

CHAPTER

36

PNEUMATIC



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

CHAPTER 36
PNEUMATIC

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
36-EFFECTIVE PAGES			36-00-00			36-00-00 (cont)		
1 thru 5	Sep 15/2023		901	Jan 15/2022		937	Jan 15/2023	
6	BLANK		902	Jan 15/2023		938	Jan 15/2023	
36-CONTENTS			903	Jan 15/2022		939	Jan 15/2023	
1	May 15/2022		904	Jan 15/2023		940	Jan 15/2023	
2	Jan 15/2023		905	Jan 15/2022		941	Jan 15/2023	
3	Jan 15/2023		906	Jan 15/2023		942	Jan 15/2023	
4	Sep 15/2021		907	Jan 15/2022		943	Jan 15/2023	
5	Sep 15/2021		908	Jan 15/2023		944	Jan 15/2023	
6	Sep 15/2021		909	Jan 15/2022		945	Jan 15/2023	
7	May 15/2023		910	Jan 15/2023		946	Jan 15/2023	
8	May 15/2023		911	Jan 15/2022		947	Jan 15/2023	
9	Sep 15/2021		912	Jan 15/2023		948	Jan 15/2023	
10	May 15/2022		913	Jan 15/2022		36-11-00		
36-00-00			914	Jan 15/2023		501	Jan 15/2023	
201	Sep 15/2021		915	Jan 15/2022		502	Sep 15/2021	
202	May 15/2022		916	Jan 15/2023		503	Sep 15/2021	
203	May 15/2022		917	Sep 15/2021		504	Sep 15/2021	
204	May 15/2022		918	Jan 15/2023		505	Sep 15/2021	
205	May 15/2022		919	Jan 15/2023		506	Sep 15/2021	
R 206	Sep 15/2023		920	Jan 15/2023		507	Sep 15/2021	
R 207	Sep 15/2023		921	Jan 15/2023		508	May 15/2022	
R 208	Sep 15/2023		922	Jan 15/2023		509	Jan 15/2023	
R 209	Sep 15/2023		923	Jan 15/2023		510	Sep 15/2022	
R 210	Sep 15/2023		924	Jan 15/2022		511	Sep 15/2022	
O 211	Sep 15/2023		925	Jan 15/2022		512	Sep 15/2022	
O 212	Sep 15/2023		926	Jan 15/2023		513	Sep 15/2022	
O 213	Sep 15/2023		927	Jan 15/2023		514	Sep 15/2022	
O 214	Sep 15/2023		928	Jan 15/2023		515	Sep 15/2022	
36-00-00			929	Jan 15/2023		516	Sep 15/2022	
501	Sep 15/2021		930	Jan 15/2023		517	Sep 15/2022	
502	Sep 15/2021		931	Jan 15/2023		518	Sep 15/2022	
503	Sep 15/2021		932	Jan 15/2023		519	Sep 15/2022	
504	Sep 15/2021		933	Jan 15/2023		520	Sep 15/2022	
505	May 15/2022		934	Jan 15/2023		36-11-01		
506	Jan 15/2023		935	Jan 15/2023		401	Jan 15/2022	
507	May 15/2022		936	Jan 15/2023		402	Jan 15/2022	
508	Sep 15/2021					R 403	Sep 15/2023	

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

36-EFFECTIVE PAGES



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

CHAPTER 36
PNEUMATIC

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
36-11-01 (cont)			36-11-04 (cont)			36-11-05 (cont)		
R 404	Sep 15/2023		206	BLANK		R 407	Sep 15/2023	
R 405	Sep 15/2023		36-11-04			R 408	Sep 15/2023	
406	Sep 15/2021		401	Sep 15/2021		R 409	Sep 15/2023	
407	Sep 15/2021		R 402	Sep 15/2023		410	Sep 15/2021	
408	Sep 15/2021		403	Sep 15/2021		R 411	Sep 15/2023	
R 409	Sep 15/2023		404	Sep 15/2021		R 412	Sep 15/2023	
R 410	Sep 15/2023		405	Sep 15/2021		O 413	Sep 15/2023	
R 411	Sep 15/2023		R 406	Sep 15/2023		O 414	Sep 15/2023	
R 412	Sep 15/2023		R 407	Sep 15/2023		415	Sep 15/2021	
R 413	Sep 15/2023		R 408	Sep 15/2023		416	Sep 15/2022	
O 414	Sep 15/2023		A 409	Sep 15/2023		417	Sep 15/2021	
R 415	Sep 15/2023		A 410	BLANK		418	Sep 15/2022	
R 416	Sep 15/2023		36-11-04			36-11-06		
O 417	Sep 15/2023		501	Sep 15/2021		401	Sep 15/2021	
R 418	Sep 15/2023		R 502	Sep 15/2023		402	Sep 15/2021	
R 419	Sep 15/2023		O 503	Sep 15/2023		403	Sep 15/2021	
420	Jan 15/2023		504	May 15/2023		404	Sep 15/2021	
36-11-02			R 505	Sep 15/2023		405	Sep 15/2021	
401	Jan 15/2022		R 506	Sep 15/2023		406	BLANK	
R 402	Sep 15/2023		507	Sep 15/2021		36-11-07		
O 403	Sep 15/2023		508	Sep 15/2021		201	Sep 15/2021	
404	Sep 15/2021		509	Sep 15/2021		202	Sep 15/2021	
405	Sep 15/2021		510	BLANK		203	Sep 15/2021	
R 406	Sep 15/2023		36-11-04			204	Sep 15/2021	
R 407	Sep 15/2023		701	May 15/2022		36-11-07		
R 408	Sep 15/2023		702	Sep 15/2021		401	May 15/2023	
36-11-02			703	Sep 15/2021		402	May 15/2023	
601	Sep 15/2021		704	Sep 15/2021		403	Sep 15/2021	
602	Sep 15/2021		705	Sep 15/2021		404	May 15/2023	
603	Sep 15/2021		706	BLANK		405	Sep 15/2021	
604	Sep 15/2021		36-11-05			406	Sep 15/2021	
36-11-04			401	Sep 15/2021		407	Sep 15/2021	
201	May 15/2022		402	Sep 15/2021		408	Sep 15/2021	
202	Sep 15/2021		403	Sep 15/2021		409	Sep 15/2021	
203	Sep 15/2021		404	Sep 15/2021		410	BLANK	
204	Sep 15/2021		405	Sep 15/2021				
205	Sep 15/2021		R 406	Sep 15/2023				

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

36-EFFECTIVE PAGES



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

**CHAPTER 36
PNEUMATIC**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
36-11-07			36-12-01 (cont)			36-13-00 (cont)		
501	Sep 15/2021		O 410	Sep 15/2023		203	May 15/2022	
502	Jan 15/2023		O 411	Sep 15/2023		204	May 15/2022	
503	May 15/2023		412	Sep 15/2021		205	May 15/2022	
504	May 15/2023		413	Sep 15/2021		206	May 15/2022	
505	May 15/2023		414	Sep 15/2021		207	May 15/2022	
506	May 15/2023		415	Sep 15/2021		208	May 15/2022	
507	May 15/2023		416	Sep 15/2021		209	May 15/2022	
508	BLANK		417	Sep 15/2021		210	BLANK	
36-11-07			418	BLANK		36-13-00		
701	Sep 15/2021		36-12-03			501	May 15/2023	
702	Sep 15/2021		201	May 15/2023		502	May 15/2023	
703	Sep 15/2021		202	May 15/2023		503	May 15/2023	
704	Sep 15/2021		203	May 15/2023		504	May 15/2023	
36-12-00			204	May 15/2023		505	May 15/2023	
501	May 15/2023		205	Sep 15/2021		506	May 15/2023	
502	May 15/2023		206	Sep 15/2021		507	May 15/2023	
503	May 15/2023		36-12-03			508	May 15/2023	
504	May 15/2023		R 401	Sep 15/2023		509	May 15/2023	
505	Sep 15/2021		R 402	Sep 15/2023		510	May 15/2023	
506	Sep 15/2021		403	Sep 15/2021		511	May 15/2023	
36-12-01			R 404	Sep 15/2023		512	May 15/2023	
201	Sep 15/2021		R 405	Sep 15/2023		36-13-01		
202	Sep 15/2021		406	May 15/2023		401	Sep 15/2021	
203	Sep 15/2021		407	May 15/2023		402	Sep 15/2021	
204	Sep 15/2021		408	Sep 15/2021		403	Sep 15/2021	
205	Sep 15/2021		409	Sep 15/2021		404	Sep 15/2021	
206	BLANK		410	BLANK		405	Sep 15/2021	
36-12-01			36-12-03			406	Sep 15/2021	
R 401	Sep 15/2023		701	Sep 15/2022		407	Sep 15/2021	
R 402	Sep 15/2023		702	May 15/2023		408	Sep 15/2021	
R 403	Sep 15/2023		703	May 15/2023		409	Sep 15/2021	
404	Sep 15/2021		704	May 15/2023		410	Sep 15/2021	
405	Sep 15/2021		705	Sep 15/2021		411	Sep 15/2021	
R 406	Sep 15/2023		706	Sep 15/2021		412	Sep 15/2021	
R 407	Sep 15/2023		36-13-00			413	Sep 15/2021	
R 408	Sep 15/2023		201	May 15/2022		414	Sep 15/2021	
O 409	Sep 15/2023		202	May 15/2022		415	Sep 15/2021	

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

36-EFFECTIVE PAGES



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

**CHAPTER 36
PNEUMATIC**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
36-13-01 (cont)			36-13-01 (cont)			36-13-01		
416	Sep 15/2021		452	May 15/2023		601	Sep 15/2021	
417	Sep 15/2021		453	May 15/2023		602	Sep 15/2021	
418	Sep 15/2021		454	May 15/2023		36-13-01		
419	Sep 15/2021		455	May 15/2023		701	May 15/2023	
420	Sep 15/2021		456	May 15/2023		702	Sep 15/2022	
421	Sep 15/2022		457	May 15/2023		703	Jan 15/2022	
422	Sep 15/2022		458	May 15/2023		704	Sep 15/2021	
423	Sep 15/2022		459	May 15/2023		705	Sep 15/2021	
424	Sep 15/2022		460	May 15/2023		706	BLANK	
425	Sep 15/2022		461	May 15/2023		36-13-01		
426	May 15/2023		462	May 15/2023		801	Sep 15/2021	
427	May 15/2023		463	May 15/2023		802	Sep 15/2021	
428	May 15/2023		464	May 15/2023		803	Sep 15/2021	
429	May 15/2023		465	May 15/2023		804	Sep 15/2021	
430	May 15/2023		466	May 15/2023		805	Sep 15/2021	
431	May 15/2023		467	May 15/2023		806	BLANK	
432	May 15/2023		468	May 15/2023		36-13-02		
433	May 15/2023		469	May 15/2023		401	Sep 15/2021	
434	May 15/2023		470	May 15/2023		402	Sep 15/2021	
435	May 15/2023		471	May 15/2023		403	Sep 15/2021	
436	May 15/2023		472	May 15/2023		404	Sep 15/2021	
437	May 15/2023		473	May 15/2023		405	Sep 15/2021	
438	May 15/2023		474	May 15/2023		406	BLANK	
439	May 15/2023		475	May 15/2023		36-13-02		
440	May 15/2023		476	May 15/2023		801	Sep 15/2021	
441	May 15/2023		477	May 15/2023		802	Sep 15/2021	
442	May 15/2023		478	May 15/2023		803	Sep 15/2021	
443	May 15/2023		479	May 15/2023		804	BLANK	
444	May 15/2023		480	May 15/2023		36-13-03		
445	May 15/2023		481	May 15/2023		401	Sep 15/2021	
446	May 15/2023		482	May 15/2023		402	Sep 15/2021	
447	May 15/2023		483	May 15/2023		403	Sep 15/2021	
448	May 15/2023		484	May 15/2023		404	Sep 15/2021	
449	May 15/2023		485	May 15/2023		405	Sep 15/2021	
450	May 15/2023		486	BLANK		406	Sep 15/2021	
451	May 15/2023							

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

36-EFFECTIVE PAGES



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

CHAPTER 36
PNEUMATIC

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
36-13-04								
401	Sep 15/2021							
402	Sep 15/2021							
403	Sep 15/2021							
404	Sep 15/2021							
405	Sep 15/2021							
406	May 15/2023							
407	Sep 15/2021							
R 408	Sep 15/2023							
O 409	Sep 15/2023							
410	BLANK							
36-14-00								
501	Sep 15/2021							
502	Sep 15/2021							
503	Sep 15/2021							
504	Sep 15/2021							
36-14-02								
401	Sep 15/2021							
402	Sep 15/2021							
403	Sep 15/2021							
404	Sep 15/2021							
36-21-01								
401	Sep 15/2021							
402	Sep 15/2021							
403	Sep 15/2021							
404	Sep 15/2021							
405	Sep 15/2021							
406	Sep 15/2022							
407	Sep 15/2022							
408	BLANK							
36-21-02								
401	May 15/2022							
402	May 15/2022							
403	May 15/2022							
404	May 15/2022							
405	Sep 15/2022							
406	May 15/2022							

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

36-EFFECTIVE PAGES



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>PNEUMATIC - MAINTENANCE PRACTICES</u>	36-00-00		201	SIA ALL
Supply Pressure to the Pneumatic System (Selection) TASK 36-00-00-860-801			201	SIA ALL
Supply Pressure to the Pneumatic System with an External Ground Air Source TASK 36-00-00-860-802			204	SIA ALL
Supply Pressure to the Pneumatic System with the APU TASK 36-00-00-860-803			205	SIA ALL
Supply Pressure to the Pneumatic System with One or Both Engines TASK 36-00-00-860-804			205	SIA ALL
Supply Pressure Upstream of the PRSOV with Engines Off TASK 36-00-00-860-805			206	SIA ALL
Remove Pressure from the Pneumatic System TASK 36-00-00-860-806			209	SIA ALL
Pneumatic Valve Inoperative TASK 36-00-00-860-807			211	SIA ALL
Airworthiness Limitation Precautions TASK 36-00-00-910-801			213	SIA ALL
<u>PNEUMATIC - GENERAL - ADJUSTMENT/TEST</u>	36-00-00		501	SIA ALL
Electrical LRU - Replacement Test TASK 36-00-00-710-801			501	SIA ALL
Pneumatic Engine On - System Test TASK 36-00-00-730-801			502	SIA ALL
Protection Gate - Operational Test TASK 36-00-00-710-802			505	SIA ALL
<u>PNEUMATIC - DDG MAINTENANCE PROCEDURES</u>	36-00-00		901	SIA ALL
DDG 36-11-01-01 Primary Control Card Inoperative - Preparation TASK 36-00-00-040-808			901	SIA ALL
DDG 36-11-01-01 Primary Control Card Inoperative - Restoration TASK 36-00-00-440-807			903	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
DDG 36-11-01-02 Anti-Ice Inhibit Function Inoperative - Preparation TASK 36-00-00-040-809			905	SIA ALL
DDG 36-11-01-02 Anti-Ice Inhibit Function Inoperative - Restoration TASK 36-00-00-440-808			907	SIA ALL
DDG 36-11-01-06 Bleed Control Engine Data Inoperative - Preparation TASK 36-00-00-040-810			909	SIA ALL
DDG 36-11-01-06 Bleed Control Engine Data Inoperative - Restoration TASK 36-00-00-440-809			911	SIA ALL
DDG 36-11-02-01 Manifold Pressure (PM2) Sensors Inoperative - Preparation TASK 36-00-00-040-801			913	SIA ALL
DDG 36-11-02-02 Intermediate Pressure (PI) Sensors Inoperative - Preparation TASK 36-00-00-040-811			913	SIA ALL
DDG 36-11-02-02 Intermediate Pressure (PI) Sensors Inoperative - Restoration TASK 36-00-00-440-810			915	SIA ALL
DDG 36-11-03 Pressure Regulating and Shutoff Valves (PRSOV) - One Inoperative - Preparation TASK 36-00-00-040-802			917	SIA ALL
DDG 36-11-03 Pressure Regulating and Shutoff Valves (PRSOV) - One Inoperative - Restoration TASK 36-00-00-440-801			919	SIA ALL
DDG 36-11-04-01 High Pressure Shutoff Valves (HPSOV) Inoperative - Preparation TASK 36-00-00-040-803			921	SIA ALL
DDG 36-11-04-01 High Pressure Shutoff Valves (HPSOV) Inoperative - Restoration TASK 36-00-00-440-802			926	SIA ALL
DDG 36-11-04-02 High Pressure Shutoff Valves (HPSOV) Control Inoperative - Preparation TASK 36-00-00-040-804			928	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
DDG 36-11-04-02 High Pressure Shutoff Valves (HPSOV) Control Inoperative - Restoration TASK 36-00-00-440-803			930	SIA ALL
DDG 36-12-01 Fan Air Modulating Valves (FAMV) Inoperative - Preparation TASK 36-00-00-040-805			932	SIA ALL
DDG 36-12-01 Fan Air Modulating Valves (FAMV) Inoperative - Restoration TASK 36-00-00-440-804			936	SIA ALL
DDG 36-13-01 Bleed Air Isolation Valve Inoperative - Preparation TASK 36-00-00-040-806			937	SIA ALL
DDG 36-13-01 Bleed Air Isolation Valve Inoperative - Restoration TASK 36-00-00-440-805			942	SIA ALL
DDG 36-13-02 Bleed Air Isolation Valve Control Inoperative - Preparation TASK 36-00-00-040-812			943	SIA ALL
DDG 36-13-02 Bleed Air Isolation Valve Control Inoperative - Restoration TASK 36-00-00-440-811			944	SIA ALL
DDG 36-13-03 Ground Pneumatic Connector Check Valve Inoperative - Preparation TASK 36-00-00-040-807			945	SIA ALL
DDG 36-13-03 Ground Pneumatic Connector Check Valve Inoperative - Restoration TASK 36-00-00-440-806			948	SIA ALL
<u>ENGINE BLEED AIR DISTRIBUTION SYSTEM - ADJUSTMENT/TEST</u>	36-11-00		501	SIA ALL
Integrated Air Systems Controller (IASC) Electrical Initiated Built In Test TASK 36-11-00-730-801			501	SIA ALL
Engine Bleed Air System Health Check TASK 36-11-00-700-801			506	SIA ALL
Engine Bleed Air System - Leak Check TASK 36-11-00-700-802			508	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>ENGINE PNEUMATIC DUCT - REMOVAL/INSTALLATION</u>	36-11-01		401	SIA ALL
Engine Pneumatic Duct Removal TASK 36-11-01-000-801			401	SIA ALL
Engine Pneumatic Duct Installation TASK 36-11-01-400-801			413	SIA ALL
<u>INTERMEDIATE PRESSURE CHECK VALVE (IPCV) - REMOVAL/INSTALLATION</u>	36-11-02		401	SIA ALL
Intermediate Pressure Check Valve (IPCV) Removal TASK 36-11-02-000-801			401	SIA ALL
Intermediate Pressure Check Valve (IPCV) Installation TASK 36-11-02-400-801			406	SIA ALL
<u>INTERMEDIATE PRESSURE CHECK VALVE (IPCV) - INSPECTION/CHECK</u>	36-11-02		601	SIA ALL
Intermediate Pressure Check Valve (IPCV) Inspection TASK 36-11-02-200-801			601	SIA ALL
<u>PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) - MAINTENANCE PRACTICES</u>	36-11-04		201	SIA ALL
Pressure Regulating and Shutoff Valve (PRSOV) Filter - Replacement TASK 36-11-04-960-801			201	SIA ALL
<u>PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) - REMOVAL/INSTALLATION</u>	36-11-04		401	SIA ALL
PRSOV Removal TASK 36-11-04-000-801			401	SIA ALL
PRSOV Installation TASK 36-11-04-400-801			406	SIA ALL
<u>PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) - ADJUSTMENT/TEST</u>	36-11-04		501	SIA ALL
36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV TASK 36-11-04-710-801			501	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) FILTER ELEMENT - CLEANING</u>	36-11-04		701	SIA ALL
Pressure Regulating and Shutoff Valve (PRSOV) Filter Element - Cleaning TASK 36-11-04-100-801			701	SIA ALL
<u>PRESSURE AND TEMPERATURE SENSORS - REMOVAL/INSTALLATION</u>	36-11-05		401	SIA ALL
Intermediate Manifold Pressure (PI) Sensor Removal TASK 36-11-05-000-801			401	SIA ALL
Intermediate Manifold Pressure (PI) Sensor Installation TASK 36-11-05-400-801			405	SIA ALL
Manifold Pressure (PM1) Sensor Removal TASK 36-11-05-000-802			407	SIA ALL
Manifold Pressure (PM1) Sensor Installation TASK 36-11-05-400-802			411	SIA ALL
Manifold Temperature (TM) Sensor Removal TASK 36-11-05-000-803			413	SIA ALL
Manifold Temperature (TM) Sensor Installation TASK 36-11-05-400-803			416	SIA ALL
<u>DUCT VENT VALVE - REMOVAL/INSTALLATION</u>	36-11-06		401	SIA ALL
Duct Vent Valve Removal TASK 36-11-06-000-801			401	SIA ALL
Duct Vent Valve Installation TASK 36-11-06-400-801			404	SIA ALL
<u>HIGH PRESSURE SHUTOFF VALVE (HPSOV) - MAINTENANCE PRACTICES</u>	36-11-07		201	SIA ALL
High Pressure Shutoff Valve (HPSOV) Filter - Replacement TASK 36-11-07-960-802			201	SIA ALL
<u>HIGH PRESSURE SHUTOFF VALVE (HPSOV) - REMOVAL/INSTALLATION</u>	36-11-07		401	SIA ALL
HPSOV Removal TASK 36-11-07-000-801			401	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
HPSOV Installation TASK 36-11-07-400-801			406	SIA ALL
<u>HIGH PRESSURE SHUTOFF VALVE (HPSOV) - ADJUSTMENT/TEST</u>	36-11-07		501	SIA ALL
36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - HPSOV TASK 36-11-07-710-801			501	SIA ALL
<u>HIGH PRESSURE SHUTOFF VALVE (HPSOV) FILTER ELEMENT - CLEANING</u>	36-11-07		701	SIA ALL
High Pressure Shutoff Valve (HPSOV) Filter Element - Cleaning TASK 36-11-07-100-801			701	SIA ALL
<u>FAN AIR MODULATING VALVE (FAMV) - ADJUSTMENT/TEST</u>	36-12-00		501	SIA ALL
36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV TASK 36-12-00-720-801			501	SIA ALL
<u>BLEED AIR PRECOOLER - MAINTENANCE PRACTICES</u>	36-12-01		201	SIA ALL
Bleed Air Precooler Inspection for Cracks TASK 36-12-01-200-801			201	SIA ALL
<u>BLEED AIR PRECOOLER - REMOVAL/INSTALLATION</u>	36-12-01		401	SIA ALL
Bleed Air Precooler Removal with Engine Removed TASK 36-12-01-000-801			401	SIA ALL
Bleed Air Precooler Installation with Engine Removed TASK 36-12-01-400-802			406	SIA ALL
Bleed Air Precooler Removal with Engine Installed TASK 36-12-01-000-802			409	SIA ALL
Bleed Air Precooler Installation with Engine Installed TASK 36-12-01-400-803			414	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>FAN AIR MODULATING VALVE (FAMV) FILTER - MAINTENANCE PRACTICES</u>	36-12-03		201	SIA ALL
Fan Air Modulating Valve (FAMV) Filter - Replacement TASK 36-12-03-960-801			201	SIA ALL
<u>FAN AIR MODULATING VALVE (FAMV) - REMOVAL/INSTALLATION</u>	36-12-03		401	SIA ALL
Fan Air Modulating Valve Removal TASK 36-12-03-000-801			401	SIA ALL
Fan Air Modulating Valve Installation TASK 36-12-03-400-801			406	SIA ALL
<u>FAN AIR MODULATING VALVE (FAMV) FILTER ELEMENT - CLEANING</u>	36-12-03		701	SIA ALL
Fan Air Modulating Valve (FAMV) Filter Element - Cleaning TASK 36-12-03-100-801			701	SIA ALL
<u>PNEUMATIC MANIFOLD SYSTEM - MAINTENANCE PRACTICES</u>	36-13-00		201	SIA ALL
Pneumatic Manifold System - Deactivation TASK 36-13-00-800-801			201	SIA ALL
Pneumatic Manifold System - Activation TASK 36-13-00-800-802			208	SIA ALL
<u>PNEUMATIC MANIFOLD SYSTEM - ADJUSTMENT/TEST</u>	36-13-00		501	SIA ALL
Bleed Air Isolation Valve Operational Test TASK 36-13-00-710-801			501	SIA ALL
Pneumatic System Duct Leakage Test TASK 36-13-00-700-801			507	SIA ALL
<u>PNEUMATIC MANIFOLD DUCT - REMOVAL/INSTALLATION</u>	36-13-01		401	SIA ALL
Pneumatic Manifold Duct Removal (Selection) TASK 36-13-01-000-801			401	SIA ALL
Pneumatic Manifold Duct Installation (Selection) TASK 36-13-01-400-801			402	SIA ALL
Strut Pneumatic Duct Removal TASK 36-13-01-000-802			402	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Strut Pneumatic Duct Installation TASK 36-13-01-400-805			409	SIA ALL
Wing Leading Edge Pneumatic Duct Removal TASK 36-13-01-000-804			413	SIA ALL
Wing Leading Edge Pneumatic Duct Installation TASK 36-13-01-400-802			421	SIA ALL
Crossover Pneumatic Duct Removal TASK 36-13-01-000-805			426	SIA ALL
Crossover Pneumatic Duct Installation TASK 36-13-01-400-803			433	SIA ALL
AC Pack Pneumatic Duct Removal TASK 36-13-01-000-807			437	SIA ALL
AC Pack Pneumatic Duct Installation TASK 36-13-01-400-806			445	SIA ALL
APU Pneumatic Duct Removal TASK 36-13-01-000-806			451	SIA ALL
APU Pneumatic Duct Installation TASK 36-13-01-400-804			465	SIA ALL
APU Pneumatic Duct Pressure Seal Removal TASK 36-13-01-020-801			470	SIA ALL
APU Pneumatic Duct Pressure Seal Installation TASK 36-13-01-420-801			478	SIA ALL
APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Removal TASK 36-13-01-020-802			480	SIA ALL
APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Installation TASK 36-13-01-420-802			484	SIA ALL
<u>PNEUMATIC MANIFOLD DUCT - INSPECTION/CHECK</u>	36-13-01		601	SIA ALL
Pneumatic Manifold Duct Inspection TASK 36-13-01-200-801			601	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>PNEUMATIC MANIFOLD DUCT - CLEANING/PAINTING</u>	36-13-01		701	SIA ALL
Pneumatic Duct Cleaning TASK 36-13-01-100-801			701	SIA ALL
<u>PNEUMATIC MANIFOLD DUCT - REPAIRS</u>	36-13-01		801	SIA ALL
Pneumatic Duct Repairs TASK 36-13-01-300-801			801	SIA ALL
<u>PNEUMATIC DUCT INSULATION - REMOVAL/INSTALLATION</u>	36-13-02		401	SIA ALL
Pneumatic Duct Insulation Removal TASK 36-13-02-000-801			401	SIA ALL
Pneumatic Duct Insulation Installation TASK 36-13-02-400-801			404	SIA ALL
<u>PNEUMATIC DUCT INSULATION - REPAIRS</u>	36-13-02		801	SIA ALL
Pneumatic Duct Insulation Repair TASK 36-13-02-300-801			801	SIA ALL
<u>GROUND PNEUMATIC CONNECTOR CHECK VALVE - REMOVAL/INSTALLATION</u>	36-13-03		401	SIA ALL
Ground Pneumatic Connector Check Valve Removal TASK 36-13-03-000-801			401	SIA ALL
Ground Pneumatic Connector Check Valve Installation TASK 36-13-03-400-801			405	SIA ALL
<u>BLEED AIR ISOLATION VALVE - REMOVAL/INSTALLATION</u>	36-13-04		401	SIA ALL
Bleed Air Isolation Valve Removal TASK 36-13-04-000-801			401	SIA ALL
Bleed Air Isolation Valve Installation TASK 36-13-04-400-801			406	SIA ALL
<u>APU BLEED AIR SYSTEM - ADJUSTMENT/TEST</u>	36-14-00		501	SIA ALL
Dual Bleed Warning Test TASK 36-14-00-710-801			501	SIA ALL

36-CONTENTS



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

CHAPTER 36
PNEUMATIC

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>APU CHECK VALVE - REMOVAL/INSTALLATION</u>	36-14-02		401	SIA ALL
APU Check Valve Removal TASK 36-14-02-000-801			401	SIA ALL
APU Check Valve Installation TASK 36-14-02-400-801			404	SIA ALL
<u>DUCT PRESSURE TRANSDUCER - REMOVAL/INSTALLATION</u>	36-21-01		401	SIA ALL
Duct Pressure Transducer Removal TASK 36-21-01-000-801			401	SIA ALL
Duct Pressure Transducer Installation TASK 36-21-01-400-801			406	SIA ALL
<u>DUAL DUCT PRESSURE INDICATOR - REMOVAL/INSTALLATION</u>	36-21-02		401	SIA ALL
Dual Duct Pressure Indicator Removal TASK 36-21-02-600-801			401	SIA ALL
Dual Duct Pressure Indicator Installation TASK 36-21-02-600-802			405	SIA ALL

36-CONTENTS



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

1. General

- A. This procedure has these tasks:
 - (1) Supply pressure to the pneumatic system (selection):
 - (a) Supply pressure to the pneumatic system with an external ground air source
 - (b) Supply pressure to the pneumatic system with the APU
 - (c) Supply pressure to the pneumatic system with one or both engines
 - (2) Supply pressure upstream of the PRSOV
 - (3) Remove pressure from the pneumatic system
 - (4) Pneumatic Valve Inoperative
- B. The pneumatic system supplies air to these user systems:
 - (1) Air conditioning packs
 - (2) Engine cowl anti-icing system
 - (3) Wing thermal anti-icing system
 - (4) Engine starter system
 - (5) Hydraulic reservoir pressurization
 - (6) Water tank pressurization

TASK 36-00-00-860-801

2. Supply Pressure to the Pneumatic System (Selection)

(Figure 201)

A. Procedure

SUBTASK 36-00-00-860-001

- (1) Do one of these tasks to supply pressure to the pneumatic system:
 - (a) Do this task: Supply Pressure to the Pneumatic System with an External Ground Air Source, TASK 36-00-00-860-802.
 - (b) Do this task: Supply Pressure to the Pneumatic System with the APU, TASK 36-00-00-860-803.
 - (c) Do this task: Supply Pressure to the Pneumatic System with One or Both Engines, TASK 36-00-00-860-804.

———— **END OF TASK** ————

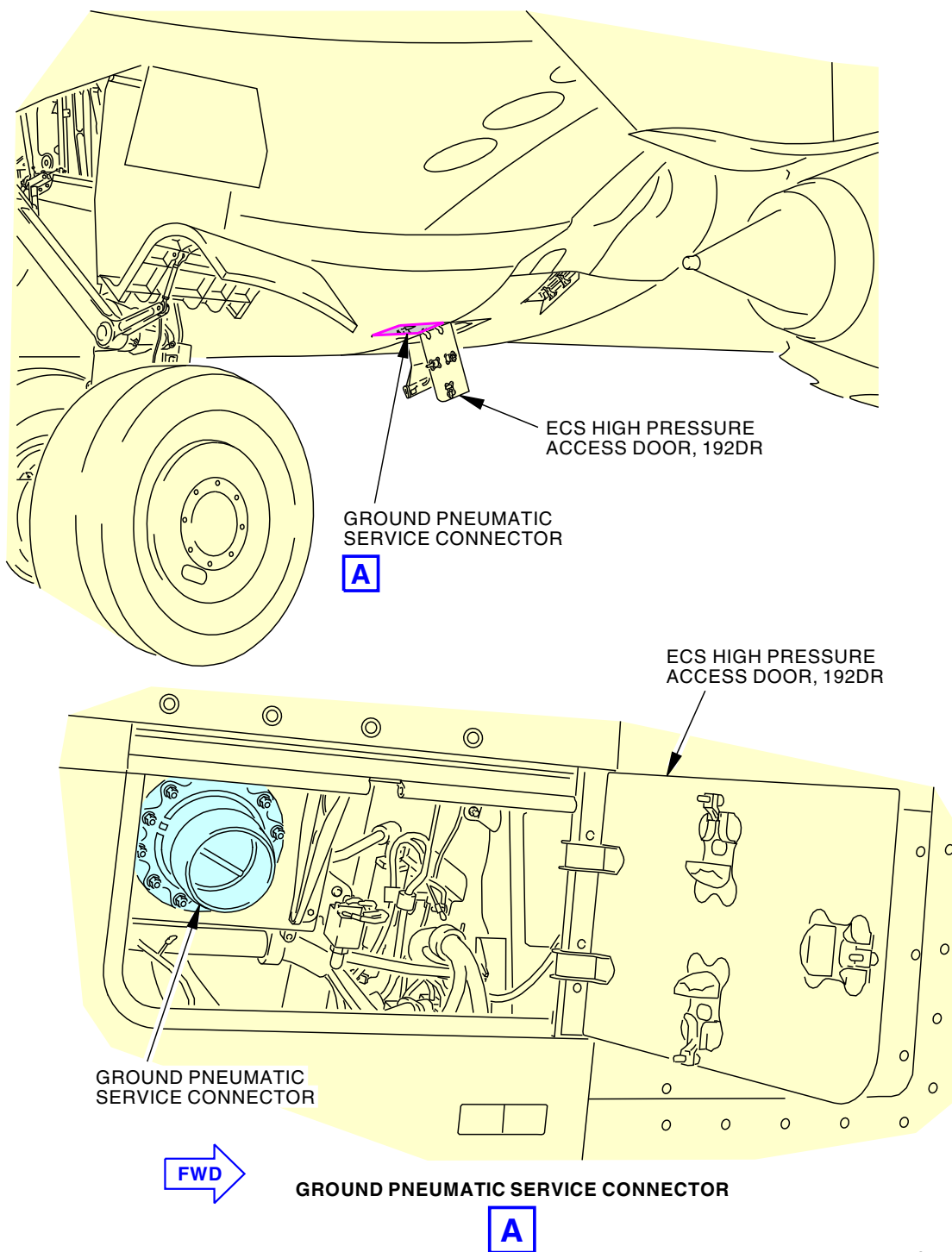
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 201
Sep 15/2021



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Pneumatic System - Maintenance Practices
Figure 201/36-00-00-990-801 (Sheet 1 of 2)

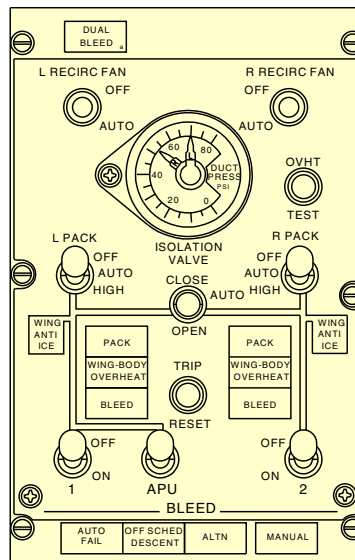
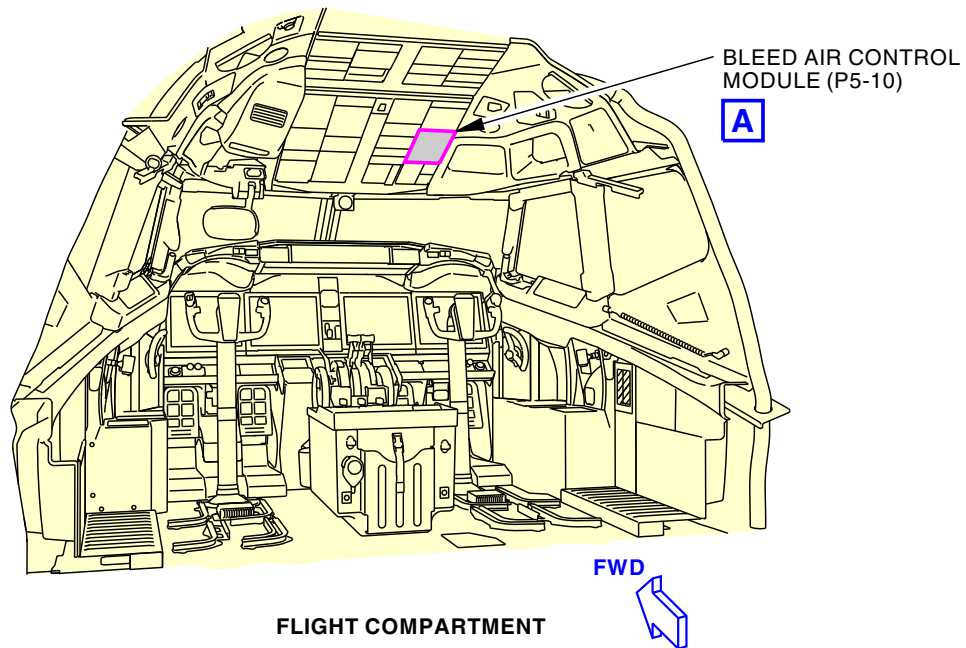
EFFECTIVITY
SIA ALL

36-00-00

Page 202
May 15/2022

D633AM101-SIA

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



BLEED AIR CONTROL MODULE (P5-10)

A

2414999 S00061536770_V3

Pneumatic System - Maintenance Practices
Figure 201/36-00-00-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 203
May 15/2022



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

TASK 36-00-00-860-802

3. Supply Pressure to the Pneumatic System with an External Ground Air Source

(Figure 201)

A. General

- (1) This task gives the instructions to pressurize the pneumatic system with an external ground air source.

B. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
192DR	ECS High Pressure Access Door

D. Supply Pressure to the Pneumatic System with an External Ground Air Source

SUBTASK 36-00-00-860-003

- (1) Gain access to the ground pneumatic service connector.

Open this access panel:

Number	Name/Location
192DR	ECS High Pressure Access Door

SUBTASK 36-00-00-860-004

- (2) Connect the ground pneumatic service line to the ground pneumatic service connector.

SUBTASK 36-00-00-860-005



DO NOT SUPPLY MORE THAN 60 PSI (413.7 KPA) OF PRESSURE TO THE PNEUMATIC SYSTEM. IF YOU SUPPLY TOO MUCH PRESSURE, DAMAGE TO EQUIPMENT AND INJURIES TO PERSONNEL CAN OCCUR.

- (3) Start the external ground air source.

NOTE: Do not supply more than 60.0 psi (413.7 kPa) of pressure.

SUBTASK 36-00-00-860-006

- (4) Put the ISOLATION VALVE switch on the P5-10 Bleed Air Control Panel to the OPEN position.

SUBTASK 36-00-00-860-007

- (5) Monitor the dual duct pressure indicator on the P5-10 Bleed Air Control Panel.

- (a) Make sure that there is movement shown by both duct pressure needles and the pressures shown are normal.

NOTE: Make sure that the duct pressure do not show more than 60.0 psi (413.7 kPa).

————— END OF TASK —————

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 204
May 15/2022



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

TASK 36-00-00-860-803

4. Supply Pressure to the Pneumatic System with the APU

(Figure 201)

A. References

Reference	Title
49-11-00-860-801	APU Starting and Operation (P/B 201)

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Procedure

SUBTASK 36-00-00-860-009



YOU MUST FIRST ISOLATE THE PNEUMATIC USER SYSTEMS BEFORE YOU PRESSURIZE THE PNEUMATIC SYSTEM. IF YOU DO NOT ISOLATE THEM, THEY CAN OPERATE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT. IT CAN ALSO CAUSE THE PNEUMATIC SYSTEM TO DECREASE PRESSURE.

(1) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.

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

SUBTASK 36-00-00-860-010

(2) Put the APU BLEED switch on the P5-10 Bleed Air Control Panel to the ON position.

SUBTASK 36-00-00-860-011

(3) Put the ISOLATION VALVE switch on the P5-10 Bleed Air Control Panel to the OPEN position.

SUBTASK 36-00-00-860-012

(4) Monitor the dual duct pressure indicator on the P5-10 Bleed Air Control Panel.

(a) Make sure that the duct pressure needles indicate 12 psi (83 kPa) to 26 psi (179 kPa) without user systems in operation.

————— **END OF TASK** —————

TASK 36-00-00-860-804

5. Supply Pressure to the Pneumatic System with One or Both Engines

(Figure 201)

A. General

(1) This task gives the instructions to pressurize the pneumatic system with one or both engines.

B. References

Reference	Title
71-00-00-910-802-G00	Start the Engine (Selection) (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 205
May 15/2022



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

D. Supply Pressure to the Pneumatic System with One or Both Engines

SUBTASK 36-00-00-860-014



YOU MUST FIRST ISOLATE THE PNEUMATIC USER SYSTEMS BEFORE YOU PRESSURIZE THE PNEUMATIC SYSTEM. IF YOU DO NOT ISOLATE THEM, THEY CAN OPERATE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT. IT CAN ALSO CAUSE THE PNEUMATIC SYSTEM TO DECREASE PRESSURE.

- (1) Do this task: Start the Engine (Selection), TASK 71-00-00-910-802-G00.

SUBTASK 36-00-00-860-015

- (2) Put the applicable BLEED switch on the P5-10 Bleed Air Control Panel to the ON position.

SUBTASK 36-00-00-860-016

- (3) Put the ISOLATION VALVE switch on the P5-10 Bleed Air Control Panel to the OPEN position.

NOTE: If both engines are running and the isolation valve is open, the Integrated Air System Controller (IASC) will command the left HPSOV to the closed position. When the isolation valve is closed, the IASC will enable the left HPSOV to the open position.

SUBTASK 36-00-00-860-017

- (4) Monitor the dual duct pressure indicator on the P5-10 Bleed Air Control Panel.

- (a) Make sure that each duct pressure needle indicates a minimum of 10 psi (69 kPa).

NOTE: The duct pressure needles on the dual duct pressure indicator may fluctuate without user systems in operation.

————— END OF TASK —————

TASK 36-00-00-860-805

6. Supply Pressure Upstream of the PRSOV with Engines Off

(Figure 201)

A. General

- (1) This task gives the instructions to pressurize the upstream of the Pressure Regulating and Shutoff Valve (PRSOV) with engines off.

B. References

Reference	Title
32-09-10-750-801	Proximity Switch Electronics Unit Special Functions (P/B 501)
36-11-04-000-801	PRSOV Removal (P/B 401)
36-11-04-400-801	PRSOV Installation (P/B 401)
71-00-00-700-806-G00	Test No. 30 - Engine Running Simulation Special Functions Test (P/B 501)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 206
Sep 15/2023



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

D. Supply Pressure Upstream of the PRSOV with Engines Off

SUBTASK 36-00-00-860-222

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	C01103	ENGINE 1 START VALVE

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	4	C00154	ENGINE 2 START VALVE

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-346

- (2) Close these circuit breakers:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-00-00-860-350

- (3) Make sure that the engine fire handles are stowed.

SUBTASK 36-00-00-860-228

- (4) Make sure that the APU BLEED switch on the P5-10 panel is set to OFF.

SUBTASK 36-00-00-860-223

- (5) Put the applicable engine BLEED switch on the P5-10 Air Conditioning Panel to the ON position.

NOTE: Both Bleed Switches may be selected ON for this procedure if both sides need to have pressure upstream of the PRSOVs.

SUBTASK 36-00-00-860-330

- (6) Make sure that the L PACK and R PACK switches on the P5-10 panel are in the OFF position.

SUBTASK 36-00-00-860-224

- (7) Put the ISOLATION VALVE switch on the P5-10 Air Conditioning Panel to the OPEN position.

SUBTASK 36-00-00-860-225

- (8) Set SYS 1 Air/Ground System and SYS 2 Air/Ground System override to ON GROUND mode on the Proximity Switch Electronic Unit (PSEU) module (Proximity Switch Electronics Unit Special Functions, TASK 32-09-10-750-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 207
Sep 15/2023



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

SUBTASK 36-00-00-860-226

- (9) Set Simulated Engine Running to ENABLE on the applicable engine.
(TASK 71-00-00-700-806-G00)
 - (a) If Simulate Engine Running special function is not available, disconnect the applicable connectors:
 - 1) D40666P - J22 Junction Box for the left engine
 - 2) D40702P - J24 Junction Box for right engine.

SUBTASK 36-00-00-860-227

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-00-00-860-229



WARNING

DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (11) For the engine right thrust reverser, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-331

- (12) Make sure that the applicable PRSOV visual position indicator points to the NOT LOCKED CLOSED position.

NOTE: This is the fully closed position.

SUBTASK 36-00-00-860-018

- (13) Do one of these procedures to pressurize the pneumatic system:
 - (a) Do this task: Supply Pressure to the Pneumatic System with an External Ground Air Source, TASK 36-00-00-860-802.
 - (b) Do this task: Supply Pressure to the Pneumatic System with the APU, TASK 36-00-00-860-803.
 - 1) If the PRSOV is open when you pressurize the Bleed Air System and use Auxiliary Power Unit (APU) bleed air, replace the PRSOV as follows:
 - a) Do this task: PRSOV Removal, TASK 36-11-04-000-801.
 - b) Do this task: PRSOV Installation, TASK 36-11-04-400-801.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 208
Sep 15/2023



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

SUBTASK 36-00-00-860-230



USE A RATCHET-TYPE WRENCH TO OPEN THE PRSOV. PRESSURE IN THE SYSTEM CAN CAUSE THE PRSOV TO OPEN QUICKLY. THIS CAN PULL THE WRENCH FROM YOUR HANDS. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (14) Connect a ratchet type wrench to the manual override hex on the applicable PRSOV.
- (a) Manually turn the wrench until the applicable PRSOV visual position indicator points to the OPEN position.
- NOTE: With pressure on the system, once the PRSOV is open a little, it will then open itself to fully open. It will stay in the open position.
- NOTE: The PRSOV is spring-load to the closed position. If a minimum of 12 psig (82.7 kPa) is supplied and shown on the duct pressure gage on the P5 panel but the PRSOV does not stay open, there may be a leakage in the PRSOV.

SUBTASK 36-00-00-860-020

- (15) Remove the wrench from the manual override nut for the PRSOV.
- (a) Make sure that the position indicator on the PRSOV stays in the open position.

————— END OF TASK —————

TASK 36-00-00-860-806

7. Remove Pressure from the Pneumatic System

(Figure 201)

A. General

- (1) This task gives the instructions to remove the pressure from the pneumatic system.

B. References

Reference	Title
32-09-10-750-801	Proximity Switch Electronics Unit Special Functions (P/B 501)
49-11-00-860-802	APU Usual Shutdown (P/B 201)
71-00-00-800-801-G00	Engine Ground Safety Precautions (P/B 201)
71-00-00-910-806-G00	Stop the Engine (Usual Engine Stop) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
192DR	ECS High Pressure Access Door

E. Remove Pressure from the Pneumatic System

SUBTASK 36-00-00-860-021

- (1) Stop the operation of the applicable source that follows which was used to pressurize the pneumatic system:

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 209
Sep 15/2023



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



WARNING

DO NOT DISCONNECT THE GROUND AIR SOURCE FROM THE AIRPLANE IF ENGINE 2 OPERATES AT MORE THAN MINIMUM IDLE. IF ENGINE 2 OPERATES AT MORE THAN MINIMUM IDLE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Make sure you obey the inlet hazard areas if one or both engines are in operation, do this task: Engine Ground Safety Precautions, TASK 71-00-00-800-801-G00.
- (b) If an external ground air source was used, shut down the external ground air source.
- (c) If the Auxiliary Power Unit (APU) was used, do this task: APU Usual Shutdown, TASK 49-11-00-860-802.
- (d) If the engine(s) was used, do this task: Stop the Engine (Usual Engine Stop), TASK 71-00-00-910-806-G00.

SUBTASK 36-00-00-860-234

- (2) If pressure was supplied upstream of the Pressure Regulating and Shutoff Valve (PRSOV), do these steps:

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

- (b) Make sure that the applicable PRSOV visual position indicator points to the NOT LOCKED CLOSED position.

NOTE: This is the fully closed position.

- (c) Set Simulated Engine running to DISABLE on applicable engine.
 - 1) If the Simulated Engine special function is unavailable, connect the applicable connectors:
 - a) D40666P - J22 Junction Box for the left engine
 - b) D40702P - J24 Junction Box for right engine.
- (d) Disable SYS 1 Air/Ground System override on the Proximity Switch Electronic Unit (PSEU) module (Proximity Switch Electronics Unit Special Functions, TASK 32-09-10-750-801).
- (e) Put the ISOLATION VALVE switch on the P5-10 panel to the AUTO position.
- (f) Put the applicable engine BLEED switch on the P5-10 panel to the OFF position.
- (g) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	C01103	ENGINE 1 START VALVE

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	4	C00154	ENGINE 2 START VALVE

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 210
Sep 15/2023



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

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-022

- (3) Make sure that the APU BLEED switches on the P5-10 Bleed Air Control Panel are in the OFF position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-00-00-860-024

- (1) If an external ground air source was used, disconnect the ground pneumatic service line from the ground pneumatic service connector.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192DR	ECS High Pressure Access Door

SUBTASK 36-00-00-860-025

- (2) If the thrust reverser was opened, close the thrust reverser.



WARNING

OBEY THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE PROCEDURE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) For the applicable engine right thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

———— **END OF TASK** ————

TASK 36-00-00-860-807

8. Pneumatic Valve Inoperative

A. General

- (1) This task gives the instructions to inhibit the MAINT Light when deactivating the pneumatic system component below:
- (a) High Pressure Shutoff Valve (HPSOV)
- (2) The Onboard Maintenance Function (OMF) will not let you start the test(s) if there is one or more of these conditions:
- (a) The air/ground logic shows that the airplane is not on the ground.
- (b) The applicable engine is starting or running.
- (c) The applicable engine fire handle is not in the usual position.
- (d) The applicable engine BLEED is OFF.
- (e) The APU bleed valve is open.
- (f) A pneumatic ground cart is ON.
- (g) The applicable duct pressure is more than 5 psig (34 kPa).
- (h) WING ANTI-ICE is on.
- (i) Another IBIT is running.
- (j) Overtemperature, overpressure, or reverse flow shutdown conditions exist.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 211
Sep 15/2023



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

- (k) PRSOV torque motor or driver failed.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)

C. Location Zones

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

D. Prepare for the Test

SUBTASK 36-00-00-860-235

- (1) If the GND TEST switch on the P61-4 panel is in the NORM position, set the GND TEST switch to ENABLE position.

SUBTASK 36-00-00-860-236

- (2) Make sure the airplane is set to ON GROUND mode (TASK 32-09-00-860-802).

SUBTASK 36-00-00-860-237

- (3) Do these steps on the P5-10 Air Conditioning Panel:
- (a) Set the applicable BLEED switch to the ON position.
 - (b) Set the APU BLEED switch to the OFF position.
 - (c) Set the WING ANTI-ICE switch to the OFF position.

E. LRU Replacement Test - Pneumatic Engine Off

SUBTASK 36-00-00-860-238

- (1) Do the applicable ground test: (Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801)
- 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Left HPSOV
 - 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Right HPSOV
- (a) Advance through the interactive instructions on the screen and select "No" when prompted to confirm valve movement.
- (b) When the test is completed, make sure that FAILED shows adjacent to TEST CONDITION.
- (c) Select the RETURN AIRPLANE TO NORMAL button on the screen.

SUBTASK 36-00-00-860-239

- (2) Confirm that the applicable STATUS message exists and that the MAINT Light is on.

SUBTASK 36-00-00-860-240

- (3) Inhibit the MAINT light for the associated active status message (TASK 31-65-00-750-801).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-00-00-860-241

- (1) Put the switches back to the usual condition:
- (a) Set the applicable BLEED switch to the OFF position.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 212
Sep 15/2023



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

SUBTASK 36-00-00-860-242

- (2) If all maintenance on the airplane is completed, set the GND TEST switch on the P61-4 panel to the NORM position.

————— END OF TASK —————

TASK 36-00-00-910-801

9. Airworthiness Limitation Precautions

A. General

- (1) Critical Design Configuration Control Limitations (CDCCLs)
 - (a) All occurrences of CDCCLs found in this chapter of the Aircraft Maintenance Manual (AMM) are identified by this note after each applicable CDCCL design feature:
 - 1) NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).
 - (b) Design features that are CDCCLs are defined and controlled by Special Federal Aviation Regulation (SFAR) 88, and can be found in Section 9 of the Maintenance Planning Data (MPD) document. CDCCLs are a means of identifying certain design configuration features intended to preclude a fuel tank ignition source for the operational life of the airplane. CDCCLs are mandatory and cannot be changed or deleted without the approval of the FAA Oversight Office that is responsible for the airplane model Type Certificate, or applicable regulatory agency. A critical fuel tank ignition source prevention feature may exist in the fuel system and its related installation or in systems that, if a failure condition were to develop, could interact with the fuel system in such a way that an unsafe condition would develop without this limitation. Strict adherence to configuration, methods, techniques, and practices as prescribed is required to ensure the CDCCL is complied with. Any use of parts, methods, techniques or practices not contained in the applicable CDCCL must be approved by the FAA Oversight Office that is responsible for the airplane model Type Certificate.
- (2) Airworthiness Limitation Instructions (ALIs)
 - (a) All occurrences of fuel tank system ALIs found in this chapter of the AMM are identified by this note after each applicable ALI inspection feature:
 - 1) NOTE: ALI - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on airworthiness limitation instructions (ALIs).
 - (b) Inspection features that are ALIs are defined and controlled by Special Federal Aviation Regulation (SFAR) 88, and can be found in Section 9 of the Maintenance Planning Data (MPD) document. These ALIs identify inspection features related to fuel tank ignition source prevention which must be done to maintain the design level of safety for the operational life of the airplane. These inspection features are mandatory and cannot be changed or deleted without the approval of the FAA Oversight Office that is responsible for the airplane model Type Certificate. Strict adherence to methods, techniques and practices as prescribed is required to ensure the ALI is complied with. Any use of methods, techniques or practices not contained in these ALIs must be approved by the FAA Oversight Office that is responsible for the airplane model Type Certificate.

B. Location Zones

Zone	Area
100	Lower Half of Fuselage

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 213
Sep 15/2023



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

(Continued)

Zone	Area
200	Upper Half of Fuselage
500	Left Wing
600	Right Wing

C. Critical Design Configuration Control Limitations (CDCCLs)

SUBTASK 36-00-00-800-001



OBEY THE MANUFACTURER'S PROCEDURES WHEN YOU DO MAINTENANCE THAT HAS AN EFFECT ON A CDCCL. IF YOU DO NOT OBEY THE PROCEDURES, IT CAN INCREASE THE RISK OF A SOURCE OF FUEL TANK IGNITION. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR IF THERE IS A FIRE OR EXPLOSION.

- (1) Make sure that you follow the procedures for items identified as CDCCLs.

D. Airworthiness Limitation Instructions (ALIs)

SUBTASK 36-00-00-800-002



OBEY THE MANUFACTURER'S PROCEDURES WHEN YOU DO MAINTENANCE THAT HAS AN EFFECT ON AN ALI. IF YOU DO NOT OBEY THE PROCEDURES, IT CAN INCREASE THE RISK OF A SOURCE OF FUEL TANK IGNITION. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR IF THERE IS A FIRE OR EXPLOSION.

- (1) Make sure that you follow the procedures for the items identified as ALIs.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 214
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL
PNEUMATIC - GENERAL - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) Electrical LRU - Replacement Test
- (2) Pneumatic Engine On - System Test
- (3) Protection Test - System Test

TASK 36-00-00-710-801

2. Electrical LRU - Replacement Test

A. General

- (1) This test does a check of the sensors, torque motors, drivers, discrete inputs, discrete outputs, and ARINC 429 connections in the bleed air system.

B. References

Reference	Title
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left

D. Prepare for the Test

SUBTASK 36-00-00-860-349

- (1) Make sure that the same side Display Processing Computer (DPC) is installed and operational.

NOTE: This will prevent the test from a FAILED result and "NO RESPONSE FROM IASC" message.

SUBTASK 36-00-00-860-027

- (2) If the GND TEST switch on the P61-4 panel is in NORM position, set the GND TEST switch to ENABLE position.

SUBTASK 36-00-00-860-028

- (3) Make sure that the airplane is in "ON GROUND" mode.
 - (a) If necessary, do this task to set the airplane to ON GROUND mode: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 36-00-00-860-029

- (4) Do these steps on the P5-10 Air Conditioning Panel (P5 forward overhead panel):
 - (a) Set the applicable BLEED switch (1 for left, 2 for right) to the ON position.
 - (b) Set the APU BLEED switch to the OFF position.
 - (c) Set the WING ANTI-ICE switch to the OFF position.
 - (d) Set the Left and Right Pack switches to AUTO.
 - (e) Set the Left and Right Recirc Fan switches to OFF.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 501
Sep 15/2021



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

SUBTASK 36-00-00-860-218

- (5) Make sure that these conditions are as follows:
- (a) The air/ground logic shows that the airplane is on the ground.
 - (b) Pneumatic ground cart is not connected to the airplane.
 - (c) The applicable engine is not operating.
 - (d) The applicable engine fire handle is in the normal position.
 - (e) The APU bleed valve is closed.
 - (f) WING ANTI-ICE switch is set to OFF.
 - (g) The applicable engine BLEED is ON.
 - (h) Left and Right Pack switches to AUTO.
 - (i) Left and Right Recirc Fan switches to OFF.
 - (j) The left and right duct pressure is less than 5 psig.
 - (k) No other IASC (bleed) ground test is in progress.

E. Electrical LRU - Replacement Test

SUBTASK 36-00-00-700-001

- (1) Start the applicable ground test (TASK 46-13-02-710-801):
- (a) 36 Pneumatics, LRU Replacement Test, Electrical LRU - Left.
 - (b) 36 Pneumatics, LRU Replacement Test, Electrical LRU - Right.

SUBTASK 36-00-00-700-002

- (2) When the test is complete, make sure that PASSED shows adjacent to TEST CONDITION.

SUBTASK 36-00-00-810-002

- (3) If FAILED shows, then go to IFIM and do the applicable procedure(s).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-00-00-860-219

- (1) Set the switches on the air conditioning panel to its usual position.

SUBTASK 36-00-00-860-031

- (2) If all maintenance on the airplane is completed, set the GND TEST switch on the P61-4 panel to the NORM position.

————— END OF TASK —————

TASK 36-00-00-730-801

3. Pneumatic Engine On - System Test

A. General

- (1) This test makes sure the bleed valves (PRSOV, HPSOV, and FAMV) are functioning while the engine pressurizes the system.
- (a) The PRSOV, HPSOV, and FAMV will move for 10 seconds during the test.
 - (b) This test may be inhibited if multiple system faults (i.e. BLEED PRSOV CTRL L, HPSOV CTRL L, FAMV RVDT L, OR FAMV L) are present.

B. References

Reference	Title
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 502
Sep 15/2021



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

(Continued)

Reference	Title
36-11-00-700-802	Engine Bleed Air System - Leak Check (P/B 501)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
71-00-00-800-802-G00	Engine Operation Limits (P/B 201)
71-00-00-910-802-G00	Start the Engine (Selection) (P/B 201)
71-00-00-910-806-G00	Stop the Engine (Usual Engine Stop) (P/B 201)
71-00-00-970-802-G00	Engine Performance Page (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left

D. Prepare for the Test

SUBTASK 36-00-00-860-348

- (1) Make sure that the same side Display Processing Computer (DPC) is installed and operational.

NOTE: This will prevent the test from a FAILED result and "NO RESPONSE FROM IASC" message.

SUBTASK 36-00-00-750-010

- (2) Clear the following Maintenance Messages (if present). Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

NOTE: The Pneumatic Engine On - System Test will be inhibited if the below Maintenance Messages are present.

- 36-11010 or 36-11011: L or R HPSOV TORQUE MOTOR OUT OF RANGE
- 36-11040 or 36-11041: L or R PRSOV TORQUE MOTOR OUT OF RANGE
- 36-12010 or 36-12011: L or R FAMV TORQUE MOTOR OUT OF RANGE
- 36-12030 or 36-12031: L OR r FAMV RVDT SIGNAL OUT OF RANGE

- (3) If the Maintenance Messages do not clear after doing Electrical LRU - Replacement Test, TASK 36-00-00-710-801, then go to the IFIM and do the applicable procedure(s).

SUBTASK 36-00-00-860-033

- (4) If the GND TEST switch on the P61-4 panel is in NORM position, set the GND TEST switch to ENABLE position.

SUBTASK 36-00-00-860-034

- (5) Make sure that the airplane is in "ON GROUND" mode.
- (a) If necessary, do this task to set the airplane to ON GROUND mode: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 36-00-00-860-035

- (6) Start the applicable engine: Start the Engine (Selection), TASK 71-00-00-910-802-G00
- (a) Let the engine become stable at the minimum idle thrust.
- (b) Make sure the engine operates in the operation limits (Engine Operation Limits, TASK 71-00-00-800-802-G00).

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 503
Sep 15/2021



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

SUBTASK 36-00-00-860-036

- (7) Do these steps on the P5-10 Air Conditioning Panel (P5 forward overhead panel):
- (a) Set the ISOLATION VALVE switch to the CLOSE position.
 - (b) Set the 1 and 2 BLEED switches to the ON position.
 - (c) Set the APU BLEED switch to the OFF position.
 - (d) Set the L and R PACK switches to the AUTO position.

SUBTASK 36-00-00-860-320

- (8) On the P5-11 Panel set the WING ANTI-ICE switch to the OFF position.

SUBTASK 36-00-00-860-221

- (9) Make sure that these conditions are as follows:
- (a) The air/ground logic shows that the airplane is on the ground (TASK 32-09-00-860-802).
 - (b) Pneumatic ground cart is not connected to the airplane.
 - (c) Air Speed data is available and is less than 40kts.
 - (d) The applicable engine fire handle is in the normal position.
 - (e) The applicable engine is running and the thrust lever is at idle.
 - (f) The N1, PS3, or T3 data is available for the applicable engine (TASK 71-00-00-970-802-G00).
 - (g) The engine must be running for more than 3 minutes prior to the test.
 - (h) WING ANTI-ICE switch is set to OFF.
 - (i) L or R Engine Start is not detected (DPC input).
 - (j) Same-side Engine Running is not detected (DPC input).
 - (k) Same-side PI, PM, and RVDT data is available.
 - (l) Overtemperature, overpressure, or reverse flow shutdown conditions do not exist (TASK 71-00-00-970-802-G00 and TASK 36-11-00-700-802).
 - (m) No other IASC (bleed) ground test is in progress.
 - (n) ENG ANTI-ICE switch is set to OFF.
 - (o) Make sure that pneumatic system faults are not present.

NOTE: If there are multiple pneumatic faults present, clear the STATUS messages. Use the applicable pneumatic engine off or LRU replacement ground tests to clear the messages before you do the pneumatic engine on system test.

E. Pneumatic Engine On - System Test

SUBTASK 36-00-00-860-037

- (1) Start the applicable ground test (TASK 46-13-02-710-801):
- (a) 36 Pneumatics, System Test, Pneumatic Engine On - Left.
 - (b) 36 Pneumatics, System Test, Pneumatic Engine On - Right.

SUBTASK 36-00-00-700-004

- (2) When the test is complete, make sure that PASSED shows adjacent to TEST CONDITION.

SUBTASK 36-00-00-810-001

- (3) If FAILED shows, then go to IFIM and do the applicable procedure(s).

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 504
Sep 15/2021



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

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-00-00-860-038

- (1) Stop the engine: (Stop the Engine (Usual Engine Stop), TASK 71-00-00-910-806-G00).

SUBTASK 36-00-00-860-220

- (2) Set the switches on the air conditioning panel to its usual position.

SUBTASK 36-00-00-860-040

- (3) If all maintenance on the airplane is completed, set the GND TEST switch on the P61-4 panel to the NORM position.

————— END OF TASK —————

TASK 36-00-00-710-802

4. Protection Gate - Operational Test

(Figure 501)

A. General

- (1) This test simulates temperature and pressure inputs to make sure that the bleed trip protections operate correctly for over temperature and overpressure conditions in the air supply control system (ASCS).
- (2) During the test the applicable BLEED light will come on 3 times.
 - (a) Airplane maintenance personnel must push the TRIP RESET button to make the light go off each time.

B. References

Reference	Title
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
73-21-00-800-801-G00	EEC Maintenance Power Selection (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left

E. Prepare for the Test

SUBTASK 36-00-00-860-347

- (1) Make sure that the same side Display Processing Computer (DPC) is installed and operational.

NOTE: This will prevent the test from FAILED result and "NO RESPONSE FROM IASC" message.

SUBTASK 36-00-00-860-268

- (2) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 505
May 15/2022



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

- (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
- (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-269

- (3) Select the left or right Multi Function Display (MFD).
 - (a) Push the SYS button on the Multi-Function Display Panel to activate the MFD screen.

SUBTASK 36-00-00-860-270

- (4) Set the applicable EEC MAINT POWER switch on the MISC SYSTEM CTRLS page on the MFD to the TEST position (TASK 73-21-00-800-801-G00).

NOTE: The EEC will do a self-test when you set the EEC MAINT POWER switch to the TEST position. Wait for a minimum of 30 seconds to let the EEC complete the test.

SUBTASK 36-00-00-860-042

- (5) If the GND TEST switch on the P61-4 panel is in NORM position, set the GND TEST switch to ENABLE position.

SUBTASK 36-00-00-860-043

- (6) Make sure that the airplane is in "ON GROUND" mode.
 - (a) If necessary, do this task to set the airplane to ON GROUND mode: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 36-00-00-860-044

- (7) Set the applicable BLEED switch on the P5-10 Panel, to the ON position.
 - (a) BLEED 1
 - (b) BLEED 2

SUBTASK 36-00-00-860-271

- (8) Make sure that the APU Bleed switch on the P5-10 Panel, is in the OFF position.

SUBTASK 36-00-00-860-272

- (9) Make sure that the WING ANTI-ICE switch on the P5-11 Panel, is in the OFF position.

SUBTASK 36-00-00-860-343

- (10) Set the Left and Right Pack switches to AUTO on the P5-10 Panel.

SUBTASK 36-00-00-860-344

- (11) Set the Left and Right Recirc Fan switches to OFF on the P5-10 Panel.

SUBTASK 36-00-00-860-217

- (12) Make sure that these conditions are as follows:
 - (a) The air/ground logic shows that the airplane is on the ground.
 - (b) Pneumatic ground cart is not connected to the airplane.
 - (c) The applicable engine is not operating.
 - (d) The applicable engine fire handle is in the normal position.
 - (e) The APU bleed valve is closed.
 - (f) WING ANTI-ICE switch is set to OFF.
 - (g) The applicable engine BLEED is ON.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 506
Jan 15/2023



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

- (h) Left and Right Pack switches to AUTO.
- (i) Left and Right Recirc Fan switches to OFF.
- (j) The left and right duct pressure is less than 5 psig.
- (k) Bleed manifold temperature is less than 200°F (93°C).

NOTE: Temperature indications are found on the MFD (ATA 36 - Air Supply Maintenance Page: Precooler Outlet Temp 1 and 2).

- (l) No other IASC (bleed) ground test is in progress.

F. Protection Gate - Operational Test

SUBTASK 36-00-00-710-001

- (1) Do the applicable ground test in this task: Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801.
 - (a) 36 Pneumatics, Operational Test, Protection Gate - Left.
 - (b) 36 Pneumatics, Operational Test, Protection Gate - Right.

SUBTASK 36-00-00-700-005

- (2) When the test is complete, make sure that PASSED shows adjacent to TEST CONDITION.

SUBTASK 36-00-00-810-003

- (3) If FAILED shows, then go to IFIM and do the applicable procedure(s).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-00-00-860-273

- (1) Set the applicable EEC MAINT POWER switch on the MISC SYSTEM CTRLS page on the MFD to the NORM position (TASK 73-21-00-800-801-G00).

SUBTASK 36-00-00-860-046

- (2) If all maintenance on the airplane is completed, set the GND TEST switch on the P61-4 panel to the NORM position.

SUBTASK 36-00-00-860-274

- (3) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

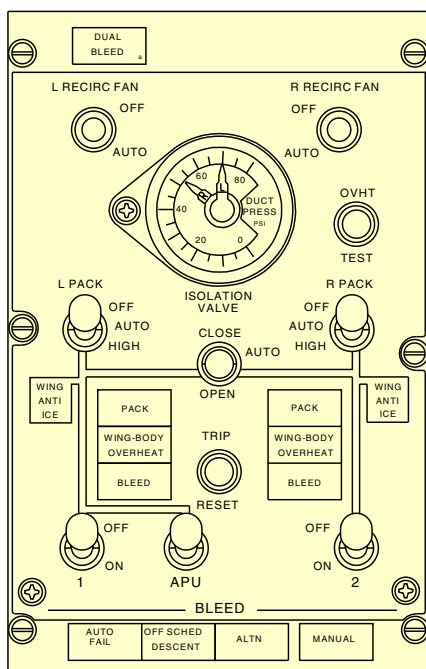
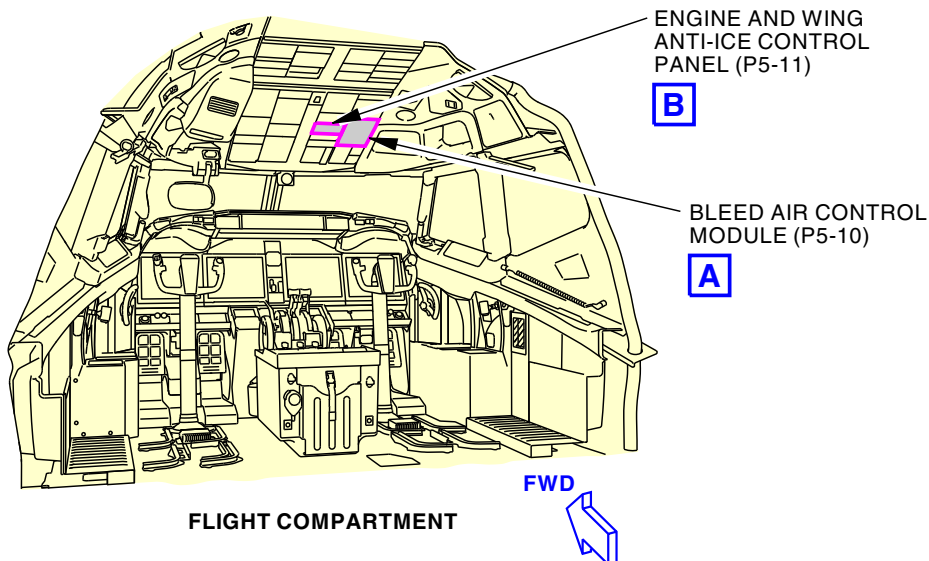
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

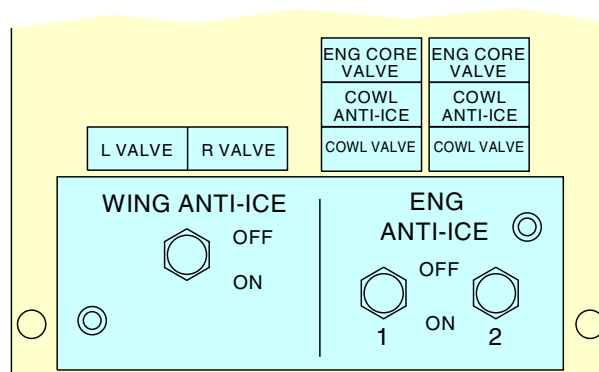
Page 507
May 15/2022

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



BLEED AIR CONTROL
MODULE (P5-10)
(TYPICAL)

A



ENGINE AND WING ANTI-ICE
CONTROL PANEL (P5-11)

B

2415009 S00061536801_V6

Bleed Air and Engine/Wing Anti-Ice Control Panels
Figure 501/36-00-00-990-812

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SIA ALL

36-00-00



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

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 systems/components that are inoperative.
- B. This procedure also has the tasks that put the airplane back to its usual condition.
- C. These are the tasks for the components in the pneumatic system:
 - (1) DDG 36-11-01-01 Primary Control Card Inoperative - Preparation
 - (2) DDG 36-11-01-01 Primary Control Card Inoperative - Restoration
 - (3) DDG 36-11-01-02 Anti-Ice Inhibit Function Inoperative - Preparation
 - (4) DDG 36-11-01-02 Anti-Ice Inhibit Function Inoperative - Restoration
 - (5) DDG 36-11-01-06 Bleed Control Engine Data Inoperative - Preparation
 - (6) DDG 36-11-01-06 Bleed Control Engine Data Inoperative - Restoration
 - (7) DDG 36-11-02-01 Manifold Pressure (PM2) Sensors Inoperative - Preparation
 - (8) DDG 36-11-02-02 Intermediate Pressure (PI) Sensors Inoperative - Preparation
 - (9) DDG 36-11-02-02 Intermediate Pressure (PI) Sensors Inoperative - Restoration
 - (10) DDG 36-11-03-01A Pressure Regulating and Shutoff Valves (PRSOV) - Preparation
 - (11) DDG 36-11-03-01A Pressure Regulating and Shutoff Valves (PRSOV) - Restoration
 - (12) DDG 36-11-04-01 High Pressure Shutoff Valves (HPSOV) Inoperative - Preparation
 - (13) DDG 36-11-04-01 High Pressure Shutoff Valves (HPSOV) Inoperative - Restoration
 - (14) DDG 36-11-04-02 High Pressure Shutoff Valves (HPSOV) Control Inoperative - Preparation
 - (15) DDG 36-11-04-02 High Pressure Shutoff Valves (HPSOV) Control Inoperative - Restoration
 - (16) DDG 36-12-01 Fan Air Modulating Valves (FAMV) Inoperative - Preparation
 - (17) DDG 36-12-01 Fan Air Modulating Valves (FAMV) Inoperative - Restoration
 - (18) DDG 36-13-01 Bleed Air Isolation Valve Inoperative - Preparation
 - (19) DDG 36-13-01 Bleed Air Isolation Valve Inoperative - Restoration
 - (20) DDG 36-13-02 Bleed Air Isolation Valve Control - Preparation
 - (21) DDG 36-13-02 Bleed Air Isolation Valve Control - Restoration
 - (22) DDG 36-13-03 Ground Pneumatic Connector Check Valve Inoperative - Preparation
 - (23) DDG 36-13-03 Ground Pneumatic Connector Check Valve Inoperative - Restoration

TASK 36-00-00-040-808

2. DDG 36-11-01-01 Primary Control Card Inoperative - Preparation

(Figure 901)

A. General

- (1) This task gives the maintenance steps that prepare the airplane for flight with the engine bleed air primary control card inoperative.

NOTE: Only one high pressure shutoff valve may be locked in the closed position for dispatch. Dispatch with the opposite high pressure shutoff valve locked closed is not allowed.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 901
Jan 15/2022



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

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-860-807	Pneumatic Valve Inoperative (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. High Pressure Shutoff Valve Deactivation

SUBTASK 36-00-00-860-277

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-293



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-054



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-055

- (4) Manually lock the High Pressure Shutoff Valve (HPSOV) in the closed position.
 - (a) Turn the manual override nut [1] to align the position indicator [2] with the CLOSED position.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 902
Jan 15/2023



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

- (b) Loosen the bolt [3] and push in the lock knob [4] to lock the HPSOV closed.
- (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m) to hold the lock knob [4] in place.

SUBTASK 36-00-00-860-056

- (5) For the left engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-057

- (6) For the right engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-279



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (7) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-292

- (8) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-278

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-860-059

- (10) Do this task: Pneumatic Valve Inoperative, TASK 36-00-00-860-807.

NOTE: This may cause the BLEED HPSOV L or BLEED HPSOV R status message to be annunciated.

SUBTASK 36-00-00-810-004

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

————— **END OF TASK** —————

TASK 36-00-00-440-807

3. DDG 36-11-01-01 Primary Control Card Inoperative - Restoration

(Figure 901)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the engine bleed air primary control card inoperative.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 903
Jan 15/2022



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

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. High Pressure Shutoff Valve Restoration

SUBTASK 36-00-00-860-280

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-298



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-072



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-073

- (4) Manually unlock the HPSOV.
 - (a) Loosen the bolt [3] that holds the lock knob [4] in place.
 - (b) Pull the lock knob [4] out to unlock the HPSOV.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 904
Jan 15/2023



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

- (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m).

SUBTASK 36-00-00-860-074



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-299

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-078

- (7) For the left engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-079

- (8) For the right engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-281

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

F. MAINT Light Status Message

SUBTASK 36-00-00-750-001

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

————— END OF TASK —————

TASK 36-00-00-040-809

4. DDG 36-11-01-02 Anti-Ice Inhibit Function Inoperative - Preparation

(Figure 901)

A. General

- (1) This task gives the maintenance steps that prepare the airplane for flight with the engine anti-ice inhibit function inoperative.

NOTE: Only one high pressure shutoff valve may be locked in the closed position for dispatch. Dispatch with the opposite high pressure shutoff valve locked closed is not allowed.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 905
Jan 15/2022



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

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-860-807	Pneumatic Valve Inoperative (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. High Pressure Shutoff Valve Deactivation

SUBTASK 36-00-00-860-282

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-300



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-091



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-092

- (4) Manually lock the High Pressure Shutoff Valve (HPSOV) in the closed position.
 - (a) Turn the manual override nut [1] to align the position indicator [2] with the CLOSED position.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 906
Jan 15/2023



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

- (b) Loosen the bolt [3] and push in the lock knob [4] to lock the HPSOV closed.
- (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m) to hold the lock knob [4] in place.

SUBTASK 36-00-00-860-093

- (5) For the left engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-094

- (6) For the right engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-097



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (7) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-301

- (8) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-283

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-860-284

- (10) Do this task: Pneumatic Valve Inoperative, TASK 36-00-00-860-807.

NOTE: This may cause the BLEED HPSOV L or BLEED HPSOV R status message to be annunciated.

SUBTASK 36-00-00-810-005

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

————— **END OF TASK** —————

TASK 36-00-00-440-808

5. DDG 36-11-01-02 Anti-Ice Inhibit Function Inoperative - Restoration

(Figure 901)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the engine anti-ice inhibit function inoperative.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 907
Jan 15/2022



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

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. High Pressure Shutoff Valve Restoration

SUBTASK 36-00-00-860-285

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-302



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-112



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-113

- (4) Manually unlock the HPSOV.
 - (a) Loosen the bolt [3] that holds the lock knob [4] in place.
 - (b) Pull the lock knob [4] out to unlock the HPSOV.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 908
Jan 15/2023



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

- (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m).

SUBTASK 36-00-00-860-114



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-303

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-118

- (7) For the left engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-119

- (8) For the right engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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SUBTASK 36-00-00-860-286

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

F. MAINT Light Status Message

SUBTASK 36-00-00-750-002

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

————— END OF TASK —————

TASK 36-00-00-040-810

6. DDG 36-11-01-06 Bleed Control Engine Data Inoperative - Preparation

(Figure 901)

A. General

- (1) This task gives the maintenance steps that prepare the airplane for flight with the bleed control engine data inoperative.

NOTE: Only one high pressure shutoff valve may be locked in the closed position for dispatch. Dispatch with the opposite high pressure shutoff valve locked closed is not allowed.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 909
Jan 15/2022



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

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-860-807	Pneumatic Valve Inoperative (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. High Pressure Shutoff Valve Deactivation

SUBTASK 36-00-00-860-287

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-304



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-132



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-133

- (4) Manually lock the High Pressure Shutoff Valve (HPSOV) in the closed position.
 - (a) Turn the manual override nut [1] to align the position indicator [2] with the CLOSED position.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 910
Jan 15/2023



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

- (b) Loosen the bolt [3] and push in the lock knob [4] to lock the HPSOV closed.
- (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m) to hold the lock knob [4] in place.

SUBTASK 36-00-00-860-134



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-305

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-288

- (7) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-860-289

- (8) Do this task: Pneumatic Valve Inoperative, TASK 36-00-00-860-807.

NOTE: This may cause the BLEED HPSOV L or BLEED HPSOV R status message to be annunciated.

SUBTASK 36-00-00-810-008

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

————— END OF TASK —————

TASK 36-00-00-440-809

7. DDG 36-11-01-06 Bleed Control Engine Data Inoperative - Restoration

(Figure 901)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the bleed control engine data inoperative.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 911
Jan 15/2022



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

D. Location Zones

Zone	Area
------	------

411	Engine 1 - Engine
-----	-------------------

421	Engine 2 - Engine
-----	-------------------

E. High Pressure Shutoff Valve Restoration

SUBTASK 36-00-00-860-290

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-306



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-154



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-155

- (4) Manually unlock the HPSOV.
 - (a) Loosen the bolt [3] that holds the lock knob [4] in place.
 - (b) Pull the lock knob [4] out to unlock the HPSOV.
 - (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m).

SUBTASK 36-00-00-860-156



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-307

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 912
Jan 15/2023



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

SUBTASK 36-00-00-860-291

- (7) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

F. MAINT Light Status Message

SUBTASK 36-00-00-750-005

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

————— END OF TASK —————

TASK 36-00-00-040-801

8. DDG 36-11-02-01 Manifold Pressure (PM2) Sensors Inoperative - Preparation

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the manifold pressure (PM2) sensor inoperative.

B. References

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

C. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

D. Manifold Pressure (PM) Sensor Check

SUBTASK 36-00-00-730-001

- (1) Make sure that the associated SMT message: BLEED PM SENSOR 1 L/R is not displayed (TASK 31-65-00-750-801).

SUBTASK 36-00-00-810-009

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

————— END OF TASK —————

TASK 36-00-00-040-811

9. DDG 36-11-02-02 Intermediate Pressure (PI) Sensors Inoperative - Preparation

(Figure 901)

A. General

- (1) This task gives the maintenance steps that prepare the airplane for flight with the Pressure Intermediate (PI) sensor inoperative.

NOTE: Only one high pressure shutoff valve may be locked in the closed position for dispatch. Dispatch with the opposite high pressure shutoff valve locked closed is not allowed.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 913
Jan 15/2022



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

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-860-807	Pneumatic Valve Inoperative (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. High Pressure Shutoff Valve Deactivation

SUBTASK 36-00-00-860-246

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-308



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-175



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-176

- (4) Manually lock the High Pressure Shutoff Valve (HPSOV) in the closed position.
 - (a) Turn the manual override nut [1] to align the position indicator [2] with the CLOSED position.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 914
Jan 15/2023



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

- (b) Loosen the bolt [3] and push in the lock knob [4] to lock the HPSOV closed.
- (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m) to hold the lock knob [4] in place.

SUBTASK 36-00-00-860-177

- (5) For the left engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-178

- (6) For the right engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-181



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (7) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-309

- (8) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-247

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-860-248

- (10) Do this task: Pneumatic Valve Inoperative, TASK 36-00-00-860-807.

NOTE: This may cause the BLEED HPSOV L or BLEED HPSOV R status message to be annunciated.

SUBTASK 36-00-00-810-010

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

————— END OF TASK —————

TASK 36-00-00-440-810

10. DDG 36-11-02-02 Intermediate Pressure (PI) Sensors Inoperative - Restoration

(Figure 901)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the intermediate pressure (PI) sensor inoperative.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 915
Jan 15/2022



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

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. High Pressure Shutoff Valve Restoration

SUBTASK 36-00-00-860-249

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-311



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-860-196



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-860-197

- (4) Manually unlock the HPSOV.
 - (a) Loosen the bolt [3] that holds the lock knob [4] in place.
 - (b) Pull the lock knob [4] out to unlock the HPSOV.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 916
Jan 15/2023



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

- (c) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m).

SUBTASK 36-00-00-860-198



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-310

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-202

- (7) For the left engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-203

- (8) For the right engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-250

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

F. MAINT Light Status Message

SUBTASK 36-00-00-750-006

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

————— END OF TASK —————

TASK 36-00-00-040-802

11. DDG 36-11-03 Pressure Regulating and Shutoff Valves (PRSOV) - One Inoperative - Preparation (Figure 901)

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the pressure regulating and shutoff valve(s) (PRSOV) inoperative.

B. References

<u>Reference</u>	<u>Title</u>
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 917
Sep 15/2021



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

(Continued)

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Pressure Regulating and Shutoff Valve Deactivation

SUBTASK 36-00-00-860-252

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-326



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-010-003



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 918
Jan 15/2023



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

SUBTASK 36-00-00-020-001

- (4) Manually lock the PRSOV in the closed position.
 - (a) Make sure that the PRSOV is in the CLOSED position.
 - 1) If not already closed, turn the manual override nut [1] to align the position indicator [2] with the CLOSED position.
 - (b) Loosen the bolt [3] and push in the lock knob [4] to lock the PRSOV closed.
 - (c) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
 - (d) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m) to hold the lock knob [4] in place.

SUBTASK 36-00-00-010-004



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-327

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-251

- (7) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-810-011

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

————— END OF TASK —————

TASK 36-00-00-440-801

12. DDG 36-11-03 Pressure Regulating and Shutoff Valves (PRSOV) - One Inoperative - Restoration (Figure 901)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the pressure regulating and shutoff valve(s) (PRSOV) inoperative.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 919
Jan 15/2023



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

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Pressure Regulating and Shutoff Valve Restoration

SUBTASK 36-00-00-860-253

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-328



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-010-006



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-020-002

- (4) Manually unlock the PRSOV.
 - (a) Loosen the bolt [3] that holds the lock knob [4] in place.
 - (b) Pull the lock knob [4] out to unlock the PRSOV.

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-00-00

Page 920
Jan 15/2023



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

- (c) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
- (d) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m).
- (e) Make sure that the PRSOV is in the CLOSED, NOT LOCKED position.

SUBTASK 36-00-00-010-007



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-329

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-254

- (7) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

G. MAINT Light Status Message

SUBTASK 36-00-00-750-007

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

————— END OF TASK —————

TASK 36-00-00-040-803

13. DDG 36-11-04-01 High Pressure Shutoff Valves (HPSOV) Inoperative - Preparation

(Figure 901)

A. General

- (1) This task gives the maintenance steps that prepare the airplane for flight with the High Pressure Shutoff Valve (HPSOV) inoperative.

NOTE: Only one high pressure shutoff valve may be locked in the closed position for dispatch. Dispatch with the opposite high pressure shutoff valve locked closed is not allowed.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-860-807	Pneumatic Valve Inoperative (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 921
Jan 15/2023



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

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. High Pressure Shutoff Valve Deactivation

SUBTASK 36-00-00-860-256

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-313



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-010-009



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-020-003

- (4) Manually lock the HPSOV in the closed position.
 - (a) Turn the manual override nut [1] to align the position indicator [2] with the CLOSED position.
 - (b) Loosen the bolt [3] and push in the lock knob [4] to lock the HPSOV closed.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 922
Jan 15/2023



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

- (c) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
- (d) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m) to hold the lock knob [4] in place.

SUBTASK 36-00-00-010-010



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-312

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-00-00-860-255

- (7) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-860-244

- (8) Do this task: Pneumatic Valve Inoperative, TASK 36-00-00-860-807.

NOTE: This may cause the BLEED HPSOV L or BLEED HPSOV R status message to be annunciated.

SUBTASK 36-00-00-810-012

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

————— **END OF TASK** —————

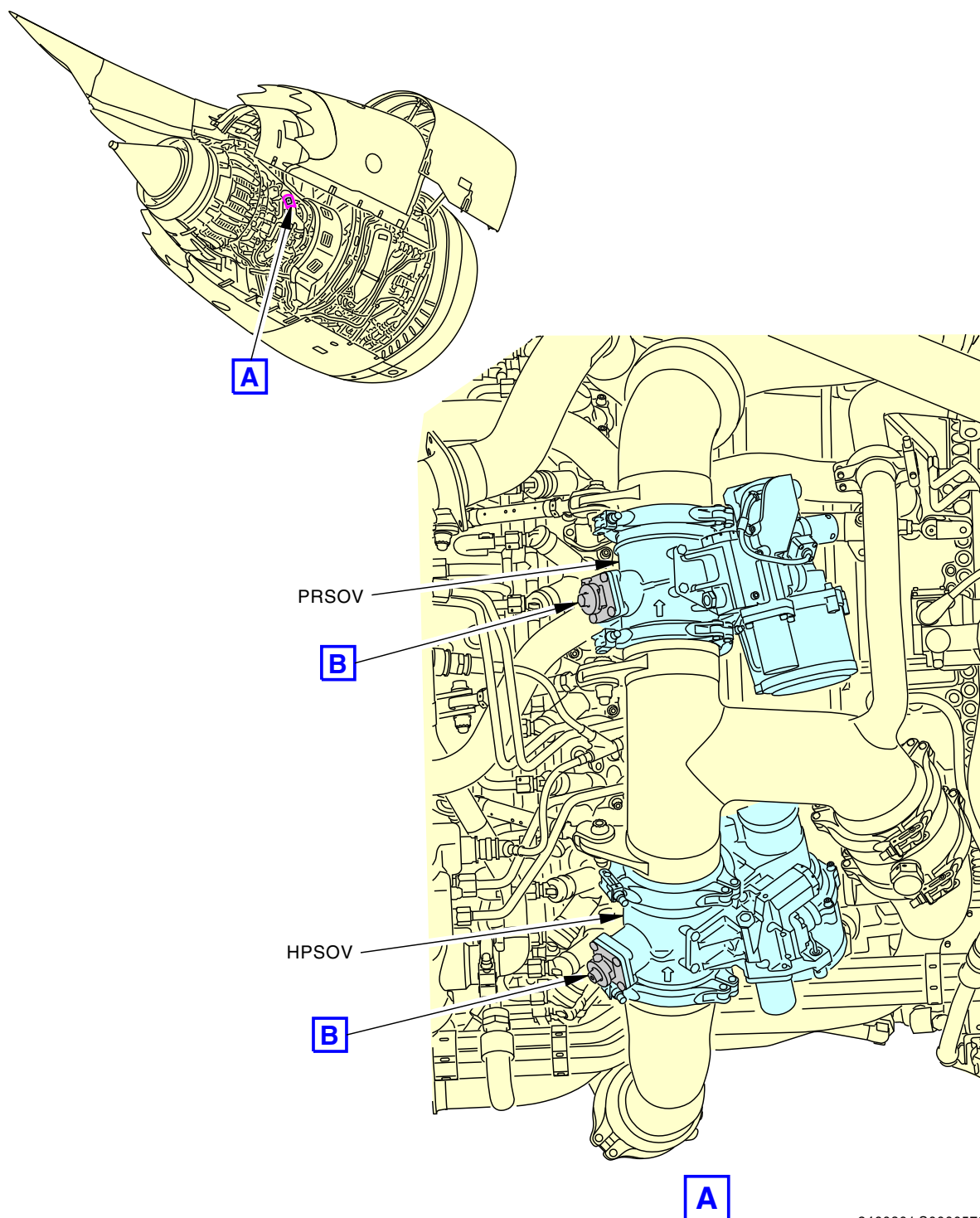
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 923
Jan 15/2023



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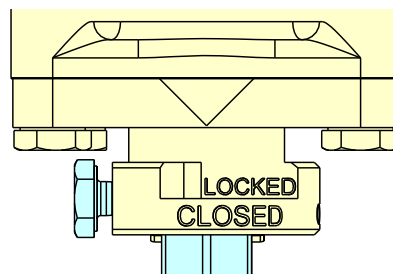
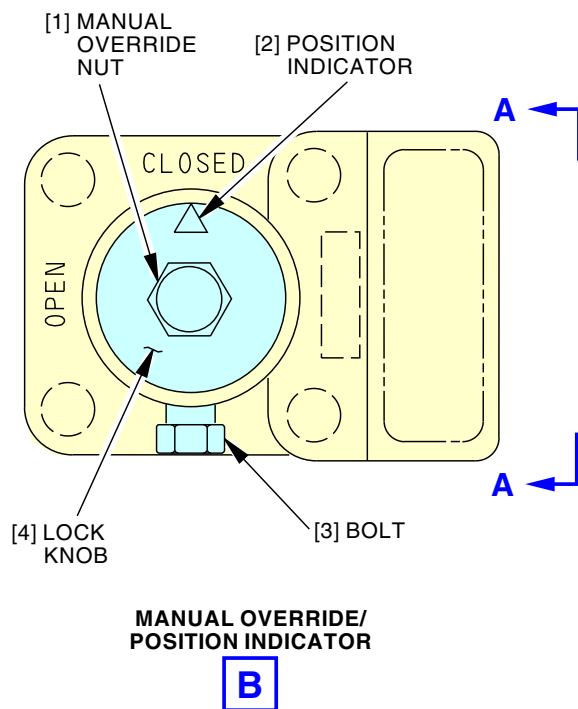
HPSOV and PRSOV Deactivation
Figure 901/36-00-00-990-808 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

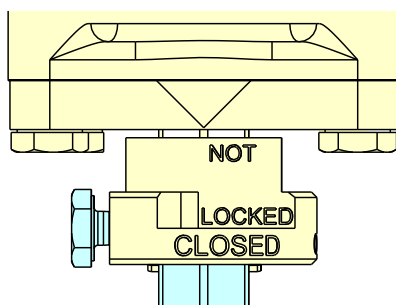
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D633AM101-SIA

Page 924
Jan 15/2022



CLOSED AND LOCKED POSITION
A-A



CLOSED, NOT LOCKED POSITION
A-A

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HPSOV and PRSOV Deactivation
Figure 901/36-00-00-990-808 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 925
Jan 15/2022



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

TASK 36-00-00-440-802

14. **DDG 36-11-04-01 High Pressure Shutoff Valves (HPSOV) Inoperative - Restoration**

(Figure 901)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the high pressure shutoff valve (HPSOV) inoperative.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. High Pressure Shutoff Valve Restoration

SUBTASK 36-00-00-860-257

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
- (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 926
Jan 15/2023



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

SUBTASK 36-00-00-860-314



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) Make sure Pressure is removed from the Pneumatic System.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806

SUBTASK 36-00-00-010-012



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-020-004

- (4) Manually unlock the HPSOV.
 - (a) Loosen the bolt [3] that holds the lock knob [4] in place.
 - (b) Pull the lock knob [4] out to unlock the HPSOV.
 - (c) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
 - (d) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m).

SUBTASK 36-00-00-010-013



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-315

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801

SUBTASK 36-00-00-860-258

- (7) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

G. MAINT Light Status Message

SUBTASK 36-00-00-750-008

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

————— END OF TASK —————

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 927
Jan 15/2023



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

TASK 36-00-00-040-804

15. **DDG 36-11-04-02 High Pressure Shutoff Valves (HPSOV) Control Inoperative - Preparation**
(Figure 901)

A. General

- (1) This task gives the maintenance steps that prepare the airplane for flight with the High Pressure Shutoff Valve (HPSOV) control inoperative.

NOTE: Only one high pressure shutoff valve may be locked in the closed position for dispatch. Dispatch with the opposite high pressure shutoff valve locked closed is not allowed.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-860-807	Pneumatic Valve Inoperative (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. High Pressure Shutoff Valve Deactivation

SUBTASK 36-00-00-860-263

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
- (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 928
Jan 15/2023



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

SUBTASK 36-00-00-860-316



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-010-015



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-020-005

- (4) Manually lock the HPSOV in the closed position.
 - (a) Turn the manual override nut [1] to align the position indicator [2] with the CLOSED position.
 - (b) Loosen the bolt [3] and push in the lock knob [4] to lock the HPSOV closed.
 - (c) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
 - (d) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m) to hold the lock knob [4] in place.

SUBTASK 36-00-00-860-211

- (5) For the left engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-212

- (6) For the right engine, open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-010-016



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.

- (7) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-317

- (8) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 929
Jan 15/2023



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

SUBTASK 36-00-00-860-264

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-860-265

- (10) Do this task: Pneumatic Valve Inoperative, TASK 36-00-00-860-807.

NOTE: This may cause the BLEED HPSOV L or BLEED HPSOV R status message to be annunciated.

SUBTASK 36-00-00-810-013

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

END OF TASK

TASK 36-00-00-440-803

16. DDG 36-11-04-02 High Pressure Shutoff Valves (HPSOV) Control Inoperative - Restoration

(Figure 901)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the high pressure shutoff valve (HPSOV) control inoperative.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 930
Jan 15/2023



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

F. High Pressure Shutoff Valve Control Restoration

SUBTASK 36-00-00-860-266

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-860-319



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) Make sure that the pressure is removed from the pneumatic system.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-00-00-010-018



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-020-006

- (4) Manually unlock the HPSOV.
 - (a) Loosen the bolt [3] that holds the lock knob [4] in place.
 - (b) Pull the lock knob [4] out to unlock the HPSOV.
 - (c) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
 - (d) Tighten the bolt [3] to 19 in-lb (2.1 N·m) - 21 in-lb (2.4 N·m).

SUBTASK 36-00-00-010-019



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.

- (5) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-318

- (6) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 931
Jan 15/2023



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

SUBTASK 36-00-00-860-214

- (7) For the left engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L

SUBTASK 36-00-00-860-215

- (8) For the right engine, remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-00-00-860-267

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

G. MAINT Light Status Message

SUBTASK 36-00-00-750-009

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

————— END OF TASK —————

TASK 36-00-00-040-805

17. DDG 36-12-01 Fan Air Modulating Valves (FAMV) Inoperative - Preparation

(Figure 902)

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the fan air modulating valve (FAMV) inoperative.

B. References

<u>Reference</u>	<u>Title</u>
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

<u>Reference</u>	<u>Description</u>	<u>Specification</u>
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 932
Jan 15/2023



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

(Continued)

Reference	Description	Specification
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Fan Air Modulating Valve (FAMV) Deactivation

SUBTASK 36-00-00-860-259

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-010-021



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-020-007

- (3) Manually lock the FAMV in the open position.
 - (a) Remove the locking bolt.
 - (b) Remove and discard the O-ring.

NOTE: The O-ring is not required when the pneumatic locking bolt is installed in the locked position.
 - (c) Install the locking bolt with the end marked "L" visible.
 - (d) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
 - (e) Tighten the locking bolt to 95 in-lb (11 N·m) - 105 in-lb (11.86 N·m).

SUBTASK 36-00-00-410-007



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.

- (4) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-260

- (5) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 933
Jan 15/2023



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

- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
- (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

SUBTASK 36-00-00-810-007

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

———— **END OF TASK** ————

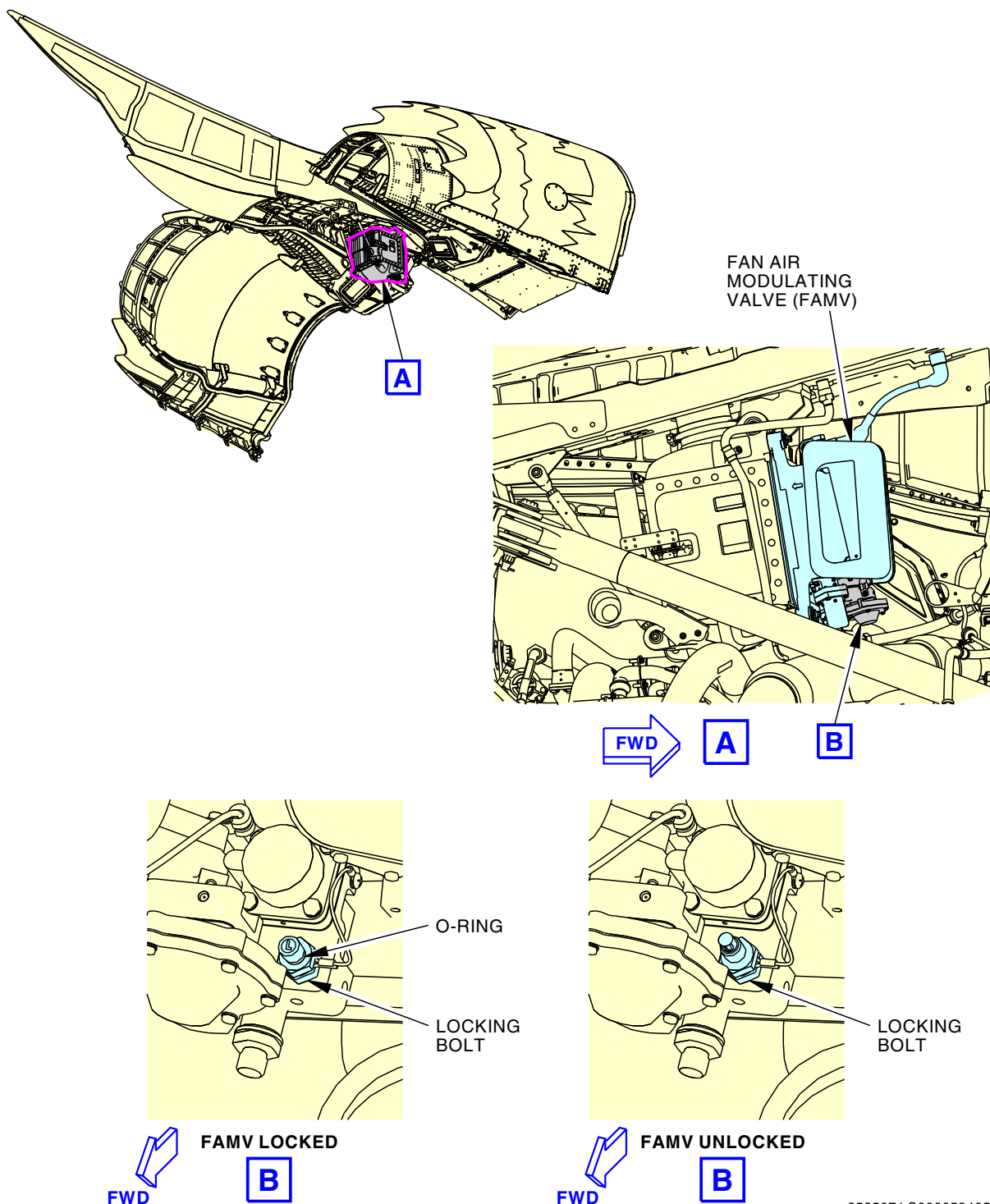
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 934
Jan 15/2023



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Fan Air Modulating Valve (FAMV) Inoperative
Figure 902/36-00-00-990-809

EFFECTIVITY
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D633AM101-SIA

36-00-00

Page 935
Jan 15/2023



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

TASK 36-00-00-440-804

18. **DDG 36-12-01 Fan Air Modulating Valves (FAMV) Inoperative - Restoration**

(Figure 902)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the fan air modulating valve (FAMV) inoperative.

B. References

Reference	Title
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
D00667	Compound - Antiseize - Loctite C5-A Copper Based Anti-Seize (Replaces FEL-PRO C5-A)	MIL-PRF-907
D50188	Compound - Anti-Seize, Loctite Silver Grade	MIL-PRF-907

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Fan Air Modulating Valve (FAMV) Restoration

SUBTASK 36-00-00-860-261

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
- (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
- 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
- (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
- 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-00-00-010-023

 WARNING	OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.
---	--

- (2) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-00-00-020-008

- (3) Manually unlock the FAMV.

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-00-00

Page 936
Jan 15/2023



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

- (a) Remove the locking bolt.
- (b) Install the new O-ring.
- (c) Install the locking bolt with the end marked "U" visible.
- (d) Apply Loctite LB 8150 anti-seize compound, D50188, Loctite C5-A compound, D00667, or compound, D00010, to the threads of the bolt.
- (e) Tighten the locking bolt to 95 in-lb (11 N·m) - 105 in-lb (11.86 N·m).

SUBTASK 36-00-00-410-009



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.

- (4) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-00-00-860-262

- (5) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

G. MAINT Light Status Message

SUBTASK 36-00-00-750-004

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

————— END OF TASK —————

TASK 36-00-00-040-806

19. DDG 36-13-01 Bleed Air Isolation Valve Inoperative - Preparation

(Figure 903)

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the bleed air isolation valve inoperative.

B. Location Zones

Zone	Area
------	------

139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
-----	--

C. Access Panels

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

192CL	ECS Access Door
-------	-----------------

D. Bleed Air Isolation Valve Deactivation

SUBTASK 36-00-00-860-205

- (1) Put both engine BLEED switches to the OFF position.

SUBTASK 36-00-00-860-294

- (2) Put the APU BLEED switch to the OFF position.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 937
Jan 15/2023



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

SUBTASK 36-00-00-860-206

- (3) Put both PACK switches to the OFF position.

SUBTASK 36-00-00-860-208

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN

SUBTASK 36-00-00-010-024

- (5) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door

SUBTASK 36-00-00-020-009

- (6) Remove the air conditioning duct section installed in front of the keel beam access hole from the left Environmental Control System (ECS) bay.

SUBTASK 36-00-00-010-025

- (7) Get access to the bleed air isolation valve through the keel beam access hole from the left ECS bay.

SUBTASK 36-00-00-020-010

- (8) Before engine start, disconnect the electrical connector, D398 from the bleed air isolation valve.
- (a) Put a cover over the loose electrical connector, D398 and the electrical connection on the bleed air isolation valve.
- (b) Secure the loose electrical connector, D398 for flight.

SUBTASK 36-00-00-010-026

- (9) To manually lock closed the bleed air isolation valve, do the steps that follow:
- NOTE:** The isolation valve must be manually opened for engine start and then manually closed after the engines are started.
- (a) Pull the spring-loaded knob outward to disengage the manual override handle.
- (b) Push the manual override handle to the CLOSED position.
- (c) Release the spring-loaded knob to engage the manual override handle.

SUBTASK 36-00-00-410-011

- (10) Install the air conditioning duct section.

SUBTASK 36-00-00-010-027

- (11) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door

SUBTASK 36-00-00-860-295

- (12) Put both PACK switches to the AUTO position.

SUBTASK 36-00-00-860-296

- (13) Put the APU BLEED switch to the ON position.



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

SUBTASK 36-00-00-860-297

- (14) Put both engine BLEED switches to the ON position.

———— **END OF TASK** ————

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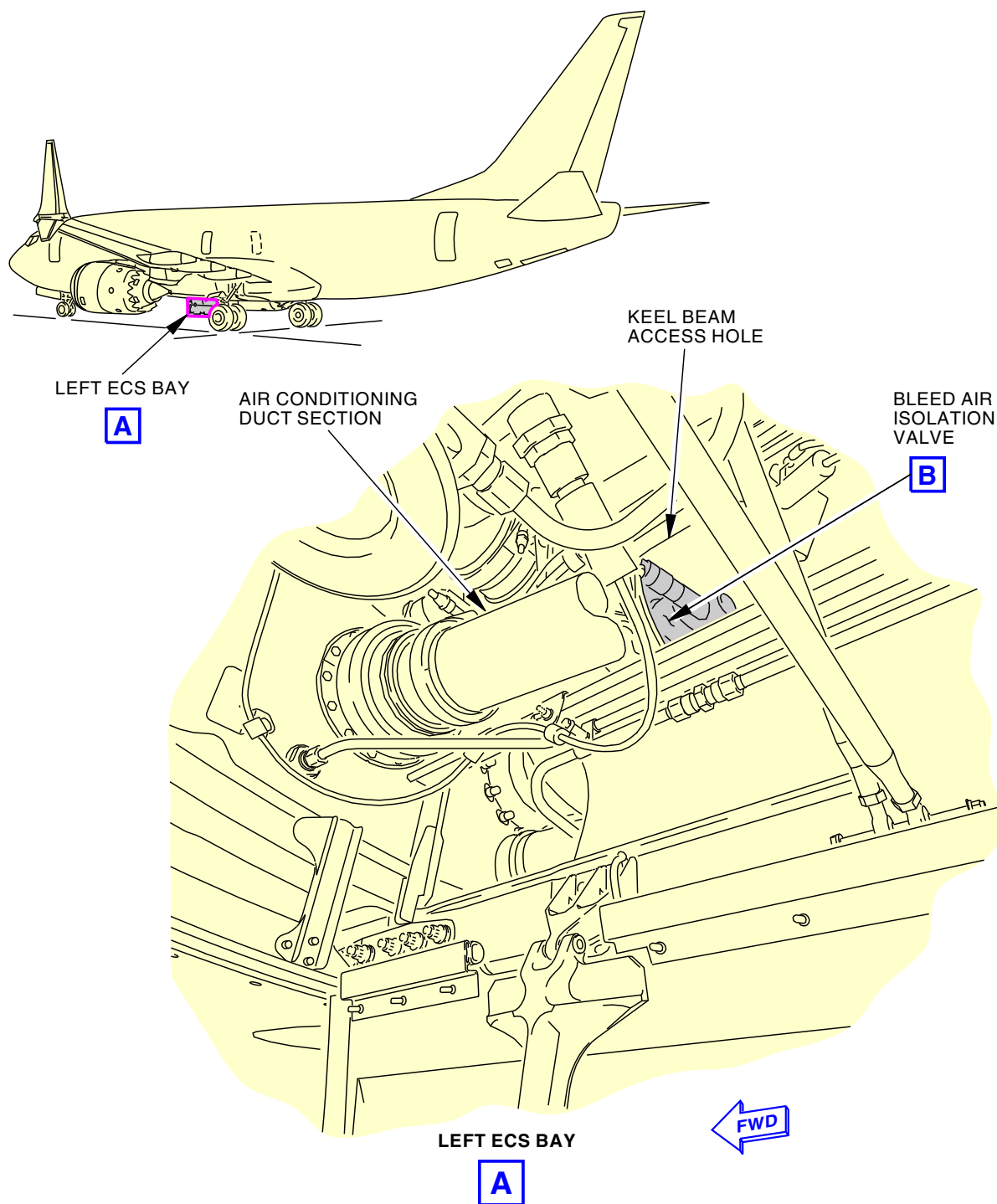
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36-00-00

Page 939
Jan 15/2023



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



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Bleed Air Isolation Valve Deactivation
Figure 903/36-00-00-990-802 (Sheet 1 of 2)

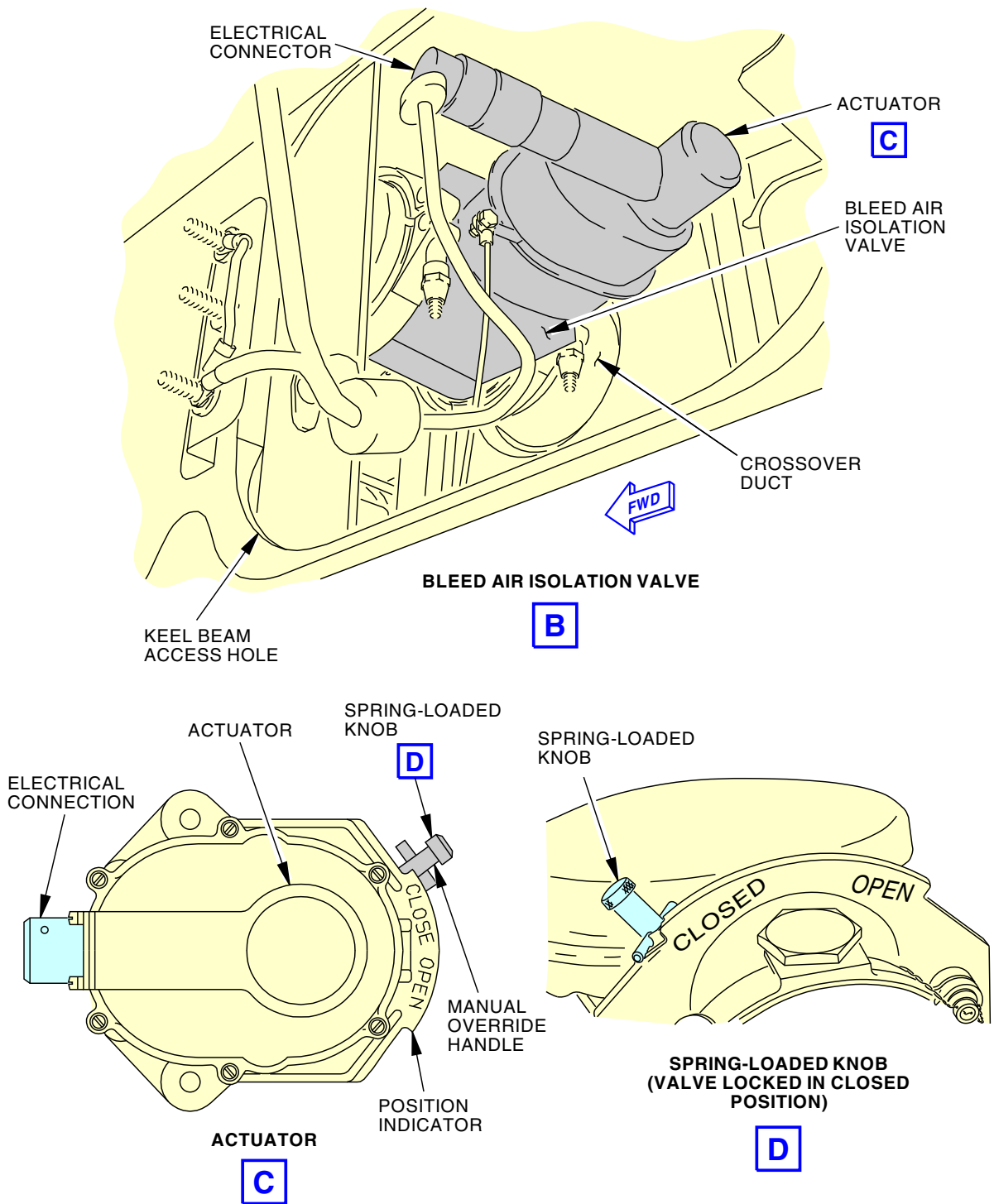
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 940
Jan 15/2023



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Bleed Air Isolation Valve Deactivation
Figure 903/36-00-00-990-802 (Sheet 2 of 2)

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 941
Jan 15/2023



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

TASK 36-00-00-440-805

20. **DDG 36-13-01 Bleed Air Isolation Valve Inoperative - Restoration**

(Figure 903)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the bleed air isolation valve inoperative.

B. Location Zones

Zone	Area
------	------

139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
-----	--

C. Access Panels

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

192CL	ECS Access Door
-------	-----------------

D. Bleed Air Isolation Valve Restoration

SUBTASK 36-00-00-010-028

- (1) Open this access panel:

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

192CL	ECS Access Door
-------	-----------------

SUBTASK 36-00-00-020-011

- (2) Remove the air conditioning duct section installed in front of the keel beam access hole from the left ECS bay.

SUBTASK 36-00-00-010-029

- (3) Get access to the bleed air isolation valve through the keel beam access hole from the left ECS bay.

SUBTASK 36-00-00-440-025

- (4) Manually unlock the bleed air isolation valve.
(a) Pull the spring-loaded knob outward to disengage the manual override handle.

SUBTASK 36-00-00-420-001

- (5) Remove the covers from the loose electrical connector, D398 and the electrical connection on the bleed air isolation valve.

SUBTASK 36-00-00-420-002

- (6) Connect the loose electrical connector, D398 to the electrical connection on the bleed air isolation valve.

SUBTASK 36-00-00-420-003

- (7) Install the air conditioning duct section.

SUBTASK 36-00-00-010-030

- (8) Close this access panel:

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

192CL	ECS Access Door
-------	-----------------

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 942
Jan 15/2023



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

SUBTASK 36-00-00-860-209

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN

————— END OF TASK —————

TASK 36-00-00-040-812

21. DDG 36-13-02 Bleed Air Isolation Valve Control Inoperative - Preparation

A. General

- (1) This task gives the maintenance steps that prepare the airplane for flight with the bleed air isolation valve control inoperative.

B. References

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

C. Location Zones

<u>Zone</u>	<u>Area</u>
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

E. Bleed Air Isolation Valve Control Preparation

SUBTASK 36-00-00-010-031

- (1) To get access to the isolation valve, do this step:
- (a) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

SUBTASK 36-00-00-010-032

- (2) Get access to the bleed air isolation valve through the keel beam access hole from the left Environmental Control System (ECS) bay.

SUBTASK 36-00-00-860-332

- (3) On the P5-10 overhead panel, put the ISOLATION VALVE switch to the OPEN position.
- (a) Make sure that the isolation valve visual position indicator moves to the OPEN position.

NOTE: Access to the isolation valve is limited. A flashlight and mirror may be necessary to view the position indicator.

SUBTASK 36-00-00-860-333

- (4) On the P5-10 overhead panel, put the ISOLATION VALVE switch to the CLOSED position.

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

Page 943
Jan 15/2023



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

- (a) Make sure that the isolation valve visual position indicator moves to the CLOSED position.

NOTE: Access to the isolation valve is limited. A flashlight and mirror may be necessary to view the position indicator.

SUBTASK 36-00-00-410-019

- (5) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

SUBTASK 36-00-00-420-008

- (6) Install a BLEED AIR ISOLATION VLV CTRL INOP placard adjacent to the MAX Display System (MDS) multifunction display (MFD) unit in the flight compartment.

SUBTASK 36-00-00-810-014

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

———— **END OF TASK** ————

TASK 36-00-00-440-811

22. DDG 36-13-02 Bleed Air Isolation Valve Control Inoperative - Restoration

A. General

- (1) This task puts the airplane back to its usual condition after operation with the bleed air isolation valve control inoperative.

B. References

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

C. Location Zones

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

D. Bleed Air Isolation Valve Control Restoration

SUBTASK 36-00-00-420-007

- (1) Remove the BLEED AIR ISOLATION VLV CTRL INOP placard.

E. MAINT Light Status Message

SUBTASK 36-00-00-750-003

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

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 944
Jan 15/2023



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

TASK 36-00-00-040-807

23. **DDG 36-13-03 Ground Pneumatic Connector Check Valve Inoperative - Preparation**

(Figure 904)

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the ground pneumatic connector check valve inoperative.

B. References

Reference	Title
71-00-00-910-802-G00	Start the Engine (Selection) (P/B 201)

C. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

D. Access Panels

Number	Name/Location
192DR	ECS High Pressure Access Door

E. Ground Pneumatic Connector Check Valve Deactivation

SUBTASK 36-00-00-040-017

- (1) Get access to ground pneumatic connector check valve.

- (a) Open this access panel:

Number	Name/Location
192DR	ECS High Pressure Access Door

SUBTASK 36-00-00-210-001

- (2) If the ground pneumatic connector check valve has failed inoperative open, do the steps that follow:
 - (a) Install a GROUND AIR CONNECTION VLV INOP OPEN placard on the air conditioning/bleed air control panel (P5-10 panel).
 - (b) Install a GROUND AIR CONNECTION VLV INOP OPEN placard on the inside door of the ECS Access Door, 192DR.
 - (c) Start the engine(s) with an external ground air source, do this task: Start the Engine (Selection), TASK 71-00-00-910-802-G00.
 - (d) After right engine start, make sure that these switches are in the positions that follow:
 - 1) The right engine BLEED switch is in the OFF position.
 - 2) The ISOLATION VALVE switch is in the CLOSED position.
 - 3) Shut down the pressure supply from the external ground air source when it is no longer necessary for other operation.
 - 4) Make sure that the right manifold duct pressure is at 0 psig on the dual duct pressure indicator (P5-10 panel).

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-00-00

Page 945
Jan 15/2023



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



MAKE SURE THAT THERE IS NO PRESSURE IN THE RIGHT PNEUMATIC MANIFOLD BEFORE YOU DISCONNECT THE EXTERNAL-GROUND-AIR-SERVICE-LINE. HOT, HIGH PRESSURE AIR CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO THE EQUIPMENT.

- 5) Disconnect the external ground air service line from the airplane.

SUBTASK 36-00-00-410-012

- (3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192DR	ECS High Pressure Access Door

SUBTASK 36-00-00-420-004

- (4) Advise dispatch to inform down line stations that external ground air source will be needed, if the right engine is shutdown.

————— END OF TASK —————

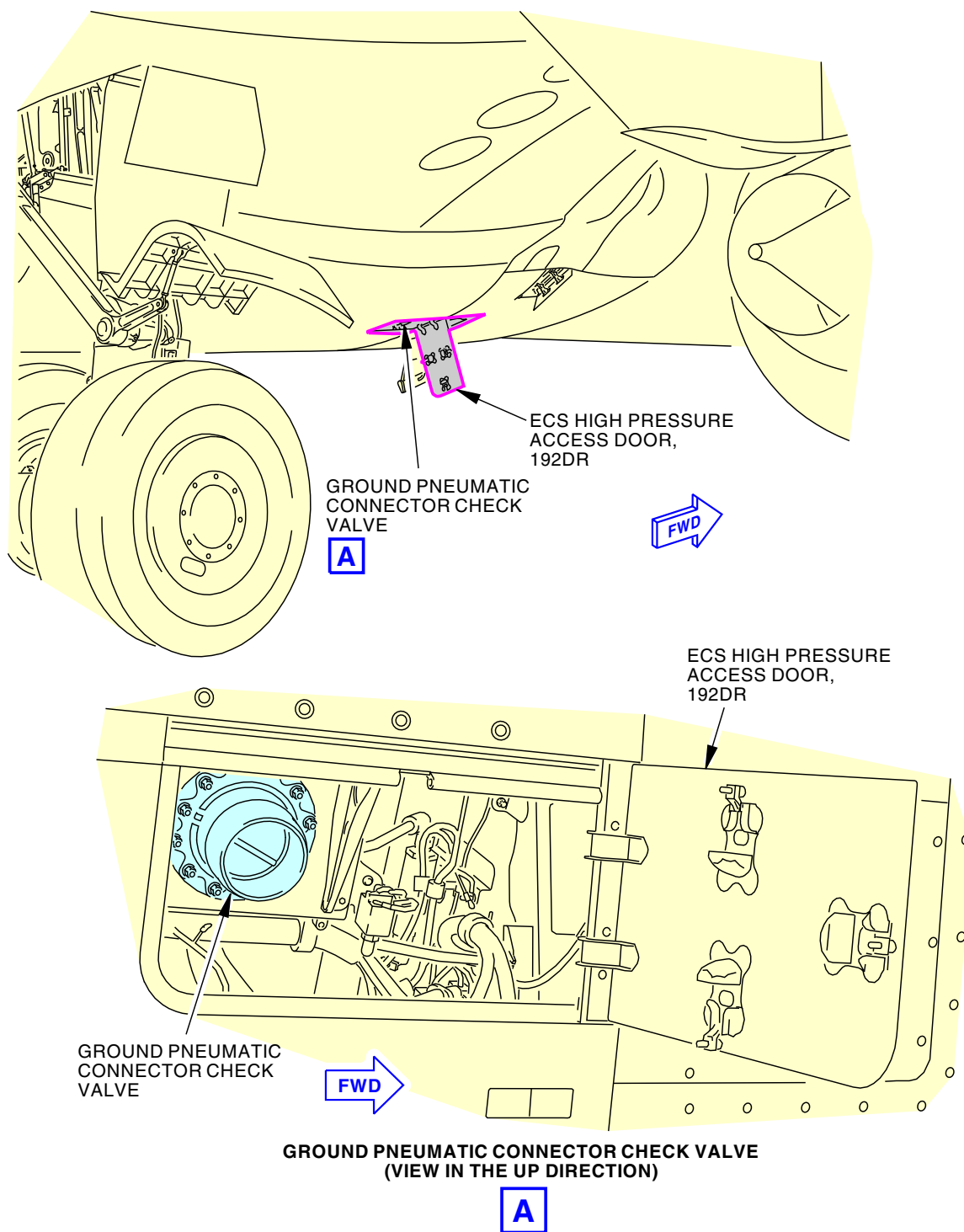
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36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 946
Jan 15/2023



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Ground Pneumatic Connector Check Valve Deactivation
Figure 904/36-00-00-990-803

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36-00-00



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

TASK 36-00-00-440-806

24. **DDG 36-13-03 Ground Pneumatic Connector Check Valve Inoperative - Restoration**

(Figure 904)

A. General

- (1) This task puts the airplane back to its usual condition after operation with the ground pneumatic connector check valve inoperative.

B. Location Zones

Zone	Area
------	------

192	Lower Wing-To-Body Fairing - Under Wing Box
-----	---

C. Access Panels

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

192DR	ECS High Pressure Access Door
-------	-------------------------------

D. Ground Pneumatic Connector Check Valve Restoration

SUBTASK 36-00-00-040-018

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
---------------	----------------------

192DR	ECS High Pressure Access Door
-------	-------------------------------

SUBTASK 36-00-00-020-012

- (2) Remove the GROUND AIR CONNECTION VLV INOP OPEN placard on the inside door of the ECS Access Door, 192DR.

SUBTASK 36-00-00-410-014

- (3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
---------------	----------------------

192DR	ECS High Pressure Access Door
-------	-------------------------------

SUBTASK 36-00-00-020-013

- (4) Remove the GROUND AIR CONNECTION VLV INOP OPEN placard from the air conditioning/bleed air control panel (P5-10 panel).

————— **END OF TASK** —————

EFFECTIVITY
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36-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 948
Jan 15/2023



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

ENGINE BLEED AIR DISTRIBUTION SYSTEM - ADJUSTMENT/TEST

1. **General**

A. This procedure has these tasks:

- (1) Integrated Air Systems Controller (IASC) Electrical Initiated Built In Test
- (2) Engine Bleed Air System Leak Check.

TASK 36-11-00-730-801

2. **Integrated Air Systems Controller (IASC) Electrical Initiated Built In Test**

(Figure 501)

A. **General**

- (1) This task gives the instructions to test the Integrated Air System Controller (IASC).

B. **References**

Reference	Title
32-09-10-750-801	Proximity Switch Electronics Unit Special Functions (P/B 501)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
73-21-00-800-801-G00	EEC Maintenance Power Selection (P/B 201)
FIM ATA 36 AIR SUPPLY	Fault Isolation Manual

C. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. **Location Zones**

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

E. **Prepare for the Test**

SUBTASK 36-11-00-860-056

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-11-00-860-067

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

EFFECTIVITY
SIA ALL

36-11-00

D633AM101-SIA

Page 501
Jan 15/2023



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

(Continued)

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
D	15	C01401	LANDING GEAR AIR/GND RELAY
E	11	C00313	INDICATOR MASTER DIM SECT 1
E	12	C00314	INDICATOR MASTER DIM SECT 2
E	13	C00315	INDICATOR MASTER DIM SECT 3
E	14	C00316	INDICATOR MASTER DIM SECT 4
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	12	C00318	INDICATOR MASTER DIM SECT 6

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
A	9	C01158	AIR CONDITIONING PACK CONTROL LEFT DC
A	11	C01159	AIR CONDITIONING PACK CONTROL LEFT AC
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R
B	9	C01161	AIR CONDITIONING PACK CONT RIGHT DC
B	11	C01162	AIR CONDITIONING PACK CONT RIGHT AC
C	5	C00263	AIR CONDITIONING PACK CONT VALVES R
C	6	C00262	AIR CONDITIONING PACK CONT VALVES L
C	7	C01177	A/C PACK/ENGINE BLEED AIR OVHT RIGHT
C	8	C01176	A/C PACK/ENGINE BLEED AIR OVHT LEFT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C01958	NETWORK FILE SERVER
F	6	C04065	IASC EAI INHIBITS OUT L
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-11-00-860-057

- (3) Select the left or right Multi-Function Display (MFD).
- (a) Push the SYS button on the Multi-Function Display Panel to activate the MFD screen.

SUBTASK 36-11-00-860-058

- (4) Set the applicable EEC MAINT POWER switch on the MISC SYSTEM CTRLS page on the MFD to the TEST position (TASK 73-21-00-800-801-G00).

NOTE: The EEC will do a self-test when you set the EEC MAINT POWER switch to the TEST position. Wait for a minimum of 30 seconds to let the EEC complete the test.

SUBTASK 36-11-00-860-059

- (5) Set the GND TEST switch on the maintenance BITE panel, P61-4, to the ENABLE position.

EFFECTIVITY
SIA ALL

36-11-00

D633AM101-SIA

Page 502
Sep 15/2021



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

SUBTASK 36-11-00-860-060

- (6) Set the Air/Ground System 1 and System 2 override to ON GROUND mode (TASK 32-09-10-750-801).

SUBTASK 36-11-00-860-061

- (7) Set these BLEED switches on the P5-10 Panel, to the ON position.
- (a) BLEED 1
 - (b) BLEED 2

SUBTASK 36-11-00-860-062

- (8) Make sure that the APU Bleed switch on the P5-10 Panel, is in the OFF position.

SUBTASK 36-11-00-860-063

- (9) Make sure that the WING ANTI-ICE switch on the P5-11 Panel, is in the OFF position.

F. Integrated Air Systems Controller (IASC) Electrical Initiated Built In Test

SUBTASK 36-11-00-720-016

- (1) Use the Multi-Function Display (MFD) screen to use the OMF Ground Test to do the IASC system test for the applicable engine. Do this task: Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801.

NOTE: The EEC system test takes approximately five minutes to complete.

- (a) Make these selections on the MFD main function menu:

- 1) ONBOARD MAINTENANCE
- 2) LINE MAINTENANCE
- 3) GROUND TESTS
- 4) 36 Pneumatics
- 5) LRU REPLACEMENT TEST
- 6) Electrical LRU - LEFT or Electrical LRU - RIGHT
- 7) CONTINUE.

- (b) Do the instructions that show on the MFD PRECONDITIONS and then make these selections:

NOTE: Make sure that you verify and follow the inhibited conditions instructions closely. If one of the inhibited conditions is not met, the test will be failed.

- 1) CONTINUE
- 2) START TEST

- (c) When the test is completed, make sure that PASS or COMPLETED show adjacent to TEST CONDITION on the MFD.

- (d) If FAILED shows, then do the fault isolation procedure in the FIM ATA 36 AIR SUPPLY for the maintenance message.

NOTE: If the ADIRUs are not powered, the test will fail with these Maintenance and Status messages. This is expected and acceptable.

Maintenance:

BLEED CTRLR L/R- NO ADIRU1 DATA

BLEED CTRLR L/R- NO ADIRU2 DATA

Status:

BLEED CTRL CARD L/R

EFFECTIVITY
SIA ALL

36-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 503
Sep 15/2021



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

G. Put the Airplane Back To Its Usual Condition

SUBTASK 36-11-00-860-064

- (1) Set the applicable EEC MAINT POWER switch on the MISC SYSTEM CTRLS page on the MFD to the NORM position (TASK 73-21-00-800-801-G00).

SUBTASK 36-11-00-860-065

- (2) Set the GND TEST switch on the maintenance BITE panel, P61-4, to the NORM position.

SUBTASK 36-11-00-860-066

- (3) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
 - (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

———— **END OF TASK** ————

EFFECTIVITY
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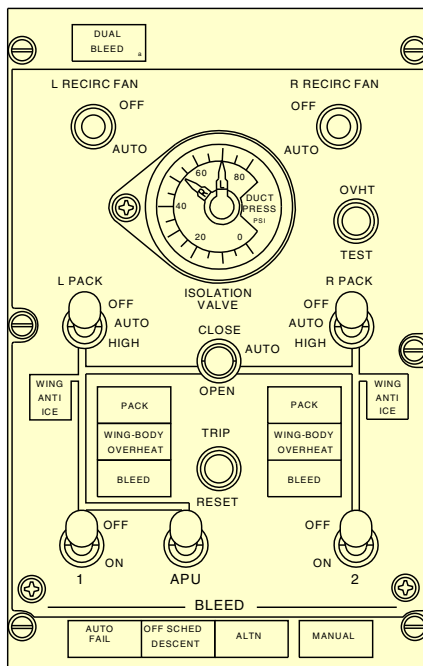
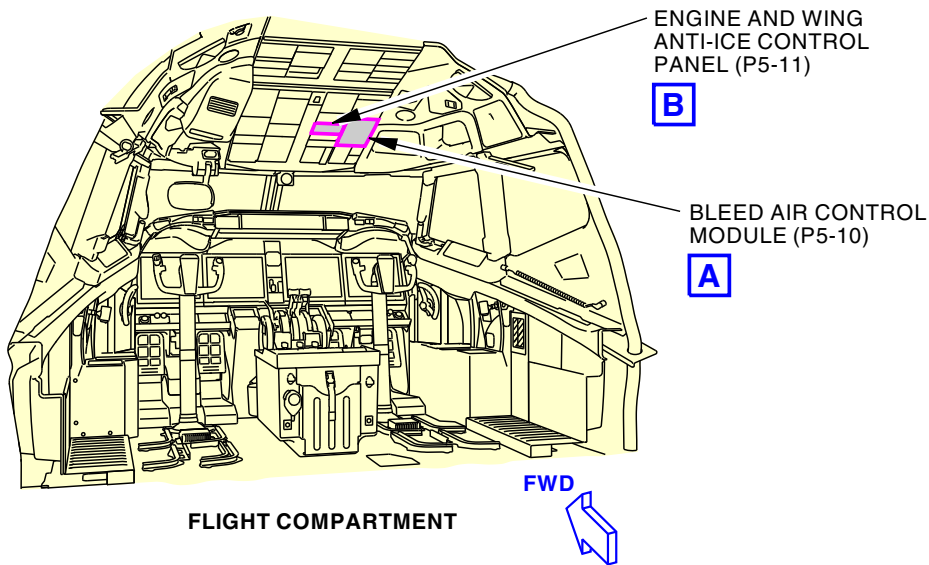
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-00

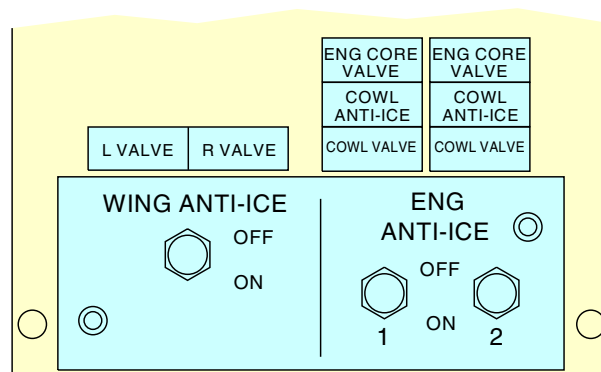
Page 504
Sep 15/2021

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



BLEED AIR CONTROL
MODULE (P5-10)
(TYPICAL)

A



ENGINE AND WING ANTI-ICE
CONTROL PANEL (P5-11)

B

2415009 S00061536801_V6

Integrated Air Systems Controller (IASC) Electrical Initiated Built In Test
Figure 501/36-11-00-990-801

EFFECTIVITY
SIA ALL

36-11-00



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

TASK 36-11-00-700-801

3. Engine Bleed Air System Health Check

A. General

(1) This procedure contains the steps to operationally check these engine bleed components with the Onboard Maintenance Function (OMF):

- (a) Pressure Regulator and Shutoff Valve (PRSOV)
- (b) High Pressure Shutoff Valve (HPSOV)

NOTE: This task performs the equivalent check with the HPSOV in the FULL open position.

- (c) Fan Air Modulating Valve (FAMV).

B. References

Reference	Title
36-11-04-000-801	PRSOV Removal (P/B 401)
36-11-04-400-801	PRSOV Installation (P/B 401)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
71-00-00-800-802-G00	Engine Operation Limits (P/B 201)
71-00-00-910-802-G00	Start the Engine (Selection) (P/B 201)
71-00-00-910-806-G00	Stop the Engine (Usual Engine Stop) (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

C. Location Zones

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

D. Prepare for the Procedure

SUBTASK 36-11-00-860-099

(1) Start the engines. Do this task: Start the Engine (Selection), TASK 71-00-00-910-802-G00.

NOTE: One engine can be run at a time.

- (a) Let the engine become stable at the minimum idle thrust.
- (b) Make sure that the engine operates in the operation limits (TASK 71-00-00-800-802-G00).
- (c) Make sure that the APU bleed is OFF after engine start.

SUBTASK 36-11-00-860-100

(2) Use the Multi Function Display (MFD) screen to run the 36 - Pneumatics SYSTEM TEST. Do this task: Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801.

NOTE: The EEC system test takes approximately five minutes to complete.

- (a) Make these selections on the MFD main function menu:
 - 1) ONBD MAINT
 - 2) LINE MAINT
 - 3) GROUND TESTS
 - 4) 36 - Pneumatics
 - 5) SYSTEM TEST

EFFECTIVITY
SIA ALL

36-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 506
Sep 15/2021



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

- 6) Pneumatic Engine ON - Left, or Pneumatic Engine ON - Right
- 7) CONTINUE.
- (b) Do the steps that show on the MFD PRECONDITIONS and then make these selections:
NOTE: Make sure that you verify and follow the inhibited conditions instructions closely.
If one of the inhibited conditions is not met, the test will be failed.
 - 1) CONTINUE
 - 2) START TEST.
- (c) When the test is completed, make sure that PASS or COMPLETED show adjacent to TEST CONDITION on the MFD.
- (d) If FAILED shows, then go to the IFIM and do the applicable procedure(s) for these maintenance message:
 - 1) 36-11020/1 - ENGINE-1/ENGINE-2 HPSOV IS NOT IN COMMANDED POSITION
 - 2) 36-11050/1 - ENGINE-1/ENGINE-2 PRSOV IS NOT IN COMMANDED POSITION
 - 3) 36-12020/1 - ENGINE-1/ENGINE-2 FAMV IS NOT IN COMMANDED POSITION.

E. PRSOV Health Check

SUBTASK 36-11-00-860-101

- (1) Do these steps:
 - (a) Keep the engines running at idle.
 - (b) Put the ISOLATION VALVE switch to CLOSED position.
 - (c) Make sure that APU BLEED switch is in the OFF position.
 - (d) Make sure that ENG ANTI-ICE switch is in the OFF position.
 - (e) Make sure that the same side L PACK or R PACK switch is in the AUTO position.

SUBTASK 36-11-00-860-102

- (2) Make these selections on the MFD main function menu:
 - (a) MAINT DATA PGS
 - (b) REAL DISPLAY next to the 36 AIR SUPPLY.

SUBTASK 36-11-00-750-002

- (3) Record these values:
 - (a) INTERMEDIATE DUCT PRESS (PI)
NOTE: INTERMEDIATE DUCT PRESSURE is also referred to as PI.
 - (b) MANIFOLD PRESS
 - (c) ENG HIGH STAGE PRESS (PS3)
 - (d) STATIC AIR TEMP
 - (e) ALTITUDE.

SUBTASK 36-11-00-860-103

- (4) Make these selections on the MFD main function menu:
 - (a) PREV MENU
 - (b) REAL DISPLAY next to the 71 EPCS.

SUBTASK 36-11-00-750-003

- (5) Record the P0 (ambient pressure) value.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-00

Page 507
Sep 15/2021



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

SUBTASK 36-11-00-720-017

- (6) If INTERMEDIATE DUCT PRESS minus MANIFOLD PRESS is greater than 7 psig (48 kPa), and the PRSOV does not operate to the open position:
- (a) Replace the PRSOV before the next flight.
- 1) PRSOV Removal, TASK 36-11-04-000-801
- 2) PRSOV Installation, TASK 36-11-04-400-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-00-860-105

- (1) Put the ISOLATION VALVE switch to AUTO position.

SUBTASK 36-11-00-860-104

- (2) Stop the engine: (Stop the Engine (Usual Engine Stop), TASK 71-00-00-910-806-G00).

————— **END OF TASK** —————

TASK 36-11-00-700-802

4. Engine Bleed Air System - Leak Check

(Figure 502 and Figure 503)

A. General

- (1) This task uses the APU or the pneumatic ground cart to pressurize the engine bleed air system to check for leaks in the precooler duct, the High Pressure Shutoff Valve (HPSOV), the Pressure Regulating and Shutoff Valves (PRSOV), the Intermediate Pressure Check Valve (IPCVC), the Engine Anti-Ice (EAI) forward duct, the sense lines, and the sense line fittings. This task can be done in an hour or less.
- (2) This task is given for engine 1. Engine 2 is similar unless otherwise stated.

B. References

Reference	Title
36-00-00-860-805	Supply Pressure Upstream of the PRSOV with Engines Off (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
G50135	Leak Detector - Liquid, Non-Corrosive Soap Compound	MIL-PRF-25567

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

EFFECTIVITY
SIA ALL

36-11-00

D633AM101-SIA

Page 508
May 15/2022



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

(Continued)

Zone	Area
430	Subzone - Engine 1, Nacelle Strut
433	Engine 1 - Strut Torque Box
440	Subzone - Engine 2, Nacelle Strut
443	Engine 2 - Strut Torque Box

F. Prepare for the Leak Check

SUBTASK 36-11-00-860-068

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-11-00-860-106

- (2) Do this task: Supply Pressure Upstream of the PRSOV with Engines Off, TASK 36-00-00-860-805.

SUBTASK 36-11-00-860-107

- (3) Put the applicable engine ANTI-ICE switch on the P-11 panel to the ON position.

SUBTASK 36-11-00-200-011

- (4) Make sure that the position indicator on the applicable anti-ice valve points to the OPEN position.

SUBTASK 36-11-00-200-012



BE CAREFUL WHEN YOU PRESSURIZE THE PNEUMATIC DUCTS. IF THE DUCTS COME APART WHEN THEY ARE PRESSURIZED, THEY CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Make sure that the bleed air system pressure is at 25 psig (172 kPa) - 30 psig (207 kPa).

NOTE: If you use a pneumatic ground cart, it may be necessary to select the higher flow capacity on pneumatic ground cart.

G. Bleed Air System Leak Check

SUBTASK 36-11-00-790-002

- (1) Apply leak detector, G50135, to the sense lines and fittings to determine if air leakage exists.
 - (a) Do a check for air leakage at the applicable locations (Figure 503):
 - 1) PI sense tube connection at the bleed mix manifold (View D, Figure 503)
 - 2) Duct Vent Valve (DVV) air supply tube and connection at the bleed mix manifold (View C, Figure 503)
 - 3) Complete muscle pressure line from the Engine Anti-Ice (EAI) upper core duct to FAMV muscle pressure inlet (View A, Figure 503)
 - 4) Pressure switch sense line pneumatic fittings (5 locations) (View H, Figure 503).
 - (b) No leakage is permitted at the sense line connection.

EFFECTIVITY
SIA ALL

36-11-00

D633AM101-SIA

Page 509
Jan 15/2023



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

- (c) Small air leakage is satisfactory at these locations (Figure 503):
 - 1) FAMV muscle line weep fitting (View A, Figure 503)
 - 2) PI sense line weep fitting (View E, Figure 503)
 - 3) 2 venting orifices on the PRSOV and HPSOV (View C, Figure 503)
NOTE: Air will come out from these venting orifice locations during this test.
 - 4) Sense line weep hole (View H, Figure 503).
- (d) Replace leaking sense lines and fittings as necessary.
NOTE: Apply Never-Seez NSBT compound, D00006 (preferred), compound, D00010 (alternate), to all male threads before connecting the pneumatic sense lines.

SUBTASK 36-11-00-200-004

- (2) Do a check for concentrated air leakage:
 - (a) Listen or feel for air leakage at the joint or duct connections at these locations (Figure 503):
 - 1) Precooler outlet to strut pneumatic duct interface (View A, Figure 503)
 - 2) Crossover duct to precooler inlet (View A, Figure 503)
 - 3) PRSOV outlet to crossover duct (View C, Figure 503)
 - 4) Bleed mix manifold to PRSOV inlet (View C, Figure 503)
 - 5) HPSOV outlet to bleed mix manifold (View C, Figure 503)
 - 6) IPCV outlet to bleed mix manifold (View C, Figure 503)
 - 7) Bleed mix manifold to Engine Anti-Ice (EAI) lower core duct (View B, Figure 503)
 - 8) EAI lower core duct to EAI upper core duct (View B, Figure 503)
 - 9) EAI upper core duct to EAI valve inlet (View B, Figure 503)
 - 10) Starter duct to strut pneumatic duct (View F, Figure 503)
 - 11) Starter duct to starter valve (View G, Figure 503)
 - 12) Engine Anti-Ice (EAI) duct coupling (View H, Figure 503).
 - (b) Small air leakage is satisfactory at the coupling joint.
 - (c) Repair all large air leakages.
NOTE: A large air leakage is when you feel the airflow with your hand at a distance of 12 in. (30 cm) or more from a point on the duct joint.

SUBTASK 36-11-00-860-093

- (3) Put the applicable engine ANTI-ICE switch on the P5-11 panel to the OFF position.

SUBTASK 36-11-00-200-009

- (4) Make sure that the position indicator on the applicable engine anti-ice valve point to the CLOSED position.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 36-11-00-860-041

- (1) Remove pneumatic pressure from the Bleed Air System.
 - (a) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.
- (2) Do the steps to remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch and START LEVER switch:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-00

Page 510
Sep 15/2022



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

- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
- (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch

———— **END OF TASK** ————

EFFECTIVITY
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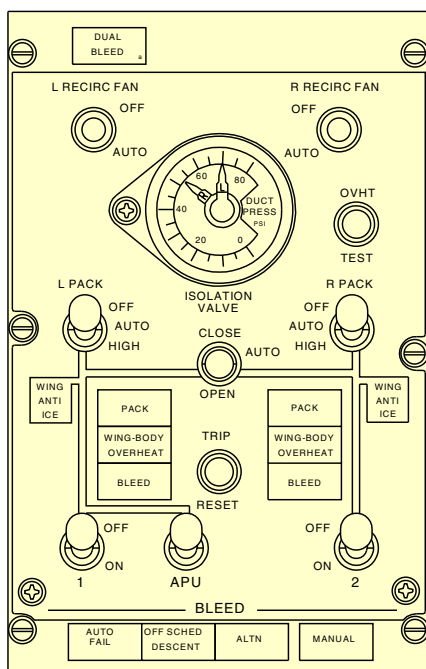
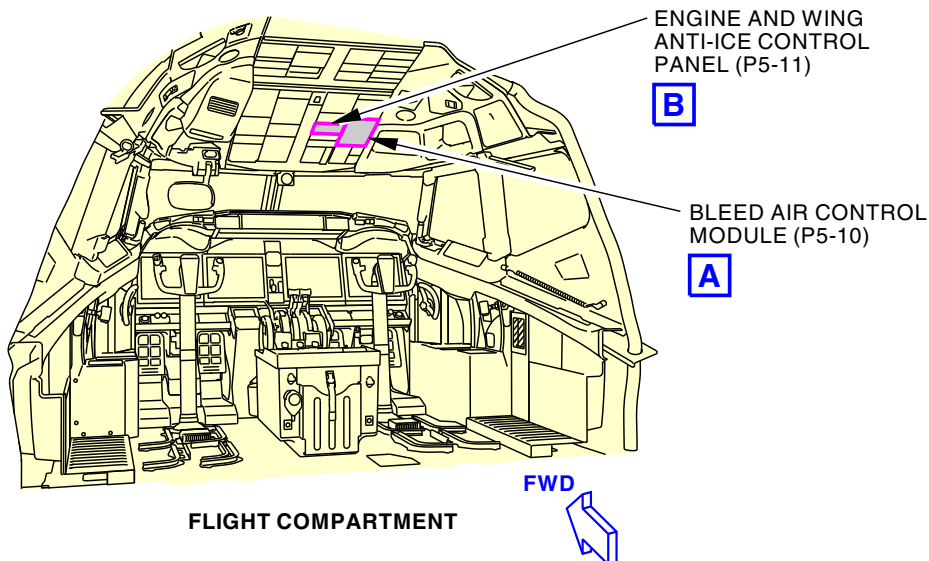
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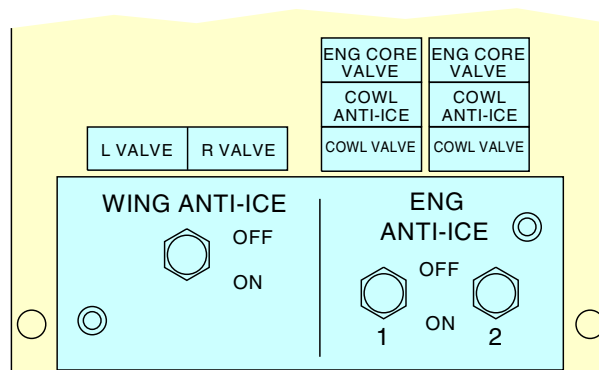
Page 511
Sep 15/2022

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



BLEED AIR CONTROL
MODULE (P5-10)
(TYPICAL)

A



ENGINE AND WING ANTI-ICE
CONTROL PANEL (P5-11)

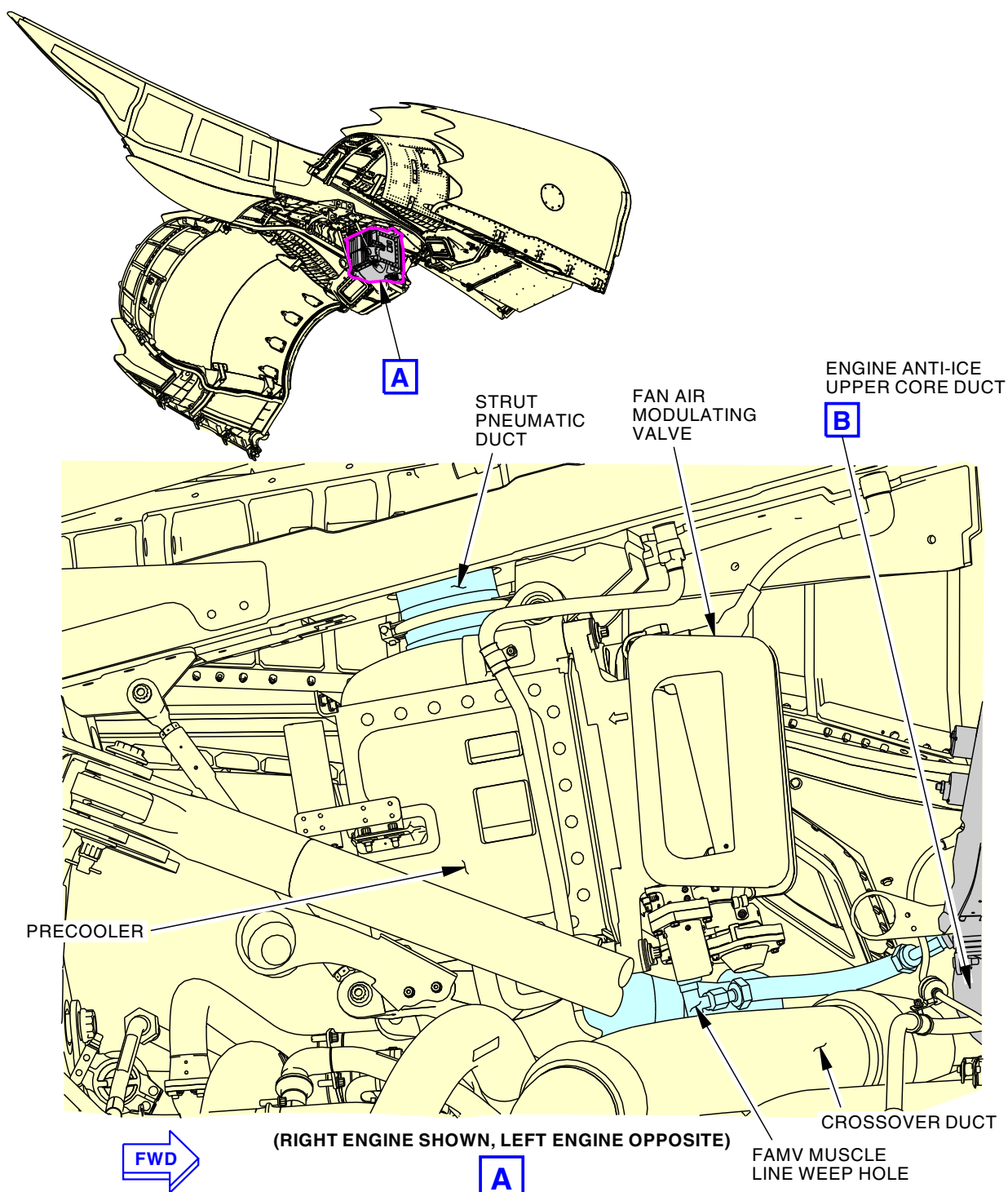
B

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Bleed Air and Engine/Wing Anti-Ice Control Panels
Figure 502/36-11-00-990-817

EFFECTIVITY
SIA ALL

36-11-00



2783308 S0000630250_V1

Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 1 of 8)

EFFECTIVITY
SIA ALL

D633AM101-SIA

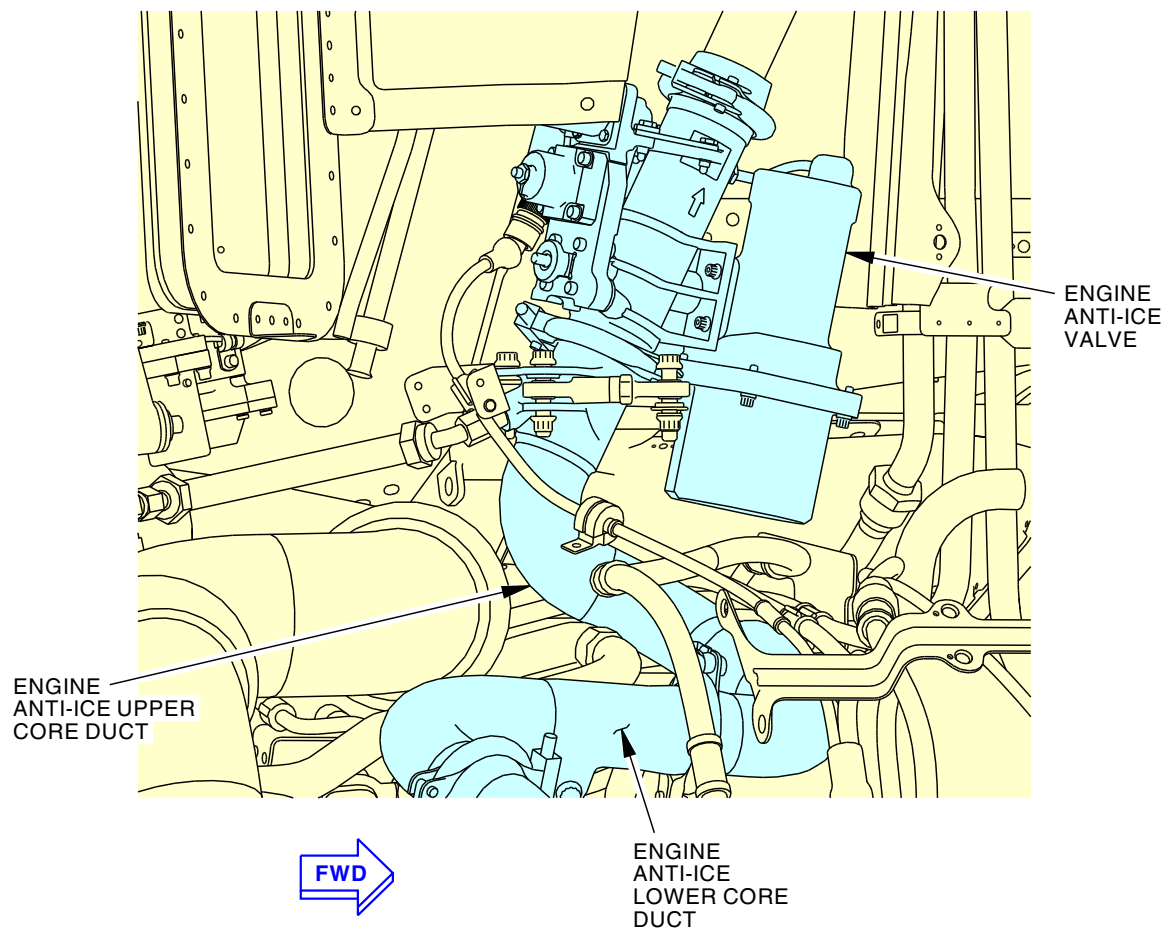
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36-11-00

Page 513
Sep 15/2022



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



ENGINE ANTI-ICE UPPER CORE DUCT

B

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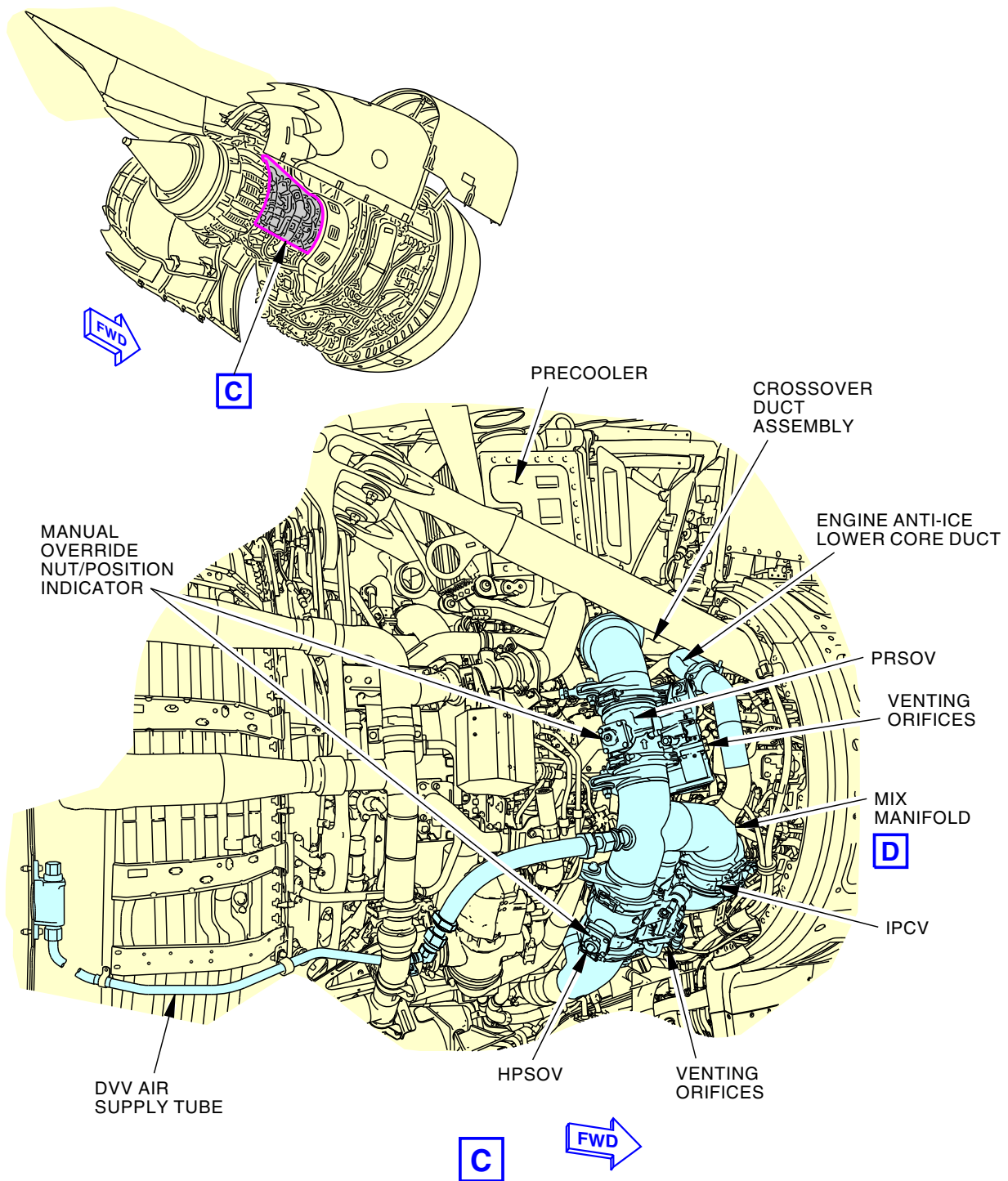
Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 2 of 8)

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D633AM101-SIA

Page 514
Sep 15/2022



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Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 3 of 8)

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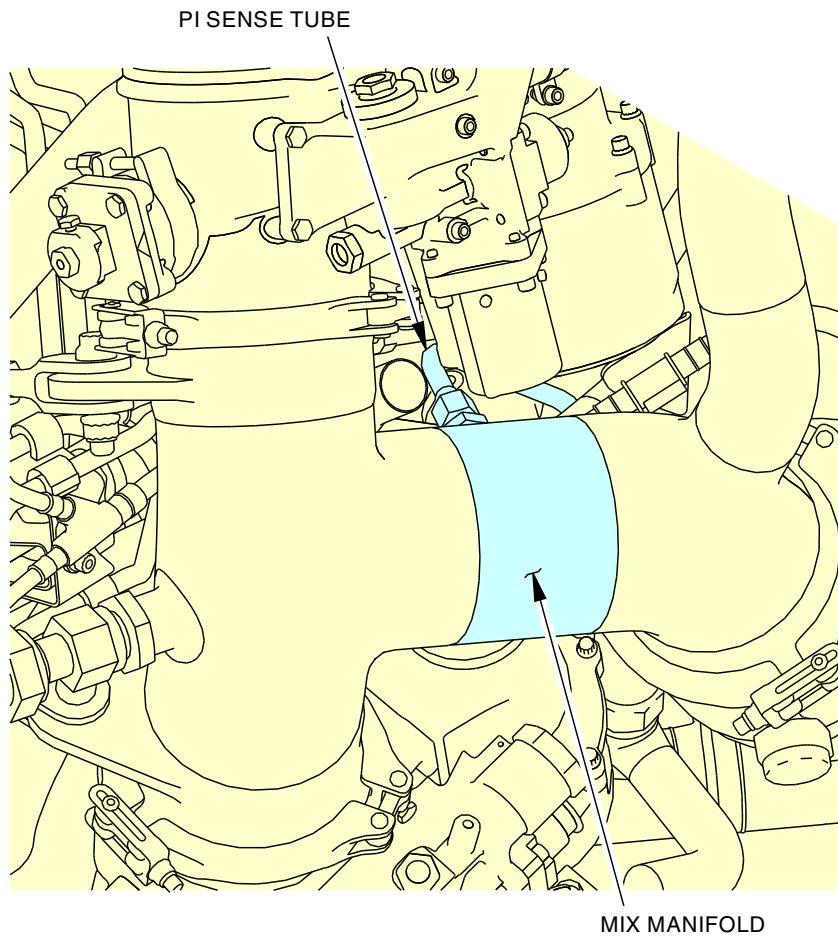
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36-11-00

Page 515
Sep 15/2022

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



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Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 4 of 8)

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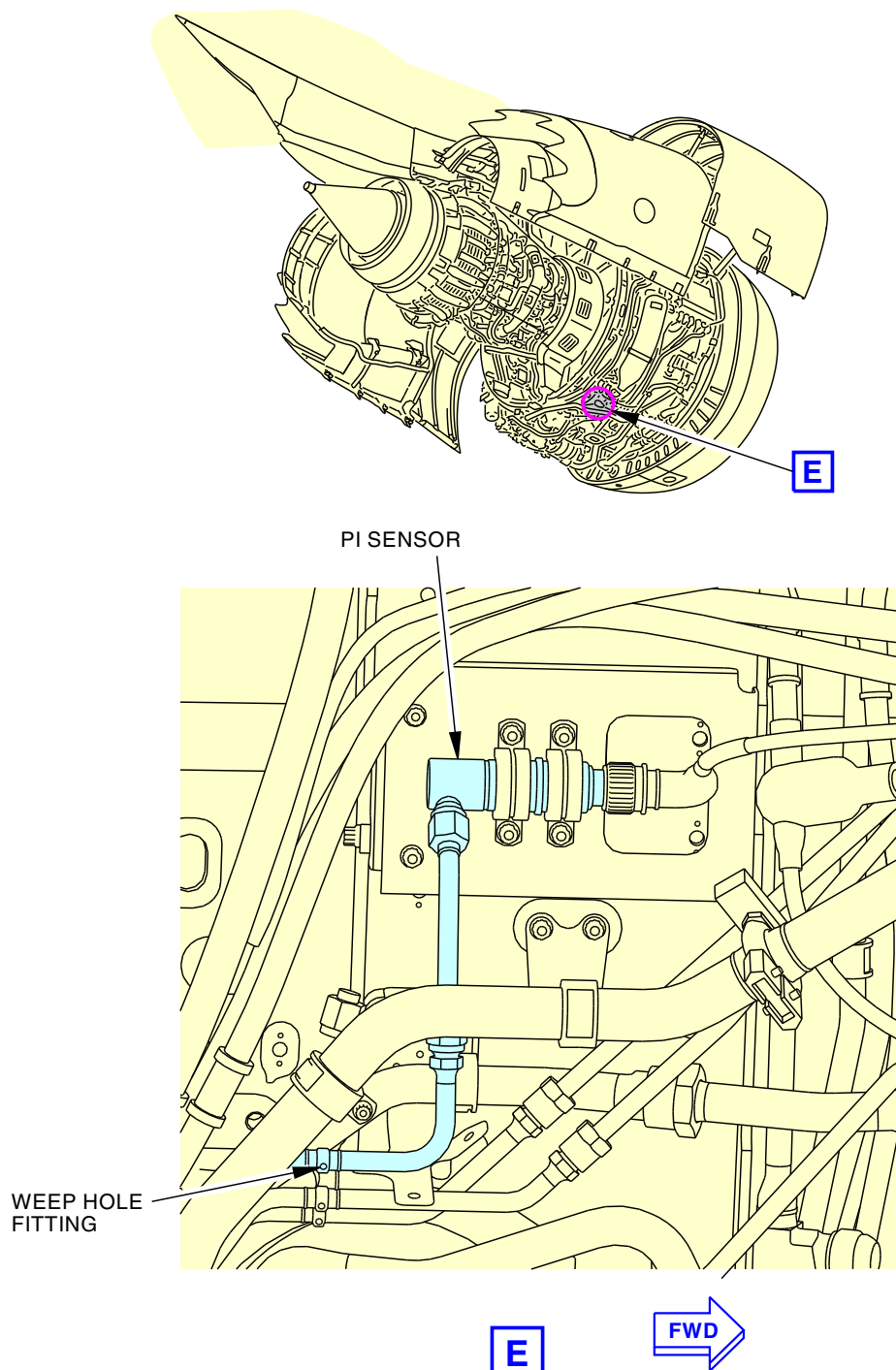
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36-11-00

Page 516
Sep 15/2022

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



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Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 5 of 8)

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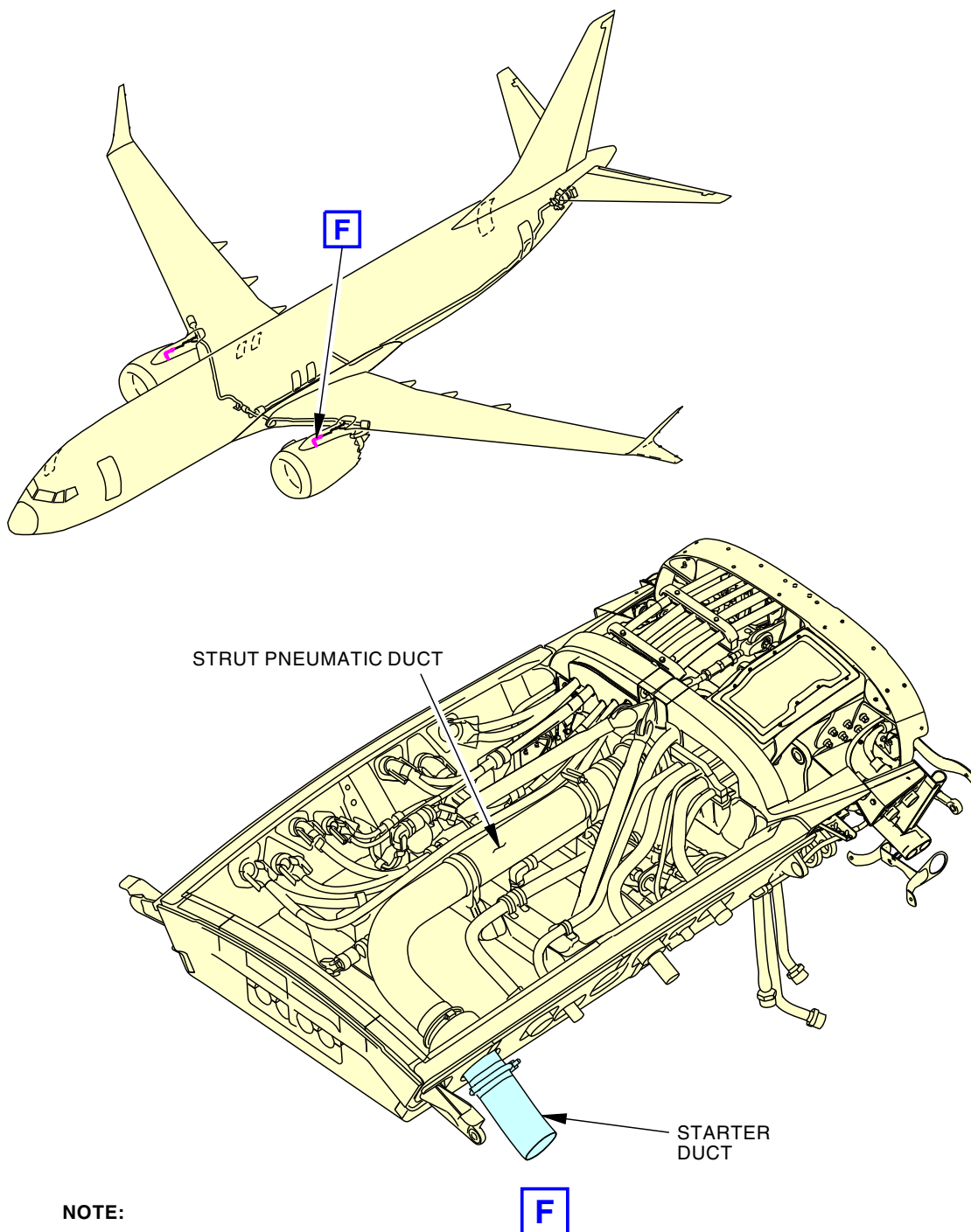
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36-11-00

Page 517
 Sep 15/2022



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



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Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 6 of 8)

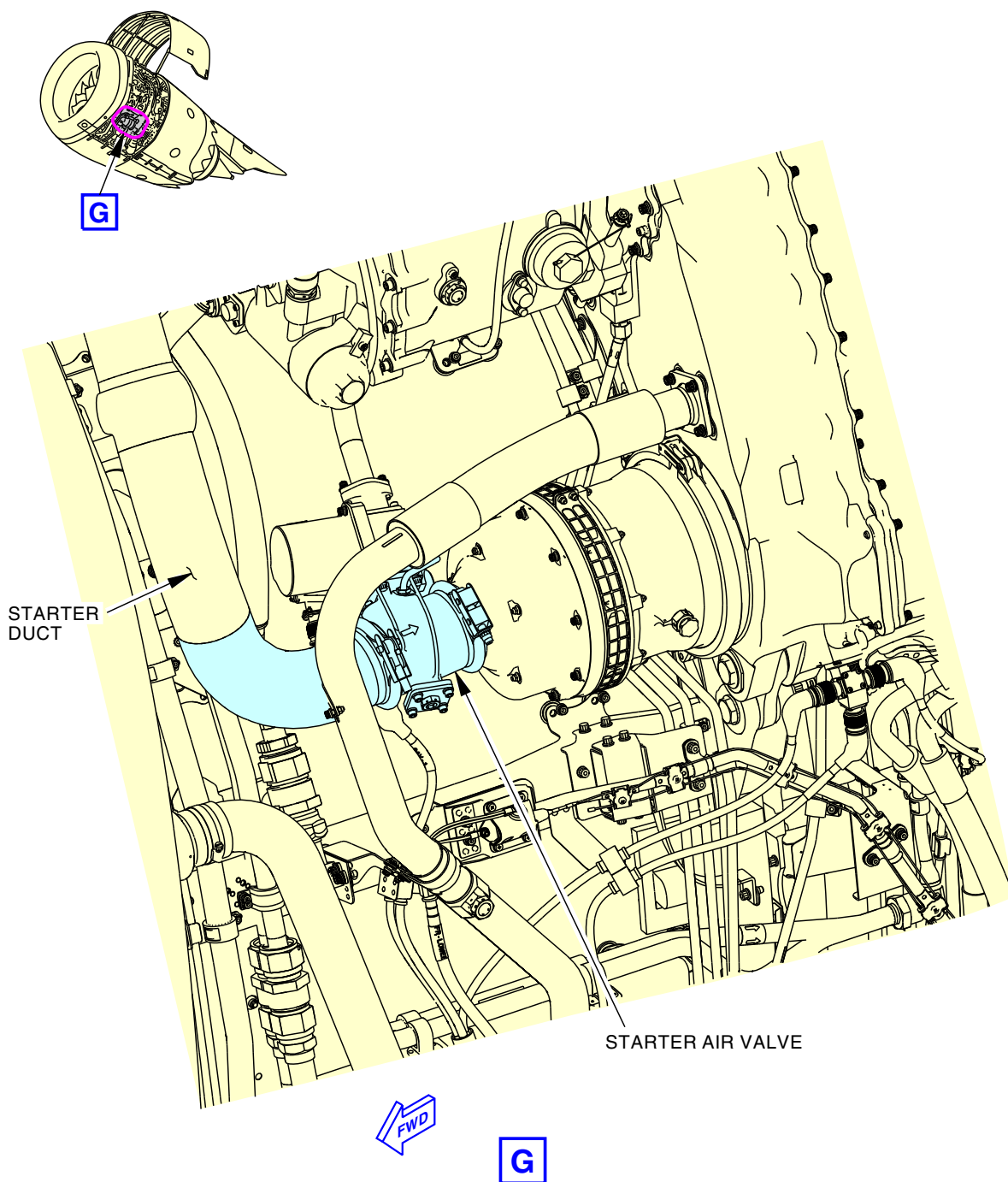
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-00

Page 518
Sep 15/2022



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Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 7 of 8)

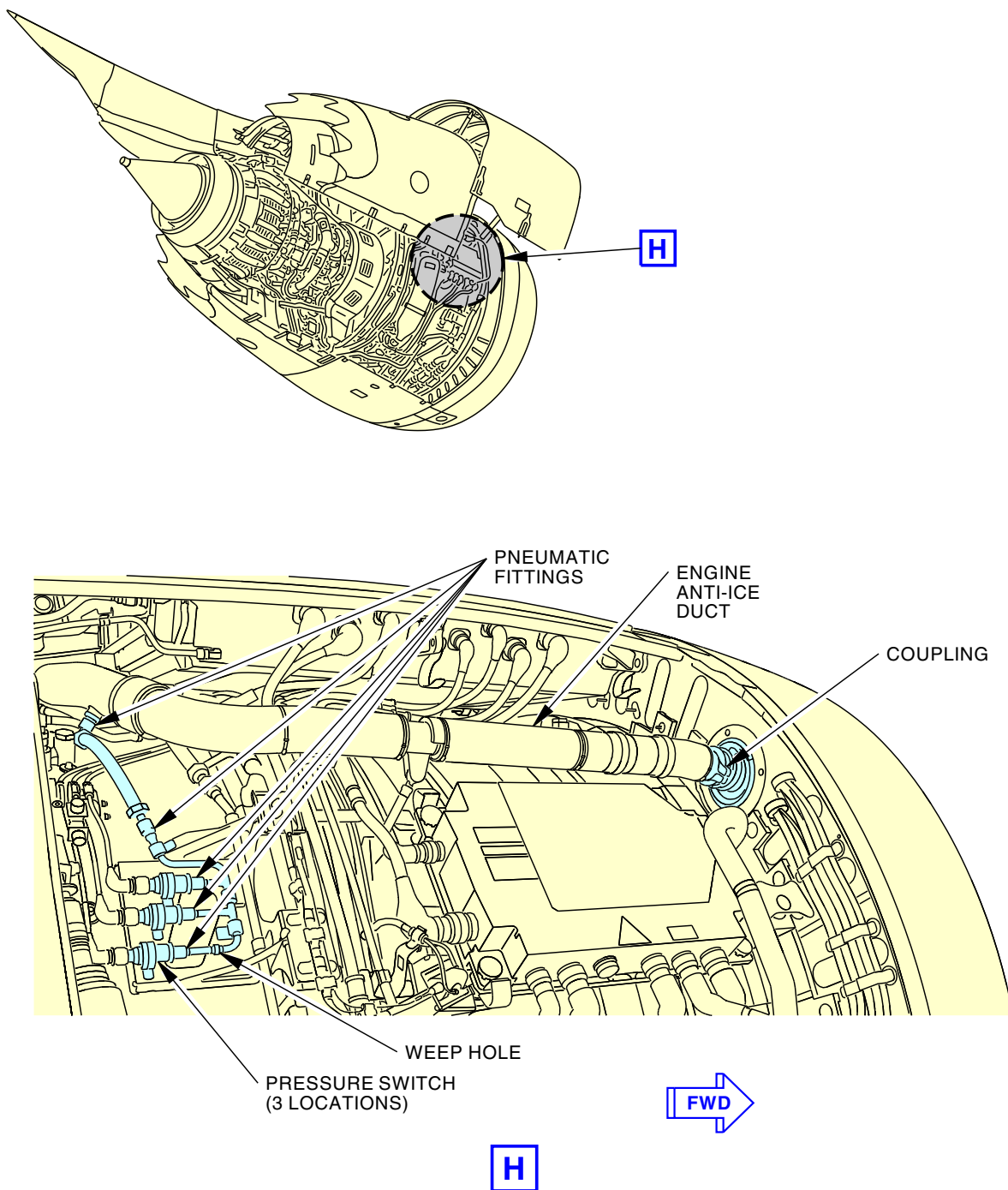
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 519
Sep 15/2022



2783303 S0000630311_V2

Engine Bleed Air System Leakage Check
Figure 503/36-11-00-990-818 (Sheet 8 of 8)

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-11-00

Page 520
Sep 15/2022



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

ENGINE PNEUMATIC DUCT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Engine pneumatic duct removal
 - (2) Engine pneumatic duct installation.

TASK 36-11-01-000-801

2. Engine Pneumatic Duct Removal

(Figure 401)

A. **General**

- (1) This procedure has instructions to remove each of these individual duct sections:
 - (a) 4th-Stage Duct
 - (b) Upper CDP Duct Assembly
 - (c) Lower CDP Duct Assembly
 - (d) Mix Manifold
 - (e) Crossover Duct Assembly
- (2) Each duct section may be removed individually. It is not necessary to remove all duct sections.

NOTE: Pneumatic ducts expand when heated and it may be needed to fully cool the duct in order to remove tension on the component.

B. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-04-000-801	PRSOV Removal (P/B 401)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. **Consumable Materials**

Reference	Description	Specification
D00653 [C02-026]	Oil - Penetrating (GE Spec. A50TF54)	
D50250	Oil - Mouse Milk Penetrating Oil	

E. **Location Zones**

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-01

Page 401
Jan 15/2022



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

F. Prepare for the Removal

SUBTASK 36-11-01-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-01-860-002

- (2) Make sure that the engine start lever is in the CUTOFF position.
 - (a) Install a DO NOT OPERATE tag, STD-858, on the applicable engine start lever.

SUBTASK 36-11-01-860-003

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-01-010-001



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) For the left and right thrust reversers, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

G. 4h-Stage Duct Removal

SUBTASK 36-11-01-640-002

- (1) Lubricate the bolts [5] with the mouse milk penetrating oil, D50250, or penetrating oil, D00653 [C02-026].

NOTE: This will make it easier to remove the bolts [5].

- (a) Let the bolts [5] soak for 15 - 30 minutes.
- (b) Lightly tap on the bolts [5] with a hammer and metal drift.

SUBTASK 36-11-01-020-001

- (2) Remove the bolts [5] and washers [6] that attach the 4th-stage duct [4] to the engine case.

SUBTASK 36-11-01-010-002

- (3) Remove the coupling [2] at the lower end of the IPCV.

NOTE: The E-seal [3] will be removed at a later step.

SUBTASK 36-11-01-020-002

- (4) Remove the 4th-stage duct [4].

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

Page 402
Jan 15/2022



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

SUBTASK 36-11-01-020-003

- (5) Remove the seal [1] and E-seal [3].
 - (a) Examine the seal [1] and E-seal [3] for cracks, dents or other damage.
 - (b) Replace the seal [1] or E-seal [3] if damaged.

SUBTASK 36-11-01-480-001

- (6) Install the protective covers on all duct and valve openings to keep out unwanted material.

H. Upper CDP Duct Assembly Removal

SUBTASK 36-11-01-640-003



DO NOT BENT OR TWIST THE FLEX JOINTS. DAMAGE TO THE FLEX JOINTS CAN OCCUR.

- (1) Lubricate the bolts [9] with the mouse milk penetrating oil, D50250, or penetrating oil, D00653 [C02-026].

NOTE: This will make it easier to remove the bolts [9].

- (a) Let the bolts [9] soak for 15 - 30 minutes.
- (b) Lightly tap on the bolts [9] with a hammer and metal drift.

SUBTASK 36-11-01-020-004

- (2) Remove the bolts [9] and washers [8] that attach the upper CDP duct assembly [10] to the engine case.

SUBTASK 36-11-01-020-005

- (3) Remove the coupling [15] that attaches the upper CDP duct assembly [10] to the lower CDP duct assembly [20].

NOTE: This is the same coupling [15] used in the lower CDP duct assembly.

NOTE: The E-seal [14] will be removed at later step.

SUBTASK 36-11-01-020-006

- (4) Remove the bolts [11], washers [48], bushings [12], washers [13], and nuts [16] that attach the support rods to the upper CDP duct assembly [10].

SUBTASK 36-11-01-020-007

- (5) Remove the upper CDP duct assembly [10].

SUBTASK 36-11-01-020-008

- (6) Remove the seal [7] and E-seal [14].

NOTE: This is the same E-seal [14] used in the lower CDP duct assembly.

- (a) Examine the seal [7] and E-seal [14] for cracks, dents or other damage.
- (b) Replace the seal [7] or E-seal [14] if damaged.

SUBTASK 36-11-01-390-001

- (7) Install the protective covers on all duct and valve openings to keep out unwanted material.

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Sep 15/2023



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

I. Lower CDP Duct Assembly Removal

SUBTASK 36-11-01-020-009

- (1) Remove the coupling [15] that attaches the lower CDP duct assembly [20] to the upper CDP duct assembly [10].

NOTE: This is the same coupling [15] used in the upper CDP duct assembly.

NOTE: The E-seal [14] will be removed at later step.

SUBTASK 36-11-01-020-010

- (2) Remove the coupling [18] that attaches the lower CDP duct assembly [20] to the HPSOV.

NOTE: The E-seal [19] will be removed at later step.

SUBTASK 36-11-01-020-011

- (3) Remove the coupling [17] that attaches the lower CDP duct assembly [20] to the engine case.

NOTE: The E-seal [23] will be removed at later step.

SUBTASK 36-11-01-020-012

- (4) Remove the lower CDP duct assembly [20].

SUBTASK 36-11-01-020-013

- (5) Remove the E-seal [14], E-seal [19], and E-seal [23].

NOTE: This is the same E-seal [14] used in the upper CDP duct assembly.

(a) Examine the E-seal [14], E-seal [19], and E-seal [23] for cracks, dents or other damage.

(b) Replace the E-seal [14], E-seal [19], or E-seal [23] if damaged.

SUBTASK 36-11-01-480-002

- (6) Install the protective covers on duct and valve openings to keep out unwanted material.

J. Mix Manifold Removal

SUBTASK 36-11-01-020-014

- (1) Disconnect the PI sense tube [46] B-nut from the mix manifold [26].
 - (a) If it is necessary, remove the PRSOV to get access the PI sense tube [46] B-nut (TASK 36-11-04-000-801).

SUBTASK 36-11-01-020-032

- (2) Disconnect the DVV air supply tube [47] B-nut from the mix manifold [26].

SUBTASK 36-11-01-020-015

- (3) Remove the coupling [30] that attaches the mix manifold [26] to the HPSOV.

NOTE: The E-seal [29] will be removed at later step.

SUBTASK 36-11-01-020-016

- (4) Remove the coupling [28] that attaches the mix manifold [26] to the IPCV.

NOTE: The E-seal [27] will be removed at later step.

SUBTASK 36-11-01-020-017

- (5) Remove the coupling [24] that attaches the mix manifold [26] to the engine anti-ice duct.

NOTE: The E-seal [25] will be removed at later step.

SUBTASK 36-11-01-020-018

- (6) Remove the coupling [35] that attaches the mix manifold [26] to the PRSOV.

NOTE: The E-seal [34] will be removed at later step.

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Sep 15/2023



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

SUBTASK 36-11-01-020-019

- (7) Remove the bolts [36], washers [33], bushings [32], washers [49], and nuts [31] that attach the support rods to the mix manifold [26].
- (a) In order to get sufficient clearance between components to remove the mix manifold [26] it may be necessary to also disconnect the crossover duct support rod and flex it away from the PRSOV.

SUBTASK 36-11-01-020-020

- (8) Remove the mix manifold [26] from the right side of the engine.

SUBTASK 36-11-01-020-021

- (9) Remove the E-seal [25], E-seal [27], E-seal [29] and E-seal [34].
- (a) Examine the E-seal [25], E-seal [27], E-seal [29] and E-seal [34] for cracks, dents or other damage.
- (b) Replace the E-seal [25], E-seal [27], E-seal [29] or E-seal [34] if damaged.

SUBTASK 36-11-01-480-003

- (10) Install the protective covers on the duct and valve openings to keep out unwanted material.

K. Crossover Duct Assembly Removal

SUBTASK 36-11-01-020-022



DO NOT BENT OR TWIST THE FLEX JOINTS. DAMAGE TO THE FLEX JOINTS CAN OCCUR.

- (1) Remove the coupling [42] that attaches the crossover duct assembly [39] to the PRSOV.
- NOTE: The E-seal [41] will be removed at later step.

SUBTASK 36-11-01-020-023

- (2) Remove the coupling [37] that attaches the crossover duct assembly [39] to the precooler.
- NOTE: The E-seal [38] will be removed at later step.

SUBTASK 36-11-01-020-024

- (3) Remove the bolt [45], washer [40], bushing [44], washer [50], and nut [43] that attach the support rod to the crossover duct assembly [39].

SUBTASK 36-11-01-020-025

- (4) Remove the crossover duct assembly [39] from the engine.

SUBTASK 36-11-01-020-026

- (5) Remove the E-seal [38] and E-seal [41].
- (a) Examine the E-seal [38] and E-seal [41] for cracks, dents or other damage.
- (b) Replace the E-seal [38] or E-seal [41] if damaged.

SUBTASK 36-11-01-020-027

- (6) Install the protective covers on the duct and valve openings to keep out unwanted material.

————— END OF TASK —————

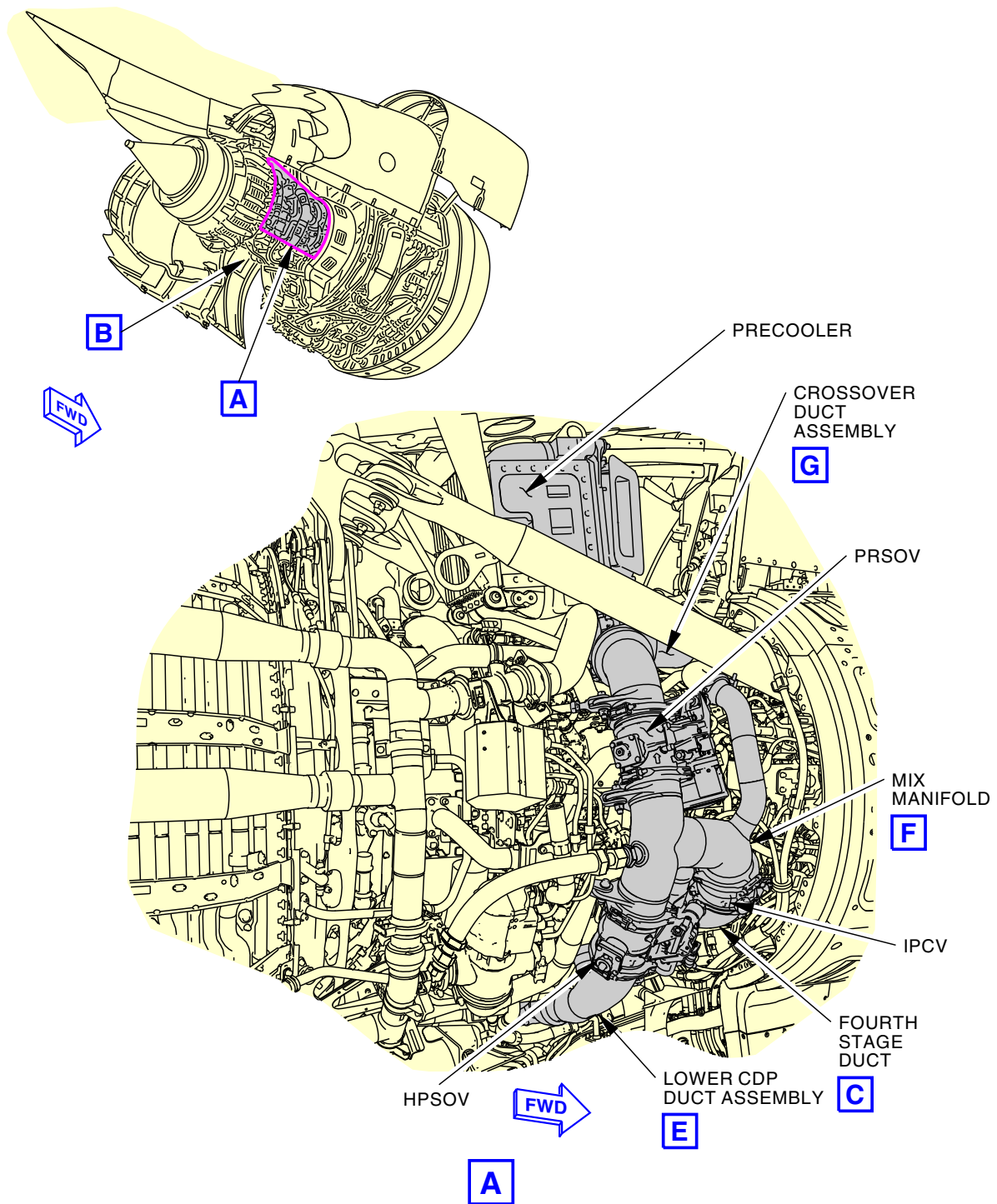
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Page 405
Sep 15/2023



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Engine Pneumatic Duct Installation
Figure 401/36-11-01-990-801 (Sheet 1 of 7)

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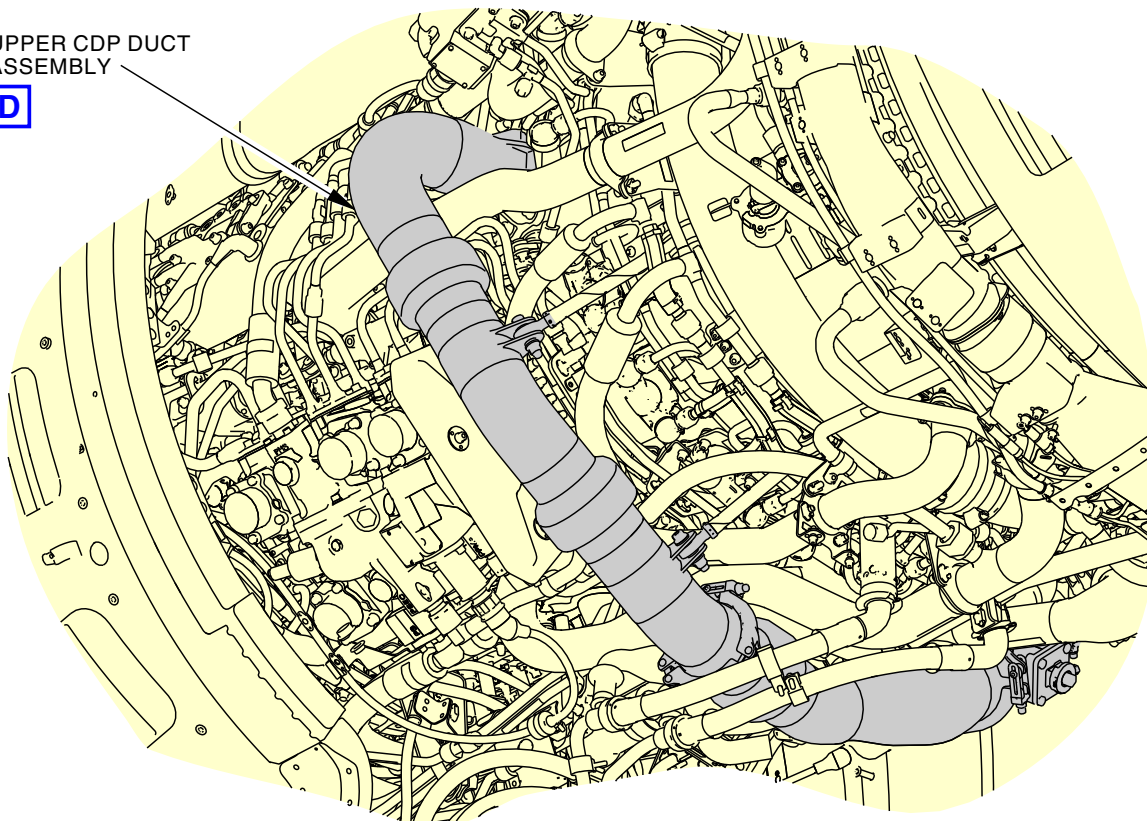
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36-11-01

Page 406
Sep 15/2021

UPPER CDP DUCT
ASSEMBLY

D



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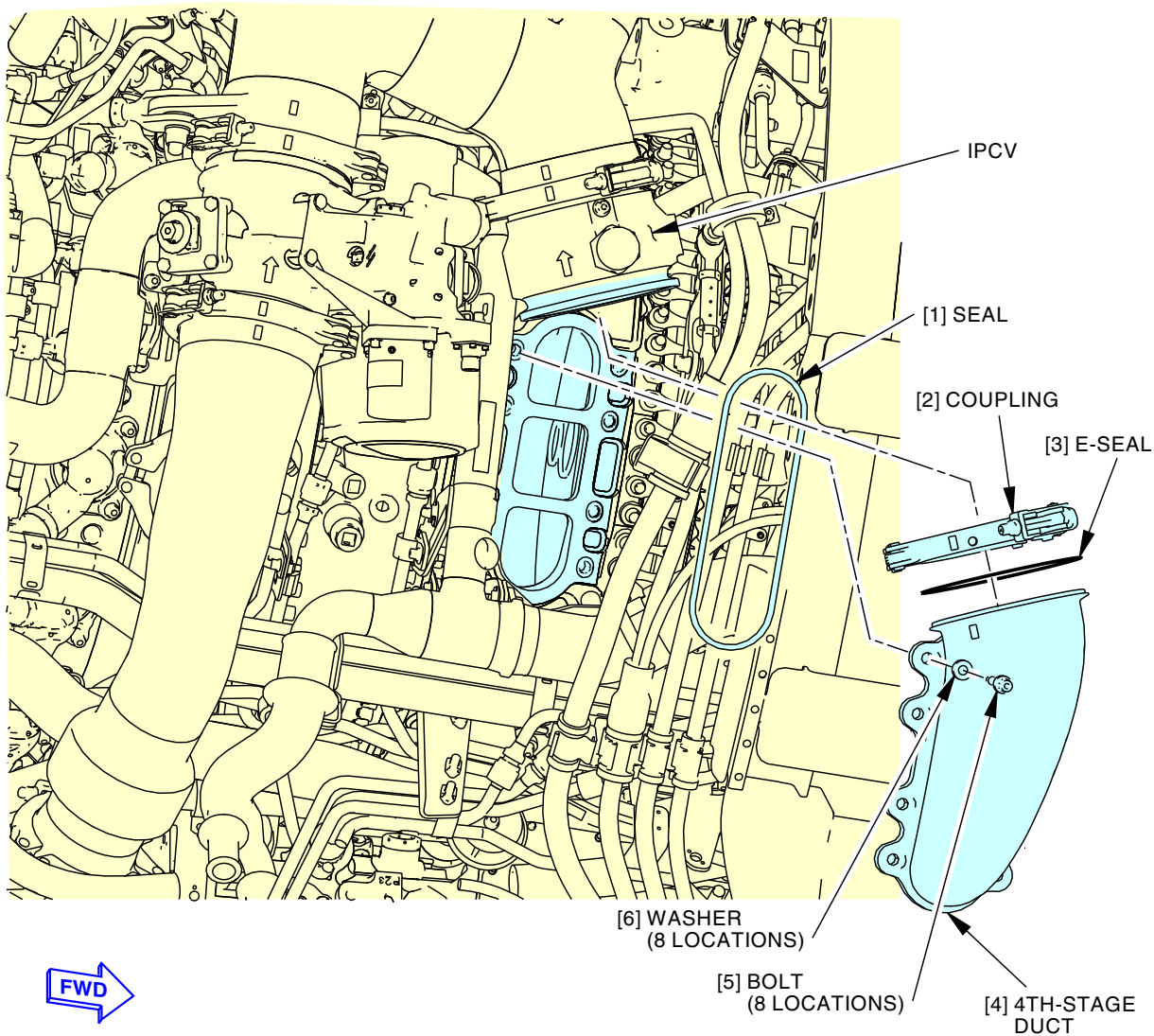
Engine Pneumatic Duct Installation
Figure 401/36-11-01-990-801 (Sheet 2 of 7)

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36-11-01

Page 407
Sep 15/2021



FOURTH STAGE DUCT

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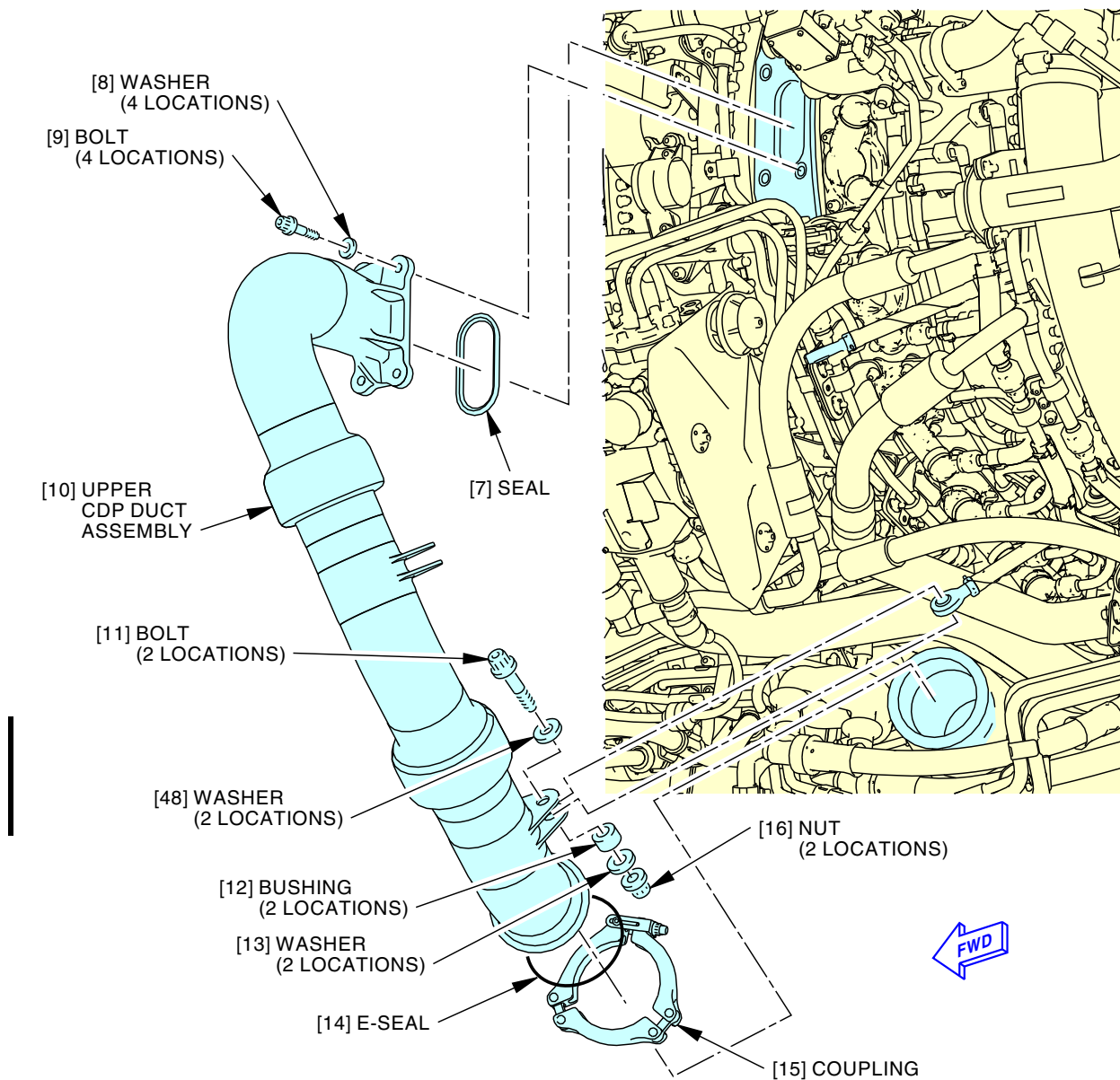
Engine Pneumatic Duct Installation
Figure 401/36-11-01-990-801 (Sheet 3 of 7)

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36-11-01

D633AM101-SIA

Page 408
Sep 15/2021



UPPER DUCT ASSEMBLY

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Engine Pneumatic Duct Installation
Figure 401/36-11-01-990-801 (Sheet 4 of 7)

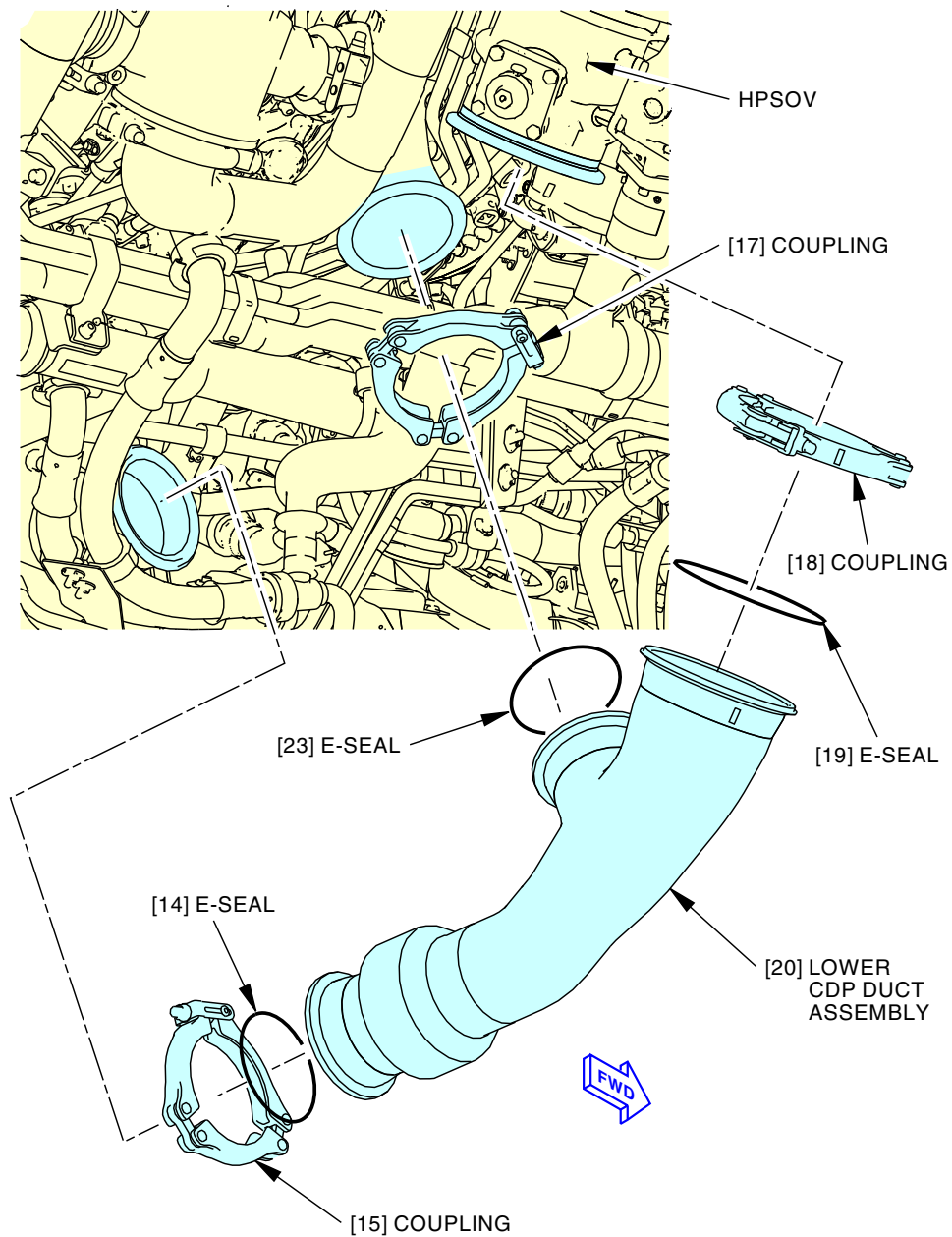
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Page 409
Sep 15/2023



LOWER DUCT ASSEMBLY



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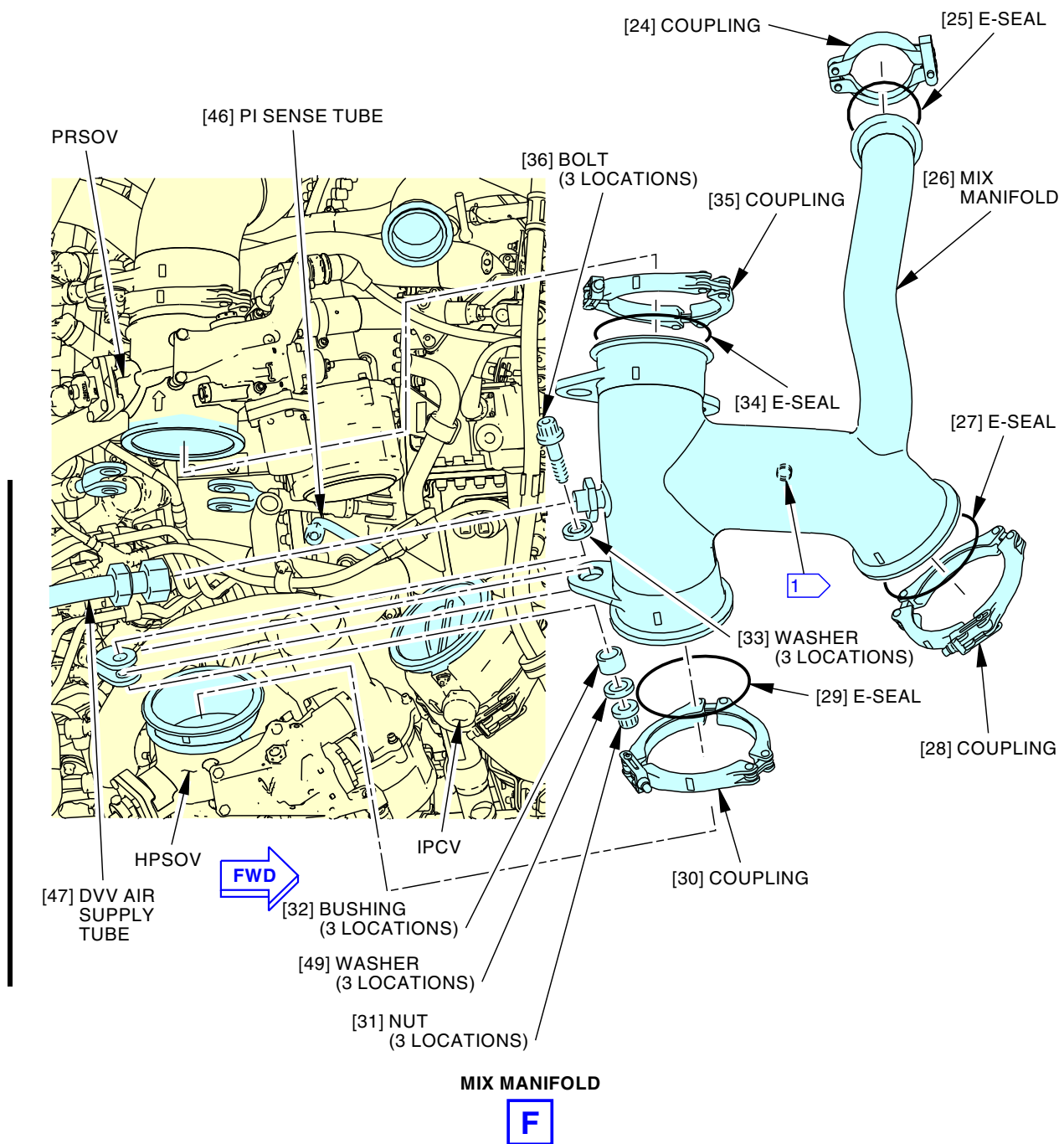
Engine Pneumatic Duct Installation
Figure 401/36-11-01-990-801 (Sheet 5 of 7)

EFFECTIVITY
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36-11-01

D633AM101-SIA

Page 410
Sep 15/2023



1 THE PI SENSE TUBE CONNECTS TO THE OPPOSITE SIDE OF THE MIX MANIFOLD

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Engine Pneumatic Duct Installation
Figure 401/36-11-01-990-801 (Sheet 6 of 7)

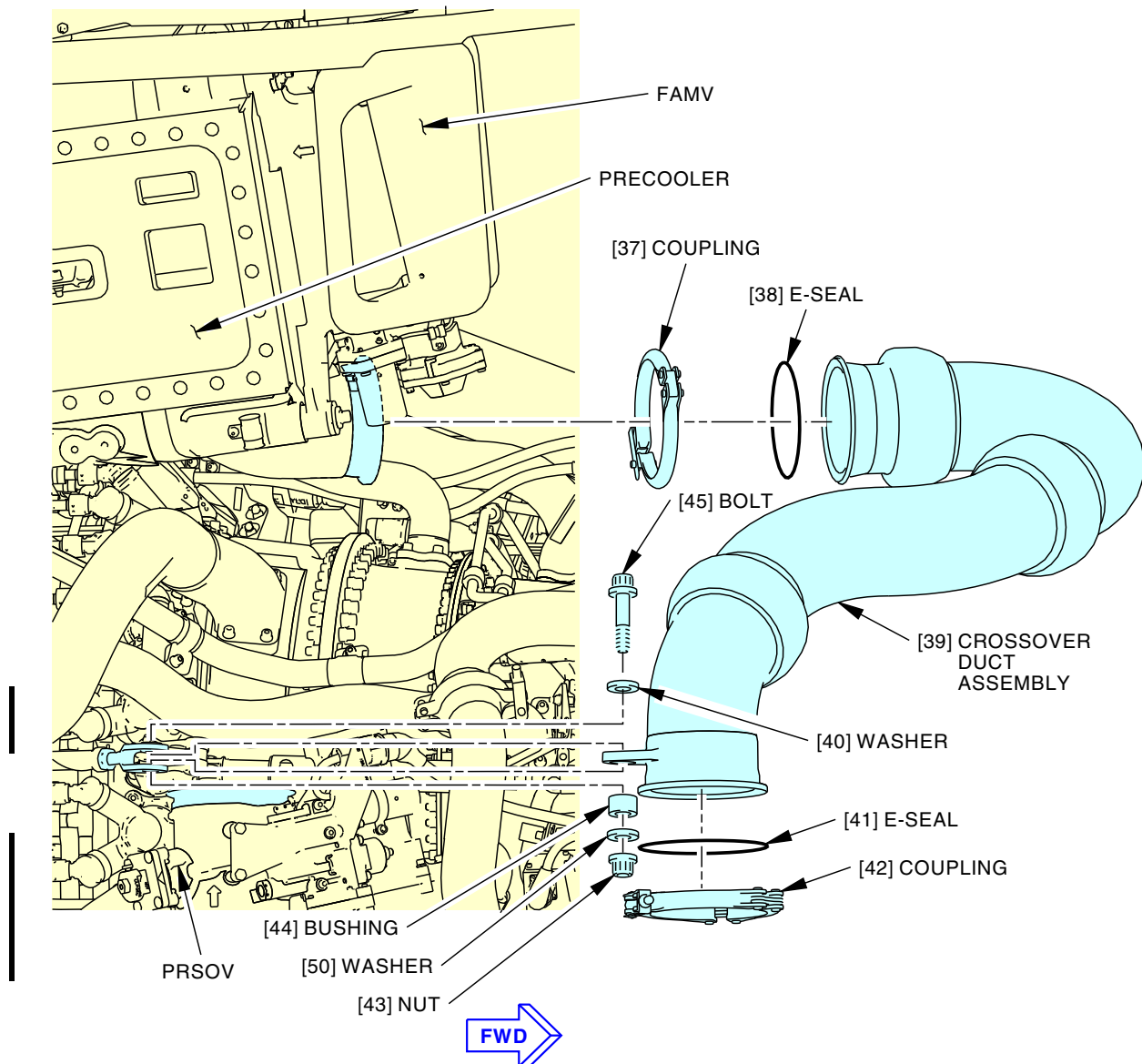
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-01

Page 411
Sep 15/2023



CROSSOVER DUCT ASSEMBLY

G

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Engine Pneumatic Duct Installation
Figure 401/36-11-01-990-801 (Sheet 7 of 7)

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

TASK 36-11-01-400-801

3. Engine Pneumatic Duct Installation

(Figure 401)

A. General

(1) This task has instructions to install each of these individual duct sections:

- (a) 4th-Stage Duct
- (b) Upper CDP Duct Assembly
- (c) Lower Duct CDP Assembly
- (d) Mix Manifold
- (e) Crossover Duct Assembly.

B. References

Reference	Title
36-00-00-860-805	Supply Pressure Upstream of the PRSOV with Engines Off (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-00-700-802	Engine Bleed Air System - Leak Check (P/B 501)
36-11-04-400-801	PRSOV Installation (P/B 401)
71-00-00-790-801-G00	Test No. 1 - Pneumatic Leak Test (P/B 501)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Seal	36-11-01-01-240	SIA ALL
3	E-seal	36-11-02-01-015	SIA ALL
4	4th-stage duct	36-11-01-01-300	SIA ALL
7	Seal	36-11-01-01-235	SIA ALL
10	Upper CDP duct assembly	36-11-01-01-250	SIA ALL
14	E-seal	36-11-01-01-220	SIA ALL
19	E-seal	36-11-07-01-015	SIA ALL
20	Lower CDP duct assembly	36-11-01-01-270	SIA ALL
23	E-seal	36-11-01-01-220	SIA ALL
25	E-seal	30-21-12-01-215	SIA ALL
26	Mix manifold	36-11-01-01-275	SIA ALL
27	E-seal	36-11-02-01-015	SIA ALL
29	E-seal	36-11-07-01-015	SIA ALL
34	E-seal	36-11-04-01-015	SIA ALL

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
38	E-seal	71-40-51-05-030	SIA ALL
39	Crossover duct assembly	36-11-01-01-285	SIA ALL
41	E-seal	36-11-04-01-015	SIA ALL

F. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

G. 4th-Stage Port Duct Installation

SUBTASK 36-11-01-640-001

- (1) Apply a thin layer of Never-Seez NSBT compound, D00006, to the threads of the bolts [5].

SUBTASK 36-11-01-080-001

- (2) Remove the protective covers from duct and valve openings.

SUBTASK 36-11-01-420-025

- (3) Install the seal [1] and E-seal [3] into the cavity in the 4th-stage duct [4].

SUBTASK 36-11-01-210-001

- (4) Put the 4th-stage duct [4] into position for installation.

SUBTASK 36-11-01-010-003

- (5) Install the bolts [5] and washers [6] that attach the 4th-stage duct [4] to the engine case.

- (a) Do not tighten the bolts [5] at this time.

SUBTASK 36-11-01-010-005



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (6) Install the coupling [2] at the lower end of the Intermediate Pressure Check Valve (IPCV).
- (a) Adjust the alignment mark on the coupling [2] with the alignment mark on the 4th-stage duct [4] and flow arrow on the IPCV to within 0.00 ±0.25 in. (0.00 ±6.35 mm).
- (b) Do not tighten the coupling [2] at this time.

SUBTASK 36-11-01-420-026

- (7) Tighten the bolts [5] to 240 ±5 in-lb (27 ±1 N·m).

SUBTASK 36-11-01-420-027

- (8) Tighten the coupling [2].
- (a) Tighten the coupling [2] nut to 175 ±5 in-lb (20 ±1 N·m).
- (b) Lightly tap the outer surface of the coupling [2] with a rubber mallet, STD-3906.
- (c) Tighten the coupling [2] nut again to 175 ±5 in-lb (20 ±1 N·m).

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SIA ALL

36-11-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 414
Sep 15/2023



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

H. Upper CDP Duct Assembly Installation

SUBTASK 36-11-01-640-004



DO NOT BENT OR TWIST THE FLEX JOINTS. DAMAGE TO THE FLEX JOINTS CAN OCCUR.

- (1) Apply a thin layer of Never-Seez NSBT compound, D00006, to the threads of the bolts [9].

SUBTASK 36-11-01-420-028

- (2) Remove the protective covers from duct and valve openings.

SUBTASK 36-11-01-420-012

- (3) Install the seal [7] and E-seal [14] into the cavity on the upper CDP duct assembly [10].

NOTE: This is the same E-seal [14] used in the lower CDP duct assembly.

SUBTASK 36-11-01-420-013

- (4) Put the upper CDP duct assembly [10] into position for installation.

SUBTASK 36-11-01-420-030

- (5) Install the bolts [9] and washers [8] that attach the upper CDP duct assembly [10] to the engine case.

(a) Do not tighten the bolts [9] at this time.

SUBTASK 36-11-01-420-016

- (6) Install the coupling [15] that attaches the upper CDP duct assembly [10] to the lower CDP duct assembly [20].

NOTE: This is the same coupling [15] used in the lower CDP duct assembly.

(a) Do not tighten the coupling [15] at this time.

SUBTASK 36-11-01-420-032

- (7) Connect the support rods to the upper CDP duct assembly [10].

(a) If it is necessary, do the steps that follow to adjust the length of the support rod:

- 1) Remove the safety wire.
- 2) Loosen the jam nut.
- 3) Adjust the length of the support rod.
- 4) Tighten the jam nut.
- 5) Install safety wire.

(b) Make sure that the adjustment of the support rod does not preload the adjacent support rod or hardware.

(c) Apply a thin layer of Never-Seez NSBT compound, D00006, to the threads of the bolts [11]

(d) Install the bolts [11], washers [48], bushings [12], washers [13], and nuts [16].

(e) Do not tighten the nuts [16] at this time.

SUBTASK 36-11-01-420-031

- (8) Tighten the bolts [9] to 240 $\pm$ 5 in-lb (27 $\pm$ 1 N·m).

SUBTASK 36-11-01-420-033

- (9) Tighten the coupling [15].

(a) Tighten the coupling [15] nut to 175 $\pm$ 5 in-lb (20 $\pm$ 1 N·m).

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 415
Sep 15/2023



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

- (b) Lightly tap the outer surface of the coupling [15] with a rubber mallet, STD-3906.
- (c) Tighten the coupling [15] nut again to 175 $\pm$ 5 in-lb (20 $\pm$ 1 N·m).

SUBTASK 36-11-01-420-034

- (10) Tighten the nuts [16] to 200 $\pm$ 6 in-lb (23 $\pm$ 1 N·m).

I. Lower CDP Duct Assembly Installation

SUBTASK 36-11-01-420-035

- (1) Remove the protective covers from duct and valve openings.

SUBTASK 36-11-01-420-058

- (2) Install the E-seal [14], E-seal [19], and E-seal [23] into the cavity on the lower CDP duct assembly [20].

NOTE: This is the same E-seal [14] used in the upper CDP duct assembly.

SUBTASK 36-11-01-420-036

- (3) Put the lower CDP duct assembly [20] into position for installation.

SUBTASK 36-11-01-420-037

- (4) Install the coupling [15] that attaches the lower CDP duct assembly [20] to the upper CDP duct assembly [10].

NOTE: This is the same coupling [15] used in the upper CDP duct assembly.

- (a) Do not tighten the coupling [15] at this time.

SUBTASK 36-11-01-420-038



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (5) Install the coupling [18] that attaches the lower CDP duct assembly [20] to the High Pressure Shutoff Valve (HPSOV).
 - (a) Adjust the alignment mark on the coupling [18] with the alignment mark on the lower CDP duct assembly [20] and flow arrow on the HPSOV to within 0.00 $\pm$ 0.25 in. (0.00 $\pm$ 6.35 mm).
 - (b) Do not tighten the coupling [18] at this time.

SUBTASK 36-11-01-420-039

- (6) Install the coupling [17] that attaches the lower CDP duct assembly [20] to the engine case.
 - (a) Do not tighten the coupling [17] at this time.

SUBTASK 36-11-01-420-040

- (7) When the coupling [15], coupling [17], and coupling [18] are all in position, tighten the coupling [15], coupling [17], and coupling [18].
 - (a) Tighten the coupling (coupling [15], coupling [17], and coupling [18]) nut to 175 $\pm$ 5 in-lb (20 $\pm$ 1 N·m).
 - (b) Lightly tap the outer surface of the coupling [15], coupling [17], and coupling [18] with a rubber mallet, STD-3906.
 - (c) Tighten the coupling (coupling [15], coupling [17], and coupling [18]) nut again to 175 $\pm$ 5 in-lb (20 $\pm$ 1 N·m).

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

Page 416
Sep 15/2023



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

J. Mix Manifold Installation

SUBTASK 36-11-01-640-005

- (1) Apply a thin layer of Never-Seez NSBT compound, D00006, to the threads of the bolts [36] and PI sense tube [46] B-nut.

SUBTASK 36-11-01-420-041

- (2) Remove the protective covers from duct and valve openings.

SUBTASK 36-11-01-420-059

- (3) Install the E-seal [25], E-seal [27], E-seal [29], and E-seal [34] into the cavity on the mix manifold [26].

SUBTASK 36-11-01-420-042

- (4) Put the mix manifold [26] into position for installation.

SUBTASK 36-11-01-420-044

- (5) Connect the PI sense tube [46] B-nut to the mix manifold [26].



CAUTION

MAKE SURE THAT YOU USE TWO WRENCHES TO TIGHTEN TUBE COUPLING NUTS. ONE WRENCH TO HOLD THE FITTING AND THE SECOND WRENCH TO TURN THE COUPLING NUT. IF YOU DO NOT USE TWO WRENCHES, YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (a) Tighten the B-nut to 270 ± 13 in-lb (31 ± 2 N·m).

SUBTASK 36-11-01-420-062

- (6) Connect the DVV air supply tube [47] B-nut to the mix manifold [26].



CAUTION

MAKE SURE THAT YOU USE TWO WRENCHES TO TIGHTEN TUBE COUPLING NUTS. ONE WRENCH TO HOLD THE FITTING AND THE SECOND WRENCH TO TURN THE COUPLING NUT. IF YOU DO NOT USE TWO WRENCHES, YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (a) Tighten the B-nut to 900 ± 45 in-lb (102 ± 5 N·m).

SUBTASK 36-11-01-420-045



CAUTION

MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (7) Install the coupling [30] that attaches the mix manifold [26] to the HPSOV.
 - (a) Adjust the alignment mark on the coupling [30] with the alignment mark on the mix manifold [26] and flow arrow on the HPSOV to within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).
 - (b) Do not tighten the coupling [30] at this time.

SUBTASK 36-11-01-420-046



CAUTION

MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (8) Install the coupling [35] that attaches the mix manifold [26] to the Pressure Regulating and Shutoff Valve (PRSOV).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-01

Page 417
Sep 15/2023



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

- (a) Adjust the alignment mark on the coupling [35] with the alignment mark on the mix manifold [26] and flow arrow on the PRSOV to within 0.00 ±0.25 in. (0.00 ±6.35 mm).
- (b) Do not tighten the coupling [35] at this time.

SUBTASK 36-11-01-420-047



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (9) Install the coupling [28] that attaches the mix manifold [26] to the IPCV.
 - (a) Adjust the alignment mark on the coupling [28] with the alignment mark on the mix manifold [26] and flow arrow on the IPCV to within 0.00 ±0.25 in. (0.00 ±6.35 mm).
 - (b) Do not tighten the coupling [28] at this time.

SUBTASK 36-11-01-420-048

- (10) Install the coupling [24] that attaches the mix manifold [26] to the engine anti-ice duct.
 - (a) Do not tighten the coupling [24] at this time.

SUBTASK 36-11-01-420-043

- (11) Connect the support rods to the mix manifold [26].
 - (a) If it is necessary, do the steps that follow to adjust the length of the support rod:
 - 1) Remove the safety wire.
 - 2) Loosen the jam nut.
 - 3) Adjust the length of the support rod.
 - 4) Tighten the jam nut.
 - 5) Install safety wire.
 - (b) Make sure that the adjustment of the support rod does not preload the adjacent support rod or hardware.
 - (c) Install the bolts [36], washers [33], bushings [32], washers [49], and nuts [31].
 - (d) Do not tighten the nuts [31] at this time.

SUBTASK 36-11-01-420-049

- (12) When the coupling [24], coupling [28], coupling [30], and coupling [35] are all in position, tighten the coupling [24], coupling [28], coupling [30], and coupling [35].
 - (a) Tighten the coupling [28], coupling [30], and coupling [35] nuts to 175 ±5 in-lb (20 ±1 N·m).
 - (b) Tighten the coupling [24] nut to 120 ±5 in-lb (14 ±1 N·m).
 - (c) Lightly tap the outer surface of the coupling [24], coupling [28], coupling [30], and coupling [35] with a rubber mallet, STD-3906.
 - (d) Tighten the coupling [28], coupling [30], and coupling [35] nuts again to 175 ±5 in-lb (20 ±1 N·m).
 - (e) Tighten the coupling [24] nut again to 120 ±5 in-lb (14 ±1 N·m).

SUBTASK 36-11-01-420-050

- (13) Tighten the nuts [31] to 200 ±6 in-lb (23 ±1 N·m).

SUBTASK 36-11-01-420-060

- (14) Install the PRSOV, if it was removed (TASK 36-11-04-400-801).

EFFECTIVITY
SIA ALL

36-11-01

D633AM101-SIA

Page 418
Sep 15/2023



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

K. Crossover Duct Assembly Installation

SUBTASK 36-11-01-640-006



DO NOT BENT OR TWIST THE FLEX JOINTS. DAMAGE TO THE FLEX JOINTS CAN OCCUR.

- (1) Apply a thin layer of Never-Seez NSBT compound, D00006, to the threads of the bolt [45].

SUBTASK 36-11-01-420-051

- (2) Remove the protective covers from duct and valve openings.

SUBTASK 36-11-01-420-061

- (3) Install the E-seal [38] and E-seal [41] into the cavity on the crossover duct assembly [39].

SUBTASK 36-11-01-420-052

- (4) Put the crossover duct assembly [39] into position for installation.

SUBTASK 36-11-01-420-054



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (5) Install the coupling [42] that attaches the crossover duct assembly [39] to the PRSOV.
- (a) Adjust the alignment mark on the coupling [42] with the alignment mark on the crossover duct assembly [39] and flow arrow on the PRSOV to within 0.00 $\pm$ 0.25 in. (0.00 $\pm$ 6.35 mm).
- (b) Do not tighten the coupling [42] at this time.

SUBTASK 36-11-01-420-055

- (6) Install the coupling [37] that attaches the crossover duct assembly [39] to the precooler.
- (a) Do not tighten the coupling [37] at this time.

SUBTASK 36-11-01-420-053

- (7) Connect the support rod to the crossover duct assembly [39].
- (a) If it is necessary, do the steps that follow to adjust the length of the support rod:
- 1) Remove the safety wire.
 - 2) Loosen the jam nut.
 - 3) Adjust the length of the support rod.
 - 4) Tighten the jam nut.
 - 5) Install safety wire.
- (b) Make sure that the adjustment of the support rod does not preload the adjacent support rod or hardware.
- (c) Install the bolt [45], washer [40], bushing [44], washer [50], and nut [43].
- (d) Do not tighten the nut [43] at this time.

SUBTASK 36-11-01-420-056

- (8) When the coupling [37] and coupling [42] are in position, tighten the coupling [37] and coupling [42].
- (a) Tighten the coupling [42] nut to 175 $\pm$ 5 in-lb (20 $\pm$ 1 N·m).

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-11-01

Page 419
Sep 15/2023



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

- (b) Tighten the coupling [37] nut to 120 ±5 in-lb (13.6 ±0.6 N·m).
- (c) Lightly tap the outer surface of the coupling [37] and coupling [42] with a rubber mallet, STD-3906.
- (d) Tighten the coupling [42] nut again to 175 ±5 in-lb (20 ±1 N·m).
- (e) Tighten the coupling [37] nut again to 120 ±5 in-lb (13.6 ±0.6 N·m).

SUBTASK 36-11-01-420-057

- (9) Tighten the nut [43] to 350 ±11 in-lb (40 ±2 N·m).

L. Engine Pneumatic Duct Installation Test

SUBTASK 36-11-01-860-005

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-01-860-010

- (2) Do this task: Supply Pressure Upstream of the PRSOV with Engines Off, TASK 36-00-00-860-805.

SUBTASK 36-11-01-860-007

- (3) Do this task: Test No. 1 - Pneumatic Leak Test, TASK 71-00-00-790-801-G00.

SUBTASK 36-11-01-790-002

- (4) Do this task: Engine Bleed Air System - Leak Check, TASK 36-11-00-700-802.

SUBTASK 36-11-01-860-011

- (5) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

M. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-01-410-001



WARNING

OBEY THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE PROCEDURE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) For the left and right thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-11-01-860-009

- (2) Remove the DO NOT OPERATE tag, from the engine start lever on the control stand.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-01

Page 420
Jan 15/2023



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

INTERMEDIATE PRESSURE CHECK VALVE (IPCV) - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) Intermediate pressure check valve removal
 - (2) Intermediate pressure check valve installation.
- B. The IPCV prevents reverse flow of bleed air into the fourth-stage port on the engine.
- C. The IPCV is installed between the fourth-stage port duct and the mix manifold on the right side of each engine at the 4 o'clock position.

TASK 36-11-02-000-801

2. Intermediate Pressure Check Valve (IPCV) Removal

(Figure 401)

A. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. **Consumable Materials**

Reference	Description	Specification
D00653 [C02-026]	Oil - Penetrating (GE Spec. A50TF54)	
D50250	Oil - Mouse Milk Penetrating Oil	

D. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Seal	36-11-01-01-240	SIA ALL

E. **Location Zones**

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. **Prepare for the Removal**

SUBTASK 36-11-02-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-02-860-002

- (2) Make sure that the engine start lever on the control stand for the applicable engine is in the cutoff position and install DO NOT OPERATE tags, STD-858.

EFFECTIVITY
SIA ALL

36-11-02

D633AM101-SIA

Page 401
Jan 15/2022



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

SUBTASK 36-11-02-010-001

- (3) For the right fan cowl, do this task: Open the Fan Cowl Panels (Selection),
TASK 71-11-04-010-801-G00.

SUBTASK 36-11-02-010-004



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) For the right thrust reverser, do this task: Open the Thrust Reverser (Selection),
TASK 78-31-00-010-801-G00.

SUBTASK 36-11-02-860-003

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-11-02-860-004

- (6) On the P5-10 air conditioning panel, attach a DO NOT OPERATE tag, STD-858, to the applicable BLEED switch.
- (a) BLEED 1
- (b) BLEED 2.

G. Intermediate Pressure Check Valve (IPCV) Removal

SUBTASK 36-11-02-020-005

- (1) Remove the fourth stage duct [4].
- (a) Lubricate the bolts [5] with the mouse milk penetrating oil, D50250, or penetrating oil, D00653 [C02-026].
- NOTE:** This will make it easier to remove the bolts.
- 1) Let the bolts [5] soak for 15 - 30 minutes.
- 2) Lightly tap on the bolts [5] with a hammer and metal drift.
- (b) Remove the bolts [5] and washers [6] that attach the fourth stage duct [4] to the engine case.
- (c) Remove the coupling [1] between the intermediate pressure check valve [3] and the fourth stage duct [4].
- (d) Remove the seal [7].
- 1) Examine the seal [7] for cracks, dents, or other damage.
- 2) Replace the seal [7] if it is damaged.

EFFECTIVITY
SIA ALL

36-11-02

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Sep 15/2023



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

SUBTASK 36-11-02-020-002

- (2) Remove the coupling [8] between the intermediate pressure check valve [3] and the mix manifold.

SUBTASK 36-11-02-020-003

- (3) Remove the intermediate pressure check valve [3].

SUBTASK 36-11-02-020-004

- (4) Remove the E-seal [2] and E-seal [9].
 - (a) Examine the E-seals for cracks, dents or other damage.
 - (b) Replace all damaged E-seals.

SUBTASK 36-11-02-390-001

- (5) Install the protective covers on the fourth-stage port and the open end of the mix manifold.

———— **END OF TASK** ————

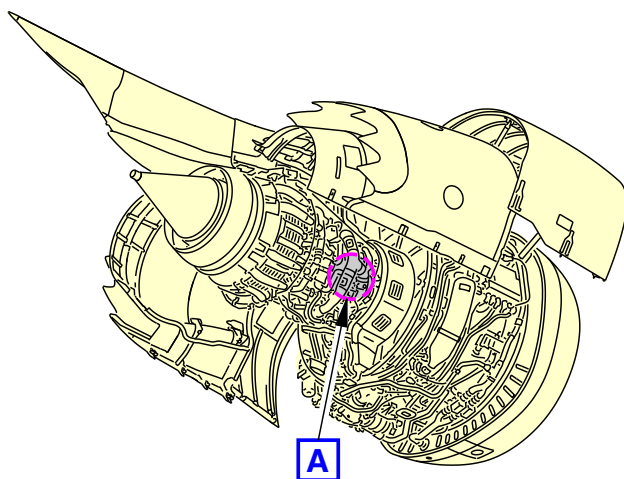
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-02

Page 403
Sep 15/2023



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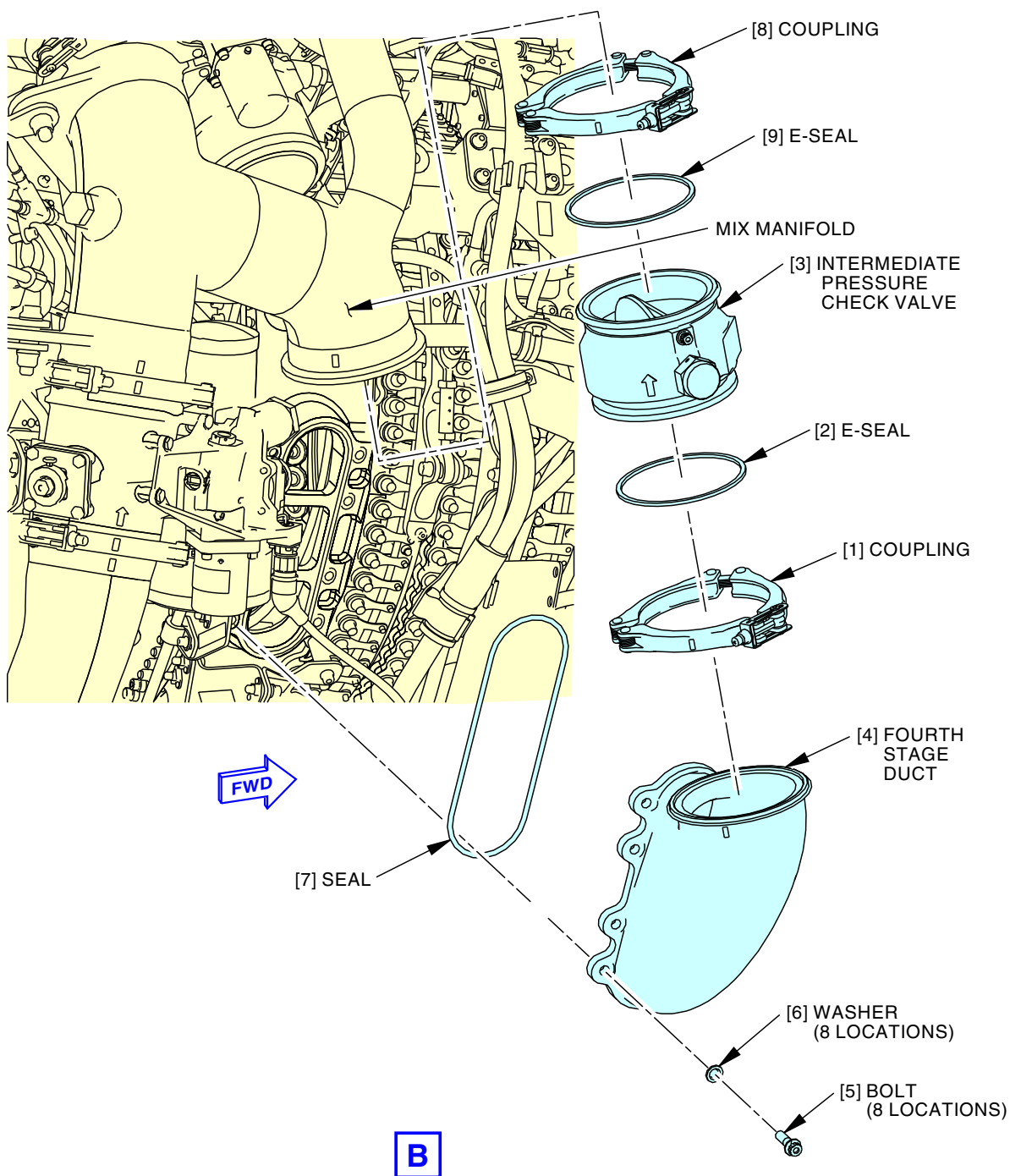
Intermediate Pressure Check Valve (IPCV) Installation
Figure 401/36-11-02-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

36-11-02

D633AM101-SIA

Page 404
Sep 15/2021



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Intermediate Pressure Check Valve (IPCV) Installation
Figure 401/36-11-02-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

36-11-02

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2021



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

TASK 36-11-02-400-801

3. Intermediate Pressure Check Valve (IPCV) Installation

(Figure 401)

A. References

Reference	Title
36-00-00-860-805	Supply Pressure Upstream of the PRSOV with Engines Off (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-02-200-801	Intermediate Pressure Check Valve (IPCV) Inspection (P/B 601)
71-00-00-790-801-G00	Test No. 1 - Pneumatic Leak Test (P/B 501)

B. Tools/Equipment

Reference	Description
STD-3906	Mallet - Rubber

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Intermediate pressure check valve	36-11-02-01-020	SIA ALL

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Prepare for the Installation

SUBTASK 36-11-02-010-002

- (1) Remove the protective covers from the fourth-stage port and the open end of the mix manifold.

G. Intermediate Pressure Check Valve (IPCV) Installation

SUBTASK 36-11-02-200-001

- (1) Do this task: Intermediate Pressure Check Valve (IPCV) Inspection, TASK 36-11-02-200-801.

SUBTASK 36-11-02-410-001



CAUTION

MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (2) Do these steps to install the intermediate pressure check valve [3]:
- (a) Install the E-seal [9] between the intermediate pressure check valve [3] and the mix manifold.
 - (b) Put the intermediate pressure check valve [3] into position with the flow arrow pointed toward the mix manifold.
 - (c) Install the coupling [8] to keep the intermediate pressure check valve [3] in position.

EFFECTIVITY
SIA ALL

36-11-02

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Sep 15/2023



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

- 1) Adjust the alignment mark on the coupling [8] with the alignment mark on the mix manifold and the flow arrow on the intermediate pressure check valve [3] to within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).
- 2) Do not tighten the coupling [8] at this time.
- (d) Make sure that the flow arrow on the intermediate pressure check valve [3] is aligned with the alignment marks on the fourth stage duct [4] and the mix manifold within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).
- (e) Install the fourth stage duct [4].
 - 1) Install the seal [7] into the cavity in the fourth stage duct [4].
 - 2) Install the E-seal [2] between the fourth stage duct [4] and the intermediate pressure check valve [3].
 - 3) Put the fourth stage duct [4] into position for installation.
 - 4) Install the coupling [1] between the fourth stage duct [4] and the intermediate pressure check valve [3].
 - a) Adjust the alignment mark on the coupling [1] with the alignment mark on the fourth stage duct [4] and the flow arrow on the intermediate pressure check valve [3] to within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).
 - b) Do not tighten the coupling [1] at this time.
 - 5) Lubricate the threads of the bolts [5] with Never-Seez NSBT compound, D00006.
 - 6) Install the bolts [5] and washers [6] to connect the duct to the engine case.
 - a) Tighten the bolts [5] to 240 ± 5 in-lb (27 ± 1 N·m).
- (f) Tighten the both couplings [1].
 - 1) Tighten the coupling nut to 175 ± 5 in-lb (20 ± 1 N·m).
 - 2) Lightly tap the outer surface of the coupling with a rubber mallet, STD-3906.
 - 3) Tighten the coupling nut again to 175 ± 5 in-lb (20 ± 1 N·m).

H. Installation Test

SUBTASK 36-11-02-780-001

- (1) Do this task: Supply Pressure Upstream of the PRSOV with Engines Off, TASK 36-00-00-860-805.

SUBTASK 36-11-02-790-001

- (2) Check for leakage at the valve couplings (TASK 71-00-00-790-801-G00).
 - (a) Diffused leakage is permitted, jet blast leakage must be repaired.

SUBTASK 36-11-02-780-002

- (3) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-02-860-008

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-02

Page 407
Sep 15/2023



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

(Continued)

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-11-02-860-006

- (5) Remove the DO-NOT-OPERATE tag from the applicable BLEED switch on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-02-860-007

- (6) Remove the DO-NOT-OPERATE tag from the engine start lever on the control stand.

SUBTASK 36-11-02-790-003

- (7) Do this task: Test No. 1 - Pneumatic Leak Test, TASK 71-00-00-790-801-G00.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-02

Page 408
Sep 15/2023



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

INTERMEDIATE PRESSURE CHECK VALVE (IPCV) - INSPECTION/CHECK

1. General

- A. This procedure has this task:
- (1) Intermediate pressure check valve inspection.

TASK 36-11-02-200-801

2. Intermediate Pressure Check Valve (IPCV) Inspection

A. References

Reference	Title
36-11-02-000-801	Intermediate Pressure Check Valve (IPCV) Removal (P/B 401)
36-11-02-400-801	Intermediate Pressure Check Valve (IPCV) Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-5468	Feeler Gauge, 0.002 - 0.008 inch

C. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Prepare for the Inspection

SUBTASK 36-11-02-000-001

- (1) Remove the intermediate pressure check valve.
 - (a) Do this task: Intermediate Pressure Check Valve (IPCV) Removal, TASK 36-11-02-000-801.

E. Intermediate Pressure Check Valve (IPCV) Inspection

SUBTASK 36-11-02-200-002

- (1) Examine the Flapper Plates [3].
 - (a) Verify that the Flapper Plates [3] move smoothly without signs of binding or sticking from the fully closed position to the Stop Tube [4] by rotating the Flapper Plates [3] by hand several times.

SUBTASK 36-11-02-200-003

- (2) Do a check of the Flapper Bushing [2] clearance.
 - (a) Use a Feeler Gauge, STD-5468 to verify the clearance between the Flapper Bushings [2] (two locations) is 0.004 in. (0.102 mm) - 0.007 in. (0.178 mm).

NOTE: Measure the clearance of the Flapper Bushings [2] on the two locations individually.

SUBTASK 36-11-02-200-004

- (3) If the check valve fails one or both of the above inspections, then replace the check valve. If the check valve does not fail one or both of the above inspections, then continue.

SUBTASK 36-11-02-200-005

- (4) Visually examine the Flapper Bushings [2] for signs of cracks, fractures, missing pieces and missing bushing heads.

EFFECTIVITY
SIA ALL

36-11-02

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 601
Sep 15/2021



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

SUBTASK 36-11-02-200-006

- (5) Use your hand and try to rotate the Flapper Bushings [2] in the Flapper Plates [3].

NOTE: The bushings should not rotate in the flapper plates.

SUBTASK 36-11-02-200-007

- (6) Use your hand and try to rotate the Flapper Bushings [2] around the flapper pin.

NOTE: The bushings should rotate around the flapper pin.

SUBTASK 36-11-02-200-008

- (7) Visually examine the valve for signs of the flappers rubbing against the Valve Body [1].

SUBTASK 36-11-02-200-009

- (8) Replace the check valve if it fails any of the above inspections.

F. Put the Airplane Back to its Usual Condition

SUBTASK 36-11-02-400-001

- (1) Install the intermediate pressure check valve.
(a) Do this task: Intermediate Pressure Check Valve (IPCV) Installation,
TASK 36-11-02-400-801.

———— **END OF TASK** ————

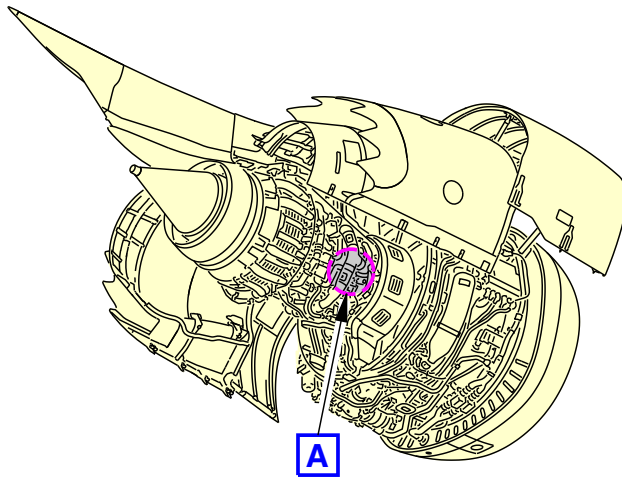
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-02

Page 602
Sep 15/2021



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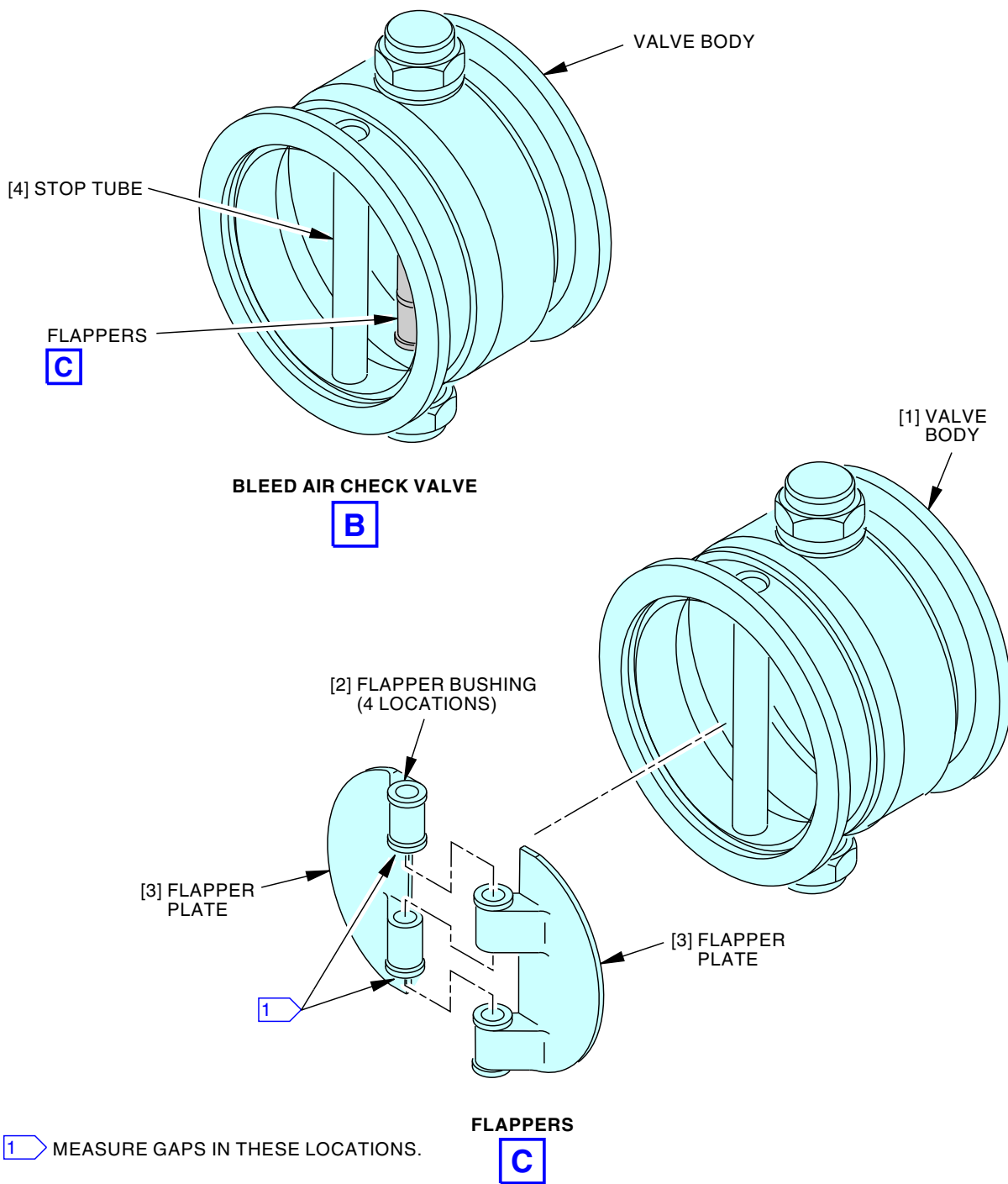
Intermediate Pressure Check Valve Installation
Figure 601/36-11-02-990-802 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

36-11-02

D633AM101-SIA

Page 603
Sep 15/2021



2415061 S00061536869_V1

Intermediate Pressure Check Valve Installation
Figure 601/36-11-02-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-02

Page 604
Sep 15/2021



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

PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) - MAINTENANCE PRACTICES

1. **General**

- A. This procedure provides the steps to replace the filter on the PRSOV.

TASK 36-11-04-960-801

2. **Pressure Regulating and Shutoff Valve (PRSOV) Filter - Replacement**

A. General

- (1) This task gives the instructions to replace the pressure regulating and shutoff valve filter.

B. References

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-04-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV (P/B 501)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D50179	Compound - Lubricating (Lockrey Liqui-Moly NV Thread Compound)	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Filter element	36-11-04-01-045	SIA ALL
3	Gasket	36-11-04-01-035	SIA ALL

F. Location Zones

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

G. Prepare for the Replacement

SUBTASK 36-11-04-860-046

 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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 201
May 15/2022



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

SUBTASK 36-11-04-010-004



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Open the right thrust reverser for the applicable engine. To open the right thrust reverser, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-11-04-860-047

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-04-860-048

- (4) Attach DO NOT OPERATE tag, STD-858 to the switches that follow on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2.

H. Filter Replacement

SUBTASK 36-11-04-020-009

- (1) Do the steps that follow to remove the filter element [1]:



THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (a) Remove the filter cap [2], gasket [3], compression spring [4], and the filter element [1] from the PRSOV.
- (b) Discard the gasket [3].

SUBTASK 36-11-04-420-011

- (2) Do the steps that follow to install the new filter element [1]:



THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (a) Install the new filter element [1] and compression spring [4] into the PRSOV.
- (b) Install the new gasket [3] onto the filter cap [2].
- (c) Apply Liqui-Moly NV Thread Compound, D50179 to the thread of the filter cap [2].
- (d) Install the new gasket [3] and the filter cap [2] into the PRSOV.
 - 1) Tighten the filter cap [2] to 325 in-lb (36.7 N·m) to 350 in-lb (39.5 N·m).

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 202
Sep 15/2021



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

I. Put the Airplane Back to its Usual Condition

SUBTASK 36-11-04-860-049

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-04-860-050

- (2) Remove the DO NOT OPERATE tag, STD-858, from the switches that follow on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-04-410-004



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Close the right thrust reverser on the applicable engine. To close the right thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-11-04-730-003

- (4) Do this task: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV, TASK 36-11-04-710-801.

————— END OF TASK —————

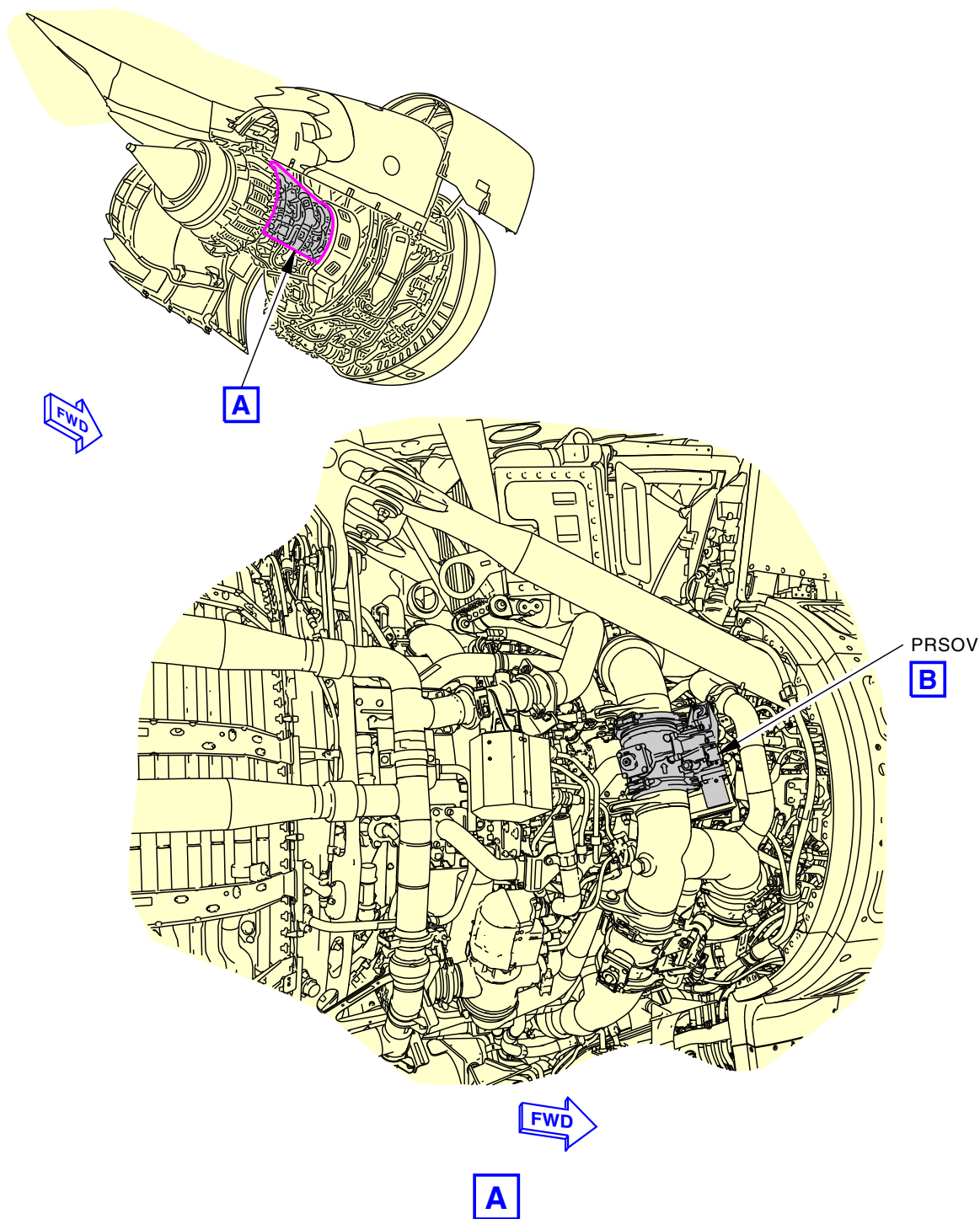
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 203
Sep 15/2021



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Pressure Regulating and Shutoff Valve (PRSOV) Filter Replacement
Figure 201/36-11-04-990-806 (Sheet 1 of 2)

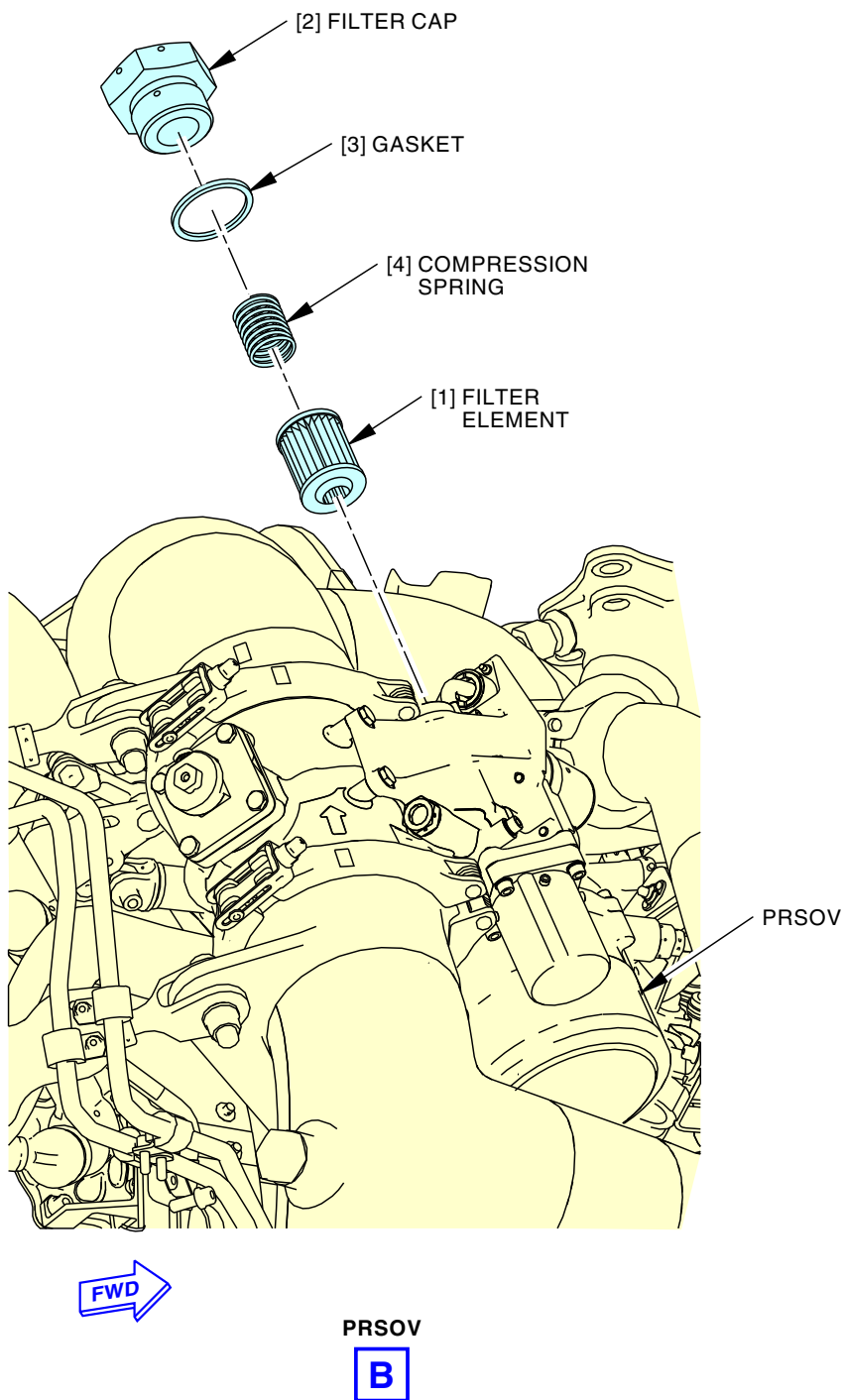
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 204
Sep 15/2021



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Pressure Regulating and Shutoff Valve (PRSOV) Filter Replacement
Figure 201/36-11-04-990-806 (Sheet 2 of 2)

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 205
Sep 15/2021



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

PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) PRSOV removal
 - (2) PRSOV installation.
- B. The PRSOV is installed at the 3 o'clock location on the engine core.

TASK 36-11-04-000-801

2. PRSOV Removal

(Figure 401)

A. General

- (1) This task gives the instructions to remove the pressure regulating and shutoff valve.
- (2) The pressure regulating and shutoff valve is referred to as the PRSOV.

B. References

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

D. Location Zones

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

E. Prepare for the Removal

SUBTASK 36-11-04-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-04-010-001



WARNING

DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Open the right thrust reverser for the applicable engine (TASK 78-31-00-010-801-G00).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 401
Sep 15/2021



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

SUBTASK 36-11-04-860-003

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-11-04-860-004

- (4) Attach a DO-NOT-OPERATE tag to the applicable BLEED switch on the P5-10 air conditioning panel:
- (a) BLEED 1
 - (b) BLEED 2

F. PRSOV Removal

SUBTASK 36-11-04-020-007

- (1) Use a teflon-jawed pliers, STD-664 to disconnect the electrical connector [5] from the PRSOV [2] (TASK 70-00-01-910-803-G00).
- (a) Install caps on the electrical connector [5] and the receptacle for protection from damage and contamination.

SUBTASK 36-11-04-020-001

- (2) Disconnect the crossover duct assembly [1] from the PRSOV [2].
- (a) Remove the coupling [3] which attaches the crossover duct assembly [1] to the PRSOV [2].
 - (b) Remove the E-seal [4].

SUBTASK 36-11-04-020-003

- (3) Disconnect the mix manifold [12] from the PRSOV [2].
- (a) Remove the coupling [7] which attaches the mix manifold [12] to the PRSOV [2].
 - (b) Remove the E-seal [6].

SUBTASK 36-11-04-020-004

- (4) Remove the PRSOV [2].

SUBTASK 36-11-04-020-005

- (5) Examine the E-seal [4] and E-seal [6] for damage.
- (a) If damage is found, replace the E-seal.

SUBTASK 36-11-04-020-006

- (6) Install the protective covers on the open duct sections.

————— END OF TASK —————

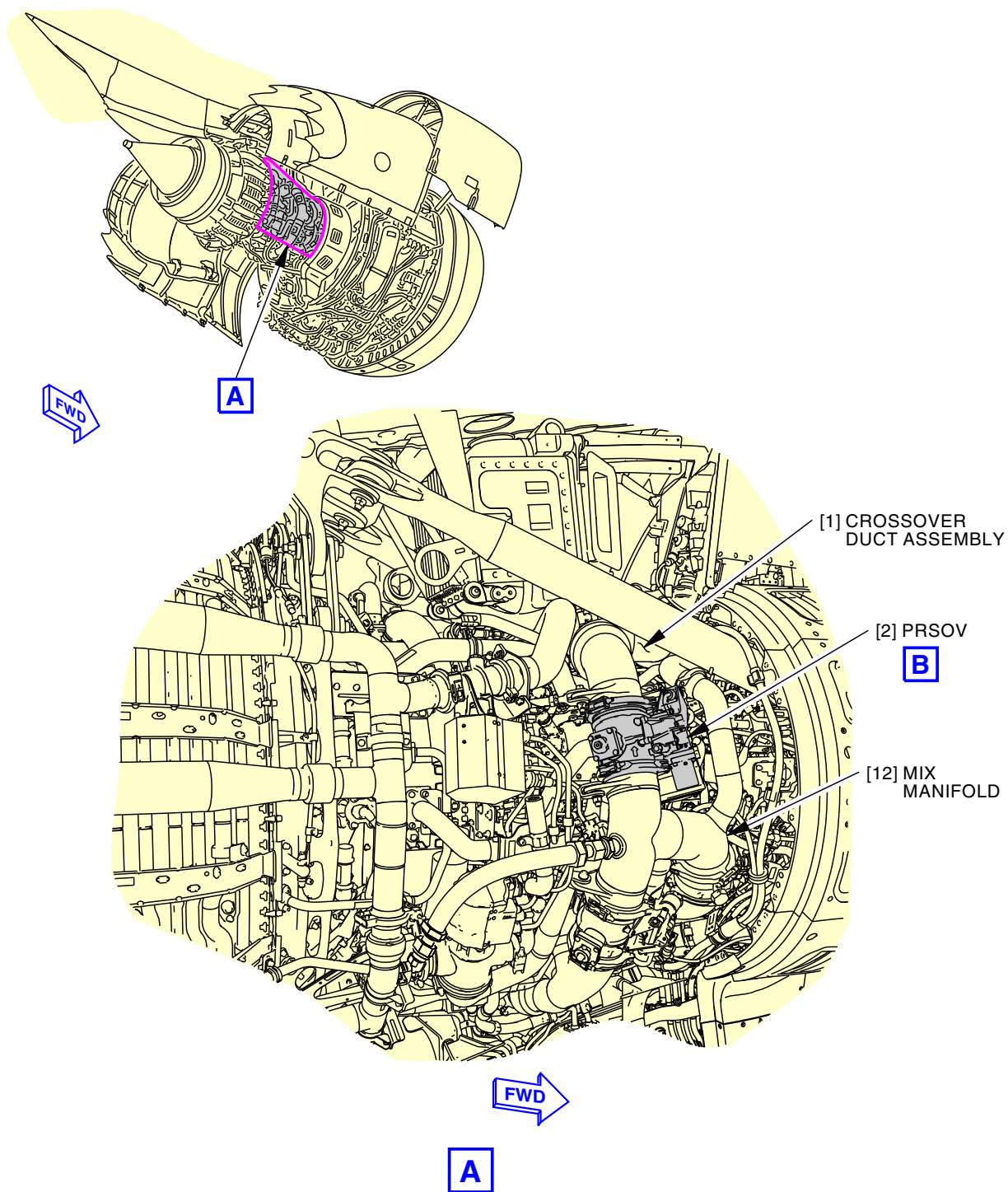
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36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Sep 15/2023



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Pressure Regulating and Shutoff Valve (PRSOV) Installation
Figure 401/36-11-04-990-801 (Sheet 1 of 3)

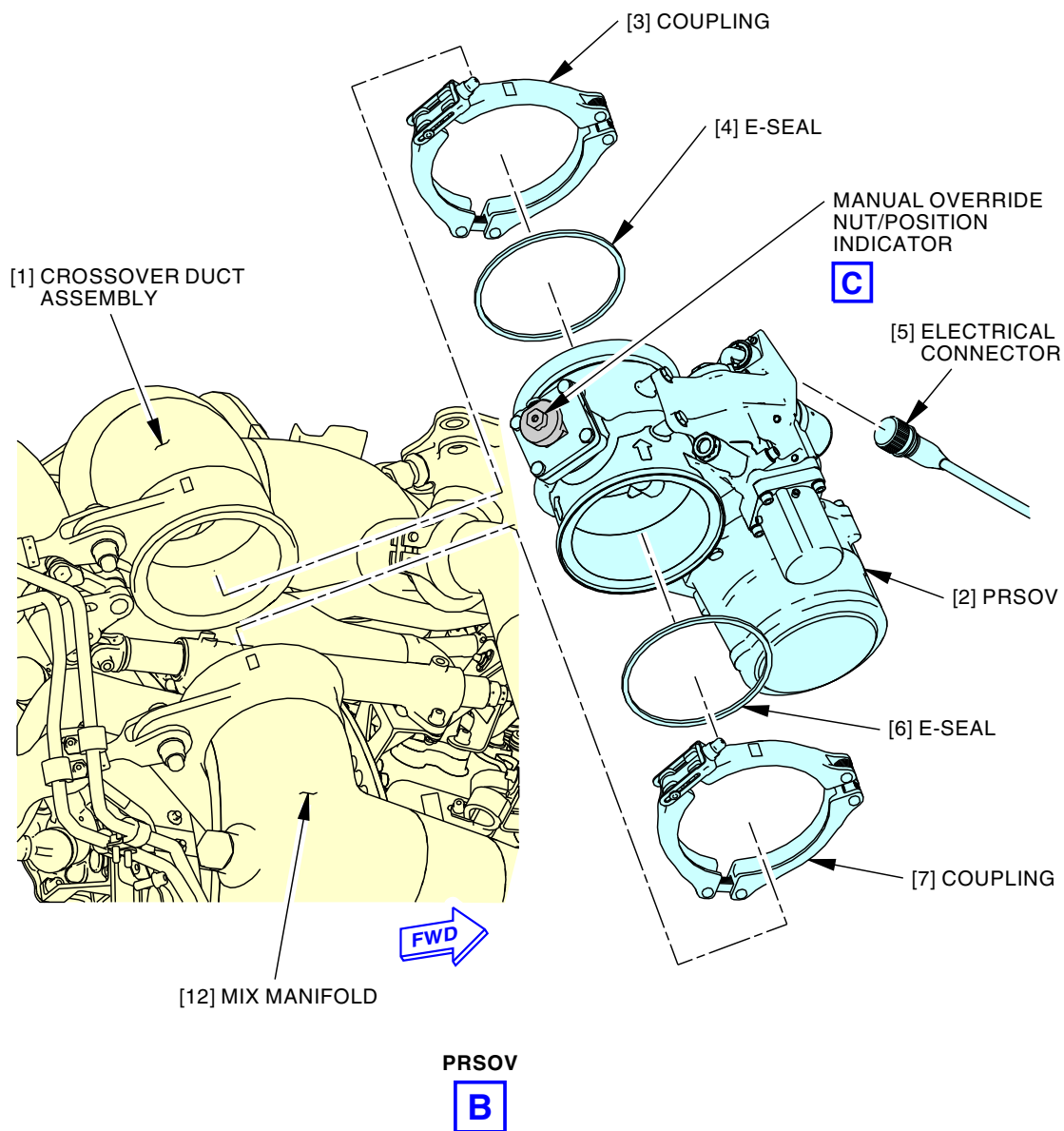
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36-11-04

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Sep 15/2021



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Pressure Regulating and Shutoff Valve (PRSOV) Installation
Figure 401/36-11-04-990-801 (Sheet 2 of 3)

EFFECTIVITY
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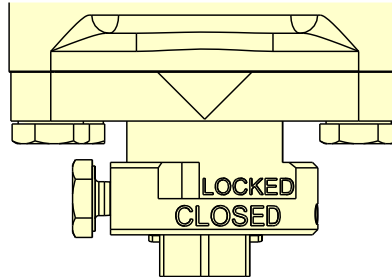
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Page 404
Sep 15/2021

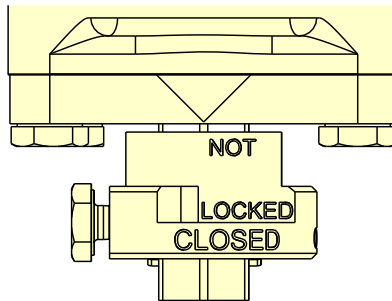
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

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



PRSOV LOCKED POSITION



PRSOV UNLOCKED POSITION



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Pressure Regulating and Shutoff Valve (PRSOV) Installation
Figure 401/36-11-04-990-801 (Sheet 3 of 3)

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 405
Sep 15/2021



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

TASK 36-11-04-400-801

3. **PRSOV Installation**

(Figure 401)

A. General

- (1) This task gives the instructions to install the pressure regulating and shutoff valve.
- (2) The pressure regulating and shutoff valve is referred to as the PRSOV.

B. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-730-801	Pneumatic Engine On - System Test (P/B 501)
36-11-04-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV (P/B 501)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
71-00-00-790-801-G00	Test No. 1 - Pneumatic Leak Test (P/B 501)
78-31-00-010-802-G00	Close the Thrust Reverser (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-4524	Multimeter Part #: 260-8XPI Supplier: 55026
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-1010	Wrench - Strap
STD-3906	Mallet - Rubber

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	PRSOV	36-11-04-01-020	SIA ALL
4	E-seal	36-11-04-01-015	SIA ALL
6	E-seal	36-11-04-01-015	SIA ALL

E. Location Zones

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

F. Prepare for the Installation

SUBTASK 36-11-04-820-001

- (1) Make sure the PRSOV [2] is in the unlocked position, do the following steps Figure 401 (Sheet 3):
 - (a) Inspect the visual position indicator arrow.
 - (b) Make sure the visual position indicator arrow is showing "NOT" position.

G. PRSOV Installation

SUBTASK 36-11-04-420-001

- (1) Remove the protective covers from the open duct sections.

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Sep 15/2023



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

SUBTASK 36-11-04-280-001

- (2) Examine the E-seal [4] and E-seal [6] for damage.
- (a) If damaged, replace E-seal [4] or E-seal [6].

SUBTASK 36-11-04-420-002

- (3) Install the E-seal [6] between the mix manifold [12] and the PRSOV [2].

SUBTASK 36-11-04-420-003

- (4) Install the E-seal [4] between the crossover duct assembly [1] and the PRSOV [2].

SUBTASK 36-11-04-420-004



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (5) Install the PRSOV [2] between the crossover duct assembly [1] and the mix manifold [12].
- (a) Make sure that the flow arrow points up and is aligned within 0.00 ± 0.25 in. (0.00 ± 6.35 mm) with the alignment marks on the mix manifold [12] and the crossover duct assembly [1].

SUBTASK 36-11-04-420-010



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.



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (6) Loosely install the coupling [7] to attach the PRSOV [2] to the mix manifold [12].
- (a) Make sure that the coupling [7] is installed in the correct orientation.
- 1) Adjust the alignment mark on the coupling [7] with the alignment mark on the mix manifold [12] within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).

SUBTASK 36-11-04-420-005



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- (7) Loosely install the coupling [3] to attach the PRSOV [2] to the crossover duct assembly [1].
- (a) Make sure that the coupling [3] is installed in the correct orientation.
- 1) Adjust the alignment mark on the coupling [3] with the alignment mark on the crossover duct assembly [1] within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).

SUBTASK 36-11-04-420-006

- (8) When all couplings are in place, tighten the couplings.
- (a) Tighten the coupling nut to 175 ± 5 in-lb (20 ± 1 N·m).
- (b) Lightly tap the outer surface of the coupling with a rubber mallet, STD-3906.

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 407
Sep 15/2023



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

- (c) Tighten the coupling nut again to 175 ±5 in-lb (20 ±1 N·m).

SUBTASK 36-11-04-760-002

- (9) Do a check of the electrical bonding resistance between the PRSOV [2] valve body and the engine case (SWPM 20-20-00).
- (a) Use a Multimeter, COM-4524
- (b) Make sure that the bonding resistance is less than 5 milliohms.

SUBTASK 36-11-04-420-008

- (10) Connect the electrical connector [5] to the PRSOV [2] (TASK 70-00-01-910-803-G00).
- (a) Engage the electrical connector [5] to the receptacle on the PRSOV [2].
- (b) Turn the knurled coupling ring while wiggling the backshell assembly until the coupling ring is seated.
- (c) Use a teflon-jawed pliers, STD-664 or strap wrench, STD-1010 to turn the coupling ring an additional 1/8 turn or until the wrench slips.

H. Put the Airplane Back to Its Usual Condition.

SUBTASK 36-11-04-860-039

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	6	C04065	IASC EAI INHIBITS OUT L
F	7	C04066	IASC EAI INHIBITS OUT R

SUBTASK 36-11-04-860-036

- (2) Remove a DO-NOT-OPERATE tag from the applicable BLEED switch on the P5-10 air conditioning panel.
- (a) BLEED 1
- (b) BLEED 2

SUBTASK 36-11-04-790-001

- (3) Do this task: Test No. 1 - Pneumatic Leak Test, TASK 71-00-00-790-801-G00.

SUBTASK 36-11-04-760-001

- (4) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

SUBTASK 36-11-04-730-001

- (5) Do one of these tasks: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV, TASK 36-11-04-710-801 or Pneumatic Engine On - System Test, TASK 36-00-00-730-801.

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 408
Sep 15/2023



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

SUBTASK 36-11-04-010-002



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Close the right thrust reverser on the applicable engine (TASK 78-31-00-010-802-G00).

———— **END OF TASK** ————

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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 409
Sep 15/2023



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

PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) - ADJUSTMENT/TEST

1. **General**

A. This procedure has these tests:

- (1) 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Left PRSOV
- (2) 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Right PRSOV

TASK 36-11-04-710-801

2. **36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV**

(Figure 501 and Figure 502)

A. **General**

- (1) This task gives the instructions to do the ground test for the pressure regulating and shut off valve (PRSOV) in the air supply control system (ASCS).
- (2) This test uses ground support equipment to supply air pressure to the valve test port.
- (3) During the test the valve will move from the open position to the closed position, and back to the open position.
- (4) This task requires two persons, one person operates the ground test in the flight compartment and one person on the ground to monitor the position indicator on the PRSOV.
- (5) The computer will not let you start this test if there is one or more of these conditions:
 - (a) The air/ground logic shows that the airplane is not on the ground.
 - (b) The applicable engine is starting or running.
 - (c) The applicable engine fire handle is not in the usual position.
 - (d) The applicable engine BLEED is OFF.
 - (e) The APU bleed valve is open.
 - (f) A pneumatic ground cart is ON.
 - (g) The applicable duct pressure is more than 5 psig.
 - (h) WING ANTI-ICE is on.
 - (i) Another IBIT is running.
 - (j) Overtemperature, overpressure, or reverse flow shutdown conditions exist.
 - (k) PRSOV torque motor or driver failed.

B. **References**

Reference	Title
24-22-00-860-801	Supply Electrical Power (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
71-00-00-700-806-G00	Test No. 30 - Engine Running Simulation Special Functions Test (P/B 501)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-801-G00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 501
Sep 15/2021



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

(Continued)

Reference	Title
78-31-00-440-801-G00	Thrust Reverser Activation After Ground Maintenance (P/B 201)
FIM ATA 36 AIR SUPPLY	Fault Isolation Manual

C. Tools/Equipment

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

Reference	Description
SPL-14764	Test Equipment - Air Supply Control System Part #: C36006-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D50179	Compound - Lubricating (Lockrey Liqui-Moly NV Thread Compound)	
G51459	Cable, Safety Kit	AS3510-0212K

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Gasket	36-11-04-01-027	SIA ALL

F. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
410	Subzone - Engine 1
420	Subzone - Engine 2

G. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
416	Right Thrust Reverser, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2
426	Right Thrust Reverser, Engine 2

H. Prepare for the Test

SUBTASK 36-11-04-860-051

- (1) Make sure that the same side Display Processing Computer (DPC) is installed and operational.

NOTE: This will prevent the test from FAILED result and "NO RESPONSE FROM IASC" message.

SUBTASK 36-11-04-860-035

- (2) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

- (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
- (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-11-04-860-006

- (3) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 36-11-04-860-040

- (4) If the GND TEST switch on the P61-4 panel is in NORM position, set the GND TEST switch to ENABLE position.

SUBTASK 36-11-04-860-041

- (5) Make sure that the airplane is in "ON GROUND" mode.
 - (a) If necessary, do this task to set the airplane to ON GROUND mode: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 36-11-04-860-025

- (6) Do these steps on the P5-10 Air Conditioning Panel (on the P5 forward overhead panel):
 - (a) Set the applicable BLEED switch (1 for left, 2 for right) to the ON position.
 - (b) Make sure that the APU BLEED switch is in the OFF position.
 - (c) Make sure that the WING ANTI-ICE switch is in the OFF position.
 - (d) Set the Left and Right Pack switches to AUTO.
 - (e) Set the Left and Right Recirc Fan switches to OFF.

SUBTASK 36-11-04-860-026

- (7) Start the Engine Running Simulation special function for both Engine 1 and Engine 2 (TASK 71-00-00-700-806-G00).
 - (a) If the Engine Running Simulation special function is not available, disconnect these connectors:
 - D40666P J22 Junction Box for the left engine
 - D40702P J24 Junction Box for the right engine.

SUBTASK 36-11-04-860-037

- (8) Do these tasks in sequence to safely open the right thrust reverser on the applicable engine:



WARNING

DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-801-G00.

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



CAUTION

IF FAN COWLS ARE INSTALLED, MAKE SURE THAT LEFT AND RIGHT FAN COWLS ARE IN THE FULL OPEN POSITION. MAKE SURE THAT THE SPRING DOOR OPENING-SYSTEM (SDOS) AND HOLD OPEN RODS (HOR) ARE LOCKED IN THEIR POSITION. IF YOU DO NOT, STRUCTURAL DAMAGE TO THE FAN COWL AND THRUST REVERSER CAN OCCUR.

- (b) Open both fan cowl panels (TASK 71-11-04-010-801-G00).

NOTE: Because the center line of the thrust reversers is off 6:00 o'clock position, both fan cowl panels must be opened to prevent damaging the fan cowl panel if either thrust reverser needs to be opened.

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Open the applicable right thrust reverser (TASK 78-31-00-010-801-G00).

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
416	Right Thrust Reverser, Engine 1
426	Right Thrust Reverser, Engine 2

SUBTASK 36-11-04-860-031

- (9) Make sure that the PRSOV is in the closed position.

SUBTASK 36-11-04-480-001

- (10) Remove the plug [1] from the PRSOV test port.

SUBTASK 36-11-04-010-005

- (11) Remove the gasket [2].

SUBTASK 36-11-04-480-002



CAUTION

OPERATION OF THE SPECIFIED ADAPTER FROM SPL-14764 IS NECESSARY TO GET A CORRECT RESULT FOR THIS TEST. OPERATION OF A DIFFERENT ADAPTER CAN GIVE AN INCORRECT TEST RESULTS.

- (12) Connect a nitrogen pressure source, pressure regulator, test hose and adapter (equipment, SPL-14764) to the PRSOV test port.

- (a) Apply a pressure of 15 psig (103 kPa) - 30 psig (207 kPa) to the test port.

I. LRU Replacement Test - Pneumatic Engine Off

SUBTASK 36-11-04-860-011

- (1) Do the applicable ground test in this task: Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801.

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

Page 504
May 15/2023



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

- 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Left PRSOV.
- 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Right PRSOV.
- (a) Follow the interactive instructions on the screen.
- (b) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION.
- (c) If FAILED shows, then do the fault isolation procedure in the FIM ATA 36 AIR SUPPLY for the maintenance message.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-04-860-042

- (1) Decrease the supplied pressure to the test port to 0 psig (0 kPa).

SUBTASK 36-11-04-080-002

- (2) Remove the nitrogen pressure source, pressure regulator, test hose and adapter (equipment, SPL-14764) from the PRSOV test port.

SUBTASK 36-11-04-480-003

- (3) Install the new gasket [2].

SUBTASK 36-11-04-840-001

- (4) Install the plug [1] on the PRSOV test port.
 - (a) Apply Liqui-Moly NV Thread Compound, D50179 to the threads of the plug [1].
 - (b) Torque the plug [1] between 100 in-lb (11 N·m) and 125 in-lb (14 N·m).
 - (c) Install the safety cable, G51459.

SUBTASK 36-11-04-860-043



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.

- (5) Do these tasks in sequence to safely close the right thrust reverser:
 - (a) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.
 - 1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
416	Right Thrust Reverser, Engine 1
426	Right Thrust Reverser, Engine 2
 - (b) Close the fan cowl panels (TASK 71-11-04-410-801-G00).
 - 1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2
 - (c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-801-G00.

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 505
Sep 15/2023



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

SUBTASK 36-11-04-860-044

- (6) Stop the Engine Running Simulation special function for both Engine 1 and Engine 2 (TASK 71-00-00-700-806-G00).
- (a) Connect these connectors if they were removed:
- D40666P J22 Junction Box for the left engine.
 - D40702P J24 Junction Box for the right engine.

SUBTASK 36-11-04-840-002

- (7) Do these steps on the P5-10 Air Conditioning Panel (on the P5 forward overhead panel):
- (a) Set the applicable BLEED switch (1 for left, 2 for right) to the OFF position.
- (b) Make sure the APU BLEED switch is in the OFF position.
- (c) Make sure the WING ANTI-ICE switch is in the OFF position.
- (d) Set the Left and Right Pack switches to the OFF position.
- (e) Set the Left and Right Recirc Fan switches to the AUTO position.

SUBTASK 36-11-04-840-003

- (8) If all maintenance on the airplane is completed, set the GND TEST switch on the P61-4 panel to the NORM position.

SUBTASK 36-11-04-860-045

- (9) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
- (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.
- (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

————— **END OF TASK** —————

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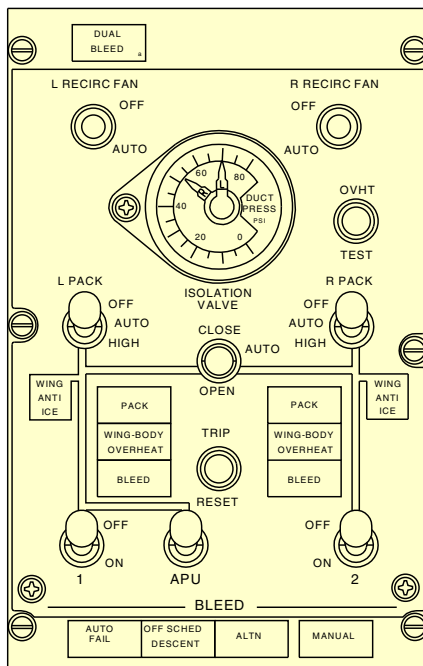
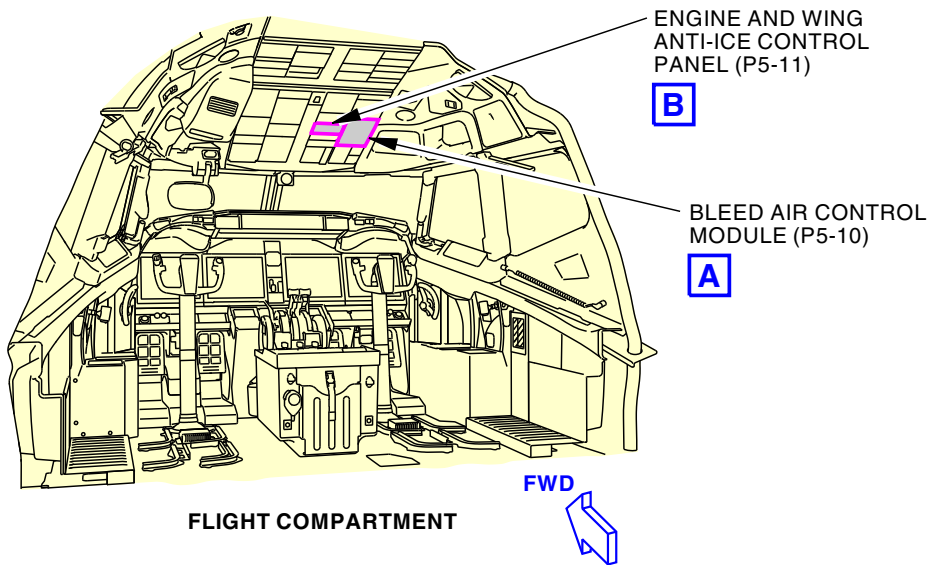
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

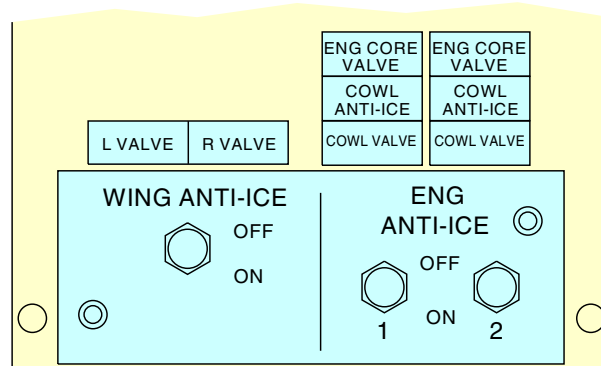
Page 506
Sep 15/2023

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



BLEED AIR CONTROL
MODULE (P5-10)
(TYPICAL)

A



ENGINE AND WING ANTI-ICE
CONTROL PANEL (P5-11)

B

2415009 S00061536801_V6

Bleed Air and Engine/Wing Anti-Ice Control Panels
Figure 501/36-11-04-990-805

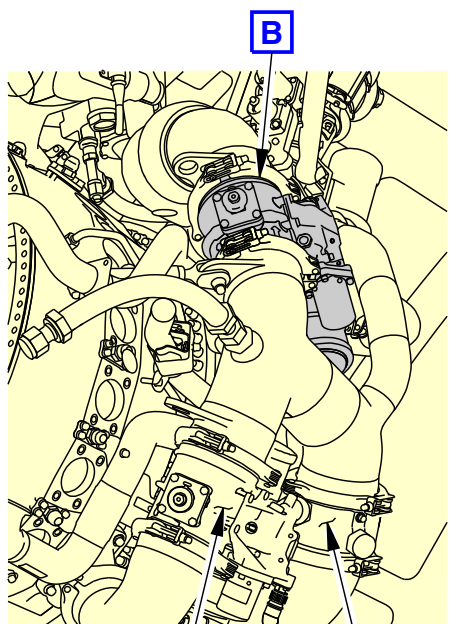
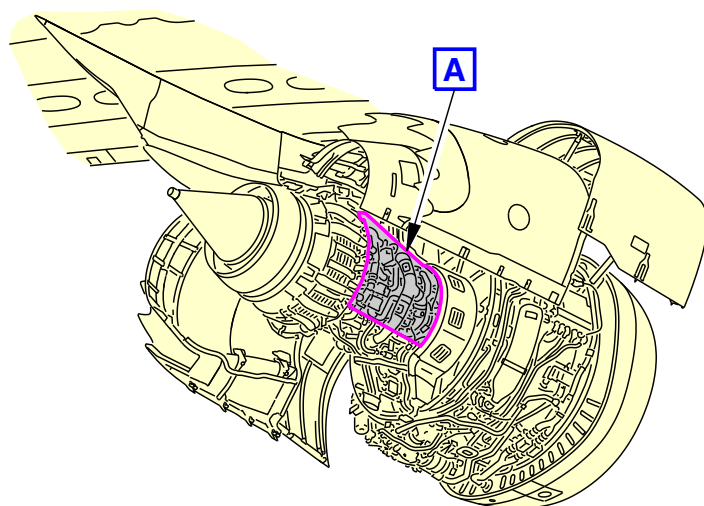
EFFECTIVITY
SIA ALL

36-11-04

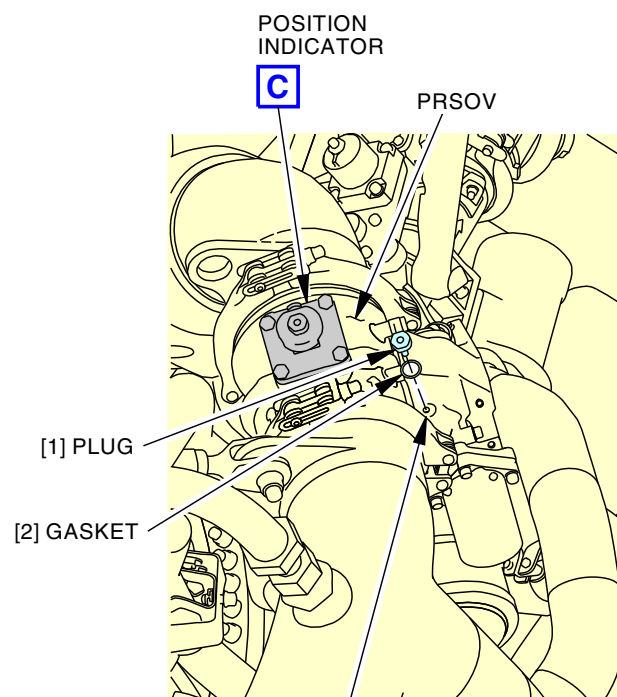
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 507
Sep 15/2021



A



B

2459334 S0000572397_V4

PRSOV - LRU Replacement Test
Figure 502/36-11-04-990-802 (Sheet 1 of 2)

EFFECTIVITY
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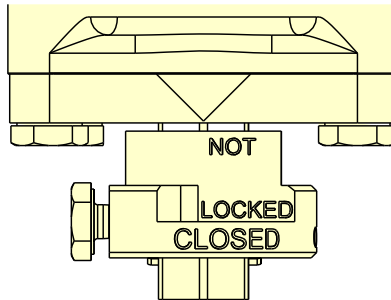
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

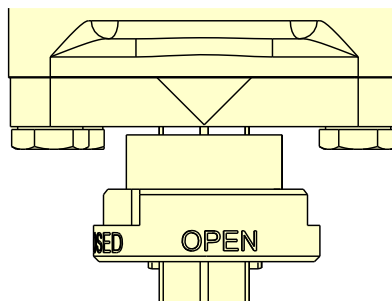
36-11-04

Page 508
Sep 15/2021

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



PRSOV CLOSED POSITION



PRSOV OPEN POSITION

C

2551538 S0000607874_V2

PRSOV - LRU Replacement Test
Figure 502/36-11-04-990-802 (Sheet 2 of 2)

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 509
 Sep 15/2021



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

PRESSURE REGULATING AND SHUTOFF VALVE (PRSOV) FILTER ELEMENT - CLEANING

1. **General**

A. This procedure provides the steps to remove, clean and install the filter element on the PRSOV.

TASK 36-11-04-100-801

2. **Pressure Regulating and Shutoff Valve (PRSOV) Filter Element - Cleaning**

A. **General**

(1) This task gives the instructions to clean and replace the pressure regulating and shutoff valve filter.

B. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-04-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV (P/B 501)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. **Consumable Materials**

Reference	Description	Specification
D50179	Compound - Lubricating (Lockrey Liqui-Moly NV Thread Compound)	

E. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Gasket	36-11-04-01-035	SIA ALL

F. **Location Zones**

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

G. **Prepare for the Cleaning**

SUBTASK 36-11-04-860-018



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

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36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 701
May 15/2022



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

SUBTASK 36-11-04-010-003



WARNING

DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Open the right thrust reverser for the applicable engine. To open the right thrust reverser, do this task: TASK 78-31-00-010-801-G00.

SUBTASK 36-11-04-860-019

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-04-860-020

- (4) Attach DO NOT OPERATE tags, STD-858, to the switches that follow on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-04-020-008

- (5) Do the steps that follow to remove the filter element [1]:



WARNING

THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (a) Remove the filter cap [2], gasket [3], compression spring [4] and the filter element [1] from the PRSOV.
- (b) Discard the gasket [3].

H. Filter Element Cleaning

SUBTASK 36-11-04-100-003

- (1) Clean the filter off aircraft per the vendor instructions.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-04-420-009

- (1) Do the steps that follow to install the filter element [1]:
 - (a) Make sure that the filter element [1] is serviceable
 - 1) If the filter element [1] is not serviceable, install a new filter element [1].

EFFECTIVITY
SIA ALL

36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 702
Sep 15/2021



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



WARNING

THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (b) Install the filter element [1] and the compression spring [4] into the PRSOV.
- (c) Install the new gasket [3] onto the filter cap [2].
- (d) Apply Liqui-Moly NV Thread Compound, D50179 to the thread of the filter cap [2].
- (e) Install the new gasket [3] and the filter cap [2] into the PRSOV.
 - 1) Tighten the filter cap [2] to 325.0 in-lb (36.7 N·m) - 350.0 in-lb (39.5 N·m).

SUBTASK 36-11-04-860-021

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-04-860-022

- (3) Remove the DO NOT OPERATE tags, STD-858, from the switches that follow on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-04-410-003



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Close the right thrust reverser on the applicable engine. To close the right thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-11-04-730-002

- (5) Do this task: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV, TASK 36-11-04-710-801.

————— **END OF TASK** —————

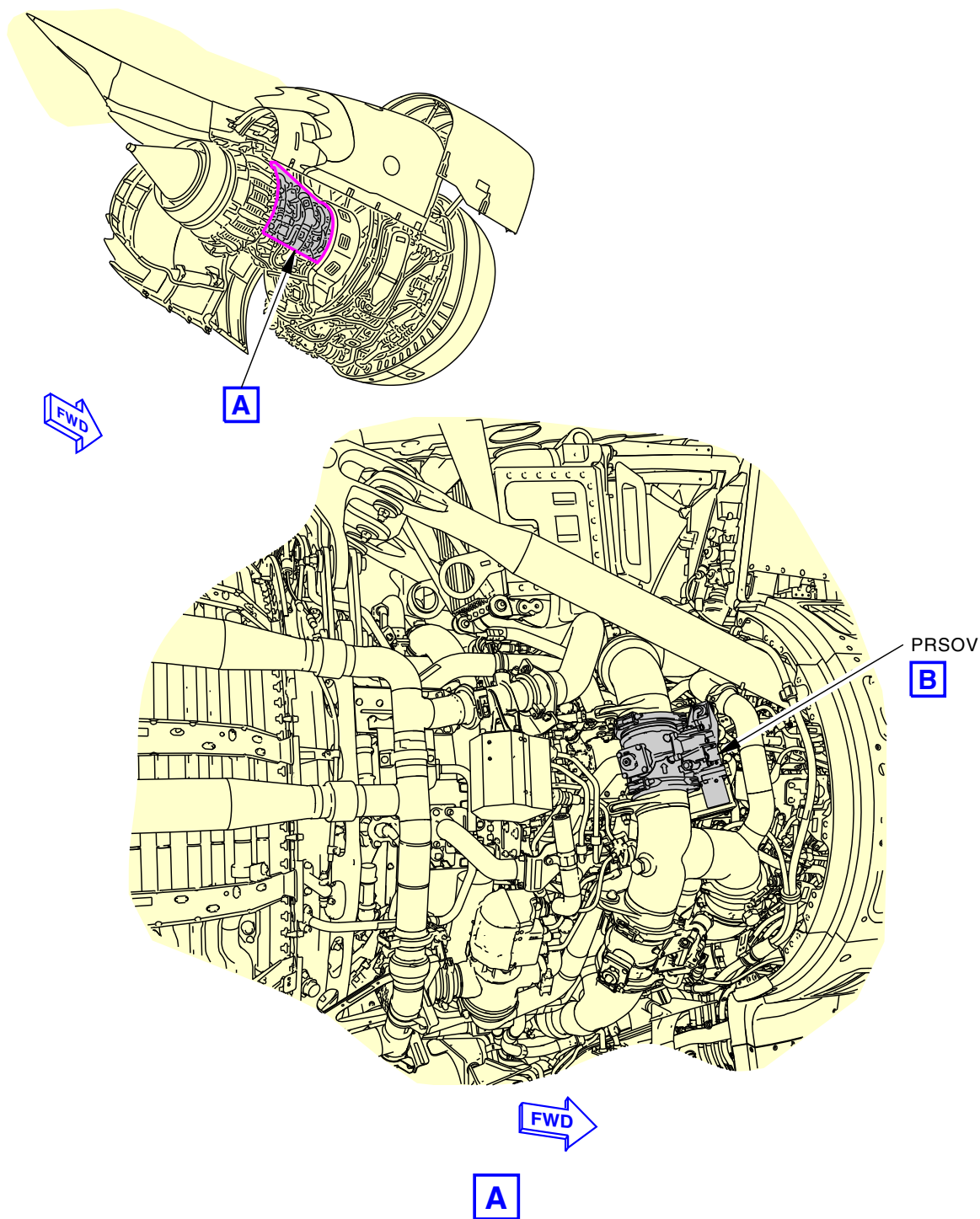
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36-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 703
Sep 15/2021



2549924 S0000607118_V1

Pressure Regulating and Shutoff Valve (PRSOV) Filter Element - Cleaning
Figure 701/36-11-04-990-803 (Sheet 1 of 2)

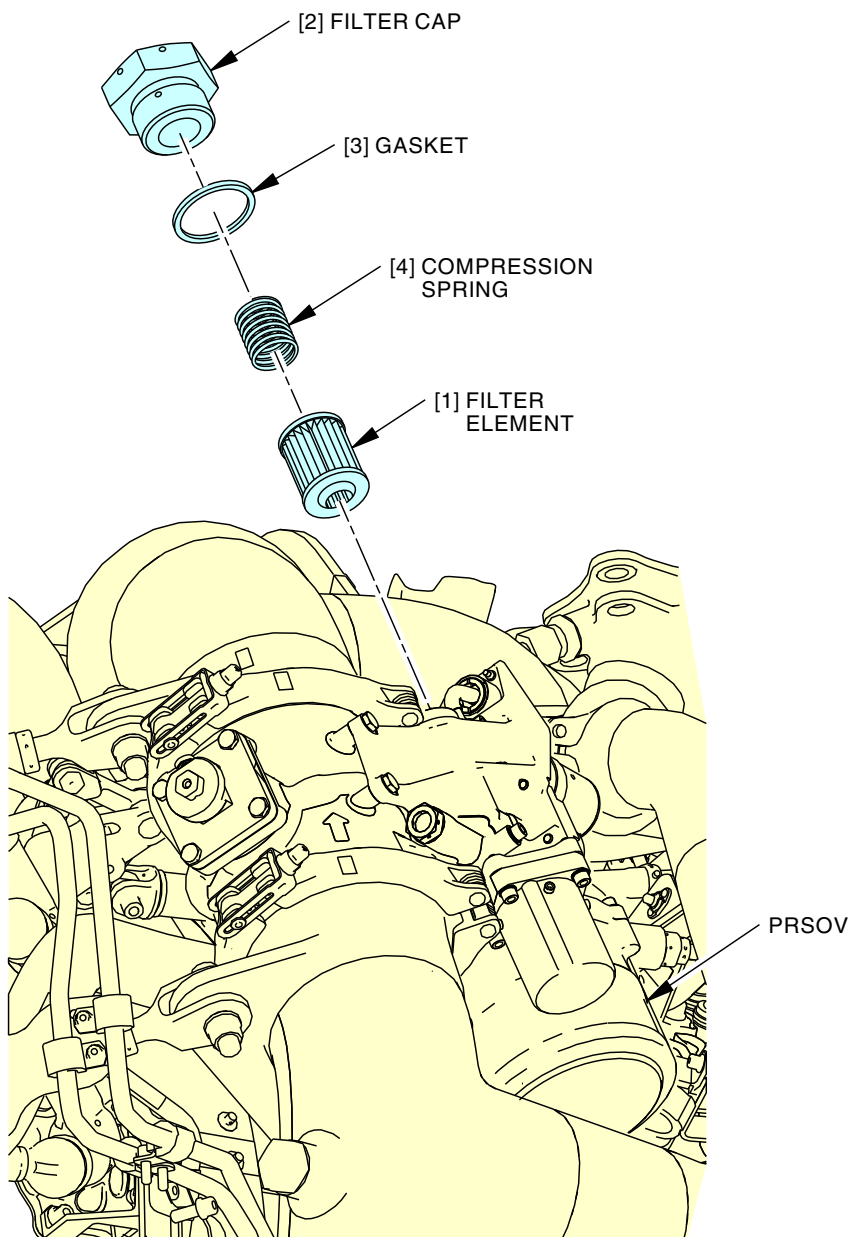
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 704
Sep 15/2021



PRSOV

B

2549927 S0000607119_V1

Pressure Regulating and Shutoff Valve (PRSOV) Filter Element - Cleaning
Figure 701/36-11-04-990-803 (Sheet 2 of 2)

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-04

Page 705
Sep 15/2021



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

PRESSURE AND TEMPERATURE SENSORS - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Intermediate Manifold Pressure (PI) sensor removal
 - (2) Intermediate Manifold Pressure (PI) sensor installation
 - (3) Manifold Pressure (PM1) sensor removal
 - (4) Manifold Pressure (PM1) sensor installation
 - (5) Manifold Temperature (TM) sensor removal
 - (6) Manifold Temperature (TM) sensor installation.
- B. The PI pressure sensor is installed on the engine fan case at approximately the 5 o'clock position.
- C. The PM1 pressure sensor is installed on the left half of the strut torque box above each engine.
- D. The TM temperature sensor is installed on the pneumatic duct in the strut torque box above each engine.

TASK 36-11-05-000-801

2. Intermediate Manifold Pressure (PI) Sensor Removal

(Figure 401)

A. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

C. **Location Zones**

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

D. **Access Panels**

Number	Name/Location
414	Right Fan Cowl, Engine 1
424	Right Fan Cowl, Engine 2

E. **Prepare for the Removal**

SUBTASK 36-11-05-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 401
Sep 15/2021



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

SUBTASK 36-11-05-860-002

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-05-860-003

- (3) Attach a DO-NOT-OPERATE tag to the switches that follow on the P5-10 air conditioning panel:
- (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED

F. Intermediate Manifold Pressure (PI) Sensor Removal

SUBTASK 36-11-05-010-001

- (1) On the applicable engine, open the right fan cowl panel (TASK 71-11-04-010-801-G00).
- (a) Open these access panels:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|--------------------------|
| 414 | Right Fan Cowl, Engine 1 |
| 424 | Right Fan Cowl, Engine 2 |

SUBTASK 36-11-05-020-002



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (2) Use a teflon-jawed pliers, STD-664 to disconnect the electrical connector [3] from the intermediate manifold pressure sensor [1] (TASK 70-00-01-910-803-G00).
- (a) Disconnect the electrical connector [3] from the intermediate manifold pressure sensor [1].
 - (b) Install the protective covers on the electrical receptacle of the intermediate manifold pressure sensor [1] and the electrical connector [3].

SUBTASK 36-11-05-020-001

- (3) Disconnect the pressure sense line [5].

SUBTASK 36-11-05-010-002

- (4) Remove the four screws [4] and the two clamps [2] from the intermediate manifold pressure sensor [1].
- (a) Keep the bolts and clamps for installation.

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Sep 15/2021



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

SUBTASK 36-11-05-530-001

- (5) Install the protective cap on the pressure sense line [5].

————— **END OF TASK** —————

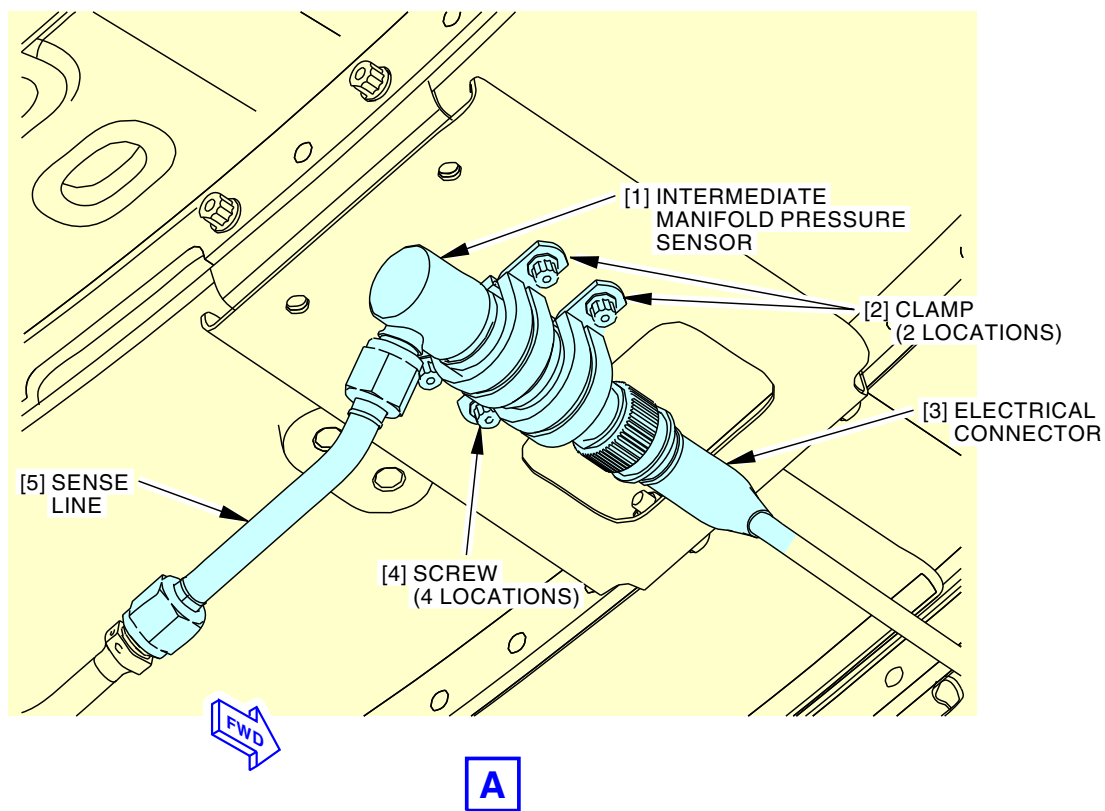
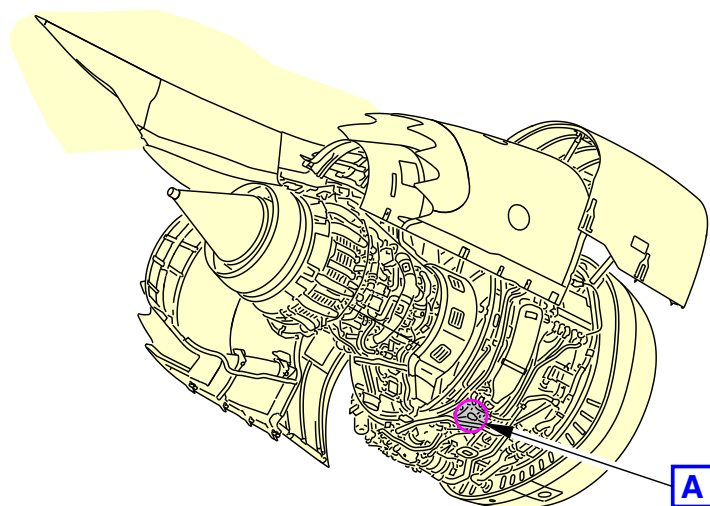
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 403
Sep 15/2021



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Intermediate Manifold Pressure (PI) Sensor Installation
Figure 401/36-11-05-990-801

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 404
Sep 15/2021



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

TASK 36-11-05-400-801

3. Intermediate Manifold Pressure (PI) Sensor Installation

(Figure 401)

A. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-860-805	Supply Pressure Upstream of the PRSOV with Engines Off (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)

B. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-1010	Wrench - Strap

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Intermediate manifold pressure sensor	36-11-05-01-120	SIA ALL

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Access Panels

Number	Name/Location
414	Right Fan Cowl, Engine 1
424	Right Fan Cowl, Engine 2

G. Prepare for the Installation

SUBTASK 36-11-05-420-001

- (1) Remove the protective cap from the pressure sense line [5].

H. Intermediate Manifold Pressure (PI) Sensor Installation

SUBTASK 36-11-05-640-005

- (1) Apply a thin layer of Never-Seez NSBT compound, D00006 on the shank and threads of the four screws [4].

SUBTASK 36-11-05-640-006

- (2) Apply a thin layer of Never-Seez NSBT compound, D00006 on the threads of the B-nut interface on the intermediate manifold pressure sensor [1].

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2021



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

SUBTASK 36-11-05-420-002

- (3) Install the intermediate manifold pressure sensor [1] with the two clamps [2] and the four screws [4].
 - (a) Tighten the screws [4] to 25.0 $\pm$ 2.0 in-lb (2.8 $\pm$ 0.2 N·m)

SUBTASK 36-11-05-410-002

- (4) Connect the pressure sense line [5] to the intermediate manifold pressure sensor [1].
 - (a) Tighten the tube nut to 270.0 $\pm$ 14.0 in-lb (30.5 $\pm$ 1.6 N·m).

SUBTASK 36-11-05-410-003



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (5) Use the teflon-jawed pliers, STD-664 to connect the electrical connector [3] to the intermediate manifold pressure sensor [1] (TASK 70-00-01-910-803-G00).
 - (a) Remove the protective covers from the electrical receptacle of the intermediate manifold pressure sensor [1] and the electrical connector [3].
 - (b) Connect the electrical connector [3] to the intermediate manifold pressure sensor [1].
 - 1) Engage the electrical connector [3] to the receptacle on the intermediate manifold pressure sensor [1].
 - 2) Turn the knurled coupling ring while wiggling the backshell assembly until the coupling ring is seated.
 - 3) Use a teflon-jawed pliers, STD-664 or strap wrench, STD-1010 to turn the coupling ring an additional 1/8 turn or until the wrench slips.

I. Intermediate Manifold Pressure Sensor Test

SUBTASK 36-11-05-860-004

- (1) Do this task: Supply Pressure Upstream of the PRSOV with Engines Off, TASK 36-00-00-860-805.

SUBTASK 36-11-05-410-004

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-05-790-001

- (3) Do these steps to look for leaks at the pressure sensor and at the sense line connections.
 - (a) Apply Snoop Leak Detector compound, G00091 around the sensor and at the sense line connections.
 - (b) Check for leakage at the sensor and at the sense line connections.

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

Page 406
Sep 15/2023



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

- (c) Repair all leakage as required.

SUBTASK 36-11-05-860-005

- (4) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-05-760-001

- (5) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

J. Put the Airplane to Its Usual Condition

SUBTASK 36-11-05-860-006

- (1) Remove the DO-NOT-OPERATE tag from the switches that follow on the P5-10 air conditioning panel:

- (a) BLEED 1
- (b) BLEED 2
- (c) APU BLEED

SUBTASK 36-11-05-410-005

- (2) On the applicable engine, close the right fan cowl panel (TASK 71-11-04-410-801-G00).

- (a) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
414	Right Fan Cowl, Engine 1
424	Right Fan Cowl, Engine 2

————— END OF TASK —————

TASK 36-11-05-000-802

4. Manifold Pressure (PM1) Sensor Removal

(Figure 402)

A. References

<u>Reference</u>	<u>Title</u>
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
54-52-01-010-801	Forward Fairing Removal (P/B 401)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

B. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-858	Tag - DO NOT OPERATE

C. Location Zones

<u>Zone</u>	<u>Area</u>
411	Engine 1 - Engine
421	Engine 2 - Engine
433	Engine 1 - Strut Torque Box
443	Engine 2 - Strut Torque Box

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
Sep 15/2023



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

E. Prepare for the Removal

SUBTASK 36-11-05-010-003



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-05-040-001

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-11-05-040-002

- (3) Attach a DO NOT OPERATE tags, STD-858, to the switches that follow on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED.

F. Manifold Pressure (PM1) Sensor Removal

SUBTASK 36-11-05-010-004

- (1) Open the applicable access panel.
 - (a) Open these access panels:

(TASK 54-52-01-010-801)

<u>Number</u>	<u>Name/Location</u>
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2

SUBTASK 36-11-05-020-003

- (2) Disconnect the pressure sense line [12].

SUBTASK 36-11-05-020-004



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (3) Use a teflon-jawed pliers, STD-664, to disconnect the electrical connector [16] from the sensor [11] (TASK 70-00-01-910-803-G00).
 - (a) Disconnect the electrical connector [16] from the sensor [11].

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 408
Sep 15/2023



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

- (b) Install the protective covers on the electrical receptacle of the sensor [11] and electrical connector [16].

SUBTASK 36-11-05-020-005

- (4) Remove the screws [14], washers [15], and clamps [13] from the sensor [11].

- (a) Keep the screws and clamps for installation.

SUBTASK 36-11-05-020-006

- (5) Install the protective caps on the sense line [12] and electrical connector [16].

———— END OF TASK ————

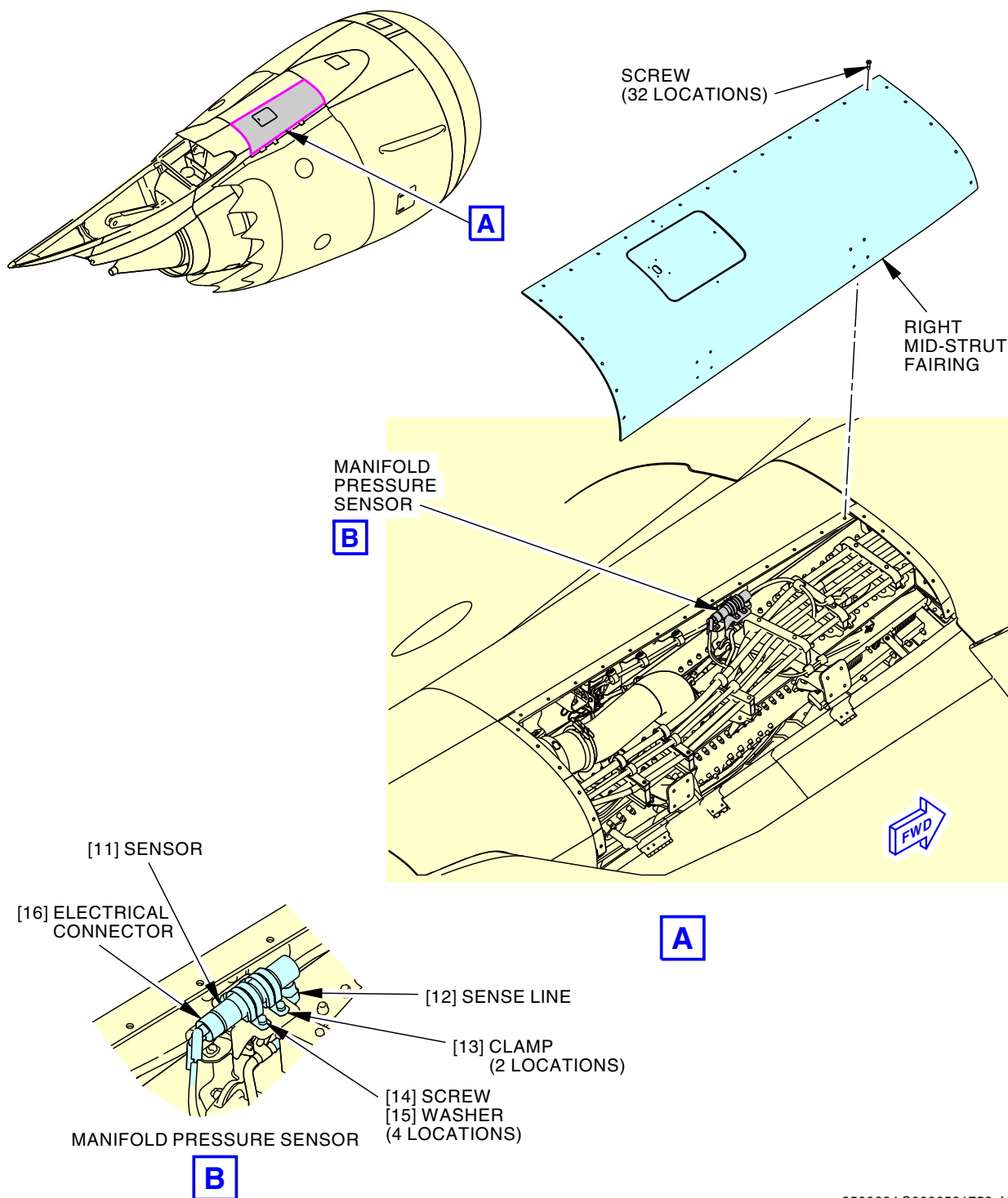
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 409
Sep 15/2023



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Manifold Pressure (PM1) Sensor Installation
Figure 402/36-11-05-990-802

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 410
Sep 15/2021



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

TASK 36-11-05-400-802

5. **Manifold Pressure (PM1) Sensor Installation**

(Figure 402)

A. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
54-52-01-410-801	Forward Fairing Installation (P/B 401)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

B. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-1010	Wrench - Strap

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Sensor	36-11-05-05-045	SIA ALL
		36-11-05-06-045	SIA ALL

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
433	Engine 1 - Strut Torque Box
443	Engine 2 - Strut Torque Box

F. Access Panels

Number	Name/Location
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2

G. Prepare for the Installation

SUBTASK 36-11-05-020-007

- (1) Remove the protective caps from the sense line [12] and electrical connector [16].

H. Manifold Pressure (PM1) Sensor Installation

SUBTASK 36-11-05-640-001

- (1) Apply a thin layer of Never-Seez NSBT compound, D00006, on the shank and threads of the screws [14].

SUBTASK 36-11-05-640-004

- (2) Apply a thin layer of Never-Seez NSBT compound, D00006, on the threads of the B-nut interface on the sensor [11].

SUBTASK 36-11-05-420-003

- (3) Install the sensor [11] with the clamps [13], screws [14], and washers [15].
(a) Tighten the screws [14] to 25.0 ± 1.0 in-lb (2.8 ± 0.1 N·m).

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 411
Sep 15/2023



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

SUBTASK 36-11-05-420-004

- (4) Connect the pressure sense line [12] to the sensor [11].
 - (a) Tighten the tube nut to 270.0 ±13.0 in-lb (30.5 ±1.5 N·m).

SUBTASK 36-11-05-420-005



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (5) Use the teflon-jawed pliers, STD-664, to connect the electrical connector [16] to the sensor [11] (TASK 70-00-01-910-803-G00).
 - (a) Remove the protective covers from the electrical receptacle of the sensor [11] and electrical connector [16].
 - (b) Connect the electrical connector [16] to the sensor [11].
 - 1) Engage the electrical connector [16] to the receptacle on the sensor [11].
 - 2) Turn the knurled coupling ring while wiggling the backshell assembly until the coupling ring is seated.
 - 3) Use a teflon-jawed pliers, STD-664, or strap wrench, STD-1010, to turn the coupling ring an additional 1/8 turn or until the wrench slips.

I. Put the Airplane to Its Usual Condition

SUBTASK 36-11-05-410-006

- (1) Close the applicable access panel.
 - (a) Close these access panels:
(TASK 54-52-01-410-801)

<u>Number</u>	<u>Name/Location</u>
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2

SUBTASK 36-11-05-860-007

- (2) Remove the DO-NOT-OPERATE tag from the switches that follow on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED.

SUBTASK 36-11-05-860-008

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 412
Sep 15/2023



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

(Continued)

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-11-05-760-002

(4) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

————— **END OF TASK** —————

TASK 36-11-05-000-803

6. Manifold Temperature (TM) Sensor Removal

(Figure 403)

A. References

<u>Reference</u>	<u>Title</u>
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

B. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

C. Location Zones

<u>Zone</u>	<u>Area</u>
411	Engine 1 - Engine
421	Engine 2 - Engine
433	Engine 1 - Strut Torque Box
443	Engine 2 - Strut Torque Box

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441CR	Forward Strut Fairing, Right Overwing Fairing, Strut 2

E. Prepare for the Removal

SUBTASK 36-11-05-020-008



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-05-040-003

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

EFFECTIVITY
SIA ALL

36-11-05

D633AM101-SIA

Page 413
Sep 15/2023



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

SUBTASK 36-11-05-860-009

- (3) Attach a DO-NOT-OPERATE tag to the switches that follow on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED

F. Manifold Temperature (TM) Sensor Removal

SUBTASK 36-11-05-010-005

- (1) Open the applicable access panel.
 - (a) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441CR	Forward Strut Fairing, Right Overwing Fairing, Strut 2

SUBTASK 36-11-05-020-009



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (2) Use a teflon-jawed pliers, STD-664 to disconnect the electrical connector [23] from the manifold temperature sensor [21] (TASK 70-00-01-910-803-G00).
 - (a) Disconnect the electrical connector [23] from the manifold temperature sensor [21].
 - (b) Install the protective covers on the electrical receptacle of the manifold temperature sensor [21] and the electrical connector [23].

SUBTASK 36-11-05-020-015

- (3) Remove the safety cable [20] from the manifold temperature sensor [21].

SUBTASK 36-11-05-020-010

- (4) Remove the manifold temperature sensor [21].
 - (a) Remove and discard the packing [22].

SUBTASK 36-11-05-020-011

- (5) Install the protective cap on the electrical connector [23].

SUBTASK 36-11-05-020-012

- (6) Install the protective cover on the duct opening.

————— END OF TASK —————

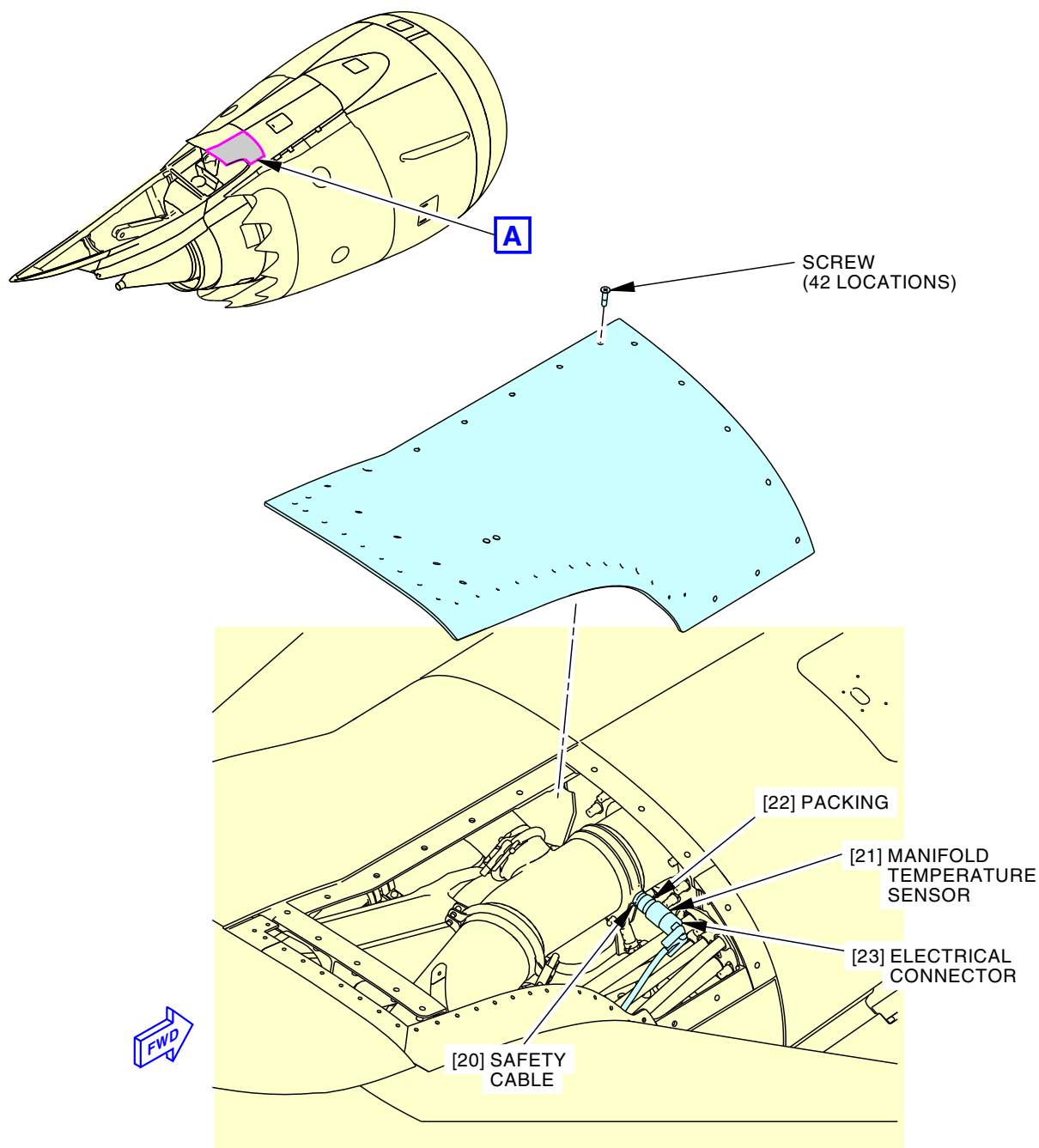
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 414
Sep 15/2023



(LEFT STRUT IS SHOWN, RIGHT STRUT IS SIMILAR)

A

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Manifold Temperature (TM) Sensor Installation
Figure 403/36-11-05-990-803

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 415
Sep 15/2021



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

TASK 36-11-05-400-803

7. **Manifold Temperature (TM) Sensor Installation**

(Figure 403)

A. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

B. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-1010	Wrench - Strap

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
21	Manifold temperature sensor	36-11-05-06-015	SIA ALL
22	Packing	36-11-05-05-025	SIA ALL
		36-11-05-06-025	SIA ALL

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
433	Engine 1 - Strut Torque Box
443	Engine 2 - Strut Torque Box

F. Access Panels

Number	Name/Location
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441CR	Forward Strut Fairing, Right Overwing Fairing, Strut 2

G. Prepare for the Installation

SUBTASK 36-11-05-020-013

- (1) Remove the protective cap from the electrical connector [23].

SUBTASK 36-11-05-020-014

- (2) Remove the protective cover from the duct.

H. Manifold Temperature (TM) Sensor Installation

SUBTASK 36-11-05-420-006

- (1) Install a new packing [22] on the manifold temperature sensor [21]

SUBTASK 36-11-05-640-002

- (2) Apply a thin layer of Never-Seez NSBT compound, D00006 on the threads of the manifold temperature sensor [21].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 416
Sep 15/2022



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

SUBTASK 36-11-05-420-007

- (3) Install the manifold temperature sensor [21] in the duct.
 - (a) Tighten the manifold temperature sensor [21] to 79.6 in-lb (9.0 N·m) to 88.5 in-lb (10.0 N·m).

SUBTASK 36-11-05-420-009

- (4) Install the safety cable [20] on the manifold temperature sensor [21].

SUBTASK 36-11-05-420-008



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (5) Use the teflon-jawed pliers, STD-664 to connect the electrical connector [23] to the manifold temperature sensor [21] (TASK 70-00-01-910-803-G00).
 - (a) Remove the protective covers from the electrical receptacle of the manifold temperature sensor [21] and the electrical connector [23].
 - (b) Connect the electrical connector [23] to the manifold temperature sensor [21].
 - 1) Engage the electrical connector [23] to the receptacle on the manifold temperature sensor [21].
 - 2) Turn the knurled coupling ring while wiggling the backshell assembly until the coupling ring is seated.
 - 3) Use a teflon-jawed pliers, STD-664 or strap wrench, STD-1010 to turn the coupling ring an additional 1/8 turn or until the wrench slips.

I. Put the Airplane to Its Usual Condition

SUBTASK 36-11-05-410-007

- (1) Close the applicable access panel.
 - (a) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441CR	Forward Strut Fairing, Right Overwing Fairing, Strut 2

SUBTASK 36-11-05-860-010

- (2) Remove the DO-NOT-OPERATE tag from the switches that follow on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 417
Sep 15/2021



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

SUBTASK 36-11-05-860-011

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-11-05-760-003

- (4) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-05

Page 418
Sep 15/2022



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

DUCT VENT VALVE - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) Duct vent valve removal
 - (2) Duct vent valve installation.
- B. The duct vent valve is found at the 3 o'clock position on the aft engine core area.

TASK 36-11-06-000-801

2. Duct Vent Valve Removal

(Figure 401)

A. General

- (1) This task gives the instructions to remove the duct vent valve.

B. References

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)

C. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Prepare for the Removal

SUBTASK 36-11-06-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-06-860-002

- (2) Make sure that the fuel shutoff lever for the applicable engine are in the cutoff position and install DO-NOT-OPERATE tags.

SUBTASK 36-11-06-010-001



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) For the right thrust reverser, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-11-06-860-004

- (4) Attach a DO-NOT-OPERATE tag to the applicable BLEED switch on the P5-10 panel:
 - (a) BLEED 1

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-06

Page 401
Sep 15/2021



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

(b) BLEED 2

E. Duct Vent Valve Removal

SUBTASK 36-11-06-020-001

- (1) Remove the duct vent valve [1] as follows:
 - (a) Disconnect the air supply tube [2] B-nut from the duct vent valve [1].
 - (b) Remove the bolts [3], washers [4], washers [5], and nuts [6] that attach the duct vent valve [1] to the engine turbine case.

SUBTASK 36-11-06-020-005

- (2) Install the protective covers on the air supply tube [2].

———— **END OF TASK** ————

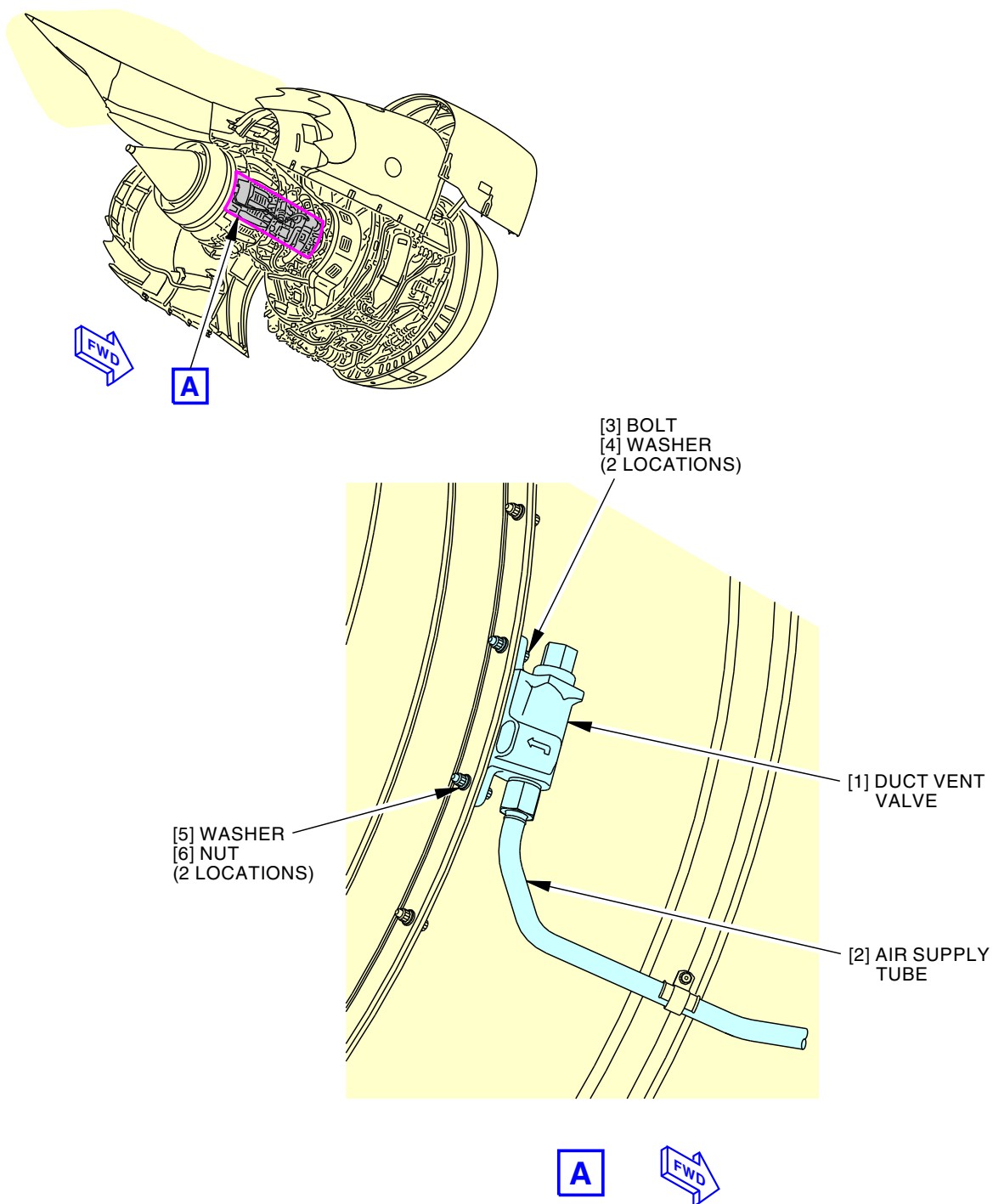
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-06

Page 402
Sep 15/2021



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Duct Vent Valve Installation
Figure 401/36-11-06-990-801

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-11-06

Page 403
Sep 15/2021



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

TASK 36-11-06-400-801

3. Duct Vent Valve Installation

(Figure 401)

A. General

- (1) This task gives the instructions to install the duct vent valve.

B. References

Reference	Title
36-11-00-700-802	Engine Bleed Air System - Leak Check (P/B 501)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Duct vent valve	36-11-06-01-020	SIA ALL

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Duct Vent Valve Installation

SUBTASK 36-11-06-420-001

- (1) Remove the protective covers from the air supply tube [2].

SUBTASK 36-11-06-420-002

- (2) Install the duct vent valve [1] as follows:
- (a) Apply Never-Seez NSBT compound, D00006 to the threads of the bolts [3] and the B-nut interface on the duct vent valve [1].
 - (b) Loosely install the bolts [3], washers [4], washers [5], and nuts [6] that attach the duct vent valve [1] to the engine turbine case.
 - (c) Connect the air supply tube [2] B-nut to the duct vent valve [1].
 - (d) Tighten the bolts [3].

G. Put the Airplane Back to Its Usual Condition.

SUBTASK 36-11-06-010-002



OBEY THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE PROCEDURE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) For the right thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-11-06-860-007

- (2) Remove the DO-NOT-OPERATE tag from the applicable fuel shutoff lever.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-06

Page 404
Sep 15/2021



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

SUBTASK 36-11-06-860-009

- (3) Remove the DO-NOT-OPERATE tag from the applicable BLEED switch on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2

SUBTASK 36-11-06-790-001

- (4) Do this task: Engine Bleed Air System - Leak Check, TASK 36-11-00-700-802.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-06

Page 405
Sep 15/2021



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

HIGH PRESSURE SHUTOFF VALVE (HPSOV) - MAINTENANCE PRACTICES

1. General

- A. This procedure provides the steps to replace the filter on the HPSOV.

TASK 36-11-07-960-802

2. High Pressure Shutoff Valve (HPSOV) Filter - Replacement

A. **General**

- (1) This task gives the instructions to replace the high pressure shutoff valve filter.

B. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-04-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV (P/B 501)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Filter element	36-11-07-01-045	SIA ALL
3	Gasket	36-11-07-01-035	SIA ALL

E. **Location Zones**

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

F. **Prepare for the Replacement**

SUBTASK 36-11-07-860-032



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-07-010-007



WARNING

DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Open the right thrust reverser for the applicable engine. To open the right thrust reverser, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 201
Sep 15/2021



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

SUBTASK 36-11-07-860-033

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-07-860-034

- (4) Attach a DO NOT OPERATE tag, STD-858 to the applicable BLEED switches on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2.

G. Filter Replacement

SUBTASK 36-11-07-020-014

- (1) Do the steps that follow to remove the filter element [1]:
- (a) Remove the filter cap [2] and gasket [3].
 - (b) Discard the gasket [3].



WARNING

THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (c) Remove the spring [4] and filter element [1].

SUBTASK 36-11-07-420-015

- (2) Do the steps that follow to install the new filter element [1].



WARNING

THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (a) Install the new filter element [1] and the spring [4] into the HPSOV.
 - (b) Install the new gasket [3] onto the filter cap [2] and install into the HPSOV.
 - 1) Tighten the filter cap [2] to 355 in-lb (40.1 N·m) - 375 in-lb (42.4 N·m).
- NOTE: There may be a gap between the filter cap [2] and HPSOV, after torque is applied.

H. Put the Airplane Back to its Usual Condition

SUBTASK 36-11-07-860-035

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 202
Sep 15/2021



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

(Continued)

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-07-860-036

- (2) Remove the DO NOT OPERATE tag, STD-858 from the applicable BLEED switches that follow on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-07-410-004

 WARNING	OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.
---	--

- (3) Close the right thrust reverser on the applicable engine. To close the right thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-11-07-730-002

- (4) Do this task: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV, TASK 36-11-04-710-801.

————— **END OF TASK** —————

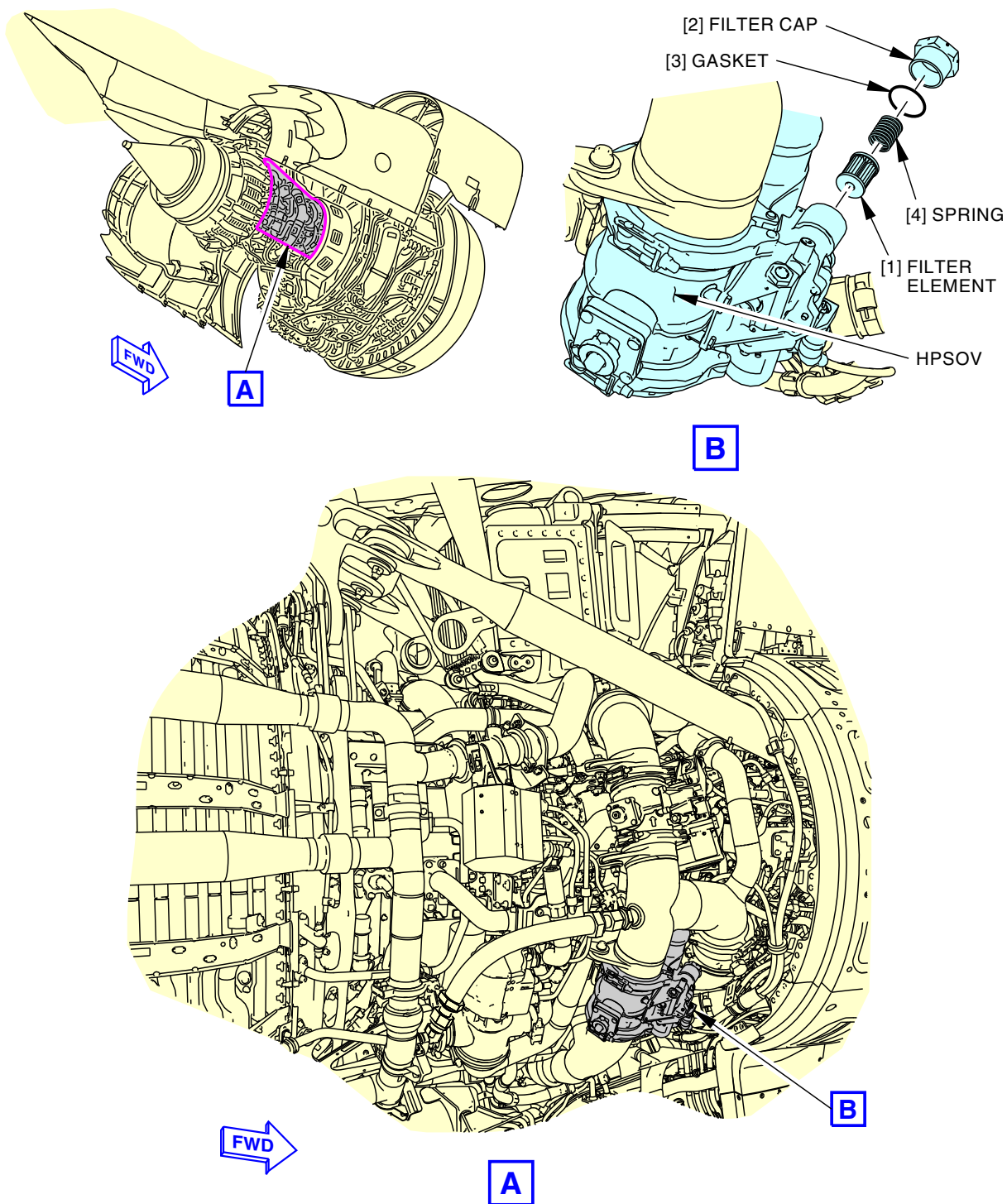
EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 203
Sep 15/2021



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High Pressure Shutoff Valve (HPSOV) Filter Replacement
Figure 201/36-11-07-990-806

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

Page 204
Sep 15/2021



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

HIGH PRESSURE SHUTOFF VALVE (HPSOV) - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) HPSOV removal
 - (2) HPSOV installation.
- B. The HPSOV is found at the 4 o'clock position on the engine core.

TASK 36-11-07-000-801

2. HPSOV Removal

(Figure 401)

A. General

- (1) This task gives the instructions to remove the High Pressure Shutoff Valve (HPSOV).
- (2) The high pressure shutoff valve is referred to as the HPSOV.

B. References

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

D. Location Zones

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

E. Prepare for the Removal

SUBTASK 36-11-07-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-07-010-001



WARNING

DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Open the right thrust reverser on the applicable engine (TASK 78-31-00-010-801-G00).

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 401
May 15/2023



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

SUBTASK 36-11-07-860-003

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-07-860-004

- (4) Attach a DO-NOT-OPERATE tag to the applicable BLEED switch on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2.

F. HPSOV Removal

SUBTASK 36-11-07-020-005



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (1) Use a teflon-jawed pliers, STD-664 to disconnect the electrical connector [5] from the HPSOV [1] (TASK 70-00-01-910-803-G00).
- (a) Disconnect the electrical connector [5] from the HPSOV [1].
 - (b) Install the protective covers on the electrical receptacle of the HPSOV [1] and the electrical connector [5].

SUBTASK 36-11-07-020-006

- (2) Do these steps to remove the HPSOV [1]:
- (a) Remove the coupling [6] and E-seal [7] that attaches the lower CDP duct assembly [2] to the HPSOV [1].
 - (b) Remove the coupling [11] and E-seal [10] that attaches the lower CDP duct assembly [2] to the engine case.
 - (c) Remove the coupling [3] and E-seal [4] that attaches the HPSOV [1] to the mix manifold.
 - (d) Remove the HPSOV [1].
 - 1) If necessary, remove the coupling [8] and E-seal [9].

SUBTASK 36-11-07-020-007

- (3) Examine the E-seals for damage.
- (a) If damage is found, replace the E-seals.

SUBTASK 36-11-07-020-008

- (4) Install the protective covers to the open duct sections.

————— END OF TASK —————

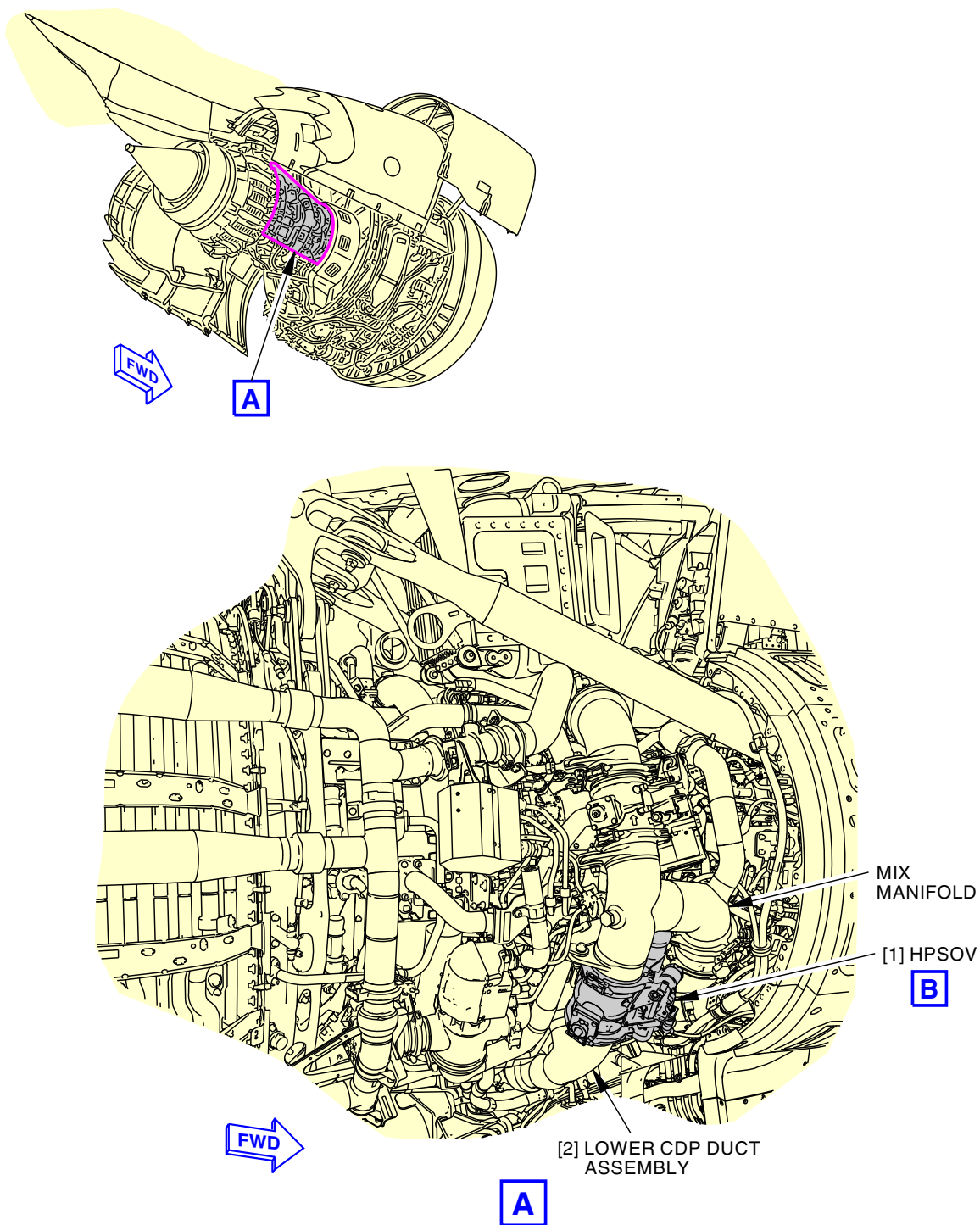
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 402
May 15/2023



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High Pressure Shutoff Valve Installation
Figure 401/36-11-07-990-801 (Sheet 1 of 3)

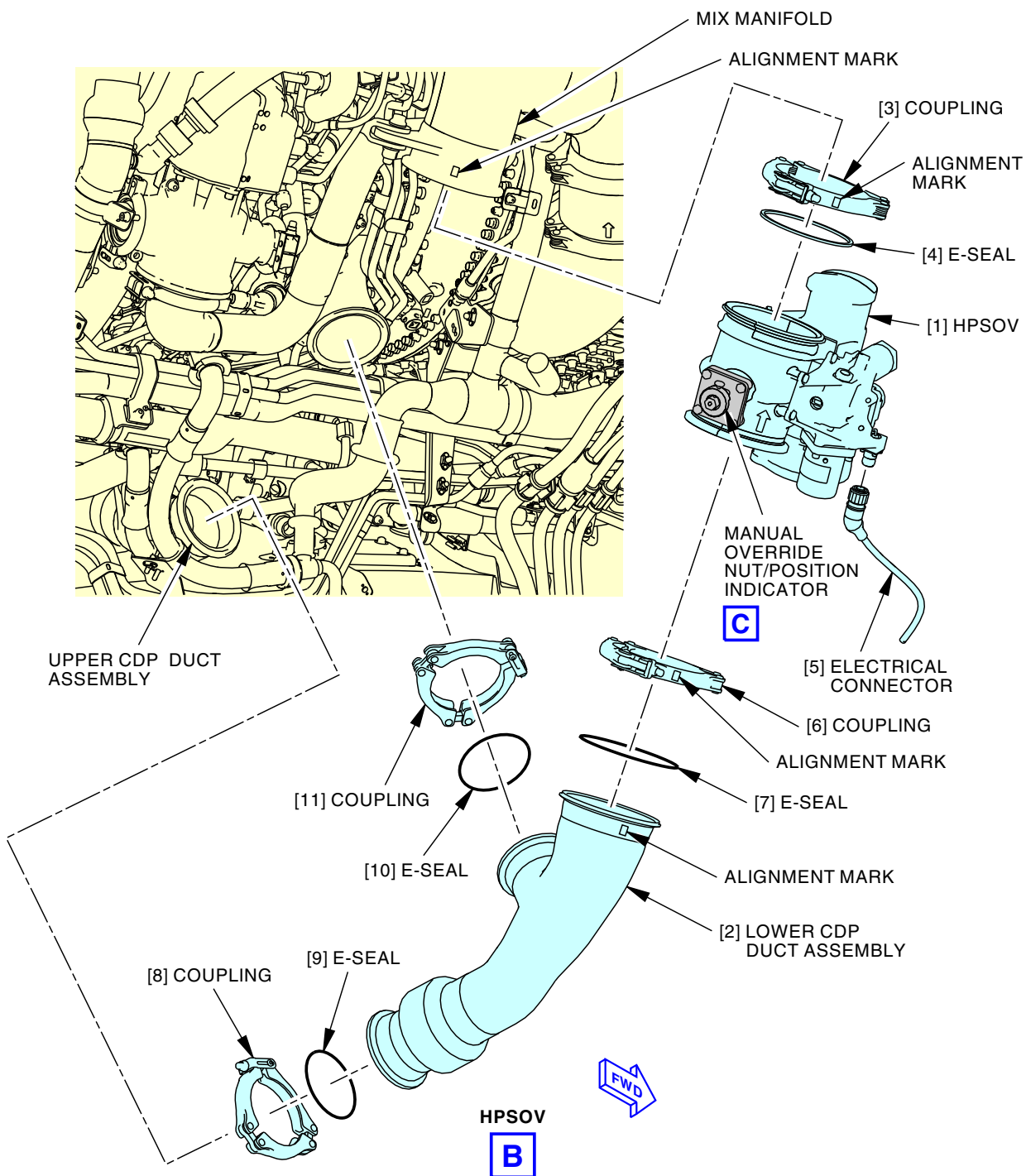
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 403
Sep 15/2021



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High Pressure Shutoff Valve Installation
Figure 401/36-11-07-990-801 (Sheet 2 of 3)

EFFECTIVITY
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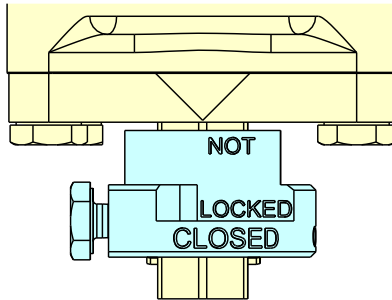
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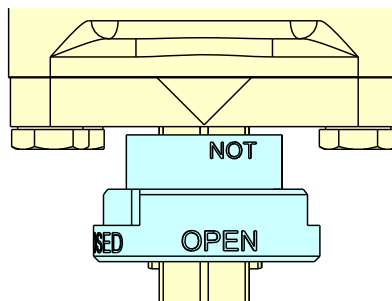
ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
May 15/2023

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



HPSOV LOCKED POSITION



HPSOV UNLOCKED POSITION

C

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High Pressure Shutoff Valve Installation
Figure 401/36-11-07-990-801 (Sheet 3 of 3)

EFFECTIVITY
 SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 405
 Sep 15/2021



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

TASK 36-11-07-400-801

3. **HPSOV Installation**

(Figure 401)

A. General

- (1) This task gives the instructions to install the high pressure shutoff valve.
- (2) The high pressure shutoff valve is referred to as the HPSOV.

B. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-730-801	Pneumatic Engine On - System Test (P/B 501)
36-11-07-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - HPSOV (P/B 501)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
71-00-00-790-801-G00	Test No. 1 - Pneumatic Leak Test (P/B 501)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-1010	Wrench - Strap
STD-3906	Mallet - Rubber

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	HPSOV	36-11-07-01-020	SIA ALL
4	E-seal	36-11-07-01-015	SIA ALL
7	E-seal	36-11-07-01-015	SIA ALL
10	E-seal	36-11-01-01-220	SIA ALL

E. Location Zones

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

F. Prepare for the Installation

SUBTASK 36-11-07-820-001

- (1) Make sure that the manual override nut/position indicator on the replacement HPSOV [1] is not in the LOCKED CLOSED position.

G. HPSOV Installation

SUBTASK 36-11-07-420-001

- (1) Remove the protective covers from the open duct sections and the open port on the HPSOV [1].

SUBTASK 36-11-07-280-001

- (2) Examine the E-seals for damage.
 - (a) If damage is found, replace the E-seal.

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Sep 15/2021



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

SUBTASK 36-11-07-420-006

- (3) Do these steps in install the HPSOV [1]:
- Install the E-seal [4] in the cavity on the HPSOV [1].
 - Install the E-seal [7] in the cavity on the lower CDP duct assembly [2].
 - Install the E-seal [10] in the cavity on the engine bleed port (engine case).
 - If removed, install the lower CDP duct assembly [2].
 - Put the lower CDP duct assembly [2] into position for installation.



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.

- Install the coupling [8] and the E-seal [9] that attaches the lower CDP duct assembly [2] to the upper CDP duct assembly.
 - Do not tighten the coupling at this time.



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.



MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO ALIGN THE ALIGNMENT MARKS CORRECTLY. IF YOU DO NOT OBEY, DAMAGE CAN OCCUR WHEN YOU CLOSE THE THRUST REVERSER.

- Install the HPSOV [1] between the mix manifold and the lower CDP duct assembly [2].
 - Loosely install the coupling [3] to attach the HPSOV [1] to the mix manifold.
 - Make sure that the coupling [3] is installed in the correct orientation.
 - <1> Make sure that the flow arrow points up and is aligned within 0.00 ± 0.25 in. (0.00 ± 6.35 mm) with the alignment marks on the mix manifold and the lower CDP duct assembly [2].
 - <2> Adjust the alignment mark on the coupling [3] with the alignment marks on the mix manifold within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).
 - Do not tighten the coupling at this time.
 - Loosely install the coupling [6] to attach the lower CDP duct assembly [2] to the HPSOV [1].
 - Make sure that the coupling [6] is installed in the correct orientation.
 - <1> Adjust the alignment mark on the coupling [6] with the alignment marks on the lower CDP duct assembly [2] within 0.00 ± 0.25 in. (0.00 ± 6.35 mm).
 - Do not tighten the coupling at this time.
 - Loosely install the coupling [11] to attach the lower CDP duct assembly [2] to the engine case.
 - Make sure that the coupling [11] is installed in the correct orientation.
 - Do not tighten the coupling at this time.

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-11-07

Page 407
Sep 15/2021



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

SUBTASK 36-11-07-420-007

- (4) When all couplings are in place, tighten the couplings.
 - (a) Tighten the coupling nut to 175 ± 5 in-lb (20 ± 1 N·m).
 - (b) Lightly tap the outer surface of the coupling with a rubber mallet, STD-3906.
 - (c) Tighten the coupling nut again to 175 ± 5 in-lb (20 ± 1 N·m).

SUBTASK 36-11-07-420-009



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (5) Use the teflon-jawed pliers, STD-664 or strap wrench, STD-1010 to connect the electrical connector [5] to the HPSOV [1] (TASK 70-00-01-910-803-G00).
 - (a) Remove the protective covers from the electrical receptacle of the HPSOV [1] and the electrical connector [5].
 - (b) Connect the electrical connector [5] to the HPSOV [1].
 - (c) Turn the knurled coupling ring while wiggling the backshell assembly until the coupling ring is seated.
 - (d) Use a teflon-jawed pliers, STD-664 or strap wrench, STD-1010 to turn the coupling ring an additional 1/8 turn or until the wrench slips.

H. Put the Airplane Back to Its Usual Condition.

SUBTASK 36-11-07-860-014

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-07-860-026

- (2) Remove the DO-NOT-OPERATE tag from the applicable BLEED switch on the P5-10 panel:
 - (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-07-790-003

- (3) Do this task: Test No. 1 - Pneumatic Leak Test, TASK 71-00-00-790-801-G00.

SUBTASK 36-11-07-760-001

- (4) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 408
Sep 15/2021



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

SUBTASK 36-11-07-790-002

- (5) Do one of these tasks: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - HPSOV, TASK 36-11-07-710-801, or Pneumatic Engine On - System Test, TASK 36-00-00-730-801.

SUBTASK 36-11-07-010-002



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Close the right thrust reverser on the applicable engine (TASK 78-31-00-010-802-G00).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 409
Sep 15/2021



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

HIGH PRESSURE SHUTOFF VALVE (HPSOV) - ADJUSTMENT/TEST

1. **General**

A. This procedure has these tests:

- (1) 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Left HPSOV
- (2) 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Right HPSOV

TASK 36-11-07-710-801

2. **36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - HPSOV**

(Figure 501)

A. **General**

- (1) This task gives the necessary related data to do the ground test for the high pressure shutoff valve (HPSOV) in the air supply control system (ASCS).
- (2) This test uses ground support equipment to supply air pressure to the valve test port.
- (3) During the test the valve will move.
- (4) This task requires two persons, one person operates the ground test in the flight compartment and one person on the ground to monitor the position indicator on the HPSOV.
- (5) The computer will not let you start this test if there is one or more of these conditions:
 - (a) The air/ground logic shows that the airplane is not on the ground.
 - (b) The applicable engine is starting or running.
 - (c) The applicable engine fire handle is not in the usual position.
 - (d) The applicable engine BLEED is OFF.
 - (e) The APU bleed valve is open.
 - (f) A pneumatic ground cart is ON.
 - (g) The applicable duct pressure is more than 5 psig.
 - (h) WING ANTI-ICE is on.
 - (i) Another IBIT is running.
 - (j) Overtemperature, overpressure, or reverse flow shutdown conditions exist.
 - (k) HPSOV torque motor or driver failed.

B. **References**

Reference	Title
24-22-00-860-801	Supply Electrical Power (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
71-00-00-700-806-G00	Test No. 30 - Engine Running Simulation Special Functions Test (P/B 501)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-801-G00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-801-G00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 501
Sep 15/2021



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

(Continued)

Reference	Title
FIM ATA 36 AIR SUPPLY	Fault Isolation Manual

C. Tools/Equipment

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

Reference	Description
SPL-14764	Test Equipment - Air Supply Control System Part #: C36006-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
G51459	Cable, Safety Kit	AS3510-0212K

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left

F. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
416	Right Thrust Reverser, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2
426	Right Thrust Reverser, Engine 2

G. Prepare for the Test

SUBTASK 36-11-07-860-031

- (1) Do these steps to make sure that the ENGINE START switch and the START LEVER switch are not operated:
 - (a) Make sure that the applicable ENGINE START switch, on the P5 overhead panel, is in the AUTO or OFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable ENGINE START switch.
 - (b) Make sure that the applicable START LEVER switch, on the P10 control stand, is in the CUTOFF position.
 - 1) Put a DO NOT OPERATE tag, STD-858, on the applicable START LEVER switch.

SUBTASK 36-11-07-860-008

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 36-11-07-860-037

- (3) Make sure that the same side Display Processing Computer (DPC) is installed and operational.

NOTE: This will prevent the test from a FAILED result and "NO RESPONSE FROM IASC" message.

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

Page 502
Jan 15/2023



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

SUBTASK 36-11-07-860-009

- (4) If the GND TEST switch on the P61-4 panel is in NORM position, set the GND TEST switch to ENABLE position.

SUBTASK 36-11-07-860-010

- (5) Make sure that the airplane is in "ON GROUND" mode.
- (a) If necessary, do this task to set the airplane to ON GROUND mode: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 36-11-07-860-011

- (6) Do these steps on the air conditioning panel, P5-10 (on the overhead panel, P5):
- (a) Set the applicable BLEED switch (1 for left, 2 for right) to the ON position.
- (b) Make sure that the APU BLEED switch is in the OFF position.
- (c) Make sure that the WING ANTI-ICE switch is in the OFF position.
- (d) Set the Left and Right Pack switches to AUTO.
- (e) Set the Left and Right Recirc Fan switches to OFF.

SUBTASK 36-11-07-860-027

- (7) Start the Engine Running Simulation special function for both Engine 1 and Engine 2 (TASK 71-00-00-700-806-G00).
- (a) If the Engine Running Simulation special function is not available, disconnect these connectors:
- D40666P J22 Junction Box for the left engine
 - D40702P J24 Junction Box for the right engine.

SUBTASK 36-11-07-010-006

- (8) Do these tasks in sequence to safely open the right thrust reverser on the applicable engine:



WARNING

DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-801-G00.



CAUTION

IF FAN COWLS ARE INSTALLED, MAKE SURE THAT LEFT AND RIGHT FAN COWLS ARE IN THE FULL OPEN POSITION. MAKE SURE THAT THE SPRING DOOR OPENING-SYSTEM (SDOS) AND HOLD OPEN RODS (HOR) ARE LOCKED IN THEIR POSITION. IF YOU DO NOT, STRUCTURAL DAMAGE TO THE FAN COWL AND THRUST REVERSER CAN OCCUR.

- (b) Open both fan cowl panels (TASK 71-11-04-010-801-G00).

NOTE: Because the center line of the thrust reversers is off 6:00 o'clock position, both fan cowl panels must be opened to prevent damaging the fan cowl panel if either thrust reverser needs to be opened.

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-11-07

Page 503
May 15/2023



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

(Continued)

<u>Number</u>	<u>Name/Location</u>
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Open the applicable right thrust reverser (TASK 78-31-00-010-801-G00).

1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
416	Right Thrust Reverser, Engine 1
426	Right Thrust Reverser, Engine 2

SUBTASK 36-11-07-860-012

(9) Make sure that the PRSOV is in the closed position.

SUBTASK 36-11-07-010-004

(10) Remove the plug from the HPSOV test port.

SUBTASK 36-11-07-480-001



CAUTION

OPERATION OF THE SPECIFIED ADAPTER FROM SPL-14764 IS NECESSARY TO GET A CORRECT RESULT FOR THIS TEST. OPERATION OF A DIFFERENT ADAPTER CAN GIVE AN INCORRECT TEST RESULTS.

(11) Connect a nitrogen pressure source, pressure regulator, test hose and adapter (equipment, SPL-14764) to the HPSOV test port.

(a) Apply a pressure of 15 psig (103 kPa) - 30 psig (207 kPa) to the test port.

H. LRU Replacement Test - Pneumatic Engine Off

SUBTASK 36-11-07-720-001

(1) Do the applicable ground test in this task: Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801.

- 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Left HPSOV
- 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Right HPSOV.

(a) Follow the interactive instructions on the screen.

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

(c) If FAILED shows, then do the fault isolation procedure in the FIM ATA 36 AIR SUPPLY for the maintenance message.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-11-07-860-013

(1) Decrease the supplied pressure to the test port to 0 psig (0 kPa).

SUBTASK 36-11-07-080-001

(2) Remove the nitrogen pressure source, pressure regulator, test hose and adapter (equipment, SPL-14764) from the HPSOV test port.

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

Page 504
May 15/2023



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

SUBTASK 36-11-07-840-001

- (3) Install the plug on the test port.
 - (a) Install the safety cable, G51459.

SUBTASK 36-11-07-860-028



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.

- (4) Do these tasks in sequence to safely close the right thrust reverser:
 - (a) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.
 - 1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
416	Right Thrust Reverser, Engine 1
426	Right Thrust Reverser, Engine 2
 - (b) Close the fan cowl panels (TASK 71-11-04-410-801-G00).
 - 1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2
 - (c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-801-G00.

SUBTASK 36-11-07-860-029

- (5) Stop the Engine Running Simulation special function for both Engine 1 and Engine 2 (TASK 71-00-00-700-806-G00).
 - (a) Connect these connectors if they were removed:
 - D40666P J22 Junction Box for the left engine
 - D40702P J24 Junction Box for the right engine.

SUBTASK 36-11-07-840-002

- (6) Do these steps on the air conditioning panel, P5-10 (on the overhead panel, P5):
 - (a) Set the applicable BLEED switch (1 for left, 2 for right) to the OFF position.
 - (b) Make sure the APU BLEED switch is in the OFF position.
 - (c) Make sure the WING ANTI-ICE switch is in the OFF position.

SUBTASK 36-11-07-840-003

- (7) If all maintenance on the airplane is completed, set the GND TEST switch on the P61-4 panel to the NORM position.

SUBTASK 36-11-07-860-030

- (8) Do these steps to remove the DO NOT OPERATE tags, STD-858, from the applicable ENGINE START switch and START LEVER switch:
 - (a) On the P5 overhead panel, remove the DO NOT OPERATE tag, STD-858, from the applicable ENGINE START switch.

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-11-07

Page 505
May 15/2023



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

- (b) On the P10 control stand, remove the DO NOT OPERATE tag, STD-858, from the applicable START LEVER switch.

————— **END OF TASK** —————

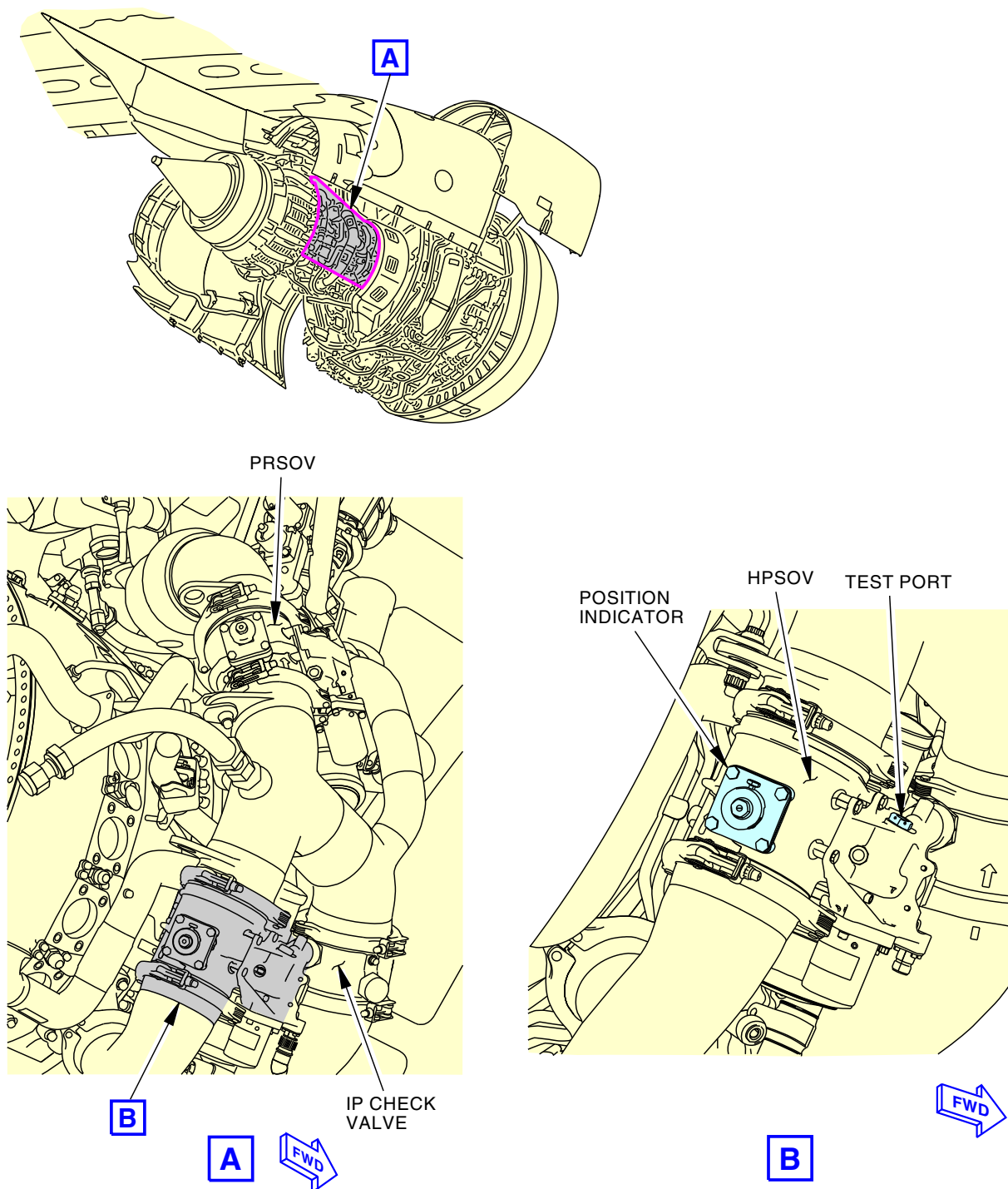
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 506
May 15/2023



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HPSOV - LRU Replacement Test
Figure 501/36-11-07-990-803

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 507
May 15/2023



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

HIGH PRESSURE SHUTOFF VALVE (HPSOV) FILTER ELEMENT - CLEANING

TASK 36-11-07-100-801

1. High Pressure Shutoff Valve (HPSOV) Filter Element - Cleaning

A. General

(1) This task gives the instructions to clean and replace the high pressure shutoff valve filter.

B. References

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-04-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV (P/B 501)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Gasket	36-11-07-01-035	SIA ALL

E. Location Zones

Zone	Area
416	Engine 1 - Thrust Reverser, Right
426	Engine 2 - Thrust Reverser, Right

F. Prepare for the Cleaning

SUBTASK 36-11-07-860-021



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-11-07-010-005



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Open the right thrust reverser for the applicable engine. To open the right thrust reverser, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 701
Sep 15/2021



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

SUBTASK 36-11-07-860-022

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-07-860-023

- (4) Attach a DO-NOT-OPERATE tag to the applicable BLEED switch on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-07-020-013

- (5) Do the steps that follow to remove the filter element [1]:



WARNING

THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (a) Remove the filter cap [2], gasket [3] and spring [4] from the HPSOV.
- (b) Discard the gasket [3].

G. Filter Element Cleaning

SUBTASK 36-11-07-100-004

- (1) Clean the filter off aircraft per the vendor instructions.

H. Put the Airplane Back to Its Usual Condition.

SUBTASK 36-11-07-420-014

- (1) Do the steps that follow to install the filter element [1].
- (a) Make sure that the filter element [1] is serviceable.
 - 1) If the filter is not serviceable, install a new filter.



WARNING

THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (b) Install the filter element [1] and the spring [4] into the HPSOV.
 - (c) Install the new gasket [3] onto the filter cap [2] and install into the HPSOV.
 - 1) Tighten the filter cap [2] to 355 in-lb (40.1 N·m) - 375 in-lb (42.4 N·m).
- NOTE: There may be a gap between the filter cap [2] and the HPSOV after torque is applied.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 702
Sep 15/2021



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

SUBTASK 36-11-07-860-024

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-11-07-860-025

- (3) Remove the DO NOT OPERATE tags, STD-858, from the switches that follow on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2.

SUBTASK 36-11-07-410-003



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Close the right thrust reverser on the applicable engine. To close the right thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-11-07-730-001

- (5) Do this task: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV, TASK 36-11-04-710-801.

———— **END OF TASK** ————

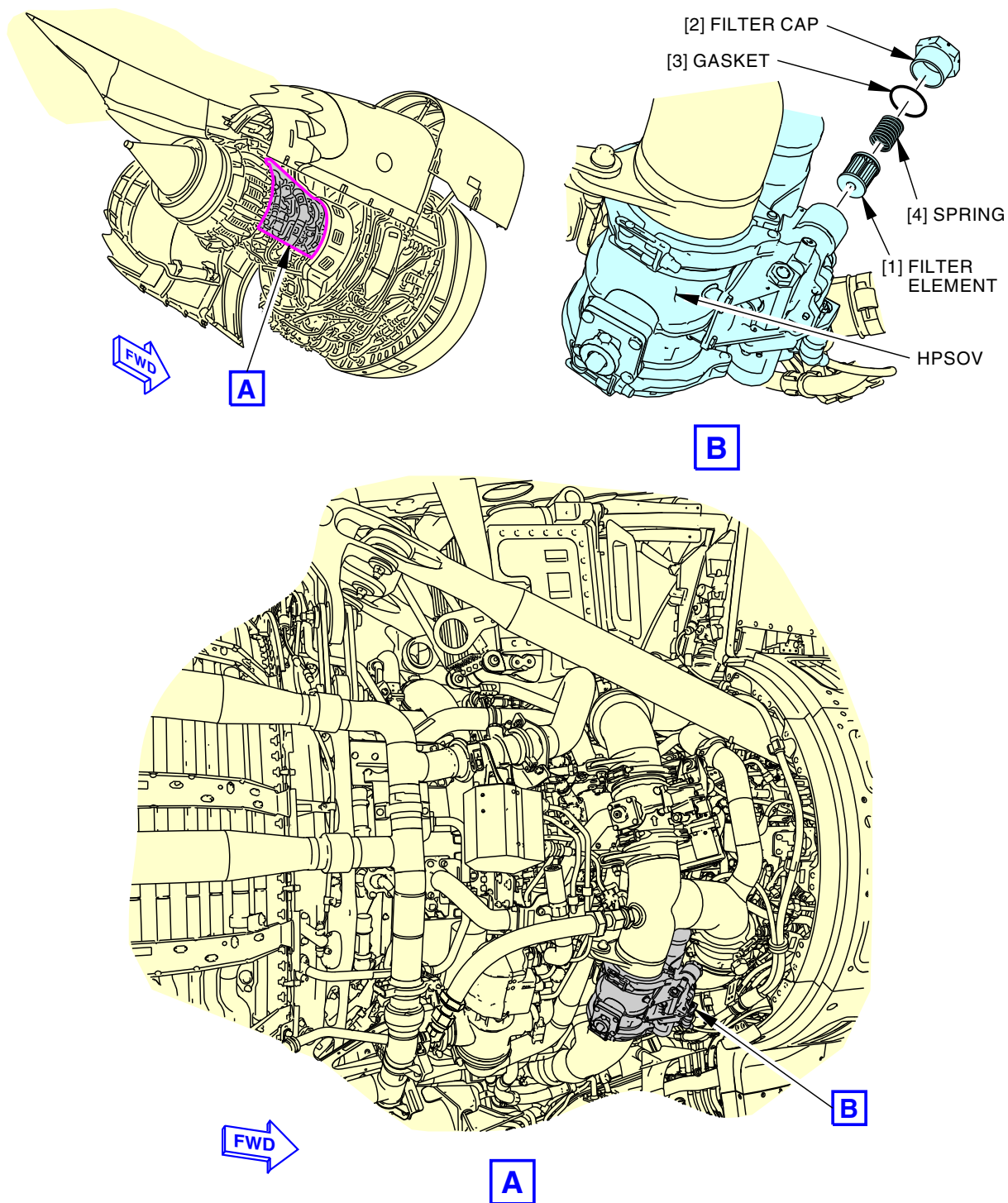
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-11-07

Page 703
Sep 15/2021



2549075 S0000606955_V3

High Pressure Shutoff Valve (HPSOV) Filter Replacement
Figure 701/36-11-07-990-805

EFFECTIVITY
SIA ALL

36-11-07

D633AM101-SIA

Page 704
Sep 15/2021



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

FAN AIR MODULATING VALVE (FAMV) - ADJUSTMENT/TEST

1. General

A. This procedure has this task:

- (1) 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV.

TASK 36-12-00-720-801

2. 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV

(Figure 501)

A. **General**

- (1) This task gives the instructions to do the ground test for the Fan Air Modulating Valve (FAMV) in the Air Supply Control System (ASCS).
- (2) This test uses ground support equipment to supply air pressure to the FAMV test port [1].
- (3) During the test the FAMV will move.
- (4) This task requires two persons, one person operates the ground test in the flight compartment and one person on the ground to monitor the flapper [3] movement on the valve.
- (5) The computer will not let you start this test if there is one or more of these conditions:
- (a) The air/ground logic shows that the airplane is not on the ground.
- (b) The applicable engine is operating.
- (c) The applicable engine fire handle is not in the usual position.
- (d) The applicable engine BLEED is OFF.
- (e) The APU bleed valve is open.
- (f) The applicable duct pressure is more than 5 psig (34 kPa).
- (g) WING ANTI-ICE is on.

B. **References**

Reference	Title
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
36-00-00-860-805	Supply Pressure Upstream of the PRSOV with Engines Off (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-11-00-700-802	Engine Bleed Air System - Leak Check (P/B 501)
46-13-02-710-801	Onboard Maintenance Function Ground Test (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

C. **Tools/Equipment**

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

Reference	Description
SPL-14764	Test Equipment - Air Supply Control System Part #: C36006-1 Supplier: 81205

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-12-00

Page 501
May 15/2023



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

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left

E. Prepare for the Test

SUBTASK 36-12-00-860-019

- (1) Make sure that the same side Display Processing Computer (DPC) is installed and operational.

NOTE: This will prevent the test from a FAILED result and “NO RESPONSE FROM IASC” message.

SUBTASK 36-12-00-860-013

- (2) If the GND TEST switch on the P61-4 panel is in NORM position, set the GND TEST switch to ENABLE position.

SUBTASK 36-12-00-860-014

- (3) Make sure that the airplane is in “ON GROUND” mode.
- (a) If necessary, do this task to set the airplane to ON GROUND mode: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 36-12-00-860-015

- (4) Do these steps, on the P5-10 air conditioning panel:
- (a) Set the applicable BLEED switch to the ON position.
- (b) Set the APU BLEED switch to the OFF position.
- (c) Set the WING ANTI-ICE switch to the OFF position.
- (d) Set the Left and Right Pack switches to AUTO.
- (e) Set the Left and Right Recirc Fan switches to OFF.

SUBTASK 36-12-00-010-004



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Open the left and right thrust reversers (Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00).

SUBTASK 36-12-00-210-004

- (6) Make sure that the flapper [3] is fully open by looking in the FAMV inlet [2].

SUBTASK 36-12-00-020-005

- (7) Do one of these steps:
- (a) Disconnect the T-fitting [5] from the test port [1].
- (b) Disconnect the pneumatic line [6] from the test port [4].

SUBTASK 36-12-00-480-012

- (8) Connect a nitrogen pressure source, pressure regulator, test hose, and adapter (equipment, SPL-14764) to the test port [1] or test port [4].
- (a) Apply the pressure of 15 psig (103 kPa) - 30 psig (207 kPa) to the test port [1] or test port [4].

EFFECTIVITY
SIA ALL

36-12-00

D633AM101-SIA

Page 502
May 15/2023



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

SUBTASK 36-12-00-210-005

- (9) During the test have one person monitor the position of the flapper [3] in the FAMV inlet [2].

F. LRU Replacement Test - Pneumatic Engine Off

SUBTASK 36-12-00-720-014

- (1) Do the applicable ground test (Onboard Maintenance Function Ground Test, TASK 46-13-02-710-801):
- 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Left FAMV
 - 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - Right FAMV.
- (a) Follow the interactive instructions on the screen.
- (b) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION.
- (c) If FAILED shows, refer to the IFIM and do the applicable procedure(s) for the maintenance message.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-00-860-016

- (1) Decrease the supplied pressure to the test port to 0 psig (0 kPa).

SUBTASK 36-12-00-080-005

- (2) Remove the nitrogen pressure source, pressure regulator, test hose, and adapter (equipment, SPL-14764) from the test port [1] or test port [4].

SUBTASK 36-12-00-420-001



USE TWO WRENCHES TO TIGHTEN THE FITTINGS. USE THE SECOND WRENCH TO HOLD THE FITTING IN ITS POSITION TO PREVENT DAMAGE TO THE FITTING.

- (3) Do the applicable step that follows:
- (a) Connect the T-fitting [5] to the test port [1].
- 1) Tighten the T-fitting [5] B-nut to 270 ±14 in-lb (31 ±2 N·m).
- (b) Connect the pneumatic line [6] to the test port [4].
- 1) Tighten the pneumatic line [6] B-nut to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 36-12-00-780-006

- (4) Do this task: Supply Pressure Upstream of the PRSOV with Engines Off, TASK 36-00-00-860-805.

SUBTASK 36-12-00-790-001

- (5) Do this task: Engine Bleed Air System - Leak Check, TASK 36-11-00-700-802.

SUBTASK 36-12-00-780-007

- (6) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-12-00-410-002



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS, BUT DO NOT DO THE THRUST REVERSER OR LEADING EDGE ACTIVATION. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (7) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

EFFECTIVITY
SIA ALL

36-12-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 503
May 15/2023



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

SUBTASK 36-12-00-860-017

- (8) Do these steps, on the P5-10 air conditioning panel:
- (a) Set the applicable BLEED switch to the OFF position.
 - (b) Set the APU BLEED switch to the ON position.
 - (c) Set the WING ANTI-ICE switch to the ON position.

SUBTASK 36-12-00-860-018

- (9) If all maintenance on the airplane is completed, set the GND TEST switch on the P61-4 panel to the NORM position.

———— **END OF TASK** ————

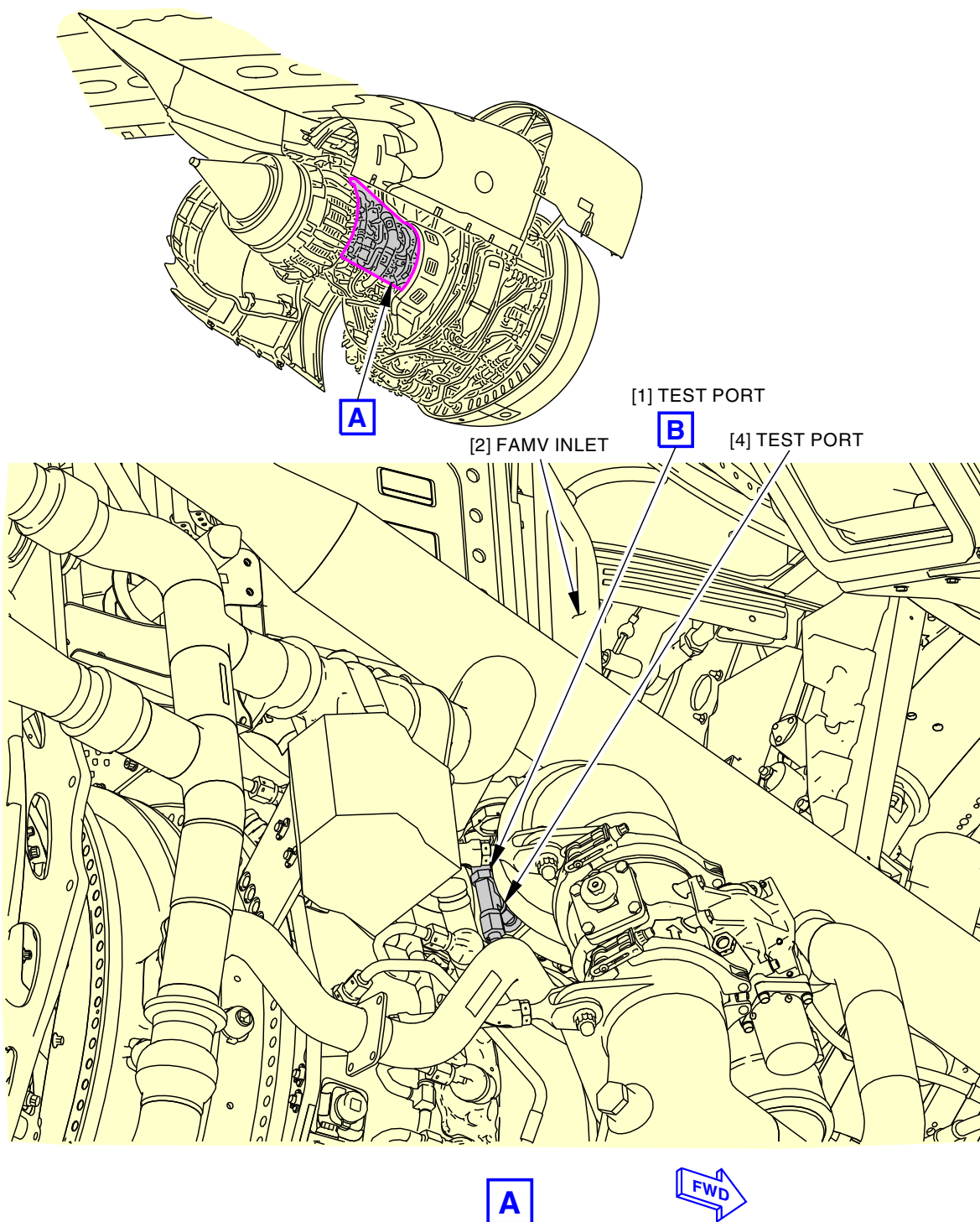
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-00

Page 504
May 15/2023



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Fan Air Modulation Valve Test
Figure 501/36-12-00-990-805 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

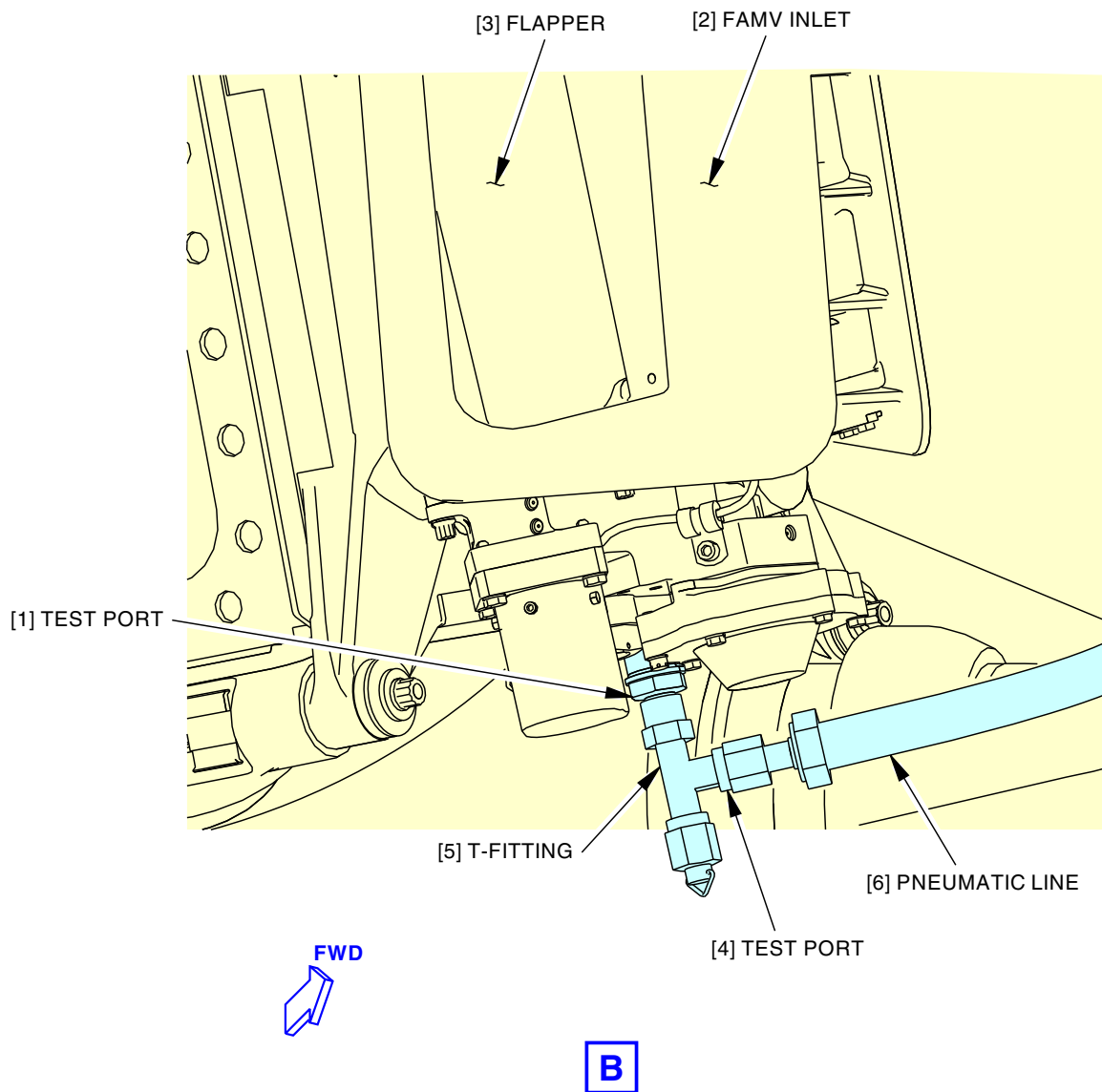
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36-12-00

Page 505
Sep 15/2021



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



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Fan Air Modulation Valve Test
Figure 501/36-12-00-990-805 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-00

Page 506
Sep 15/2021



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

BLEED AIR PRECOOLER - MAINTENANCE PRACTICES

1. General

- A. This procedure has this task:
- (1) Bleed air precooler inspection for cracks.
- B. A precooler with internal crack locations and leakage levels that are within acceptable limits is permitted for continued operation.
- C. A precooler with external crack locations that are within acceptable limits is permitted for limited operation.

TASK 36-12-01-200-801

2. Bleed Air Precooler Inspection for Cracks

(Figure 201)

A. General

- (1) This task gives the instructions to do the inspection of the precooler for allowable crack locations.

B. References

Reference	Title
36-12-01-000-801	Bleed Air Precooler Removal with Engine Removed (P/B 401)
36-12-01-400-802	Bleed Air Precooler Installation with Engine Removed (P/B 401)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-801-G00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-801-G00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Location Zones

Zone	Area
413	Engine 1 - Fan Cowl, Left
414	Engine 1 - Fan Cowl, Right
415	Engine 1 - Thrust Reverser, Left
416	Engine 1 - Thrust Reverser, Right
423	Engine 2 - Fan Cowl, Left
424	Engine 2 - Fan Cowl, Right
425	Engine 2 - Thrust Reverser, Left
426	Engine 2 - Thrust Reverser, Right

D. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
415	Left Thrust Reverser, Engine 1
416	Right Thrust Reverser, Engine 1
423	Left Fan Cowl, Engine 2

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 201
Sep 15/2021



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

(Continued)

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

424	Right Fan Cowl, Engine 2
425	Left Thrust Reverser, Engine 2
426	Right Thrust Reverser, Engine 2

E. Prepare for the Inspection

SUBTASK 36-12-01-860-003

- (1) Do these tasks in sequence to safely open the left and right thrust reversers on the applicable engine:



WARNING

DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-801-G00.
- (b) Open the applicable left or right fan cowl panels (TASK 71-11-04-010-801-G00).
- 1) Open these access panels:

Number	Name/Location
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Open the applicable left or right thrust reversers (TASK 78-31-00-010-801-G00).
- 1) Open these access panels:

Number	Name/Location
415	Left Thrust Reverser, Engine 1
416	Right Thrust Reverser, Engine 1
425	Left Thrust Reverser, Engine 2
426	Right Thrust Reverser, Engine 2

F. Bleed Air Precooler Inspection for Cracks

SUBTASK 36-12-01-210-001

- (1) Examine the precooler for cracks, severe dents, or punctures (Figure 201).

NOTE: Examine the parts in a clean area where there is sufficient light. Use a minimum of 10X magnification when you examine the parts for cracks.

SUBTASK 36-12-01-210-002

- (2) Examine the manifolds, ducts, and flanges for cracks, distortion, burrs, corrosion, nicks, scratches, pits, too much scoring, wear, and signs of overheating.

SUBTASK 36-12-01-210-003

- (3) Examine the parts for general condition, structural failure, damage and wear.

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

Page 202
Sep 15/2021



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

SUBTASK 36-12-01-210-004

- (4) Examine the precooler core faces for bent or broken fins.

SUBTASK 36-12-01-210-008

- (5) Examine the louvers for bent or broken vanes.

SUBTASK 36-12-01-210-005

- (6) Examine the precooler mounts for cracks, breaks, bends, or other damage.

SUBTASK 36-12-01-210-009

- (7) Examine the compression rod brackets for cracks, breaks, bends, or other damage.

SUBTASK 36-12-01-210-006

- (8) Examine the precooler threaded parts for crossed, stripped or broken threads.

SUBTASK 36-12-01-210-007

- (9) If the crack location is external and located on or in the weld seams, do this step:
- Measure the length of the crack.
 - If the crack length is 1.5 in. (38.1 mm) or less, continued airplane operation is permitted for 10 days or until the crack length reaches 1.5 in. (38.1 mm), whichever occurs first.
 - Inspect cracks that are 1.5 in. (38.1 mm) or less on a daily basis.
 - If the crack length is greater than 1.5 in. (38.1 mm) but less than 5 in. (127 mm), you may continue airplane operation for a maximum of 10 days if you obey the steps that follow:
 - Position the associated BLEED switch on the P5-10 panel to OFF and attach a DO-NOT-OPERATE identifier to the switch.
 - Inspect the crack on a daily basis and make a record of the crack length.

SUBTASK 36-12-01-960-001

- (10) If the crack location is external as specified in Figure 201, replace the precooler.
- To replace the precooler, do these tasks:
Bleed Air Precooler Removal with Engine Removed, TASK 36-12-01-000-801,
Bleed Air Precooler Installation with Engine Removed, TASK 36-12-01-400-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-01-860-004



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.

- (1) Do these tasks in sequence to safely close the applicable left or right thrust reversers:
- Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.
 - Close these access panels:

<u>Number</u>	<u>Name/Location</u>
415	Left Thrust Reverser, Engine 1
416	Right Thrust Reverser, Engine 1
425	Left Thrust Reverser, Engine 2
426	Right Thrust Reverser, Engine 2
 - Do this task: Close the Fan Cowl Panels (Selection), TASK 71-11-04-410-801-G00.

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 203
Sep 15/2021



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

- 1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2

- (c) Do this task: Thrust Reverser Activation After Ground Maintenance,
TASK 78-31-00-440-801-G00.

———— **END OF TASK** ————

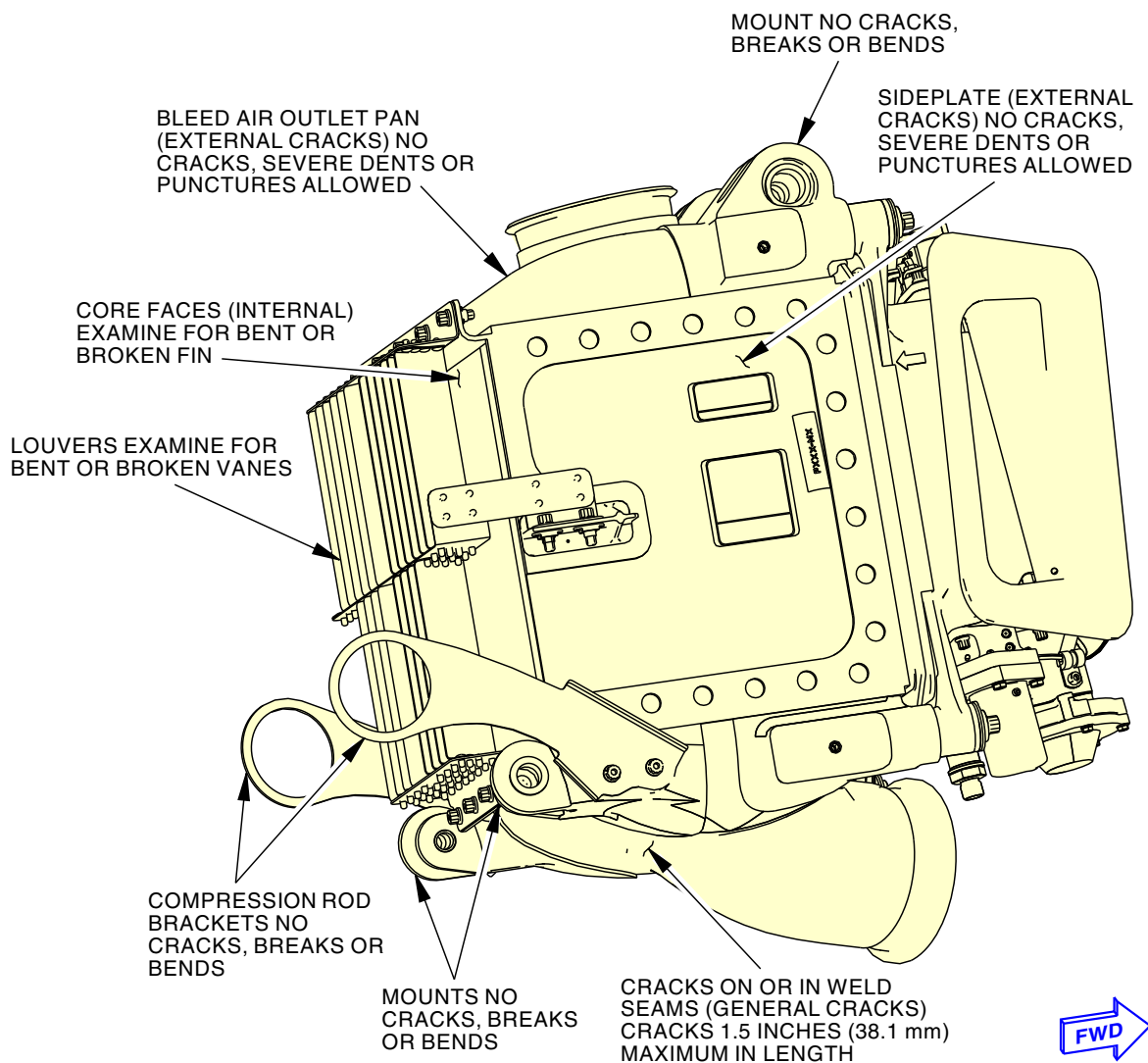
EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 204
Sep 15/2021



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Precooler Crack Locations
Figure 201/36-12-01-990-804

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 205
Sep 15/2021



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

BLEED AIR PRECOOLER - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

- (1) Bleed air precooler removal with engine removed
- (2) Bleed air precooler installation with engine removed
- (3) Bleed air precooler removal with engine installed
- (4) Bleed air precooler installation with engine installed.

B. The precooler is located at the 12 o'clock position on the engine core area and immediately aft of the fan air modulating valve.

TASK 36-12-01-000-801

2. **Bleed Air Precooler Removal with Engine Removed**

(Figure 401)

A. **General**

- (1) This task gives the instructions to remove the bleed air precooler with engine removed.
- (2) For this task, it is not necessary to remove the fan air modulating valve from the precooler. The precooler and fan air modulating valve will be removed as a unit.
- (3) For this task, the combined bleed air precooler and fan air modulating valve will be referred to as the precooler.

B. **References**

Reference	Title
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
71-00-02-000-801-G00	Power Plant - Removal (P/B 401)

C. **Tools/Equipment**

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

Reference	Description
SPL-1556	Hoist - Boom, General, 400 Pound Maximum Capacity Part #: A20001-185 Supplier: 81205 Opt Part #: A20001-152 Supplier: 81205 Opt Part #: A20001-82 Supplier: 81205
SPL-11069	Load Positioner - Engine Accessories, 250 lb Capacity Part #: K20017-1 Supplier: 81205 Opt Part #: J20002-43 Supplier: 81205 Opt Part #: J20002-44 Supplier: 81205 Opt Part #: J20002-59 Supplier: 81205
SPL-14649	Removal and Installation Equip. - Precooler, LEAP-1B (Engine Off) Part #: C36003-23 Supplier: 81205 Opt Part #: C36003-1 Supplier: 81205
SPL-14791	Sling - Precooler Part #: C36005-37 Supplier: 81205
SPL-20064	Load Positioner - 250 lb Capacity Part #: C20003-1 Supplier: 81205

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 401
Sep 15/2023



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

(Continued)

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
430	Subzone - Engine 1, Nacelle Strut
440	Subzone - Engine 2, Nacelle Strut

E. Prepare for the Removal

SUBTASK 36-12-01-010-005

- (1) Do this task: Power Plant - Removal, TASK 71-00-02-000-801-G00.

F. Bleed Air Precooler Removal with Engine Removed

SUBTASK 36-12-01-020-007



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (1) Use a teflon-jawed pliers, STD-664 to disconnect the electrical connector [4] from the fan air modulating valve [5] (TASK 70-00-01-910-803-G00).
 - (a) Disconnect the electrical connector [4] from the fan air modulating valve [5].
 - (b) Install the protective covers on the electrical receptacle of the fan air modulating valve [5] and the electrical connector [4].

SUBTASK 36-12-01-020-008

- (2) Remove the fire extinguishing tube [1] tube from the precooler [11]:
 - (a) Remove the clamps [3] and bolts [2] that attach the fire extinguishing tube [1] to the precooler [11].
 - (b) Disconnect the fire extinguishing tube [1] at the strut firewall.
 - (c) Remove the fire extinguishing tube [1].
 - (d) Install the protective covers on the open connections.

SUBTASK 36-12-01-020-009

- (3) Disconnect the support links from the precooler [11].
 - (a) Remove the bolts [6], washers [7], washers [9], bushings [8] and nuts [10].

SUBTASK 36-12-01-480-001

- (4) Attach the adapter, SPL-14649 to the precooler [11].

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-12-01

Page 402
Sep 15/2023



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

SUBTASK 36-12-01-020-010



WARNING

BE CAREFUL WHEN YOU LIFT THE FAN AIR MODULATING VALVE (FAMV).
THE FAMV IS HEAVY, INJURIES TO PERSONNEL CAN OCCUR.

- (5) Make sure that the adapter, SPL-14649 is securely attached to the precooler [11].

NOTE: The adapter, SPL-14649 can be used with one of these combinations:

- load positioner, SPL-11069 and hoist, SPL-1556, or
- load positioner, SPL-20064 and hoist, SPL-1556.

NOTE: The combined weight of the precooler and the fan air modulating valve is more than 150 lb (68 kg).

- (a) Remove the coupling [12] and E-seal [13] from the precooler outlet duct.

SUBTASK 36-12-01-020-011

- (6) Remove the bolts [14], washers [15], washers [17], bushings [16], and nuts [18] from the precooler clevises.

SUBTASK 36-12-01-020-012

- (7) Remove the precooler [11].

SUBTASK 36-12-01-910-002

- (8) If you will not immediately install a new precooler, make sure that you install the protective covers on all the open connections.

SUBTASK 36-12-01-980-001

- (9) If necessary, use the sling, SPL-14791 to move the precooler [11] from the adapter, SPL-14649.

————— END OF TASK —————

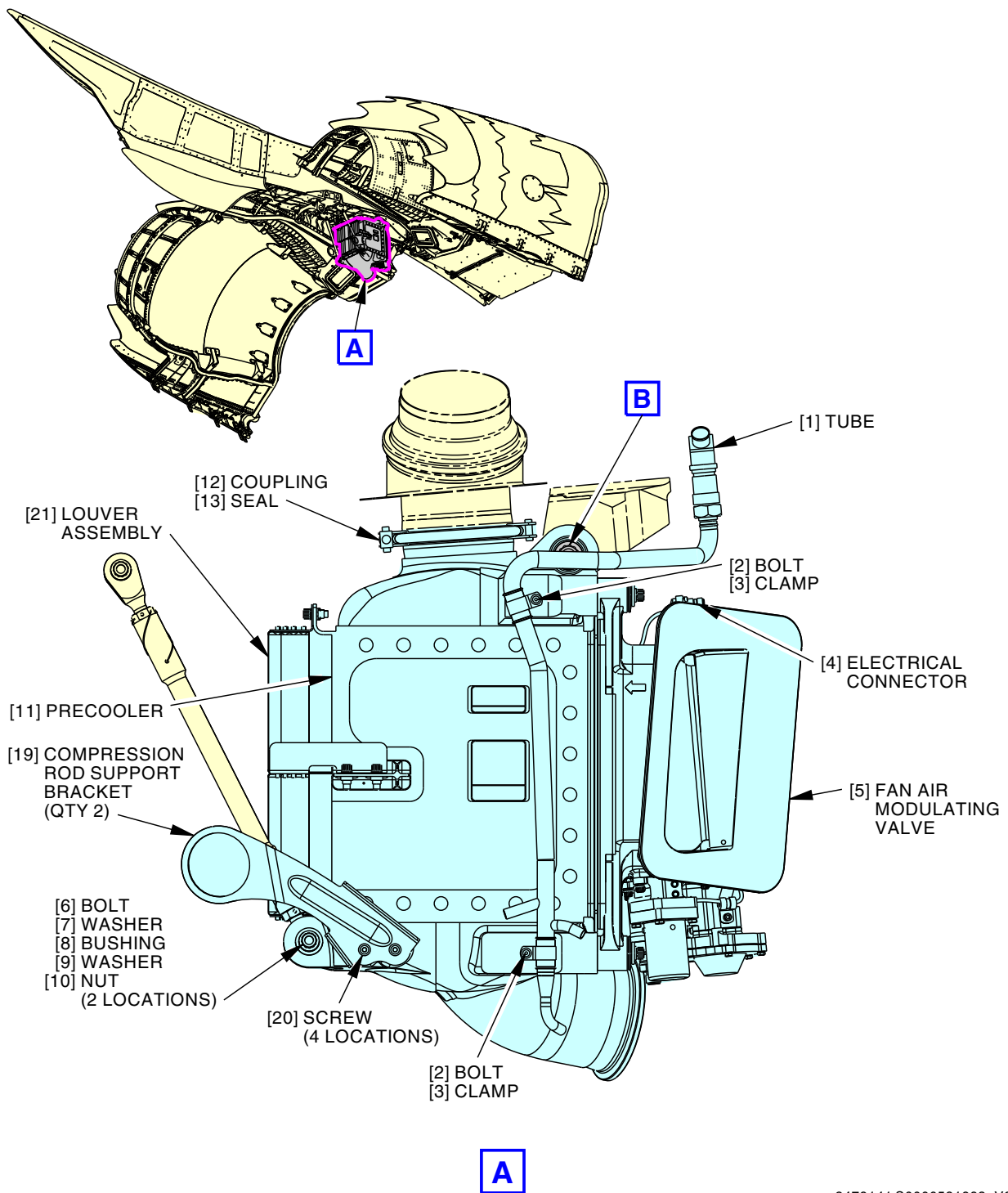
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 403
Sep 15/2023



2479141 S0000581993_V3

Bleed Air Precooler Installation with Engine Removed
Figure 401/36-12-01-990-808 (Sheet 1 of 2)

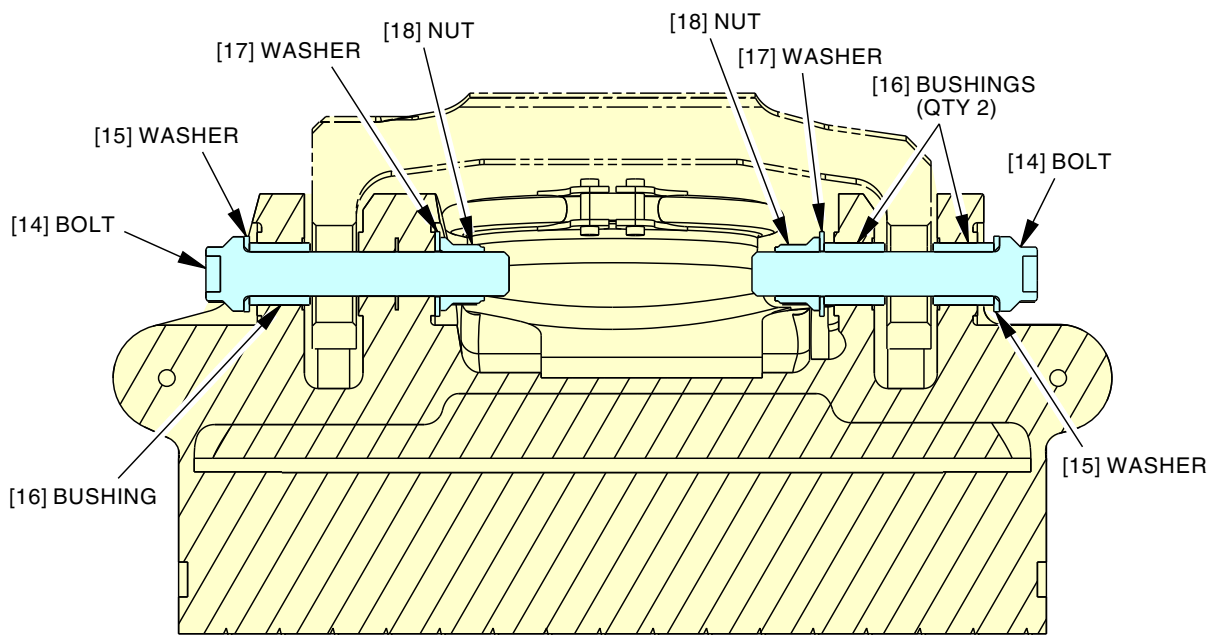
EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Sep 15/2021



VIEW LOOKING AFT

B

2479142 S0000581995_V1

Bleed Air Precooler Installation with Engine Removed
Figure 401/36-12-01-990-808 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2021



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

TASK 36-12-01-400-802

3. Bleed Air Precooler Installation with Engine Removed

(Figure 401)

A. General

- (1) This task gives the instructions to install the bleed air precooler with engine removed.
- (2) For this task, the combined bleed air precooler and fan air modulating valve will be referred to as the precooler.

B. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-730-801	Pneumatic Engine On - System Test (P/B 501)
36-11-04-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV (P/B 501)
36-12-03-400-801	Fan Air Modulating Valve Installation (P/B 401)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
71-00-00-790-801-G00	Test No. 1 - Pneumatic Leak Test (P/B 501)
71-00-02-400-801-G00	Power Plant - Installation (P/B 401)

C. Tools/Equipment

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

Reference	Description
SPL-1556	Hoist - Boom, General, 400 Pound Maximum Capacity Part #: A20001-185 Supplier: 81205 Opt Part #: A20001-152 Supplier: 81205 Opt Part #: A20001-82 Supplier: 81205
SPL-11069	Load Positioner - Engine Accessories, 250 lb Capacity Part #: K20017-1 Supplier: 81205 Opt Part #: J20002-43 Supplier: 81205 Opt Part #: J20002-44 Supplier: 81205 Opt Part #: J20002-59 Supplier: 81205
SPL-14649	Removal and Installation Equip. - Precooler, LEAP-1B (Engine Off) Part #: C36003-23 Supplier: 81205 Opt Part #: C36003-1 Supplier: 81205
SPL-14791	Sling - Precooler Part #: C36005-37 Supplier: 81205
SPL-20064	Load Positioner - 250 lb Capacity Part #: C20003-1 Supplier: 81205
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-1010	Wrench - Strap
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 406
Sep 15/2023



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

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Precooler	36-12-01-01-210	SIA ALL
13	E-seal	36-12-01-01-170	SIA ALL

F. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
430	Subzone - Engine 1, Nacelle Strut
440	Subzone - Engine 2, Nacelle Strut

G. Bleed Air Precooler Installation with Engine Removed

SUBTASK 36-12-01-910-003

- (1) If installed, remove the protective covers from the pneumatic ducts.

SUBTASK 36-12-01-840-002

- (2) Do these steps to prepare the precooler [11] for the installation:
- (a) Examine the E-seal [13] for cracks, dents or other damage.
 - 1) Replace the E-seal [13] if it is damaged.

SUBTASK 36-12-01-480-002

- (3) Position the precooler [11] on the adapter, SPL-14649.

NOTE: The adapter, SPL-14649 can be used with one of these combinations:

- load positioner, SPL-11069 and hoist, SPL-1556, or
- load positioner, SPL-20064 and hoist, SPL-1556.

- (a) If necessary, use the sling, SPL-14791 to move the precooler [11] to the adapter, SPL-14649.

SUBTASK 36-12-01-420-006

- (4) Install the E-seal [13] at the top duct flange of the precooler [11].

SUBTASK 36-12-01-420-007

- (5) Lift the precooler [11] until the top duct flange touches the bleed air duct at the bottom of the strut and the forward mounting lugs align with the precooler clevises.

NOTE: Be careful to avoid any upward preload on the duct.

- (a) Make the precooler [11] level to allow even contact of the duct surface to the precooler outlet and seal.

SUBTASK 36-12-01-420-008

- (6) Install, but do not tighten the coupling [12] that attaches the precooler [11] to the strut.

SUBTASK 36-12-01-420-009

- (7) Install the forward mounting hardware.
- (a) Lubricate the threads and shank of the bolts [14] with Never-Seez NSBT compound, D00006.
 - (b) Install the bushings [16] into the precooler clevises.
 - (c) Install the bolts [14], washers [15], washers [17] and nuts [18].
 - 1) Make sure that the bolt heads are outboard with respect to the strut.
 - 2) Make sure that the countersunk side of the washer [15] is next to the bolt head.

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

Page 407
Sep 15/2023



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

- (d) Tighten the bolts [14] to 1200 $\pm$ 36 in-lb (136 $\pm$ 4 N·m).

SUBTASK 36-12-01-420-010

- (8) Tighten the coupling [12].
 - (a) Tighten the coupling nut to 107.5 $\pm$ 7.5 in-lb (12 $\pm$ 1 N·m).
 - (b) Lightly tap the outer surface of the coupling with a rubber mallet, STD-3906.
 - (c) Tighten the coupling nut again to 107.5 $\pm$ 7.5 in-lb (12 $\pm$ 1 N·m).

SUBTASK 36-12-01-080-001

- (9) Remove the adapter, SPL-14649.

SUBTASK 36-12-01-420-011

- (10) Attach the support links to the precooler [11].
 - (a) Install the bushings [8] in the lower end of the support links.
 - (b) Lubricate the threads and shank of the bolts [6] with Never-Seez NSBT compound, D00006.
 - (c) Install the bolts [6], washers [7], washers [9] and nuts [10].
 - 1) Make sure that the bolt heads are outboard with respect to the strut.
 - 2) Make sure that the countersunk side of the washer [7] is next to the bolt head.
 - (d) Tighten the bolts [6] to 425 $\pm$ 13 in-lb (48 $\pm$ 1 N·m).

SUBTASK 36-12-01-420-012

- (11) Install the fire extinguisher tube [1].
 - (a) Apply Never-Seez NSBT compound, D00006 to the threads of the strut fitting.
 - (b) Install the fire extinguisher tube B-nut onto the strut fitting.
 - 1) Do not tighten the B-nut at this time.
 - (c) Attach the fire extinguisher tube [1] to the precooler [11] with the clamps [3] and bolts [2].
 - 1) Tighten the bolts [2] to 25.0 $\pm$ 2.0 in-lb (2.8 $\pm$ 0.3 N·m).
 - (d) Tighten the B-nut to 700 $\pm$ 35 in-lb (79 $\pm$ 4 N·m).

SUBTASK 36-12-01-420-013

- (12) If not already installed on the precooler [11], install the fan air modulating valve [5].
 - (a) Do this task: Fan Air Modulating Valve Installation, TASK 36-12-03-400-801.

SUBTASK 36-12-01-420-014



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (13) Use the teflon-jawed pliers, STD-664 or strap wrench, STD-1010 to connect the electrical connector [4] to the fan air modulating valve [5] (TASK 70-00-01-910-803-G00).
 - (a) Remove the protective covers from the electrical receptacle of the fan air modulating valve [5] and the electrical connector [4].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 408
Sep 15/2023



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

- (b) Connect the electrical connector [4] to the fan air modulating valve [5].
- (c) Turn the knurled coupling ring while wiggling the backshell assembly until the coupling ring is seated.
- (d) Use a teflon-jawed pliers, STD-664 or strap wrench, STD-1010 to turn the coupling ring an additional 1/8 turn or until the wrench slips.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-01-410-004

- (1) Do this task: Power Plant - Installation, TASK 71-00-02-400-801-G00.

SUBTASK 36-12-01-790-002

- (2) Do this task: Test No. 1 - Pneumatic Leak Test, TASK 71-00-00-790-801-G00.

SUBTASK 36-12-01-760-001

- (3) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

SUBTASK 36-12-01-730-001

- (4) Do one of these tasks: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV, TASK 36-11-04-710-801 or Pneumatic Engine On - System Test, TASK 36-00-00-730-801.

————— END OF TASK —————

TASK 36-12-01-000-802

4. Bleed Air Precooler Removal with Engine Installed

(Figure 402)

A. General

- (1) This task gives the instructions to remove the bleed air precooler with engine installed.
- (2) For this task, it is not necessary to remove the engine from the strut.

B. References

Reference	Title
36-11-01-000-801	Engine Pneumatic Duct Removal (P/B 401)
36-12-03-000-801	Fan Air Modulating Valve Removal (P/B 401)
78-31-01-000-801-G00	Thrust Reverser Removal (P/B 401)

C. Tools/Equipment

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

Reference	Description
SPL-14647	Removal and Installation Equip. - Precooler, LEAP-1B (Engine On) Part #: C36004-1 Supplier: 81205
SPL-14791	Sling - Precooler Part #: C36005-37 Supplier: 81205

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
430	Subzone - Engine 1, Nacelle Strut

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 409
Sep 15/2023



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

(Continued)

Zone	Area
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440	Subzone - Engine 2, Nacelle Strut
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E. Prepare for the Removal

SUBTASK 36-12-01-010-006

- (1) Remove the outboard thrust reverser half.
 - (a) Do this task: Thrust Reverser Removal, TASK 78-31-01-000-801-G00.

F. Bleed Air Precooler Removal with Engine Installed

SUBTASK 36-12-01-940-001

- (1) Install the shield assembly on the thrust links.

SUBTASK 36-12-01-020-013

- (2) Remove the fire extinguishing tube [1] tube from the precooler [11]:
 - (a) Remove the clamps [3] and bolts [2] that attach the fire extinguishing tube [1] to the precooler [11].
 - (b) Disconnect the fire extinguishing tube [1] at the strut firewall.
 - (c) Remove the fire extinguishing tube [1].
 - (d) Install the protective covers on the open connections.

SUBTASK 36-12-01-020-014

- (3) Do this task: Fan Air Modulating Valve Removal, TASK 36-12-03-000-801

SUBTASK 36-12-01-010-007

- (4) If necessary, remove the crossover duct from the engine (TASK 36-11-01-000-801).

SUBTASK 36-12-01-020-015

- (5) Remove the compression rod support brackets [19].
 - (a) Remove the screws [20] that attach the compression rod support brackets [19] to the precooler [11].

SUBTASK 36-12-01-020-016

- (6) Disconnect the support links from the precooler.
 - (a) Remove the bolts [6], washers [7], washers [9], bushings [8] and nuts [10].

SUBTASK 36-12-01-020-017

- (7) Remove the louver assembly [21].
 - (a) Remove the 9 screws on the aft face of the louvers that attach the louver assembly [21] to the precooler [11].
 - (b) Remove the 4 screws that attach the louver assembly [21] to the sides of the precooler [11].

SUBTASK 36-12-01-480-003

- (8) Attach the removal and installation equipment, SPL-14647 to the precooler [11].
 - (a) Install the attach plate on the outboard side of the louver assembly [21] with the two short bolts and the two long bolts.

SUBTASK 36-12-01-020-018

- (9) Remove the precooler [11].
 - (a) Remove the coupling [12] and E-seal [13] from the precooler outlet duct.
 - (b) Rotate the precooler forward approximately 46 degrees about the attach bolts.

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 410
Sep 15/2023



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

- 1) Loosen the knurled head screw.
- 2) Turn the rotate beam assembly.
- (c) Remove the bolts [14], washers [15], washers [17], bushings [16], and nuts [18] from the precooler clevises.
- (d) Rotate the precooler approximately 22 more degrees about the precooler center.
 - 1) Loosen the knurled head screw.
 - 2) Turn the rotate beam assembly.
- (e) Use the movement assembly and load positioner to move and turn the precooler as necessary to remove it from the engine.

NOTE: Refer to the tool usage placard for detailed instructions.

SUBTASK 36-12-01-480-004

- (10) If you will not immediately install a new precooler, make sure that you install the protective covers on all open connections.

SUBTASK 36-12-01-980-002

- (11) If necessary, use the sling, SPL-14791 to move the precooler [11] from the removal and installation equipment, SPL-14647.

———— **END OF TASK** ————

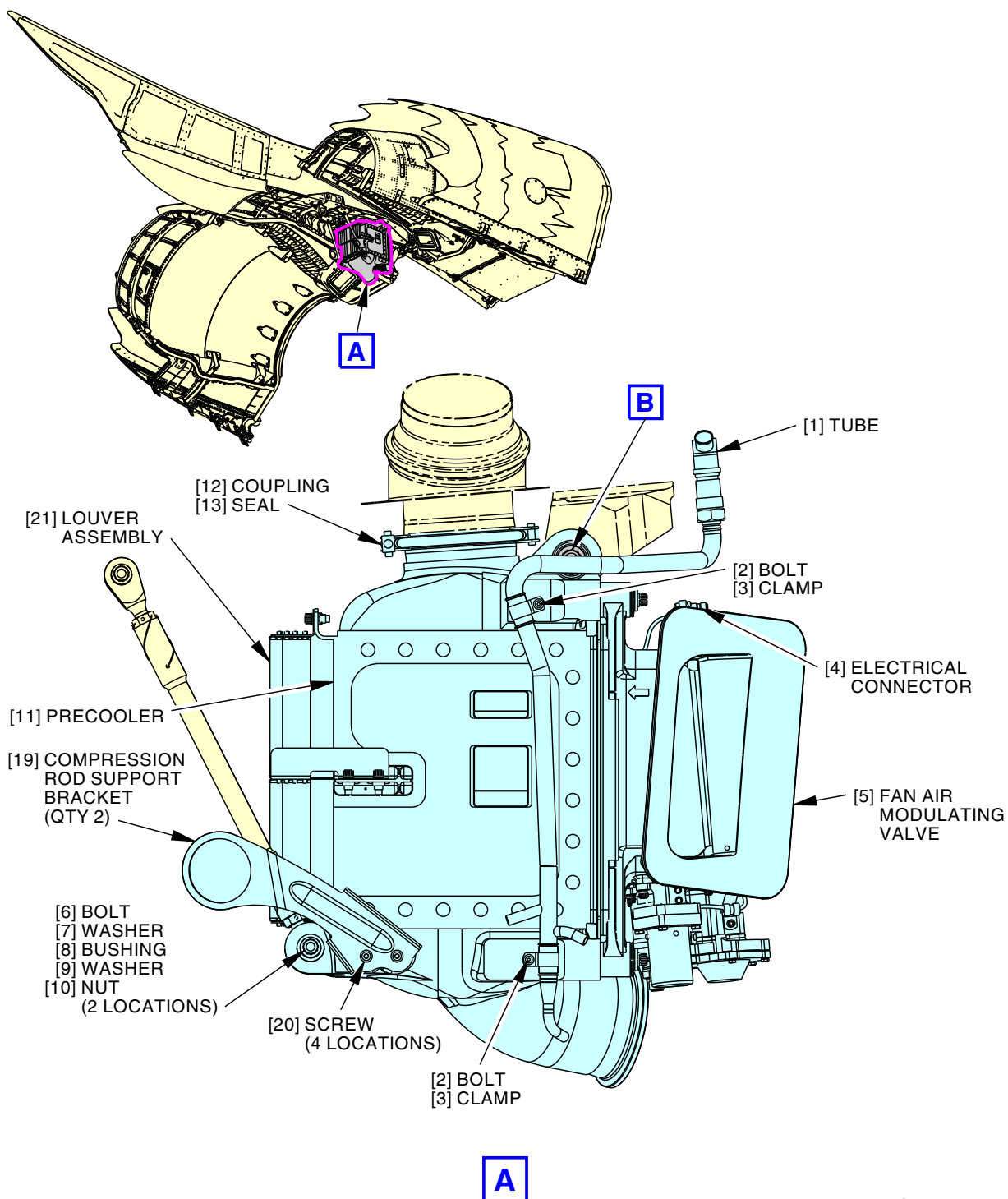
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 411
Sep 15/2023



2479141 S0000581993_V3

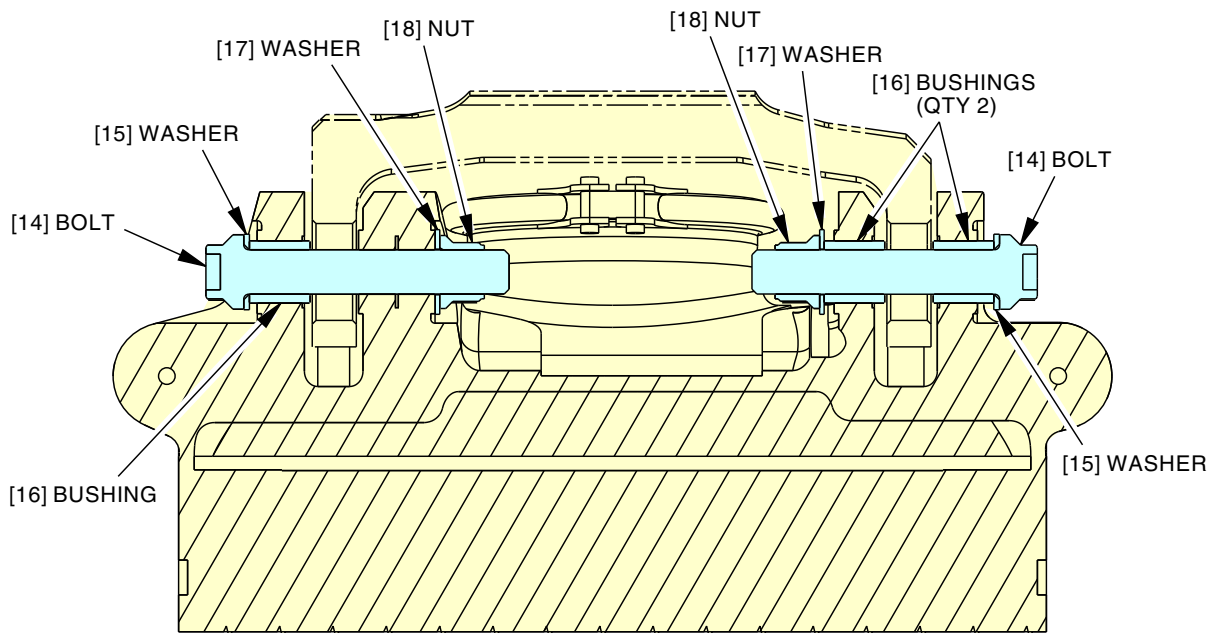
Bleed Air Precooler Removal with Engine Installed
Figure 402/36-12-01-990-809 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

Page 412
Sep 15/2021



VIEW LOOKING AFT

B

2479142 S0000581995_V1

Bleed Air Precooler Removal with Engine Installed
Figure 402/36-12-01-990-809 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

Page 413
Sep 15/2021



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

TASK 36-12-01-400-803

5. Bleed Air Precooler Installation with Engine Installed

(Figure 402)

A. General

(1) This task gives the instructions to install the bleed air precooler with engine installed.

B. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-730-801	Pneumatic Engine On - System Test (P/B 501)
36-11-04-710-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV (P/B 501)
36-12-03-400-801	Fan Air Modulating Valve Installation (P/B 401)
71-00-00-790-801-G00	Test No. 1 - Pneumatic Leak Test (P/B 501)
78-31-01-400-801-G00	Thrust Reverser Installation (P/B 401)

C. Tools/Equipment

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

Reference	Description
SPL-14647	Removal and Installation Equip. - Precooler, LEAP-1B (Engine On) Part #: C36004-1 Supplier: 81205
SPL-14791	Sling - Precooler Part #: C36005-37 Supplier: 81205
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Precooler	36-12-01-01-210	SIA ALL
13	E-seal	36-12-01-01-170	SIA ALL

F. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
430	Subzone - Engine 1, Nacelle Strut
440	Subzone - Engine 2, Nacelle Strut

G. Bleed Air Precooler Installation with Engine Installed

SUBTASK 36-12-01-010-008

(1) If installed, remove the protective covers from the pneumatic ducts.

SUBTASK 36-12-01-480-005

(2) Place pads on top of the engine to protect the fuel nozzles from damage.

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 414
Sep 15/2021



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

SUBTASK 36-12-01-420-015

- (3) Do these steps to prepare the precooler [11] for the installation:
- (a) Examine the E-seal [13] for cracks, dents or other damage.
 - 1) Replace the E-seal [13] if it is damaged.

SUBTASK 36-12-01-480-006

- (4) Position the precooler [11] on the removal and installation equipment, SPL-14647.
- (a) If necessary, use the sling, SPL-14791 to move the precooler [11] to the removal and installation equipment, SPL-14647.

SUBTASK 36-12-01-420-016

- (5) Use the movement assembly and load positioner to move and turn the precooler as necessary to move it into position for installation on the engine.

NOTE: Refer to the tool usage placard for detailed instructions.

SUBTASK 36-12-01-420-017

- (6) Loosely install the forward mounting hardware.
- (a) Lubricate the threads and shank of the bolts [14] with Never-Seez NSBT compound, D00006
 - (b) Install the bushings [16] into the precooler clevises.
 - (c) Install the bolts [14], washers [15], washers [17] and nuts [18].
 - 1) Make sure that the bolt heads are outboard with respect to the strut.
 - 2) Make sure that the countersunk side of the washer [15] is next to the bolt head.
 - 3) Do not tighten the bolts [14] at this time.

SUBTASK 36-12-01-080-002

- (7) Remove the removal and installation equipment, SPL-14647.

SUBTASK 36-12-01-420-018

- (8) Install the E-seal [13] at the top duct flange of the precooler [11].

SUBTASK 36-12-01-420-019



KEEP HANDS CLEAR OF THE BLEED-AIR PRECOOLER SWING-PATH. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN OCCUR.

- (9) Rotate the precooler [11] about the attach bolts until the top duct flange touches the bleed air duct at the bottom of the strut.

NOTE: Be careful to avoid any upward preload on the duct.

SUBTASK 36-12-01-420-020

- (10) Install, but do not tighten the coupling [12] that attaches the precooler [11] to the strut.

SUBTASK 36-12-01-420-021

- (11) Tighten the bolts [14] to 1200 $\pm$ 36 in-lb (136 $\pm$ 4 N·m).

SUBTASK 36-12-01-420-022

- (12) Tighten the coupling [12].
- (a) Tighten the coupling nut to 107.5 $\pm$ 7.5 in-lb (12 $\pm$ 1 N·m).
 - (b) Lightly tap the outer surface of the coupling with a rubber mallet, STD-3906.

NOTE: Be careful, do not hit the combustor burn through detector.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 415
Sep 15/2021



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

- (c) Tighten the coupling nut again to 107.5 $\pm$ 7.5 in-lb (12 $\pm$ 1 N·m).

SUBTASK 36-12-01-420-023

- (13) Install the louver assembly [21].
 - (a) Lubricate the threads of the screws with Never-Seez NSBT compound, D00006.
 - (b) Install the 9 screws on the aft face of the louvers that attach the louver assembly [21] to the precooler [11].
 - (c) Install the 4 screws that attach the louver assembly [21] to the sides of the precooler [11].
 - (d) Tighten the screws to 75.0 $\pm$ 2.0 in-lb (8.5 $\pm$ 0.3 N·m).

SUBTASK 36-12-01-420-024

- (14) Attach the support links to the precooler [11].
 - (a) Install the bushings [8] in the lower end of the support links.
 - (b) Lubricate the threads and shank of the bolts [6] with Never-Seez NSBT compound, D00006
 - (c) Install the bolts [6], washers [7], washers [9] and nuts [10].
 - 1) Make sure that the bolt heads are outboard with respect to the strut.
 - 2) Make sure that the countersunk side of the washer [7] is next to the bolt head.
 - (d) Tighten the bolts [6] to 425 $\pm$ 13 in-lb (48 $\pm$ 1 N·m).

SUBTASK 36-12-01-420-025

- (15) Install the fan air modulating valve [5].
 - (a) Do this task: Fan Air Modulating Valve Installation, TASK 36-12-03-400-801.

SUBTASK 36-12-01-420-026

- (16) Install the fire extinguisher tube [1].
 - (a) Apply Never-Seez NSBT compound, D00006 to the threads of the strut fitting.
 - (b) Install the fire extinguisher tube B-nut onto the strut fitting.
 - 1) Do not tighten the B-nut at this time.
 - (c) Attach the fire extinguisher tube [1] to the precooler with the clamps [3] and bolts [2].
 - 1) Tighten the bolts [2] to 25.0 $\pm$ 2.0 in-lb (2.8 $\pm$ 0.3 N·m)
 - (d) Tighten the B-nut to 700 $\pm$ 35 in-lb (79 $\pm$ 4 N·m).

SUBTASK 36-12-01-420-027

- (17) Install the compression rod support brackets [19].
 - (a) Tighten the screws [20] to 73.0 in-lb (8.2 N·m) - 77.0 in-lb (8.7 N·m).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-01-080-003

- (1) Remove the shield assembly from the thrust links.

SUBTASK 36-12-01-410-005

- (2) Install the outboard thrust reverser half.
 - (a) Do this task: Thrust Reverser Installation, TASK 78-31-01-400-801-G00.

I. Bleed Air Precooler Installation Test

SUBTASK 36-12-01-790-001

- (1) Do this task: Test No. 1 - Pneumatic Leak Test, TASK 71-00-00-790-801-G00.

EFFECTIVITY
SIA ALL

36-12-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 416
Sep 15/2021



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

SUBTASK 36-12-01-760-002

(2) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

SUBTASK 36-12-01-730-002

(3) Do one of these tasks: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - PRSOV, TASK 36-11-04-710-801 or Pneumatic Engine On - System Test, TASK 36-00-00-730-801.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-01

Page 417
Sep 15/2021



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

FAN AIR MODULATING VALVE (FAMV) FILTER - MAINTENANCE PRACTICES

1. General

A. This procedure provides the steps to replace the filter on the FAMV.

TASK 36-12-03-960-801

2. Fan Air Modulating Valve (FAMV) Filter - Replacement

(Figure 201)

A. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-12-00-720-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV (P/B 501)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-801-G00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-801-G00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE
STD-6378	Protective Mat - Rubber, Manufacturers Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 3 x 4 feet with warning streamer attached

C. **Consumable Materials**

Reference	Description	Specification
D50168	lubricant - GE Viscasil 10M silicone fluid	

D. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Filter element	36-12-03-01-115	SIA ALL
5	Packing	36-12-03-01-110	SIA ALL

E. **Location Zones**

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
430	Subzone - Engine 1, Nacelle Strut
440	Subzone - Engine 2, Nacelle Strut

F. **Access Panels**

Number	Name/Location
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
416	Right Thrust Reverser, Engine 1

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

Page 201
May 15/2023



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

(Continued)

Number	Name/Location
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2
426	Right Thrust Reverser, Engine 2

G. Prepare for the Replacement

SUBTASK 36-12-03-860-017



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-12-03-860-018

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-12-03-860-019

- (3) Attach DO NOT OPERATE tag, STD-858, to the switches that follow on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED.

SUBTASK 36-12-03-010-005

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



DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-801-G00.



IF FAN COWLS ARE INSTALLED, MAKE SURE THAT LEFT AND RIGHT FAN COWLS ARE IN THE FULL OPEN POSITION. MAKE SURE THAT THE SPRING DOOR OPENING-SYSTEM (SDOS) AND HOLD OPEN RODS (HOR) ARE LOCKED IN THEIR POSITION. IF YOU DO NOT, STRUCTURAL DAMAGE TO THE FAN COWL AND THRUST REVERSER CAN OCCUR.

- (b) Open both fan cowl panels (TASK 71-11-04-010-801-G00).

NOTE: Because the center line of the thrust reversers is off 6:00 o'clock position, both fan cowl panels must be opened to prevent damaging the fan cowl panel if either thrust reverser needs to be opened.

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

Page 202
May 15/2023



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

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Open the applicable right thrust reverser (TASK 78-31-00-010-801-G00).

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
416	Right Thrust Reverser, Engine 1
426	Right Thrust Reverser, Engine 2

SUBTASK 36-12-03-910-006

- (5) Install the protective mat, STD-6378, on the right thrust link.

H. Filter Replacement

SUBTASK 36-12-03-960-001

- (1) Do the steps that follow to remove the filter element [1]:



THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (a) Remove the filter cap [2], washer [3], compression spring [4], packing [5], and filter element [1].
- (b) Discard the packing [5].
- (2) Do the steps that follow to install the new filter element [1]:
 - (a) Lubricate the new packing [5] with lubricant, D50168.
 - (b) Install the new packing [5] onto the filter cap [2].
 - (c) Install the washer [3] and the compression spring [4] into the filter cap [2].
 - (d) Install the new filter element [1] and the filter cap [2] into the FAMV.
 - 1) Tighten the filter cap [2] to 300 in-lb (33.90 N·m) - 325 in-lb (36.72 N·m).

I. Put the Airplane Back to its Usual Condition

SUBTASK 36-12-03-910-007

- (1) Remove the protective mat, STD-6378.

SUBTASK 36-12-03-410-009



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.

- (2) Do these tasks in sequence to safely close the right thrust reverser:

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

Page 203
May 15/2023



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

(a) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
416	Right Thrust Reverser, Engine 1
426	Right Thrust Reverser, Engine 2

(b) Close the fan cowl panels (TASK 71-11-04-410-801-G00).

1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2

(c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-801-G00.

SUBTASK 36-12-03-860-020

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-12-03-860-021

(4) Remove the DO NOT OPERATE tag, STD-858, from these switches on the P5-10 panel:

- (a) BLEED 1
- (b) BLEED 2
- (c) APU BLEED.

SUBTASK 36-12-03-720-004

(5) Do this task: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV, TASK 36-12-00-720-801.

———— **END OF TASK** ————

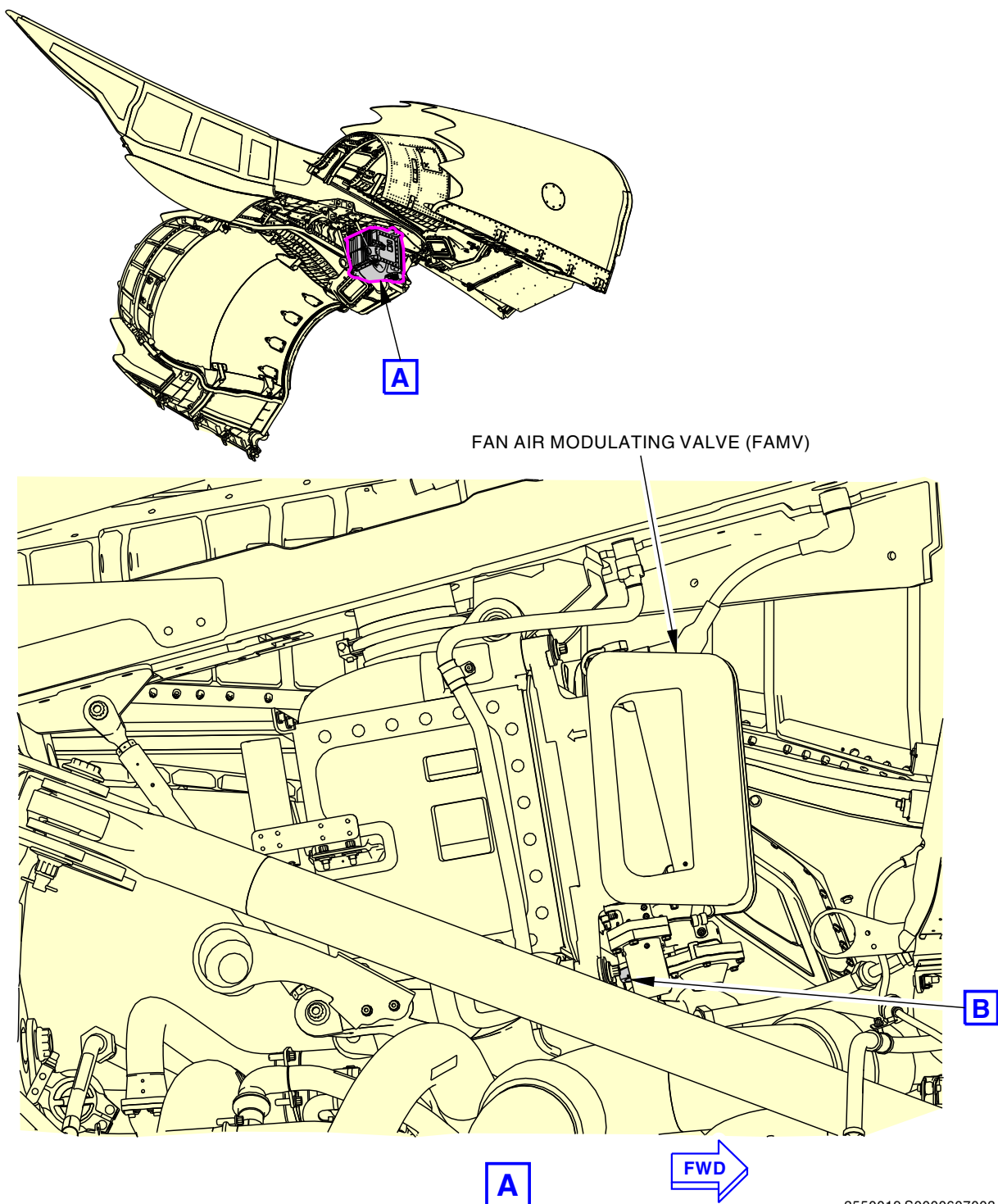
EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 204
May 15/2023



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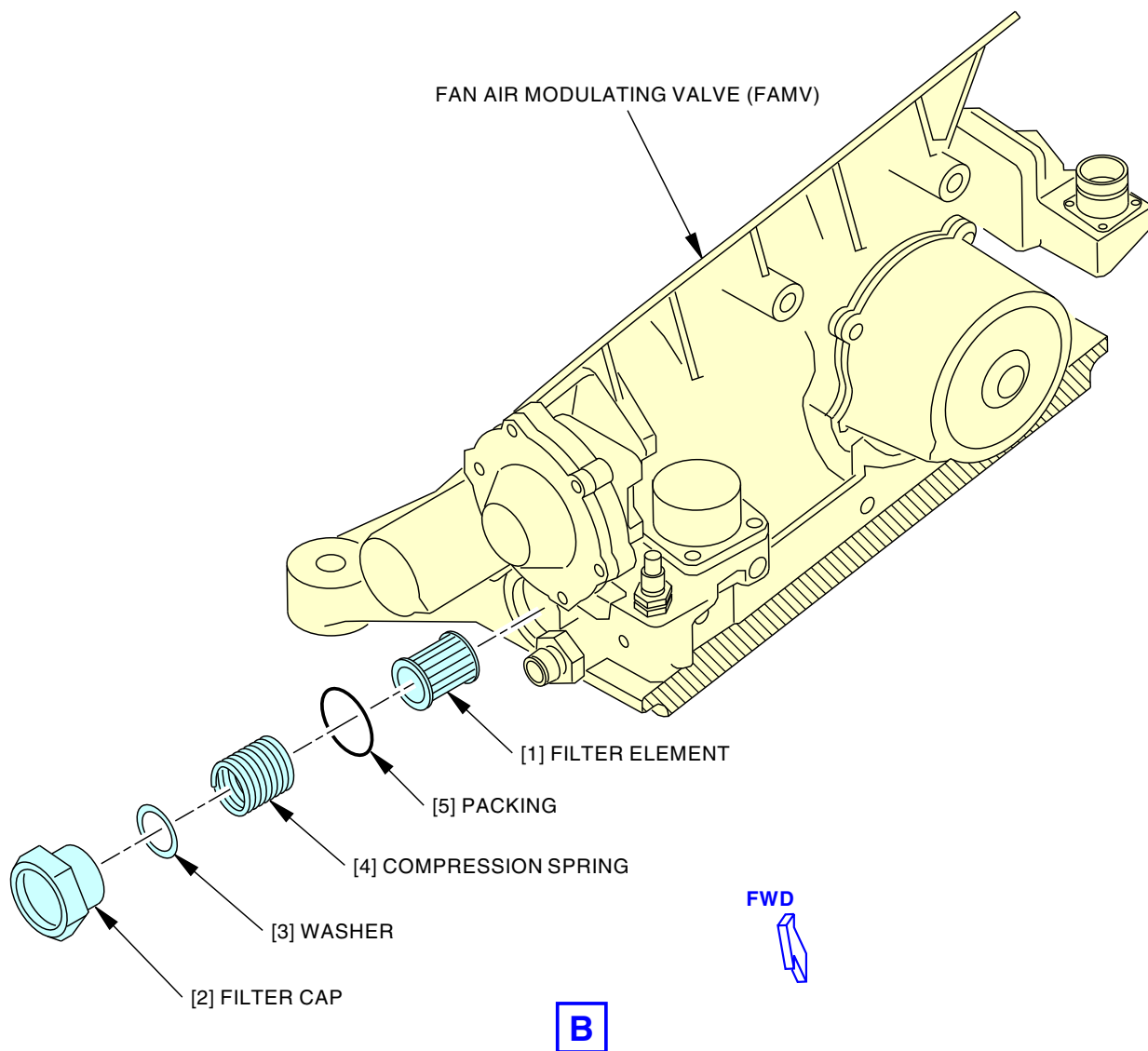
Fan Air Modulating Valve (FAMV) Filter Replacement
Figure 201/36-12-03-990-804 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

Page 205
Sep 15/2021



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Fan Air Modulating Valve (FAMV) Filter Replacement
Figure 201/36-12-03-990-804 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 206
Sep 15/2021



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

FAN AIR MODULATING VALVE (FAMV) - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) Fan air modulating valve removal
 - (2) Fan air modulating valve installation.
- B. The Fan Air Modulating Valve is installed on the forward end of the precooler.
- C. It is not necessary to remove the engine to remove or install the Fan Air Modulating Valve.

TASK 36-12-03-000-801

2. Fan Air Modulating Valve Removal

(Figure 401)

A. **General**

- (1) This task gives the instructions to remove the fan air modulating valve.
- (2) The fan air modulating valve is referred to as the Fan Air Modulating Valve (FAMV).

B. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-858	Tag - DO NOT OPERATE
STD-6378	Protective Mat - Rubber, Manufacturers Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 3 x 4 feet with warning streamer attached

D. **Location Zones**

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
430	Subzone - Engine 1, Nacelle Strut
440	Subzone - Engine 2, Nacelle Strut

E. **Prepare for the Removal**

SUBTASK 36-12-03-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 401
Sep 15/2023



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

SUBTASK 36-12-03-860-002

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-12-03-860-003

- (3) Attach DO NOT OPERATE tags, STD-858, to the switches that follow on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED.

SUBTASK 36-12-03-010-004



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-12-03-910-001

- (5) Install the protective mat, STD-6378, on the thrust links.

F. Fan Air Modulating Valve Removal

SUBTASK 36-12-03-020-001



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (1) Use a teflon-jawed pliers, STD-664, to disconnect the electrical connector [2] from the strut (TASK 70-00-01-910-803-G00).
- (a) Disconnect the electrical connector [2] from the strut.
 - (b) Install the protective covers on the electrical receptacle of the strut and the electrical connector [2].

SUBTASK 36-12-03-020-002

- (2) Disconnect the T-fitting [5] under the precooler on the right side of the fan cowl support beam as follows:
- (a) Disconnect the B-nut of the T-fitting [5] from the fan air modulating valve [4] supply port.
 - (b) Install the protective caps on the T-fitting [5] and the fan air modulating valve [4] open port.

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

Page 402
Sep 15/2023

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

SUBTASK 36-12-03-020-003



WARNING

BE CAREFUL WHEN YOU LIFT THE FAN AIR MODULATING VALVE (FAMV).
THE FAMV IS HEAVY, INJURIES TO PERSONNEL CAN OCCUR.

- (3) Remove the bolts [1] that connect the fan air modulating valve [4] to the precooler.

NOTE: The FAMV weights 33 lb (15 kg).

SUBTASK 36-12-03-020-004

- (4) Remove the fan air modulating valve [4].

NOTE: If the engine is installed, the FAMV can be removed from the outboard side of the engine.

NOTE: The FAMV can be removed with the front of the FAMV facing downward and the bottom of the FAMV going out first.

SUBTASK 36-12-03-020-005

- (5) Remove the wire harness from the fan air modulating valve [4].

NOTE: The wire harness will be installed on the new FAMV.

SUBTASK 36-12-03-020-006

- (6) Remove the seal [3] from the fan air modulating valve [4].

SUBTASK 36-12-03-020-007

- (7) Examine the seal [3] for damage.

(a) If damage is found, replace the seal [3].

SUBTASK 36-12-03-020-008

- (8) Install the protective cover on the precooler.

————— **END OF TASK** —————

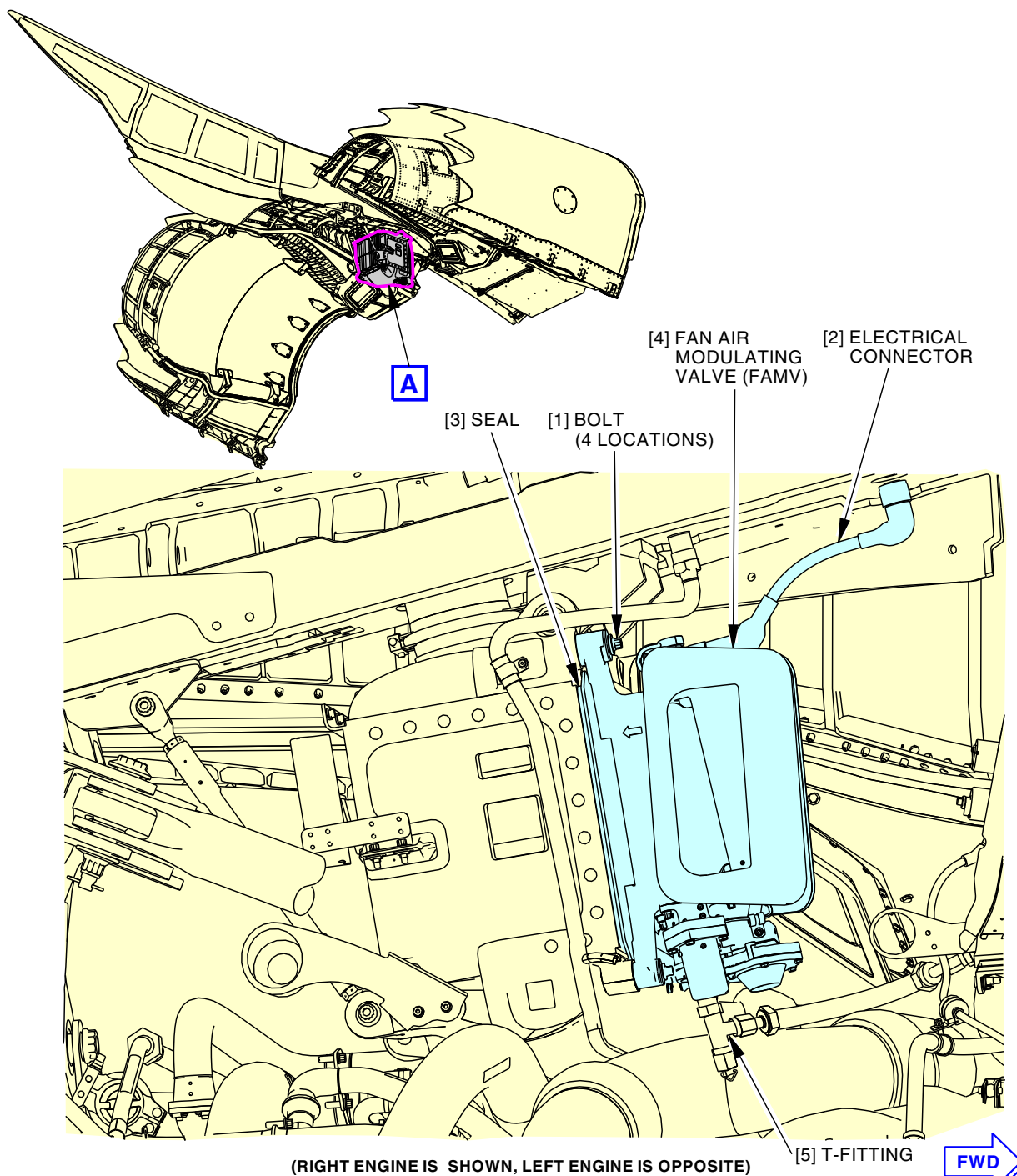
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 403
Sep 15/2021



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Fan Air Modulating Valve Installation
Figure 401/36-12-03-990-802 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

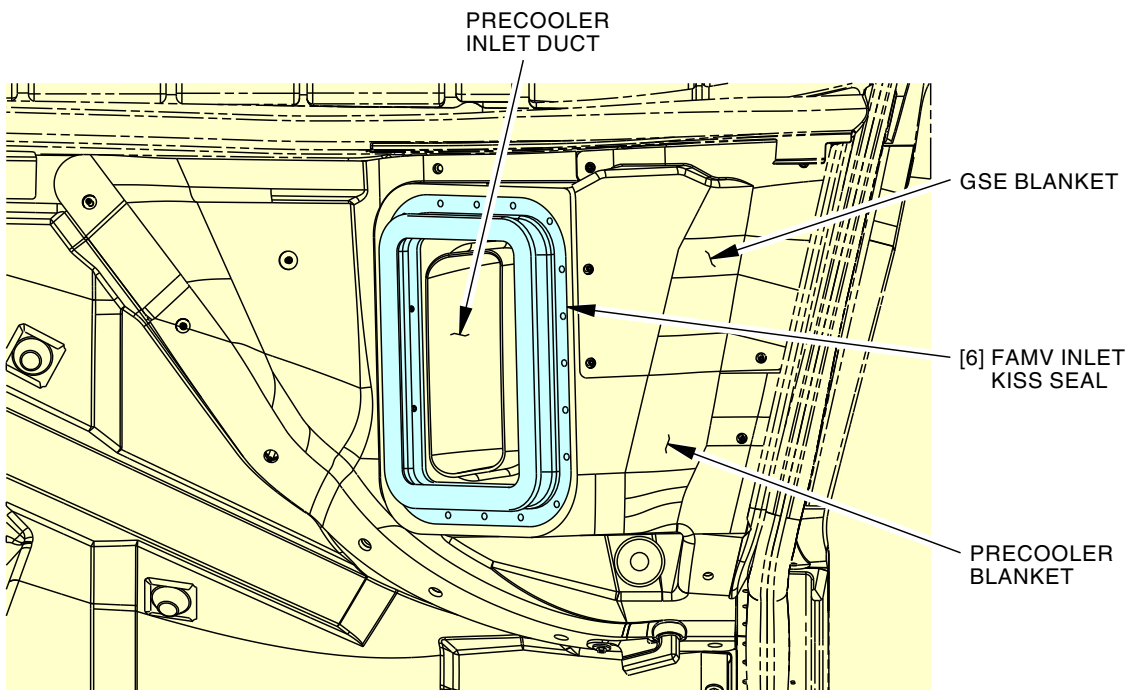
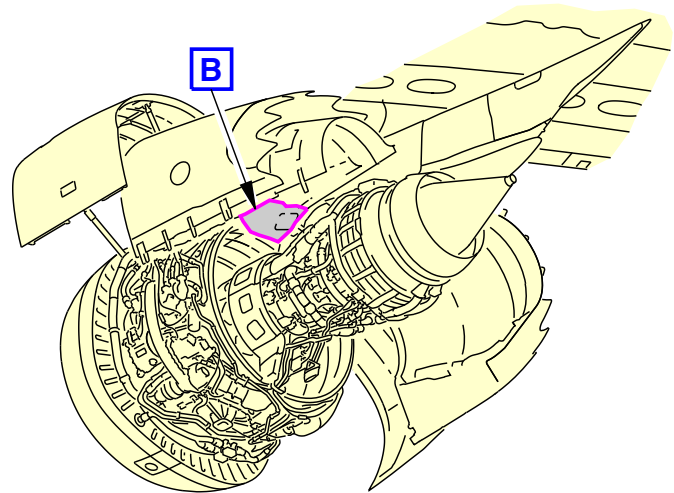
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 404
Sep 15/2023

I



(LEFT THRUST REVERSER IS SHOWN,
RIGHT THRUST REVERSER IS OPPOSITE)



B

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Fan Air Modulating Valve Installation
Figure 401/36-12-03-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 405
Sep 15/2023



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

TASK 36-12-03-400-801

3. **Fan Air Modulating Valve Installation**

(Figure 401)

A. General

- (1) This task gives the instructions to install the Fan Air Modulating Valve (FAMV).
- (2) The FAMV inlet kiss seal is referred to as the seal.
- (3) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.
 - (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-04.

B. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-730-801	Pneumatic Engine On - System Test (P/B 501)
36-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
36-12-00-720-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV (P/B 501)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-15 P/B 401	PRECOOLER INLET DUCT SEAL

C. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-858	Tag - DO NOT OPERATE
STD-1010	Wrench - Strap
STD-6378	Protective Mat - Rubber, Manufacturers Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 3 x 4 feet with warning streamer attached

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Seal	36-12-01-01-010	SIA ALL
4	Fan air modulating valve	36-12-03-01-010	SIA ALL

F. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

Page 406
May 15/2023



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

(Continued)

Zone	Area
430	Subzone - Engine 1, Nacelle Strut
440	Subzone - Engine 2, Nacelle Strut

G. Prepare for the Installation

SUBTASK 36-12-03-420-001

36-AWL-04: CDCCL

- (1) Check the FAMV inlet kiss seal [6], mounted on the thrust reverser for the following conditions:

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-04.

36-AWL-04: CDCCL

- (a) Make sure that a FAMV inlet kiss seal [6] is installed between the thrust reverser and the fan air modulating valve [4].

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-04.

36-AWL-04: CDCCL

- (b) Make sure that the FAMV inlet kiss seal [6] does not have tears or holes that extend beyond one edge of the seal.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-04.

- (c) If the FAMV inlet kiss seal [6] is missing or damaged, do this task: PRECOOLER INLET DUCT SEAL, PAGEBLOCK 78-31-15/401.

- (2) Install the seal [3] on the fan air modulating valve [4].

- (a) Make sure that the clipping features on all four sides of the seal [3] engage the flanges on the fan air modulating valve [4].

SUBTASK 36-12-03-420-002

- (3) Attach the wire harness to the fan air modulating valve [4].

H. Fan Air Modulating Valve Installation

SUBTASK 36-12-03-420-008

- (1) Remove the protective cover from the precooler.

SUBTASK 36-12-03-420-003

- (2) Apply Never-Seez NSBT compound, D00006, to the threads of the bolts [1].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 407
May 15/2023



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

SUBTASK 36-12-03-420-004



WARNING

BE CAREFUL WHEN YOU LIFT THE FAN AIR MODULATING VALVE (FAMV). THE FAMV IS HEAVY, INJURIES TO PERSONNEL CAN OCCUR.

- (3) Put the fan air modulating valve [4] in position on the forward side of the precooler.

NOTE: The FAMV weights 33 lb (15 kg).

NOTE: The FAMV can be installed with the front of the FAMV facing downward and the top of the FAMV going in first.

SUBTASK 36-12-03-160-001

- (4) Install the bolts [1].

- (a) Insert all bolts and turn by hand until the locking feature engages.
- (b) Torque the bolts [1] to 200 ± 6 in-lb (22.6 ± 0.7 N·m) in this sequence (viewed forward looking aft):
 - 1) Upper left
 - 2) Lower right
 - 3) Upper right
 - 4) Lower left

SUBTASK 36-12-03-420-005

- (5) Connect the T-fitting [5] under the precooler from the right side of the fan cowl support beam.

- (a) Remove the protective caps from the T-fitting [5] and from the fan air modulating valve [4] open port.
- (b) Connect the B-nut on the T-fitting [5].
- (c) Torque the B-nut to 270.0 ± 14.0 in-lb (30.5 ± 1.6 N·m).

SUBTASK 36-12-03-640-001



CAUTION

MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



CAUTION

DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (6) Use the teflon-jawed pliers, STD-664, or strap wrench, STD-1010, to connect the electrical connector [2] to the strut (TASK 70-00-01-910-803-G00).
- (a) Remove the protective covers from the electrical receptacle of the strut and the electrical connector [2].
 - (b) Connect the electrical connector [2] to the strut.
 - (c) Turn the knurled coupling ring while wiggling the backshell assembly until the coupling ring is seated.
 - (d) Use a teflon-jawed pliers, STD-664, or strap wrench, STD-1010, to turn the coupling ring an additional 1/8 turn or until the wrench slips.

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 408
Sep 15/2021



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

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-03-910-003

- (1) Remove the protective mat, STD-6378.

SUBTASK 36-12-03-410-002

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-12-03-410-003

- (3) Remove the DO NOT OPERATE tags, STD-858, from these switches on the P5-10 panel:

- (a) BLEED 1
- (b) BLEED 2
- (c) APU BLEED

SUBTASK 36-12-03-760-001

- (4) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

SUBTASK 36-12-03-730-001

- (5) Do one of these tasks: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV, TASK 36-12-00-720-801 or Pneumatic Engine On - System Test, TASK 36-00-00-730-801.

SUBTASK 36-12-03-410-008

 WARNING	OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS WHEN YOU CLOSE THE THRUST REVERSERS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.
---	--

- (6) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2021



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

FAN AIR MODULATING VALVE (FAMV) FILTER ELEMENT - CLEANING

1. **General**

A. This procedure provides the steps to remove, clean and install the filter element on the FAMV.

TASK 36-12-03-100-801

2. **Fan Air Modulating Valve (FAMV) Filter Element - Cleaning**

(Figure 701)

A. References

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-12-00-720-801	36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV (P/B 501)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-801-G00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-801-G00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE
STD-6378	Protective Mat - Rubber, Manufacturers Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 3 x 4 feet with warning streamer attached

C. Consumable Materials

Reference	Description	Specification
D50168	lubricant - GE Viscasil 10M silicone fluid	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Packing	36-12-03-01-110	SIA ALL

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine
430	Subzone - Engine 1, Nacelle Strut
440	Subzone - Engine 2, Nacelle Strut

F. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
416	Right Thrust Reverser, Engine 1
423	Left Fan Cowl, Engine 2

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 701
Sep 15/2022



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

(Continued)

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

424	Right Fan Cowl, Engine 2
426	Right Thrust Reverser, Engine 2

G. Prepare for the Cleaning

SUBTASK 36-12-03-860-012



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-12-03-860-013

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-12-03-860-014

- (3) Attach DO NOT OPERATE tags, STD-858, to the switches that follow on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED.

SUBTASK 36-12-03-010-003

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



DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-801-G00.



IF FAN COWLS ARE INSTALLED, MAKE SURE THAT LEFT AND RIGHT FAN COWLS ARE IN THE FULL OPEN POSITION. MAKE SURE THAT THE SPRING DOOR OPENING-SYSTEM (SDOS) AND HOLD OPEN RODS (HOR) ARE LOCKED IN THEIR POSITION. IF YOU DO NOT, STRUCTURAL DAMAGE TO THE FAN COWL AND THRUST REVERSER CAN OCCUR.

- (b) Open both fan cowl panels (TASK 71-11-04-010-801-G00).

NOTE: Because the center line of the thrust reversers is off 6:00 o'clock position, both fan cowl panels must be opened to prevent damaging the fan cowl panel if either thrust reverser needs to be opened.

EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

Page 702
May 15/2023



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

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
414	Right Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2
424	Right Fan Cowl, Engine 2



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Open the applicable right thrust reverser (TASK 78-31-00-010-801-G00).

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
416	Right Thrust Reverser, Engine 1
426	Right Thrust Reverser, Engine 2

SUBTASK 36-12-03-910-004

- (5) Install the protective mat, STD-6378, on the right thrust link.

SUBTASK 36-12-03-020-009

- (6) Do the steps that follow to remove the filter element [1]:



THE SPRING ON THE FILTER IS SPRING-LOADED. MAKE SURE TO RELEASE THE SPRING TENSION SLOWLY. IF YOU DO NOT OBEY THIS WARNING, INJURY TO PERSONNEL CAN OCCUR.

- (a) Remove the filter cap [2], washer [3], compression spring [4], packing [5], and filter element [1].
- (b) Discard the packing [5].

H. Filter Element Cleaning

SUBTASK 36-12-03-100-003

- (1) Clean the filter off aircraft per the vender instructions.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-12-03-420-007

- (1) Do the steps that follow to install the filter element [1]:
 - (a) Make sure that the filter element [1] is serviceable.
 - 1) If the filter is not serviceable, install a new filter element [1].
 - (b) Lubricate the new packing [5] with lubricant, D50168.
 - (c) Install the new packing [5] onto the filter cap [2].
 - (d) Install the washer [3] and the compression spring [4] into the filter cap [2].
 - (e) Install the filter element [1] and the filter cap [2] into the FAMV.
 - 1) Tighten the filter cap [2] to 300 in-lb (33.90 N·m) - 325 in-lb (36.72 N·m).

SUBTASK 36-12-03-910-005

- (2) Remove the protective mat, STD-6378.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 703
May 15/2023



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

SUBTASK 36-12-03-410-007



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.

- (3) Do these tasks in sequence to safely close the right thrust reverser:
- (a) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.
- 1) Close these access panels:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|---------------------------------|
| 416 | Right Thrust Reverser, Engine 1 |
| 426 | Right Thrust Reverser, Engine 2 |
- (b) Close the fan cowl panels (TASK 71-11-04-410-801-G00).
- 1) Close these access panels:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|--------------------------|
| 413 | Left Fan Cowl, Engine 1 |
| 414 | Right Fan Cowl, Engine 1 |
| 423 | Left Fan Cowl, Engine 2 |
| 424 | Right Fan Cowl, Engine 2 |
- (c) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-801-G00.

SUBTASK 36-12-03-860-015

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
D	5	C04037	AIR COND BLEED AIR CONTROL BACKUP LEFT
D	6	C04038	AIR COND BLEED AIR CONTROL BACKUP RIGHT

SUBTASK 36-12-03-860-016

- (5) Remove the DO NOT OPERATE tags, STD-858, from these switches on the P5-10 panel:
- (a) BLEED 1
- (b) BLEED 2
- (c) APU BLEED.

SUBTASK 36-12-03-720-003

- (6) Do this task: 36 Pneumatics, LRU Replacement Test, Pneumatic Engine Off - FAMV, TASK 36-12-00-720-801.

————— END OF TASK —————

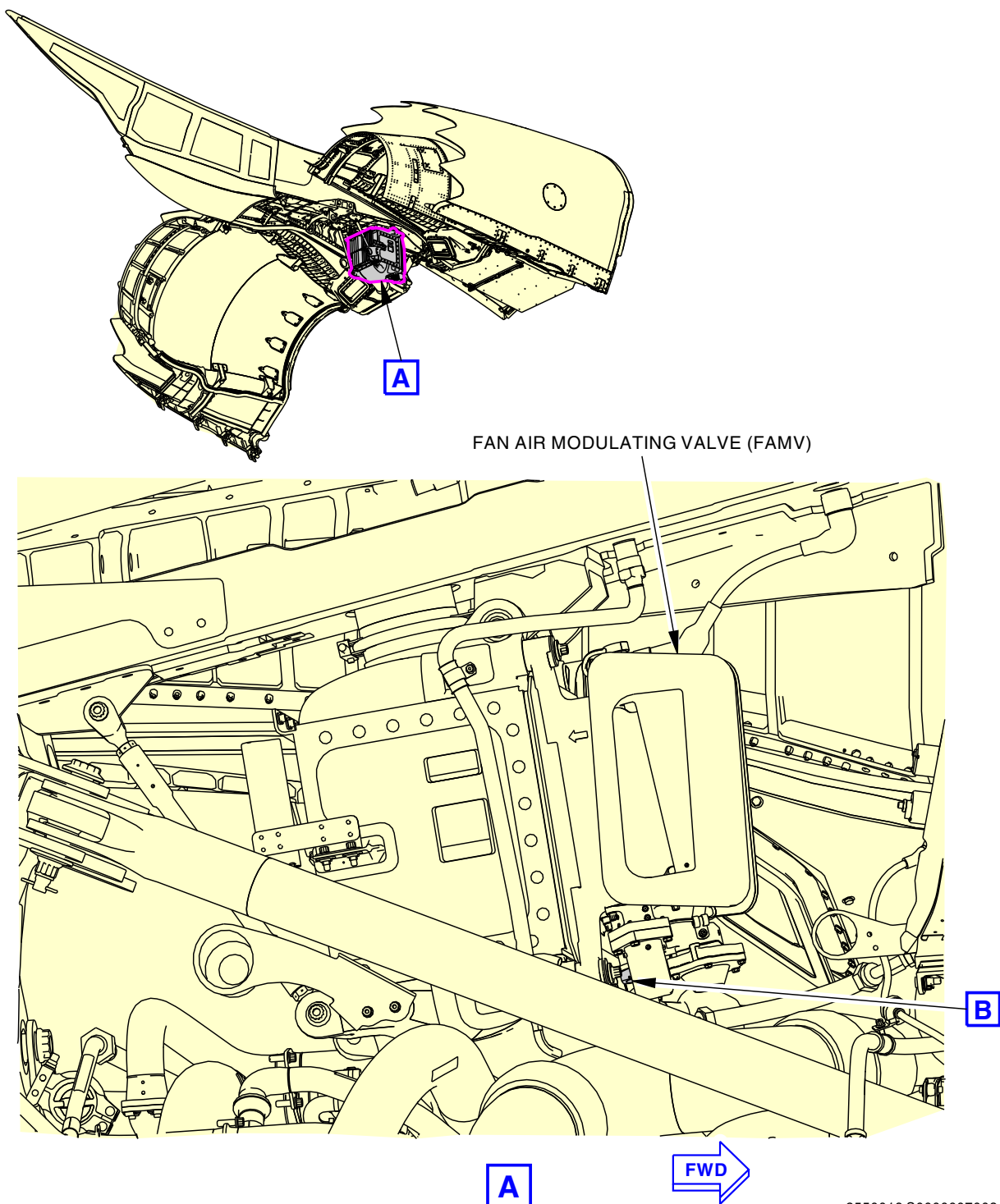
EFFECTIVITY
SIA ALL

36-12-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 704
May 15/2023



Fan Air Modulating Valve (FAMV) Filter Element Cleaning
Figure 701/36-12-03-990-801 (Sheet 1 of 2)

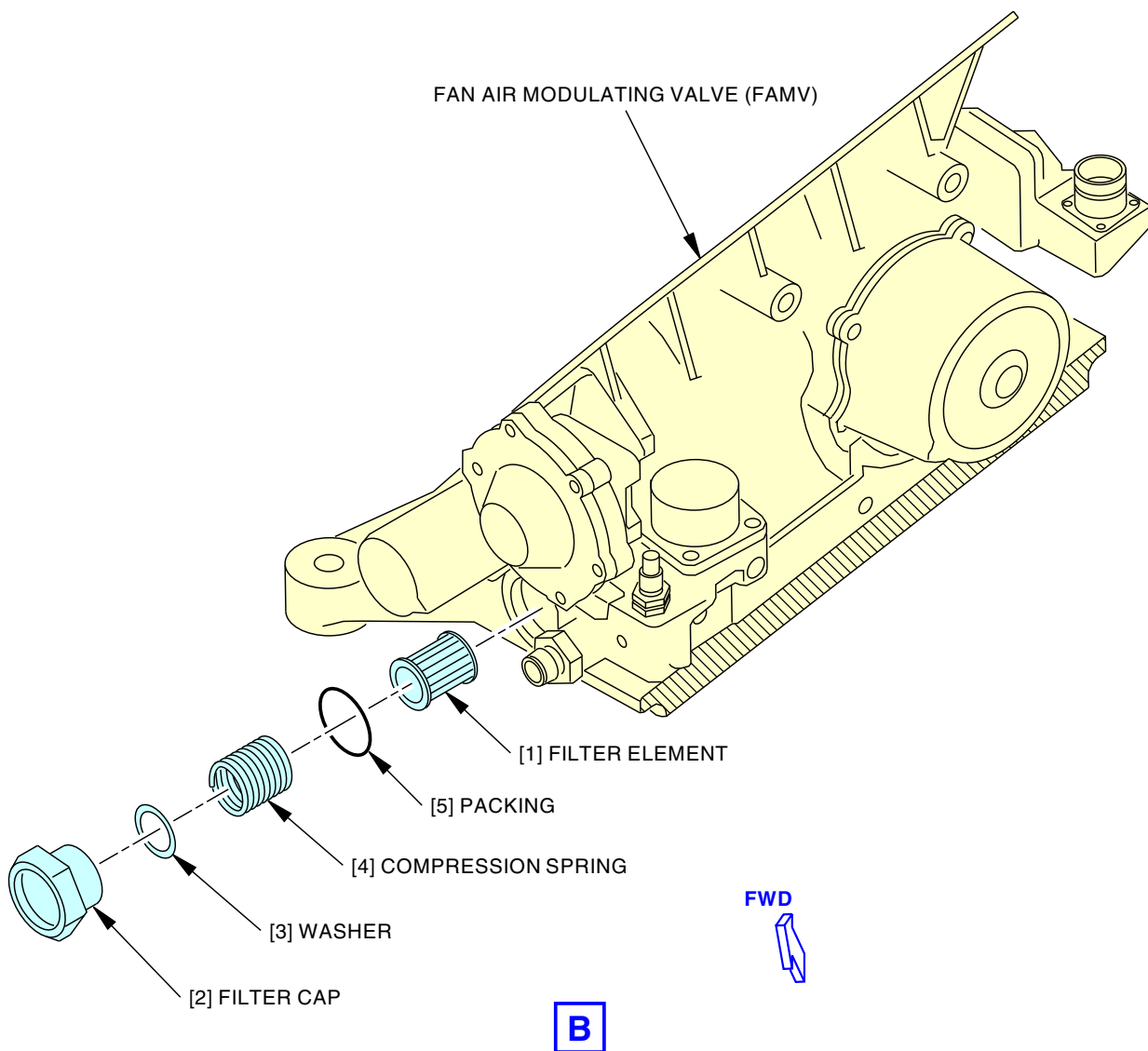
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 705
Sep 15/2021



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Fan Air Modulating Valve (FAMV) Filter Element Cleaning
Figure 701/36-12-03-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-12-03

Page 706
Sep 15/2021



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

PNEUMATIC MANIFOLD SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Pneumatic Manifold System - Deactivation
 - (2) Pneumatic Manifold System - Activation.

TASK 36-13-00-800-801

2. Pneumatic Manifold System - Deactivation

(Figure 201 or Figure 202)

A. **General**

- (1) This task will deactivate these components in the pneumatic manifold system:
- BLEED Air Isolation Valve
 - Engine 1 BLEED Air and Engine 2 BLEED Air Valves
 - Bleed Air Pressure Indicator.

B. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. **Location Zones**

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box
211	Flight Compartment - Left
212	Flight Compartment - Right

E. **Access Panels**

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

F. **Pneumatic Manifold System Deactivation**

SUBTASK 36-13-00-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

NOTE: Make sure that the APU, engines and ground air source are off.

- (a) If an external ground air source was used, disconnect the ground pneumatic service line from the ground pneumatic service connector.
- (b) Attach a DO NOT OPERATE tag, STD-858, on the pneumatic ground air source connection.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 201
May 15/2022



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

SUBTASK 36-13-00-860-002

- (2) Make sure that the APU BLEED air switch (S8) on the P5-10 air conditioning panel is in the OFF position.
 - (a) Attach a DO NOT OPERATE tag, STD-858, to the APU BLEED air switch (S8) on the P5-10 air conditioning panel.

SUBTASK 36-13-00-860-003

- (3) Make sure that the Engine 1 BLEED air switch (S6) and the Engine 2 BLEED air switch (S7) on the P5-10 air conditioning panel are in the OFF position.
 - (a) Attach DO NOT OPERATE tags, STD-858, to the Engine 1 BLEED air switch (S6) and the Engine 2 BLEED air switch (S7) on the P5-10 air conditioning panel.

SUBTASK 36-13-00-860-004

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-13-00-010-001

- (5) Open these access doors:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

G. Tryout

NOTE: This tryout is to make sure the pneumatic manifold system is in a zero energy state.

SUBTASK 36-13-00-210-001

- (1) Make sure that both duct pressure needles on the dual duct pressure indicator show 0 psi (0 kPa) on the P5-10 air conditioning panel.

SUBTASK 36-13-00-860-005

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00077	AIR CONDITIONING BLEED AIR PRESS IND

SUBTASK 36-13-00-210-002

- (3) Put an assistant in position to monitor the bleed air isolation valve (V16) inside the keel beam.

SUBTASK 36-13-00-860-006

- (4) Put the BLEED AIR ISOLATION VALVE switch (S10) on the P5-10 air conditioning panel to the OPEN position.
 - (a) Make sure that the position indicator on the bleed air isolation valve (V16) does not move.

EFFECTIVITY
SIA ALL

36-13-00

D633AM101-SIA

Page 202
May 15/2022



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

SUBTASK 36-13-00-860-007

- (5) Put the BLEED AIR ISOLATION VALVE switch (S10) on the P5-10 air conditioning panel to the CLOSED position.
 - (a) Make sure that the position indicator on the bleed air isolation valve (V16) does not move.

————— **END OF TASK** —————

EFFECTIVITY
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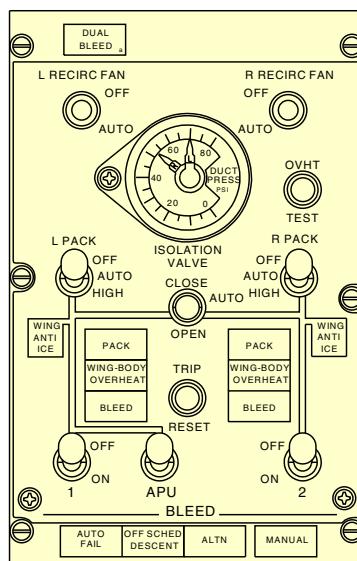
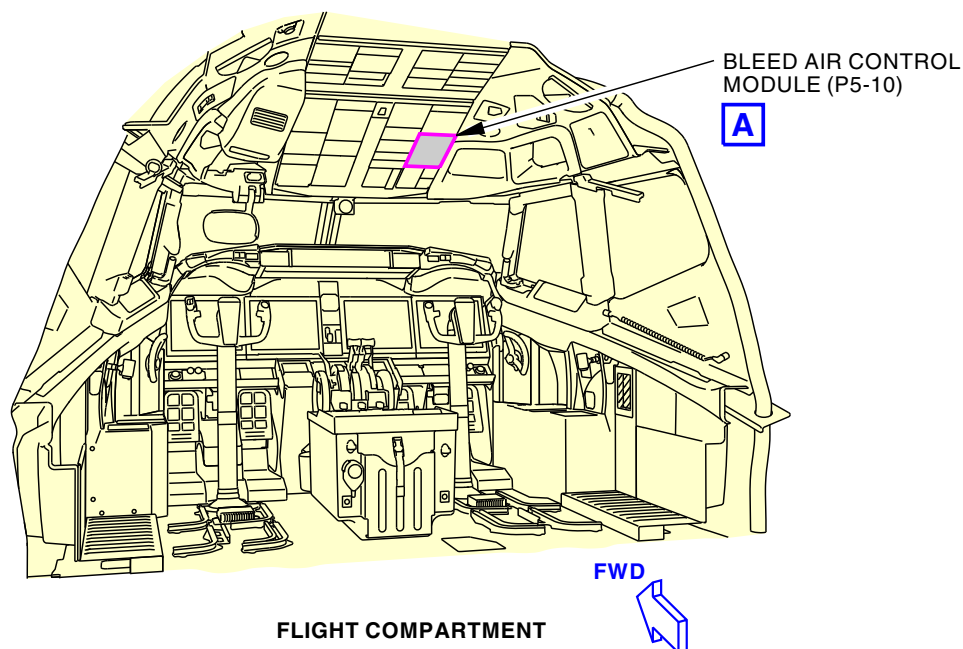
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36-13-00

Page 203
May 15/2022



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



BLEED AIR CONTROL MODULE (P5-10)



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Pneumatic Manifold System
Figure 201/36-13-00-990-801 (Sheet 1 of 3)

EFFECTIVITY
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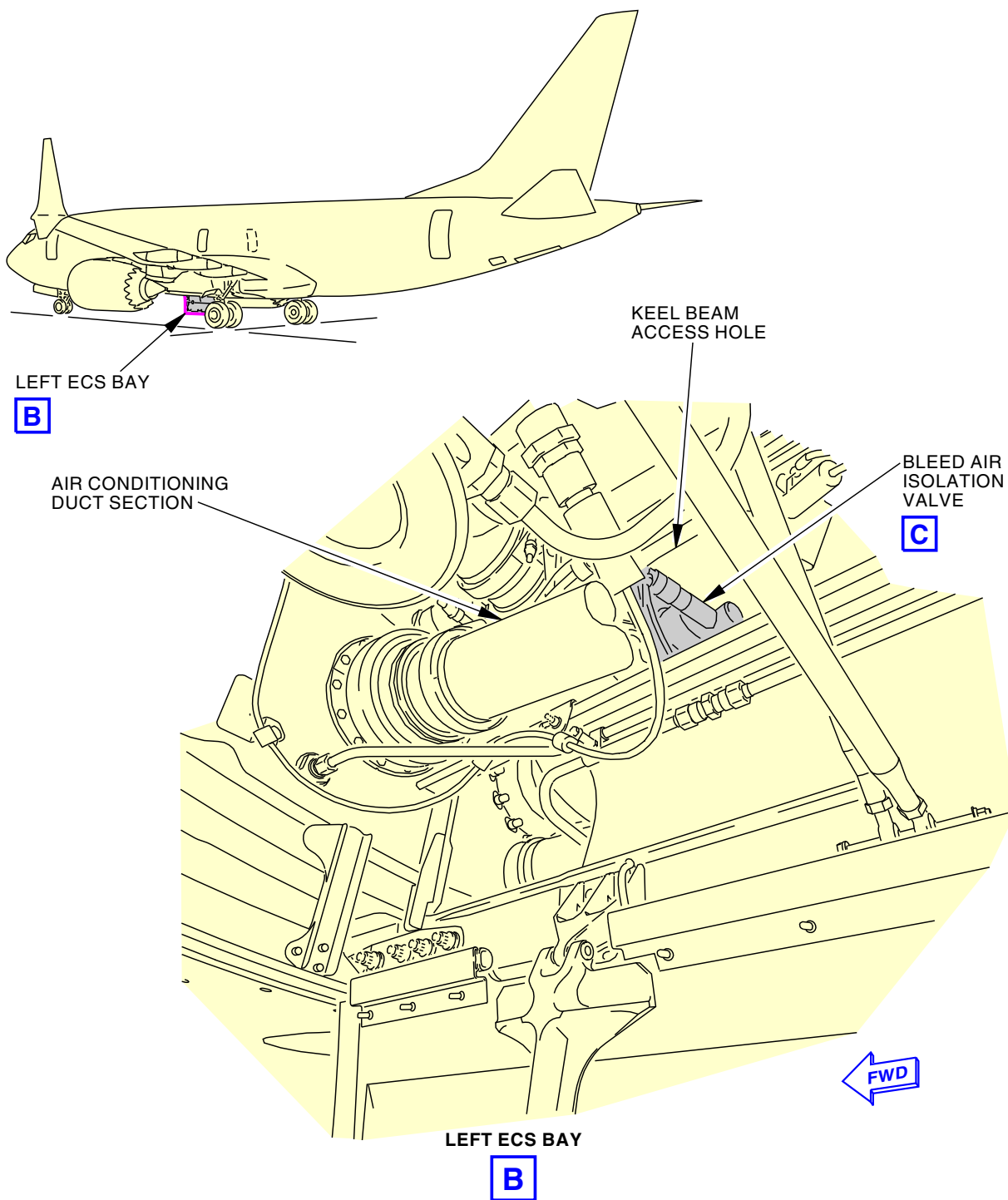
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D633AM101-SIA

Page 204
May 15/2022



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



2415089 S00061536947_V1

Pneumatic Manifold System
Figure 201/36-13-00-990-801 (Sheet 2 of 3)

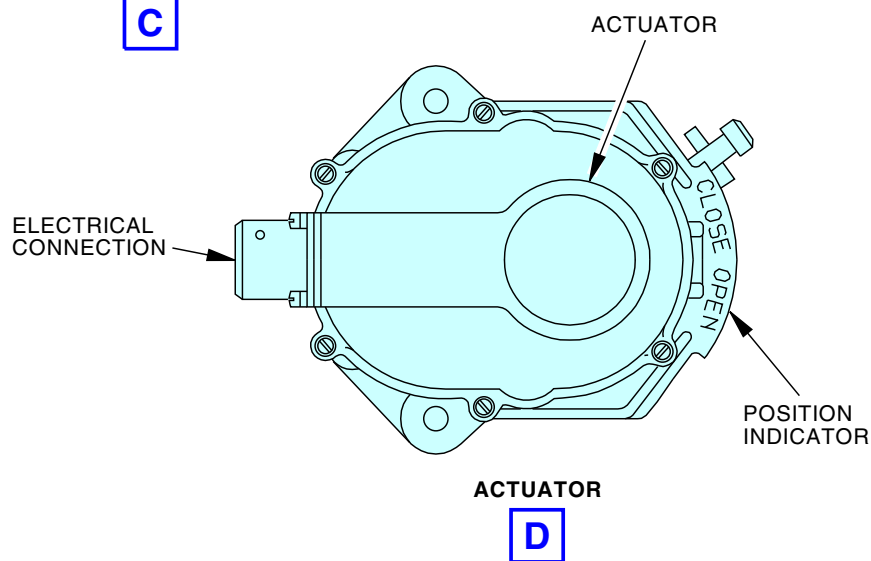
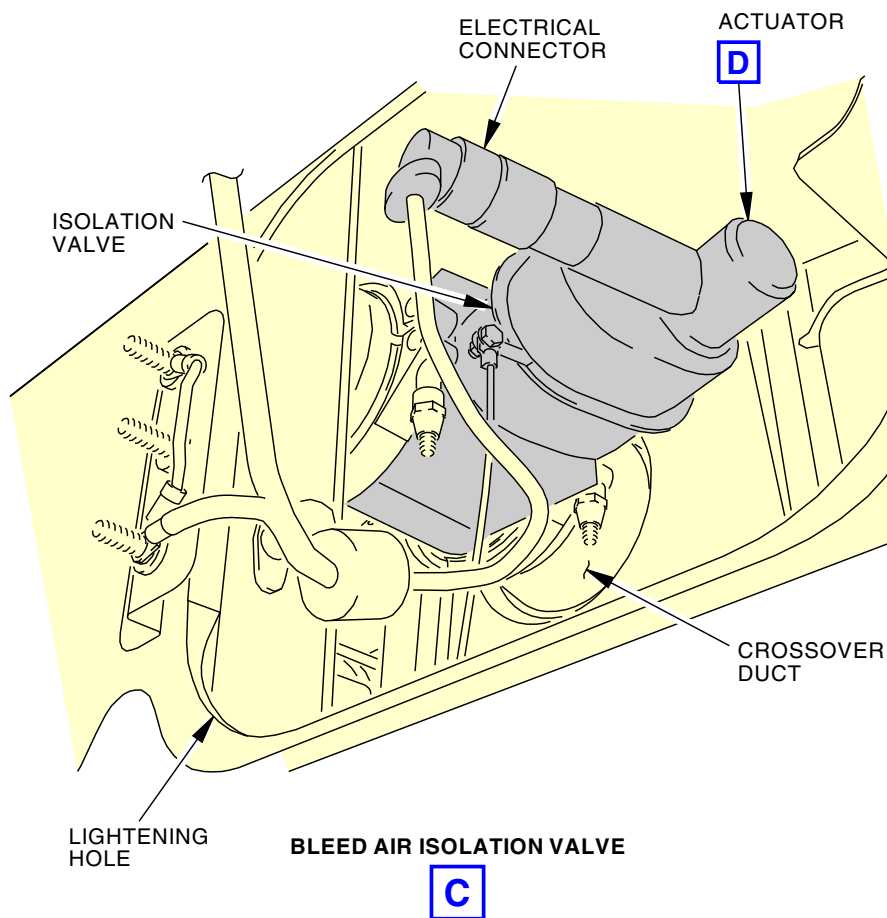
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 205
May 15/2022



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Pneumatic Manifold System
Figure 201/36-13-00-990-801 (Sheet 3 of 3)

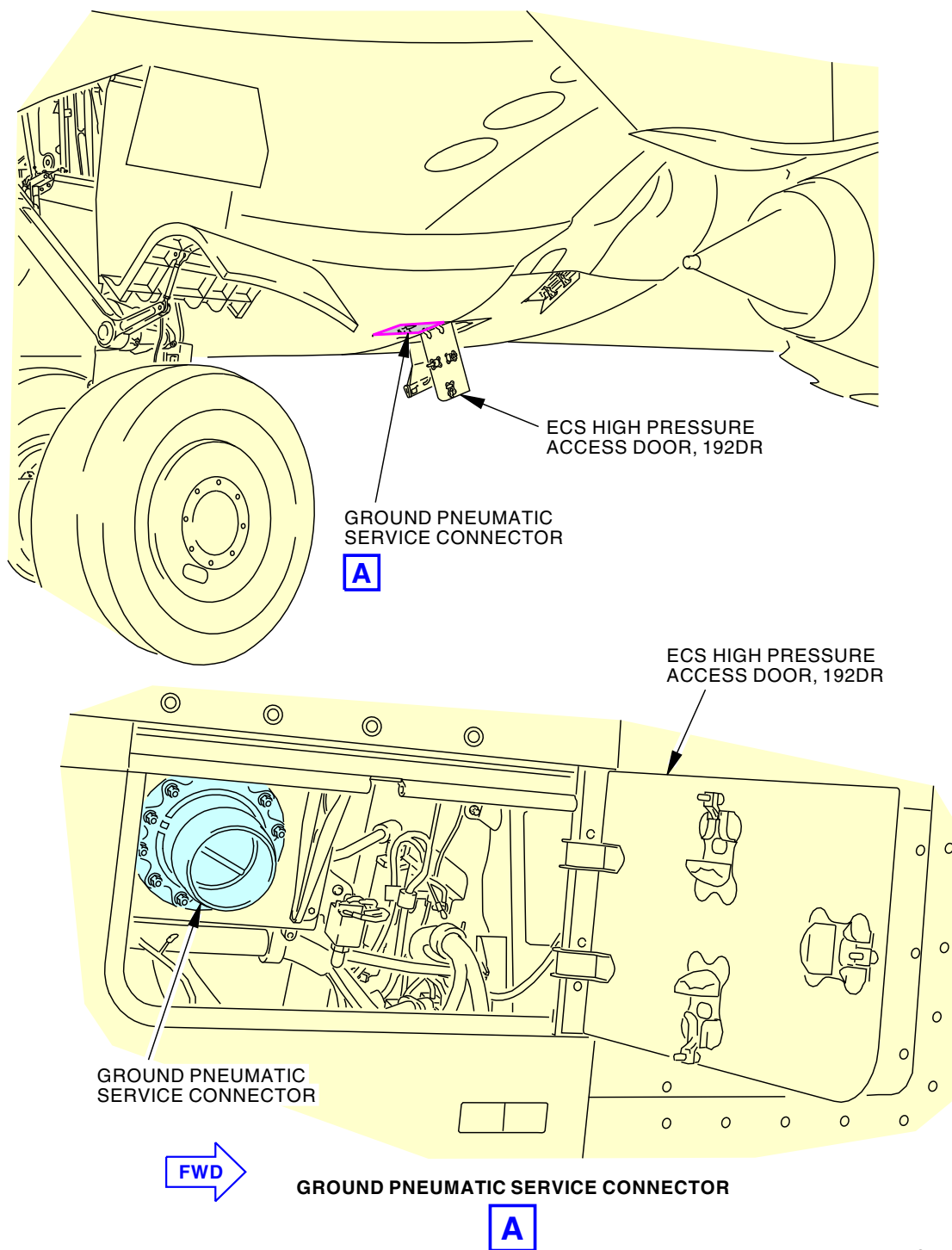
EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 206
May 15/2022



2414998 S00061536769_V1

Ground Pneumatic Service Connector
Figure 202/36-13-00-990-802

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 207
May 15/2022



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

TASK 36-13-00-800-802

3. Pneumatic Manifold System - Activation

(Figure 201 or Figure 202)

A. General

- (1) This task will activate these components in the pneumatic manifold system:
- BLEED Air Isolation Valve
 - Engine 1 BLEED Air and Engine 2 BLEED Air Valves
 - Bleed Air Pressure Indicator.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door
192DR	ECS High Pressure Access Door

E. Pneumatic Manifold System Activation

SUBTASK 36-13-00-840-001

- (1) Remove the DO NOT OPERATE tag, STD-858, on the pneumatic ground air source connection.

SUBTASK 36-13-00-840-002

- (2) Remove the DO NOT OPERATE tags, STD-858, on the APU BLEED air switch (S8), Engine 1 BLEED air switch (S6) and the Engine 2 BLEED air switch (S7) on the P5-10 air conditioning panel.

SUBTASK 36-13-00-860-008

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	5	C00077	AIR CONDITIONING BLEED AIR PRESS IND
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

EFFECTIVITY
SIA ALL

36-13-00

D633AM101-SIA

Page 208
May 15/2022



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

SUBTASK 36-13-00-410-001

(4) Close these access doors:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door
192DR	ECS High Pressure Access Door

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 209
May 15/2022



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

PNEUMATIC MANIFOLD SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has two tasks:
- (1) Bleed air isolation valve operational test
 - (2) Pneumatic duct leakage test.
- B. The operational test examines the actuation logic of bleed air isolation valve.
- C. The leakage test examines the pneumatic ducts downstream of the PRSOV for permitted leakage.

TASK 36-13-00-710-801

2. Bleed Air Isolation Valve Operational Test

(Figure 501)

A. **General**

- (1) The operational test examines the actuation logic of bleed air isolation valve. A check is done of the position of the isolation valve in relation to the position of the PACK and BLEED switches.

B. **Location Zones**

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box
212	Flight Compartment - Right

C. **Access Panels**

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

D. **Prepare for the Operational Test**

SUBTASK 36-13-00-860-010

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
D	15	C01401	LANDING GEAR AIR/GND RELAY
E	11	C00313	INDICATOR MASTER DIM SECT 1
E	12	C00314	INDICATOR MASTER DIM SECT 2
E	13	C00315	INDICATOR MASTER DIM SECT 3
E	14	C00316	INDICATOR MASTER DIM SECT 4
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	12	C00318	INDICATOR MASTER DIM SECT 6

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 501
May 15/2023



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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R
C	5	C00263	AIR CONDITIONING PACK CONT VALVES R
C	6	C00262	AIR CONDITIONING PACK CONT VALVES L
D	8	C00076	AIR CONDITIONING TEMP IND
E	4	C00884	AC RECIRC RIGHT FAN CABIN AIR

SUBTASK 36-13-00-010-007

(2) To get access to the isolation valve, do this step:

(a) Open these access panels:

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

E. Bleed Air Isolation Valve Operational Test

SUBTASK 36-13-00-860-011

(1) Put the ISOLATION VALVE switch on the P5-10 panel to the OPEN position.

(a) Make sure that the isolation valve visual position indicator moves to the OPEN position.

NOTE: Access to the isolation valve is limited. A flashlight and mirror can be necessary to view the position indicator.

SUBTASK 36-13-00-860-012

(2) Put the ISOLATION VALVE switch on the P5-10 panel to the CLOSED position.

(a) Make sure that the isolation valve visual position indicator moves to the CLOSED position.

NOTE: Access to the isolation valve is limited. A flashlight and mirror can be necessary to view the position indicator.

SUBTASK 36-13-00-860-013

(3) Put the ISOLATION VALVE switch on the P5-10 panel to the AUTO position.

SUBTASK 36-13-00-860-014

(4) Put the PACK switch and the BLEED switch on the P5-10 panel to the sequence of positions shown.

(a) Make sure that the isolation valve goes to or stays in the position shown:

NOTE: Access to the isolation valve is limited. A flashlight and mirror can be necessary to view the position indicator.

L PACK SW POS	R PACK SW POS	BLEED 1 SW POS	BLEED 2 SW POS	ISOLATION VALVE POSITION
AUTO	AUTO	ON	ON	CLOSED
OFF	AUTO	ON	ON	OPEN
AUTO	OFF	ON	ON	OPEN
AUTO	AUTO	ON	OFF	OPEN

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 502
May 15/2023



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

(Continued)

L PACK SW POS	R PACK SW POS	BLEED 1 SW POS	BLEED 2 SW POS	ISOLATION VALVE POSITION
AUTO	AUTO	OFF	ON	OPEN
OFF	OFF	OFF	OFF	OPEN
HIGH	HIGH	ON	ON	CLOSED
OFF	HIGH	ON	ON	OPEN
HIGH	OFF	ON	ON	OPEN
HIGH	HIGH	ON	OFF	OPEN
HIGH	HIGH	OFF	ON	OPEN
OFF	OFF	OFF	OFF	OPEN

SUBTASK 36-13-00-860-015

(5) Put the ISOLATION VALVE switch on the P5-10 panel to the CLOSED position.

(a) Make sure that the isolation valve visual position indicator moves to the CLOSED position.

NOTE: Access to the isolation valve is limited. A flashlight and mirror can be necessary to view the position indicator.

F. Put The Airplane Back To Its Usual Condition

SUBTASK 36-13-00-410-004

(1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

————— END OF TASK —————

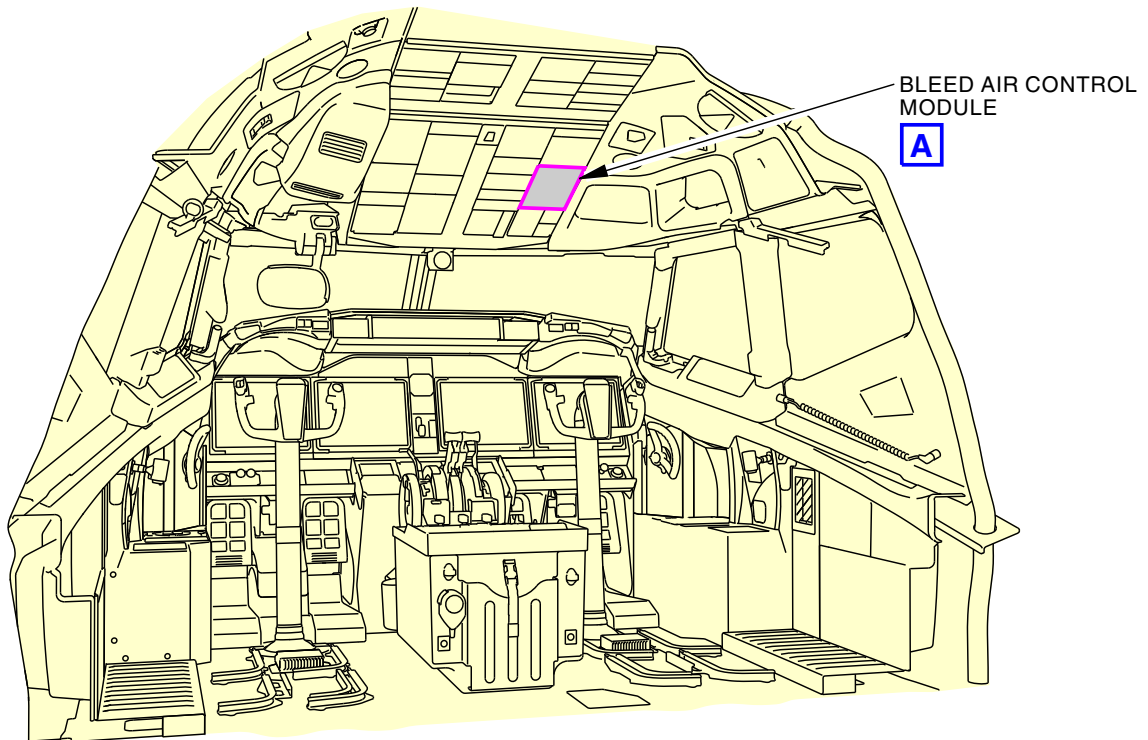
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SIA ALL

D633AM101-SIA

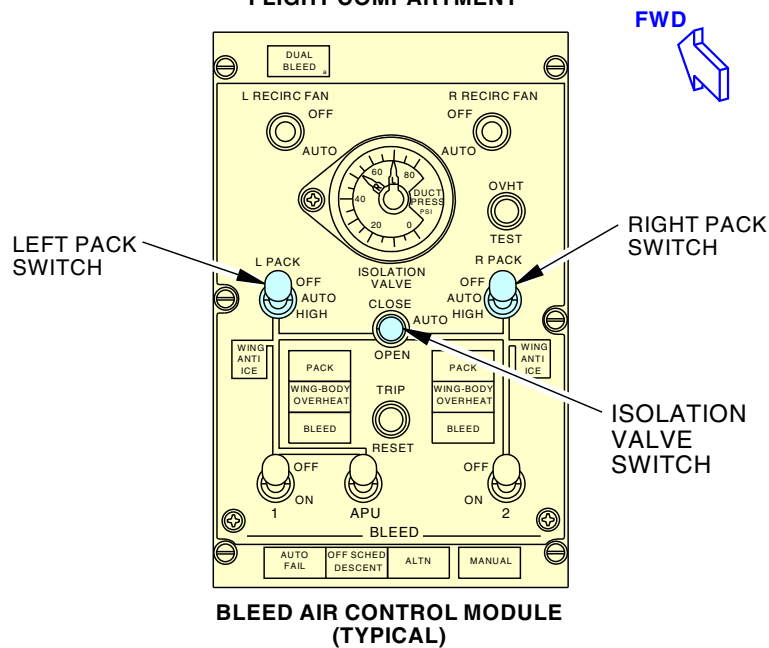
ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 503
May 15/2023



FLIGHT COMPARTMENT



2415091 S00061536952_V2

Bleed Air Isolation Valve Operational Test
Figure 501/36-13-00-990-803 (Sheet 1 of 3)

EFFECTIVITY
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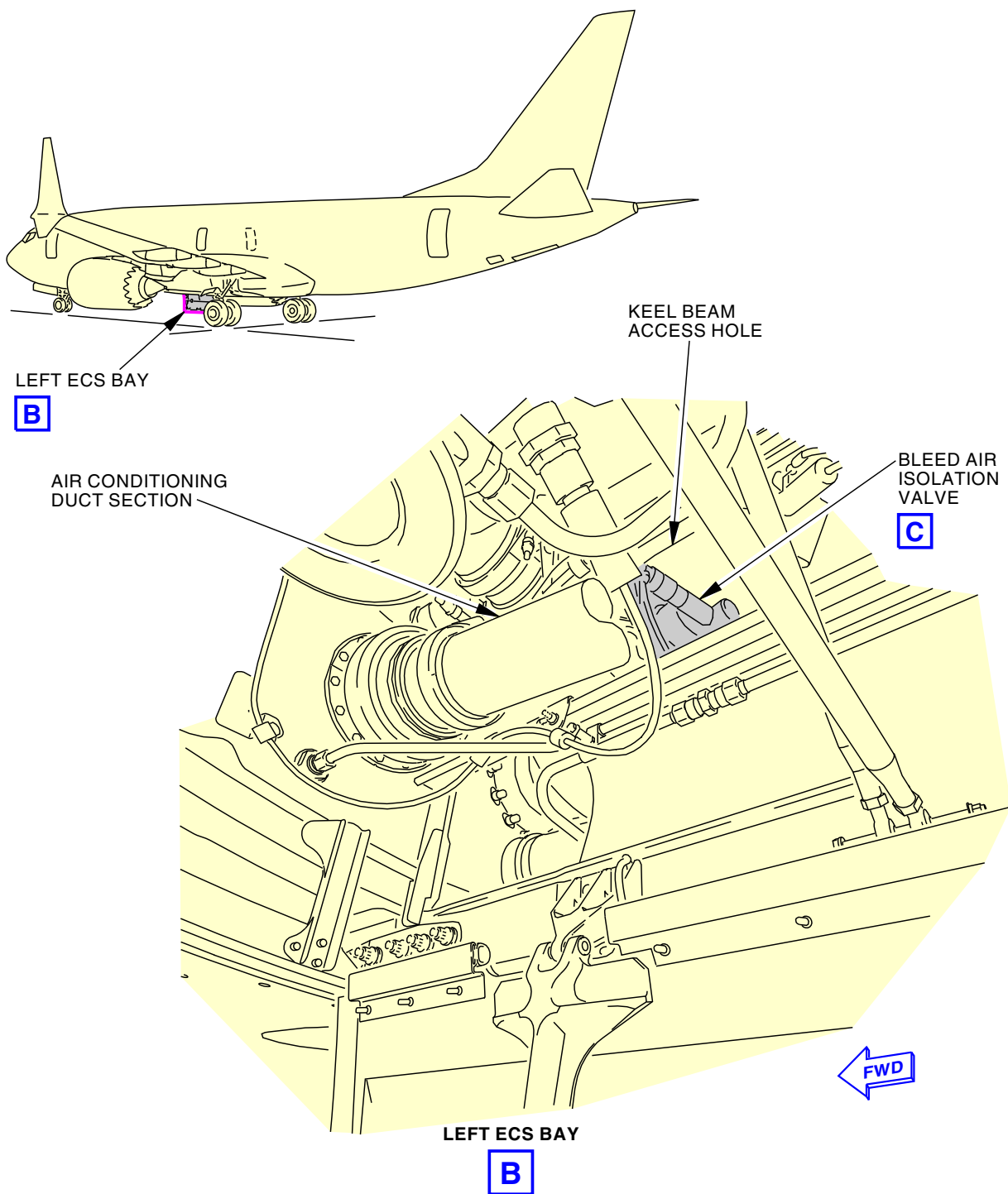
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D633AM101-SIA

Page 504
May 15/2023



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



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Bleed Air Isolation Valve Operational Test
Figure 501/36-13-00-990-803 (Sheet 2 of 3)

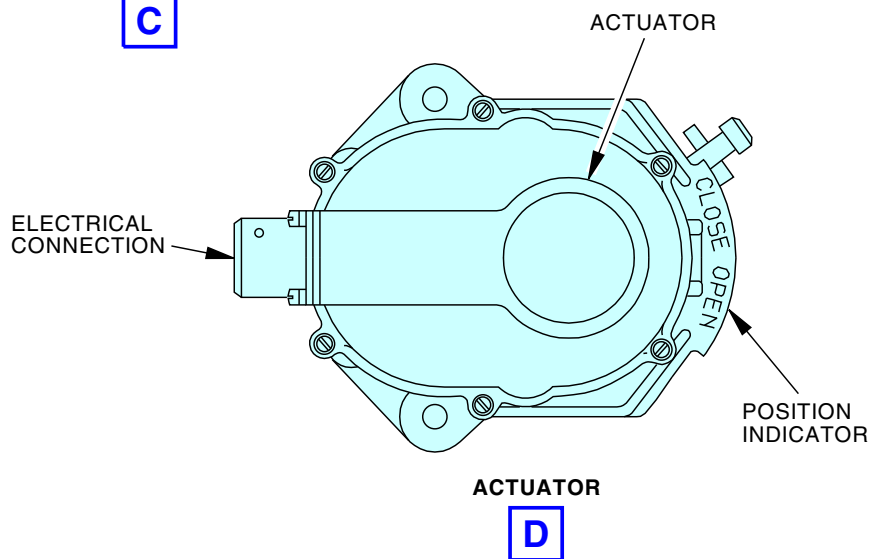
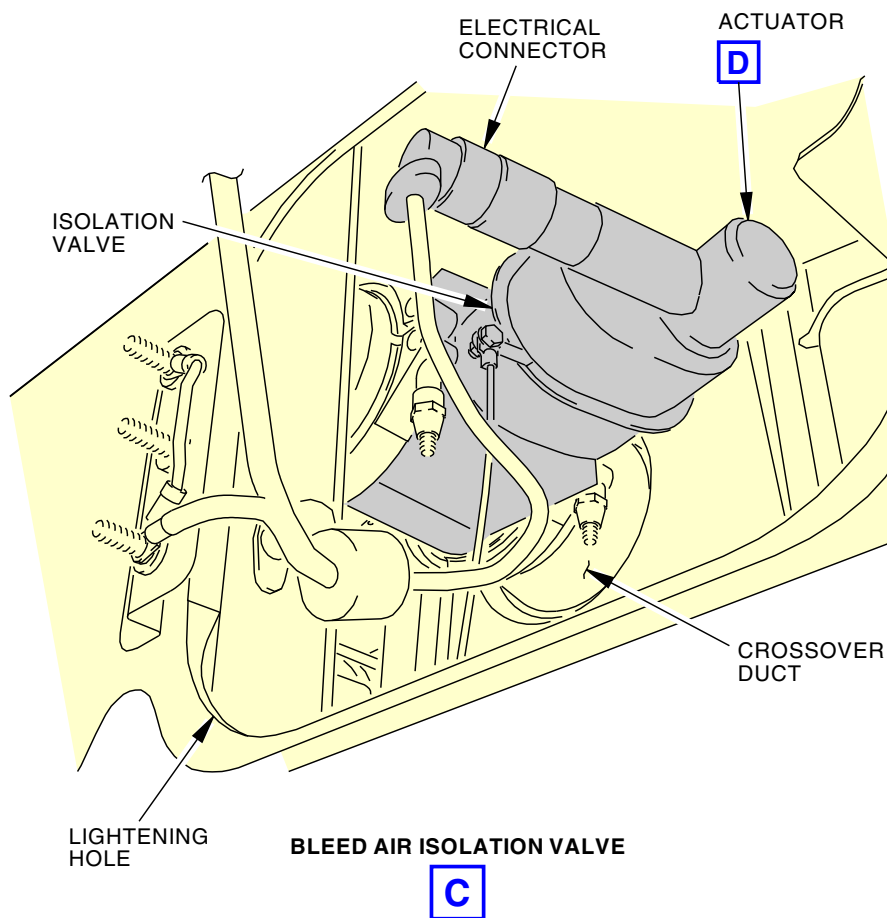
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 505
May 15/2023



2415090 S00061536948_V1

Bleed Air Isolation Valve Operational Test
Figure 501/36-13-00-990-803 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 506
May 15/2023



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

TASK 36-13-00-700-801

3. Pneumatic System Duct Leakage Test

(Figure 501)

A. General

- (1) This task gives the instructions to examine the pneumatic ducts and the components of the bleed air distribution system for leakage.
- (2) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.
 - (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

B. References

Reference	Title
36-00-00-860-805	Supply Pressure Upstream of the PRSOV with Engines Off (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
36-11-04-000-801	PRSOV Removal (P/B 401)
36-11-04-400-801	PRSOV Installation (P/B 401)
36-11-07-000-801	HPSOV Removal (P/B 401)
36-11-07-400-801	HPSOV Installation (P/B 401)
78-31-00-010-801-G00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-802-G00	Close the Thrust Reverser (Selection) (P/B 201)
80-11-02-000-801-G00	Starter Air Valve Removal (P/B 401)
80-11-02-400-801-G00	Starter Air Valve Installation (P/B 401)

C. Location Zones

Zone	Area
141	Aft Cargo Compartment - Left
191	Lower Wing-To-Body Fairing - Forward of Wing Box
192	Lower Wing-To-Body Fairing - Under Wing Box
311	Area Aft of Pressure Bulkhead - Left
313	Stabilizer Torsion Box Compartment - Left
410	Subzone - Engine 1
420	Subzone - Engine 2
430	Subzone - Engine 1, Nacelle Strut
433	Engine 1 - Strut Torque Box
440	Subzone - Engine 2, Nacelle Strut
443	Engine 2 - Strut Torque Box
511	Left Wing - Leading Edge To Front Spar
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 507
May 15/2023



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

(Continued)

Zone	Area
524	Left Wing - Slat No. 2
611	Right Wing - Leading Edge to Front Spar
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7

D. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door
311BL	Stabilizer Trim Access Door

E. Prepare for the Leakage Test

SUBTASK 36-13-00-860-018

(1) Set these switches that follow to the positions shown:

- (a) 1 BLEED - OFF
- (b) 2 BLEED - OFF
- (c) APU BLEED - OFF
- (d) L PACK - OFF
- (e) R PACK - OFF
- (f) WING ANTI-ICE - OFF
- (g) 1 ENG ANTI-ICE - OFF
- (h) 2 ENG ANTI-ICE - OFF
- (i) ISOLATION VALVE - OPEN
- (j) 1 ENGINE START - OFF
- (k) 2 ENGINE START - OFF

SUBTASK 36-13-00-860-019

(2) Make sure that the left and right engine START LEVER switches on the control stand, P10, are in the CUTOFF position and install DO-NOT-OPERATE tags.

SUBTASK 36-13-00-010-003

(3) To get access to pneumatic duct in the air conditioning bay, do these tasks:

(a) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door
311BL	Stabilizer Trim Access Door

SUBTASK 36-13-00-210-003

(4) Make sure that the position indicator on the isolation valve points to the OPEN position.

EFFECTIVITY
SIA ALL

36-13-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 508
May 15/2023



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

SUBTASK 36-13-00-010-004



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) For the left thrust reverser, do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-G00.

SUBTASK 36-13-00-210-004

- (6) Make sure that the intermediate pressure check valves (fourth-stage) on the left and right engines are installed.

SUBTASK 36-13-00-860-020

- (7) Make sure that the PRSOVs on left and right engines are closed.
- (a) Make sure that the position indicator on the PRSOV is in the CLOSED position.
- 1) If the position indicator is not in the CLOSED position, replace the PRSOV. These are the tasks:
- PRSOV Removal, TASK 36-11-04-000-801
 - PRSOV Installation, TASK 36-11-04-400-801

SUBTASK 36-13-00-860-021

- (8) Make sure that the HPSOVs on left and right engines are closed.
- (a) Make sure that the position indicator on the HPSOV is in the CLOSED position.
- 1) If the position indicator is not in the CLOSED position, replace HPSOV. These are the tasks:
- HPSOV Removal, TASK 36-11-07-000-801
 - HPSOV Installation, TASK 36-11-07-400-801

SUBTASK 36-13-00-210-005

- (9) Make sure that the start air valves on the left and right engines are closed.
- (a) Make sure that the position indicator on start valve is in the CLOSED position.
- 1) If the position indicator is not in the CLOSED position, replace the engine starter air valve. These are the tasks:
- Starter Air Valve Removal, TASK 80-11-02-000-801-G00
 - Starter Air Valve Installation, TASK 80-11-02-400-801-G00

SUBTASK 36-13-00-860-023

- (10) Make sure that the position indicator on the left and right wing TAI valves point to closed.
- (a) If not, manually override the valves closed.

SUBTASK 36-13-00-860-024

- (11) Make sure that the position indicator on the left and right engine Anti-Ice valves point to closed.
- (a) If not, manually override the valves closed.

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-13-00

Page 509
May 15/2023



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

F. Pneumatic System Duct Leakage Test

SUBTASK 36-13-00-420-001

- (1) Do this task: Supply Pressure Upstream of the PRSOV with Engines Off, TASK 36-00-00-860-805.

SUBTASK 36-13-00-780-001



BE CAREFUL WHEN YOU PRESSURIZE THE PNEUMATIC DUCTS. IF THE DUCTS COME APART WHEN THEY ARE PRESSURIZED, THEY CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Put the L PACK switch to the AUTO position.

SUBTASK 36-13-00-210-006

36-AWL-01: CDCCL

- (3) Examine all of the connections on the pneumatic duct installations for sources of concentrated leakage.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (a) Diffused leakage is permitted.

36-AWL-01: CDCCL

- (b) Concentrated leakage must be repaired.

NOTE: Concentrated leakage is leakage which you can feel with your hand at a distance of 12 in. (305 mm).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

SUBTASK 36-13-00-860-033

- (4) Close these circuit breakers:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C04035	AIR COND BLEED AIR CONTROL PRIMARY LEFT
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	6	C04036	AIR COND BLEED AIR CONTROL PRIMARY RIGHT
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R

SUBTASK 36-13-00-790-001

- (5) Do a test of the pneumatic ducts downstream of the crossover duct:
- (a) Put the 1 and 2 BLEED switches to the OFF position.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 510
May 15/2023



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

36-AWL-01: CDCCL

- (b) Examine the ducts downstream of the crossover ducts for concentrated leakage.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- 1) Diffused leakage is permitted.

36-AWL-01: CDCCL

- 2) Concentration leakage must be repaired.

NOTE: Concentration leakage is leakage which you can feel with your hand at a distance of 12 in. (305 mm).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (c) Put the L PACK switch to the OFF position.
(d) Put the R PACK switch to the AUTO position.
(e) Examine the pneumatic ducts downstream of the crossover duct.
1) Diffused leakage is permitted.
2) Concentrated leakage must be repaired.

NOTE: Concentrated leakage is leakage which you can feel with your hand at a distance of 12 in. (305 mm).

- (f) Put the R PACK switch to the OFF position.

G. Put The Airplane Back To Its Usual Condition

SUBTASK 36-13-00-860-029

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

- (a) Make sure that the pressure gage on the P5-10 panel shows 0.0 psi (0.0 kPa).

SUBTASK 36-13-00-010-005



OBEY THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE PROCEDURE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) For the left thrust reverser, do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-802-G00.

SUBTASK 36-13-00-410-003

- (3) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door
311BL	Stabilizer Trim Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 511
May 15/2023



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

SUBTASK 36-13-00-860-031

- (4) Remove the DO-NOT-OPERATE tags from the left and right engine START LEVER switches on the control stand, P10.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-00

Page 512
May 15/2023



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

PNEUMATIC MANIFOLD DUCT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Strut pneumatic duct removal
 - (2) Strut pneumatic duct installation
 - (3) Wing leading edge pneumatic duct removal
 - (4) Wing leading edge pneumatic duct installation
 - (5) Crossover pneumatic duct removal
 - (6) Crossover pneumatic duct installation
 - (7) AC pack pneumatic duct removal
 - (8) AC pack pneumatic duct installation
 - (9) APU pneumatic duct removal
 - (10) APU pneumatic duct installation
 - (11) APU pneumatic duct pressure seal removal
 - (12) APU pneumatic duct pressure seal installation.
- B. The duct sections for the thermal anti-icing, air conditioning and pneumatic systems are joined together with the forged couplings and V-band couplings and held in place to the airplane structure with support hardware.
- C. In some locations, it may be necessary to remove an adjacent duct section or system hardware to get access to remove or install the required section of duct.
- D. Some of the duct sections are made to be slightly short to compensate for thermal expansion allowances caused by the flow of hot air through the duct section. The duct sections are joined together in tension by a series of couplings when the pneumatic system is not in use.
- E. Some of the couplings are installed in areas where there are control cables, fuel lines, hydraulic lines, and electrical wires. Care must be taken to make sure that there are a minimum of 0.50 in. (12.7 mm) clearance between them. Precautions should also be taken make sure that sufficient clearances are available to prevent interference or chafing conditions should the duct couplings rotate around the duct joints.
- F. The removal/installation procedure for the APU bleed air duct is covered in BLEED AIR DUCT - REMOVAL/INSTALLATION, PAGEBLOCK 49-52-13/401.
- G. The removal/installation procedure for engine pneumatic ducts are covered in ENGINE PNEUMATIC DUCT - REMOVAL/INSTALLATION, PAGEBLOCK 36-11-01/401.

TASK 36-13-01-000-801

2. Pneumatic Manifold Duct Removal (Selection)

A. Pneumatic Manifold Duct Removal

SUBTASK 36-13-01-020-001

- (1) Do one of these tasks to remove the applicable pneumatic duct section:
- (a) Do this task: Strut Pneumatic Duct Removal, TASK 36-13-01-000-802.
 - (b) Do this task: Wing Leading Edge Pneumatic Duct Removal, TASK 36-13-01-000-804.
 - (c) Do this task: Crossover Pneumatic Duct Removal, TASK 36-13-01-000-805.
 - (d) Do this task: AC Pack Pneumatic Duct Removal, TASK 36-13-01-000-807.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
Sep 15/2021



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

(e) Do this task: APU Pneumatic Duct Removal, TASK 36-13-01-000-806.

————— END OF TASK —————

TASK 36-13-01-400-801

3. Pneumatic Manifold Duct Installation (Selection)

A. Pneumatic Manifold Duct Installation

SUBTASK 36-13-01-420-001

- (1) Do one of these tasks to install the applicable pneumatic duct section:
- (a) Do this task: Strut Pneumatic Duct Installation, TASK 36-13-01-400-805.
 - (b) Do this task: Wing Leading Edge Pneumatic Duct Installation, TASK 36-13-01-400-802.
 - (c) Do this task: Crossover Pneumatic Duct Installation, TASK 36-13-01-400-803.
 - (d) Do this task: AC Pack Pneumatic Duct Installation, TASK 36-13-01-400-806.
 - (e) Do this task: APU Pneumatic Duct Installation, TASK 36-13-01-400-804.

————— END OF TASK —————

TASK 36-13-01-000-802

4. Strut Pneumatic Duct Removal

(Figure 401)

A. General

- (1) This task gives the general instructions to assist with the removal of the strut pneumatic duct sections.
- (2) Do only the steps that are necessary to remove the required section of duct.

B. References

Reference	Title
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
54-52-01-010-801	Forward Fairing Removal (P/B 401)
54-52-03-000-801	Wing Junction Fairing Removal (P/B 401)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

C. Location Zones

Zone	Area
433	Engine 1 - Strut Torque Box
443	Engine 2 - Strut Torque Box
510	Subzone - Left Wing: Leading Edge, Fwd of Front Spar, Inbd of Strut and Nacelle Gap Cover Area
610	Subzone - Right Wing: Leading Edge, Forward of Front Spar, Inboard of Nacelle Strut, Including Gap Cover Area

D. Access Panels

Number	Name/Location
431AT	Forward Strut Fairing, Thumbnail Fairing, Strut 1
431BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 1
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1

EFFECTIVITY
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 402
Sep 15/2021



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

(Continued)

Number	Name/Location
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441AT	Forward Strut Fairing, Thumbnail Fairing, Strut 2
441BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 2
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2

E. Prepare for the Removal

SUBTASK 36-13-01-860-001

- (1) Make sure that the engine, APU and ground air pneumatic source is not in operation.

SUBTASK 36-13-01-860-002



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.

- (2) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-010-001



WARNING

MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES. THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES CAN EXTEND AND RETRACT QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



CAUTION

MAKE SURE THAT YOU CLOSE OR REMOVE THE INBOARD FAN COWL AND THRUST REVERSERS BEFORE YOU RETRACT THE LEADING EDGE FLAPS. THE CLEARANCE IS NOT SUFFICIENT FOR THE FLAPS TO RETRACT WITH THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (3) To extend and lock the wing leading edge flaps to get access to a duct section for removal:
- (a) Do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.
 - (b) Do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 36-13-01-010-002

- (4) Remove the applicable forward fairing access panels, do this task: Forward Fairing Removal, TASK 54-52-01-010-801.

- (a) For the left engine strut, do this step:

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
431AT	Forward Strut Fairing, Thumbnail Fairing, Strut 1
431BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 1
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1

- (b) For the right engine strut, do this step:

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Sep 15/2021



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

- 1) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
441AT	Forward Strut Fairing, Thumbnail Fairing, Strut 2
441BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 2
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2

SUBTASK 36-13-01-010-016

- (5) Remove the applicable wing junction fairing access panel, do this task: Wing Junction Fairing Removal, TASK 54-52-03-000-801.

- (a) For the left engine strut, do this step:

- 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1

- (b) For the right engine strut, do this step:

- 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2

SUBTASK 36-13-01-020-005

- (6) Remove or move other system hardware (tubing, wiring, support brackets, and wiring harnesses) that are in the way of the duct section removal.

F. Strut Pneumatic Duct Removal

SUBTASK 36-13-01-020-006

- (1) Remove the forged coupling [2].

SUBTASK 36-13-01-020-007

- (2) Disconnect the duct support link [5] which hold the duct section to the support structure.

NOTE: Make sure that you keep track of the fastener build-up for installation.

- (a) Remove the bolt [14], washer [15], bushing [16], washer [17], and nut [18].

- (b) Move the duct support link [5] out of the way.

SUBTASK 36-13-01-020-008

- (3) Disconnect the electrical connector [3] (TASK 70-00-01-910-803-G00).

- (a) If it is necessary, remove the temperature sensor [4].

SUBTASK 36-13-01-020-009

- (4) Do these steps to remove the vapor seal [6]:

- (a) Remove the bolts [7] and washers [8] that attach the vapor seal [6] to the strut.

- (b) Remove the seal ring [9].

SUBTASK 36-13-01-020-039

- (5) Loosen the clamp(s).

SUBTASK 36-13-01-020-040

- (6) Disconnect the pressure sensor tube [10] B-nut from the strut pneumatic duct [1].

SUBTASK 36-13-01-020-041

- (7) Do these steps to remove the duct flange [11]:

- (a) Remove the bolts [19], washers [20], and nuts [21] that attach the duct flange [11] to the strut.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Sep 15/2021



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

- (b) Remove the bolts [22], washers [23], and nuts [24] that attach the duct flange [11] to the strut.

SUBTASK 36-13-01-020-042

- (8) Do these steps to remove the clamp block [12]:
 - (a) Remove the bolts [25] and washers [26].
 - (b) Remove the bolt [27] and washer [28].

SUBTASK 36-13-01-020-043

- (9) Remove the applicable duct section.

NOTE: It may be necessary to remove the adjacent duct section to get access to remove the duct section you want to remove.

SUBTASK 36-13-01-020-044

- (10) Remove the E-seals [13].
 - (a) Examine the E-seals [13] for dents, cracks or other damage.
 - (b) Replace all damaged E-seals [13].

SUBTASK 36-13-01-530-001

- (11) Install the protective covers on the duct and tube openings.

———— **END OF TASK** ————

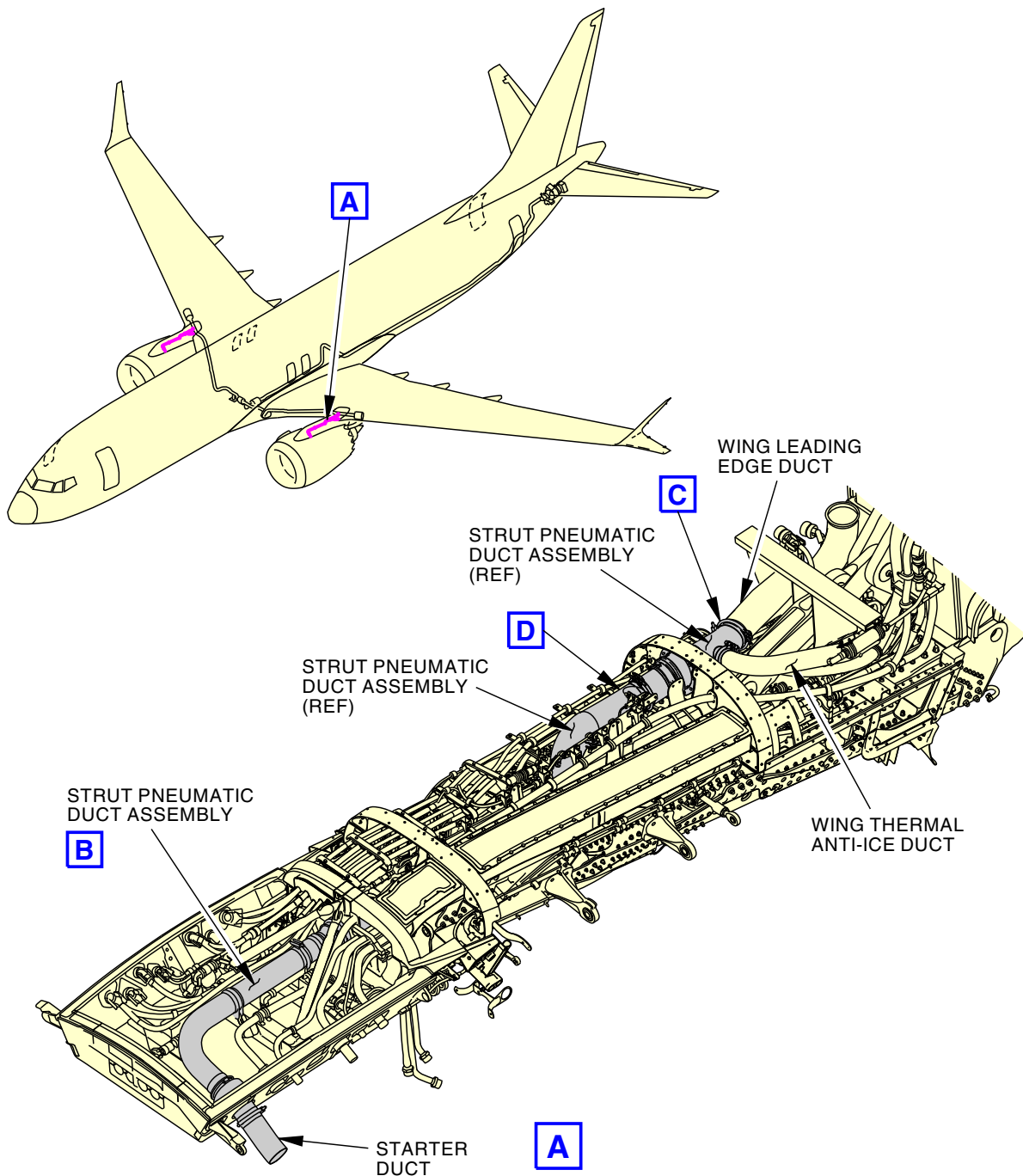
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 405
Sep 15/2021



NOTE:

LEFT STRUT INSTALLATION IS SHOWN,
RIGHT STRUT INSTALLATION IS EQUIVALENT.

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Strut Pneumatic Duct Installation
Figure 401/36-13-01-990-801 (Sheet 1 of 3)

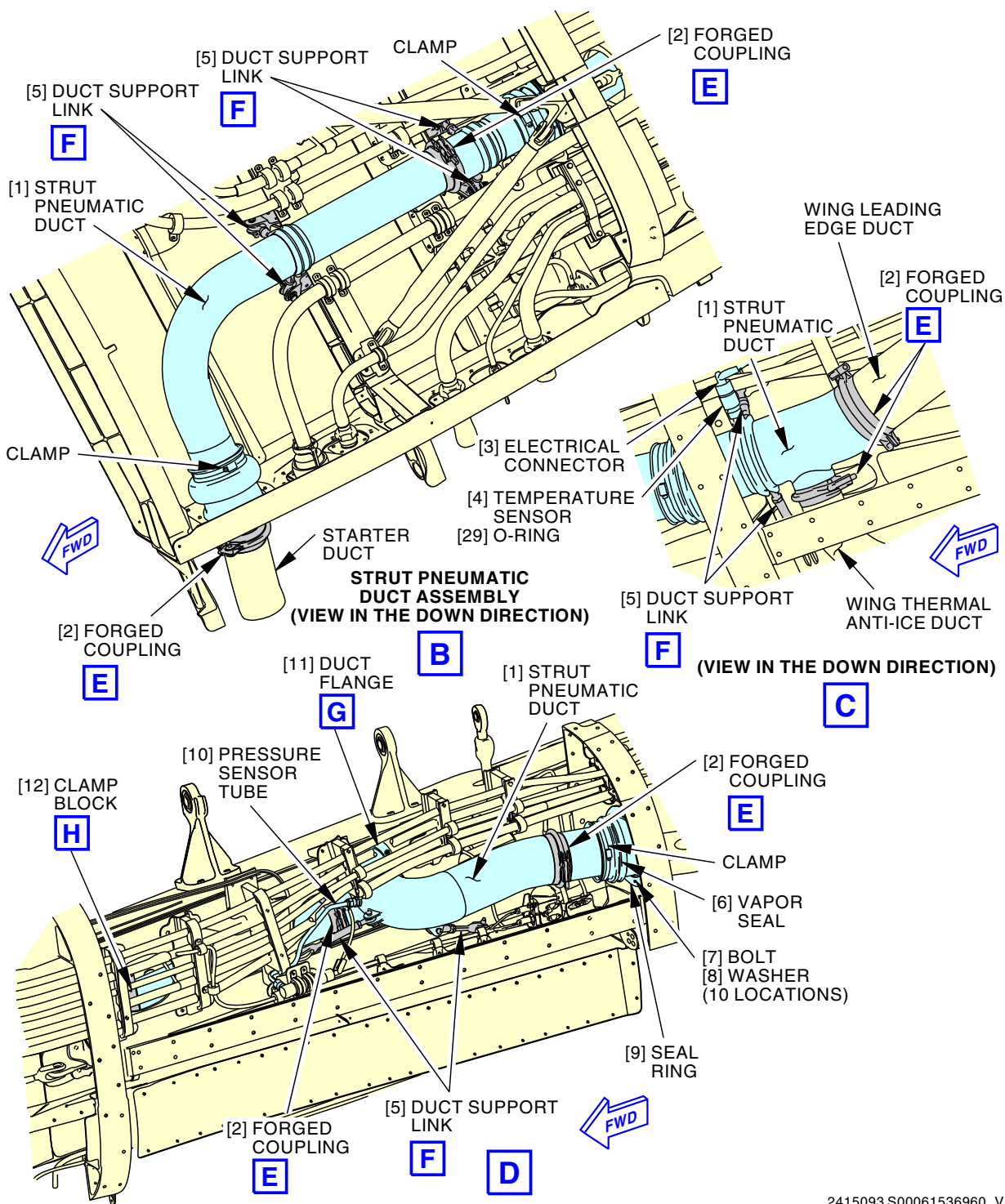
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 406
Sep 15/2021



2415093 S00061536960_V3

Strut Pneumatic Duct Installation
Figure 401/36-13-01-990-801 (Sheet 2 of 3)

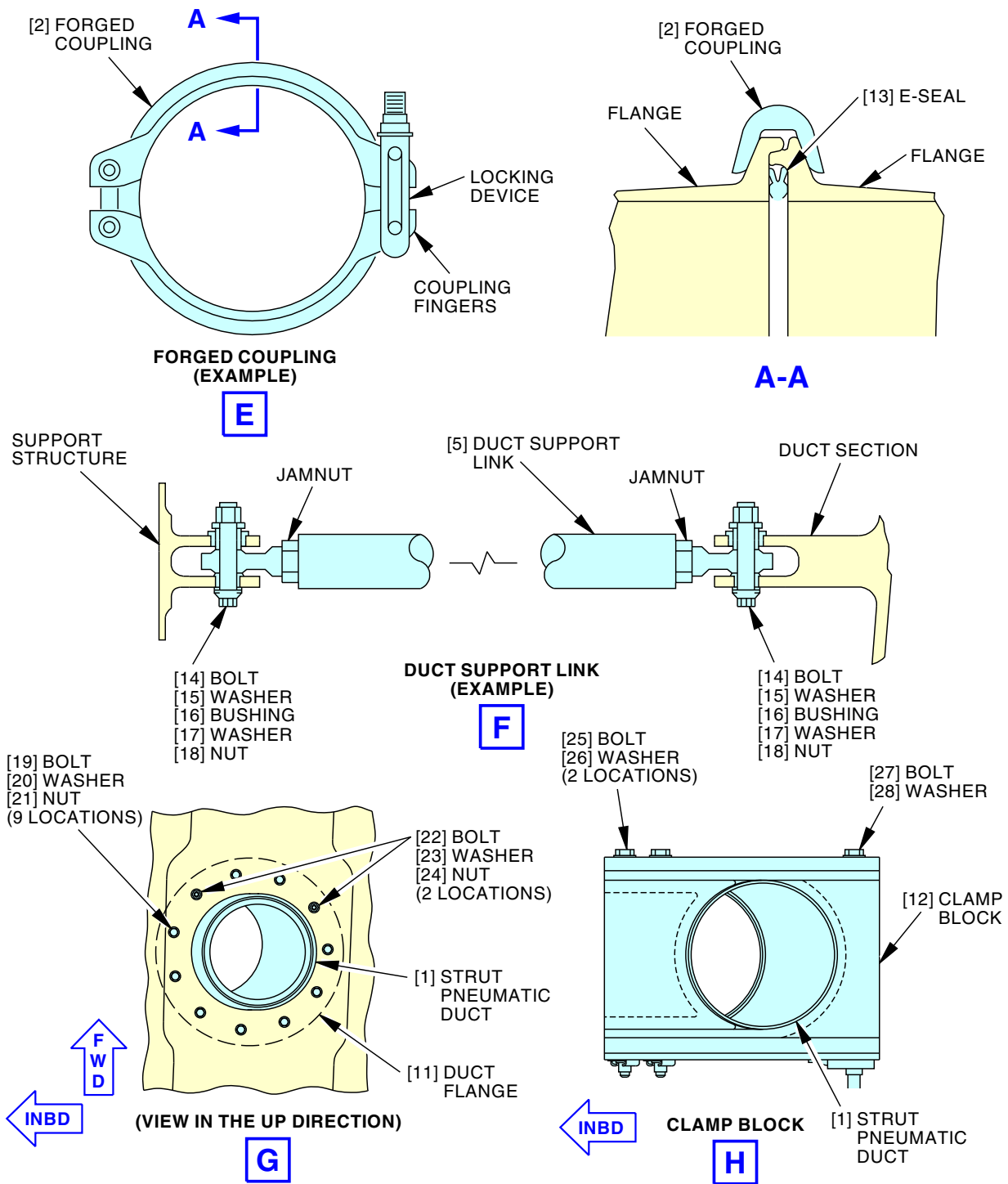
EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
Sep 15/2021



2415094 S00061536961_V1

Strut Pneumatic Duct Installation
Figure 401/36-13-01-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 408
Sep 15/2021



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

TASK 36-13-01-400-805

5. Strut Pneumatic Duct Installation

(Figure 401)

A. General

- (1) This task gives the general instructions to assist with the installation of the strut pneumatic duct sections.
- (2) Do only the steps that are necessary to remove the required section of duct.

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
54-52-01-410-801	Forward Fairing Installation (P/B 401)
54-52-03-400-801	Wing Junction Fairing Installation (P/B 401)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

C. Tools/Equipment

Reference	Description
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
A00160	Sealant - Firewall - Hydraulic Fluid Resistant	BMS5-63
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
D50099	Grease - Aircraft and Instrument, Fuel and Oxidizer Resistant	MIL-PRF-27617 Type III (Supersedes MIL-G-27617)
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Strut pneumatic duct	36-13-01-20-475	SIA ALL
		36-13-01-21-475	SIA ALL
6	Vapor seal	36-13-01-20-540	SIA 001-011, 015-999
		36-13-01-21-540	SIA 001-011
9	Seal ring	36-13-01-20-535	SIA 001-011, 015-999
		36-13-01-21-535	SIA 001-011
13	E-seal	36-13-01-20-360	SIA ALL
		36-13-01-21-360	SIA ALL
29	O-ring	36-11-05-05-025	SIA ALL
		36-11-05-06-025	SIA ALL

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2021



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

F. Location Zones

Zone	Area
433	Engine 1 - Strut Torque Box
443	Engine 2 - Strut Torque Box
510	Subzone - Left Wing: Leading Edge, Fwd of Front Spar, Inbd of Strut and Nacelle Gap Cover Area
610	Subzone - Right Wing: Leading Edge, Forward of Front Spar, Inboard of Nacelle Strut, Including Gap Cover Area

G. Access Panels

Number	Name/Location
431AT	Forward Strut Fairing, Thumbnail Fairing, Strut 1
431BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 1
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441AT	Forward Strut Fairing, Thumbnail Fairing, Strut 2
441BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 2
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2

H. Prepare for the Installation

SUBTASK 36-13-01-210-001

- (1) Remove the protective covers from the ducts and tubes.
 - (a) Make sure that there are no unwanted material inside.

SUBTASK 36-13-01-210-002

- (2) Make sure that the replacement duct section is clean and not damaged.

NOTE: If a new duct section is to be installed, make sure that the part number of the new duct section is the correct replacement part for the duct section that you will replace.

SUBTASK 36-13-01-420-002

- (3) Install the E-seals [13].

NOTE: Do not install E-seals [13] that are damaged.

I. Strut Pneumatic Duct Installation

SUBTASK 36-13-01-420-003

- (1) Put the applicable duct section in the correct position and orientation for installation:

SUBTASK 36-13-01-420-043

- (2) Do these steps to install the vapor seal [6]:
 - (a) Apply a faying surface seal with sealant, A00160 between the mating surfaces of the vapor seal [6] and the strut.
 - (b) Install the seal ring [9] on the vapor seal [6].
 - (c) Put the vapor seal [6] in the correct position on the strut pneumatic duct [1].
 - (d) Install the bolts [7] and washers [8] that attach the vapor seal [6] to the strut.

SUBTASK 36-13-01-420-044

- (3) Do these steps to install the duct flange [11]:
 - (a) Apply a faying surface seal with sealant, A00160 between the mating surfaces of the duct flange [11] and the strut.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 410
Sep 15/2021



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

- (b) Apply sealant, A00160 to the shank and the threads of the bolts.
- (c) Put the duct flange [11] in the correct position on the strut pneumatic duct [1]
- (d) Install the bolts [19], washers [20], and nuts [21] that attach the duct flange [11] to the strut.
- (e) Install the bolts [22], washers [23], and nuts [24] that attach the duct flange [11] to the strut.

SUBTASK 36-13-01-420-045

- (4) Loosely install the applicable forged coupling [2].

NOTE: Do not tighten the couplings. All of the duct sections must be aligned before the couplings are tightened.

SUBTASK 36-13-01-211-001

- (5) Make sure that there is a minimum of 0.10 in. (2.54 mm) clearance between the duct section and the adjacent system equipment or structure to prevent interference or chafing condition.

SUBTASK 36-13-01-420-046

- (6) Connect the duct support link [5] to the duct section.

NOTE: Make sure that the fastener build-up are correct.

- (a) Loosen the jamnut to adjust the length of the duct support link [5], if it is necessary.
- (b) Loosely install the bolt [14], washer [15], bushing [16], washer [17], and nut [18].

NOTE: Install the countersunk side of the washer [15] against the head of the bolt [14].

- (c) Tighten the jamnut if you have adjusted the length of the duct support link [5].

SUBTASK 36-13-01-420-047



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.

- (7) Tighten the forged coupling [2] to the torque value shown on the part.
 - (a) Use a rubber mallet, STD-3906 to lightly tap around the outer surface of each forged coupling [2].

NOTE: This will make sure that you engage the coupling and flanges correctly.

- (b) Re-tighten all the forged coupling [2] to the torque value shown on the part again.

SUBTASK 36-13-01-420-048

- (8) Tighten the bolts [14] and nuts [18] on duct support link [5].
 - (a) To install a lockwire on the duct support link [5], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

SUBTASK 36-13-01-420-049

- (9) Do these steps to install the clamp block [12]:
 - (a) Install the bolts [25] and washers [26].
 - (b) Install the bolt [27] and washer [28].

SUBTASK 36-13-01-420-050

- (10) Connect the electrical connector [3] (TASK 70-00-01-910-803-G00).
 - (a) Do these steps to install the temperature sensor [4], if it is necessary:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 411
Sep 15/2021



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

- 1) Apply Never-Seez NSBT compound, D00006 (alternate grease, D50099) to the threads of the temperature sensor [4].
- 2) Install the new O-ring [29] in the temperature sensor [4].
- 3) Connect the temperature sensor [4].
- 4) Tighten the temperature sensor [4] to 84.1 $\pm$ 4.4 in-lb (9.5 $\pm$ 0.5 N·m).

SUBTASK 36-13-01-420-051

- (11) Do these steps to install the pressure sensor tube [10] B-nut:
 - (a) Apply Never-Seez NSBT compound, D00006 (alternate grease, D50099) to the threads of the pressure sensor tube [10] B-nut
 - (b) Connect the pressure sensor tube [10] B-nut to the strut pneumatic duct [1].
 - (c) Tighten the B-nut to 270 $\pm$ 14 in-lb (31 $\pm$ 2 N·m).

SUBTASK 36-13-01-420-052

- (12) Tighten the clamp(s) to 15 $\pm$ 2 in-lb (2 $\pm$ 1 N·m).

SUBTASK 36-13-01-420-053

- (13) Install or reposition the other system hardwares (tubing, wiring, support brackets, and wiring harnesses) that were moved out of the way to make room for the duct installation.

J. Strut Pneumatic Duct Post-Installation Test

SUBTASK 36-13-01-720-001

- (1) Do a leak test of the strut pneumatic duct installation:
 - (a) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.
 - (b) Apply Snoop Leak Detector compound, G00091 to the forged coupling [2] installations.
 - (c) Do a check for concentrated air leakage.
 - 1) Small air leakage is satisfactory at forged coupling [2] duct joints.
 - 2) Repair large air leakage.
- NOTE:** Large air leakage is concentrated airflow you can feel with your hand at a distance of 12 inches (31 cm) or greater from a point on the forged coupling [2] duct joint.

SUBTASK 36-13-01-760-001

- (2) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-860-023

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-860-024

- (2) Close the applicable overwing wing junction fairing access panel, do this task: Wing Junction Fairing Installation, TASK 54-52-03-400-801.
 - (a) For the left engine strut, do this step:
 - 1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
 - (b) For the right engine strut, do this step:

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 412
Sep 15/2021



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

- 1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2

SUBTASK 36-13-01-860-025

- (3) Close the applicable forward fairing access panels, do this task: Forward Fairing Installation, TASK 54-52-01-410-801.

- (a) For the left engine strut, do this step:

- 1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
431AT	Forward Strut Fairing, Thumbnail Fairing, Strut 1
431BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 1
431BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 1

- (b) For the right engine strut, do this step:

- 1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
441AT	Forward Strut Fairing, Thumbnail Fairing, Strut 2
441BL	Forward Strut Fairing, Left Mid Strut Fairing, Strut 2
441BR	Forward Strut Fairing, Right Mid Strut Fairing, Strut 2

SUBTASK 36-13-01-860-005



MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES. THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES CAN EXTEND AND RETRACT QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



MAKE SURE THAT YOU CLOSE OR REMOVE THE INBOARD FAN COWL AND THRUST REVERSERS BEFORE YOU RETRACT THE LEADING EDGE FLAPS. THE CLEARANCE IS NOT SUFFICIENT FOR THE FLAPS TO RETRACT WITH THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (4) To retract the wing leading edge flaps and remove the lock:
- (a) Do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.
- (b) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

————— END OF TASK —————

TASK 36-13-01-000-804

6. Wing Leading Edge Pneumatic Duct Removal

(Figure 402)

A. General

- (1) This procedure gives the general instructions to assist with the removal of the wing leading edge pneumatic duct sections.
- (2) Do only the steps that are necessary to remove the required section of duct.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 413
Sep 15/2021



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

B. References

Reference	Title
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
54-52-03-000-801	Wing Junction Fairing Removal (P/B 401)
54-52-09-000-801	Leading Edge Gap Covers Removal (P/B 401)

C. Location Zones

Zone	Area
510	Subzone - Left Wing: Leading Edge, Fwd of Front Spar, Inbd of Strut and Nacelle Gap Cover Area
610	Subzone - Right Wing: Leading Edge, Forward of Front Spar, Inboard of Nacelle Strut, Including Gap Cover Area

D. Access Panels

Number	Name/Location
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2
521AT	Outbd Leading Edge - Gap Cover Access
621AT	Outbd Leading Edge - Gap Cover Access

E. Prepare for the Removal

SUBTASK 36-13-01-860-006



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-010-004



WARNING

MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES. THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES CAN EXTEND AND RETRACT QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



CAUTION

MAKE SURE THAT YOU CLOSE OR REMOVE THE INBOARD FAN COWL AND THRUST REVERSERS BEFORE YOU RETRACT THE LEADING EDGE FLAPS. THE CLEARANCE IS NOT SUFFICIENT FOR THE FLAPS TO RETRACT WITH THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (2) To extend and lock the wing leading edge to get access to a duct section for removal:
- (a) Do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.
 - (b) Do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 36-13-01-010-005

- (3) Remove the applicable wing junction fairing access panel, do this task: Wing Junction Fairing Removal, TASK 54-52-03-000-801.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 414
Sep 15/2021



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

- (a) For the left engine strut, do this step:
 - 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
- (b) For the right engine strut, do this step:
 - 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2

SUBTASK 36-13-01-010-015

- (4) Remove the applicable leading edge gap access panel, do this task: Leading Edge Gap Covers Removal, TASK 54-52-09-000-801.
 - (a) For the left wing, do this step:
 - 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521AT	Outbd Leading Edge - Gap Cover Access
 - (b) For the right wing, do this step:
 - 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
621AT	Outbd Leading Edge - Gap Cover Access

F. Wing Leading Edge Pneumatic Duct Removal

SUBTASK 36-13-01-020-011

- (1) Remove the V-band couplings [35] at each end of the duct section.

SUBTASK 36-13-01-020-012

- (2) Remove the duct support clamp [38] that supports one end of the duct section.
 - (a) Remove the nuts [40] and washers [39].
 - (b) Make sure that you keep track of the fastener build-up for installation.

SUBTASK 36-13-01-020-013

- (3) If there is a cable assembly attached to the duct section, disconnect the cable assembly [42] at the duct section.
 - (a) Remove the bolt [43], washers [44], and nut [45].
 - (b) Make sure that you keep track of the fastener build-up for installation.

SUBTASK 36-13-01-020-014

- (4) If there is a boot seal attached to the duct section, loosen the clamp [32] on the boot seal [30].
 - (a) Remove the boot seal [30], if it is necessary to ease duct removal.
 - 1) Remove the bolts [33], washers [34], and seal ring [31].
 - 2) Make sure that you keep track of the fastener build-up for installation.

SUBTASK 36-13-01-020-045

- (5) Remove the forged coupling [47].
 - (a) Remove the E-seal [52].
 - 1) Examine the seal for cracks, dents, or other damage.
 - 2) Replace all damaged seals.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 415
Sep 15/2021



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

SUBTASK 36-13-01-020-046

- (6) Remove the forged coupling [59].
 - (a) Remove the E-seal [60].
 - 1) Examine the seal for cracks, dents, or other damage.
 - 2) Replace all damaged seals.

SUBTASK 36-13-01-020-047

- (7) Remove the U-clamp [49] that supports one end of the duct section.
 - (a) Remove the bolts [50] and washers [51].

SUBTASK 36-13-01-020-048

- (8) Disconnect the duct support link [48] which hold the duct section to the support structure.
 - (a) Remove the bolt [53], washer [54], bushing [55], washer [56], and nut [57].
 - (b) Make sure that you keep track of the fastener build-up for installation.
 - (c) Move the duct support link [48] out of the way.

SUBTASK 36-13-01-020-015

- (9) Remove the applicable duct section:
 - (a) inboard leading edge duct [36]
 - (b) center leading edge duct [37]
 - (c) outboard leading edge duct [41]
 - (d) wing anti-ice duct [46]
 - (e) ECS duct [58].

SUBTASK 36-13-01-480-001

- (10) Install the protective covers on the duct openings to keep unwanted material out.

———— **END OF TASK** ————

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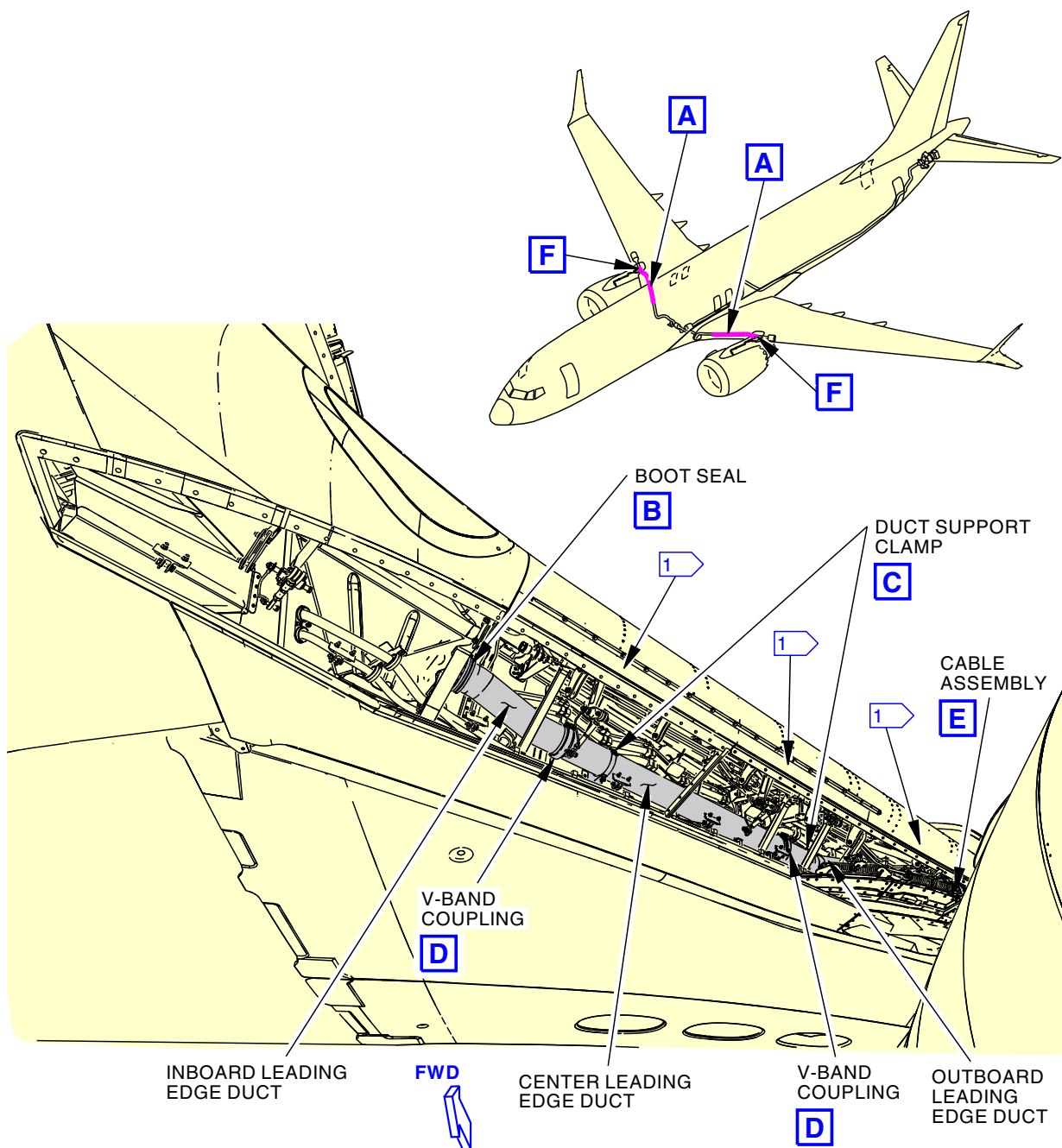
ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 416
Sep 15/2021



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



(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

1 LEADING EDGE FLAPS NOT SHOWN FOR CLARITY.

A

2415095 S00061536964_V2

Wing Leading Edge Pneumatic Duct Installation
Figure 402/36-13-01-990-802 (Sheet 1 of 4)

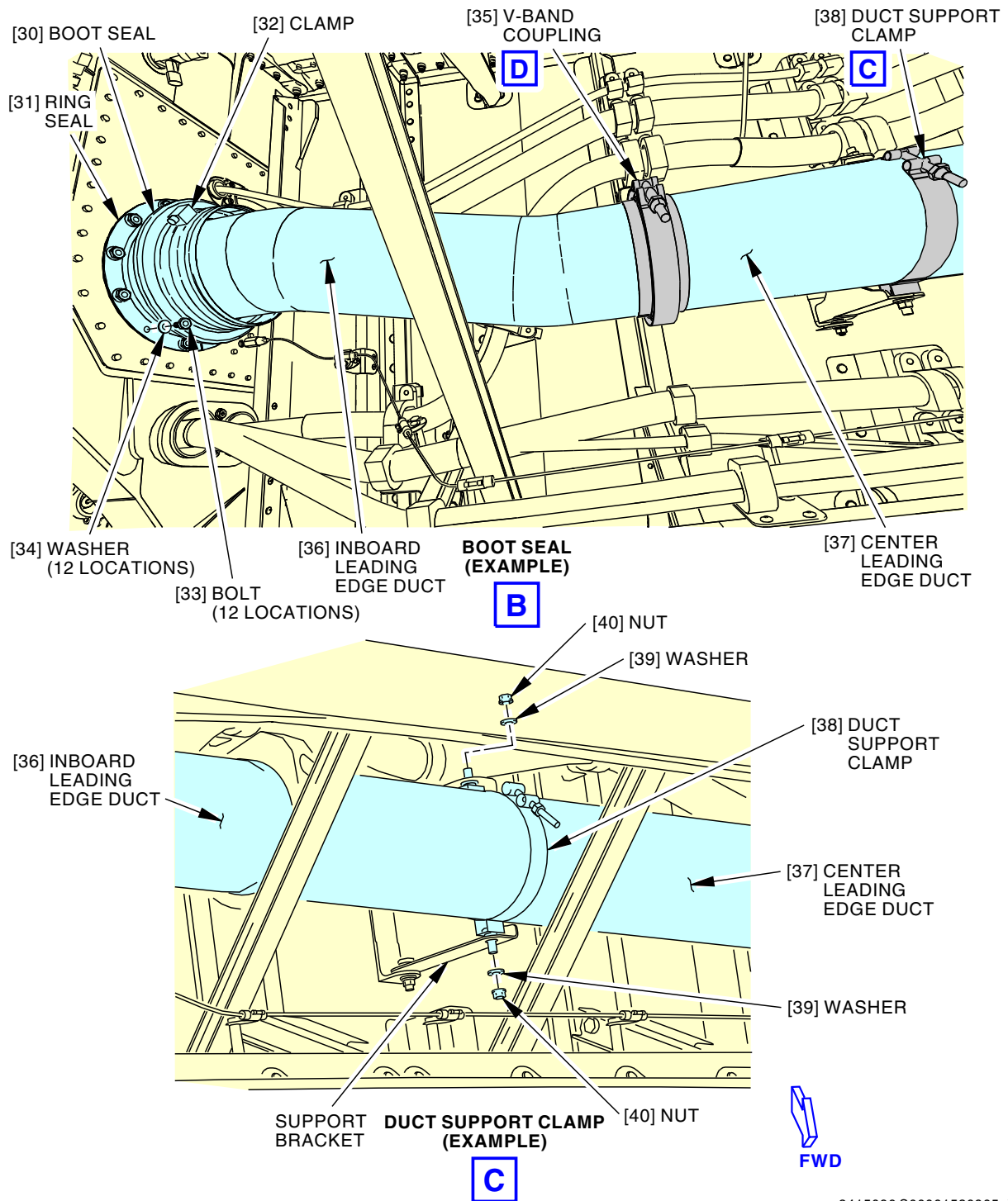
EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 417
Sep 15/2021

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



2415096 S00061536965_V1

Wing Leading Edge Pneumatic Duct Installation
Figure 402/36-13-01-990-802 (Sheet 2 of 4)

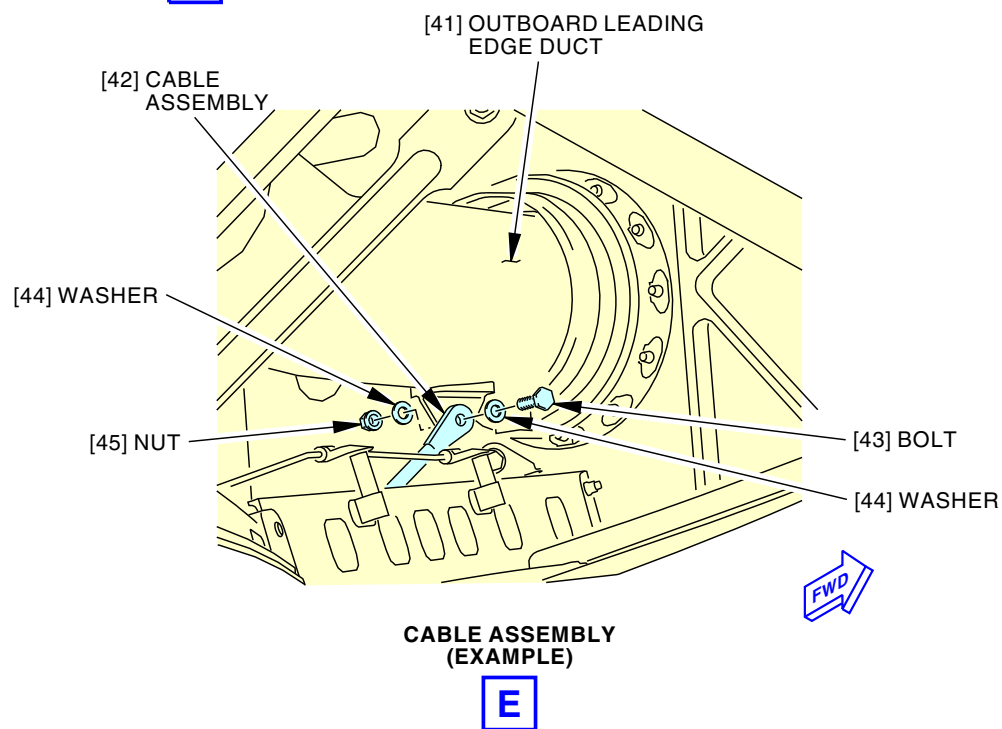
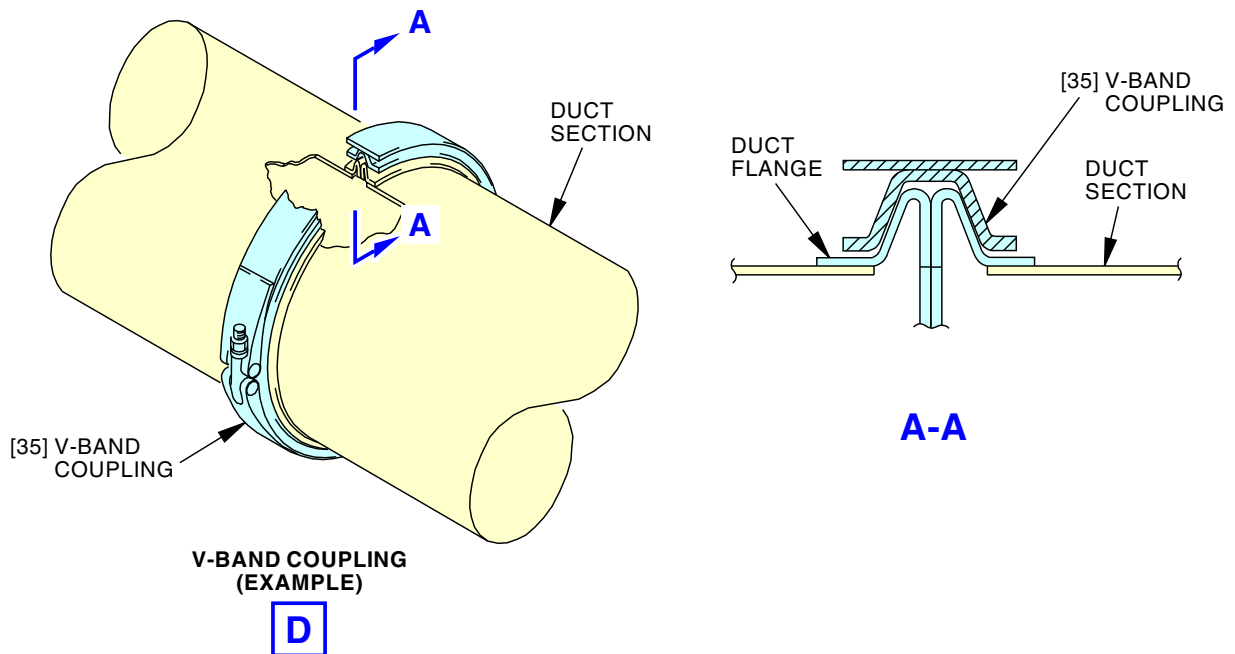
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36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 418
Sep 15/2021



2415097 S00061536966_V2

Wing Leading Edge Pneumatic Duct Installation
Figure 402/36-13-01-990-802 (Sheet 3 of 4)

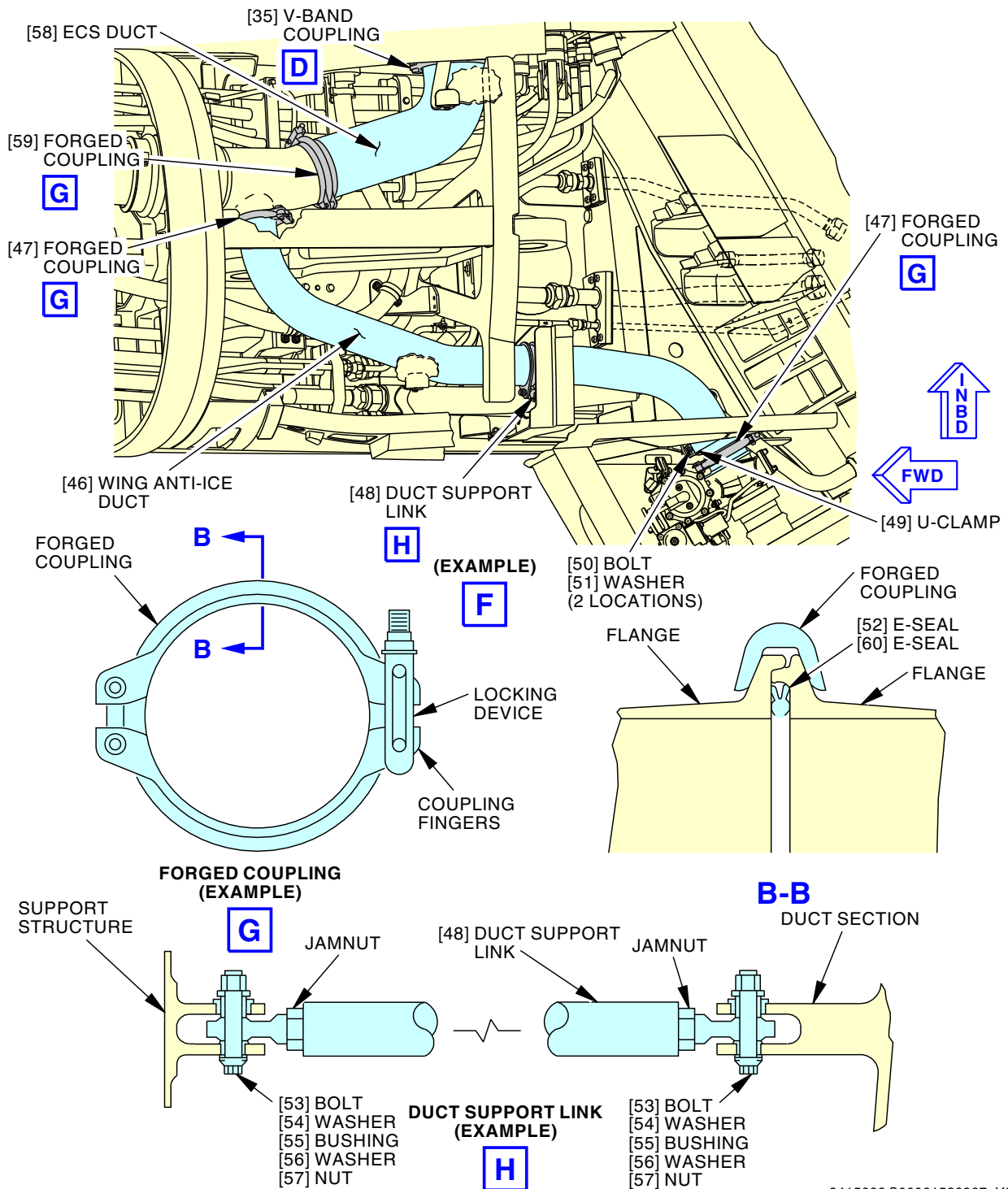
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 419
Sep 15/2021



2415098 S00061536967_V2

Wing Leading Edge Pneumatic Duct Installation
Figure 402/36-13-01-990-802 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-13-01

Page 420
Sep 15/2021



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

TASK 36-13-01-400-802

7. Wing Leading Edge Pneumatic Duct Installation

(Figure 402)

A. General

- (1) This procedure gives the general instructions to assist with the installation of the wing leading edge pneumatic duct sections.
- (2) Do only the steps that are necessary to install the required section of duct.
- (3) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.
 - (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)

C. Tools/Equipment

Reference	Description
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
30	Boot seal	36-13-01-01-142	SIA ALL
31	Seal ring	36-13-01-01-095	SIA ALL
		36-13-01-01-140	SIA ALL
36	Inboard leading edge duct	36-13-01-01-185	SIA ALL
		36-13-01-01-190	SIA ALL
37	Center leading edge duct	36-13-01-01-215	SIA ALL
41	Outboard leading edge duct	36-13-01-01-230	SIA ALL
		36-13-01-01-235	SIA ALL
46	Wing anti-ice duct	36-13-01-10-135	SIA ALL
		36-13-01-11-075	SIA ALL

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 421
Sep 15/2022



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

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
52	E-seal	36-13-01-10-130	SIA ALL
		36-13-01-11-070	SIA ALL
58	ECS duct	36-13-01-10-035	SIA ALL
		36-13-01-11-035	SIA ALL
60	E-seal	36-13-01-10-030	SIA ALL
		36-13-01-11-030	SIA ALL

F. Location Zones

Zone	Area
510	Subzone - Left Wing: Leading Edge, Fwd of Front Spar, Inbd of Strut and Nacelle Gap Cover Area
610	Subzone - Right Wing: Leading Edge, Forward of Front Spar, Inboard of Nacelle Strut, Including Gap Cover Area

G. Access Panels

Number	Name/Location
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2
521AT	Outbd Leading Edge - Gap Cover Access
621AT	Outbd Leading Edge - Gap Cover Access

H. Wing Leading Edge Duct Installation

SUBTASK 36-13-01-080-001

- (1) Remove the protective covers from the duct openings.

SUBTASK 36-13-01-420-069

- (2) Put the applicable duct section in the correct position and orientation for installation:
 - (a) inboard leading edge duct [36]
 - (b) center leading edge duct [37]
 - (c) outboard leading edge duct [41]
 - (d) wing anti-ice duct [46]
 - (e) ECS duct [58].

SUBTASK 36-13-01-420-010

- (3) Do these steps only if it is necessary to install a duct section through a penetration hole in the bulkhead or structural barrier.
 - (a) Put the duct section through the boot seal [30].
 - (b) If the boot seal [30] is not installed, do the steps that follow to install the boot seal [30] before you continue on to the next step:
 - 1) Put the seal ring [31] over the boot seal [30].
 - 2) Put the duct section through the penetration hole with the boot seal [30] against the bulkhead or structural barrier.
 - 3) Apply antiseize compound, D00010 (alternate Never-Seez NSBT compound, D00006) to the threads on all of the bolts [33].
 - 4) Install the bolts [33] and washers [34].

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 422
Sep 15/2022



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

- a) Make sure that the clearance between around the diameter of the duct and the structural barrier is 0.375 ± 0.027 in. (9.525 ± 0.686 mm).
- 5) Tighten the bolts [33] to 20 in-lb (2.26 N·m) - 25 in-lb (2.82 N·m).
- (c) Install the clamp [32] on the boot seal [30].
 - 1) Do not tighten the clamp [32].

NOTE: All of the duct sections must be aligned before the clamp [32] can be tightened.

SUBTASK 36-13-01-410-001

- (4) If there is a cable assembly attachment provision for the duct section, connect the cable assembly [42] to the duct section.
 - (a) Make sure that the clearance between the cable assembly [42] and the electrical wire bundle is at least 0.50 in. (12.7 mm).
 - (b) Install the bolt [43], washers [44] and nut [45].

SUBTASK 36-13-01-400-002



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.

- (5) Install the V-band couplings [35] the each duct section.

SUBTASK 36-13-01-420-011

36-AWL-01: CDCCL

- (6) Tighten the V-band couplings [35] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (a) Use a rubber mallet, STD-3906 to lightly tap around the outer surface of the V-band couplings [35].

NOTE: This will make sure you engage the coupling and flanges correctly.

SUBTASK 36-13-01-420-012

36-AWL-01: CDCCL

- (7) Re-tighten all the V-band couplings [35] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

SUBTASK 36-13-01-420-013

- (8) Install the duct support clamps [38].
 - (a) Tighten all the duct support clamps [38] to 18 in-lb (2.03 N·m) - 22 in-lb (2.49 N·m).

SUBTASK 36-13-01-420-014

- (9) Tighten the clamp [32] on the boot seal [30] to 13 in-lb (1.47 N·m) - 18 in-lb (2.03 N·m), where applicable.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 423
Sep 15/2022



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

SUBTASK 36-13-01-420-015

(10) For the wing anti-ice duct [46], do the steps that follow:

(a) Install the E-seal [52].



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.

(b) Loosely install the forged coupling [47].

(c) Make sure that there is a minimum of 0.10 in. (2.54 mm) clearance between the duct section and the adjacent system equipment or structure to prevent interference or chafing condition.

(d) Make sure that there is a minimum of 0.50 in. (12.7 mm) between the wing anti-ice duct [46] and the nearby wires.

(e) Make sure that there is a minimum of 0.50 in. (12.7 mm) between the T-bolt end and the nearby wires.

(f) Connect the duct support link [48] to the duct section.

1) Loosen the jamnut to adjust the length of the duct support link [48], if it is necessary.

2) Make sure that the fastener build-up is correct.

3) Loosely install the bolt [53], washer [54], bushing [55], washer [56] and nut [57].

a) Install the countersunk side of the washer [54] against the head of the bolt [53].

4) Tighten the jamnut if you have adjusted the length of the duct support link [48].

(g) Tighten the forged coupling [47] to the torque value shown on the part.

1) Use a rubber mallet, STD-3906 to lightly tap around each forged coupling [47].

NOTE: This will make sure you engage the coupling and flanges correctly.

2) Re-tighten all the forged coupling [47] to the torque value shown on the part again.

(h) Tighten the bolt [53] and nut [57] on duct support link [48].

1) To install a lockwire on the duct support link [48], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

(i) Install the U-clamp [49].

1) Install the bolts [50] and washers [51].

SUBTASK 36-13-01-420-054

(11) For the ECS duct [58], do the steps that follow:

(a) Install the E-seal [60].



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.

(b) Loosely install the forged coupling [59] and V-band coupling [35] between the duct sections.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 424
Sep 15/2022

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

- (c) Make sure that there is a minimum of 0.10 in. (2.54 mm) clearance between the duct section and the adjacent system equipment or structure to prevent interference or chafing condition.
- (d) Make sure that there is a minimum of 0.50 in. (12.7 mm) between the ECS duct [58] and the nearby wires.
- (e) Make sure that there is a minimum of 0.50 in. (12.7 mm) between the T-bolt end and the nearby wires.

 36-AWL-01: CDCCL

- (f) Tighten the V-band coupling [35] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- 1) Use a rubber mallet, STD-3906 to lightly tap around the outer surface of the V-band coupling [35].

NOTE: This will make sure you engage the coupling and flanges correctly.

 36-AWL-01: CDCCL

- 2) Re-tighten the V-band coupling [35] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (g) Tighten the forged coupling [59] to the torque value shown on the part.
 - 1) Lightly tap around the forged coupling [59] with a rubber mallet, STD-3906.

NOTE: This will make sure you engage the coupling and flanges correctly.

- 2) Re-tighten all the forged coupling [59] to the torque value shown on the part again.

I. Wing Leading Edge Duct Installation Test

SUBTASK 36-13-01-720-002

- (1) Do a leak test of the duct installation:
 - (a) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

 36-AWL-01: CDCCL

- (b) Do a check for concentrated air leakage:

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- 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 in. (30 cm) or greater from a point on the duct joint.

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 425
Sep 15/2022



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

J. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-860-007

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-860-008



MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES. THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES CAN EXTEND AND RETRACT QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



MAKE SURE THAT YOU CLOSE OR REMOVE THE INBOARD FAN COWL AND THRUST REVERSERS BEFORE YOU RETRACT THE LEADING EDGE FLAPS. THE CLEARANCE IS NOT SUFFICIENT FOR THE FLAPS TO RETRACT WITH THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (2) To retract the wing leading edge flaps and remove the lock:
- (a) Do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.
 - (b) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 36-13-01-410-002

- (3) Close the applicable access panels.

<u>Number</u>	<u>Name/Location</u>
431CR	Forward Strut Fairing, Right Overwing Fairing, Strut 1
441CL	Forward Strut Fairing, Left Overwing Fairing, Strut 2
521AT	Outbd Leading Edge - Gap Cover Access
621AT	Outbd Leading Edge - Gap Cover Access

————— END OF TASK —————

TASK 36-13-01-000-805

8. Crossover Pneumatic Duct Removal

(Figure 403)

A. General

- (1) This procedure gives the general instructions to assist with the removal of the crossover pneumatic duct sections.
- (2) Do only the steps that are necessary to remove the required section of duct.

B. References

<u>Reference</u>	<u>Title</u>
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-13-03-000-801	Ground Pneumatic Connector Check Valve Removal (P/B 401)
36-13-04-000-801	Bleed Air Isolation Valve Removal (P/B 401)

C. Location Zones

<u>Zone</u>	<u>Area</u>
192	Lower Wing-To-Body Fairing - Under Wing Box
193	Lower Wing-To-Body Fairing - Wheel Well

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 426
May 15/2023



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

(Continued)

Zone	Area
511	Left Wing - Leading Edge To Front Spar
611	Right Wing - Leading Edge to Front Spar

D. Access Panels

Number	Name/Location
191AL	Forward Wing-To-Body Fairing Panel - Upper
191CL	Forward Wing-To-Body Fairing Panel - Middle
191CR	Forward Wing-To-Body Fairing Panel - Middle
191FL	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191FR	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191GL	Ram Air Actuator Panel - Forward
191GR	Ram Air Actuator Panel - Forward
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
511AT	Inboard Leading Edge, Strakelet Upper Panel
611AT	Inboard Leading Edge, Strakelet Upper Access Panel

E. Prepare for the Removal

SUBTASK 36-13-01-860-009



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-010-006

- (2) To get access to the duct section, do this task:

- (a) Open these access panels:

Number	Name/Location
191AL	Forward Wing-To-Body Fairing Panel - Upper
191CL	Forward Wing-To-Body Fairing Panel - Middle
191CR	Forward Wing-To-Body Fairing Panel - Middle
191FL	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191FR	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191GL	Ram Air Actuator Panel - Forward
191GR	Ram Air Actuator Panel - Forward
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
511AT	Inboard Leading Edge, Strakelet Upper Panel
611AT	Inboard Leading Edge, Strakelet Upper Access Panel

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 427
May 15/2023



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

SUBTASK 36-13-01-020-016

- (3) To remove the ground pneumatic connector duct [69], it is necessary to first remove the ground pneumatic connector check valve (TASK 36-13-03-000-801).

SUBTASK 36-13-01-020-058

- (4) If it is necessary, remove the bleed air duct support isolate valve (TASK 36-13-04-000-801).

SUBTASK 36-13-01-020-017

- (5) Remove or move the other adjacent system installations if it is necessary to get more room to ease the removal of the duct section.

F. Crossover Duct Removal

SUBTASK 36-13-01-020-018

- (1) Remove the V-band coupling clamp [68] from the end of the duct section.

SUBTASK 36-13-01-020-019

- (2) Disconnect the pressure line at the duct section, if the duct section has the pressure line connected to the duct pressure transducer or hydraulic reservoir pressurization system.
 - (a) Install the protective cover on the open duct boss and disconnected pressure line to keep out unwanted material.

SUBTASK 36-13-01-020-020

- (3) Remove the bolt [61], washers [62], and nut [65] that attach the duct support link [66] to the duct support clamp [63].

SUBTASK 36-13-01-020-059

- (4) Remove the nuts [178], washers [179], bushings [180] from the clamps [177], that attach the duct section to the structure.

SUBTASK 36-13-01-020-021

- (5) Remove the applicable duct section:
 - (a) wing-to-crossover duct [64]
 - (b) crossover manifold duct [67]
 - (c) ground pneumatic connector duct [69].

SUBTASK 36-13-01-020-022

- (6) Remove the duct support clamp [63] from the wing-to-crossover duct [64], if the duct section was removed.

NOTE: Keep the duct support clamp for installation on replacement duct.

SUBTASK 36-13-01-020-060

- (7) If it is necessary, remove the clamps [177] from the duct.

NOTE: Keep the clamps for installation on replacement duct.

SUBTASK 36-13-01-020-023

- (8) Install the protective covers on the duct openings.

————— **END OF TASK** —————

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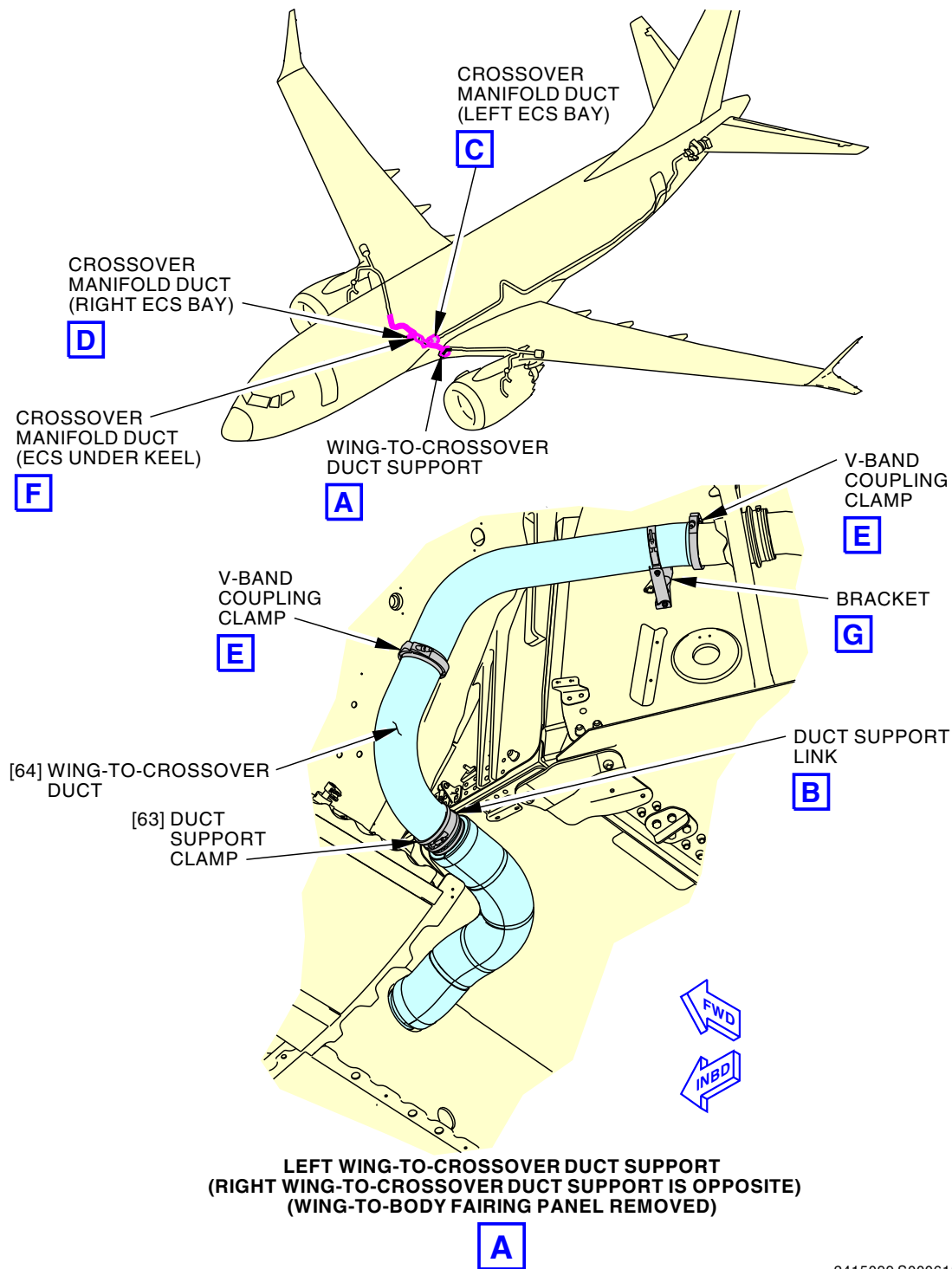
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 428
May 15/2023

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



2415099 S00061536970_V2

Crossover Pneumatic Duct Installation
Figure 403/36-13-01-990-803 (Sheet 1 of 4)

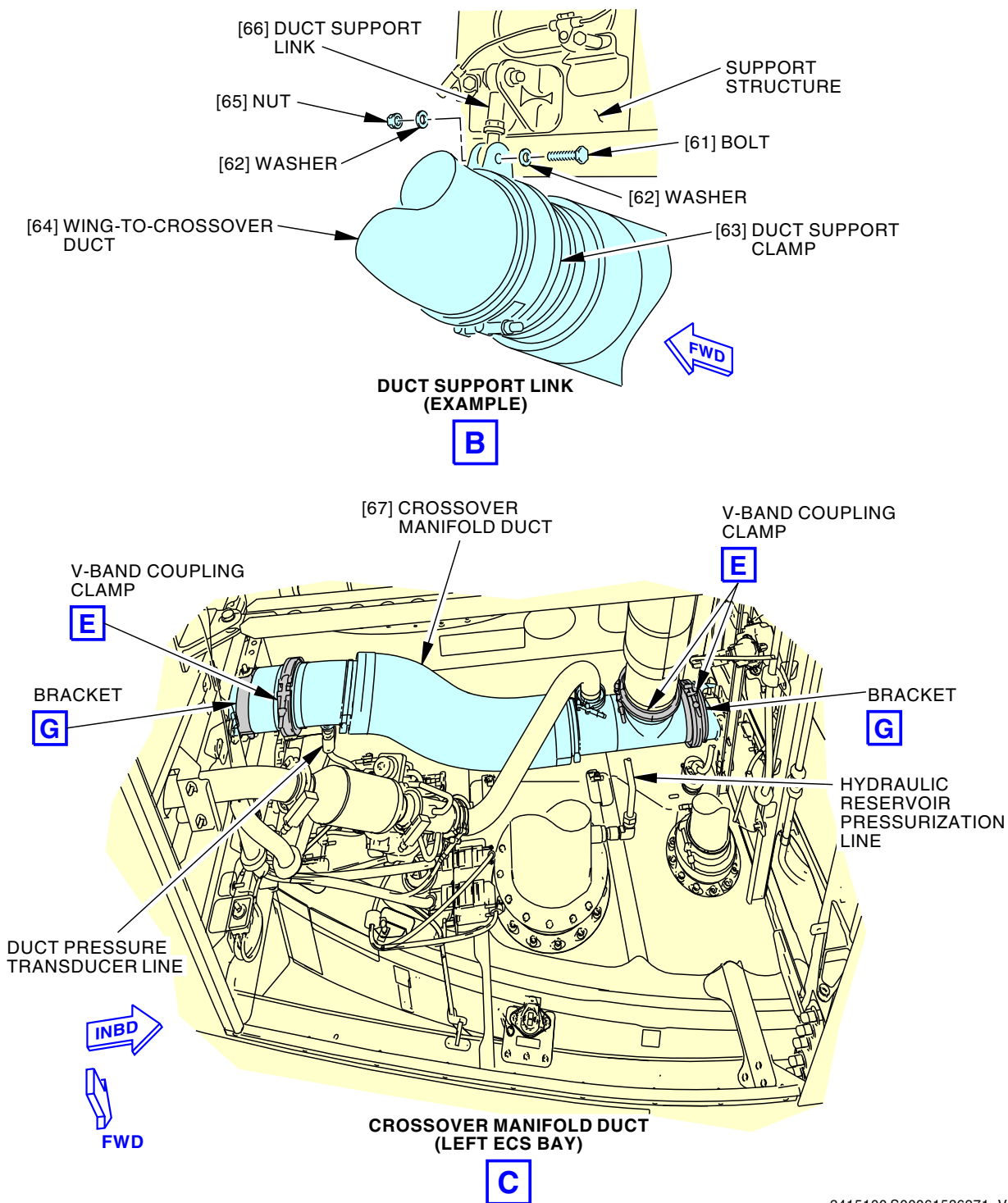
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Page 429
May 15/2023

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



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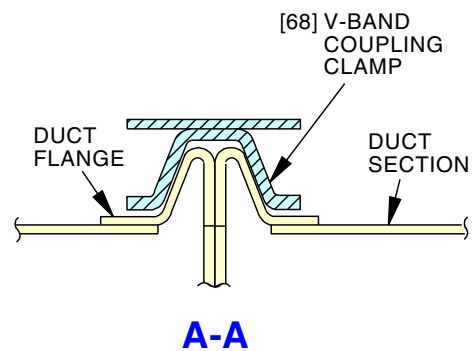
Crossover Pneumatic Duct Installation
Figure 403/36-13-01-990-803 (Sheet 2 of 4)

EFFECTIVITY
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36-13-01

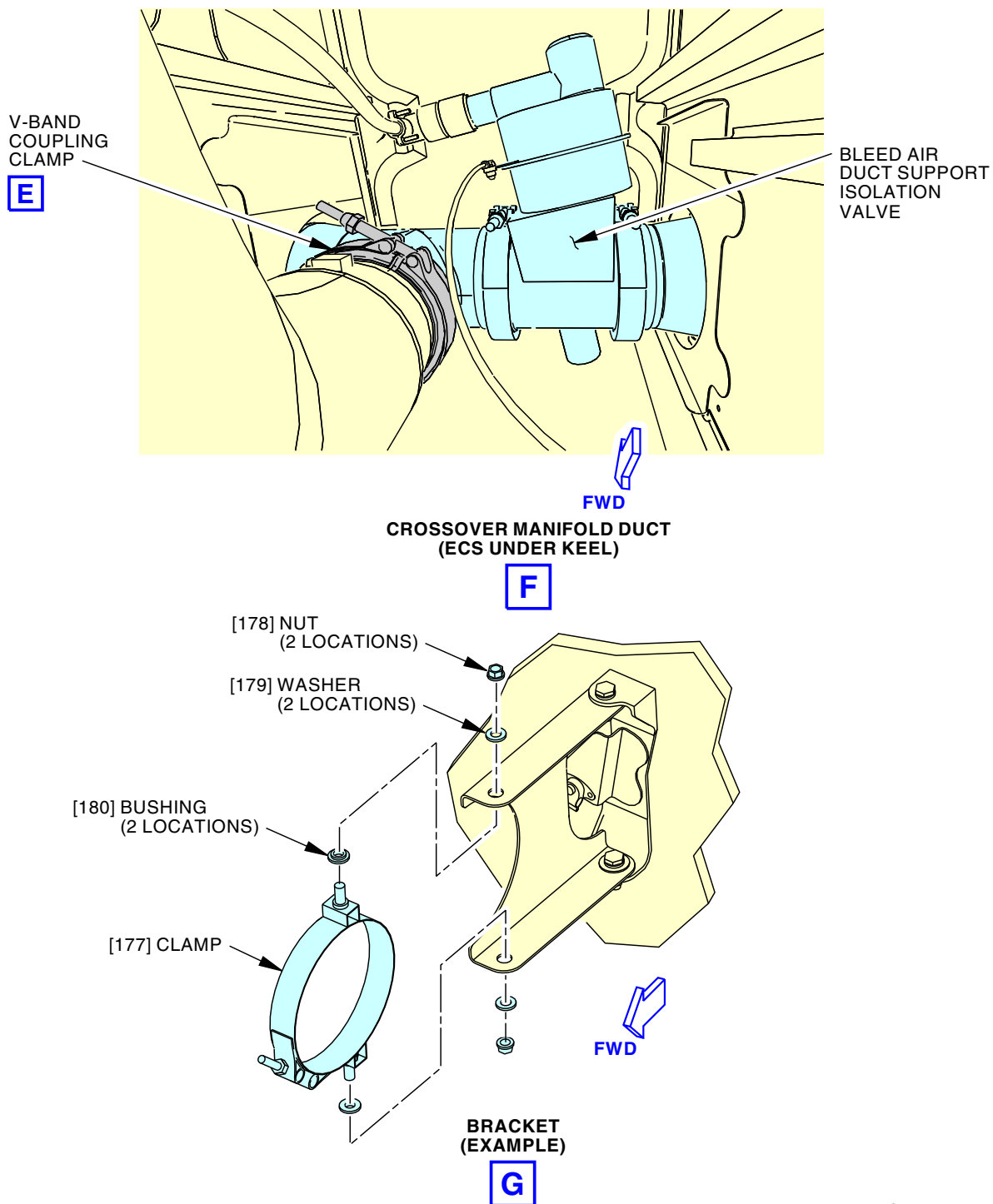
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Page 430
May 15/2023



Crossover Pneumatic Duct Installation
Figure 403/36-13-01-990-803 (Sheet 3 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details



2570495 S0000616889_V2

Crossover Pneumatic Duct Installation
Figure 403/36-13-01-990-803 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 432
May 15/2023



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

TASK 36-13-01-400-803

9. Crossover Pneumatic Duct Installation

(Figure 403)

A. General

- (1) This procedure gives the general instructions to assist with the installation of the crossover pneumatic duct sections.
- (2) Do only the steps that are necessary to install the required section of duct.
- (3) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.
 - (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

B. References

Reference	Title
20-50-11-910-801	Standard Torque Values (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
36-13-03-400-801	Ground Pneumatic Connector Check Valve Installation (P/B 401)
36-13-04-400-801	Bleed Air Isolation Valve Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
64	Wing-to-crossover duct	36-13-01-09-187	SIA ALL
		36-13-01-09-192	SIA ALL
67	Crossover manifold duct	36-13-01-07-120	SIA ALL
		36-13-01-07-160	SIA ALL
69	Ground pneumatic connector duct	36-13-03-01-190	SIA ALL

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 433
May 15/2023



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

F. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box
193	Lower Wing-To-Body Fairing - Wheel Well
511	Left Wing - Leading Edge To Front Spar
611	Right Wing - Leading Edge to Front Spar

G. Access Panels

Number	Name/Location
191AL	Forward Wing-To-Body Fairing Panel - Upper
191CL	Forward Wing-To-Body Fairing Panel - Middle
191CR	Forward Wing-To-Body Fairing Panel - Middle
191FL	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191FR	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191GL	Ram Air Actuator Panel - Forward
191GR	Ram Air Actuator Panel - Forward
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
511AT	Inboard Leading Edge, Strakelet Upper Panel
611AT	Inboard Leading Edge, Strakelet Upper Access Panel

H. Prepare for the Installation

SUBTASK 36-13-01-420-017

- (1) Loosely install the duct support clamp [63] on the wing-to-crossover duct [64] before you do the installation.

SUBTASK 36-13-01-420-071

- (2) Loosely install the clamps [177] on the duct section.

SUBTASK 36-13-01-860-010

- (3) Remove the protective covers from the ducts.

I. Crossover Pneumatic Duct Installation

SUBTASK 36-13-01-420-018

- (1) Put the applicable duct section in the correct position and orientation for installation:
 - (a) wing-to-crossover duct [64]
 - (b) crossover manifold duct [67]
 - (c) ground pneumatic connector duct [69].

SUBTASK 36-13-01-420-019



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.

- (2) Install the V-band coupling clamps [68] between the duct sections.

SUBTASK 36-13-01-020-024

- (3) If there is a duct support clamp [63] on the duct section, connect the duct support link [66] to duct support clamp [63].

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-13-01

Page 434
May 15/2023



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

- (a) Install the bolt [61], washers [62], and nut [65].
- (b) Tighten the duct support clamp [63] to 10 in-lb (1 N·m) - 15 in-lb (2 N·m).
- (c) Tighten the bolt [61] and nut [65].

SUBTASK 36-13-01-420-072

- (4) If there is a duct support clamps [177] on the duct section, connect the clamps [177] to the bracket.
 - (a) Install the bushings [180], washers [179], and the nuts [178].
 - (b) Tighten the clamps [177] to 18 in-lb (2 N·m) - 22 in-lb (2 N·m).

NOTE: The clamp shall rotate freely or with moderate hand force inside of bracket. A minimal gap between washer and bracket is acceptable.
 - (c) Tighten the nuts [178].

SUBTASK 36-13-01-420-020

- (5) Install the pressure line at the duct section, if the duct section has a pressure line connected to the duct pressure transducer or hydraulic reservoir pressurization system.
 - (a) Apply antiseize compound, D00010 (alternate Never-Seez NSBT compound, D00006), to the threads on the connection fittings.
 - (b) Tighten the fitting on the pressure line connection (TASK 20-50-11-910-801).

SUBTASK 36-13-01-410-003

- (6) Install the ground pneumatic connector check valve, if it was removed (TASK 36-13-03-400-801).

SUBTASK 36-13-01-420-073

- (7) Install the bleed air duct support isolation valve, if it was removed (TASK 36-13-04-400-801).

SUBTASK 36-13-01-420-021

- (8) Align the duct sections.
 - (a) Make sure that there are sufficient clearances between the duct couplings and wiring or structures.

SUBTASK 36-13-01-420-055

36-AWL-01: CDCCL

- (9) Tighten the V-band coupling clamps [68] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

SUBTASK 36-13-01-420-022

- (10) Use a rubber mallet, STD-3906, to lightly tap around the outer surface the V-band coupling clamps [68].

NOTE: This will make sure you engage the coupling and flanges correctly.



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

SUBTASK 36-13-01-420-023

36-AWL-01: CDCCL

- (11) Re-tighten the V-band coupling clamps [68] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

J. Crossover Pneumatic Duct Installation Test

SUBTASK 36-13-01-720-003

- (1) Do a leak test of the duct:
- (a) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.
 - (b) Apply Snoop Leak Detector compound, G00091, to the sense line connections.

36-AWL-01: CDCCL

- (c) Do a check for concentrated air leakage:

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- 1) Small air leakage is satisfactory at the coupling joint.
- 2) No leakage is permitted at the sense line connection.

36-AWL-01: CDCCL

- 3) Repair all large air leakages.

NOTE: A large air leakage is when you feel the airflow with your hand at a distance of 12 in. (30 cm) or more from a point on the duct joint.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-860-011

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-420-024

- (2) Install the other adjacent system installations that were removed or relocated to get more room to ease the installation of the duct section.

SUBTASK 36-13-01-410-004

- (3) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
191AL	Forward Wing-To-Body Fairing Panel - Upper
191CL	Forward Wing-To-Body Fairing Panel - Middle
191CR	Forward Wing-To-Body Fairing Panel - Middle

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 436
May 15/2023



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

(Continued)

<u>Number</u>	<u>Name/Location</u>
191FL	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191FR	Forward Wing-To-Body Fairing Panel - Mid Fairing, Above Ram Air Inlet
191GL	Ram Air Actuator Panel - Forward
191GR	Ram Air Actuator Panel - Forward
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
511AT	Inboard Leading Edge, Strakelet Upper Panel
611AT	Inboard Leading Edge, Strakelet Upper Access Panel

————— END OF TASK —————

TASK 36-13-01-000-807

10. AC Pack Pneumatic Duct Removal

A. General

- (1) This task gives the general instructions to assist with the removal of the AC pack pneumatic duct sections.
- (2) Do only the steps that are necessary to remove the required section of duct.

B. References

<u>Reference</u>	<u>Title</u>
20-10-51-000-801	Flareless Tubing Assembly Removal (P/B 401)
21-51-24-000-801	Ram Air Ducts Removal (P/B 401)
21-61-24-000-801	Flow Sensor Removal (P/B 401)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Location Zones

<u>Zone</u>	<u>Area</u>
131	Center Section Wing Box, Body Station 540.00 to Body Station 663.75 - Left
132	Center Section Wing Box, Body Station 540.00 to Body Station 663.75 - Right
192	Lower Wing-To-Body Fairing - Under Wing Box

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

E. Prepare for the Removal

SUBTASK 36-13-01-040-001



OBEY THE PROCEDURE TO REMOVE PRESSURE FROM THE PNEUMATIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURIES TO PERSONNEL CAN OCCUR.

- (1) If the aircraft pneumatic system is pressurized, remove the pneumatic air from the system (TASK 36-00-00-860-806).

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-13-01

Page 437
May 15/2023



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

SUBTASK 36-13-01-010-017

- (2) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

SUBTASK 36-13-01-010-018

- (3) Remove or move other adjacent system installations to have more space to remove the duct section.

SUBTASK 36-13-01-010-019

- (4) Remove the ram air exhaust duct if you need to remove the AC pack pneumatic duct [164], AC pack pneumatic duct [167], or AC pack pneumatic duct [169] (TASK 21-51-24-000-801).

F. Forward AC Pack Pneumatic Duct Removal

SUBTASK 36-13-01-020-049

- (1) Disconnect the two tie rods from the forward AC pack pneumatic duct [157].
- (a) Remove the bolts [152], washers [153], washers [154], washers [155], and nuts [156] from the tie rod.

SUBTASK 36-13-01-020-050

- (2) Remove the V-band coupling clamp [68] between the crossover manifold duct [67] and the forward AC pack pneumatic duct [157].

SUBTASK 36-13-01-020-051

- (3) Remove the V-band coupling clamp [151] between the flow control and shutoff valve (FCSOV) and the forward AC pack pneumatic duct [157].

SUBTASK 36-13-01-020-052

- (4) Remove the forward AC pack pneumatic duct [157].

SUBTASK 36-13-01-480-003

- (5) Install the protective covers on the ducts openings to keep unwanted material out.

G. Aft AC Pack Pneumatic Duct Removal

SUBTASK 36-13-01-020-053

- (1) Remove the AC pack pneumatic duct [159], as follows:
- (a) Remove the V-band coupling clamp [151] between the flow control and shutoff valve (FCSOV) and the aft AC pack pneumatic duct [157].
- (b) Disconnect the tube [158] from the AC pack pneumatic duct [159] (TASK 20-10-51-000-801).
- (c) Disconnect the AC sense line [161] from the AC pack pneumatic duct [159] (TASK 20-10-51-000-801).
- (d) Remove the V-band coupling clamp [151] between the AC pack pneumatic duct [159] and AC pack pneumatic duct [164].
- (e) Remove the two screws [163], washers [162], and U-clamp [160] from the bracket.
- (f) Remove the AC pack pneumatic duct [159].

SUBTASK 36-13-01-020-054

- (2) Remove the AC pack pneumatic duct [164], as follows:
- (a) Remove the flow sensor (TASK 21-61-24-000-801).

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 438
May 15/2023



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

- (b) Remove the V-band coupling clamp [151] between the AC pack pneumatic duct [164] and AC pack pneumatic duct [167].
- (c) Remove the V-band coupling clamp [165] between the AC pack pneumatic duct [164] and the trim air check valve.
- (d) Remove the duct support clamp [166] from the AC pack pneumatic duct [164].
- (e) Remove the AC pack pneumatic duct [164].

SUBTASK 36-13-01-020-055

- (3) Remove the AC pack pneumatic duct [167], as follows:
 - (a) Remove the V-band coupling clamp [168] between the temperature control valve and the AC pack pneumatic duct [167].
 - (b) Remove the V-band coupling clamp [151] between the AC pack pneumatic duct [167] and AC pack pneumatic duct [169].
 - (c) Remove the AC pack pneumatic duct [167].

SUBTASK 36-13-01-020-056

- (4) Remove the AC pack pneumatic duct [169], as follows:
 - (a) Remove the screw [172], three washers [173], nut [170], bonding jumper [174], and bonding jumper [171] from the bonding tab on the AC pack pneumatic duct [169].
 - (b) Remove the V-band coupling clamp [168] between the AC pack pneumatic duct [169] and the standby temperature control valve.
 - (c) Remove the V-band coupling clamp [151] between the AC pack pneumatic duct [169] and the primary heat exchanger.
 - (d) Remove the AC pack pneumatic duct [169].

———— **END OF TASK** ————

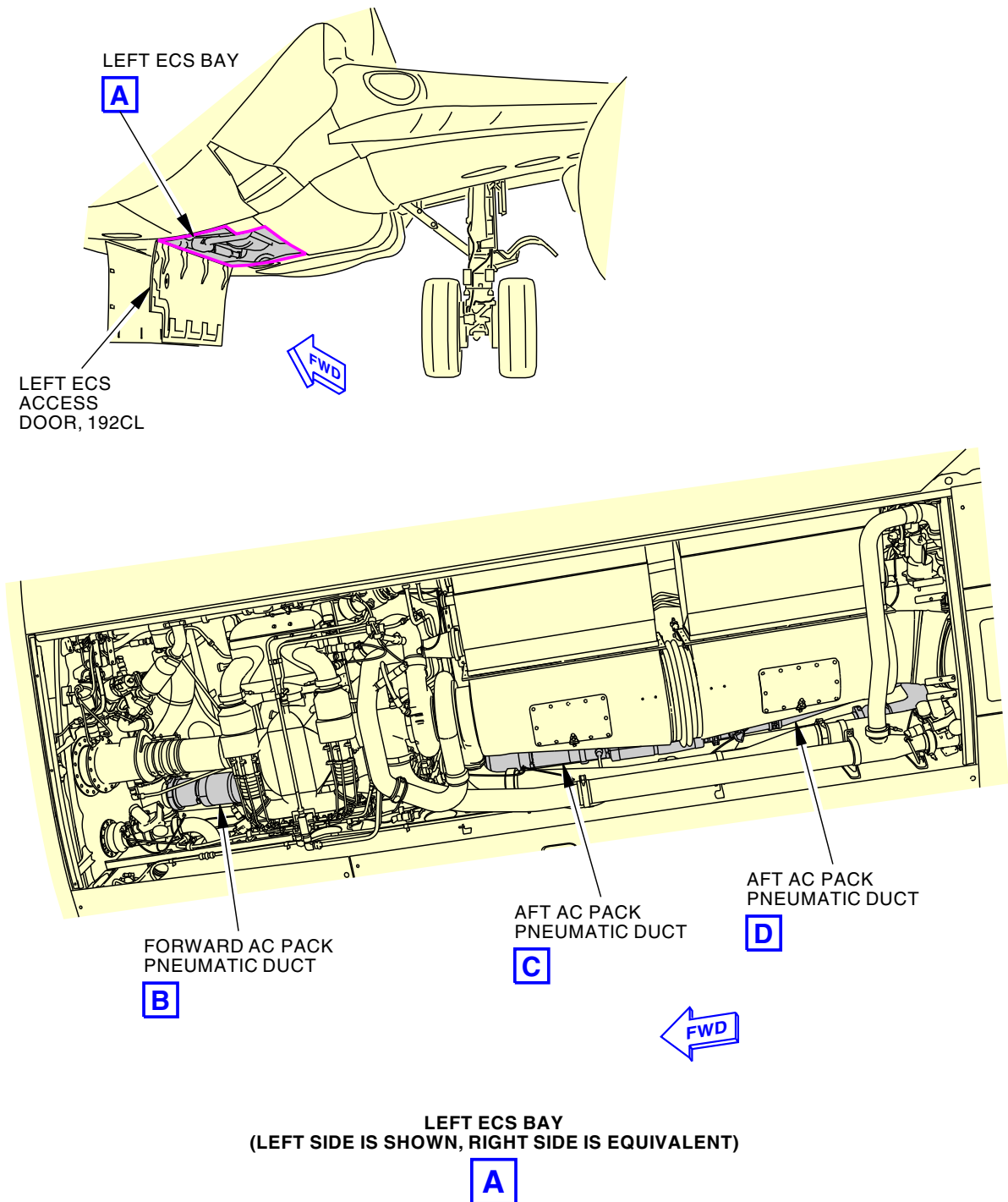
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 439
May 15/2023



2569581 S0000615963_V1

AC Pack Pneumatic Duct Installation
Figure 404/36-13-01-990-808 (Sheet 1 of 5)

EFFECTIVITY
SIA ALL

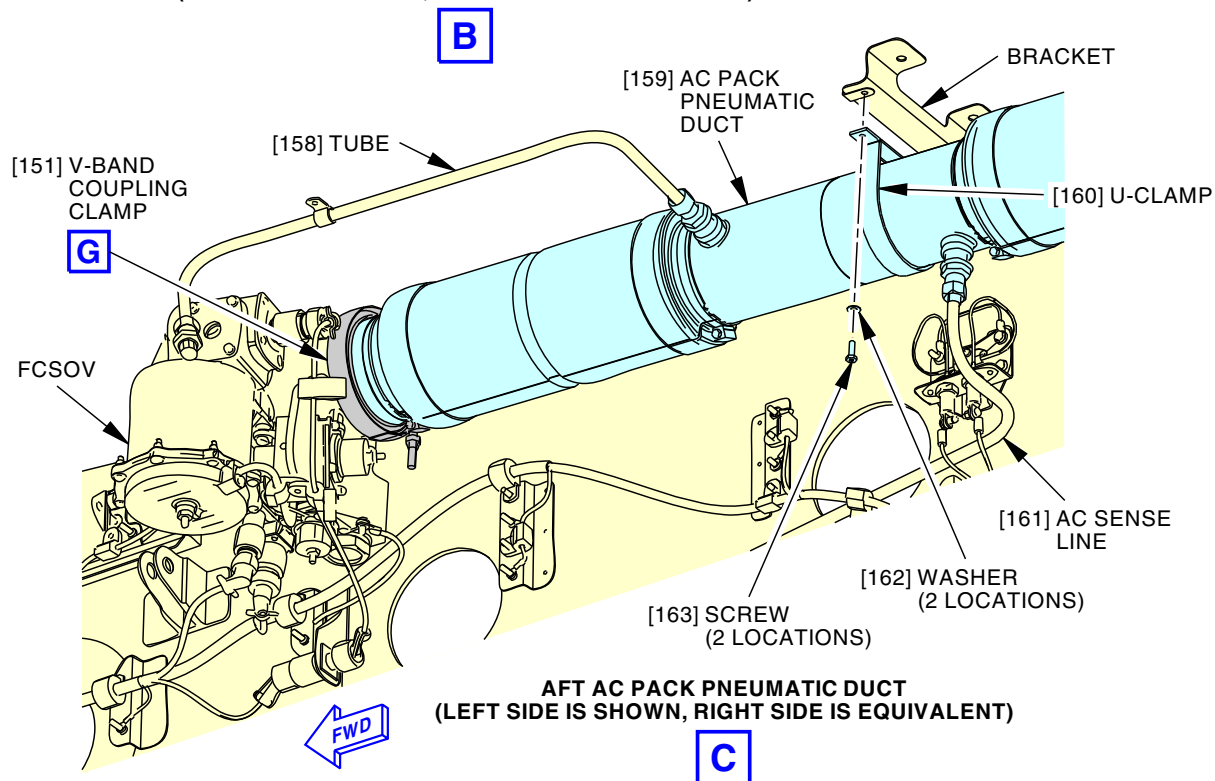
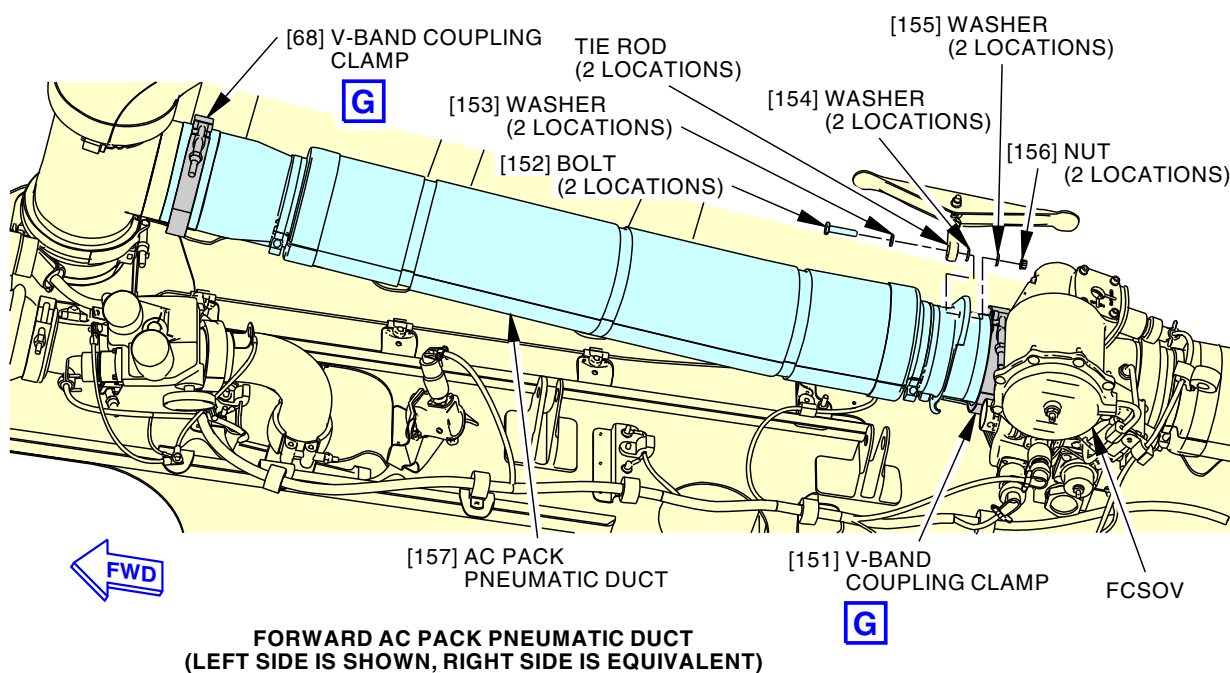
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 440
May 15/2023

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



2569584 S0000615964_V1

AC Pack Pneumatic Duct Installation
Figure 404/36-13-01-990-808 (Sheet 2 of 5)

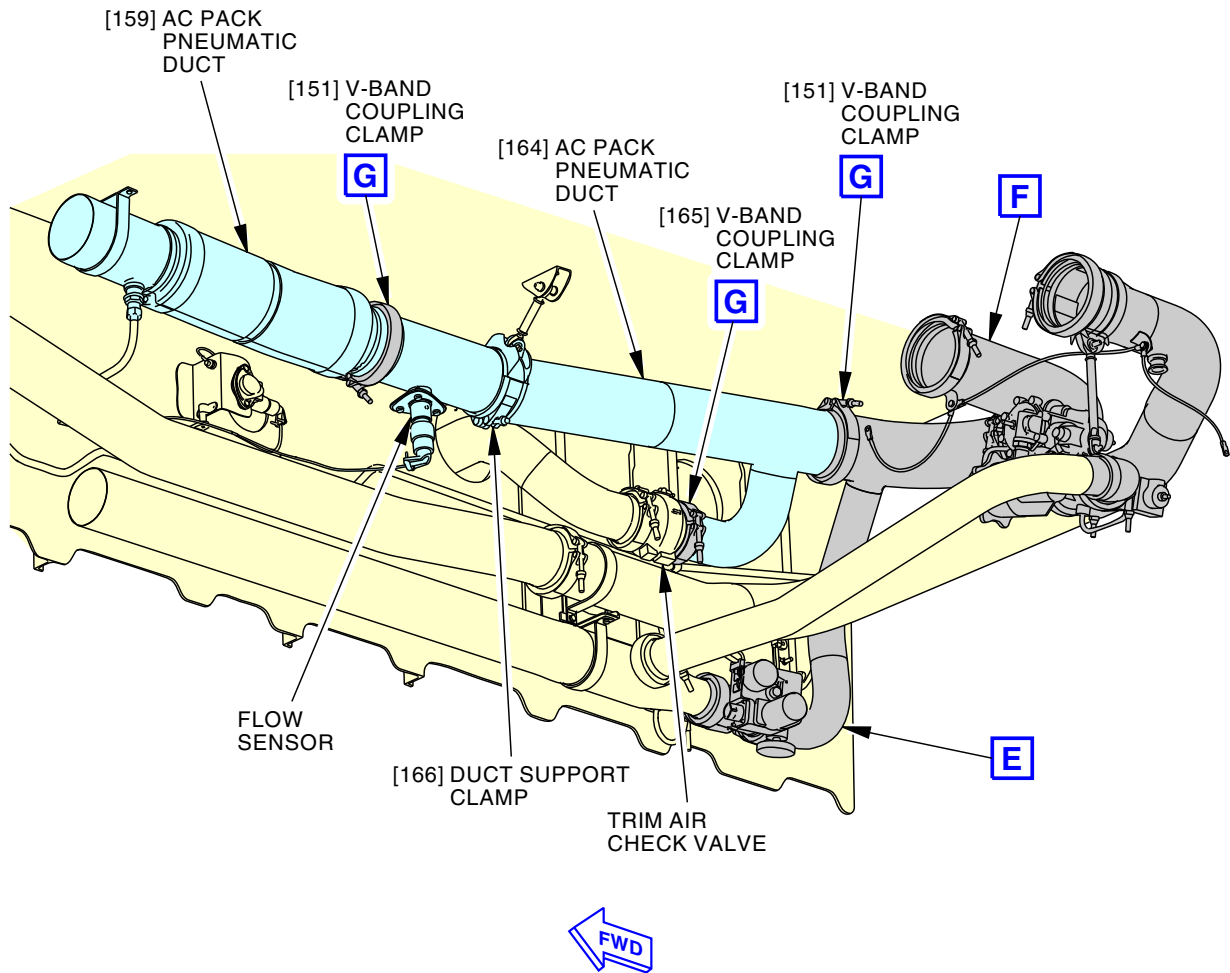
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 441
May 15/2023



AFT AC PACK PNEUMATIC DUCT
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

D

2569585 S0000615975_V1

AC Pack Pneumatic Duct Installation
Figure 404/36-13-01-990-808 (Sheet 3 of 5)

EFFECTIVITY
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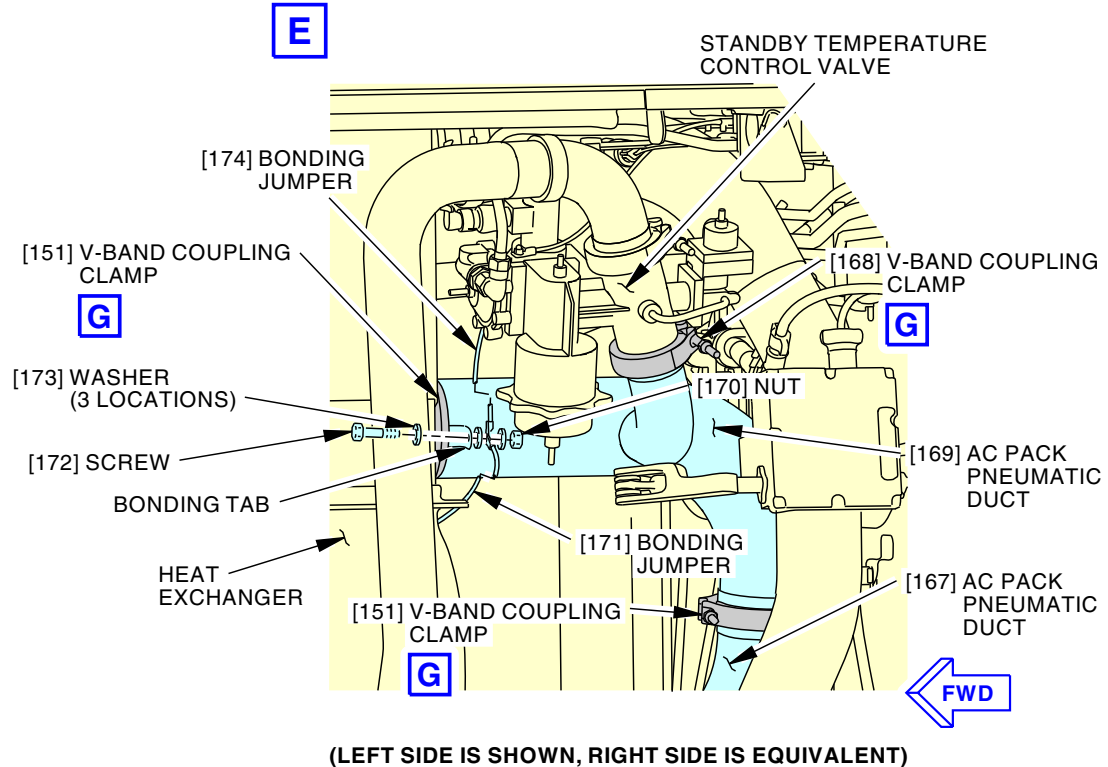
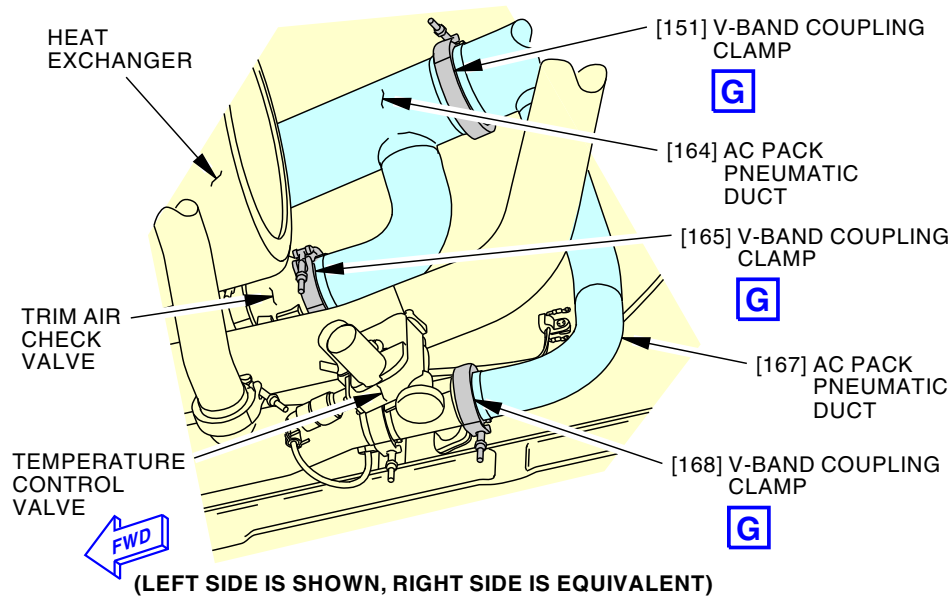
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 442
May 15/2023

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



2569586 S0000615976_V2

AC Pack Pneumatic Duct Installation
Figure 404/36-13-01-990-808 (Sheet 4 of 5)

EFFECTIVITY
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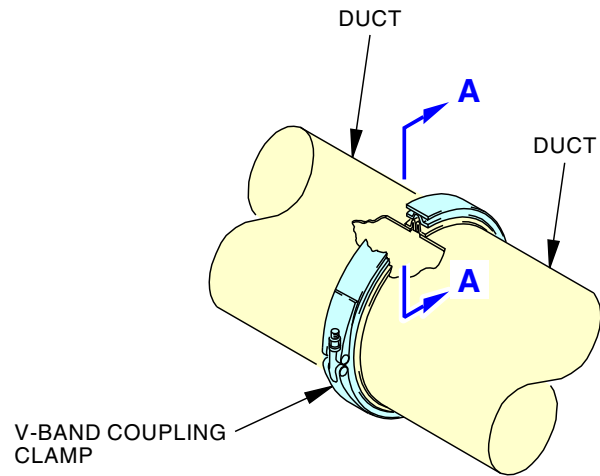
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36-13-01

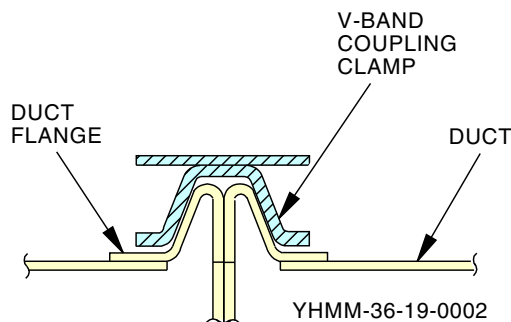
Page 443
May 15/2023

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



**V-BAND COUPLING CLAMP
(EXAMPLE)**

G



A-A

2569291 S0000615977_V1

AC Pack Pneumatic Duct Installation
Figure 404/36-13-01-990-808 (Sheet 5 of 5)

EFFECTIVITY	
SIA ALL	

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 444
May 15/2023



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

TASK 36-13-01-400-806

11. **AC Pack Pneumatic Duct Installation**

A. General

- (1) This procedure gives the general instructions to assist with the installation of the AC pack pneumatic duct sections.
- (2) Do only the steps that are necessary to install the required section of duct.
- (3) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.
 - (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

B. References

Reference	Title
20-10-51-400-801	Flareless Tubing Assembly Installation (P/B 401)
21-61-24-400-801	Flow Sensor Installation (P/B 401)
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

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 Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
D50294	Compound - Antiseize, Pure Nickel Special - Never Seez	BAC5008
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
157	AC pack pneumatic duct	36-13-01-30-085	SIA ALL

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 445
May 15/2023



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

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
157 (cont.)		36-13-01-30-130	SIA 001-006
		36-13-01-30-160	SIA 007-999
159	AC pack pneumatic duct	21-51-11-01-165	SIA ALL
		21-51-11-02-180	SIA ALL
164	AC pack pneumatic duct	21-51-11-01-195	SIA 001-006
		21-51-11-01-255	SIA 001-006
		21-51-11-02-210	SIA ALL
		21-51-11-02-230	SIA ALL
		21-51-11-02-290	SIA ALL
167	AC pack pneumatic duct	21-51-11-01-275	SIA ALL
		21-51-11-02-310	SIA ALL
		21-51-11-02-440	SIA ALL
169	AC pack pneumatic duct	21-51-11-01-280	SIA ALL
		21-51-11-02-345	SIA ALL

F. Location Zones

Zone	Area
131	Center Section Wing Box, Body Station 540.00 to Body Station 663.75 - Left
132	Center Section Wing Box, Body Station 540.00 to Body Station 663.75 - Right
192	Lower Wing-To-Body Fairing - Under Wing Box

G. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

H. Prepare for the Forward AC Pack Pneumatic Duct Installation

SUBTASK 36-13-01-640-001

- (1) Apply Never Seez, D50294 on the threads of the T-bolts on all applicable V-band coupling clamps.

SUBTASK 36-13-01-080-002

- (2) Remove the protective covers from the applicable ducts.

I. Prepare for the Aft AC Pack Pneumatic Duct Installation

SUBTASK 36-13-01-640-002

- (1) Apply Never Seez, D50294 on the threads of the T-bolts on all applicable V-band coupling clamps and duct support clamp [166].

SUBTASK 36-13-01-080-003

- (2) Remove the protective covers from the applicable ducts.

J. Forward AC Pack Pneumatic Duct Installation

SUBTASK 36-13-01-820-001

- (1) Put the AC pack pneumatic duct [157] in the correct position.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 446
May 15/2023



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

SUBTASK 36-13-01-420-056



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.

- (2) Install the V-band coupling clamp [68] between the crossover manifold duct and AC pack pneumatic duct [157].

SUBTASK 36-13-01-420-057



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.

- (3) Install the V-band coupling clamp [151] between the FCISOV and the AC pack pneumatic duct [157].

SUBTASK 36-13-01-420-058

- (4) Connect the two tie rods to the AC pack pneumatic duct [157].
- (a) Install the bolt [152], washer [153], tie rod, washer [154], washer [155], and nut [156] to the AC pack pneumatic duct [157] (2 locations).

SUBTASK 36-13-01-820-002

- (5) Align the AC pack pneumatic duct [157].
- (a) Make sure that there are sufficient clearances between the duct couplings and wiring or structure.

SUBTASK 36-13-01-420-059

- (6) Tighten the V-band coupling clamp [68], as follows:

 36-AWL-01: CDCCL



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.

- (a) Tighten the V-band coupling clamp [68] to 50 ±5 in-lb (5.6 ±0.6 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (b) Use a rubber mallet, STD-3906, to lightly tap around the outer surface the V-band coupling clamps [68].

NOTE: This will make sure that you engage the coupling and flanges correctly.

 36-AWL-01: CDCCL

- (c) Re-tighten the V-band coupling clamps [68] to 50 ±5 in-lb (5.6 ±0.6 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 447
May 15/2023



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

SUBTASK 36-13-01-420-060

- (7) Tighten the V-band coupling clamp [151], as follows:



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.

- (a) Tighten the V-band coupling clamp [151] to 60 +5 / -0 in-lb (6.8 +0.6 / -0.0 N·m).
- (b) Use a rubber mallet, STD-3906, to lightly tap around the outer surface the V-band coupling clamp [151].
NOTE: This will make sure that you engage the coupling and flanges correctly.
- (c) Re-tighten the V-band coupling clamp [151] to 60 +5 / -0 in-lb (6.8 +0.6 / -0.0 N·m).

K. Aft AC Pack Pneumatic Duct Installation

SUBTASK 36-13-01-420-061

- (1) Install the AC pack pneumatic duct [169], as follows:

- (a) Put the AC pack pneumatic duct [169] in position.



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.

- (b) Install the V-band coupling clamp [168] between the standby temperature control valve and the AC pack pneumatic duct [169].



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) Install the V-band coupling clamp [151] between the primary heat exchanger and the AC pack pneumatic duct [169].
- (d) Clean the fay surfaces of the titanium bonding tab on the AC pack pneumatic duct [169], bonding jumper [171], bonding jumper [174], and three washers [173] (SWPM 20-20-00, Paragraph 2).
- (e) Install the screw [172], three washers [173], bonding jumper [171], bonding jumper [174], and nut [170] on the bonding tab.
- (f) Tighten the nut [170] to 36.5 ±3.5 in-lb (4.1 ±0.4 N·m).
- (g) Measure the electrical bonding resistance between the bonding jumper [174] and AC pack pneumatic duct [169] with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00, Paragraph 21).
 - 1) Make sure that the electrical bonding resistance is 0.0010 ohm (1.0 milliohm) or less.
- (h) Measure the electrical bonding resistance between the bonding jumper [171] and AC pack pneumatic duct [169] with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00, Paragraph 21).
 - 1) Make sure that the electrical bonding resistance is 0.0010 ohm (1.0 milliohm) or less.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 448
May 15/2023



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

- (i) Measure the electrical bonding resistance between the AC pack pneumatic duct [169] and nearest structure with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00, Paragraph 21).
 - 1) Make sure that the electrical bonding resistance is 0.010 ohm (10.0 milliohm) or less.

SUBTASK 36-13-01-420-062

- (2) Install the AC pack pneumatic duct [167], as follows:
 - (a) Put the AC pack pneumatic duct [167] in position.



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.

- (b) Install the V-band coupling clamp [151] between the AC pack pneumatic duct [167] and AC pack pneumatic duct [169].



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) Install the V-band coupling clamp [168] between the temperature control valve and the AC pack pneumatic duct [167].

SUBTASK 36-13-01-420-063

- (3) Install the AC pack pneumatic duct [164], as follows:
 - (a) Put the AC pack pneumatic duct [164] in position.



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.

- (b) Install the V-band coupling clamp [151] between the AC pack pneumatic duct [167] and AC pack pneumatic duct [164].



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) Install the V-band coupling clamp [165] between the AC pack pneumatic duct [164] and trim air check valve.



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.

- (d) Install the duct support clamp [166] on the AC pack pneumatic duct [164].
 - (e) Install the flow sensor (TASK 21-61-24-400-801).

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 449
May 15/2023



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

SUBTASK 36-13-01-420-064

- (4) Install the AC pack pneumatic duct [159], as follows:
- (a) Put the AC pack pneumatic duct [159] in position.



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.

- (b) Install the two V-band coupling clamps [151] on the AC pack pneumatic duct [159].
- (c) Loosely install the U-clamp [160], two screws [163], and two washers [162] to the bracket.
- (d) Connect the tube [158] (TASK 20-10-51-400-801).
- (e) Connect the AC sense line [161] (TASK 20-10-51-400-801).

SUBTASK 36-13-01-820-003

- (5) Align the AC pack pneumatic duct [159], AC pack pneumatic duct [164], AC pack pneumatic duct [167], and AC pack pneumatic duct [169].
- (a) Make sure that there are sufficient clearances between the duct couplings and wiring or structure.

SUBTASK 36-13-01-420-065

- (6) Tighten the applicable V-band coupling clamps [151], as follows:
- (a) Tighten the V-band coupling clamp [151] to 60 +5 / -0 in-lb (6.8 +0.6 / -0.0 N·m).
- (b) Use a rubber mallet, STD-3906 to lightly tap around the outer surface of the V-band coupling clamp [151].
- NOTE: This will make sure that you engage the coupling and flanges correctly.
- (c) Re-tighten the V-band coupling clamp [151] to 60 +5 / -0 in-lb (6.8 +0.6 / -0.0 N·m).

SUBTASK 36-13-01-420-066

- (7) Tighten the applicable V-band coupling clamp [165] and V-band coupling clamps [168], as follows:
- (a) Tighten the V-band coupling clamps [168] and V-band coupling clamp [165] to 55 +5 / -0 in-lb (6.2 +0.6 / -0.0 N·m).
- (b) Use a rubber mallet, STD-3906 to lightly tap around the outer surface of the V-band coupling clamps [168] and V-band coupling clamp [165].
- NOTE: This will make sure that you engage the coupling and flanges correctly.
- (c) Re-tighten the V-band coupling clamps [168] and V-band coupling clamp [165] to 55 +5 / -0 in-lb (6.2 +0.6 / -0.0 N·m).

SUBTASK 36-13-01-420-067

- (8) Hand tighten the duct support clamp [166] to the AC pack pneumatic duct [164].

SUBTASK 36-13-01-420-068

- (9) Tighten the two screws [163].

L. AC Pack Pneumatic Duct Installation Test

SUBTASK 36-13-01-780-001

- (1) Supply pressure to the pneumatic system (TASK 36-00-00-860-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 450
May 15/2023



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

SUBTASK 36-13-01-790-001

- (2) Apply Snoop Leak Detector compound, G00091 to the AC sense line [161] and tube [158].

SUBTASK 36-13-01-780-002

36-AWL-01: CDCCL

- (3) Do a check for concentrated air leakage:

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (a) Small air leakage is satisfactory at the coupling joint.
- (b) No leakage is permitted at the connections of the AC sense line [161] and tube [158].

36-AWL-01: CDCCL

- (c) Repair all large air leakages.

NOTE: A large air leakage is when you feel the airflow with your hand at a distance of 12 in. (30 cm) or more from a point on the duct joint.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

SUBTASK 36-13-01-760-002

- (4) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

M. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-780-003

- (1) Remove pressure from the pneumatic system (TASK 36-00-00-860-806).

SUBTASK 36-13-01-410-011

- (2) Install the other adjacent system installations that were removed or relocated to get more room to ease the installation of the duct section.

SUBTASK 36-13-01-410-012

- (3) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

————— END OF TASK —————

TASK 36-13-01-000-806

12. APU Pneumatic Duct Removal

(Figure 405)

A. General

- (1) This task gives the general instructions to assist with the removal of the Auxiliary Power Unit (APU) pneumatic duct sections.
- (2) Do only the steps that are necessary to remove the required section of duct.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 451
May 15/2023



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

B. References

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
141	Aft Cargo Compartment - Left
145	Aft Cargo Compartment Equipment Bay - Left
149	Keel Beam (Part) Body Station 727.00 to Body Station 743.95
310	Fuselage - Body Station 1016.00 to Body Station 1260.00

E. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
192F	ECS Under Keel Panel - Middle
192K	Air Conditioning Under Keel Panel - Aft
311BL	Stabilizer Trim Access Door
822	Aft Cargo Door

F. Prepare for the Removal

SUBTASK 36-13-01-860-012

- (1) Make sure that the APU master switch and APU bleed switch, on the P5 forward overhead panel, are in the OFF position.
 - (a) Install the DO NOT OPERATE tags, STD-858.

SUBTASK 36-13-01-860-013



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.

- (2) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-010-007

- (3) To get access to the duct section, do this step:
 - (a) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
192F	ECS Under Keel Panel - Middle
192K	Air Conditioning Under Keel Panel - Aft

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 452
May 15/2023



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

(Continued)

<u>Number</u>	<u>Name/Location</u>
311BL	Stabilizer Trim Access Door
822	Aft Cargo Door

SUBTASK 36-13-01-020-025

- (4) In order to get access to the duct sections in the keel beam through the keel beam access holes, remove the air conditioning duct section [99] in the left and right Environmental Control System (ECS) bays (View A, Figure 405).

SUBTASK 36-13-01-020-026

- (5) If the potable water pressurization line is connected to the duct section, disconnect the potable water pressurization line at the union [71] on the duct section (View B, Figure 405).
- (a) Install the protective cover on the union [71] and the disconnected potable water pressurization line to keep unwanted material out.
- (b) If it is necessary, do the steps that follow after the duct section is removed:
- 1) Remove the union [71] and packing [72].
 - 2) Discard the packing [72].
 - 3) Install the protective cover on the open duct boss to keep unwanted material out.

SUBTASK 36-13-01-020-027

- (6) If there is a duct support clamp [76] that is used to support the duct section at an intermediate location, do these steps (View F, Figure 405):
- (a) Loosen the duct support clamp [76].
- (b) If it is necessary to remove the duct support clamp [76] to ease removal of the duct section, remove the nuts [77] and washers [78] to disconnect it from the support bracket.
- 1) Make sure that track of the fastener build-up is kept for installation.

SUBTASK 36-13-01-020-028

- (7) If there is a U-clamp [79] that is used to support the duct section at an intermediate location, do these steps (View G, Figure 405):
- (a) Remove the bolts [80] and washers [81].
- 1) Make sure that track of the fastener build-up is kept for installation.
- (b) Remove the U-clamp [79].

SUBTASK 36-13-01-020-029

- (8) For the removal of the pressure seal [93] behind the aft pressure bulkhead and below the horizontal stabilizer and the pressure seal [97] just forward of the aft bulkhead in the Main Landing Gear (MLG) wheel well, do this task: APU Pneumatic Duct Pressure Seal Removal, TASK 36-13-01-020-801.

SUBTASK 36-13-01-020-030

- (9) For the removal of the insulated duct section found inside the keel beam between the APU check valve and the MLG wheel well, remove the bolts [94], washers [95], and seal ring [96] to disconnect the vapor seal from the keel beam.

NOTE: The vapor seal can be removed after the insulated duct section is removed, if it is necessary.

SUBTASK 36-13-01-020-057

- (10) For the removal of the APU pneumatic duct [175] between station 1064 and station 1088, do these steps:

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-13-01

Page 453
May 15/2023



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

- (a) Get access to the duct through the stabilizer trim access door (View K, Figure 405).
- (b) Remove the V-band coupling [176].
- (c) Remove the duct support [128] from the STA 1088 bulkhead as follows:
 - 1) Remove the bolts [126] and washers [127] at 6 locations (View L, Figure 405).
- (d) Get access to the aft end of the APU pneumatic duct [175] as follows:
 - 1) Open APU cowl door as follows:
 - a) Support the APU panel (cowl door) under the center latch.
 - b) Open the three latches in this sequence: forward latch, aft latch and middle latch.
 - c) Open the APU cowl door, 315A.
 - d) Remove the retainer pin from the rod end of the forward hold-open rod on the APU cowl door, 315A.
 - e) Remove the retainer pin from the spring clip on the aft hold-open rod.
 - f) Disconnect the two hold-open rods from the two spring clips.
 - g) Connect the two rod ends of the two hold-open rods to the two brackets in the APU compartment.
 - h) Install the two retainer pins in the two rod ends.
- (e) Remove the clamp [130] and clamp [131].
- (f) Remove the clamp [133] and seal [134].
- (g) Remove the bellows seal [132].
- (h) Remove the APU pneumatic duct [175] forward.

G. APU Pneumatic Duct Removal

SUBTASK 36-13-01-020-032

- (1) Support the applicable duct section to be removed.

SUBTASK 36-13-01-020-033

- (2) Remove the v-band couplings [70] at each end of the duct section (View D, Figure 405).

SUBTASK 36-13-01-020-034

- (3) Remove the duct section.
 - (a) For insulated duct sections, do these steps as necessary:
 - 1) Remove the clamps to remove the insulation blanket(s) from the duct section.
 - 2) Remove the clamp to remove the vapor seal from the duct section.

SUBTASK 36-13-01-480-002

- (4) Install the protective covers on the adjacent duct openings to keep unwanted material out.

———— **END OF TASK** ————

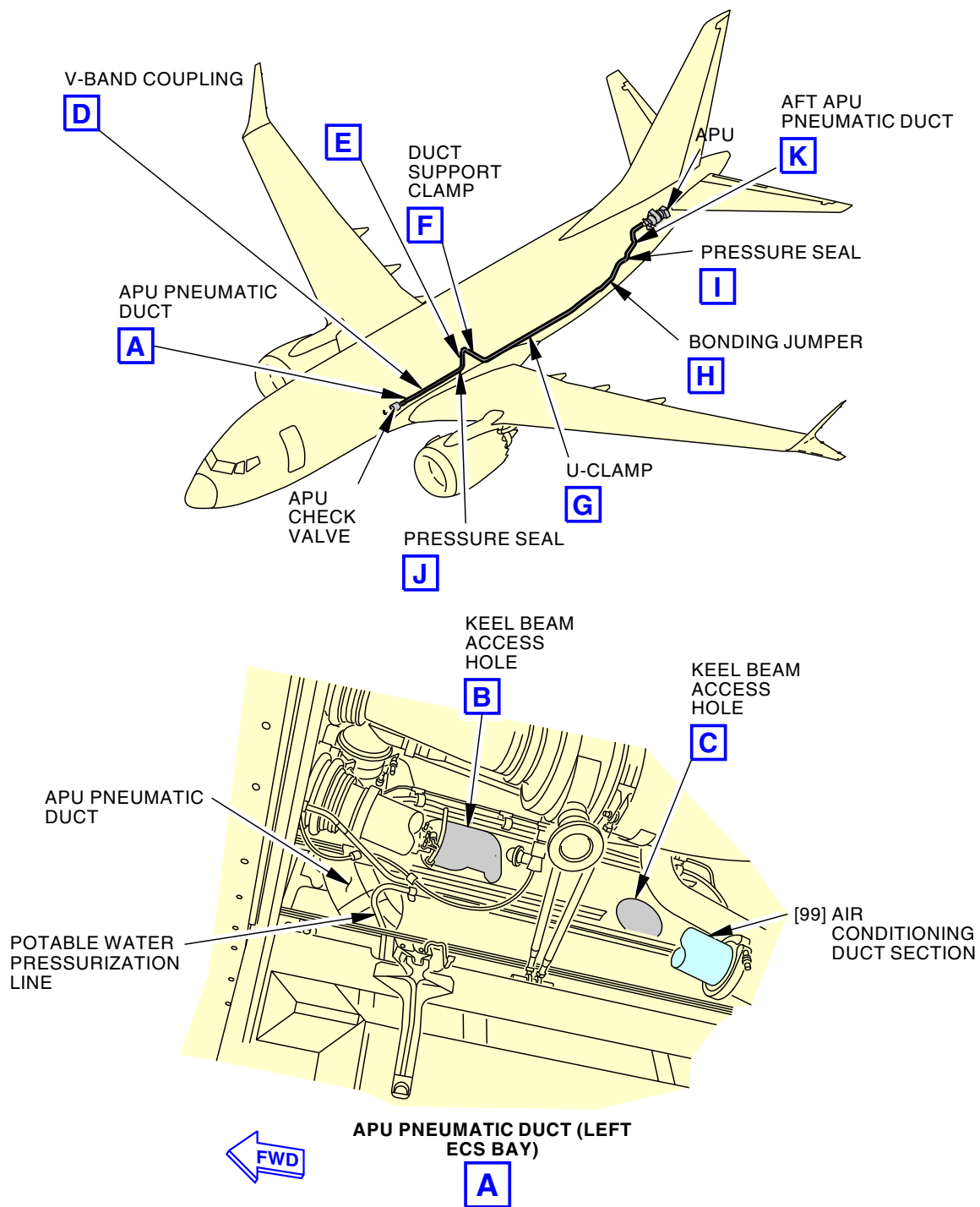
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D633AM101-SIA

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36-13-01

Page 454
May 15/2023



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APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 1 of 10)

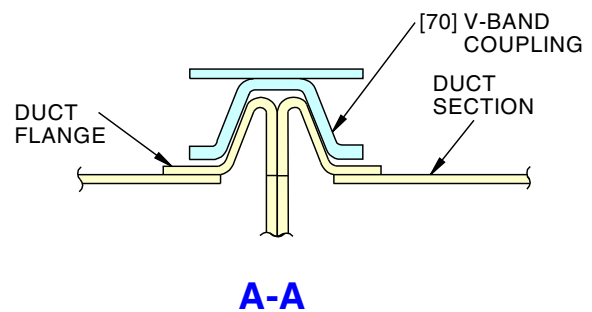
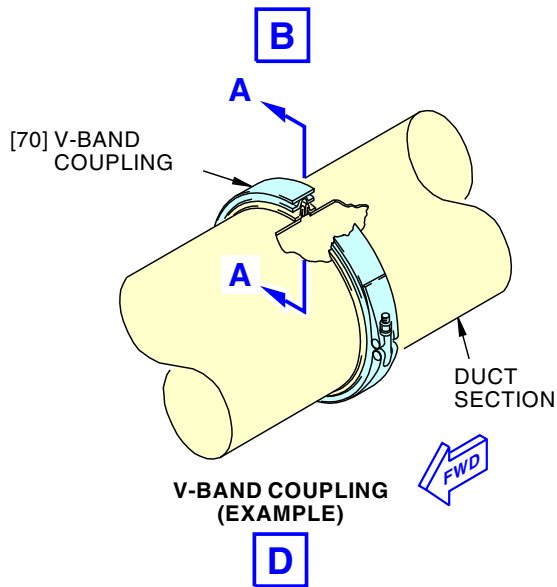
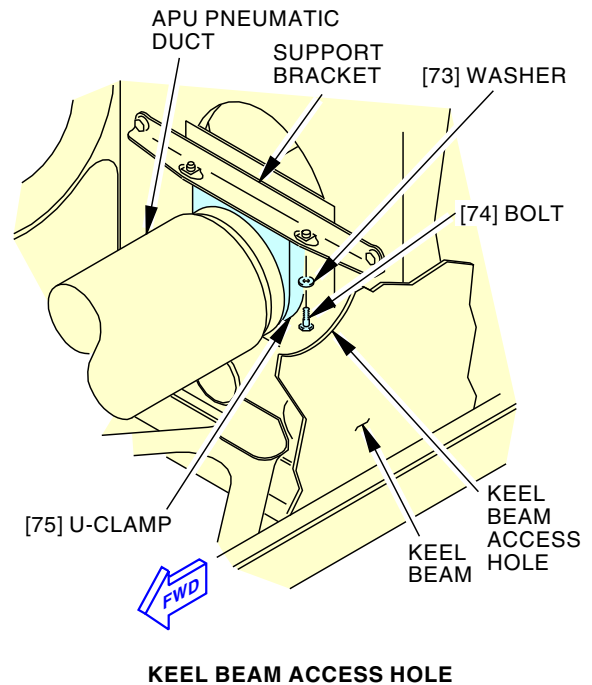
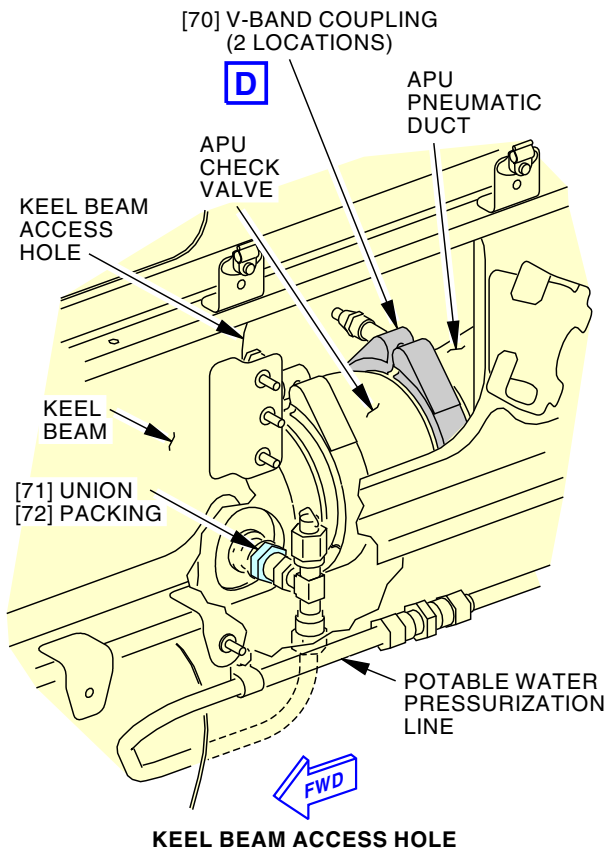
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 455
May 15/2023



2415103 S00061536976_V1

APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 2 of 10)

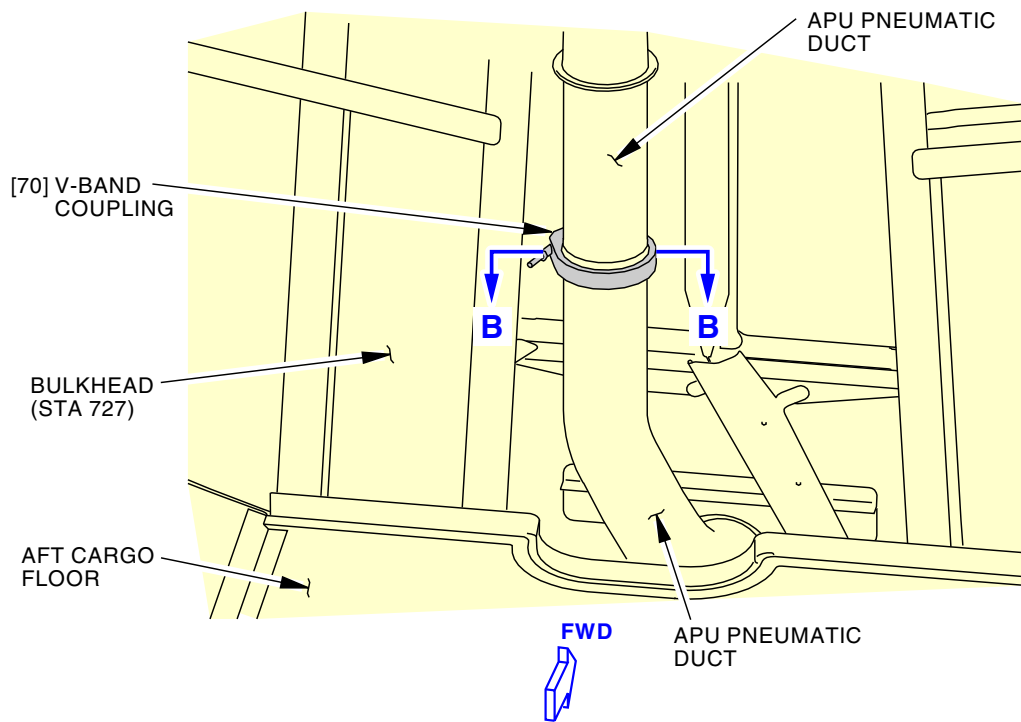
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

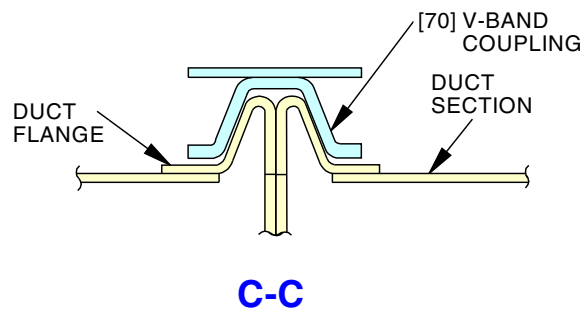
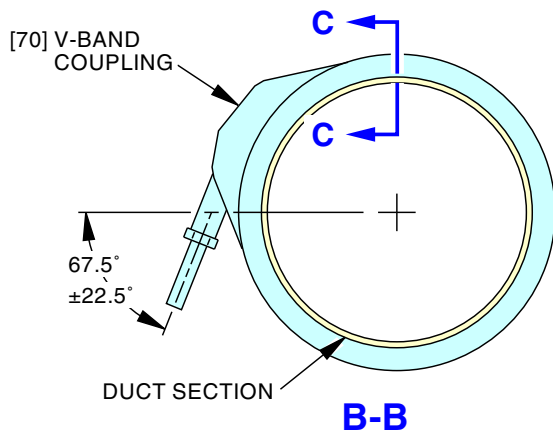
36-13-01

Page 456
May 15/2023



(AFT CARGO BAY WITH CARGO LINERS REMOVED)

E



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APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 3 of 10)

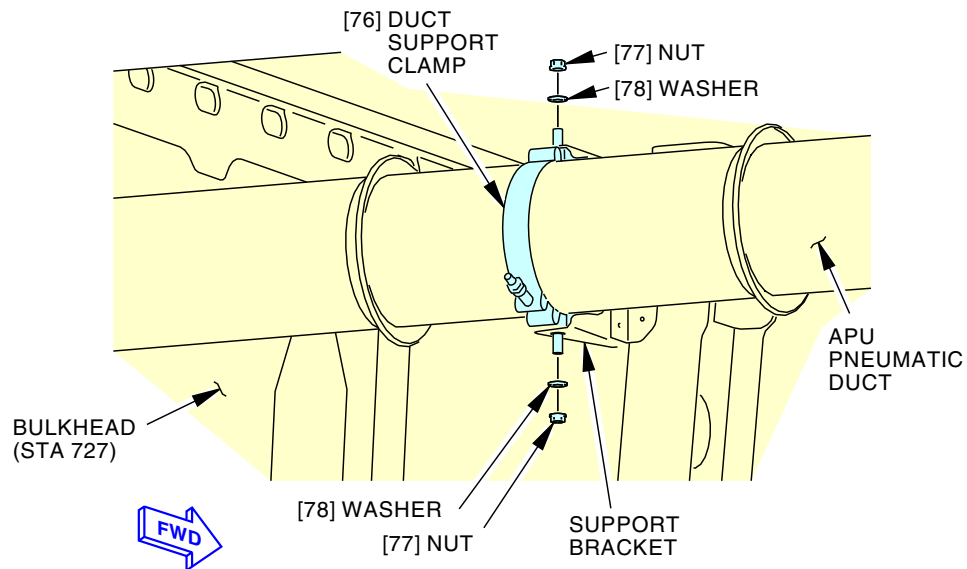
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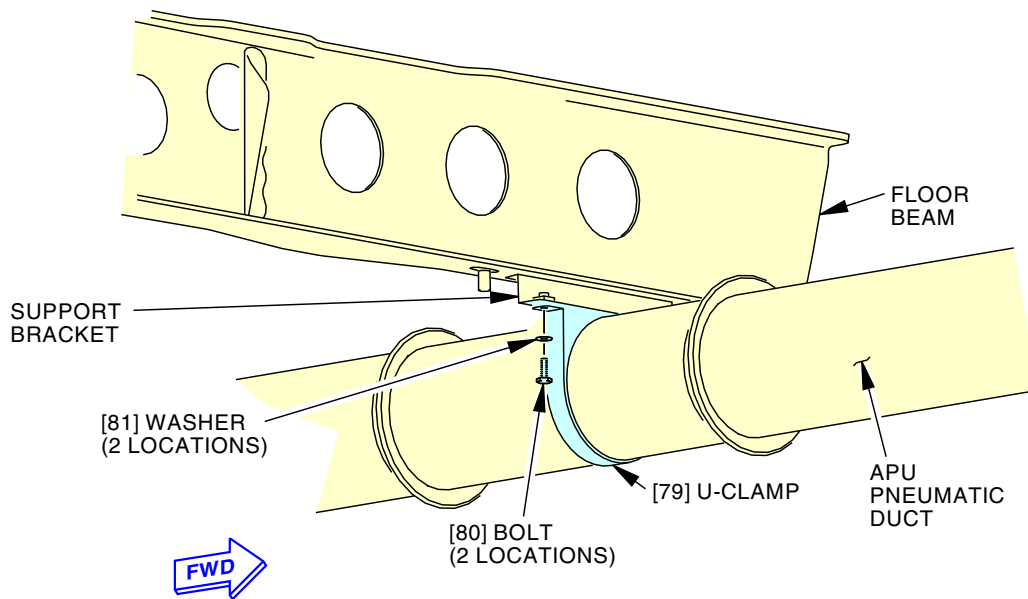
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Page 457
May 15/2023



**DUCT SUPPORT CLAMP
(EXAMPLE)**

F



**U-CLAMP
(EXAMPLE)**

G

2415105 S00061536978_V1

**APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 4 of 10)**

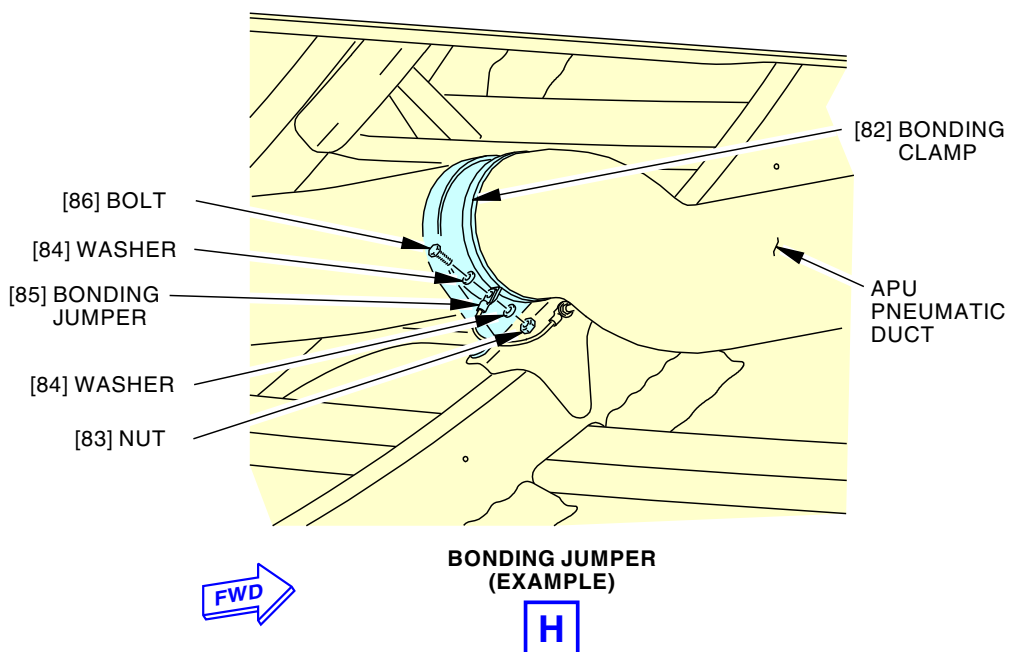
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 458
May 15/2023



2415106 S00061536979_V1

APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 5 of 10)

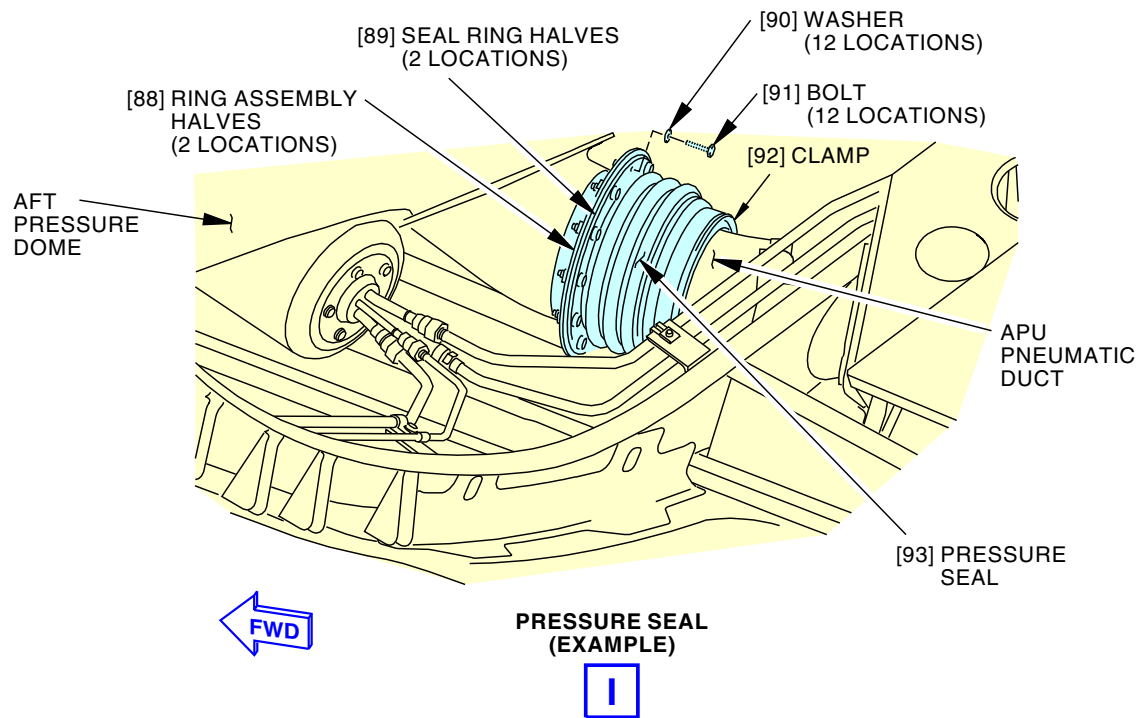
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 459
May 15/2023



2415107 S00061536980_V1

APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 6 of 10)

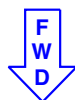
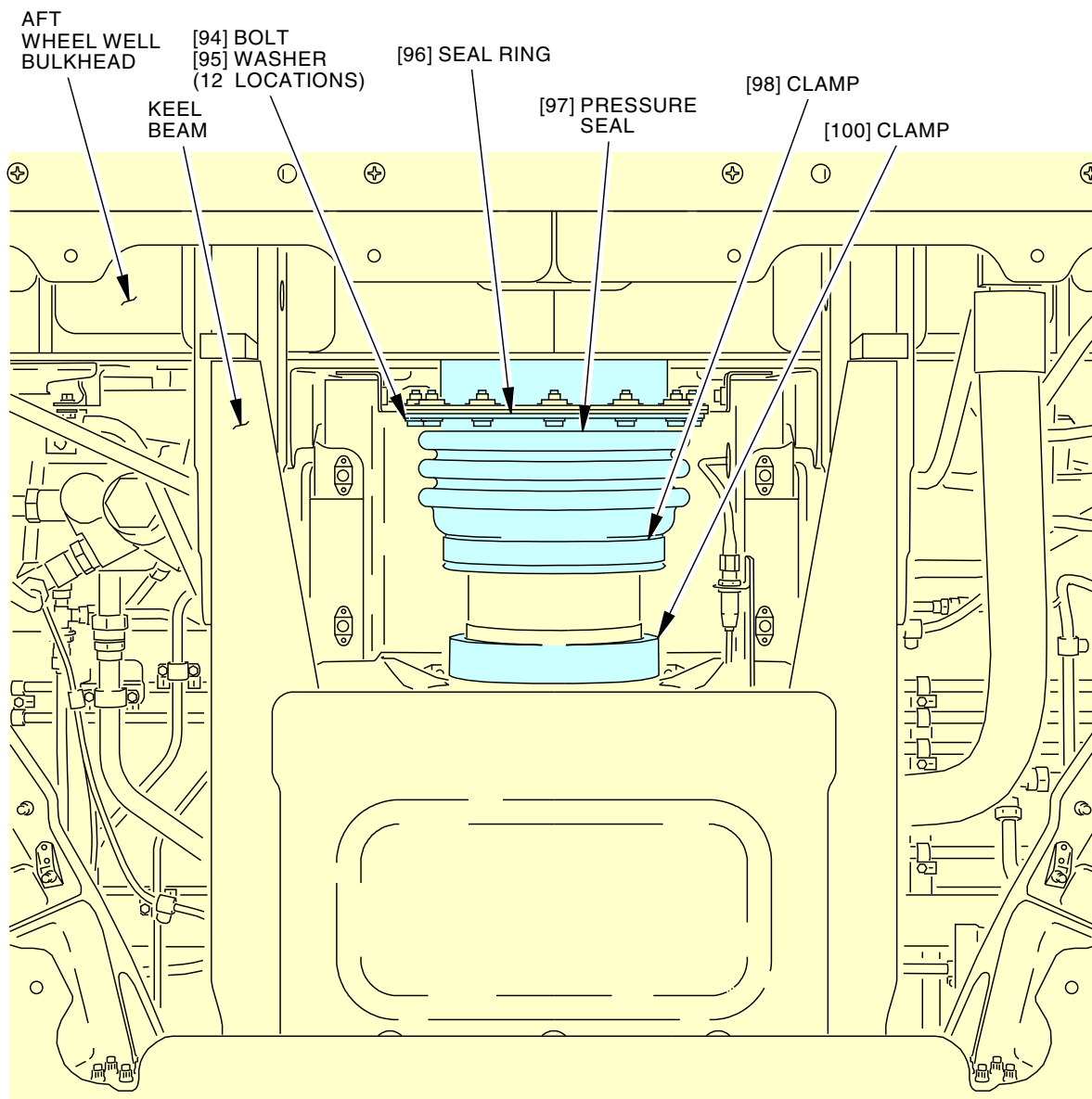
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 460
May 15/2023



PRESSURE SEAL
(VIEW IN THE UP DIRECTION, UNDER KEEL BEAM)

J

2415108 S00061536981_V2

APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 7 of 10)

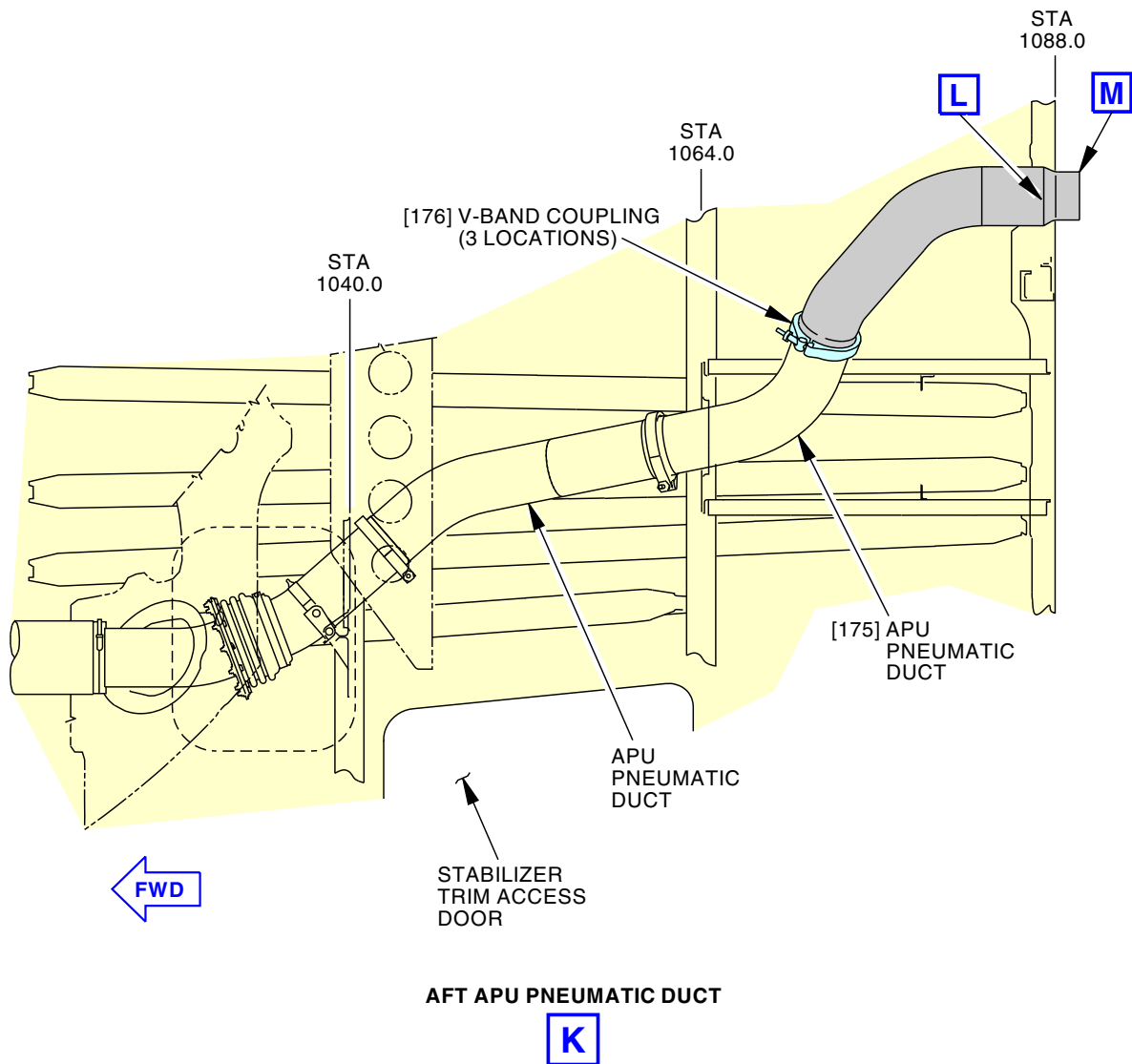
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 461
May 15/2023



2567836 S0000615179_V3

APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 8 of 10)

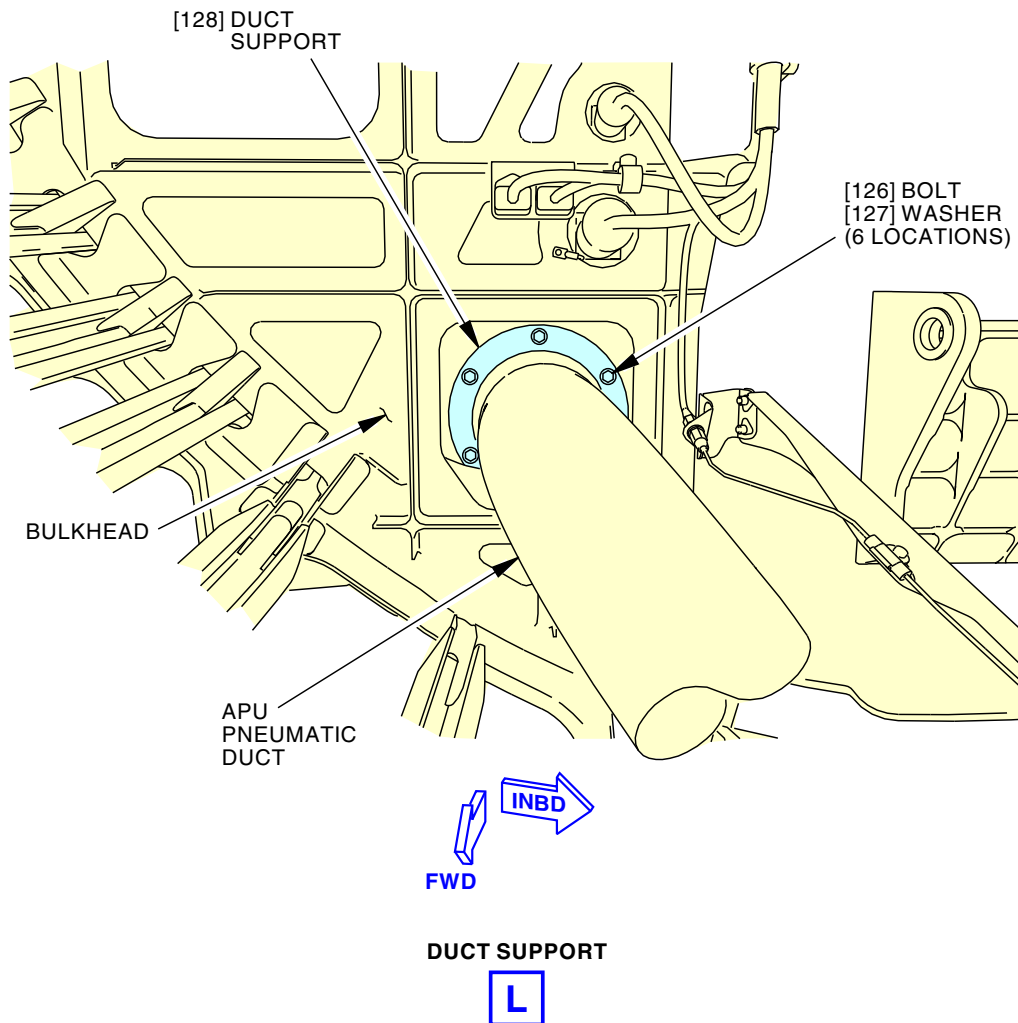
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 462
May 15/2023



2415111 S00061536984_V2

APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 9 of 10)

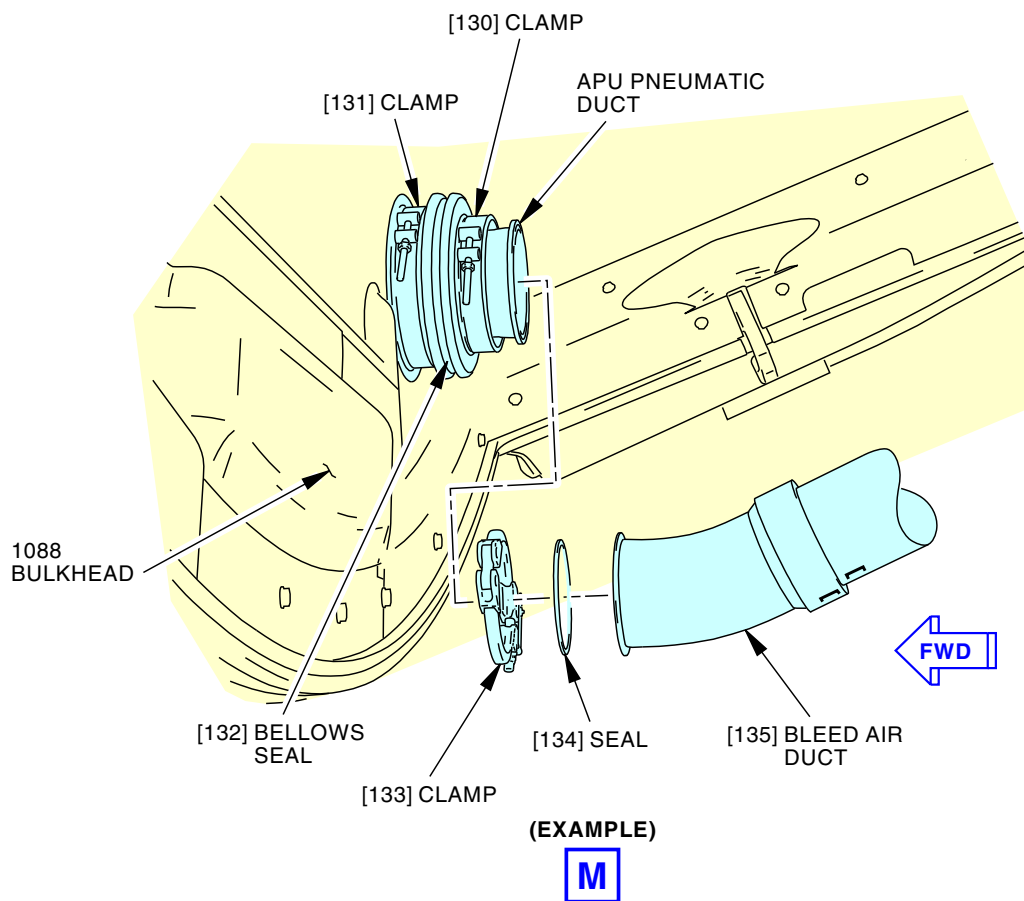
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 463
May 15/2023



2415112 S00061536985_V2

APU Pneumatic Duct Installation
Figure 405/36-13-01-990-804 (Sheet 10 of 10)

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 464
May 15/2023



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

TASK 36-13-01-400-804

13. APU Pneumatic Duct Installation

(Figure 405)

A. General

- (1) This task gives the general instructions to assist with the installation of the Auxiliary Power Unit (APU) pneumatic duct sections.
- (2) Do only the steps that are necessary to install the required section of duct.
- (3) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.
 - (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

B. References

Reference	Title
20-40-11-760-801	Electrical Bonding (P/B 201)
20-50-11-910-801	Standard Torque Values (P/B 201)
36-00-00-860-803	Supply Pressure to the Pneumatic System with the APU (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-910-801	Airworthiness Limitation Precautions (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 Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
STD-3906	Mallet - Rubber

D. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
G00091	Compound - Oxygen System Leak Detection - Snoop Leak Detector	MIL-PRF-25567

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 465
May 15/2023



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

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
72	Packing	36-13-01-02A-060	SIA ALL

F. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
141	Aft Cargo Compartment - Left
145	Aft Cargo Compartment Equipment Bay - Left
149	Keel Beam (Part) Body Station 727.00 to Body Station 743.95
310	Fuselage - Body Station 1016.00 to Body Station 1260.00

G. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
192F	ECS Under Keel Panel - Middle
192K	Air Conditioning Under Keel Panel - Aft
311BL	Stabilizer Trim Access Door
822	Aft Cargo Door

H. Prepare for the Installation

SUBTASK 36-13-01-420-025

- (1) For the installation of the insulated duct sections found inside the keel beam between the APU check valve and the Main Landing Gear (MLG) wheel well, do these steps:
 - (a) If insulation blanket(s) were removed, install the insulation blanket(s) around the duct section and torque the clamps to 13 in-lb (1.5 N·m) - 17 in-lb (1.9 N·m).
 - (b) If the vapor seal was removed, install the vapor seal to the insulated duct with the clamp and torque the clamp to 13 in-lb (1.5 N·m) - 17 in-lb (1.9 N·m).

SUBTASK 36-13-01-420-026

- (2) If the duct section has a duct boss provision for the potable water pressurization line, do the steps that follow before the duct section is installed (View B, Figure 405):
 - (a) Remove the cover from the duct boss.
 - (b) Apply antiseize compound, D00010 (alternate Never-Seez NSBT compound, D00006), to the threads on the union [71].
 - (c) Install a new packing [72] on the union [71].
 - (d) Install the union [71] on the duct boss.

NOTE: For the applicable torque requirement, refer to the task: Standard Torque Values, TASK 20-50-11-910-801.
 - (e) Install the protective cover over the installed union [71] to keep unwanted material out.

SUBTASK 36-13-01-420-027

- (3) If the duct section has a duct support clamp attachment, loosely install the duct support clamp [76] on the duct section before the duct section is installed (View F, Figure 405).

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 466
May 15/2023



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

SUBTASK 36-13-01-420-028

- (4) If the duct section has a bonding jumper attachment, install the bonding clamp [82] on the duct section before the duct section is installed (View H, Figure 405).

I. APU Pneumatic Duct Installation

SUBTASK 36-13-01-860-014

- (1) Remove the protective cover from the ducts.

SUBTASK 36-13-01-420-029

- (2) Put the applicable duct section into position for installation.

SUBTASK 36-13-01-400-001

36-AWL-01: CDCCL

- (3) For the installation of the APU elbow duct located between STA. 540 and the APU check valve, do the following:

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (a) Loosely install the V-band coupling clamps [68] to support the duct section.

36-AWL-01: CDCCL

- (b) Torque the V-band coupling clamps [68] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (c) Use a rubber mallet, STD-3906, to lightly tap around the outer surface the V-band coupling clamps [68].

NOTE: This will make sure you engage the coupling and flanges correctly.

36-AWL-01: CDCCL

- (d) Re-tighten the V-band coupling clamps [68] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

SUBTASK 36-13-01-420-030

- (4) Loosely install the V-band couplings [70] to support the duct section (View D, Figure 405).

SUBTASK 36-13-01-420-031

- (5) For the installation of the insulated duct section which has the vapor seal found inside the keel beam between the APU check valve and the MLG wheel well, attach the vapor seal to the keel beam with the 12 bolts [94], washers [95], and seal ring [96].

- (a) Torque the bolts [94] to 30 in-lb (3.39 N·m) - 35 in-lb (3.95 N·m).

SUBTASK 36-13-01-420-032

- (6) If there is a potable water pressurization line to be connected to the duct section, do the steps that follow:

- (a) Remove the protective covers from the union [71] installed on the duct section and the disconnected potable water pressurization line (View B, Figure 405).

- (b) Connect the potable water pressurization line to the union [71] on the duct section.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 467
May 15/2023



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

- 1) Make sure that the pressurization line installation is not preloaded.
- (c) Torque the potable water pressurization line installation to 270 $\pm$ 27 in-lb (30.51 $\pm$ 3.05 N·m).

SUBTASK 36-13-01-420-033

- (7) If there is a duct support clamp [76] that is used to support the duct section at an intermediate location, do the steps that follow (View F, Figure 405):
 - (a) Put the duct support clamp [76] into position on the support bracket for installation.
 - (b) Install the washers [78] and nuts [77].
 - (c) Torque the nuts [77] to 25 in-lb (2.82 N·m) - 35 in-lb (3.95 N·m).
 - (d) Tighten the T-bolt on the duct support clamp [76]:
 - 1) Do a check of the nut on the clamp T-bolt for self locking torque of 2 in-lb (0.2 N·m) - 15 in-lb (1.7 N·m).
 - 2) Calculate the installation torque range by adding the self locking torque to 10 in-lb (1.1 N·m) - 15 in-lb (1.7 N·m).
 - 3) Tighten the T-bolt within the calculated torque range.

SUBTASK 36-13-01-420-034

- (8) If there is a U-clamp [79] that is used to support the duct section at an intermediate location, do the steps that follow (View G, Figure 405):
 - (a) Put the U-clamp [79] over the duct section.
 - (b) Install the bolts [80] and washers [81].
 - (c) Torque the bolts [80] to 25 in-lb (2.82 N·m) - 35 in-lb (3.95 N·m).

SUBTASK 36-13-01-420-035

- (9) If there is a bonding jumper [85] to be connected to the duct section, do the steps that follow (View H, Figure 405):
 - (a) Make sure that the bonding surfaces are clean.
 - (b) Attach the bonding jumper [85] to the bonding clamp [82].
 - 1) Make sure that the blue terminal is attached to bonding clamp [82] on the duct section and the red terminal is attached to reference structure.
 - (c) Install the bolts [86], washers [84], and nuts [83].
 - (d) Torque the bolts [86] and nuts [83] to 25 in-lb (2.82 N·m) - 35 in-lb (3.95 N·m).
 - (e) Measure the electrical bonding resistance between the bonding jumper [85] and the bonding clamp [82] (TASK 20-40-11-760-801).
 - 1) Use an intrinsically safe approved bonding meter, COM-1550.
 - 2) Make sure that the electrical bonding resistance is 0.010 ohm (10 milliohms) or less.

SUBTASK 36-13-01-020-035

- (10) Install the pressure seal [93], behind the aft pressure bulkhead and below the horizontal stabilizer, and the pressure seal [97], just forward of the aft bulkhead in the MLG wheel well (TASK 36-13-01-420-801).

SUBTASK 36-13-01-420-036

- (11) Use a rubber mallet, STD-3906, to lightly tap the outer surface the V-band couplings [70] (View B, Figure 405)

NOTE: This will make sure that the couplings and flanges are secured correctly.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 468
May 15/2023



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

SUBTASK 36-13-01-420-037

- (12) Torque the V-band couplings [70] to 62.5 $\pm$ 2.5 in-lb (7.1 $\pm$ 0.3 N·m).

NOTE: Do not tighten the couplings until all of the duct sections are aligned.

SUBTASK 36-13-01-420-070

- (13) For the installation of the APU pneumatic duct [175] between station 1064 and 1088, do the steps that follow:

- (a) Attach the duct support [128] with the washers [127] and bolts [126].
- (b) Loosely install the V-band coupling [176] (View K, Figure 405).
- (c) Use a rubber mallet, STD-3906 to lightly tap the outer surface of the V-band coupling [176].

NOTE: This will make sure that you engage the coupling and flanges correctly.

- (d) Torque the V-band coupling [176] to 62.5 $\pm$ 2.5 in-lb (7.1 $\pm$ 0.3 N·m).

NOTE: Do not tighten the coupling until the duct sections are aligned.

- (e) Install the seal [132].
- (f) Install the clamp [130] and clamp [131] as follows:
 - 1) Torque the clamp [130] and clamp [131] to 13 in-lb (1 N·m) - 17 in-lb (2 N·m).
- (g) Install the seal [134] and clamp [133] between the APU pneumatic duct and the bleed air duct [135].
 - 1) Torque the clamp [133] to 95 in-lb (11 N·m) - 110 in-lb (12 N·m).

J. APU Pneumatic Duct Installation Test

SUBTASK 36-13-01-720-004

- (1) Do a leak test of the APU pneumatic duct installation:
- (a) Do this task: Supply Pressure to the Pneumatic System with the APU, TASK 36-00-00-860-803.
 - (b) Apply Snoop Leak Detector compound, G00091, to the V-band coupling [70] installations and the potable water pressurization line connection.

36-AWL-01: CDCCL

- (c) Do a check for concentrated air leakage between the elbow connection (Sta. 540) and the APU check valve:

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- 1) Small air leakage is satisfactory at the V-band coupling [70] duct joint.

36-AWL-01: CDCCL

- 2) Repair large air leakage.

NOTE: Large air leakage is concentrated airflow you can feel with your hand at a distance of 12 in. (30 cm) or more from a point on the V-band V-band coupling clamps [68] duct joint.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on CDCCL.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

- (d) Do a check for concentrated air leakage aft of the APU check valve:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 469
May 15/2023



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

- 1) Small air leakage is satisfactory at the V-band coupling [70] duct joint.
- 2) No leakage is permitted at the potable water pressurization line connection.
- 3) Repair large air leakage.

NOTE: Large air leakage is concentrated airflow that can be felt with hand at a distance of 12 in. (30 cm) or more from a point on the V-band coupling duct joint.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-860-015

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-860-016

- (2) Remove the DO NOT OPERATE tags, from the APU master switch and APU bleed switch on the P5 forward overhead panel.

SUBTASK 36-13-01-410-005

- (3) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward
192F	ECS Under Keel Panel - Middle
192K	Air Conditioning Under Keel Panel - Aft
311BL	Stabilizer Trim Access Door
822	Aft Cargo Door

————— **END OF TASK** —————

TASK 36-13-01-020-801

14. APU Pneumatic Duct Pressure Seal Removal

(Figure 406)

A. General

- (1) This task gives the instructions to remove the APU pneumatic duct pressure seals.

B. References

<u>Reference</u>	<u>Title</u>
29-21-31-000-801	Standby Hydraulic System Reservoir Removal (P/B 401)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-858	Tag - DO NOT OPERATE

D. Location Zones

<u>Zone</u>	<u>Area</u>
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
141	Aft Cargo Compartment - Left
143	Area Below Aft Cargo Compartment - Left
145	Aft Cargo Compartment Equipment Bay - Left
310	Fuselage - Body Station 1016.00 to Body Station 1260.00

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 470
May 15/2023



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

E. Access Panels

Number	Name/Location
193D	Wheel Well Panel - Aft Inboard
311BL	Stabilizer Trim Access Door

F. Prepare for the Removal

SUBTASK 36-13-01-860-017

- (1) Make sure that the APU master switch and APU bleed switch, on the P5 forward overhead panel, are in the OFF position.
 - (a) Install the DO NOT OPERATE tags, STD-858, on the APU master switch and APU bleed switch, on the P5 forward overhead panel.

SUBTASK 36-13-01-860-018



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.

- (2) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-010-008

- (3) To get access to the pressure seals, do this step:
 - (a) Open these access panels:

Number	Name/Location
193D	Wheel Well Panel - Aft Inboard
311BL	Stabilizer Trim Access Door

G. APU Pneumatic Duct Pressure Seal Removal

SUBTASK 36-13-01-020-036

- (1) Remove the pressure seal [93] behind the aft pressure bulkhead and below the horizontal stabilizer, do the steps that follow:
 - (a) Loosen the clamp [92] from the pressure seal [93].
 - (b) Remove the bolts [91] and washers [90] to remove the seal backing ring [89] and ring assembly halves [88] from the duct section.

NOTE: Two seal ring halves may be installed instead of the seal backing ring.

 - 1) Make sure that track of the fastener build-up is kept for installation.
 - (c) Remove the duct section, do this task: APU Pneumatic Duct Removal, TASK 36-13-01-000-806.
 - (d) Remove the pressure seal [93] from the duct.

SUBTASK 36-13-01-020-037

- (2) For the removal of the pressure seal [97] just forward of the aft bulkhead in the MLG wheel well, do the steps that follow:
 - (a) If it is necessary, remove the standby hydraulic system reservoir, do this task: Standby Hydraulic System Reservoir Removal, TASK 29-21-31-000-801.
 - (b) Loosen the clamp [98] from the pressure seal [97].
 - (c) Remove the bolts [94] and washers [95] to remove the seal ring [96].
 - (d) Remove the duct section, do this task: APU Pneumatic Duct Removal, TASK 36-13-01-000-806.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 471
May 15/2023



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

- (e) Remove the pressure seal [97] from the duct.

———— **END OF TASK** ————

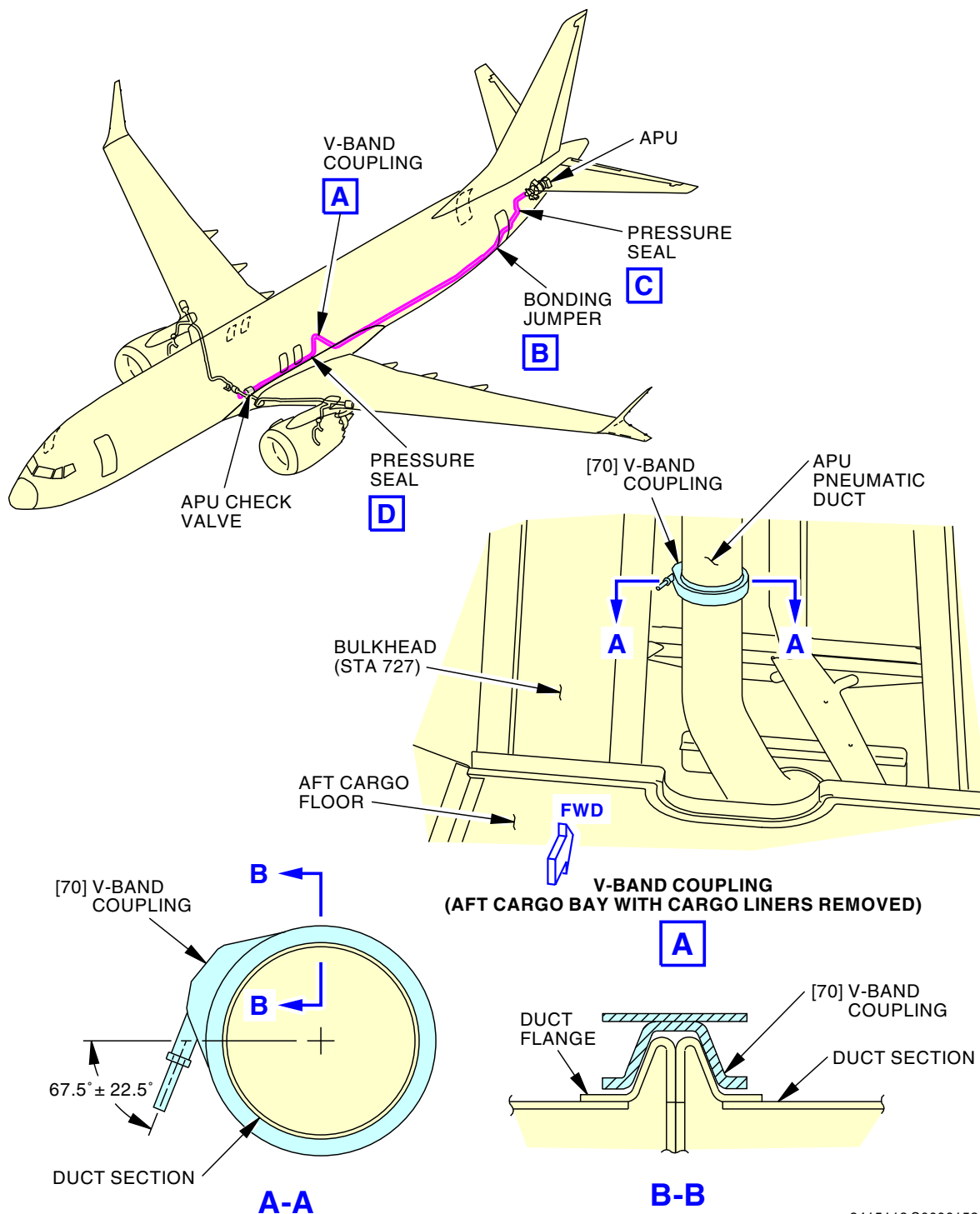
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 472
May 15/2023



2415113 S00061536988_V1

APU Pneumatic Duct Pressure Seal Installation
Figure 406/36-13-01-990-805 (Sheet 1 of 5)

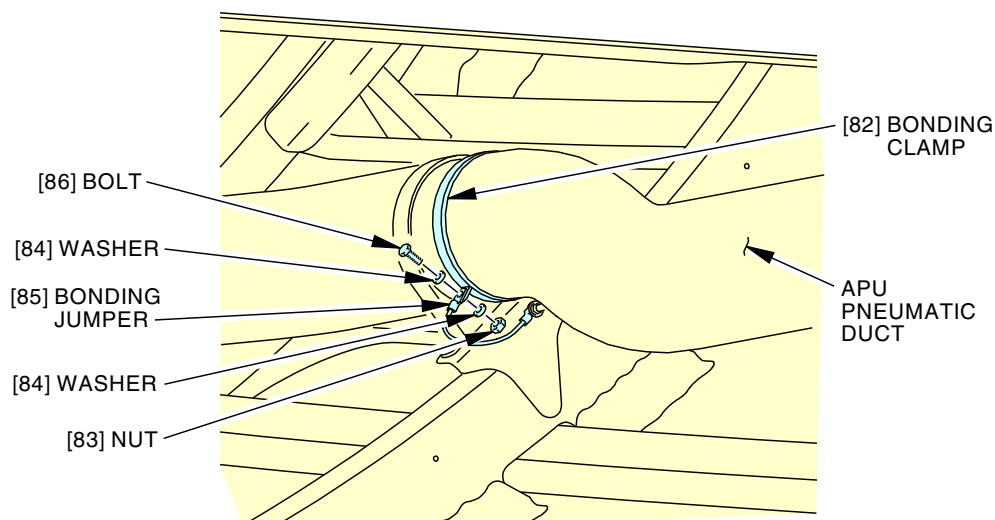
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 473
May 15/2023



BONDING JUMPER
(EXAMPLE)

B

2415114 S00061536989_V1

APU Pneumatic Duct Pressure Seal Installation
Figure 406/36-13-01-990-805 (Sheet 2 of 5)

EFFECTIVITY
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D633AM101-SIA

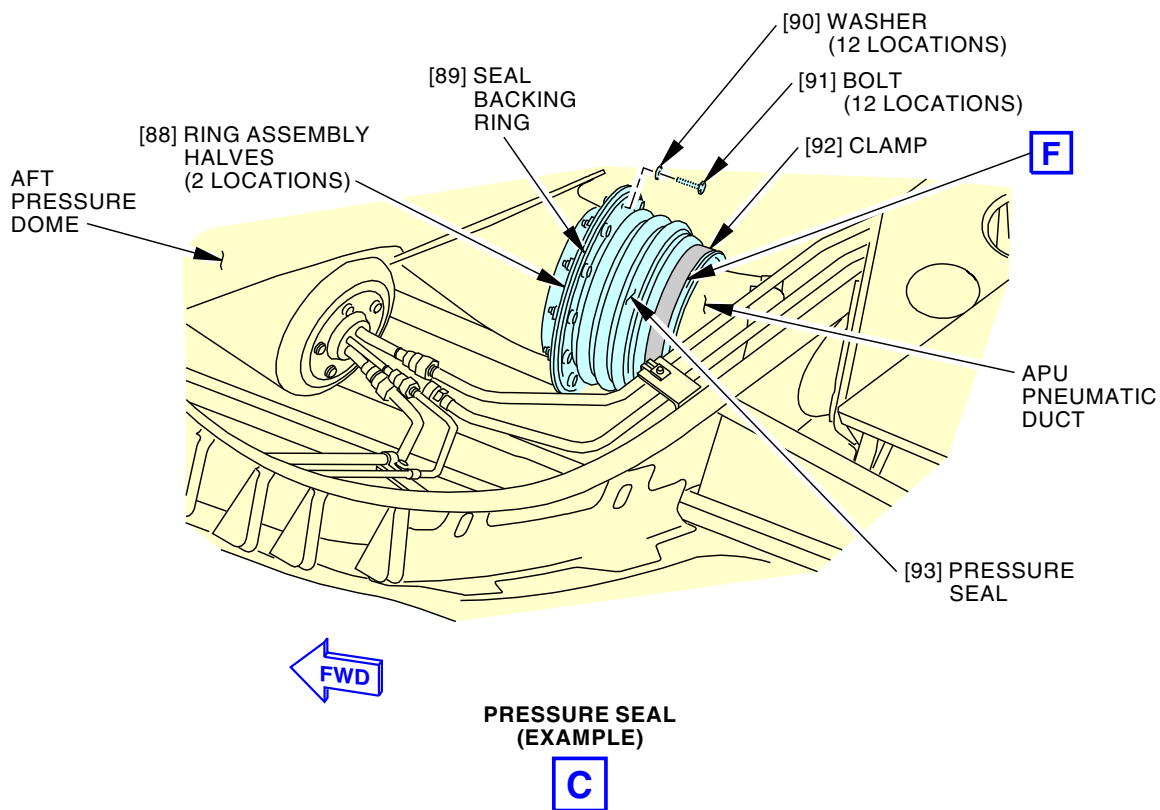
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36-13-01

Page 474
May 15/2023



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



2415115 S00061536990_V2

APU Pneumatic Duct Pressure Seal Installation
Figure 406/36-13-01-990-805 (Sheet 3 of 5)

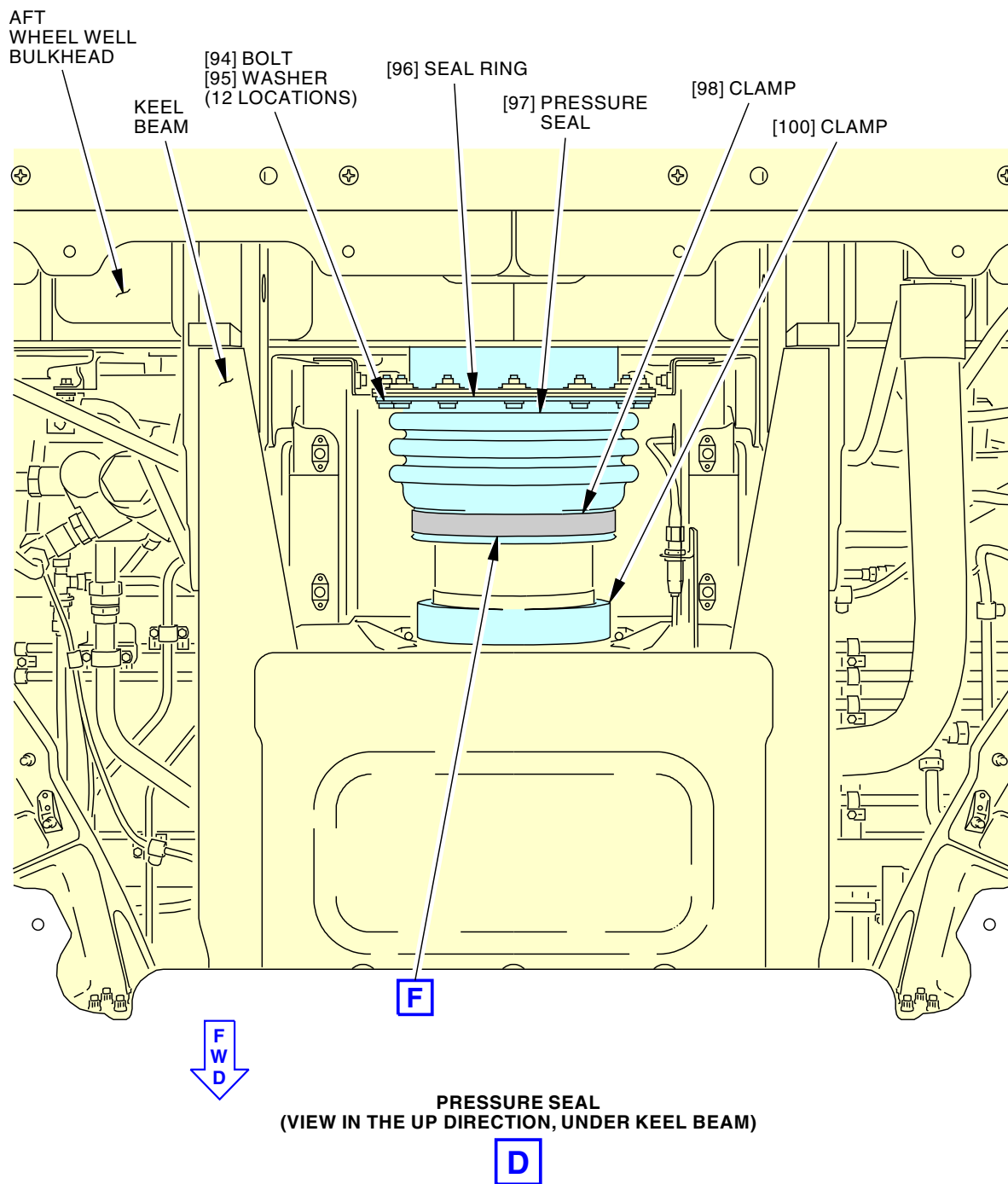
EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 475
May 15/2023



2415116 S00061536991_V2

APU Pneumatic Duct Pressure Seal Installation
Figure 406/36-13-01-990-805 (Sheet 4 of 5)

EFFECTIVITY
SIA ALL

D633AM101-SIA

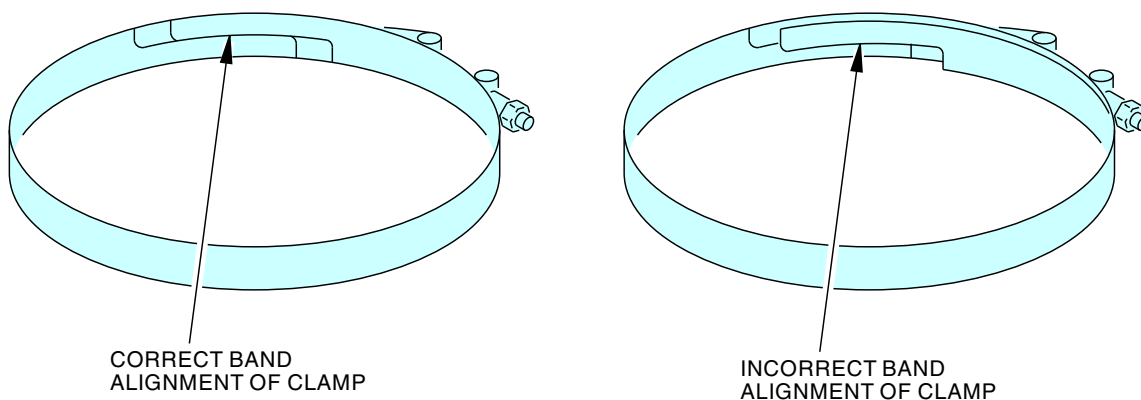
ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 476
May 15/2023



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



PRESSURE SEAL CLAMP INSTALLATION
(EXAMPLE)



2415117 S00061536992_V1

APU Pneumatic Duct Pressure Seal Installation
Figure 406/36-13-01-990-805 (Sheet 5 of 5)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 477
May 15/2023



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

TASK 36-13-01-420-801

15. **APU Pneumatic Duct Pressure Seal Installation**

(Figure 406)

A. General

- (1) This task gives the instructions to install the Auxiliary Power Unit (APU) pneumatic duct pressure seals.

B. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)
29-21-31-400-801	Standby Hydraulic System Reservoir Installation (P/B 401)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Consumable Materials

Reference	Description	Specification
B00065	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002 (Supersedes O-A-396)
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907
G50320 [912-0041]	Cloth - Process Cleaning Absorbent Wiper	
G51677	Cloth - 100% Synthetic or Blended Synthetic, Cotton or Cellulose Material	AMS3819 Class 1, 2, or 4, Grade A or B, Form 1

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
89	Seal backing ring	36-13-01-04A-072	SIA ALL
93	Pressure seal	36-13-01-04A-075	SIA ALL
96	Seal ring	36-13-01-03A-092	SIA ALL
97	Pressure seal	36-13-01-03A-095	SIA ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
141	Aft Cargo Compartment - Left
143	Area Below Aft Cargo Compartment - Left
145	Aft Cargo Compartment Equipment Bay - Left
310	Fuselage - Body Station 1016.00 to Body Station 1260.00

F. Access Panels

Number	Name/Location
193D	Wheel Well Panel - Aft Inboard
311BL	Stabilizer Trim Access Door

G. APU Pneumatic Duct Pressure Seal Installation

SUBTASK 36-13-01-420-039

- (1) For the installation of the pressure seal [93] behind the aft pressure bulkhead and below the horizontal stabilizer, do these steps (View C, Figure 406):
- (a) Remove pressure from the pneumatic ducts (TASK 36-00-00-860-806).

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 478
May 15/2023



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

- (b) Slide the pressure seal [93] onto the duct.
- (c) Install the seal backing ring [89] on the pressure seal [93].
NOTE: If two seal ring halves were installed instead of seal backing ring before, it should be replaced with the seal backing ring to prevent leakage. The seal backing ring cannot be replaced with two seal ring halves.
- (d) Push the pressure seal [93] to the mating surface of the structural barrier.
- (e) Install the ring assembly halves [88] on the other side of the structural barrier.
- (f) Apply antiseize compound, D00010 (preferred), or Never-Seez NSBT compound, D00006 (alternate), to the threads of the bolts [91].
- (g) Install the bolts [91] and washers [90].
- (h) Tighten the bolts [91] to 30 in-lb (3.39 N·m) - 35 in-lb (3.95 N·m).
 - (i) Clean the surfaces of the pressure seal [93], duct, and inner surface of the clamp [92] with alcohol, B00065, and cloth, G50320 [912-0041], or cloth, G51677, to remove any film or grease.
- (j) Install the clamp [92] loosely on the pressure seal [93].
- (k) Reinstall the duct, do this task: APU Pneumatic Duct Installation, TASK 36-13-01-400-804.
- (l) Tighten the clamp [92] to 20 in-lb (2.26 N·m) - 30 in-lb (3.39 N·m).
 - 1) Visually examine the clamp [92] to make sure that the bands are aligned correctly (View F, Figure 406).
- (m) Wait a minimum of 2 hours, then retighten the clamp [92] to 20 in-lb (2.26 N·m) - 30 in-lb (3.39 N·m).

SUBTASK 36-13-01-420-040

- (2) For the installation of the pressure seal [97], just forward of the aft pressure bulkhead in the MLG wheel well, do these steps (View D, Figure 406):
 - (a) Slide the pressure seal [97] onto the duct.
 - (b) Push the pressure seal [97] to the mating surface of the ring seal.
 - (c) Install the seal ring [96] on the pressure seal [97].
 - (d) Apply antiseize compound, D00010 (preferred), or Never-Seez NSBT compound, D00006 (alternate), to the threads on all of the bolts [94].
 - (e) Install the bolts [94] and washers [95].
 - (f) Tighten the bolts [94] to 30 in-lb (3.39 N·m) - 35 in-lb (3.95 N·m).
 - (g) Clean the surfaces of the pressure seal [97], duct, and the inner surface of the clamp [98] with alcohol, B00065, and cloth, G50320 [912-0041], or cloth, G51677, to remove any film or grease.
 - (h) Install the clamp [98] loosely on the pressure seal [97].
 - (i) Reinstall the duct section, do this task: APU Pneumatic Duct Installation, TASK 36-13-01-400-804.
 - (j) Tighten the clamp [98] to 20 in-lb (2.26 N·m) - 30 in-lb (3.39 N·m).
 - 1) Visually inspect the clamp [98] to make sure that the bands are aligned correctly (View F, Figure 406).
 - (k) If it is necessary, install the standby hydraulic system reservoir, do this task: Standby Hydraulic System Reservoir Installation, TASK 29-21-31-400-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-13-01

Page 479
May 15/2023



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

H. Cabin Pressure Leak Test

SUBTASK 36-13-01-790-002

- (1) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-860-019

- (1) Remove the DO NOT OPERATE tags, from the APU master switch and APU bleed switch, on the P5 forward overhead panel.

SUBTASK 36-13-01-410-006

- (2) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
193D	Wheel Well Panel - Aft Inboard
311BL	Stabilizer Trim Access Door

————— **END OF TASK** —————

TASK 36-13-01-020-802

16. APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Removal

(Figure 407)

A. General

- (1) This task gives the instructions to remove the APU pneumatic duct pressure seal at the MLG wheel well bulkhead.
- (2) The APU pneumatic duct pressure seal is located just forward of the MLG wheel well bulkhead at STA 661.34.

B. References

<u>Reference</u>	<u>Title</u>
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-858	Tag - DO NOT OPERATE

D. Location Zones

<u>Zone</u>	<u>Area</u>
192	Lower Wing-To-Body Fairing - Under Wing Box

E. Access Panels

<u>Number</u>	<u>Name/Location</u>
192K	Air Conditioning Under Keel Panel - Aft

F. Prepare for the Removal

SUBTASK 36-13-01-860-020

- (1) Make sure that the APU master switch and APU bleed switch on the P5 forward overhead panel are in the OFF position and install DO NOT OPERATE tags, STD-858.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 480
May 15/2023



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

SUBTASK 36-13-01-860-021



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.

(2) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-01-010-009

(3) To get access to the pressure seal, do this step:

(a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
192K	Air Conditioning Under Keel Panel - Aft

G. APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Removal

SUBTASK 36-13-01-020-038

- (1) Remove the pressure seal [102]:
- (a) Loosen the clamp [101] from the pressure seal [102].
 - (b) Remove the bolts [104] and washers [105].
 - 1) Remove the seal ring halves [103].
 - (c) Remove the duct section (TASK 36-13-01-000-806).
 - (d) Remove the pressure seal [102] from the duct.

———— **END OF TASK** ————

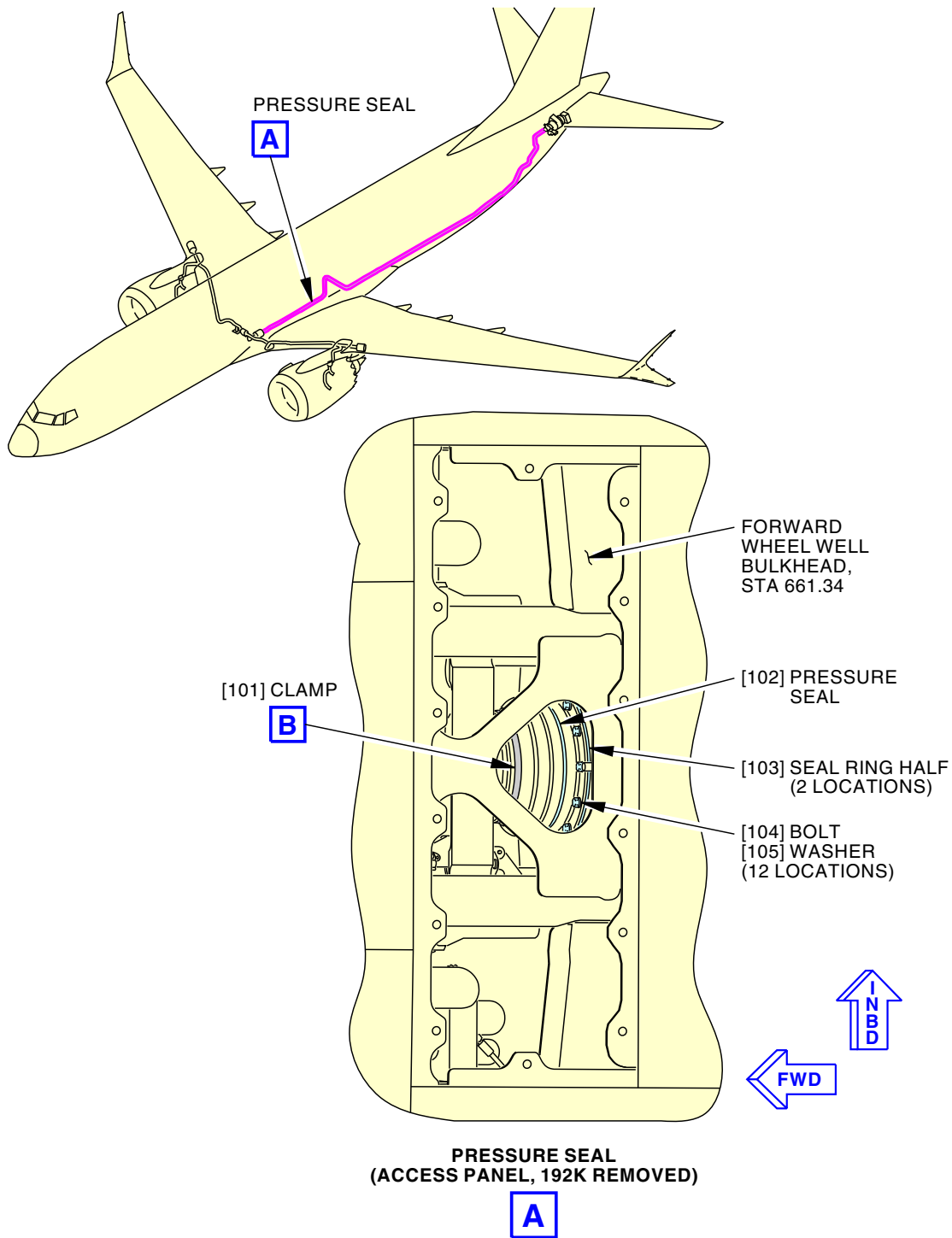
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 481
May 15/2023



2415118 S00061536995_V1

APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Installation
Figure 407/36-13-01-990-806 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

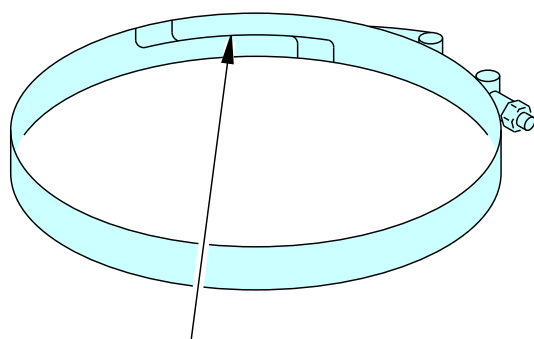
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36-13-01

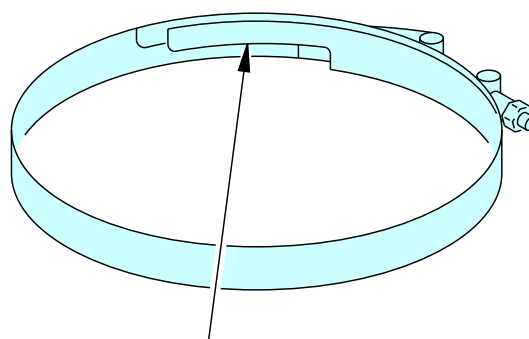
Page 482
May 15/2023



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



CORRECT BAND
ALIGNMENT OF CLAMP



INCORRECT BAND
ALIGNMENT OF CLAMP

PRESSURE SEAL CLAMP INSTALLATION
(EXAMPLE)

B

2415119 S00061536996_V1

APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Installation
Figure 407/36-13-01-990-806 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 483
May 15/2023



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

TASK 36-13-01-420-802

17. **APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Installation**

(Figure 407)

A. General

- (1) This task gives the instructions to install the APU pneumatic duct pressure seal at the MLG wheel well bulkhead.
- (2) The APU pneumatic duct pressure seal is located just forward of the MLG wheel well bulkhead at STA661.34.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
D00006	Compound - Antiseize Pure Nickel Special - Never-Seez NSBT	
D00010	Compound - Thread Antiseize, High Temperature	MIL-PRF-907

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
102	Pressure seal	36-13-02-01A-070	SIA ALL
103	Seal ring half	36-13-02-01A-022	SIA ALL

E. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

F. Access Panels

Number	Name/Location
192K	Air Conditioning Under Keel Panel - Aft

G. APU Pneumatic Duct Pressure Seal at Forward MLG Wheel Well Bulkhead Installation

SUBTASK 36-13-01-420-041

- (1) Install the pressure seal [102]:
 - (a) Slide the pressure seal [102] onto the duct.
 - (b) Push the pressure seal [102] to the mating surface of the ring seal.
 - (c) Install the seal ring halves [103] on the pressure seal [102].
 - (d) Apply antiseize compound, D00010 (alternate Never-Seez NSBT compound, D00006), to the threads on all of the bolts [104].
 - (e) Install the bolts [104] and washers [105].
 - (f) Tighten the bolts [104] to 30 in-lb (3.39 N·m) to 35 in-lb (3.95 N·m).
 - (g) Clean the surfaces of the pressure seal [102], duct, and inner surface of the clamp [101] with alcohol, B00130, and clean wipes to remove any film or grease.
 - (h) Install the clamp [101] loosely on the pressure seal [102].

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 484
May 15/2023



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

- (i) Do the applicable steps in this task: APU Pneumatic Duct Installation, TASK 36-13-01-400-804, to reinstall the duct section.
- (j) Tighten the clamp [101] to 20 in-lb (2.26 N·m) to 30 in-lb (3.39 N·m).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-860-022

- (1) Remove the DO NOT OPERATE tags, STD-858, from the APU master switch and APU bleed switch on the P5 forward overhead panel.

SUBTASK 36-13-01-410-007

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192K	Air Conditioning Under Keel Panel - Aft

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 485
May 15/2023



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

PNEUMATIC MANIFOLD DUCT - INSPECTION/CHECK

1. General

- A. This procedure has one task. It has instructions to do an inspection of the titanium pneumatic ducts for corrosion caused by contact with fire-resistant hydraulic fluid.
- B. At temperatures above 270°F (132°C), fire-resistant hydraulic fluids, such as skydrol BMS 3-11 becomes acidic. Titanium duct that comes in contact with hydraulic fluid can become brittle and corrode.
- C. A glossy dark brown film or a pitted corroded surface on the duct are signs that the titanium duct has come in contact with hydraulic fluid.
- D. When you find that a titanium duct has come in contact with the hydraulic fluid, you must examine the duct for damage and determine whether the duct should be cleaned, repaired or replaced.

TASK 36-13-01-200-801

2. Pneumatic Manifold Duct Inspection

A. **References**

Reference	Title
36-13-01-000-801	Pneumatic Manifold Duct Removal (Selection) (P/B 401)
36-13-01-100-801	Pneumatic Duct Cleaning (P/B 701)
36-13-01-300-801	Pneumatic Duct Repairs (P/B 801)
36-13-01-400-801	Pneumatic Manifold Duct Installation (Selection) (P/B 401)

B. **Location Zones**

Zone	Area
141	Aft Cargo Compartment - Left
191	Lower Wing-To-Body Fairing - Forward of Wing Box
192	Lower Wing-To-Body Fairing - Under Wing Box
311	Area Aft of Pressure Bulkhead - Left
313	Stabilizer Torsion Box Compartment - Left
410	Subzone - Engine 1
420	Subzone - Engine 2
430	Subzone - Engine 1, Nacelle Strut
433	Engine 1 - Strut Torque Box
440	Subzone - Engine 2, Nacelle Strut
443	Engine 2 - Strut Torque Box
511	Left Wing - Leading Edge To Front Spar
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
611	Right Wing - Leading Edge to Front Spar
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 601
Sep 15/2021



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

C. Prepare for the Inspection

SUBTASK 36-13-01-010-010

- (1) Open the applicable access panels to get access to the pneumatic duct section for inspection.

D. Pneumatic Manifold Duct Inspection

SUBTASK 36-13-01-010-011

- (1) Examine the titanium duct section for hydraulic fluid contamination, corrosion, or damage.

- (a) If you find hydraulic fluid contamination, then do this task to clean the titanium duct section:

Pneumatic Duct Cleaning, TASK 36-13-01-100-801.

- 1) It is acceptable to have stains on the titanium duct section after it has been cleaned, if all of the hydraulic fluid residue is removed and the surface of the duct is smooth.
 - (b) If there are signs of corrosion or damage on the titanium duct section after it has been cleaned, then repair or replace the duct section.
 - 1) To repair the duct section, do this task:
Pneumatic Duct Repairs, TASK 36-13-01-300-801.
 - 2) To replace the duct section, do these tasks:
Pneumatic Manifold Duct Removal (Selection), TASK 36-13-01-000-801,
Pneumatic Manifold Duct Installation (Selection), TASK 36-13-01-400-801.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-410-008

- (1) Close the applicable access panels.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 602
Sep 15/2021



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

PNEUMATIC MANIFOLD DUCT - CLEANING/PAINTING

1. General

- A. This procedure has instructions to clean the pneumatic ducts.
- B. If you clean pneumatic ducts that are still installed on the airplane, make sure that the chemical solutions used does not spill onto other components.
- C. Titanium ducts that has come in contact with fire-resistant hydraulic fluid at temperatures above 270°F (132°C) should be cleaned. These ducts if not cleaned, can corrode and become brittle. A glossy dark brown film or a pitted, corroded surface on the duct are signs that the titanium duct has come in contact with fire-resistant hydraulic fluid.

TASK 36-13-01-100-801

2. Pneumatic Duct Cleaning

A. **References**

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
36-13-01-000-801	Pneumatic Manifold Duct Removal (Selection) (P/B 401)
36-13-01-400-801	Pneumatic Manifold Duct Installation (Selection) (P/B 401)
51-21-31-350-804	Removal and Control of Corrosion for Stainless Steel and Nickel-Chromium Alloys (P/B 701)

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-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

EFFECTIVITY
SIA ALL

D633AM101-SIA

36-13-01

Page 701
May 15/2023



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

C. Consumable Materials

Reference	Description	Specification
B00003	Cleaner - Emulsion Alkaline - GMC 528B (use until stock depleted)	
B00005	Cleaner - Alkaline - Cee Bee 280	
B00007	Cleaner - Oakite 61B	
B00008	Cleaner - Alkaline - Oakite 204	
B00015	Cleaner - Heavy Duty, Multipurpose - Calla 301A	BAC5744, AMS 1526-A, AMS 1550-A
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00094	Solvent - Toluene	A-A-59107
B00130	Alcohol - Isopropyl	TT-I-735
B00216	Cleaner - Turco Vitro-Klene	
B00342	Alcohol - N-Butyl (Butanol)	ASTM D304
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
B01040	Cleaner - Oakite Isoprep 177	
B50201	Wipe - Alcohol (Isopropyl Alcohol)	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G51293	Cotton Wiper - Knit, Process Cleaning Absorbent Wiper	BMS15-5 Class B

D. Location Zones

Zone	Area
141	Aft Cargo Compartment - Left
191	Lower Wing-To-Body Fairing - Forward of Wing Box
192	Lower Wing-To-Body Fairing - Under Wing Box
311	Area Aft of Pressure Bulkhead - Left
313	Stabilizer Torsion Box Compartment - Left
410	Subzone - Engine 1
420	Subzone - Engine 2
430	Subzone - Engine 1, Nacelle Strut
433	Engine 1 - Strut Torque Box
440	Subzone - Engine 2, Nacelle Strut
443	Engine 2 - Strut Torque Box
511	Left Wing - Leading Edge To Front Spar
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
611	Right Wing - Leading Edge to Front Spar
621	Right Wing - Leading Edge to Front Spar

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 702
Sep 15/2022



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

(Continued)

Zone	Area
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

E. Prepare for the Cleaning

SUBTASK 36-13-01-010-012

- (1) Open the applicable access panels to get access to the pneumatic ducts you want to clean.

SUBTASK 36-13-01-210-004

- (2) Examine the pneumatic duct for damage.
 - (a) If the duct is damaged, replace the duct, these are the tasks:
 - Pneumatic Manifold Duct Removal (Selection), TASK 36-13-01-000-801
 - Pneumatic Manifold Duct Installation (Selection), TASK 36-13-01-400-801.

F. Pneumatic Duct Cleaning

SIA 001-003

SUBTASK 36-13-01-280-001



KEEP TRICHLOROETHYLENE, TRICHLOROETHANE, AND PERCHLOROETHYLENE AWAY FROM TITANIUM PARTS. CHLORINATED AND HALOGEN MATERIALS CAUSE DAMAGE TO TITANIUM PARTS.

- (1) Do these steps to clean bare titanium ducts that are not contaminated with hydraulic fluid:

- (a) Clean the duct with one of these cleaners:

- 1) Manual solvent cleaners:

- a) solvent, B00094
 - b) alcohol, B00342
 - c) solvent, B00062.

- 2) Emulsion cleaners:

- a) GMC 528B cleaner, B00003.

NOTE: The following cleaners are optional to GMC 528B cleaner, B00003: cleaner, B00402, Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008, and Calla 301A cleaner, B00015.

- 3) Alkaline cleaners.

- (b) Soak a clean wiper with solvent and wring out excess solvent.
 - (c) Rub the surface with the wet wiper to remove the unwanted material.
 - (d) Wipe the duct dry with a clean wiper.

SUBTASK 36-13-01-960-001

- (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 oil or other unwanted material with the solvent cleaning procedure shown above.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 703
Jan 15/2022



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

SIA 001-003 (Continued)

- (b) Remove the hydraulic fluid and hydraulic fluid residue (this will show as a light, glossy dark brown film) with the alkaline cleaner, B00402.
NOTE: The following cleaners are optional to cleaner, B00402: Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008, and Calla 301A cleaner, B00015.
- (c) To remove thick layers of hydraulic fluid residue, let the alkaline cleaner 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.
 - 1) Do not use a power wire brush or abrasive blast to remove the hydraulic fluid residue.

SUBTASK 36-13-01-110-001

- (3) Clean the gold coated titanium ducts with lint-free clean cotton wiper, G00034, and isopropyl alcohol, B00130.
 - (a) When the duct is clean, you can apply BMS 10-82 low emissivity gold coating, or a phosphate-fluoride treatment and B-2000 high temperature coating to provide a protective coating for the duct.
NOTE: B-2000 high temperature coating may be applied over worn or scarred BMS 10-82 gold coating or to bare titanium duct.

SIA 004-999

SUBTASK 36-13-01-110-005

- (4) Do these steps to clean CRES steel ducts with hydraulic fluid contamination:



WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN OR IN YOUR EYES. YOU MUST USE PROTECTIVE GOGGLES AND GLOVES. YOU MUST OBEY THE MAKERS SPECIAL INSTRUCTIONS.

- (a) Soak the cotton wiper, G00034, or knit cotton wiper, G51293, with alcohol, B00130, and wipe off the hydraulic fluid.
NOTE: You can also use alcohol, B00130, or alcohol wipes, B50201, as an option.
- (b) Wipe off the steel ducts until they are dry and all the hydraulic fluid has been removed.

SUBTASK 36-13-01-100-001

- (5) Do these steps to clean CRES Steel ducts that are not contaminated with hydraulic fluid:
 - (a) Use alkaline cleaners such as Turco Vitro-Klene cleaner, B00216, Oakite Isoprep 177 cleaner, B01040, or Oakite 61B cleaner, B00007.
 - (b) Wipe off the foreign matter with a clean lint-free knit cotton wiper, G51293, or cotton wiper, G00034.
 - (c) Wipe off the steel ducts until they are completely dry and the foreign matter has been removed.

SIA 001-003

SUBTASK 36-13-01-110-002

- (6) Clean the nickel alloy ducts with one of these applicable alkaline cleaners or manual solvent cleaners:
 - (a) Alkaline cleaners.

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 704
Sep 15/2021



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

SIA 001-003 (Continued)

(b) Manual solvent cleaners:

- 1) solvent, B00094
- 2) alcohol, B00342
- 3) solvent, B00062.

SUBTASK 36-13-01-110-003

(7) Do this task to remove oxide from the titanium ducts: TASK 20-10-34-120-801.

SUBTASK 36-13-01-110-004

(8) Remove all oxide from the nickel alloy ducts with abrasive mat, G00251, fabric.

SIA 004-999

SUBTASK 36-13-01-120-001

(9) Do this task to remove oxide from CRES steel ducts: TASK 51-21-31-350-804.

SIA ALL

G. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-410-009

(1) Close the applicable access panels.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 705
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL
PNEUMATIC MANIFOLD DUCT - REPAIRS

1. General

- A. This procedure has one task:
- (1) Pneumatic duct repairs.

TASK 36-13-01-300-801

2. Pneumatic Duct Repairs

(Figure 801)

A. General

- (1) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.

- (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

B. References

Reference	Title
36-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
36-13-01-000-801	Pneumatic Manifold Duct Removal (Selection) (P/B 401)
36-13-01-400-801	Pneumatic Manifold Duct Installation (Selection) (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-1175	Clamps - Stainless Steel, 3-7 Inch Adjustable

D. Consumable Materials

Reference	Description	Specification
G00596	Compound - Inspection Material, Liquid Penetrant	SAE AMS 2644
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
141	Aft Cargo Compartment - Left
191	Lower Wing-To-Body Fairing - Forward of Wing Box
192	Lower Wing-To-Body Fairing - Under Wing Box
311	Area Aft of Pressure Bulkhead - Left

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 801
Sep 15/2021



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

(Continued)

Zone	Area
313	Stabilizer Torsion Box Compartment - Left
410	Subzone - Engine 1
420	Subzone - Engine 2
430	Subzone - Engine 1, Nacelle Strut
433	Engine 1 - Strut Torque Box
440	Subzone - Engine 2, Nacelle Strut
443	Engine 2 - Strut Torque Box
511	Left Wing - Leading Edge To Front Spar
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
611	Right Wing - Leading Edge to Front Spar
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7

F. Prepare for the Repair

NOTE: Refer to OHM 36-10-03 for additional guidance to repairing pneumatic ducts.

SUBTASK 36-13-01-010-013

- (1) Open the applicable access panels to get access to the pneumatic duct section that you want to repair.
 - (a) If it is necessary to remove the duct section to do the repair, do this task: Pneumatic Manifold Duct Removal (Selection), TASK 36-13-01-000-801.

G. Temporarily Repair the Pneumatic Duct with a Crack

NOTE: This procedure is only for use for pneumatic ducts that have a longitudinal crack (a crack that is parallel to the length of the duct). Pneumatic ducts that have a circumferential crack (a crack around the duct) must be replaced. This repair procedure is temporary. You must replace the pneumatic duct as soon as you can get a new replacement duct.

SUBTASK 36-13-01-320-001

- (1) Make sure the length of the crack is less than the duct diameter.

SUBTASK 36-13-01-320-002

- (2) Drill a hole at each end of the crack.

SUBTASK 36-13-01-350-001

- (3) Put a sheet of rubber synthetic rubber material, G02306 over the crack.
 - (a) Make sure the rubber sheet will go 3 in. (76.2 mm) beyond the crack.

SUBTASK 36-13-01-350-002

- (4) Put a sheet of stainless steel material, G02307 on the rubber sheet.

SUBTASK 36-13-01-350-003

- (5) Install a clamp, STD-1175 on the stainless steel sheet every 1 in. (25.4 mm) to 1½ in. (38.1 mm).

EFFECTIVITY
SIA ALL

36-13-01

D633AM101-SIA

Page 802
Sep 15/2021



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

H. Repair the Duct Flange

SUBTASK 36-13-01-010-014

- (1) Get access to the duct flange that needs repair.

NOTE: The flange reforming tool will only repair Janitrol (wide) and Marman (narrow) style flanges.

SUBTASK 36-13-01-320-003

- (2) Use the flange duct reforming tool, COM-1938 and repair the air supply duct flange.

SUBTASK 36-13-01-230-001

- (3) Inspect the duct flange for cracks after the repair.

- (a) For metallic and nonmetallic ducts, use the fluorescent penetrant inspection, using water washable inspection compound, G00596 (refer to the applicable vendor's instructions).

- 1) If the flange has any cracks, replace the duct or repair off of aircraft.

SUBTASK 36-13-01-320-004

- (4) If the duct flange cannot be repaired while the duct is installed, do these steps:

- (a) Do this task: Pneumatic Manifold Duct Removal (Selection), TASK 36-13-01-000-801.

- (b) Repair the duct flange with the flange reforming tool.

- (c) Do this task: Pneumatic Manifold Duct Installation (Selection), TASK 36-13-01-400-801.

I. Repair the Duct with Dents, Scratches or Gouges

SUBTASK 36-13-01-200-001

36-AWL-01: CDCCL

- (1) This repair procedure is only applicable to pneumatic ducts with the following surface defect conditions:

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

36-AWL-01: CDCCL

- (a) Pneumatic ducts with sharp scratch or gouge depths of less than 10 percent of the duct's wall thickness.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

SUBTASK 36-13-01-350-004

- (2) Do one of the steps that follow to repair the duct with dents:

NOTE: It is not necessary to repair the duct, if the dent does not limit air flow through the duct.

NOTE: Do not use a method that will produce local work-hardening of the duct.

- (a) You can pull a ball mandrel through the area of the duct that has the dent.

- (b) You can use an expansion device that is hydraulically or mechanically operated to remove the dent.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 803
Sep 15/2021



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

SUBTASK 36-13-01-220-001

- (3) Do the steps that follow to repair the duct with a sharp scratch or gouge:

NOTE: It is not necessary to repair the duct, if the scratch or gouge is smooth or rounded and is less than 10 percent of the wall thickness.

- (a) You can remove some of the adjacent metal surface to make the scratch or gouge smooth with these conditions:
- 1) The depth of the scratch or gouge after it is repaired must be less than 10% of the nominal duct wall thickness.
 - 2) The surface roughness of the repaired area must not be more than 63 microinches (arithmetical average).
 - 3) The slope of the repaired area must not be more than 10 percent (0.10).
 - 4) The inner and the outer radius of the repaired area must not be more than 0.12 in. (3.05 mm).
 - 5) The distance between a scratch/gouge and a primary welded joint must be more than 0.25 in. (6.35 mm).
- (b) If the damage to the duct cannot be repaired to meet the above conditions, do one of these tasks:
- 1) Weld repair the pneumatic duct off aircraft.
 - 2) Replace the damaged duct. To replace the damaged duct, these are the tasks:
Pneumatic Manifold Duct Removal (Selection), TASK 36-13-01-000-801,
Pneumatic Manifold Duct Installation (Selection), TASK 36-13-01-400-801.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-01-410-010

- (1) Install the duct section that was removed for repair. To install the duct section, do this task:
Pneumatic Manifold Duct Installation (Selection), TASK 36-13-01-400-801.

SUBTASK 36-13-01-420-042

- (2) Close the access panels.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

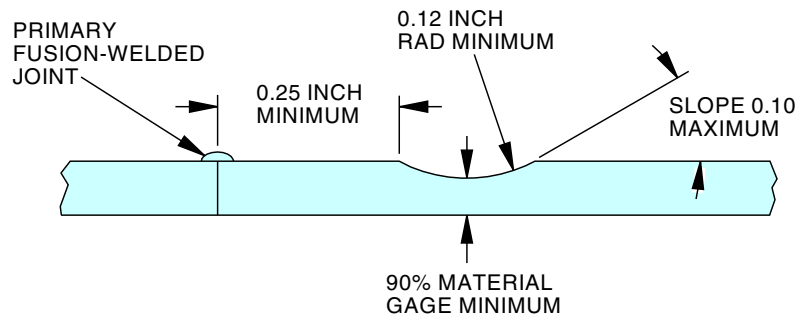
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36-13-01

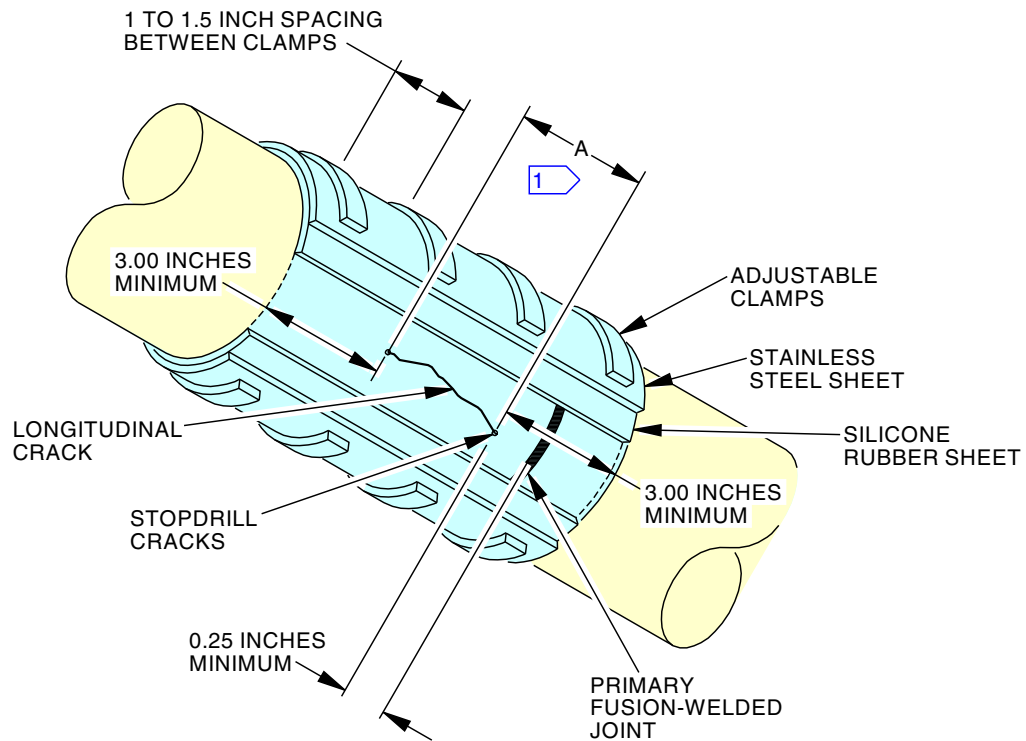
Page 804
Sep 15/2021



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



DUCT REWORK
(EXAMPLE)



DUCT REPAIR
(EXAMPLE)

1 MAXIMUM CRACK LENGTH
MUST NOT BE MORE THAN
THE DUCT DIAMETER.

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Pneumatic Duct Repair
Figure 801/36-13-01-990-807

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-01

Page 805
Sep 15/2021



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

PNEUMATIC DUCT INSULATION - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
 - (1) Pneumatic duct insulation removal
 - (2) Pneumatic duct insulation installation.
- B. There are two types of pneumatic insulations that are used to insulate the pneumatic ducts on the airplane:
 - (1) Soft insulation - This is a soft, precut, fiberglass pad insulation that is wrapped with a cover and stitched on with tie straps. It is found behind the sidewall liners in the aft cargo compartment.
 - (2) Hard shell insulation - This is a hard, preformed, fiberglass lay-up air gap insulation that is pre-shaped to fit snugly around the contour of a specific duct section. The hard shell insulation unit come in two halves and are attached to its respective duct section with band clamp or wire lace. It is found on pneumatic ducts in the keel beam section of the airplane.

TASK 36-13-02-000-801

2. Pneumatic Duct Insulation Removal

(Figure 401)

A. References

Reference	Title
36-13-01-000-806	APU Pneumatic Duct Removal (P/B 401)
50-10-02-000-801	Cargo Compartment Sidewall Liners Removal (P/B 401)

B. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
141	Aft Cargo Compartment - Left

C. Prepare for the Removal

SUBTASK 36-13-02-010-001

- (1) Open the applicable access panels to get access to the pneumatic duct insulation.

SUBTASK 36-13-02-860-001

- (2) To remove the sidewall liners in the aft cargo compartment, do this task: Cargo Compartment Sidewall Liners Removal, TASK 50-10-02-000-801.

D. Pneumatic Duct Insulation Removal

SUBTASK 36-13-02-020-001



WARNING

THE PNEUMATIC DUCTS CAN BE HOT. IF YOU DO NOT REMOVE THE INSULATION CORRECTLY, INJURY TO PERSONS CAN OCCUR.

- (1) To remove the soft insulation, do the steps that follow:
 - (a) Turn the insulation blanket [1] until you get access to the square knots [3] for the fiberglass tape [2]
 - (b) Loosen and remove the square knots [3].
 - (c) Remove the insulation blanket [1].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-02

Page 401
Sep 15/2021



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

SUBTASK 36-13-02-020-002



WARNING

THE PNEUMATIC DUCTS CAN BE HOT. IF YOU DO NOT REMOVE THE INSULATION CORRECTLY, INJURY TO PERSONS CAN OCCUR.

- (2) To remove the hard shell insulation, do the steps that follow:
- (a) Remove the APU pneumatic duct section from the keel beam, do this task: APU Pneumatic Duct Removal, TASK 36-13-01-000-806.
 - (b) Remove the clamps.
 - (c) Remove the hard shell insulation halves.

———— **END OF TASK** ————

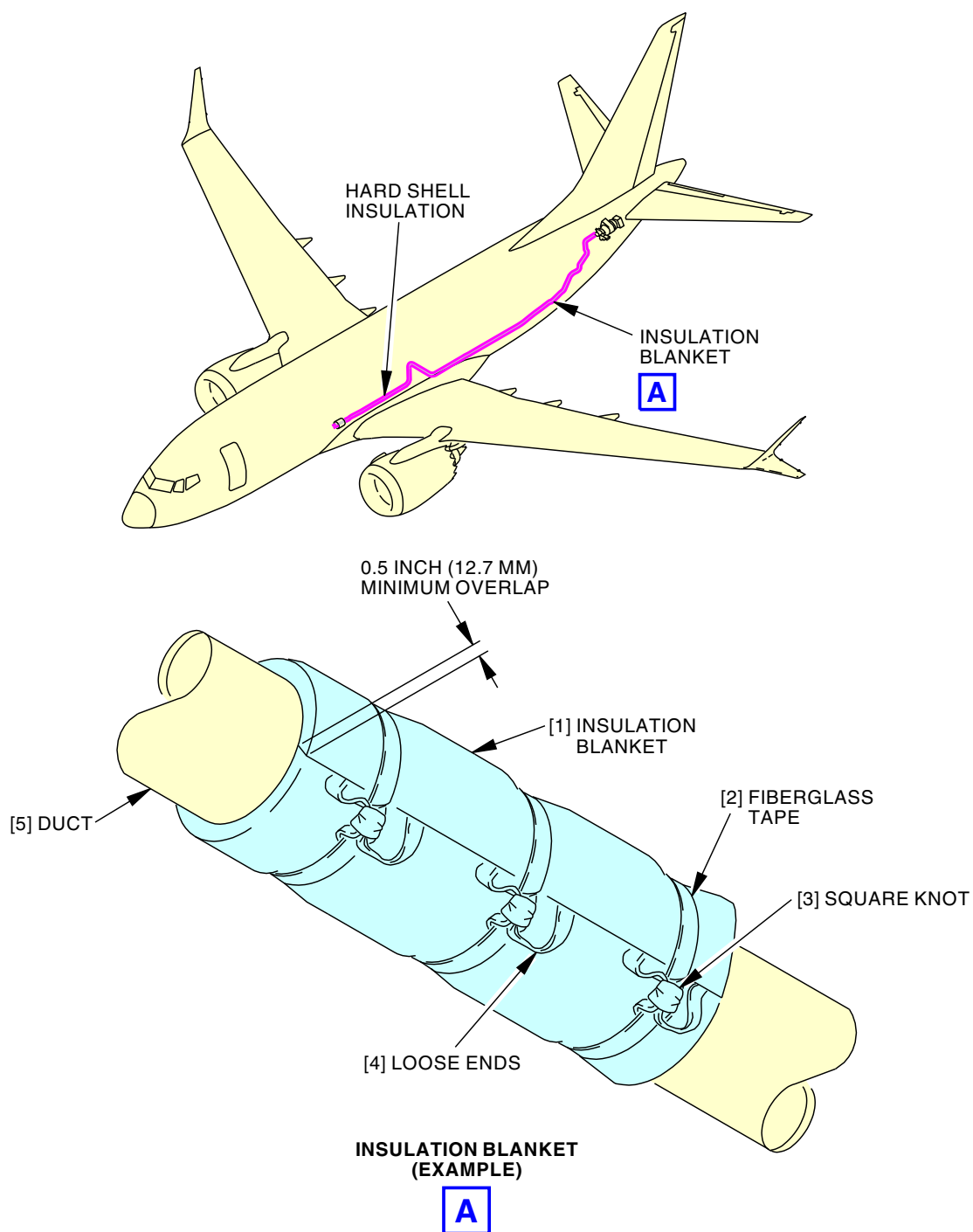
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-02

Page 402
Sep 15/2021



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Pneumatic Manifold Duct Insulation Blanket Installation
Figure 401/36-13-02-990-801

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-02

Page 403
Sep 15/2021



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

TASK 36-13-02-400-801

3. Pneumatic Duct Insulation Installation

(Figure 401)

A. References

Reference	Title
36-13-01-400-804	APU Pneumatic Duct Installation (P/B 401)
50-10-02-400-801	Cargo Compartment Sidewall Liners Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G00431	Tape - Fiberglass, ECC-A	MIL-Y-1140 Class C Form 5

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Insulation blanket	36-13-01-03A-100	SIA ALL
		36-13-01-03A-120	SIA ALL
		36-13-01-03A-130	SIA ALL
		36-13-01-03A-140	SIA ALL
		36-13-01-03A-155	SIA ALL
		36-13-01-03A-185	SIA ALL
		36-13-01-03A-210	SIA ALL
		36-13-02-02A-005	SIA ALL
		36-13-02-02A-015	SIA ALL
		36-13-02-02A-035	SIA ALL
		36-13-02-02A-050	SIA ALL
		36-13-02-02A-065	SIA ALL
		36-13-02-02A-085	SIA ALL

D. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
141	Aft Cargo Compartment - Left

E. Pneumatic Duct Insulation Installation

NOTE: Be sure to install double insulation blankets in areas where double insulation blankets were removed.

SUBTASK 36-13-02-420-001

(1) To install the soft insulation, do the steps that follow:

(a) Install the insulation blanket [1] around the duct [5].

NOTE: Make sure the insulation blanket [1] overlaps a minimum overlap of 0.5 in. (12.7 mm) and along the outer surface of the duct bend.

(b) Make a square knots [3] with the fiberglass tape [2], ECC-A fiberglass tape, G00431.

NOTE: Approved repair procedure at intermediate tie strap locations: If the tie strap breaks loose from the insulation, a new fiberglass tape [2], ECC-A fiberglass tape, G00431 may be used to hold the insulation in its position without being stitched to insulation. This procedure is not approved at end tie strap locations.

EFFECTIVITY
SIA ALL

36-13-02

D633AM101-SIA

Page 404
Sep 15/2021



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

- (c) Put the loose ends [4] of the fiberglass tape [2], ECC-A fiberglass tape, G00431 between the overlap and the insulation blanket [1].

SUBTASK 36-13-02-420-002

- (2) To install the hard shell insulation, do the steps that follow:
 - (a) Install the hard shell insulation on the pneumatic duct.
 - (b) Install the clamps, tighten to 13 in-lb (1 N·m) - 17 in-lb (2 N·m).
 - (c) To install the APU pneumatic duct section, do this task: APU Pneumatic Duct Installation, TASK 36-13-01-400-804.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-02-410-001

- (1) To install the sidewall liners in the cargo compartment, do this task: Cargo Compartment Sidewall Liners Installation, TASK 50-10-02-400-801.

SUBTASK 36-13-02-410-002

- (2) Close the applicable access panels.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-02

Page 405
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL
PNEUMATIC DUCT INSULATION - REPAIRS

1. General

- A. This procedure has one task:
- (1) Pneumatic duct insulation repair.

TASK 36-13-02-300-801

2. Pneumatic Duct Insulation Repair

(Figure 801)

A. General

- (1) This task gives the instructions on how to repair the soft insulation blankets that are wrapped around the APU pneumatic duct sections behind the sidewall linings in the aft cargo compartment.
- (2) Hard shell insulations which are used to insulate APU pneumatic duct sections in the keel beam cannot be repaired, they must be replaced.
- (3) Soft insulation blankets which has more than 25 percent of its fiberglass material missing or torn away must be replaced.

B. References

Reference	Title
50-10-02-000-801	Cargo Compartment Sidewall Liners Removal (P/B 401)
50-10-02-400-801	Cargo Compartment Sidewall Liners Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
G00431	Tape - Fiberglass, ECC-A	MIL-Y-1140 Class C Form 5
G02305	Tape - Insulation Blanket	BMS5-149

D. Location Zones

Zone	Area
141	Aft Cargo Compartment - Left

E. Access Panels

Number	Name/Location
822	Aft Cargo Door

F. Prepare for the Repair

SUBTASK 36-13-02-010-002

- (1) To get access to the soft insulation blankets on the APU pneumatic ducts, do this step:
 - (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
822	Aft Cargo Door

SUBTASK 36-13-02-860-002

- (2) Remove the sidewall liners in the aft cargo compartment. To remove the sidewall liners, do this task: Cargo Compartment Sidewall Liners Removal, TASK 50-10-02-000-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-02

Page 801
Sep 15/2021



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

G. Soft Insulation Blanket Repair

SUBTASK 36-13-02-020-003

- (1) Loosen or remove the fiberglass ECC-A fiberglass tape, G00431 if it is necessary.

SUBTASK 36-13-02-340-001

- (2) Put the repair tape, G02305 over the tear so the repair tape extends around the tear a minimum of one inch in all directions.

SUBTASK 36-13-02-420-003

- (3) Tighten or install the fiberglass ECC-A fiberglass tape, G00431 if it was loose or removed.

NOTE: If a tie strap breaks loose from the soft insulation blanket, a new fiberglass ECC-A fiberglass tape, G00431 may be used to hold the soft insulation blanket in place. Replacement tie straps located at the end of the soft insulation blanket must be stitched. Replacement tie straps not located at the end of the insulation blanket do not have to be stitched.

H. Put the Airplane to Its Usual Condition

SUBTASK 36-13-02-410-003

- (1) Install the sidewall liners in the cargo compartment. To install the sidewall liners, do this task: Cargo Compartment Sidewall Liners Installation, TASK 50-10-02-400-801.

SUBTASK 36-13-02-410-004

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
822	Aft Cargo Door

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

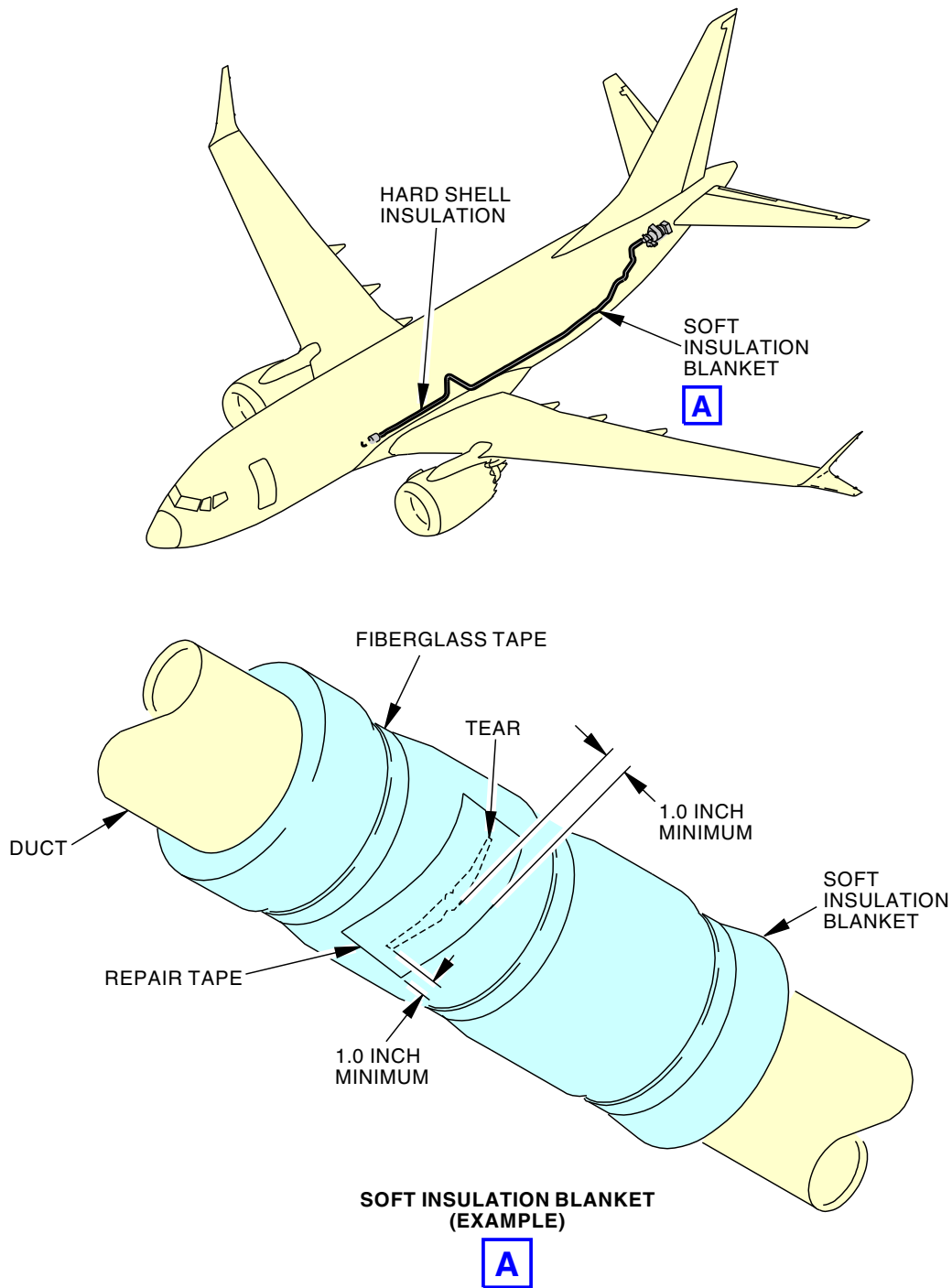
ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-02

Page 802
Sep 15/2021



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



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Pneumatic Manifold Duct Insulation Blanket Repairs
Figure 801/36-13-02-990-802

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-02

Page 803
Sep 15/2021



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

GROUND PNEUMATIC CONNECTOR CHECK VALVE - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
 - (1) Ground pneumatic connector check valve removal
 - (2) Ground pneumatic connector check valve installation.
- B. The ground pneumatic connector check valve is connected to a pneumatic manifold duct installed in the right air conditioning bay.
- C. For this procedure, the ground pneumatic connector check valve will be referred to as the check valve.

TASK 36-13-03-000-801

2. Ground Pneumatic Connector Check Valve Removal

(Figure 401)

A. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. **Location Zones**

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

D. **Access Panels**

Number	Name/Location
192CR	ECS Access Door
192DR	ECS High Pressure Access Door

E. **Prepare for the Removal**

SUBTASK 36-13-03-860-001

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

NOTE: Make sure that the APU, engines and ground air source are off.

SUBTASK 36-13-03-860-002

- (2) Put these switches on the P5-10 panel to the OFF position and attach DO NOT OPERATE tags, STD-858.
 - (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED.

SUBTASK 36-13-03-010-001

- (3) To get access to the check valve [5], do this step:

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
192DR	ECS High Pressure Access Door

EFFECTIVITY
SIA ALL

36-13-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
Sep 15/2021



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

SUBTASK 36-13-03-020-001

(4) To get access to the right air conditioning bay, do this step:

(a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
192CR	ECS Access Door

F. Ground Pneumatic Connector Check Valve Removal

SUBTASK 36-13-03-020-002

(1) Remove the 12 nuts [6] and washers [7].

(a) Keep the bolts [2] and upper washers [1] in position.

NOTE: This will prevent movement or damage to the upper gasket [3].

SUBTASK 36-13-03-020-003

(2) Remove the lower gasket [4].

SUBTASK 36-13-03-020-004

(3) Remove the check valve [5].

SUBTASK 36-13-03-210-001

(4) Examine the lower gasket [4] for damage.

(a) Keep the lower gasket [4] for installation, if it is not damaged.

————— **END OF TASK** —————

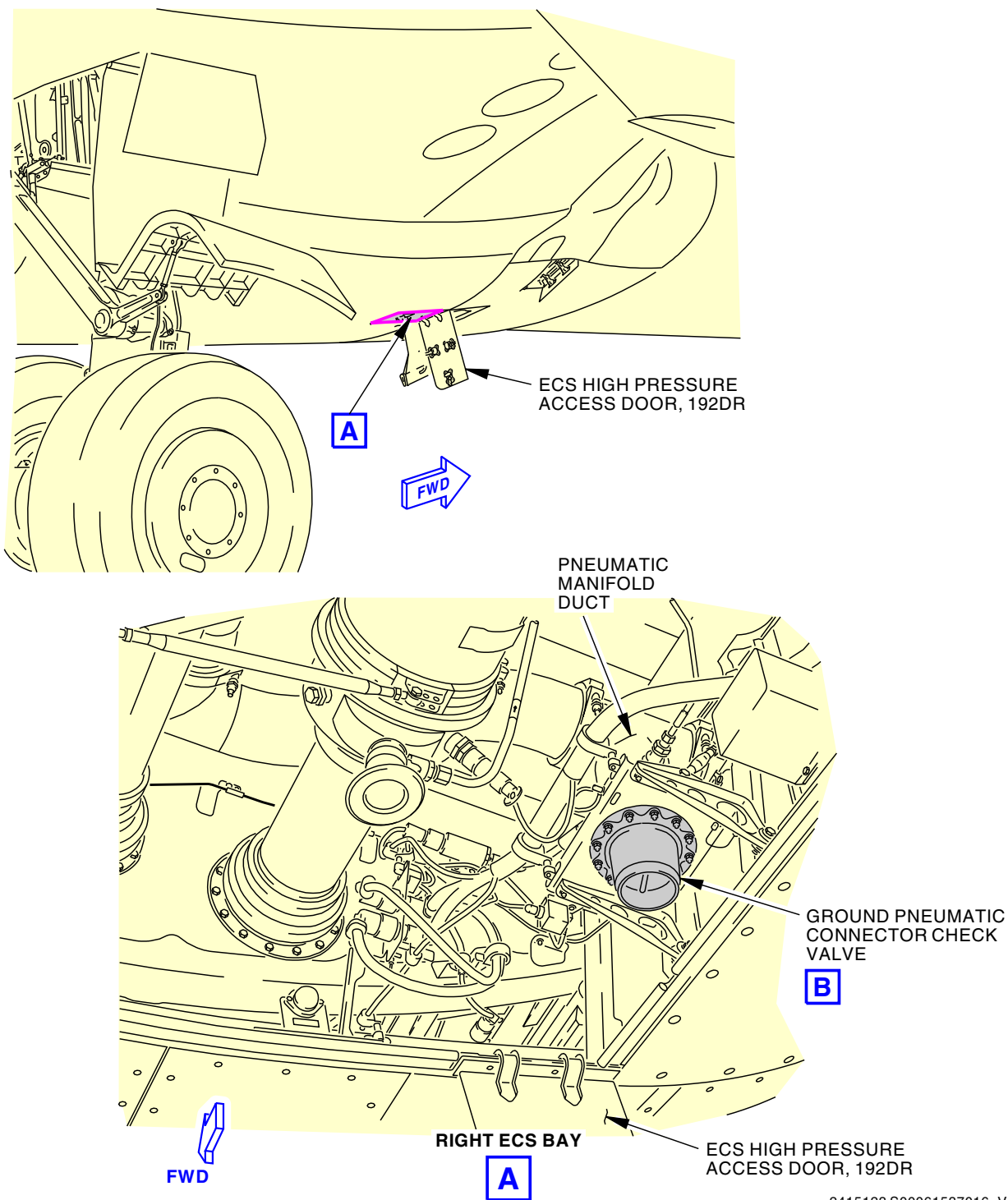
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-03

Page 402
Sep 15/2021



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Ground Pneumatic Connector Check Valve Installation
Figure 401/36-13-03-990-801 (Sheet 1 of 2)

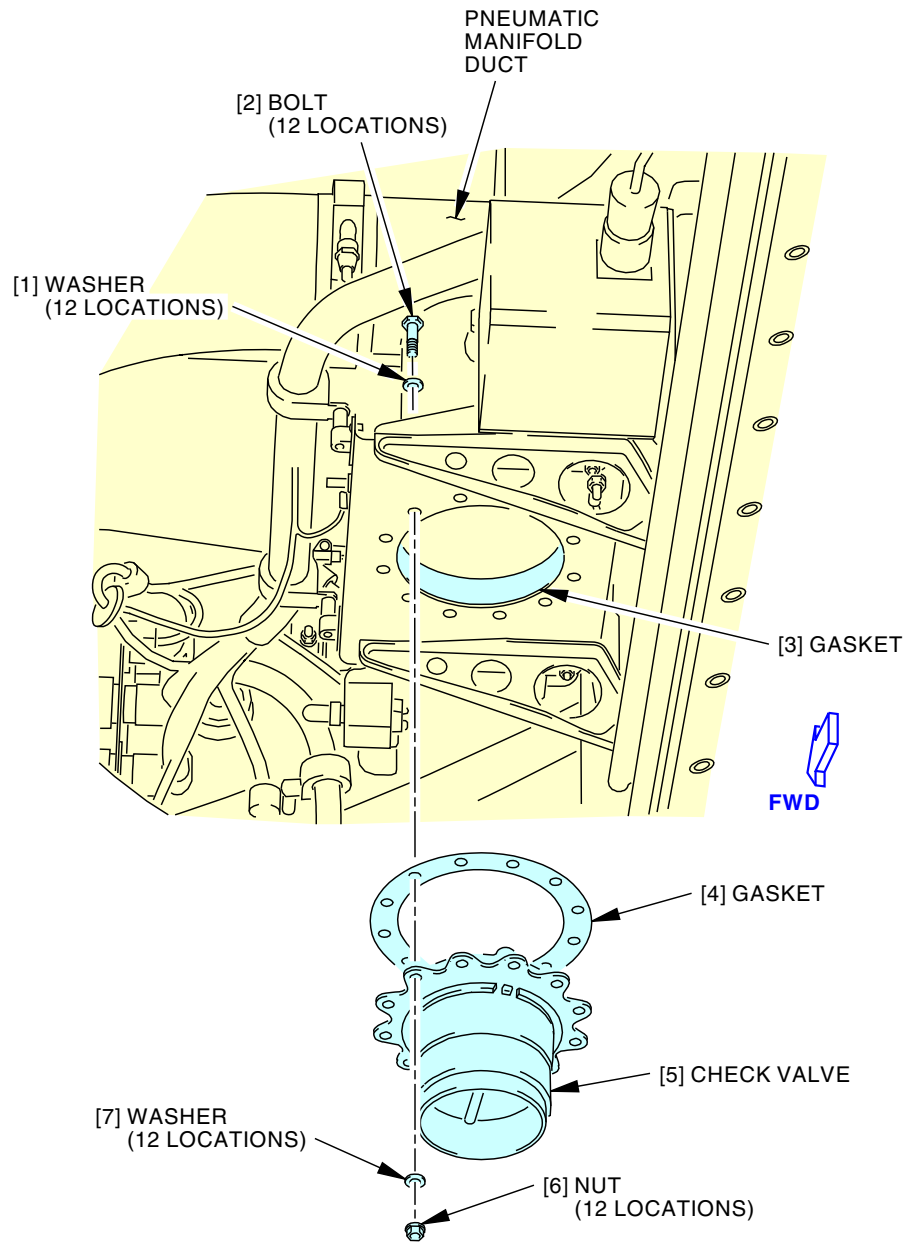
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-03

Page 403
Sep 15/2021



GROUND PNEUMATIC CONNECTOR
CHECK VALVE

B

2415124 S00061537017_V1

Ground Pneumatic Connector Check Valve Installation
Figure 401/36-13-03-990-801 (Sheet 2 of 2)

EFFECTIVITY
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-03

Page 404
Sep 15/2021



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

TASK 36-13-03-400-801

3. Ground Pneumatic Connector Check Valve Installation

(Figure 401)

A. References

Reference	Title
36-00-00-860-803	Supply Pressure to the Pneumatic System with the APU (P/B 201)
36-00-00-860-804	Supply Pressure to the Pneumatic System with One or Both Engines (P/B 201)

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Gasket	36-13-03-01-065	SIA ALL
5	Check valve	36-13-03-01-067	SIA ALL

D. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

E. Access Panels

Number	Name/Location
192CR	ECS Access Door
192DR	ECS High Pressure Access Door

F. Ground Pneumatic Connector Check Valve Installation

SUBTASK 36-13-03-420-001

- (1) Put the check valve [5] and lower gasket [4] in the correct position.

SUBTASK 36-13-03-420-002

- (2) Install the 12 nuts [6] and washers [7].
(a) Tighten the nuts [6] to 73 in-lb (8.2 N·m) to 77 in-lb (8.7 N·m).

G. Ground Pneumatic Connector Check Valve Installation Test

SUBTASK 36-13-03-790-001

- (1) Do a check for leakage of the check valve [5].
(a) To use the APU to supply pressure to the pneumatic manifold, do this task: Supply Pressure to the Pneumatic System with the APU, TASK 36-00-00-860-803.
(b) To use the engine to supply pressure to the pneumatic manifold, do this task: Supply Pressure to the Pneumatic System with One or Both Engines, TASK 36-00-00-860-804.
(c) Examine the check valve [5] for leakage.

NOTE: Diffused leakage is permitted, concentrated leakage must be repaired.

EFFECTIVITY
SIA ALL

36-13-03

D633AM101-SIA

Page 405
Sep 15/2021



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

H. Put the Airplane Back To Its Usual Condition

SUBTASK 36-13-03-410-001

- (1) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
192CR	ECS Access Door
192DR	ECS High Pressure Access Door

SUBTASK 36-13-03-860-003

- (2) Remove the DO NOT OPERATE tags, STD-858, from these switches on the P5-10 panel:
- (a) BLEED 1
 - (b) BLEED 2
 - (c) APU BLEED

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-03

Page 406
Sep 15/2021



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

BLEED AIR ISOLATION VALVE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Bleed Air Isolation Valve Removal
 - (2) Bleed Air Isolation Valve Installation.
- B. The bleed air isolation valve is installed in the keel beam. Access to the bleed air isolation valve is through a keel beam access hole from the left side of the air conditioning bay.
- C. The bleed air isolation valve is referred to as the isolation valve in this procedure.

TASK 36-13-04-000-801

2. Bleed Air Isolation Valve Removal

(Figure 401)

A. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (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-768	Sealant Removal Tool, Non-Metallic Part #: ST982L-9 Supplier: 81205 Part #: ST982LF-9 Supplier: 81205 Part #: ST982LH-A-1 Supplier: 81205
STD-124	Brush - Stiff Bristle, Non-Metallic
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

C. **Consumable Materials**

Reference	Description	Specification
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
G50637	Wiper - MicroCare Fiber Wipes	

D. **Location Zones**

Zone	Area
193	Lower Wing-To-Body Fairing - Wheel Well

E. **Access Panels**

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-04

Page 401
Sep 15/2021



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

F. Prepare for the Removal

SUBTASK 36-13-04-860-001



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) Remove pressure from the pneumatic system (TASK 36-00-00-860-806).

NOTE: Make sure that the APU, engines and ground air source are off.

SUBTASK 36-13-04-860-002

- (2) On the P5-10 Bleed Air Control Module, set the ISOLATION VALVE switch to the CLOSE position.

SUBTASK 36-13-04-860-003

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN

SUBTASK 36-13-04-010-001

- (4) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
192E	ECS Under Keel Panel - Forward

SUBTASK 36-13-04-020-001

- (5) If necessary to access the valve, remove the air conditioning duct section [1] from the left air conditioning bay.

NOTE: If the valve is accessed through Access Panel 192E, it may not be necessary to remove the air conditioning duct section.

G. Bleed Air Isolation Valve Removal

SUBTASK 36-13-04-020-002



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (1) Use a teflon-jawed pliers, STD-664 to disconnect the electrical connector [2] from the isolation valve [6] (TASK 70-00-01-910-803-G00).
 - (a) Disconnect the electrical connector [2] from the isolation valve [6].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-04

Page 402
Sep 15/2021



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

- (b) Install the protective covers on the electrical receptacle of the isolation valve [6] and the electrical connector [2].

SUBTASK 36-13-04-160-001

- (2) Remove the sealant that encapsulates the bonding wire [4] on the valve bonding tab, as follows:
 - (a) Use a stiff bristle non-metallic brush, STD-124, sealant removal tool, SPL-768, or equivalent tool to remove all traces of the adhesive on the washers [8], screw [7], nut [9], bonding wire [4] and bonding tab used for the previous installation of the bonding wire.
 - (b) Use solvent, B00666 to clean all surfaces until the wipes are no longer discolored.
 - (c) Use MicroCare fiber wipes, G50637 to remove all traces of the solvent.

SUBTASK 36-13-04-020-003

- (3) Remove the screw [7], two washers [8], and nut [9].

SUBTASK 36-13-04-020-004

- (4) Disconnect the bonding wire [4].

SUBTASK 36-13-04-020-005

- (5) Remove the couplings [5] (2 locations).

SUBTASK 36-13-04-020-006

- (6) Remove the isolation valve [6] with the actuator attached.

NOTE: Turn the isolation valve [6] until the flanges are horizontal.

———— **END OF TASK** ————

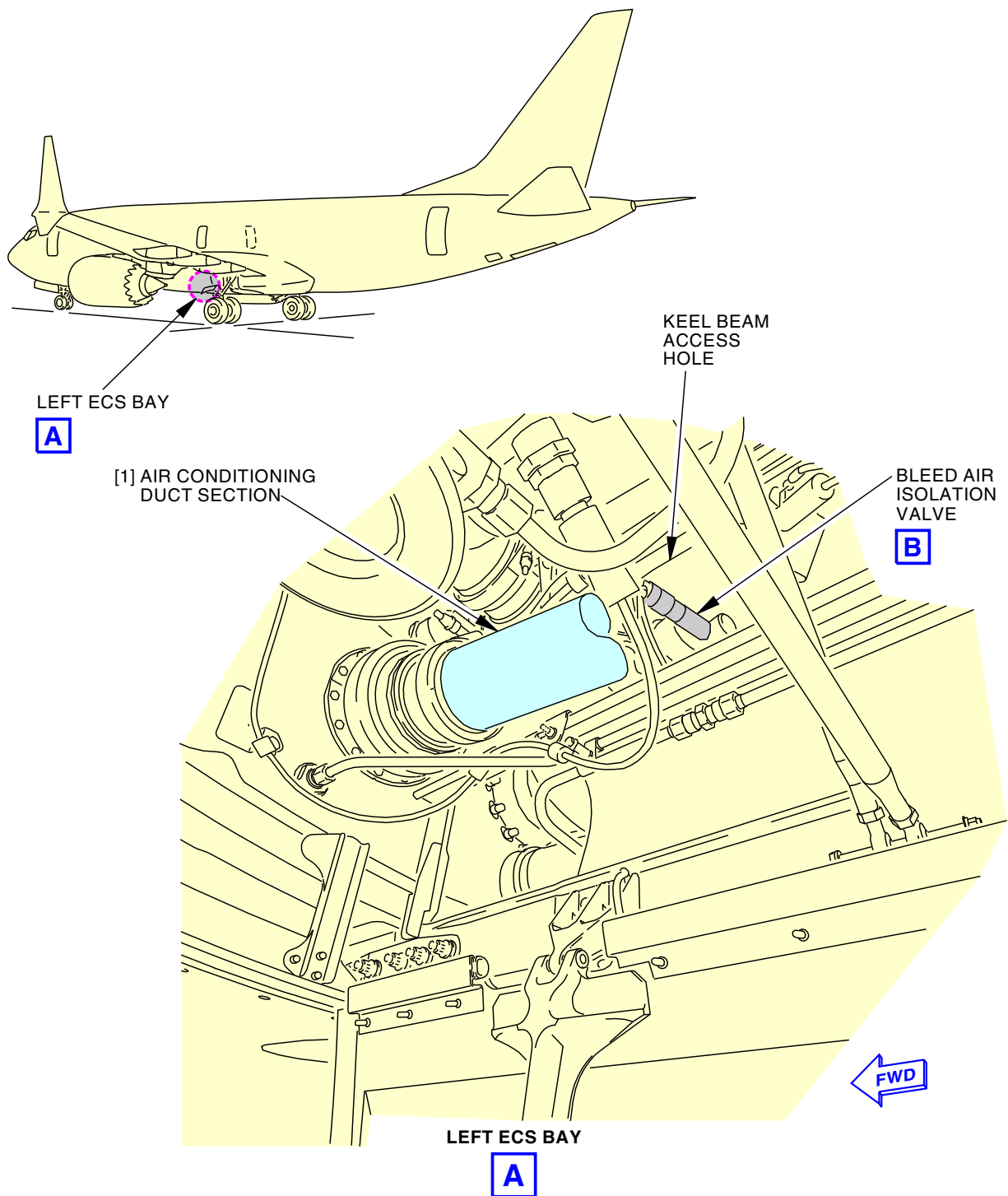
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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-04

Page 403
Sep 15/2021



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Bleed Air Isolation Valve Installation
Figure 401/36-13-04-990-801 (Sheet 1 of 2)

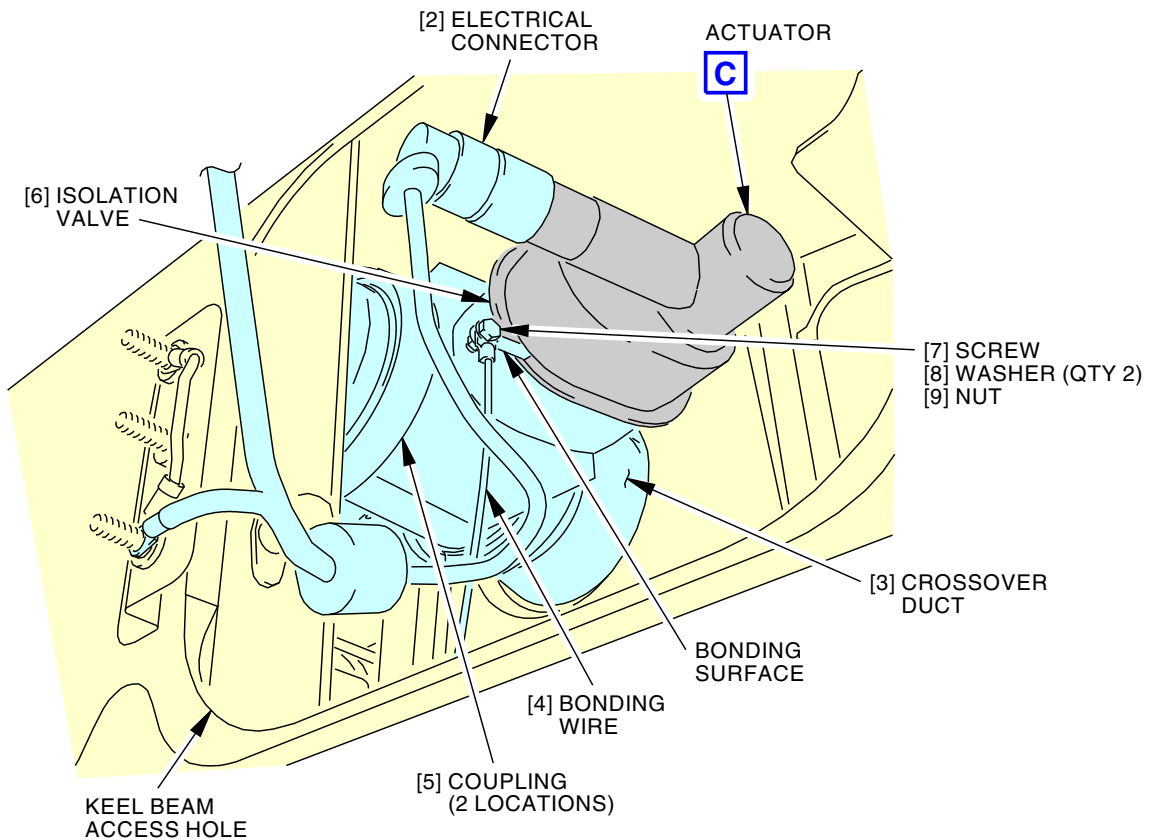
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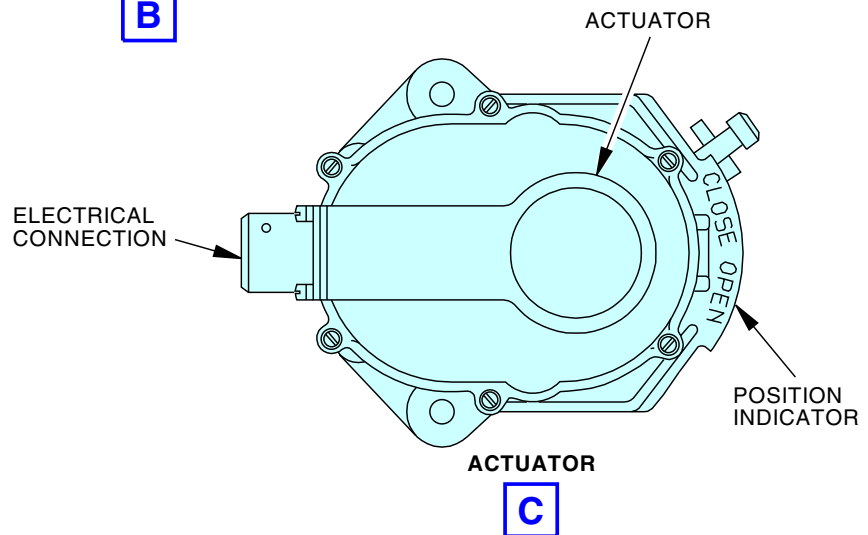
36-13-04

Page 404
Sep 15/2021



BLEED AIR ISOLATION VALVE

B



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Bleed Air Isolation Valve Installation
Figure 401/36-13-04-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-04

Page 405
Sep 15/2021



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

TASK 36-13-04-400-801

3. Bleed Air Isolation Valve Installation

(Figure 401)

A. General

- (1) This task has one or more steps which are a means to satisfy Critical Design Configuration Control Limitation (CDCCL) requirements. A CDCCL note will follow the step to which it applies. Any step or sub-step that precedes or follows a CDCCL identified step is not subject to the CDCCL requirement.
- (a) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

B. References

Reference	Title
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
36-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)
SWPM 20-20-10	REPLACEMENT OF GROUND STUDS AND BONDING JUMPER INSTALLATION

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 Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
SPL-768	Sealant Removal Tool, Non-Metallic Part #: ST982L-9 Supplier: 81205 Part #: ST982LF-9 Supplier: 81205 Part #: ST982LH-A-1 Supplier: 81205
STD-124	Brush - Stiff Bristle, Non-Metallic
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

D. Consumable Materials

Reference	Description	Specification
A01076	Adhesive - Synthetic Rubber	BAC5010 Type 93 (BMS5-95 Class B)
B00130	Alcohol - Isopropyl	TT-I-735

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-04

Page 406
May 15/2023



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

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Isolation valve	36-13-04-01-030	SIA ALL

F. Location Zones

Zone	Area
193	Lower Wing-To-Body Fairing - Wheel Well

G. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door
192E	ECS Under Keel Panel - Forward

H. Isolation Valve Installation

SUBTASK 36-13-04-160-002

- (1) Make sure that the bonding surface of the isolation valve [6] is clean.

SUBTASK 36-13-04-420-001

- (2) Put the isolation valve [6] through the keel beam access hole from the left side of the keel beam.

SUBTASK 36-13-04-420-002

- (3) Install the isolation valve [6] in the correct orientation between the crossover ducts [3].

SUBTASK 36-13-04-410-001

- (4) Install the couplings [5], as follows:
- (a) Install the two couplings [5], with the T-bolt forward and hanging straight down.

 36-AWL-01: CDCCL

- (b) Tighten the couplings [5] to 45 in-lb (5.1 N·m) to 55 in-lb (6.2 N·m).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 36-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 36-AWL-01.

SUBTASK 36-13-04-100-001

- (5) Prepare the parts for the bonding wire, as follows:
- (a) Use a stiff bristle non-metallic brush, STD-124, a sealant removal tool, SPL-768, or an equivalent tool to remove all traces of the sealant on the washers, screw, nut, bonding jumper and bonding tab used for the previous installation of the bonding wire.
- (b) Use alcohol, B00130 to clean all the surfaces of the washers, screw, nut, bonding wire terminal, and bonding tab until the wipes are no longer discolored.

SUBTASK 36-13-04-420-003

- (6) Install the bonding wire [4], as follows:
- (a) Position the bonding wire [4] blue terminal on the bonding tab on the isolation valve [6].
- (b) Install the screw [7], washers [8], and nut [9].
- (c) Tighten the nut [9] to 33 in-lb (3.7 N·m) to 40 in-lb (4.5 N·m).

SUBTASK 36-13-04-760-001

- (7) Use an intrinsically safe approved bonding meter, COM-1550 to measure the electrical resistance between the bonding tab and the bonding wire (SWPM 20-20-10).

EFFECTIVITY
SIA ALL

36-13-04

D633AM101-SIA

Page 407
Sep 15/2021



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

- (a) Make sure that the bonding resistance is less than 0.005 ohm (5 milliohm).
- (b) If the bonding resistance is satisfactory, then apply adhesive, A01076 to completely encapsulate the fasteners (SWPM 20-20-10, Paragraph 4.E).
- (c) If the bonding resistance is not satisfactory, then the installation must be taken apart, cleaned, re-installed and rechecked until it is satisfactory.

SUBTASK 36-13-04-420-004



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (8) Use the teflon-jawed pliers, STD-664 to connect the electrical connector [2] to the isolation valve [6] (TASK 70-00-01-910-803-G00).
 - (a) Remove the protective covers from the electrical receptacle of the isolation valve [6] and the electrical connector [2].
 - (b) Connect the electrical connector [2] to the isolation valve [6].
 - 1) Tighten the connector with the teflon-jawed pliers, STD-664.

SUBTASK 36-13-04-420-005

- (9) If it was removed, install the air conditioning duct section [1] on the left air conditioning bay.

SUBTASK 36-13-04-860-004

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00259	AIR CONDITIONING BLEED AIR VALVE ISLN

I. Isolation Valve Installation Test

SUBTASK 36-13-04-860-006

- (1) On the P5-10 Bleed Air Control Module, set the ISOLATION VALVE switch to the OPEN position.
 - (a) Make sure that the isolation valve [6] visual position indicator moves to the OPEN position.

NOTE: Access to the isolation valve is limited. A flashlight and mirror may be necessary to view the position indicator.

SUBTASK 36-13-04-860-007

- (2) Set the ISOLATION VALVE switch to the CLOSE position.
 - (a) Make sure that the isolation valve [6] visual position indicator moves to the CLOSED position.

NOTE: Access to the isolation valve is limited. A flashlight and mirror may be necessary to view the position indicator.

EFFECTIVITY
SIA ALL

36-13-04

D633AM101-SIA

Page 408
Sep 15/2023



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

SUBTASK 36-13-04-860-008

- (3) On the P5-10 Bleed Air Control Module, make sure that the L PACK and R PACK switches are in the OFF position.

SUBTASK 36-13-04-860-009

- (4) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-13-04-860-010

- (5) Set the ISOLATION VALVE switch to the OPEN position.
- (a) Do a check for leakage at the couplings [5] (2 locations).
- 1) Diffused leakage is permitted, jet blast leakage must be repaired.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 36-13-04-860-011

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 36-13-04-410-002

- (2) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192E	ECS Under Keel Panel - Forward

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-13-04

Page 409
Sep 15/2023



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

APU BLEED AIR SYSTEM - ADJUSTMENT/TEST

1. **General**

- A. This procedure has a task to do the dual bleed warning test. The dual bleed warning test operationally checks that the dual bleed warning indication (on the bleed air control panel) operates correctly.
- B. The DUAL BLEED light circuit is completed by a combination of engine no. 1 bleed switch ON and the APU bleed air valve open. A combination of engine no. 2 bleed switch ON, isolation valve switch OPEN and APU bleed air valve open will also complete the circuit.

TASK 36-14-00-710-801

2. **Dual Bleed Warning Test**

(Figure 501)

A. **References**

Reference	Title
49-11-00-860-801	APU Starting and Operation (P/B 201)
49-11-00-860-802	APU Usual Shutdown (P/B 201)

B. **Location Zones**

Zone	Area
212	Flight Compartment - Right

C. **Prepare for the Warning Test**

SUBTASK 36-14-00-860-002

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
D	15	C01401	LANDING GEAR AIR/GND RELAY
E	11	C00313	INDICATOR MASTER DIM SECT 1
E	12	C00314	INDICATOR MASTER DIM SECT 2
E	13	C00315	INDICATOR MASTER DIM SECT 3
E	14	C00316	INDICATOR MASTER DIM SECT 4
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	12	C00318	INDICATOR MASTER DIM SECT 6

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	7	C00796	AIR CONDITIONING BLEED AIR VALVES L
B	7	C00797	AIR CONDITIONING BLEED AIR VALVES R
C	5	C00263	AIR CONDITIONING PACK CONT VALVES R
C	6	C00262	AIR CONDITIONING PACK CONT VALVES L
D	8	C00076	AIR CONDITIONING TEMP IND

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-14-00

Page 501
Sep 15/2021



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

(Continued)

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C00884	AC RECIRC RIGHT FAN CABIN AIR

SUBTASK 36-14-00-860-003

- (2) Make sure that the engine 1 BLEED and engine 2 BLEED switches are in the OFF position.

SUBTASK 36-14-00-860-004

- (3) Start the APU. To start the APU, do this task: APU Starting and Operation, TASK 49-11-00-860-801.

SUBTASK 36-14-00-860-005

- (4) Put the APU BLEED switch on the P5-10 panel to the ON position.

SUBTASK 36-14-00-860-006

- (5) Put the ISOLATION VALVE switch on the P5-10 panel to the OPEN position.

SUBTASK 36-14-00-860-007

- (6) Make sure that the DUAL BLEED light is not on.

SUBTASK 36-14-00-860-008

- (7) Put the engine 2 BLEED switch to the ON position.

SUBTASK 36-14-00-860-009

- (8) Make sure that the DUAL BLEED, MASTER CAUTION and AIR COND lights come on.

SUBTASK 36-14-00-860-010

- (9) Put the MASTER DIM and TEST switch, S270, on the P2-1 center instrument panel to the DIM position.

SUBTASK 36-14-00-860-011

- (10) Make sure that the DUAL BLEED, MASTER CAUTION and AIR COND lights dim.

SUBTASK 36-14-00-860-012

- (11) Put the MASTER DIM and TEST switch to the BRT position.

SUBTASK 36-14-00-860-013

- (12) Make sure that the DUAL BLEED, MASTER CAUTION and AIR COND lights go to full bright.

SUBTASK 36-14-00-860-014

- (13) Push to reset either MASTER CAUTION light.

SUBTASK 36-14-00-860-015

- (14) Make sure that both MASTER CAUTION lights and the AIR COND light go off.

SUBTASK 36-14-00-860-016

- (15) Make sure that the DUAL BLEED light stays on.

SUBTASK 36-14-00-860-017

- (16) Put the ISOLATION VALVE switch to the CLOSE position.

SUBTASK 36-14-00-860-018

- (17) Make sure that the DUAL BLEED light goes off.

SUBTASK 36-14-00-860-019

- (18) Put the engine 2 BLEED switch to the OFF position and the engine 1 BLEED switch to the ON position.

EFFECTIVITY
SIA ALL

36-14-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 502
Sep 15/2021



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

SUBTASK 36-14-00-860-020

- (19) Make sure that the DUAL BLEED, MASTER CAUTION and AIR COND lights come on.

SUBTASK 36-14-00-860-021

- (20) Put the ISOLATION VALVE switch to the OPEN position.

SUBTASK 36-14-00-860-022

- (21) Put the engine 2 BLEED switch to the ON position.

SUBTASK 36-14-00-860-023

- (22) Put the APU BLEED switch to the OFF position.

SUBTASK 36-14-00-860-024

- (23) Make sure that the DUAL BLEED light goes off.

D. Put the Airplane Back to Its Usual Condition

SUBTASK 36-14-00-860-025

- (1) Put the engine 1 BLEED and engine 2 BLEED switches to OFF.

SUBTASK 36-14-00-860-026

- (2) Stop the operation of the APU. To stop the APU, do this task: APU Usual Shutdown, TASK 49-11-00-860-802.

SUBTASK 36-14-00-860-027

- (3) Put the ISOLATION VALVE switch to AUTO.

———— **END OF TASK** ————

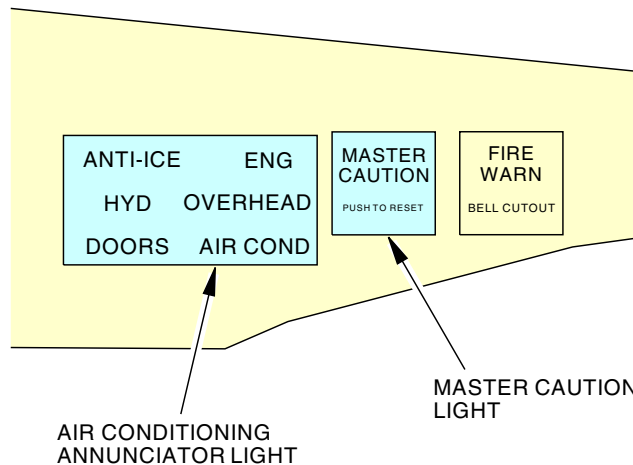
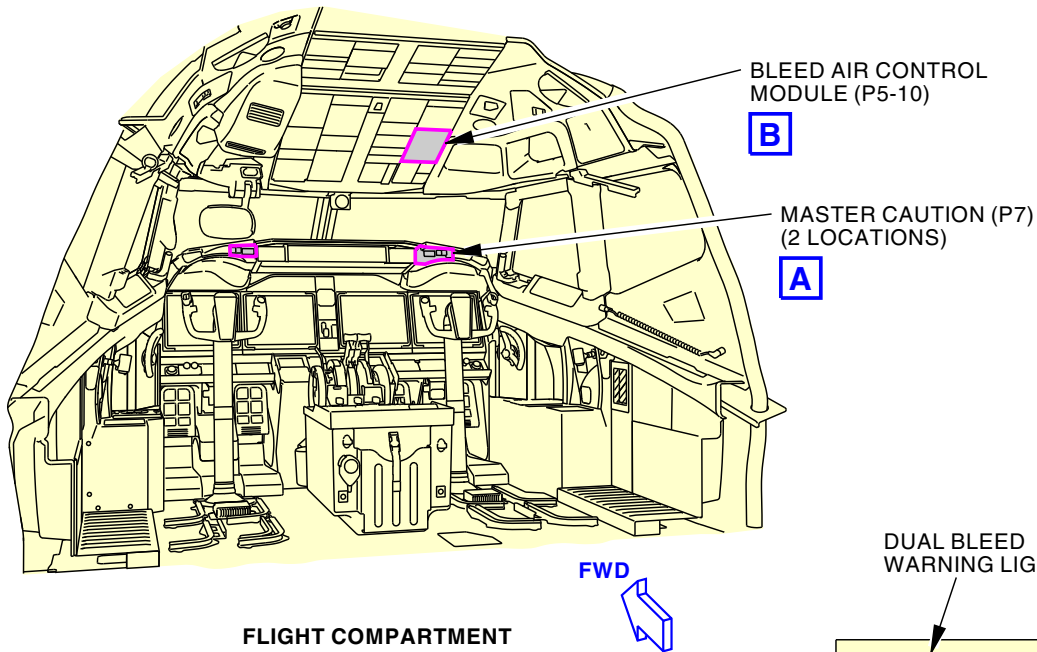
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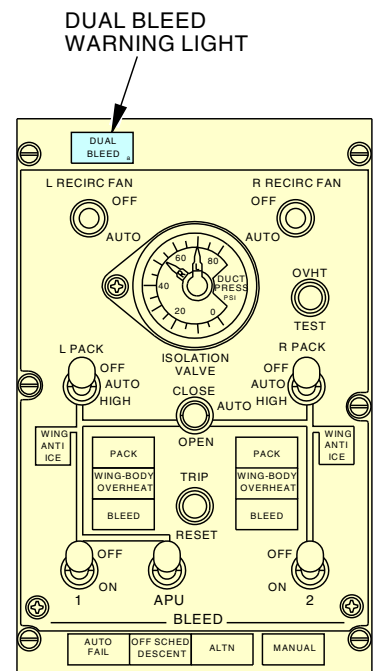
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Page 503
Sep 15/2021



MASTER CAUTION, P7 PANEL (P7)
(EXAMPLE)

A



BLEED AIR CONTROL
MODULE, P5 PANEL (P5-10)
(TYPICAL)

B

2415127 S00061537029_V3

Dual Bleed Warning - Test
Figure 501/36-14-00-990-801

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-14-00

Page 504
Sep 15/2021



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

APU CHECK VALVE - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) APU check valve removal
 - (2) APU check valve installation.
- B. The APU check valve is installed in the keel beam. Access to the APU check valve is through the ECS Under Keel Panel in the keel beam.

TASK 36-14-02-000-801

2. APU Check Valve Removal

(Figure 401)

A. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

B. **Location Zones**

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

C. **Access Panels**

Number	Name/Location
192E	ECS Under Keel Panel - Forward

D. **Prepare to Remove the APU Check Valve**

SUBTASK 36-14-02-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

NOTE: Make sure that the APU, engines and ground air source are off.

SUBTASK 36-14-02-860-002

- (2) Put these switches on the P5 panel to the OFF position:

- (a) BLEED 1
- (b) BLEED 2
- (c) APU BLEED.

SUBTASK 36-14-02-010-001

- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
192E	ECS Under Keel Panel - Forward

E. **Remove the APU Check Valve**

SUBTASK 36-14-02-020-001

- (1) Remove the couplings [3].

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36-14-02

D633AM101-SIA

Page 401
Sep 15/2021



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

SUBTASK 36-14-02-020-002

(2) Remove the APU check valve [2] from the APU pneumatic manifold [4].

SUBTASK 36-14-02-390-001

(3) Put a cover on the open end of the APU pneumatic manifold [4] to keep unwanted material out.

———— **END OF TASK** ————

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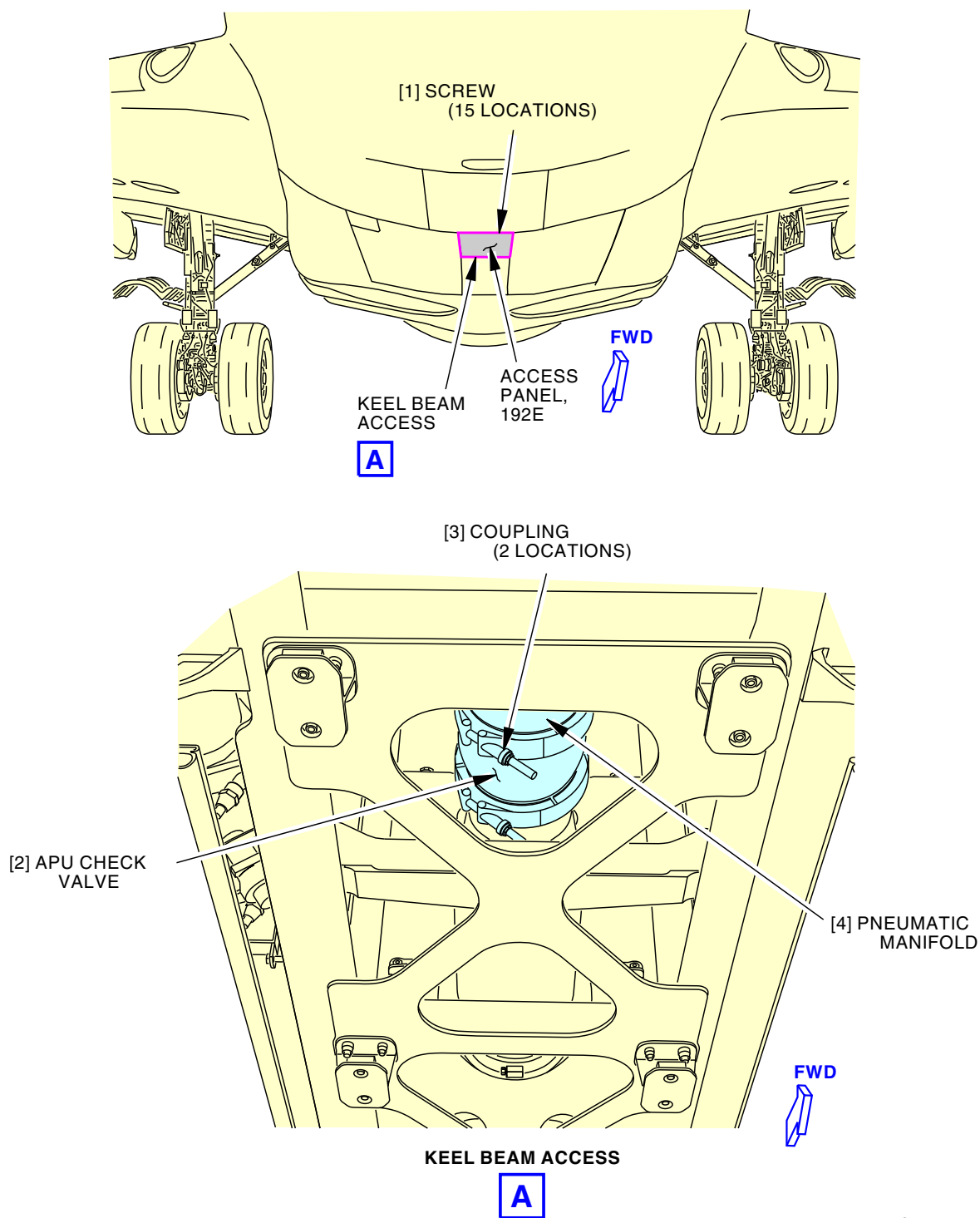
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36-14-02

Page 402
Sep 15/2021



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



2415128 S00061537033_V1

APU Check Valve Installation
Figure 401/36-14-02-990-801

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-14-02

Page 403
Sep 15/2021



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

TASK 36-14-02-400-801

3. **APU Check Valve Installation**

(Figure 401)

A. References

Reference	Title
36-00-00-860-803	Supply Pressure to the Pneumatic System with the APU (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Check valve	36-14-02-01A-010	SIA ALL

C. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

D. Access Panels

Number	Name/Location
192E	ECS Under Keel Panel - Forward

E. APU Check Valve Installation

SUBTASK 36-14-02-020-003

- (1) Remove the cover from the APU pneumatic manifold [4].

SUBTASK 36-14-02-420-001

- (2) Install the APU check check valve [2] in the APU pneumatic manifold [4] with the flow arrow pointed forward.

SUBTASK 36-14-02-420-002

- (3) Install the couplings [3] on the manifold [4].
(a) Tighten the nuts of the couplings [3] to 45 in-lb (5.08 N·m) to 55 in-lb (6.21 N·m).

SUBTASK 36-14-02-790-001

- (4) Do this leakage test for the APU check valve [2].
(a) Do this task: Supply Pressure to the Pneumatic System with the APU, TASK 36-00-00-860-803.
(b) Examine the APU check valve [2] for leakage at the couplings [3].
1) Diffused leakage is permitted, jet blast leakage must be repaired.
(c) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 36-14-02-410-001

- (1) Close this access panel:

Number	Name/Location
192E	ECS Under Keel Panel - Forward

————— **END OF TASK** —————

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36-14-02

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Sep 15/2021



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

DUCT PRESSURE TRANSDUCER - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
- (1) Duct pressure transducer removal
 - (2) Duct pressure transducer installation.
- B. There are two duct pressure transducers or manifold pressure (PM2) sensors installed on the airplane. One on the forward side of the left air conditioning bay and the other one on the forward side of the right air conditioning equipment bay.
- C. The duct pressure transducer converts duct pressure data into electrical signals which are sent to the dual duct pressure indicator on the P5 forward overhead panel.
- D. The removal procedure and the installation procedure are the same for each duct pressure transducer.

TASK 36-21-01-000-801

2. **Duct Pressure Transducer Removal**

(Figure 401)

A. **General**

- (1) This task gives the instructions to remove the duct pressure transducer.

B. **References**

Reference	Title
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

D. **Location Zones**

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

E. **Access Panels**

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

F. **Prepare for the Removal**

SUBTASK 36-21-01-860-001



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: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-21-01

Page 401
Sep 15/2021



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

SUBTASK 36-21-01-860-002

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00077	AIR CONDITIONING BLEED AIR PRESS IND

SUBTASK 36-21-01-860-003

- (3) Open these access doors, if it is necessary:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

G. Duct Pressure Transducer Removal

SUBTASK 36-21-01-020-001

- (1) Disconnect the duct pressure sense line [1].

SUBTASK 36-21-01-390-001

- (2) Install the protective cover on the duct pressure sense line [1].

SUBTASK 36-21-01-020-002



MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (3) Use the teflon-jawed pliers, STD-664 to disconnect the electrical connector [5] from the duct pressure transducer [2] (TASK 70-00-01-910-803-G00).
- (a) Disconnect the electrical connector [5] from the duct pressure transducer [2].
- (b) Install the protective covers on the electrical receptacle of the duct pressure transducer [2] and the electrical connector [5].

SUBTASK 36-21-01-020-003

- (4) Remove the screws [3], washers [4], and clamps [7] from the duct pressure transducer [2].

SUBTASK 36-21-01-020-004

- (5) Remove the duct pressure transducer [2].

————— END OF TASK —————

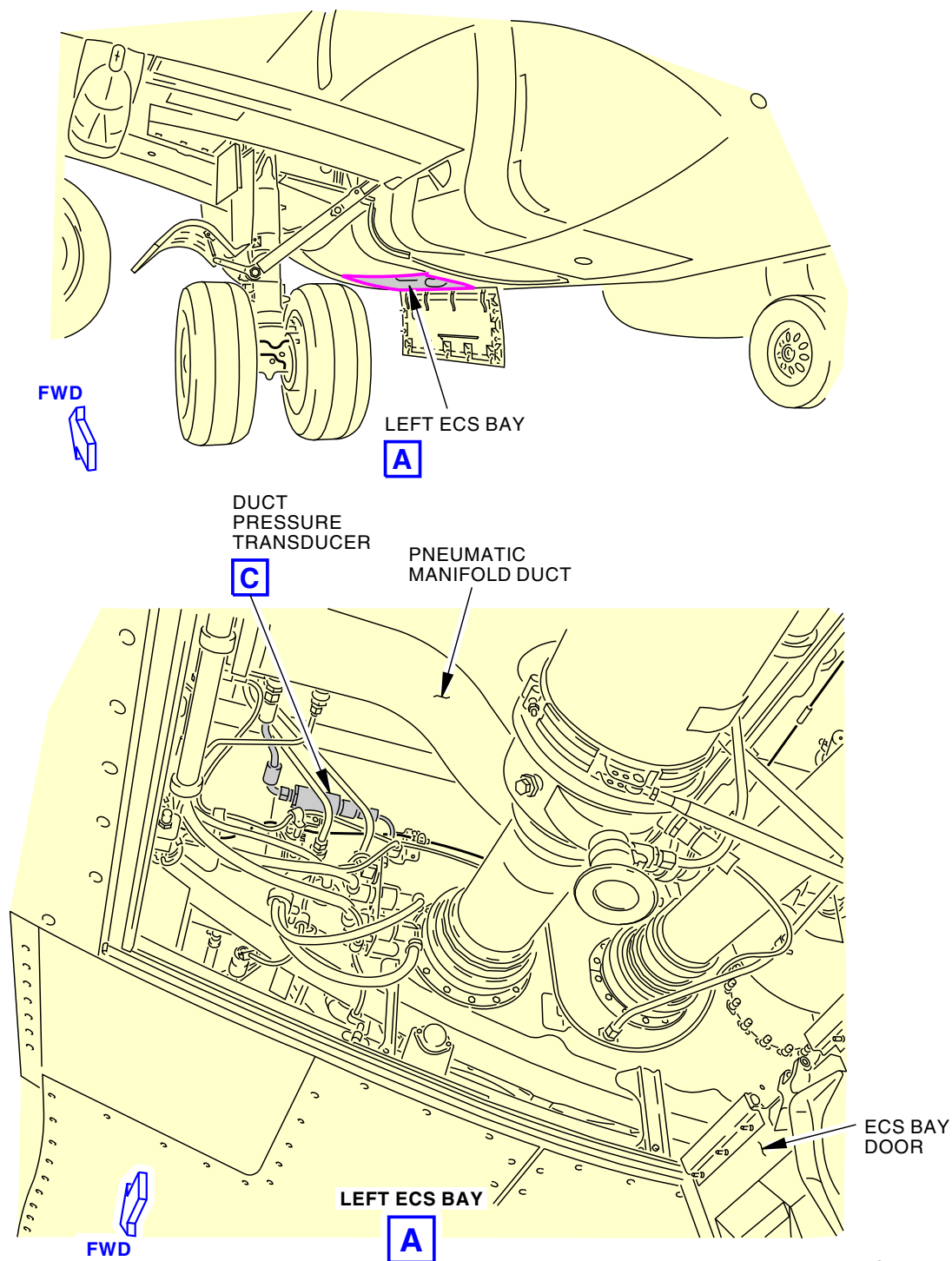
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Sep 15/2021



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Duct Pressure Transducer Installation
Figure 401/36-21-01-990-801 (Sheet 1 of 3)

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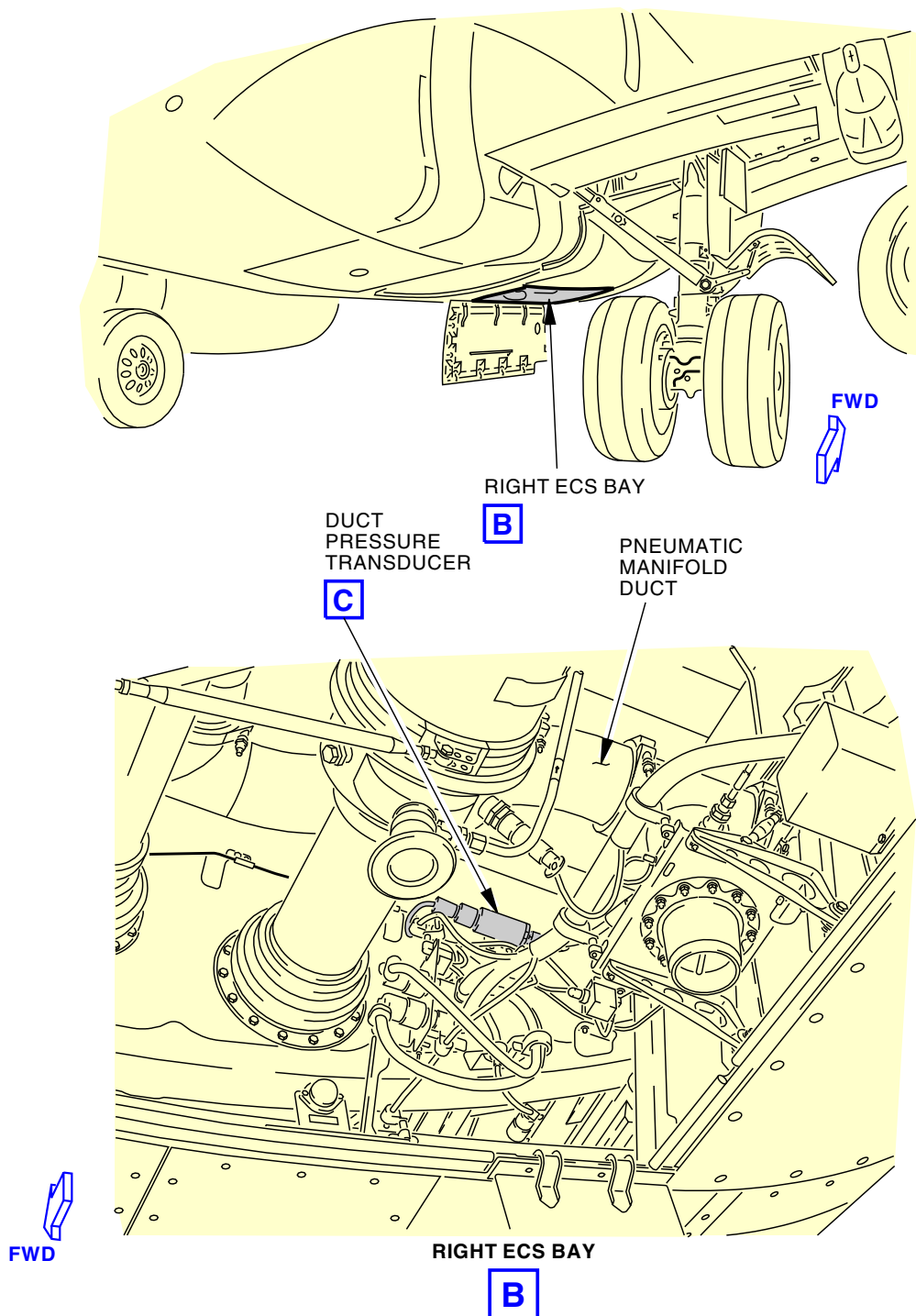
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36-21-01

Page 403
Sep 15/2021



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



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Duct Pressure Transducer Installation
Figure 401/36-21-01-990-801 (Sheet 2 of 3)

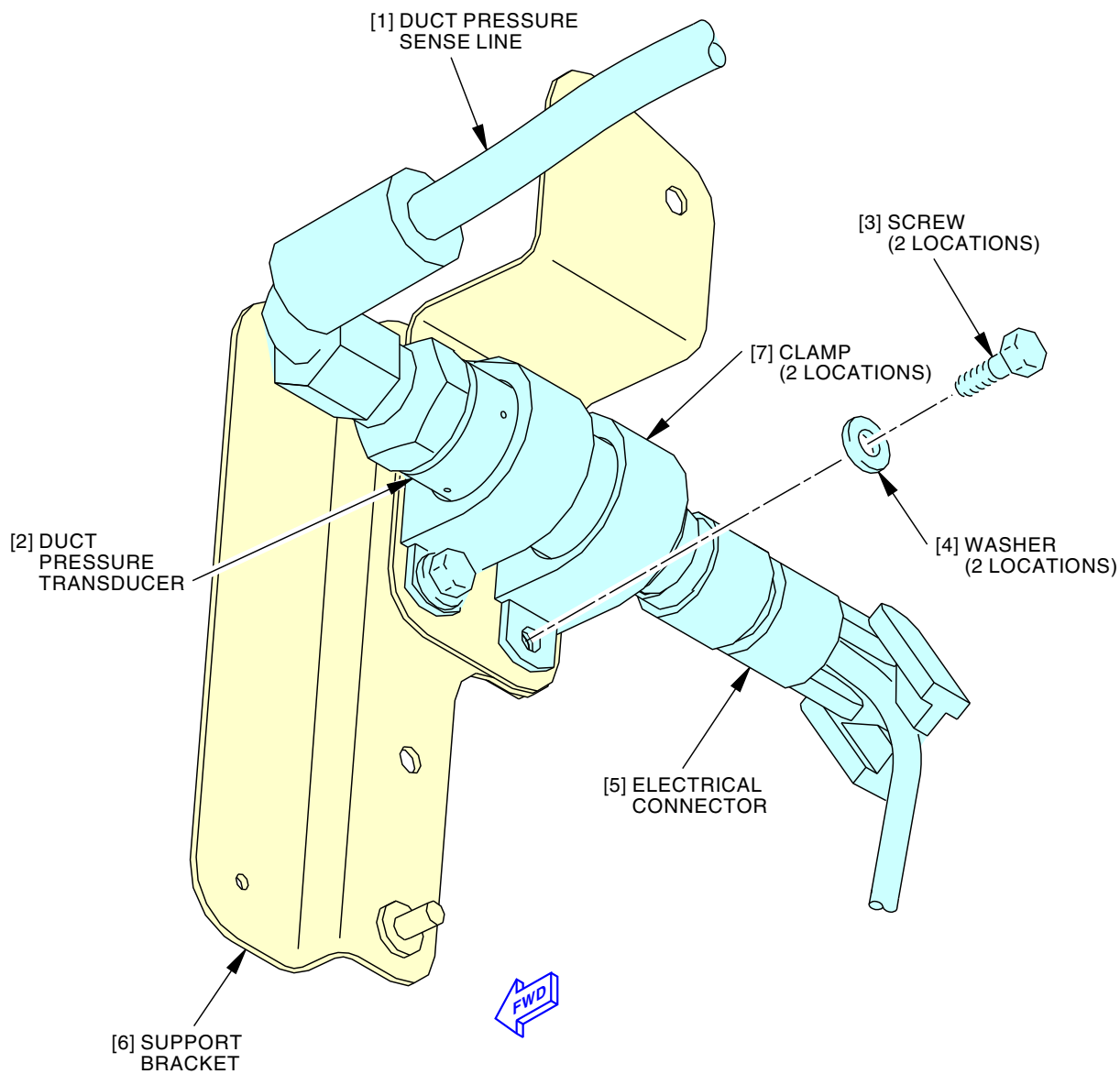
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-21-01

Page 404
Sep 15/2021



DUCT PRESSURE TRANSDUCER
(EXAMPLE)



2415131 S00061537041_V2

Duct Pressure Transducer Installation
Figure 401/36-21-01-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

36-21-01

D633AM101-SIA

Page 405
Sep 15/2021



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

TASK 36-21-01-400-801

3. Duct Pressure Transducer Installation

(Figure 401)

A. General

- (1) This task gives the instructions to install the duct pressure transducer.

B. References

Reference	Title
36-00-00-710-801	Electrical LRU - Replacement Test (P/B 501)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

C. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Duct pressure transducer	36-21-01-01-025	SIA ALL

E. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

F. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

G. Procedure

SUBTASK 36-21-01-860-004

- (1) Put the duct pressure transducer [2] in the correct position on the support bracket [6].

SUBTASK 36-21-01-420-001

- (2) Install the duct pressure transducer [2] on the support bracket [6].
(a) Install the clamps [7], washers [4], and screws [3].

SUBTASK 36-21-01-860-005

- (3) Remove the protective cover from the duct pressure sense line [1].

SUBTASK 36-21-01-420-002

- (4) Connect the duct pressure sense line [1] to the pressure port of the duct pressure transducer [2].
(a) Tighten the nut to 65.0 in-lb (7.3 N·m) to- 75.0 in-lb (8.5 N·m).

SUBTASK 36-21-01-420-003



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.

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36-21-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Sep 15/2022



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

(CAUTION PRECEDES)



CAUTION

DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (5) Use the teflon-jawed pliers, STD-664 to connect the electrical connector [5] to the duct pressure transducer [2] (TASK 70-00-01-910-803-G00).
- (a) Remove the protective covers from the electrical receptacle of the duct pressure transducer [2] and the electrical connector [5].
- (b) Connect the electrical connector [5] to the duct pressure transducer [2].
- 1) Tighten the connector with the teflon-jawed pliers, STD-664.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 36-21-01-860-006

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00077	AIR CONDITIONING BLEED AIR PRESS IND

SUBTASK 36-21-01-410-001

- (2) Close these access doors, if it is necessary:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
192CR	ECS Access Door

SUBTASK 36-21-01-760-001

- (3) Do this task: Electrical LRU - Replacement Test, TASK 36-00-00-710-801.

———— **END OF TASK** ————

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-21-01

Page 407
Sep 15/2022



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

DUAL DUCT PRESSURE INDICATOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) Dual duct pressure indicator removal
 - (2) Dual duct pressure indicator installation.
- B. The dual duct pressure indicator is installed on the P5-10 bleed air control panel on the pilot's overhead panel in the flight compartment.
- C. The dual duct pressure indicator receives input signals from the left and right duct pressure transducers in the air conditioning bay.
- D. For this procedure, the dual duct pressure indicator will be referred to as the pressure indicator.

TASK 36-21-02-600-801

2. Dual Duct Pressure Indicator Removal

(Figure 401)

A. References

Reference	Title
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

B. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Prepare for the Removal

SUBTASK 36-21-02-010-001

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
B	5	C00077	AIR CONDITIONING BLEED AIR PRESS IND

E. Dual Duct Pressure Indicator Removal

SUBTASK 36-21-02-020-001

- (1) Disengage the quarter turn fasteners [5] (6 locations) on the bleed air control panel [6].

SUBTASK 36-21-02-020-002

- (2) Carefully pull the bleed air control panel [6] out of the P5 panel frame.

SUBTASK 36-21-02-020-003



CAUTION

MAKE SURE ELECTRICAL CONNECTORS ARE CLEAN WHEN YOU DISCONNECT THEM. CONTAMINATION OF ELECTRICAL CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.

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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-21-02

Page 401
May 15/2022



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

(CAUTION PRECEDES)



CAUTION

USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

- (3) Use a teflon-jawed pliers, STD-664 to disconnect the electrical connector [1] from the pressure indicator [2] (TASK 70-00-01-910-803-G00).
- (a) Disconnect the electrical connector [1] from the pressure indicator [2].
 - (b) Install the protective covers on the electrical receptacle of the pressure indicator [2] and the electrical connector [1].

SUBTASK 36-21-02-020-004

- (4) Loosen the clamp screw [4] on the front of the bleed air control panel [6] to loosen the clamp [3] on the back.

SUBTASK 36-21-02-020-005

- (5) Remove the pressure indicator [2] from the front of the bleed air control panel [6].

————— **END OF TASK** —————

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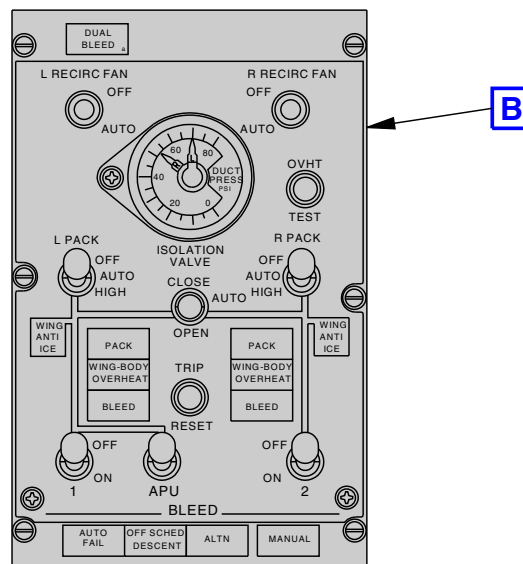
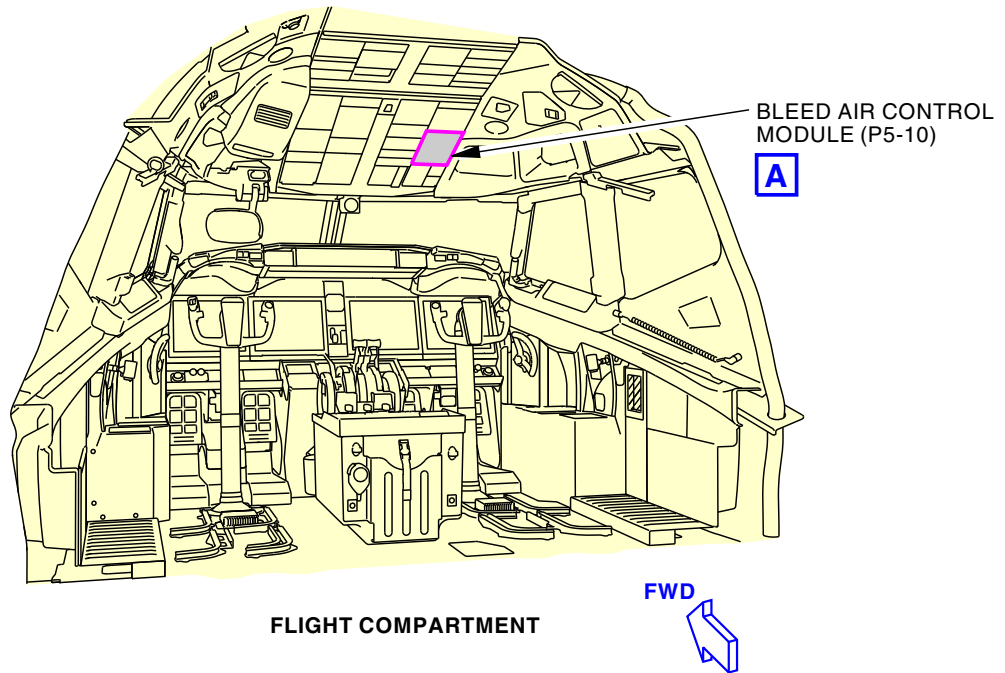
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36-21-02

Page 402
May 15/2022



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



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Dual Duct Pressure Indicator Installation
Figure 401/36-21-02-990-801 (Sheet 1 of 2)

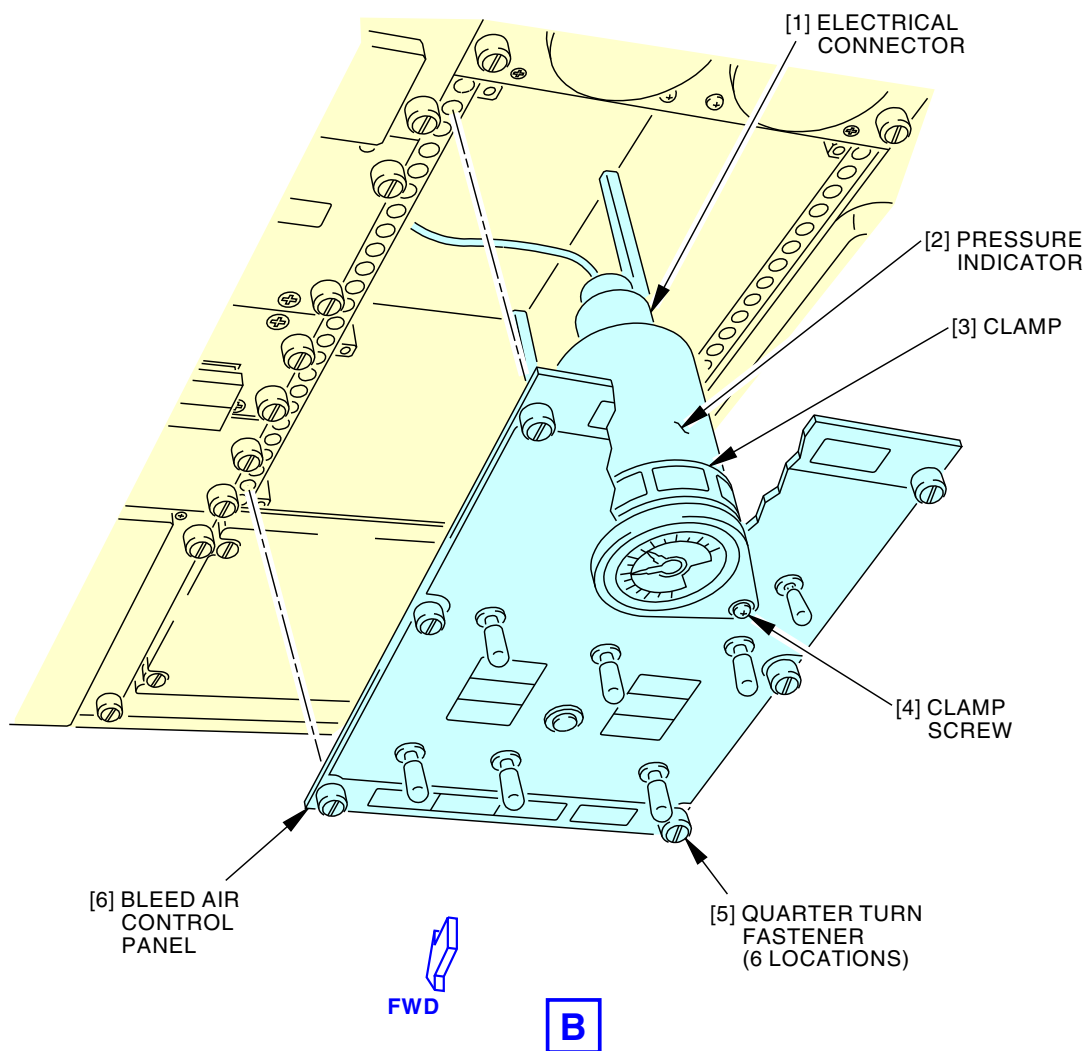
EFFECTIVITY
SIA ALL

36-21-02

Page 403
May 15/2022

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



2415133 S00061537047_V1

Dual Duct Pressure Indicator Installation
Figure 401/36-21-02-990-801 (Sheet 2 of 2)

EFFECTIVITY
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-21-02

Page 404
May 15/2022



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

TASK 36-21-02-600-802

3. Dual Duct Pressure Indicator Installation

(Figure 401)

A. References

Reference	Title
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-803-G00	Electrical Connector Disconnection and Connection (P/B 201)

B. Tools/Equipment

Reference	Description
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Pressure indicator	36-21-02-01-050	SIA ALL

D. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

E. Dual Duct Pressure Indicator Installation

SUBTASK 36-21-02-010-002

- (1) Install the pressure indicator [2] from the front of the bleed air control panel [6] through the clamp [3] on the back.

SUBTASK 36-21-02-420-001

- (2) Tighten the clamp screw [4] to 15 in-lb (1.69 N·m) to 18 in-lb (2.03 N·m).

SUBTASK 36-21-02-420-002



MAKE SURE THAT THE ELECTRICAL CONNECTOR AND RECEPTACLE ARE CLEAN WHEN YOU CONNECT THEM. DIRTY CONNECTORS CAN CAUSE DAMAGE TO EQUIPMENT.



DO NOT USE PLIERS THAT HAVE METAL JAWS TO TIGHTEN THE ELECTRICAL CONNECTOR. DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (3) Use the teflon-jawed pliers, STD-664 to connect the electrical connector [1] to the pressure indicator [2] (TASK 70-00-01-910-803-G00).
 - (a) Remove the protective covers from the electrical receptacle of the pressure indicator [2] and the electrical connector [1].
 - (b) Connect the electrical connector [1] to the pressure indicator [2].
 - 1) Tighten the connector with the teflon-jawed pliers, STD-664.

SUBTASK 36-21-02-420-003

- (4) Install the bleed air control panel [6] into the P5 panel frame.
 - (a) Engage the quarter turn fasteners [5] (6 locations).

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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-21-02

Page 405
Sep 15/2022



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

F. Dual Duct Pressure Indicator Test

SUBTASK 36-21-02-420-004

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00077	AIR CONDITIONING BLEED AIR PRESS IND

SUBTASK 36-21-02-860-002

- (2) Do this task: Supply Pressure to the Pneumatic System (Selection), TASK 36-00-00-860-801.

SUBTASK 36-21-02-860-003

- (3) Put the isolation valve switch on the bleed air control panel [6] to open.

SUBTASK 36-21-02-860-004

- (4) Make sure that the L and R duct pressure needles on the pressure indicator show approximately the same pressure.

SUBTASK 36-21-02-860-005

- (5) Put the isolation valve switch on the bleed air control panel [6] to CLOSED.

SUBTASK 36-21-02-860-006

- (6) Make sure that one of the duct pressure needles shows a decrease in pressure.

G. Put the Airplane To Its Usual Condition

SUBTASK 36-21-02-860-007

- (1) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

————— **END OF TASK** —————

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D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

36-21-02

Page 406
May 15/2022