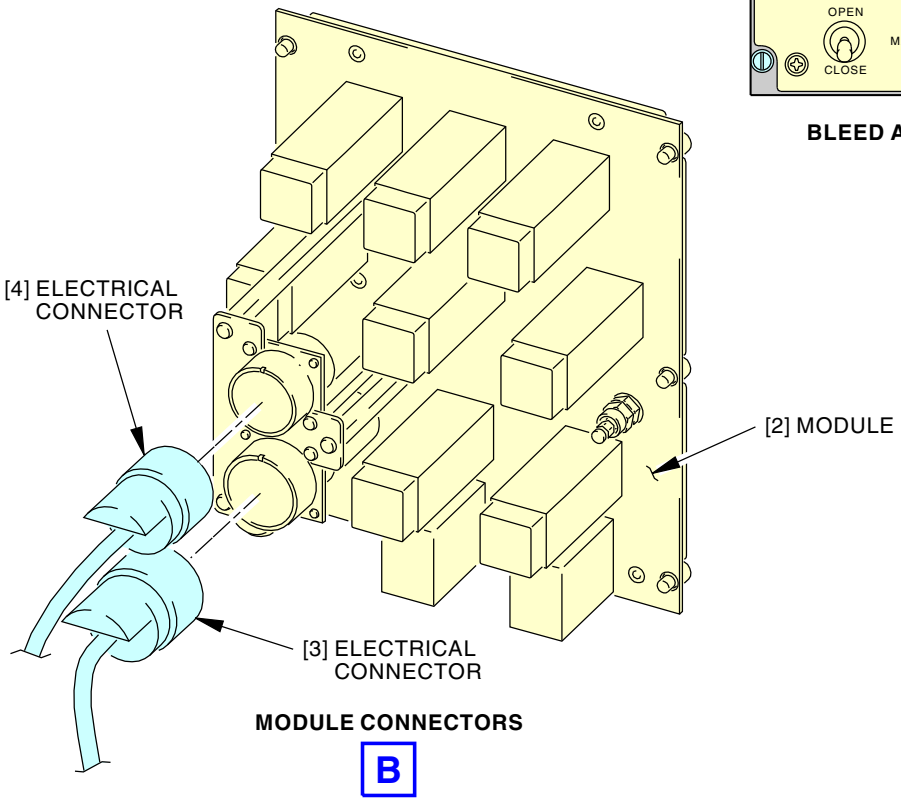


FLIGHT COMPARTMENT



BLEED AIR/PRESSURIZATION MODULE

A



MODULE CONNECTORS

B

G51835 S0006421972_V3

Bleed Air/pressurization Module Installation
Figure 401/36-11-10-990-801

TASK 36-11-10-400-801

3. Bleed Air/Pressurization Module Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
21-31-00-700-805-001	Operational Check of the Landing Altitude Manual Select Switch (P/B 501)
21-31-00-700-807-001	Operational Check of the Manual Mode Control (P/B 501)
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Module	33-13-00-02A-065	ARO ALL

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Bleed Air/Pressurization Module Installation

SUBTASK 36-11-10-400-001

(1) Do these steps to install the BLEED AIR/PRESSURIZATION module into the overhead panel, (P5):

(a) Reconnect the electrical connector [4].

(b) Reconnect the electrical connector [3].

(c) Carefully put the BLEED AIR/PRESSURIZATION module [2] into the overhead panel (P5).

(d) Turn the quarter-turn fasteners [1] (6 locations) on the BLEED AIR/PRESSURIZATION module.

F. Bleed Air/Pressurization Module Installation Test

SUBTASK 36-11-10-700-001

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

SUBTASK 36-11-10-700-002

(2) Do these steps to do a test for the L, R, C ISLN, APU and L, R ENG switches:

(a) Use a maintenance access terminal (MAT) to do the test for the BLEED AIR/PRESSURIZATION module.

(b) On the BLEED AIR/PRESSURIZATION module, found on the pilot's overhead panel (P5), push the applicable switch to the ON or AUTO position.

(c) Push the switch to the OFF or CLOSED position.

(d) Make sure the MAT shows NOT ACTIVE for these maintenance messages while the switch is in the ON/AUTO or OFF/CLOSED positions:

1) L ISLN switch is invalid
2) R ISLN switch is failed
3) C ISLN switch is failed
4) APU BLEED AIR switch is failed
5) L ENG BLEED AIR switch is failed
6) R ENG BLEED AIR switch is failed

SUBTASK 36-11-10-700-003

(3) To do a test of the Cabin Pressure Manual Mode switch, do this task: Operational Check of the Manual Mode Control, TASK 21-31-00-700-807-001.

SUBTASK 36-11-10-700-004

(4) To do a test of the Landing Altitude Manual Select switch, do this task: Operational Check of the Landing Altitude Manual Select Switch, TASK 21-31-00-700-805-001.

——— END OF TASK ———

PRECOOLER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the precooler with the engine installed.

(2) An installation of the precooler with the engine installed.

(3) A removal of the precooler with the engine removed.

(4) An installation of the precooler with the engine removed.

(5) A removal of the precooler using the removal/installation tool with the engine installed.

(6) An installation of the precooler using the removal/installation tool with the engine installed.

TASK 36-11-15-000-816-004

2. Precooler Removal with the Engine Installed

(Figure 401)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-11-09-000-803-002	PRSOV Removal (P/B 401)
36-11-19-000-807-004	Fan Air Supply Pneumatic Duct Removal (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-1563	Hoist - Fishpole (cable), minimum 500 lb capacity Part #: 10/3641 Supplier: K1425 Part #: PF51-003-1 Supplier: 1YRX6 Part #: PF51-009-1 Supplier: 1YRX6 Opt Part #: MINILIFT Supplier: K1425

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine

(Continued)

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. General

SUBTASK 36-11-15-860-049-004

(1) A minimum of four persons are necessary to complete this task.

(a) Two persons will operate the fishpole hoists.

(b) Two persons will guide the precooler during the removal from the engine.

F. Prepare for the Removal

SUBTASK 36-11-15-860-050-004

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-15-010-038-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in sequence to safely open the left and right thrust reversers for the precooler on the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) For the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-15-010-039-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely open the left and right thrust reversers for the precooler on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

SUBTASK 36-11-15-020-499-004

(4) Remove the [5] PRSOV. To remove the [5] PRSOV, do this task: PRSOV Removal, TASK 36-11-09-000-803-002.

SUBTASK 36-11-15-020-500-004

(5) Remove the screw [7] and washer [8], at five locations, which attach the clamps [6] and control pressure sense line [9] to the airplane.

(a) Remove the clamps [6] and control pressure sense line [9].

SUBTASK 36-11-15-020-501-004

(6) Remove the transition duct [1]. To remove the transition duct [1], do this task: Fan Air Supply Pneumatic Duct Removal, TASK 36-11-19-000-807-004.

G. Precooler Removal

SUBTASK 36-11-15-020-502-004

(1) Remove the bolt [30], washer [29], washer [28] and nut [32] at the top of the right forward support link [10].

NOTE: Do not remove the bushing [31].

SUBTASK 36-11-15-020-503-004

(2) Do the steps that follow to install the fishpole cable fishpole hoist, COM-1563:

(a) Align the end of the fishpole with the fitting on the strut which was used for the right forward support link.

(b) Install a BACB30PN5C29 bolt [34] and NAS11490663R washer [33] (or equivalents) through the fishpole and the strut fitting.

(c) Install a BACN10HR5 nut [35] and NAS11490663R washer [33] (or equivalents) on the bolt [34].

SUBTASK 36-11-15-020-504-004

(3) Remove the bolt [18], washer [22], washer [19], nut [20] and bushing [21] at the bottom of the right support link [10].

(a) Remove the right forward support link [10].

SUBTASK 36-11-15-020-505-004

(4) Attach the fishpole hoist cable to the attach point on the precooler which was used by the right forward support link.

SUBTASK 36-11-15-020-506-004

(5) Retract the fishpole hoist cable until it holds the weight of the precooler.

SUBTASK 36-11-15-020-507-004

(6) Remove the bolt [30], washer [29], washer [28] and nut [32] at the top of the left forward support link [2].

NOTE: Do not remove the bushing [31].

SUBTASK 36-11-15-020-508-004

(7) Do the steps that follow to install the fishpole cable fishpole hoist, COM-1563:

(a) Align the end of the fishpole with the fitting on the strut which was used for the left forward support link.

(b) Install a BACB30PN5C29 bolt [34] and NAS11490663R washer [33] (or equivalents) through the fishpole and the strut fitting.

(c) Install a BACN10HR5 nut [35] and NAS11490663R washer [33] (or equivalents) on the bolt [34].

SUBTASK 36-11-15-020-509-004

(8) Remove the bolt [18], washer [22], washer [19], nut [20] and bushing [21] at the bottom of the support link [2].

(a) Remove the left forward support link [2].

SUBTASK 36-11-15-020-510-004

(9) Attach the fishpole hoist cable to the attach point on the precooler which was used by the left forward support link.

SUBTASK 36-11-15-020-511-004

(10) Retract the fishpole hoist cable until it holds the weight of the precooler.

SUBTASK 36-11-15-020-512-004

(11) Remove the coupling [11] and E-seal [12] at the strut duct.

SUBTASK 36-11-15-020-513-004

(12) Put a pad under the precooler to protect the engine.

SUBTASK 36-11-15-020-514-004

WARNING

MAKE SURE THE PRECOOLER HAS SATISFACTORY SUPPORT WHEN YOU REMOVE THE BOLTS THAT HOLD THE PRECOOLER IN ITS POSITION. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER AND INJURY TO PERSONS.

(13) Remove the nut [14], washer [15], washer [16], bolt [17] and bushings [13] at the right aft attach point.

SUBTASK 36-11-15-020-515-004

WARNING MAKE SURE THE PRECOOLER HAS SATISFACTORY SUPPORT WHEN YOU REMOVE THE BOLTS THAT HOLD THE PRECOOLER IN ITS POSITION. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER AND INJURY TO PERSONS.

(14) Remove the nut [25], washer [26], washer [24], bolt [23] and bushing [27] at the left aft attach point.

SUBTASK 36-11-15-020-516-004

WARNING THE PRECOOLER IS APPROXIMATELY 170 POUNDS IN WEIGHT. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER OR ENGINE AND INJURY TO PERSONS.

(15) Use the fishpole hoists to lower the precooler [4] to the ground. Turn the precooler as necessary to clear the thrust link.

SUBTASK 36-11-15-020-517-004

(16) Remove the louver [3] from the precooler. To remove the louver [3], do this task: Fan Air Supply Pneumatic Duct Removal, TASK 36-11-19-000-807-004.

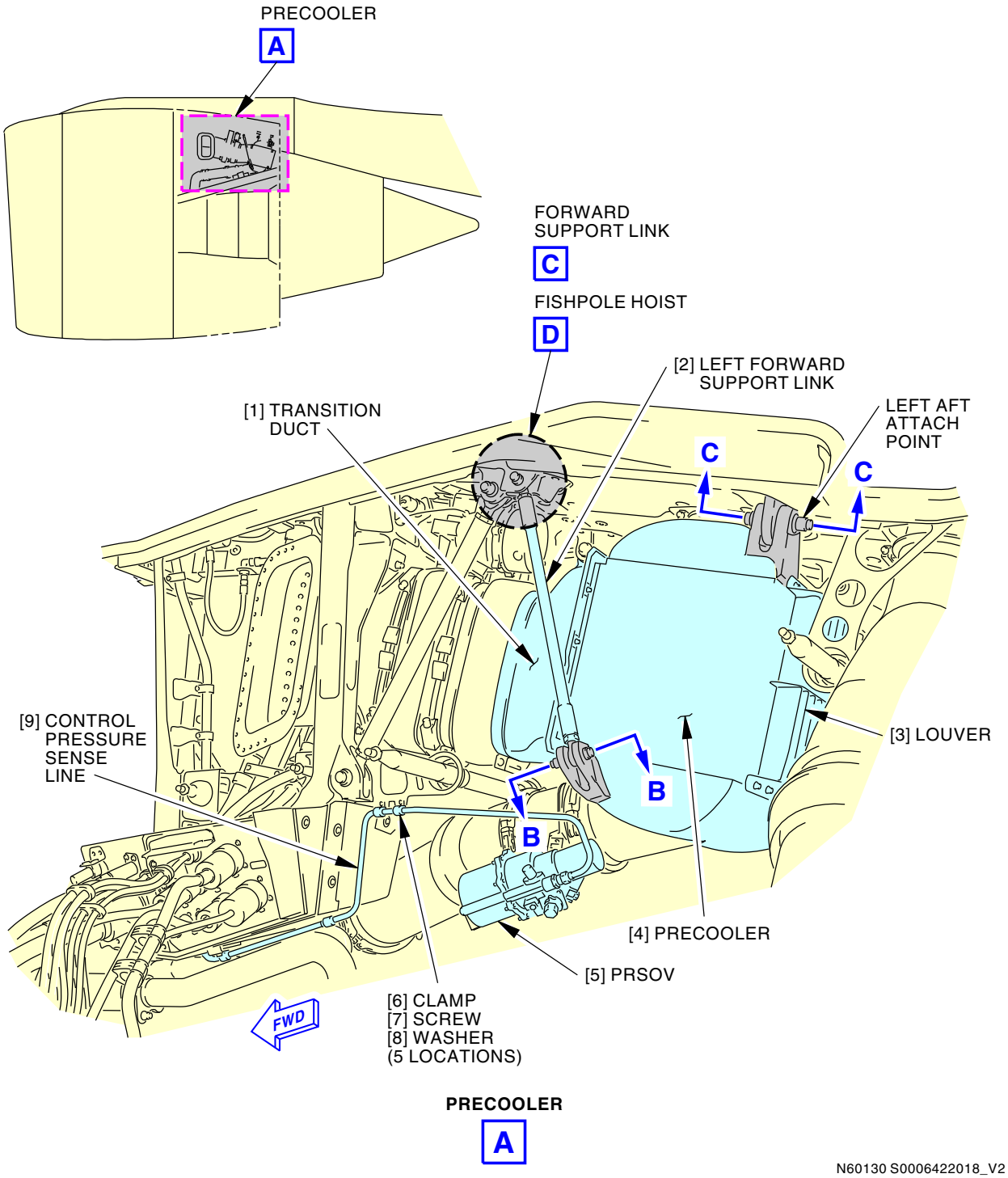
SUBTASK 36-11-15-020-518-004

(17) Remove the fishpole hoists from the precooler [4].

SUBTASK 36-11-15-480-155-004

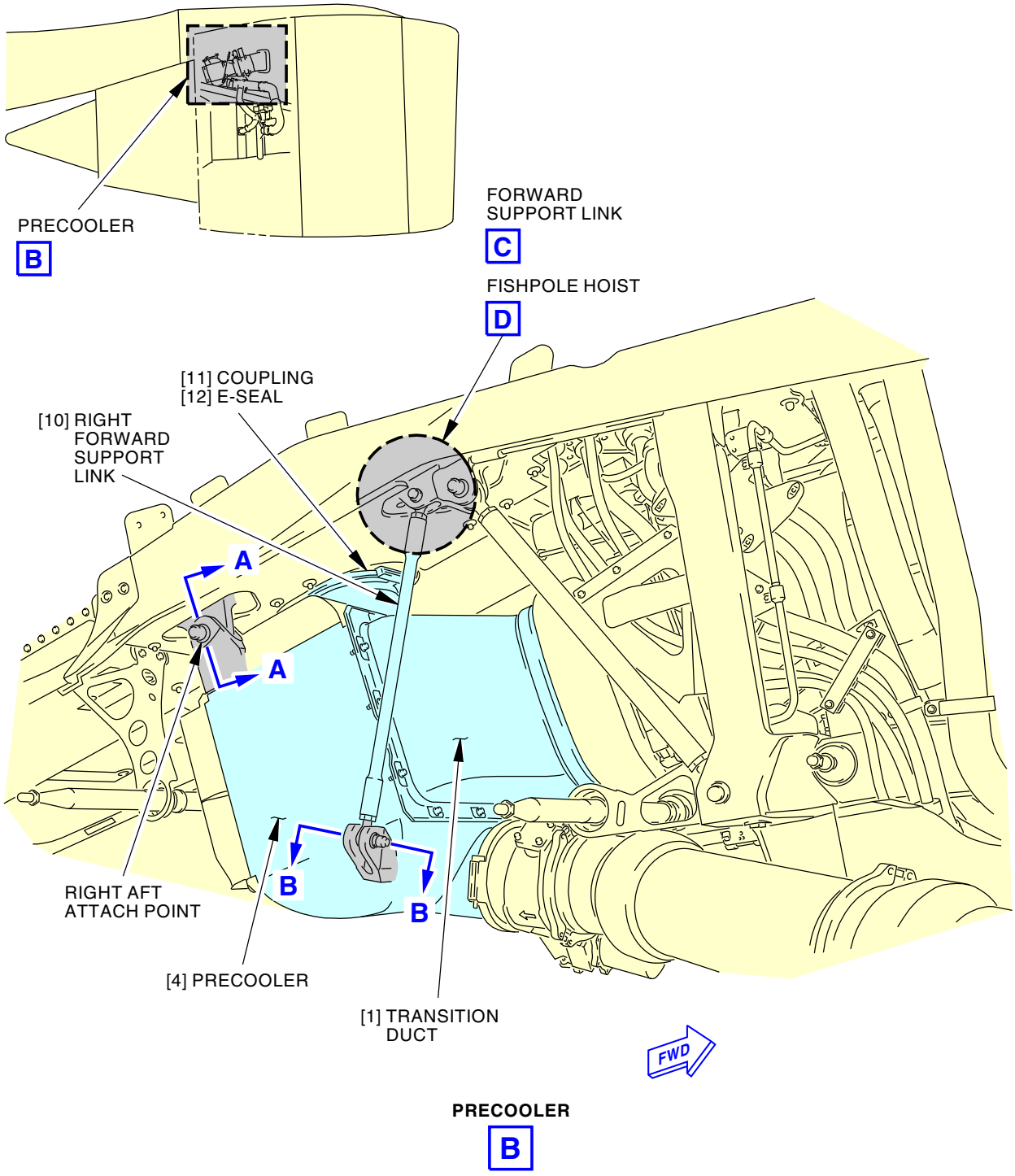
(18) Put a cover on all the openings to keep out unwanted material.

END OF TASK



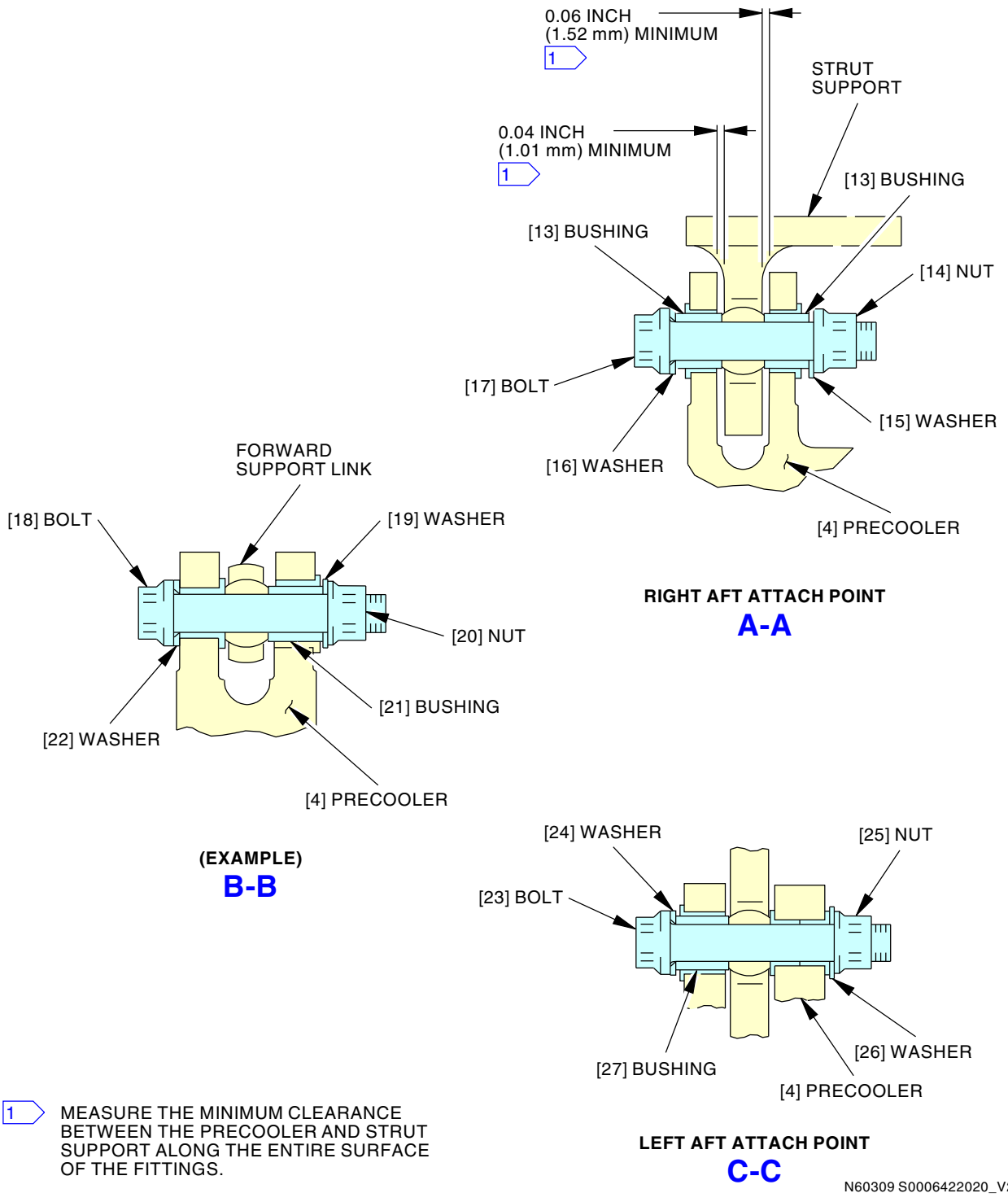
N60130 S0006422018_V2

Precooler Installation
Figure 401/36-11-15-990-817-004 (Sheet 1 of 4)

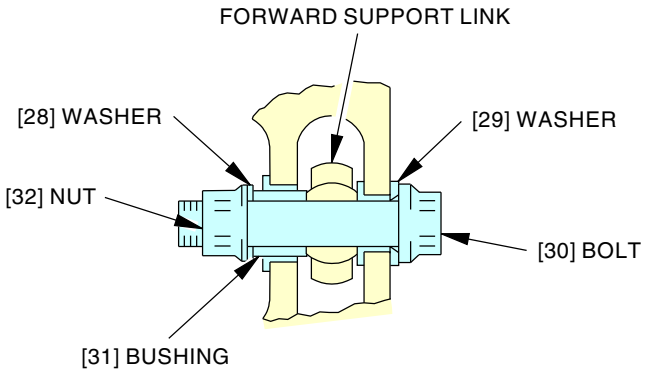


N60184 S0006422019_V2

Precooler Installation
Figure 401/36-11-15-990-817-004 (Sheet 2 of 4)

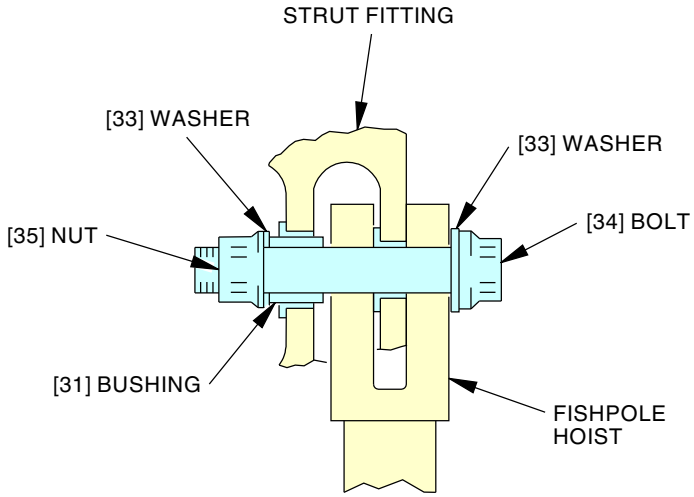


Precooler Installation
Figure 401/36-11-15-990-817-004 (Sheet 3 of 4)



FORWARD SUPPORT LINK (EXAMPLE)

C



FISHPOLE HOIST INSTALLATION

D

N60316 S0006422021_V2

Precooler Installation
Figure 401/36-11-15-990-817-004 (Sheet 4 of 4)

TASK 36-11-15-400-816-004

3. Precooler Installation with the Engine Installed

(Figure 401)

A. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
36-11-09-400-803-002	PRSOV Installation (P/B 401)
36-11-19-400-807-004	Fan Air Supply Pneumatic Duct Installation (P/B 401)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Precooler Installation

SUBTASK 36-11-15-080-052-004

(1) Remove the covers from the duct openings.

SUBTASK 36-11-15-020-519-004

(2) Install the louver [3] on the precooler. To install the louver [3], do this task: Fan Air Supply Pneumatic Duct Installation, TASK 36-11-19-400-807-004

SUBTASK 36-11-15-480-156-004

(3) Install the fishpole hoists on the precooler [4].

SUBTASK 36-11-15-020-520-004

(4) Make sure the pad to prevent damage to the engine is in its position.

SUBTASK 36-11-15-420-325-004

WARNING THE PRECOOLER IS APPROXIMATELY 170 POUNDS IN WEIGHT. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER OR ENGINE AND INJURY TO PERSONS.

(5) Use the fishpole hoists to move the precooler to its position under the strut. Turn the precooler as necessary to clear the thrust link.

SUBTASK 36-11-15-820-022-004

(6) Turn the precooler [4] until you align the strut duct and the aft attach points.

SUBTASK 36-11-15-640-014-004

(7) Apply antiseize Never-Seez NSBT compound, D00006 to the threads and shank of the bolts [17] [23], before you install them.

SUBTASK 36-11-15-480-157-004

(8) Install the bushings [13], bolt [17], washer [16], washer [15] and nut [14] at the right aft attach point.

NOTE: Do not fully tighten the nut [14].

Install the countersunk side of the washer [16] against the bolt head.

SUBTASK 36-11-15-480-158-004

(9) Install the bushing [27], bolt [23], washer [24], washer [26] and nut [25] at the left aft attach point.

NOTE: Do not fully tighten the nut [25].

Install the countersunk side of the washer [24] against the bolt head.

SUBTASK 36-11-15-210-019-004

(10) Examine the E-seal [12] to be used for the strut duct connection.

(a) Make sure the E-seal [12] do not have cracks, dents or other damage.

(b) Replace all damaged E-seal [12].

SUBTASK 36-11-15-420-326-004

(11) Install an E-seal [12] in the top precooler flange (Figure 401).

SUBTASK 36-11-15-420-327-004

CAUTION MAKE SURE YOU INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE THE COUPLING CAN LOOSEN AND CAUSE DAMAGE TO EQUIPMENT.

(12) As you install the coupling [11] at the strut duct do these steps (Figure 401):

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the duct flanges are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

(c) Make sure the coupling does not touch the insulation blanket.

SUBTASK 36-11-15-420-328-004

(13) Do these steps to make sure the coupling is properly installed on the duct flanges:

(a) Tighten the coupling [11] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(b) Hit lightly around each coupling [11] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

(c) Tighten the coupling [11] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-11-15-420-329-004

WARNING MAKE SURE THE PRECOOLER HAS SATISFACTORY SUPPORT WHEN YOU REMOVE THE FISHPOLE HOIST. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER OR ENGINE AND INJURY TO PERSONS.

(14) Remove the fishpole hoist from the right side of the precooler.

SUBTASK 36-11-15-420-330-004

(15) Remove nut [35], washers [33] and bolt [34] to disconnect the fishpole hoist from the right side strut fitting.

NOTE: Do not remove the bushing [31].

SUBTASK 36-11-15-420-331-004

(16) Put the right forward support link [10] into its position.

SUBTASK 36-11-15-640-015-004

(17) Apply antiseize Never-Seez NSBT compound, D00006 to the threads and shank of the bolts [30] [18], before you install them.

SUBTASK 36-11-15-020-521-004

(18) Install the bolt [30], washer [29], washer [28] and nut [32] at the top of the right forward support link [10].

NOTE: Do not fully tighten the nut [32].

Make sure the countersunk side of the washer [29] is against the head of the bolt [30].

SUBTASK 36-11-15-020-522-004

(19) Install the bolt [18], washer [22], washer [19], nut [20] and bushing [21] at the bottom of the right forward support link [10].

NOTE: Do not fully tighten the nut [20].

SUBTASK 36-11-15-420-332-004

WARNING MAKE SURE THE PRECOOLER HAS SATISFACTORY SUPPORT WHEN YOU REMOVE THE FISHPOLE HOIST. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER OR ENGINE AND INJURY TO PERSONS.

(20) Remove the fishpole hoist from the left side of the precooler.

SUBTASK 36-11-15-420-333-004

(21) Remove nut [35], washers [33] and bolt [34] to disconnect the fishpole hoist from the left side strut fitting.

NOTE: Do not remove the bushing [31].

SUBTASK 36-11-15-420-334-004

(22) Put the left forward support link [2] into its position.

SUBTASK 36-11-15-640-016-004

(23) Apply antiseize Never-Seez NSBT compound, D00006 to the threads and shank of the bolts [30] [18], before you install them.

SUBTASK 36-11-15-020-523-004

(24) Install the bolt [30], washer [29], washer [28] and nut [32] at the top of the left forward support link [10].

NOTE: Do not fully tighten the nut [32].

Make sure the countersunk side of the washer [29] is against the head of the bolt [30].

SUBTASK 36-11-15-020-524-004

(25) Install the bolt [18], washer [22], washer [19], nut [20] and bushing [21] at the bottom of the left forward support link [2].

NOTE: Do not fully tighten the nut [20].

SUBTASK 36-11-15-420-335-004

(26) Tighten the nut [14] and the nut [25].

SUBTASK 36-11-15-420-336-004

(27) Tighten the nut [20] and the nut [32].

SUBTASK 36-11-15-420-337-004

(28) Do this task: PRSOV Installation, TASK 36-11-09-400-803-002.

SUBTASK 36-11-15-020-525-004

(29) Put the control pressure sense line [9] and clamps [6] in position on the airplane.

(a) Install screws [7] and washers [8], at five locations, which attach the control pressure sense line and the clamps to the airplane.

SUBTASK 36-11-15-020-526-004

(30) To tighten the control pressure sense line [9], do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

SUBTASK 36-11-15-020-527-004

(31) Install the transition duct [1]. To install the transition duct [1], do this task: Fan Air Supply Pneumatic Duct Installation, TASK 36-11-19-400-807-004.

F. Precooler Installation Test

SUBTASK 36-11-15-790-016-004

(1) Apply leak detector Snoop Leak Detector compound, G00091 to the sense line [9].

SUBTASK 36-11-15-860-051-004

(2) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

SUBTASK 36-11-15-790-017-004

(3) Look for leaks at the couplings.

(a) Small air leaks are satisfactory.

NOTE: Small leakage is only permitted with the couplings. You must repair all leakage at the sense line.

(b) Repair all large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

SUBTASK 36-11-15-860-052-004

(4) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-15-010-040-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the left and right thrust reversers on the applicable engine:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

TASK 36-11-15-000-817-004

4. Precooler Removal with the Engine Removed

(Figure 401, Figure 402)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-11-09-000-803-002	PRSOV Removal (P/B 401)
36-11-19-000-807-004	Fan Air Supply Pneumatic Duct Removal (P/B 401)
71-00-02-000-811-H00	Power Plant Removal (P/B 401)

B. Tools/Equipment

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

Reference	Description
SPL-1556	Hoist - Boom, General, 400 Pound Maximum Capacity Part #: A20001-152 Supplier: 81205 Opt Part #: A20001-82 Supplier: 81205
SPL-1576	Positioner - Load, Engine Accessories, 250LB Capacity (GE and PW engines)
SPL-1941	Equipment - Removal/Installation, GE90 Precooler (Engine Removed) Part #: J36006-1 Supplier: 81205

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Prepare for the Removal

SUBTASK 36-11-15-860-053-004

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-15-020-528-004

(2) Do this task: Power Plant Removal, TASK 71-00-02-000-811-H00.

SUBTASK 36-11-15-020-529-004

(3) Remove the screws [7] and washers [8], which attach the clamps [6] and control pressure sense line [9] to the airplane.

(a) Remove the clamps [6] and the control pressure sense line [9].

SUBTASK 36-11-15-020-530-004

(4) Remove the PRSOV [5]. To remove the PRSOV [5], do this task: PRSOV Removal, TASK 36-11-09-000-803-002

SUBTASK 36-11-15-020-531-004

(5) Remove the bolt [18], washer [22], washer [19], bushing [21] and nut [20] at the bottom of the right forward support link [10].

SUBTASK 36-11-15-020-532-004

(6) Move the right forward support link [10] out of the way.

SUBTASK 36-11-15-020-533-004

(7) Remove the transition duct [1]. To remove the transition duct [1], do this task: Fan Air Supply Pneumatic Duct Removal, TASK 36-11-19-000-807-004

SUBTASK 36-11-15-020-534-004

(8) Remove the coupling [11] which connects the precooler to the strut pneumatic duct.

SUBTASK 36-11-15-480-159-004

(9) Install the boom hoist, SPL-1556, load 250LB capacity, load positioner (GE and PW engines), SPL-1576 and precooler removal/installation GE90 precooler (engine removed) equipment, SPL-1941 to support the precooler [4].

SUBTASK 36-11-15-480-160-004

(10) Install the straps over the precooler [4].

E. Precooler Removal

SUBTASK 36-11-15-020-535-004

WARNING MAKE SURE THE PRECOOLER HAS SATISFACTORY SUPPORT WHEN YOU REMOVE THE BOLTS THAT HOLD THE PRECOOLER IN ITS POSITION. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER AND INJURY TO PERSONS.

(1) Remove the bolt [17], nut [15], washer [15], washer [16] and bushings [13] at the right aft attach point.

SUBTASK 36-11-15-020-536-004

WARNING MAKE SURE THE PRECOOLER HAS SATISFACTORY SUPPORT WHEN YOU REMOVE THE BOLTS THAT HOLD THE PRECOOLER IN ITS POSITION. FAILURE TO CORRECTLY SUPPORT THE PRECOOLER CAN CAUSE DAMAGE TO THE PRECOOLER AND INJURY TO PERSONS.

(2) Remove the bolt [23], nut [25], washer [24], washer [26] and bushing [27] at the left aft attach point.

SUBTASK 36-11-15-020-537-004

(3) Remove the bolt [18], washer [22], washer [19], bushing [21] and nut [20] at the bottom of the left forward support link [2].

SUBTASK 36-11-15-020-538-004

(4) Move the left forward support link [2] out of the way.

SUBTASK 36-11-15-020-539-004

(5) Lower the precooler [4] with the boom hoist, SPL-1556.

SUBTASK 36-11-15-020-540-004

(6) Remove the E-seal [12].

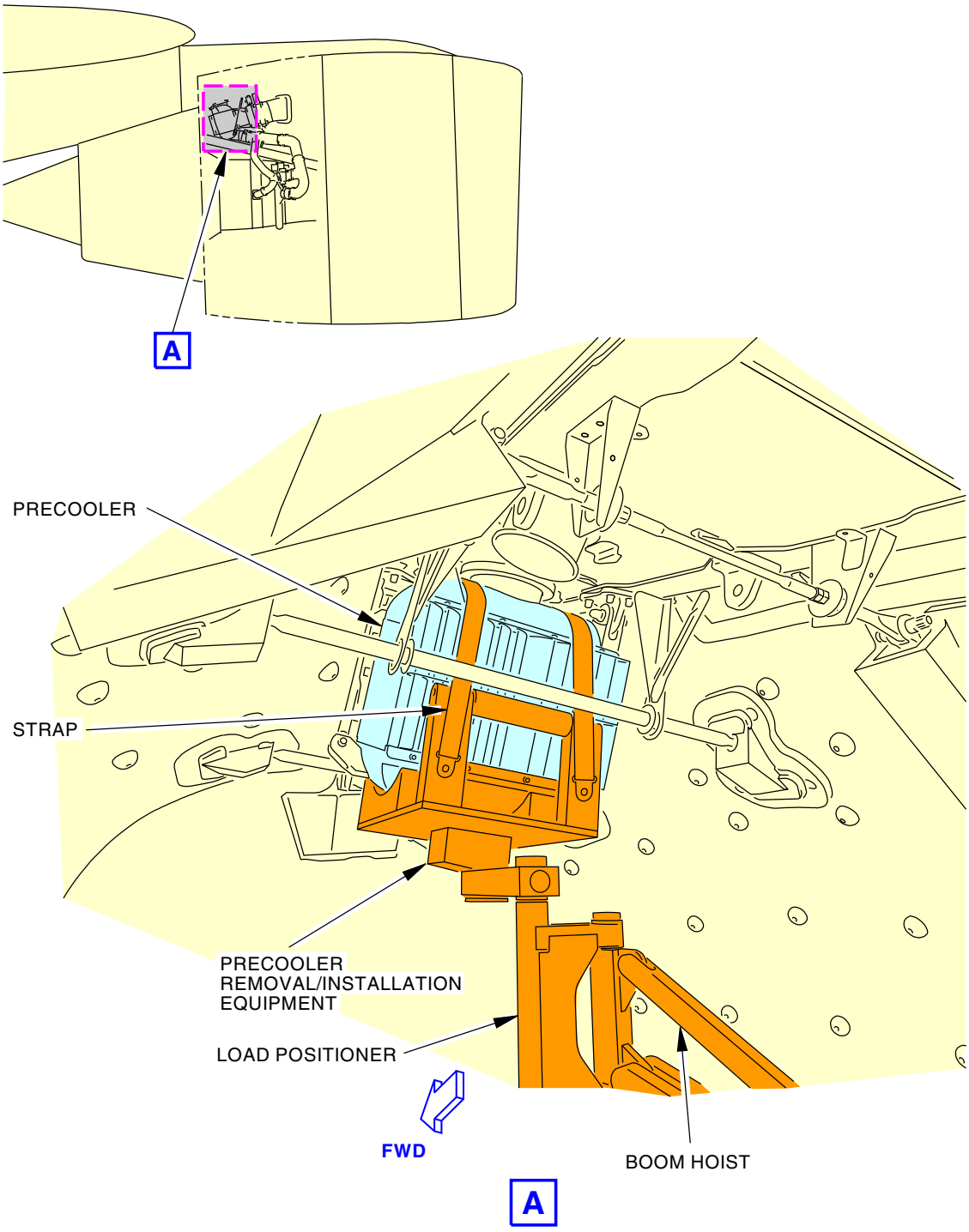
SUBTASK 36-11-15-020-541-004

(7) Remove the louver [3]. To remove the louver [3], do this task: Fan Air Supply Pneumatic Duct Removal, TASK 36-11-19-000-807-004

SUBTASK 36-11-15-480-161-004

(8) Put a cover on all the openings to keep out unwanted material.

END OF TASK



N60318 S0006422024_V2

Precooler Tool Installation (Engine Removed)
Figure 402/36-11-15-990-818-004

TASK 36-11-15-400-817-004

5. Precooler Installation with the Engine Removed

(Figure 401, Figure 402)

A. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
36-11-09-400-803-002	PRSOV Installation (P/B 401)
36-11-19-400-807-004	Fan Air Supply Pneumatic Duct Installation (P/B 401)
71-00-02-400-811-H00	Power Plant Installation (P/B 401)

B. Tools/Equipment

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

Reference	Description
SPL-1556	Hoist - Boom, General, 400 Pound Maximum Capacity Part #: A20001-152 Supplier: 81205 Opt Part #: A20001-82 Supplier: 81205
SPL-1576	Positioner - Load, Engine Accessories, 250LB Capacity (GE and PW engines)
SPL-1941	Equipment - Removal/Installation, GE90 Precooler (Engine Removed) Part #: J36006-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Precooler Installation

SUBTASK 36-11-15-080-053-004

(1) Remove the cover on the duct opening.

SUBTASK 36-11-15-210-020-004

(2) Examine the E-seal [12].

(a) Make sure the E-seal does not have cracks, dents or other damage.

(b) Replace the E-seal if it is damaged.

SUBTASK 36-11-15-420-338-004

(3) Install an E-seal [12] in the top precooler flange (Figure 401).

SUBTASK 36-11-15-020-542-004

(4) Install the louver [3] on the precooler. To install the louver [3], do this task: Fan Air Supply Pneumatic Duct Installation, TASK 36-11-19-400-807-004

SUBTASK 36-11-15-420-339-004

(5) Put precooler [4] on the precooler removal/installation GE90 precooler (engine removed) equipment, SPL-1941, boom hoist, SPL-1556 and load 250LB capacity, load positioner (GE and PW engines), SPL-1576.

SUBTASK 36-11-15-420-340-004

CAUTION MAKE SURE YOU SUPPORT THE PRECOOLER WHILE YOU PUT IT INTO ITS POSITION. IF YOU DO NOT SUPPORT THE PRECOOLER, DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Use the boom hoist, SPL-1556 to lift the precooler [4] into its position:

SUBTASK 36-11-15-640-017-004

(7) Apply antiseize Never-Seez NSBT compound, D00006 to the threads and shank of bolts [17] and [23] before you install them.

SUBTASK 36-11-15-480-162-004

(8) Install the bolt [23], washer [24], washer [26], bushing [27] and nut [25] at the left aft attach point.

NOTE: Do not tighten the bolt and nut.

Install the countersunk side of the washer [24] against the bolt head.

SUBTASK 36-11-15-480-163-004

(9) Install the bolt [17], washer [16], washer [15], bushings [13] and nut [14] at the right aft attach point.

NOTE: Do not tighten the bolt and nut.

Install the countersunk side of the washer [16] against the bolt head.

SUBTASK 36-11-15-420-341-004

(10) Put the left forward support link [2] into its position.

SUBTASK 36-11-15-640-018-004

(11) Apply antiseize Never-Seez NSBT compound, D00006 to the threads and shank of the bolt [18].

SUBTASK 36-11-15-420-342-004

(12) Install the bolt [18], washer [22], washer [19], bushing [21] and nut [20] at the bottom of the left forward support link [2].

NOTE: Do not tighten the bolt and nut.

Install the countersunk side of the washer [22] against the bolt head.

SUBTASK 36-11-15-420-343-004

CAUTION MAKE SURE YOU INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY. IF YOU DO NOT INSTALL THE COUPLING FINGERS IN THE LOCKING DEVICE THE COUPLING CAN LOOSEN AND CAUSE DAMAGE TO EQUIPMENT.

(13) As you install the coupling [11] do these steps (Figure 401):

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the duct flanges are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

(c) Make sure the coupling does not touch the insulation blanket.

SUBTASK 36-11-15-420-344-004

(14) Do these steps to make sure the coupling is properly installed on the duct flanges:

(a) Tighten the coupling [11] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(b) Hit lightly around each coupling [11] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

(c) Tighten the coupling [11] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(d) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-11-15-420-345-004

(15) Install the transition duct [1]. To install the transition duct [1], do this task: Fan Air Supply Pneumatic Duct Installation, TASK 36-11-19-400-807-004

SUBTASK 36-11-15-420-346-004

(16) Put the right forward support link [10] into its position.

SUBTASK 36-11-15-640-019-004

(17) Apply antiseize Never-Seez NSBT compound, D00006 to the threads and shank of the bolt [18].

SUBTASK 36-11-15-420-347-004

(18) Install the bolt [18], washer [22], washer [19], bushing [21] and nut [20] at the bottom of the right forward support link [10].

NOTE: Do not tighten the bolt and nut.

Install the countersunk side of the washer [22] against the bolt head.

SUBTASK 36-11-15-420-348-004

(19) Tighten the nut [14] and nut [25] to 1000-1200 pound-inches (113.0-135.6 newton-meters).

SUBTASK 36-11-15-420-349-004

(20) Tighten the nuts [20] to 260-425 pound-inches (29.4-48.0 newton-meters).

SUBTASK 36-11-15-080-054-004

(21) Remove the boom hoist, SPL-1556, load 250LB capacity, load positioner (GE and PW engines), SPL-1576 and precooler removal/installation GE90 precooler (engine removed) equipment, SPL-1941.

SUBTASK 36-11-15-420-350-004

(22) Install the PRSOV [5]. To install the PRSOV [5], do this task: PRSOV Installation, TASK 36-11-09-400-803-002

SUBTASK 36-11-15-020-543-004

(23) Put the control pressure sense line [9] and clamps [6] in position on the airplane.

(a) Install screws [7] and washers [8], at five locations, which attach the control pressure sense line [9] and the clamps [6] to the airplane.

SUBTASK 36-11-15-020-544-004

(24) To tighten the control pressure sense line [9], do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

SUBTASK 36-11-15-420-351-004

(25) Do this task: Power Plant Installation, TASK 71-00-02-400-811-H00.

F. Precooler Installation Test

SUBTASK 36-11-15-860-054-004

(1) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

SUBTASK 36-11-15-790-018-004

(2) Apply leak detector Snoop Leak Detector compound, G00091 to the sense line.

SUBTASK 36-11-15-790-019-004

(3) Look for leaks at the couplings.

(a) Small air leaks are satisfactory.

NOTE: Small leakage is only permitted with the couplings. You must repair all leakage at the sense line.

(b) Repair all large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

SUBTASK 36-11-15-860-055-004

(4) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

——— END OF TASK ———

TASK 36-11-15-000-820

6. Precooler Removal Using Removal/Installation Tool with the Engine Installed

Figure 403

A. References

Reference	Title
08-21-00-580-801	Make the Airplane Level (P/B 201)
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-11-09-000-803-002	PRSOV Removal (P/B 401)
36-11-19-000-807-004	Fan Air Supply Pneumatic Duct Removal (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Tools/Equipment

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

Reference	Description
SPL-7909	Removal and Installation Equip. - Precooler, GE9X (Engine On) Part #: J36020-1 Supplier: 81205

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. General

SUBTASK 36-11-15-000-004

(1) This task describes how to remove the precooler using the removal and installation equipment, SPL-7909 for GE 90–115B engines installed on wing.

F. Prepare for Removal

SUBTASK 36-11-15-580-002

(1) Make sure the airplane is at 3/4 ± 1/4 degree pitch (nose down) and 0 ± 1/4 degree roll. Make the airplane level, Make the Airplane Level, TASK 08-21-00-580-801.

SUBTASK 36-11-15-860-067

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-15-010-049

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely open the left and right thrust reversers to access the precooler on the left engine.

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00

(d) For the left and right fan cowl panels, do this task: Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Open these access panels:

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) For the left and right thrust reversers, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Open these access panels:

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-15-010-050

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Do these tasks in sequence to safely open the left and right thrust reversers to access the precooler on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) For the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

SUBTASK 36-11-15-020-561

(5) Remove the PRSOV. To remove the PRSOV, do this task: PRSOV Removal, TASK 36-11-09-000-803-002.

SUBTASK 36-11-15-020-562

(6) Remove the transition duct. To remove the transition duct, do this task: Fan Air Supply Pneumatic Duct Removal, TASK 36-11-19-000-807-004

SUBTASK 36-11-15-020-567

(7) Remove the bolt and washer that attach the louver assembly to the precooler.

SUBTASK 36-11-15-020-568

(8) Remove the louver assembly.

G. Precooler Removal

SUBTASK 36-11-15-490-011

(1) Do these steps to install the precooler removal and installation equipment, SPL-7909.

(a) Install the eight shield assemblies [26] on the thrust links with velcro attachments.

NOTE: The shield assemblies are used to protect the thrust links from damage when removing the precooler.

(b) Do the following to install the left-hand [3] and right-hand [2] arm assemblies on the strut.

1) Attach the left (right) hand arm assembly to the forward left (right) upper GSE fittings [1] with the ball lock pins.

2) Attach the left (right) hand arm assembly to the aft upper left (right) GSE fittings [6] with the hitch pins.

(c) Do the following to install the left cage half [17] and right cage half [20] assemblies on the precooler [31].

1) Slide the first half of the cage assembly on the outboard side of the precooler.

2) Slide the second half of the cage assembly on the inboard side of the precooler.

(d) Do the following to attach the forward [24] and aft [25] center plates to the left [17] and right [20] cage half assemblies.

1) Attach the forward center plate [24] to the left [17] and right [20] half cage assemblies with the eight bolts provided in the kit.

NOTE: The forward center plate [24] has a cutout to clear the compression rod.

2) Attach the aft center plate [25] to the left [17] and right [20] cage half assemblies with the eight bolts provided in the kit.

(e) Do the following to install the long mechanical assembly [23] to the left-hand arm assembly [3] and left cage half assembly [17].

1) Attach the long mechanical assembly [23] to the left-hand arm assembly [3] with four bolts provided in the kit.

2) Attach the long mechanical assembly [23] to the left cage half assembly [17] with the one-inch diameter bolt provided in the kit.

(f) Do the following to install the short mechanical assembly [21] on the right-hand arm assembly [2] and right cage half assembly [20].

1) Attach the short mechanical assembly [21] to the right-hand arm assembly [2] with four bolts provided in the kit.

2) Attach the short mechanical assembly [21] to the right cage half assembly [20] with the one-inch diameter bolt provided in the kit.

(g) Do the following to remove the inboard and outboard compression rods [27] that support the precooler [31].

1) Remove the bolts, washers, bushings, and nuts from the upper end and lower end of the compression rods [27].

(h) Do the following to remove the aft precooler attach bolts Figure 403.

1) Remove the bolts, washers, bushings, and nuts from the aft precooler fitting.

(i) Use the T-handles on the long [23] and short [21] mechanical assemblies to lower the precooler enough to be able to clear the long rail assembly [10] by at least 1/2 inch.

(j) Install the safety pin on the long rail assembly [10] to prevent the precooler from sliding down the long [10] and short [11] rail assemblies.

(k) Install the long rail assembly [10] to the right-hand arm assembly [2] with the ball lock pin.

(l) Install the long rail assembly [10] to the left-hand arm assembly [3] with L-pin and hand knob and knurled knob of the V-wheel assembly.

(m) Attach the short rail assembly [11] to the long rail assembly [10] with the two hand knobs.

(n) Attach the support assembly [4] to the short rail assembly [11] using the two hold down pins.

(o) Assemble the forward upper brace assembly [14] and forward brace assembly [7] together with the L pin.

(p) Assemble the aft upper brace assembly [12] and aft brace assembly [5] together with the ball lock pin.

(q) Do the following steps to attach the forward upper brace assembly [14] and forward brace assembly [7] to the support assembly [4] and forward lower GSE fitting [8] on the engine fan case.

1) Attach the forward upper brace assembly [14] to the support assembly [4] with the two hand knobs on the support assembly.

2) Attach the forward brace assembly [7] to the forward lower GSE fitting [8] on the engine fan case with the bent angle pin.

3) Adjust the angular adjustment as necessary at end of the forward brace assembly [7].

(r) Do the following steps to attach the aft upper brace assembly [12] and aft brace assembly [5] to the support assembly [4] and aft lower GSE fitting [9] on the engine turbine case.

1) Attach the aft upper brace assembly [12] to the support assembly [4] with the two hand knobs on the support assembly.

2) Attach the aft brace assembly [5] to the aft lower GSE fitting [9] on the engine turbine case with two bolts and two nuts.

3) Adjust the angular adjustment as necessary at the end of the aft brace assembly [5].

SUBTASK 36-11-15-490-012

(2) Do the following steps to install the first fish pole hoist [15] to the short rail assembly [11].

(a) Attach the fish pole hoist [15] to the fish pole attach bracket assembly [28] with the 1/4-inch pin.

(b) Attach the fish pole hoist cable [18] to the clevis on the right hand cage bracket assembly [19].

(c) Thread the fish pole hoist cable [18] through the first pulley and the cable guide [32].

SUBTASK 36-11-15-490-013

(3) Position the two pillow blocks [22] on the long rail assembly [10] centered over the precooler [31] and tighten them with the thumb screw on the slider blocks.

SUBTASK 36-11-15-490-014

(4) Do the following steps to install the left [16] and right-hand [19] cage bracket assemblies to the long rail assembly [10] and the left [17] and right-hand [20] cage half assemblies.

(a) Attach the left [16] and right-hand [19] cage bracket assemblies to the long rail assembly [10] with four bolts for each cage bracket assembly.

(b) Attach the left [16] and right-hand [19] cage bracket assemblies to the two cage half assemblies with the L-pin and hand knob.

SUBTASK 36-11-15-490-015

(5) Slide the two female blocks into the two pillow blocks [22] and attach the two female blocks with the latch clamps.

SUBTASK 36-11-15-090-015

(6) Do the following steps to remove the long [23] and short [21] mechanical assemblies.

(a) Remove the bolts that attach the long [23] and short [21] mechanical assemblies to the left [3] and right-hand [2] arm assemblies.

(b) Remove the one-inch diameter bolts from the left [17] and right-hand [20] cage half assemblies.

SUBTASK 36-11-15-020-563

(7) Unwind the cable from the fish pole hoists [15] to lower the precooler [31] along the short [21] and long [23] rail assemblies and lower the precooler to the ground.

(a) Install the locator assembly [29] to the right-hand cage bracket assembly [19] with the two bolts and washers.

(b) Install the 'J' bracket assembly [13] to the left-hand cage bracket assembly [16] with the two bolts and washers.

(c) Disconnect the fish pole hoist cable [18] from the right-hand cage bracket assembly [19].

(d) Reroute the fish pole hoist cable [18] to be over the second pulley.

(e) Attach the fish pole hoist cable clevis on the locator assembly [29].

(f) Attach the second fish pole hoist [15] to the support assembly [4] with the pin.

(g) Attach the clevis on the cable of the second fish pole hoist [15] to the shackle on the 'J' bracket [13].

(h) Tighten the cables from both fish pole hoists [15] and lock the cables at the fish pole hoists.

(i) Release the latch clamp that attaches the female blocks to the pillow blocks [22].

(j) Slide the female blocks away from the pillow block assemblies [22].

(k) Slowly unwind the cable with the first fish pole hoist [15] to rotate the precooler [31] to a vertical position.

(l) Use the tether [30] to guide the precooler [31] as you rotate the precooler.

(m) Slowly unwind the cable on the second fish pole hoist [15] to lower the precooler [31] to the ground.

SUBTASK 36-11-15-020-564

(8) Do these steps to detach the precooler removal and installation equipment, SPL-7909.

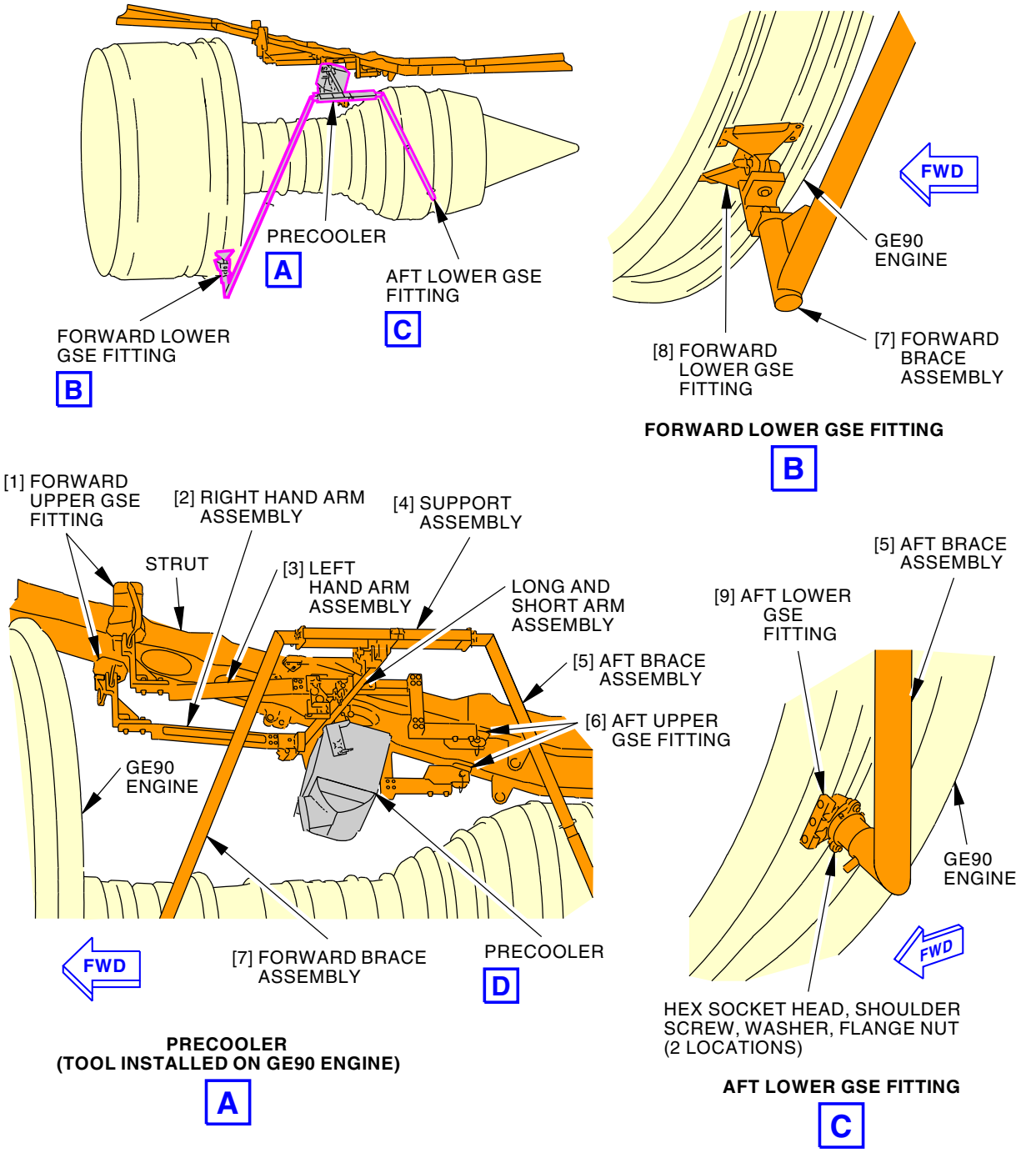
(a) Disconnect the first fish pole hoist clevis from the shackle on the locator assembly [29].

(b) Disconnect the second fish pole hoist clevis from the shackle on the 'J' bracket [13].

(c) Remove the bolts that attach the forward [24] and aft [25] center plate assemblies to the two cage half assemblies.

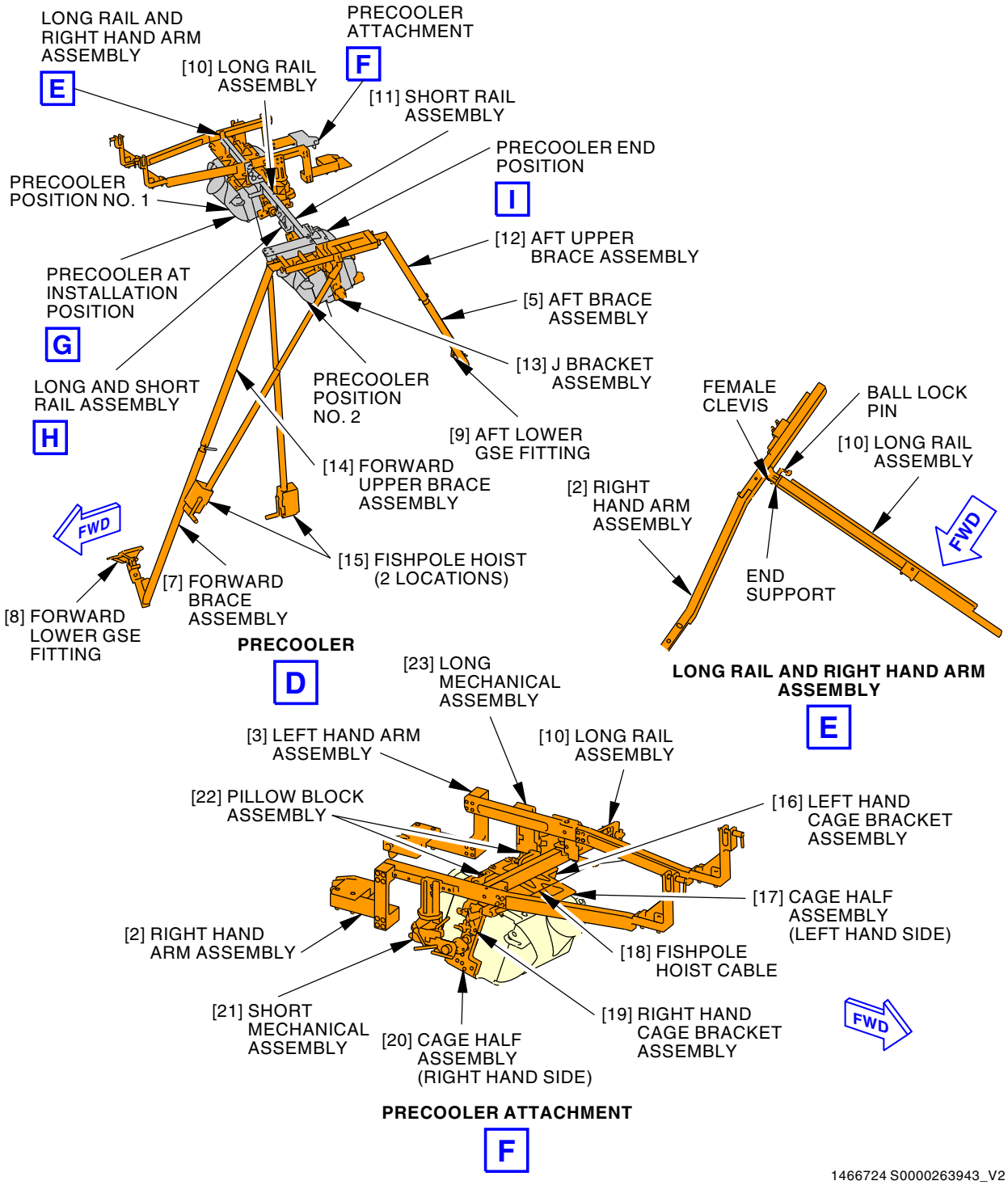
(d) Put a cover on all openings to keep out all unwanted material.

——— END OF TASK ———



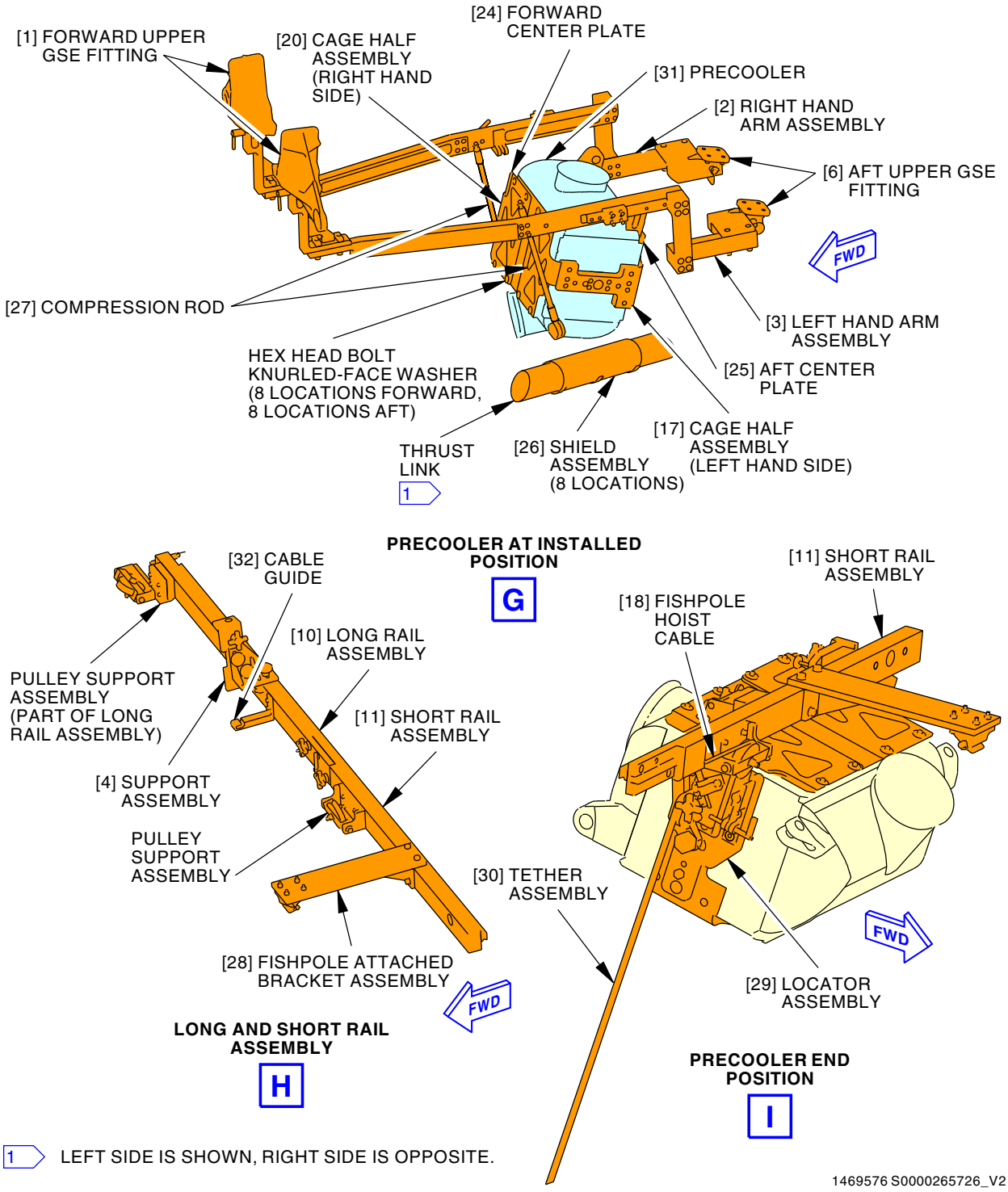
1463315 S0000263889_V2

Precooler Removal/Installation Tool
Figure 403/36-11-15-990-822 (Sheet 1 of 3)



1466724 S0000263943_V2

Precooler Removal/Installation Tool
Figure 403/36-11-15-990-822 (Sheet 2 of 3)



Precooler Removal/Installation Tool
Figure 403/36-11-15-990-822 (Sheet 3 of 3)

TASK 36-11-15-400-819

7. Precooler Installation Using Removal/Installation Tool with the Engine Installed

(Figure 403)

A. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
36-11-09-400-803-002	PRSOV Installation (P/B 401)
36-11-19-400-807-004	Fan Air Supply Pneumatic Duct Installation (P/B 401)
36-12-04-400-805	Strut Duct Installation (P/B 401)
36-12-04-400-806	Wing Leading Edge Duct Installation (P/B 401)
36-12-04-400-807	Crossover Duct Installation (P/B 401)
36-12-04-400-808	APU Supply Duct Installation (P/B 401)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. General

SUBTASK 36-11-15-000-003

(1) This task describes how to install the precooler using the precooler [31] removal/installation tool for GE 90 engines installed on wing.

F. Prepare for Installation

SUBTASK 36-11-15-420-380

(1) Do these steps to install the left [17] and right [20] cage assembly halves on the precooler [31].

(a) Slide left cage assembly half [17] on the outboard side of the precooler [31].

(b) Slide the right cage assembly half [20] on the inboard side of the precooler [31].

SUBTASK 36-11-15-420-382

(2) Do these steps to attach the two center plates to the two cage half assemblies with eight bolts.

(a) Attach the forward center plate [24] to the two cage half assemblies with eight bolts.

NOTE: The forward center plate has a cutout in it to clear the compression rod.

(b) Attach the aft center plate [25] to the two cage half assemblies with eight bolts.

SUBTASK 36-11-15-420-383

(3) Do these steps to attach the clevises of the first and second fish pole hoist [15] to two cage half assemblies.

(a) Attach the fish pole hoist cable [18] to the clevis on the right hand cage bracket assembly [19].

(b) Attach the clevis on the cable of the second fish pole hoist [15] to the shackle on the 'J' bracket 13].

SUBTASK 36-11-15-490-016

(4) Do these steps to raise the precooler [31] to the support assembly [4] with the second fish pole hoist [15].

(a) Slowly wind-up the cable [18] on the second fish pole hoist [15] to raise the precooler [31] from the ground to the support assembly [4].

(b) Lock the cable [18] at the second fish pole hoist [15].

SUBTASK 36-11-15-420-385

(5) Do these steps to rotate the precooler [31] to a position parallel to the long [10] and short [11] rail assemblies with the first fish pole hoist [15].

(a) With the first fish pole hoist, slowly wind-up the cable [18] to rotate the precooler [31] to a position parallel to the long [10] and short [11] rail assemblies.

(b) Lock the cable [18] at the first fish pole hoist [15].

SUBTASK 36-11-15-420-384

(6) Use the tether [30] to guide the precooler [31] as you rotate the it from its vertical position to a position parallel to the long [10] and short [11] rail assemblies.

SUBTASK 36-11-15-490-017

(7) Slide the two female blocks into the two pillow blocks [22] and attach the female blocks with the latch clamps.

SUBTASK 36-11-15-490-018

(8) Do these steps to prepare the first fish pole hoist [15] to raise the precooler [31] along the short [11] and long [10] rail assemblies.

(a) Disconnect the first fish pole hoist cable clevis from the locator assembly [29].

(b) Attach the fish pole hoist cable [18] to the clevis on the right hand cage bracket assembly [19].

(c) Thread the fish pole hoist cable [18] through the first pulley and the cable guide.

SUBTASK 36-11-15-420-386

(9) Do these steps to raise the precooler [31] along the long [10] and short [11] rail assemblies with the first fish pole hoist [15].

(a) Wind-up the cable [18] from the first fish pole hoist [15] to raise the precooler [31] along the long [10] and short [11] rail assemblies.

(b) Lock the cable [18] at the first fish pole hoist [15].

SUBTASK 36-11-15-430-004

(10) Install the safety pin on the long rail assembly [10] to prevent the precooler [31] from accidentally sliding down the long [10] and short [11] rail assemblies.

SUBTASK 36-11-15-490-019

(11) Do these steps to install the long mechanical assembly [23] on the left-hand arm assembly [3] and first cage half assembly [17].

(a) Attach the long mechanical assembly [23] to the left-hand arm assembly [3] with four bolts.

(b) Attach the long mechanical assembly [23] to the left cage half assembly [16] with the one-inch diameter bolt.

SUBTASK 36-11-15-490-020

(12) Do these steps to install the short mechanical assembly [21] on the right-hand arm assembly [2] and right cage half assembly [20].

(a) Attach the short mechanical assembly [21] to the right-hand arm assembly [2] with four bolts.

(b) Attach the short mechanical assembly [21] to the right cage half assembly [20] with the one-inch diameter bolt.

SUBTASK 36-11-15-090-016

(13) Release the latch clamp that attaches the female blocks to the pillow blocks [22].

SUBTASK 36-11-15-090-017

(14) Do these steps to remove the left [16] and right-hand [19] cage bracket assemblies.

(a) Remove the bolts that attach the left [16] and right-hand [19] cage bracket assemblies to the long rail assembly [10].

(b) Remove the L-pin knob that attaches the left [16] and right-hand [19] cage bracket assemblies to the two cage half assemblies.

SUBTASK 36-11-15-420-387

(15) Use the T-handle on the long [23] and short [21] mechanical assemblies to raise and align the precooler [31] to the strut duct and aft attach points.

G. Precooler Installation

SUBTASK 36-11-15-010-051

(1) Remove the cover on the duct opening.

SUBTASK 36-11-15-420-388

(2) Do these steps to install the inboard and outboard compression rods [27] that support the precooler [31].

NOTE: Apply Never-Seez NSBT compound, D00006 to the threads and shank of the bolts before you install them.

(a) Install the bolts, washers, bushings, and nuts at the upper and lower ends of the compression rods [27].

(b) Do not fully tighten the nuts.

(c) Install the countersunk side of the washer against the bolt head.

SUBTASK 36-11-15-211-002

(3) Examine the precooler E-seal to be used for the strut duct connection.

(a) Make sure the E-seal does not have cracks, dents, or other damage.

(b) Replace the E-seal if the E-seal is damaged.

SUBTASK 36-11-15-420-389

(4) Do these steps to install the coupling at the strut.

(a) Make sure the duct flanges make full contact with no gaps around the flanges.

(b) Make sure the duct flanges are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

SUBTASK 36-11-15-820-024

(5) Do these steps to align the coupling properly with the strut duct.

(a) Tighten the coupling to 115 to 125 pound-inches (13.0 to 14.1 Newton-meters).

(b) Use a rubber mallet to lightly tap around each coupling.

NOTE: Lightly tapping around each coupling will help seat the flange and coupling.

(c) Tighten the coupling to 115 to 125 pound-inches (13.0 to 14.1 Newton-meters).

(d) Repeat the above steps until the locking nut on the coupling will require less than half a turn to get the recommended torque.

SUBTASK 36-11-15-430-005

(6) Tighten the nuts at the aft attach point for the precooler [31] to 1000-1200 pound-inches (113.0-135.6 Newton-meters).

SUBTASK 36-11-15-430-006

(7) Tighten the nuts at the upper and lower ends of the inboard and outboard compression rods [27] to 260-425 pound-inches (29.4-48.0 Newton-meters).

SUBTASK 36-11-15-420-390

(8) Install the crossover pneumatic duct. Do this task:

(a) Strut Duct Installation, TASK 36-12-04-400-805 or Wing Leading Edge Duct Installation, TASK 36-12-04-400-806 or Crossover Duct Installation, TASK 36-12-04-400-807 or APU Supply Duct Installation, TASK 36-12-04-400-808

SUBTASK 36-11-15-420-391

(9) Install the flexible boot transition duct. Do this task:

(a) Fan Air Supply Pneumatic Duct Installation, TASK 36-11-19-400-807-004

SUBTASK 36-11-15-420-392

(10) Install the PRSOV. Do this task:

(a) PRSOV Installation, TASK 36-11-09-400-803-002

SUBTASK 36-11-15-420-393

(11) Install the control pressure sense line [38] with the clamp [39], bushing [41], and bolts [40] (Figure 403).

SUBTASK 36-11-15-420-394

(12) To tighten the control pressure sense line, do this task:

(a) Wrench Arc Method, TASK 20-11-10-910-802-001

H. Remove the Precooler Removal/Installation Tool

SUBTASK 36-11-15-090-018

(1) Remove the two fish pole hoists [15] from the precooler removal/installation tool.

SUBTASK 36-11-15-090-019

(2) Remove the upper forward brace [14] and forward brace [7] assemblies.

SUBTASK 36-11-15-090-020

(3) Remove the upper aft brace [12] and aft brace [5] assemblies.

SUBTASK 36-11-15-090-021

(4) Remove the support assembly [4].

SUBTASK 36-11-15-090-022

(5) Remove the short rail assembly [11].

SUBTASK 36-11-15-090-023

(6) Remove the long rail assembly [10].

SUBTASK 36-11-15-090-024

(7) Remove the long [23] and short [21] mechanical assemblies.

SUBTASK 36-11-15-090-025

(8) Remove the forward [24] and aft [25] center plate assemblies .

SUBTASK 36-11-15-090-026

(9) Remove the left [17] and right [20] cage half assemblies.

SUBTASK 36-11-15-090-027

(10) Remove the left [3] and right [2] arm assemblies.

SUBTASK 36-11-15-090-028

(11) Remove the shield assemblies 26].

SUBTASK 36-11-15-420-381

(12) Install the louver assembly to the precooler [31] with the bolt and washer.

I. Precooler Installation Test

SUBTASK 36-11-15-780-003

(1) Pressurize the pneumatic system. Do this task:

(a) Pressurize the Pneumatic System, TASK 36-00-00-860-802

SUBTASK 36-11-15-790-033

(2) Look for leaks at the couplings.

(a) Repair all large air leaks

NOTE: A small amount of air leakage is acceptable.

SUBTASK 36-11-15-780-004

(3) Depressurize the pneumatic system. Do this task:

(a) Depressurize the Pneumatic System, TASK 36-00-00-860-801

J. Put the Airplane Back to Its Usual Condition

WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

SUBTASK 36-11-15-410-005

(1) Do these tasks in sequence to safely close the left and right thrust reversers on the applicable engine.

(a) Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Close these access panels:

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Close these access panels:

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00

——— END OF TASK ———

FAN AIR MODULATING VALVE (FAMV) - REMOVAL/INSTALLATION

1. General

A. This procedure contains two tasks.

(1) The first task is to remove the Fan Air Modulating Valve (FAMV).

(2) The second task is to install the FAMV.

TASK 36-11-16-000-806-004

2. FAMV Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-11-08-000-802-002	HPFAC Removal (P/B 401)
36-11-19-000-807-004	Fan Air Supply Pneumatic Duct Removal (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

D. Prepare for the Removal

SUBTASK 36-11-16-860-034-004

(1) Do these steps for the FAMV on the left engine:

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

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do these tasks in sequence to safely open the left and right thrust reversers:

(c) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(d) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

2) Open the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

3) Open the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-16-860-035-004

(2) Do these steps for the FAMV on the right engine:

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do these tasks in sequence to safely open the left and right thrust reversers:

(c) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(d) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

1) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

2) Open the left and right fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

3) Open the left and right thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. FAMV Removal

SUBTASK 36-11-16-020-067-004

(1) Put the FAMV in the LOCKED CLOSED POSITION. To put the FAMV in the LOCKED CLOSED POSITION do the steps that follow: (Figure 402)

(a) Turn the lock plunger counterclockwise (loosen) until it pops out.

(b) Push in the lock plunger and turn the valve shaft counterclockwise.

(c) Turn the shaft until the plunger pops out at the end of the locking cam.

SUBTASK 36-11-16-020-068-004

(2) Disconnect the FAMV control pressure sense line [7].

SUBTASK 36-11-16-020-069-004

(3) Remove the clamp [10], clamp [11], screws [12] and washers [13] for the electrical connector [14].

SUBTASK 36-11-16-020-070-004

(4) Disconnect the electrical connector [14].

SUBTASK 36-11-16-020-071-004

(5) Remove the transition duct [5], flexible boot [3] and flexible boot flange [6], do this task: Fan Air Supply Pneumatic Duct Removal, TASK 36-11-19-000-807-004.

SUBTASK 36-11-16-020-072-004

(6) Remove the coupling [4] at the aft end of the FAMV [2].

SUBTASK 36-11-16-020-073-004

(7) Remove the coupling [4] at the forward end of the FAMV [2].

SUBTASK 36-11-16-020-074-004

(8) Remove the FAMV [2].

SUBTASK 36-11-16-020-075-004

(9) Remove the nipple [9] and the o-ring [8].

(a) Discard the O-ring [8] and keep the nipple [9] for the installation.

SUBTASK 36-11-16-170-006-004

(10) Do the steps that follow to remove any unwanted material that may be in the control pressure sense line [7]:

(a) Follow the control pressure sense line [7] to the "FAMV" outlet port of the HPFAC and disconnect it. (TASK 36-11-08-000-802-002)

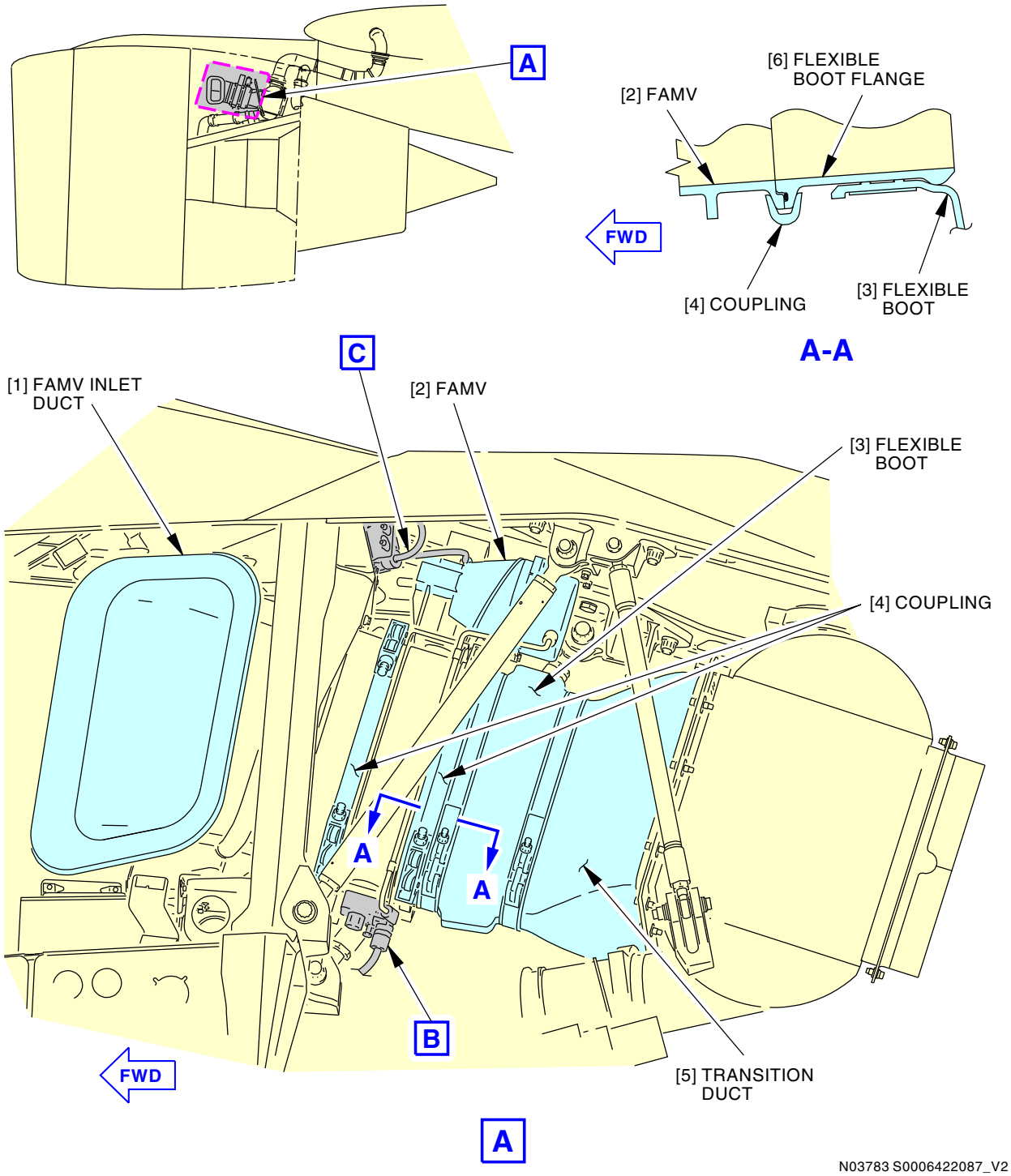
(b) Use clean dry shop air or nitrogen at a minimum of 80 psi for a minimum of 30 seconds to blow into the control pressure sense line [7] to remove any unwanted material.

(c) Reconnect the control pressure sense line [7] at the "FAMV" outlet port of the HPFAC.

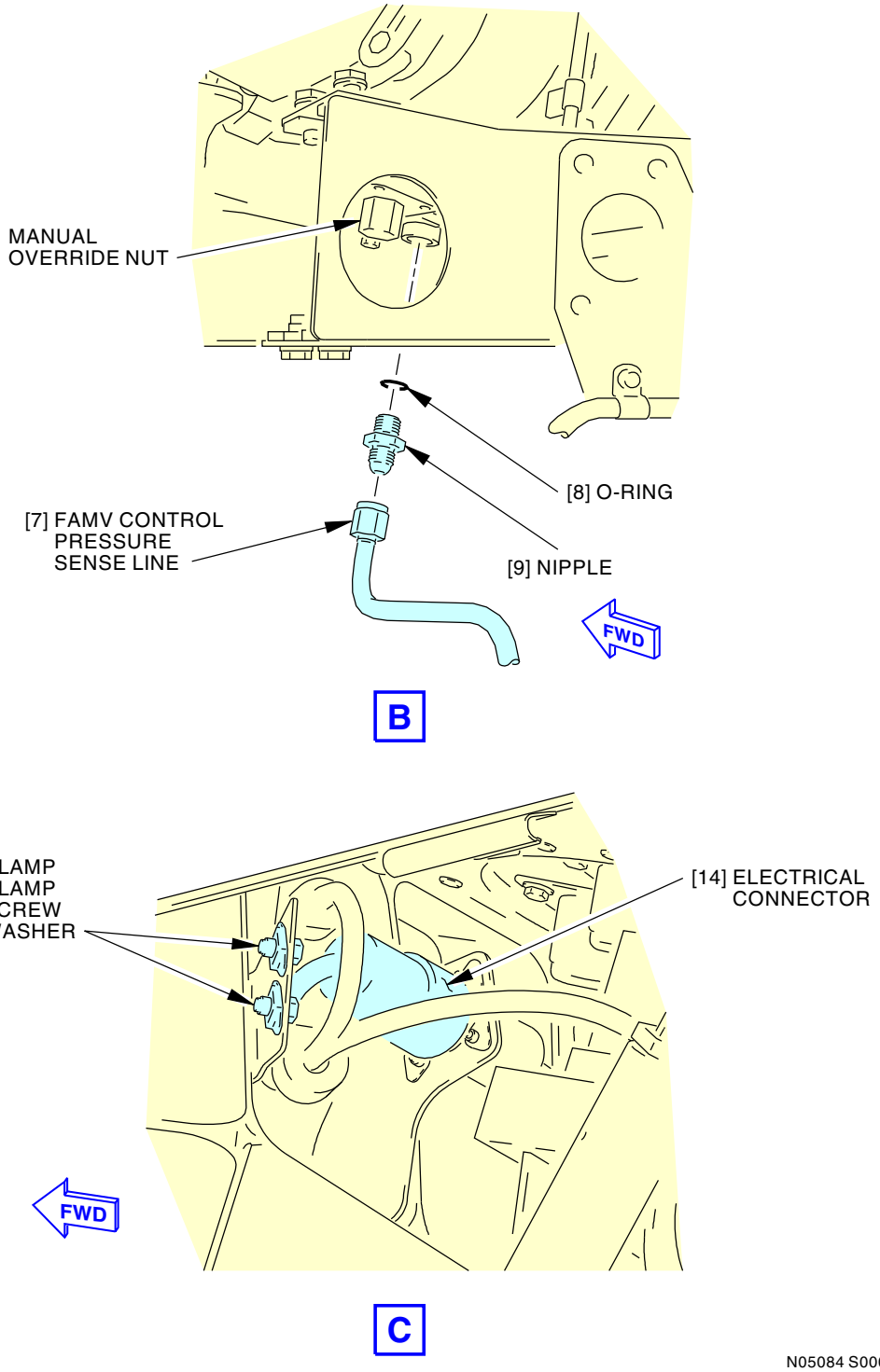
SUBTASK 36-11-16-480-006-004

(11) Put covers on the duct and control pressure sense line openings to keep out unwanted material.

END OF TASK

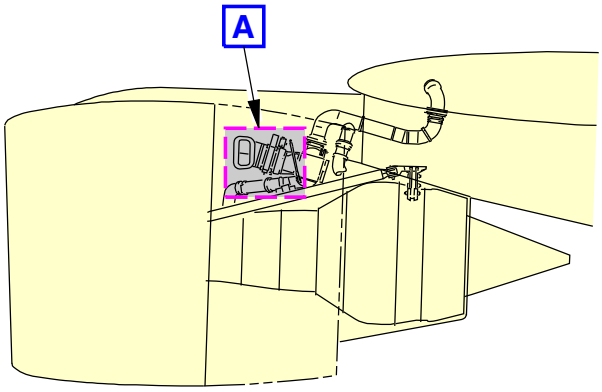


Fan Air Modulating Valve (FAMV) Installation
Figure 401/36-11-16-990-809-004 (Sheet 1 of 2)

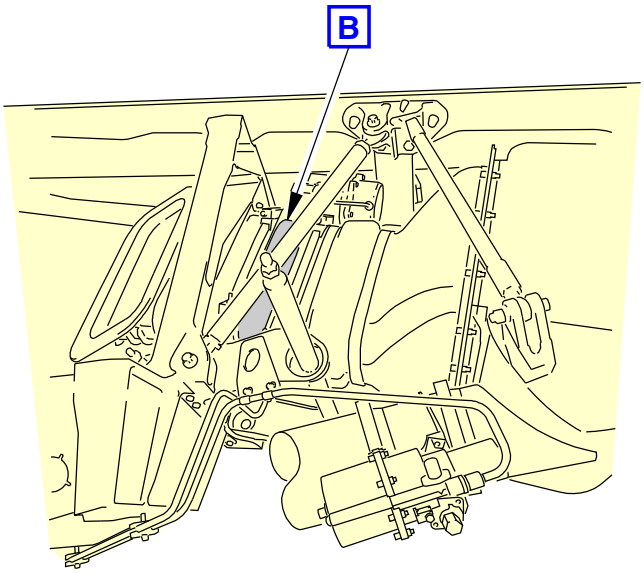


N05084 S0006422088_V2

Fan Air Modulating Valve (FAMV) Installation
Figure 401/36-11-16-990-809-004 (Sheet 2 of 2)

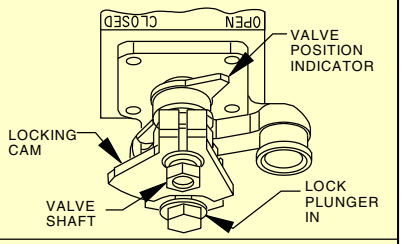


LOCKING INSTRUCTIONS

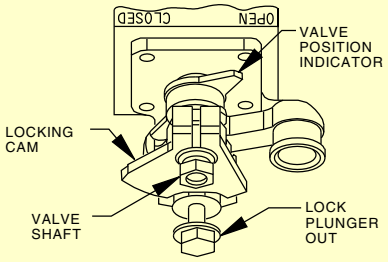


A

NORMAL OPERATING POSITION

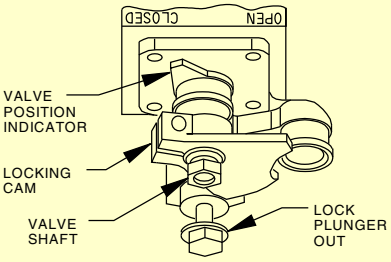


LOCKED OPEN POSITION



TO LOCK OPEN: TURN THE LOCK PLUNGER CCW (LOOSEN) UNTIL IT POPS OUT. TO RETURN TO NORMAL: PUSH IN THE LOCK PLUNGER AND TIGHTEN IT TO 8-10 FT-LB.

LOCKED CLOSED POSITION



VALVE MUST BE LOCKED CLOSED TO REMOVE OR INSTALL. TO LOCK CLOSED: TURN THE LOCK PLUNGER CCW (LOOSEN) UNTIL IT POPS OUT. PUSH IN THE LOCK PLUNGER AND TURN THE VALVE SHAFT CCW. TURN THE SHAFT UNTIL THE PLUNGER POPS OUT AT THE END OF THE LOCKING CAM. TO RETURN TO NORMAL: PUSH IN THE LOCK PLUNGER AND TURN THE VALVE SHAFT CW. TURN THE SHAFT UNIT THE PLUNGER POPS OUT IN THE SLOT IN THE LOCKING CAM. PUSH IN THE LOCK PLUNGER AND TIGHTEN IT TO 8-10 FT-LB.

LOCKING INSTRUCTIONS

B

N05450 S0006422089_V2

Fan Air Modulating Valve (FAMV) Locking Instructions
Figure 402/36-11-16-990-810-004

TASK 36-11-16-400-806-004

3. FAMV Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808

B. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
36-10-00-700-804	Engine Air Supply Test for the PRSOV and FAMV (P/B 501)
36-11-19-400-807-004	Fan Air Supply Pneumatic Duct Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Valve	36-11-16-02-058	ARO ALL
8	Seal	36-11-16-02-051	ARO ALL

E. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

F. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

G. FAMV Installation

SUBTASK 36-11-16-080-006-004

(1) Remove the covers on the duct and control pressure sense line openings.

SUBTASK 36-11-16-640-008-004

(2) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the nipple [9].

NOTE: Do not let the antiseize enter the nipple hole.

SUBTASK 36-11-16-420-081-004

(3) Install the nipple [9] with a new seal [8] (o-ring [8]) in the FAMV [2].

(a) Tighten the nipple [9] to 265-275 pound-inches (30.0-31.0 newton-meters)

SUBTASK 36-11-16-020-076-004

(4) Make sure that the FAMV is in the LOCKED CLOSED POSITION. If the FAMV is not in the LOCKED CLOSED POSITION, do the steps that follow: (Figure 402)

(a) Turn the lock plunger counterclockwise (loosen) until it pops out.

(b) Push in the lock plunger and turn the valve shaft counterclockwise.

(c) Turn the shaft until the plunger pops out at the end of the locking cam.

SUBTASK 36-11-16-420-082-004

(5) Put the FAMV valve [2] into its position.

NOTE: Make sure the flow arrow points in the aft direction.

SUBTASK 36-11-16-420-083-004

(6) Install the coupling [4] on the forward end of the FAMV [2].

NOTE: Only tighten the coupling enough to keep the FAMV in place.

SUBTASK 36-11-16-420-084-004

(7) Install the FAMV control pressure sense line [7].

(a) To tighten the FAMV control pressure sense line [7], do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

SUBTASK 36-11-16-420-085-004

(8) Install the electrical connector [14].

SUBTASK 36-11-16-420-086-004

(9) Install the clamp [10], clamp [11], screws [12] and washers [13].

SUBTASK 36-11-16-020-077-004

(10) Install the transition duct [5], flexible boot [3] and flexible boot flange [6], do this task: Fan Air Supply Pneumatic Duct Installation, TASK 36-11-19-400-807-004.

SUBTASK 36-11-16-420-087-004

(11) Install the coupling [4] on the aft end of the FAMV [2].

SUBTASK 36-11-16-420-088-004

(12) Do these steps to make sure the couplings are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

NOTE: O-rings are not necessary on the flanges of the FAMV to meet the leakage requirements.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

(c) Make sure the length of the exposed threads of the bolts are equal.

(d) Tighten the coupling [4] to 70-80 pound-inches (7.9-9.0 newton-meters).

(e) Hit lightly around each coupling [4] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

(f) Tighten the coupling [4] to 115-125 pound-inches (13.0-14.1 newton-meters).

(g) Make sure the length of the exposed threads of the bolts are equal.

(h) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-11-16-020-078-004

(13) Do the steps that follow to put the FAMV to the usual condition: (Figure 402)

(a) Push in the lock plunger and turn the valve shaft in the clockwise direction.

(b) Turn the shaft until the plunger pops out in the slot in the locking cam.

(c) Push in the lock plunger and tighten it to 8-10 foot-pounds (10.9-13.5 newton-meters).

H. FAMV Installation Test

SUBTASK 36-11-16-860-036-004

(1) Close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI

SUBTASK 36-11-16-860-037-004

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

SUBTASK 36-11-16-740-007-004

(3) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left (Right) FAMV.

1) If there is a maintenance message for the Left (Right) FAMV, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-11-16-710-007-004

(4) To do an operational test of the FAMV, you can do either one of the steps which follow:

(a) Do this task: Engine Air Supply Test for the PRSOV and FAMV, TASK 36-10-00-700-804.

NOTE: For this task you will need to operate the engines.

(b) Do this task: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802.

NOTE: For this task you will need to simulate engine operation with AIMS, and also need a nitrogen source to supply pressure to the HPFAC and PRSOVC.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-16-010-011-004

WARNING

DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the left and right thrust reversers on the applicable engine:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
416AR	Right Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

END OF TASK

DUCT VENT VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the duct vent valve

(2) An installation of the duct vent valve.

TASK 36-11-17-000-804-002

2. Duct Vent Valve Removal

(Figure 401)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

D. Prepare for the Removal

SUBTASK 36-11-17-860-007-002

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-17-010-017-002

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do these tasks in sequence to safely open the right thrust reverser to access the duct vent valve on the left engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) Open the left and right fan cowl panels. To open the fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine

(e) Open the right thrust reverser. To open the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine

SUBTASK 36-11-17-010-018-002

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do these tasks in sequence to safely open the right thrust reverser to access the duct vent valve on the right engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) Open the left and right fan cowl panels. To open the fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(e) Open the right thrust reverser. To open the right thrust reverser, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
426AR	Right Thrust Reverser, Right Engine

E. Duct Vent Valve Removal

SUBTASK 36-11-17-020-006-002

CAUTION USE TWO WRENCHES TO REMOVE THE DUCT VENT VALVE FROM THE BOSS. IF YOU USE ONLY ONE WRENCH TO REMOVE THE DUCT VENT VALVE, YOU CAN CAUSE DAMAGE TO THE DUCT.

(1) Use two wrenches to remove the duct vent valve [1].

NOTE: Use one wrench to hold the boss [3]. Use the other wrench to turn the duct vent valve assy [1].

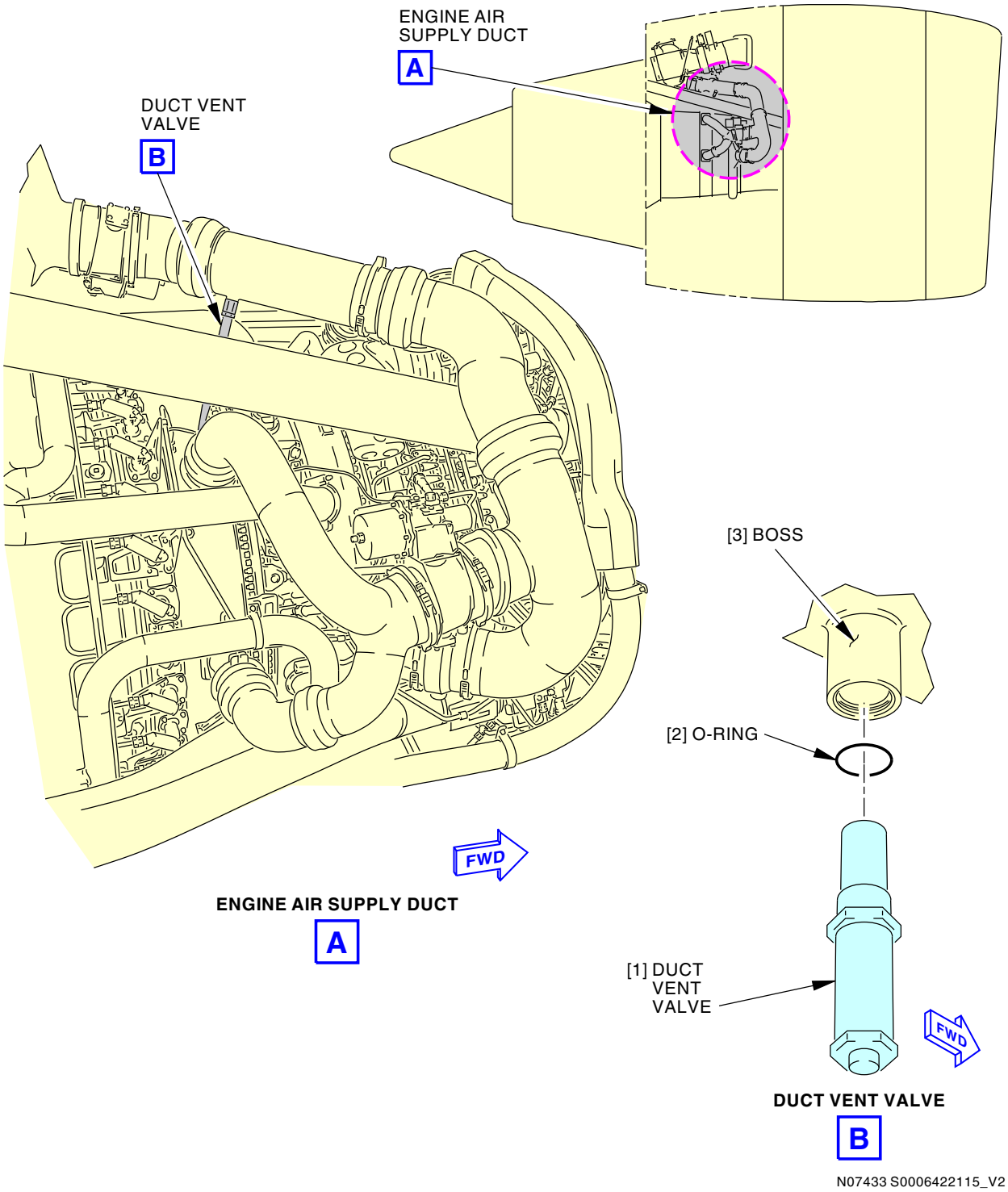
SUBTASK 36-11-17-080-010-002

(2) Remove and discard the o-ring [2] from the duct vent valve [1].

SUBTASK 36-11-17-480-010-002

(3) Put a cover on the hole in the boss to keep out unwanted objects.

——— END OF TASK ———



Duct Vent Valve Installation
Figure 401/36-11-17-990-805-002

TASK 36-11-17-400-805-002

3. Duct Vent Valve Installation

(Figure 401)

A. References

Reference	Title
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
36-00-00-800-801	Pressurization Upstream of the PRSOV (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-00-00-800-836-H00	Dry Motor (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
416AR	Right Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine
426AR	Right Thrust Reverser, Right Engine

E. Duct Vent Valve Installation

SUBTASK 36-11-17-480-011-002

(1) Install a new o-ring [2] on the duct vent valve [1].

SUBTASK 36-11-17-080-011-002

(2) Remove the cover from the boss [3].

SUBTASK 36-11-17-640-004-002

(3) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the duct vent valve assy [1].

SUBTASK 36-11-17-420-011-002

CAUTION

USE TWO WRENCHES TO INSTALL THE DUCT VENT VALVE FROM THE BOSS. IF YOU USE ONLY ONE WRENCH TO INSTALL THE DUCT VENT VALVE, YOU CAN CAUSE DAMAGE TO THE DUCT.

(4) Use two wrenches to install the duct vent valve [1].

NOTE: Use one wrench to hold the boss [3]. Use the other wrench to turn the duct vent valve assy [1].

(a) Tighten the duct vent valve [1] to 525 to 575 pound-inches (59.3 to 64.9 newton-meters).

F. Duct Vent Valve Installation Test

SUBTASK 36-11-17-860-008-002

(1) Do these steps if you will use a ground air source or the APU:

(a) Do this task: Pressurization Upstream of the PRSOV, TASK 36-00-00-800-801.

(b) Apply a leak detector Snoop Leak Detector compound, G00091 where the duct vent valve and the boss touch.

(c) Look for leaks.

(d) Repair all leakage.

(e) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-17-790-004-002

(2) Do these steps if you will use the engine:

(a) Apply a leak detector Snoop Leak Detector compound, G00091 where the duct vent valve and the boss touch.

(b) Do this task: Dry Motor, TASK 71-00-00-800-836-H00.

(c) Look for leaks.

(d) Repair all leakage.

(e) Do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-17-010-019-002

WARNING

DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the thrust reverser on the applicable engine:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
416AR	Right Thrust Reverser, Left Engine
426AR	Right Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
414AR	Right Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
424AR	Right Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

PRESSURE REGULATING AND SHUTOFF VALVE CONTROLLER (PRSOVC) AIR FILTER - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the air filter from the Pressure Regulating and Shutoff Valve Controller (PRSOVC).

(2) An installation of the air filter in the Pressure Regulating and Shutoff Valve Controller (PRSOVC).

(3) A cleaning of the air filter in the Pressure Regulating and Shutoff Valve Controller (PRSOVC).

TASK 36-11-18-000-806-002

2. Air Filter Removal

Figure 201

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

D. Prepare for the Removal

SUBTASK 36-11-18-860-033-002

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-18-860-034-002

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR

SUBTASK 36-11-18-860-035-002

(3) Do the steps that follow to get access to the PRSOVC:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) To open the left fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

E. Air Filter Removal

SUBTASK 36-11-18-020-037-002

WARNING MAKE SURE YOU HAVE OPENED THE HEATER CIRCUIT BREAKERS BEFORE YOU TOUCH THE PRSOVC. THE PRSOVC IS SUFFICIENTLY HOT TO BURN YOU.

(1) Remove the supply pressure sense line [1] from the PRSOVC.

SUBTASK 36-11-18-020-038-002

(2) Remove the air filter [2].

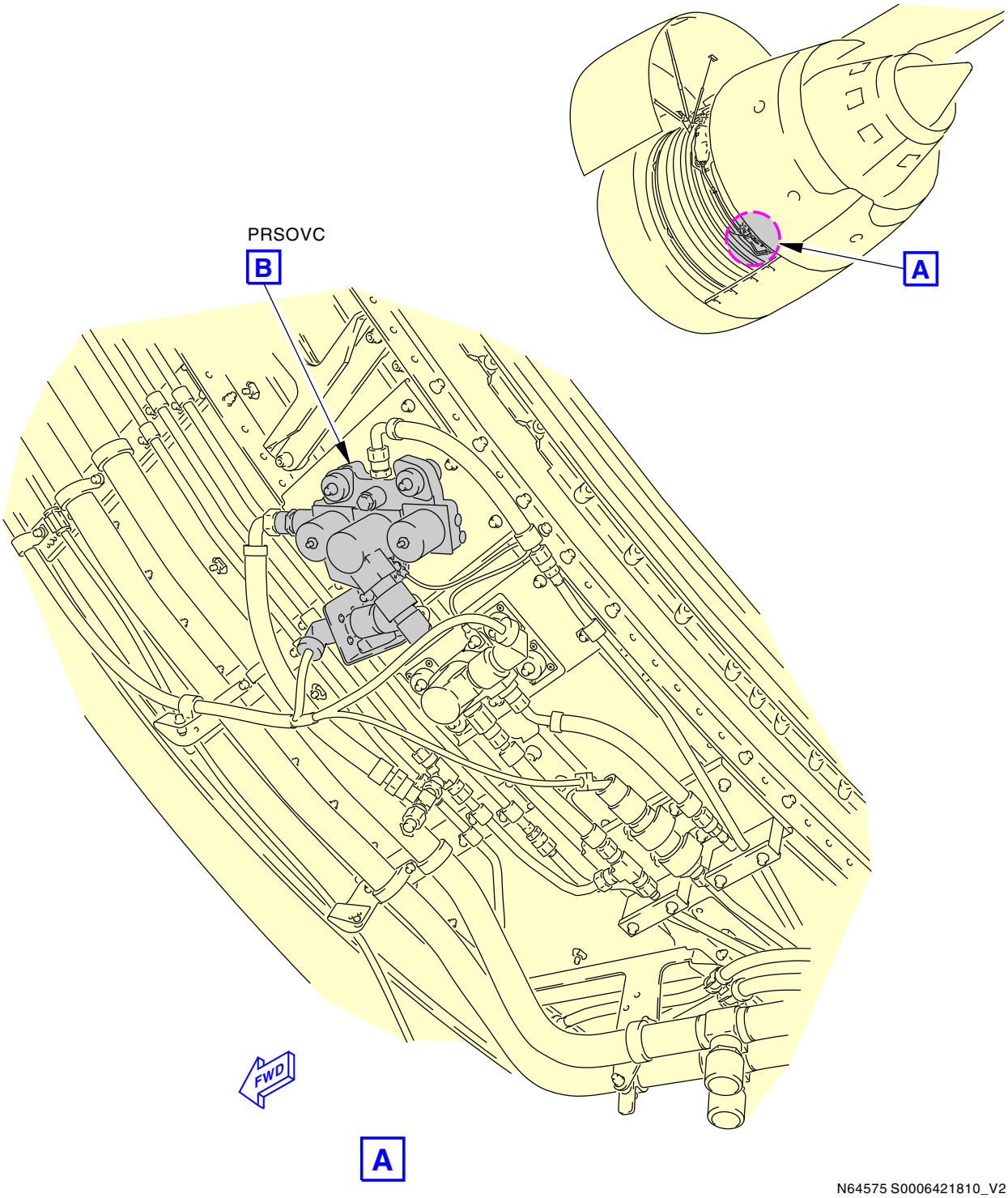
SUBTASK 36-11-18-020-039-002

(3) Remove and discard the o-ring [3].

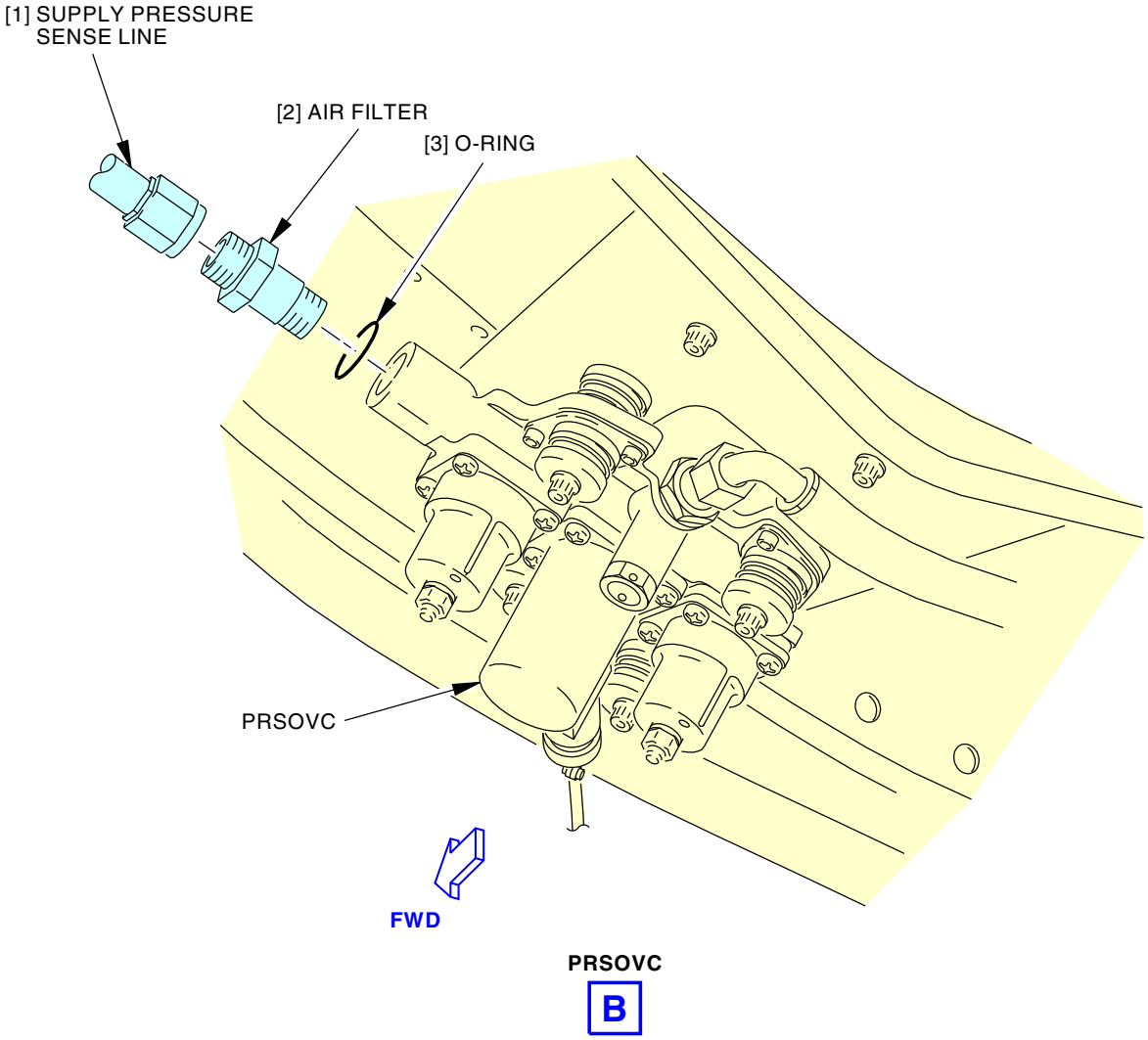
SUBTASK 36-11-18-490-002-002

(4) Put a cover on the sense lines and controller to keep out unwanted material.

——— END OF TASK ———



PRSOVC Air Filter Installation
Figure 201/36-11-18-990-810-002 (Sheet 1 of 2)



N64802 S0006421811_V2

PRSOVC Air Filter Installation
Figure 201/36-11-18-990-810-002 (Sheet 2 of 2)

TASK 36-11-18-400-806-002

3. Air Filter Installation

Figure 201

A. References

Reference	Title
20-10-23-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Air filter	36-11-08-01B-065	ARO ALL
		36-11-18-03-050	ARO 001-011
3	O-ring	36-11-08-01B-070	ARO ALL

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

F. Air Filter Installation

SUBTASK 36-11-18-090-002-002

(1) Remove the covers on the supply pressure sense line [1].

SUBTASK 36-11-18-420-062-002

(2) Install a new o-ring [3] on the air filter [2].

(3) Apply antiseize Never-Seez NSBT compound, D00006 or compound, D00010 to the threads of the air filter [2] that connects to the PRSOVC.

(a) Do not let the antiseize enter the air filter [2] hole.

SUBTASK 36-11-18-420-063-002

(4) Install the air filter [2] in the PRSOVC.

SUBTASK 36-11-18-420-064-002

(5) Tighten the air filter [2] to 145 in-lb (16 N·m) to 155 in-lb (18 N·m).

SUBTASK 36-11-18-420-065-002

(6) To install the lockwire on the air filter [2], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801.

SUBTASK 36-11-18-640-006-002

(7) Apply antiseize Never-Seez NSBT compound, D00006 or compound, D00010 to the threads of the air filter [2] that connects to the supply pressure sense line [1].

(a) Do not let the antiseize enter the air filter [2] hole.

SUBTASK 36-11-18-420-066-002

(8) To install and tighten the sense line [1] with the wrench arc method, do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

(a) Use a wrench on the sense line and the union to tighten the fittings.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-18-940-001-002

(1) To close the left fan cowl panels, do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801

SUBTASK 36-11-18-860-036-002

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR

END OF TASK

TASK 36-11-18-100-802-002

4. Air Filter Cleaning

Figure 201

A. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

B. Prepare for Cleaning the Filter

SUBTASK 36-11-18-020-036-002

(1) To remove the air filter [2] from the PRSOVC, do this task: (Air Filter Removal, TASK 36-11-18-000-806-002).

C. Clean the Filter

SUBTASK 36-11-18-100-001

(1) Clean the air filter air filter [2] off aircraft, per the vendor instructions.

D. Restore the Airplane to its Usual Condition

SUBTASK 36-11-18-420-061-002

(1) To install the air filter [2] in the PRSOVC, do this task: (Air Filter Installation, TASK 36-11-18-400-806-002).

——— END OF TASK ———

PRESSURE REGULATING AND SHUTOFF VALVE CONTROLLER (PRSOVC) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the pressure regulating and shutoff valve controller (PRSOVC).

(2) An installation of the PRSOVC.

TASK 36-11-18-000-802-002

2. PRSOVC Removal

(Figure 401)

A. General

(1) There is one PRSOVC installed on each of the two engines.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-11-09-000-803-002	PRSOV Removal (P/B 401)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

E. Prepare for the Removal

SUBTASK 36-11-18-860-015-002

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-18-860-016-002

(2) Do these steps for the PRSOVC on the left engine:

WARNING

REMOVE POWER FROM THE PRSOVC HEATER. THE PRSOVC IS HOT WHEN IT HAS POWER. IT WILL BURN YOU.

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

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP

SUBTASK 36-11-18-860-017-002

(3) Do these steps for the PRSOVC on the right engine:

WARNING

REMOVE POWER FROM THE PRSOVC HEATER. THE PRSOVC IS HOT WHEN IT HAS POWER. IT WILL BURN YOU.

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

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP

SUBTASK 36-11-18-010-003

(4) For the left fan cowl panel on the applicable engine, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

F. PRSOVC Removal

SUBTASK 36-11-18-020-014-002

WARNING

DO NOT TOUCH THE PRSOVC UNTIL IT BECOMES COOL. IF YOU TOUCH THE PRSOVC WHILE IT IS HOT, IT WILL BURN YOU.

(1) Disconnect the electrical connector [4].

SUBTASK 36-11-18-020-015-002

(2) Do the steps that follow to disconnect the bonding jumper [5] from the PRSOVC [3].

(a) Remove the nut [9], bolt [10] and washers [8].

(b) Move the bonding jumper [5] away from the PRSOVC [3].

SUBTASK 36-11-18-020-016-002

(3) Disconnect the supply pressure sense line [1] from the PRSOVC.

SUBTASK 36-11-18-020-017-002

(4) Disconnect the PRSOV control pressure sense line [2] from the PRSOVC.

SUBTASK 36-11-18-020-018-002

(5) Remove the bolts [6], at three locations.

SUBTASK 36-11-18-020-019-002

(6) Remove the PRSOV controller [3].

SUBTASK 36-11-18-170-002-002

(7) Do the steps that follow to remove any unwanted material that may be in the control pressure sense line [2]:

(a) Disconnect the control pressure sense line [2] at the inlet port of the PRSOV. (TASK 36-11-09-000-803-002)

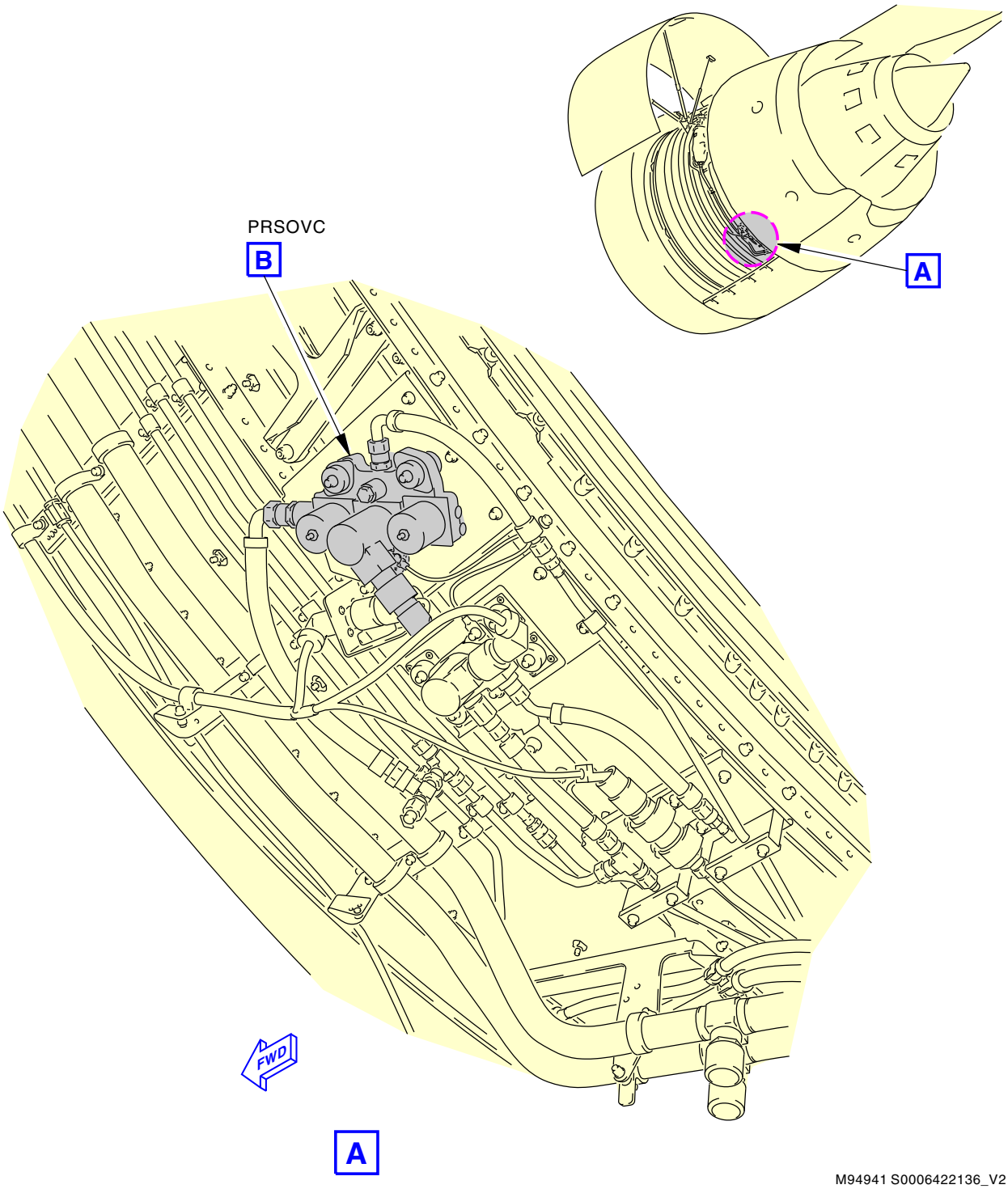
(b) Use clean dry shop air or nitrogen at a minimum of 80 psi for a minimum of 30 seconds to blow into this control pressure sense line [2] to remove unwanted material, if any.

(c) Reconnect the control pressure sense line [2] at the inlet port of the PRSOV.

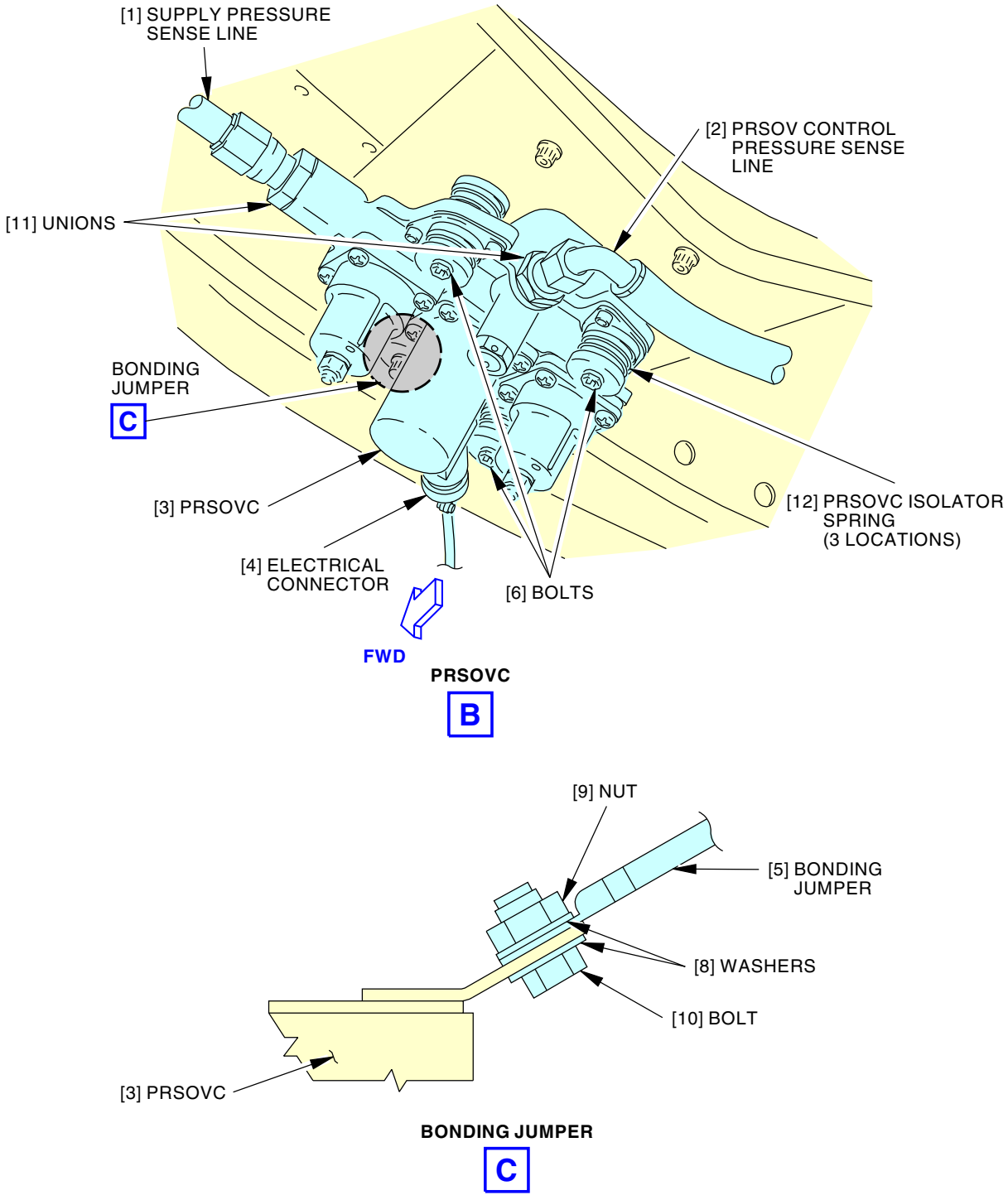
SUBTASK 36-11-18-420-023-002

(8) Put a cover on the sense lines and electrical connector to keep out unwanted material.

——— END OF TASK ———



PRSOVC Installation
Figure 401/36-11-18-990-803-002 (Sheet 1 of 2)



PRSOVC Installation
Figure 401/36-11-18-990-803-002 (Sheet 2 of 2)

TASK 36-11-18-400-802-002

3. PRSOVC Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-11-10-910-802-001	Wrench Arc Method (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-10-00-700-801	Engine Air Supply Operational Test (P/B 501)
36-10-00-700-802	Engine Air Supply Valves Operational Test (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
SWPM 20-20-00	Standard Wiring Practices Manual

C. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008

E. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

F. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

G. PRSOVC Installation

SUBTASK 36-11-18-080-002-002

(1) Remove the covers.

SUBTASK 36-11-18-420-024-002

(2) Put the PRSOV controller [3] into its position.

SUBTASK 36-11-18-420-025-002

(3) Loosely install the bolts [6], at three locations.

SUBTASK 36-11-18-640-002-002

(4) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the unions [11].

NOTE: Do not let the antiseize enter the fitting hole.

SUBTASK 36-11-18-420-026-002

(5) Loosely install the PRSOV control pressure sense line [2].

SUBTASK 36-11-18-420-027-002

(6) Loosely install the supply pressure sense line [1].

SUBTASK 36-11-18-420-028-002

(7) Make sure the PRSOVC isolator springs [12] are in the center position and are not preloaded by the flexible sense lines.

NOTE: Adjust the hard sense lines if it is necessary.

SUBTASK 36-11-18-430-001

(8) Do the steps that follow to attach the bonding jumper [5] to the PRSOV controller [3]:

(a) Make sure the surfaces that the bonding jumper [5] touch are clean.

(b) Attach the bonding jumper [5] to the PRSOV controller [3] with the screw [10], washers [8] and nut [9], (SWPM 20-20-00).

NOTE: The terminal of the bonding jumper that connects to the PRSOVC has a blue marker near it.

(c) Use an intrinsically safe approved bonding meter, COM-1550 to make sure the resistance between the ground tab of the PRSOVC and the airplane structure is less than 0.008 ohm.

SUBTASK 36-11-18-420-030-002

(9) Tighten the bolts [6], at three locations.

SUBTASK 36-11-18-420-031-002

(10) To tighten the sense lines [1], [2] with the wrench arc method, do this task: Wrench Arc Method, TASK 20-11-10-910-802-001.

NOTE: Use a wrench on the sense line and the union.

SUBTASK 36-11-18-210-002-002

(11) Make sure the electrical connector [4] is clean and there are no bent pins or other damage.

SUBTASK 36-11-18-420-032-002

(12) Install the electrical connector [4].

H. PRSOVC Installation Test

SUBTASK 36-11-18-860-018-002

(1) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
M	16	C36617	AIR SPLY L HTR

Right Power Management Panel, P210

Row	Col	Number	Name
N	11	C36618	AIR SPLY R HTR
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP

SUBTASK 36-11-18-860-019-002

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

SUBTASK 36-11-18-740-002-002

(3) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left(Right) PRSOVC.

1) If there is a maintenance message for the Left(Right PRSOVC, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-11-18-710-002-002

(4) To do an operational test of the PRSOVC, you can do either one of the steps which follow:

(a) Do this task: Engine Air Supply Operational Test, TASK 36-10-00-700-801.

NOTE: For this task you will need to operate the engines.

(b) Do this task: Engine Air Supply Valves Operational Test, TASK 36-10-00-700-802.

NOTE: For this task you will need to simulate engine operation with AIMS, and also will need a nitrogen source to supply pressure to the HPFAC and PRSOVC.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-18-410-006-002

(1) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

——— END OF TASK ———

FAN AIR SUPPLY PNEUMATIC DUCT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Fan Air Supply Pneumatic Duct.

(2) An installation of the Fan Air Supply Pneumatic Duct.

TASK 36-11-19-000-807-004

2. Fan Air Supply Pneumatic Duct Removal

(Figure 401)

A. General

(1) This task removes these duct sections:

(a) FAMV Inlet Duct

(b) Flexible Boot Flange

(c) Flexible Boot

(d) Transition Duct

(e) Louver

B. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-12-02-000-804-H00	Thrust Reverser Cowl Opening Actuators Removal (P/B 401)
78-31-00-010-816-H00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-806-H00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine

E. Prepare for the Removal

SUBTASK 36-11-19-010-019-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely open the left thrust reverser on the applicable engine:

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-806-H00.

(d) For the left fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(e) For the left thrust reversers, do this task:

Open the Thrust Reverser (Selection), TASK 78-31-00-010-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine

F. FAMV Inlet Duct Removal

SUBTASK 36-11-19-020-089-004

(1) Remove the coupling [19] that attaches the FAMV to the FAMV inlet duct assembly [1].

SUBTASK 36-11-19-020-090-004

(2) Remove the bolt [25], washer [26], washer [27] and nut [28] that attach the FAMV inlet duct assembly [1] to the support bracket.

SUBTASK 36-11-19-020-091-004

(3) Remove the FAMV inlet duct assembly [1].

(a) If it is necessary to move the thrust reverser actuator, do the applicable steps in (TASK 71-12-02-000-804-H00) to disconnect the lower end of the actuator.

G. Flexible Boot Flange Removal

SUBTASK 36-11-19-020-092-004

(1) Remove the clamp [2] that attaches the flexible boot [18] to the flexible boot flange [3].

SUBTASK 36-11-19-020-093-004

(2) Remove the coupling [19] that attaches the FAMV to the flexible boot flange [3].

SUBTASK 36-11-19-020-094-004

(3) Remove the flexible boot flange [3].

H. Flexible Boot Removal

SUBTASK 36-11-19-020-095-004

(1) Remove the clamp [17] which attaches the flexible boot [18] to the transition duct [16].

SUBTASK 36-11-19-020-096-004

(2) Remove the flexible boot [18].

I. Transition Duct Removal

SUBTASK 36-11-19-020-097-004

(1) Do the steps that follow to remove the precooler support link [9]:

(a) Remove the bolt [11], washer [12], washer [14], bushing [13] and nut [15] that attach the precooler support link [9] to the precooler.

(b) Remove the bolt [4], washer [5], washer [7], bushing [6] and nut [8] that attach the precooler support link [9] to the strut.

(c) Remove the precooler support link [9].

SUBTASK 36-11-19-020-098-004

(2) Remove the clamp [17] that attaches the flexible boot [18] to the transition duct assembly [16].

SUBTASK 36-11-19-020-099-004

(3) Remove the bolt [22] and washer [21], at 14 locations, that attach the transition duct assembly [16] to the precooler.

SUBTASK 36-11-19-020-100-004

(4) Remove the transition duct assembly [16] and the seal [20].

J. Louver Removal

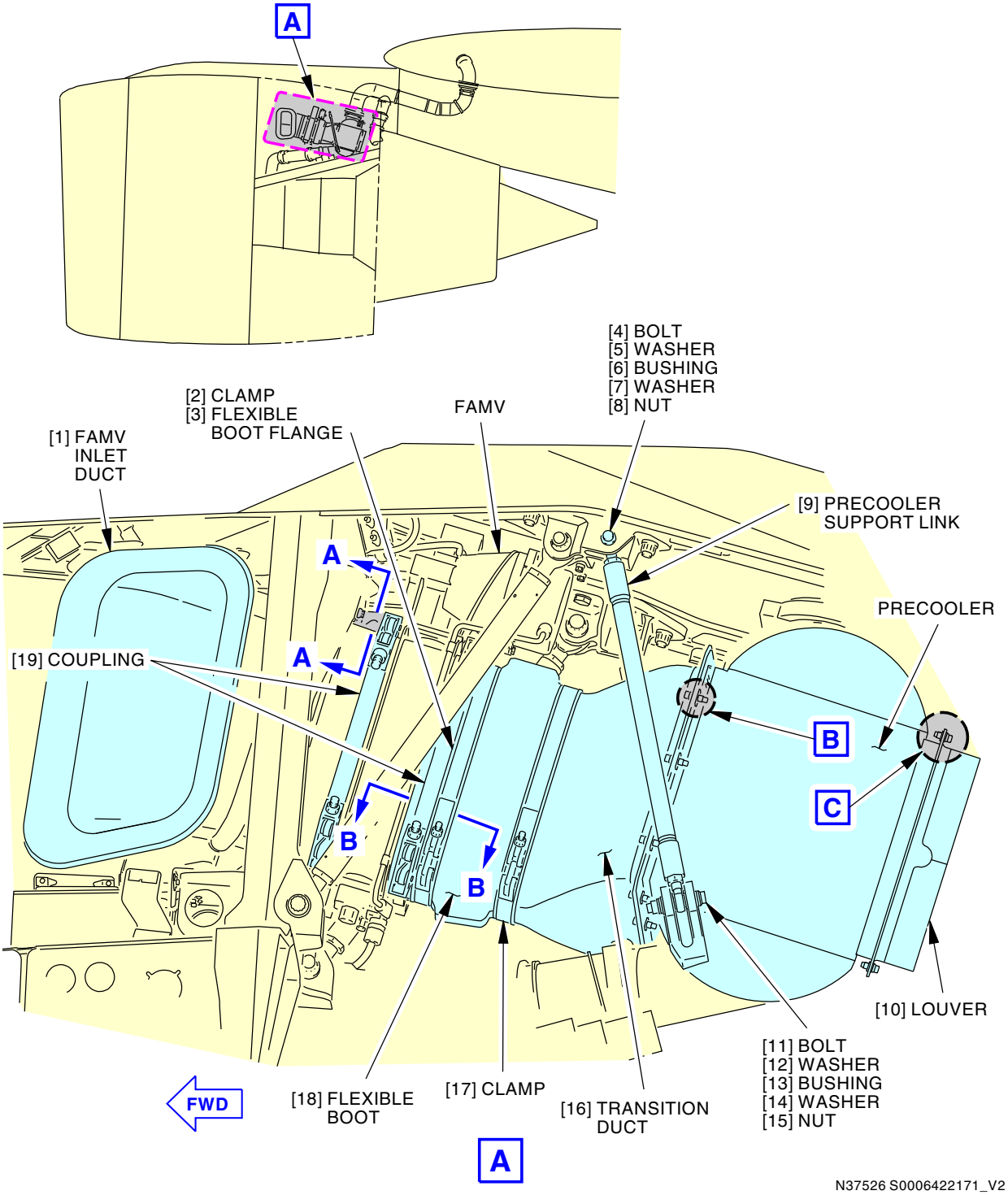
SUBTASK 36-11-19-020-101-004

(1) Remove the bolt [24] and washer [23], at 8 locations, that attach the louver assembly [10] to the precooler.

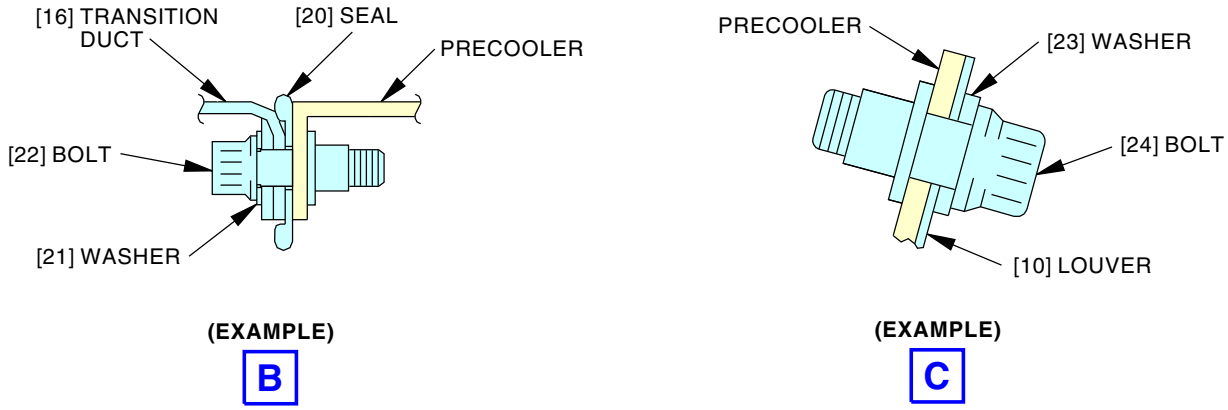
SUBTASK 36-11-19-020-102-004

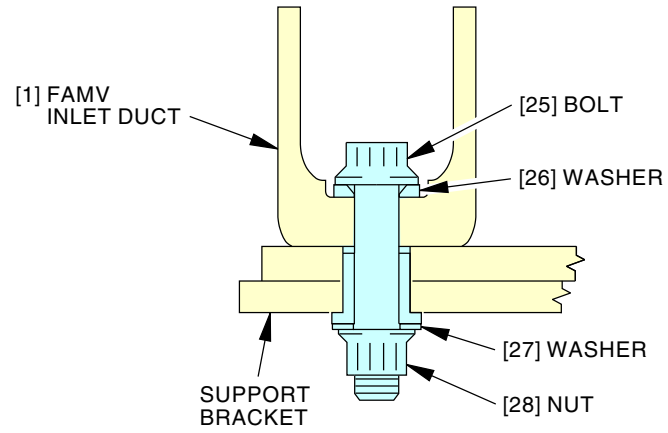
(2) Remove the louver assembly [10].

——— END OF TASK ———

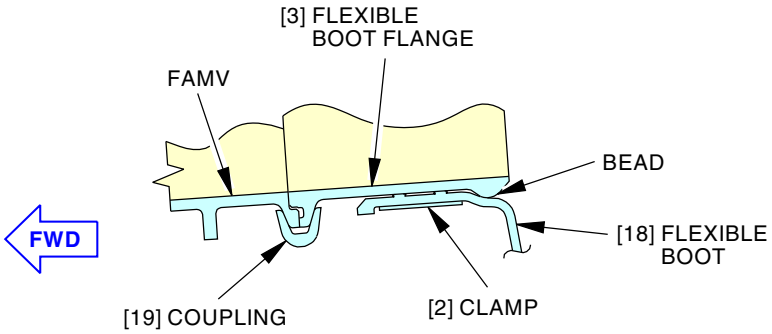


Fan Air Supply Duct Installation
Figure 401/36-11-19-990-807-004 (Sheet 1 of 2)





A-A



B-B

N37556 S0006422172_V2

Fan Air Supply Duct Installation
Figure 401/36-11-19-990-807-004 (Sheet 2 of 2)

TASK 36-11-19-400-807-004

3. Fan Air Supply Pneumatic Duct Installation

(Figure 401)

A. General

(1) This task installs these duct sections:

(a) FAMV Inlet Duct

(b) Flexible Boot Flange

(c) Flexible Boot

(d) Transition Duct

(e) Louver

B. References

Reference	Title
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)
71-12-02-400-804-H00	Thrust Reverser Cowl Opening Actuators Installation (P/B 401)
78-31-00-410-816-H00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-805-H00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
415AL	Left Thrust Reverser, Left Engine
423AL	Left Fan Cowl Panel, Right Engine
425AL	Left Thrust Reverser, Right Engine

F. FAMV Inlet Duct Installation

SUBTASK 36-11-19-640-017-004

(1) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the bolts [25].

SUBTASK 36-11-19-420-152-004

(2) Put the FAMV inlet duct assembly [1] into position.

SUBTASK 36-11-19-420-153-004

(3) Loosely install the bolt [25], washer [26], washer [27] and nut [28], at 4 locations, that attach the FAMV inlet duct [1] to the support bracket.

NOTE: Install the countersunk side of the washer [26) against the bolthead.

SUBTASK 36-11-19-420-154-004

(4) Install the coupling [19] that attaches the FAMV to the FAMV inlet duct assembly [1].

SUBTASK 36-11-19-420-155-004

(5) Loosen the coupling [19] that attaches the FAMV to the flexible boot flange [3].

SUBTASK 36-11-19-420-156-004

(6) Do these steps to make sure the couplings [19] are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

(c) Tighten the coupling [19] to 70-80 pound-inches (8.0-9.0 newton-meters).

1) Hit lightly around each coupling [19] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Tighten the coupling [19] to 115-125 pound-inches (13.0-14.1 newton-meters).

3) Make sure you tighten the nuts on the coupling [19] so that the length of the threaded ends of the bolts are equal.

NOTE: This will make sure you tighten each coupling equally.

4) Repeat the above steps until the locking nuts on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-11-19-420-157-004

(7) Tighten the bolts [25] and nuts [28].

SUBTASK 36-11-19-420-158-004

(8) If it is necessary, do the applicable steps in (TASK 71-12-02-400-804-H00) to connect the lower end of the actuator.

G. Flexible Boot Flange Installation

SUBTASK 36-11-19-420-159-004

(1) Put the flexible boot flange [3] into position.

SUBTASK 36-11-19-420-160-004

(2) Install the clamp [2] that attaches the flexible boot [18] to the flexible boot flange [3].

NOTE: Make sure the clamp [2] is installed between the end of the flexible boot and the bead of flexible boot flange. Do not install the clamp [2] on the top of the bead.

SUBTASK 36-11-19-420-161-004

(3) Install the coupling [19] that attaches the FAMV to the flexible boot flange [3].

SUBTASK 36-11-19-420-162-004

(4) Loosen the coupling [19] that attaches the FAMV to the FAMV inlet duct assembly [1].

SUBTASK 36-11-19-420-163-004

(5) Do these steps to make sure the couplings [19] are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

(c) Tighten the coupling [19] to 70-80 pound-inches (8.0-9.0 newton-meters).

1) Hit lightly around each coupling [19] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Tighten the coupling [19] to 115-125 pound-inches (13.0-14.1 newton-meters).

3) Repeat the above steps until the locking nut on the coupling [19] requires less than a half turn to get the recommended torque.

4) Make sure you tighten the nuts on the coupling [19] so that the length of the threaded ends of the bolts are equal.

NOTE: This will make sure you tighten each coupling equally.

SUBTASK 36-11-19-420-164-004

(6) Tighten the clamp [2] to 45-50 pound-inches (5.1-5.6 newton-meters).

H. Flexible Boot Installation

SUBTASK 36-11-19-420-165-004

(1) Put the flexible boot [18] in its position.

SUBTASK 36-11-19-420-166-004

(2) Install the clamp [2] that attaches the flexible boot [18] to the flexible boot flange [3].

NOTE: Make sure the clamp [2] is installed between the end of the flexible boot and the bead of transition duct or flexible boot flange. Do not install the clamp [2] on the top of the bead.

SUBTASK 36-11-19-420-167-004

(3) Install the clamp [17] on the aft end of the flexible boot [18].

SUBTASK 36-11-19-420-168-004

(4) Tighten the clamps [2][17] to 45-50 pound-inches (5.1-5.6 newton-meters).

I. Transition Duct Installation

SUBTASK 36-11-19-640-018-004

(1) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the bolt [4], bolt [11], bolt [22].

SUBTASK 36-11-19-210-009-004

(2) Examine the seal [20].

(a) Make sure the seal [20] does not have cracks, gouges or other damage.

(b) Replace a damaged seal [20].

SUBTASK 36-11-19-420-169-004

(3) Put the transition duct assembly [16] and seal [20] into position.

SUBTASK 36-11-19-420-170-004

(4) Install the bolt [22] and washer [21] that attach the transition duct assembly [16] to the precooler.

NOTE: Do not tighten the bolt [22].

SUBTASK 36-11-19-420-171-004

(5) Install the clamp [17] that attaches the flexible boot [18] to the transition duct assembly [16].

SUBTASK 36-11-19-420-172-004

(6) Tighten the clamp [17] to 45-50 pound-inches (5.1-5.6 newton-meters).

SUBTASK 36-11-19-420-173-004

(7) Tighten the bolt [22] to 50-60 pound-inches (5.7-6.7 newton-meters).

SUBTASK 36-11-19-020-103-004

(8) Do the steps that follow to install the precooler support link [9]:

(a) Put the precooler support link [9] into its position.

(b) Install the bolt [4], washer [5], washer [7], bushing [6] and nut [8] that attach the precooler support link [9] to the strut.

(c) Install the bolt [11], washer [12], washer [14], bushing [13] and nut [15] that attach the precooler support link [9] to the precooler.

J. Louver Installation

SUBTASK 36-11-19-640-019-004

(1) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the bolt [24].

SUBTASK 36-11-19-420-174-004

(2) Put the louver assembly [10] into its position.

SUBTASK 36-11-19-420-175-004

(3) Install the bolt [24] and washer [23].

SUBTASK 36-11-19-420-176-004

(4) Tighten the bolt [24] to 50-60 pound-inches (5.7-6.7 newton-meters).

K. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-19-010-020-004

WARNING DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the left thrust reverser on the applicable engine:

(a) Do this task:

Close the Thrust Reverser (Selection), TASK 78-31-00-410-816-H00

Number	Name/Location
415AL	Left Thrust Reverser, Left Engine
425AL	Left Thrust Reverser, Right Engine

(b) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-805-H00.

(d) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

END OF TASK

FAN AIR SUPPLY PNEUMATIC DUCT - INSPECTION/CHECK

TASK 36-11-19-200-801

1. Fan Air Supply Pneumatic Duct Inspection

A. General

(1) The fan air supply pneumatic duct is made of titanium alloy.

B. References

Reference	Title
36-12-04-200-801	Air Supply Duct Inspection (P/B 601)

C. Fan Air Supply Pneumatic Duct Inspection

SUBTASK 36-11-19-210-001

(1) Do this task: Air Supply Duct Inspection, TASK 36-12-04-200-801.

——— END OF TASK ———

FAN AIR SUPPLY PNEUMATIC DUCT - CLEANING/PAINTING

TASK 36-11-19-100-801

1. Fan Air Supply Pneumatic Duct Cleaning

A. General

(1) The fan air supply pneumatic duct is made of titanium alloy.

B. References

Reference	Title
36-12-04-100-801	Air Supply Duct Cleaning (P/B 701)

C. Fan Air Supply Pneumatic Duct Inspection

SUBTASK 36-11-19-160-005

(1) Do this task: Air Supply Duct Cleaning, TASK 36-12-04-100-801.

——— END OF TASK ———

TASK 36-11-19-300-801

1. Fan Air Supply Pneumatic Duct Temporary Repair

A. References

Reference	Title
36-11-01-200-802	Pneumatic Duct Repair (P/B 801)

B. Procedure

SUBTASK 36-11-19-350-001

(1) To temporarily repair the fan air supply pneumatic duct, do this task: Pneumatic Duct Repair, TASK 36-11-01-200-802.

NOTE: Only do the applicable steps in this task.

——— END OF TASK ———

AIR SUPPLY CABIN PRESSURE CONTROLLER - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A check of the Air Supply and Cabin Pressure Controller (ASCPC) software configuration.

(2) An installation of the Air Supply and Cabin Pressure Controller (ASCPC) software.

TASK 36-11-20-400-804

2. Air Supply Cabin Pressure Controller (ASCPC) Software Configuration Check

A. General

(1) The configuration check makes sure that the left or right Air Supply Cabin Pressure Controller (ASCPC) has the correct software installed in the ASCPC.

(2) The configuration check will show a failure if the operational program software (OPS) is not installed.

(3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Configuration Check

SUBTASK 36-11-20-860-008

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

SUBTASK 36-11-20-750-002

(2) Use a maintenance access terminal (MAT) to do a software configuration check of the left or right Air Supply Cabin Pressure Controller (ASCPC):

NOTE: Make sure you know the correct software part numbers for the left or right ASCPC when you look at the software part numbers on the display. For the left or right ASCPC to be an approved installation, the correct software part numbers must be installed.

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE

2) LINE MAINTENANCE

3) SYSTEM CONFIGURATION

4) 36 Air Supply & Cabin Pressure Controller

5) CONTINUE

(b) Find ASCPC (left), ASCPC (right) on the display and make sure that the software part number is correct.

NOTE: The configuration check will show a failure if the operational program software (OPS) is not installed.

NOTE: The 1152972-5 ASCPC will display hardware part number 1152972-4 on the MAT. This is an acceptable condition that affects only the part number display on the MAT. It does not affect the ASCPC operation. The physical label on the ASCPC is marked correctly with the 1152972-5 part number.

(c) Select GO BACK to remove the configuration display.

(d) If the part numbers are incorrect, do this task: Air Supply Cabin Pressure Controller (ASCPC) Software Installation, TASK 36-11-20-400-803.

——— END OF TASK ———

TASK 36-11-20-400-803

3. Air Supply Cabin Pressure Controller (ASCPC) Software Installation

A. General

(1) This procedure tells you how to install software in the Air Supply Cabin Pressure Controller (ASCPC). If you have problems with the software installation, refer to this task for further instructions, do this task: How to Install Software, TASK 45-10-00-420-801.

The ASCPC must contain this software:

(a) ASCPC Operational Program Software (OPS).

REF: AIPC 46-00-00-36B

(2) A Maintenance Access Terminal (MAT) is necessary for this procedure. For instructions on how to use a MAT, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

(3) If you do not know if the ASCPC needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Air Supply Cabin Pressure Controller (ASCPC) Software Configuration Check, TASK 36-11-20-400-804.

(4) You can use the Ground Support Equipment (GSE)-Laptop, maintenance device, SPL-5704, as an alternative to the Portable Maintenance Access Terminal (PMAT) in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

(5) You can install the software from disks, the MAT hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the ASCPC, the load process first erases the old software and then installs the new software. If you install software directly to the ASCPC from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the ASCPC.

(a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.

ARO 014-999

(6) You can also install the software from the Onboard Network System (ONS) Mass Storage Device (MSD). To install new software on the ONS MSD, do this task: Mass Storage Device Software Part Installation, TASK 46-13-00-470-802.

(a) It is recommended that you remove old software part numbers from the ONS MSD after new software is installed. To remove software from the ONS MSD, do this task: Mass Storage Device Software Removal, TASK 46-13-00-070-801.

ARO ALL

(7) The airplane must be on the ground with the Auxiliary Power Unit (APU), engines and ground air source off before you install software in the ASCPC.

(8) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
45-10-00-420-801	How to Install Software (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (P/B 201)
46-13-00-070-801	Mass Storage Device Software Removal (P/B 201)
46-13-00-470-802	Mass Storage Device Software Part Installation (P/B 201)
AIPC 46-00-00-36B	Aircraft Illustrated Parts Catalog

C. Tools/Equipment

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

Reference	Description
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. ASCPC Software Installation

SUBTASK 36-11-20-860-005

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

SUBTASK 36-11-20-860-007

(2) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

NOTE: The APU, engines and ground air source must be off and the manifold duct pressure indication must read 0 psi before you install software in the ASCPC.

SUBTASK 36-11-20-860-006

(3) Make sure the Air Data Inertial Reference Unit (ADIRU) switch on the overhead panel, P5, is ON.

SUBTASK 36-11-20-420-003

(4) Use a MAT to install software in the ASCPC:

NOTE: Make sure you know the correct software part number for the ASCPC before you select the software part number on the display. For the ASCPC to be an approved installation, the correct software must be installed.

(a) If the software is on a disk, put the correct disk in the disk drive.

(b) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) EXTENDED MAINTENANCE
3) DATA LOAD

(c) Make these selections to select the component that will receive the software:

1) SELECT DESTINATION
2) 36 Air Supply Control System
3) Air Supply Cabin Pressure Controller (L or R).
4) CONTINUE.

(d) Make these selections to select the source of the software:

1) SELECT SOURCE
2) Select the source of the software (if Disk Drive is the only selection, it is automatically selected).
3) Select the correct software part number from the display.
4) CONTINUE.

(e) Select START to start the software installation.

NOTE: You may get the "Load Incompatible Message" during the loading of the first ASCPC. If you have chosen the correct load part number, select OVERRIDE to continue with the software load.

(f) When the software installation is completed, make sure the correct software part number shows on the display.

NOTE: The 1152972-5 ASCPC will display hardware part number 1152972-4 on the MAT. This is an acceptable condition that affects only the part number display on the MAT. It does not affect the ASCPC operation. The physical label on the ASCPC is marked correctly with the 1152972-5 part number.

(g) Select CONTINUE to remove the configuration display.

——— END OF TASK ———

AIR SUPPLY AND CABIN PRESSURE CONTROLLER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Air Supply and Cabin Pressure Controller (ASCPC).

(2) An installation of the ASCPC.

TASK 36-11-20-000-801

2. ASCPC Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-10-01-000-801	E/E Box Removal (P/B 401)
20-41-01-000-802	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Prepare for the Removal

SUBTASK 36-11-20-860-001

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-11-20-010-001

(2) Open this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

E. ASCPC Removal

SUBTASK 36-11-20-910-001

CAUTION: DO NOT TOUCH THE ASCPC BEFORE YOU DO THE PROCEDURE FOR THE DEVICES THAT ARE SENSITIVE TO AN ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ASCPC.

(1) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-41-01-000-802.

SUBTASK 36-11-20-420-001

(2) To remove the ASCPC controller [1] from the shelf, do this task: E/E Box Removal, TASK 20-10-01-000-801.

——— END OF TASK ———

TASK 36-11-20-400-801

3. ASCPC Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) The installation test also makes sure that the ASCPC has correct software.

(2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-10-01-400-801	E/E Box Installation (P/B 401)
20-41-01-400-802	Conductive Dust Cap and Connector Cover Removal (P/B 201)
21-31-00-700-806-001	Cabin Pressure Control System - System Test (P/B 501)
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-11-20-400-803	Air Supply Cabin Pressure Controller (ASCPC) Software Installation (P/B 201)
36-11-20-400-804	Air Supply Cabin Pressure Controller (ASCPC) Software Configuration Check (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Controller	36-11-20-01-007	ARO 001-011

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. ASCPC Installation

SUBTASK 36-11-20-910-002

CAUTION

DO NOT TOUCH THE ASCPC BEFORE YOU DO THE PROCEDURE FOR THE DEVICES THAT ARE SENSITIVE TO AN ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ASCPC.

(1) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-41-01-400-802.

SUBTASK 36-11-20-420-002

(2) To install the ASCPC controller [1], do this task: E/E Box Installation, TASK 20-10-01-400-801.

SUBTASK 36-11-20-860-002

(3) Close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
C	3	C36615	AIR SPLY L SOL
E	5	C36619	AIR SPLY R SEC

G. ASCPC Installation Test

SUBTASK 36-11-20-860-003

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

SUBTASK 36-11-20-750-001

(2) Use a maintenance access terminal (MAT) to do a software configuration check of the ASCPC, do this task: Air Supply Cabin Pressure Controller (ASCPC) Software Configuration Check, TASK 36-11-20-400-804.

NOTE: Make sure you know the correct software part number for the ASCPC when you look at the software part number on the display. For the ASCPC to be an approved installation, the correct software part number must be installed. AD 2007-07-05 prohibits the installation of OPS P/N 3673-GRS-101-00, P/N 3670-GRS-102-00, or P/N 3671-GRS-103-00.

(a) Make sure that the software part number is correct for the Air Supply Cabin Pressure Controller (L or R) on the display.

NOTE: The configuration check will show a failure if the operational program software (OPS) is not installed.

(b) Select GO BACK to remove the display.

SUBTASK 36-11-20-860-004

(3) If the part number is incorrect, do this task: Air Supply Cabin Pressure Controller (ASCPC) Software Installation, TASK 36-11-20-400-803.

SUBTASK 36-11-20-740-001

(4) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left(Right) ASCPC.

1) If there is a maintenance message for the Left(Right) ASCPC, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-11-20-730-001

(5) Do this ground test on the MAT: Cabin Pressure Control System - System Test, TASK 21-31-00-700-806-001

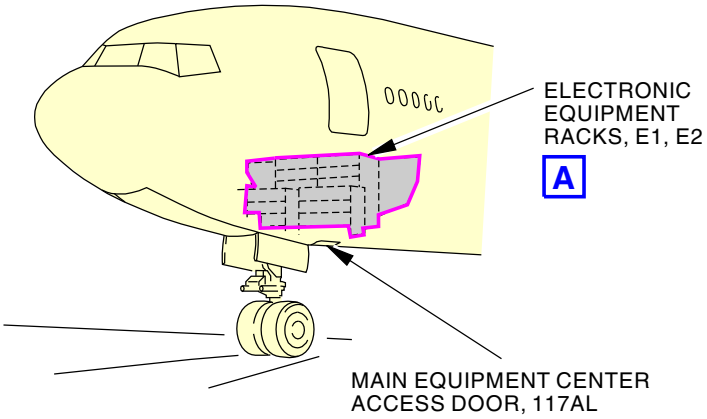
H. Put the Airplane Back to Its Usual Condition

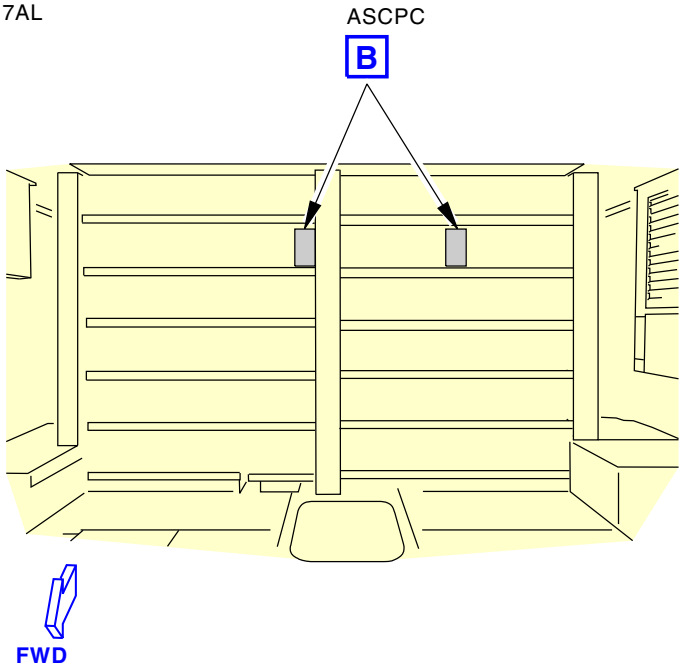
SUBTASK 36-11-20-410-001

(1) Close this access panel:

Number	Name/Location
117AL	Main Equipment Center Access Door

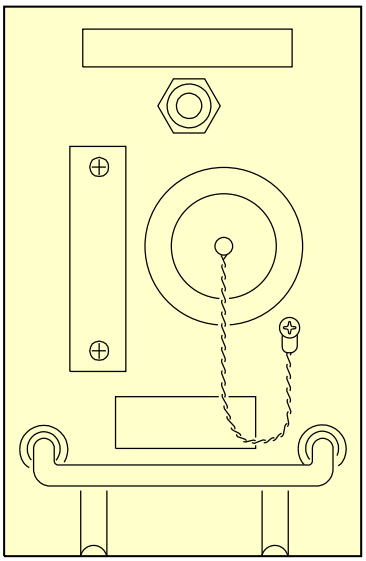
——— END OF TASK ———





ELECTRONIC EQUIPMENT RACKS, E1, E2

A



[1] ASCPC

B

N38065 S0006422203_V2

ASCPC Installation
Figure 401/36-11-20-990-801

CYCLONIC COLLECTOR ASSEMBLY - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Cyclonic Collector Assembly Removal.

(2) Cyclonic Collector Assembly Installation.

(3) Cyclonic Collector Assembly Cleaning.

TASK 36-11-21-000-801

2. Cyclonic Collector Assembly Removal

(Figure 201)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)

B. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

C. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

D. Prepare for the Cyclonic Collector Assembly Removal

SUBTASK 36-11-21-860-003

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-21-010-012

(2) Do the following to gain access to the cyclonic collector assembly [2].

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) To open the left fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

E. Cyclonic Collector Assembly Removal

SUBTASK 36-11-21-020-001

(1) Disconnect the supply sense tube from the cyclonic collector assembly [2].

(a) Put a cover on the end of the supply sense tube to keep out unwanted material.

SUBTASK 36-11-21-020-002

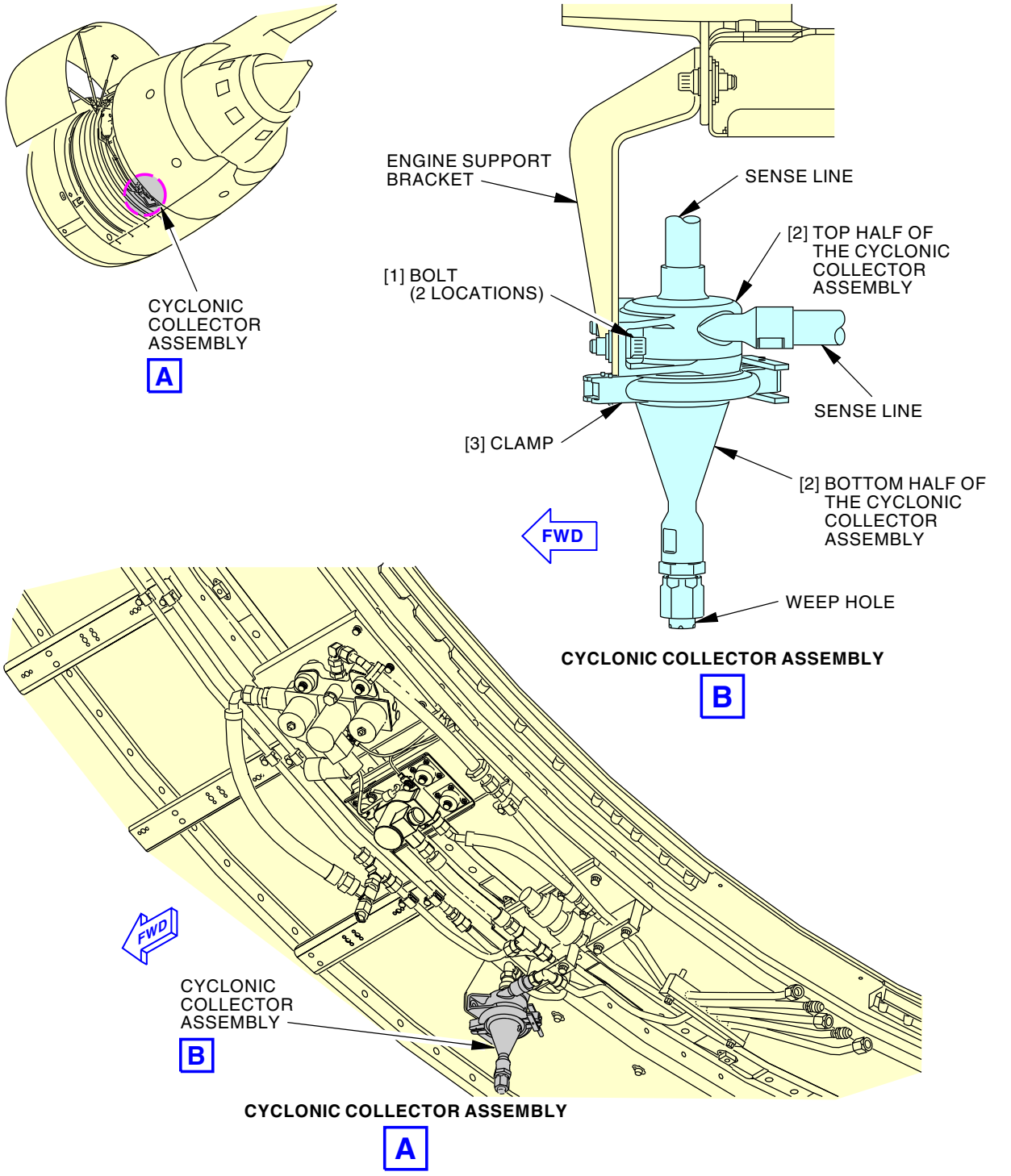
(2) Disconnect the downstream sense tube from the cyclonic collector assembly [2].

(a) Put a cover on the end of the downstream sense tube to keep out unwanted material.

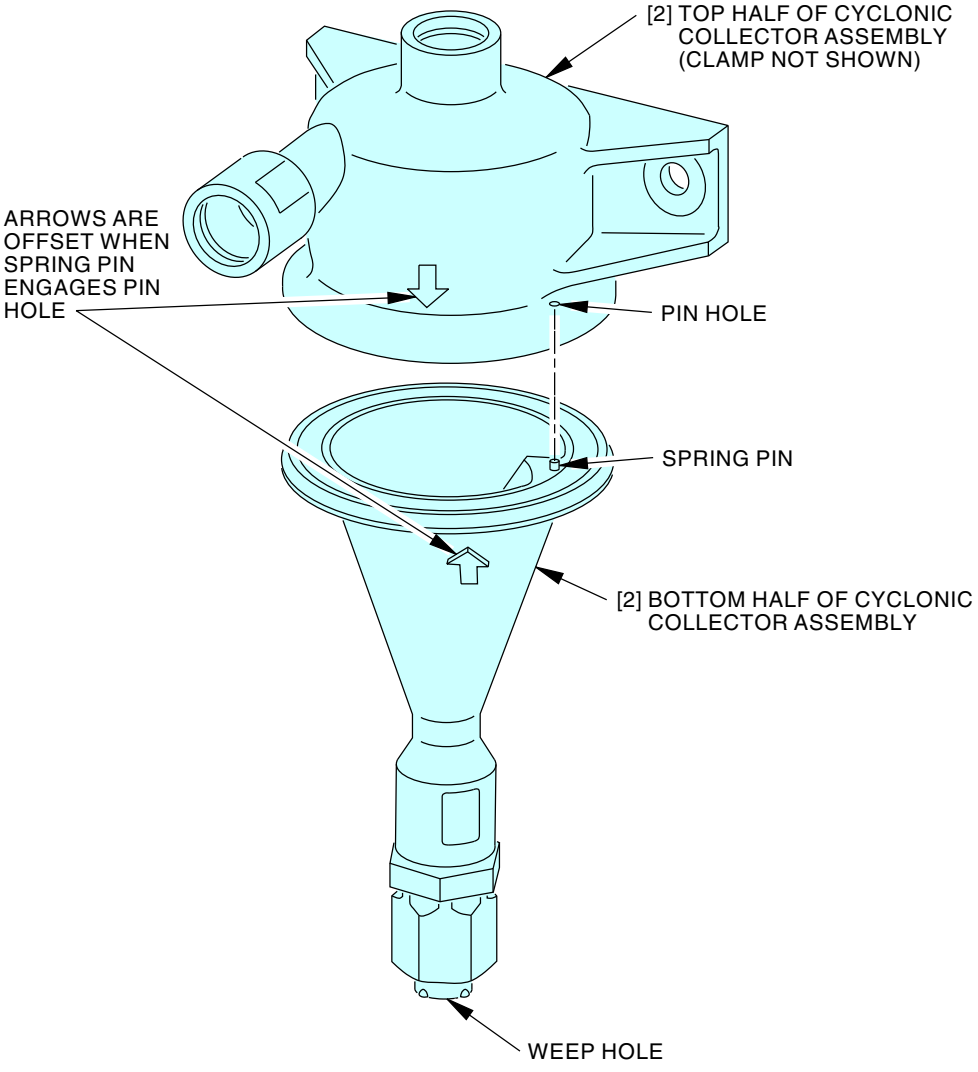
SUBTASK 36-11-21-020-003

(3) Remove the cyclonic collector assembly [2] from the engine support bracket by removing two bolts [1].

——— END OF TASK ———



Cyclonic Collector Assembly
Figure 201/36-11-21-990-803 (Sheet 1 of 2)



CYCLONIC COLLECTOR ASSEMBLY

1959356 S0000374527_V3

Cyclonic Collector Assembly
Figure 201/36-11-21-990-803 (Sheet 2 of 2)

TASK 36-11-21-400-802

3. Cyclonic Collector Assembly Installation

(Figure 201)

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Cyclonic collector assembly	36-21-03-01B-070	ARO ALL

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

F. Cyclonic Collector Assembly Installation

SUBTASK 36-11-21-420-001

(1) Install the cyclonic collector assembly [2] onto the engine support bracket with two bolts [1].

SUBTASK 36-11-21-420-002

(2) Tighten the bolts [1] to a torque value of 97.0 in-lb (11.0 N·m) - 103.0 in-lb (11.6 N·m).

SUBTASK 36-11-21-010-007

(3) Remove the cover from the supply sense tube.

SUBTASK 36-11-21-640-001

(4) Apply Never-Seez NSBT compound, D00006 to the threads of the side port on the cyclonic collector assembly [2] and attach the supply sense tube to it.

(a) Tighten the coupling nut to a torque value of 270.0 in-lb (30.5 N·m) (Standard Torque Values, TASK 20-11-00-910-801, Figure 208).

SUBTASK 36-11-21-010-008

(5) Remove the cover on the downstream sense tube.

SUBTASK 36-11-21-640-002

(6) Apply Never-Seez NSBT compound, D00006 to the threads of the top port on the cyclonic collector assembly [2] and attach the downstream sense tube to it.

(a) Tighten the coupling nut to a torque value of 270.0 in-lb (30.5 N·m) (Standard Torque Values, TASK 20-11-00-910-801, Figure 208).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-21-940-001

(1) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

SUBTASK 36-11-21-860-002

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

——— END OF TASK ———

TASK 36-11-21-100-804

4. Cyclonic Collector Assembly Cleaning

(Figure 201)

A. References

Reference	Title
27-81-00-040-801	Leading Edge Slat - Deactivation (P/B 201)
27-81-00-440-801	Leading Edge Slat Reactivation (P/B 201)
27-81-00-860-805	Retract the Leading Edge Slats (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-10-00-710-801	Engine Idle Air Supply Operational Test (P/B 501)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)

B. Consumable Materials

Reference	Description	Specification
B50117	Detergent - General	

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Access Panels

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

E. Prepare for Cleaning the Cyclonic Collector Assembly

SUBTASK 36-11-21-860-001

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-11-21-010-002

(2) Do the following to gain access to the cyclonic collector assembly [2].

(a) Do this task: Retract the Leading Edge Slats, TASK 27-81-00-860-805.

(b) Do this task: Leading Edge Slat - Deactivation, TASK 27-81-00-040-801.

(c) To open the left fan cowl panels, do this task:

Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

F. Clean the Cyclonic Collector Assembly

SUBTASK 36-11-21-010-006

(1) Remove the clamp [3] that holds the two halves of the cyclonic collector assembly [2] together.

SUBTASK 36-11-21-100-001

(2) Use a general detergent, B50117 to wipe down the interior of the two halves of the cyclonic collector assembly [2].

SUBTASK 36-11-21-100-002

(3) Dry the two halves of the cyclonic collector assembly [2].

SUBTASK 36-11-21-100-003

(4) Make sure the weep hole in the bottom half of the cyclonic collector assembly [2] is clear.

SUBTASK 36-11-21-410-001

(5) Align and engage the spring pin in the bottom half of collector assembly [2] with the pin hole in the top half of the collector assembly [2], then install the clamp [3].

NOTE: The arrows on the halves of the collector assembly [2] will be offset (not aligned) from each other when the spring pin engages the pin hole. This is okay.

SUBTASK 36-11-21-820-001

(6) Rotate the clamp [3] as required to avoid interference with the bracket.

SUBTASK 36-11-21-400-001

(7) Tighten the bolt on the clamp [3] to 77.5 ± 7.5 pound-inches (8.8 ± 0.85 Newton-meters).

SUBTASK 36-11-21-400-002

(8) Tap the clamp [3] with a rubber mallet and retighten the bolt to 70 - 85 pound-inches (7.9 - 9.6 Newton-meters).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-21-410-002

(1) Do this task:

Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00

Number	Name/Location
413AL	Left Fan Cowl Panel, Left Engine
423AL	Left Fan Cowl Panel, Right Engine

SUBTASK 36-11-21-410-003

(2) Do this task: Leading Edge Slat Reactivation, TASK 27-81-00-440-801.

H. Engine Run Operational Test

SUBTASK 36-11-21-710-001

(1) Do the following task after the cyclonic collector assembly has been cleaned and the airplane has been put back to its usual condition: Engine Idle Air Supply Operational Test, TASK 36-10-00-710-801.

——— END OF TASK ———

ISOLATION VALVES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the left, right and center isolation valves.

(2) An installation of the left, right and center isolation valves.

TASK 36-12-01-000-801

2. Isolation Valve Removal

(Figure 401)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

C. Access Panels

Number	Name/Location
195QL	Blowout Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

D. Prepare for the Removal

SUBTASK 36-12-01-860-001

WARNING RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURY TO PERSONS.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-01-860-002

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	3	C36615	AIR SPLY L SOL

SUBTASK 36-12-01-010-002

(3) To get access to the left isolation valve, open this access panel:

Number	Name/Location
195QL	Blowout Door

SUBTASK 36-12-01-010-003

(4) To get access to the right isolation valve, open this access panel:

Number	Name/Location
196QR	Blowout Door

SUBTASK 36-12-01-010-004

(5) To get access to the center isolation valve, open this access panel:

Number	Name/Location
196NR	Underwing Fairing Panel

E. Isolation Valve Removal

SUBTASK 36-12-01-020-007

(1) Disconnect the electrical connector [3].

SUBTASK 36-12-01-020-008

(2) Do the steps that follow to disconnect the bonding jumper [4] from the ground tab [7]:

(a) Remove the nut [5], washers [6] from the screw [8]

(b) Move the bonding jumper [4] away from the ground tab [7].

(c) Remove the screw [8] and the washer [6] from the ground tab [7].

SUBTASK 36-12-01-020-009

(3) Loosen each coupling [2] at each end of the isolation valve [1].

SUBTASK 36-12-01-020-010

(4) Hold the isolation valve [1] and move each coupling [2] along the duct.

SUBTASK 36-12-01-020-001

(5) Remove the isolation valve [1].

SUBTASK 36-12-01-020-002

(6) Remove each coupling [2].

SUBTASK 36-12-01-480-002

(7) Install covers on the openings in the duct to keep out unwanted objects.

——— END OF TASK ———

TASK 36-12-01-400-801

3. Isolation Valve Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-10-22-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)

(Continued)

Reference	Title
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00386	Lubricant - Solid Film, Air Cured, Corrosion Inhibiting	MIL-L-23398 (NATO S-749)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Valve	Not Specified	

E. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

F. Access Panels

Number	Name/Location
195QL	Blowout Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

G. Isolation Valve Installation

SUBTASK 36-12-01-080-002

(1) Remove the covers from the duct.

SUBTASK 36-12-01-860-005

(2) Look at the manual override nut and make sure the valve is not in the LOCKED position.

NOTE: If the valve is locked the knob is pushed in and the knob bolt is tight.

(a) If the valve is locked do the unlock procedure found on the valve.

SUBTASK 36-12-01-420-001

(3) Put the isolation valve [1] in its position.

(a) Make sure the electrical connector [3] and ground tab [7] is accessible.

(b) Make sure you can see the instructions to manually close the isolation valve.

SUBTASK 36-12-01-420-002

(4) Do these steps to install the couplings [2]:

(a) If the couplings [2] are not equipped with a dry film lubricant do this step:

1) Apply a coating of Never-Seez NSBT compound, D00006 or lubricant, D00386 to the inside of the coupling and the T-bolt threads. Apply the lubricant in accordance with the manufacturers specifications.

(b) Install a coupling [2] at each end of the isolation valve [1].

NOTE: Do not tighten the couplings.

SUBTASK 36-12-01-100-002

(5) To clean the bond surfaces of the ground tab [7], do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-22-110-802.

SUBTASK 36-12-01-100-001

(6) To clean the bond surfaces of the bonding jumper [4] and the washers [6], do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-22-110-802.

SUBTASK 36-12-01-420-009

(7) To install the bonding jumper [4], do the steps that follow:

(a) Put a washer [6] on the ground tab [7].

(b) Put the bonding jumper [4] on the washer [6].

(c) Install the screw [8] and a washer [6] on the bonding jumper terminal.

(d) Install the washer [6] and nut [5] on the screw [8].

1) Tighten the nut [5] to 25 to 35 pound-inches (2.8 to 3.9 newton-meters).

(e) Make sure the resistance between the ground tab [7] and the airplane structure is less than 0.0075 ohm.

NOTE: Do not put the probe on the bracket to which the bonding jumper attaches.

SUBTASK 36-12-01-390-001

(8) Apply a thin, continuous layer of sealant, A00247 on the bonding jumper terminal connection as shown in Figure 401, Detail C.

SUBTASK 36-12-01-420-005

(9) Install the electrical connector [3].

(a) Make sure the pins are not bent and the threads are not damaged.

SUBTASK 36-12-01-420-013

(10) Do these steps to make sure the couplings are properly installed on the duct flanges:

(a) Make sure the duct flanges and the valve flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

(c) Tighten the couplings [2] to 60 to 70 pound-inches (6.8 to 7.9 newton-meters):

1) Hit lightly around each couplings [2] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Tighten the couplings [2] to 60 to 70 pound-inches (6.8 to 7.9 newton-meters).

3) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-12-01-860-003

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	3	C36615	AIR SPLY L SOL

H. Isolation Valve Installation Test

SUBTASK 36-12-01-860-004

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

SUBTASK 36-12-01-740-002

(2) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left (Center or Right) Isolation Valve.

1) If there is a maintenance message for the Left (Center or Right) Isolation Valve, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-12-01-720-001

(3) Do a leak test of the isolation valve:

(a) Push the Left (Center or Right) ISLN valve switch-light on the BLEED AIR module of the P5 panel to the AUTO position.

(b) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(c) Do a check for air leakage:

1) Small air leakage is satisfactory.
2) Repair large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

(d) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-01-410-001

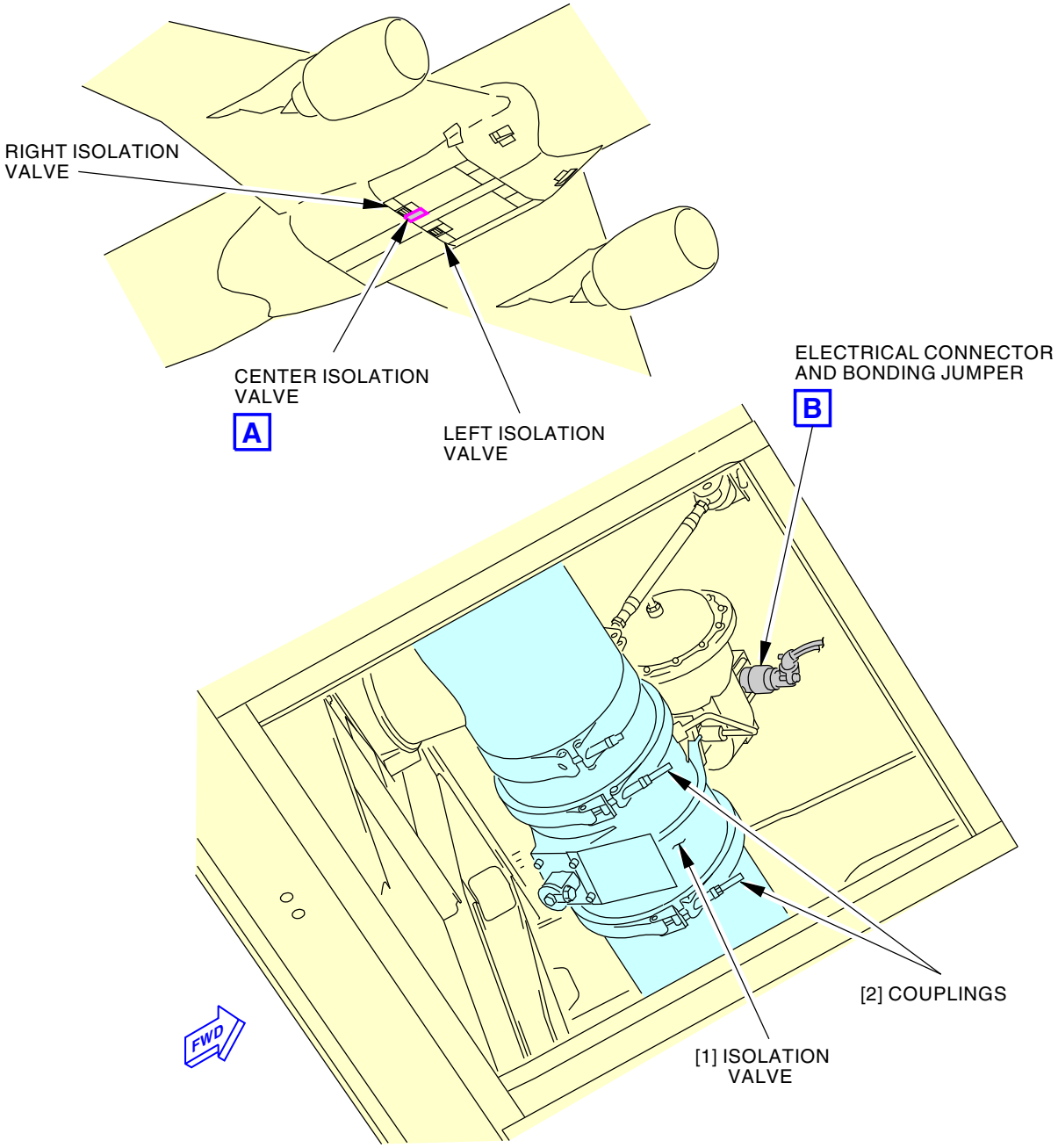
(1) Close these access panels:

Number	Name/Location
195QL	Blowout Door
196QR	Blowout Door

or close this access panel:

Number	Name/Location
196NR	Underwing Fairing Panel

END OF TASK

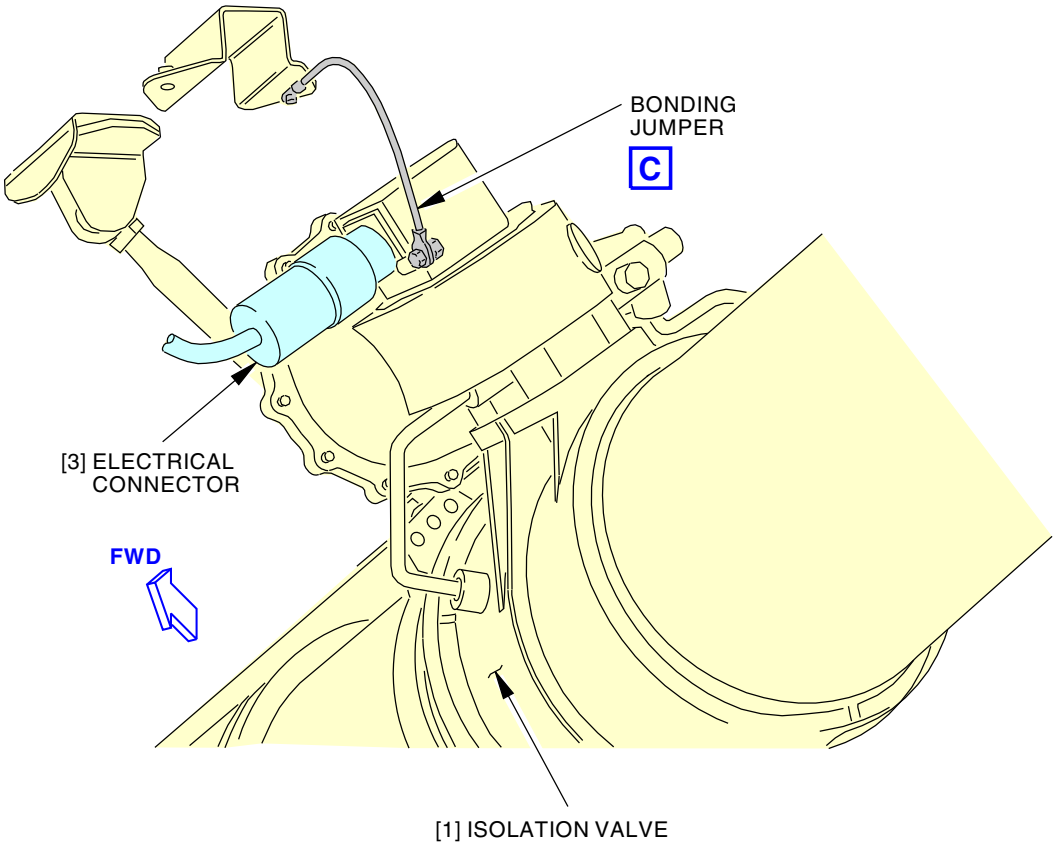


CENTER ISOLATION VALVE
(LEFT AND RIGHT ISOLATION VALVES ARE EQUIVALENT)

A

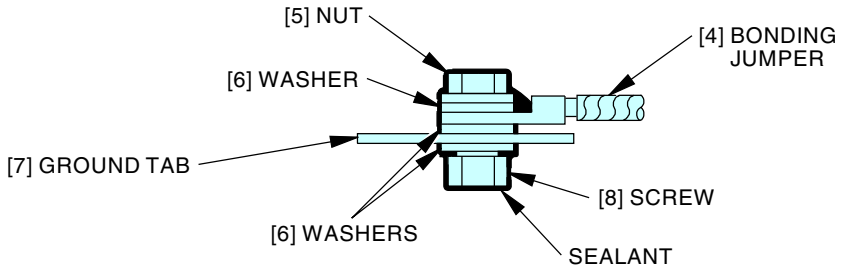
C69212 S0006422209_V2

Isolation Valve Installation
Figure 401/36-12-01-990-801 (Sheet 1 of 2)



ELECTRICAL CONNECTOR AND BONDING JUMPER

B



BONDING JUMPER

C

NOTE:

THE CENTER ISOLATION VALVE IS SHOWN. THE LEFT AND RIGHT ISOLATION VALVES ARE EQUIVALENT.

C75687 S0006422210_V2

Isolation Valve Installation
Figure 401/36-12-01-990-801 (Sheet 2 of 2)

APU SHUTOFF VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the APU shutoff valve

(2) An installation of the APU shutoff valve.

TASK 36-12-02-000-801

2. APU Shutoff Valve Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
313	Stabilizer Torsion Box Compartment, Left
314	Stabilizer Torsion Box Compartment, Right

C. Access Panels

Number	Name/Location
313AL	Controls Bay Access Door

D. Prepare for the Removal

SUBTASK 36-12-02-860-001

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENTS. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-02-860-002

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	3	C36615	AIR SPLY L SOL

SUBTASK 36-12-02-010-001

(3) Open this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

E. Remove the APU Shutoff Valve.

SUBTASK 36-12-02-020-005

(1) Disconnect the electrical connector [2].

SUBTASK 36-12-02-020-006

(2) Disconnect the bonding jumper [3] from the APU shutoff valve [8].

SUBTASK 36-12-02-020-001

(3) Remove each coupling [1].

SUBTASK 36-12-02-020-002

(4) Remove the APU shutoff valve [8].

SUBTASK 36-12-02-480-002

(5) Install a cover on the openings in the duct to keep out unwanted objects.

——— END OF TASK ———

TASK 36-12-02-400-801

3. APU Shutoff Valve Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-10-22-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00386	Lubricant - Solid Film, Air Cured, Corrosion Inhibiting	MIL-L-23398 (NATO S-749)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Valve	36-12-02-01-040	ARO ALL

F. Location Zones

Zone	Area
313	Stabilizer Torsion Box Compartment, Left
314	Stabilizer Torsion Box Compartment, Right

G. Access Panels

Number	Name/Location
313AL	Controls Bay Access Door

H. APU Shutoff Valve Installation

SUBTASK 36-12-02-080-002

(1) Remove the covers from the duct.

SUBTASK 36-12-02-860-006

(2) Look at the manual override nut and make sure the valve is not in the LOCKED position.

NOTE: If the valve is locked the knob is pushed in and the knob bolt is tight.

(a) If the valve is locked do the unlock procedure found on the valve.

SUBTASK 36-12-02-420-001

(3) Put the APU shutoff valve [8] in its position.

(a) Make sure the electrical connector [2] is accessible.

(b) Make sure you can see the instructions to manually close the APU shutoff valve [8].

SUBTASK 36-12-02-420-002

(4) Do these steps to install the couplings [1]:

(a) If the couplings [1] are not equipped with a dry film lubricant do this step:

1) Apply a coating of Never-Seez NSBT compound, D00006 or lubricant, D00386 to the inside of the coupling and the T-bolt threads. Apply the lubricant in accordance with the manufacturers specifications.

(b) Install each coupling [1].

NOTE: Do not tighten the couplings.

SUBTASK 36-12-02-100-001

(5) To clean the bond surfaces of the APU shutoff valve bracket [6], bonding jumper [3] and the washers [5], do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-22-110-802.

SUBTASK 36-12-02-430-001

(6) To install the bonding jumper [3], do the steps that follow:

(a) Put a washer [5] on the APU shutoff valve bracket [6].

(b) Put the bonding jumper [3] on the washer [5].

(c) Put a washer [5] on a bolt [7].

(d) Install the bolt [7] with washer [5] through the APU shutoff valve bracket and bonding jumper terminal.

(e) Install the washer [5] and nut [4] on the bolt [7].

1) Tighten the nut [4] to 25 to 35 pound-inches (2.8 to 3.9 newton-meters).

(f) With an intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the APU shutoff valve bracket [6] and the airplane structure is less than 0.008 ohm.

NOTE: Do not put the probe on the bracket to which the bonding jumper attaches.

SUBTASK 36-12-02-390-001

(7) Apply a thin, continuous layer of sealant, A00247 on the bonding jumper terminal connection as shown in Figure 401, Detail C Figure 401.

SUBTASK 36-12-02-420-009

(8) Install the electrical connector [2].

(a) Make sure the pins are not bent and the threads are not damaged.

SUBTASK 36-12-02-420-013

(9) Do these steps to make sure the couplings are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

(c) Tighten each couplings [1] to 60 to 70 pound-inches (6.8 to 7.9 newton-meters):

1) Hit lightly around each couplings [1] with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Tighten each couplings [1] to 60 to 70 pound-inches (6.8 to 7.9 newton-meters).

3) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-12-02-860-003

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	14	C36616	AIR SPLY R SOL

Standby Power Management Panel, P310

Row	Col	Number	Name
C	3	C36615	AIR SPLY L SOL

I. APU shutoff Valve Installation Test

SUBTASK 36-12-02-860-005

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

SUBTASK 36-12-02-740-002

(2) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the APU Shutoff Valve.

1) If there is a maintenance message for the APU Shutoff Valve, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-12-02-720-001

(3) Do a Test of the APU shutoff valve:

(a) Push the APU valve switch-light on the BLEED AIR module of the P5 panel to the AUTO position.

(b) To supply pneumatic pressure with the APU, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802

(c) Do a check for air leakage:

1) Small air leakage is satisfactory.
2) Repair large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

(d) Push the APU valve switch-light on the BLEED AIR module of the P5 panel to the OFF position.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-02-860-004

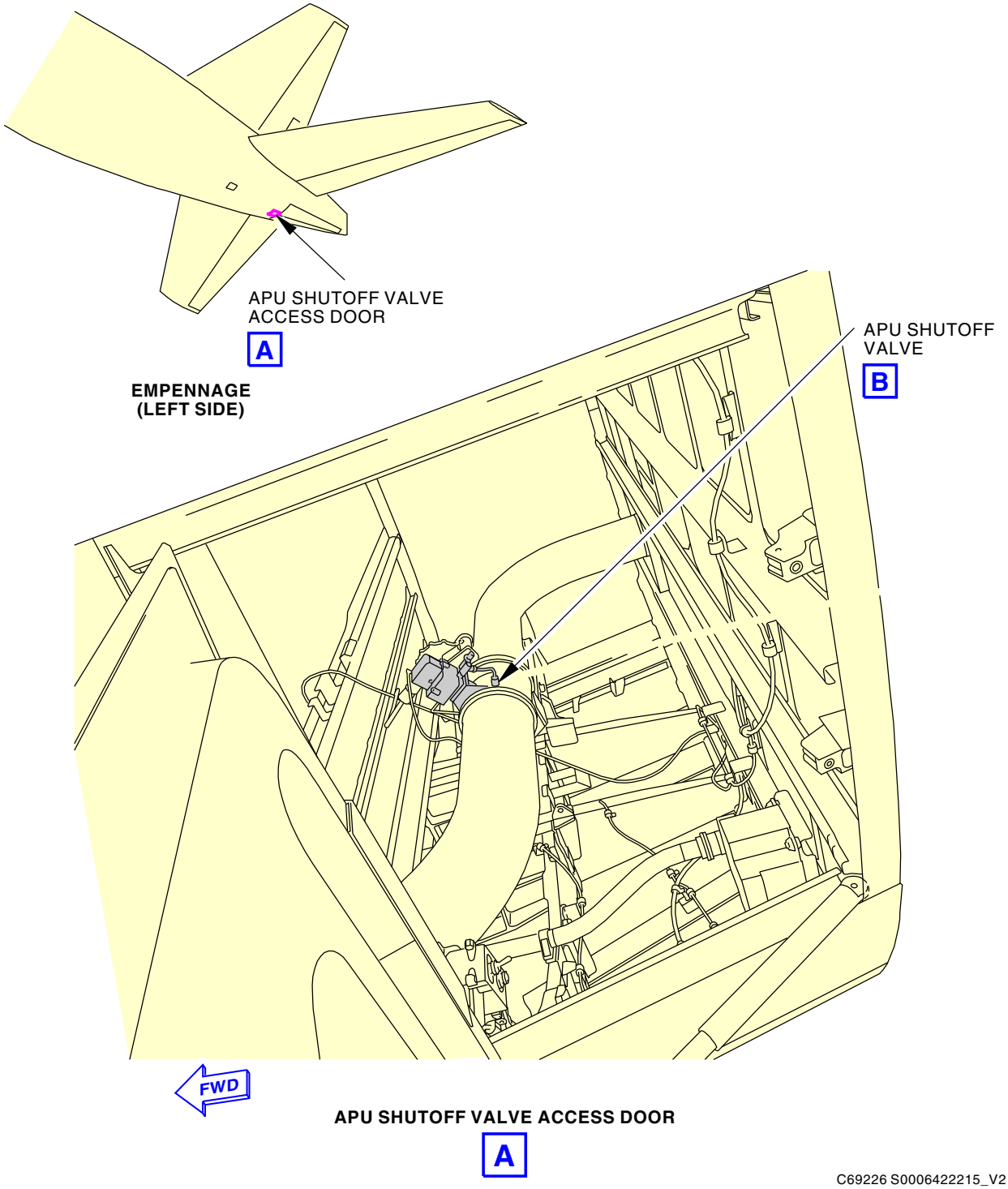
(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-02-410-001

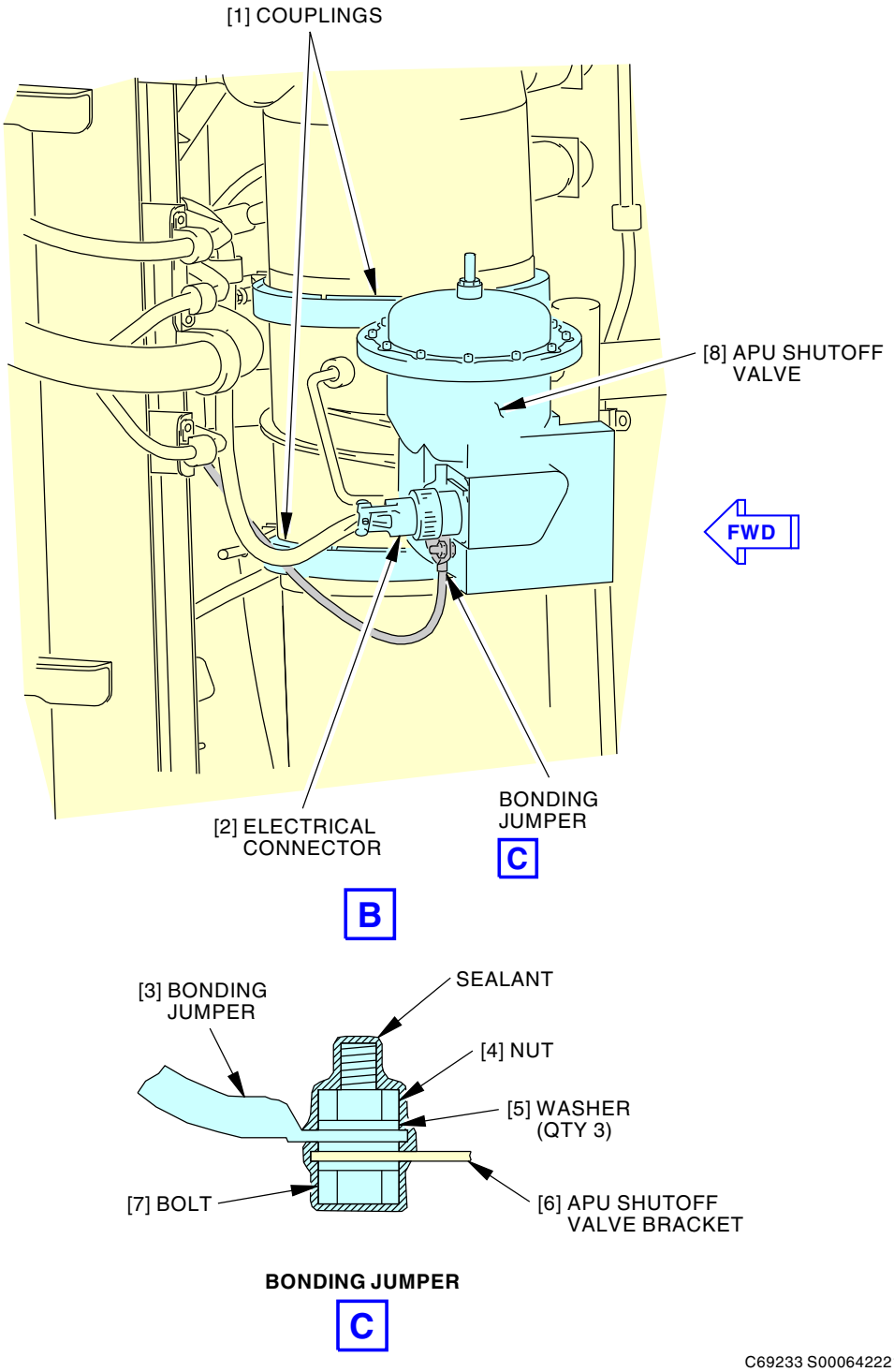
(2) Close this access panel:

Number	Name/Location
313AL	Controls Bay Access Door

END OF TASK



APU Shutoff Valve Installation
Figure 401/36-12-02-990-801 (Sheet 1 of 2)



APU Shutoff Valve Installation
Figure 401/36-12-02-990-801 (Sheet 2 of 2)

HIGH PRESSURE GROUND CONNECTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the High Pressure (HP) Ground Connectors.

(2) An installation of the HP ground connectors.

TASK 36-12-03-000-801

2. HP Ground Connector Removal

(Figure 401)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

C. Access Panels

Number	Name/Location
195BL	ECS High Pressure Connection Door

D. Prepare for the Removal

SUBTASK 36-12-03-860-001

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-03-010-001

(2) Open this access panel:

Number	Name/Location
195BL	ECS High Pressure Connection Door

E. HP Ground Connector Removal

SUBTASK 36-12-03-020-003

(1) Remove the bolt [7], nut [2] and washer [3].

SUBTASK 36-12-03-020-001

(2) Remove the HP ground connector valve assembly [1] and gasket [4].

(a) Discard the gasket.

SUBTASK 36-12-03-480-002

(3) Put a cover on the hole in the duct to keep out unwanted objects.

END OF TASK

TASK 36-12-03-400-801

3. HP Ground Connector Installation

(Figure 401)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Valve assembly	Not Specified	
4	Gasket	Not Specified	

D. Location Zones

Zone	Area
135	Environmental Control Systems Bay, Left
136	Environmental Control Systems Bay, Right

E. Access Panels

Number	Name/Location
195BL	ECS High Pressure Connection Door

F. HP Ground Connector Installation

SUBTASK 36-12-03-080-002

(1) Remove the cover from the duct.

SUBTASK 36-12-03-420-004

(2) Install a new gasket [4] on the HP ground connector valve assembly [1].

SUBTASK 36-12-03-420-001

(3) Put the HP ground connector valve assembly [1] in its position.

SUBTASK 36-12-03-640-001

(4) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the bolt [7].

SUBTASK 36-12-03-420-005

(5) Install the bolt [7], washer [3] and nut [2].

G. HP Ground Connector Installation Test

SUBTASK 36-12-03-790-001

(1) Do these steps to do a check of the HP ground connector for air leakage:

(a) Apply a leak detector Snoop Leak Detector compound, G00091 to the attach point for the HP ground connector.

(b) To supply pneumatic power with the APU, do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802

(c) Look for leaks at the HP ground connector.

(d) Repair all leakage.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-03-860-002

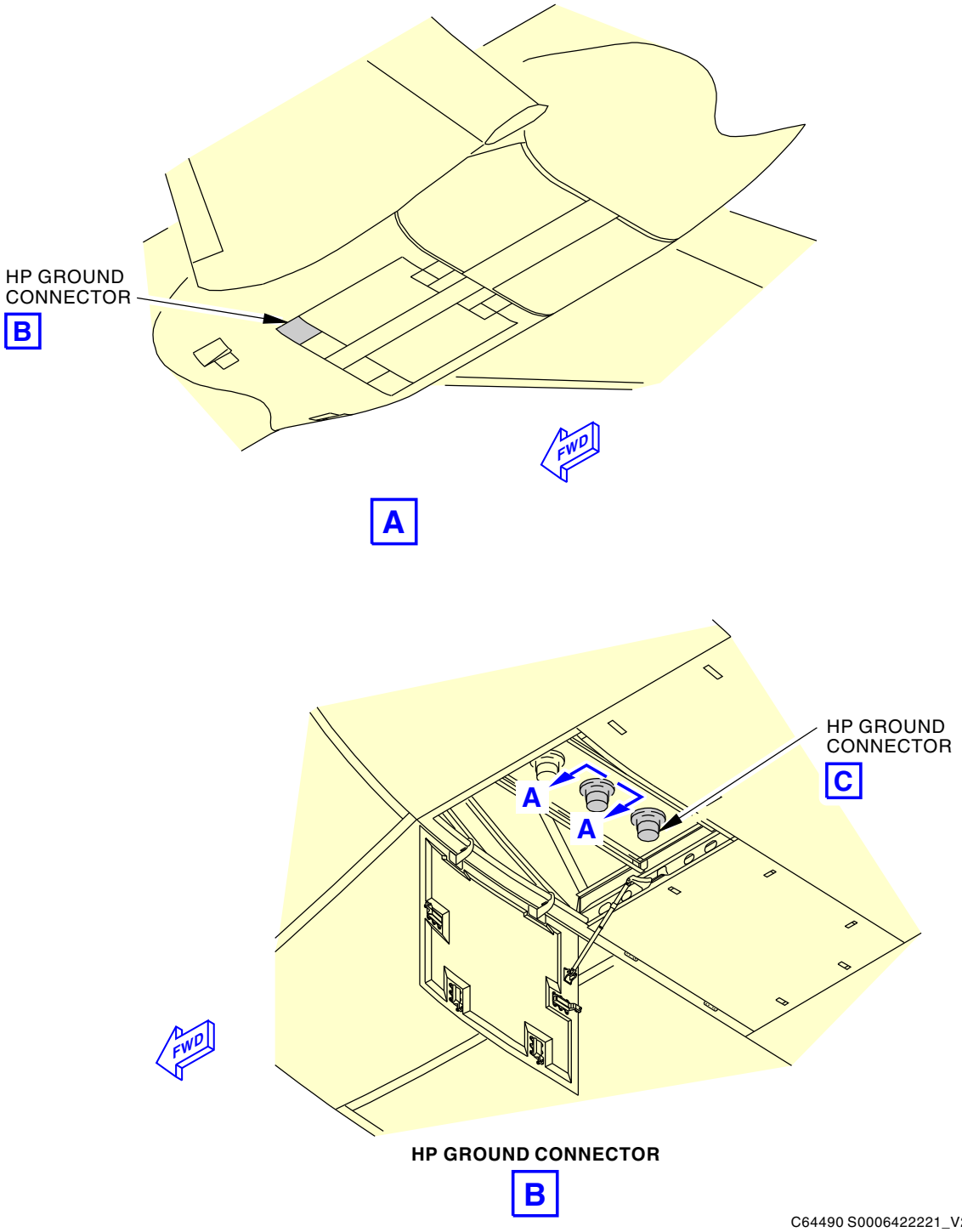
(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-03-410-001

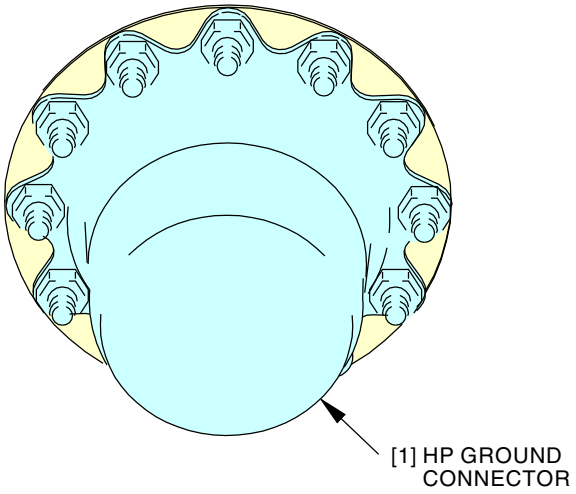
(2) Close this access panel:

Number	Name/Location
195BL	ECS High Pressure Connection Door

——— END OF TASK ———

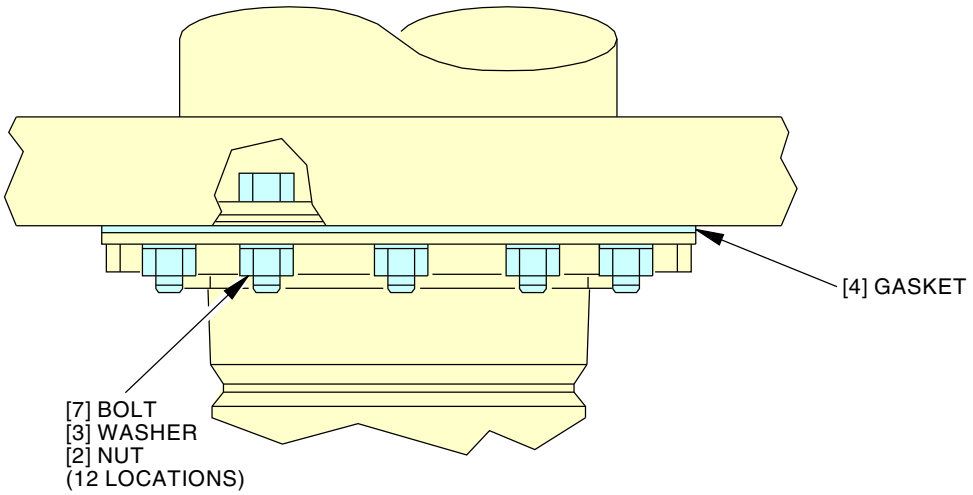


HP Ground Connector Installation
Figure 401/36-12-03-990-801 (Sheet 1 of 2)



HP GROUND CONNECTOR

C



A-A

C64501 S0006422222_V3

HP Ground Connector Installation
Figure 401/36-12-03-990-801 (Sheet 2 of 2)

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the strut pneumatic duct

(2) A removal of the wing leading edge pneumatic duct

(3) A removal of the crossover pneumatic duct

(4) A removal of the APU pneumatic duct

(5) A removal of the ADP pneumatic duct

(6) An installation of the strut pneumatic duct

(7) An installation of the wing leading edge pneumatic duct

(8) An installation of the crossover pneumatic duct

(9) An installation of the APU pneumatic duct.

(10) An installation of the ADP pneumatic duct

TASK 36-12-04-000-805

2. Strut Duct Removal

(Figure 401)

A. General

(1) This procedure is written to provide all of the information that is necessary to remove and install a specific duct section. Do only the steps that are necessary to remove the required section of duct.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-22-01-000-801	Manifold Dual Temperature Sensor Removal (P/B 401)

C. Location Zones

Zone	Area
430	Subzone 430 - Left Nacelle Strut
440	Subzone 440 - Right Nacelle Strut

D. Prepare for the Removal

SUBTASK 36-12-04-860-001

WARNING RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURY TO PERSONS.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-04-010-004

(2) Open the applicable nacelle access panel.

E. Strut Duct Removal

NOTE: The steps that follow include all of the information that is necessary to remove all of the duct sections. You do not have to do all of the steps.

SUBTASK 36-12-04-020-016

(1) Do only the steps that are necessary to remove the section of the duct:

(a) Remove the clamp [6] on the vapor seal [5].

(b) Remove the bolts [3] and washers [4] from the vapor seal [5].

(c) Remove the clamp [7] on each end of the fire seal [8].

(d) Remove the bolts [9], washers [10], [12], bushings [11] and nuts [13] at the support link [14].

NOTE: You can loosen the bolt [9] and nut [13] at the strut bracket to move the support link [14] if it is necessary.

(e) Remove the applicable couplings [2] on each end of the duct.

(f) To remove the manifold temperature sensor [1], do this task: Manifold Dual Temperature Sensor Removal, TASK 36-22-01-000-801.

SUBTASK 36-12-04-020-001

(2) Remove the vapor seal [5] and keep for installation.

SUBTASK 36-12-04-020-002

(3) Remove the fire seal [8] and keep for installation.

SUBTASK 36-12-04-020-003

(4) Remove the strut duct and E-seals [19].

SUBTASK 36-12-04-480-005

(5) Install covers on the openings in the duct to keep out unwanted objects.

——— END OF TASK ———

TASK 36-12-04-400-805

3. Strut Duct Installation

(Figure 401)

A. References

Reference	Title
20-10-23-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
36-22-01-400-801	Manifold Dual Temperature Sensor Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
A00160	Sealant - Firewall - Hydraulic Fluid Resistant	BMS5-63
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00386	Lubricant - Solid Film, Air Cured, Corrosion Inhibiting	MIL-L-23398 (NATO S-749)

C. Location Zones

Zone	Area
430	Subzone 430 - Left Nacelle Strut
440	Subzone 440 - Right Nacelle Strut

D. Strut Duct Installation

SUBTASK 36-12-04-080-005

(1) Remove the covers from the duct.

SUBTASK 36-12-04-210-003

(2) Examine the E-seals [19] and duct flanges.

(a) Make sure the E-seals [19] and duct flanges do not have cracks, dents or other damage.

(b) Replace all of the damaged E-seals [19] and ducts.

SUBTASK 36-12-04-420-005

(3) Do only the steps that are necessary to install the section of the duct:

(a) To install the manifold temperature sensor [1], do this task: Manifold Dual Temperature Sensor Installation, TASK 36-22-01-400-801.

(b) Install the vapor seal [5] over the duct.

(c) Install the fire seal [8] over the duct.

(d) Install the strut duct and E-seals [19].

(e) If the couplings [2] are not equipped with a dry film lubricant do this step:

1) Apply a coating of lubricant, D00386 or Never-Seez NSBT compound, D00006 to the inside of the coupling and the T-bolt threads. Apply the lubricant in accordance with the manufacturers specifications.

CAUTION

MAKE SURE YOU INSTALL THE LOCKING DEVICE OF THE COUPLING CORRECTLY. IF YOU DO NOT INSTALL THE COUPLING FINGERS INSIDE THE LOCKING DEVICE, THE COUPLING CAN LOOSEN AND CAUSE DAMAGE TO EQUIPMENT.

(f) Install the couplings [2] (Figure 401).

NOTE: Do not tighten the couplings [2]. All of the duct sections must be aligned before the couplings [2] are tightened.

(g) Make sure there is clearance between the insulation and the coupling at the precooler outlet flange.

(h) Apply a faying surface seal with sealant, A00160 between the lower side of the duct flange [22] and the upper side of the vapor seal [5].

(i) Install the clamp [6] for the vapor seal [5].

(j) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on all of the bolts [3].

(k) Install the bolts [3] and washers [4] for the vapor seal [5].

(l) Install the clamps [7] for the fire seal [8].

(m) Tighten the clamps [6] or [7] for the vapor seal [5] or fire seal [8] to 18 to 22 pound-inches (2.0 to 2.5 newton-meters).

(n) Install the bolts [9], washers [10], [12], bushings [11] and nuts [13] to attach the support links [14] to the duct.

NOTE: Do not tighten the bolt [9] and nut [13].

Install the countersunk side of the washer [10] against the bolt head.

You can adjust the support links [14] if it is necessary to align the duct section.

(o) Loosen the jamnut(s) [23] to adjust the length of the support link [14], if it is necessary.

SUBTASK 36-12-04-420-006

(4) Do these steps to make sure the couplings are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact, with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

CAUTION DO NOT TIGHTEN THE COUPLINGS UNTIL ALL OF THE DUCTS ARE INSTALLED AND ALIGNED. IF THE DUCTS ARE NOT ALIGNED CORRECTLY LEAKS CAN OCCUR AND CAUSE DAMAGE TO EQUIPMENT.

(c) Tighten the couplings [2] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

(d) Tighten the coupling [2] for the wing anti-ice duct to 85 to 100 pound-inches (9.6 to 11.3 newton-meters).

1) Lightly tap around each coupling [2] and with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Tighten the couplings [2] to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

3) Tighten the coupling [2] for the wing anti-ice duct to 85 to 100 pound-inches (9.6 to 11.3 newton-meters).

4) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

SUBTASK 36-12-04-420-001

(5) Tighten the jamnut after you have correctly adjusted the length of the support link [14].

NOTE: Make sure you do not put a load on the other support link or support hardware.

(a) To install a lockwire on the support link [14], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-23-400-801.

E. Strut Duct Installation Test

SUBTASK 36-12-04-720-001

(1) Do a leak test of the strut duct:

(a) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(b) Do a check for air leakage:

1) Small air leakage is satisfactory.

2) Repair large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

F. Put the Airplane Back to Its Usual Condition

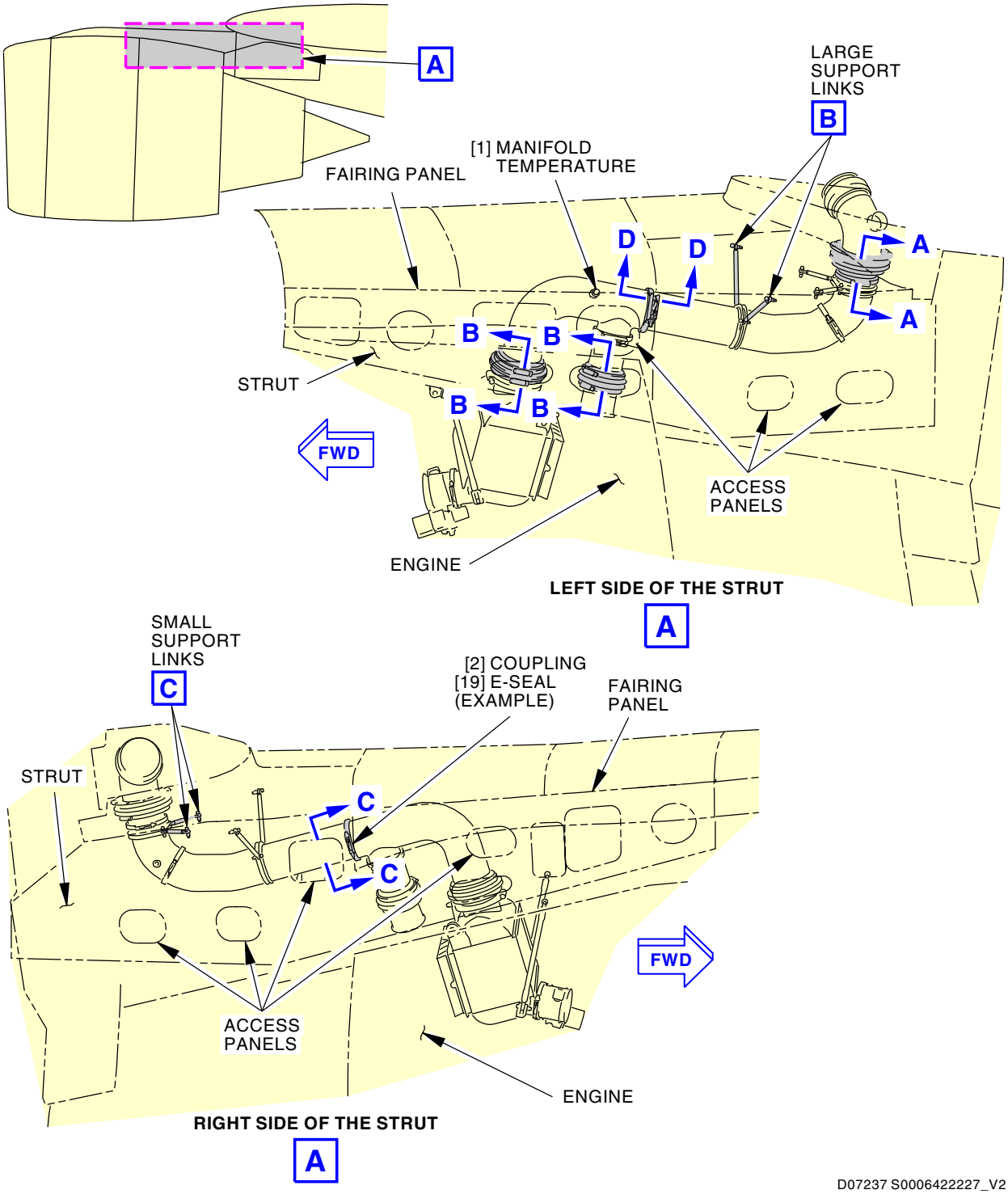
SUBTASK 36-12-04-860-002

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

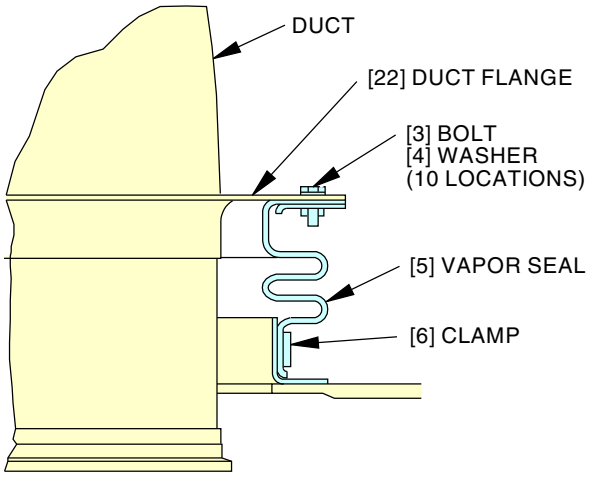
SUBTASK 36-12-04-410-002

(2) Close the applicable nacelle access panels.

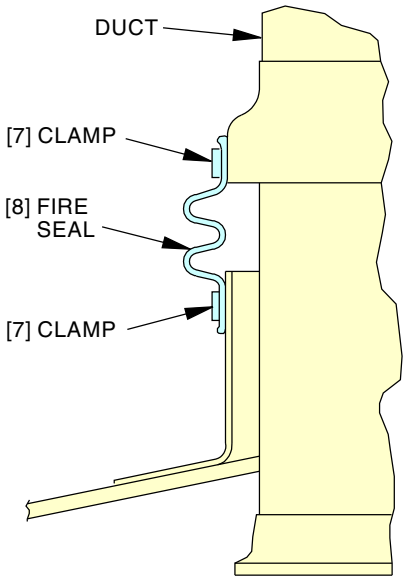
END OF TASK



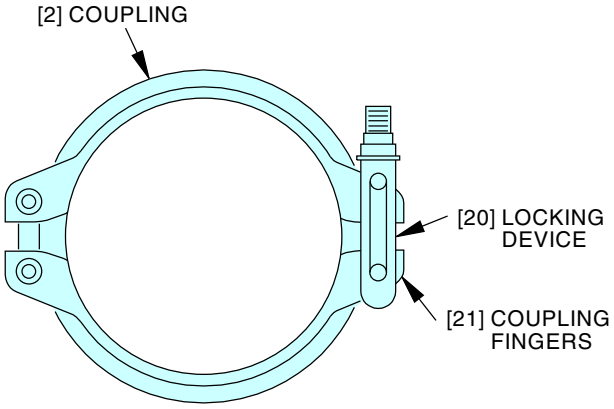
Strut Duct Installation
Figure 401/36-12-04-990-801 (Sheet 1 of 3)



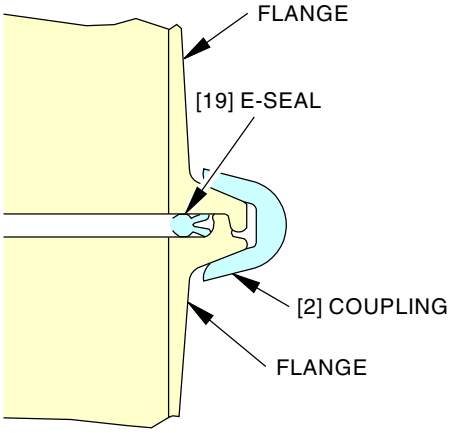
(EXAMPLE)
A-A



(EXAMPLE)
B-B



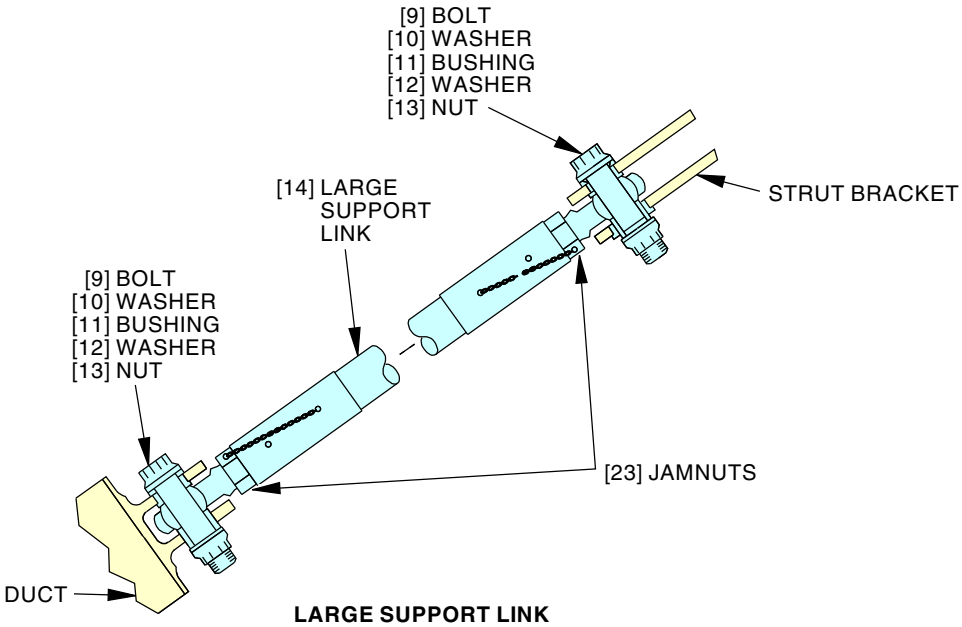
(EXAMPLE)
C-C



D-D

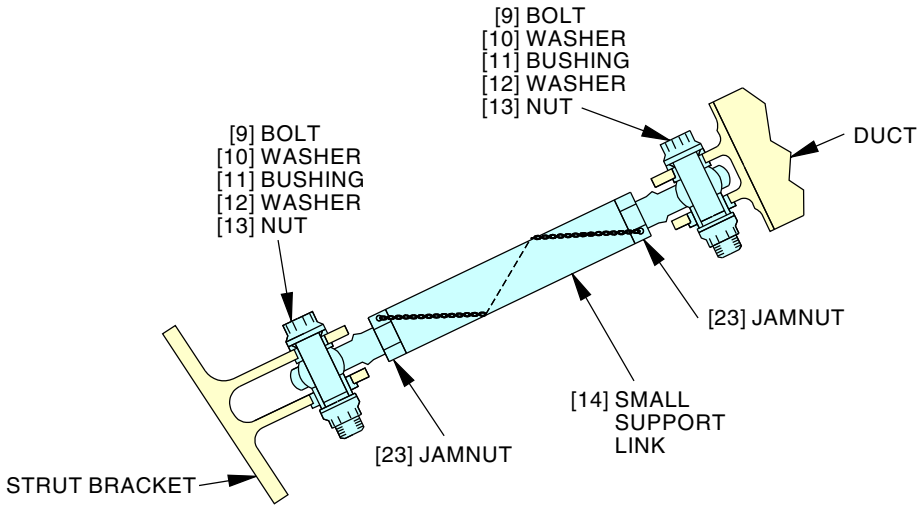
D07254 S0006422230_V2

Strut Duct Installation
Figure 401/36-12-04-990-801 (Sheet 2 of 3)



LARGE SUPPORT LINK (EXAMPLE)

B



SMALL SUPPORT LINK (EXAMPLE)

C

D07251 S0006422231_V2

Strut Duct Installation
Figure 401/36-12-04-990-801 (Sheet 3 of 3)

TASK 36-12-04-000-806

4. Wing Leading Edge Duct Removal

(Figure 402)

A. General

(1) This procedure is written to provide all of the information that is necessary to remove and install a specific duct section. Do only the steps that are necessary to remove the required section of duct.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-23-01-000-801	Manifold Flow Sensor Removal (P/B 401)

C. Location Zones

Zone	Area
510	Subzone 510 - Wing Leading Edge - Forward of Front Spar
610	Subzone 610 - Wing Leading Edge - Forward of Front Spar

D. Prepare for the Removal

SUBTASK 36-12-04-860-003

WARNING RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURY TO PERSONS.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-04-010-005

(2) Open the applicable access panel.

E. Wing Leading Edge Duct Removal

NOTE: The steps that follow include all of the information that is necessary to remove all of the duct sections. You do not have to do all of the steps.

SUBTASK 36-12-04-020-017

(1) Do these steps to remove the duct section:

(a) Remove the clamp [32] on the vapor seal [35].

(b) Loosen the duct support clamp [37] on the duct.

(c) Remove the bolt [41], washers [39] and nut [40] for the duct support link [38].

(d) Loosen and remove the applicable couplings [36] on each end of the duct.

(e) Remove the duct.

SUBTASK 36-12-04-020-018

(2) Do these steps to remove the vapor seal:

(a) Remove the bolts [33], washers [34] and backing plate [42] from the vapor seal [35].

(b) Loosen the duct support clamp [37] on the duct.

(c) Remove the bolt [41], washers [39] and nut [40] for the duct support link [38].

(d) Loosen and remove the applicable couplings [36] on each end of the duct.

(e) Remove the duct.

(f) Remove the clamp [32] and the vapor seal [35].

SUBTASK 36-12-04-020-004

(3) Remove the duct support clamp [37] if it is necessary.

SUBTASK 36-12-04-020-005

(4) To remove the manifold flow sensor [31], do this task: Manifold Flow Sensor Removal, TASK 36-23-01-000-801.

SUBTASK 36-12-04-480-006

(5) Install covers on the openings in the duct to keep out unwanted objects.

——— END OF TASK ———

TASK 36-12-04-400-806

5. Wing Leading Edge Duct Installation

(Figure 402)

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
36-23-01-400-801	Manifold Flow Sensor Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00386	Lubricant - Solid Film, Air Cured, Corrosion Inhibiting	MIL-L-23398 (NATO S-749)

C. Location Zones

Zone	Area
510	Subzone 510 - Wing Leading Edge - Forward of Front Spar
610	Subzone 610 - Wing Leading Edge - Forward of Front Spar

D. Wing Leading Edge Duct Installation

SUBTASK 36-12-04-080-006

(1) Remove the covers from the duct.

SUBTASK 36-12-04-420-002

(2) Do only the steps that are necessary to install the section of the duct:

(a) To install the manifold flow sensor [31], do this task: Manifold Flow Sensor Installation, TASK 36-23-01-400-801.

(b) Install the vapor seal [35] over the duct.

(c) Install the duct.

NOTE: You can adjust the duct support links [38] if it is necessary to align the duct section.

If you install the duct section with the manifold flow sensor [31] make sure the manifold flow sensor [31] is pointed in the forward direction. Also make sure the electrical wiring will reach the manifold flow sensor [31] without stretching the wiring.

If you install the duct section that attaches to the strut duct, make sure they are correctly aligned and are not preloaded. If you cannot align the duct without preloading it, turn the ball joint on the strut duct to help align the duct sections. Do not use a force greater than 100 pound-inches.

(d) If the couplings [36] are not equipped with a dry film lubricant do this step:

1) Apply a coating of lubricant, D00386 or Never-Seez NSBT compound, D00006 to the inside of the coupling and the T-bolt threads. Apply the lubricant in accordance with the manufacturers specifications.

(e) Install the couplings [36].

NOTE: Do not tighten the couplings [36]. All of the duct sections must be aligned before the couplings [36] are tightened.

(f) Put the duct support clamp [37] into its position.

(g) Install the bolts [41], washers [39] and nut [40] for the duct support link [38].

NOTE: Install the washer [39] under the nut [40]. You can adjust the length of the duct support link [38] if it is necessary.

To find the torque values for all of the bolts, (TASK 20-11-00-910-801).

(h) Install the clamp [32] for the vapor seal [35].

(i) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on all of the bolts [33].

(j) Install the bolts [33], washers [34] and backing plate [42] for the vapor seal [35].

(k) Tighten the clamps [32] for the vapor seal [35] to 13 to 17 pound-inches (1.5 to 1.9 newton-meters).

(l) Tighten the duct support clamps [37] to 5 to 15 pound-inches (0.6 to 1.7 newton-meters).

NOTE: Make sure the clearance between the duct and any structure is greater than 0.7 inches (17.8 mm). You can adjust the duct support link if it is necessary.

SUBTASK 36-12-04-420-007

(3) Do these steps to make sure the couplings are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact, with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

CAUTION

DO NOT TIGHTEN THE COUPLINGS UNTIL ALL OF THE DUCTS ARE INSTALLED AND ALIGNED. IF THE DUCTS ARE NOT ALIGNED CORRECTLY LEAKS CAN OCCUR AND CAUSE DAMAGE TO EQUIPMENT.

(c) Tighten the couplings [36] to 60 to 70 pound-inches (6.8 to 7.9 newton-meters).

(d) Tighten the couplings [36] for the strut duct to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

1) Lightly tap around each coupling [36] and with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Tighten the couplings [36] to 60 to 70 pound-inches (6.8 to 7.9 newton-meters).

3) Tighten the couplings [36] for the strut duct to 115 to 125 pound-inches (13.0 to 14.1 newton-meters).

4) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

E. Wing Leading Edge Duct Installation Test

SUBTASK 36-12-04-720-002

(1) Do a leak test of the duct:

(a) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(b) Do a check for air leakage:

1) Small air leakage is satisfactory.

2) Repair large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches (305 mm) or greater from a point on the duct joint.

F. Put the Airplane Back to Its Usual Condition

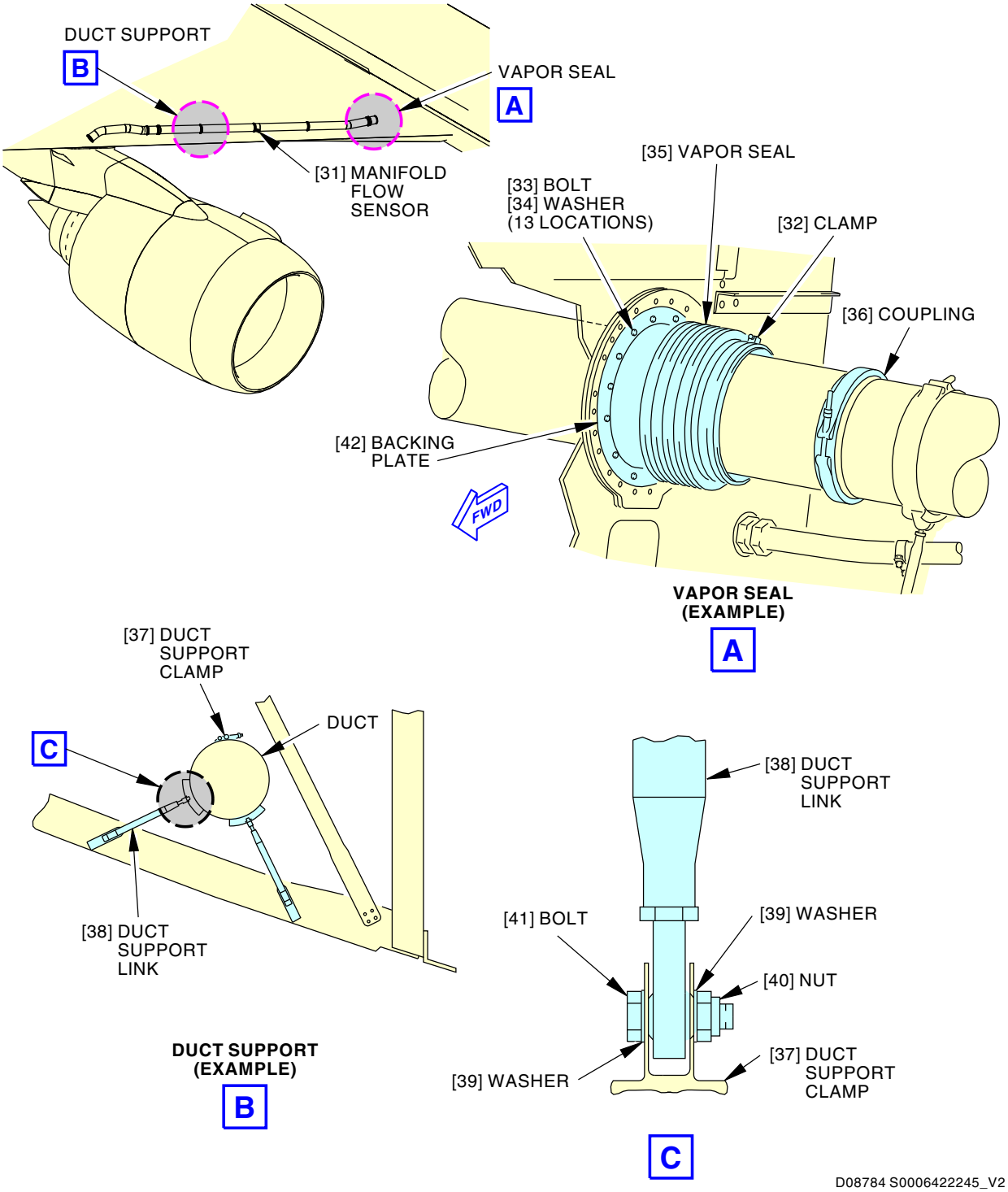
SUBTASK 36-12-04-860-004

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-04-410-003

(2) Close the applicable access panels.

——— END OF TASK ———



Wing Leading Edge Duct Installation
Figure 402/36-12-04-990-802

TASK 36-12-04-000-807

6. Crossover Duct Removal

(Figure 403)

A. General

(1) This procedure is written to provide all of the information that is necessary to remove and install a specific duct section. Do only the steps that are necessary to remove the required section of duct.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

C. Location Zones

Zone	Area
130	Subzone 130

D. Prepare for the Removal

SUBTASK 36-12-04-860-005

WARNING RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURY TO PERSONS.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-04-010-006

(2) Open the applicable access panel.

E. Crossover Duct Removal

NOTE: The steps that follow include all of the information that is necessary to remove all of the duct sections. You do not have to do all of the steps.

SUBTASK 36-12-04-020-019

(1) Do only the steps that are necessary to remove the section of the duct:

(a) Remove the bonding jumper [67] from the bonding jumper clamp [71].

(b) Remove the bonding jumper clamp [71].

(c) Remove the sense line for the manifold pressure sensor or total air temperature probe.

(d) Remove the union for the sense line.

1) Discard the O-ring and keep the union for installation.

(e) Loosen the duct support clamp [63] on the duct section.

(f) Remove the bolt [66], washers [65] and nut [64] for the duct support link [62].

(g) Loosen the applicable couplings [61] on each end of the duct.

SUBTASK 36-12-04-020-006

(2) Remove the duct.

SUBTASK 36-12-04-020-007

(3) Remove the duct support clamp [63].

SUBTASK 36-12-04-480-007

(4) Install covers on the openings in the duct to keep out unwanted objects.

——— END OF TASK ———

TASK 36-12-04-400-807

7. Crossover Duct Installation

(Figure 403)

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00386	Lubricant - Solid Film, Air Cured, Corrosion Inhibiting	MIL-L-23398 (NATO S-749)
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Location Zones

Zone	Area
130	Subzone 130

E. Crossover Duct Installation

SUBTASK 36-12-04-080-007

(1) Remove the covers from the duct.

SUBTASK 36-12-04-420-003

(2) Do only the steps that are necessary to install the section of the duct:

(a) Install a new O-ring on the union.

(b) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the union.

(c) Install the union.

(d) Tighten the union to 80 to 100 pound-inches (9.0 to 11.3 newton-meters).

(e) Install the duct.

NOTE: You can adjust the duct support links [62] if it is necessary to align the duct section. Make sure the clearance between duct section and structure is greater than 0.4 inches (10.16 mm).

(f) If the couplings [61] are not equipped with a dry film lubricant do this step:

1) Apply a coating of lubricant, D00386 or Never-Seez NSBT compound, D00006 to the inside of the coupling and the T-bolt threads. Apply the lubricant in accordance with the manufacturers specifications.

(g) Install the couplings [61].

NOTE: Do not tighten the couplings [61]. All of the duct sections must be aligned before the couplings [61] are tightened.

(h) Put the duct support clamp [63] into its position.

(i) Install the bolt [66], washers [65] and nut [64] for the duct support link [62].

NOTE: Install the washer [65] under the nut [64]. You can adjust the duct support link [62] length if it is necessary.

To find the torque values for all of the bolts, (TASK 20-11-00-910-801).

(j) Install the sense line for the manifold pressure sensor.

NOTE: Make sure you put the union in the position so the sense line is not stretched.

(k) Put the bonding jumper clamp [71] into its position.

(l) Install the bonding jumper [67] with the bolt [68], washers [69] and nut [70].

1) Make sure the surfaces that touch are clean.

2) With an intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the bonding jumper [67] and the bonding jumper clamp [71] is less than 0.008 ohms.

(m) Tighten the duct support clamps [63] to 5 to 15 pound-inches (0.6 to 1.7 newton-meters).

SUBTASK 36-12-04-420-008

(3) Do these steps to make sure the couplings are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact, with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

CAUTION

DO NOT TIGHTEN THE COUPLINGS UNTIL ALL OF THE DUCTS ARE INSTALLED AND ALIGNED. IF THE DUCTS ARE NOT ALIGNED CORRECTLY LEAKS CAN OCCUR AND CAUSE DAMAGE TO EQUIPMENT.

(c) Tighten the 7-inch couplings [61] to 60 to 70 pound-inches (6.7 to 7.9 newton-meters).

(d) Tighten the 5-inch couplings [61] to 50 to 60 pound-inches (5.6 to 6.7 newton-meters).

1) Lightly tap around each coupling [61] and with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Tighten the 7-inch couplings [61] to 60 to 70 pound-inches (6.7 to 7.9 newton-meters).

3) Tighten the 5-inch couplings [61] to 50 to 60 pound-inches (5.6 to 6.7 newton-meters).

4) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

F. Crossover Duct Installation Test

SUBTASK 36-12-04-720-003

(1) Do a leak test of the duct:

(a) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(b) Apply a leak detector Snoop Leak Detector compound, G00091 to the sense line connections.

(c) Do a check for air leakage:

1) Small air leakage is satisfactory at the coupling joint. No leakage is permitted at the sense line connection.

2) Repair large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

G. Put the Airplane Back to Its Usual Condition

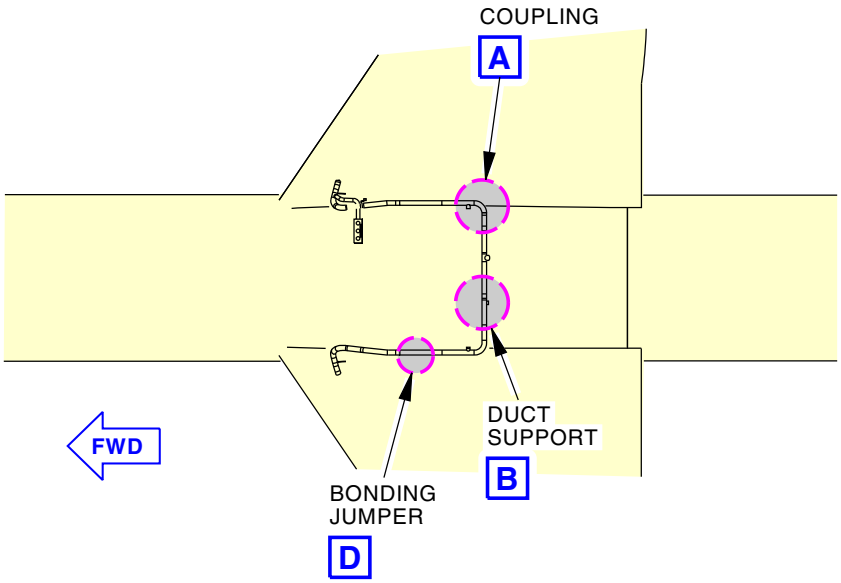
SUBTASK 36-12-04-860-006

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

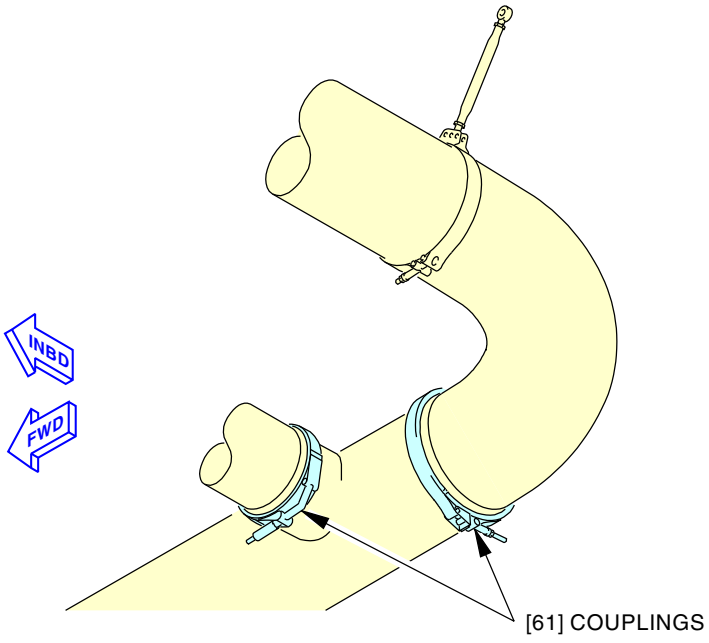
SUBTASK 36-12-04-410-004

(2) Close the applicable access panels.

——— END OF TASK ———



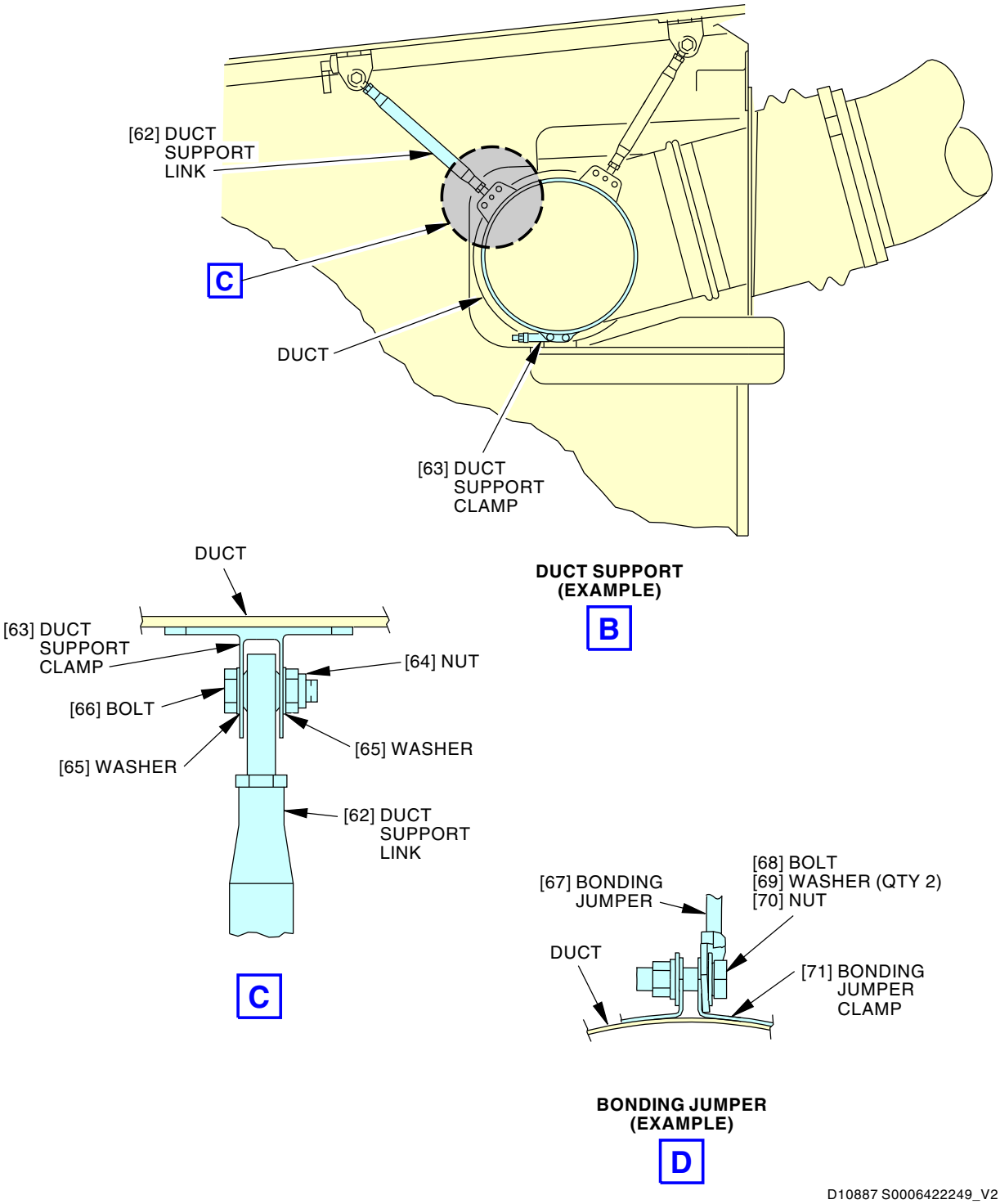
(BOTTOM VIEW)



COUPLING
(EXAMPLE)
A

D10873 S0006422248_V2

Crossover Duct Installation
Figure 403/36-12-04-990-803 (Sheet 1 of 2)



Crossover Duct Installation
Figure 403/36-12-04-990-803 (Sheet 2 of 2)

TASK 36-12-04-000-808

8. APU Supply Duct Removal

(Figure 404)

A. General

(1) This procedure is written to provide all of the information that is necessary to remove and install a duct section. Do only the steps that are necessary to remove the required section of duct.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

C. Location Zones

Zone	Area
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
310	Subzone 310 - Section 48

D. Prepare for the Removal

SUBTASK 36-12-04-860-007

WARNING RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURY TO PERSONS.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-04-010-007

(2) Open the applicable access panel.

E. APU Supply Duct Removal

NOTE: The steps that follow include all of the information that is necessary to remove all of the duct sections. You do not have to do all of the steps.

SUBTASK 36-12-04-020-020

(1) Do only the steps that are necessary to remove the section of the duct:

(a) Remove the clamp [97] on the vapor seal [99].

(b) Remove the bolts [100], [109], [127], washers [101], [110], [128] and backing plates [106], [111], [138] from the vapor seal [99] or pressure seal [114], [126].

NOTE: Access to the APU boot pressure seal is through the service access door 311BL.

(c) Do the applicable steps that follow to remove the sense line:

1) Disconnect the sense line from the duct.

2) Remove the union [138] for the sense line.

a) Discard the O-ring [139] and keep the union [138] for installation.

3) Remove the reducer [140] for the sense line.

4) Remove the restrictor [142] for the sense line.

a) Discard the two O-rings [141] and keep the restrictor [142] for installation.

(d) Remove the bolts [135], washers [136] and nuts [137] for the clamp assembly [134].

(e) Remove the clamp assembly [134].

(f) Remove the bolts [104] and spacers [105] for the duct support links [103].

(g) Remove the bonding jumper [133] from the bonding jumper clamp [129].

(h) Remove the bonding jumper clamp [129].

(i) Loosen the duct support clamp [93] on the duct.

(j) Remove the bolt [94], nuts [96] and washers [95] for the duct support link [91].

(k) Remove the bolts [115], nuts [117] and washers [116] for the duct clamp strap [119].

NOTE: To get access, crawl between the two potable water tanks on the right side of the airplane, climb between the Lav/Galley vent duct and the chiller duct and locate the items.

(l) Remove the duct clamp strap [119].

(m) Remove the bolts [121] and washers [122] for the U-clamp [120].

(n) Remove the U-clamp [120].

(o) Remove the bolts [123] and washers [124] for the duct section at the APU bulkhead [125].

(p) Loosen and remove the applicable couplings [92] on each end of the duct.

SUBTASK 36-12-04-020-008

(2) Remove the duct.

SUBTASK 36-12-04-020-009

(3) Remove the vapor seal [99] or the pressure seal [114], [126] and keep for installation.

SUBTASK 36-12-04-020-010

(4) Remove the duct support clamp [93].

SUBTASK 36-12-04-480-008

(5) Install covers on the openings in the duct to keep out unwanted objects.

——— END OF TASK ———

TASK 36-12-04-400-808

9. APU Supply Duct Installation

(Figure 404)

A. References

Reference	Title
20-11-00-910-801	Standard Torque Values (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
A00160	Sealant - Firewall - Hydraulic Fluid Resistant	BMS5-63
A00900	Sealant - Silicone, RTV - Dow Corning 93-006-1RF (Formerly 93-006-1. Use until Stock depleted)	
A50103	Sealant - Pressure And Environmental-Chromate, Type II, Class B-2	BMS 5-95, Type II Class B-2
A50218	Sealant - Low Density Polyurethane	BMS5-93
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00386	Lubricant - Solid Film, Air Cured, Corrosion Inhibiting	MIL-L-23398 (NATO S-749)
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Location Zones

Zone	Area
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
310	Subzone 310 - Section 48

E. APU Supply Duct Installation

SUBTASK 36-12-04-080-008

(1) Remove the covers from the duct.

SUBTASK 36-12-04-420-004

(2) Do only the steps that are necessary to install the section of the duct:

(a) Install the duct support clamp [93].

1) Install the vapor seal [99] or the pressure seal [114], [126].

(b) Install the duct.

NOTE: You can adjust the duct support links [91], [103] if it is necessary to align the duct section. Make sure the clearance between duct section and structure is greater than 0.5 inches (12.7 mm).

(c) If the couplings [92] are not equipped with a dry film lubricant do this step:

1) Apply a coating of lubricant, D00386 or Never-Seez NSBT compound, D00006 to the inside of the coupling and the T-bolt threads. Apply the lubricant in accordance with the manufacturers specifications.

(d) Install the couplings [92].

NOTE: Do not tighten the couplings [92]. All of the duct sections must be aligned before the couplings [92] are tightened. Make sure the coupling nut is installed in the position shown.

(e) Install the bolts [94], nuts [96] and washers [95] for the duct support link [91].

NOTE: To find the torque values for all of the bolts, (TASK 20-11-00-910-801).

(f) Install the bolts [104] and spacers [105] for the duct support links [103].

(g) Do these steps to install the vapor seal [99] or pressure seal [114], [126]:

1) Install the clamp [97] for the vapor seal [99].
2) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on all of the bolts [108], [109], [128].
3) Install the bolts [100], [109], [127], washers [101], [110], [128] and backing plates [106], [111], [138] for the vapor seal [99] or pressure seal [114], [126].
4) Tighten the bolts [100], [109], [127] to 20 to 25 pound-inches (2.0 to 3.0 newton-meters).
5) Tighten the clamp [97] for the vapor seal [99] to 10 to 18 pound-inches (1.2 to 2.0 newton-meters).
6) Apply a fillet seal with, sealant, A50103 or sealant, A50218 or Dow Corning 93-006-1 RF sealant, A00900 around the edges of the pressure seal [114], [126].

(h) Do the applicable steps that follow to install the sense line:

1) Install a new O-ring [139] on the union [138].
2) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the union [138].
3) Install the union [138].
4) Tighten the union [138] to 80 to 100 pound-inches (9.1 to 11.3 newton-meters).
5) Install two new O-rings [141] on the restrictor [142].

NOTE: Install one O-ring on each side of the restrictor.

6) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the restrictor [142] and the reducer [140].
7) Install the restrictor [142].
8) Install the reducer [140].

(i) Install the sense line on the duct.

NOTE: Make sure the sense line is not stretched.

(j) Do these steps to install the bonding jumper [133]:

1) Put the bonding jumper clamp [129] into its position.
2) Make sure the surfaces that touch are clean.
3) Install bonding jumper [133] with the bolt [130], nut [132] and washers [131].
4) With an intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the bonding jumper [133] and the bonding jumper clamp [129] is less than 0.010 ohms.

(k) Install the bolts [135], washers [136] and nuts [137] to attach the clamp assembly [134] to the duct.

(l) Install the bolts [115], washers [116] and nuts [117] to attach the duct clamp strap [119] to the duct.

(m) Install the bolts [121] and washers [122] to attach the U-clamp [120] to the duct.

(n) Do these steps to install the bolts [123]:

1) Apply sealant, A00160 to the bolts [123] and the faying surface of the duct section that attaches to the APU bulkhead [125].

2) Install the bolts [123] and washers [124] for the duct section at the APU bulkhead [125].

(o) Tighten the duct support clamps [93] to 5 to 15 pound-inches (0.6 to 1.7 newton-meters).

SUBTASK 36-12-04-420-009

(3) Do these steps to make sure the couplings are properly installed on the duct flanges:

(a) Make sure the duct flanges make full contact, with no gaps around the circumference of the flanges.

(b) Make sure the ducts are aligned along their centerlines with no more than 0.06 inch (1.52 mm) misalignment.

CAUTION DO NOT TIGHTEN THE COUPLINGS UNTIL ALL OF THE DUCTS ARE INSTALLED AND ALIGNED. IF THE DUCTS ARE NOT ALIGNED CORRECTLY LEAKS CAN OCCUR AND CAUSE DAMAGE TO EQUIPMENT.

(c) Tighten the couplings [92] to the applicable value:

1) Tighten 2 inch couplings 40 to 50 pound-inches (4.5 to 5.6 newton-meters).

2) Tighten 5 and 6 inch couplings 50 to 60 pound-inches (5.6 to 6.7 newton-meters).

3) Tighten 7 inch couplings 60 to 70 pound-inches (6.7 to 7.9 newton-meters).

4) Lightly tap around each coupling [92] and with a rubber mallet.

NOTE: This will make sure you engage the coupling and flanges correctly.

5) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

F. APU Supply Duct Installation Test

SUBTASK 36-12-04-720-004

(1) Do a leak test of the duct:

(a) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(b) Apply a leak detector Snoop Leak Detector compound, G00091 to the sense line connections.

(c) Do a check for air leakage:

1) Small air leakage is satisfactory at the coupling joint. No leakage is permitted at the sense line connection.

2) Repair large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

G. Put the Airplane Back to Its Usual Condition

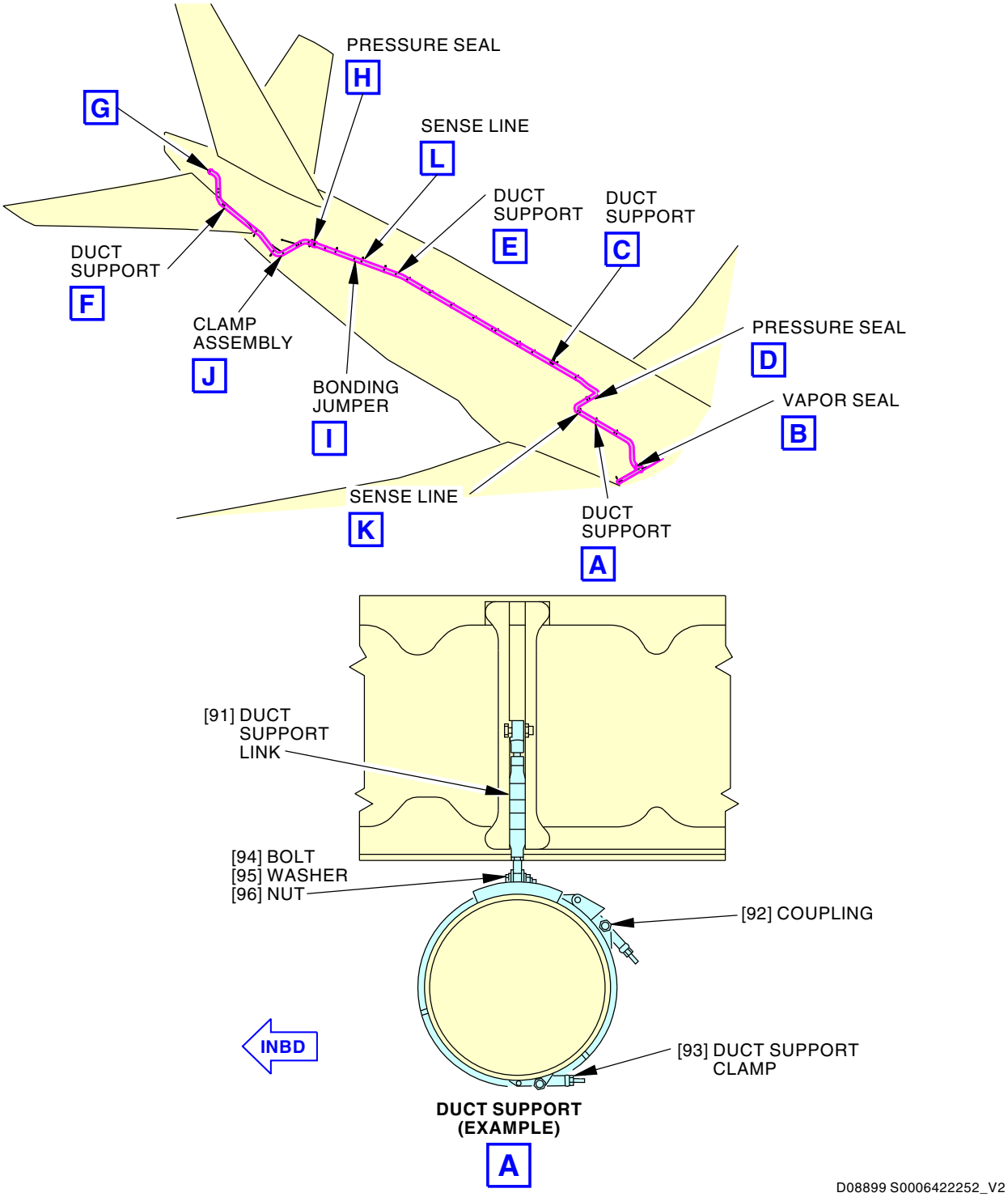
SUBTASK 36-12-04-860-008

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

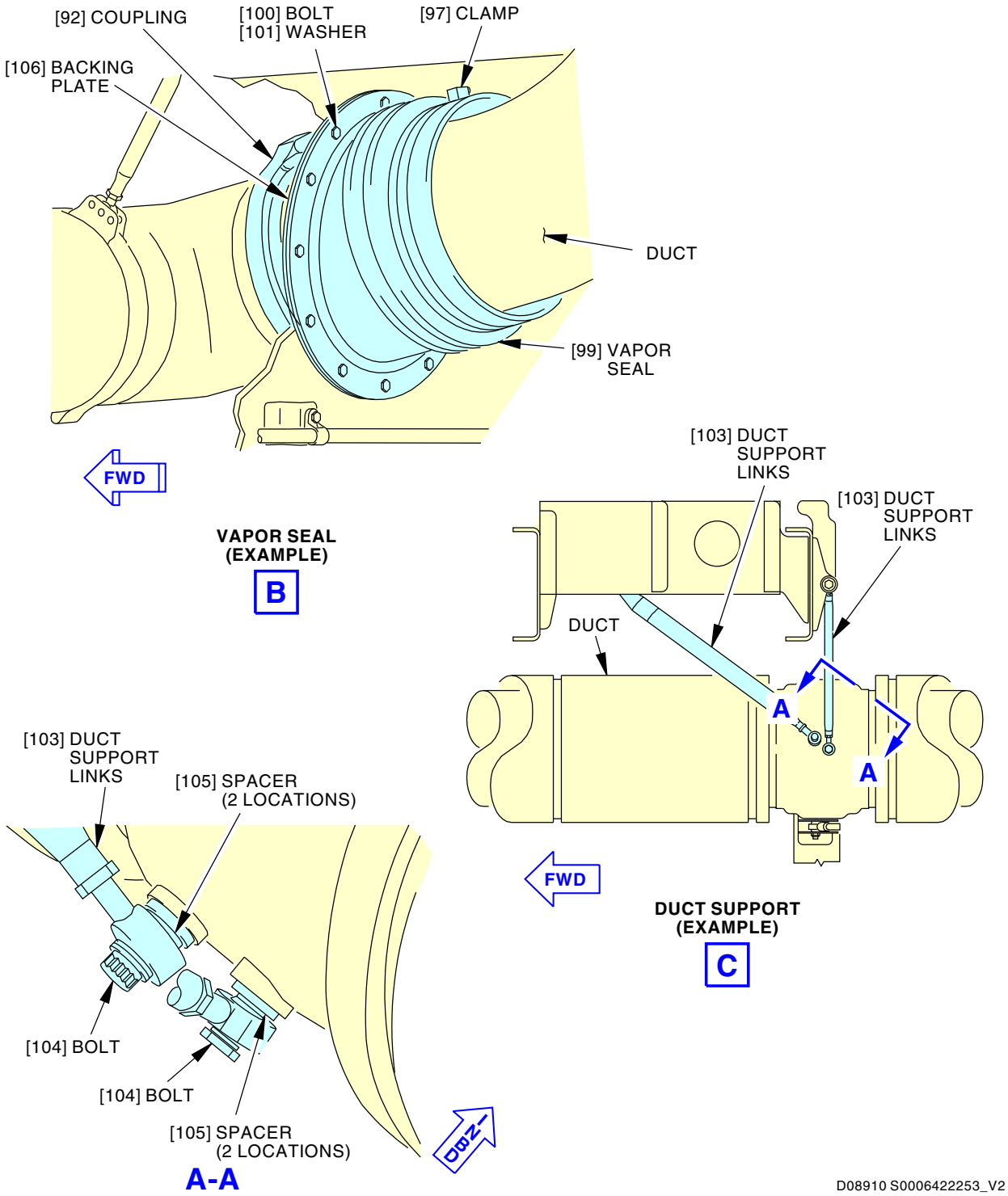
SUBTASK 36-12-04-410-005

(2) Close the applicable access panels.

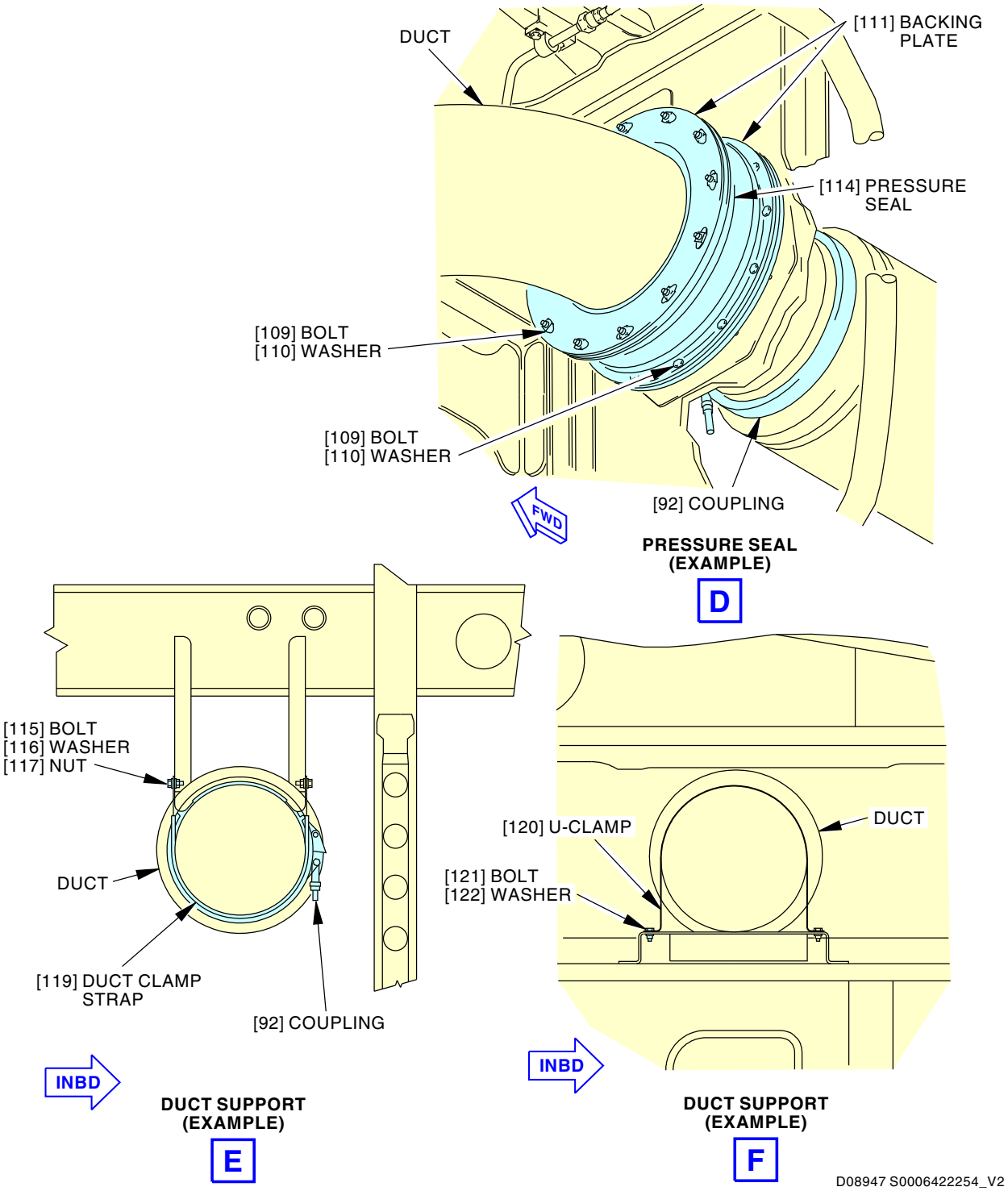
END OF TASK



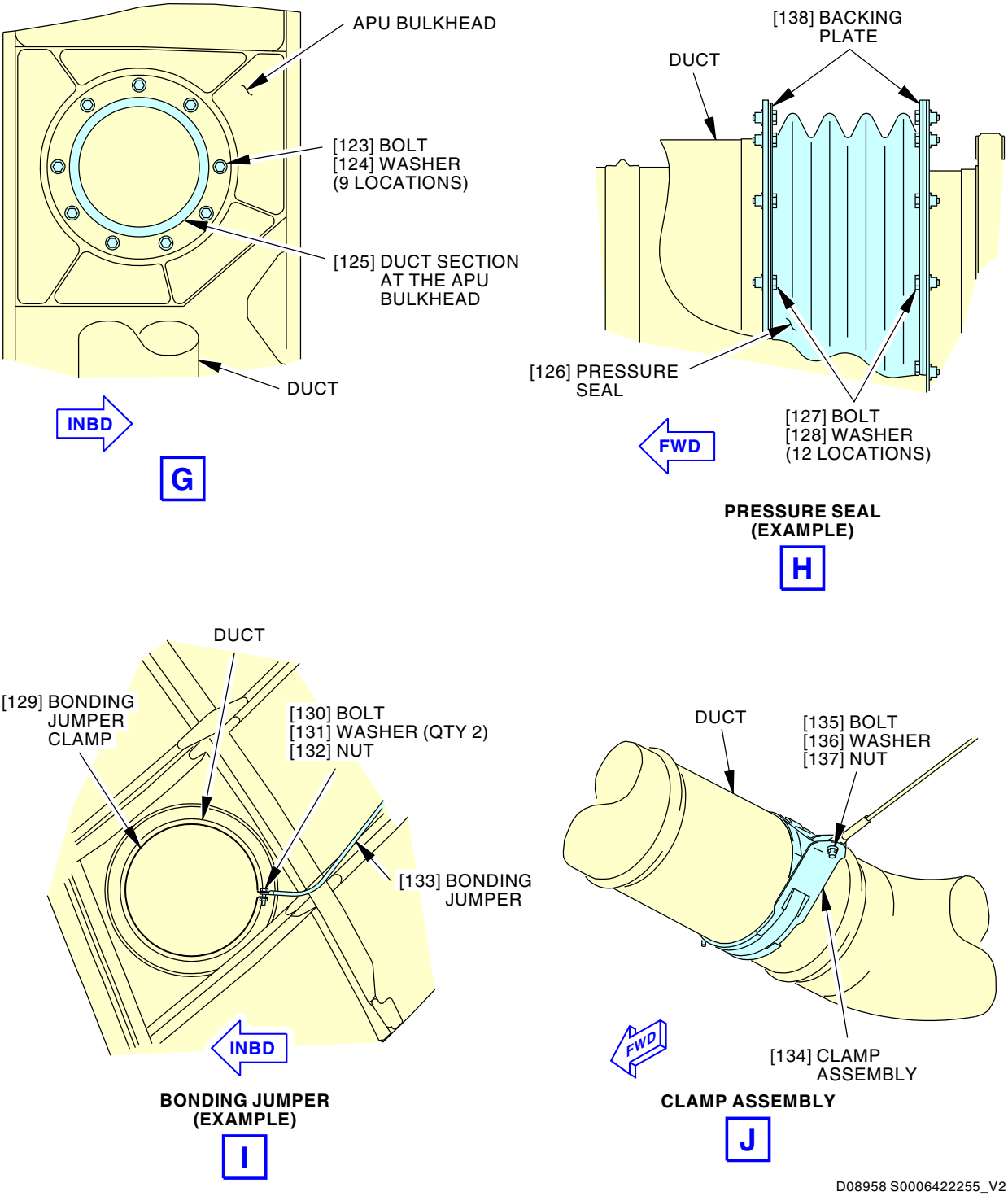
APU Supply Duct Installation
Figure 404/36-12-04-990-804 (Sheet 1 of 5)



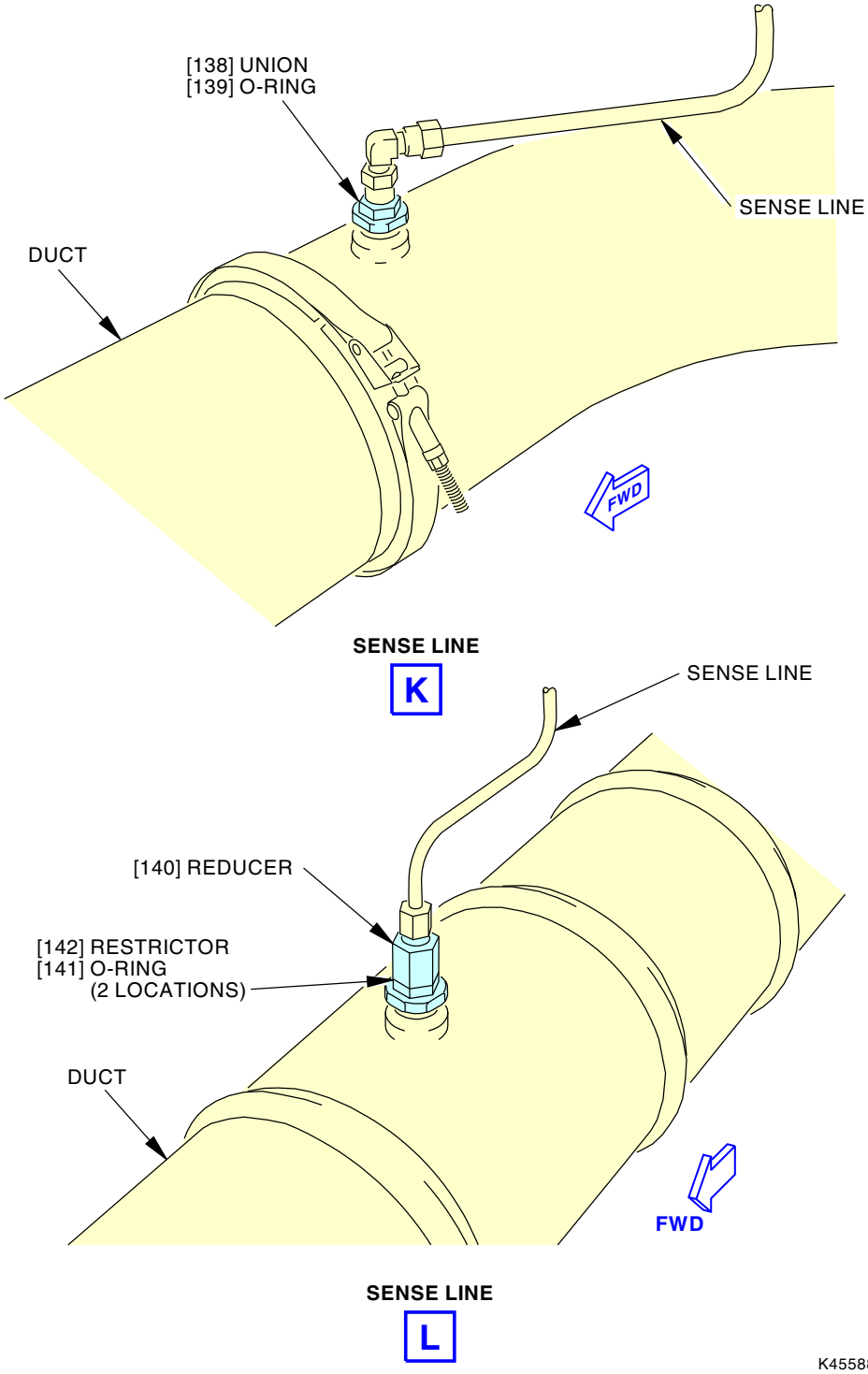
APU Supply Duct Installation
Figure 404/36-12-04-990-804 (Sheet 2 of 5)



APU Supply Duct Installation
Figure 404/36-12-04-990-804 (Sheet 3 of 5)



APU Supply Duct Installation
Figure 404/36-12-04-990-804 (Sheet 4 of 5)



APU Supply Duct Installation
Figure 404/36-12-04-990-804 (Sheet 5 of 5)

TASK 36-12-04-000-809

10. ADP Supply Duct Removal

(Figure 405)

A. General

(1) This procedure will give all of the data necessary to remove and install a duct section. Do only the steps that are necessary to remove the applicable section of the duct.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

C. Location Zones

Zone	Area
140	Subzone 140

D. Prepare for Removal

SUBTASK 36-12-04-860-009

WARNING YOU MUST RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT HIGH PRESSURE AIR IN THE PNEUMATIC DUCTS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801

SUBTASK 36-12-04-010-011

(2) Open the applicable access panel.

E. ADP Supply Duct Removal

NOTE: The steps that follow include all of the data that is necessary to remove all of the duct sections. You do not have to do all of the steps.

SUBTASK 36-12-04-020-021

(1) Do these steps to disconnect the ADP supply duct [143] at the pressure seal [148] or the vapor seal [163] connection points:

(a) Remove the clamp [162] from the vapor seal [163].

(b) Remove the bolts [144], [160], washers [145], [161], and backing plates [147], [164] from the pressure seal [148] or vapor seal [163].

(c) Remove the coupling [146], [165] to disconnect the ADP supply duct [143] from the adjacent duct.

SUBTASK 36-12-04-020-022

(2) Do these steps to remove the duct supports:

(a) Remove the bolts [149] and washers [150] to remove the clamp [151] from the ADP supply duct [143] (sheet 2).

(b) Remove the bolts [154], washers [155], and nuts [156] to disconnect the duct support links [153] from the clamp [152].

(c) Remove the clamp [152] from the ADP supply duct [143].

(d) Remove the bolts [157] and washers [158] to remove the clamp [159] from the ADP supply duct [143].

SUBTASK 36-12-04-020-025

(3) Remove the necessary couplings along the duct line.

SUBTASK 36-12-04-020-023

(4) Remove the applicable section of the ADP supply duct [143].

SUBTASK 36-12-04-020-024

(5) Remove the pressure seal [148] or the vapor seal [163] and keep for installation.

SUBTASK 36-12-04-480-009

(6) Install covers on the openings where the ADP supply duct [143] was removed to keep out unwanted objects.

——— END OF TASK ———

TASK 36-12-04-400-809

11. ADP Supply Duct Installation

(Figure 405)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
140	Subzone 140

C. Prepare for Installation

SUBTASK 36-12-04-080-009

(1) Remove the covers from the ADP supply duct [143] and the adjacent ducts, if applicable.

SUBTASK 36-12-04-420-010

(2) Install the pressure seal [148] or the vapor seal [163] to the ADP supply duct [143].

D. ADP Supply Duct Installation

SUBTASK 36-12-04-420-011

(1) Set and align the applicable section of the ADP supply duct [143] in its usual location.

NOTE: Do only the steps that necessary to install the applicable section of the duct.

SUBTASK 36-12-04-420-012

(2) Do these steps to install the duct supports on the ADP supply duct [143]:

(a) Loosely install the clamp [151] on the ADP supply duct [143] with the bolts [149] and washers [150].

1) Do not tighten the bolts [149] at this time.

(b) Loosely install the clamp [152] on the ADP supply duct [143].

1) Do not tighten the clamp [152] at this time.

(c) Align the duct support links [153] on the clamp [152].

(d) Install the bolts [154], the washers [155], and the nuts [156] to connect the duct support links [153] to the clamp [152].

(e) Loosely install the clamp [159] on the ADP supply duct [143] with the bolts [157] and the washers [158]

1) Do not install the bolts [157] at this time.

SUBTASK 36-12-04-420-013

(3) Do these steps to connect the ADP supply duct [143] at the pressure seal [148] or the vapor seal [163] connection points.

(a) Prior to installing the vapor seal connection do these steps:

1) Make sure that the axial flange-to-flange misalignment between the ADP supply duct [143] and the adjacent duct does not exceed 0.06 in. (1.52 mm).

2) If the misalignment is greater than 0.06 in. (1.52 mm), loosen the joints and adjust both the forward and aft supports to achieve the proper alignment.

(b) Loosely install the clamp [162] on the vapor seal [163]

(c) Install the bolts [144], [160], washers [145], [161], and the backing plates [147], [164] for the pressure seal [149] or the vapor seal [163].

(d) Tighten the clamp [162] on the vapor seal [163] to a torque range of 13.00 in-lb (1.47 N·m) to 17.00 in-lb (1.92 N·m).

(e) Install the couplings [146], [165] to connect the ADP supply duct [143] to the adjacent duct.

1) For the coupling [146] at the pressure seal connection, tighten the coupling [146] to a torque range of 45.00 in-lb (5.08 N·m) to 55.00 in-lb (6.21 N·m).

2) For the coupling [165] at the vapor seal connection, tighten the coupling [165] to a torque range of 50.00 in-lb (5.65 N·m) to 60.00 in-lb (6.78 N·m).

SUBTASK 36-12-04-211-001

CAUTION

DO NOT TIGHTEN THE COUPLINGS UNTIL ALL OF THE DUCTS ARE INSTALLED AND ALIGNED. IF THE DUCTS ARE NOT ALIGNED CORRECTLY LEAKS CAN OCCUR AND CAUSE DAMAGE TO EQUIPMENT.

(4) Do a final inspection of the duct flanges before installing the couplings.

(a) Make sure that the duct flanges make full contact with no gaps around the circumference of the flanges.

1) Loosen joints and adjust supports as necessary.

(b) Make sure that the ducts are aligned along their center lines.

1) A misalignment of not greater than 0.06 in. (1.52 mm) is preferred.

SUBTASK 36-12-04-420-014

(5) Secure the clamp installations.

(a) Tighten the bolts [149] to secure the clamp [151] on the ADP supply duct [143].

(b) Tighten clamp [152] on the ADP supply duct [143] to a torque range of 13.00 in-lb (1.47 N·m) to 17.00 in-lb (1.92 N·m).

(c) Tighten the bolts [157] to secure the clamp [159] on the ADP supply duct [143].

SUBTASK 36-12-04-420-015

(6) Install the couplings along the duct line.

(a) Tighten couplings to a torque range of 50.00 in-lb (5.65 N·m) to 60.00 in-lb (6.78 N·m).

(b) Lightly tap around each coupling with a rubber mallet

NOTE: This will make sure you engage the coupling and flanges correctly.

(c) Repeat the above steps until the locking nut on the coupling requires less than a half turn to get the recommended torque.

E. ADP Supply Duct Post-Installation Test

SUBTASK 36-12-04-860-010

(1) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

SUBTASK 36-12-04-790-001

(2) Do a check for air leakage:

(a) Check all connection points along the duct line for air leakage.

1) Small air leakage is satisfactory at the coupling joint.

2) Repair large air leakage.

NOTE: Large air leakage is when you feel the airflow with your hand at a distance of 12 inches or greater from a point on the duct joint.

F. Put the Airplane Back to its Usual Condition

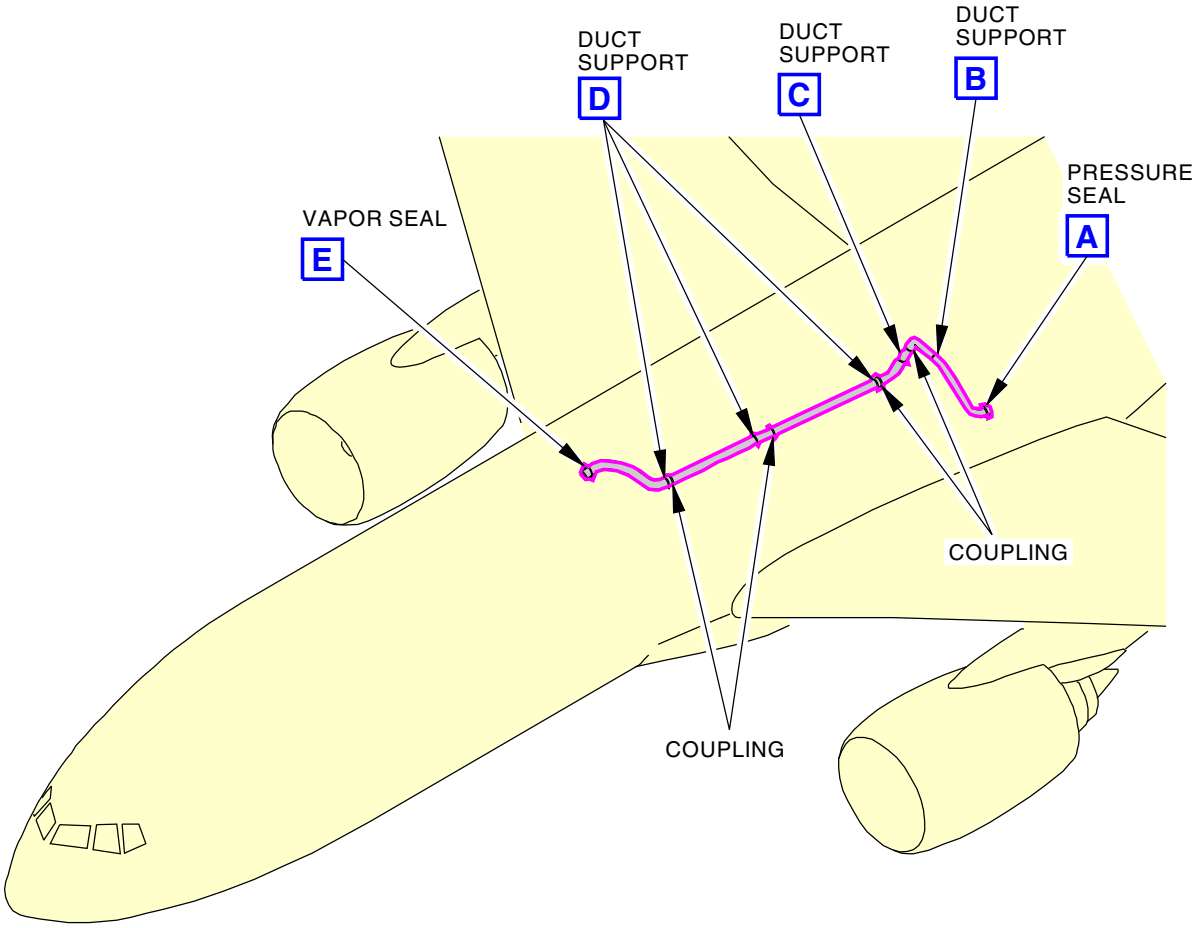
SUBTASK 36-12-04-860-011

(1) If pneumatic power is not necessary, do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-04-410-006

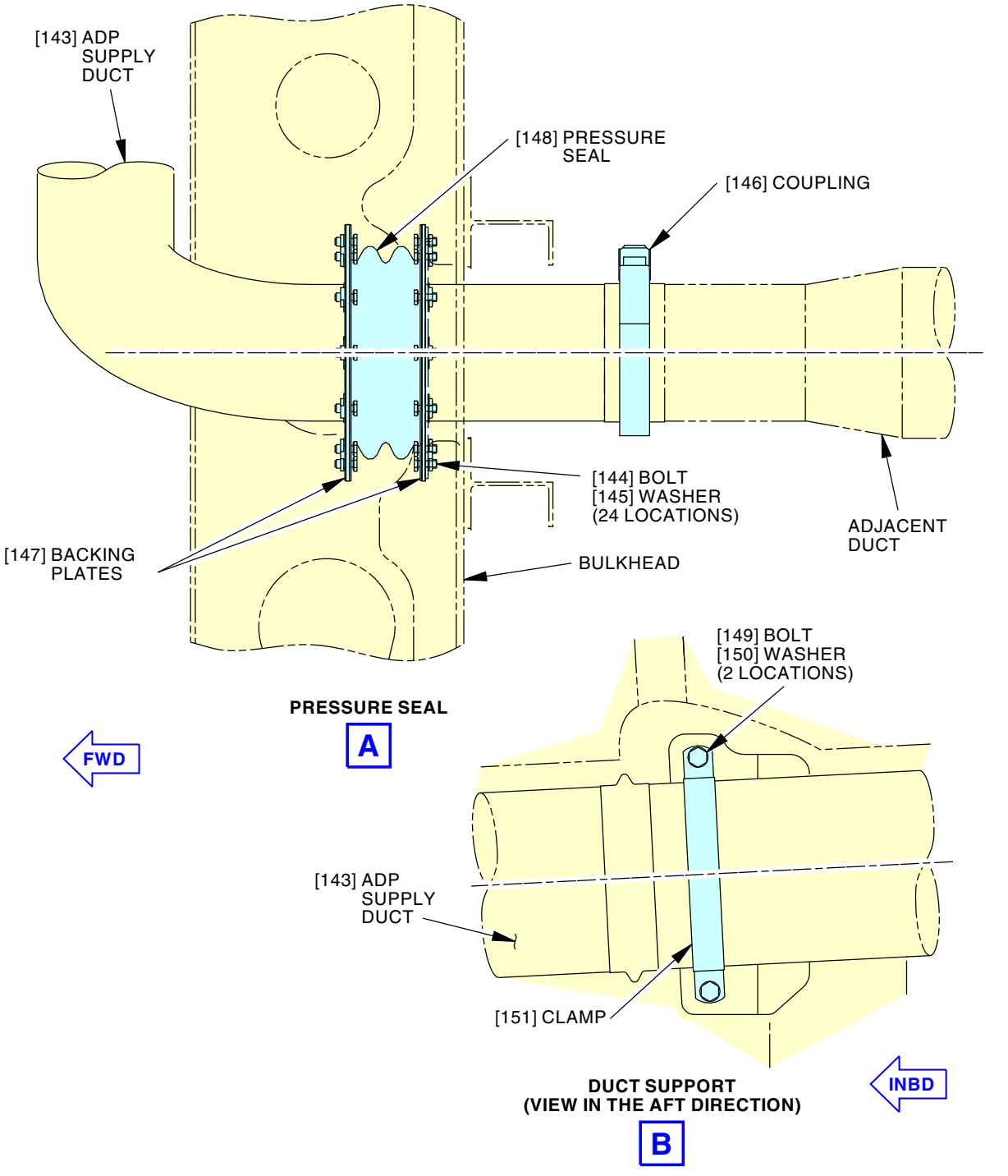
(2) Close the applicable access panels.

——— END OF TASK ———

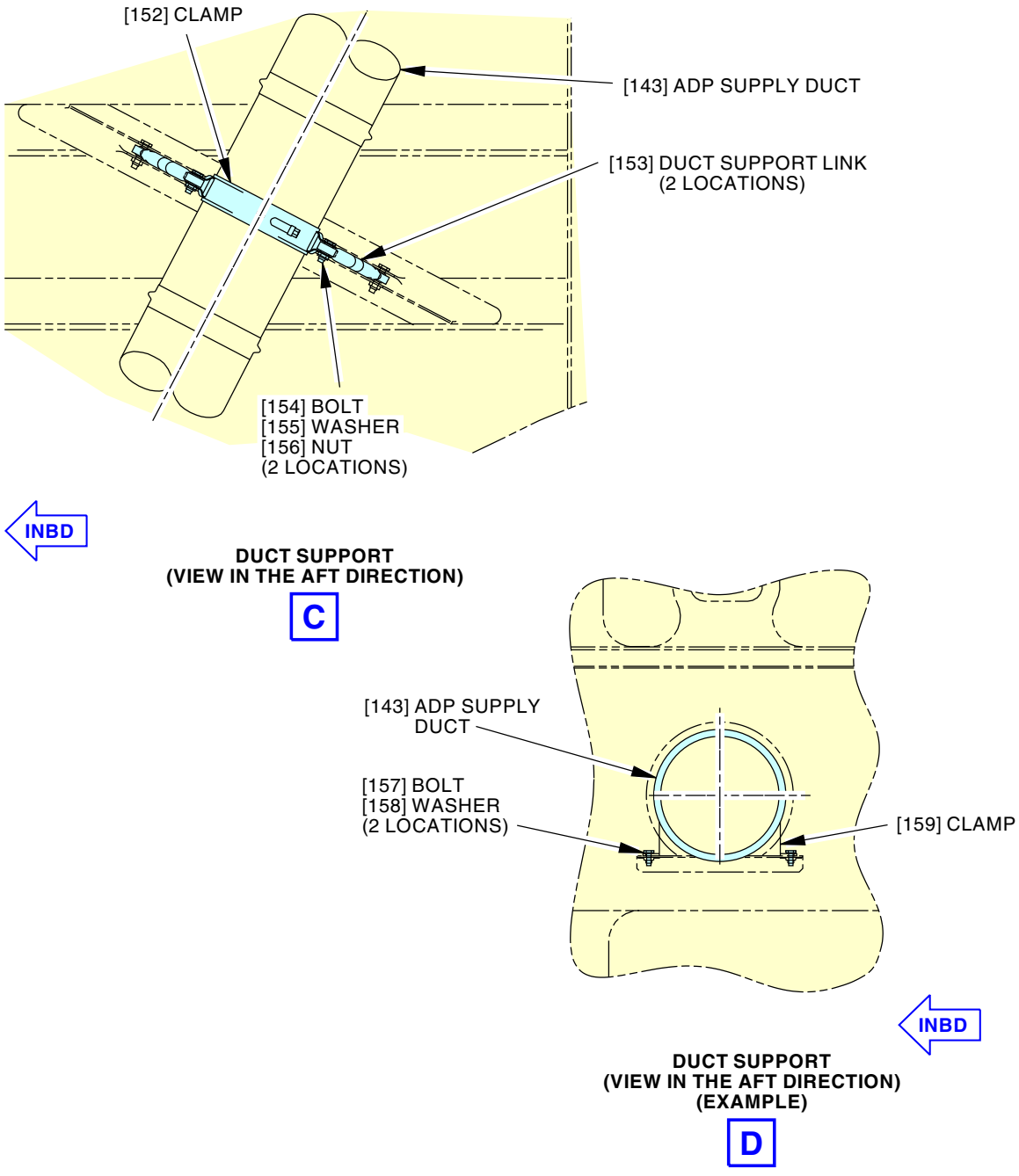


1875476 S0000339288_V2

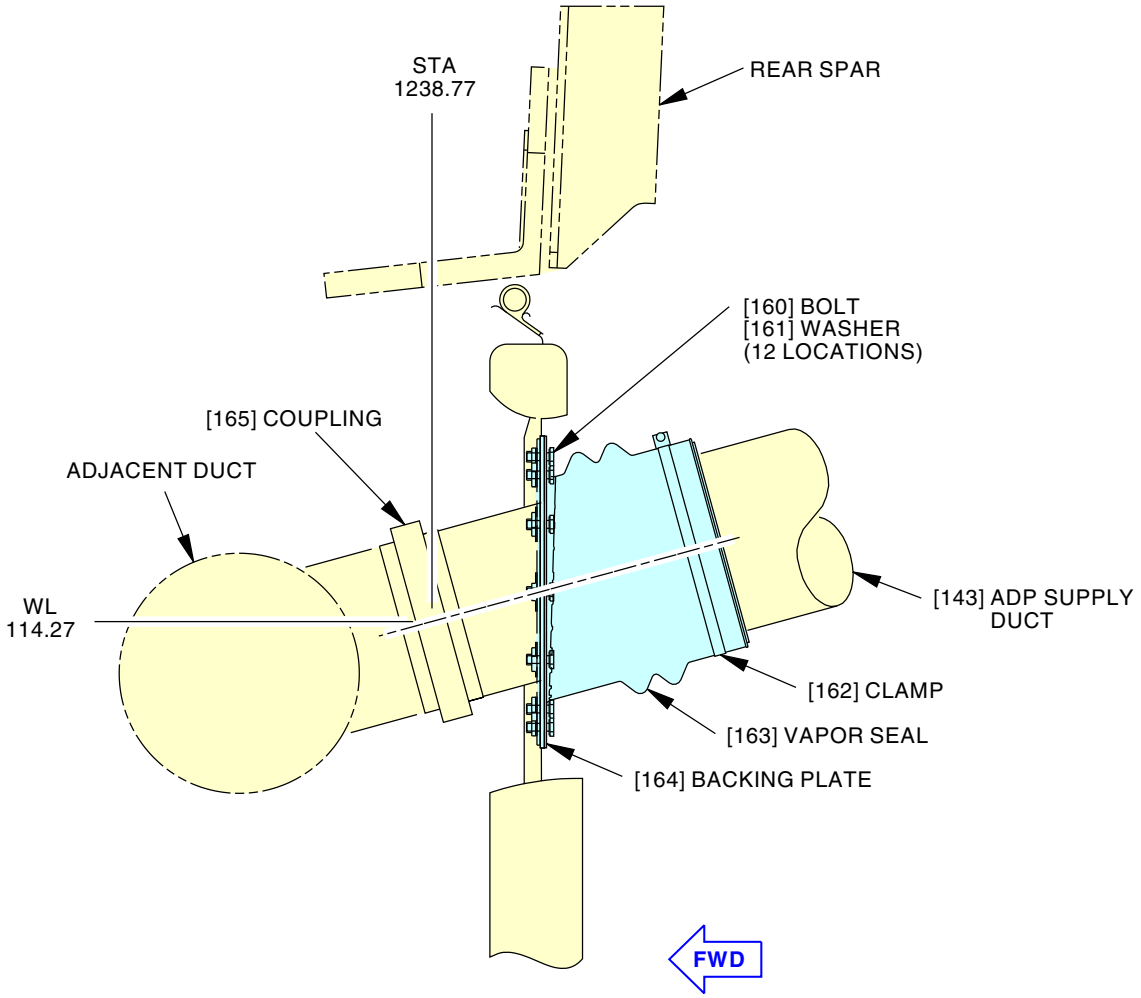
ADP Supply Duct Installation
Figure 405/36-12-04-990-806 (Sheet 1 of 4)



ADP Supply Duct Installation
Figure 405/36-12-04-990-806 (Sheet 2 of 4)



ADP Supply Duct Installation
Figure 405/36-12-04-990-806 (Sheet 3 of 4)



1875606 S0000339292_V2

ADP Supply Duct Installation
Figure 405/36-12-04-990-806 (Sheet 4 of 4)

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT - INSPECTION/CHECK

1. General

A. This procedure does an inspection of the air supply distribution pneumatic ducts (air supply duct).

TASK 36-12-04-200-801

2. Air Supply Duct Inspection

A. General

(1) The air supply ducts are made of nickel alloy and titanium.

(2) The air supply ducts are as follows:

(a) Strut Duct

(b) Wing Leading Edge Duct

(c) Crossover Duct

(d) APU Supply Duct

B. References

Reference	Title
36-12-04 P/B 401	AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT - REMOVAL/INSTALLATION
36-12-04-100-801	Air Supply Duct Cleaning (P/B 701)
36-12-04-300-801	Air Supply Duct Repairs (P/B 801)

C. Location Zones

Zone	Area
130	Subzone 130
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
310	Subzone 310 - Section 48

D. Prepare for the Air Supply Duct Inspection

SUBTASK 36-12-04-010-002

(1) Open the applicable access panel to get access to the air supply duct section that you want to inspect.

E. Air Supply Duct Inspection

SUBTASK 36-12-04-210-001

(1) Do a check to see if hydraulic fluid caused damage to the titanium air supply ducts.

NOTE: This will show as a light glossy brown film, a dull black residue or a bare surface of duct that usually has a protective coating.

If a titanium air supply duct is damaged due to hydraulic fluid, the duct must be replaced.

Titanium duct is installed in the wing leading edge duct, crossover duct and parts of the APU supply duct.

The illustrated parts catalog provides information to determine if a section of duct is made from nickel or titanium.

(a) If a titanium duct needs repair, do this task:

Air Supply Duct Repairs, TASK 36-12-04-300-801

(b) If a titanium duct needs to be replaced, do the necessary task in this pageblock:

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT - REMOVAL/INSTALLATION, PAGEBLOCK 36-12-04/401

SUBTASK 36-12-04-210-002

(2) If a pneumatic duct needs to be cleaned, do this task:

Air Supply Duct Cleaning, TASK 36-12-04-100-801

SUBTASK 36-12-04-300-001

(3) If a pneumatic duct is damaged and needs repair, do this task:

Air Supply Duct Repairs, TASK 36-12-04-300-801

SUBTASK 36-12-04-960-003

(4) If a pneumatic duct needs to be replaced, do the necessary task in this pageblock:

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT - REMOVAL/INSTALLATION, PAGEBLOCK 36-12-04/401

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-04-010-003

(1) Close the access panels.

——— END OF TASK ———

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT - CLEANING/PAINTING

1. General

A. This procedure has one task. The task contains instructions to clean the air supply distribution pneumatic ducts (air supply duct).

TASK 36-12-04-100-801

2. Air Supply Duct Cleaning

A. General

(1) The air supply ducts are made of nickel alloy or titanium alloy.

(2) The air supply ducts are as follows:

(a) Strut Ducts - nickel alloy

(b) Wing Leading Edge Ducts - titanium alloy

(c) Crossover Ducts - titanium alloy

(d) APU and ADP Supply Ducts - titanium alloy and nickel alloy

B. References

Reference	Title
20-10-22-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
20-30-02-910-801	Structure Cleaners and Polishes (P/B 201)
36-12-04-000-805	Strut Duct Removal (P/B 401)
36-12-04-000-806	Wing Leading Edge Duct Removal (P/B 401)
36-12-04-000-807	Crossover Duct Removal (P/B 401)
36-12-04-000-808	APU Supply Duct Removal (P/B 401)
36-12-04-400-805	Strut Duct Installation (P/B 401)
36-12-04-400-806	Wing Leading Edge Duct Installation (P/B 401)
36-12-04-400-807	Crossover Duct Installation (P/B 401)
36-12-04-400-808	APU Supply Duct 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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 234350 Supplier: $0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: $0856 Part #: DFD5019 Supplier: $0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: $0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5

D. Consumable Materials

Reference	Description	Specification
B00003	Cleaner - Emulsion Alkaline - GMC 528B	
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00130	Alcohol - Isopropyl	TT-I-735
B00153	Solvent - Toluene, Nitration	JAN-T-171 Grade A
B00342	Alcohol - N-Butyl (Butanol)	ASTM D304
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054

E. Location Zones

Zone	Area
130	Subzone 130
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
310	Subzone 310 - Section 48

F. Prepare for the Air Supply Duct Cleaning

SUBTASK 36-12-04-010-001

(1) Open the applicable access panel to get access to the air supply duct you want to clean.

G. Air Supply Duct Cleaning

SUBTASK 36-12-04-280-001

(1) Do these steps to clean bare titanium ducts that are not contaminated with hydraulic fluid:

(a) If the titanium duct is damaged, replace the duct. These are the tasks: Strut Duct Removal, TASK 36-12-04-000-805 or Wing Leading Edge Duct Removal, TASK 36-12-04-000-806 or Crossover Duct Removal, TASK 36-12-04-000-807 or APU Supply Duct Removal, TASK 36-12-04-000-808, Strut Duct Installation, TASK 36-12-04-400-805 or Wing Leading Edge Duct Installation, TASK 36-12-04-400-806 or Crossover Duct Installation, TASK 36-12-04-400-807 or APU Supply Duct Installation, TASK 36-12-04-400-808.

(b) If the titanium duct is not damaged, clean the titanium duct with one of these cleaners:

1) Manual solvent cleaners:

a) solvent, B00153

b) alcohol, B00342

c) solvent, B00062

2) Emulsion cleaners:

a) GMC 528B cleaner, B00003

3) Alkaline cleaners (Structure Cleaners and Polishes, TASK 20-30-02-910-801).

(c) Soak a clean wiper with solvent and wring out excess solvent.

(d) Rub the surface with the wet wiper to remove the unwanted material.

(e) Wipe the duct dry.

SUBTASK 36-12-04-960-001

(2) Do these steps to clean bare titanium ducts with hydraulic fluid contamination:

NOTE: You can have a stain from hydraulic fluid after cleaning if all of the hydraulic fluid residue is removed and the duct surface is smooth.

(a) Remove any oil or other unwanted material with the solvent cleaning procedure shown above.

(b) Remove the hydraulic fluid and hydraulic fluid residue (this will show as a light, glossy dark brown film) with a water base cleaner MIL-C-25769.

(c) To remove thick layers of hydraulic fluid residue, let the alkaline solvent absorb into the hydraulic fluid residue for 20-40 minutes.

(d) Scrape the hydraulic fluid residue with a small sealant removal tool, COM-2481 made of wood, aluminumized steel wool or abrasive mat, G00251 fabric.

NOTE: Do not use a power wire brush or abrasive blast to remove the hydraulic fluid residue.

SUBTASK 36-12-04-110-001

(3) Clean the gold covered titanium duct with a lint-free clean cotton wiper, G00034 and isopropyl alcohol, B00130.

SUBTASK 36-12-04-110-002

(4) Clean the nickel alloy ducts with one of these applicable alkaline cleaners or manual solvent cleaners:

(a) Alkaline cleaners (Structure Cleaners and Polishes, TASK 20-30-02-910-801).

(b) Manual solvent cleaners:

1) solvent, B00153

2) alcohol, B00342

3) solvent, B00062

SUBTASK 36-12-04-110-003

(5) Remove all oxide from the titanium ducts. To remove all oxide from the titanium ducts, do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-22-120-801.

SUBTASK 36-12-04-110-004

(6) Remove all oxide from the nickel alloy ducts with abrasive mat, G00251 fabric.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-04-410-001

(1) Close the applicable access panels.

END OF TASK

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT - REPAIRS

1. General

A. This procedure has one task:

(1) Repair procedures for the air supply distribution pneumatic ducts (air supply ducts).

TASK 36-12-04-300-801

2. Air Supply Duct Repairs

A. General

(1) The air supply ducts are as follows:

(a) Strut Duct

(b) Wing Leading Edge Duct

(c) Crossover Duct

(d) APU Supply Duct

(e) ADP Supply Duct

B. References

Reference	Title
36-11-01-200-802	Pneumatic Duct Repair (P/B 801)
36-12-04-000-805	Strut Duct Removal (P/B 401)
36-12-04-000-806	Wing Leading Edge Duct Removal (P/B 401)
36-12-04-000-807	Crossover Duct Removal (P/B 401)
36-12-04-000-808	APU Supply Duct Removal (P/B 401)
36-12-04-400-805	Strut Duct Installation (P/B 401)
36-12-04-400-806	Wing Leading Edge Duct Installation (P/B 401)
36-12-04-400-807	Crossover Duct Installation (P/B 401)
36-12-04-400-808	APU Supply Duct 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-1938	Reforming Tool Kit - Flange Part #: 6FT001-101 Supplier: 0TDH1
STD-1112	Clamps - Stainless Steel, 8-9 Inch Adjustable

D. Consumable Materials

Reference	Description	Specification
G02306	Material - Elastomer, Synthetic For Elevated Temperature Service (Synthetic Rubber)	BMS1-74 Type I (Supersedes BMS1-54)
G02307	Material - Corrosion & Heat Resistant Steel Sheet (21Cr-6Ni-9Mn)	BMS7-191

E. Location Zones

Zone	Area
130	Subzone 130

(Continued)

Zone	Area
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
310	Subzone 310 - Section 48

F. Prepare for the Air Supply Duct Repairs

SUBTASK 36-12-04-010-008

(1) Open the applicable access panel to get access to the air supply duct section that you want to repair.

G. Air Supply Duct Repairs

SUBTASK 36-12-04-210-004

(1) To repair a dent, gouge or scratch, do this task: Pneumatic Duct Repair, TASK 36-11-01-200-802.

H. Temporary Repair of a Pneumatic Duct With a Crack

(Figure 801)

NOTE: This procedure is only permitted with pneumatic ducts that have a crack along their longitude. Replace pneumatic ducts that have a crack along their circumference.

The repair is temporary and you must replace the pneumatic duct as soon as you can get a new section of duct.

SUBTASK 36-12-04-320-003

(1) Make sure the length of the crack is less than the duct diameter.

SUBTASK 36-12-04-320-004

(2) Drill a hole at each end of the crack.

SUBTASK 36-12-04-350-001

(3) Put a sheet of rubber synthetic rubber material, G02306 over the crack.

(a) Make sure the rubber sheet will go 3 inches beyond the crack.

SUBTASK 36-12-04-350-002

(4) Put a sheet of stainless steel material, G02307 on the rubber sheet.

SUBTASK 36-12-04-350-003

(5) Install a 8-9 Inch adjustable stainless steel clamp, STD-1112 on the stainless steel sheet every 1 to 1-1/2 inches.

I. Air Supply Duct Flange Repair

SUBTASK 36-12-04-010-009

(1) Get access to the air supply duct flange that you will repair.

NOTE: The flange reforming tool will only repair Janitrol (wide) and Marman (narrow) style flanges.

SUBTASK 36-12-04-320-001

(2) Use the flange duct reforming tool, COM-1938 and repair the air supply duct flange.

SUBTASK 36-12-04-320-002

(3) If you cannot repair the air supply duct flange while the air supply duct is installed, do these steps:

(a) Do this task: Strut Duct Removal, TASK 36-12-04-000-805 or Wing Leading Edge Duct Removal, TASK 36-12-04-000-806 or Crossover Duct Removal, TASK 36-12-04-000-807 or APU Supply Duct Removal, TASK 36-12-04-000-808.

(b) Repair the air supply duct flange with the flange reforming tool.

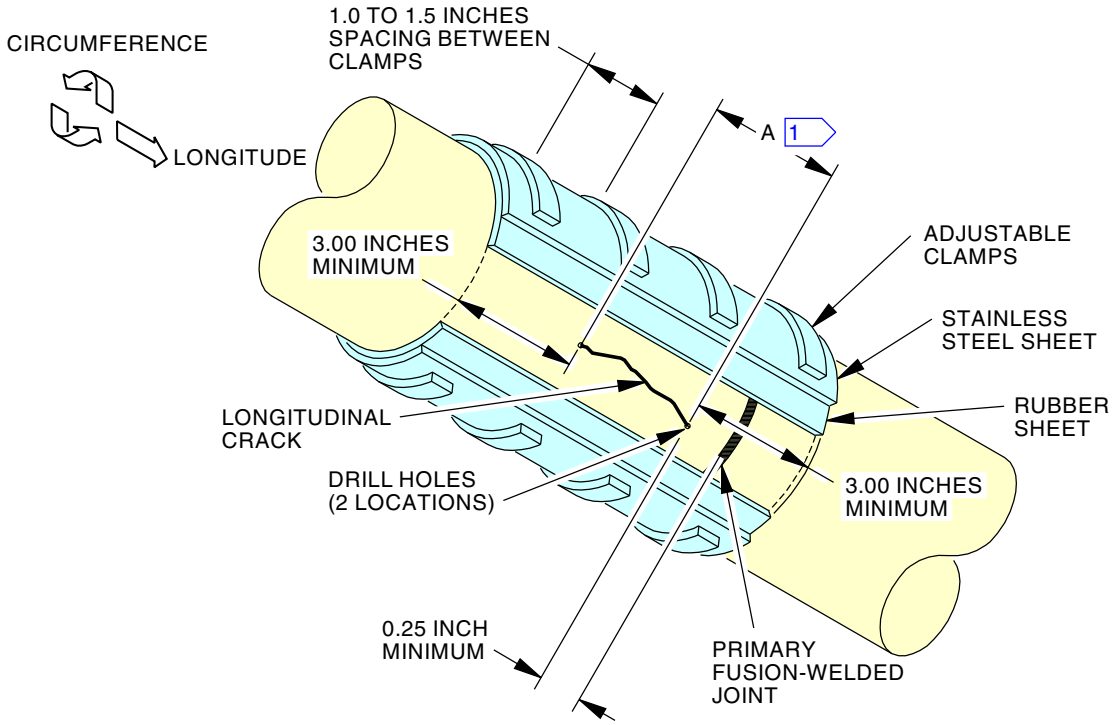
(c) Do this task: Strut Duct Installation, TASK 36-12-04-400-805 or Wing Leading Edge Duct Installation, TASK 36-12-04-400-806 or Crossover Duct Installation, TASK 36-12-04-400-807 or APU Supply Duct Installation, TASK 36-12-04-400-808.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-04-010-010

(1) Close the access panels.

——— END OF TASK ———



**CRACK REPAIR (TEMPORARY)
(EXAMPLE)**

1 MAXIMUM CRACK LENGTH MUST NOT BE MORE THAN THE DUCT DIAMETER.

E42125 S0006422263_V2

**Pneumatic Duct Repairs
Figure 801/36-12-04-990-805**

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT INSULATION BLANKET - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Air Supply Distribution Pneumatic Duct Insulation Blankets (Insulation blanket).

(2) An installation of the insulation blanket.

(3) Crossover Pneumatic Duct Insulation Removal

(4) Crossover Pneumatic Duct Insulation Installation

TASK 36-12-05-000-801

2. Insulation Blanket Removal

(Figure 401)

A. General

(1) The insulation blankets are located on the APU supply duct in the cargo compartment and also on the crossover duct in the ECS bay.

B. References

Reference	Title
25-52-06-000-801	Sidewall Liner Removal (P/B 401)

C. Location Zones

Zone	Area
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
190	Subzone 190

D. Access Panels

Number	Name/Location
195EL	Environmental Control Systems (ECS) Access Door
195NL	Underwing Fairing panel
195QL	Blowout Door
196ER	Environmental Control Systems (ECS) Access Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

E. Prepare for the Removal

SUBTASK 36-12-05-410-001

(1) Open the aft cargo door or the applicable door for the crossover duct insulation:

Number	Name/Location
195EL	Environmental Control Systems (ECS) Access Door
195NL	Underwing Fairing panel
195QL	Blowout Door
196ER	Environmental Control Systems (ECS) Access Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

SUBTASK 36-12-05-010-001

(2) To remove the applicable sidewall panels in the cargo compartment, do this task: Sidewall Liner Removal, TASK 25-52-06-000-801

F. Insulation Blanket Removal

SUBTASK 36-12-05-860-001

WARNING THE PNEUMATIC DUCTS CAN BE HOT. IF YOU DO NOT REMOVE THE INSULATION BLANKET CORRECTLY, INJURY TO PERSONS CAN OCCUR.

(1) Turn the insulation blanket [1] until you get access to the square knots [3] for the Fiberglass tape [2].

SUBTASK 36-12-05-020-001

(2) Loosen and remove the square knots [3].

NOTE: If you can not remove the square knots [3], use a knife to cut the Fiberglass tape [2].

SUBTASK 36-12-05-020-002

(3) Remove the insulation blanket [1].

——— END OF TASK ———

TASK 36-12-05-400-801

3. Insulation Blanket Installation

(Figure 401)

A. References

Reference	Title
25-52-06-400-801	Sidewall Liner Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G00431	Tape - Fiberglass, ECC-A	MIL-Y-1140 Class C Form 5

C. Location Zones

Zone	Area
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
190	Subzone 190

D. Access Panels

Number	Name/Location
195EL	Environmental Control Systems (ECS) Access Door
195NL	Underwing Fairing panel
195QL	Blowout Door
196ER	Environmental Control Systems (ECS) Access Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

E. Insulation Blanket Installation

SUBTASK 36-12-05-420-001

(1) Install the insulation blanket [1] around the duct [5].

NOTE: Make sure the insulation blanket [1] makes a minimum overlap of 0.5 inches along the length of the insulation blanket [1].

SUBTASK 36-12-05-420-002

(2) Install the Fiberglass ECC-A fiberglass tape, G00431 [2] around the insulation blanket [1].

SUBTASK 36-12-05-420-003

(3) Make a square knot [3] with the Fiberglass tape [2].

SUBTASK 36-12-05-420-004

(4) Put the loose ends [4] of the Fiberglass tape [2] between the overlap and the insulation blanket.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-05-410-002

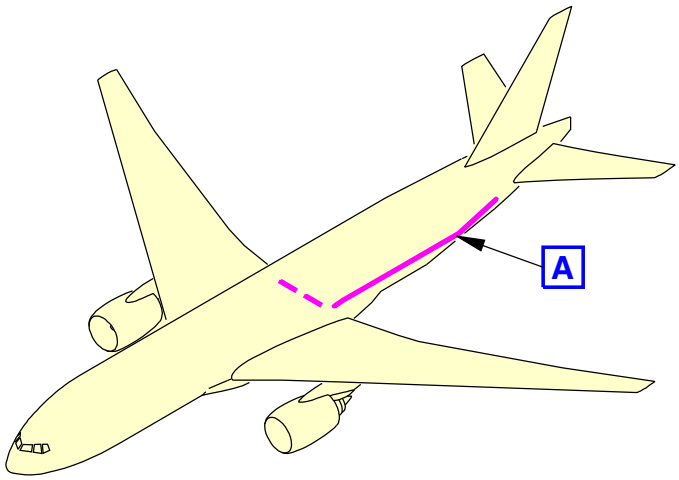
(1) To install the sidewall panels in the cargo compartment, do this task: Sidewall Liner Installation, TASK 25-52-06-400-801

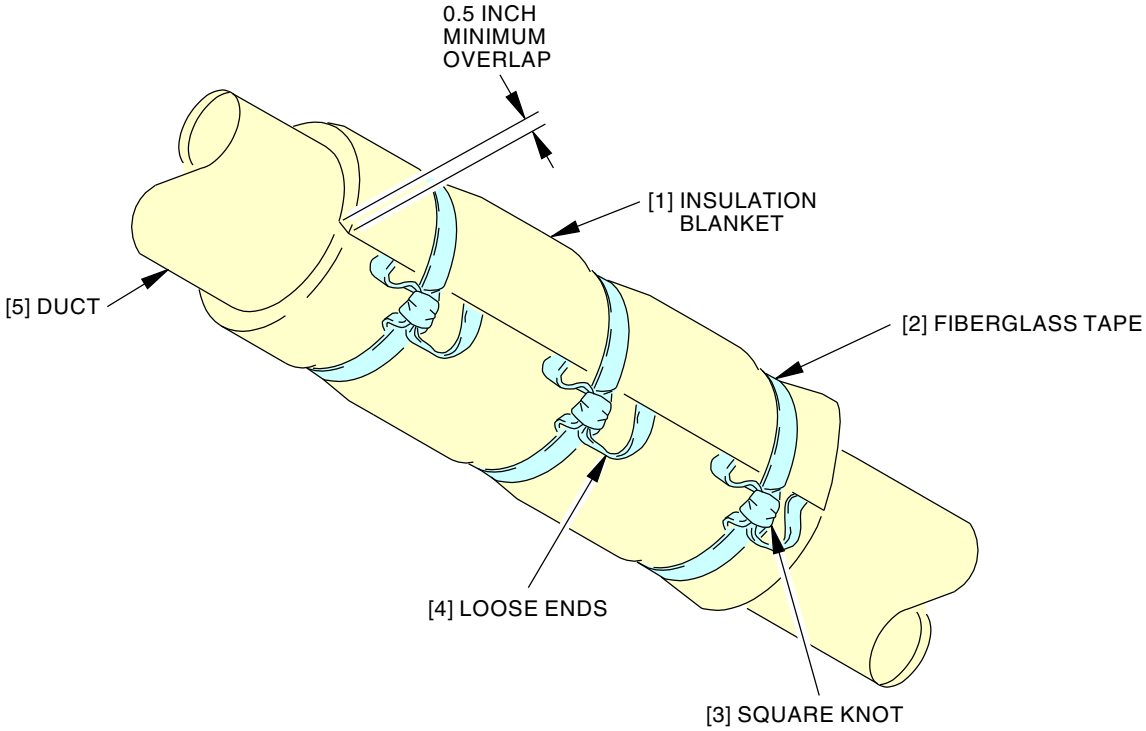
SUBTASK 36-12-05-410-003

(2) Close the aft cargo door or the applicable doors for the crossover duct insulation:

Number	Name/Location
195EL	Environmental Control Systems (ECS) Access Door
195NL	Underwing Fairing panel
195QL	Blowout Door
196ER	Environmental Control Systems (ECS) Access Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

——— END OF TASK ———





INSULATION BLANKET
(EXAMPLE)

A

E02274 S0006422268_V2

Air Supply Distribution Pneumatic Duct Insulation Blanket Installation
Figure 401/36-12-05-990-801

TASK 36-12-05-000-802

4. Crossover Pneumatic Duct Insulation Removal

(Figure 402)

A. General

(1) This task includes the steps to remove the Crossover Pneumatic Duct Insulation.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

C. Location Zones

Zone	Area
130	Subzone 130
191	Forward Wing-to-Body Fairings, Left
192	Forward Wing-to-Body Fairings, Right

D. Prepare for the Removal

SUBTASK 36-12-05-860-002

WARNING YOU MUST RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT HIGH PRESSURE AIR IN THE PNEUMATIC DUCTS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task to release the pressure in the pneumatic system: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-12-05-010-004

(2) Open the applicable access panels.

E. Crossover Pneumatic Duct Insulation Removal

SUBTASK 36-12-05-020-005

WARNING MAKE SURE THE PNEUMATIC SYSTEM COMPONENTS ARE SUFFICIENTLY COOL BEFORE YOU START THE MAINTENANCE PROCEDURES. THE COMPONENTS CAN GET VERY HOT. IF YOU TOUCH THE COMPONENTS BEFORE THEY ARE COOL, INJURY TO PERSONS CAN OCCUR.

(1) To remove the crossover duct insulation [7], then do these steps:

(a) Before you remove the insulation [7], make a note of the location and orientation of all insulation seams, butt joints, fiberglass tape [2] and adhesive tape [8].

(b) If necessary, remove the adhesive tape [8] from the insulation [7].

NOTE: KB 23 3-inch wide adhesive tape [8] is used to attach the insulation blanket seams.

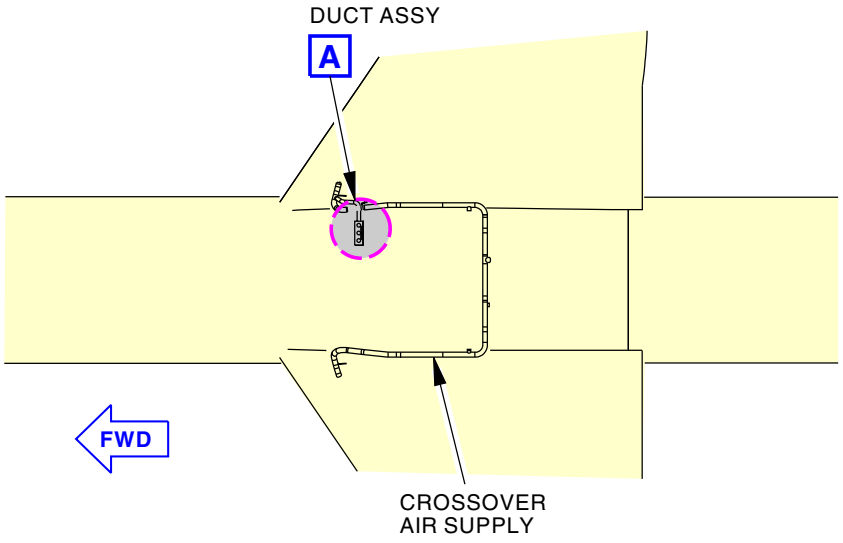
(c) Turn the duct insulation [7] until you get access to the fiberglass tape [2] square knots [3].

(d) Loosen and remove the square knot [3].

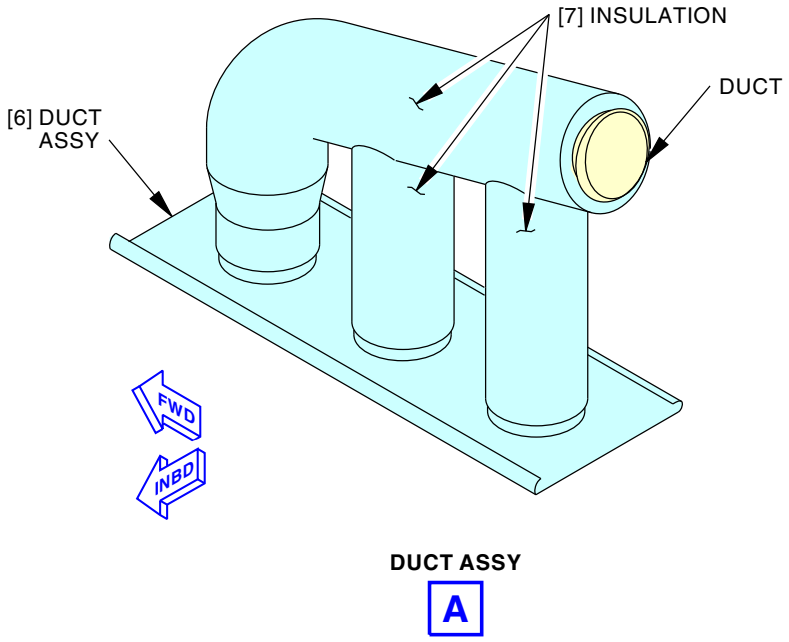
NOTE: If you cannot untie the square knots [3], you can use a knife to cut the fiberglass tape [2].

(e) Remove the duct insulation [7].

END OF TASK



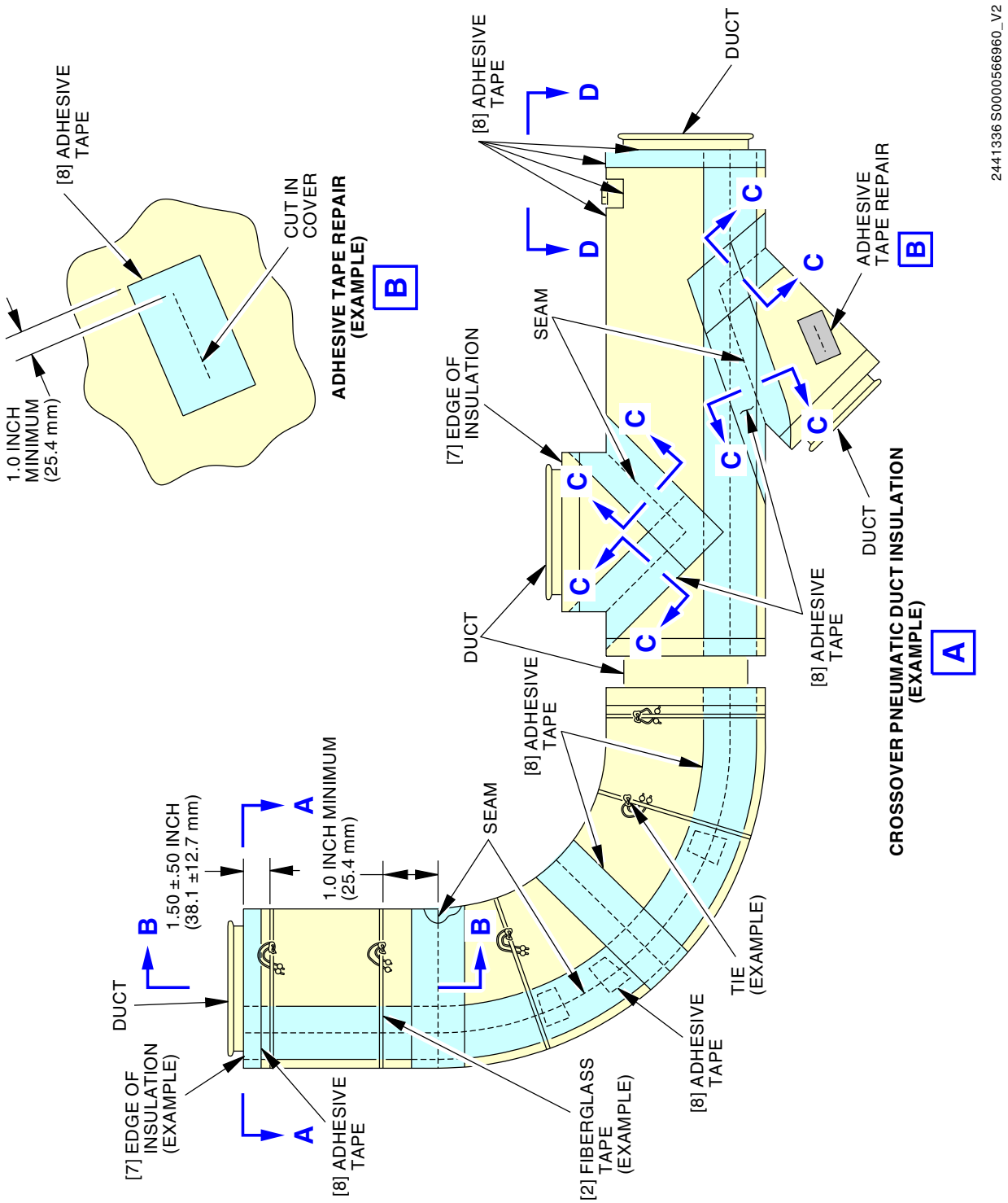
(BOTTOM VIEW)



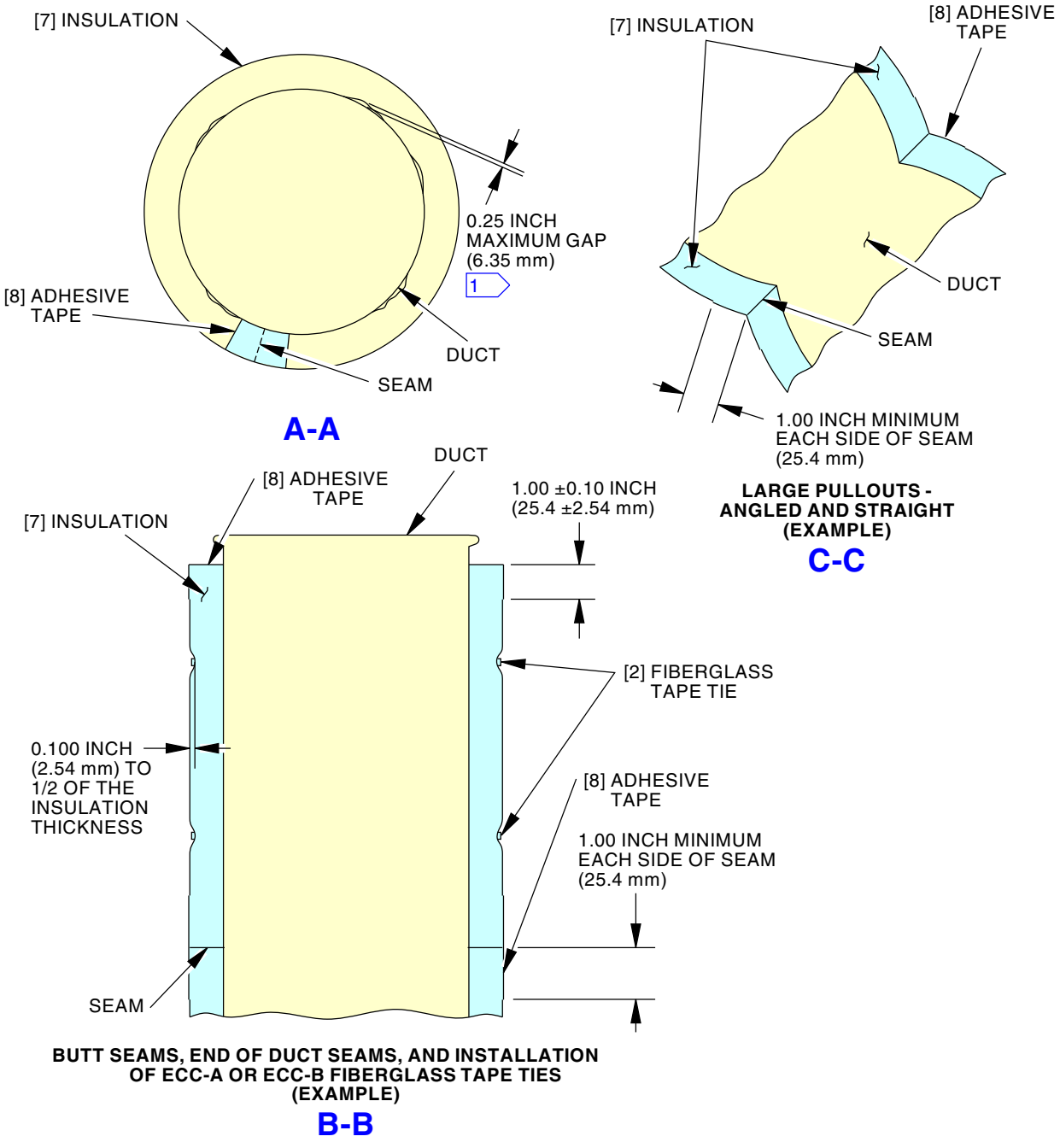
DUCT ASSY
A

2441328 S0000566957_V2

Crossover Pneumatic Duct Insulation Installation
Figure 402/36-12-05-990-803 (Sheet 1 of 4)



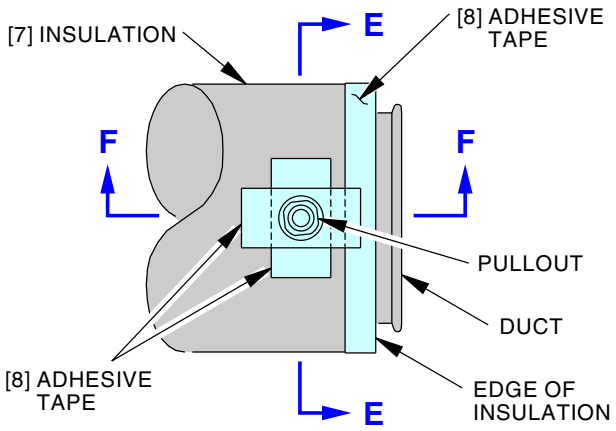
Crossover Pneumatic Duct Insulation Installation
Figure 402/36-12-05-990-803 (Sheet 2 of 4)



1 MAKE SURE THAT THERE ARE NO GAPS BETWEEN THE INSULATION AND THE OUTSIDE DIAMETER OF THE DUCT, EXCEPT WHERE BUNCHING OCCURS. IF BUNCHING DOES OCCUR, THE GAP MAY NOT EXCEED 0.25 INCH (6.35 mm)

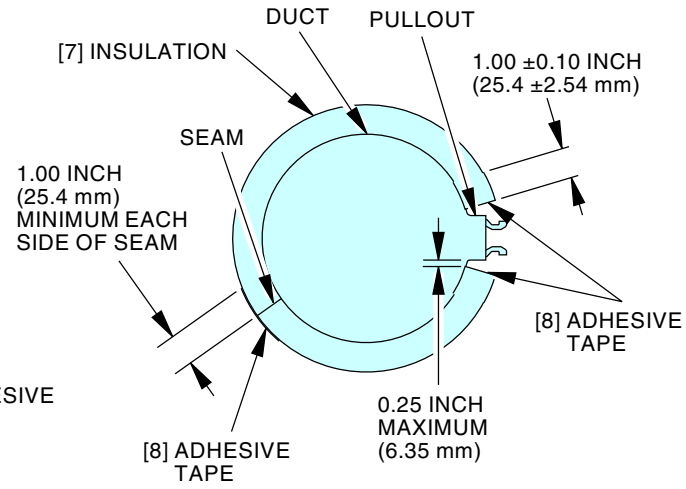
2441343 S0000566961_V2

Crossover Pneumatic Duct Insulation Installation
Figure 402/36-12-05-990-803 (Sheet 3 of 4)

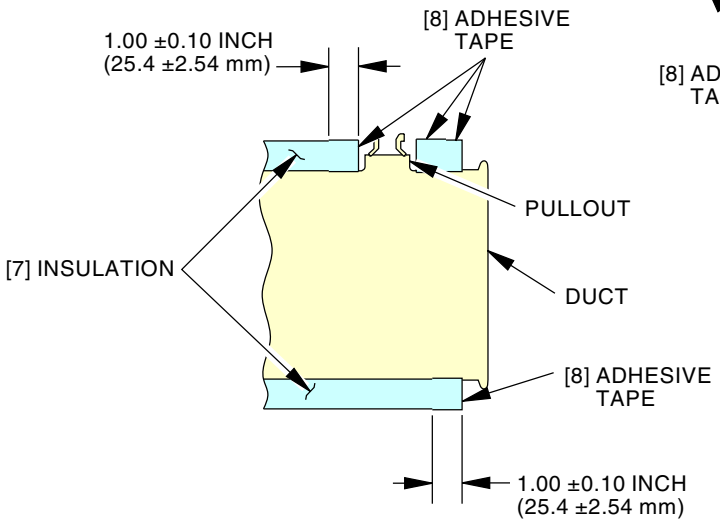


SMALL PULLOUTS - BOSSES (EXAMPLE)

D-D



E-E



F-F

2441361 S0000566963_V2

Crossover Pneumatic Duct Insulation Installation
Figure 402/36-12-05-990-803 (Sheet 4 of 4)

TASK 36-12-05-400-802

5. Crossover Pneumatic Duct Insulation Installation

(Figure 402)

A. General

(1) This task includes the steps to install the Crossover Pneumatic Duct Insulation.

B. Consumable Materials

Reference	Description	Specification
G50706	Tape - Jehier KB-23, 3-Inch (76.2 mm) Wide	BMS5-172 TYPE I
G51066	Tape - ECC-B fiberglass tape, 0.005 Inches (0.127 mm) Thick, 1/2 Inch (12.7 mm) Wide	MIL-Y-1140 Class C Form 5

C. Location Zones

Zone	Area
130	Subzone 130
191	Forward Wing-to-Body Fairings, Left
192	Forward Wing-to-Body Fairings, Right

D. Crossover Pneumatic Duct Insulation Installation

SUBTASK 36-12-05-420-008

(1) To install the insulation [7] on the duct assys [6], do these steps:

(a) You can use more than one piece of insulation [7] when one piece of insulation [7] does not form to the duct correctly.

NOTE: Duct elbows and pullouts are examples of areas where more than one piece of insulation could be necessary.

(b) Make sure that edges of the insulation [7] are flush with each other if more than one piece of insulation [7] were used to make one piece of insulation [7].

(c) Small gaps no greater than 0.10 in. (0.25 cm) are acceptable along the outside diameter of the insulation [7] as long as the gap is not through the entire seam.

(d) Make sure there are no gaps between the outside diameter of the duct and the insulation [7] except where bunching occurs.

1) If bunching does occur, the gap may not exceed 0.25 in. (0.64 cm).

(e) Apply adhesive tape [8] (Jehier KB-23 tape, G50706) to the edges of the insulation [7] so that no insulation foam edge is exposed.

(f) Make sure that insulation [7] longitudinal seams are in the correct location.

(g) Butt the insulation edges together and apply adhesive tape [8] (Jehier KB-23 tape, G50706) along the seam length of the insulation [7].

1) Additional strips of adhesive tape [8] may be used perpendicular to the seam of the insulation [7] to hold the seam closed until the adhesive tape [8] is applied along the entire seam.

(h) Install the fiberglass tape [2] (ECC-B fiberglass tape, G51066) around the insulation [7] in the applicable location.

1) Install the fiberglass tape [2] 1.5 ±0.5 in. (3.8 ±1.3 cm) from the end of the insulation [7].

2) Install the fiberglass tape [2] a minimum of 1 in. (3 cm) from all butt joints.

3) Install the fiberglass tape [2] far enough away from pullouts so that no deformation occurs to the insulation [7] on the adjacent branch.

4) Wind round the fiberglass tape [2] around the insulation [7] two times.

5) Tie the fiberglass tape [2] onto the duct with a square knot [3].

   a) Tighten the fiberglass tape [2] to prevent the insulation [7] from movement on the duct.

6) Put a knot in the end of the fiberglass tape [2] to prevent fraying.

7) Secure the loose ends of the fiberglass tape [2].

E. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-05-010-005

(1) Close the applicable access panels.

——— END OF TASK ———

AIR SUPPLY DISTRIBUTION PNEUMATIC DUCT INSULATION BLANKET - REPAIRS

1. General

A. This procedure supplies instructions to repair the air supply distribution pneumatic duct insulation blankets (insulation blanket).

TASK 36-12-05-300-801

2. Insulation Blanket Repair

(Figure 801)

A. General

(1) Some of the ducts in the air distribution system are wrapped with insulation material. CFR 14 Part 121.312 mandates that insulation material installed in the fuselage as a replacement after September 2, 2005 must meet the flame propagation requirements of CFR 14 Part 25.856, effective September 2, 2003.

(a) Existing insulation material can be removed and re-installed if it is not damaged. Replacement insulation material must meet the flame propagation requirement.

(b) When insulation material is removed and re-installed, any existing tape that does not meet the flame propagation requirement must be removed or completely covered with tape that does meet the requirement.

B. References

Reference	Title
25-52-06-000-801	Sidewall Liner Removal (P/B 401)
25-52-06-400-801	Sidewall Liner Installation (P/B 401)
36-12-05-000-801	Insulation Blanket Removal (P/B 401)
36-12-05-400-801	Insulation Blanket Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
G00431	Tape - Fiberglass, ECC-A	MIL-Y-1140 Class C Form 5
G50327	Tape - Advanced Insulation Blanket (use until stock depleted)	BMS5-157 Type I Class 1 Grade B Composition MPVF
G51202	Tape - Advanced Insulation Blanket	BMS5-157 Type I Class 1 Grade A Composition MPVF

D. Location Zones

Zone	Area
140	Subzone 140
150	SUBZONE 150 - Section 46
160	Subzone 160
190	Subzone 190

E. Access Panels

Number	Name/Location
195EL	Environmental Control Systems (ECS) Access Door
195NL	Underwing Fairing panel

(Continued)

Number	Name/Location
195QL	Blowout Door
196ER	Environmental Control Systems (ECS) Access Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

F. Prepare for the Repair

SUBTASK 36-12-05-010-002

(1) Open the aft cargo door or the applicable door for the crossover duct insulation:

Number	Name/Location
195EL	Environmental Control Systems (ECS) Access Door
195NL	Underwing Fairing panel
195QL	Blowout Door
196ER	Environmental Control Systems (ECS) Access Door
196NR	Underwing Fairing Panel
196QR	Blowout Door

SUBTASK 36-12-05-010-003

(2) Do this task: Sidewall Liner Removal, TASK 25-52-06-000-801.

to remove the applicable sidewall panels in the cargo compartment.

G. Insulation Blanket Repair

SUBTASK 36-12-05-020-004

(1) Remove the fiberglass ECC-A fiberglass tape, G00431 if it is necessary.

SUBTASK 36-12-05-420-005

(2) Replace the insulation blanket if more than 25 percent of the fiberglass material is not there.

These are the tasks:

Insulation Blanket Removal, TASK 36-12-05-000-801,

Insulation Blanket Installation, TASK 36-12-05-400-801.

SUBTASK 36-12-05-340-001

(3) Put the repair tape, G50327 or tape, G51202 over the tear so the repair tape extends around the tear a minimum of 1 inch in all directions.

SUBTASK 36-12-05-420-007

(4) Install the fiberglass tape if it was removed.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-05-410-004

(1) Do this task: Sidewall Liner Installation, TASK 25-52-06-400-801.

SUBTASK 36-12-05-410-005

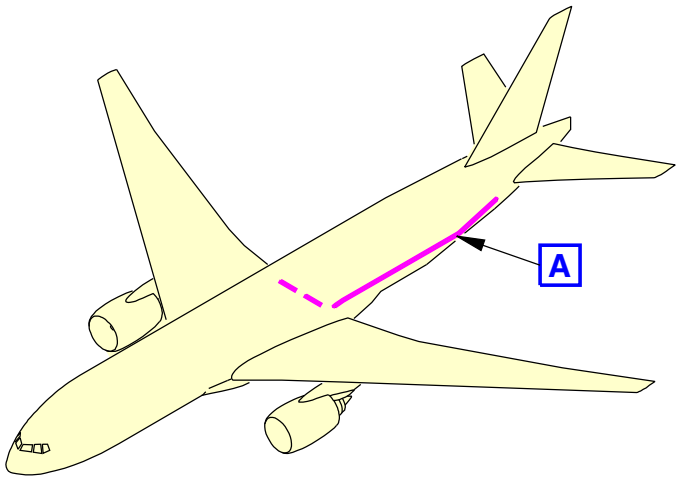
(2) Close the aft cargo door or the applicable door for the crossover duct insulation:

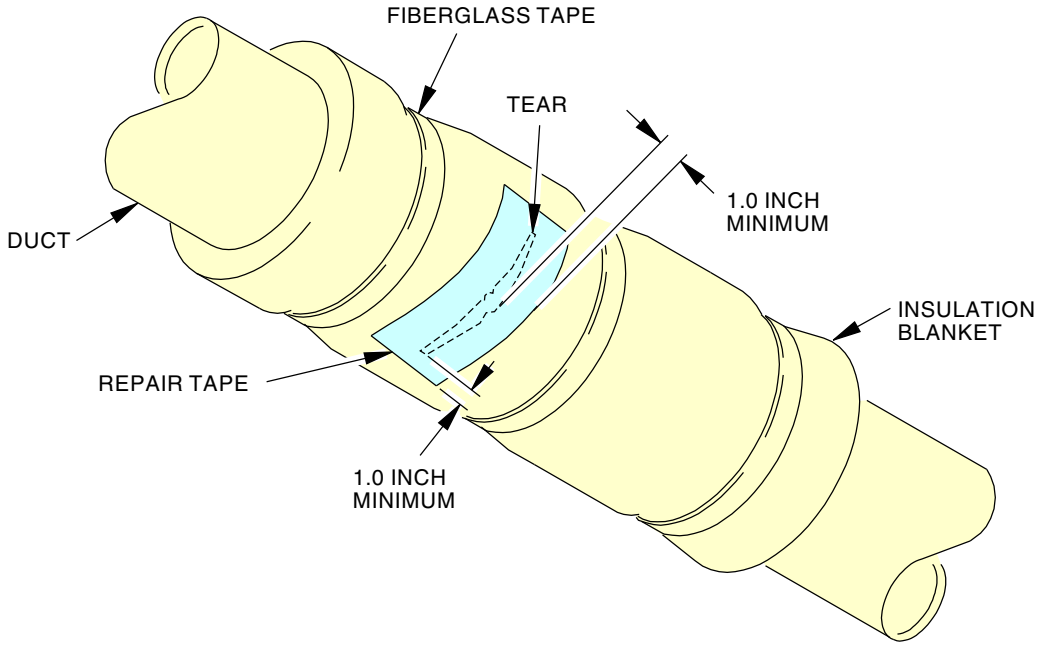
Number	Name/Location
195EL	Environmental Control Systems (ECS) Access Door
195NL	Underwing Fairing panel
195QL	Blowout Door
196ER	Environmental Control Systems (ECS) Access Door
196NR	Underwing Fairing Panel

(Continued)

Number	Name/Location
196QR	Blowout Door

END OF TASK





INSULATION BLANKET
(EXAMPLE)

A

E02292 S0006422271_V2

Air Supply Distribution Pneumatic Duct Insulation Blanket Repairs
Figure 801/36-12-05-990-802

AIR SUPPLY INDICATION - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this task:

(1) An operational test of the manifold dual temperature sensor and manifold flow sensor.

TASK 36-20-00-710-801

2. Manifold Dual Temperature Sensor and Manifold Flow Sensor - Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-740-820	How to Backup and Replace the Fault Database (P/B 201)

C. Manifold Dual Temperature Sensor and Manifold Flow Sensor Operational Test

SUBTASK 36-20-00-860-001

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

SUBTASK 36-20-00-740-001

(2) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

NOTE: Some manifold temperature sensor faults can be detected during flight but not detected during the ground test.

(d) Make sure to check the fault history of the last 10 flights for maintenance messages 36–10500 and 36–10510.

1) Refer to the Maintenance Message Index in the FIM if maintenance messages 36–10500 or 36–10510 show.

(e) If FAILED shows, make sure there is no maintenance message for the Left (Right) Manifold Dual Temperature Sensor, the Left (Right) Manifold Flow Sensor or the Left (Right) Air Supply & Cabin Pressure Controller.

1) If there is a maintenance message for the Left (Right) Manifold Dual Temperature Sensor, the Left (Right) Manifold Flow Sensor or the Left (Right) Air Supply & Cabin Pressure Controller, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

(f) If the Central Maintenance Computing Function (CMCF) fault history is necessary, move the CMCF fault history database to a disk.

1) Do this task: How to Backup and Replace the Fault Database, TASK 45-10-00-740-820.

——— END OF TASK ———

MANIFOLD PRESSURE SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the manifold pressure sensor

(2) An installation of the manifold pressure sensor.

TASK 36-21-01-000-801

2. Manifold Pressure Sensor Removal

(Figure 401)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
191	Forward Wing-to-Body Fairings, Left
192	Forward Wing-to-Body Fairings, Right

C. Access Panels

Number	Name/Location
191SL	Jack Pad Cover Panel
192SR	Jack Pad Cover Panel

D. Prepare for the Removal

SUBTASK 36-21-01-860-001

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-21-01-860-002

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-21-01-010-001

(3) Remove this access panel:

Number	Name/Location
191SL	Jack Pad Cover Panel

or open this access panel:

Number	Name/Location
192SR	Jack Pad Cover Panel

E. Manifold Pressure Sensor Removal

SUBTASK 36-21-01-020-001

(1) Remove the electrical connector [1].

SUBTASK 36-21-01-020-002

(2) Remove the sense line [3].

SUBTASK 36-21-01-020-003

(3) Remove the screw [5] and washer [6] for one of the clamp [2].

SUBTASK 36-21-01-020-004

(4) Remove the clamp [2].

SUBTASK 36-21-01-020-005

(5) Loosen the screw [5] for the other clamp [2].

SUBTASK 36-21-01-020-006

(6) Remove the manifold pressure sensor [4].

SUBTASK 36-21-01-480-001

(7) Put a cover on the sense line to keep out unwanted material.

——— END OF TASK ———

TASK 36-21-01-400-801

3. Manifold Pressure Sensor Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Sensor	36-21-01-03-090	ARO ALL

E. Location Zones

Zone	Area
191	Forward Wing-to-Body Fairings, Left
192	Forward Wing-to-Body Fairings, Right

F. Access Panels

Number	Name/Location
191SL	Jack Pad Cover Panel
192SR	Jack Pad Cover Panel

G. Manifold Pressure Sensor Installation

SUBTASK 36-21-01-080-001

(1) Remove the covers on the sense line.

SUBTASK 36-21-01-420-001

(2) Install the manifold pressure sensor [4].

SUBTASK 36-21-01-420-002

(3) Install the clamp [2], screw [5] and washer [6].

(a) Do not tighten the screws.

SUBTASK 36-21-01-640-001

(4) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the fitting on the manifold pressure sensor [4].

(a) Do not let the antiseize enter the fitting hole.

SUBTASK 36-21-01-420-003

(5) Install and tighten the sense line [3] to 257-283 pound-inches.

NOTE: Use a wrench on the sense line and the manifold pressure sensor.

SUBTASK 36-21-01-420-004

(6) Install the electrical connector [1].

(a) Make sure the pins are not bent and the threads are not damaged.

SUBTASK 36-21-01-420-005

(7) Tighten the screw [5].

NOTE: Make sure the end of the screws do not touch the wing box.

SUBTASK 36-21-01-860-003

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

H. Manifold Pressure Sensor Installation Test

SUBTASK 36-21-01-860-004

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

SUBTASK 36-21-01-740-002

(2) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left(Right) Manifold Pressure Sensor.

1) If there is a maintenance message for the Left(Right) Manifold Pressure Sensor, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-21-01-790-001

(3) Do these steps to do a leak check of the manifold pressure sensor:

(a) Apply a leak detector Snoop Leak Detector compound, G00091 to the sense line connection.

(b) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(c) Do a check of the sense line for leakage.

(d) Repair all leakage.

SUBTASK 36-21-01-860-005

(4) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-21-01-410-001

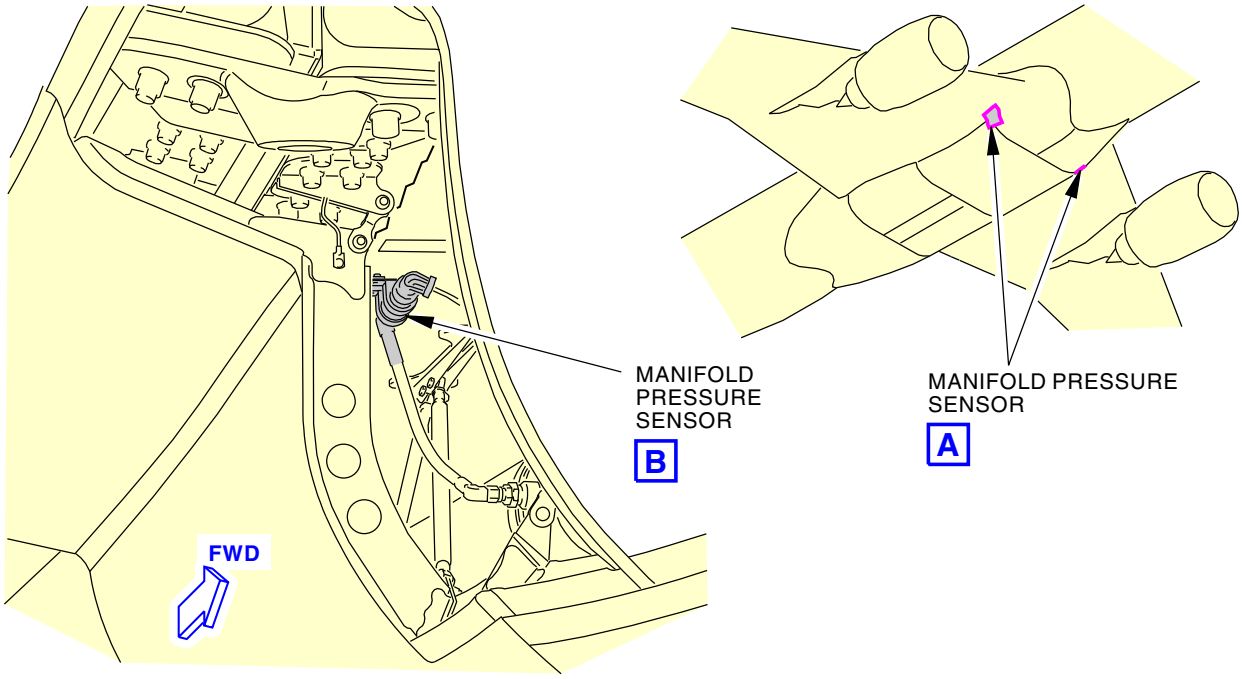
(1) Install this access panel:

Number	Name/Location
191SL	Jack Pad Cover Panel

or close this access panel:

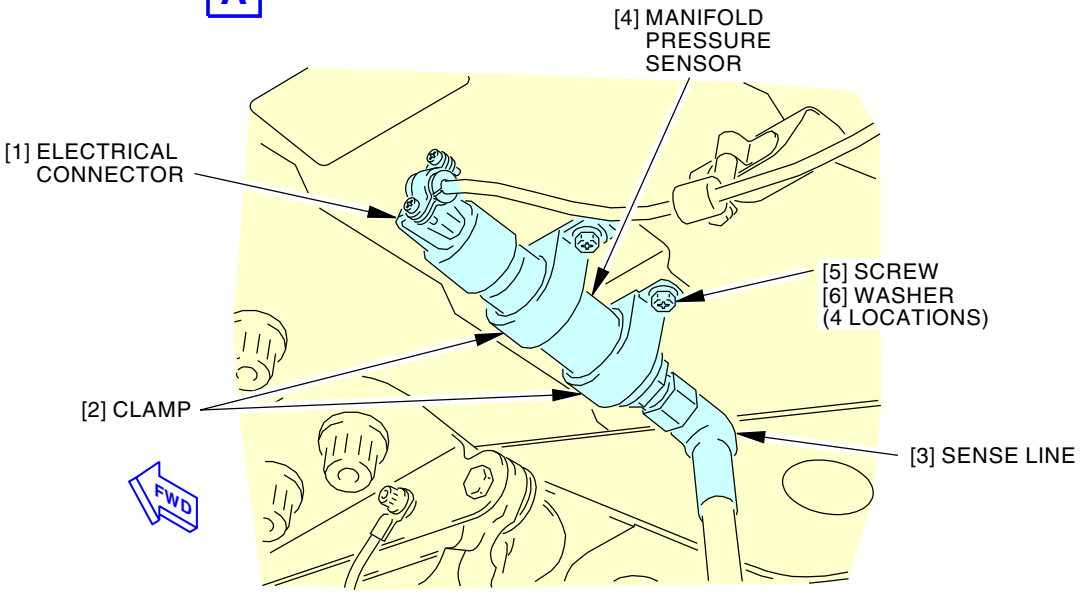
Number	Name/Location
192SR	Jack Pad Cover Panel

——— END OF TASK ———



MANIFOLD PRESSURE SENSOR

A



NOTE:

RIGHT MANIFOLD PRESSURE SENSOR IS SHOWN. LEFT MANIFOLD PRESSURE SENSOR IS EQUIVALENT.

MANIFOLD PRESSURE SENSOR

B

C64249 S0006422281_V2

Manifold Pressure Sensor Installation
Figure 401/36-21-01-990-801

INTERMEDIATE PRESSURE SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the intermediate pressure (IP) sensor

(2) An installation of the IP sensor.

TASK 36-21-03-000-805-002

2. IP Sensor Removal

(Figure 401)

A. General

(1) There is one IP Sensor installed on each of the two engines.

B. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
71-11-04-010-814-H00	Open the Fan Cowl Panel (Selection) (P/B 201)

C. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

D. Prepare for the Removal

SUBTASK 36-21-03-860-023-002

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-21-03-860-024-002

(2) Do these steps for the IP sensor on the left engine:

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

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI

(b) Open the left fan cowl panel. To open the left fan cowl panel, do this task: Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00.

SUBTASK 36-21-03-860-025-002

(3) Do these steps for the IP sensor on the right engine:

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
E	5	C36619	AIR SPLY R SEC

(b) Open the left fan cowl panel. To open the left fan cowl panel, do this task: Open the Fan Cowl Panel (Selection), TASK 71-11-04-010-814-H00.

E. IP Sensor Removal

SUBTASK 36-21-03-020-034-002

(1) Disconnect the electrical connector [2].

SUBTASK 36-21-03-020-035-002

(2) Disconnect the sense line [5].

SUBTASK 36-21-03-020-036-002

(3) Remove the bolts [3] for one of the clamps [1].

SUBTASK 36-21-03-020-037-002

(4) Remove the clamp [1].

SUBTASK 36-21-03-020-038-002

(5) Loosen the bolts [3] for the other clamp [1].

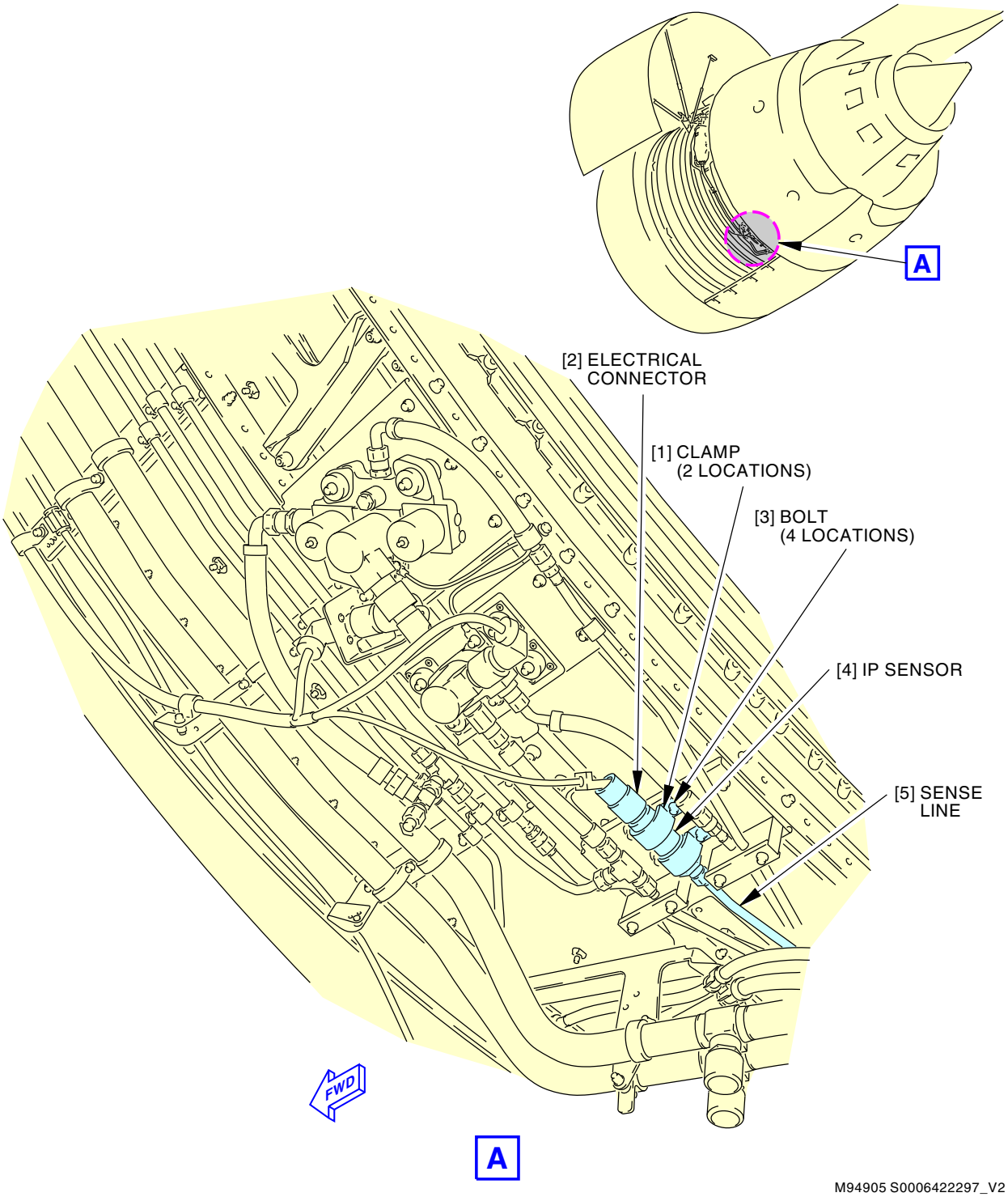
SUBTASK 36-21-03-020-039-002

(6) Remove the IP sensor [4].

SUBTASK 36-21-03-480-005-002

(7) Put a cover on the sense line and electrical connector to keep out unwanted material.

——— END OF TASK ———



IP Sensor Installation
Figure 401/36-21-03-990-805-002

TASK 36-21-03-400-805-002

3. IP Sensor Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-800-801	Pressurization Upstream of the PRSOV (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
71-00-00-800-836-H00	Dry Motor (P/B 201)
71-00-00-800-837-H00	Usual Engine Stop (P/B 201)
71-11-04-410-814-H00	Close the Fan Cowl Panel (Selection) (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Location Zones

Zone	Area
410	PowerPlant, Left
420	PowerPlant, Right

E. IP Sensor Installation

SUBTASK 36-21-03-080-005-002

(1) Remove the covers.

SUBTASK 36-21-03-420-032-002

(2) Put the IP sensor [4] into its position.

SUBTASK 36-21-03-420-033-002

(3) Install the clamp [1] and the bolts [3].

(a) Do not tighten the bolts.

SUBTASK 36-21-03-640-005-002

(4) Apply antiseize Never-Seez NSBT compound, D00006 to the threads on the IP sensor [4].

NOTE: Do not let the antiseize enter the fitting hole.

SUBTASK 36-21-03-420-034-002

(5) Do the steps that follow to install the sense line:

(a) Loosely install the sense line [5] on the IP sensor [4].

(b) Tighten the nut on the sense line [5] to 257-283 pound-inches (29.0-32.0 newton-meters).

NOTE: Use a wrench on the sense line and the IP sensor.

(c) Loosen the nut on the sense line until it can be turned with your fingers.

(d) Tighten the nut on the sense line [5] to 257-283 pound-inches (29.0-32.0 newton-meters).

NOTE: Use a wrench on the sense line and the IP sensor.

SUBTASK 36-21-03-210-005-002

(6) Make sure the electrical connector [2] is clean and there are no bent pins or other damage.

SUBTASK 36-21-03-420-035-002

(7) Connect the electrical connector [2].

SUBTASK 36-21-03-420-036-002

(8) Tighten the bolts [3], at four locations.

F. IP Sensor Installation Test

SUBTASK 36-21-03-860-026-002

(1) Close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-21-03-860-027-002

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

SUBTASK 36-21-03-740-006-002

(3) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left(Right) Intermediate Pressure Sensor.

1) If there is a maintenance message for the Left(Right) Intermediate Pressure Sensor, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

G. IP Sensor Leak Check

SUBTASK 36-21-03-790-018

(1) Do one of the following tasks to pressurize the duct upstream of the PRSOV to check the IP sensor for leaks:

(a) Preferred Method: Pressurization Upstream of the PRSOV, TASK 36-00-00-800-801

(b) Alternate Method: Dry Motor, TASK 71-00-00-800-836-H00

SUBTASK 36-21-03-790-019

(2) Apply Snoop Leak Detector compound, G00091 to the sense line connection.

SUBTASK 36-21-03-360-001

(3) Repair all leakage.

SUBTASK 36-21-03-780-001

(4) If you used the Dry Motor, TASK 71-00-00-800-836-H00 to pressurize the duct, do this task: Usual Engine Stop, TASK 71-00-00-800-837-H00.

SUBTASK 36-21-03-780-002

(5) Depressurize the duct by doing this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-21-03-860-028-002

(1) Close the left fan cowl panel. To close the left fan cowl panel, do this task: Close the Fan Cowl Panel (Selection), TASK 71-11-04-410-814-H00.

——— END OF TASK ———

MANIFOLD DUAL TEMPERATURE SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the manifold dual temperature sensor

(2) An installation of the manifold dual temperature sensor.

TASK 36-22-01-000-801

2. Manifold Dual Temperature Sensor Removal

(Figure 401)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
430	Subzone 430 - Left Nacelle Strut
440	Subzone 440 - Right Nacelle Strut

C. Access Panels

Number	Name/Location
432CL	Left Aft Side Fairing, Left Strut
432GL	Left Access Door, Left Strut
442GL	Left Access Door, Right Strut

D. Prepare for the Removal

SUBTASK 36-22-01-860-001

WARNING

YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-22-01-860-005

(2) For the left strut, do these steps for the manifold dual temperature sensor:

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

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP

(b) Remove this access panel:

Number	Name/Location
432CL	Left Aft Side Fairing, Left Strut

(c) Open this access panel:

Number	Name/Location
432GL	Left Access Door, Left Strut

SUBTASK 36-22-01-860-006

(3) For the right strut, do these steps for the manifold dual temperature sensor:

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI
P	13	C36614	AIR SPLY R BACKUP

Standby Power Management Panel, P310

Row	Col	Number	Name
E	5	C36619	AIR SPLY R SEC

(b) Remove/Open this access panel:

Number	Name/Location
442GL	Left Access Door, Right Strut

E. Manifold Dual Temperature Sensor Removal

SUBTASK 36-22-01-020-001

(1) Remove the electrical connector [3].

SUBTASK 36-22-01-020-002

(2) Remove the manifold dual temperature sensor [1].

SUBTASK 36-22-01-020-003

(3) Remove and discard the O-ring packing [2].

SUBTASK 36-22-01-480-001

(4) Put a cover on the duct opening to keep out unwanted material.

——— END OF TASK ———

TASK 36-22-01-400-801

3. Manifold Dual Temperature Sensor Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use the maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
D00504	Grease - Petrolatum	VV-P-236
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Sensor	36-22-01-02-015	ARO ALL
2	Packing	36-22-01-02-010	ARO ALL

E. Location Zones

Zone	Area
430	Subzone 430 - Left Nacelle Strut
440	Subzone 440 - Right Nacelle Strut

F. Access Panels

Number	Name/Location
432CL	Left Aft Side Fairing, Left Strut
432GL	Left Access Door, Left Strut
442GL	Left Access Door, Right Strut

G. Manifold Dual Temperature Sensor Installation

SUBTASK 36-22-01-080-001

(1) Remove the cover from the duct opening.

SUBTASK 36-22-01-410-006

(2) Apply the grease, D00504 to a new O-ring packing [2].

SUBTASK 36-22-01-410-001

(3) Install the new O-ring packing [2] on the manifold dual temperature sensor [1].

SUBTASK 36-22-01-640-001

(4) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the manifold dual temperature sensor [1].

SUBTASK 36-22-01-410-002

(5) Install the manifold dual temperature sensor [1].

SUBTASK 36-22-01-410-003

(6) Tighten the manifold dual temperature sensor [1] to 300-350 pound-inches (33.9-39.5 newton-meters).

SUBTASK 36-22-01-410-004

(7) Install the electrical connector [3].

(a) Make sure the pins are not bent and the threads are not damaged.

SUBTASK 36-22-01-860-003

(8) Close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

(Continued)

Right Power Management Panel, P210

Row	Col	Number	Name
P	13	C36614	AIR SPLY R BACKUP

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
C	2	C36613	AIR SPLY L BACKUP
E	5	C36619	AIR SPLY R SEC

H. Manifold Dual Temperature Sensor Installation Test

SUBTASK 36-22-01-860-004

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

SUBTASK 36-22-01-740-002

(2) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM
5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left (Right) Manifold Dual Temperature Sensor.

1) If there is a maintenance message for the Left (Right) Manifold Dual Temperature Sensor, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-22-01-790-001

(3) Do these steps to do a leak check of the manifold dual temperature sensor:

(a) Apply a leak detector Snoop Leak Detector compound, G00091 to the manifold dual temperature sensor.

(b) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.

(c) Do a check for leakage.

(d) Repair all leakage.

(e) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-22-01-410-005

(1) On the Nacelle Strut; Install this access panel:

Number	Name/Location
432CL	Left Aft Side Fairing, Left Strut

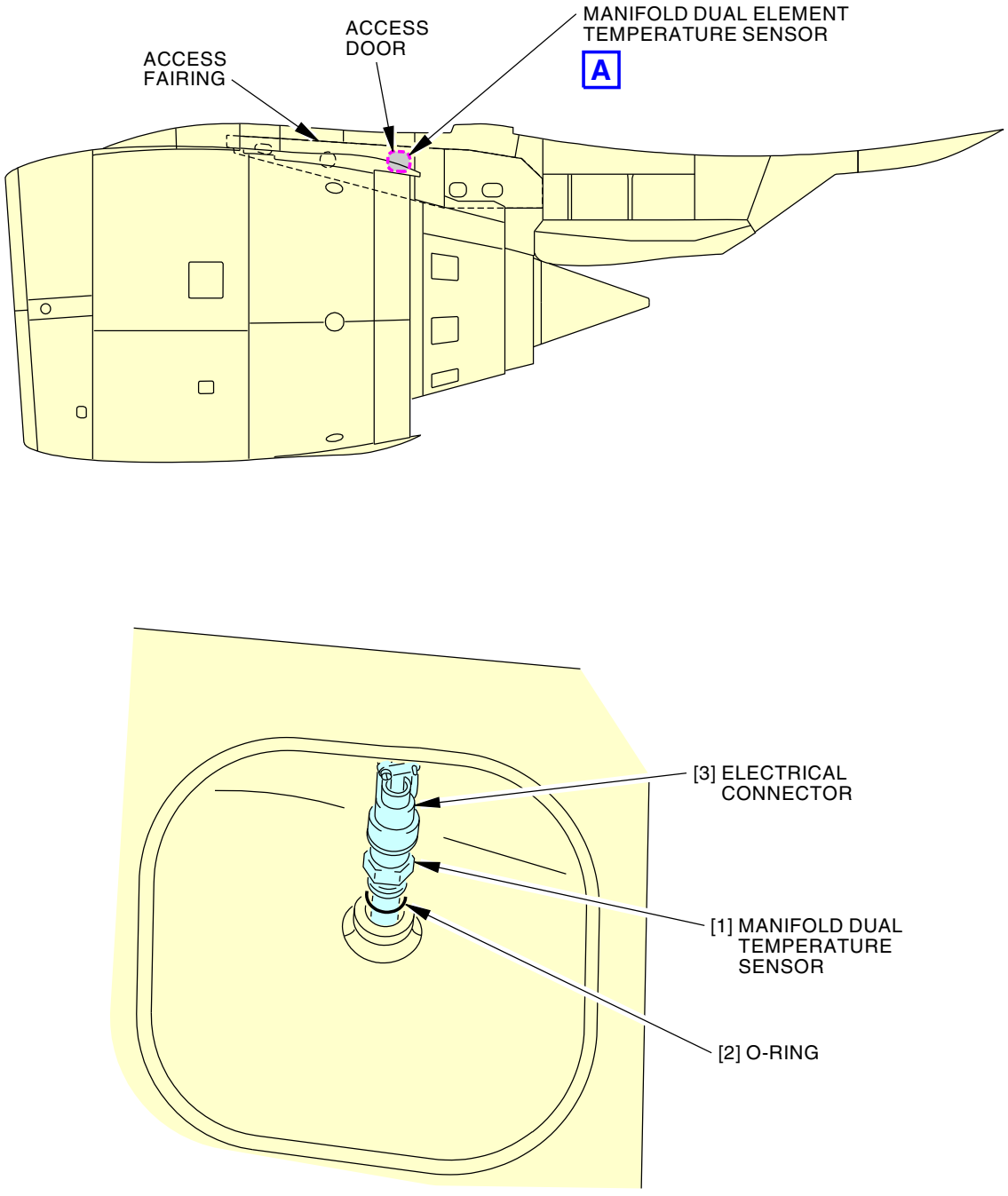
On the Nacelle Strut; Close this access panel:

Number	Name/Location
432GL	Left Access Door, Left Strut

On the Nacelle Strut; Close this access panel:

Number	Name/Location
442GL	Left Access Door, Right Strut

——— END OF TASK ———



Manifold Dual Temperature Sensor Installation
Figure 401/36-22-01-990-801

MANIFOLD FLOW SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the manifold flow sensor

(2) An installation of the manifold flow sensor.

TASK 36-23-01-000-801

2. Manifold Flow Sensor Removal

(Figure 401)

A. References

Reference	Title
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

C. Access Panels

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel
611JB	Inboard Fixed Leading Edge Panel

D. Prepare for the Removal

SUBTASK 36-23-01-860-001

WARNING YOU MUST REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. IF YOU DO NOT REMOVE THE PRESSURE FROM THE PNEUMATIC DUCTS, HOT HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

SUBTASK 36-23-01-860-002

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

SUBTASK 36-23-01-010-001

(3) Open this access panel:

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel

or open this access panel:

Number	Name/Location
611JB	Inboard Fixed Leading Edge Panel

E. Manifold Flow Sensor Removal

SUBTASK 36-23-01-020-001

(1) Remove the electrical connector [6].

SUBTASK 36-23-01-020-002

(2) Remove the bolt [1] and washer [2].

SUBTASK 36-23-01-020-003

(3) Remove the manifold flow sensor [3].

SUBTASK 36-23-01-020-004

(4) Remove and discard the O-ring packing [4].

SUBTASK 36-23-01-480-001

(5) Put a cover on the duct opening to keep out unwanted material.

——— END OF TASK ———

TASK 36-23-01-400-801

3. Manifold Flow Sensor Installation

(Figure 401)

A. General

(1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
36-00-00-860-801	Depressurize the Pneumatic System (P/B 201)
36-00-00-860-802	Pressurize the Pneumatic System (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Sensor	36-23-01-01-025	ARO ALL
4	Packing	36-23-01-01-020	ARO ALL

E. Location Zones

Zone	Area
511	Leading Edge to Front Spar - Inboard of Nacelle Strut - Left Wing

(Continued)

Zone	Area
611	Leading Edge to Front Spar - Inboard of Nacelle Strut - Right Wing

F. Access Panels

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel
611JB	Inboard Fixed Leading Edge Panel

G. Manifold Flow Sensor Installation

SUBTASK 36-23-01-080-001

(1) Remove the cover on the duct opening.

SUBTASK 36-23-01-420-001

(2) Install a new O-ring packing [4] on the flange [5].

SUBTASK 36-23-01-420-002

(3) Install the manifold flow sensor [3].

SUBTASK 36-23-01-640-001

(4) Apply antiseize Never-Seez NSBT compound, D00006 to the threads of the bolt [1].

SUBTASK 36-23-01-420-003

(5) Install the bolt [1] and washer [2].

SUBTASK 36-23-01-420-004

(6) Install the electrical connector [6].

(a) Make sure the pins are not bent and the threads are not damaged.

SUBTASK 36-23-01-860-003

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

Right Power Management Panel, P210

Row	Col	Number	Name
P	12	C36612	AIR SPLY R PRI

Standby Power Management Panel, P310

Row	Col	Number	Name
C	1	C36611	AIR SPLY L PRI
E	5	C36619	AIR SPLY R SEC

H. Manifold Flow Sensor Installation Test

SUBTASK 36-23-01-860-004

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

SUBTASK 36-23-01-740-002

(2) Use a maintenance access terminal (MAT) to do the system test of the left (right) Air Supply Control System:

(a) Make these selections on the MAT:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 36 AIR SUPPLY CONTROL SYSTEM

5) SYSTEM TEST
6) Left (Right) AIR SUPPLY CONTROL SYSTEM
7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:
1) CONTINUE
2) START TEST

(c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

(d) If FAILED shows, make sure there is no maintenance message for the Left(Right) Manifold Flow Sensor.
1) If there is a maintenance message for the Left(Right) Manifold Flow Sensor, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 36-23-01-790-001

(3) Do these steps to do a leak check of the manifold flow sensor:
(a) Apply leak detector Snoop Leak Detector compound, G00091 to the joint between the flange and the manifold flow sensor.
(b) Do this task: Pressurize the Pneumatic System, TASK 36-00-00-860-802.
(c) Do a check for leakage.
(d) Repair all leakage.
(e) Do this task: Depressurize the Pneumatic System, TASK 36-00-00-860-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-23-01-410-001

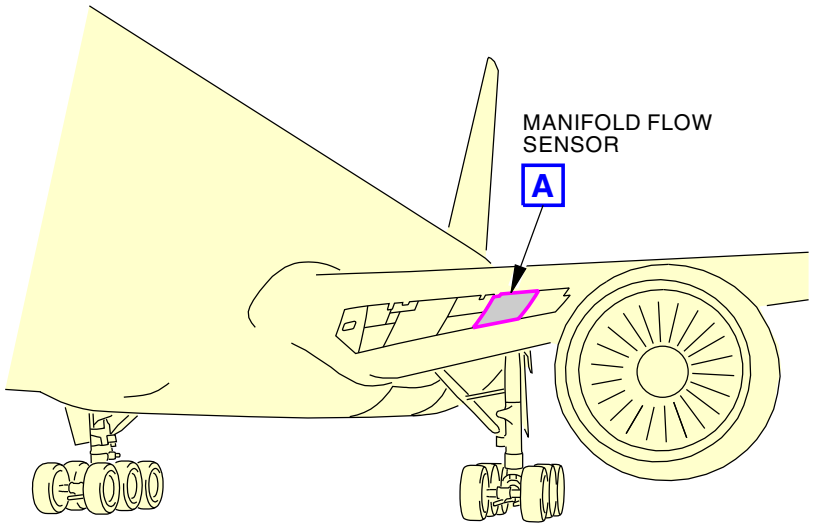
(1) Close this access panel:

Number	Name/Location
511JB	Inboard Fixed Leading Edge Panel

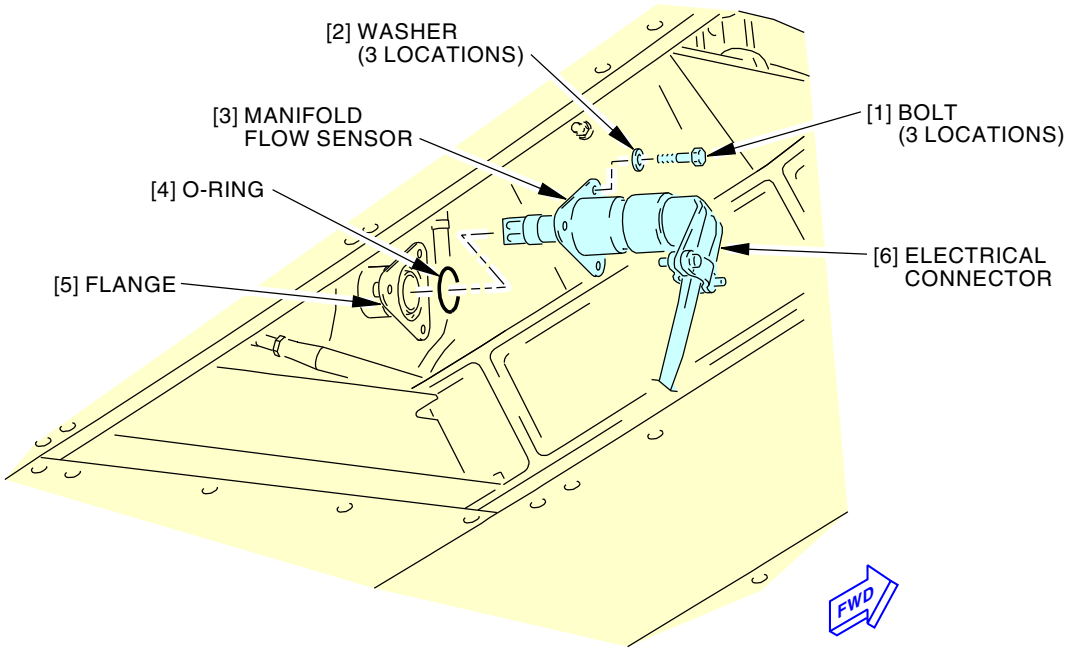
or close this access panel:

Number	Name/Location
611JB	Inboard Fixed Leading Edge Panel

——— END OF TASK ———



LEFT WING
(RIGHT WING IS OPPOSITE)
(BOTTOM VIEW)



MANIFOLD FLOW SENSOR
A

NOTE:

LEFT MANIFOLD FLOW SENSOR IS SHOWN.
RIGHT SIDE IS EQUIVALENT.

C64261 S0006422321_V2

Manifold Flow Sensor Installation
Figure 401/36-23-01-990-801