

CHAPTER

29

**HYDRAULIC
POWER**



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

CHAPTER 29
HYDRAULIC POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-EFFECTIVE PAGES			29-00-00 (cont)			29-00-00 (cont)		
1 thru 8	Sep 15/2023		O 218	Sep 15/2023		623	Sep 15/2022	
29-CONTENTS			O 219	Sep 15/2023		624	Sep 15/2022	
O 1	Sep 15/2023		O 220	Sep 15/2023		625	May 15/2023	
2	Sep 15/2021		O 221	Sep 15/2023		R 626	Sep 15/2023	
3	Sep 15/2021		O 222	Sep 15/2023		O 627	Sep 15/2023	
O 4	Sep 15/2023		R 223	Sep 15/2023		R 628	Sep 15/2023	
5	May 15/2023		O 224	Sep 15/2023		629	Sep 15/2022	
6	Jan 15/2023		R 225	Sep 15/2023		630	Sep 15/2022	
O 7	Sep 15/2023		R 226	Sep 15/2023		631	Sep 15/2022	
O 8	Sep 15/2023		O 227	Sep 15/2023		632	Sep 15/2022	
9	Jan 15/2023		R 228	Sep 15/2023		633	Sep 15/2022	
10	Sep 15/2022		R 229	Sep 15/2023		634	Sep 15/2022	
O 11	Sep 15/2023		R 230	Sep 15/2023		635	Sep 15/2022	
O 12	Sep 15/2023		29-00-00			636	Sep 15/2022	
O 13	Sep 15/2023		R 601	Sep 15/2023		637	Sep 15/2022	
O 14	Sep 15/2023		R 602	Sep 15/2023		638	Sep 15/2022	
O 15	Sep 15/2023		O 603	Sep 15/2023		639	Sep 15/2022	
O 16	Sep 15/2023		604	May 15/2022		640	Sep 15/2022	
29-00-00			R 605	Sep 15/2023		641	Sep 15/2022	
201	Sep 15/2021		R 606	Sep 15/2023		642	Sep 15/2022	
202	Sep 15/2021		R 607	Sep 15/2023		643	Sep 15/2022	
203	Sep 15/2021		R 608	Sep 15/2023		644	May 15/2023	
R 204	Sep 15/2023		R 609	Sep 15/2023		R 645	Sep 15/2023	
205	Jan 15/2022		610	May 15/2023		O 646	Sep 15/2023	
206	Jan 15/2022		R 611	Sep 15/2023		O 647	Sep 15/2023	
R 207	Sep 15/2023		R 612	Sep 15/2023		O 648	Sep 15/2023	
R 208	Sep 15/2023		R 613	Sep 15/2023		O 649	Sep 15/2023	
O 209	Sep 15/2023		R 614	Sep 15/2023		R 650	Sep 15/2023	
O 210	Sep 15/2023		R 615	Sep 15/2023		O 651	Sep 15/2023	
O 211	Sep 15/2023		R 616	Sep 15/2023		O 652	Sep 15/2023	
O 212	Sep 15/2023		R 617	Sep 15/2023		O 653	Sep 15/2023	
O 213	Sep 15/2023		R 618	Sep 15/2023		O 654	Sep 15/2023	
O 214	Sep 15/2023		R 619	Sep 15/2023		O 655	Sep 15/2023	
O 215	Sep 15/2023		620	Jan 15/2023		O 656	Sep 15/2023	
O 216	Sep 15/2023		621	Sep 15/2022		O 657	Sep 15/2023	
O 217	Sep 15/2023		622	Sep 15/2022		O 658	Sep 15/2023	

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

29-EFFECTIVE PAGES



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

CHAPTER 29
HYDRAULIC POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-00-00 (cont)			29-00-00 (cont)			29-09-00 (cont)		
O 659	Sep 15/2023		O 695	Sep 15/2023		R 207	Sep 15/2023	
O 660	Sep 15/2023		O 696	Sep 15/2023		208	BLANK	
O 661	Sep 15/2023		697	Sep 15/2022		29-09-00		
O 662	Sep 15/2023		R 698	Sep 15/2023		501	Sep 15/2021	
O 663	Sep 15/2023		O 698.1	Sep 15/2023		502	Sep 15/2021	
O 664	Sep 15/2023		O 698.2	Sep 15/2023		29-09-01		
O 665	Sep 15/2023		O 698.3	Sep 15/2023		201	May 15/2023	
O 666	Sep 15/2023		O 698.4	Sep 15/2023		202	Sep 15/2021	
O 667	Sep 15/2023		O 698.5	Sep 15/2023		203	Sep 15/2021	
O 668	Sep 15/2023		O 698.6	Sep 15/2023		204	Sep 15/2021	
O 669	Sep 15/2023		O 698.7	Sep 15/2023		205	Sep 15/2021	
O 670	Sep 15/2023		O 698.8	Sep 15/2023		206	Sep 15/2021	
O 671	Sep 15/2023		O 698.9	Sep 15/2023		R 207	Sep 15/2023	
O 672	Sep 15/2023		O 698.10	Sep 15/2023		R 208	Sep 15/2023	
O 673	Sep 15/2023		O 698.11	Sep 15/2023		209	Sep 15/2021	
R 674	Sep 15/2023		O 698.12	Sep 15/2023		210	May 15/2023	
R 675	Sep 15/2023		29-00-00			211	Sep 15/2021	
R 676	Sep 15/2023		701	Sep 15/2022		212	Sep 15/2021	
R 677	Sep 15/2023		702	Sep 15/2021		R 213	Sep 15/2023	
R 678	Sep 15/2023		29-00-00			R 214	Sep 15/2023	
R 679	Sep 15/2023		901	May 15/2023		215	Sep 15/2021	
R 680	Sep 15/2023		902	Sep 15/2021		216	BLANK	
R 681	Sep 15/2023		903	May 15/2023		29-09-02		
O 682	Sep 15/2023		904	Sep 15/2021		201	May 15/2023	
R 683	Sep 15/2023		905	Sep 15/2021		202	Sep 15/2021	
R 684	Sep 15/2023		906	Sep 15/2021		203	Sep 15/2021	
R 685	Sep 15/2023		907	Sep 15/2021		204	Sep 15/2021	
R 686	Sep 15/2023		908	Sep 15/2021		205	Sep 15/2021	
R 687	Sep 15/2023		909	Sep 15/2021		206	May 15/2023	
688	Sep 15/2022		910	BLANK		207	Sep 15/2021	
689	Sep 15/2022		29-09-00			208	BLANK	
690	Sep 15/2022		201	May 15/2023		29-09-03		
691	Sep 15/2022		R 202	Sep 15/2023		401	May 15/2023	
692	Sep 15/2022		R 203	Sep 15/2023		402	Sep 15/2021	
693	May 15/2023		204	Sep 15/2021		403	Sep 15/2021	
R 694	Sep 15/2023		205	Sep 15/2021		404	Sep 15/2021	
			R 206	Sep 15/2023		405	May 15/2023	

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

29-EFFECTIVE PAGES



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

CHAPTER 29
HYDRAULIC POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-09-03 (cont)			29-11-00 (cont)			29-11-04 (cont)		
406	BLANK		R 216	Sep 15/2023		406	Sep 15/2021	
29-09-04			O 217	Sep 15/2023		407	Sep 15/2021	
201	Jan 15/2023		O 218	Sep 15/2023		408	Sep 15/2021	
202	Sep 15/2021		O 219	Sep 15/2023		409	Sep 15/2021	
203	Sep 15/2021		O 220	Sep 15/2023		410	Sep 15/2021	
204	Sep 15/2021		O 221	Sep 15/2023		411	Sep 15/2021	
205	Sep 15/2021		O 222	Sep 15/2023		412	Sep 15/2021	
206	Sep 15/2021		O 223	Sep 15/2023		413	Sep 15/2021	
29-09-05			O 224	Sep 15/2023		414	Sep 15/2021	
201	Sep 15/2021		O 225	Sep 15/2023		415	Sep 15/2021	
202	Jan 15/2023		O 226	Sep 15/2023		416	Sep 15/2021	
203	Sep 15/2021		A 227	Sep 15/2023		417	Sep 15/2021	
204	Sep 15/2021		A 228	BLANK		418	Sep 15/2021	
205	Sep 15/2021		29-11-00			R 419	Sep 15/2023	
206	Sep 15/2021		R 501	Sep 15/2023		R 420	Sep 15/2023	
207	Sep 15/2021		R 502	Sep 15/2023		R 421	Sep 15/2023	
208	Jan 15/2023		O 503	Sep 15/2023		R 422	Sep 15/2023	
209	Sep 15/2021		R 504	Sep 15/2023		R 423	Sep 15/2023	
210	Sep 15/2021		R 505	Sep 15/2023		424	Jan 15/2023	
211	Sep 15/2021		R 506	Sep 15/2023		R 425	Sep 15/2023	
212	Sep 15/2021		R 507	Sep 15/2023		426	BLANK	
29-11-00			508	Sep 15/2022		29-11-04		
201	Sep 15/2021		R 509	Sep 15/2023		601	May 15/2023	
202	May 15/2023		510	BLANK		602	May 15/2023	
203	May 15/2022		29-11-00			603	Sep 15/2021	
204	May 15/2022		R 601	Sep 15/2023		604	BLANK	
205	Jan 15/2022		R 602	Sep 15/2023		29-11-08		
206	Jan 15/2022		R 603	Sep 15/2023		201	Sep 15/2021	
207	Jan 15/2023		O 604	Sep 15/2023		202	Sep 15/2021	
208	Jan 15/2023		O 605	Sep 15/2023		203	Sep 15/2021	
209	Jan 15/2023		R 606	Sep 15/2023		204	Sep 15/2021	
210	Jan 15/2022		29-11-04			205	Sep 15/2021	
211	Jan 15/2022		R 401	Sep 15/2023		206	Sep 15/2021	
R 212	Sep 15/2023		402	Jan 15/2023		207	Sep 15/2021	
R 213	Sep 15/2023		R 403	Sep 15/2023		208	May 15/2023	
R 214	Sep 15/2023		404	Jan 15/2023		209	Sep 15/2021	
O 215	Sep 15/2023		405	Sep 15/2021		210	Sep 15/2021	

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

29-EFFECTIVE PAGES



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

CHAPTER 29
HYDRAULIC POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-11-08 (cont)			29-11-11 (cont)			29-11-21 (cont)		
211	Sep 15/2021		504	BLANK		A 512	Sep 15/2023	
212	Sep 15/2021		29-11-21			29-11-27		
213	May 15/2023		201	Jan 15/2023		R 401	Sep 15/2023	
214	Sep 15/2021		202	Jan 15/2023		O 402	Sep 15/2023	
29-11-11			203	Jan 15/2023		O 403	Sep 15/2023	
401	Sep 15/2021		204	Jan 15/2023		404	May 15/2022	
402	Jan 15/2023		205	Jan 15/2023		405	Jan 15/2023	
403	Jan 15/2023		206	Jan 15/2023		406	Jan 15/2023	
R 404	Sep 15/2023		29-11-21			R 407	Sep 15/2023	
R 405	Sep 15/2023		401	Jan 15/2023		R 408	Sep 15/2023	
406	Sep 15/2022		402	Jan 15/2023		409	Jan 15/2023	
407	Sep 15/2022		403	Jan 15/2023		410	BLANK	
408	Jan 15/2023		404	Jan 15/2023		29-11-31		
409	Sep 15/2022		405	Jan 15/2023		401	May 15/2022	
410	Jan 15/2023		406	Jan 15/2023		402	May 15/2022	
411	Sep 15/2022		407	Jan 15/2023		403	Sep 15/2021	
R 412	Sep 15/2023		408	Jan 15/2023		404	Sep 15/2021	
R 413	Sep 15/2023		409	Jan 15/2023		405	May 15/2022	
R 414	Sep 15/2023		410	May 15/2023		406	May 15/2022	
R 415	Sep 15/2023		411	Jan 15/2023		407	May 15/2023	
R 416	Sep 15/2023		412	Jan 15/2023		408	Sep 15/2022	
R 417	Sep 15/2023		413	Jan 15/2023		409	May 15/2022	
O 418	Sep 15/2023		414	Jan 15/2023		410	May 15/2022	
419	May 15/2023		415	Jan 15/2023		411	May 15/2022	
420	May 15/2023		416	Jan 15/2023		412	May 15/2022	
421	May 15/2023		29-11-21			413	May 15/2022	
422	May 15/2023		501	Sep 15/2021		414	May 15/2023	
423	May 15/2023		R 502	Sep 15/2023		415	May 15/2023	
424	May 15/2023		R 503	Sep 15/2023		416	May 15/2023	
425	May 15/2023		R 504	Sep 15/2023		417	May 15/2022	
426	May 15/2023		R 505	Sep 15/2023		418	May 15/2022	
427	May 15/2023		R 506	Sep 15/2023		29-11-41		
428	May 15/2023		R 507	Sep 15/2023		R 401	Sep 15/2023	
29-11-11			R 508	Sep 15/2023		R 402	Sep 15/2023	
501	May 15/2022		R 509	Sep 15/2023		R 403	Sep 15/2023	
502	May 15/2022		R 510	Sep 15/2023		404	Jan 15/2023	
503	Sep 15/2021		A 511	Sep 15/2023		405	Jan 15/2023	

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

29-EFFECTIVE PAGES



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

**CHAPTER 29
HYDRAULIC POWER**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-11-41 (cont)			29-11-55 (cont)			29-11-61		
406	Jan 15/2023		403	Jan 15/2023		401	Sep 15/2021	
R 407	Sep 15/2023		404	Jan 15/2023		R 402	Sep 15/2023	
R 408	Sep 15/2023		405	Sep 15/2021		403	Sep 15/2021	
R 409	Sep 15/2023		406	Sep 15/2021		404	Sep 15/2021	
R 410	Sep 15/2023		407	May 15/2023		R 405	Sep 15/2023	
O 411	Sep 15/2023		R 408	Sep 15/2023		R 406	Sep 15/2023	
R 412	Sep 15/2023		O 409	Sep 15/2023		O 407	Sep 15/2023	
R 413	Sep 15/2023		410	Sep 15/2021		O 408	Sep 15/2023	
O 414	Sep 15/2023		411	Sep 15/2021		O 409	Sep 15/2023	
R 415	Sep 15/2023		412	Jan 15/2023		O 410	Sep 15/2023	
R 416	Sep 15/2023		413	Jan 15/2023		O 411	Sep 15/2023	
29-11-41			414	Jan 15/2023		412	BLANK	
601	Sep 15/2021		415	Jan 15/2023		29-11-61		
602	Sep 15/2021		416	Jan 15/2023		601	Sep 15/2021	
29-11-51			29-11-55			602	Sep 15/2021	
R 401	Sep 15/2023		601	May 15/2023		603	Sep 15/2021	
R 402	Sep 15/2023		R 602	Sep 15/2023		604	Sep 15/2021	
R 403	Sep 15/2023		603	Jan 15/2023		29-11-71		
R 404	Sep 15/2023		R 604	Sep 15/2023		401	May 15/2023	
R 405	Sep 15/2023		605	Jan 15/2023		402	May 15/2023	
R 406	Sep 15/2023		606	Jan 15/2023		403	May 15/2023	
R 407	Sep 15/2023		607	Jan 15/2023		404	May 15/2023	
R 408	Sep 15/2023		608	Jan 15/2023		405	Jan 15/2023	
O 409	Sep 15/2023		29-11-55			406	Jan 15/2023	
O 410	Sep 15/2023		801	Jan 15/2022		407	Jan 15/2023	
O 411	Sep 15/2023		R 802	Sep 15/2023		408	May 15/2023	
O 412	Sep 15/2023		803	Jan 15/2023		409	May 15/2023	
O 413	Sep 15/2023		804	Jan 15/2023		410	May 15/2023	
R 414	Sep 15/2023		805	Jan 15/2023		411	May 15/2023	
R 415	Sep 15/2023		806	Jan 15/2023		412	May 15/2023	
O 416	Sep 15/2023		807	Jan 15/2023		413	May 15/2023	
29-11-51			808	Jan 15/2023		414	May 15/2023	
601	Sep 15/2021		809	Jan 15/2023		415	May 15/2023	
602	Sep 15/2021		810	Jan 15/2023		416	May 15/2023	
29-11-55			811	Jan 15/2023		417	May 15/2023	
R 401	Sep 15/2023		812	BLANK		418	Jan 15/2023	
O 402	Sep 15/2023					419	Jan 15/2023	

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

29-EFFECTIVE PAGES



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

CHAPTER 29
HYDRAULIC POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-11-71 (cont)			29-11-91 (cont)			29-21-00 (cont)		
420	Jan 15/2023		R 406	Sep 15/2023		R 504	Sep 15/2023	
421	Jan 15/2023		29-18-01			R 505	Sep 15/2023	
422	Jan 15/2023		401	Sep 15/2022		R 506	Sep 15/2023	
423	May 15/2023		402	Sep 15/2022		R 507	Sep 15/2023	
424	Jan 15/2023		403	Sep 15/2022		R 508	Sep 15/2023	
425	Jan 15/2023		404	Sep 15/2022		O 509	Sep 15/2023	
426	May 15/2023		405	Sep 15/2022		O 510	Sep 15/2023	
427	Jan 15/2023		406	Sep 15/2022		O 511	Sep 15/2023	
428	May 15/2023		407	Sep 15/2022		O 512	Sep 15/2023	
429	Jan 15/2023		408	BLANK		O 513	Sep 15/2023	
430	Jan 15/2023		29-18-11			R 514	Sep 15/2023	
431	Jan 15/2023		401	Sep 15/2021		R 515	Sep 15/2023	
432	May 15/2023		402	Sep 15/2021		R 516	Sep 15/2023	
433	Jan 15/2023		403	Sep 15/2021		R 517	Sep 15/2023	
434	BLANK		404	Jan 15/2022		R 518	Sep 15/2023	
29-11-81			405	Jan 15/2022		A 519	Sep 15/2023	
401	Sep 15/2021		406	Jan 15/2022		A 520	Sep 15/2023	
402	Sep 15/2021		407	Sep 15/2021		A 521	Sep 15/2023	
403	Sep 15/2021		408	Sep 15/2021		A 522	BLANK	
404	Sep 15/2021		409	Sep 15/2021		29-21-21		
405	Sep 15/2021		410	Sep 15/2021		R 401	Sep 15/2023	
406	May 15/2023		29-18-21			R 402	Sep 15/2023	
407	May 15/2023		401	Sep 15/2021		R 403	Sep 15/2023	
408	May 15/2023		402	Sep 15/2021		O 404	Sep 15/2023	
409	May 15/2023		403	Sep 15/2021		O 405	Sep 15/2023	
410	BLANK		404	Sep 15/2021		R 406	Sep 15/2023	
29-11-81			405	Sep 15/2021		R 407	Sep 15/2023	
501	Sep 15/2021		406	Sep 15/2021		R 408	Sep 15/2023	
502	Sep 15/2021		29-21-00			R 409	Sep 15/2023	
503	Sep 15/2021		R 201	Sep 15/2023		R 410	Sep 15/2023	
504	Sep 15/2021		R 202	Sep 15/2023		29-21-31		
29-11-91			203	Sep 15/2021		401	Sep 15/2022	
R 401	Sep 15/2023		R 204	Sep 15/2023		402	Sep 15/2022	
R 402	Sep 15/2023		29-21-00			403	Sep 15/2022	
403	Sep 15/2021		R 501	Sep 15/2023		404	Sep 15/2022	
R 404	Sep 15/2023		R 502	Sep 15/2023		405	Sep 15/2021	
R 405	Sep 15/2023		R 503	Sep 15/2023		406	Sep 15/2021	

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

29-EFFECTIVE PAGES



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

CHAPTER 29
HYDRAULIC POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-21-31 (cont)			29-21-51 (cont)			29-22-21 (cont)		
R 407	Sep 15/2023		416	BLANK		A 412	BLANK	
408	May 15/2023		29-22-00			29-22-31		
409	Sep 15/2022		R 501	Sep 15/2023		401	Jan 15/2022	
410	Jan 15/2023		502	Sep 15/2021		402	Jan 15/2022	
411	Sep 15/2022		503	Sep 15/2021		403	Sep 15/2021	
412	BLANK		R 504	Sep 15/2023		404	Sep 15/2021	
29-21-41			R 505	Sep 15/2023		R 405	Sep 15/2023	
R 401	Sep 15/2023		R 506	Sep 15/2023		R 406	Sep 15/2023	
R 402	Sep 15/2023		O 507	Sep 15/2023		R 407	Sep 15/2023	
R 403	Sep 15/2023		O 508	Sep 15/2023		R 408	Sep 15/2023	
O 404	Sep 15/2023		R 509	Sep 15/2023		A 409	Sep 15/2023	
O 405	Sep 15/2023		R 510	Sep 15/2023		A 410	BLANK	
O 406	Sep 15/2023		R 511	Sep 15/2023		29-22-41		
R 407	Sep 15/2023		O 512	Sep 15/2023		R 401	Sep 15/2023	
R 408	Sep 15/2023		29-22-11			402	Sep 15/2021	
R 409	Sep 15/2023		R 401	Sep 15/2023		403	Sep 15/2021	
R 410	Sep 15/2023		R 402	Sep 15/2023		404	Sep 15/2021	
R 411	Sep 15/2023		R 403	Sep 15/2023		R 405	Sep 15/2023	
R 412	Sep 15/2023		O 404	Sep 15/2023		R 406	Sep 15/2023	
A 413	Sep 15/2023		O 405	Sep 15/2023		R 407	Sep 15/2023	
A 414	Sep 15/2023		R 406	Sep 15/2023		R 408	Sep 15/2023	
29-21-51			R 407	Sep 15/2023		A 409	Sep 15/2023	
R 401	Sep 15/2023		R 408	Sep 15/2023		A 410	BLANK	
R 402	Sep 15/2023		A 409	Sep 15/2023		29-22-51		
403	Sep 15/2021		A 410	BLANK		R 401	Sep 15/2023	
404	Sep 15/2021		29-22-21			R 402	Sep 15/2023	
R 405	Sep 15/2023		401	Sep 15/2022		O 403	Sep 15/2023	
R 406	Sep 15/2023		402	Sep 15/2022		O 404	Sep 15/2023	
R 407	Sep 15/2023		403	Sep 15/2021		R 405	Sep 15/2023	
R 408	Sep 15/2023		404	Sep 15/2021		R 406	Sep 15/2023	
R 409	Sep 15/2023		405	Sep 15/2022		29-31-12		
R 410	Sep 15/2023		R 406	Sep 15/2023		401	Sep 15/2021	
R 411	Sep 15/2023		R 407	Sep 15/2023		402	Sep 15/2021	
R 412	Sep 15/2023		R 408	Sep 15/2023		403	Sep 15/2021	
O 413	Sep 15/2023		R 409	Sep 15/2023		404	Sep 15/2021	
O 414	Sep 15/2023		R 410	Sep 15/2023		405	Sep 15/2021	
O 415	Sep 15/2023		A 411	Sep 15/2023		406	Sep 15/2021	

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

29-EFFECTIVE PAGES

Page 7
Sep 15/2023

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

CHAPTER 29
HYDRAULIC POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
29-31-12 (cont)			29-33-21 (cont)			29-34-21 (cont)		
407	Sep 15/2021		403	Jan 15/2023		R 409	Sep 15/2023	
408	Sep 15/2021		404	Jan 15/2023		R 410	Sep 15/2023	
409	May 15/2022		405	Sep 15/2021		A 411	Sep 15/2023	
410	May 15/2022		406	Sep 15/2021		A 412	BLANK	
411	Sep 15/2021		407	Sep 15/2021		29-34-31		
412	Sep 15/2021		408	Sep 15/2021		R 401	Sep 15/2023	
413	May 15/2023		409	Sep 15/2021		R 402	Sep 15/2023	
R 414	Sep 15/2023		410	BLANK		403	Sep 15/2021	
415	Jan 15/2022		29-34-00			R 404	Sep 15/2023	
416	BLANK		R 501	Sep 15/2023		R 405	Sep 15/2023	
29-32-00			R 502	Sep 15/2023		R 406	Sep 15/2023	
501	Sep 15/2021		R 503	Sep 15/2023				
R 502	Sep 15/2023		R 504	Sep 15/2023				
R 503	Sep 15/2023		A 505	Sep 15/2023				
R 504	Sep 15/2023		A 506	BLANK				
505	Sep 15/2021		29-34-11					
506	Sep 15/2021		R 401	Sep 15/2023				
29-32-12			R 402	Sep 15/2023				
401	Sep 15/2022		R 403	Sep 15/2023				
402	Sep 15/2022		O 404	Sep 15/2023				
403	May 15/2023		O 405	Sep 15/2023				
404	Sep 15/2021		O 406	Sep 15/2023				
405	Sep 15/2022		O 407	Sep 15/2023				
406	Sep 15/2022		R 408	Sep 15/2023				
29-33-12			R 409	Sep 15/2023				
401	Sep 15/2021		R 410	Sep 15/2023				
402	Sep 15/2021		A 411	Sep 15/2023				
403	Sep 15/2021		A 412	BLANK				
404	Sep 15/2021		29-34-21					
405	Sep 15/2021		R 401	Sep 15/2023				
406	Sep 15/2021		R 402	Sep 15/2023				
29-33-12			R 403	Sep 15/2023				
601	Sep 15/2021		O 404	Sep 15/2023				
602	Sep 15/2021		O 405	Sep 15/2023				
29-33-21			O 406	Sep 15/2023				
401	Sep 15/2021		O 407	Sep 15/2023				
402	Jan 15/2023		R 408	Sep 15/2023				

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

29-EFFECTIVE PAGES



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>HYDRAULIC POWER - MAINTENANCE PRACTICES</u>	29-00-00		201	SIA ALL
Airworthiness Limitation Precautions TASK 29-00-00-910-801			201	SIA ALL
Hydraulic Fluid Replacement TASK 29-00-00-900-801			202	SIA ALL
Bleed the Hydraulic Systems TASK 29-00-00-870-801			221	SIA ALL
Hydraulic Power System - Deactivation TASK 29-00-00-800-801			223	SIA ALL
Hydraulic Power System - Activation TASK 29-00-00-800-802			228	SIA ALL
<u>HYDRAULIC POWER - INSPECTION/CHECK</u>	29-00-00		601	SIA ALL
Hydraulic System External Leakage Check TASK 29-00-00-790-801			601	SIA ALL
Gross Internal Leakage Check TASK 29-00-00-790-802			605	SIA ALL
System A or System B Sub-System Internal Leakage Check TASK 29-00-00-790-803			624	SIA ALL
Part Internal Leakage Check TASK 29-00-00-790-804			643	SIA ALL
Standby Hydraulic System Internal Leakage Check TASK 29-00-00-790-805			675	SIA ALL
Hydraulic System Elevator, Aileron Power Control Unit (PCU) and Leading Edge Flap and Slat Actuator Internal Leakage Check TASK 29-00-00-790-806			692	SIA ALL
<u>HYDRAULIC POWER - CLEANING/PAINTING</u>	29-00-00		701	SIA ALL
Hydraulic Components - Corrosion Protection TASK 29-00-00-916-801			701	SIA ALL
<u>HYDRAULICS - DDG MAINTENANCE PROCEDURES</u>	29-00-00		901	SIA ALL
DDG 29-09-01 Hydraulic Reservoir Pressurization System Sources Inoperative - Preparation TASK 29-00-00-040-801			901	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
DDG 29-09-01 Hydraulic Reservoir Pressurization System Sources Inoperative - Restoration TASK 29-00-00-440-801			903	SIA ALL
DDG 29-33-01 Hydraulic Systems A and B Flight Deck Quantity Indications Inoperative - Preparation TASK 29-00-00-040-803			904	SIA ALL
DDG 29-33-01 Hydraulic Systems A and B Flight Deck Quantity Indications Inoperative - Restoration TASK 29-00-00-440-803			905	SIA ALL
DDG 29-33-02 Standby System Low Quantity Indication System Inoperative - Preparation TASK 29-00-00-040-804			905	SIA ALL
DDG 29-33-02 Standby System Low Quantity Indication System Inoperative - Restoration TASK 29-00-00-440-804			906	SIA ALL
DDG 29-34-03 Standby System Pump Low Pressure Indication Inoperative - Preparation TASK 29-00-00-040-807			908	SIA ALL
DDG 29-34-03 Standby System Pump Low Pressure Indication Inoperative - Restoration TASK 29-00-00-440-807			909	SIA ALL
<u>HYDRAULIC RESERVOIR PRESSURIZATION SYSTEM - MAINTENANCE PRACTICES</u>	29-09-00		201	SIA ALL
Hydraulic Reservoirs Pressurization TASK 29-09-00-860-801			201	SIA ALL
Hydraulic Reservoirs Depressurization TASK 29-09-00-860-802			206	SIA ALL
<u>HYDRAULIC RESERVOIR PRESSURIZATION SYSTEM - ADJUSTMENT/TEST</u>	29-09-00		501	SIA ALL
Hydraulic Reservoir Pressurization System Leakage Test TASK 29-09-00-860-803			501	SIA ALL
<u>AIR PRESSURE FILTER ASSEMBLY - MAINTENANCE PRACTICES</u>	29-09-01		201	SIA ALL
Air Pressure Filter Assembly Removal TASK 29-09-01-000-801			201	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Air Pressure Filter Assembly Installation TASK 29-09-01-400-801			207	SIA ALL
Secondary Check Valve Removal TASK 29-09-01-000-802			208	SIA ALL
Secondary Check Valve Installation TASK 29-09-01-400-802			210	SIA ALL
Air Pressure Filter Element Removal TASK 29-09-01-000-803			211	SIA ALL
Air Pressure Filter Element Installation TASK 29-09-01-400-803			213	SIA ALL
<u>AIR CHARGING VALVE MANIFOLD ASSEMBLY - MAINTENANCE PRACTICES</u>	29-09-02		201	SIA ALL
Air Charging Valve Manifold Assembly - Removal TASK 29-09-02-000-801			201	SIA ALL
Air Charging Valve Manifold Assembly - Installation TASK 29-09-02-400-801			206	SIA ALL
<u>AIR PRESSURE GAUGE - REMOVAL/INSTALLATION</u>	29-09-03		401	SIA ALL
Air Pressure Gauge - Removal TASK 29-09-03-000-801			401	SIA ALL
Air Pressure Gauge - Installation TASK 29-09-03-400-801			405	SIA ALL
<u>CROSS FITTING ASSEMBLY - MAINTENANCE PRACTICES</u>	29-09-04		201	SIA ALL
Cross Fitting Assembly Removal TASK 29-09-04-000-801			201	SIA ALL
Cross Fitting Assembly Installation TASK 29-09-04-400-801			205	SIA ALL
<u>PRESSURE RELIEF VALVE - MAINTENANCE PRACTICES</u>	29-09-05		201	SIA ALL
Pressure Relief Valve Removal TASK 29-09-05-000-801			201	SIA ALL
Pressure Relief Valve Installation TASK 29-09-05-400-801			206	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Pressure Relief Valve Operational Test TASK 29-09-05-700-801			207	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B - MAINTENANCE PRACTICES</u>	29-11-00		201	SIA ALL
Hydraulic System A or B Pressurization TASK 29-11-00-860-801			201	SIA ALL
Hydraulic System A or B Pressurization with a Portable Hydraulic Cart TASK 29-11-00-860-802			202	SIA ALL
Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) TASK 29-11-00-860-803			207	SIA ALL
Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) TASK 29-11-00-860-804			211	SIA ALL
Hydraulic System A or B Power Removal TASK 29-11-00-860-805			212	SIA ALL
Hydraulic System A or B Flushing TASK 29-11-00-170-801			214	SIA ALL
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning TASK 29-11-00-100-801			217	SIA ALL
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Inspection and Corrosion Repair TASK 29-11-00-300-801			222	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B - ADJUSTMENT/TEST</u>	29-11-00		501	SIA ALL
Operational Test of the Hydraulic Systems A and B TASK 29-11-00-700-801			501	SIA ALL
System Test of the Hydraulic Systems A and B TASK 29-11-00-700-802			504	SIA ALL
<u>HYDRAULIC SYSTEMS A, B, AND STANDBY - INSPECTION/CHECK</u>	29-11-00		601	SIA ALL
Hydraulic Fluid Check TASK 29-11-00-200-801			601	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>HEAT EXCHANGER - REMOVAL/INSTALLATION</u>	29-11-04		401	SIA ALL
Heat Exchanger Removal TASK 29-11-04-000-801			401	SIA ALL
Heat Exchanger Installation TASK 29-11-04-400-801			418	SIA ALL
<u>HEAT EXCHANGER - INSPECTION/CHECK</u>	29-11-04		601	SIA ALL
Hydraulic Lines to Heat Exchanger - Bonding Resistance Check TASK 29-11-04-200-801			601	SIA ALL
<u>GROUND SERVICE DISCONNECT FILTER - MAINTENANCE PRACTICES</u>	29-11-08		201	SIA ALL
Ground Service Disconnect Filter - Removal TASK 29-11-08-000-801			201	SIA ALL
Ground Service Disconnect Filter - Installation TASK 29-11-08-400-801			206	SIA ALL
Ground Service Disconnect Filter Module - Removal TASK 29-11-08-000-802			208	SIA ALL
Ground Service Disconnect Filter Module - Installation TASK 29-11-08-400-802			213	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B ENGINE-DRIVEN PUMP (EDP) - REMOVAL/INSTALLATION</u>	29-11-11		401	SIA ALL
Hydraulic Systems A and B Engine-Driven Pump (EDP) Removal TASK 29-11-11-000-801			401	SIA ALL
Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation TASK 29-11-11-400-801			412	SIA ALL
Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Valve Solenoid Removal TASK 29-11-11-000-802			422	SIA ALL
Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Valve Solenoid Installation TASK 29-11-11-400-802			427	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>HYDRAULIC SYSTEMS A AND B ENGINE-DRIVEN PUMP (EDP) - ADJUSTMENT/TEST</u>	29-11-11		501	SIA ALL
Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Solenoid Valve - Operational Check TASK 29-11-11-710-801			501	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR-DRIVEN PUMP (EMDP) - MAINTENANCE PRACTICES</u>	29-11-21		201	SIA ALL
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) - Deactivation TASK 29-11-21-800-801			201	SIA ALL
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) - Activation TASK 29-11-21-800-802			205	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR-DRIVEN PUMP (EMDP) - REMOVAL/INSTALLATION</u>	29-11-21		401	SIA ALL
Electric Motor-Driven Pump (EMDP) Removal TASK 29-11-21-000-801			401	SIA ALL
Electric Motor-Driven Pump (EMDP) Installation TASK 29-11-21-400-801			410	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR DRIVEN PUMP (EMDP) - ADJUSTMENT/TEST</u>	29-11-21		501	SIA ALL
Electric Motor-Driven Pump (EMDP) Test TASK 29-11-21-700-801			501	SIA ALL
Ground Fault Protection System Test TASK 29-11-21-700-802			502	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR-DRIVEN PUMP (EMDP) ACOUSTIC FILTER - REMOVAL/INSTALLATION</u>	29-11-27		401	SIA ALL
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal TASK 29-11-27-000-801			401	SIA ALL
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation TASK 29-11-27-400-801			407	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>HYDRAULIC SYSTEMS A AND B RESERVOIRS - REMOVAL/INSTALLATION</u>	29-11-31		401	SIA ALL
Hydraulic System A Reservoir Removal TASK 29-11-31-000-801			401	SIA ALL
Hydraulic System A Reservoir Installation TASK 29-11-31-400-801			407	SIA ALL
Hydraulic System B Reservoir Removal TASK 29-11-31-000-802			411	SIA ALL
Hydraulic System B Reservoir Installation TASK 29-11-31-400-802			413	SIA ALL
<u>SYSTEMS A AND B ELECTRIC MOTOR DRIVEN PUMP (EMDP) CASE DRAIN FILTER MODULE AND COMPONENTS - REMOVAL/INSTALLATION</u>	29-11-41		401	SIA ALL
EMDP Case Drain Filter Element Removal TASK 29-11-41-000-801			401	SIA ALL
EMDP Case Drain Filter Element Installation TASK 29-11-41-400-801			407	SIA ALL
EMDP Case Drain Filter Module Removal TASK 29-11-41-000-802			410	SIA ALL
EMDP Case Drain Filter Module Installation TASK 29-11-41-400-802			412	SIA ALL
EMDP Case Drain Filter - Metal Contamination Check TASK 29-11-41-700-801			414	SIA ALL
<u>SYSTEMS A AND B ELECTRIC MOTOR DRIVEN PUMP (EMDP) CASE DRAIN FILTER MODULE AND COMPONENTS - INSPECTION/CHECK</u>	29-11-41		601	SIA ALL
EMDP Case Drain Filter Element and Bowl Inspection TASK 29-11-41-200-801			601	SIA ALL
<u>ENGINE DRIVEN PUMP (EDP) CASE DRAIN FILTER MODULE AND COMPONENTS - REMOVAL/INSTALLATION</u>	29-11-51		401	SIA ALL
EDP Case Drain Filter Element Removal TASK 29-11-51-000-801			401	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
EDP Case Drain Filter Element Installation TASK 29-11-51-400-801			407	SIA ALL
EDP Case Drain Filter Module Removal TASK 29-11-51-000-802			409	SIA ALL
EDP Case Drain Filter Module Installation TASK 29-11-51-400-802			414	SIA ALL
<u>ENGINE DRIVEN PUMP (EDP) CASE DRAIN FILTER MODULE AND COMPONENTS - INSPECTION/CHECK</u>	29-11-51		601	SIA ALL
EDP Case Drain Filter Element and Bowl Inspection TASK 29-11-51-200-801			601	SIA ALL
<u>BULKHEAD FITTINGS - REMOVAL/INSTALLATION</u>	29-11-55		401	SIA ALL
Bulkhead Fitting Removal TASK 29-11-55-000-801			401	SIA ALL
Bulkhead Fitting Installation TASK 29-11-55-400-801			407	SIA ALL
<u>BULKHEAD FITTINGS - INSPECTION/CHECK</u>	29-11-55		601	SIA ALL
Bulkhead Fittings to Spar and Hydraulic Lines - Bonding Resistance Check TASK 29-11-55-700-801			601	SIA ALL
<u>BULKHEAD FITTINGS - REPAIRS</u>	29-11-55		801	SIA ALL
Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond TASK 29-11-55-300-801			801	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B RETURN FILTER MODULE AND COMPONENTS - REMOVAL/INSTALLATION</u>	29-11-61		401	SIA ALL
Return Filter Element Removal TASK 29-11-61-000-801			401	SIA ALL
Return Filter Element Installation TASK 29-11-61-400-801			406	SIA ALL
Return Filter Module Removal TASK 29-11-61-000-802			407	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Return Filter Module Installation TASK 29-11-61-400-802			409	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B RETURN FILTER MODULE - INSPECTION/CHECK</u>	29-11-61		601	SIA ALL
Hydraulic Systems A and B Return Filter Modules Differential Pressure Indicator - Visual Check TASK 29-11-61-210-801			601	SIA ALL
Hydraulic Systems A and B Return Filter Element - Inspection TASK 29-11-61-200-801			604	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B PRESSURE MODULE AND COMPONENTS - REMOVAL/INSTALLATION</u>	29-11-71		401	SIA ALL
Hydraulic Systems A and B Pressure Module Removal TASK 29-11-71-000-801			401	SIA ALL
Hydraulic Systems A and B Pressure Module Installation TASK 29-11-71-400-801			409	SIA ALL
Hydraulic Systems A and B Pressure Module Filter Element Removal TASK 29-11-71-000-802			415	SIA ALL
Hydraulic Systems A and B Pressure Module Filter Element Installation TASK 29-11-71-400-802			420	SIA ALL
Hydraulic Systems A and B Pressure Module Check Valve Removal TASK 29-11-71-000-803			422	SIA ALL
Hydraulic Systems A and B Pressure Module Check Valve Installation TASK 29-11-71-400-803			426	SIA ALL
Hydraulic Systems A and B Pressure Module Relief Valve Removal TASK 29-11-71-000-804			428	SIA ALL
Hydraulic Systems A and B Pressure Module Relief Valve Installation TASK 29-11-71-400-804			432	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>ENGINE DRIVEN PUMP (EDP) SUPPLY SHUTOFF VALVE - REMOVAL/INSTALLATION</u>	29-11-81		401	SIA ALL
EDP Supply Shutoff Valve Removal TASK 29-11-81-000-801			401	SIA ALL
EDP Supply Shutoff Valve Installation TASK 29-11-81-400-801			406	SIA ALL
<u>ENGINE DRIVEN PUMP (EDP) SUPPLY SHUTOFF VALVE - OPERATIONAL TEST</u>	29-11-81		501	SIA ALL
EDP Supply Shutoff Valve Operational Test TASK 29-11-81-710-802			501	SIA ALL
<u>HYDRAULIC PUMPS MODULE, P5-8 - REMOVAL/INSTALLATION</u>	29-11-91		401	SIA ALL
Removal of the Hydraulic Pumps Module, P5-8 TASK 29-11-91-000-801			401	SIA ALL
Installation of the Hydraulic Pumps Module, P5-8 TASK 29-11-91-400-801			404	SIA ALL
<u>RESERVOIR MANUAL FILL PUMP - REMOVAL/INSTALLATION</u>	29-18-01		401	SIA ALL
Reservoir Manual Fill Pump Removal TASK 29-18-01-000-801			401	SIA ALL
Reservoir Manual Fill Pump Installation TASK 29-18-01-400-801			406	SIA ALL
<u>RESERVOIR FILL FILTER MODULE AND COMPONENTS - REMOVAL/INSTALLATION</u>	29-18-11		401	SIA ALL
Reservoir Fill Filter Module Removal TASK 29-18-11-000-801			401	SIA ALL
Reservoir Fill Filter Module Installation TASK 29-18-11-400-801			406	SIA ALL
Reservoir Fill Filter Element Removal TASK 29-18-11-000-802			407	SIA ALL
Reservoir Fill Filter Element Installation TASK 29-18-11-400-802			408	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>RESERVOIR FILL SELECTOR VALVE - REMOVAL/INSTALLATION</u>	29-18-21		401	SIA ALL
Reservoir Fill Selector Valve Removal TASK 29-18-21-000-801			401	SIA ALL
Reservoir Fill Selector Valve Installation TASK 29-18-21-400-801			405	SIA ALL
<u>STANDBY HYDRAULIC SYSTEM - MAINTENANCE PRACTICES</u>	29-21-00		201	SIA ALL
Standby Hydraulic System Pressurization TASK 29-21-00-000-801			201	SIA ALL
Standby Hydraulic System Power Removal TASK 29-21-00-000-802			204	SIA ALL
<u>STANDBY HYDRAULIC SYSTEM - ADJUSTMENT/TEST</u>	29-21-00		501	SIA ALL
Operational Test of the Standby Hydraulic System TASK 29-21-00-700-801			501	SIA ALL
System Test of the Standby Hydraulic System TASK 29-21-00-700-802			508	SIA ALL
Operational Test of the Standby Hydraulic Actuation System TASK 29-21-00-700-803			514	SIA ALL
<u>STANDBY HYDRAULIC SYSTEM ELECTRIC MOTOR-DRIVEN PUMP (EMDP) - REMOVAL/INSTALLATION</u>	29-21-21		401	SIA ALL
Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Removal TASK 29-21-21-000-801			401	SIA ALL
Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation TASK 29-21-21-400-801			406	SIA ALL
<u>STANDBY HYDRAULIC SYSTEM RESERVOIR - REMOVAL/INSTALLATION</u>	29-21-31		401	SIA ALL
Standby Hydraulic System Reservoir Removal TASK 29-21-31-000-801			401	SIA ALL
Standby Hydraulic System Reservoir Installation TASK 29-21-31-400-801			407	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

CHAPTER SECTION		CONF	PAGE	EFFECT
SUBJECT	SUBJECT			
<u>STANDBY EMDP CASE DRAIN FILTER - REMOVAL/INSTALLATION</u>	29-21-41		401	SIA ALL
Standby EMDP Case Drain Filter Element Removal TASK 29-21-41-000-801			401	SIA ALL
Standby EMDP Case Drain Filter Element Installation TASK 29-21-41-400-801			407	SIA ALL
Standby EMDP Case Drain Filter Removal TASK 29-21-41-000-802			410	SIA ALL
Standby EMDP Case Drain Filter Installation TASK 29-21-41-400-802			411	SIA ALL
<u>STANDBY HYDRAULIC SYSTEM PRESSURE MODULE - REMOVAL/INSTALLATION</u>	29-21-51		401	SIA ALL
Standby Hydraulic System Pressure Module Removal TASK 29-21-51-000-801			401	SIA ALL
Standby Hydraulic System Pressure Module Installation TASK 29-21-51-400-801			406	SIA ALL
Standby Hydraulic System Pressure Module Filter Removal TASK 29-21-51-000-802			408	SIA ALL
Standby Hydraulic System Pressure Module Filter Installation TASK 29-21-51-400-802			410	SIA ALL
Standby Hydraulic System Pressure Module Relief Valve Removal TASK 29-21-51-000-803			413	SIA ALL
Standby Hydraulic System Pressure Module Relief Valve Installation TASK 29-21-51-400-803			414	SIA ALL
<u>HYDRAULIC POWER TRANSFER UNIT (PTU) SYSTEM - ADJUSTMENT/TEST</u>	29-22-00		501	SIA ALL
Power Transfer Unit Operational Test TASK 29-22-00-710-801			501	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Power Transfer Unit (PTU) System Test TASK 29-22-00-730-801			504	SIA ALL
<u>POWER TRANSFER UNIT (PTU) - REMOVAL/INSTALLATION</u>	29-22-11		401	SIA ALL
Power Transfer Unit (PTU) Removal TASK 29-22-11-000-801			401	SIA ALL
Power Transfer Unit (PTU) Installation TASK 29-22-11-400-801			406	SIA ALL
<u>PTU PRESSURE FILTER MODULE - REMOVAL/INSTALLATION</u>	29-22-21		401	SIA ALL
PTU Pressure Filter Module Removal TASK 29-22-21-000-801			401	SIA ALL
PTU Pressure Filter Module Installation TASK 29-22-21-400-801			405	SIA ALL
PTU Pressure Filter Element Removal TASK 29-22-21-000-802			406	SIA ALL
PTU Pressure Filter Element Installation TASK 29-22-21-400-802			409	SIA ALL
PTU Pressure Filter Module Operational Test TASK 29-22-21-710-801			411	SIA ALL
<u>POWER TRANSFER UNIT (PTU) CONTROL VALVE - REMOVAL/INSTALLATION</u>	29-22-31		401	SIA ALL
Power Transfer Unit (PTU) Control Valve Removal TASK 29-22-31-000-801			401	SIA ALL
Power Transfer Unit (PTU) Control Valve Installation TASK 29-22-31-400-801			405	SIA ALL
<u>ENGINE DRIVEN PUMP (EDP) PRESSURE SWITCH AUTO SLAT SYSTEM - REMOVAL/INSTALLATION</u>	29-22-41		401	SIA ALL
Engine Driven Pump (EDP) Pressure Switch Auto Slat System Removal TASK 29-22-41-000-801			401	SIA ALL
Engine Driven Pump (EDP) Pressure Switch Auto Slat System Installation TASK 29-22-41-400-801			405	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

CHAPTER		CONF	PAGE	EFFECT
SUBJECT	SECTION			
<u>SUBJECT</u>	<u>SUBJECT</u>			
<u>POWER TRANSFER UNIT (PTU) FLOW LIMITER</u>	29-22-51		401	SIA ALL
<u>ASSEMBLY - REMOVAL/INSTALLATION</u>				
Power Transfer Unit (PTU) Flow Limiter Assembly - Removal TASK 29-22-51-000-801			401	SIA ALL
Power Transfer Unit (PTU) Flow Limiter Assembly - Installation TASK 29-22-51-400-801			405	SIA ALL
<u>SYSTEM PRESSURE TRANSMITTER -</u>	29-31-12		401	SIA ALL
<u>REMOVAL/INSTALLATION</u>				
System Pressure Transmitter Removal TASK 29-31-12-000-801			401	SIA ALL
System Pressure Transmitter Installation TASK 29-31-12-400-801			407	SIA ALL
Standby System Pressure Transmitter Removal TASK 29-31-12-000-802			409	SIA ALL
Standby System Pressure Transmitter Installation TASK 29-31-12-400-802			413	SIA ALL
<u>HYDRAULIC FLUID OVERHEAT WARNING SYSTEM</u>	29-32-00		501	SIA ALL
<u>- ADJUSTMENT/TEST</u>				
Case Drain Overheat Switch Test (Preferred Method) TASK 29-32-00-730-801			501	SIA ALL
Case Drain Overheat Switch Test (Alternate Method) TASK 29-32-00-730-802			504	SIA ALL
<u>HYDRAULIC FLUID OVERHEAT WARNING SWITCH</u>	29-32-12		401	SIA ALL
<u>- REMOVAL/INSTALLATION</u>				
Hydraulic Fluid Overheat Warning Switch Removal TASK 29-32-12-000-801			401	SIA ALL
Hydraulic Fluid Overheat Warning Switch Installation TASK 29-32-12-400-801			405	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>HYDRAULIC FLUID QUANTITY TRANSMITTER/INDICATOR - REMOVAL/INSTALLATION</u>	29-33-12		401	SIA ALL
Hydraulic Fluid Quantity Transmitter/Indicator - Removal TASK 29-33-12-000-801			401	SIA ALL
Hydraulic Fluid Quantity Transmitter/Indicator - Installation TASK 29-33-12-400-801			405	SIA ALL
<u>HYDRAULIC FLUID QUANTITY TRANSMITTER/INDICATOR - INSPECTION/CHECK</u>	29-33-12		601	SIA ALL
Hydraulic Fluid Quantity Transmitter/Indicator Inspection TASK 29-33-12-200-801			601	SIA ALL
<u>STANDBY HYDRAULIC SYSTEM RESERVOIR LOW QUANTITY SWITCH - REMOVAL/INSTALLATION</u>	29-33-21		401	SIA ALL
Standby Reservoir Low Quantity Switch Removal TASK 29-33-21-000-801			401	SIA ALL
Standby Reservoir Low Quantity Switch Installation TASK 29-33-21-400-801			407	SIA ALL
<u>PUMP LOW PRESSURE WARNING SYSTEM - ADJUSTMENT/TEST</u>	29-34-00		501	SIA ALL
Pump Low Pressure Warning System Test TASK 29-34-00-700-801			501	SIA ALL
<u>HYDRAULIC SYSTEMS A AND B EDP LOW PRESSURE SWITCH - REMOVAL/INSTALLATION</u>	29-34-11		401	SIA ALL
Engine Driven Pump (EDP) Low Pressure Switch Removal TASK 29-34-11-000-801			401	SIA ALL
Engine Driven Pump (EDP) Low Pressure Switch Installation TASK 29-34-11-400-801			408	SIA ALL

29-CONTENTS



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

CHAPTER 29
HYDRAULIC POWER

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>HYDRAULIC SYSTEMS A AND B EMDP LOW PRESSURE SWITCH - REMOVAL/INSTALLATION</u>	29-34-21		401	SIA ALL
Hydraulic System A or B EMDP Low Pressure Switch Removal TASK 29-34-21-000-801			401	SIA ALL
Hydraulic System A or B EMDP Low Pressure Switch Installation TASK 29-34-21-400-801			408	SIA ALL
<u>STANDBY HYDRAULIC SYSTEM EMDP LOW PRESSURE SWITCH - REMOVAL/INSTALLATION</u>	29-34-31		401	SIA ALL
Standby System EMDP Low Pressure Switch Removal TASK 29-34-31-000-801			401	SIA ALL
Standby System EMDP Low Pressure Switch Installation TASK 29-34-31-400-801			404	SIA ALL

29-CONTENTS



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

HYDRAULIC POWER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
 - (1) Hydraulic Fluid Replacement
 - (2) Bleed the Hydraulic Systems
 - (3) Hydraulic Power System - Deactivation
 - (4) Hydraulic Power System - Activation
- B. Flush hydraulic components only with hydraulic fluid to prevent contamination of the hydraulic system.

TASK 29-00-00-910-801

2. Airworthiness Limitation Precautions

A. General

- (1) Critical Design Configuration Control Limitations (CDCCLs)
 - (a) All occurrences of CDCCLs found in this chapter of the AMM are identified by this note after each applicable CDCCL design feature:
 - 1) NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, 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 the Special Compliance Items/Airworthiness Limitations 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 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 office that is responsible for the airplane model Type Certificate, or applicable regulatory agency.
- (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 29-00-00-910-801, for important information on airworthiness limitation instructions (ALIs).

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 201
Sep 15/2021



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

- (b) Inspection features that are ALIs are defined and controlled by Special Federal Aviation Regulation (SFAR) 88, and can be found in Special Compliance Items/Airworthiness Limitations 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 office that is responsible for the airplane model Type Certificate, or applicable regulatory agency. 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 office that is responsible for the airplane model Type Certificate, or applicable regulatory agency.

B. Location Zones

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

C. Critical Design Configuration Control Limitations (CDCCLs)

SUBTASK 29-00-00-910-001



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 you follow the procedures for items identified as CDCCLs.

D. Airworthiness Limitation Instructions (ALIs)

SUBTASK 29-00-00-910-002



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 you follow the procedures for items identified as ALIs.

————— **END OF TASK** —————

TASK 29-00-00-900-801

3. Hydraulic Fluid Replacement

A. References

Reference	Title
07-10-01-580-801	Lift the Airplane on Jacks (P/B 201)
07-10-01-580-802	Lower the Airplane off Jacks (P/B 201)
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)

EFFECTIVITY
SIA ALL

29-00-00

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)

Reference	Title
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
24-22-00-860-803	Supply External Power (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-802	Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-41-000-801	EMDP Case Drain Filter Element Removal (P/B 401)
29-11-41-400-801	EMDP Case Drain Filter Element Installation (P/B 401)
29-11-51-000-801	EDP Case Drain Filter Element Removal (P/B 401)
29-11-51-400-801	EDP Case Drain Filter Element Installation (P/B 401)
29-11-61-000-801	Return Filter Element Removal (P/B 401)
29-11-61-400-801	Return Filter Element Installation (P/B 401)
29-11-71-000-802	Hydraulic Systems A and B Pressure Module Filter Element Removal (P/B 401)
29-11-71-400-802	Hydraulic Systems A and B Pressure Module Filter Element Installation (P/B 401)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
29-21-41-000-801	Standby EMDP Case Drain Filter Element Removal (P/B 401)
29-21-41-400-801	Standby EMDP Case Drain Filter Element Installation (P/B 401)
29-21-51-000-802	Standby Hydraulic System Pressure Module Filter Removal (P/B 401)
29-21-51-400-802	Standby Hydraulic System Pressure Module Filter Installation (P/B 401)
29-22-21-000-802	PTU Pressure Filter Element Removal (P/B 401)
29-22-21-400-802	PTU Pressure Filter Element Installation (P/B 401)
32-32-00-710-802	Main Landing Gear - Operational Test (P/B 501)
32-33-00-710-802	Nose Landing Gear Operational Test (P/B 501)
32-41-00-870-802	Normal (System B) Hydraulic Brake System Bleeding (P/B 201)
32-41-00-870-803	Alternate (System A) Hydraulic Brake System Bleeding (P/B 201)
32-51-00-700-801	Nose Wheel Steering System Test (Airplane on Ground) (P/B 501)
78-31-00 P/B 201	THRUST REVERSER SYSTEM - MAINTENANCE PRACTICES

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.

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 203
Sep 15/2021



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

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
SPL-6107	Drain Hose - Hydraulic Reservoir Part #: C29004-1 Supplier: 81205
STD-1154	Container - 5 Gallon (19 Liter)
STD-3901	Container - Hydraulic Fluid Resistant, 50 Gallon (190 l)
STD-15052	Union - AS21902J6
STD-15053	Union - AS21902J12
STD-15054	Reducer - AS21916J8-6
STD-15104	Union - Flareless Fitting, 1-1/4 Inch, per AS5230-2020

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
194DR	Aft Wing To Body Fairing Panel
194HL	Aft Wing To Body Fairing Panel

F. Prepare to Replace the Hydraulic Fluid

SUBTASK 29-00-00-100-001

- (1) During this replacement, if hydraulic fluid gets on the airplane, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-00-00-860-001

- (2) Make sure that hydraulic power is removed from the hydraulic systems A and B (TASK 29-11-00-860-805).

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 204
Sep 15/2023



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

SUBTASK 29-00-00-860-002

- (3) Make sure that hydraulic power is removed from the standby hydraulic system (TASK 29-21-00-000-802).

SUBTASK 29-00-00-860-003

- (4) Release the pressure from the hydraulic reservoirs (TASK 29-09-00-860-802).

SUBTASK 29-00-00-680-001

- (5) Drain the hydraulic fluid from the system A and B hydraulic reservoirs into a 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.

NOTE: Do this with the drain valve that is on the bottom of each reservoir.

SUBTASK 29-00-00-420-001

- (6) Close the drain valves.

SUBTASK 29-00-00-616-001

- (7) Drain the hydraulic fluid from the standby hydraulic system:

- (a) If necessary, get access to the standby hydraulic reservoir:

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
194HL	Aft Wing To Body Fairing Panel

- (b) Do the steps of either Method 1 or Method 2 to drain the hydraulic fluid from the standby system reservoir:

- 1) Do these steps to do Method 1:



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- Disconnect the supply line for the standby hydraulic pump at the quick-disconnect on the bottom of the standby hydraulic reservoir.
- Connect a drain hose, SPL-6107, to the quick-disconnect on the bottom of the standby reservoir.
- Put the end of the drain hose, SPL-6107, into a 5 gallon (19 liter) container, STD-1154.
- Drain the hydraulic fluid into the 5 gallon (19 liter) container, STD-1154.
- Disconnect the drain hose, SPL-6107, from the quick-disconnect on the bottom of the standby reservoir.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 205
Jan 15/2022



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



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- f) Reconnect the supply line for the standby hydraulic pump at the quick-disconnect on the bottom of the standby hydraulic reservoir.
- 2) Do these steps to do Method 2:
- a) Open this access panel to get access to the standby hydraulic system EMDP:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|--------------------------------|
| 194DR | Aft Wing To Body Fairing Panel |
- b) Put a 5 gallon (19 liter) container, STD-1154, below the standby EMDP.
- c) Disconnect the supply line at the standby EMDP.
- d) Put the disconnected end of the supply line into the 5 gallon (19 liter) container, STD-1154.
- e) Let the hydraulic fluid from the standby reservoir drain into the 5 gallon (19 liter) container, STD-1154.
- f) Reconnect the supply line to the standby EMDP.
- g) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|--------------------------------|
| 194DR | Aft Wing To Body Fairing Panel |
- (c) Drain the hydraulic fluid collected from the standby hydraulic reservoir into a 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.
- (d) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|--------------------------------|
| 194HL | Aft Wing To Body Fairing Panel |

SUBTASK 29-00-00-420-002

- (8) Close the depressurization valves.

SUBTASK 29-00-00-020-001

- (9) Disconnect the pressure, case drain, and supply lines from the engine-driven pumps (EDP) for the A and B hydraulic systems.

NOTE: The hose connections are self-sealing. The pressure line has a quick-release fitting.

SUBTASK 29-00-00-480-019

- (10) To connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the case drain line of the EDP, use the hydraulic fitting union, STD-15052.

SUBTASK 29-00-00-480-020

- (11) To connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the pressure line of the EDP, use the hydraulic fitting union, STD-15053.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 206
Jan 15/2022



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

G. Case Drain Lines Flushing

SUBTASK 29-00-00-480-002

- (1) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the case drain line of the system B EDP.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

SUBTASK 29-00-00-480-003

- (2) Install a drain hose using union - flareless fitting, 1-1/4 inch, STD-15104, to drain the hydraulic fluid from the supply lines, of the system A and B EDP, into a 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.

SUBTASK 29-00-00-480-004

- (3) Connect the return line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to a supply of new hydraulic fluid, D00153.

SUBTASK 29-00-00-860-004

- (4) Do this task: Supply External Power, TASK 24-22-00-860-803.

SUBTASK 29-00-00-860-262

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-00-00-410-007

- (6) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-00-00-860-258



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



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

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

Power Distribution Panel Number 2, P92

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

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 207
Sep 15/2023



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

SUBTASK 29-00-00-860-006

- (8) Make sure that these switches on the forward overhead panel, P5, are in the OFF position:
- (a) HYD PUMPS A and B (4 locations)
 - (b) FLT CONTROL A and B
 - (c) ALTERNATE FLAPS
 - (d) SPOILER A and B
 - (e) YAW DAMPER.

SUBTASK 29-00-00-170-001



DO NOT USE A HYDRAULIC CART WITH A BACK FLOW RETURN PRESSURE THAT IS MORE THAN THE LIMIT. DAMAGE TO HYDRAULIC SYSTEM EQUIPMENT COULD OCCUR.

- (9) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, at approximately 75 psi (517 kPa).
- (a) Do this until approximately 2 gal (8 l) of hydraulic fluid comes out of the supply line into the 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.

SUBTASK 29-00-00-860-007

- (10) Remove the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-080-002

- (11) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the case drain line of the system B EDP.

SUBTASK 29-00-00-480-005

- (12) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the case drain line of the system A EDP with hydraulic fitting union, STD-15052.

SUBTASK 29-00-00-170-002



DO NOT USE A HYDRAULIC CART WITH A BACK FLOW RETURN PRESSURE THAT IS MORE THAN THE LIMIT. DAMAGE TO HYDRAULIC SYSTEM EQUIPMENT COULD OCCUR.

- (13) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, at approximately 75 psi (517 kPa).
- (a) Do this until approximately 2 gal (8 l) of hydraulic fluid comes out of the supply line into the 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.

SUBTASK 29-00-00-860-008

- (14) Release the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-080-003

- (15) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the case drain line of the system A EDP.

EFFECTIVITY
SIA ALL

29-00-00

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

H. System A Hydraulic Fluid Replacement

SUBTASK 29-00-00-580-001



MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 29-00-00-480-006

- (2) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the pressure line of the system A EDP with hydraulic fitting union, STD-15053.

SUBTASK 29-00-00-860-009



KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

- (3) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to pressurize system A to 3000 psi (20,684 kPa).

SUBTASK 29-00-00-860-010

- (4) Retract and extend the main and nose landing gear through one full cycle (TASK 32-32-00-710-802, TASK 32-33-00-710-802).
 - (a) Do these at the same time.

SUBTASK 29-00-00-580-002



MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (5) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 29-00-00-860-011

- (6) Set the FLT CONTROL A and SPOILER A switches on the forward overhead panel, P5, to the ON position.

SUBTASK 29-00-00-860-012

- (7) Operate the elevators through seven full cycles, from down to up to down.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 209
Sep 15/2023



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

SUBTASK 29-00-00-860-013

- (8) Operate the nose wheel steering through two full cycles (TASK 32-51-00-700-801).

SUBTASK 29-00-00-860-014

- (9) Operate the rudders through two full cycles.

SUBTASK 29-00-00-860-015

- (10) Set the rudder to the neutral position.

SUBTASK 29-00-00-860-016

- (11) Turn the control wheel through five full cycles.

NOTE: This operates the flight spoilers and the ailerons.

SUBTASK 29-00-00-860-017

- (12) Set the control wheel to the neutral position.

SUBTASK 29-00-00-860-018

- (13) Set the FLT CONTROL A and SPOILER A switches, on the P5 panel, to the OFF position.

SUBTASK 29-00-00-860-019

- (14) Operate the thrust reverser of the No. 1 engine through three full cycles (PAGEBLOCK 78-31-00/201).

SUBTASK 29-00-00-860-020

- (15) Operate the control lever for the speed brakes through two full cycles.

SUBTASK 29-00-00-870-001

- (16) Open the bleed valves on each brake and let a minimum of 2 quarts of fluid bleed from each brake (TASK 32-41-00-870-803).

SUBTASK 29-00-00-860-021

- (17) Remove the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-080-004

- (18) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the pressure line of the system A EDP.

SUBTASK 29-00-00-080-005

- (19) Disconnect the drain hose from the supply line for the system A EDP.

SUBTASK 29-00-00-611-001

- (20) Service the system A hydraulic reservoir (TASK 12-12-00-610-801).

SUBTASK 29-00-00-400-002

- (21) Connect the pressure lines, supply lines, and case lines to the EDP for hydraulic system A

I. System B Hydraulic Fluid Replacement

SUBTASK 29-00-00-582-001



MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

EFFECTIVITY
SIA ALL

29-00-00

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

(CAUTION PRECEDES)



MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 29-00-00-480-007

- (2) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the pressure line of the system B EDP with hydraulic fitting union, STD-15053.

SUBTASK 29-00-00-860-022



KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

- (3) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to pressurize system B to 3000 psi (20,684 kPa).

SUBTASK 29-00-00-860-023

- (4) Retract the main and nose landing gear.
(a) Do these at the same time.

SUBTASK 29-00-00-863-001

- (5) Pressurize hydraulic system A to with the electric motor-driven pump (EMDP) (TASK 29-11-00-860-803).

SUBTASK 29-00-00-867-001

- (6) Extend the main and nose landing gear.
(a) Do these at the same time.

SUBTASK 29-00-00-864-001

- (7) Remove the power from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 29-00-00-580-003



MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (8) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 29-00-00-860-024

- (9) Operate the nose wheel steering through two full cycles (TASK 32-51-00-700-801).

EFFECTIVITY
SIA ALL

29-00-00

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

SUBTASK 29-00-00-860-025

- (10) Remove the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-860-026

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00799	HYD SYS LDG GR SYS XFR VALVE SEC
C	16	C00781	HYD SYS LDG GR SYS XFR VALVE PRI

SUBTASK 29-00-00-860-027

- (12) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to pressurize system B to 3000 psi (20,684 kPa).

SUBTASK 29-00-00-860-028

- (13) Set the FLT CONTROL B and SPOILER B switches, on the P5 panel, to the ON position.

SUBTASK 29-00-00-860-029

- (14) Operate the elevators through seven full cycles.

SUBTASK 29-00-00-860-030

- (15) Put the control column in its usual position.

SUBTASK 29-00-00-860-031

- (16) Operate the rudders through two full cycles.

SUBTASK 29-00-00-860-032

- (17) Put the rudder pedals in the usual position.

SUBTASK 29-00-00-860-033

- (18) Operate the trailing edge flaps two times from 0 to 10 to 0 degrees.

NOTE: This will also operate the leading edge devices.

SUBTASK 29-00-00-860-034

- (19) Set the flap control lever to 1 degree.

SUBTASK 29-00-00-860-035

- (20) Turn the control wheel through five full cycles.

NOTE: This operates the flight spoilers and the ailerons.

SUBTASK 29-00-00-860-036

- (21) Put the control wheel in its usual position.

SUBTASK 29-00-00-860-037

- (22) Set the SPOILER B and the FLT CONTROL B switches, on the P5 panel, to the OFF position.

SUBTASK 29-00-00-860-038

- (23) Operate the thrust reverser of the No. 2 engine through three full cycles (PAGEBLOCK 78-31-00/201).

SUBTASK 29-00-00-860-039

- (24) Release the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-860-040

- (25) Push and release the brake pedals until the pressure is released from the brake accumulator.

EFFECTIVITY
SIA ALL

29-00-00

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 29-00-00-860-041

- (26) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to pressurize the brake accumulator.

SUBTASK 29-00-00-860-042

- (27) Release the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-860-043

- (28) Push and release the brake pedals until the pressure is released from the brake accumulator.

SUBTASK 29-00-00-860-044

- (29) Pressurize the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-870-002

- (30) Open the bleed valves on each brake and let a minimum of 2 qt (2 l) of fluid bleed from each brake (TASK 32-41-00-870-802).

SUBTASK 29-00-00-420-003

- (31) Tighten the nuts for the bleed valves (TASK 32-41-00-870-802).

SUBTASK 29-00-00-860-045

- (32) Release the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-080-006

- (33) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the pressure line of the system B EDP.

SUBTASK 29-00-00-480-008

- (34) Install a drain hose from the return line of the ground service disconnect for system B, into a 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901, to drain the hydraulic fluid.

SUBTASK 29-00-00-480-009

- (35) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the supply line of the ground service disconnect for system B.

SUBTASK 29-00-00-860-046

- (36) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-00-00-860-047

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-00-00-860-048



WARNING

KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 213
Sep 15/2023



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

(WARNING PRECEDES)



DO NOT OPERATE THE EMDP FOR MORE THAN TWO MINUTES IF THE NUMBER 1 FUEL-TANK CONTAINS LESS THAN 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL. YOU MUST LET THE RESERVOIR TEMPERATURE DECREASE TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN. DAMAGE TO EQUIPMENT CAN OCCUR IF YOU DO NOT DO THIS.

- (38) Pressurize the hydraulic system A to 3000 psi (20,684 kPa) with the electric motor-driven pump (EMDP) (TASK 29-11-00-860-803).

SUBTASK 29-00-00-860-049

- (39) Pressurize hydraulic system B to 1750 $\pm$ 250 psi (12,066 $\pm$ 1724 kPa) with the portable hydraulic cart (TASK 29-11-00-860-802).

SUBTASK 29-00-00-860-050

- (40) Set the flap lever to the Flaps 2 position and let the flaps stop.

SUBTASK 29-00-00-860-051

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	16	C01356	LANDING GEAR AIR/GND SYS 1

NOTE: The PTU will operate.

SUBTASK 29-00-00-860-052

- (42) Do these steps to operate the leading edge slats:
- (a) Slowly turn the left Stall Warning (AOA) Vane counterclockwise to the top stop.
 - (b) Let the leading edge slats extend fully.
 - (c) Slowly turn the left Stall Warning (AOA) Vane clockwise to the bottom stop.
 - (d) Let the leading edge slats retract to the middle position.

SUBTASK 29-00-00-860-053

- (43) Do the steps above a second time to operate the leading edge slats again.

SUBTASK 29-00-00-860-054

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	16	C01356	LANDING GEAR AIR/GND SYS 1

NOTE: The PTU will stop.

SUBTASK 29-00-00-860-055

- (45) Set the flap lever to the Flap 0 position and let the flaps retract fully.

SUBTASK 29-00-00-860-056

- (46) Remove the pressure from hydraulic systems A and B (TASK 29-11-00-860-805, TASK 29-09-00-860-802).

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 214
Sep 15/2023



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

SUBTASK 29-00-00-860-057

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 29-00-00-080-007

- (48) Disconnect the drain hose from the return line of the ground service disconnect for system B.

SUBTASK 29-00-00-080-008

- (49) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the ground service disconnect for system B.

SUBTASK 29-00-00-611-002

- (50) Service the system B hydraulic reservoir (TASK 12-12-00-610-801).
(a) Fill the reservoir to approximately 66%.

SUBTASK 29-00-00-080-009

- (51) Disconnect the supply line of the standby system EMDP from the standby system reservoir.
(a) Do this at the self-seal disconnect below the reservoir.

SUBTASK 29-00-00-480-010



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- (52) Connect a drain hose, SPL-6107 to the self-seal disconnect that is below the standby system reservoir.
(a) Put the end of the hose in a 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.

SUBTASK 29-00-00-020-002

- (53) Disconnect the pressure line of the standby system EMDP.

SUBTASK 29-00-00-480-011

- (54) Use the reducer, STD-15054, to connect the supplied hose to the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-860-058

- (55) Pressurize the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-860-059

- (56) Set the FLT CONTROL A or FLT CONTROL B switch, on the P5 panel, to the STDBY RUD position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 215
Sep 15/2023



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

- (a) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.

SUBTASK 29-00-00-860-060

- (57) Operate the rudder through two full cycles.

SUBTASK 29-00-00-860-061

- (58) Set the rudder to the middle position.

SUBTASK 29-00-00-860-062

- (59) Set the FLT CONTROL A and FLT CONTROL B switches, on the P5 panel, to the OFF position.

- (a) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is off.

SUBTASK 29-00-00-860-063

- (60) Set the master arming switch for the ALTERNATE FLAPS, on the P5 panel, to the ARM position.

SUBTASK 29-00-00-860-064



KEEP ALL PERSONS AWAY FROM THE LEADING EDGE SLATS. THE LEADING EDGE SLATS CAN MOVE AUTOMATICALLY WHEN YOU OPEN THE CIRCUIT BREAKER THAT FOLLOWS. THIS CAN CAUSE INJURY TO PERSONS.

- (61) Set the ALTERNATE FLAPS switch, on the P5 panel, to the DOWN position.

SUBTASK 29-00-00-860-065

- (62) Release the ALTERNATE FLAPS switch.

SUBTASK 29-00-00-210-001

- (63) Make sure that the leading edge slats extend fully.

SUBTASK 29-00-00-860-066

- (64) Set the master arming switch for the ALTERNATE FLAPS, on the P5 panel, to the OFF position.

SUBTASK 29-00-00-866-001

- (65) Set the flap handle to the indicated flaps position.

SUBTASK 29-00-00-860-067



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



DO NOT OPERATE THE EMDP FOR MORE THAN TWO MINUTES IF THE NUMBER 1 FUEL-TANK CONTAINS LESS THAN 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL. YOU MUST LET THE RESERVOIR TEMPERATURE DECREASE TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN. DAMAGE TO EQUIPMENT CAN OCCUR IF YOU DO NOT DO THIS.

- (66) Pressurize hydraulic system B with the EMDP (TASK 29-11-00-860-803).

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 216
Sep 15/2023



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

SUBTASK 29-00-00-860-068

- (67) Put the flap handle to the FLAP UP position.

SUBTASK 29-00-00-860-069

- (68) Remove power from hydraulic system B (TASK 29-11-00-860-805).

SUBTASK 29-00-00-860-070



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE SLATS DURING THIS PROCEDURE. THE SLATS CAN MOVE AUTOMATICALLY WHEN THE HYDRAULIC SYSTEM IS PRESSURIZED. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (69) Set the ALTERNATE FLAPS switch, on the P5 panel, to the ARM position.

SUBTASK 29-00-00-860-071

- (70) Push the ALTERNATE FLAPS switch, on the P5 panel, down and then release it.

SUBTASK 29-00-00-210-002

- (71) Make sure that the leading edge slats extend fully.

SUBTASK 29-00-00-860-072

- (72) Set the ALTERNATE FLAPS switch, on the P5 panel, to the OFF position.

SUBTASK 29-00-00-860-073

- (73) Remove the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163 (TASK 29-11-00-860-805).

SUBTASK 29-00-00-866-002

- (74) Set the flap handle to the indicated flaps position.

SUBTASK 29-00-00-860-074

- (75) Pressurize hydraulic system B with the EMDP (TASK 29-11-00-860-803).

SUBTASK 29-00-00-860-075

- (76) Set the flap handle to the 10 degree position and the speed brake lever to the UP position.

SUBTASK 29-00-00-860-076

- (77) Remove power from hydraulic system B (TASK 29-11-00-860-805).

SUBTASK 29-00-00-080-010

- (78) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the standby pressure module at the self-seal disconnect.

SUBTASK 29-00-00-080-011

- (79) Disconnect the drain hose from the standby reservoir.

SUBTASK 29-00-00-420-004

- (80) Connect the pressure line of the standby EMDP at the self-seal disconnect.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 217
Sep 15/2023



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

SUBTASK 29-00-00-420-005



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- (81) Connect the supply line of the standby EMDP to the self-seal disconnect below the reservoir.

SUBTASK 29-00-00-611-003

- (82) Service the system B hydraulic reservoir (TASK 12-12-00-610-801).

SUBTASK 29-00-00-900-001

- (83) Replace these filter elements:

- (a) The return filter elements for the A and B hydraulic systems.

These are the tasks:

Return Filter Element Removal, TASK 29-11-61-000-801,

Return Filter Element Installation, TASK 29-11-61-400-801.

- (b) The EDP case drain filter elements for the A and B hydraulic systems.

These are the tasks:

EDP Case Drain Filter Element Removal, TASK 29-11-51-000-801,

EDP Case Drain Filter Element Installation, TASK 29-11-51-400-801.

- (c) The EMDP case drain filter elements for the A and B hydraulic systems.

These are the tasks:

EMDP Case Drain Filter Element Removal, TASK 29-11-41-000-801,

EMDP Case Drain Filter Element Installation, TASK 29-11-41-400-801.

- (d) The pressure module filters for the EDPs and the EMDPs for the A and B hydraulic systems.

These are the tasks:

Hydraulic Systems A and B Pressure Module Filter Element Removal,
TASK 29-11-71-000-802,

Hydraulic Systems A and B Pressure Module Filter Element Installation,
TASK 29-11-71-400-802.

- (e) The EMDP case drain filter for the standby hydraulic system.

These are the tasks:

Standby EMDP Case Drain Filter Element Removal, TASK 29-21-41-000-801,

Standby EMDP Case Drain Filter Element Installation, TASK 29-21-41-400-801.

- (f) The standby pressure module filter.

These are the tasks:

Standby Hydraulic System Pressure Module Filter Removal, TASK 29-21-51-000-802,

Standby Hydraulic System Pressure Module Filter Installation, TASK 29-21-51-400-802.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 218
Sep 15/2023



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

- (g) The PTU pressure filter element.

These are the tasks:

PTU Pressure Filter Element Removal, TASK 29-22-21-000-802,

PTU Pressure Filter Element Installation, TASK 29-22-21-400-802.

SUBTASK 29-00-00-860-077



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



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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-010-005

- (85) Close this access panel:

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

SUBTASK 29-00-00-860-078

- (86) Set the FLT CONTROL A or B switch, on the P5 panel, to the STDBY RUD position.

- (a) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.

SUBTASK 29-00-00-790-001

- (87) Examine the connections of the standby hydraulic system for leaks.

SUBTASK 29-00-00-860-079

- (88) Set the FLT CONTROL switch, on the P5 panel, to the OFF position.

- (a) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is off.

SUBTASK 29-00-00-420-006

- (89) Connect the pressure lines, supply lines, and case drain lines to the EDP for hydraulic system B.

J. Hydraulic Systems Leakage Check

SUBTASK 29-00-00-610-001

- (1) Make sure that the reservoirs for the hydraulic systems A and B are full (TASK 12-12-00-610-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 219
Sep 15/2023



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

SUBTASK 29-00-00-860-080

- (2) Pressurize the reservoirs for the A and B hydraulic systems (TASK 29-09-00-860-801).

SUBTASK 29-00-00-860-081



KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.



DO NOT OPERATE THE EMDP FOR MORE THAN TWO MINUTES IF THE NUMBER 1 FUEL-TANK CONTAINS LESS THAN 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL. YOU MUST LET THE RESERVOIR TEMPERATURE DECREASE TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN. DAMAGE TO EQUIPMENT CAN OCCUR IF YOU DO NOT DO THIS.

- (3) Pressurize hydraulic system A with the EMDP and EDP (motor engine) (TASK 29-11-00-860-801).

SUBTASK 29-00-00-790-002

- (4) Examine all of the connections in hydraulic system A for leaks.

SUBTASK 29-00-00-860-082

- (5) Remove the power from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 29-00-00-860-083

- (6) Pressurize hydraulic system B with the EMDP and EDP (motor engine) (TASK 29-11-00-860-801).

SUBTASK 29-00-00-790-003

- (7) Examine all of the connections in hydraulic system B for leaks.

SUBTASK 29-00-00-860-084

- (8) Set the flap handle to the FLAP UP position and the speed brake lever to the DOWN position.

SUBTASK 29-00-00-860-085

- (9) Remove the power from hydraulic system B (TASK 29-11-00-860-805).

K. Put the Airplane Back to Its Usual Condition

SUBTASK 29-00-00-860-086

- (1) Make sure that these switches on the P5 panel are in the ON position:
 - (a) FLT CONTROL A and B
 - (b) SPOILER A and B

SUBTASK 29-00-00-860-087

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 220
Sep 15/2023



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

(Continued)

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1
C	15	C00799	HYD SYS LDG GR SYS XFR VALVE SEC
C	16	C00781	HYD SYS LDG GR SYS XFR VALVE PRI
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

— END OF TASK —

TASK 29-00-00-870-801

4. Bleed the Hydraulic Systems

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-00-00-790-801	Hydraulic System External Leakage Check (P/B 601)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-804	Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
78-31-00-980-805-G00	Thrust Reverser Operation - Extend (Power Procedure) (P/B 201)
78-31-00-980-806-G00	Thrust Reverser Operation - Retract (Power Procedure) (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Bleed the Hydraulic Systems

SUBTASK 29-00-00-611-004

(1) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-00-00-480-022

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

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

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 221
Sep 15/2023



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

SUBTASK 29-00-00-863-002

(3) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-00-00-863-003



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Do these tasks:

- Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP), TASK 29-11-00-860-804
- Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.

SUBTASK 29-00-00-866-003

(5) Cycle the flight controls.

- (a) Turn the captain's control wheel through full travel (fully counterclockwise and fully clockwise) 3 times.
- (b) Move the control column through full travel (fully forward and fully aft) 3 times.
- (c) Operate the rudder pedals to move the rudder through full travel 3 times.
- (d) Turn the stabilizer trim control wheel to full APL NOSE DOWN and FULL APL NOSE UP 3 times.
- (e) Cycle the flaps 3 times:
 - 1) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.
 - 2) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.
 - 3) Repeat the above steps 2 more times.

SUBTASK 29-00-00-869-001

(6) Cycle the thrust reversers 3 times.

- (a) Do this task: Thrust Reverser Operation - Extend (Power Procedure), TASK 78-31-00-980-805-G00.
- (b) Do this task: Thrust Reverser Operation - Retract (Power Procedure), TASK 78-31-00-980-806-G00.
- (c) Repeat the above steps 2 more times.

SUBTASK 29-00-00-867-002

(7) Cycle the landing gear control lever.

- (a) Move the landing gear control lever to the UP position and back to the DN position 3 times.

NOTE: Hold the lever in each position for three seconds before you move the control lever to the subsequent position.

- (b) Make sure that the landing gear lever is in the DN position.

SUBTASK 29-00-00-864-002

(8) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 222
Sep 15/2023



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

SUBTASK 29-00-00-210-003

- (9) Inspect the airplane for hydraulic fluid leaks.
- (a) If any leaks are found, do this task: Hydraulic System External Leakage Check, TASK 29-00-00-790-801.

D. Put the Airplane Back to Its Usual Condition

SUBTASK 29-00-00-860-259

- (1) If not needed for further maintenance, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.
- (a) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

————— END OF TASK —————

TASK 29-00-00-800-801

5. Hydraulic Power System - Deactivation

A. General

- (1) This task will deactivate the hydraulic power system.

B. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
24-22-00-860-801	Supply Electrical Power (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (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. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
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
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 223
Sep 15/2023



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

F. Hydraulic Power System Deactivation

SUBTASK 29-00-00-010-001

- (1) Open this access panel:

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

SUBTASK 29-00-00-480-012

- (2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 29-00-00-860-088

- (3) Make sure that hydraulic power is removed from the A and B hydraulic systems.
- (a) To remove the power from A and B systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-00-00-860-089

- (4) Make sure that the ELEC 1 and the ELEC 2 HYD PUMP switches, on the P5 forward overhead panel, are in the OFF position.
- (a) Attach a DO NOT OPERATE tag, STD-858, on the ELEC 1 and ELEC 2 HYD PUMP switches, on the P5 forward overhead panel.

SUBTASK 29-00-00-860-090

- (5) Make sure that hydraulic power is removed from the standby hydraulic system.
- (a) To remove power from the standby system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-00-00-480-013



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

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

SUBTASK 29-00-00-860-091

- (7) Make sure that the FLT CONTROL A and FLT CONTROL B switches, on the P5-3 flight controls panel, are in the OFF position.
- (a) Attach a DO NOT OPERATE tag, STD-858, on the FLT CONTROL A and FLT CONTROL B switches on the P5-3 flight controls panel.

SUBTASK 29-00-00-860-092

- (8) Set the SPOILER A and SPOILER B switches, on the P5-3 flight controls panel, to the OFF position.
- (a) Attach a DO NOT OPERATE tag, STD-858, on the SPOILER A and SPOILER B switches on the P5-3 flight controls panel.

SUBTASK 29-00-00-860-093

- (9) Make sure that the ALTERNATE FLAPS ARM and ALTERNATE FLAPS CONTROL switches, on the P5-3 flight controls panel, are in the OFF position.
- (a) Attach a DO NOT OPERATE tag, STD-858, on the ALTERNATE FLAPS ARM and ALTERNATE FLAPS CONTROL switches on the P5-3 flight controls panel.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 224
Sep 15/2023



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

SUBTASK 29-00-00-860-094

- (10) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-00-00-860-095

- (11) Bleed the remaining hydraulic pressure from the system.
- (a) If it is necessary to open the hydraulic system for rework or repair, do these steps:
- 1) Fully push the captain's brake pedals 12 times to remove hydraulic pressure from the brake accumulator.



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER CONTROL SURFACES AND THE NOSE LANDING GEAR BEFORE YOU PUSH THE RUDDER PEDAL. THE RUDDERS AND THE LANDING GEAR CAN MOVE QUICKLY WHEN YOU PUSH THE RUDDER PEDAL. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- 2) Operate the rudder pedals to decrease the remaining hydraulic system until it is below 60 psi (414 kPa) on the MAX Display System (MDS).
 - 3) Release the pressure from the standby hydraulic system and the hydraulic systems A and B reservoirs (TASK 29-09-00-860-802).
- (b) If the hydraulic system does not need to be open for rework or repair, do this step:



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER CONTROL SURFACES AND THE NOSE LANDING GEAR BEFORE YOU PUSH THE RUDDER PEDAL. THE RUDDERS AND THE LANDING GEAR CAN MOVE QUICKLY WHEN YOU PUSH THE RUDDER PEDAL. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- 1) Operate the rudder pedals to decrease the remaining hydraulic system until it is below 60 psi (414 kPa) on the MDS.

SUBTASK 29-00-00-860-260

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 29-00-00-860-096



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

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 225
Sep 15/2023



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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP
F	3	C00881	ELEC HYD PUMP SYS A

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

G. Tryout

NOTE: This tryout is to make sure that the hydraulic power system is in a zero energy state.

SUBTASK 29-00-00-860-097

- (1) Make sure that electrical power is on (TASK 24-22-00-860-801).

SUBTASK 29-00-00-210-004

- (2) Make sure that the hydraulic pressure is below 60 psi (414 kPa) on MDS for hydraulic systems A and B.

SUBTASK 29-00-00-210-005

- (3) Make sure that both pneumatic duct pressure needles on the dual duct pressure indicator show 0 psi (0 kPa).

SUBTASK 29-00-00-860-098

- (4) Move the flap handle a single detent from the current flap position.
- (a) Make sure that there is no flap movement.
- (b) Move the flap handle back to the initial detent.

SUBTASK 29-00-00-210-006

- (5) Make sure that the standby hydraulic pressure light is off, on the P5-3 flight controls panel, and the pump is not on.

SUBTASK 29-00-00-860-099

- (6) Remove the DO NOT OPERATE tag, on the ALTERNATE FLAPS CONTROL switch on the P5-3 flight controls panel.
- (a) Set the ALTERNATE FLAPS CONTROL switch, on the P5-3 flight controls panel, to the DOWN position for one second.
- (b) Make sure that there is no flap or slat movement.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 226
Sep 15/2023



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

- (c) Make sure that the ALTERNATE FLAPS CONTROL switch, on the P5-3 flight controls panel, is in the OFF position.
- 1) Attach a DO NOT OPERATE tag, STD-858, on the ALTERNATE FLAPS CONTROL switch, on the P5-3 flight controls panel.

SUBTASK 29-00-00-860-100

- (7) Remove the DO NOT OPERATE tag, on the SPOILER A and SPOILER B switches, on the P5-3 flight controls panel.
- (a) Set the SPOILER A and SPOILER B switches, on the P5-3 flight controls panel, to the ON position.

SUBTASK 29-00-00-860-101

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 29-00-00-860-102



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

- (9) Turn the Control Wheel a minimum of 4 units.
- (a) Make sure that there is no spoiler movement.
- (b) Turn the Control Wheel to neutral.
- (c) Attach a DO NOT OPERATE tag, STD-858, on each Control Wheel/Column.

SUBTASK 29-00-00-860-103

- (10) Set the SPOILER A and SPOILER B switches, on the P5-3 flight controls panel, to the OFF position.
- (a) Attach a DO NOT OPERATE tag, STD-858, on the SPOILER A and SPOILER B switches, on the P5-3 flight controls panel.

SUBTASK 29-00-00-860-104

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 29-00-00-010-004

- (12) Close this access panel:

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

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 227
Sep 15/2023



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

TASK 29-00-00-800-802

6. Hydraulic Power System - Activation

A. General

- (1) This task will activate the hydraulic power system.

B. References

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
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
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Hydraulic Power System Activation

SUBTASK 29-00-00-480-021

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

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

SUBTASK 29-00-00-080-012

- (2) Remove the DO NOT OPERATE tag, on the ELEC 1 and ELEC 2 HYD PUMP switches, on the P5 forward overhead panel.

SUBTASK 29-00-00-080-013

- (3) Remove the DO NOT OPERATE tag, on the FLT CONTROL A and FLT CONTROL B switches on the P5-3 flight controls panel.
- (a) Make sure that the FLT CONTROL A and FLT CONTROL B switches, on the P5-3 flight controls panel, are in the ON position and the switch covers are closed.

SUBTASK 29-00-00-080-014

- (4) Remove the DO NOT OPERATE tag, on the SPOILER A and SPOILER B switches on the P5-3 flight controls panel.
- (a) Make sure that the SPOILER A and SPOILER B switches, on the P5-3 flight controls panel, are in the ON position and the switch covers are closed.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 228
Sep 15/2023



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

SUBTASK 29-00-00-080-015

- (5) Remove the DO NOT OPERATE tag, on the ALTERNATE FLAPS ARM and ALTERNATE FLAPS CONTROL switches on the P5-3 flight controls panel.
 - (a) Make sure that the ALTERNATE FLAPS ARM and ALTERNATE FLAPS CONTROL switches, on the P5-3 flight controls panel, are in the OFF position.
 - 1) Make sure that the ALTERNATE FLAPS ARM switch cover is closed.

SUBTASK 29-00-00-410-006

- (6) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-00-00-080-016

- (7) Remove the DO NOT OPERATE tag, on each Control Wheel/Column.

SUBTASK 29-00-00-860-105



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP
F	3	C00881	ELEC HYD PUMP SYS A

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-00-00-010-007

- (9) Close this access panel:

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

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 229
Sep 15/2023



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

SUBTASK 29-00-00-860-261

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 29-00-00-860-106

- (11) Pressurize the standby hydraulic system and the hydraulic systems A and B reservoirs, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 230
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL
HYDRAULIC POWER - INSPECTION/CHECK

1. General

A. This procedure has these leakage check tasks:

NOTE: Independent leakage checks can be accomplished without doing all of the leakage checks in this section.

- (1) Hydraulic System External Leakage Check - Use this check to find if the parts have too much external leakage.
- (2) Gross Internal Leak Check - Use this check to find if hydraulic system A and B has too much internal leakage.
- (3) Sub-System Internal Leakage Check - Use this check to find if one or more of the systems that use hydraulic power has too much internal leakage.
- (4) Part Internal Leakage Check - Use this check to find if one part or a small group of parts has too much internal leakage.
- (5) Standby Hydraulic System Internal Leakage Check - Use this check to find if the standby hydraulic system has too much internal leakage.
- (6) Hydraulic System Elevator and Aileron Power Control Units (PCU's) and Leading Edge Flap and Slat Actuators Internal Leakage Check - Use this check to find the internal leakage of the elevator PCU's, aileron PCU's, and leading edge flap and slat actuators.

TASK 29-00-00-790-801

2. Hydraulic System External Leakage Check

A. General

- (1) The table of permitted external leakage gives the maximum external leakage rates for different parts for normal operation and for dispatch of the airplane to avoid a delay. It is necessary to make a decision on the total leakage that will be permitted from all of the parts.
- (2) It is possible that a crack in a static seal housing can cause a leakage. This leakage can increase with increased pressure.
- (3) Some NAS1611 seals can leak at cold temperatures that occur in flight. If there is evidence of leakage near one of these seals that can not be duplicated on the ground, the seal should be replaced with an improved seal (SL 20-048). Areas where these seals are used include:
 - (a) Leading edge swivel assembly (if evidence of leakage, replace assembly with improved seal assembly)
 - (b) Trailing edge swivel assembly (if evidence of leakage, replace assembly with improved seal assembly)
 - (c) Flight control actuators
 - (d) Brake metering valves
 - (e) Main Landing Gear (MLG) retract actuator
 - (f) MLG shimmy damper
 - (g) Standby rudder Power Control Unit (PCU)
 - (h) Main rudder PCU
- (4) Do a leakage check of these components:
 - (a) In the wing leading edge and trailing edge area:
 - 1) Tighten tube and fitting connections to the correct torque.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 601
Sep 15/2023



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

- a) For the correct torque values refer to the Installation Torque Table (TASK 20-10-51-400-801).
- b) Replace any tube or fitting connections that continue to leak.
- (b) In the rudder and tail area:
 - 1) Tighten tube, hose, and fitting connections to the correct torque.
 - a) For the correct torque values refer to the Installation Torque Table (TASK 20-10-51-400-801).
 - b) Replace any tube, hose, or fitting connections that continue to leak.
- (c) Replace these components in the main landing gear wheel well if there is any evidence of leakage:
 - 1) Hydraulic fuses
 - 2) Cracked hydraulic fittings
 - 3) Loose frangible fittings.
- (5) These conditions are important when you do a leakage check for the various components:
 - (a) The seal at the B-nut tube connections is made by metal-to-metal surfaces. If a leak will not stop when you tighten the B-nut to the correct torque, the joint is defective and must be repaired.
 - (b) Supply hydraulic pressure to the component while you measure the leakage.
 - (c) If it is possible, operate the actuators to see if the leakage changes during the travel.
 - (d) Make sure that the leak is not a type which will increase to a much higher rate with time. Use the type of leak and the length of time the component is pressurized to make this decision.
 - (e) Make sure that all the reservoirs are full before each flight.
 - (f) After each flight, do a check of the components which have a leak.
 - (g) If hydraulic fluid collects in the area of the leak, it must not cause damage to the airplane equipment.

B. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
20-10-51-400-801	Flareless Tubing Assembly Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-804	Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-11 P/B 401	HYDRAULIC SYSTEMS A AND B ENGINE-DRIVEN PUMP (EDP) - REMOVAL/INSTALLATION
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
32-41-41-700-802	Main Landing Gear Brake Fast Check (Wheel Installed on the Airplane) (P/B 601)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 602
Sep 15/2023



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

(Continued)

Reference	Title
71-00-00-910-806-G00	Stop the Engine (Usual Engine Stop) (P/B 201)
78-31-00-700-801-G00	Thrust Reverser Operational Test (Selection) (P/B 501)

C. Location Zones

Zone	Area
100	Lower Half of Fuselage
200	Upper Half of Fuselage
300	Empennage
400	Powerplant and Nacelle Struts
500	Left Wing
600	Right Wing

D. Hydraulic System External Leakage Check

SUBTASK 29-00-00-480-023



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

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

SUBTASK 29-00-00-010-002

- (2) Get access to the part that has a leak.

SUBTASK 29-00-00-160-001

- (3) Clean hydraulic fluid from the part, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-00-00-860-108



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (4) Pressurize the applicable hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-863-004

- (5) Pressurize the standby hydraulic system, do this task: Standby Hydraulic System Pressurization, TASK 29-21-00-000-801.

SUBTASK 29-00-00-790-004

- (6) Do these steps to find the leakage rate:
- (a) If it is possible, move the part through approximately three full cycles.
 - (b) Measure the leakage rate of the part.
 - 1) For dynamic seals, measure the leakage rate when the part stops and moves, if it is possible.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 603
Sep 15/2023



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

- (c) Compare the leakage rate of the part with the external leakage limits as shown in the table below:

Table 601/29-00-00-993-801 Hydraulic Fluid Leakage Limits

COMPONENTS	NORMAL OPERATION LIMITS ^{*[1]}	DISPATCH LIMITS TO AVOID DELAY ^{*[1]}
1. Tubing, Hoses and Hose Connections ^{*[2]}	No leakage ^{*[3]} ^{*[4]}	No leakage ^{*[3]} ^{*[4]}
2. Quick Disconnect Fitting Seals	1 drop in 10 min.	1 drop in 10 min.
3. Static Seals ^{*[5]}	1 drop in 10 min.	Operator decides
A. MLG Shimmy Dampers ^{*[6]}	1 drop in 1 min.	1 drop in 1 min.
4. Dynamic seals ^{*[7]}		
A. Engine-Driven Pump	30 drops in 1 min.	60 drops in 1 min.
B. Electric Motor- Driven Pump		
(1) ABEX	10 drops in 1 min.	20 drops in 1 min.
(2) Vickers	20 drops in 1 min.	30 drops in 1 min.
(3) Vickers Standby Pump	10 drops in 1 min.	20 drops in 1 min. (Correct at the first time possible)
C. Power Transfer Unit	10 drops in 1 min.	20 drops in 1 min.
D. Other dynamic seals when they stop, at any pressure ^{*[8]}	1 drop in 10 min. (No repair is necessary)	30 drops in 1 min. (Correct at the first time possible)
E. Other dynamic seals when they move ^{*[8]}	1 drop each cycle	1 drop each cycle
5. Landing gear brake assemblies	No leakage	See Main Landing Gear Brake Fast Check (Wheel Installed on the Airplane), TASK 32-41-41-700-802

^{*[1]} There are approximately 20 drops in a cubic centimeter or 75600 drops in a gallon.

^{*[2]} Make sure the connection is tightened to the correct torque.

^{*[3]} Leakage is defined as the escape of fluid from any point of the fitting assembly including the fitting-tube junction, which returns within a time period after being cleaned up (see ^{*[4]}). This junction is defined to include one tube outside diameter in length beyond the fitting envelope. The fitting envelope is the area from free parent tube material to free parent tube material or boss.

^{*[4]} Evidence of fluid on a fitting joint does not always indicate a leakage condition. For example, a fitting joint may appear moist due to: (a) residual assembly lubricant (MCS352); (b) residual fluid from previous leakage that was corrected but not properly cleaned up or; (c) residual fluid from previous leakage that was corrected and properly cleaned up, but later drained from an inaccessible area (such as fluid from threads within a flareless joint which does not return when re-wiped).

^{*[5]} A static seal is a seal between two parts that do not move relative to each other (Example: manifold cover, pump housing cover).

^{*[6]} Leakage may be checked while the airplane is parked by cycling the landing gear lever with the "A" hydraulic system pressurized. Make sure the landing gear lock pins are installed before cycling the lever.

^{*[7]} A dynamic seal is a seal between two parts that move relative to each other (Example: piston rod seal, pump shaft seal, swivel seal).

^{*[8]} The center vent on the rudder PCU is actually the drain for the two dynamic seals. Thus, when evaluating leakage from the center vent at the rudder PCU, all dynamic seal limits can be doubled.

NOTE: For the Thrust Reverser actuator leakage limit rate, refer to TASK 78-31-00-700-801-G00.

- (d) Remove the pressure from the applicable hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 604
May 15/2022



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

- (e) Remove the pressure from the standby hydraulic system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
- (f) If the leakage rate is more than the external leakage limits, repair the cause of the leak (Table 601).
- (g) Remove the hydraulic fluid from the area of the leakage, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-00-00-360-001

- (7) To check the leakage of the Engine Driven Pump (EDP), pressurize the hydraulic system, do this task: Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP), TASK 29-11-00-860-804.
 - (a) Stop the applicable engine when the hydraulic power has stabilized at 2800 psig (19,305 kPa) - 3200 psig (22,063 kPa) (TASK 71-00-00-910-806-G00).
NOTE: This task stops the hydraulic pump but the hydraulic system will remained pressurized.
 - (b) Compare the leakage rate of the EDP with the external leakage limits (Table 601).
 - (c) If the leakage rate is more than the external leakage limits in the table, do the appropriate tasks to replace the EDP (PAGEBLOCK 29-11-11/401).
 - (d) Remove the hydraulic fluid from the area of the leakage, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

———— **END OF TASK** ————

TASK 29-00-00-790-802

3. Gross Internal Leakage Check

(Figure 601, Figure 602)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) Use this check to find the gross internal leakage of the A and B hydraulic systems.
- (2) You must find the changes in the flow of hydraulic fluid (during different conditions of operation) to find the internal leakage rate for each system. There are three methods to measure the flow: the ammeter, the flowmeter, and the amp-clamp/multimeter.
 - (a) To use the ammeter method, you must connect an ammeter in series with one phase of the motor on the Electric Motor-Driven Pump (EMDP). To find the flow, measure the current, subtract the other current reading as directed, and use the Figure 602 to change it to a flow.
 - (b) To use the flowmeter method, you install a flowmeter on a hydraulic service cart and read the flow from it.
 - (c) To use the amp-clamp/multimeter method, you put the amp-clamp adapter around one of the wires connected to a relay for the EMDP. You can use either a dedicated amp-clamp meter or a clamp-on current probe connected to a generic multimeter. You then read the current directly on the amp-clamp meter or on the multimeter that is connected to the clamp-on current probe. To find the flow you measure the current, subtract the other current readings as directed, and use the Figure 602 to get the flow.
- (3) When you read the current, make a record of the value to the nearest 0.1 ampere.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 605
Sep 15/2023



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

(4) When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-21-00-820-803	Air Data Inertial Reference System - Automatic Alignment from the IRS MSU (P/B 201)
WDM 29-11-12	Wiring Diagram Manual

C. Tools/Equipment

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

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
COM-1786	Equipment - Hydraulic Leakage Check Part #: 410DME-10AR Supplier: 06659 Part #: 410DME-10AR-M Supplier: 06659 Part #: HTT-02 Supplier: H6394
COM-1787	Ammeter - Leakage Check, A.C. Internal Hydraulic System Part #: 201400 Supplier: 60336 Opt Part #: 433-2919001 Supplier: 32590

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 606
Sep 15/2023



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

(Continued)

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
COM-2531	Clamp-On- Current Meter Part #: 324 Supplier: 89536 Part #: 374 Supplier: 89536 Part #: LH41A Supplier: 0JV05 Opt Part #: 321 Supplier: 89536 Opt Part #: 322 Supplier: 89536 Opt Part #: MODEL 33 Supplier: 89536 Opt Part #: MODEL 36 Supplier: 89536
COM-9509	Probe, Clamp-on - Current, AC/DC Part #: I410 Supplier: 89536 Part #: I800 Supplier: 89536 Part #: i30 Supplier: 89536 Opt Part #: 80I-600A Supplier: 89536
SPL-1788	Cable - Hydraulic Leakage Check Part #: F80135-13 Supplier: 81205 Opt Part #: F80135-1 Supplier: 81205
STD-12995	Flowmeter - 0.2 to 7.0 GPM, 3% Precision of the Indication at 3000 PSI

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 607
Sep 15/2023



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

F. Prepare for the Gross Internal Leakage Check

SUBTASK 29-00-00-480-024



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



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

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

SUBTASK 29-00-00-840-002

- (2) Make sure the main landing gear has blocks installed.

SUBTASK 29-00-00-840-003

- (3) Remove the blocks and the tow bar from the nose landing gear.

SUBTASK 29-00-00-860-109

- (4) Open this access panel to get access to the main electronics equipment compartment.

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

SUBTASK 29-00-00-840-004

- (5) Make sure that all cowls on the engine are closed.

SUBTASK 29-00-00-840-005

- (6) Make sure the main tank 1 (for the system A heat exchanger) and the main tank 2 (for the system B heat exchanger) have a minimum of 250 gal (946 l) (1675 lb (760 kg)) of fuel in them.

NOTE: This is necessary to prevent the hydraulic pumps from overheating.

SUBTASK 29-00-00-840-006

- (7) Put the parking brakes on.

SUBTASK 29-00-00-840-007

- (8) Put the FLT CONTROL A and B, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-840-008

- (9) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-111

- (10) Make sure that the hydraulic reservoir for hydraulic system A and system B is pressurized to 20 psi (138 kPa) minimum, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 608
Sep 15/2023



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

SUBTASK 29-00-00-860-112



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

- (11) Pressurize the hydraulic systems A and B with the electric motor-driven pump or with a portable hydraulic cart, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: Do not operate the Engine Driven Pump (EDP)s or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

SUBTASK 29-00-00-840-009

- (12) Operate the flaps 2 times to warm the hydraulic fluid.

SUBTASK 29-00-00-840-010

- (13) Operate all of the control surfaces through a minimum of 10 cycles after the hydraulic fluid is warm.

SUBTASK 29-00-00-840-011

- (14) Do these steps to put the airplane in its initial condition:

- (a) Put the reverse thrust levers in the STOWED position.
- (b) Put the stabilizer trim in the green band.

NOTE: The stabilizer indicator is on the control stand.

- (c) Set the aileron trim to zero.

NOTE: The aileron trim indicator is on the control wheel.

- (d) Set the rudder trim to zero.

NOTE: The rudder trim indicator is on the aft electronic panel, P8.

- (e) Do these steps to turn off the antiskid system:

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

- (f) Make sure the Air Data Inertial Reference System (ADIRS) is aligned, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801 or Air Data Inertial Reference System - Automatic Alignment from the IRS MSU, TASK 34-21-00-820-803.

NOTE: The ADIRS must be aligned to enable operation of the yaw damper system.

- (g) Put the YAW DAMPER switch, on the forward overhead panel, P5, in the OFF position.
- (h) Put the A/P ENGAGE switches, on the Mode Control Panel (MCP), in the OFF position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 609
Sep 15/2023

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

- (i) Put the LANDING GEAR handle, on the center instrument panel, P2, in the DOWN position.
- (j) Put the SPEED BRAKE lever, on the control stand, in the DOWN position.
- (k) Put the FLT CONTROL A and B switches, on the forward overhead panel, P5, in the OFF position.
- (l) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the OFF position.
- (m) Set the FLAP position lever to 25 and let the flaps move.



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



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

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

Power Distribution Panel Number 2, P92

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

- (o) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the ARM position.
- (p) Set the FLAP position lever to 40.

NOTE: The flaps will not move.

SUBTASK 29-00-00-210-007

- (15) Make sure that the A and B hydraulic systems have a minimum pressure of 2800 psi (19,305 kPa).

SUBTASK 29-00-00-860-113

- (16) Remove power from the hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (a) Twenty seconds after you remove hydraulic power, make sure hydraulic systems A and B have a minimum of 200 psi (1379 kPa) remaining in them.

NOTE: On airplanes equipped with digital pressure gages, read the 200 psi (1379 kPa) directly. On airplanes with analog pressure gages, estimate the 200 psi (1379 kPa) reading.

- 1) If the pressure in system B is less than 200 psi (1379 kPa), use the trouble-shooting procedure to find the bad parts. Some parts to examine are the relief valve and cartridge check valve in the hydraulic system B pressure module.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 610
May 15/2023



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

(System A or System B Sub-System Internal Leakage Check, TASK 29-00-00-790-803 or Part Internal Leakage Check, TASK 29-00-00-790-804).

- 2) If the pressure in system A is less than 200 psi (1379 kPa), use the trouble-shooting procedure to find the bad parts. Some parts to examine are the relief valve and cartridge check valve in the hydraulic system A pressure module and the ground spoilers (spoiler 1, 6, 7, and 12).

(System A or System B Sub-System Internal Leakage Check, TASK 29-00-00-790-803 or Part Internal Leakage Check, TASK 29-00-00-790-804).

SUBTASK 29-00-00-840-012

- (17) If you use the ammeter, COM-1787, then do these steps:

NOTE: When you read the ammeter, make a record of the value to the nearest 0.1 ampere. Use Figure 602 to change current to flow.

- (a) Make sure the person in the flight compartment and the person on the ground can speak to each other (interphone, radio).



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



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

- (b) To do a test of hydraulic system B:
 - 1) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- (c) To do a test of hydraulic system A:
 - 1) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

- (d) Disconnect the electrical connector from the EMDP for the A or B hydraulic system.
- (e) Connect the cable, SPL-1788, to the EMDP module as follows:

NOTE: Make sure you examine (WDM 29-11-12) for the applicable EMDP module and for system wiring.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 611
Sep 15/2023



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

- 1) For hydraulic system A connect one end of the cable, SPL-1788, to the EMDP module, M1103.
 - 2) For hydraulic system B connect one end of the cable, SPL-1788, to the EMDP module, M1104.
- (f) Connect the cable, SPL-1788, as follows:
- NOTE:** Make sure you examine (WDM 29-11-12) for the applicable connector and for system wiring.
- 1) For hydraulic system A connect the other end of the cable, SPL-1788, to the electrical connector, D2664.
 - 2) For hydraulic system B connect the other end of the cable, SPL-1788, to the electrical connector, D2666.



PUT THE AMMETER IN THE SHORT-CIRCUIT POSITION. IF IT IS IN THE CIRCUIT, THE CURRENT WILL CAUSE DAMAGE TO THE AMMETER.

- (g) Put the switch on the ammeter, COM-1787, in the short-circuit position.



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



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

- (h) To do a test of hydraulic system B:
- 1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- (i) To do a test of hydraulic system A:
- 1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 612
Sep 15/2023



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

SUBTASK 29-00-00-840-013

- (18) If you use the flowmeter, STD-12995 (preferable), or hydraulic leakage check equipment, COM-1786 (alternative), and 3000 PSI, 30 GPM portable hydraulic cart, COM-163, then do these steps:

NOTE: When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

- (a) Connect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the ground service module for hydraulic system A or B.
- 1) If applicable, put the remote readout for the hydraulic leakage check equipment, COM-1786, in the control cabin.
 - 2) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-840-014

- (19) If you use the clamp-on current meter, COM-2531, or a combination of the clamp-on probe, COM-9509 and the digital/analog multimeter, COM-1793, then do these steps:

NOTE: The clamp-on current meter, COM-2531, or clamp-on probe, COM-9509, is installed on one of the three wires that provide phased electrical power to the EMDP. These tools can either be installed at the EMDP in the wheel well or at the relay in the P91 and P92 panel.

NOTE: When you use the clamp-on current meter, COM-2531, or digital/analog multimeter, COM-1793, read the current on the meter and use Figure 602 to get the flow.

- (a) To install the clamp-on current meter, COM-2531, or clamp-on probe, COM-9509, in the power distribution panels, P91 or P92, do these steps:



WARNING

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



WARNING

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

- 1) To do a test of hydraulic system B:
 - a) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 2) To do a test of hydraulic system A:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 613
Sep 15/2023

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

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A



WARNING

BE CAREFUL WHEN YOU INSTALL THE DIGITAL/ANALOG MULTIMETER, COM-1793 INTO THE P91 AND P92 PANELS. THE P91 AND P92 PANELS CONTAIN HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONS.

- 3) To test hydraulic system B, get access to the relay, R318, for the system B EMDP in the power distribution panel, P91.
- 4) To test hydraulic system A, get access to the relay, R317, for the system A EMDP in the power distribution panel, P92.
- 5) Put the clamp-on current meter, COM-2531, or clamp-on probe, COM-9509, around one of the three wires that go aft from the relay. If used, connect the digital/analog multimeter, COM-1793, to the clamp-on probe, COM-9509.
- 6) To do a test of hydraulic system B:
 - a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 7) To do a test of hydraulic system A:
 - a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

G. Hydraulic System B Gross Internal Leakage Check

SUBTASK 29-00-00-860-114

- (1) If you use the clamp-on current meter, COM-2531, set the ammeter to its highest range.

SUBTASK 29-00-00-860-115



WARNING

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

- (2) Pressurize the hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-210-008

- (3) Make sure the pressure in system B is a minimum of 2800 psi (19,305 kPa).

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 614
Sep 15/2023



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

SUBTASK 29-00-00-210-009

- (4) Make sure hydraulic power to system A has been removed.

SUBTASK 29-00-00-790-005

- (5) If you use the ammeter, flowmeter or amp-clamp/multimeter method, do this step:

NOTE: The amperage measured is the system B basic current, and must be subtracted from all other system B amperage readings before you use the result of the subtraction to find the equivalent flow from Figure 602.

- (a) Read the amperage and write it here:

Table 602/29-00-00-993-802

Amperage: _____ (Value 1)
Note: This is the system B basic current.

SUBTASK 29-00-00-970-001

- (6) If you use the flow meter method, read the flow value and write it here:

Table 603/29-00-00-993-803

Flow: _____ (Value 1)
Note: This is the system B basic flow.

SUBTASK 29-00-00-860-116

- (7) Do these steps to supply hydraulic power from system B to the flight controls.

- (a) Put the SPOILER B switch, on the forward overhead panel, P5, in the ON position.
(b) Put the SPEED BRAKE lever, on the control stand, half the distance between the ARMED and the FLIGHT DETENT positions.

NOTE: The spoilers will move.

- (c) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the OFF position.

NOTE: Do not continue until the flaps move to 40 units.

- (d) Set the FLAP position lever to 25, and let the flaps move.

NOTE: The flaps will move to 25 units.

- (e) Put the FLT CONTROL B switch, on the forward overhead panel, P5, in the ON position.

- (f) Do these steps with the DFCS BITE on the Control Display Unit (CDU) to engage the autopilot one channel at a time.

NOTE: Engage the autopilot in BITE to make sure all the inputs are at zero.

NOTE: Follow the instructions in this procedure for the DFCS BITE.

- 1) Push the Line Select Key (LSK) adjacent to INIT/REF.
- 2) Push the LSK adjacent to INDEX.
- 3) Push the LSK adjacent to MAINT.
- 4) Push the LSK adjacent to DFCS.

NOTE: Stop until the BITE test is complete.

- 5) Put the Flight Management Computer (FMC) transfer switch, on the forward overhead panel, P5, to the BOTH ON L position.
- 6) Push the LSK adjacent to EXTENDED MAINTENANCE.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 615
Sep 15/2023



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

- 7) Push the LSK adjacent to RIGGING.
- 8) Push the LSK adjacent to ELEVATOR.
- 9) Push the LSK adjacent to CONTINUE.

NOTE: Ignore the message on the screen.

- 10) Push the LSK adjacent to CONTINUE.
- 11) Push the LSK adjacent to ELEV AUTH SINGLE.

NOTE: Ignore instructions to pressurize pitot inputs.

- 12) Push the LSK adjacent to CONTINUE on screen 51.16.

NOTE: Stop until BITE test is complete. Ignore the instructions to set the stabilizer to test condition in the maintenance manual.

- 13) Push the LSK adjacent to CONTINUE on screen 51.17.

NOTE: Stop until BITE test is complete. A new 51.17 screen will appear with instructions to engage the A/P.

- 14) Engage the system B autopilot.

SUBTASK 29-00-00-790-006

- (8) Do these steps to find the internal leakage for System B Flight Controls and Spoilers 3, 5, 8 and 10:

- (a) If you use the ammeter, flowmeter or amp-clamp/multimeter method do these steps:

- 1) Read the amperage and write it here:

Table 604/29-00-00-993-804

Amperage: _____ (Value 2)

- 2) Subtract the Value 1 from the Value 2 and write it here:

Table 605/29-00-00-993-805

Amperage: _____ (Calculated) amperage)

Note: In all cases, subtract the AMPERAGES from each other BEFORE referring to the applicable pump amperage/flow value table (Fig. 602).

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to a flow value and write it here:

Table 606/29-00-00-993-806

Flow: _____ cc/min (Value 3)

Note: This is the net internal leakage for System B flight controls and spoilers 3, 5, 8, and 10.

- (b) If you use the flowmeter method do these steps:

- 1) Read the flow value and write it here:

Table 607/29-00-00-993-807

Measured Flow: _____ cc/min (Value 2)

- 2) Subtract the Value 1 from the Value 2 and write it here:

Table 608/29-00-00-993-808

Calculated Flow: _____ cc/min (Value 3)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 616
Sep 15/2023



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

Note: This is the net internal leakage for System B flight controls and spoilers 3, 5, 8, and 10.

- (c) If the Value 3 is more than 13,100 cc/min, do the steps to check Hydraulic System B sub-systems to find one or more sub-systems that has too much internal leakage, do this task: System A or System B Sub-System Internal Leakage Check, TASK 29-00-00-790-803.

SUBTASK 29-00-00-020-026

- (9) Push the A/P DISENGAGE B switch on the control wheel.

SUBTASK 29-00-00-860-117

- (10) Remove power from the hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

H. Hydraulic System A Gross Internal Leakage Check

SUBTASK 29-00-00-480-014

- (1) Connect the equipment that is necessary to measure the flow or current to hydraulic system A.

SUBTASK 29-00-00-860-118



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

- (2) Pressurize the hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-210-010

- (3) Make sure the pressure in system A is a minimum of 2800 psi (19,305 kPa).

SUBTASK 29-00-00-790-007

- (4) Do these steps to find the System A basic current or flow:

- (a) If you use the ammeter, flowmeter or amp-clamp/multimeter method do this step:

NOTE: This amperage measured is the system A basic current, and must be subtracted from all other system A amperage readings before you use the result of the subtraction to find the equivalent flow from Figure 602.

- 1) Read the amperage and write it here:

Table 609/29-00-00-993-809

Amperage: _____ (Value 4)
Note: This is the system A basic current.

- (b) If you use the flow meter method, read the flow value and write it here:

Table 610/29-00-00-993-810

Flow: _____ (Value 4)
Note: This is the system A basic flow.

SUBTASK 29-00-00-860-119

- (5) Do these steps to supply hydraulic power from system A to the flight controls and landing gear.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 617
Sep 15/2023



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

- (a) Put the SPOILER A switch in the ON position.

NOTE: Keep the SPEED BRAKE lever half the distance between the ARMED and the FLIGHT DETENT positions.

- (b) Put the FLT CONTROLS A switch in the ON position.

- (c) Put the LANDING GEAR lever in the DN position.

- (d) Do these steps with the DFCS BITE on the CDU:

- 1) Push the LSK adjacent to PREVIOUS MENU.

- 2) Push the LSK adjacent to ELEV AUTH SINGLE.

NOTE: Ignore instructions to pressurize pitot inputs.

- 3) Push the LSK adjacent to CONTINUE on screen 51.16.

NOTE: Stop until BITE test is complete. Ignore the instructions to set the stabilizer to test condition in the maintenance manual.

- 4) Push the LSK adjacent to CONTINUE on screen 51.17.

NOTE: Stop until BITE test is complete. A new 51.17 screen will appear with instructions to engage the A/P (Autopilot).

- 5) Engage the system A autopilot.

SUBTASK 29-00-00-790-008

- (6) Do these steps to find the internal leakage for System A Flight Controls and Spoilers 2, 4, 9 and 11:

- (a) If you use the ammeter, flowmeter or amp-clamp/multimeter method do these steps:

- 1) Read the amperage and write it here:

Table 611/29-00-00-993-811

Amperage: _____ (Value 5)

- 2) Subtract the Value 4 from the Value 5 and write it here:

Table 612/29-00-00-993-812

Amperage: _____ (Calculated amperage)

Note: In all cases, subtract the AMPERAGES from each other BEFORE referring to the applicable pump amperage/flow value table (Fig. 602).

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to a flow value and write it here:

Table 613/29-00-00-993-813

Flow: _____ cc/min (Value 6)

Note: This is the internal leakage for System A flight controls and spoilers 2, 4, 9, and 11.

- (b) If you use the flowmeter method do these steps:

- 1) Read the flow value and write it here:

Table 614/29-00-00-993-814

Measured Flow: _____ cc/min (Value 5)

- 2) Subtract the Value 4 from the Value 5 and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 618
Sep 15/2023



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

Table 615/29-00-00-993-815

Calculated Flow: _____ cc/min (Value 6)
Note: This is the internal leakage for the System A flight controls and spoilers 2, 4, 9, and 11.

- (c) If the Value 6 is more than 12,000 cc/min, do the steps to check Hydraulic System A sub-systems to find the one or more sub-systems that has too much internal leakage, do this task: System A or System B Sub-System Internal Leakage Check, TASK 29-00-00-790-803.

SUBTASK 29-00-00-860-120

- (7) Push the INIT/REF key on the CDU to get out of the DFCS BITE.

NOTE: Horn will sound.

SUBTASK 29-00-00-860-121

- (8) Push the A/P DISENGAGE A switch on the control wheel.

SUBTASK 29-00-00-860-122

- (9) Put the FMC transfer switch, on the forward overhead panel, P5, to NORMAL.

I. Put the Airplane Back to its Usual Condition

SUBTASK 29-00-00-860-123

- (1) Make sure that the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the OFF position.

SUBTASK 29-00-00-860-124



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



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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-860-125

- (3) Make sure that the FLT CONTROL A and B, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-126

- (4) Make sure that the SPOILER A and B switches, on the forward overhead panel, P5, in the ON position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 619
Sep 15/2023



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

SUBTASK 29-00-00-860-127



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

- (5) Pressurize the hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-860-128

- (6) Put the SPEED BRAKE lever to the DOWN position.

SUBTASK 29-00-00-860-129

- (7) Remove power from the hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-00-00-080-018

- (8) Remove the portable hydraulic cart or the ammeter equipment from the airplane.

SUBTASK 29-00-00-993-001

- (9) Do these steps to turn on the antiskid system:
(a) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

SUBTASK 29-00-00-860-254

- (10) Release the parking brakes.

SUBTASK 29-00-00-840-015

- (11) Close this access panel:

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

SUBTASK 29-00-00-610-002

- (12) If necessary, service the system A and B hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

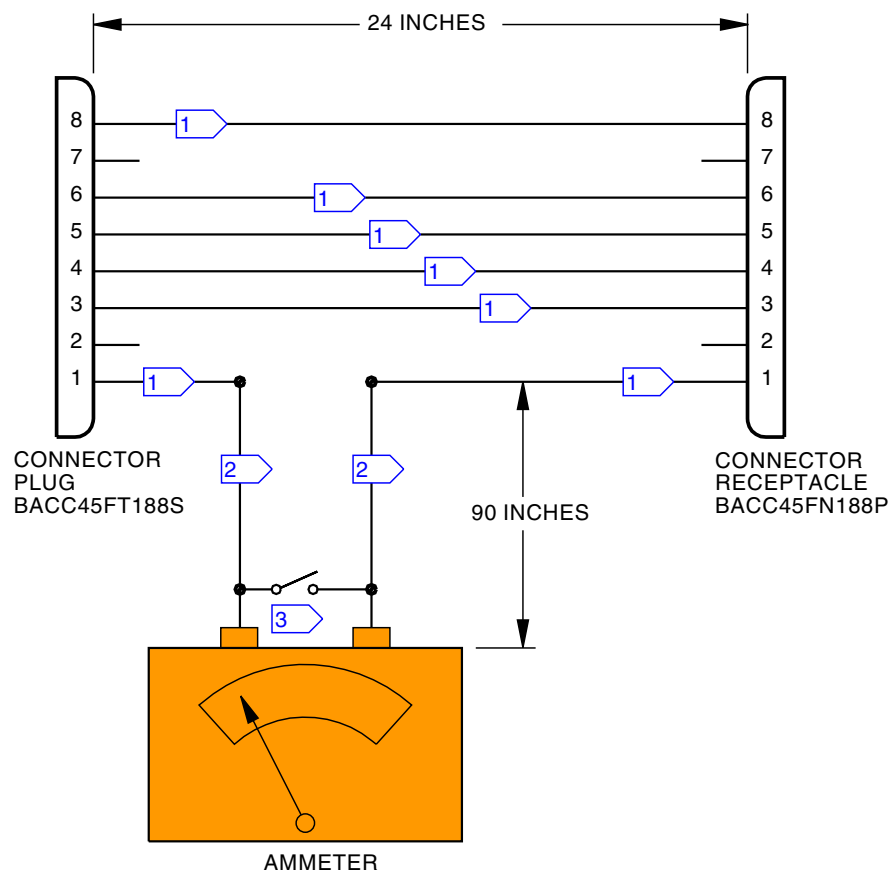
29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 620
Jan 15/2023

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



NOTE:

- 1 NO. 12 WIRE
- 2 NO. 10 WIRE
- 3 SHORT CIRCUIT SWITCH

2413748 S00061533255_V1

Ammeter Wiring Harness for the A and B EMDP Hydraulic Systems
Figure 601/29-00-00-990-803

EFFECTIVITY
SIA ALL

D633AM101-SIA

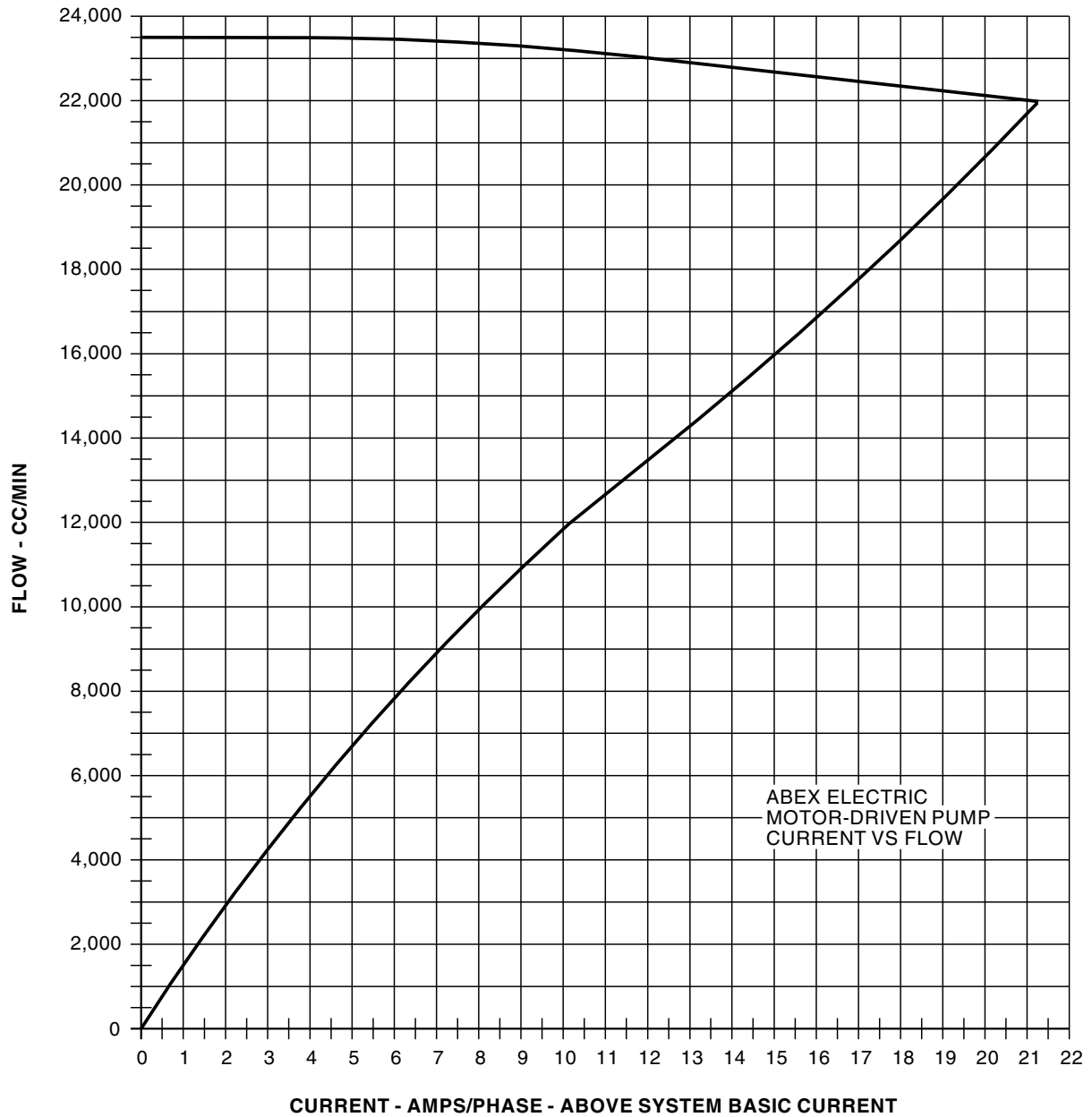
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 621
Sep 15/2022



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



2413749 S00061533256_V1

Hydraulic System A and B EMDP Characteristics
Figure 602/29-00-00-990-804 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-00-00

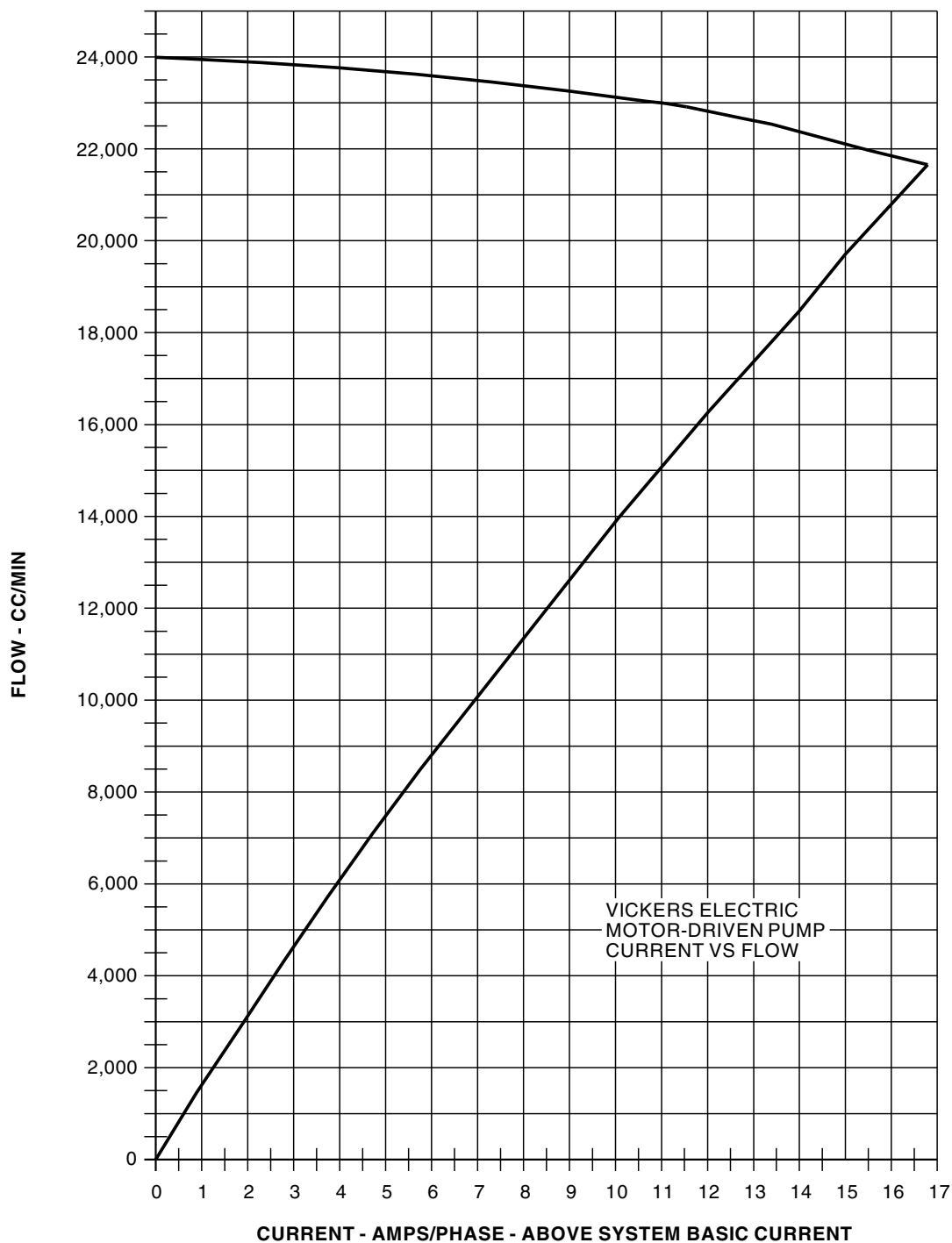
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 622
Sep 15/2022



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



2413750 S00061533257_V1

Hydraulic System A and B EMDP Characteristics
Figure 602/29-00-00-990-804 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 623
Sep 15/2022



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

TASK 29-00-00-790-803

4. System A or System B Sub-System Internal Leakage Check

(Figure 601, Figure 602)

A. General

- (1) Use this check to find the internal leakage of the systems that use hydraulic power.
- (2) You must find the changes in the flow of hydraulic fluid (during different conditions of operation) to find the internal leakage rate for each part of the system. There are three methods to measure the flow: the ammeter, the flowmeter, and the amp-clamp multimeter.
 - (a) To use the ammeter method, you connect an ammeter in series with one phase of the motor on the electric motor-driven pump (EMDP), (Figure 601). To find the flow you measure the current, subtract the other current readings as directed, and use Figure 602 to change it to a flow.
 - (b) To use the flowmeter method, you install a flowmeter on a hydraulic service cart and read the flow from it.
 - (c) To use the amp-clamp/multimeter method, you put the amp-clamp adapter around one of the wires connected to a relay for the EMDP. You can use either a dedicated amp-clamp meter or a clamp-on current probe connected to a generic multimeter. You then read the current directly on the amp-clamp meter or on the multimeter that is connected to the clamp-on probe. To find the flow you measure the current, subtract the other current readings as directed, and use Figure 602 to get the flow.
- (3) When you read the ammeter, make a record of the value to the nearest 0.1 ampere.
- (4) When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
32-09-10-710-801	Proximity Switch Electronics Unit - LRU Replacement Test (P/B 501)

C. Tools/Equipment

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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 624
Sep 15/2022



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

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
COM-1786	Equipment - Hydraulic Leakage Check Part #: 410DME-10AR Supplier: 06659 Part #: 410DME-10AR-M Supplier: 06659 Part #: HTT-02 Supplier: H6394
COM-1787	Ammeter - Leakage Check, A.C. Internal Hydraulic System Part #: 201400 Supplier: 60336 Opt Part #: 433-2919001 Supplier: 32590
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
COM-2531	Clamp-On- Current Meter Part #: 324 Supplier: 89536 Part #: 374 Supplier: 89536 Part #: LH41A Supplier: 0JV05 Opt Part #: 321 Supplier: 89536 Opt Part #: 322 Supplier: 89536 Opt Part #: MODEL 33 Supplier: 89536 Opt Part #: MODEL 36 Supplier: 89536
COM-9509	Probe, Clamp-on - Current, AC/DC Part #: I410 Supplier: 89536 Part #: I800 Supplier: 89536 Part #: i30 Supplier: 89536 Opt Part #: 80I-600A Supplier: 89536

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 625
May 15/2023



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

(Continued)

Reference	Description
SPL-1788	Cable - Hydraulic Leakage Check Part #: F80135-13 Supplier: 81205 Opt Part #: F80135-1 Supplier: 81205
STD-12995	Flowmeter - 0.2 to 7.0 GPM, 3% Precision of the Indication at 3000 PSI

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the System Internal Leakage Check

SUBTASK 29-00-00-480-028



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



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

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

SUBTASK 29-00-00-840-017

- (2) Install locking pin in the nose gear steering by-pass valve.

SUBTASK 29-00-00-840-018

- (3) Make sure the main landing gear has blocks installed.

SUBTASK 29-00-00-840-019

- (4) Remove the blocks and the tow bar from the nose landing gear.

SUBTASK 29-00-00-840-020

- (5) Make sure that all cowls on the engine are closed.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 626
Sep 15/2023



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

SUBTASK 29-00-00-860-130

- (6) Open this access panel to get access to the main electronics equipment compartment.

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

SUBTASK 29-00-00-840-021

- (7) If you use the ammeter, COM-1787, then do these steps:

NOTE: When you read the ammeter, make a record of the value to the nearest 0.1 ampere.
Use the Figure 602 to change current to flow.

- (a) Make sure the person in the flight compartment and the person on the ground can speak to each other (Interphone, radio).



WARNING

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



WARNING

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

- (b) To do a test of hydraulic system B:
- 1) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- (c) To do a test of hydraulic system A:
- 1) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

- (d) Disconnect the electrical connector from the electric motor-driven pump (EMDP) for the A or B hydraulic system, (Figure 601).
- (e) Connect one end of the cable, SPL-1788, to the EMDP.
- (f) Connect the other end of the cable, SPL-1788, to the electrical connector.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 627
Sep 15/2023



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



PUT THE AMMETER IN THE SHORT-CIRCUIT POSITION. IF IT IS IN THE CIRCUIT, THE CURRENT WILL CAUSE DAMAGE TO THE AMMETER.

- (g) Put the switch on the ammeter, COM-1787, in the short-circuit position.



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



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

- (h) To do a test of hydraulic system B:
- 1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- (i) To do a test of hydraulic system A:
- 1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-00-00-840-022

- (8) If you use the flowmeter, STD-12995 (preferable), or hydraulic leakage check equipment, COM-1786 (alternative), and 3000 PSI, 30 GPM portable hydraulic cart, COM-163, then do these steps:

NOTE: When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

- (a) Connect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the ground service module for hydraulic system A or B.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

- 1) If applicable, put the remote readout for the hydraulic leakage check equipment, COM-1786, in the control cabin.
- 2) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 628
Sep 15/2023



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

SUBTASK 29-00-00-840-023

- (9) If you use the clamp-on current meter, COM-2531, or a combination of the clamp-on probe, COM-9509, and the digital/analog multimeter, COM-1793, then do these steps:

NOTE: The clamp-on current meter, COM-2531, or clamp-on probe, COM-9509, is installed on one of the three wires that provide phased electrical power to the EMDP. These tools can either be installed at the EMDP in the wheel well or at the relay in the power distribution panels, P91 and P92.

NOTE: When you use the clamp-on current meter, COM-2531, or digital/analog multimeter, COM-1793, read the current on the meter and use Figure 602 to get the flow.

- (a) To install the clamp-on current meter, COM-2531, or clamp-on probe, COM-9509, in the power distribution panels, P91 or P92, do these steps:



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



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

- 1) To do a test of hydraulic system B:
- a) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 2) To do a test of hydraulic system A:
- a) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A



BE CAREFUL WHEN YOU INSTALL THE DIGITAL/ANALOG MULTIMETER, COM-1793 INTO THE P91 AND P92 PANELS. THE P91 AND P92 PANELS CONTAIN HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONS.

- 3) To test hydraulic system B, get access to the relay, R318, for the system B EMDP in the power distribution panel, P91.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 629
Sep 15/2022



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

- 4) To test hydraulic system A, get access to the relay, R317, for the system A EMDP in the power distribution panel, P92.
- 5) Put the clamp-on current meter, COM-2531, or clamp-on probe, COM-9509, around one of the three wires that go aft from the relay.
 - a) If used, connect the digital/analog multimeter, COM-1793, to the clamp-on probe, COM-9509.
- 6) To do a test of hydraulic system B:
 - a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 7) To do a test of hydraulic system A:
 - a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-00-00-840-024

- (10) If you use the EMDP's for this check, make sure the main tank 1 (for the system A heat exchanger) and the main tank 2 (for the system B heat exchanger) have a minimum of 250 gallons (1675 lb (759.8 kg)) of fuel in them.

NOTE: This is necessary to prevent the hydraulic pumps from becoming too hot.

SUBTASK 29-00-00-840-025

- (11) Put the parking brakes on.

SUBTASK 29-00-00-840-026

- (12) Put the FLT CONTROL A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-132

- (13) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-133

- (14) If the airplane hydraulic pumps will be used to pressurize the hydraulic system, pressurize the hydraulic reservoirs to 20 psig (138 kPa) minimum, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 630
Sep 15/2022



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

SUBTASK 29-00-00-860-134



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

- (15) Pressurize the hydraulic systems A and B with the electric motor-driven pump or with a portable hydraulic cart, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

SUBTASK 29-00-00-840-027

- (16) Operate the flaps 2 times to warm the hydraulic fluid.

SUBTASK 29-00-00-840-028

- (17) Operate all of the control surfaces through a minimum of 10 cycles after the hydraulic fluid is warm.

SUBTASK 29-00-00-840-029

- (18) Do these steps to put the airplane in its initial condition:

- (a) Put the reverse thrust levers in the STOWED position.
- (b) Put the stabilizer trim in the green band.

NOTE: The stabilizer indicator is on the control stand.

- (c) Set the aileron trim to zero.

NOTE: The aileron trim indicator is on the control wheel.

- (d) Set the rudder trim to zero.

NOTE: The rudder trim indicator is on the aft electronic panel, P8.

- (e) Do these steps to turn off the antiskid system:

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

- (f) Put the YAW DAMPER switch, on the forward overhead panel, P5, in the OFF position.
- (g) Put the A/P ENGAGE switches, on the mode control panel (MCP), in the OFF position.
- (h) Do these steps to depressurize the landing gear hydraulic circuit:
 - 1) Make sure that the LANDING GEAR lever, on the center instrument panel, P2, is in the DN position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 631
Sep 15/2022



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

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

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C04020	LANDING GEAR CONTROL 1
D	19	C04021	LANDING GEAR CONTROL 2

- (i) Put the SPEED BRAKE lever, on the control stand, in the DOWN position.
- (j) Put the FLT CONTROL A and B switches, on the forward overhead panel, P5, in the OFF position.
- (k) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the OFF position.
- (l) Set the FLAP position lever to 25 and let the flaps move.



WARNING

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



WARNING

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

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

Power Distribution Panel Number 2, P92

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

- (n) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the ARM position.
- (o) Set the FLAP position lever to 40.

NOTE: The flaps will not move.

SUBTASK 29-00-00-860-135

- (19) Remove pressure from the hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 632
Sep 15/2022



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

G. Hydraulic System B Sub-system Internal Leakage Check

SUBTASK 29-00-00-860-136



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

- (1) Make sure that hydraulic system B is pressurized.
 - (a) If the hydraulic system B is not pressurized, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-860-137

- (2) If you use the ammeter, set the ammeter to its highest range.

SUBTASK 29-00-00-210-011

- (3) Make sure the pressure in system B is a minimum of 2800 psig (19,305 kPa).

SUBTASK 29-00-00-210-012

- (4) Make sure the FLT CONTROL B switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-210-013

- (5) Make sure the SPOILER B switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-790-009

- (6) If you use the ammeter or amp-clamp multimeter method, read the amperage and write it here:

Table 616/29-00-00-993-816

Amperage: _____ (Value 1)
Note: The amperage measured is the system B basic current, and must be subtracted from all other system B amperage readings BEFORE you use the result of the subtraction to find the equivalent flow from Figure 602.

SUBTASK 29-00-00-200-001

- (7) If you use the flow meter method, read the flow value and write it here:

Table 617/29-00-00-993-817

Flow: _____ cc/min (Value 1)
Note: This value is the system B basic flow.

SUBTASK 29-00-00-790-010

- (8) Do these steps to find the leakage of the system B flight controls:
 - (a) Put the FLT CONTROL B switch, on the forward overhead panel, P5, in the ON position.
 - (b) Make sure the control wheel is in the neutral position and do not operate any flight controls.
 - (c) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 618/29-00-00-993-818

Amperage: _____ (Value 2)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 633
Sep 15/2022



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

- 2) Subtract Value 1 from Value 2 and write it here:

Table 619/29-00-00-993-819

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 620/29-00-00-993-820

Flow: _____ cc/min (Value 3)
Note: This is the internal leakage for the system B flight controls.

- (d) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

Table 621/29-00-00-993-821

Flow: _____ cc/min (Value 2)

- 2) Subtract Value 1 from Value 2 and write it here:

Table 622/29-00-00-993-822

Calculated Flow: _____ cc/min (Value 3)
Note: This is the internal leakage for the system B flight controls

- (e) If Value 3 is more than 12,100 cc/min, do the steps to check Hydraulic System B Sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-790-011

- (9) Do these steps to find the leakage of the system B spoilers 3,5,8, and 10:

- (a) Put the SPOILER B switch, on the forward overhead panel, P5, in the ON position
(b) Put the FLT CONTROL B switch, on the forward overhead panel, P5, in the OFF position.

NOTE: This removes system B hydraulic pressure from the elevator power control unit (PCU), elevator feel actuator, elevator autopilot (A/P) actuator, rudder PCU, aileron PCU and aileron A/P actuator.

- (c) If you use the ammeter or amp-clamp multimeter method do these steps:

- 1) Read the amperage and write it here:

Table 623/29-00-00-993-823

Amperage: _____ (Value 4)

- 2) Subtract Value 1 from Value 4 and write it here:

Table 624/29-00-00-993-824

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to flow and write it here:

Table 625/29-00-00-993-825

Flow: _____ cc/min (Value 5)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 634
Sep 15/2022



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

Note: This is the internal leakage for the system B spoilers 3, 5, 8, and 10.

(d) If you used the flow meter method do these steps:

- 1) Read the flow and write it here:

Table 626/29-00-00-993-826

Flow: _____ cc/min (Value 4)

- 2) Subtract Value 1 from Value 4 and write it here:

Table 627/29-00-00-993-827

Flow: _____ cc/min (Value 5)

Note: This is the internal leakage for the system B spoilers 3, 5, 8, and 10.

- (e) If Value 5 is more than 1,000 cc/min, do the steps to check Hydraulic System B sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-860-138

- (10) Put the SPOILER B switch, on the forward overhead panel, P5, to the OFF position.

SUBTASK 29-00-00-790-012

- (11) Do these steps to find the leakage of the control valve for the trailing edge (TE) flaps:

- (a) Put the ALTERNATE FLAPS switch in the OFF position.

NOTE: The flaps will move to 40 units.

- (b) Set the FLAP position lever to 25.

NOTE: Do not continue until the flaps have completed their travel.

- (c) If you use the ammeter or amp-clamp multimeter method do these steps:

- 1) Read the amperage and write it here:

Table 628/29-00-00-993-828

Amperage: _____ (Value 6)

- 2) Subtract Value 1 from Value 6 and write it here:

Table 629/29-00-00-993-829

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to flow and write it here:

Table 630/29-00-00-993-830

Flow: _____ cc/min (Value 7)

Note: This is the internal leakage for the system B TE flaps.

- (d) If you used the flow meter method do these steps:

- 1) Read the flow and write it here:

Table 631/29-00-00-993-831

Flow: _____ cc/min (Value 6)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 635
Sep 15/2022



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

- 2) Subtract Value 1 from Value 6 and write it here:

Table 632/29-00-00-993-832

Flow: _____ cc/min (Value 7)
Note: This is the internal leakage for the system B TE flaps.

- (e) If Value 7 is more than 8,000 cc/min, do the steps to check Hydraulic System B sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-790-013

- (12) Do these steps to find the null leakage for spoilers 3,5,8, and 10:
- (a) Put the SPOILER B switch in the ON position.
 - (b) Put the SPEED BRAKE lever half the distance between the ARMED and the FLIGHT DETENT positions.
 - (c) If you use the ammeter or amp-clamp multimeter method do these steps:
 - 1) Read the amperage and write it here:

Table 633/29-00-00-993-833

Amperage: _____ (Value 8)

- 2) Subtract Value 1 from Value 8 and write it here:
Amperage: _____ (Calculated amperage)

Table 634/29-00-00-993-834

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to flow and write it here:

Table 635/29-00-00-993-835

Flow: _____ cc/min (Value 9)
Note: This is the null leakage for the system B spoilers 3, 5, 8, and 10.

- (d) If you used the flow meter method do these steps:
 - 1) Read the flow and write it here:

Table 636/29-00-00-993-836

Flow: _____ cc/min (Value 8)

- 2) Subtract Value 1 from Value 9 and write it here:

Table 637/29-00-00-993-837

Flow: _____ cc/min (Value 9)
Note: This is the null leakage of the system B spoilers 3, 5, ,8 and 10.

- (e) If Value 9 is more than 8,000 cc/min, do the steps to check Hydraulic System B sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-860-139

- (13) Put the SPEED BRAKE lever to the down-and-locked position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 636
Sep 15/2022



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

SUBTASK 29-00-00-860-140

- (14) Put the SPOILER B switch to the OFF position.

SUBTASK 29-00-00-860-141

- (15) Put FLAP lever to the 0 position.

NOTE: The flaps will retract.

SUBTASK 29-00-00-860-142

- (16) Remove power from the hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-00-00-800-001

- (17) This completes the Hydraulic System B Sub-system Internal Leakage Check.

H. Hydraulic System A Sub-system Internal Leakage Check

SUBTASK 29-00-00-480-015

- (1) Connect the equipment that is necessary to measure the current or flow to hydraulic system A.

SUBTASK 29-00-00-860-143



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

- (2) Pressurize the hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-210-014

- (3) Make sure that the FLT CONTROL A switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-210-015

- (4) Make sure that the SPOILER A switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-210-016

- (5) Make sure the pressure in system A is a minimum of 2800 psig (19,305 kPa).

SUBTASK 29-00-00-790-014

- (6) Do these steps to find the system A basic current or flow :
- (a) If you use the ammeter or amp-clamp multimeter method, read the amperage and write it here:

Table 638/29-00-00-993-838

Amperage: _____ (Value 10)
Note: The amperage measured is the system A basic current, and must be subtracted from all other system A amperage readings before you use the result of the subtraction to find the equivalent flow from Figure 602.

- (b) If you use the flow meter method, read the flow value and write it here:

Table 639/29-00-00-993-839

Flow: _____ cc/min (Value 10)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 637
Sep 15/2022



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

Note: This value is the system A basic flow.

SUBTASK 29-00-00-790-015

- (7) Do these steps to find the leakage for the system A flight controls:
- Put the FLT CONTROL A switch, on the forward overhead panel, P5, in the ON position.
 - Make sure the control wheel is in the neutral position and do not operate any flight controls.
 - If you use the ammeter or amp-clamp multimeter method do these steps:
 - Read the amperage and write it here:

Table 640/29-00-00-993-840

Amperage: _____ (Value 11)

- Subtract Value 10 from Value 11 and write it here:

Table 641/29-00-00-993-841

Amperage: _____ (Calculated) amperage)

- Use Figure 602 for the applicable pump to change the calculated amperage to flow and write it here:

Table 642/29-00-00-993-842

Flow: _____ cc/min (Value 12)

Note: This value is the internal leakage for the system A flight controls.

- If you used the flow meter method do these steps:
 - Read the flow and write it here:

Table 643/29-00-00-993-843

Flow: _____ cc/min (Value 11)

- Subtract Value 10 from Value 11 and write it here:

Table 644/29-00-00-993-844

Flow: _____ cc/min (Value 12)

Note: This value is the internal leakage for the system A flight controls.

- If Value 12 is more than 11,000 cc/min, do the steps to check Hydraulic System A sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-790-016

- (8) Do these steps to find the leakage for the system A spoilers 2,4,9, and 11:
- Put the SPOILER A switch, on the forward overhead panel, P5, in the ON position.
 - Put the FLT CONTROL A switch in the OFF position.
- NOTE:** This removes system A hydraulic pressure from the elevator power control unit (PCU), elevator feel actuator, elevator autopilot (A/P) actuator, rudder PCU, aileron PCU and aileron A/P actuator.
- If you use the ammeter or amp-clamp multimeter method do these steps:
 - Read the amperage and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 638
Sep 15/2022



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

Table 645/29-00-00-993-845

Amperage: _____ (Value 13)

- 2) Subtract Value 10 from Value 13 and write it here:

Table 646/29-00-00-993-846

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to flow and write it here:

Table 647/29-00-00-993-847

Flow: _____ cc/min (Value 14)

Note: This value is the internal leakage of system A spoilers 2, 4, 9, and 11.

- (d) If you used the flow meter method do these steps:

- 1) Read the flow and write it here:

Table 648/29-00-00-993-848

Flow: _____ cc/min (Value 13)

- 2) Subtract Value 10 from Value 13 and write it here:

Table 649/29-00-00-993-849

Flow: _____ cc/min (Value 14)

Note: This value is the internal leakage of system A spoilers 2, 4, 9, and 11.

- (e) If Value 14 is more than 1,000 cc/min, do the steps to check Hydraulic System A sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-790-017

- (9) Do these steps to find the null leakage for spoilers 2, 4, 9, and 11:

- (a) Make sure the SPOILER A switch is in the ON position.
- (b) Put the SPEED BRAKE lever half the distance between the ARMED and the FLIGHT DETENT positions.
- (c) If you use the ammeter or amp-clamp multimeter method do these steps:
 - 1) Read the amperage and write it here:

Table 650/29-00-00-993-850

Amperage: _____ (Value 15)

- 2) Subtract Value 10 from Value 15 and write it here:

Table 651/29-00-00-993-851

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to flow and write it here:

EFFECTIVITY
SIA ALL

29-00-00



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

Table 652/29-00-00-993-852

Flow: _____ cc/min (Value 16)
Note: This is the null leakage for the system A spoilers 2, 4, 9, and 11.

- (d) If you used the flow meter method do these steps:
- 1) Read the flow and write it here:

Table 653/29-00-00-993-853

Flow: _____ cc/min (Value 15)

- 2) Subtract Value 10 from Value 15 and write it here:

Table 654/29-00-00-993-854

Flow: _____ cc/min (Value 16)
Note: This is the null leakage for the system A spoilers 2, 4, 9, and 11.

- (e) If Value 16 is more than 8,000 cc/min, do the steps to check Hydraulic System A sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-860-144

- (10) Put the SPEED BRAKE lever to the down-and-locked position.

SUBTASK 29-00-00-860-145

- (11) Put the SPOILER A switch to the OFF position.

SUBTASK 29-00-00-790-018

- (12) Do these steps to find the leakage for the landing gear and steering system:
- (a) Make sure that the FLT CONTROL A switch, on the forward overhead panel, P5, is in the OFF position.
 - (b) Make sure that the LANDING GEAR lever, on the center instrument panel, P2, is in the DN position.
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C04020	LANDING GEAR CONTROL 1
D	19	C04021	LANDING GEAR CONTROL 2

- (c) If you use the ammeter or amp-clamp multimeter method do these steps:
- 1) Read the amperage and write it here:

Table 655/29-00-00-993-855

Amperage: _____ (Value 17)

- 2) Subtract Value 10 from Value 17 and write it here:

Table 656/29-00-00-993-856

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to change the calculated amperage to flow and write it here:

EFFECTIVITY
SIA ALL

29-00-00



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

Table 657/29-00-00-993-857

Flow: _____ cc/min (Value 18)
Note: This is the internal leakage of the landing gear and steering system.

- (d) If you used the flow meter method do these steps:
- 1) Read the flow and write it here:

Table 658/29-00-00-993-858

Flow: _____ cc/min (Value 17)

- 2) Subtract Value 10 from Value 17 and write it here:

Table 659/29-00-00-993-859

Flow: _____ cc/min (Value 18)
Note: This is the internal leakage of the landing gear and steering system.

- (e) If Value 18 is more than 2,100 cc/min, do the steps to check Hydraulic System A sub-system parts to find the part that has too much leakage, do this task: Part Internal Leakage Check, TASK 29-00-00-790-804.

SUBTASK 29-00-00-800-002

- (13) This completes the Hydraulic System A Sub-system Internal Leakage Check. Continue with:
Put the Airplane Back to its Usual Condition.

I. Put the Airplane Back to its Usual Condition

SUBTASK 29-00-00-860-146

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

SUBTASK 29-00-00-860-147

- (2) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the OFF position.

SUBTASK 29-00-00-860-148



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 641
Sep 15/2022



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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-860-149

- (4) Put the FLT CONTROL A and B, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-150

- (5) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-151

- (6) Remove power from the hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-00-00-080-019

- (7) Remove the portable hydraulic cart, ammeter, or amp-clamp multimeter equipment from the airplane.

SUBTASK 29-00-00-790-019

- (8) Remove the locking pin from the nose gear steering by-pass valve.

SUBTASK 29-00-00-860-255

- (9) Release the parking brakes.

SUBTASK 29-00-00-410-002

- (10) Close this access panel:

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

SUBTASK 29-00-00-610-003

- (11) If necessary, fill the systems A and B hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-00-00-710-017

- (12) If any landing gear status messages appear, do this task: Proximity Switch Electronics Unit - LRU Replacement Test, TASK 32-09-10-710-801.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 642
Sep 15/2022



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

TASK 29-00-00-790-804

5. Part Internal Leakage Check

(Figure 601, Figure 602)

A. General

- (1) Use this check to find the internal leakage of each part or a small group of parts.
- (2) To find the condition of the parts of the hydraulic system you compare the leakage you measured to the maximum leakage. If you find a leakage that is more than the maximum, you must replace the parts that have too much leakage. Refer to Chapter 27 (Flight Controls), Chapter 32 (Landing Gear), or Chapter 22 (Autoflight) for the applicable removal and installation procedures.
- (3) You must find the changes in the flow of hydraulic fluid (during different conditions of operation) to find the internal leakage rate for each part. There are three methods to measure the flow: the ammeter, the flowmeter, and the amp-clamp multimeter.
 - (a) To use the ammeter method, you connect an ammeter in series with one phase of the motor on the electric motor-driven pump (EMDP), (Figure 601). To find the flow you measure the current subtract the applicable system basic current, and use the Figure 602 to change it to a flow.
 - (b) To use the flowmeter method, you install a flowmeter on a portable hydraulic cart and read the flow from it.
 - (c) To use the amp-clamp/multimeter method, you put the amp-clamp adapter around one of the wires connected to a relay for the EMDP. You can use either a dedicated amp-clamp meter or a clamp-on current probe connected to a generic multimeter. You then read the current directly on the amp-clamp meter or on the multimeter that is connected to the clamp-on current probe. To find the flow you measure the current, subtract the other current readings as directed, and use Figure 602 to get the flow.
- (4) When you read the ammeter, make a record of the value (on the data sheets in this manual) to the nearest 0.1 ampere.
- (5) When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-21-00-820-803	Air Data Inertial Reference System - Automatic Alignment from the IRS MSU (P/B 201)
78-31-00-980-801-G00	Thrust Reverser Operation - Extend (Selection) (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 643
Sep 15/2022



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

C. Tools/Equipment

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

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
COM-1786	Equipment - Hydraulic Leakage Check Part #: 410DME-10AR Supplier: 06659 Part #: 410DME-10AR-M Supplier: 06659 Part #: HTT-02 Supplier: H6394
COM-1787	Ammeter - Leakage Check, A.C. Internal Hydraulic System Part #: 201400 Supplier: 60336 Opt Part #: 433-2919001 Supplier: 32590
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
COM-1797	Stethoscope - Mechanics, 12 Inch Probe Part #: GA111D Supplier: 55719 Opt Part #: GA111C Supplier: 55719

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 644
May 15/2023



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

(Continued)

Reference	Description
COM-2531	Clamp-On- Current Meter Part #: 324 Supplier: 89536 Part #: 374 Supplier: 89536 Part #: LH41A Supplier: 0JV05 Opt Part #: 321 Supplier: 89536 Opt Part #: 322 Supplier: 89536 Opt Part #: MODEL 33 Supplier: 89536 Opt Part #: MODEL 36 Supplier: 89536
COM-9509	Probe, Clamp-on - Current, AC/DC Part #: I410 Supplier: 89536 Part #: I800 Supplier: 89536 Part #: i30 Supplier: 89536 Opt Part #: 80I-600A Supplier: 89536
SPL-1788	Cable - Hydraulic Leakage Check Part #: F80135-13 Supplier: 81205 Opt Part #: F80135-1 Supplier: 81205
STD-12995	Flowmeter - 0.2 to 7.0 GPM, 3% Precision of the Indication at 3000 PSI

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Part Internal Leakage Check

SUBTASK 29-00-00-480-025



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 645
Sep 15/2023



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

(WARNING PRECEDES)

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

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

SUBTASK 29-00-00-840-031

- (2) Make sure the main landing gear has blocks installed.

SUBTASK 29-00-00-840-032

- (3) Remove the blocks and the tow bar from the nose landing gear.

SUBTASK 29-00-00-840-033

- (4) Make sure that all cowlings on the engine are closed.

SUBTASK 29-00-00-860-152

- (5) Open this access panel to get access to the main electronics equipment compartment.

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

SUBTASK 29-00-00-840-034

- (6) If you use the EMDP's for this check, make sure the main tank 1 (for the system A heat exchanger) and the main tank 2 (for the system B heat exchanger) have a minimum of 250 gallons (1675 lb (760 kg)) of fuel in them.

NOTE: This is necessary to prevent the hydraulic pumps from becoming too hot.

SUBTASK 29-00-00-840-035

- (7) Put the parking brakes on.

SUBTASK 29-00-00-840-036

- (8) Put the FLT CONTROL A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-154

- (9) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-155

- (10) If the airplane hydraulic pumps will be used to pressurize the hydraulic system, check to make sure that the hydraulic reservoirs are pressurized to 20 psi (138 kPa) minimum.
- (a) To pressurize the reservoirs, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 646
Sep 15/2023



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

SUBTASK 29-00-00-860-156



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

- (11) Pressurize the hydraulic systems A and B with the electric motor-driven pump or with a portable hydraulic cart, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

SUBTASK 29-00-00-840-037

- (12) Operate the flaps 2 times to warm the hydraulic fluid.

SUBTASK 29-00-00-840-038

- (13) Operate all of the control surfaces through a minimum of 10 cycles after the hydraulic fluid is warm.

SUBTASK 29-00-00-840-039

- (14) Do these steps to put the airplane in its initial condition:

- (a) Put the reverse thrust levers in the STOWED position.
- (b) Put the stabilizer trim in the green band.

NOTE: The stabilizer indicator is on the control stand.

- (c) Set the aileron trim to zero.

NOTE: The aileron trim indicator is on the control wheel.

- (d) Set the rudder trim to zero.

NOTE: The rudder trim indicator is on the aft electronic panel, P8.

- (e) Do these steps to turn off the antiskid system:

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

- (f) Align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801 or Air Data Inertial Reference System - Automatic Alignment from the IRS MSU, TASK 34-21-00-820-803.
- (g) Put the YAW DAMPER switch, on the forward overhead panel, P5, in the OFF position.
- (h) Put the A/P ENGAGE switches, on the mode control panel (MCP), in the OFF position.
- (i) Do these steps to depressurize the landing gear hydraulic circuit:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 647
Sep 15/2023



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

- 1) Make sure that the LANDING GEAR lever, on the center instrument panel, P2, is in the DN position.
 - a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C04020	LANDING GEAR CONTROL 1
D	19	C04021	LANDING GEAR CONTROL 2

- (j) Put the SPEED BRAKE lever, on the control stand, in the DOWN position.
 - (k) Put the FLT CONTROL A and B switches, on the forward overhead panel, P5, in the OFF position.
 - (l) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the OFF position.
 - (m) Set the FLAP position lever to 25 and let the flaps move.



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



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

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

Power Distribution Panel Number 2, P92

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

- (o) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the ARM position.
 - (p) Set the FLAP position lever to 40 (the flaps will not move).

SUBTASK 29-00-00-840-040

- (15) If you use the ammeter, COM-1787, then do these steps:

NOTE: When you read the ammeter, make a record of the value to the nearest 0.1 ampere.
Use the Figure 602 to change current to flow.

- (a) Make sure the person in the flight compartment and the person on the ground can speak to each other (Interphone, radio).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 648
Sep 15/2023

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



WARNING

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



WARNING

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

- (b) To do a test of hydraulic system B:

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- (c) To do a test of hydraulic system A:

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

- (d) Disconnect the electrical connector from the electric motor-driven pump (EMDP) for the A or B hydraulic system.
- (e) Connect one end of the cable, SPL-1788, to the EMDP.
- (f) Connect the other end of the cable, SPL-1788, to the electrical connector.



CAUTION

PUT THE AMMETER IN THE SHORT-CIRCUIT POSITION. IF IT IS IN THE CIRCUIT, THE CURRENT WILL CAUSE DAMAGE TO THE AMMETER.

- (g) Put the switch on the ammeter, COM-1787, in the short-circuit position.
- (h) To do a test of hydraulic system B:
- 1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- (i) To do a test of hydraulic system A:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 649
Sep 15/2023



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

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-00-00-840-041

- (16) If you use the flowmeter, STD-12995 (preferable), or hydraulic leakage check equipment, COM-1786 (alternative), and the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, then do these steps:

NOTE: When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

- (a) Connect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the ground service module for hydraulic system A or B.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

- 1) Put the remote readout for the hydraulic leakage check equipment, COM-1786, in the control cabin (if you have one).
- 2) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-840-042

- (17) If you use the clamp-on current meter, COM-2531 or a combination of the clamp-on probe, COM-9509 and the digital/analog multimeter, COM-1793 then do the steps that follow

NOTE: The clamp-on current meter, COM-2531 or clamp-on probe, COM-9509 is installed on one of the three wires that provide phased electrical power to the EMDP. These tools can either be installed at the EMDP in the wheel well or at the relay in the P91 and P92 panel.

NOTE: When you use the clamp-on current meter, COM-2531 or the digital/analog multimeter, COM-1793, read the current on the meter and use Figure 602 to get the flow.

- (a) To install the clamp-on current meter, COM-2531 or clamp-on probe, COM-9509 in the P91 or P92 panel, do these steps:



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



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

- 1) To do a test of hydraulic system B:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 650
Sep 15/2023



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 2) To do a test of hydraulic system A:

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A



WARNING

BE CAREFUL WHEN YOU INSTALL THE DIGITAL/ANALOG MULTIMETER, COM-1793 INTO THE P91 AND P92 PANELS. THE P91 AND P92 PANELS CONTAIN HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONS.

- 3) To test hydraulic system B, get access to the relay, R318, for the system B EMDP in the power distribution panel, P91.
- 4) To test hydraulic system A, get access to the relay, R317, for the system A EMDP in the power distribution panel, P92.
- 5) Put the clamp-on current meter, COM-2531 or clamp-on probe, COM-9509 around one of the three wires that go aft from the relay.
- a) If used, connect the digital/analog multimeter, COM-1793, to the clamp-on probe, COM-9509.
- 6) To do a test of hydraulic system B:
- a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 7) To do a test of hydraulic system A:

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

G. System B Part Internal Leakage Check

SUBTASK 29-00-00-860-157

- (1) Remove power from the hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-00-00-210-017

- (2) Make sure the pressure in system B is a minimum of 2800 psi (19,305 kPa).

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 651
Sep 15/2023



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

SUBTASK 29-00-00-210-018

- (3) Make sure the FLT CONTROL B switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-210-019

- (4) Make sure the SPOILER B switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-790-020

- (5) If you use the ammeter or amp-clamp multimeter method, read the amperage and write it here:

Table 660/29-00-00-993-860

Amperage: _____ (Value 1)
Note: This is the system B basic current.
Note: The amperage measured is the system B basic current, and must be subtracted from all other system B amperage readings BEFORE you use the result of the subtraction to find the equivalent flow from Figure 602.

SUBTASK 29-00-00-970-002

- (6) If you use the flow meter method, read the flow value and write it here:

Table 661/29-00-00-993-861

Flow: _____ cc/min (Value 1)
Note: This value is the system B basic flow.

SUBTASK 29-00-00-790-021

- (7) Do these steps to find the leakage of the case drain for the trailing edge (TE) flap motor:

- (a) Set the FLAP position lever to the 0 position.

NOTE: This step provides pressure to the flap motor. The flaps will stay at the 25 position.

- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:

- 1) Read the amperage and write it here:

Amperage: _____ (Value 2)

Table 662/29-00-00-993-862

Amperage: _____ (Value 2)

- 2) Subtract Value 1 from Value 2 and write it here:

Table 663/29-00-00-993-863

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 664/29-00-00-993-864

Flow: _____ cc/min (Value 3)
Note: This is the internal leakage for the case drain of the TE flap motor.

- (c) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 652
Sep 15/2023



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

Table 665/29-00-00-993-865

Flow: _____ cc/min (Value 2)

- 2) Subtract Value 1 from Value 2 and write it here:

Table 666/29-00-00-993-866

Calculated Flow: _____ cc/min (Value 3)
Note: This is the internal leakage for the case drain of the TE flap motor.

- (d) If Value 3 is more than 3000 cc/min., replace the TE flap motor.

SUBTASK 29-00-00-790-022

- (8) Do these steps to find the leakage of the control valve for the TE flaps:

- (a) Set the FLAP position lever to 25.

NOTE: The flaps will not move. They are already at the 25 position.

- (b) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the OFF position.

- (c) If you use the ammeter or amp-clamp multimeter method, do these steps:

- 1) Read the amperage and write it here:

Table 667/29-00-00-993-867

Amperage: _____ (Value 4)

- 2) Subtract Value 1 from Value 4 and write it here:

Table 668/29-00-00-993-868

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 669/29-00-00-993-869

Flow: _____ cc/min (Value 5)
Note: This is the internal leakage for the system B TE flap control valve.

- (d) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

Table 670/29-00-00-993-870

Flow: _____ cc/min (Value 4)

- 2) Subtract Value 1 from Value 4 and write it here:

Table 671/29-00-00-993-871

Flow: _____ cc/min (Value 5)
Note: This is the internal leakage for the system B TE flap control valve.

- (e) If Value 5 is more than 8000 cc/min., replace the control valve for the TE flaps.

SUBTASK 29-00-00-790-023

- (9) Do these steps to find the leakage of the leading edge flaps and slats:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 653
Sep 15/2023



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

- (a) Set the flap control lever to the 0 position.
NOTE: Stop until the flaps and slats fully retract.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 672/29-00-00-993-872

Amperage: _____ (Value 6)

- 2) Subtract Value 1 from Value 6 and write it here:

Table 673/29-00-00-993-873

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 674/29-00-00-993-874

Flow: _____ cc/min (Value 7)

- 4) Subtract value 5 (flap control valve internal leakage) from value 7 and write it here:

Table 675/29-00-00-993-875

Flow: _____ cc/min (Value 7a)

Note: This is the null leakage for the LE flaps and slats.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 676/29-00-00-993-876

Flow: _____ cc/min (Value 6)

- 2) Subtract Value 1 from Value 6 and write it here:

Table 677/29-00-00-993-877

Flow: _____ cc/min (Value 7)

- 3) Subtract value 5 (flap control valve internal leakage) from value 7 and write it here:

Table 678/29-00-00-993-878

Flow: _____ cc/min (Value 7a)

Note: This is the null leakage for the LE flaps and slats.

- (d) If Value 7a is more than 1000 cc/min., refer to the IFIM and do the applicable procedure(s) for LE Flaps and Slats Fail to Operate During Normal Operation to find the bad parts.

SUBTASK 29-00-00-860-158

- (10) Do these steps to put the airplane back to its initial condition:
- (a) Set the FLAP position lever to 25.
NOTE: Stop until the flaps and slats become stable.
 - (b) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the ARM position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

- (c) Set the FLAP position lever to 40.

NOTE: The flaps will not move.

SUBTASK 29-00-00-790-024

- (11) Do these steps to find the leakage of spoiler 3, 5, 8 and 10 when they are retracted:

- (a) Put the SPOILER B switch in the ON position.
- (b) Make sure the FLT CONTROL B switch is in the OFF position.
- (c) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 679/29-00-00-993-879

Amperage: _____ (Value 8)

- 2) Subtract Value 1 from Value 8 and write it here:

Table 680/29-00-00-993-880

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 681/29-00-00-993-881

Flow: _____ cc/min (Value 9)

Note: This is the internal leakage for the system B spoilers 3, 5, 8, and 10.

- (d) If you use the flow meter method, do these steps:
 - 1) Read the flow and write it here:

Table 682/29-00-00-993-882

Flow: _____ cc/min (Value 8)

- 2) Subtract Value 1 from Value 8 and write it here:

Table 683/29-00-00-993-883

Flow: _____ cc/min (Value 9)

Note: This is the internal leakage for the system B spoilers 3, 5, 8, and 10.

- (e) If Value 9 is more than 1000 cc/min., use a stethoscope, COM-1797, at the spoiler control valve and/or the spoiler actuator cylinder to detect, by sound, the leaky part and replace it.

NOTE: Quantitative measurement of individual spoiler leakage is not possible without disconnecting components.

- 1) Put the stethoscope at the head end of the actuator housing to listen for leaks.

NOTE: When excessive internal leakage is revealed, it may be difficult to detect if one actuator is experiencing more internal leakage than others using the stethoscope. In such cases, it may be necessary to remove and bench test all actuators on the effected hydraulic system to identify actuators with excessive internal leakage.

SUBTASK 29-00-00-860-159

- (12) Put the SPOILER B switch in the OFF position.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 655
Sep 15/2023



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

SUBTASK 29-00-00-790-025

- (13) Do these steps to find the null leakage of the empennage and aileron flight control systems:

NOTE: The empennage and aileron systems contain these components; elevator power control unit (PCU), elevator feel actuator, elevator autopilot (A/P) actuator, rudder PCU, aileron PCU and aileron A/P actuator.

- (a) Put the FLT CONTROLS B switch in the ON position.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 684/29-00-00-993-884

Amperage: _____ (Value 14)

- 2) Subtract Value 1 from Value 14 and write it here:

Table 685/29-00-00-993-885

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 686/29-00-00-993-886

Flow: _____ cc/min (Value 15)
Note: This is the null leakage of the empennage and aileron flight controls.

- (c) If you use the flow meter method, do these steps:
 - 1) Read the flow and write it here:

Table 687/29-00-00-993-887

Flow: _____ cc/min (Value 14)

- 2) Subtract Value 1 from Value 14 and write it here:

Table 688/29-00-00-993-888

Flow: _____ cc/min (Value 15)
Note: This is the null leakage of the empennage and aileron flight controls.

SUBTASK 29-00-00-810-001

- (14) If Value 15 is more than 12,100 cc/min., continue with this procedure to isolate the bad part and replace it.
- (a) If Value 15 is less than 12,100 cc/min., continue at the steps to find the right thrust reverser leakage.

SUBTASK 29-00-00-790-026

- (15) Do these steps to find the leakage of the cylinder for the aileron PCU:
- (a) Turn the control wheel fully clockwise.
 - (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 656
Sep 15/2023



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

Table 689/29-00-00-993-889

Amperage: _____ (Value 16)

- 2) Subtract Value 1 from Value 16 and write it here:

Table 690/29-00-00-993-890

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 691/29-00-00-993-891

Flow: _____ cc/min (Value 16a)

- 4) Subtract Value 15 from Value 16a and write it here:

Table 692/29-00-00-993-892

Flow: _____ cc/min (Value 17)

Note: This is the internal leakage of the cylinder for the aileron PCU.

- (c) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

Table 693/29-00-00-993-893

Flow: _____ cc/min (Value 16)

- 2) Subtract Value 1 from Value 16 and write it here:

Table 694/29-00-00-993-894

Flow: _____ cc/min (Value 16a)

- 3) Subtract Value 15 from Value 16a and write it here:

Table 695/29-00-00-993-895

Flow: _____ cc/min (Value 17)

Note: This is the internal leakage of the cylinder for the aileron PCU.

- (d) If Value 17 is more than 1,500 cc/min., replace the aileron PCU.

SUBTASK 29-00-00-970-003

- (16) Move the control wheel to its center position.

SUBTASK 29-00-00-790-027

- (17) Do these steps to find the leakage of the autopilot actuators for the aileron and elevator:

- (a) Do these steps with the DFCS BITE on the control display unit (CDU) to engage the autopilot one channel at a time:

NOTE: Engage the autopilot in BITE to make sure all the inputs are at zero.

NOTE: Follow the instructions in this procedure for the DFCS BITE.

- 1) Push the line select key (LSK) adjacent to INIT/REF.
- 2) Push the LSK adjacent to INDEX.
- 3) Push the LSK adjacent to MAINT.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 657
Sep 15/2023



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

- 4) Push the LSK adjacent to DFCS.
NOTE: Stop until the BITE test is complete.
 - 5) Put the FMC transfer switch, on the power distribution panel, P5, to the BOTH ON L position.
 - 6) Push the LSK adjacent to EXTENDED MAINTENANCE.
 - 7) Push the LSK adjacent to RIGGING.
 - 8) Push the LSK adjacent to ELEVATOR.
 - 9) Push the LSK adjacent to CONTINUE.
NOTE: Ignore the message on the screen.
 - 10) Push the LSK adjacent to CONTINUE.
 - 11) Push the LSK adjacent to ELEV AUTH SINGLE.
NOTE: Ignore instructions to pressurize pitot inputs.
 - 12) Push the LSK adjacent to CONTINUE on screen 51.16.
NOTE: Stop until BITE test is complete. Ignore the instructions to set the stabilizer to test condition.
 - 13) Push the LSK adjacent to CONTINUE on screen 51.17.
NOTE: Stop until BITE test is complete. A new 51.17 screen will appear with instructions to engage the A/P.
 - 14) Engage the system B autopilot.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 696/29-00-00-993-896

Amperage: _____ (Value 18)

- 2) Subtract Value 1 from Value 18 and write it here:

Table 697/29-00-00-993-897

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 698/29-00-00-993-898

Flow: _____ cc/min (Value 18a)

- 4) Subtract Value 15 from Value 18a and write it here:

Table 699/29-00-00-993-899

Flow: _____ cc/min (Value 19)
Note: This is the internal leakage of the autopilot actuators for the aileron and the elevator.

- (c) If you use the flow meter method, do these steps:
 - 1) Read the flow and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 658
Sep 15/2023



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

Table 700/29-00-00-993-900

Flow: _____ cc/min (Value 18)

- 2) Subtract Value 1 from Value 18 and write it here:

Table 701/29-00-00-993-901

Flow: _____ cc/min (Value 18a)

- 3) Subtract Value 15 from Value 18a and write it here:

Table 702/29-00-00-993-902

Flow: _____ cc/min (Value 19)
Note: This is the internal leakage of the autopilot actuators for the aileron and the elevator.

- (d) If Value 19 is more than 2,000 cc/min., isolate the bad part and replace it.

SUBTASK 29-00-00-860-160

- (18) Push the INIT/REF key on the CDU to get out of the DFCS BITE.

SUBTASK 29-00-00-860-161

- (19) Put the A/P ENGAGE switch, on the glareshield panel, P7, for system B in the OFF position.

SUBTASK 29-00-00-790-028

- (20) Do these steps to find the leakage of the cylinder for the elevator PCU:

- (a) Pull the control column fully aft.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 703/29-00-00-993-903

Amperage: _____ (Value 20)

- 2) Subtract Value 1 from Value 20 and write it here:

Table 704/29-00-00-993-904

Amperage: _____ (Calculated) amperage)

- 3) Use (Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 705/29-00-00-993-905

Flow: _____ cc/min (Value 20a)

- 4) Subtract Value 15 from Value 20a and write it here:

Table 706/29-00-00-993-906

Flow: _____ cc/min (Value 21)
Note: This is the internal leakage of the cylinder for the elevator PCU.

- (c) If you use the flow meter method, do these steps:
 - 1) Read the flow and write it here:

Table 707/29-00-00-993-907

Flow: _____ cc/min (Value 20)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 659
Sep 15/2023



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

- 2) Subtract Value 1 from Value 20 and write it here:

Table 708/29-00-00-993-908

Flow: _____ cc/min (Value 20a)

- 3) Subtract Value 15 from Value 20a and write it here:

Table 709/29-00-00-993-909

Flow: _____ cc/min (Value 21)
Note: This is the internal leakage of the cylinder for the elevator PCU.

- (d) If Value 21 is more than 1,500 cc/min., replace the elevator PCU.
(e) Put the control column in its center position.

SUBTASK 29-00-00-790-029

- (21) Do these steps to find the leakage of the cylinder for the main rudder PCU:
- (a) Slowly push the right rudder pedal until it touches the forward quadrant stop.
NOTE: Hold the pedal in the full forward position until directed.
 - (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 710/29-00-00-993-910

Amperage: _____ (Value 22)

- 2) Subtract Value 1 from Value 22 and write it here:

Table 711/29-00-00-993-911

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 712/29-00-00-993-912

Flow: _____ cc/min (Value 22a)

- 4) Subtract Value 15 from Value 22a and write it here:

Table 713/29-00-00-993-913

Flow: _____ cc/min (Value 23)
Note: This is the internal leakage of the cylinder for the main rudder PCU.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 714/29-00-00-993-914

Flow: _____ cc/min (Value 22)

- 2) Subtract Value 1 from Value 22 and write it here:

Table 715/29-00-00-993-915

Flow: _____ cc/min (Value 22a)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 660
Sep 15/2023



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

- 3) Subtract Value 15 from Value 22a and write it here:

Table 716/29-00-00-993-916

Calculated Flow: _____ cc/min (Value 23)
Note: This is the internal leakage of the cylinder for the main rudder PCU.

- (d) If Value 23 is more than 1,200 cc/min., replace the main rudder PCU.
(e) Put the rudder pedals in their center position.

SUBTASK 29-00-00-790-030

- (22) Do these steps to find the internal leakage of the electrohydraulic servo valve for the yaw damper on the main rudder PCU:
- (a) Put the YAW DAMPER switch, on the forward overhead panel, P5, in the ON position.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 717/29-00-00-993-917

Amperage: _____ (Value 24)

- 2) Subtract Value 1 from Value 24 and write it here:

Table 718/29-00-00-993-918

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:
- Flow: _____ cc/min (Value 24a)

Table 719/29-00-00-993-919

Flow: _____ cc/min (Value 24a)

- 4) Subtract Value 15 from Value 24a and write it here:

Table 720/29-00-00-993-920

Flow: _____ cc/min (Value 25)
Note: This is the internal leakage of the electrohydraulic servo valve for the yaw damper.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 721/29-00-00-993-921

Flow: _____ cc/min (Value 24)

- 2) Subtract Value 1 from Value 24 and write it here:

Table 722/29-00-00-993-922

Flow: _____ cc/min (Value 24a)

- 3) Subtract Value 15 from Value 24a and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 661
Sep 15/2023



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

Table 723/29-00-00-993-923

Flow: _____ cc/min (Value 25)
Note: This is the internal leakage of the electrohydraulic servo valve for the yaw damper.

- (d) If Value 25 is more than 2,000 cc/min., replace the electrohydraulic servo valve for the yaw damper.

SUBTASK 29-00-00-860-162

- (23) Put the YAW DAMPER switch, on the forward overhead panel, P5, in the OFF position.

SUBTASK 29-00-00-860-163

- (24) Put the FLT CONTROL B switch in the OFF position.

SUBTASK 29-00-00-790-031

- (25) Do these steps to find the leakage of the right thrust reverser:

- (a) Extend the right thrust reverser, do this task: Thrust Reverser Operation - Extend (Selection), TASK 78-31-00-980-801-G00.

NOTE: The following steps instruct the mechanic to retract the thrust reverser and record a measurement. The thrust reverser retracts for approximately five seconds. The valve for the thrust reverser stays open for ten seconds. The lamp on the pilots aft overhead panel is on when the valve is open. You must read the amperage or flow after the thrust reverser is retracted and before the valve closes.

- (b) Move the reverse thrust lever forward and down (to retract the thrust reverser).
(c) If you use the ammeter or amp-clamp multimeter method, do these steps:
1) Read the amperage within 5 seconds after the thrust reverser has fully retracted and write it here:

Table 724/29-00-00-993-924

Amperage: _____ (Value 26)

- 2) Subtract Value 1 from Value 26 and write it here:

Table 725/29-00-00-993-925

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 726/29-00-00-993-926

Flow: _____ cc/min (Value 27)
Note: This is the internal leakage of the right thrust reverser.

- (d) If you use the flow meter method, do these steps:
1) Read the flow within 5 seconds after the thrust reverser has fully retracted and write it here:

Table 727/29-00-00-993-927

Flow: _____ cc/min (Value 26)

- 2) Subtract Value 1 from Value 26 and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 662
Sep 15/2023



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

Table 728/29-00-00-993-928

Calculated Flow: _____ cc/min (Value 27)
Note: This is the internal leakage of the right thrust reverser.

- (e) If Value 27 is more than 300 cc/min., use a stethoscope, COM-1797, at the thrust reverser actuator cylinder to detect, by sound, the leaky part and replace it.

NOTE: Quantitative measurement of individual actuator leakage is not possible without disconnecting components.

SUBTASK 29-00-00-860-164

- (26) Set the FLAP position lever to 25.

SUBTASK 29-00-00-860-165

- (27) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, to the OFF position.

SUBTASK 29-00-00-860-166

- (28) Set the FLAP position lever to 0.

SUBTASK 29-00-00-860-167

- (29) Remove power from the hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

H. System A Part Internal Leakage Check

SUBTASK 29-00-00-480-016

- (1) Connect the equipment that is necessary to measure the amperage or flow to hydraulic system A.

SUBTASK 29-00-00-860-168



WARNING

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

- (2) Pressurize the hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-210-020

- (3) Make sure the pressure in system A is a minimum of 2800 psi (19,305 kPa).

SUBTASK 29-00-00-210-021

- (4) Make sure that the FLT CONTROL A switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-210-022

- (5) Make sure that the SPOILER A switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-790-032

- (6) If you use the ammeter or amp-clamp multimeter method, read the amperage and write it here:

Table 729/29-00-00-993-929

Amperage: _____ (Value 28)
Note: Do not continue until the amperage value on the tool is stable.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 663
Sep 15/2023



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

Table 729/29-00-00-993-929 (Continued)

Note: This amperage is the system A basic current, and must be subtracted from all other system A amperage readings BEFORE you find the equivalent flow.

SUBTASK 29-00-00-970-004

- (7) If you use the flow meter method, read the flow value and write it here:

Table 730/29-00-00-993-930

Flow: _____ cc/min (Value 28)
Note: This value is the system A basic flow.

SUBTASK 29-00-00-790-033

- (8) Do these steps to find the leakage of spoilers 2, 4, 9 and 11 when they are retracted:
- Put the SPOILER A switch in the ON position.
 - If you use the ammeter or amp-clamp multimeter method, do these steps:
 - Read the amperage and write it here:

Table 731/29-00-00-993-931

Amperage: _____ (Value 29)

- Subtract Value 28 from Value 29 and write it here:

Table 732/29-00-00-993-932

Amperage: _____ (Calculated) amperage)

- Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 733/29-00-00-993-933

Flow: _____ cc/min (Value 30)
Note: This is the internal leakage of spoiler 2, 4, 9, and 11.

- If you use the flow meter method, do these steps:
 - Read the flow and write it here:

Table 734/29-00-00-993-934

Flow: _____ cc/min (Value 29)

- Subtract Value 28 from Value 29 and write it here:

Table 735/29-00-00-993-935

Flow: _____ cc/min (Value 30)
Note: This is the internal leakage of spoiler 2, 4, 9, and 11.

SUBTASK 29-00-00-970-005

- (9) If Value 30 is more than 1000 cc/min., use a stethoscope, COM-1797, at the spoiler control valve and/or the spoiler actuator cylinder to detect, by sound, the leaky part and replace it.
- NOTE:** Quantitative measurement of individual spoiler leakage is not possible without disconnecting components.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 664
Sep 15/2023



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

SUBTASK 29-00-00-860-169

- (10) Put the SPOILER A switch in the OFF position.

SUBTASK 29-00-00-790-034

- (11) Do these steps to find the null leakage of the empennage and aileron flight control systems:

NOTE: The Empennage and Aileron Systems contain these components; elevator Power Control Unit (PCU), elevator feel actuator, elevator autopilot (A/P) actuator, rudder PCU, aileron PCU and aileron A/P actuator.

- (a) Put the FLT CONTROLS A switch in the ON position.
(b) If you use the ammeter or amp-clamp multimeter method, do these steps:
1) Read the amperage and write it here:

Table 736/29-00-00-993-936

Amperage: _____ (Value 35)

- 2) Subtract Value 28 from the Value 35 and write it here:

Table 737/29-00-00-993-937

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 738/29-00-00-993-938

Flow: _____ cc/min (Value 36)
Note: This is the null leakage of the empennage and aileron flight control systems.

- (c) If you use the flow meter method, do these steps:
1) Read the flow and write it here:

Table 739/29-00-00-993-939

Flow: _____ cc/min (Value 35)

- 2) Subtract Value 28 from Value 35 and write it here:

Table 740/29-00-00-993-940

Flow: _____ cc/min (Value 36)
Note: This is the null leakage of the empennage and aileron flight control systems.

SUBTASK 29-00-00-970-006

- (12) If Value 36 is more than 11,000 cc/min., continue with this procedure to isolate the bad part and replace it.
(a) If Value 36 is less than 11,000 cc/min., continue at the steps to find the left thrust reverser leakage.

SUBTASK 29-00-00-790-035

- (13) Do these steps to find the leakage of the cylinder for the aileron PCU:
(a) Turn the control wheel fully clockwise.
(b) If you use the ammeter or amp-clamp multimeter method, do these steps:
1) Read the amperage and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 665
Sep 15/2023



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

Table 741/29-00-00-993-941

Amperage: _____ (Value 37)

- 2) Subtract Value 28 from Value 37 and write it here:

Table 742/29-00-00-993-942

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 743/29-00-00-993-943

Flow: _____ cc/min (Value 37a)

- 4) Subtract Value 36 from Value 37a and write it here:

Table 744/29-00-00-993-944

Flow: _____ cc/min (Value 38)
Note: This is the internal leakage of the cylinder of the aileron PCU.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 745/29-00-00-993-945

Flow: _____ cc/min (Value 37)

- 2) Subtract Value 28 from Value 37 and write it here:

Table 746/29-00-00-993-946

Flow: _____ cc/min (Value 37a)

- 3) Subtract Value 36 from Value 37a and write it here:

Table 747/29-00-00-993-947

Flow: _____ cc/min (Value 38)
Note: This is the internal leakage of the cylinder of the aileron PCU.

SUBTASK 29-00-00-970-007

- (14) If the Value 38 is more than 1500 cc/min., replace the aileron PCU.

SUBTASK 29-00-00-860-170

- (15) Move the control wheel to its center position.

SUBTASK 29-00-00-790-036

- (16) Do these steps to find the leakage of the autopilot actuators for the aileron and elevator:
- (a) Do these steps with the DFCS BITE on the control display unit (CDU) to engage the autopilot one channel at a time:
- NOTE:** Engage the autopilot in BITE to make sure all the inputs are at zero.
- NOTE:** Follow the instructions in this procedure for the DFCS BITE.
- 1) Push the line select key (LSK) adjacent to INIT/REF.
- 2) Push the LSK adjacent to INDEX.
- 3) Push the LSK adjacent to MAINT.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 666
Sep 15/2023



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

- 4) Push the LSK adjacent to DFCS.
NOTE: Stop until the BITE test is complete.
 - 5) Put the FMC transfer switch, on the forward overhead panel, P5, to the BOTH ON L position.
 - 6) Push the LSK adjacent to EXTENDED MAINTENANCE.
 - 7) Push the LSK adjacent to RIGGING.
 - 8) Push the LSK adjacent to ELEVATOR.
 - 9) Push the LSK adjacent to CONTINUE.
NOTE: Ignore the message on the screen.
 - 10) Push the LSK adjacent to CONTINUE.
 - 11) Push the LSK adjacent to ELEV AUTH SINGLE.
NOTE: Ignore instructions to pressurize pitot inputs.
 - 12) Push the LSK adjacent to CONTINUE on screen 51.16.
NOTE: Stop until BITE test is complete. Ignore the instructions to set the stabilizer to test condition.
 - 13) Push the LSK adjacent to CONTINUE on screen 51.17.
NOTE: Stop until BITE test is complete. A new 51.17 screen will appear with instructions to engage the A/P.
 - 14) Engage the system A autopilot.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 748/29-00-00-993-948

Amperage: _____ (Value 39)

- 2) Subtract Value 28 from the Value 39 and write it here:

Table 749/29-00-00-993-949

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 750/29-00-00-993-950

Flow: _____ cc/min (Value 39a)

- 4) Subtract Value 36 from the Value 39a and write it here:

Table 751/29-00-00-993-951

Flow: _____ cc/min (Value 40)
Note: This is the internal leakage of the autopilot actuators for the aileron and elevator.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 667
Sep 15/2023



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

Table 752/29-00-00-993-952

Flow: _____ cc/min (Value 39)

- 2) Subtract Value 28 from Value 39 and write it here:

Table 753/29-00-00-993-953

Flow: _____ cc/min (Value 39a)

- 3) Subtract Value 36 from Value 39a and write it here:

Table 754/29-00-00-993-954

Flow: _____ cc/min (Value 40)
Note: This is the internal leakage of the autopilot actuators for the aileron and elevator.

SUBTASK 29-00-00-970-008

- (17) If the Value 40 is more than 2000 cc/min., do the steps in this task to isolate the bad part and replace it.

SUBTASK 29-00-00-860-171

- (18) Push the INIT/REF key on the CDU.

SUBTASK 29-00-00-860-172

- (19) Put the A/P ENGAGE switch for system A in the OFF position.

SUBTASK 29-00-00-790-037

- (20) Do these steps to find the leakage of the cylinder for the PCU for the elevator:
- (a) Pull the control column fully aft.
 - (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 755/29-00-00-993-955

Amperage: _____ (Value 41)

- 2) Subtract Value 28 from the Value 41 and write it here:

Table 756/29-00-00-993-956

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 757/29-00-00-993-957

Flow: _____ cc/min (Value 41a)

- 4) Subtract Value 36 from the Value 41a and write it here:

Table 758/29-00-00-993-958

Flow: _____ cc/min (Value 42)
Note: This is the internal leakage of the cylinder of the elevator PCU.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 668
Sep 15/2023



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

Table 759/29-00-00-993-959

Flow: _____ cc/min (Value 41)

- 2) Subtract Value 28 from Value 41 and write it here:

Table 760/29-00-00-993-960

Flow: _____ cc/min (Value 41a)

- 3) Subtract Value 36 from Value 41a and write it here:

Table 761/29-00-00-993-961

Flow: _____ cc/min (Value 42)
Note: This is the internal leakage of the cylinder of the elevator PCU.

- (d) Put the control column in its center position.

SUBTASK 29-00-00-970-009

- (21) If the Value 42 is more than 1500 cc/min., replace the elevator PCU.

SUBTASK 29-00-00-790-038

- (22) Do these steps to find the leakage of the for the main rudder PCU:

- (a) Slowly push the right rudder pedal fully forward.
(b) If you use the ammeter or amp-clamp multimeter method, do these steps:
1) Read the amperage and write it here:

Table 762/29-00-00-993-962

Amperage: _____ (Value 43)

- 2) Subtract Value 28 from the Value 43 and write it here:

Table 763/29-00-00-993-963

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 764/29-00-00-993-964

Flow: _____ cc/min (Value 43a)

- 4) Subtract Value 36 from the Value 43a and write it here:

Table 765/29-00-00-993-965

Flow: _____ cc/min (Value 44)
Note: This is the internal leakage for the main rudder PCU.

- (c) If you use the flow meter method, do these steps:
1) Read the flow and write it here:

Table 766/29-00-00-993-966

Flow: _____ cc/min (Value 43)

- 2) Subtract Value 28 from Value 43 and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 669
Sep 15/2023



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

Table 767/29-00-00-993-967

Flow: _____ cc/min (Value 43a)

- 3) Subtract Value 36 from Value 43a and write it here:

Table 768/29-00-00-993-968

Flow: _____ cc/min (Value 44)
Note: This is the internal leakage for the main rudder PCU.

- (d) Put the rudder pedals in their center position.

SUBTASK 29-00-00-970-010

- (23) If the Value 44 is more than 1200 cc/min., replace the main rudder PCU.

SUBTASK 29-00-00-860-173

- (24) Put the FLT CONTROL A switch in the OFF position.

SUBTASK 29-00-00-970-011

- (25) Make sure the SPOILER A switch is in the OFF position.
- (a) If you use the ammeter or the amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 769/29-00-00-993-969

Amperage: _____ (Value 45)

- (b) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 770/29-00-00-993-970

Flow: _____ cc/min (Value 45)

SUBTASK 29-00-00-790-039

- (26) Do these steps to find the leakage of the left thrust reverser:
- (a) Extend the left thrust reverser, do this task: Thrust Reverser Operation - Extend (Selection), TASK 78-31-00-980-801-G00.
- NOTE:** The following steps instruct the mechanic to retract the thrust reverser and record a measurement. The thrust reverser retracts for approximately five seconds. The valve for the thrust reverser stays open for ten seconds. The lamp on the pilot's aft overhead panel is on when the valve is open. You must read the amperage or flow after the thrust reverser is retracted and before the valve closes.
- (b) Move the reverse thrust lever forward and down (to retract the thrust reverser).
- (c) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage within 5 seconds after the thrust reverser has fully retracted and write it here:

Table 771/29-00-00-993-971

Amperage: _____ (Value 46)

- 2) Subtract Value 45 from Value 46 and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 670
Sep 15/2023



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

Table 772/29-00-00-993-972

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 773/29-00-00-993-973

Flow: _____ cc/min (Value 47)
Note: This is the internal leakage of the left thrust reverser.

- (d) If you use the flow meter method, do these steps:
- 1) Read the amperage within 5 seconds after the thrust reverser has fully retracted and write it here:

Table 774/29-00-00-993-974

Flow: _____ cc/min (Value 46)

- 2) Subtract Value 45 from Value 46 and write it here:

Table 775/29-00-00-993-975

Flow: _____ cc/min (Value 47)
Note: This is the internal leakage of the left thrust reverser.

SUBTASK 29-00-00-970-012

- (27) If the Value 47 is more than 300 cc/min., use a stethoscope, COM-1797, at the thrust reverser actuator cylinder to detect, by sound, the leaky component and replace it.

NOTE: Quantitative measurement of individual actuator leakage is not possible without disconnecting components,

SUBTASK 29-00-00-860-174

- (28) If the nose gear steering by-pass valve pin is installed, remove it.

SUBTASK 29-00-00-790-040

- (29) Do these steps to find the leakage for the nose landing gear and the steering system:
- (a) Put the LANDING GEAR handle in the DOWN position.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 776/29-00-00-993-976

Amperage: _____ (Value 48)

- 2) Subtract Value 45 from Value 48 and write it here:

Table 777/29-00-00-993-977

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 778/29-00-00-993-978

Flow: _____ cc/min (Value 49)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 671
Sep 15/2023



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

Note: This is the internal leakage of the nose landing gear and steering system.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 779/29-00-00-993-979

Flow: _____ cc/min (Value 48)

- 2) Subtract Value 45 from Value 48 and write it here:

Table 780/29-00-00-993-980

Flow: _____ cc/min (Value 49)

Note: This is the internal leakage of the nose landing gear and steering system.

SUBTASK 29-00-00-970-013

- (30) If the Value 49 is more than 2100 cc/min., do the steps to isolate the bad part and replace it.

SUBTASK 29-00-00-790-041

- (31) Do these steps to find the leakage for the left cylinder of the nose gear steering and the steering valve:
- (a) Turn the steering tiller until the nose landing gear is fully left.
 - (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 781/29-00-00-993-981

Amperage: _____ (Value 50)

- 2) Subtract Value 45 from Value 50 and write it here:

Table 782/29-00-00-993-982

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 783/29-00-00-993-983

Flow: _____ cc/min (Value 50a)

- 4) Subtract Value 49 from Value 50a and write it here:

Table 784/29-00-00-993-984

Flow: _____ cc/min (Value 51)

Note: This is the internal leakage of the left cylinder of the nose landing gear and steering system.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 785/29-00-00-993-985

Flow: _____ cc/min (Value 50)

- 2) Subtract Value 48 from Value 50 and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 672
Sep 15/2023



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

Table 786/29-00-00-993-986

Flow: _____ cc/min (Value 51)
Note: This is the internal leakage of the left cylinder of the nose landing gear and steering system.

SUBTASK 29-00-00-970-014

- (32) If the Value 51 is more than 900 cc/min., replace the left nose gear steering valve.

SUBTASK 29-00-00-790-042

- (33) Do these steps to find the leakage for the right cylinder of the nose gear steering and the steering valve:
- Turn the steering tiller until the nose landing gear is fully right.
 - If you use the ammeter or amp-clamp multimeter method, do these steps:
 - Read the amperage and write it here:

Table 787/29-00-00-993-987

Amperage: _____ (Value 52)

- Subtract Value 45 from Value 52 and write it here:

Table 788/29-00-00-993-988

Amperage: _____ (Calculated) amperage)

- Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 789/29-00-00-993-989

Flow: _____ cc/min (Value 52a)

- Subtract Value 49 from Value 52a and write it here:

Table 790/29-00-00-993-990

Flow: _____ cc/min (Value 53)
Note: This is the internal leakage of the right cylinder of the nose landing gear and steering system.

- If you use the flow meter method, do these steps:
 - Read the flow and write it here:

Table 791/29-00-00-993-991

Flow: _____ cc/min (Value 52)

- Subtract Value 48 from Value 52 and write it here:

Table 792/29-00-00-993-992

Flow: _____ cc/min (Value 53)
Note: This is the internal leakage of the right cylinder of the nose landing gear and steering system.

- Put the nose landing gear in its center position.

SUBTASK 29-00-00-970-015

- (34) If the Value 53 is more than 900 cc/min., replace the right nose gear steering valve.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 673
Sep 15/2023



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

I. Put the Airplane Back to its Usual Condition

SUBTASK 29-00-00-860-175

- (1) Make sure the arm switch for the ALTERNATE FLAPS, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-860-176



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



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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-860-263

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C04020	LANDING GEAR CONTROL 1
D	19	C04021	LANDING GEAR CONTROL 2

SUBTASK 29-00-00-860-177

- (4) Put the FLT CONTROL and SPOILER switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-178

- (5) Remove power from the hydraulic systems A and B, do this task: (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-00-00-080-020

- (6) Remove the portable hydraulic cart or the ammeter equipment from the airplane.

SUBTASK 29-00-00-860-256

- (7) Release the parking brakes.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 674
Sep 15/2023



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

SUBTASK 29-00-00-410-003

- (8) Close this access panel:

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

SUBTASK 29-00-00-610-004

- (9) Service the systems A and B hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

————— END OF TASK —————

TASK 29-00-00-790-805

6. Standby Hydraulic System Internal Leakage Check

(Figure 603, Figure 604, Figure 605)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) Use this check to find the general internal condition of the standby hydraulic system.
- (2) To find the internal leakage of the standby system, you will measure the flow (from the standby Electric Motor-Driven Pump (EMDP)) before and after the standby rudder actuator is in operation. There are three methods to measure the flow from the standby EMDP: the ammeter, the flowmeter, and the amp-clamp multimeter.

NOTE: The standby rudder Power Control Unit (PCU) is the only component that is checked in this procedure.

- (a) To use the ammeter method, you connect an ammeter in series with one phase of the motor on the standby EMDP, (Figure 603). To find the flow you measure the current and use the Figure 604 to change it to a flow.
- (b) To use the flowmeter method, you install a flowmeter at the outlet of the standby EMDP and read the flow from it.
- (c) To use the amp-clamp multimeter method, you put the amp-clamp adapter around one of the wires connected to a circuit breaker, pump relay R643, or standby EMDP. You can use either a dedicated amp-clamp meter or a clamp-on current probe connected to a generic multimeter. You then read the current directly on the amp-clamp meter or on the multimeter that is connected to the clamp-on current probe. To find the flow you measure the current, subtract the other current readings as directed, and use the Figure 604 to get the flow.

B. References

<u>Reference</u>	<u>Title</u>
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-32-00-740-803	Stall Management Yaw Damper (SMYD) BITE Test (P/B 501)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
29-21-51-000-803	Standby Hydraulic System Pressure Module Relief Valve Removal (P/B 401)
29-21-51-400-803	Standby Hydraulic System Pressure Module Relief Valve Installation (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 675
Sep 15/2023



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

C. Tools/Equipment

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

Reference	Description
COM-1786	Equipment - Hydraulic Leakage Check Part #: 410DME-10AR Supplier: 06659 Part #: 410DME-10AR-M Supplier: 06659 Part #: HTT-02 Supplier: H6394
COM-1787	Ammeter - Leakage Check, A.C. Internal Hydraulic System Part #: 201400 Supplier: 60336 Opt Part #: 433-2919001 Supplier: 32590
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
COM-2531	Clamp-On- Current Meter Part #: 324 Supplier: 89536 Part #: 374 Supplier: 89536 Part #: LH41A Supplier: 0JV05 Opt Part #: 321 Supplier: 89536 Opt Part #: 322 Supplier: 89536 Opt Part #: MODEL 33 Supplier: 89536 Opt Part #: MODEL 36 Supplier: 89536
COM-9509	Probe, Clamp-on - Current, AC/DC Part #: I410 Supplier: 89536 Part #: I800 Supplier: 89536 Part #: i30 Supplier: 89536 Opt Part #: 80I-600A Supplier: 89536
SPL-1791	Cable - Hydraulic Leakage Check Part #: F80135-13 Supplier: 81205 Opt Part #: F80135-10 Supplier: 81205
SPL-1805	Test Box - Rudder Power Control Unit Part #: C29002-17 Supplier: 81205
STD-12995	Flowmeter - 0.2 to 7.0 GPM, 3% Precision of the Indication at 3000 PSI

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 676
Sep 15/2023



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

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
324DR	Vertical Fin, Trailing Edge Access

F. Prepare for the Check

SUBTASK 29-00-00-480-026



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



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

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

SUBTASK 29-00-00-010-006

- (2) To get access to the P92 panel, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-00-00-840-044

- (3) If you use the ammeter, COM-1787, do these steps:

NOTE: When you read the ammeter, make a record of the value to the nearest 0.1 ampere. Use the Standby Hydraulic System EMDP Characteristics to change current to flow.



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 677
Sep 15/2023

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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 2, P92

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

- (b) Disconnect the electrical connector from the EMDP for the standby hydraulic system.
(c) Connect one end of the cable, SPL-1791, to the standby EMDP.
(d) Connect the other end of the cable, SPL-1791, to the electrical connector.



PUT THE AMMETER IN THE SHORT-CIRCUIT POSITION. IF IT IS IN THE CIRCUIT, THE CURRENT WILL CAUSE DAMAGE TO THE AMMETER.

- (e) Put the switch on the ammeter, COM-1787, in the short-circuit position.
(f) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-840-045

- (4) If you use the flowmeter, STD-12995 (preferable), or hydraulic leakage check equipment, COM-1786 (alternative), do these steps:

NOTE: When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 678
Sep 15/2023

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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 2, P92

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

- (b) Install the hydraulic leakage check equipment, COM-1786, at the outlet of the standby EMDP.
- (c) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-840-046

- (5) If you use the clamp-on current meter, COM-2531, or a combination of the clamp-on probe, COM-9509 and the digital/analog multimeter, COM-1793, do the steps that follow:

NOTE: When you use the clamp-on current meter, COM-2531, or the digital/analog multimeter, COM-1793, read the current on the meter and use the Figure 604 to get the flow.



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



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

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

Power Distribution Panel Number 2, P92

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

- (b) Get access to the circuit breaker C1449, pump relay R643, or standby EMDP.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 679
Sep 15/2023



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

- (c) Put the clamp-on current meter, COM-2531, or clamp-on probe, COM-9509, around one of the three wires connected to the load side of the circuit breaker C1449, pump relay R643, or standby EMDP. If used, connect the digital/analog multimeter, COM-1793, to the clamp-on probe, COM-9509.
- (d) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-860-179

- (6) Do these steps to install the test box, C29002-18, which is part of test box, SPL-1805, on the standby rudder PCU (Figure 605).
- (a) Make sure that the power to the hydraulic systems A and B are off.



WARNING

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



WARNING

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

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

Power Distribution Panel Number 2, P92

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

- (c) Make sure that the power to the standby hydraulic system is off.
- (d) Remove this access panel to get access to the standby rudder PCU:

<u>Number</u>	<u>Name/Location</u>
324DR	Vertical Fin, Trailing Edge Access

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

- (f) Make sure that all the toggle switches on the test box are in the OFF position.
- (g) Disconnect the connector, D10013, from the standby rudder PCU.
- (h) Connect the adapter cable, C29002-19, which is part of test box, SPL-1805, to the standby rudder PCU, equipment number M1831.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 680
Sep 15/2023



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

- (i) Connect the adapter cable, C29002-20, which is part of test box, SPL-1805, to the connector D10013.
- (j) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 29-00-00-860-180



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



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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-860-253

- (8) Make sure that the FLT CONTROL A switch is in the ON position.

SUBTASK 29-00-00-860-182

- (9) Make sure that the standby hydraulic reservoir is pressurized to a minimum of 20 psi (138 kPa) (TASK 29-09-00-860-801).

SUBTASK 29-00-00-860-183



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER, LEADING EDGE SLATS, AND THRUST REVERSERS. THEY CAN MOVE QUICKLY WHEN YOU SUPPLY STANDBY HYDRAULIC POWER.

- (10) Put the arm switch for the ALTERNATE FLAPS, on the P5 forward overhead panel, in the ARM position.

NOTE: The standby EMDP should turn on.

SUBTASK 29-00-00-860-184

- (11) Put the FLT CONTROL A switch, on the P5 forward overhead panel, in the STDBY RUD position.
 - (a) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 681
Sep 15/2023



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

SUBTASK 29-00-00-840-047

- (12) Operate the rudder for 12 cycles to ensure the temperature of the hydraulic fluid is more than 70°F (21°C).

SUBTASK 29-00-00-790-043

- (13) Do these steps to make sure that the pressure relief valve in the standby pressure module is serviceable:
- (a) Make sure that the standby pressure module does not make a hissing noise.
 - (b) Make sure that the return line from the standby pressure module is not hot.
 - (c) If you hear a hissing noise or the return line is hot, replace the pressure relief valve, do these tasks:
 - Standby Hydraulic System Pressure Module Relief Valve Removal, TASK 29-21-51-000-803
 - Standby Hydraulic System Pressure Module Relief Valve Installation, TASK 29-21-51-400-803.

G. Standby Hydraulic Internal Leakage Check

SUBTASK 29-00-00-860-185

- (1) Put the FLT CONTROL A switch, on the P5 forward overhead panel, in the OFF position.
- (a) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is off.

SUBTASK 29-00-00-790-044

- (2) Put the FLT CONTROL B switch, on the P5 forward overhead panel, in the OFF position.

SUBTASK 29-00-00-790-045

- (3) If you use the ammeter or amp-clamp multimeter method do this step:
- (a) Read the amperage and write it here:

Table 793/29-00-00-993-993

Amperage: _____ (Value 1)
Note: This is the standby system basic flow.

SUBTASK 29-00-00-970-016

- (4) If you use the flow meter method, read the flow value and write it here:

Table 794/29-00-00-993-994

Flow: _____ cc/min (Value 1)
Note: This is the standby system basic flow.

SUBTASK 29-00-00-790-046

- (5) Put the FLT CONTROL A switch in the STDBY RUD position.
- (a) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
 - (b) Stop until the amperage or flow is stable.
 - (c) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 682
Sep 15/2023



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

Table 795/29-00-00-993-995

Amperage: _____ (Value 2)

- 2) Subtract Value 1 from Value 2 and write it here:

Table 796/29-00-00-993-996

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 604 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 797/29-00-00-993-997

Flow: _____ cc/min (Value 3)

Note: This is the null and seal leakage of the standby rudder PCU and yaw damper.

- (d) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

Table 798/29-00-00-993-998

Flow: _____ cc/min (Value 2)

- 2) Subtract Value 1 from Value 2 and write it here:

Table 799/29-00-00-993-999

Calculated Flow: _____ cc/min (Value 3)

Note: This is the null and seal leakage of the standby rudder PCU and yaw damper.

- (e) If Value 3 is more than 1000 cc/min, replace the standby rudder PCU.

SUBTASK 29-00-00-710-001

- (6) Put the IRS L and R switch, on the P5 forward overhead panel, to the NAV position.

SUBTASK 29-00-00-710-002

- (7) Put the YAW DAMPER switch, on the P5 forward overhead panel, in the ON position.

SUBTASK 29-00-00-710-003

 WARNING	MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER AND THE PCU ACTUATORS. THE RUDDER AND PCU ACTUATORS MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (8) Put the POWER switch, on the test box, C29002-18, to the ON position.

NOTE: The red indicator light on the test box should come on.

SUBTASK 29-00-00-710-004

- (9) Do these steps to find the seal leakage of the standby rudder PCU with the rudder to the left position:

- (a) Put the RUDDER TRAVEL DIRECTION switch on the test box to the LEFT position.

NOTE: The green indicator light on the test box should come on and the rudder should move to the left.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 683
Sep 15/2023



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

- (b) When the hydraulic flow becomes stable, record the amperage or the flow as Value 4:

NOTE: This value is the standby basic value, the standby rudder PCU null and the yaw damper mod piston internal leakage.

- (c) Push the left rudder pedal until it touches the forward quadrant stop and hold.
(d) When the hydraulic flow becomes stable, record the amperage or the flow as Value 5:

NOTE: This value is the standby system basic value, the standby rudder PCU seal leakage value and the yaw damper mod piston internal leakage.

- (e) Put the left rudder pedal to the neutral position.
(f) Subtract Value 4 from Value 5 and record it here:
1) Value 6 : _____ (amps or flow)

NOTE: This value is the standby rudder PCU seal leakage with the rudder in the left position.

SUBTASK 29-00-00-350-001

- (10) Make sure that Value 6 is between -1.2 amps and 2.5 amps or between -1200 cc/min and 2500 cc/min.

SUBTASK 29-00-00-350-002

- (11) If Value 6 is not in the given range, replace the standby rudder PCU.

SUBTASK 29-00-00-710-005

- (12) Do these steps to find the seal leakage of the standby rudder PCU with the rudder to the right position:

- (a) Put the RUDDER TRAVEL DIRECTION switch on the test box to the RIGHT position.

NOTE: The green indicator light on the test box should come on and the rudder should move to the right.

- (b) When the hydraulic flow becomes stable, record the amperage or the flow as Value 7:

NOTE: This value is the standby system basic and the standby rudder PCU null and seal leakage.

- (c) Push the right rudder pedal until it touches the forward quadrant stop and hold.
(d) When the amperage or hydraulic flow becomes stable, record the amperage or the flow as Value 8: _____

NOTE: This value is the system basic and the standby rudder PCU seal leakage.

- (e) Put the right rudder pedal to the neutral position.
(f) Subtract Value 7 from Value 8 and record it here:
1) Value 9 : _____ (amps or flow)

NOTE: This value is the standby rudder PCU seal leakage in the right rudder position.

SUBTASK 29-00-00-970-017

- (13) Make sure that Value 9 is between -1.2 amps and 2.5 amps or between -1200 cc/min and 2500 cc/min.

SUBTASK 29-00-00-970-018

- (14) If Value 9 is not in the given range, replace the standby rudder PCU.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 684
Sep 15/2023



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

SUBTASK 29-00-00-710-006

- (15) Put the RUDDER TRAVEL DIRECTION switch, on the test box, in the OFF position.

NOTE: The green indicator light on the test box should go off.

SUBTASK 29-00-00-710-007

- (16) Put the POWER switch, on the test box, to the OFF position.

NOTE: The red indicator light should go off.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-00-00-840-048

- (1) Put the YAW DAMPER switch, on the P5 forward overhead panel, to the OFF position.

SUBTASK 29-00-00-840-049

- (2) Put the FLT CONTROL A switch, on the P5 forward overhead panel, to the OFF position.

- (a) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is off.

SUBTASK 29-00-00-840-050

- (3) Put the FLT CONTROL B switch, on the P5 forward overhead panel, to the OFF position.

SUBTASK 29-00-00-840-051

- (4) Put the ALTERNATE FLAP switch, on the P5 forward overhead panel, to the OFF position.

SUBTASK 29-00-00-840-052

- (5) Remove power from the standby hydraulic system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-00-00-710-008



WARNING

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



WARNING

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

- (6) Remove the test box from the rudder PCU.

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

Power Distribution Panel Number 2, P92

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

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C00285	YAW DAMPER AC

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 685
Sep 15/2023



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

(Continued)

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

- (c) Make sure that all the toggle switches on the test box are in the OFF position.
- (d) Disconnect the adapter cable from the connector, D10013.
- (e) Disconnect the adapter cable from the rudder PCU.
- (f) Connect the connector, D10013, to the rudder PCU.
- (g) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-840-053



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER. THE RUDDER CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) Pressurize the standby hydraulic system, do this task: Standby Hydraulic System Pressurization, TASK 29-21-00-000-801.

SUBTASK 29-00-00-740-001

- (8) Do the Stall Management Yaw Damper (SMYD) servo test/sweep test for SMYD2 to ensure that the rudder PCU yaw damper is operational, do this task: TASK 27-32-00-740-803.

NOTE: This test is part of the SERVO TEST. The SERVO TEST is part of the SMYD GROUND test. Make sure that you use SMYD-2 and the standby hydraulic system.

NOTE: The SWEEP TEST requires that the YAW DAMPER be on. The IRU's must be on in order for the YAW DAMPER to be on.

SUBTASK 29-00-00-840-054

- (9) Remove power from the standby hydraulic system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-00-00-860-186

- (10) Put the IRS L and R switch, on the P5 forward overhead panel, to the NORMAL position.

SUBTASK 29-00-00-080-021

- (11) If you used the ammeter method, do these steps:
 - (a) Disconnect the cable assembly from the standby EMDP and electrical connector.
 - (b) Connect the electrical connector to the standby EMDP.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 686
Sep 15/2023



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

SUBTASK 29-00-00-080-022

- (12) If you used the flowmeter procedure, do these steps:



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



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

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

Power Distribution Panel Number 2, P92

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

- (b) Remove the flowmeter from the standby EMDP pressure line.
(c) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-080-023

- (13) If you used the amp-clamp multimeter method, do these steps:

- (a) Remove the amp-clamp multimeter.
(b) Close the circuit breaker panel.

SUBTASK 29-00-00-410-004

- (14) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
324DR	Vertical Fin, Trailing Edge Access

SUBTASK 29-00-00-610-005

- (15) Service the system B hydraulic reservoir, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-00-00-410-008

- (16) Close this access panel:

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

————— END OF TASK —————

EFFECTIVITY
SIA ALL

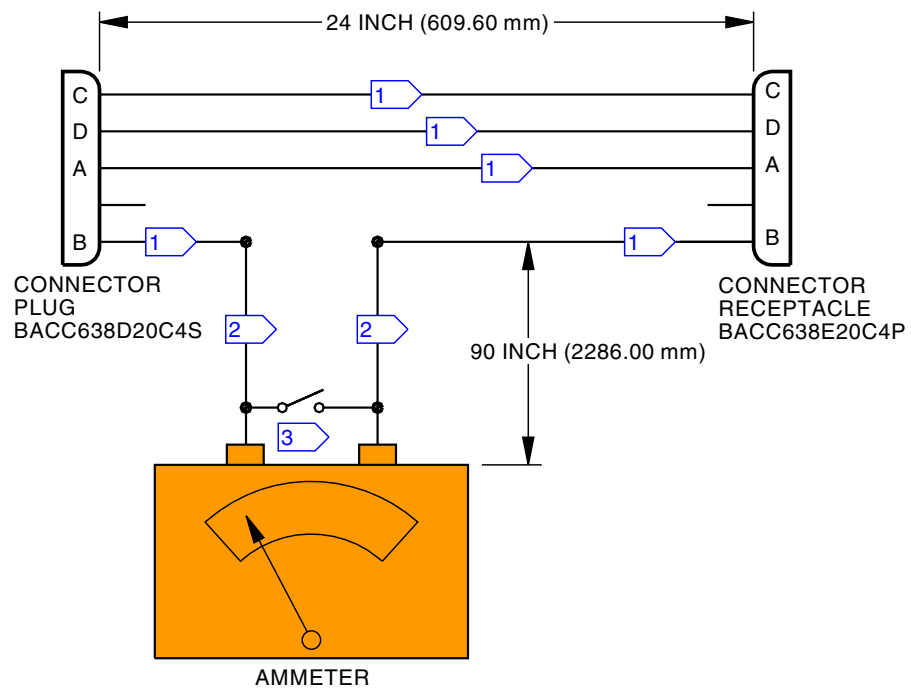
29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 687
Sep 15/2023

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



- 1 NO. 12 WIRE
- 2 NO. 10 WIRE
- 3 SHORT CIRCUIT SWITCH

2413751 S00061533261_V1

Ammeter Wiring Harness for the Standby Hydraulic Pump
Figure 603/29-00-00-990-805

EFFECTIVITY
SIA ALL

D633AM101-SIA

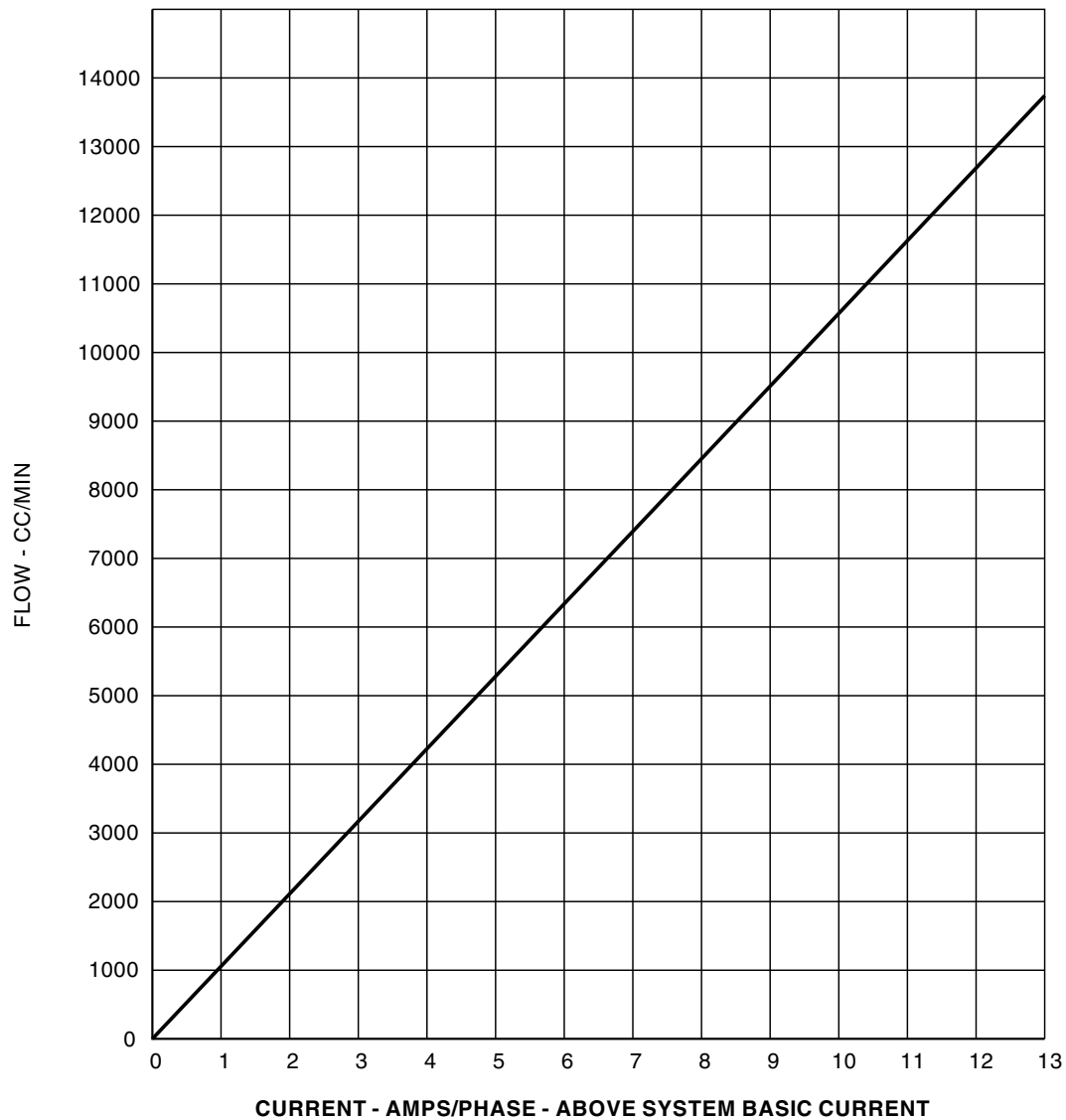
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 688
Sep 15/2022



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



2413752 S00061533262_V1

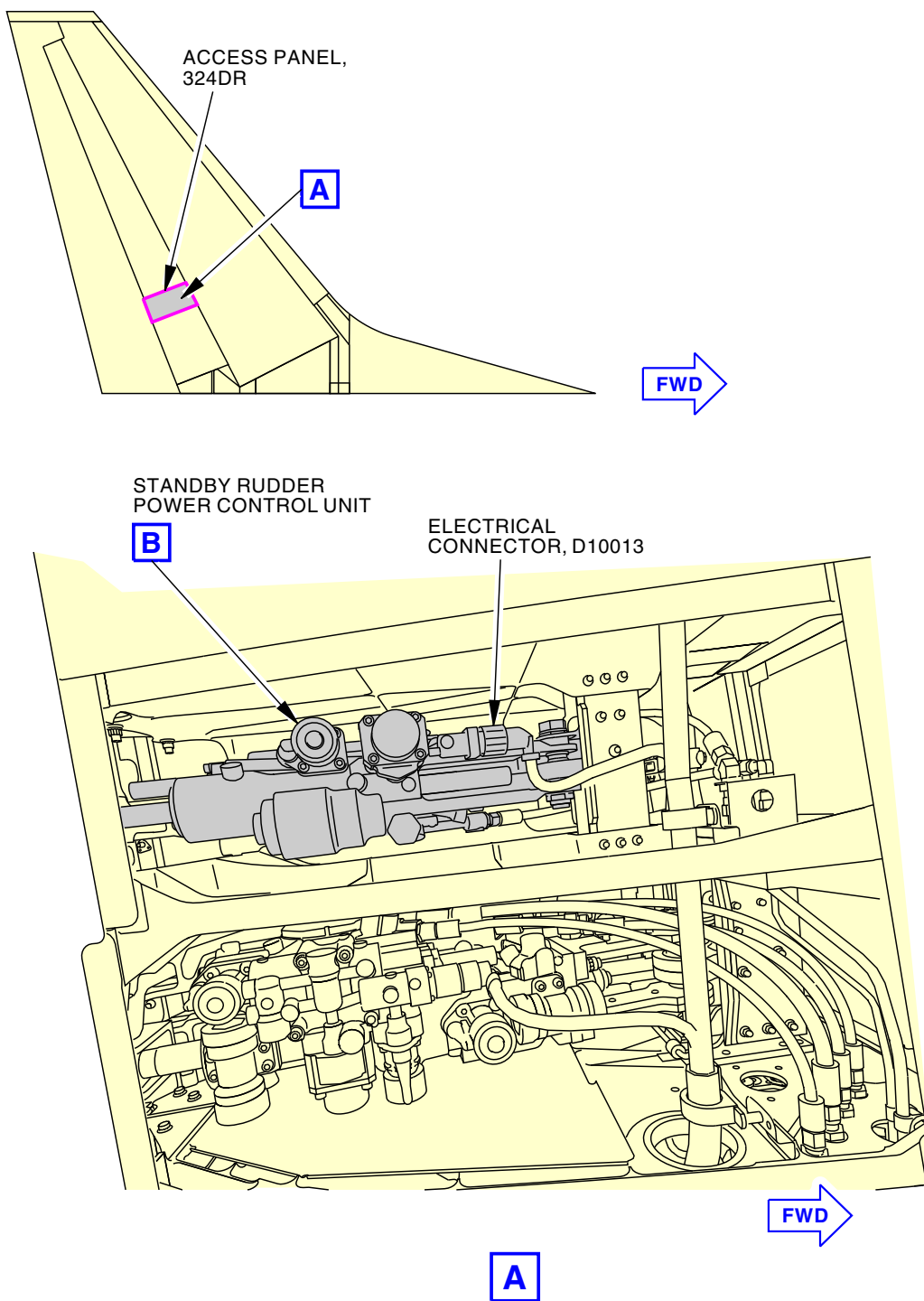
Standby Hydraulic System EMDP Characteristics
Figure 604/29-00-00-990-806

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 689
Sep 15/2022



2413753 S00061533263_V1

Standby Rudder Power Control Unit Installation
Figure 605/29-00-00-990-807 (Sheet 1 of 2)

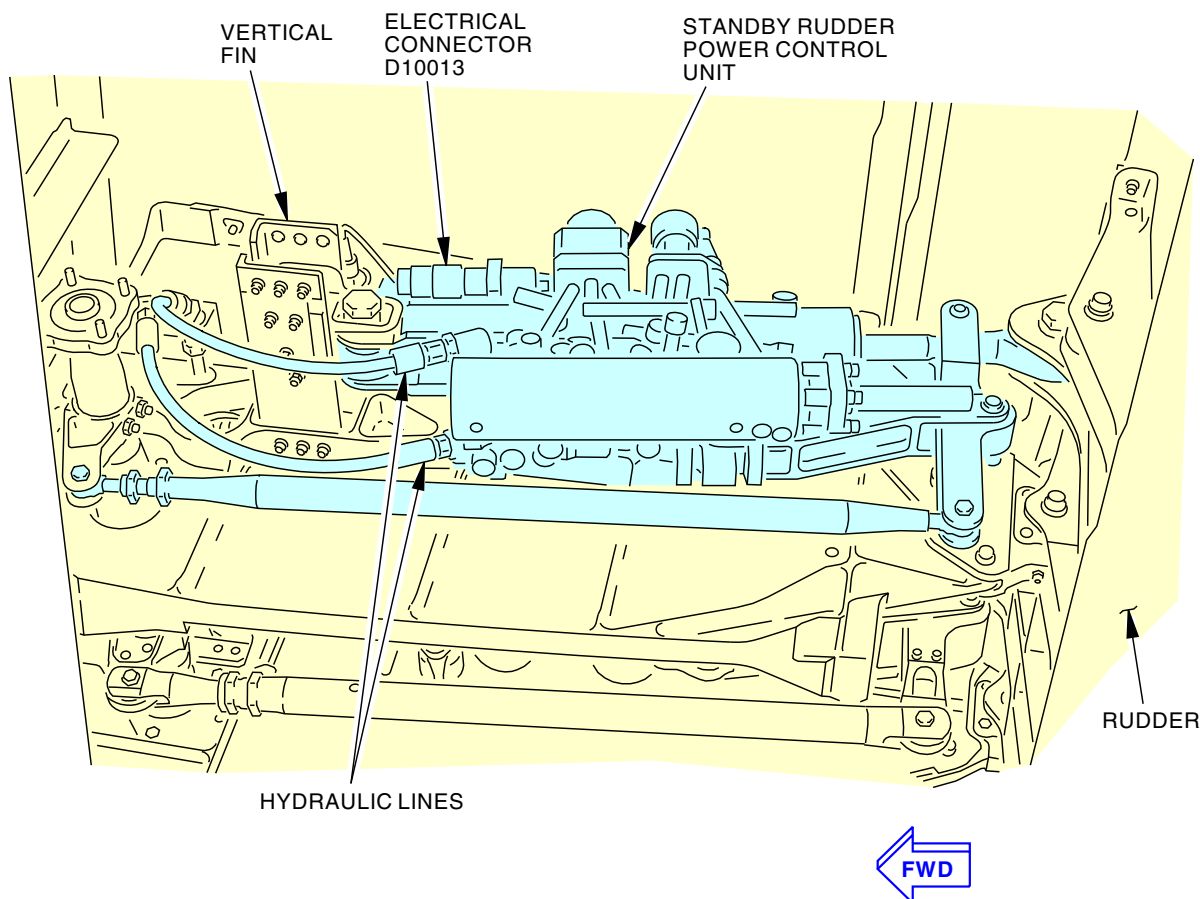
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 690
Sep 15/2022



STANDBY RUDDER POWER CONTROL UNIT

B

2413754 S00061533264_V1

Standby Rudder Power Control Unit Installation
Figure 605/29-00-00-990-807 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

TASK 29-00-00-790-806

7. Hydraulic System Elevator, Aileron Power Control Unit (PCU) and Leading Edge Flap and Slat Actuator Internal Leakage Check

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure does an internal leakage check for the elevator, aileron power control units and leading edge flap and slat actuators. The purpose of this leakage test is to identify high leakage PCU's and actuators it will not identify specific PCU's or actuators for replacement.
- (2) Use this check to find the internal leakage of the systems that use hydraulic power.
- (3) You must find the changes in the flow of hydraulic fluid (during different conditions of operation) to find the internal leakage rate for each part. There are three methods to measure the flow: the ammeter, the flowmeter, and the amp-clamp and multimeter.
 - (a) To use the ammeter method, you connect an ammeter in series with one phase of the motor on the electric motor-driven pump (EMDP), (Figure 601). To find the flow you measure the current subtract the applicable system basic current, and use the Figure 602 to change it to a flow.
 - (b) To use the flowmeter method, you install a flowmeter on a portable hydraulic cart and read the flow from it.
 - (c) To use the amp-clamp/multimeter method, you put the amp-clamp adapter around one of the wires connected to a relay for the EMDP. You can use either a dedicated amp-clamp meter or a clamp-on current probe connected to a generic multimeter. You then read the current directly on the amp-clamp meter or on the multimeter that is connected to the clamp-on current probe. To find the flow you measure the current, subtract the other current readings as directed, and use the Figure 602 to get the flow.
- (4) When you read the ammeter, make a record of the value (on the data sheets in this manual) to the nearest 0.1 ampere.
- (5) When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-21-00-820-803	Air Data Inertial Reference System - Automatic Alignment from the IRS MSU (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 692
Sep 15/2022



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

C. Tools/Equipment

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

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
COM-1786	Equipment - Hydraulic Leakage Check Part #: 410DME-10AR Supplier: 06659 Part #: 410DME-10AR-M Supplier: 06659 Part #: HTT-02 Supplier: H6394
COM-1787	Ammeter - Leakage Check, A.C. Internal Hydraulic System Part #: 201400 Supplier: 60336 Opt Part #: 433-2919001 Supplier: 32590
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
COM-2531	Clamp-On- Current Meter Part #: 324 Supplier: 89536 Part #: 374 Supplier: 89536 Part #: LH41A Supplier: 0JV05 Opt Part #: 321 Supplier: 89536 Opt Part #: 322 Supplier: 89536 Opt Part #: MODEL 33 Supplier: 89536 Opt Part #: MODEL 36 Supplier: 89536

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 693
May 15/2023



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

(Continued)

Reference	Description
COM-9509	Probe, Clamp-on - Current, AC/DC Part #: I410 Supplier: 89536 Part #: I800 Supplier: 89536 Part #: i30 Supplier: 89536 Opt Part #: 80I-600A Supplier: 89536
SPL-1788	Cable - Hydraulic Leakage Check Part #: F80135-13 Supplier: 81205 Opt Part #: F80135-1 Supplier: 81205
STD-12995	Flowmeter - 0.2 to 7.0 GPM, 3% Precision of the Indication at 3000 PSI

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Internal Leakage Check

SUBTASK 29-00-00-480-027



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



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

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

SUBTASK 29-00-00-840-056

- (2) Make sure the main landing gear has blocks installed.

SUBTASK 29-00-00-840-057

- (3) Remove the blocks and the tow bar from the nose landing gear.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 694
Sep 15/2023



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

SUBTASK 29-00-00-840-058

- (4) Make sure that all cowls on the engine are closed.

SUBTASK 29-00-00-860-187

- (5) Open this access panel:

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

SUBTASK 29-00-00-840-059

- (6) If you use the EMDP's for this check, make sure the main tank 1 (for the system A heat exchanger) and the main tank 2 (for the system B heat exchanger) have a minimum of 250 gallons (1675 lb (760 kg)) of fuel in them.

NOTE: This is necessary to prevent the hydraulic pumps from becoming too hot.

SUBTASK 29-00-00-840-060

- (7) Put the parking brakes on.

SUBTASK 29-00-00-860-189

- (8) Put the FLT CONTROL A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-190

- (9) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-191

- (10) If the airplane hydraulic pumps will be used to pressurize the hydraulic system, check to make sure that the hydraulic reservoirs are pressurized to 20 psi (138 kPa) minimum.
- (a) To pressurize the reservoirs, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-00-00-860-192



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

- (11) Pressurize the hydraulic systems A and B with the electric motor-driven pump or with a portable hydraulic cart, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

SUBTASK 29-00-00-840-061

- (12) Operate the flaps 2 times to warm the hydraulic fluid.

SUBTASK 29-00-00-840-062

- (13) Operate all of the control surfaces through a minimum of 10 cycles after the hydraulic fluid is warm.

SUBTASK 29-00-00-840-063

- (14) Do these steps to put the airplane in its initial condition:
- (a) Put the reverse thrust levers in the STOWED position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 695
Sep 15/2023



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

- (b) Put the stabilizer trim in the green band.

NOTE: The stabilizer indicator is on the control stand.

- (c) Set the aileron trim to zero.

NOTE: The aileron trim indicator is on the control wheel.

- (d) Set the rudder trim to zero.

NOTE: The rudder trim indicator is on the aft electronic panel, P8.

- (e) Do these steps to turn off the antiskid system:

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

- (f) Align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801 or Air Data Inertial Reference System - Automatic Alignment from the IRS MSU, TASK 34-21-00-820-803.

- (g) Put the YAW DAMPER switch, on the forward overhead panel, P5, in the OFF position.

- (h) Put the A/P ENGAGE switches, on the mode control panel (MCP), in the OFF position.

- (i) Do these steps to depressurize the landing gear hydraulic circuit:

- 1) Make sure that the LANDING GEAR lever, on the center instrument panel, P2, is in the DN position.

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

F/O Electrical System Panel, P6-5

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C04020	LANDING GEAR CONTROL 1
D	19	C04021	LANDING GEAR CONTROL 2

- (j) Put the SPEED BRAKE lever, on the control stand, in the DOWN position.

- (k) Put the FLT CONTROL A and B switches, on the forward overhead panel, P5, in the OFF position.

- (l) Put the SPOILER A and B switches, on the forward overhead panel, P5, in the OFF position.

- (m) Set the FLAP position lever to 25 and let the flaps move.



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

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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 2, P92

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

- (o) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the ARM position.
- (p) Set the FLAP position lever to 40 (the flaps will not move).

SUBTASK 29-00-00-840-064

- (15) If you use the ammeter, COM-1787, then do these steps:

NOTE: When you read the ammeter, make a record of the value to the nearest 0.1 ampere. Use the Figure 602 to change current to flow.

- (a) Make sure the person in the flight compartment and the person on the ground can speak to each other (Interphone, radio).



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



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

- (b) To do a test of hydraulic system B:
- 1) Make sure that the ELEC 1 and the ELEC 2 HYD PUMP switches on the forward overhead panel, P5, are in the OFF position.
 - 2) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

Page 697
Sep 15/2022



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

- 3) Make sure that the ELEC 1 and the ELEC 2 HYD PUMP switches on the forward overhead panel, P5, are in the ON position.
- (c) To do a test of hydraulic system A:
 - 1) Make sure that the ELEC 1 and the ELEC 2 HYD PUMP switches on the forward overhead panel, P5, are in the OFF position.
 - 2) Open these circuit breakers and install safety tags:
Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A
 - 3) Make sure that the ELEC 1 and the ELEC 2 HYD PUMP switches on the forward overhead panel, P5, are in the ON position.
- (d) Disconnect the electrical connector from the electric motor-driven pump (EMDP) for the A or B hydraulic system.
- (e) Connect one end of the cable, SPL-1788, to the EMDP.
- (f) Connect the other end of the cable, SPL-1788, to the electrical connector.



CAUTION

PUT THE AMMETER IN THE SHORT-CIRCUIT POSITION. IF IT IS IN THE CIRCUIT, THE CURRENT WILL CAUSE DAMAGE TO THE AMMETER.

- (g) Put the switch on the ammeter, COM-1787, in the short-circuit position.
- (h) To do a test of hydraulic system B:
 - 1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- (i) To do a test of hydraulic system A:
 - 1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-00-00-840-065

- (16) If you use the flowmeter, STD-12995 (preferable), or hydraulic leakage check equipment, COM-1786 (alternative), and 3000 PSI, 30 GPM portable hydraulic cart, COM-163, then do these steps:

NOTE: When you read the flowmeter, make a record of the value to the nearest 100 cc/minute.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 698
Sep 15/2023



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

- (a) Connect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the ground service module for hydraulic system A or B.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

- 1) Put the remote readout for the hydraulic leakage check equipment, COM-1786, in the control cabin (if you have one).
- 2) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

SUBTASK 29-00-00-840-066

- (17) If you use the clamp-on current meter, COM-2531 or a combination of the clamp-on probe, COM-9509 and the digital/analog multimeter, COM-1793, then do the steps that follow:

NOTE: The clamp-on current meter, COM-2531 or clamp-on probe, COM-9509 is installed on one of the three wires that provide phased electrical power to the EMDP. These tools can either be installed at the EMDP in the wheel well or at the relay in the P91 and P92 panel.

NOTE: When you use the clamp-on current meter, COM-2531, or the digital/analog multimeter, COM-1793, read the current on the meter and use Figure 602 to get the flow.

- (a) To install the clamp-on current meter, COM-2531 or clamp-on probe, COM-9509 in the P91 or P92 panel, do these steps:



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



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

- 1) To do a test of hydraulic system B:
 - a) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 2) To do a test of hydraulic system A:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 698.1
Sep 15/2023



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

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

- 3) To test hydraulic system B, get access to the relay, R318, for the system B EMDP in the power distribution panel, P91.
- 4) To test hydraulic system A, get access to the relay, R317, for the system A EMDP in the power distribution, P92..
- 5) Put the clamp-on current meter, COM-2531 or clamp-on probe, COM-9509 around one of the three wires that go aft from the relay.
- a) If used, connect the digital/analog multimeter, COM-1793 to the clamp-on probe, COM-9509.
- 6) To do a test of hydraulic system B:
- a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

- 7) To do a test of hydraulic system A:
- a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

G. System B Internal Leakage Check

SUBTASK 29-00-00-860-193

- (1) Remove power from the hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-00-00-860-194

- (2) Make sure the pressure in system B is a minimum of 2800 psi (19,305 kPa).

SUBTASK 29-00-00-860-195

- (3) Make sure the FLT CONTROL B switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-860-196

- (4) Make sure the SPOILER B switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-760-001

- (5) If you use the ammeter or amp-clamp multimeter method, read the amperage and write it here:

Table 800/29-00-00-993-A01

Amperage: _____ (Value 1)
Note: This is the system B basic current.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 698.2
Sep 15/2023



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

Table 800/29-00-00-993-A01 (Continued)

Note: The amperage measured is the system B basic current, and must be subtracted from all other system B amperage readings BEFORE you use the result of the subtraction to find the equivalent flow from Figure 602.

SUBTASK 29-00-00-750-001

- (6) If you use the flow meter method, read the flow value and write it here:

Table 801/29-00-00-993-A02

Flow: _____ cc/min (Value 1)
Note: This value is the system B basic flow.

SUBTASK 29-00-00-790-047

- (7) Do these steps to find the leakage of the control valve for the TE flaps:
- Set the FLAP position lever to 25.
NOTE: The flaps will not move. They are already at the 25 position.
 - Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the OFF position.
 - If you use the ammeter or amp-clamp multimeter method, do these steps:
 - Read the amperage and write it here:

Table 802/29-00-00-993-A03

Amperage: _____ (Value 2)

- 2) Subtract Value 1 from Value 2 and write it here:

Table 803/29-00-00-993-A04

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 804/29-00-00-993-A05

Flow: _____ cc/min (Value 3)
Note: This is the internal leakage for the system B TE flap control valve.

- (d) If you use the flow meter method, do these steps:
- Read the flow and write it here:

Table 805/29-00-00-993-A06

Flow: _____ cc/min (Value 2)

- 2) Subtract Value 1 from Value 2 and write it here:

Table 806/29-00-00-993-A07

Flow: _____ cc/min (Value 3)
Note: This is the internal leakage for the system B TE flap control valve.

- (e) If Value 3 is more than 8000 cc/min., replace the control valve for the TE flaps.

SUBTASK 29-00-00-790-048

- (8) Do these steps to find the leakage of the leading edge flaps and slats:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 698.3
Sep 15/2023



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

- (a) Set the flap control lever to the 0 position.
NOTE: Stop until the flaps and slats fully retract.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 807/29-00-00-993-A08

Amperage: _____ (Value 4)

- 2) Subtract Value 1 from Value 4 and write it here:

Table 808/29-00-00-993-A09

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 809/29-00-00-993-A10

Flow: _____ cc/min (Value 5)

- 4) Subtract value 3 (flap control valve internal leakage) from value 5 and write it here:

Table 810/29-00-00-993-A11

Flow: _____ cc/min (Value 5a)

Note: This is the null leakage for the LE flaps and slats.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 811/29-00-00-993-A12

Flow: _____ cc/min (Value 4)

- 2) Subtract Value 1 from Value 4 and write it here:

Table 812/29-00-00-993-A13

Flow: _____ cc/min (Value 5)

- 3) Subtract value 3 (flap control valve internal leakage) from value 5 and write it here:

Table 813/29-00-00-993-A14

Flow: _____ cc/min (Value 5a)

Note: This is the null leakage for the LE flaps and slats.

- (d) If Value 5a is more than 1000 cc/min., refer to the IFIM and do the applicable procedure(s) for LE Flaps and Slats Fail to Operate During Normal Operation to find the bad parts.

SUBTASK 29-00-00-860-197

- (9) Do these steps to put the airplane back to its initial condition:
- (a) Set the FLAP position lever to 25.
NOTE: Stop until the flaps and slats become stable.
 - (b) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, in the ARM position.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 698.4
Sep 15/2023



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

- (c) Set the FLAP position lever to 40.

NOTE: The flaps will not move.

SUBTASK 29-00-00-790-049

- (10) Do these steps to find the null leakage of the empennage and aileron flight control systems:

NOTE: The empennage and aileron systems contain these components; elevator power control unit (PCU), elevator feel actuator, elevator autopilot (A/P) actuator, rudder PCU, aileron PCU and aileron A/P actuator.

- (a) Put the FLT CONTROLS B switch in the ON position.
(b) If you use the ammeter or amp-clamp multimeter method, do these steps:
1) Read the amperage and write it here:

Table 814/29-00-00-993-A15

Amperage: _____ (Value 6)

- 2) Subtract Value 1 from Value 6 and write it here:

Table 815/29-00-00-993-A16

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 816/29-00-00-993-A17

Flow: _____ cc/min (Value 7)
Note: This is the null leakage of the empennage and aileron flight controls.

- (c) If you use the flow meter method, do these steps:
1) Read the flow and write it here:

Table 817/29-00-00-993-A18

Flow: _____ cc/min (Value 6)

- 2) Subtract Value 1 from Value 6 and write it here:

Table 818/29-00-00-993-A19

Flow: _____ cc/min (Value 7)
Note: This is the null leakage of the empennage and aileron flight controls.

SUBTASK 29-00-00-810-002

- (11) If Value 7 is more than 12,100 cc/min., continue with this procedure to isolate the bad part and replace it.

SUBTASK 29-00-00-790-050

- (12) Do these steps to find the leakage of the cylinder for the aileron PCU:
(a) Turn the control wheel fully clockwise.
(b) If you use the ammeter or amp-clamp multimeter method, do these steps:
1) Read the amperage and write it here:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 698.5
Sep 15/2023



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

Table 819/29-00-00-993-A20

Amperage: _____ (Value 8)

- 2) Subtract Value 1 from Value 8 and write it here:

Table 820/29-00-00-993-A21

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 821/29-00-00-993-A22

Flow: _____ cc/min (Value 8a)

- 4) Subtract Value 7 from Value 8a and write it here:

Table 822/29-00-00-993-A23

Flow: _____ cc/min (Value 9)

Note: This is the internal leakage of the cylinder for the aileron PCU.

- (c) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

Table 823/29-00-00-993-A24

Flow: _____ cc/min (Value 8)

- 2) Subtract Value 1 from Value 8 and write it here:

Table 824/29-00-00-993-A25

Flow: _____ cc/min (Value 8a)

- 3) Subtract Value 7 from Value 8a and write it here:

Table 825/29-00-00-993-A26

Flow: _____ cc/min (Value 9)

Note: This is the internal leakage of the cylinder for the aileron PCU.

- (d) If Value 9 is more than 1,500 cc/min., replace the aileron PCU.

SUBTASK 29-00-00-860-198

- (13) Move the control wheel to its center position.

SUBTASK 29-00-00-790-051

- (14) Do these steps to find the leakage of the cylinder for the elevator PCU:

- (a) Pull the control column fully aft.

- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:

- 1) Read the amperage and write it here:

Table 826/29-00-00-993-A27

Amperage: _____ (Value 10)

- 2) Subtract Value 1 from Value 10 and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 698.6
Sep 15/2023



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

Table 827/29-00-00-993-A28

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 828/29-00-00-993-A29

Flow: _____ cc/min (Value 10a)

- 4) Subtract Value 7 from Value 10a and write it here:

Table 829/29-00-00-993-A30

Flow: _____ cc/min (Value 11)

Note: This is the internal leakage of the cylinder for the elevator PCU.

- (c) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

Table 830/29-00-00-993-A31

Flow: _____ cc/min (Value 10)

- 2) Subtract Value 1 from Value 10 and write it here:

Table 831/29-00-00-993-A32

Flow: _____ cc/min (Value 10a)

- 3) Subtract Value 7 from Value 10a and write it here:

Table 832/29-00-00-993-A33

Flow: _____ cc/min (Value 11)

Note: This is the internal leakage of the cylinder for the elevator PCU.

- (d) If Value 11 is more than 1,500 cc/min., replace the elevator PCU.

- (e) Put the control column in its center position.

SUBTASK 29-00-00-860-199

- (15) Do these steps to put the airplane in its initial condition:
- (a) Set the FLAP position lever to 25.
 - (b) Put the ALTERNATE FLAPS switch, on the forward overhead panel, P5, to the OFF position.
 - (c) Set the FLAP position lever to 0.

SUBTASK 29-00-00-860-200

- (16) Remove power from the hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

H. System A Internal Leakage Check

SUBTASK 29-00-00-750-002

- (1) Connect the equipment that is necessary to measure the amperage or flow to hydraulic system A.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 698.7
Sep 15/2023



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

SUBTASK 29-00-00-860-201



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

- (2) Pressurize the hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-00-00-860-202

- (3) Make sure the pressure in system A is a minimum of 2800 psi (19,305 kPa)).

SUBTASK 29-00-00-860-203

- (4) Make sure that the FLT CONTROL A switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-860-204

- (5) Make sure that the SPOILER A switch, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-760-002

- (6) If you use the ammeter or amp-clamp multimeter method, read the amperage and write it here:

Table 833/29-00-00-993-A34

Amperage: _____ (Value 12)
Note: Do not continue until the amperage value on the tool is stable.
Note: This amperage is the system A basic current, and must be subtracted from all other system A amperage readings BEFORE you find the equivalent flow.

SUBTASK 29-00-00-750-003

- (7) If you use the flow meter method, read the flow value and write it here:

Table 834/29-00-00-993-A35

Flow: _____ cc/min (Value 12)
Note: This value is the system A basic flow.

SUBTASK 29-00-00-790-052

- (8) Do these steps to find the null leakage of the empennage and aileron flight control systems:

NOTE: The Empennage and Aileron Systems contain these components; elevator Power Control Unit (PCU), elevator feel actuator, elevator autopilot (A/P) actuator, rudder PCU, aileron PCU and aileron A/P actuator.

- (a) Put the FLT CONTROLS A switch in the ON position.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 835/29-00-00-993-A36

Amperage: _____ (Value 13)
2) Subtract Value 12 from the Value 13 and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 698.8
Sep 15/2023



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

Table 836/29-00-00-993-A37

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 837/29-00-00-993-A38

Flow: _____ cc/min (Value 14)

Note: This is the null leakage of the empennage and aileron flight control systems.

- (c) If you use the flow meter method, do these steps:
- 1) Read the flow and write it here:

Table 838/29-00-00-993-A39

Flow: _____ cc/min (Value 13)

- 2) Subtract Value 12 from Value 13 and write it here:

Table 839/29-00-00-993-A40

Flow: _____ cc/min (Value 14)

Note: This is the null leakage of the empennage and aileron flight control systems.

SUBTASK 29-00-00-810-003

- (9) If Value 14 is more than 11,000 cc/min., continue with this procedure to isolate the bad part and replace it.

SUBTASK 29-00-00-790-053

- (10) Do these steps to find the leakage of the cylinder for the aileron PCU:
- (a) Turn the control wheel fully clockwise.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
- 1) Read the amperage and write it here:

Table 840/29-00-00-993-A41

Amperage: _____ (Value 15)

- 2) Subtract Value 12 from Value 15 and write it here:

Table 841/29-00-00-993-A42

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 842/29-00-00-993-A43

Flow: _____ cc/min (Value 15a)

- 4) Subtract Value 14 from Value 15a and write it here:

Table 843/29-00-00-993-A44

Flow: _____ cc/min (Value 16)

Note: This is the internal leakage of the cylinder of the aileron PCU.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 698.9
Sep 15/2023



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

(c) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

Table 844/29-00-00-993-A45

Flow: _____ cc/min (Value 15)

- 2) Subtract Value 12 from Value 15 and write it here:

Table 845/29-00-00-993-A46

Flow: _____ cc/min (Value 15a)

- 3) Subtract Value 14 from Value 15a and write it here:

Table 846/29-00-00-993-A47

Flow: _____ cc/min (Value 16)
Note: This is the internal leakage of the cylinder of the aileron PCU.

SUBTASK 29-00-00-810-004

- (11) If the Value 16 is more than 1500 cc/min., replace the aileron PCU.

SUBTASK 29-00-00-860-205

- (12) Move the control wheel to its center position.

SUBTASK 29-00-00-790-054

- (13) Do these steps to find the leakage of the cylinder for the PCU for the elevator:

- (a) Pull the control column fully aft.
- (b) If you use the ammeter or amp-clamp multimeter method, do these steps:
 - 1) Read the amperage and write it here:

Table 847/29-00-00-993-A48

Amperage: _____ (Value 17)

- 2) Subtract Value 12 from the Value 17 and write it here:

Table 848/29-00-00-993-A49

Amperage: _____ (Calculated) amperage)

- 3) Use Figure 602 for the applicable pump to convert the calculated amperage to flow and write it here:

Table 849/29-00-00-993-A50

Flow: _____ cc/min (Value 17a)

- 4) Subtract Value 14 from the Value 17a and write it here:

Table 850/29-00-00-993-A51

Flow: _____ cc/min (Value 18)
Note: This is the internal leakage of the cylinder of the elevator PCU.

(c) If you use the flow meter method, do these steps:

- 1) Read the flow and write it here:

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 698.10
Sep 15/2023



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

Table 851/29-00-00-993-A52

Flow: _____ cc/min (Value 17)

- 2) Subtract Value 12 from Value 17 and write it here:

Table 852/29-00-00-993-A53

Flow: _____ cc/min (Value 17a)

- 3) Subtract Value 14 from Value 17a and write it here:

Table 853/29-00-00-993-A54

Flow: _____ cc/min (Value 18)
Note: This is the internal leakage of the cylinder of the elevator PCU.

- (d) Put the control column in its center position.

SUBTASK 29-00-00-810-005

- (14) If the Value 18 is more than 1500 cc/min., replace the elevator PCU.

SUBTASK 29-00-00-860-206

- (15) Put the FLT CONTROL A switch in the OFF position.

I. Put the Airplane Back to its Usual Condition

SUBTASK 29-00-00-860-207

- (1) Make sure the arm switch for the ALTERNATE FLAPS, on the forward overhead panel, P5, is in the OFF position.

SUBTASK 29-00-00-860-208



WARNING

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



WARNING

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

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 698.11
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>
D	18	C04020	LANDING GEAR CONTROL 1
D	19	C04021	LANDING GEAR CONTROL 2

Power Distribution Panel Number 2, P92

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

SUBTASK 29-00-00-860-209

- (3) Put the FLT CONTROL and SPOILER switches, on the forward overhead panel, P5, in the ON position.

SUBTASK 29-00-00-860-210

- (4) Remove power from the hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-00-00-080-024

- (5) Remove the portable hydraulic cart or the ammeter equipment from the airplane.

SUBTASK 29-00-00-860-257

- (6) Release the parking brakes.

SUBTASK 29-00-00-410-005

- (7) Close this access panel:

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

SUBTASK 29-00-00-610-006

- (8) Service the systems A and B hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 698.12
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL
HYDRAULIC POWER - CLEANING/PAINTING

1. General

- A. This procedure has a task to apply corrosion protection compounds to components of the hydraulic system.
- B. The high pressure hydraulic lines are unpainted corrosion resistant steel (CRES). Most low pressure hydraulic lines are 5000 or 6000 series aluminum alloys. Valves and fittings are either anodized aluminum or CRES. Service experience has shown that these components are relatively corrosion free unless they are exposed to severe operating environments.
- C. Some low pressure hydraulic lines and fittings that are exposed to severe operating environments are CRES or titanium. Service experience has shown that the titanium components are relatively corrosion free.
- D. Clamps are usually manufactured from solid nylon or silicon rubber cushioned steel.

TASK 29-00-00-916-801

2. Hydraulic Components - Corrosion Protection

A. References

Reference	Title
51-21-91-620-802	Application of Corrosion Inhibiting Compound (P/B 701)
SRM 51-10-02	INSPECTION AND REMOVAL OF DAMAGE

B. Consumable Materials

Reference	Description	Specification
A00767	Sealant - Fuel Tank	BMS5-45
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

C. Hydraulic Lines and Fittings - Corrosion Protection

SUBTASK 29-00-00-916-001

- (1) For periodic inspections of the hydraulic lines, do the steps that follow:

- (a) Examine the hydraulic lines for signs of corrosion.

NOTE: Corrosion on aluminum components is white in color. Corrosion on CRES components is black in color.

- (b) If clamps are removed, do an inspection of the tubing for signs of corrosion on the surface where the clamp touches the tubing.
- (c) If corrosion is found, remove the corrosion: SRM SUBJECT 51-10-02



CAUTION

DO NOT APPLY CORROSION INHIBITING COMPOUND, G00009 TO SILICONE RUBBER, OR RUBBER CLAMP CUSHIONS. IT CAN CAUSE DAMAGE TO SILICONE RUBBER.

- (d) Use a cotton wiper, G00034 moist with corrosion inhibiting compound, G00009 to apply a thin layer of the compound to the hydraulic line. Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 701
Sep 15/2022



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

SUBTASK 29-00-00-916-002

- (2) If the hydraulic lines have been cleaned with steam or high pressure water and detergent, do the steps that follow:
 - (a) Remove unwanted moisture with a cotton wiper, G00034.
 - (b) Use a cotton wiper, G00034 moist with corrosion inhibiting compound, G00009 to apply a thin layer of the compound to the hydraulic line. Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802

SUBTASK 29-00-00-916-003

- (3) If the hydraulic lines get a scratch or gouge during maintenance or repair work, do the step that follows:
 - (a) Use a cotton wiper, G00034 moist with corrosion inhibiting compound, G00009 to apply a thin layer of the compound to the hydraulic line. Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802

D. Improved Corrosion Protection

NOTE: The improved corrosion protection is for external threads and cavities of hydraulic actuators and components that are open to moisture. It is provided by the use of Batco 8401 Number 1 grease plus a bead of BMS 5-45, Type II, Class B-1/2, optional Class B-2 sealant. The Batco grease was selected because of compatibility with O-ring seal material and fair resistance to BMS 3-11 hydraulic fluid.

SUBTASK 29-00-00-916-004

- (1) For applying the corrosion protection do the steps that follow:
 - (a) Apply a thin layer of the grease to the faying surfaces of threads or flanges.
 - (b) Assemble the component and clean off unwanted grease.
 - (c) Clean the areas where sealant will be applied with solvent, B00148 or equivalent.
 - (d) Apply a bead of sealant, A00767 to the joints that were greased.
 - (e) Allow the sealant to cure 48 hours and make sure that it has adhered to the surfaces.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-00-00

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

HYDRAULICS - 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 hydraulic system:
 - (1) DDG 29-09-01 Hydraulic Reservoir Pressurization System Sources - Preparation
 - (2) DDG 29-09-01 Hydraulic Reservoir Pressurization System Sources - Restoration
 - (3) DDG 29-33-01 Hydraulic Systems A and B Flight Deck Quantity Indications - Preparation
 - (4) DDG 29-33-01 Hydraulic Systems A and B Flight Deck Quantity Indications - Restoration
 - (5) DDG 29-33-02 Standby System Low Quantity Indication System - Preparation
 - (6) DDG 29-33-02 Standby System Low Quantity Indication System - Restoration
 - (7) DDG 29-34-03 Standby System Pump Low Pressure Indication - Preparation
 - (8) DDG 29-34-03 Standby System Pump Low Pressure Indication - Restoration

TASK 29-00-00-040-801

2. **DDG 29-09-01 Hydraulic Reservoir Pressurization System Sources Inoperative - Preparation**

A. **General**

- (1) This task gives the maintenance steps which prepare the airplane for flight with the hydraulic reservoir pressurization system sources inoperative.

B. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (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)

C. **Tools/Equipment**

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. **Prepare for the Deactivation**

SUBTASK 29-00-00-420-010

- (1) Put a placard ONE RES PRESS SOURCE INOP on the hydraulic panel, P5.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 901
May 15/2023



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

F. Make Sure the Hydraulic Reservoirs are Pressurized

SUBTASK 29-00-00-870-003



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

SUBTASK 29-00-00-480-017

- (2) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110 below the hydraulic line to catch any hydraulic fluid.

SUBTASK 29-00-00-870-004

- (3) Remove pressure from the hydraulic reservoirs. Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-00-00-020-013



MAKE SURE THAT YOU WEAR PROTECTIVE CLOTHES AND GLOVES WHEN YOU DO WORK ON THE HYDRAULIC SYSTEM. HYDRAULIC FLUID CAN CAUSE A LEAK FROM THE OPEN PORTS OF THE COMPONENT OR FROM THE HYDRAULIC LINES. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.



RELEASE THE HYDRAULIC CONNECTION SLOWLY AND LET THE PRESSURE DECREASE BEFORE YOU FULLY REMOVE THE HYDRAULIC LINES. IF YOU DISCONNECT THE HYDRAULIC LINE WHEN IT HAS PRESSURE, A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS.

- (4) Disconnect the inoperative pressurization supply line at the reservoir restrictor cross fitting in the wheel well.

SUBTASK 29-00-00-420-013

- (5) Install a cap/plug, STD-14686 on the reservoir restrictor cross fitting.

SUBTASK 29-00-00-420-020

- (6) Install a cap/plug, STD-14686 on the disconnected pressurization supply line.

SUBTASK 29-00-00-420-014

- (7) Make sure that the reservoir depressurization (vent) valve for each system reservoir is in the closed (non-vented) position.

NOTE: The two hydraulic reservoirs are pressurized at the same time when the two reservoir depressurization (vent) valves are closed.

SUBTASK 29-00-00-860-225

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

SUBTASK 29-00-00-860-231

- (9) Monitor the dual duct pressure indicator on the P5-10, forward overhead panel for the pneumatic system L(R) that was not disconnected from the reservoir restrictor cross fitting in the wheel well.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 902
Sep 15/2021



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

SUBTASK 29-00-00-860-226

- (10) Make sure that the reservoir pressure indication on the air pressure gauge in the main landing gear wheel well shows the same pressure as the pneumatic duct pressure indicator on the flight deck forward overhead panel.

SUBTASK 29-00-00-860-241

- (11) Make sure that the duct pressure needle shows 30 to 50 psi without user systems in operation. If you use the APU as the pneumatic source, make sure that the duct pressure needle shows 12 to 26 psi without user systems in operation.

NOTE: The APU uses an on demand bleed air system. When you move the APU Bleed air switch to the ON position, the APU pressurizes the duct, (Duct Pressurization Mode) to 12 to 26 psig.

————— **END OF TASK** —————

TASK 29-00-00-440-801

3. **DDG 29-09-01 Hydraulic Reservoir Pressurization System Sources Inoperative - Restoration**

A. General

- (1) This task restores the airplane back to its usual condition after operation with the hydraulic reservoir pressurization system sources inoperative.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (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)

C. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Hydraulic Reservoir Pressurization System Sources Restoration

SUBTASK 29-00-00-870-006



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

SUBTASK 29-00-00-480-018

- (2) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110 below the hydraulic line to catch any hydraulic fluid.

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-00-00

Page 903
May 15/2023



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

SUBTASK 29-00-00-870-007

- (3) Remove pressure from the hydraulic reservoirs. Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-00-00-020-011



MAKE SURE THAT YOU WEAR PROTECTIVE CLOTHES AND GLOVES WHEN YOU DO WORK ON THE HYDRAULIC SYSTEM. HYDRAULIC FLUID CAN CAUSE A LEAK FROM THE OPEN PORTS OF THE COMPONENT OR FROM THE HYDRAULIC LINES. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.



RELEASE THE HYDRAULIC CONNECTION SLOWLY AND LET THE PRESSURE DECREASE BEFORE YOU FULLY REMOVE THE HYDRAULIC LINES. IF YOU DISCONNECT THE HYDRAULIC LINE WHEN IT HAS PRESSURE, A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS.

- (4) Remove the cap/plug, STD-14686 installed on the disconnected pressurization supply line.

SUBTASK 29-00-00-020-012

- (5) Remove the cap/plug, STD-14686 installed on the reservoir restrictor cross fitting.

SUBTASK 29-00-00-420-015

- (6) Connect the pressurization supply line at the reservoir restrictor cross fitting.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 29-00-00-020-010

- (1) Remove the ONE RES PRESS SOURCE INOP placard from the hydraulic panel, P5.

SUBTASK 29-00-00-860-242

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

————— END OF TASK —————

TASK 29-00-00-040-803

4. DDG 29-33-01 Hydraulic Systems A and B Flight Deck Quantity Indications Inoperative - Preparation

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the hydraulic systems A and B flight deck quantity indications inoperative.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)

C. Location Zones

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

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 904
Sep 15/2021



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

D. Hydraulic Systems A and B Fluid Quantity Check

SUBTASK 29-00-00-210-036

- (1) Make sure that the hydraulic fluid quantity is normal at the hydraulic quantity indicator attached on the reservoir.
 - (a) If it is necessary, service the hydraulic reservoirs. Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-00-00-420-016

- (2) Put an INOP placard on the HYD QTY SYS A and B indicators.

————— END OF TASK —————

TASK 29-00-00-440-803

5. DDG 29-33-01 Hydraulic Systems A and B Flight Deck Quantity Indications Inoperative - Restoration

A. General

- (1) This task restores the airplane back to its usual condition after operation with the hydraulic systems A and B flight deck quantity indications inoperative.

B. Location Zones

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

C. Hydraulic Systems A and B Flight Deck Quantity Indications Restoration

SUBTASK 29-00-00-020-005

- (1) Remove the INOP placard from the HYD QTY SYS A and B indicators.

————— END OF TASK —————

TASK 29-00-00-040-804

6. DDG 29-33-02 Standby System Low Quantity Indication System Inoperative - Preparation

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the standby system low quantity indication system inoperative.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)

C. Location Zones

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

D. Hydraulic System B Hydraulic Quantity Level Check

SUBTASK 29-00-00-210-054

- (1) Make sure that the hydraulic fluid quantity transmitter/indicator on the system B reservoir shows more than RFL (refill) or make sure that the system B flight deck quantity indicator shows more than RFL (refill).

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 905
Sep 15/2021



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

- (a) If it is necessary, service the hydraulic reservoir. Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-00-00-860-243

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
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

SUBTASK 29-00-00-020-023

- (3) Disconnect the electrical connector from the quantity switch.

SUBTASK 29-00-00-420-027

- (4) Cap and stow the electrical connector.

SUBTASK 29-00-00-860-244

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
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

SUBTASK 29-00-00-420-018

- (6) Put an INOP placard on the LOW QUANTITY light for the standby hydraulic system.

————— **END OF TASK** —————

TASK 29-00-00-440-804

7. DDG 29-33-02 Standby System Low Quantity Indication System Inoperative - Restoration

A. General

- (1) This task restores the airplane back to its usual condition after operation with the standby system low quantity indication system inoperative.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 906
Sep 15/2021



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

B. Location Zones

Zone	Area

211	Flight Compartment - Left
212	Flight Compartment - Right

C. Standby System Low Quantity Indication System Restoration

SUBTASK 29-00-00-860-245

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
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

SUBTASK 29-00-00-020-024

- (2) Remove the cap from the electrical connector for the low quantity switch.

SUBTASK 29-00-00-420-019

- (3) Connect the electrical connector to the low quantity switch.

SUBTASK 29-00-00-860-246

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
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

D. Put the Airplane Back to Its Usual Condition

SUBTASK 29-00-00-020-016

- (1) Remove the INOP placard from the LOW QUANTITY light for the standby hydraulic system.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 907
Sep 15/2021



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

TASK 29-00-00-040-807

8. **DDG 29-34-03 Standby System Pump Low Pressure Indication Inoperative - Preparation**

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the standby system pump low pressure indication inoperative.

B. References

Reference	Title
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

C. Location Zones

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

D. Make Sure that the Standby Pump Pressure is Normal

SUBTASK 29-00-00-860-251



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Supply power to the standby system, do this task: Standby Hydraulic System Pressurization, TASK 29-21-00-000-801.

SUBTASK 29-00-00-860-215

- (2) Put the ALTERNATE FLAPS arm switch, on the P5 panel, to the ARM position.

NOTE: The standby hydraulic pump motor will operate when the ALTERNATE FLAPS arm switch is in the ARM position.

SUBTASK 29-00-00-860-216

- (3) Momentarily put the ALTERNATE FLAPS control switch, on the P5 panel, to the DOWN position.

SUBTASK 29-00-00-710-016

- (4) Make sure that the lights on the LE DEVICES annunciator panel show all leading edge devices are fully extended in approximately one minute.

SUBTASK 29-00-00-710-009

- (5) Put the ALTERNATE FLAPS control switch and arm switch, on the P5 panel, to the OFF positions.

SUBTASK 29-00-00-860-249

- (6) Set the hydraulic panel HYD PUMPS B ELEC 1 switch to on.

SUBTASK 29-00-00-200-002

- (7) Make sure that the HYD PUMPS B ELEC 1 LOW PRESSURE light goes off.

SUBTASK 29-00-00-860-250

- (8) Keep the HYD PUMPS B ELEC 1 switch on until the flaps are up.

EFFECTIVITY
SIA ALL

29-00-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 908
Sep 15/2021



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

SUBTASK 29-00-00-860-252

- (9) Remove power from the standby system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-00-00-860-247

- (10) Put an INOP placard on the LOW PRESSURE light for the standby hydraulic system.

————— **END OF TASK** —————

TASK 29-00-00-440-807

9. DDG 29-34-03 Standby System Pump Low Pressure Indication Inoperative - Restoration

A. General

- (1) This task restores the airplane back to its usual condition after operation with the standby system pump low pressure indication inoperative.

B. Location Zones

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

C. Put the Airplane Back to Its Usual Condition

SUBTASK 29-00-00-860-217

- (1) Remove the INOP placard on the LOW PRESSURE light for the standby hydraulic system.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-00-00

Page 909
Sep 15/2021



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

HYDRAULIC RESERVOIR PRESSURIZATION SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Hydraulic Reservoirs Pressurization
 - (2) Hydraulic Reservoirs Depressurization
- B. Normally the reservoir pressurization system supplies bleed air pressure from either the engines, APU or external ground air cart to pressurize the system 'A' and system 'B' hydraulic reservoirs. The reservoir pressurization system can also be manually pressurized for ground maintenance by connection of an external ground air source to an air charging valve located in the right main landing gear wheel well. The air charging valve permits manual depressurization and pressurization of the reservoirs for ground maintenance.
- C. The air volumes of the system 'A' and 'B' reservoirs are interconnected by a balance line, and therefore the reservoirs are maintained at the same pressure. The approximate operating range will vary between 12.0 psi (82.7 kPa) and 65.0 psi (448.2 kPa) depending on pneumatic source available and aircraft operation.

TASK 29-09-00-860-801

2. Hydraulic Reservoirs Pressurization

(Figure 201)

A. General

- (1) There are two methods for pressurizing the hydraulic reservoirs. The first method requires pressurization of the pneumatic system's crossover manifold using the engines, Auxiliary Power Unit (APU), or external ground air cart. The second method does not require pressurization of the pneumatic crossover manifold, but utilizes an external air source connected to the air charging valve manifold to pressurize the reservoirs for ground maintenance.

B. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
36-00-00-860-802	Supply Pressure to the Pneumatic System with an External Ground Air Source (P/B 201)
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)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Tools/Equipment

Reference	Description
STD-77	Air Source, Regulated - Dry Filtered, 0-50 psig

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-00

Page 201
May 15/2023



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

E. Reservoir Pressurization with the Pneumatic System Pressurized (Method 1)

SUBTASK 29-09-00-480-008



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

- (1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 29-09-00-210-001

- (2) Get access to the charging valve manifold assembly [1] in the right main landing gear wheel well.
 - (a) Make sure that the charging valve [4] is fully closed and a cap [3] is installed on the valve stem.

SUBTASK 29-09-00-860-001

- (3) To pressurize the pneumatic crossover manifold, do one of these tasks:
 - Supply Pressure to the Pneumatic System with One or Both Engines, TASK 36-00-00-860-804
 - Supply Pressure to the Pneumatic System with the APU, TASK 36-00-00-860-803
 - Supply Pressure to the Pneumatic System with an External Ground Air Source, TASK 36-00-00-860-802.

SUBTASK 29-09-00-210-002

- (4) Make note of the reservoir pressure indication on the air pressure gauge in the right main landing gear wheel well, and the duct pressure indication on the bleed air pressure gauge in the flight compartment (P5-10 panel).

SUBTASK 29-09-00-210-003

- (5) Make sure that the pressure difference between the reservoir air pressure gauge and the bleed air pressure gauge is not more than 10.0 psi (68.9 kPa), if the pneumatic source is the same.

NOTE: A pressure difference greater than 10.0 psi (68.9 kPa) may be an indication of an air leak in the reservoir pressurization system. Normal reservoir pressure should be 45.0 psi (310.3 kPa) to 50.0 psi (344.7 kPa), however, the approximate operating range can vary between 12.0 psi (82.7 kPa) and 65.0 psi (448.2 kPa) depending on pneumatic source available and aircraft operation.

NOTE: If there was a different pneumatic source that pressurized the hydraulic system, the check valves can keep the pressure in the reservoir pressurization system. Thus, the pressure difference between the reservoir air pressure gauge and the bleed air pressure gage will be more than 10 psi (69 kPa).

SUBTASK 29-09-00-210-004

- (6) Make sure that the reservoir air pressure indication remains stable and does not decrease.

NOTE: If the pressure decreases, there may be an air leak in the reservoir pressurization system.

EFFECTIVITY
SIA ALL

29-09-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 202
Sep 15/2023



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

F. Reservoir Pressurization with an External Air Source (Method 2)

SUBTASK 29-09-00-480-009



WARNING

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

- (1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 29-09-00-860-002



WARNING

OBEY THE PROCEDURE TO REMOVE PRESSURE FROM THE PNEUMATIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURIES TO PERSONNEL CAN OCCUR.

- (2) Make sure that the pneumatic system is depressurized (TASK 36-00-00-860-806).

SUBTASK 29-09-00-010-001

- (3) Get access to the charging valve manifold assembly [1] in the right main landing gear wheel well.
 - (a) Remove the cap [3] from the valve stem on the charging valve [4].

SUBTASK 29-09-00-480-003

- (4) Connect the external ground regulated air source, STD-77, to the valve stem on the charging valve [4].

SUBTASK 29-09-00-980-001

- (5) Turn the swivel nut [2] on the charging valve [4] to the fully open position (1 to 2-1/4 turns).

SUBTASK 29-09-00-780-001



CAUTION

DO NOT USE MORE THAN 70 PSIG (482.633 KPA) PRESSURE. IF YOU USE MORE THAN 70 PSIG (482.633 KPA) PRESSURE, DAMAGE TO THE EQUIPMENT CAN OCCUR.

- (6) Supply and adjust the pressure of the external ground regulated air source, STD-77, to pressurize the reservoirs to 45.0 psi (310.3 kPa) - 50.0 psi (344.7 kPa).
 - (a) Make sure the reservoir air pressure gauge in the right main landing gear wheel well shows approximately 45.0 psi (310.3 kPa) - 50.0 psi (344.7 kPa).
- (7) Turn the swivel nut [2] on the charging valve [4] to the fully closed position (1 to 2-1/4 turns).
 - (a) Make sure the reservoir air pressure gauge indication is stable at approximately 45.0 psi (310.3 kPa) - 50.0 psi (344.7 kPa).
 - (b) Tighten the swivel nut [2] to 50 in-lb (6 N·m) - 70 in-lb (8 N·m).

SUBTASK 29-09-00-080-001

- (8) Disconnect the external ground regulated air source, STD-77, from the valve stem on the charging valve [4].

SUBTASK 29-09-00-420-001

- (9) Re-install the cap [3] to the valve stem on the charging valve [4].

————— END OF TASK —————

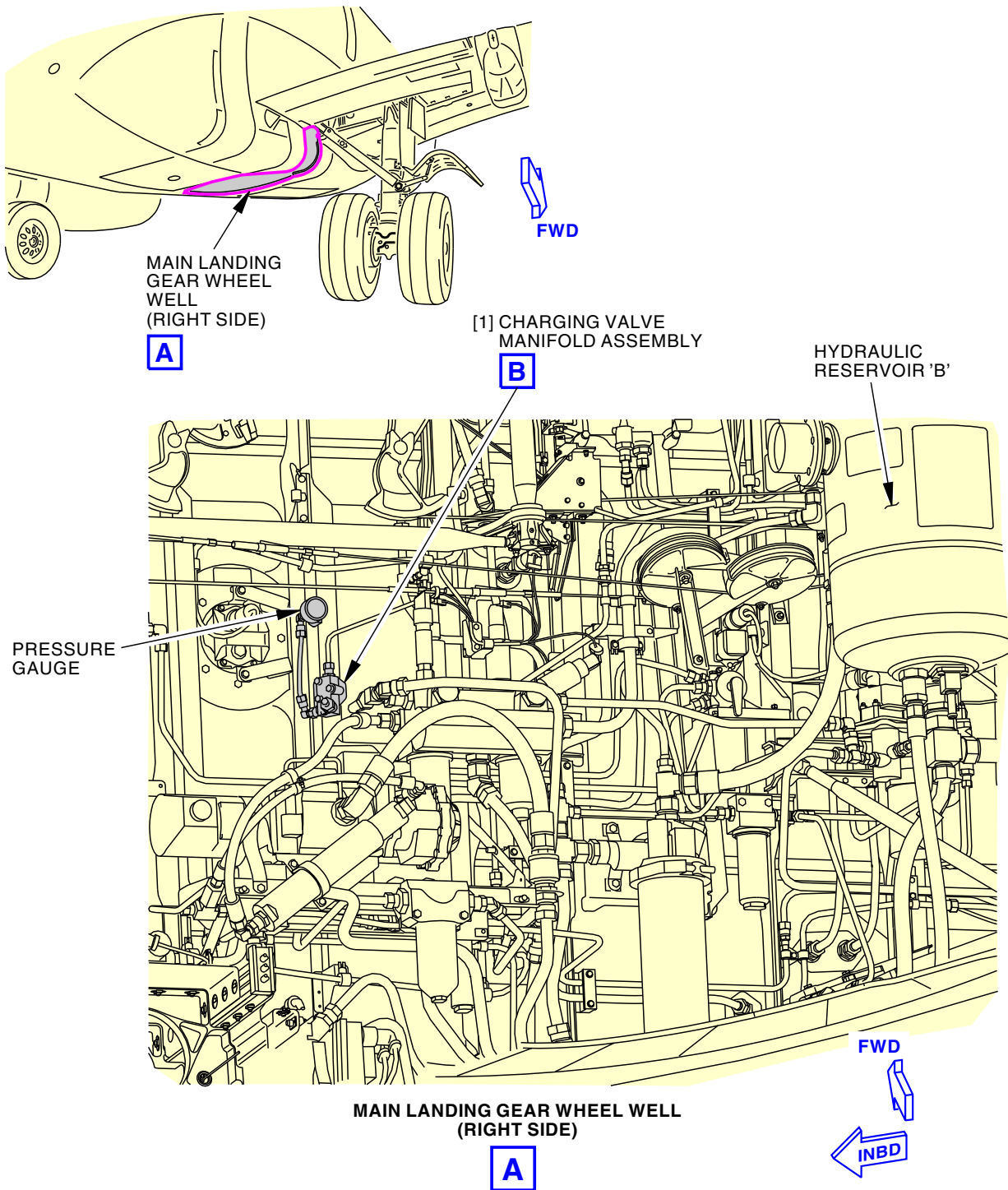
EFFECTIVITY
SIA ALL

29-09-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 203
Sep 15/2023



2413755 S00061533283_V1

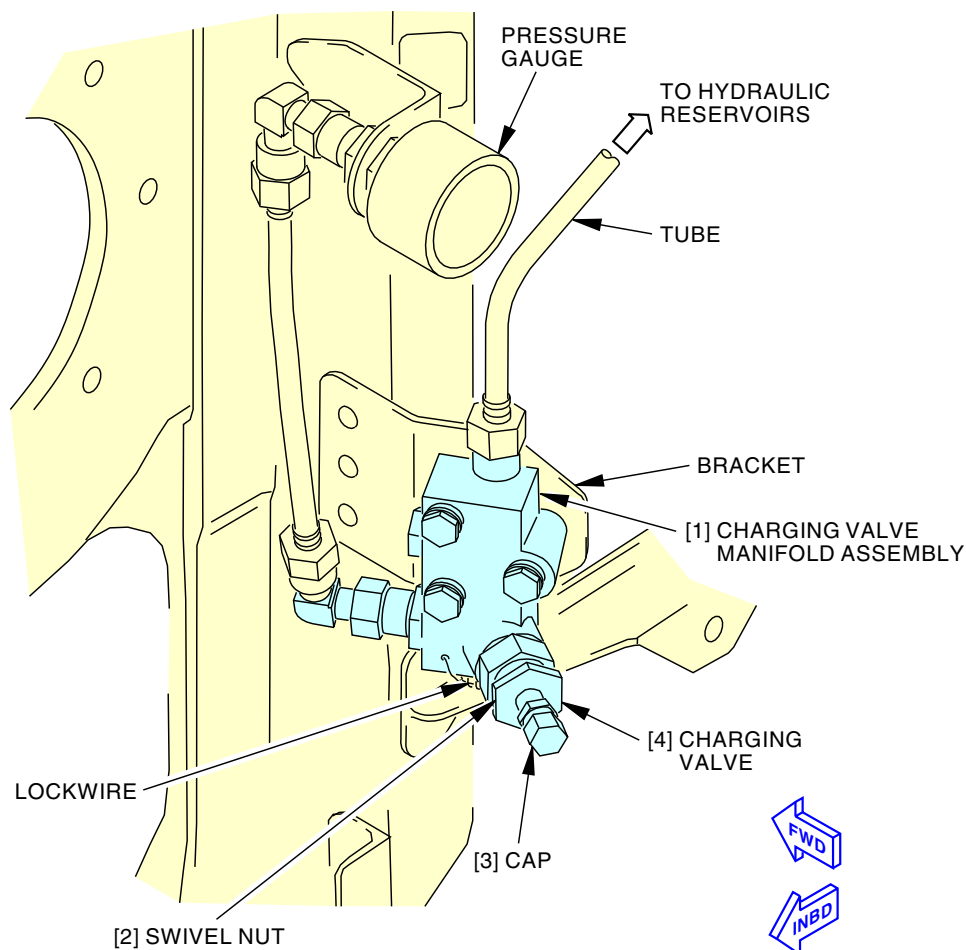
Charging Valve Manifold Assembly - Maintenance Practices
Figure 201/29-09-00-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-09-00

D633AM101-SIA

Page 204
Sep 15/2021



CHARGING VALVE MANIFOLD ASSEMBLY

B

2413756 S00061533284_V2

Charging Valve Manifold Assembly - Maintenance Practices
Figure 201/29-09-00-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-00

Page 205
Sep 15/2021



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

TASK 29-09-00-860-802

3. Hydraulic Reservoirs Depressurization

(Figure 201)

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Hydraulic Reservoirs Depressurization

SUBTASK 29-09-00-860-003

- (1) Do these tasks to remove hydraulic power supplied to the airplane:
- (a) For the main hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) For the standby hydraulic system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-09-00-860-004



WARNING

OBEY THE PROCEDURE TO REMOVE PRESSURE FROM THE PNEUMATIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURIES TO PERSONNEL CAN OCCUR.

- (2) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-09-00-480-004

- (3) Put a container below the charging valve [4] to catch any trapped hydraulic fluid that may come out of the system.

SUBTASK 29-09-00-020-001

- (4) Remove the cap [3] from the valve stem on the charging valve [4].

SUBTASK 29-09-00-860-005



WARNING

DO NOT GET HYDRAULIC FLUID IN YOUR EYES OR ON YOUR SKIN. PUT A RAG AROUND THE AIR CHARGING VALVE TO CATCH SPRAY OF HYDRAULIC FLUID. HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS. IF YOU GET HYDRAULIC FLUID ON YOUR SKIN, FLUSH YOUR SKIN WITH WATER. IF YOU GET HYDRAULIC FLUID IN YOUR EYES, FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. IF YOU GET THE HYDRAULIC FLUID IN YOUR MOUTH, GET MEDICAL AID. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Cover the charging valve [4] with a rag to help prevent a spray of hydraulic fluid when you release the pressure.

SUBTASK 29-09-00-980-003

- (6) Slowly turn the swivel nut [2] on the charging valve [4] (1 to 2-1/4 turns) to the fully open position to release the pressure in the reservoirs.

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-09-00

Page 206
Sep 15/2023



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

SUBTASK 29-09-00-210-005

(7) Make sure that the reservoir air pressure gauge shows 0 psi (0 kPa).

SUBTASK 29-09-00-980-004

(8) Turn the swivel nut [2] on the charging valve [4] to the fully closed position (1 to 2-1/4 turns).

(a) Tighten the swivel nut [2] to 50 in-lb (6 N·m) - 70 in-lb (8 N·m).

SUBTASK 29-09-00-420-002

(9) Re-install the cap [3] to the valve stem on the charging valve [4].

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-00

Page 207
Sep 15/2023



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

HYDRAULIC RESERVOIR PRESSURIZATION SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has this task:

- (1) Hydraulic Reservoir Pressurization System Leakage Test

TASK 29-09-00-860-803

2. Hydraulic Reservoir Pressurization System Leakage Test

A. **General**

- (1) This task gives the instructions on how to test hydraulic reservoir pressurization system for leakage.

B. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (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)

C. **Consumable Materials**

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
G01043	Cloth - Lint-free	

D. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. **Prepare for the Test**

SUBTASK 29-09-00-480-005

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

- (1) If it is necessary, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 29-09-00-210-006

- (2) Get access to the air charging valve manifold assembly in the right main landing gear wheel well.
- (a) Make sure that the air charging valve is fully closed and a dust cap is installed on the valve stem.

SUBTASK 29-09-00-860-006

- (3) Pressurize the pneumatic crossover manifold (TASK 36-00-00-860-801).

F. **Reservoir Pressurization System Leakage Test**

SUBTASK 29-09-00-160-001

- (1) Use a soap and water solution to check air lines and fittings for leaks after you pressurize the pneumatic system the first time during the leakage test.

EFFECTIVITY
SIA ALL

29-09-00

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

SUBTASK 29-09-00-210-007

- (2) Make note of the reservoir pressure indication on the air pressure gauge in the right main landing gear wheel well.

SUBTASK 29-09-00-970-001

- (3) Make note of the duct pressure indication on the bleed air pressure gauge on the forward overhead panel, P5-10.

SUBTASK 29-09-00-210-008

- (4) Make sure that the pressure difference between the reservoir air pressure gauge and the bleed air pressure gauge is not more than 10 psi (69 kPa).

NOTE: A pressure difference greater than 10 psi (69 kPa) may be an indication of an air leak in the reservoir pressurization system. Normal reservoir pressure should be 45 psi (310 kPa) - 50 psi (345 kPa). However, the approximate operating range can be between 12 psi (83 kPa) - 65 psi (448 kPa) depending on the pneumatic source available and the aircraft operation.

SUBTASK 29-09-00-210-009

- (5) Make sure that the reservoir air pressure indication remains stable and does not decrease.

NOTE: If the pressure decreases, there may be an air leak in the reservoir pressurization system.

SUBTASK 29-09-00-860-007

- (6) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-09-00-210-010

- (7) Make sure that the reservoir air pressure indication remains stable and does not decrease for at least 15 minutes.

NOTE: If the pressure decreases, there may be an air leak in the reservoir pressurization system or contamination in the restrictor/check valve crosses.

- (a) If the air pressure indication does not remain stable, make sure that there are no foreign materials on the check valves in the cross-fitting assemblies.

 WARNING	ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PERSONAL PROTECTION EQUIPMENT. USE IN A WELL-VENTILATED AREA.

- 1) If you find contamination in the check valves of the cross-fitting assemblies, flush with alcohol, B00130.
- 2) Wipe clean and dry with a lint-free cloth, G01043.

- (b) Use a solution of soap and water to check for air leaks as follows:

- 1) Examine for air leaks at the pressurization tube connections between the air pressure filter assembly and the air charging valve manifold assembly.

NOTE: The location is near the pneumatic crossover manifold duct in the left/right ECS bays.

- 2) Repair the air leaks that you find.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-09-00-860-008

- (1) If it is necessary, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-09-00

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

AIR PRESSURE FILTER ASSEMBLY - MAINTENANCE PRACTICES

1. **General**

- A. This procedure has these tasks:
- (1) Air Pressure Filter Assembly Removal
 - (2) Air Pressure Filter Assembly Installation
 - (3) Secondary Check Valve Removal
 - (4) Secondary Check Valve Installation
 - (5) Air Pressure Filter Element Removal
 - (6) Air Pressure Filter Element Installation
- B. There are two air pressure filter assemblies, one in the left and one in the right Environmental Control System (ECS) bays, adjacent to the pneumatic system's crossover manifold duct.
- C. The air pressure filter assembly removes foreign material from the bleed air supplied by the pneumatic system air sources (engines, APU, or external air cart).
- D. The air pressure filter assembly consists of a filter case, a wire-wound metal filter element, two packings (o-rings), a filter head (housing), a reducer in the inlet port, and a check valve in the outlet port. The filter case is secured to the filter head with lockwire.
- E. The air pressure filter assembly consists of a filter case, a metal filter element, four packings (o-rings), a filter head (housing), a reducer in the inlet port, and a check valve in the outlet port. The filter case is secured to the filter head with lockwire.

TASK 29-09-01-000-801

2. **Air Pressure Filter Assembly Removal**

(Figure 201)

A. General

- (1) This task gives instructions on how to remove an air pressure filter assembly.
- (2) There are two air pressure filter assemblies. There is one in the left ECS bay and one in the right ECS bay.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Location Zones

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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-01

Page 201
May 15/2023



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

E. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

F. Prepare for Removal

SUBTASK 29-09-01-860-001

- (1) Remove the hydraulic power as follows:
 - (a) Remove the hydraulic power from systems A and B (TASK 29-11-00-860-805).
 - (b) Remove the hydraulic power from the standby hydraulic system (TASK 29-21-00-000-802).

SUBTASK 29-09-01-860-002



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 29-09-01-860-003

- (3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-09-01-010-001

- (4) Get access to the air pressure filter assembly [1] in the left or right ECS bay:

NOTE: The air pressure filter assembly is adjacent to the pneumatic system's crossover manifold duct.

Open the applicable access panel:

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

SUBTASK 29-09-01-210-001

- (5) Make sure that the air pressure filter assembly [1] is cool enough before you do the next step.

NOTE: If the pneumatic system was in operation previously, allow time for the crossover manifold duct and air pressure filter assembly to become cool before you touch it.

G. Air Pressure Filter Assembly Removal

SUBTASK 29-09-01-020-001

- (1) Loosen the swivel nuts [10] on reducer [7] and check valve [8] on each end of air pressure filter assembly [1].

SUBTASK 29-09-01-020-002

- (2) Remove the air pressure filter assembly [1].

SUBTASK 29-09-01-420-001

- (3) Install caps/plugs, STD-14686 on the tube ends of reducer [7] and check valve [8] (TASK 70-00-01-910-802-G00).

————— END OF TASK —————

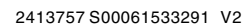
EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 202
Sep 15/2021



Air Pressure Filter Assembly Installation

Figure 201/29-09-01-990-801 (Sheet 1 of 4)

— EFFECTIVITY
SIA ALL

29-09-01

Page 203
Sep 15/2021

D633AM101-SIA

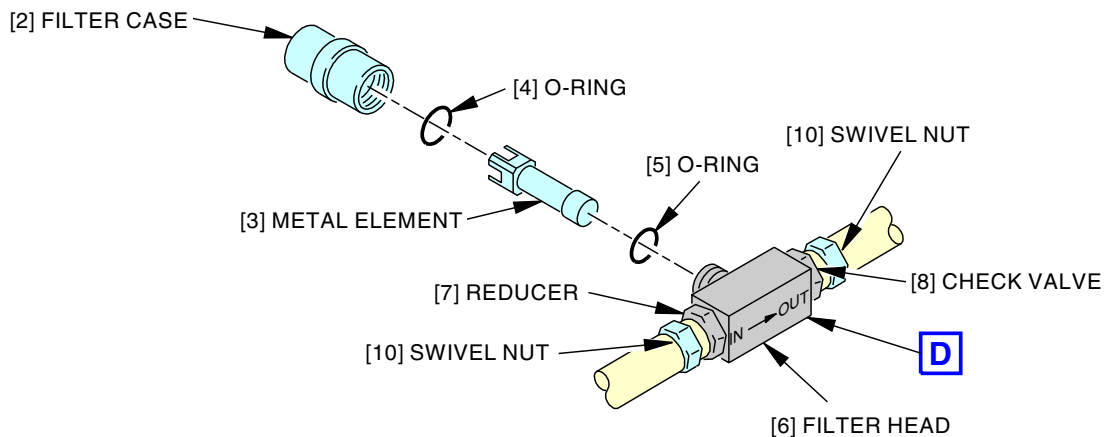
ECCN 9E991 BOEING PROPRIETARY - See title page for details



Air Pressure Filter Assembly Installation

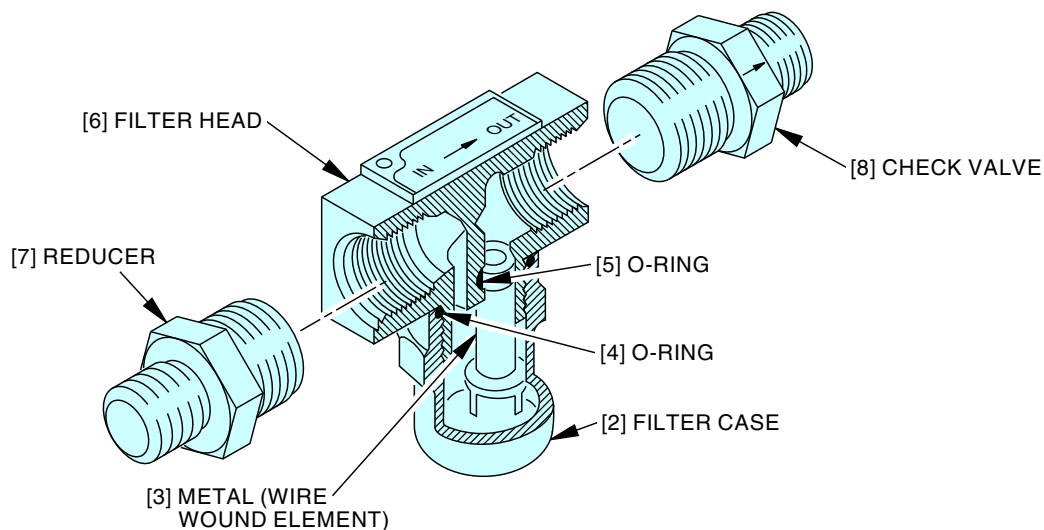
Figure 201/29-09-01-990-801 (Sheet 2 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details



**AIR PRESSURE FILTER ASSEMBLY
(EXPLODED)**

C



**AIR PRESSURE FILTER ASSEMBLY
(CUTAWAY)**

D

2536729 S0000601444_V1

**Air Pressure Filter Assembly Installation
Figure 201/29-09-01-990-801 (Sheet 3 of 4)**

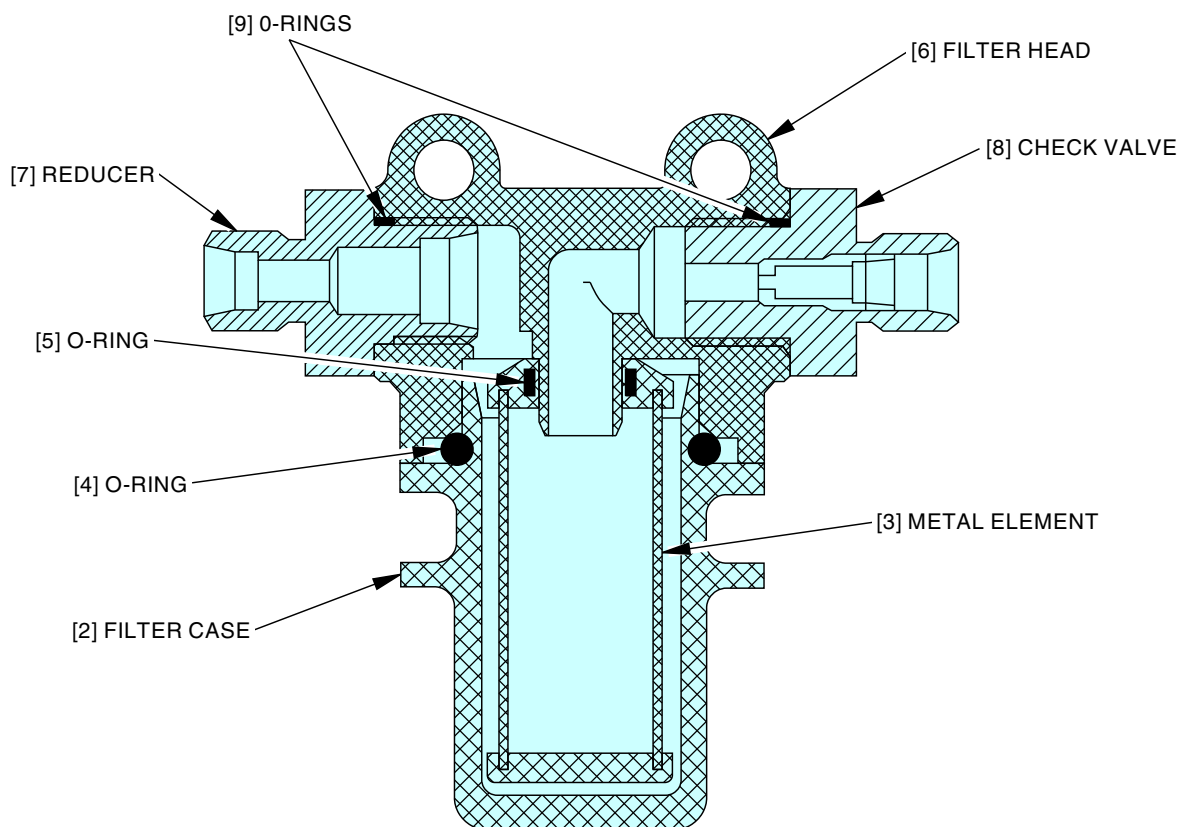
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-01

Page 205
Sep 15/2021



AIR PRESSURE FILTER ASSEMBLY
(EXAMPLE)

A-A

2536730 S0000601368_V1

Air Pressure Filter Assembly Installation
Figure 201/29-09-01-990-801 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 206
Sep 15/2021



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

TASK 29-09-01-400-801

3. Air Pressure Filter Assembly Installation

(Figure 201)

A. General

- (1) This task gives instructions on how to remove an air pressure filter assembly.
- (2) There are two air pressure filter assemblies. There is one on the left Environmental Control System (ECS) bay and one on the right ECS bay.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Air pressure filter assembly	29-09-01-01-045	SIA ALL
		29-09-01-05-275	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. Air Pressure Filter Assembly Installation

SUBTASK 29-09-01-020-003

- (1) Remove the caps/plugs, STD-14686 from the tube ends of the reducer [7] and check valve [8], (TASK 70-00-01-910-802-G00).

SUBTASK 29-09-01-420-002

- (2) Align the air pressure filter assembly [1] between the tube ends:
 - (a) Make sure that the IN-OUT flow arrow on the filter head [6] (housing) points towards the reservoir.
 - (b) Make sure that the air pressure filter assembly [1] is in its position:
 - 1) For the left air pressure filter assembly [1], make sure that the filter case [2] points upward.
 - 2) For the right air pressure filter assembly [1], make sure that the filter case [2] points outboard.
 - (c) Connect the swivel nuts [10] to the reducer [7] and check valve [8] on each end of the air pressure filter assembly [1].

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 207
Sep 15/2023



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

SUBTASK 29-09-01-420-003

- (3) Torque the swivel nuts [10] to 133 in-lb (15 N·m) - 147 in-lb (17 N·m) on the reducer [7] and the check valve [8] on the each end of the air pressure filter assembly [1].

H. Post-Installation Leakage Check

SUBTASK 29-09-01-860-004

- (1) Pressurize the pneumatic crossover manifold duct (TASK 36-00-00-860-801).

SUBTASK 29-09-01-790-001

- (2) Use a solution of soap and water to do a check to make sure there no air leaks at the swivel nut [10]connections on the air pressure filter assembly [1].

SUBTASK 29-09-01-860-005

- (3) Depressurize the pneumatic cross manifold duct.

SUBTASK 29-09-01-860-006

- (4) If it is necessary, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 29-09-01-410-001

- (1) Close the access to the air pressure filter assembly [1] in the left/right ECS bay:

- (a) For the left air pressure filter assembly, close this access panel:

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

- (b) For the right air pressure filter assembly, close this access panel:

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

———— END OF TASK ————

TASK 29-09-01-000-802

4. Secondary Check Valve Removal

(Figure 201)

A. General

- (1) This task has instructions for the removal of the secondary check valve. The secondary check valve is part of the air pressure filter assembly. It is not necessary to remove the air pressure filter assembly to remove the secondary check valve.

B. References

<u>Reference</u>	<u>Title</u>
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

EFFECTIVITY
SIA ALL

29-09-01

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

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 Removal

SUBTASK 29-09-01-860-007

- (1) Do these tasks to remove hydraulic power if it is supplied to the airplane:
 - (a) Remove the hydraulic power from systems A and B, (TASK 29-11-00-860-805).
 - (b) Remove the hydraulic power from the standby hydraulic system,(TASK 29-21-00-000-802).

SUBTASK 29-09-01-860-008



WARNING

YOU MUST RELEASE THE PRESSURE IN THE PNEUMATIC DUCT BEFORE YOU REMOVE A PNEUMATIC SYSTEM COMPONENT. THE HOT HIGH PRESSURE AIR IN THE PNEUMATIC DUCTS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-09-01-860-009

- (3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-09-01-010-002

- (4) Get access to the air pressure filter assembly [1] in the applicable left or right ECS bay:

NOTE: The air pressure filter assembly [1] is adjacent to the pneumatic system's crossover manifold duct.

 - (a) For the left air pressure filter assembly, open this access door:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
 - (b) For the right air pressure filter assembly, open this access door:

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

SUBTASK 29-09-01-210-002



WARNING

MAKE SURE THE PNEUMATIC SYSTEM COMPONENTS ARE SUFFICIENTLY COOL BEFORE YOU START THE MAINTENANCE PROCEDURES. THE COMPONENTS CAN GET VERY HOT. IF YOU TOUCH THE COMPONENTS BEFORE THEY ARE COOL, INJURY TO PERSONS CAN OCCUR.

- (5) Do not touch the air pressure filter assembly [1] until it has cooled.

G. Secondary Check Valve Removal

SUBTASK 29-09-01-020-004

- (1) Loosen the swivel nut [10] that connects the pneumatic tube to the secondary check valve [8].

SUBTASK 29-09-01-020-005

- (2) Remove the secondary check valve [8] from the air pressure filter assembly [1].

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 209
Sep 15/2021



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

SUBTASK 29-09-01-420-004

- (3) Install caps/plugs, STD-14686, as necessary to the tube ends, secondary check valve [8] and air pressure filter assembly [1].

————— END OF TASK —————

TASK 29-09-01-400-802

5. Secondary Check Valve Installation

(Figure 201)

A. General

- (1) This task gives the instructions on how to install the secondary check valve.

B. References

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Consumable Materials

Reference	Description	Specification
C50122	Primer - Nonchromated Exterior Decorative Primer for Composite, Titanium and CRES Steel Surfaces	BMS10-118 Type I or Type II

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Check valve	29-09-01-01-050	SIA ALL
		29-09-01-05-280	SIA ALL
9	O-ring	29-09-01-01-070	SIA ALL
		29-09-01-05-300	SIA ALL

F. Location Zones

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

G. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

H. Secondary Check Valve Installation

SUBTASK 29-09-01-020-006

- (1) Remove all caps/plugs, STD-14686 from the tube ends, secondary check valve [8] and air pressure filter assembly [1].

SUBTASK 29-09-01-420-006

- (2) Do these steps to install the secondary check valve [8] in the air pressure filter assembly [1]:
(a) Install a new O-ring [9] on the secondary check valve [8].

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 210
May 15/2023



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

- (b) Put a thin coating of primer, C50122 on the threads of the secondary check valve [8].
NOTE: Keep primer off of O-ring and O-ring sealing surface.
- (c) Put the secondary check valve [8] in the outlet port of the air pressure filter assembly [1].
- (d) Tighten the secondary check valve [8] to 162 in-lb (18.3 N·m) - 178 in-lb (20.1 N·m).

SUBTASK 29-09-01-420-007

- (3) Attach the swivel nut [10] to connect the pneumatic tube end to the secondary check valve [8].

SUBTASK 29-09-01-420-013

- (4) Tighten the swivel nut [10].

I. Post-Installation Leakage Check

SUBTASK 29-09-01-860-010

- (1) Pressurize the hydraulic reservoir using method 1 (pneumatic system pressurized) (TASK 29-09-00-860-801).

SUBTASK 29-09-01-790-002

- (2) Use a solution of soap and water to check for air leakage at the swivel nut [10] connection on the secondary check valve [8] and at the secondary check valve [8] connection on the air pressure filter assembly [1].
- (3) If air leakage is found, then clean and retighten the secondary check valve [8] connections.

SUBTASK 29-09-01-860-011

- (4) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806

SUBTASK 29-09-01-860-012

- (5) If it is necessary, depressurize the hydraulic reservoir (TASK 29-09-00-860-802)

J. Put the Airplane Back to Its Usual Condition

SUBTASK 29-09-01-410-002

- (1) Close the access to the air pressure filter assembly [1] in the left/right ECS bay:

For the left air pressure filter assembly, close this access panel:

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

For the right air pressure filter assembly, close this access panel:

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

————— END OF TASK —————

TASK 29-09-01-000-803

6. Air Pressure Filter Element Removal

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task has instructions for the removal/cleaning of the filter element. To remove/clean the filter element, it is not necessary to remove the air pressure filter assembly.

B. References

<u>Reference</u>	<u>Title</u>
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 211
Sep 15/2021



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

(Continued)

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)

C. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

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 Removal

SUBTASK 29-09-01-840-001

- (1) Do these tasks to remove hydraulic power if supplied to the airplane:
- (a) Remove the hydraulic power from systems A and B (TASK 29-11-00-860-805).
 - (b) Remove the hydraulic power from the standby hydraulic system (TASK 29-21-00-000-802).

SUBTASK 29-09-01-864-001



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.

- (2) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-09-01-864-002

- (3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-09-01-010-003

- (4) Get access to the air pressure filter assembly [1] in the left/right ECS bay:

NOTE: The air pressure filter assembly [1] is adjacent to the pneumatic system's crossover manifold duct.

Open the applicable access panel:

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 212
Sep 15/2021



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

SUBTASK 29-09-01-010-004

- (5) Do not touch the air pressure filter assembly [1] until it has cooled.

NOTE: If the pneumatic system was in operation previously, allow time for the crossover manifold duct and air pressure filter assembly [1] to become cool before you touch it.

SUBTASK 29-09-01-010-005

- (6) If necessary, remove the air pressure filter assembly [1] to gain access to the filter element (TASK 29-09-01-000-801).

G. Filter Element Removal (for cleaning)

SUBTASK 29-09-01-030-001

- (1) Cut and remove the MS20995N32 lockwire, G50177 from the filter case [2].

SUBTASK 29-09-01-020-007

- (2) Unscrew the filter case [2].

SUBTASK 29-09-01-020-008

- (3) Remove the metal element [3].

SUBTASK 29-09-01-020-009

- (4) Remove and discard o-ring [4] and o-ring [5].

SUBTASK 29-09-01-130-001

- (5) Clean the metal element [3] with solvent, B00184 or alcohol, B00130.

— END OF TASK —

TASK 29-09-01-400-803

7. Air Pressure Filter Element Installation

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D50232	Compound - Release, Molykote 7 (Formerly Dow Corning 7)	
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Metal element	29-09-01-01-065	SIA ALL
		29-09-01-05-295	SIA ALL
4	O-ring	29-09-01-01-080	SIA ALL
		29-09-01-05-310	SIA ALL
5	O-ring	29-09-01-01-075	SIA ALL
		29-09-01-05-305	SIA ALL

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 213
Sep 15/2023



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

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. Filter Element Installation (Replacement)

SUBTASK 29-09-01-640-001

- (1) Lightly lubricate with a thin film over the entire surfaces of the new o-ring [4], new o-ring [5], and a thin film over the filter case [2] threads with Molykote 7 release compound, D50232.

SUBTASK 29-09-01-420-008

- (2) Install the new o-ring [4] on the filter case and new o-ring [5] in the metal element [3].

SUBTASK 29-09-01-420-009

- (3) Install a clean, serviceable, or new metal element [3] into the filter head [6] (housing) and the filter case [2].

SUBTASK 29-09-01-420-011

- (4) Install the filter case [2] to the filter head [6] (housing) and tighten the filter case [2] to 75 ±5 in-lb (8.5 ±0.6 N·m).

SUBTASK 29-09-01-420-012

- (5) Install MS20995N32 lockwire, G50177, to the filter case [2] and filter head [6] (housing).

SUBTASK 29-09-01-420-014

- (6) Install the air pressure filter assembly [1], if it is removed (TASK 29-09-01-400-801).

G. Post-Installation Leakage Check

SUBTASK 29-09-01-863-001

- (1) Pressurize the pneumatic crossover manifold duct.

SUBTASK 29-09-01-790-003

- (2) Use a solution of soap and water to check that no air leaks at the filter case [2] and swivel nut [10] connections on the air pressure filter assembly [1].

SUBTASK 29-09-01-863-002

- (3) Depressurize the pneumatic cross manifold duct.

SUBTASK 29-09-01-864-003

- (4) If necessary, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-09-01-410-003

- (1) Close the access to the air pressure filter assembly [1] in the left/right ECS bay:

For the left air pressure filter assembly, close this access panel:

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

For the right air pressure filter assembly, close this access panel:

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

EFFECTIVITY
SIA ALL

29-09-01

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 214
Sep 15/2023



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

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-01

Page 215
Sep 15/2021



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

AIR CHARGING VALVE MANIFOLD ASSEMBLY - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Air Charging Valve Manifold Assembly Removal
 - (2) Air Charging Valve Manifold Assembly Installation
- B. The air charging valve manifold assembly is located in the right main landing gear wheel well. The air charging valve permits manual depressurization and pressurization of the system 'A' and 'B' hydraulic reservoirs for ground maintenance via connection of an external air source.

TASK 29-09-02-000-801

2. Air Charging Valve Manifold Assembly - Removal

(Figure 201)

A. **General**

- (1) This task has instructions for the removal of the manifold assembly and its charging valve. It is not necessary to remove the manifold assembly to remove the charging valve.

B. **References**

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
29-00-00-800-801	Hydraulic Power System - Deactivation (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. **Prepare for Removal**

SUBTASK 29-09-02-480-002

 WARNING	MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-02

Page 201
May 15/2023



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

SUBTASK 29-09-02-040-001



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.

- (2) Do this task: Hydraulic Power System - Deactivation, TASK 29-00-00-800-801.

SUBTASK 29-09-02-010-001

- (3) Get access to the manifold assembly [1] in the right main landing gear wheel well.

SUBTASK 29-09-02-210-001

- (4) Do not touch the manifold assembly [1] until it has cooled.

NOTE: If the pneumatic system was in operation previously, allow time for the manifold assembly [1] to become cool before you touch it.

F. Manifold Assembly Removal

SUBTASK 29-09-02-860-004

- (1) Make sure that the hydraulic reservoirs are depressurized before you remove the manifold assembly [1] (TASK 29-09-00-860-802).

SUBTASK 29-09-02-020-001

- (2) Loosen the tube assembly nuts [9] to disconnect the tube assemblies from the elbow [8] and the union [12] on the manifold assembly [1].

SUBTASK 29-09-02-020-002

- (3) Remove the three bolts [2] and three washers [3] that attach the manifold assembly [1] to the bracket.

SUBTASK 29-09-02-020-007

- (4) Remove the manifold assembly [1].

SUBTASK 29-09-02-020-008

- (5) Remove the elbow [8] from union [6].

SUBTASK 29-09-02-020-003

- (6) Remove union [6] and union [12] from the manifold assembly [1].
(a) Remove and discard packing [7] and packing [13] from union [6] and union [12].
(b) Set aside union [6] and union [12] for later installation.

SUBTASK 29-09-02-420-001

- (7) Install caps/plugs, STD-14686, on the tube assembly nuts [9] and ports of manifold assembly [1] (TASK 70-00-01-910-802-G00).

G. Air Charging Valve Removal

SUBTASK 29-09-02-860-005

- (1) Make sure that the hydraulic reservoirs are depressurized before you remove the charging valve [4] (TASK 29-09-00-860-802).

SUBTASK 29-09-02-020-004

- (2) Remove the lockwire from the manifold assembly [1] and its charging valve [4] (TASK 20-10-44-000-801).

SUBTASK 29-09-02-020-005

- (3) Remove the charging valve [4] from the manifold assembly [1].

EFFECTIVITY
SIA ALL

29-09-02

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

- (a) Remove and discard the o-ring [16] from the charging valve [4].

———— **END OF TASK** ————

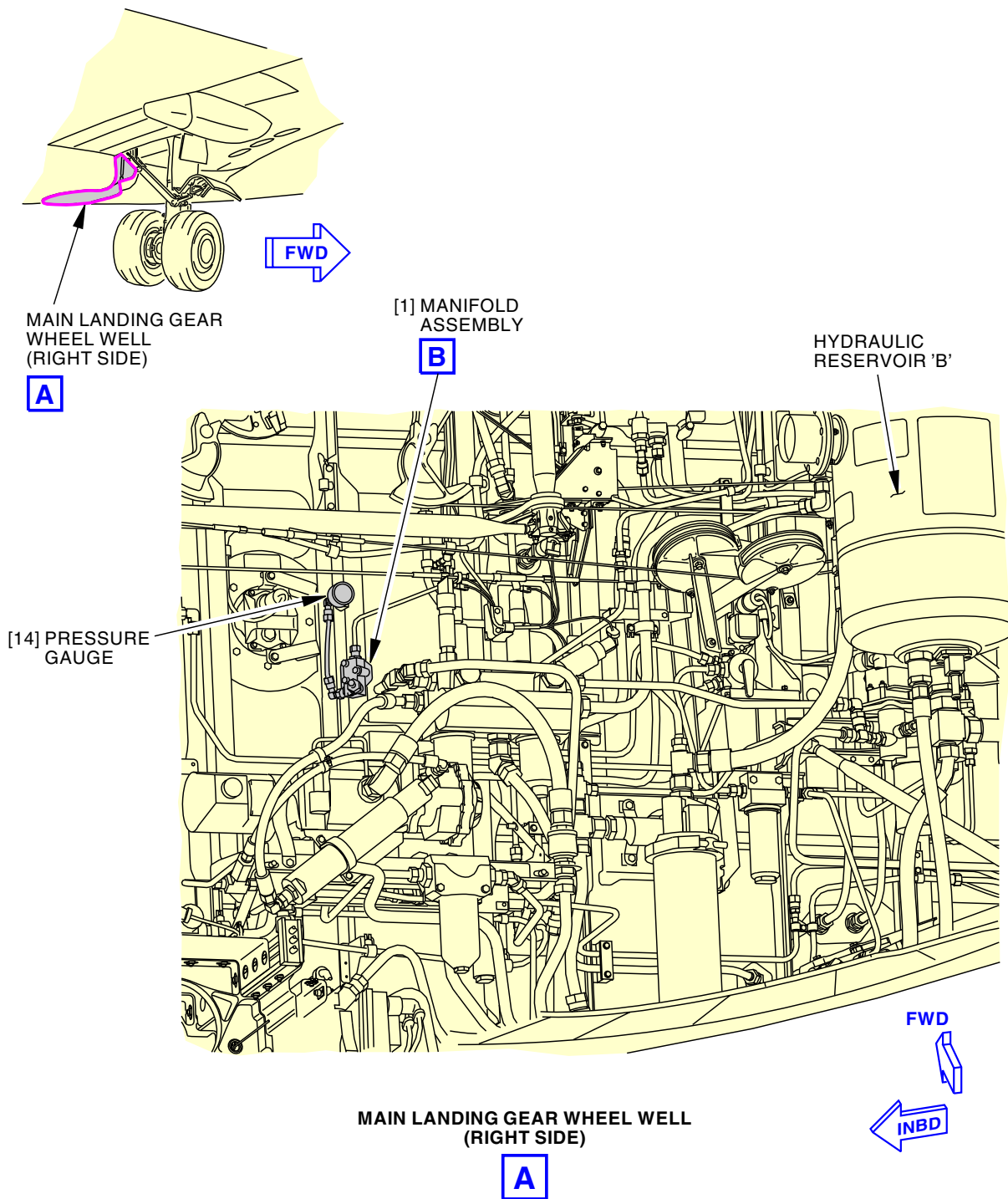
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-02

Page 203
Sep 15/2021



2413763 S00061533305_V1

Charging Valve Manifold Assembly - Maintenance Practices
Figure 201/29-09-02-990-801 (Sheet 1 of 2)

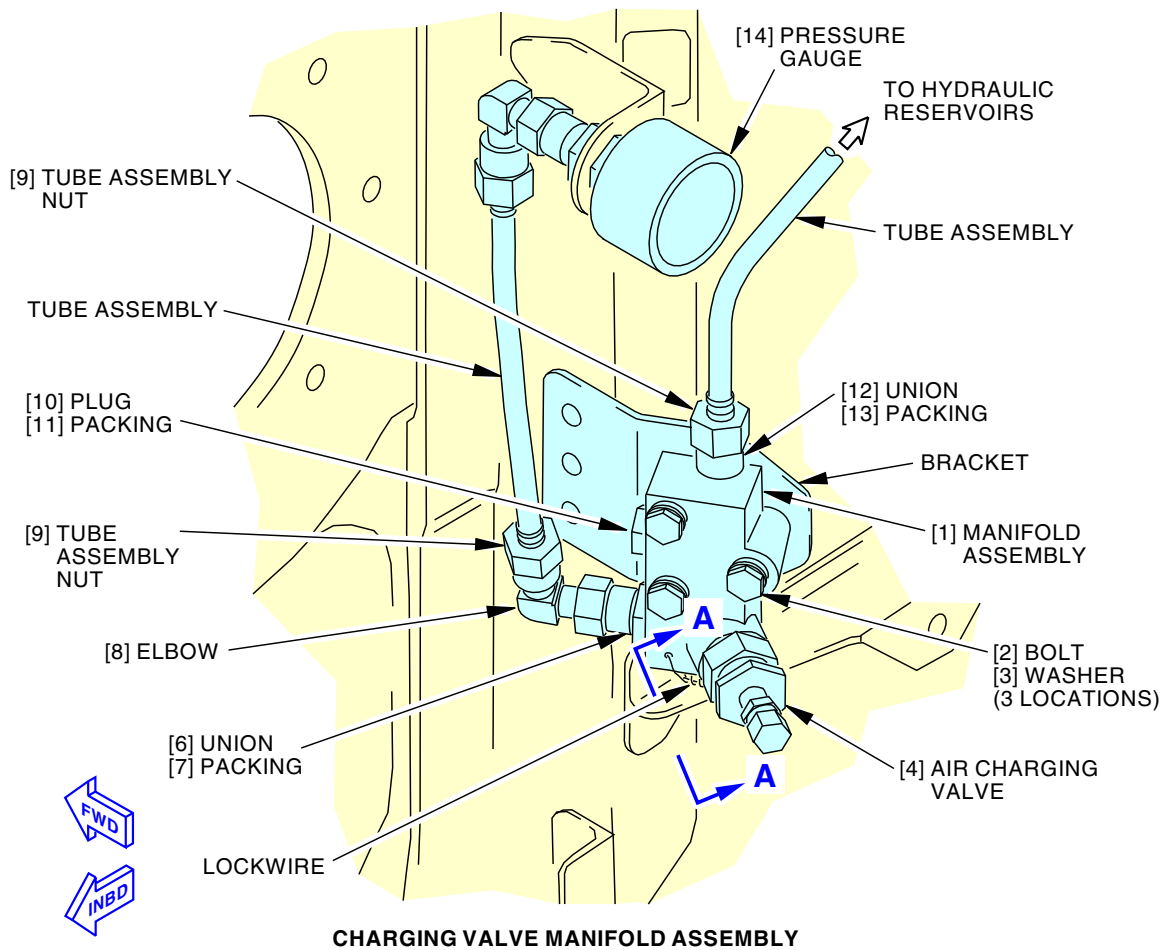
EFFECTIVITY
SIA ALL

29-09-02

D633AM101-SIA

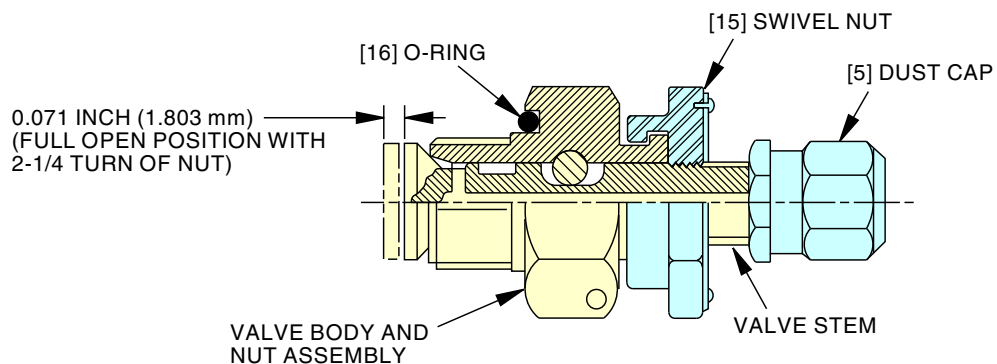
Page 204
Sep 15/2021

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



CHARGING VALVE MANIFOLD ASSEMBLY

B



CHARGING VALVE

A-A

2413764 S00061533306_V1

Charging Valve Manifold Assembly - Maintenance Practices
Figure 201/29-09-02-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-09-02

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

TASK 29-09-02-400-801

3. **Air Charging Valve Manifold Assembly - Installation**

(Figure 201)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-00-00-800-802	Hydraulic Power System - Activation (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

B. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50356	Lockwire - MS20995C47, Corrosion Resistant Steel - 0.047 Inch (1.1938 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Manifold assembly	29-09-02-01-015	SIA ALL
7	Packing	29-09-02-01-040	SIA ALL
13	Packing	29-09-02-01-040	SIA ALL
16	O-ring	29-09-02-01-040	SIA ALL

E. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Manifold Assembly Installation

SUBTASK 29-09-02-020-006

- (1) Remove the caps/plugs, STD-14686, from the tube assembly nuts [9] and ports of manifold assembly [1] (TASK 70-00-01-910-802-G00).

SUBTASK 29-09-02-640-001

- (2) Lightly lubricate the new packing [7] and new packing [13] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

SUBTASK 29-09-02-420-008

- (3) Install the new packing [7] and new packing [13] onto the union [6] and union [12].

SUBTASK 29-09-02-420-002

- (4) Install the union [6] and union [12] into the ports of manifold assembly [1] and tighten to 150 in-lb (17 N·m) - 300 in-lb (34 N·m).

EFFECTIVITY
SIA ALL

29-09-02

D633AM101-SIA

Page 206
May 15/2023



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

SUBTASK 29-09-02-420-010

- (5) Install the elbow [8] onto the union [6] and tighten to 133 in-lb (15 N·m) - 147 in-lb (17 N·m).

SUBTASK 29-09-02-420-003

- (6) Install the manifold assembly [1] to the bracket with the three bolts [2], three washers [3], and tighten.

SUBTASK 29-09-02-420-004

- (7) Connect the tube assembly nuts [9] to the elbow [8], union [12], and tighten to 133 in-lb (15 N·m) - 147 in-lb (17 N·m).

G. Air Charging Valve Installation

SUBTASK 29-09-02-640-002

- (1) Lightly lubricate the new o-ring [16] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

SUBTASK 29-09-02-420-009

- (2) Install the new o-ring [16] onto the charging valve [4].

SUBTASK 29-09-02-420-005

NOTE: Clean top surface of BOSS and insure that it is free from nicks and scratches before installing charging valve [4].

- (3) Insert the charging valve [4] into the port of the manifold assembly [1].
 - (a) Tighten the charging valve [4] to 100 in-lb (11.3 N·m) - 110 in-lb (12.4 N·m).

SUBTASK 29-09-02-420-006

- (4) Install MS20995C47 lockwire, G50356, to the charging valve [4] and manifold assembly [1] (TASK 20-10-44-400-801).

SUBTASK 29-09-02-420-007

- (5) Make sure that the dust cap [5] is installed to extreme finger tightness and the swivel nut [15] is turned to the fully closed position on the charging valve [4].
 - (a) Tighten the swivel nut [15] to 50 in-lb (6 N·m) - 70 in-lb (8 N·m).

H. Post-Installation Leakage Check

SUBTASK 29-09-02-860-006

- (1) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-09-02-790-001

- (2) Use a solution of soap and water to check that no air leaks at the all connections on the manifold assembly [1] and charging valve [4].

SUBTASK 29-09-02-860-008

- (3) If it is necessary, depressurize the hydraulic reservoirs (TASK 29-09-00-860-802).

I. Put the Airplane to Its Usual Condition

SUBTASK 29-09-02-440-001

- (1) Do this task: Hydraulic Power System - Activation, TASK 29-00-00-800-802.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-09-02

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 207
Sep 15/2021



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

AIR PRESSURE GAUGE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Air Pressure Gauge Removal
 - (2) Air Pressure Gauge Installation
- B. An air pressure gauge for the system 'A' and system 'B' hydraulic reservoirs is located in the right main landing gear wheel well against the forward bulkhead (rear spar). The air pressure gauge is connected to the air charging valve manifold assembly.

TASK 29-09-03-000-801

2. Air Pressure Gauge - Removal

(Figure 401)

A. General

- (1) This task has instructions for the removal of the air pressure gauge.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for Removal

SUBTASK 29-09-03-480-001



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed in the nose and main landing gear, do this task:
TASK 32-00-01-480-801.

SUBTASK 29-09-03-860-001

- (2) Do these tasks to remove hydraulic power if supplied to the airplane:
 - (a) Remove the hydraulic power from systems A and B, (TASK 29-11-00-860-805).
 - (b) Remove the hydraulic power from the standby hydraulic system, (TASK 29-21-00-000-802).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-03

Page 401
May 15/2023



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

SUBTASK 29-09-03-860-002



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.

- (3) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-09-03-860-003

- (4) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-09-03-010-001

- (5) Get access to the air pressure gauge [1] in the right main landing gear wheel well.

F. Air Pressure Gauge Removal

SUBTASK 29-09-03-860-004

- (1) Make sure that the hydraulic reservoirs have been depressurized before you remove the air pressure gauge [1], (TASK 29-09-00-860-802).
- (a) Remove the dust cap [2] on the air charging valve [3] and then slowly unscrew the swivel nut [4] to release any residual air pressure.
- (b) Reinstall dust cap [2] and finger tighten swivel nut [4].
- (c) Make sure that the air pressure gauge [1] reads 0 psi.

SUBTASK 29-09-03-020-001

- (2) Loosen the swivel nut [5] to disconnect the elbow [6] from the air pressure gauge [1].

SUBTASK 29-09-03-020-002

- (3) Remove the nut [7] and washer [8] to remove the air pressure gauge [1] from the bracket.

SUBTASK 29-09-03-420-001

- (4) Install cap/plug, STD-14686 to the tube end and the port of the air pressure gauge [1], (TASK 70-00-01-910-802-G00).

————— **END OF TASK** —————

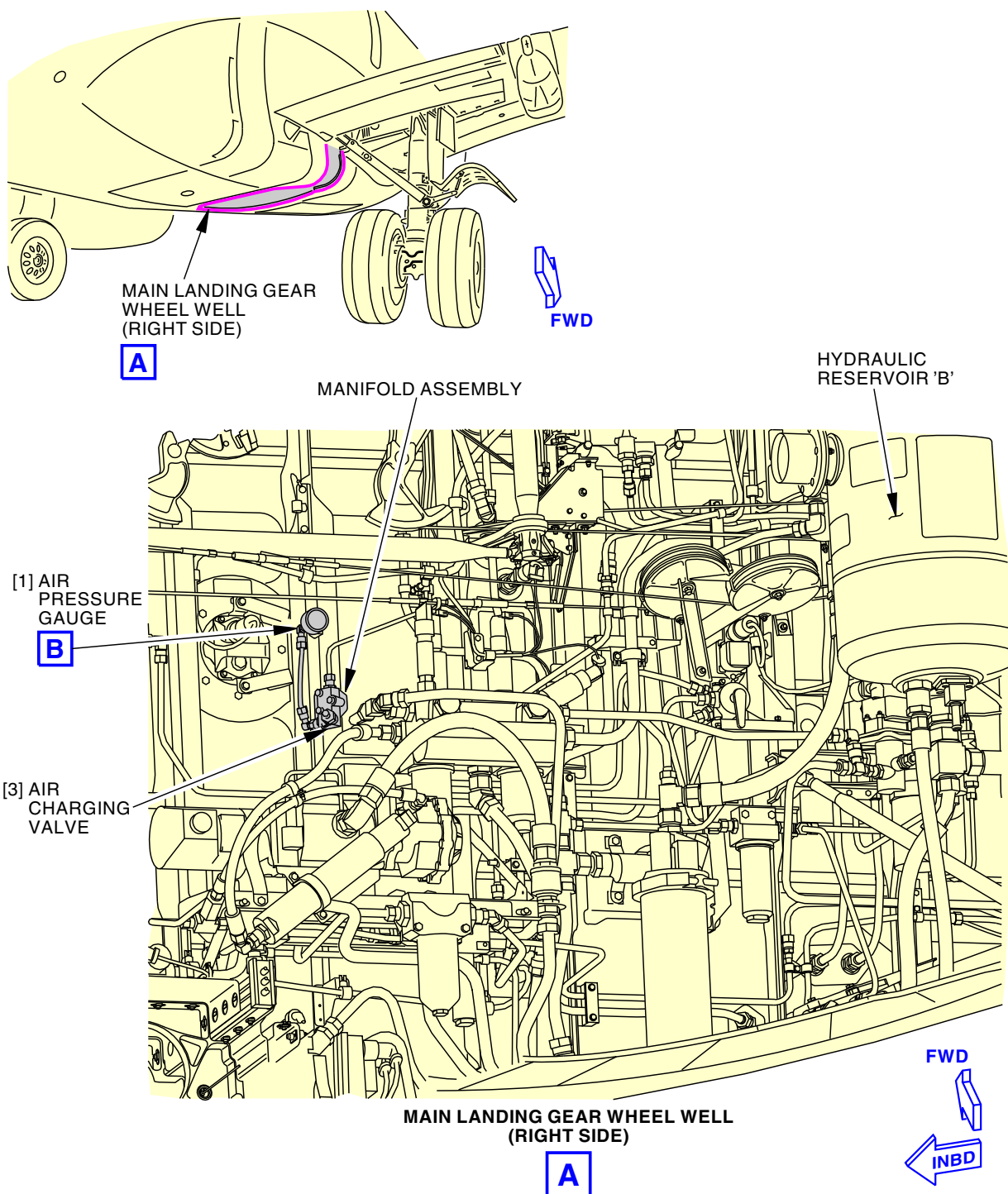
EFFECTIVITY
SIA ALL

29-09-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Sep 15/2021



2413765 S00061533311_V1

Hydraulic Reservoir Pressure Gauge Installation
Figure 401/29-09-03-990-801 (Sheet 1 of 2)

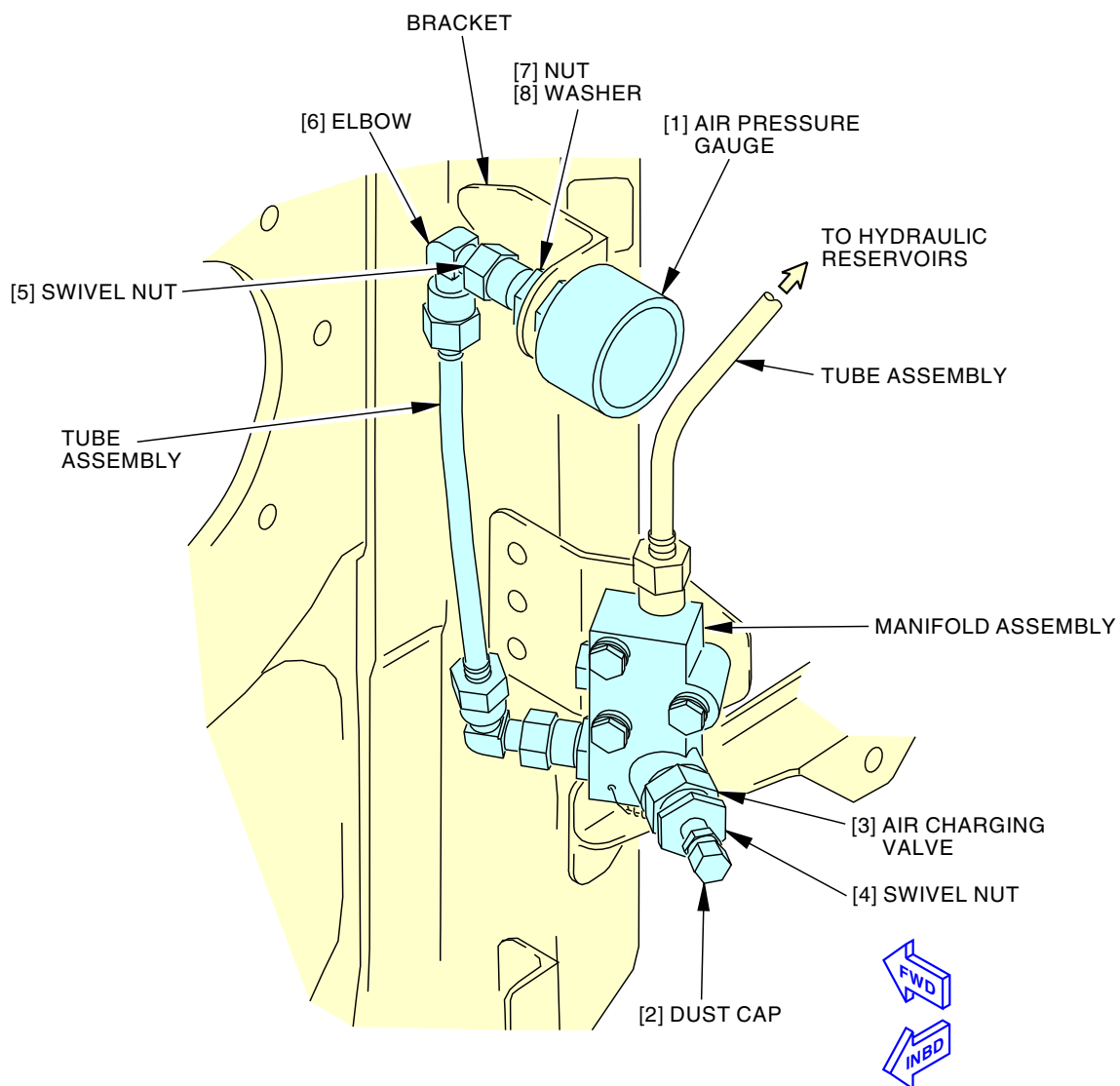
EFFECTIVITY
SIA ALL

29-09-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Sep 15/2021



AIR PRESSURE GAUGE

B

2413766 S00061533312_V1

Hydraulic Reservoir Pressure Gauge Installation
Figure 401/29-09-03-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-03

Page 404
Sep 15/2021



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

TASK 29-09-03-400-801

3. **Air Pressure Gauge - Installation**

(Figure 401)

A. References

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Air pressure gauge	29-09-03-02-010	SIA ALL

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Air Pressure Gauge Installation

SUBTASK 29-09-03-020-003

- (1) Remove the cap/plug, STD-14686 from the tube end and the port of the air pressure gauge [1].

SUBTASK 29-09-03-420-002

- (2) Install the air pressure gauge [1] to the bracket with the nut [7] and washer [8] and tighten.
(a) Install the air pressure gauge [1] with the gauge text in a horizontal orientation.

SUBTASK 29-09-03-420-003

- (3) Connect the elbow [6] to the air pressure gauge [1] and tighten the swivel nut [5].

F. Post-Installation Leakage Check

SUBTASK 29-09-03-860-005

- (1) Pressurize the pneumatic crossover manifold duct.

SUBTASK 29-09-03-860-008

- (2) If necessary, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801

SUBTASK 29-09-03-790-001

- (3) Use a solution of soap and water to check that no air leaks at the swivel nut [5] connection.

SUBTASK 29-09-03-210-001

- (4) Make sure that the air pressure gauge [1] reads 45-50 psi.

SUBTASK 29-09-03-860-006

- (5) Depressurize the pneumatic cross manifold duct.

SUBTASK 29-09-03-860-007

- (6) If necessary, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-09-03

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
May 15/2023



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

CROSS FITTING ASSEMBLY - MAINTENANCE PRACTICES

1. **General**

A. This procedure has these tasks:

- (1) Cross fitting assembly removal
- (2) Cross fitting assembly installation.

TASK 29-09-04-000-801

2. **Cross Fitting Assembly Removal**

(Figure 201)

A. **General**

- (1) This task gives the instructions on how to remove a cross fitting assembly between the hydraulic reservoirs.
- (2) There are two cross fitting assemblies installed between the system 'A' and the system 'B' hydraulic reservoirs in the right main landing gear wheel well. Each cross fitting assembly consists of a check valve assembly, a restrictor (orifice) and a swivel nut.

B. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (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. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. **Prepare for Removal**

SUBTASK 29-09-04-860-008

- (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

29-09-04

Page 201
Jan 15/2023



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

SUBTASK 29-09-04-480-001



WARNING

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

- (2) If it is necessary, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 29-09-04-860-001

- (3) Remove the power from the hydraulic systems A and B (TASK 29-11-00-860-805).

SUBTASK 29-09-04-040-001

- (4) Do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-09-04-860-002



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.

- (5) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-09-04-860-003

- (6) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-09-04-010-001

- (7) Get access to the cross fitting assembly in the right main landing gear wheel well.

SUBTASK 29-09-04-210-001

- (8) If the pneumatic system was in operation, let the cross fitting cool down before you do the next step.

F. Cross Fitting Assembly Removal

SUBTASK 29-09-04-020-001

- (1) Loosen the swivel nuts to disconnect the elbows [7] from the check valve [3] and the restrictor [6] on the cross fitting [1] assembly.

SUBTASK 29-09-04-020-005

- (2) Loosen the swivel nuts to disconnect the elbow [4] from the check valve [3] on the cross fitting [1] assembly.

SUBTASK 29-09-04-020-002

- (3) Loosen the swivel nuts to disconnect the pressure relief valve and adjacent hydraulic reservoir tubing from the cross fitting [1] assembly.

SUBTASK 29-09-04-020-003

- (4) Remove the cross fitting assembly.

SUBTASK 29-09-04-420-001

- (5) Install plugs/caps to the tube ends and cross fitting assembly.

————— **END OF TASK** —————

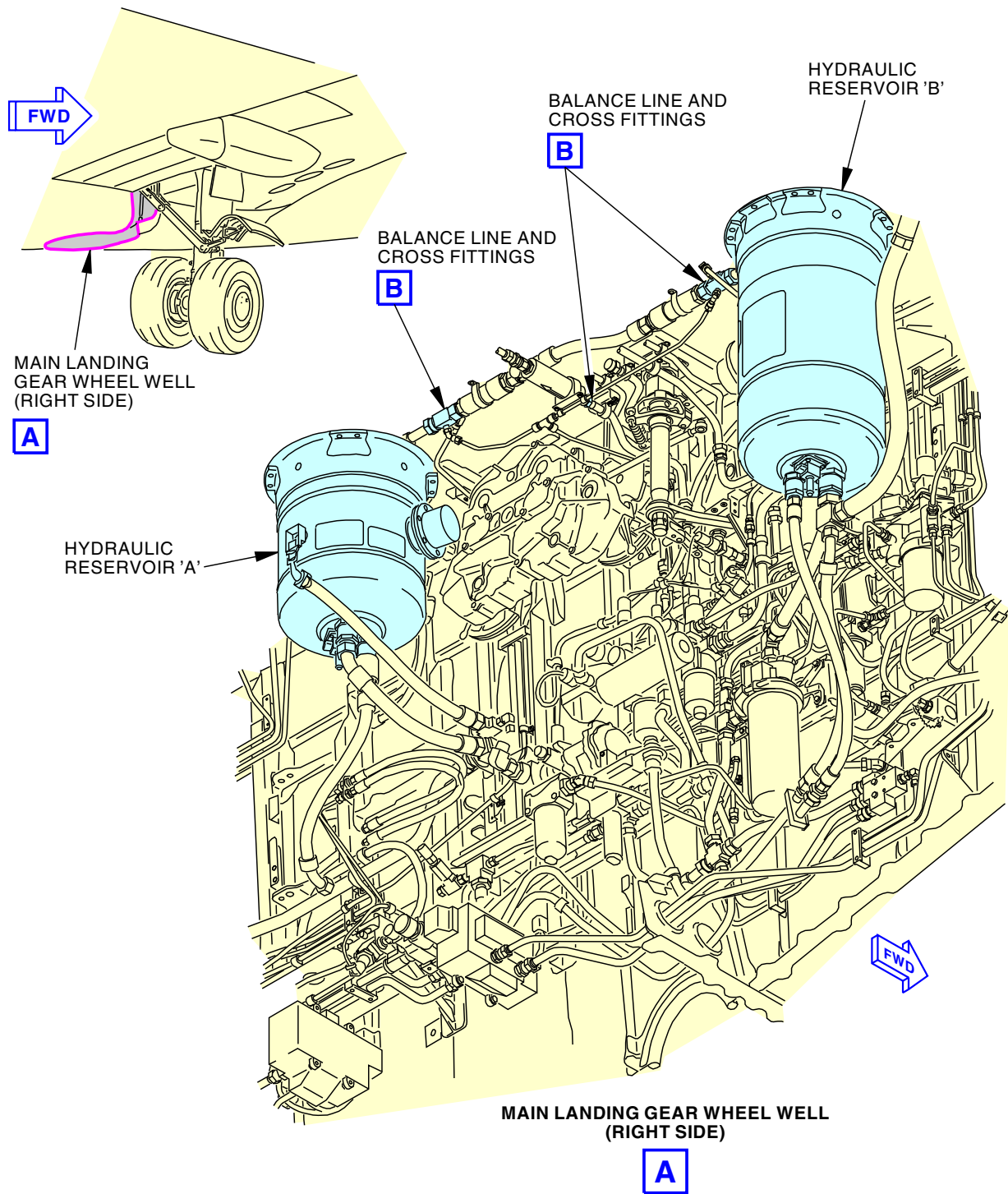
EFFECTIVITY
SIA ALL

29-09-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 202
Sep 15/2021



2413767 S00061533317_V1

Cross Fitting Assembly Installation
Figure 201/29-09-04-990-801 (Sheet 1 of 2)

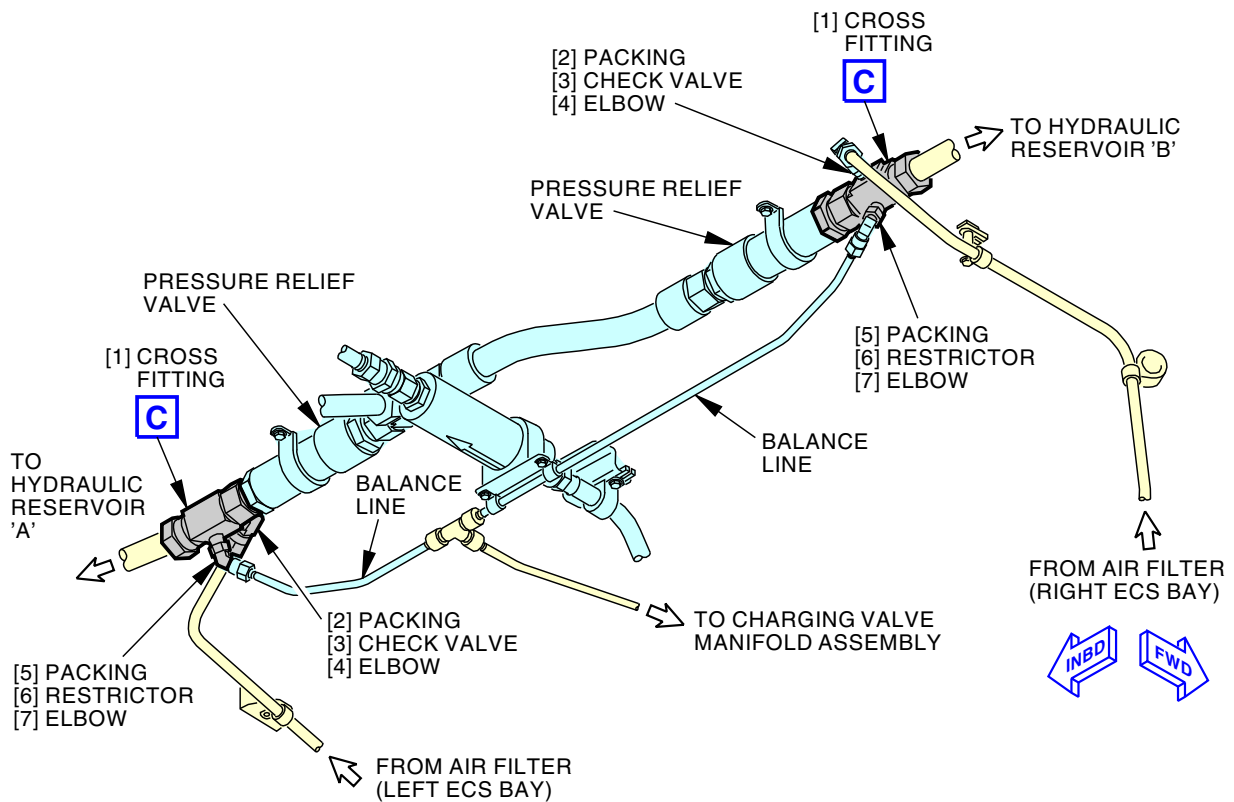
EFFECTIVITY
SIA ALL

29-09-04

D633AM101-SIA

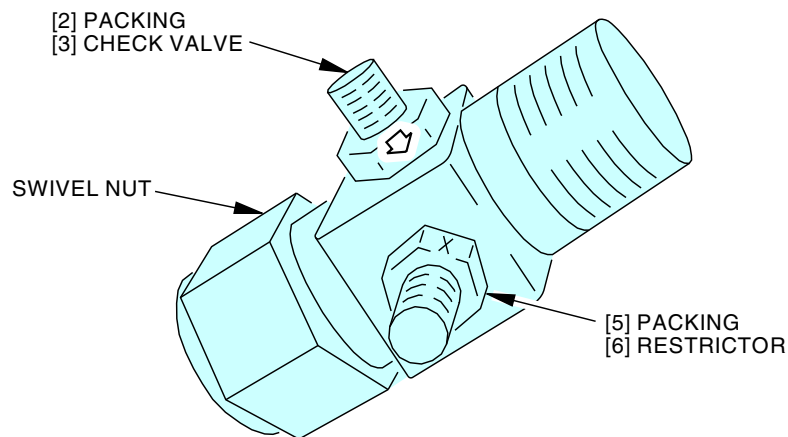
ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 203
Sep 15/2021



BALANCE LINE AND CROSS FITTINGS

[B]



**CROSS FITTING
(EXAMPLE)**

[C]

2413768 S00061533318_V1

**Cross Fitting Assembly Installation
Figure 201/29-09-04-990-801 (Sheet 2 of 2)**

EFFECTIVITY
SIA ALL

29-09-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

TASK 29-09-04-400-801

3. **Cross Fitting Assembly Installation**

(Figure 201)

A. General

- (1) This task gives the instructions on how to install a cross fitting assembly between the hydraulic reservoirs.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (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	Cross fitting	29-09-04-01-010	SIA ALL

E. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Cross Fitting Assembly Installation

SUBTASK 29-09-04-020-004

- (1) Remove the plugs/caps from the tube ends and the cross fitting [1] assembly.

SUBTASK 29-09-04-420-002

- (2) Put the cross fitting [1] assembly between the pressure relief valve and adjacent hydraulic reservoir tubing and loosely connect the swivel nuts.

SUBTASK 29-09-04-420-003

- (3) Adjust the cross fitting [1] assembly to align the check valve [3] and the restrictor [6] with the elbow [7] and the elbow [4].

NOTE: The 'green' colored tube (bleed air line) connects to the check valve, while the 'silver' colored tube (balance line) connects to the restrictor (orifice).

- (a) Tighten the swivel nut at each elbow.

SUBTASK 29-09-04-420-004

- (4) Tighten the swivel nuts at the pressure relief valve and adjacent hydraulic reservoir tubing.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-09-04-860-009

- (1) 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.

EFFECTIVITY
SIA ALL

29-09-04

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

H. Post-Installation Leakage Check

SUBTASK 29-09-04-860-005

- (1) Pressurize the pneumatic crossover manifold duct.

SUBTASK 29-09-04-790-001

- (2) Use a solution of soap and water to check that no air leaks at the swivel nut connections on the cross fitting assembly.

SUBTASK 29-09-04-860-006

- (3) Depressurize the pneumatic cross manifold duct.

SUBTASK 29-09-04-860-007

- (4) If it is necessary, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-04

Page 206
Sep 15/2021



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

PRESSURE RELIEF VALVE - MAINTENANCE PRACTICES

1. **General**

- A. This procedure has these tasks:
- (1) Pressure relief valve removal
 - (2) Pressure relief valve installation
 - (3) Pressure relief valve operational test.

TASK 29-09-05-000-801

2. **Pressure Relief Valve Removal**

(Figure 201)

A. **General**

- (1) This task gives the instructions on how to remove a pressure relief valve for the reservoir pressurization system.

B. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (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. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. **Prepare for Removal**

SUBTASK 29-09-05-480-001

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

- (1) If it is necessary, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 29-09-05-860-001

- (2) Remove the hydraulic power from systems A and B (TASK 29-11-00-860-805).

SUBTASK 29-09-05-040-001

- (3) Do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-05

Page 201
Sep 15/2021



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

SUBTASK 29-09-05-860-002



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.

(4) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-09-05-860-003

(5) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-09-05-010-001

(6) Get access to the pressure relief valves in the right main landing gear wheel well.

SUBTASK 29-09-05-860-013

(7) 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 29-09-05-210-001

(8) Let the pressure relief valve cool down before you do the next step.

NOTE: If the pneumatic system was in operation previously, allow time for the pressure relief valve to become cool before you touch it.

F. Pressure Relief Valve Removal

SUBTASK 29-09-05-020-001

(1) Remove the two screws [4], two washers [5] and clamp [6] from the pressure relief valve [1].

SUBTASK 29-09-05-020-002

(2) Loosen the swivel nuts on each end of the pressure relief valve [1].

SUBTASK 29-09-05-020-003

(3) Remove the pressure relief valve [1].

SUBTASK 29-09-05-020-004

(4) Remove the two unions [2] and the two packings [3] from the pressure relief valve [1].

- (a) Keep the unions [2] for the installation.
- (b) Discard the packings [3].

SUBTASK 29-09-05-420-001

(5) Install plugs/caps to the tube ends and pressure relief valve ports.

————— **END OF TASK** —————

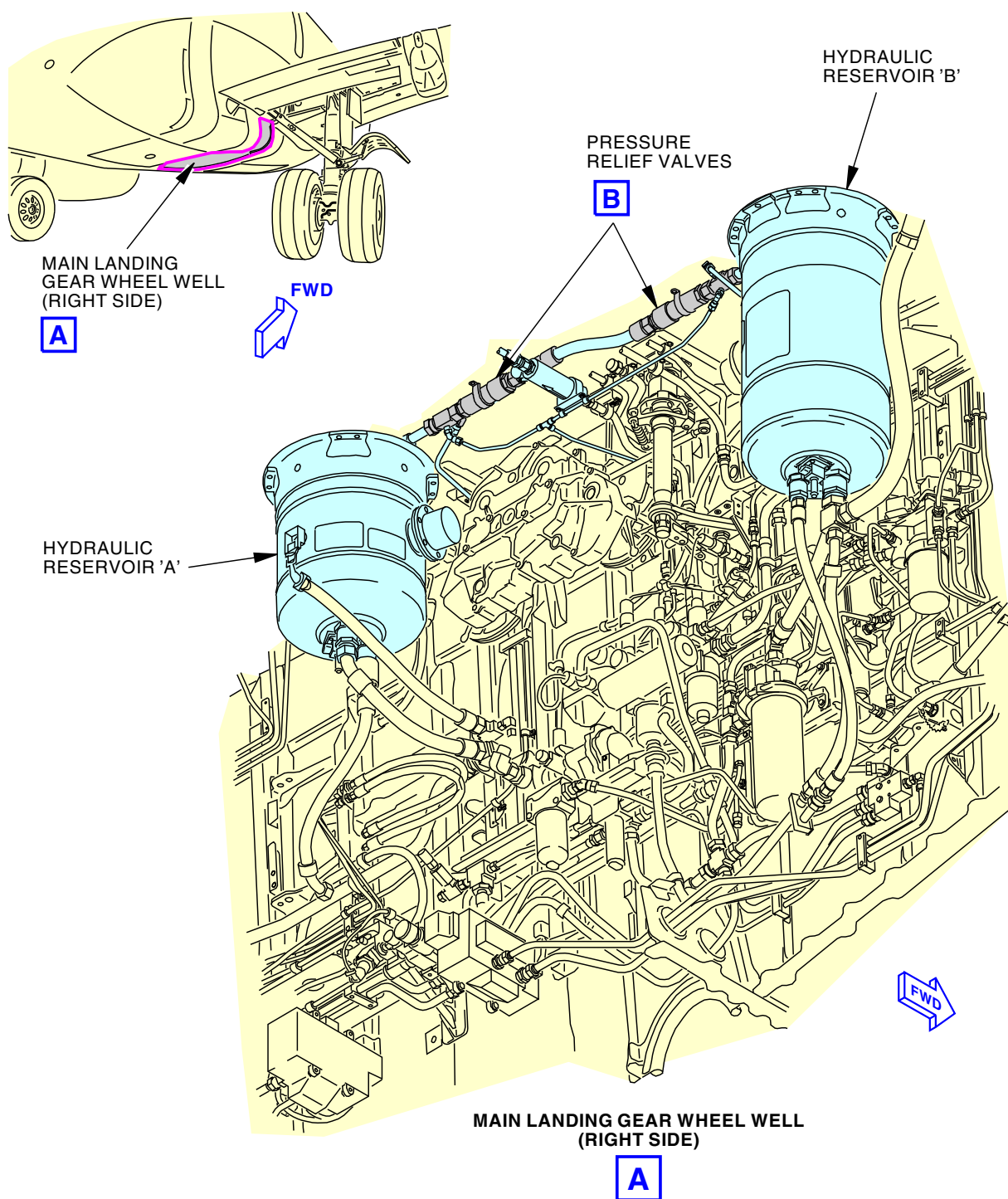
EFFECTIVITY
SIA ALL

29-09-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 202
Jan 15/2023



2413769 S00061533323_V1

Pressure Relief Valve Installation
Figure 201/29-09-05-990-801 (Sheet 1 of 3)

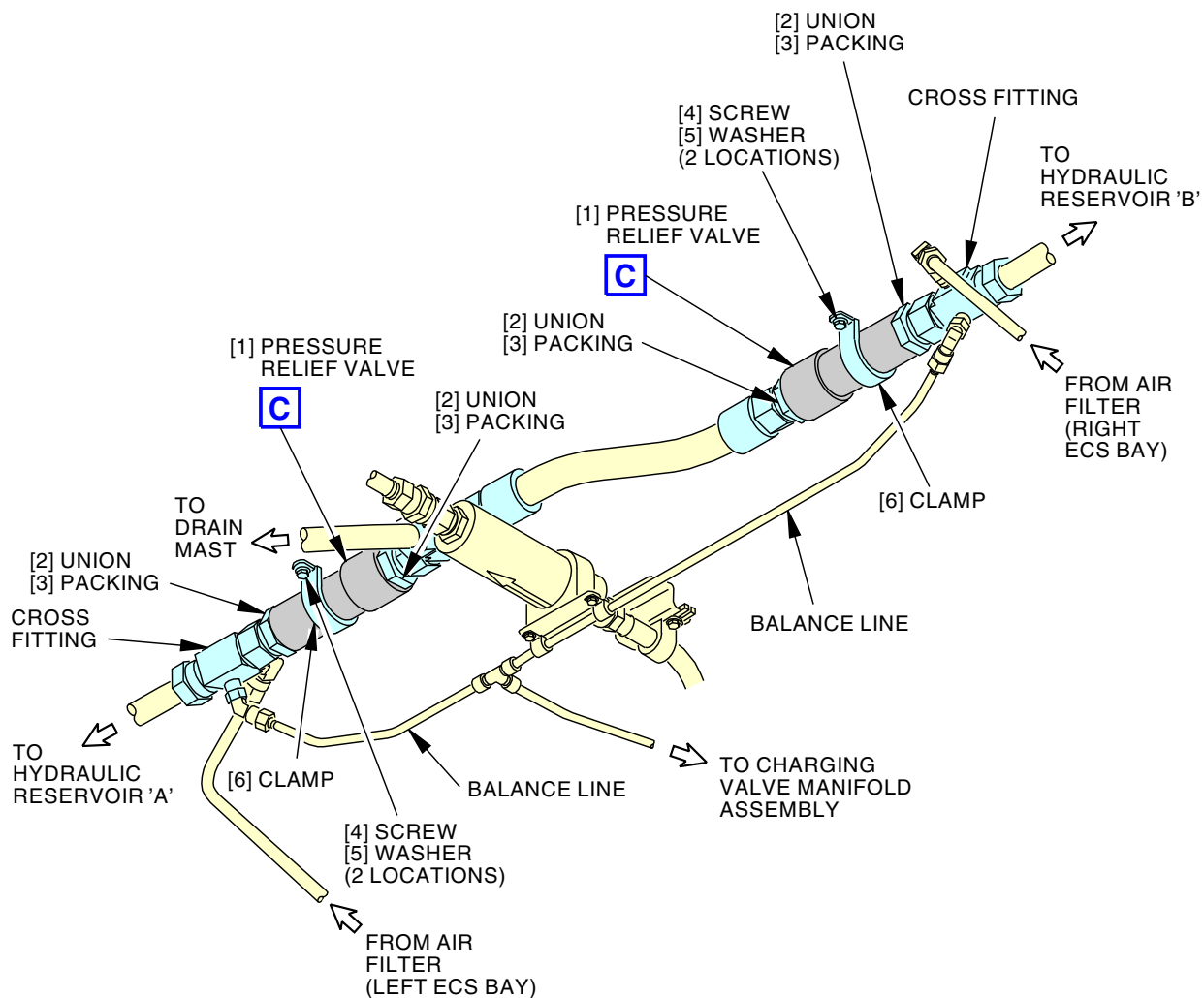
EFFECTIVITY
SIA ALL

29-09-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 203
Sep 15/2021



PRESSURE RELIEF VALVES

[B]

2413770 S00061533324_V1

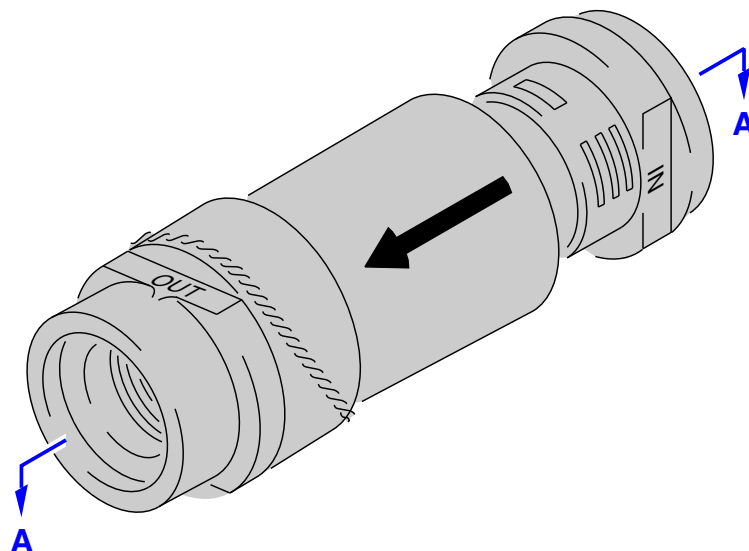
Pressure Relief Valve Installation
Figure 201/29-09-05-990-801 (Sheet 2 of 3)

EFFECTIVITY
SIA ALL

29-09-05

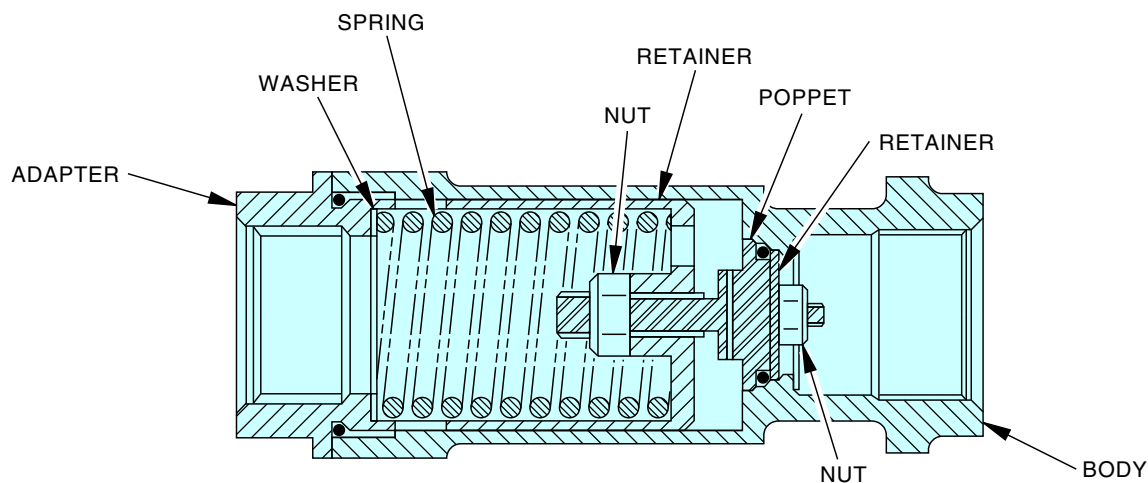
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



**PRESSURE RELIEF VALVE
(EXAMPLE)**

C



A-A

2413771 S00061533325_V1

**Pressure Relief Valve Installation
Figure 201/29-09-05-990-801 (Sheet 3 of 3)**

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-05

Page 205
Sep 15/2021



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

TASK 29-09-05-400-801

3. **Pressure Relief Valve Installation**

(Figure 201)

A. General

- (1) This task gives the instructions on how to install a pressure relief valve for the reservoir pressurization system.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pressure relief valve	29-09-05-01-065	SIA ALL
3	Packing	29-09-05-01-085	SIA ALL

F. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

G. Pressure Relief Valve Installation

SUBTASK 29-09-05-020-005

- (1) Remove the plugs/caps from the tube ends and pressure relief valve ports.

SUBTASK 29-09-05-640-001

- (2) Lightly lubricate the new two packings [3] with MCS 352B fluid, D00054 or hydraulic fluid, D00153.

SUBTASK 29-09-05-420-002

- (3) Install the two packings [3] and the two unions [2] on the pressure relief valve ports.

SUBTASK 29-09-05-420-003

- (4) Connect the cross fitting swivel nuts to the unions [2] on the pressure relief valve [1].

NOTE: The 'IN-OUT' flow arrow on the pressure relief valve must point away from the adjacent cross fitting assembly. The inlet side of the pressure relief valve is adjacent to the cross fitting assembly. The outlet side of the pressure relief valve is adjacent to the APU fuel line shroud drain mast tubing.

SUBTASK 29-09-05-420-004

- (5) Install the clamp [6] with the two washers [5] and the two screws [4] to the pressure relief valve [1].

EFFECTIVITY
SIA ALL

29-09-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 206
Sep 15/2021



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

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-09-05-860-010

- (1) 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.

I. Post-Installation Leakage Check

SUBTASK 29-09-05-860-005

- (1) Pressurize the pneumatic crossover manifold duct.

SUBTASK 29-09-05-790-001

- (2) Use a solution of soap and water to check that no air leaks at the swivel nut connection on the inlet side of the pressure relief valve.

SUBTASK 29-09-05-860-006

- (3) Depressurize the pneumatic cross manifold duct.

SUBTASK 29-09-05-860-007

- (4) If necessary, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802

————— END OF TASK —————

TASK 29-09-05-700-801

4. Pressure Relief Valve Operational Test

(Figure 202)

A. General

- (1) This task gives the instructions on how to do the operational test of the pressure relief valve.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-09-02-000-801	Air Charging Valve Manifold Assembly - Removal (P/B 201)
29-09-03-000-801	Air Pressure Gauge - Removal (P/B 401)
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
STD-11682	Air Source - Regulated, Dry, Filtered 0-120 psig

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Test

SUBTASK 29-09-05-860-012

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

EFFECTIVITY
SIA ALL

29-09-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 207
Sep 15/2021



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 29-09-05-860-008

- (2) Make sure that the APU and external air sources are off (TASK 36-00-00-860-806).

SUBTASK 29-09-05-010-002

- (3) Get access to the pressure relief valves in the right main landing gear wheel well.

SUBTASK 29-09-05-860-009

- (4) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.
 - (a) Make sure that the reservoir air pressure gauge shows 0 psi.

NOTE: Refer to the Hydraulic Reservoir Pressure Gauge Removal task for the location of the gauge (TASK 29-09-03-000-801).

F. Pressure Relief Valve Operational Test

SUBTASK 29-09-05-720-001

- (1) Do the test of the reservoir A (left) pressure relief valve as follows:
 - (a) Loosen the swivel nut that connects the balance line to the cross fitting for the reservoir B.
 - (b) Disconnect the balance line from cross fitting.
 - (c) Install a plug at the tube end of the balance line.

NOTE: This will permit you to do the test of the left pressure relief valve (reservoir A). This also isolates the right pressure relief valve for reservoir B.
 - (d) Get access to the air charging valve manifold assembly in the right main landing gear wheel well.

NOTE: Refer to the Air Charging Valve Manifold Assembly Removal task for the location (TASK 29-09-02-000-801).
 - (e) Remove the dust cap from the valve stem on the air charging valve.
 - (f) Connect the Air Source - Regulated, Dry, Filtered 0-120 psig, STD-11682, to the valve stem on the air charging valve.
 - (g) Turn the swivel nut on the air charging valve to the fully open position (1 to 2-1/4 turns).



DO NOT USE MORE THAN THE SPECIFIED PRESSURE. IF YOU USE MORE PRESSURE, DAMAGE TO EQUIPMENT CAN OCCUR.

- (h) Slowly supply and adjust the pressure of the Air Source - Regulated, Dry, Filtered 0-120 psig, STD-11682, to pressurize the reservoir A to 45 psi (45 psig) - 50 psi (50 psig).
- (i) Make sure that the reservoir air pressure gauge in the right main landing gear wheel well shows approximately 45 psi (45 psig) - 50 psi (50 psig).
- (j) Make sure that the left pressure relief valve remains close.
- (k) Slowly increase the pressure but do not exceed 70 psi (70 psig)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-05

Page 208
Jan 15/2023



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

- (l) Make sure that the left pressure relief valve opens at 60 psi (60 psig) - 65 psi (65 psig).
- (m) Slowly decrease the pressure from the Air Source - Regulated, Dry, Filtered 0-120 psig, STD-11682.
- (n) Make sure that the left pressure relief valve closes at the minimum pressure of 55 psi (55 psig).
- (o) Continue to decrease the pressure until the reservoir air pressure gauge indicates 0 psi.
- (p) Remove the plug from the tube end of the balance line.
- (q) Connect and tighten the swivel nut for the balance line to the cross fitting.

SUBTASK 29-09-05-720-002

- (2) Do the test of the reservoir B (right) pressure relief valve as follows:
 - (a) Loosen the swivel nut that connects the balance line to the cross fitting for the reservoir A.
 - (b) Disconnect the balance line from cross fitting.
 - (c) Install a plug at the tube end of the balance line.
NOTE: This will permit you to do the test of the right pressure relief valve (reservoir B). This also isolates the left pressure relief valve for reservoir A.
 - (d) Get access to the air charging valve manifold assembly in the right main landing gear wheel well.
NOTE: Refer to the Air Charging Valve Manifold Assembly Removal task for the location (TASK 29-09-02-000-801).
 - (e) Remove the dust cap from the valve stem on the air charging valve.
 - (f) Connect the Air Source - Regulated, Dry, Filtered 0-120 psig, STD-11682, to the valve stem on the air charging valve.
 - (g) Turn the swivel nut on the air charging valve to the fully open position (1 to 2-1/4 turns).



CAUTION

DO NOT USE MORE THAN THE SPECIFIED PRESSURE. IF YOU USE MORE PRESSURE, DAMAGE TO EQUIPMENT CAN OCCUR.

- (h) Slowly supply and adjust the pressure of the Air Source - Regulated, Dry, Filtered 0-120 psig, STD-11682, to pressurize the reservoir B to 45 psi (45 psig) - 50 psi (50 psig).
- (i) Make sure that the reservoir air pressure gauge in the right main landing gear wheel well shows approximately 45 psi (45 psig) - 50 psi (50 psig).
- (j) Make sure that the right pressure relief valve remains close.
- (k) Slowly increase the pressure but do not exceed 70 psi (70 psig).
- (l) Make sure that the right pressure relief valve opens at 60 psi (60 psig) - 65 psi (65 psig).
- (m) Slowly decrease the pressure from the Air Source - Regulated, Dry, Filtered 0-120 psig, STD-11682.
- (n) Make sure that the right pressure relief valve closes at the minimum pressure of 55 psi (55 psig).
- (o) Continue to decrease the pressure until the reservoir air pressure gauge indicates 0 psi.
- (p) Remove the plug from the tube end of the balance line.
- (q) Connect and tighten the swivel nut for the balance line to the cross fitting.



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

G. Put Airplane Back to Its Usual Condition

SUBTASK 29-09-05-080-001

- (1) Disconnect the external ground Air Source - Regulated, Dry, Filtered 0-120 psig, STD-11682, from the valve stem on the air charging valve.

SUBTASK 29-09-05-980-003

- (2) Turn the swivel nut on the air charging valve to the fully closed position (1 to 2-1/4 turns).
 - (a) Install the dust cap to the valve stem on the air charging valve.

SUBTASK 29-09-05-860-011

- (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** ————

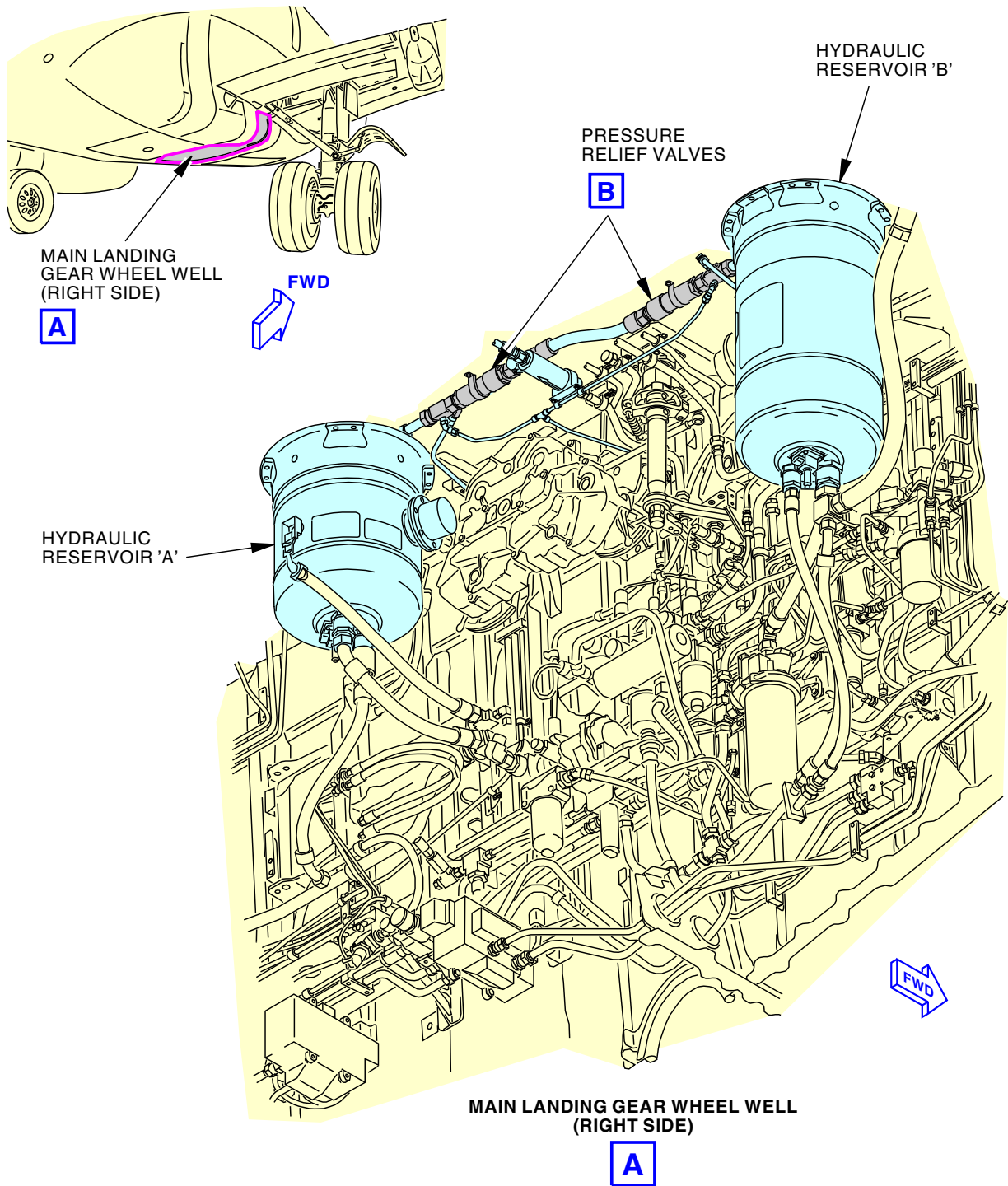
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-05

Page 210
Sep 15/2021



2413769 S00061533323_V1

Pressure Relief Valve Operational Test
Figure 202/29-09-05-990-802 (Sheet 1 of 2)

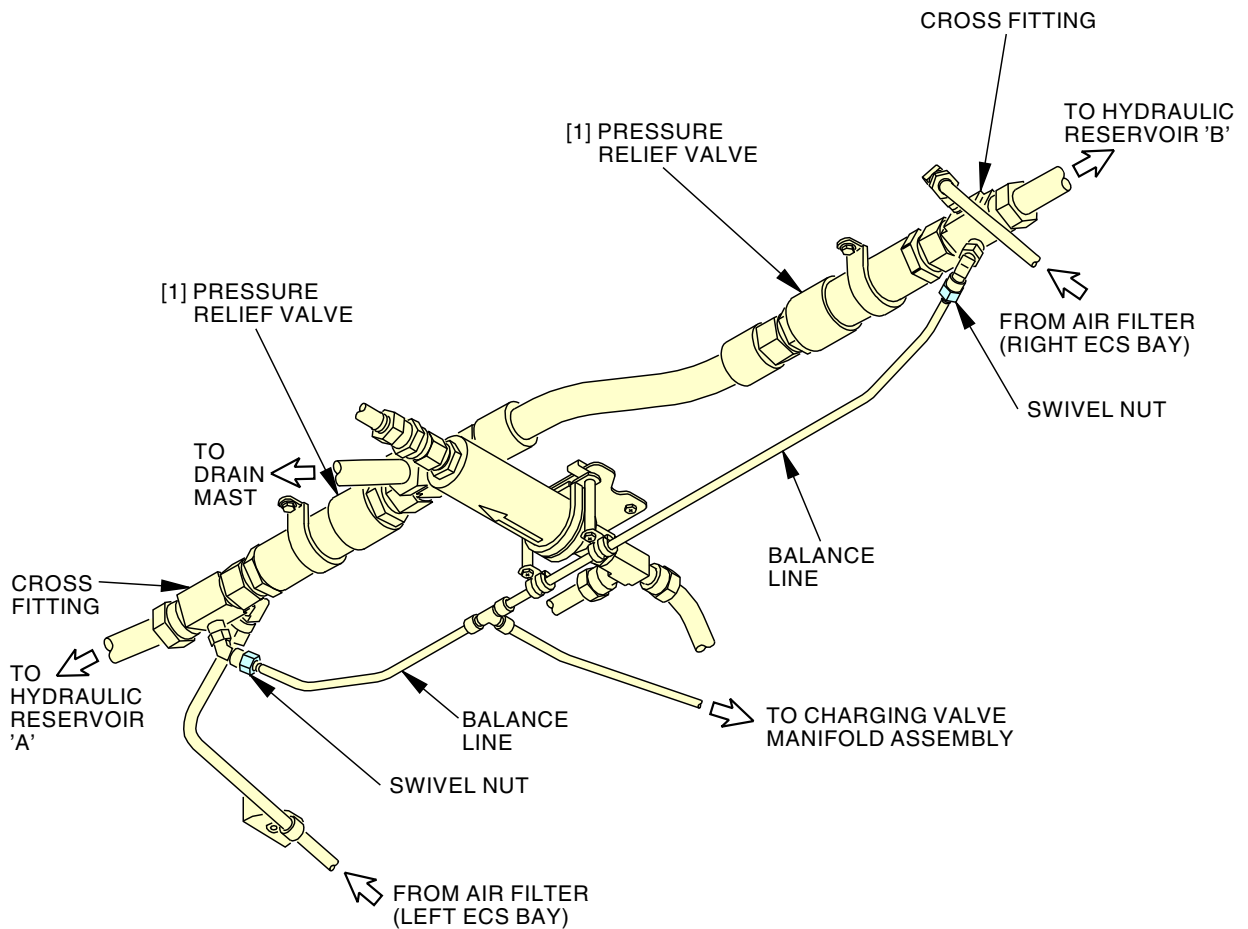
EFFECTIVITY
SIA ALL

29-09-05

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 211
Sep 15/2021



B

2521396 S0000593511_V1

Pressure Relief Valve Operational Test
Figure 202/29-09-05-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-09-05

Page 212
Sep 15/2021



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

HYDRAULIC SYSTEMS A AND B - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) Hydraulic System A or B Pressurization - Activation
 - (a) This task gives the alternative tasks you can use to pressurize the hydraulic system A or B.
- (2) Hydraulic System A or B Pressurization with a Portable Hydraulic Cart
- (3) Hydraulic System A or B Pressurization with an Electric Motor-Driven Pump (EMDP)
- (4) Hydraulic System A or B Pressurization with an Engine Driven Pump (EDP)
- (5) Hydraulic System A or B Power Removal
 - (a) This task stops the hydraulic pumps or the portable hydraulic cart when the hydraulic pressure is not necessary. This procedure does not remove the pressure which stays in the hydraulic system. If you loosen the hydraulic connections or open the hydraulic system, you must do this task: Hydraulic Reservoirs Depressurization (TASK 29-09-00-860-802).
- (6) Hydraulic System A or B Flushing
 - (a) This task flushes the hydraulic system A or B after you replace a defective hydraulic pump.
- (7) Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning
- (8) Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Inspection and Corrosion Repair

B. This procedure is applicable for hydraulic systems A and B.

TASK 29-11-00-860-801

2. Hydraulic System A or B Pressurization

A. **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
211	Flight Compartment - Left
212	Flight Compartment - Right

B. **Hydraulic System A or B Pressurization**

SUBTASK 29-11-00-860-001

- (1) Do one of these steps to pressurize the applicable hydraulic system:
 - Do this task: Hydraulic System A or B Pressurization with a Portable Hydraulic Cart, TASK 29-11-00-860-802.
 - Do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.
 - Do this task: Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP), TASK 29-11-00-860-804.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

29-11-00

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

TASK 29-11-00-860-802

3. **Hydraulic System A or B Pressurization with a Portable Hydraulic Cart**

(Figure 201)

A. References

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
SPL-12499	Adapter - Ground Service Disconnect Part #: C29006-27 Supplier: 81205

C. 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

D. Access Panels

Number	Name/Location
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

E. Hydraulic System A or B Pressurization with a Portable Hydraulic Cart

SUBTASK 29-11-00-780-001

- (1) Make sure that the hydraulic reservoirs are depressurized.
 - (a) To depressurize the hydraulic reservoirs, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 202
May 15/2023



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

SUBTASK 29-11-00-480-001



WARNING

MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL THE LANDING GEARS BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEM. WITHOUT THE GROUND LOCKS, THE LANDING GEARS CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure that the ground locks are installed in the nose gear and main landing gears.
 - (a) To install the ground locks, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 29-11-00-010-001

- (3) Open these applicable access panels:

<u>Number</u>	<u>Name/Location</u>
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

SUBTASK 29-11-00-480-002



CAUTION

DO NOT USE A HYDRAULIC CART WITH A BACK FLOW RETURN PRESSURE THAT IS MORE THAN THE LIMIT. IF YOU DO NOT OBEY, OVER-SERVICE OF THE HYDRAULIC SYSTEM CAN OCCUR. THIS CAN CAUSE A HYDRAULIC FLUID LEAK FROM THE DRAIN MAST.

- (4) Make sure that the back flow return pressure on the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, is not more than 65 psi (448 kPa).
 - (a) Use the manufacturer's instructions to make the adjustment.
 - (b) Make sure that the pressure is adjusted to the limit.

SUBTASK 29-11-00-480-008

- (5) Connect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the ground service disconnect:
 - (a) Connect the adapter, SPL-12499, to the pressure connection of the ground service disconnect module.
 - (b) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the adapter, SPL-12499.
 - (c) Connect the adapter, SPL-12499, to the return connection of the ground service disconnect module.
 - (d) Connect the return line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the adapter, SPL-12499.
 - (e) If not otherwise specified, adjust the external hydraulic cart pressure to 3000 psig (20,684 kPa) and adjust the flow to 20 gpm (76 l/min).

SUBTASK 29-11-00-860-002

- (6) Pressurize the aircraft hydraulic reservoirs, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.
 - (a) Use a closed-loop hydraulic cart.

NOTE: Other types of hydraulic carts can fill to more than the maximum level, or cause the hydraulic fluid to spill.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 203
May 15/2022



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

SUBTASK 29-11-00-860-003



CAUTION

DISCONNECT THE PRESSURE LINE AND THE RETURN LINE FROM THE HYDRAULIC CART BEFORE YOU OPERATE THE PUMPS. IF THEY ARE CONNECTED, DAMAGE TO THE PUMPS WILL OCCUR.

- (7) Disconnect the return line and pressure line from the hydraulic cart.

SUBTASK 29-11-00-860-047

- (8) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to pressurize the hydraulic system.

———— **END OF TASK** ————

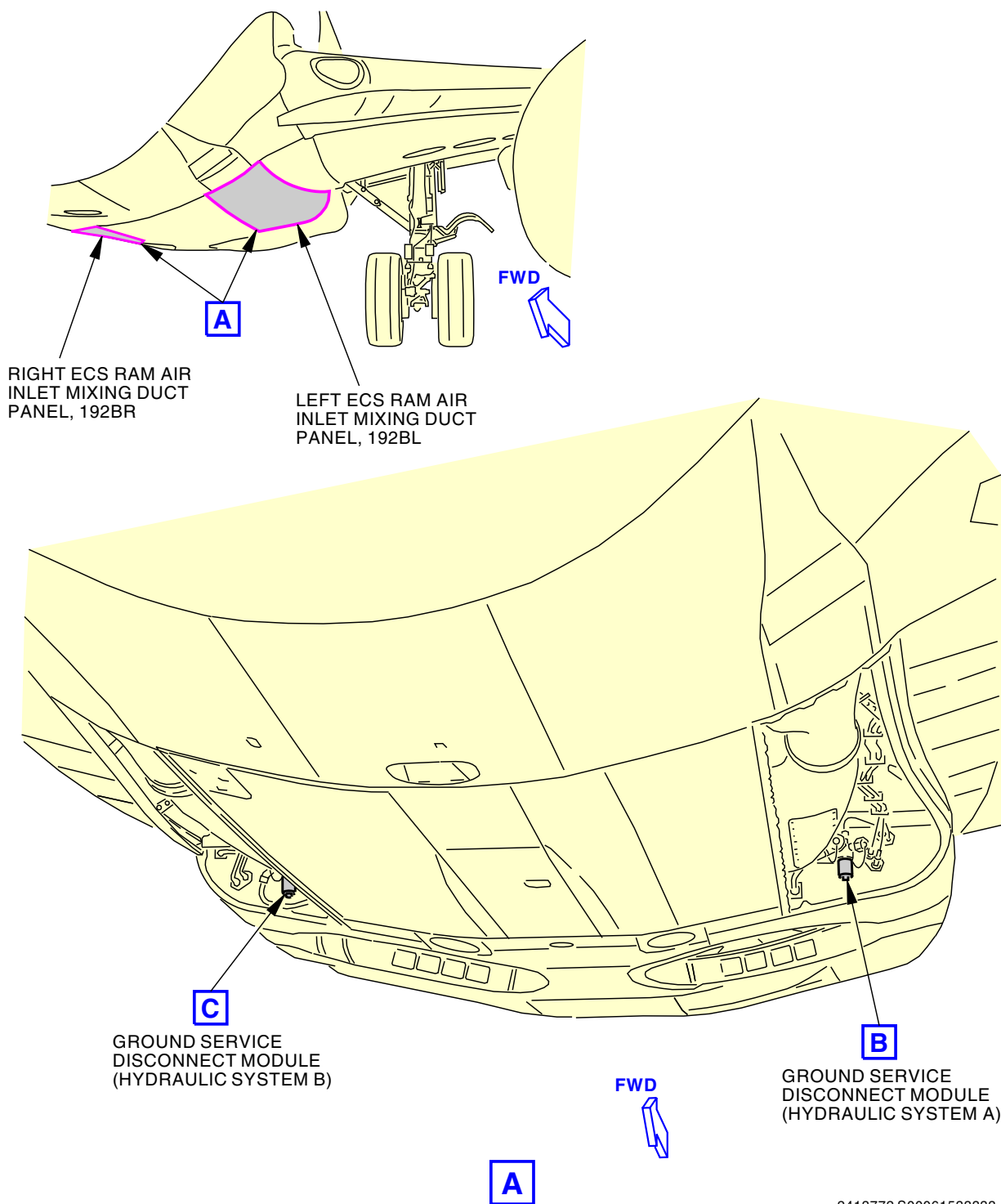
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 204
May 15/2022



2413772 S00061533333_V1

Ground Service Disconnect Module
Figure 201/29-11-00-990-801 (Sheet 1 of 2)

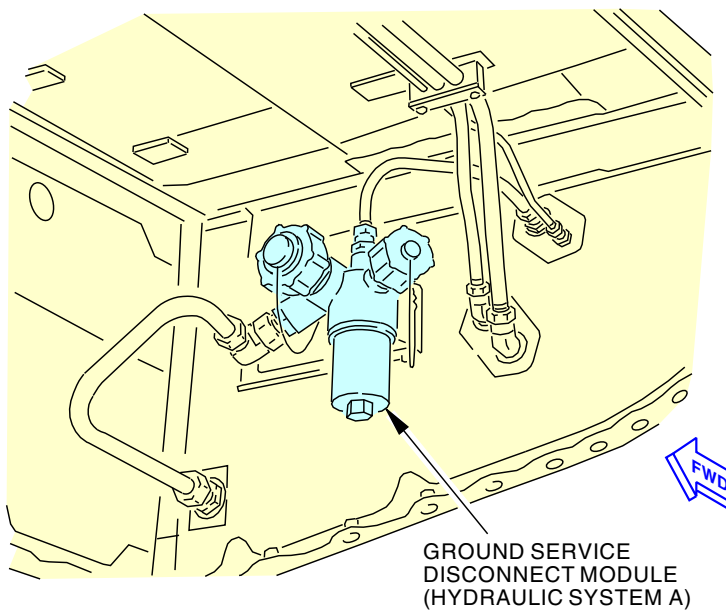
EFFECTIVITY
SIA ALL

D633AM101-SIA

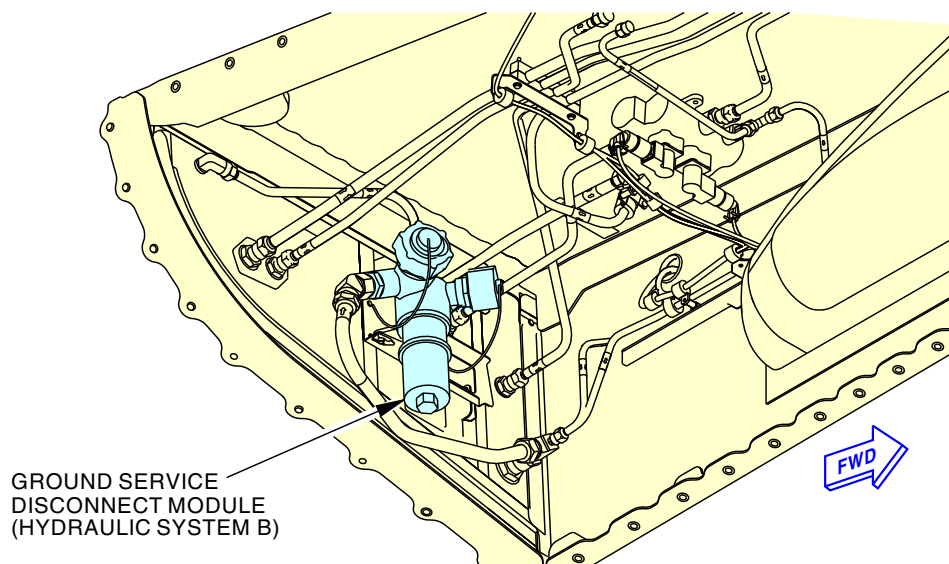
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 205
Jan 15/2022



B



C

2413773 S00061533334_V1

Ground Service Disconnect Module
Figure 201/29-11-00-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 206
Jan 15/2022



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

TASK 29-11-00-860-803

4. Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP)

(Figure 202)

A. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

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

Reference	Description
SPL-19483	Cart - Portable External Oil Cooler (PEOC) Part #: 500-5832-101-1 Supplier: 1X105

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP)

SUBTASK 29-11-00-480-003



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

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

SUBTASK 29-11-00-010-003

- (2) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-11-00-860-005



WARNING

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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 207
Jan 15/2023

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

(WARNING PRECEDES)



WARNING

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

- (3) For the hydraulic system A, do the following step:
(a) Make sure that this circuit breaker is closed:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-00-860-006



WARNING

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



WARNING

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

- (4) For the hydraulic system B, do the following step:
(a) Make sure that this circuit breaker is closed:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-11-00-410-002

- (5) Close this access panel:

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

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

Page 208
Jan 15/2023



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

SUBTASK 29-11-00-860-046



WARNING

KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.



CAUTION

DO NOT OPERATE THE EMDP FOR MORE THAN TWO MINUTES UNLESS THE APPLICABLE FUEL TANK HAS A MINIMUM OF 250 GALLONS/946 LITERS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN IT. YOU CAN ALSO USE A PORTABLE EXTERNAL OIL COOLER (PEOC). IF YOU CONTINUE TO OPERATE THE EMDP, THE HYDRAULIC FLUID CAN BECOME TOO HOT. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) If the PEOC cart, SPL-19483, will be used while the EMDP operates to pressure the hydraulic system, follow the instructions provided with the PEOC cart, SPL-19483, to connect it to the airplane.

NOTE: If the airplane does not have fuel load above 1675 lb (760 kg), it is permissible to connect the PEOC cart, SPL-19483, in conjunction with the EMDP and operate longer than 2 minutes, subject to PEOC cart, SPL-19483, thermal alarm limits.

SUBTASK 29-11-00-860-007



CAUTION

DO NOT START THE PUMP MORE THAN FIVE TIMES IN A FIVE MINUTE PERIOD. THE PUMP CAN BECOME TOO HOT. THIS CAN CAUSE DAMAGE TO THE PUMP.

- (7) Set the following switches on the P5-8 Hydraulics Pumps Panel (P5 Forward Overhead Panel) to the ON position:
- (a) For the hydraulic system A; HYD PUMPS A ELEC 2
 - (b) For the hydraulic system B; HYD PUMPS B ELEC 1.

SUBTASK 29-11-00-480-007

- (8) Make sure that the hydraulic pressure becomes stable between 2800 psig (19,305 kPa) and 3200 psig (22,063 kPa).

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-11-00

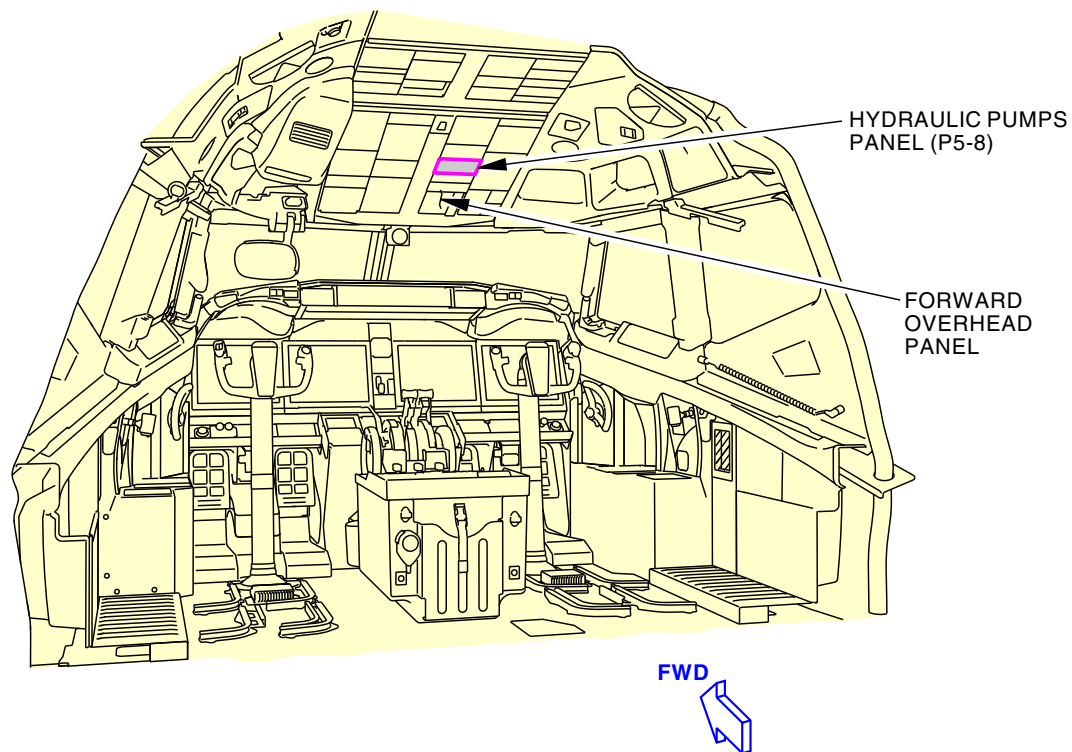
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

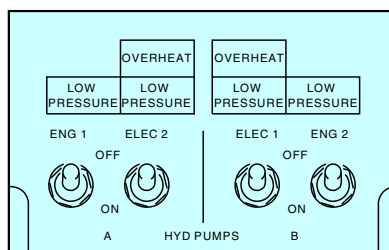
Page 209
Jan 15/2023



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



FLIGHT COMPARTMENT



HYDRAULIC PUMPS PANEL (P5-8)

A

2413747 S00061533250_V1

Hydraulic System Control Panel
Figure 202/29-11-00-990-802

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 210
Jan 15/2022



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

TASK 29-11-00-860-804

5. Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP)

(Figure 202)

A. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
71-00-00-910-802-G00	Start the Engine (Selection) (P/B 201)
71-00-00-910-808-G00	Dry Motor Procedure (P/B 201)

B. Location Zones

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

C. Procedure

SUBTASK 29-11-00-480-004



MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL THE LANDING GEARS BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEM. WITHOUT THE GROUND LOCKS, THE LANDING GEARS CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Make sure that the ground lock assemblies are installed in the nose gear and main landing gears. To install them, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 29-11-00-860-009



KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.



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

- (2) Set this switch on the forward overhead panel, P5, to the ON position:
- (a) For the hydraulic system A; HYD PUMPS A ENG 1
 - (b) For the hydraulic system B; HYD PUMPS B ENG 2

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 211
Jan 15/2022



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

SUBTASK 29-11-00-860-010



DO NOT USE THIS TASK TO PRESSURIZE THE HYDRAULIC SYSTEM IF THE AIRPLANE IS LOCATED WHERE AN ENGINE RUN CANNOT BE SAFELY PERFORMED. IF YOU OPERATE THE ENGINES IN AN DANGEROUS LOCATION. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Operate or motor the applicable engine to keep the hydraulic system pressurized.
 - (a) To operate the engine, do this task: Start the Engine (Selection), TASK 71-00-00-910-802-G00.
 - (b) To motor the engine, do this task: Dry Motor Procedure, TASK 71-00-00-910-808-G00.

SUBTASK 29-11-00-210-001

- (4) Make sure that the hydraulic pressure becomes stable between 2800 psig (19,305 kPa) and 3200 psig (22,063 kPa).

————— END OF TASK —————

TASK 29-11-00-860-805

6. Hydraulic System A or B Power Removal

(Figure 201, Figure 202)

A. General

- (1) This task stops the hydraulic pumps or the portable hydraulic cart when the hydraulic pressure is not necessary. This procedure does not remove the pressure which stays in the hydraulic power sources stop. If you will loosen the hydraulic connections or open the hydraulic system, you must, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
71-00-00-910-806-G00	Stop the Engine (Usual Engine Stop) (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-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-00

Page 212
Sep 15/2023



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

(Continued)

Reference	Description
SPL-12499	Adapter - Ground Service Disconnect Part #: C29006-27 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Location Zones

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

F. Access Panels

Number	Name/Location
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

G. Hydraulic System Power Removal from a Portable Hydraulic Cart

SUBTASK 29-11-00-860-011

- (1) Adjust the pressure of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163 to zero.

SUBTASK 29-11-00-080-001

- (2) Disconnect the pressure and return lines of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163 from the adapter, SPL-12499.

- (a) Disconnect the adapter, SPL-12499 from the pressure and return connections of the ground service disconnect module.

SUBTASK 29-11-00-420-001

- (3) Install caps on the pressure and return connections of the ground service disconnect module.

- (a) Install MS20995NC32 lockwire, G01912, on the cap and return connection nut, with double-twist method (TASK 20-10-44-400-801).

SUBTASK 29-11-00-410-001

- (4) Close the applicable access panels:

Number	Name/Location
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

H. Hydraulic System Power Removal from an Electric Motor-Driven Pump (EMDP)

SUBTASK 29-11-00-860-012

- (1) Set this switch on the forward overhead panel, P5, to the OFF position:

- (a) For the hydraulic system A; HYD PUMPS A ELEC 2
(b) For the hydraulic system B; HYD PUMPS B ELEC 1

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 213
Sep 15/2023



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

I. Hydraulic System Power Removal from an Engine Driven Pump (EDP)

SUBTASK 29-11-00-860-013

- (1) Stop the applicable engine. To stop it, do this task: Stop the Engine (Usual Engine Stop), TASK 71-00-00-910-806-G00.

SUBTASK 29-11-00-860-014

- (2) Keep the HYD PUMPS ENG switch for the applicable hydraulic system in the ON position.

NOTE: The HYD PUMPS ENG switches should be left in the ON position. This will increase the life of the depressurization solenoid which becomes energized when the HYD PUMPS ENG switch is put in the OFF position.

————— END OF TASK —————

TASK 29-11-00-170-801

7. Hydraulic System A or B Flushing

A. General

- (1) This procedure flushes the hydraulic system after you replace a defective hydraulic pump.
- (2) If the airplane experiences repeated failures of a pump at one location, there may be debris in the case drain line, case drain hose or case drain hose quick-disconnect that cannot be flushed by accomplishing this procedure. Careful examination, cleaning, or replacement of the case drain hose or quick-disconnect may be required.
- (3) If contamination from a damaged pump is found when you flush the hydraulic system, then it is recommended to do these steps:

NOTE: Operator experience shows that a new filter can become plugged by debris that remains in the hydraulic system after a mechanical failure. A plugged filter can cause hydraulic fluid to bypass the filter element and allow debris to circulate in the system. Debris that bypasses the filter can cause a premature failure of a new hydraulic pump.

- (a) Examine the case drain line and hoses for contamination or blockage.
 - (b) If contamination or blockage is found, clean or replace the case drain line.
 - (c) Replace the case drain filter element again, at the first scheduled maintenance opportunity following one week of normal operation.
 - (d) Replace all the filter elements in the system at the first scheduled maintenance opportunity following two months of normal operation.
- (4) If the contamination of the hydraulic fluid is from a chemical source, replace the fluid and the filter elements.

B. References

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-41-000-801	EMDP Case Drain Filter Element Removal (P/B 401)
29-11-41-400-801	EMDP Case Drain Filter Element Installation (P/B 401)
29-11-51-000-801	EDP Case Drain Filter Element Removal (P/B 401)
29-11-51-400-801	EDP Case Drain Filter Element Installation (P/B 401)
29-11-61-000-801	Return Filter Element Removal (P/B 401)
29-11-61-200-801	Hydraulic Systems A and B Return Filter Element - Inspection (P/B 601)

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 214
Sep 15/2023



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

(Continued)

Reference	Title
29-11-61-400-801	Return Filter Element Installation (P/B 401)
29-11-71-000-802	Hydraulic Systems A and B Pressure Module Filter Element Removal (P/B 401)
29-11-71-400-802	Hydraulic Systems A and B Pressure Module Filter Element Installation (P/B 401)
29-22-21-000-802	PTU Pressure Filter Element Removal (P/B 401)
29-22-21-400-801	PTU Pressure Filter Module Installation (P/B 401)

C. Procedure

SUBTASK 29-11-00-860-015

- (1) Remove hydraulic power from the applicable hydraulic system. To remove it, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-00-860-016

- (2) Release the pressure from the applicable hydraulic reservoir. To release it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-00-900-001

- (3) Do these steps to replace the pressure, return, and case drain filter elements which have a relation to the defective pump:

NOTE: Do only the steps necessary to replace the filter elements for the applicable pumps.

- (a) Replace the filter element of the case drain filter module for the engine driven pump (EDP).

These are the tasks: EDP Case Drain Filter Element Removal, TASK 29-11-51-000-801, EDP Case Drain Filter Element Installation, TASK 29-11-51-400-801

- (b) Replace the filter element of the case drain filter module for the electric motor-driven pump (EMDP)

These are the tasks: EMDP Case Drain Filter Element Removal, TASK 29-11-41-000-801, EMDP Case Drain Filter Element Installation, TASK 29-11-41-400-801

- (c) Replace the filter element of the pressure module.

These are the tasks: Hydraulic Systems A and B Pressure Module Filter Element Removal, TASK 29-11-71-000-802, Hydraulic Systems A and B Pressure Module Filter Element Installation, TASK 29-11-71-400-802

- (d) Replace the filter element of the return module.

These are the tasks: Return Filter Element Removal, TASK 29-11-61-000-801, Return Filter Element Installation, TASK 29-11-61-400-801

- (e) Replace the PTU Pressure Filter Element. These are the tasks: PTU Pressure Filter Element Removal, TASK 29-22-21-000-802, PTU Pressure Filter Module Installation, TASK 29-22-21-400-801

SUBTASK 29-11-00-170-001

- (4) Inspect the EMDP acoustic filter for metal particle contamination. Do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning, TASK 29-11-00-100-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-00

Page 215
Sep 15/2023



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

SUBTASK 29-11-00-200-002

- (5) Inspect the Hydraulic Systems A and B Pressure Module Filter Element for metal particle contamination. Do this task: Hydraulic Systems A and B Return Filter Element - Inspection, TASK 29-11-61-200-801.

SUBTASK 29-11-00-860-017

- (6) To pressurize the applicable hydraulic system with the pump which you replaced, do one of these steps:
- (a) Do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.
 - (b) Do this task: Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP), TASK 29-11-00-860-804.

SUBTASK 29-11-00-860-018

- (7) Operate all the systems which operate with the hydraulic pressure (but not the landing gear) not less than six times at a fast rate.

NOTE: To flush hydraulic system tubing from the pump to the pressure and case drain filters, the preferred method is to run the flaps, and spoilers. To flush hydraulic system tubing from the pump to the return filters, the preferred method is to run the thrust reversers, aileron and spoiler, rudder, and elevator.

- (a) Examine the case drain line and hoses for contamination or blockage.
- (b) If contamination or blockage is found, clean or replace the case drain line.

SUBTASK 29-11-00-860-019

- (8) Remove hydraulic power from the applicable hydraulic system. To remove it, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-00-860-020

- (9) Release the pressure from the applicable hydraulic reservoir. To release it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-00-900-002

- (10) Do these steps to replace the pressure, return, and case drain filter elements which has a relation to the defective pump:

NOTE: Filter elements are replaced again to make sure that contaminants are removed from the hydraulic system.

NOTE: Do only the steps necessary to replace the filter elements for the applicable pumps.

- (a) Replace the filter element of the case drain filter module for the engine driven pump (EDP).

These are the tasks: EDP Case Drain Filter Element Removal, TASK 29-11-51-000-801, EDP Case Drain Filter Element Installation, TASK 29-11-51-400-801

- (b) Replace the filter element of the case drain filter module for the electric motor-driven pump (EMDP).

These are the tasks: EMDP Case Drain Filter Element Removal, TASK 29-11-41-000-801, EMDP Case Drain Filter Element Installation, TASK 29-11-41-400-801

- (c) Replace the filter element of the pressure filter module.

These are the tasks: Hydraulic Systems A and B Pressure Module Filter Element Removal, TASK 29-11-71-000-802, Hydraulic Systems A and B Pressure Module Filter Element Installation, TASK 29-11-71-400-802

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 216
Sep 15/2023



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

- (d) Replace the filter element of the return filter module.

These are the tasks: Return Filter Element Removal, TASK 29-11-61-000-801, Return Filter Element Installation, TASK 29-11-61-400-801

SUBTASK 29-11-00-860-021

- (11) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

————— END OF TASK —————

TASK 29-11-00-100-801

8. Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning
(Figure 203)

A. General

- (1) This task includes the steps to clean the hydraulic systems A and B Electric Motor-Driven Pump (EMDP) acoustic filter assembly.

B. References

Reference	Title
20-10-31-400-801	Teflon Backup Rings Installation (P/B 401)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-50-11-910-801	Standard Torque Values (P/B 201)
29-11-21-000-801	Electric Motor-Driven Pump (EMDP) Removal (P/B 401)
29-11-21-400-801	Electric Motor-Driven Pump (EMDP) Installation (P/B 401)
29-11-27-000-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal (P/B 401)
29-11-27-400-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
D50122	Fluid - Hydraulic	BMS3-11 Type IV or Type V
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G51751	Putty/Lacquer - Tamper-proof, Hydraulic Fluid Resistant	BMS8-45 Type III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Acoustic filter assy	29-11-27-01-020	SIA ALL
2	Packing	29-11-27-01-050	SIA ALL
3	Packing	29-11-27-01-055	SIA ALL
4	Backup ring	29-11-27-01-065	SIA ALL

E. Hydraulic Systems A and B Electric Motor-Driven Pump Acoustic Filter Cleaning

SUBTASK 29-11-00-000-001

- (1) Do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal, TASK 29-11-27-000-801.

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 217
Sep 15/2023



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

SUBTASK 29-11-00-200-001

- (2) To clean the hydraulic systems A and B EMDP acoustic filter assy [1], do these steps:



CAUTION

BE CAREFUL WHEN YOU CUT THE LOCK WIRE FROM THE FILTER ASSEMBLY. THIS CAN CAUSE DAMAGE TO THE SURFACE OF THE BARREL AND HEAD ASSEMBLY.

- (a) Remove and discard lockwires from the acoustic filter assy [1].



CAUTION

MAKE SURE THAT YOU CAREFULLY DRAIN HYDRAULIC FLUID INTO A SUITABLE CONTAINER. CAREFULLY CLEAN, DRY, AND DISPOSE OF ALL LEAKAGE. HYDRAULIC FLUID CAUSES DAMAGE TO RUBBER, COPPER, PLASTICS, PAINTS, AND MANY OTHER MATERIALS.

- (b) Use the wrenching flats on the filter barrel and filter head to disassemble the acoustic filter assy [1].
- 1) Make sure that the flow tube passages are clean and clear of foreign objects.
- (c) Remove and discard the existing packing [2] from the flow tube and packing [3] and backup rings [4] from the filter head.
- (d) Use solvent, B00184, or equivalent to flush all surfaces and let air dry.
- (e) Examine all the surfaces, packing grooves, and threads for defects or contamination.
- (f) Install a new packing [2] on the flow tube and new packing [3] and new backup rings [4] to the filter head (TASK 20-10-31-400-801).
- 1) Make sure that the spiral-cut teflon backup rings [4] are aligned and installed correctly, otherwise O-ring extrusion and leaks may result.
- (g) Apply hydraulic fluid, D50122, to the threads of the filter head and filter barrel.
- (h) Reassemble the acoustic filter assy [1].
- (i) Tighten the acoustic filter assy [1] to 480 in-lb (54 N·m) - 540 in-lb (61 N·m).
- 1) Use the wrenching flats on the filter barrel and filter head.
- (j) Apply tamper-proof putty/lacquer, G51751, to the thread connections on the end fittings on the filter head and filter barrel.
- (k) Install MS20995C20 lockwires, G50225, with double twist method (TASK 20-10-44-400-801).

SUBTASK 29-11-00-420-002

- (3) If the end fittings are removed from the aluminum filter housing for end fitting O-ring seal replacement, reinstall the end fittings as follows (TASK 20-50-11-910-801):
- (a) Tighten 3/8-inch end of AFP2814-1006 or 32345F1006 steel elbow at the upper end of the filter housing to 170 in-lb (19.2 N·m).
 - (b) Tighten 1/2-inch MS21902-8 steel union at the lower end of the filter housing to 280 in-lb (31.6 N·m).

SUBTASK 29-11-00-170-002

- (4) Replace the EMDP if the acoustic filter assy [1] contains metal particles:
- (a) Do this task: Electric Motor-Driven Pump (EMDP) Removal, TASK 29-11-21-000-801.
 - (b) Do this task: Electric Motor-Driven Pump (EMDP) Installation, TASK 29-11-21-400-801.
 - (c) Flush the output pressure line between the acoustic filter assy [1] and the EMDP.

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

Page 218
Sep 15/2023



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

SUBTASK 29-11-00-420-003

- (5) Do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation, TASK 29-11-27-400-801.

———— **END OF TASK** ————

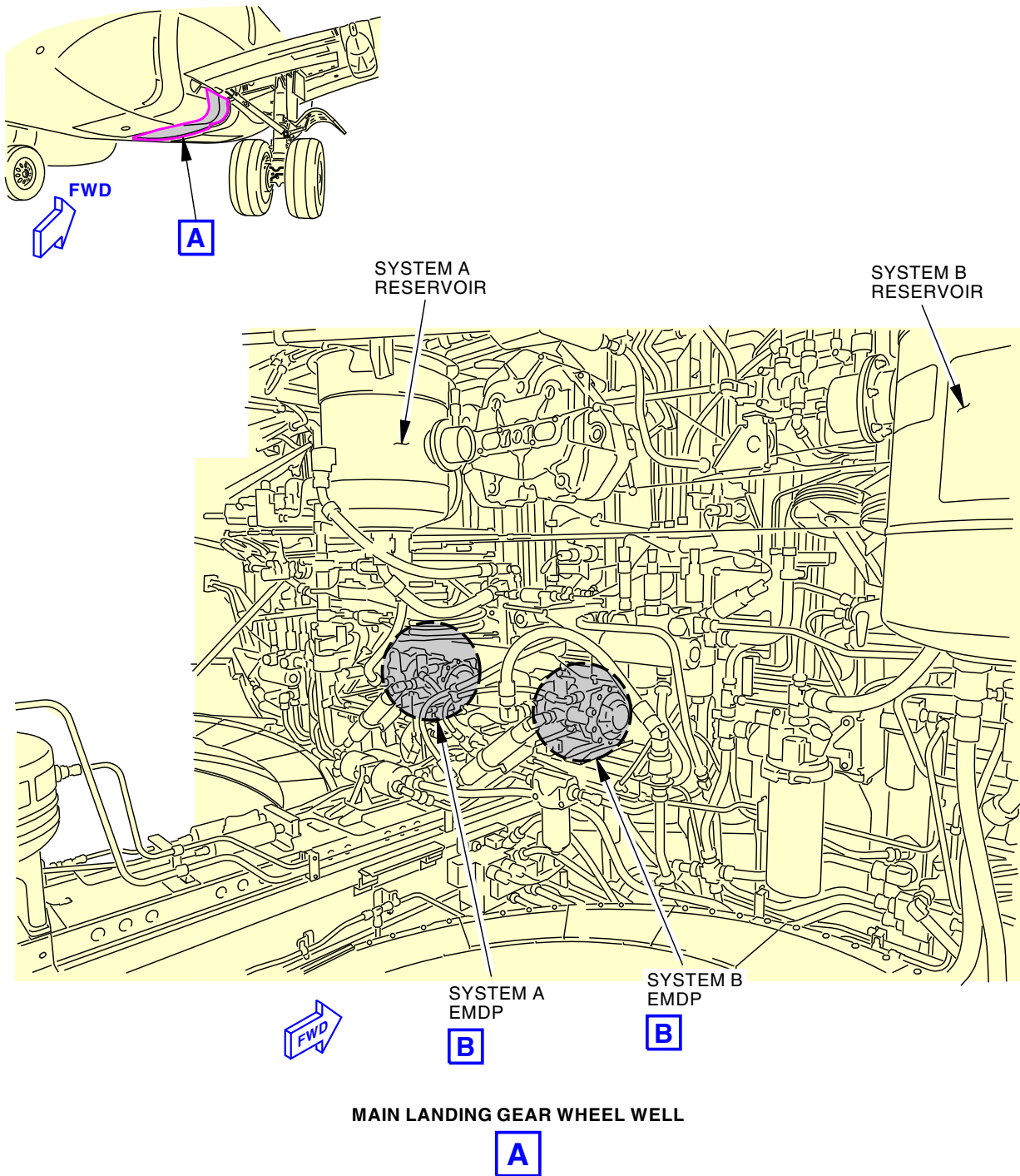
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 219
Sep 15/2023



2528329 S0000597696_V2

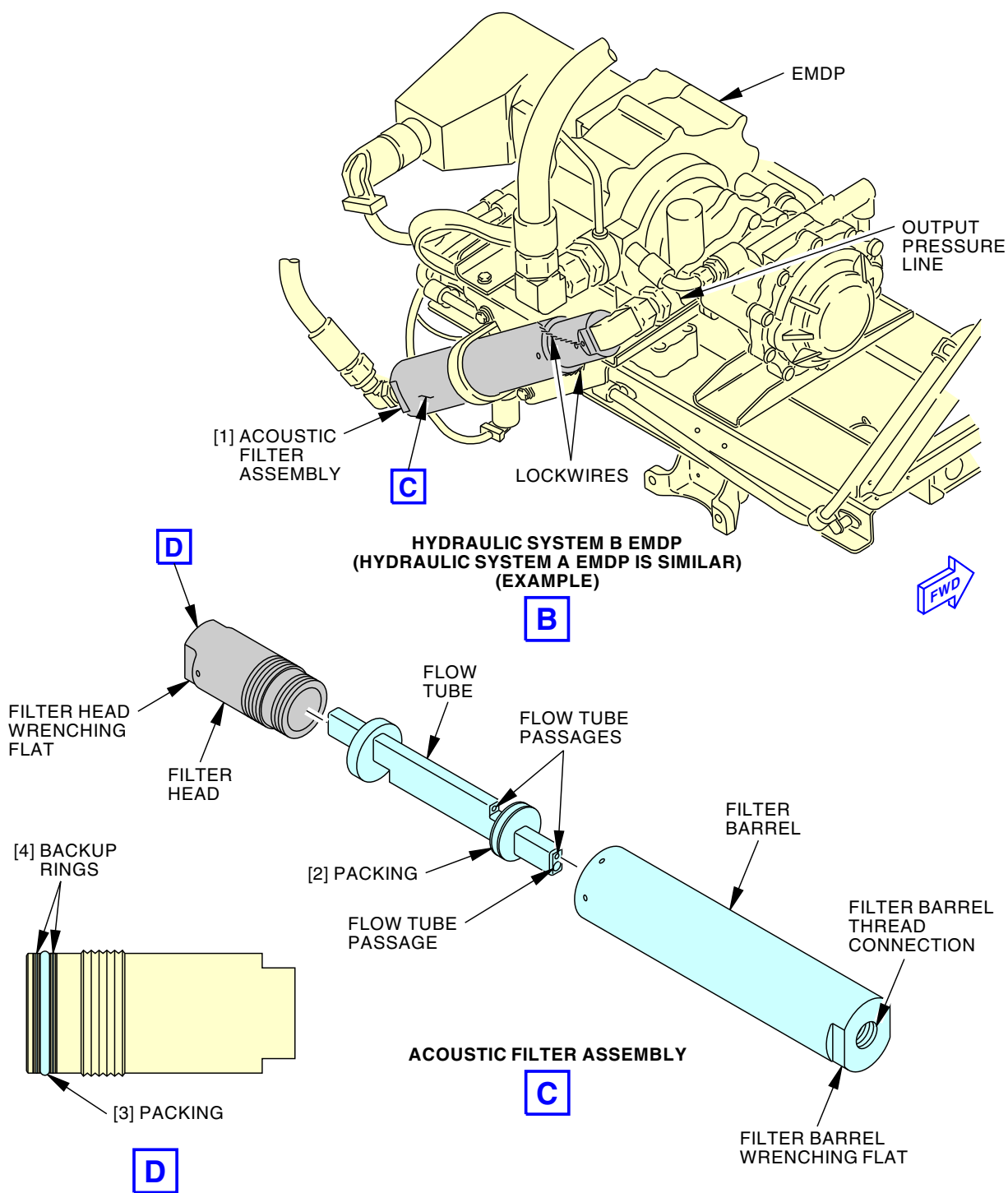
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning
Figure 203/29-11-00-990-803 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

Page 220
Sep 15/2023



2528328 S0000597697_V3

Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning
Figure 203/29-11-00-990-803 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 221
Sep 15/2023



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

TASK 29-11-00-300-801

9. **Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Inspection and Corrosion Repair**

(Figure 204 or Figure 205 or Figure 206)

A. General

- (1) This task includes general inspection and repair hydraulic systems A and B electric motor-driven pump (EMDP) acoustic filter parts procedure.

B. References

Reference	Title
29-11-27-000-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal (P/B 401)
29-11-27-400-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00851	Coating - Anodize For Aluminum	MIL-A-8625
C50079	Coating - Chemical Conversion - Bonderite M-CR 1132 Aero (Formerly Alodine 1132 Touch-N-Prep)	BAC5719 Class F, MIL-DTL-81706 Type I Class 1A or 3
G00744	Cloth - Emery	
G50339	Abrasive Paper - Aluminum Oxide, 600 Grit	
G51208	Liquid - Fluorescent Dye Penetrant, Water Washable, Medium Sensitivity	AMS 2644 Type 1 Method A Sensitivity level 2

D. Prepare for the Inspection

SUBTASK 29-11-00-860-044

- (1) Remove the hydraulic systems A and B electric motor-driven pump (EMDP) acoustic filter assembly. Do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal, TASK 29-11-27-000-801.
- (2) Do these steps to clean the acoustic filter, for proper visual inspection:
- (a) Flush all surfaces with solvent, B00184 or equivalent.
- (b) If a hard substance cannot be removed from the unit, use an emery cloth, G00744 in slow motions until the hard substance is removed.

E. Inspection of the Acoustic Filter Assembly

SUBTASK 29-11-00-210-003

- (1) Do a visual check as follows:
- (a) For wear, exposed aluminum, dents, scratches, corrosion and cracks.
- (b) For obstructions on the flow tube assembly.
- (c) For bad threads on the barrel and head assemblies.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 222
Sep 15/2023



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

F. Repair Procedures for Damage on the Flow Tube

SUBTASK 29-11-00-160-002

- (1) If the flow tube is damaged or corroded discard the unit or return to manufacturer for evaluation and or replacement.
NOTE: Do not attempt to repair.
- (2) If the flow tube is not damaged, then make sure that the three long holes (flow passages) are clean and clear of foreign objects.
- (3) To clean the flow tube do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning, TASK 29-11-00-100-801.

G. Repair Procedures for Damage on the Barrel

SUBTASK 29-11-00-160-003



DO NOT REPAIR MORE THAN 5 PERCENT ON THE MATERIAL, IF THE REPAIR IS MORE THAN 5 PERCENT, REPLACE THE ASSEMBLY.

NOTE: Make sure that the acoustic filter components are protected at all time of procedure.

- (1) If the damage or corrosion on the barrel exceeds the damage limit of 0.010 in. (0.254 mm) or is within the NO REWORK area, discard the unit or return to manufacturer for evaluation and or replacement.
NOTE: Do not attempt to repair.
- (2) For scratches, dents, blistering, flaking, corrosion, and pitting that will require removal of less than 0.010 in. (0.254 mm) of material, do these steps:
 - (a) Cover all openings to avoid contamination.
 - (b) Remove damage by lightly sanding or with a lathe.
NOTE: Use abrasive paper, G50339, or emery cloth, G00744 to remove damage.
 - (c) Do a Liquid Penetrant, G51208 test to make sure that there are no cracks on the barrel.
 - (d) Clean the repair and apply a protective film with Bonderite M-CR 1132 Aero coating, C50079 or coating, C00851 to the repair.

H. Repair Procedure for Damage on the Head

SUBTASK 29-11-00-160-004

- (1) If the damage or corrosion on the head exceeds the damage limit of 0.004 in. (0.102 mm) or is within the NO REWORK area, discard the unit or return to manufacturer for evaluation and or replacement.
NOTE: Do not attempt to repair.
- (2) For scratches, dents, blistering, flaking, corrosion, and pitting that will require removal of less than 0.004 in. (0.102 mm) of material, do these steps:
 - (a) Cover all openings to avoid contamination.
 - (b) Remove damage by lightly sanding.
NOTE: Use abrasive paper, G50339, or emery cloth, G00744 to remove damage.
 - (c) Do a Liquid Penetrant, G51208 test to make sure that there are no cracks on the head.
 - (d) Clean the repair and apply a protective film with Bonderite M-CR 1132 Aero coating, C50079 or coating, C00851 to the repair.

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-00

Page 223
Sep 15/2023



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

I. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-00-420-006

- (1) Install the hydraulic systems A and B electric motor-driven pump (EMDP) acoustic filter assembly. Do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation, TASK 29-11-27-400-801.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

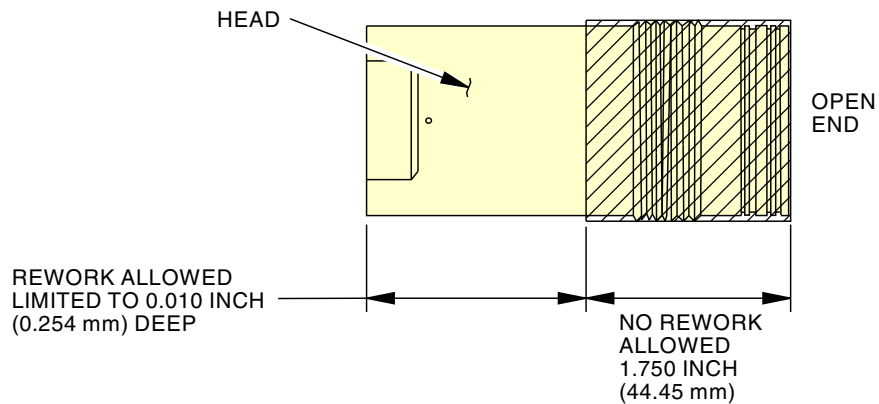
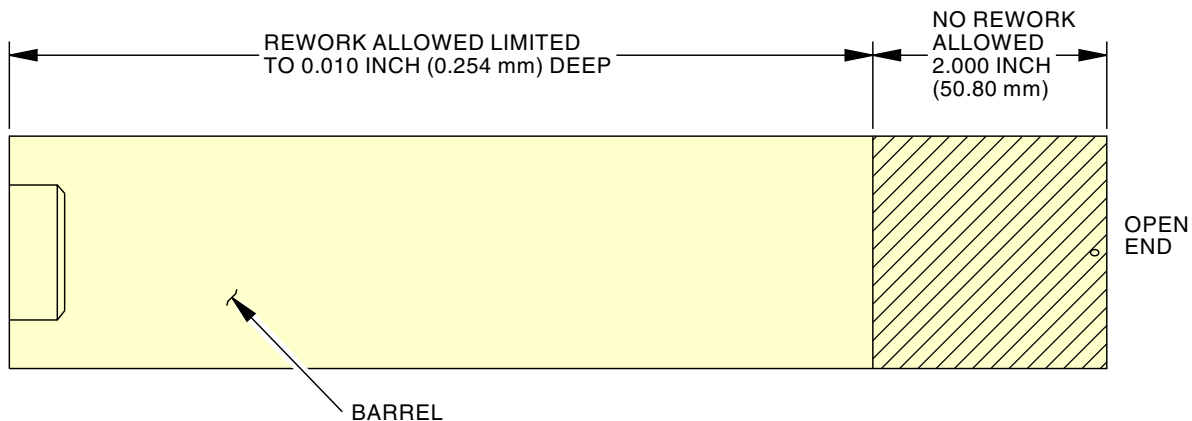
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 224
Sep 15/2023



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



2539679 S0000603332_V1

Allowable Rework Area
Figure 204/29-11-00-990-805

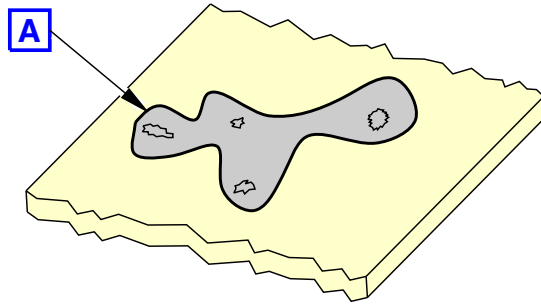
EFFECTIVITY
SIA ALL

D633AM101-SIA

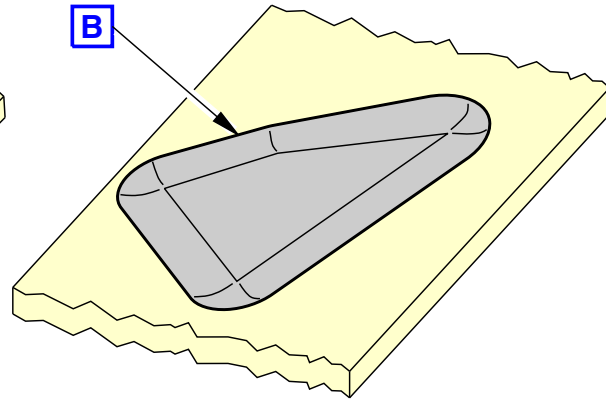
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

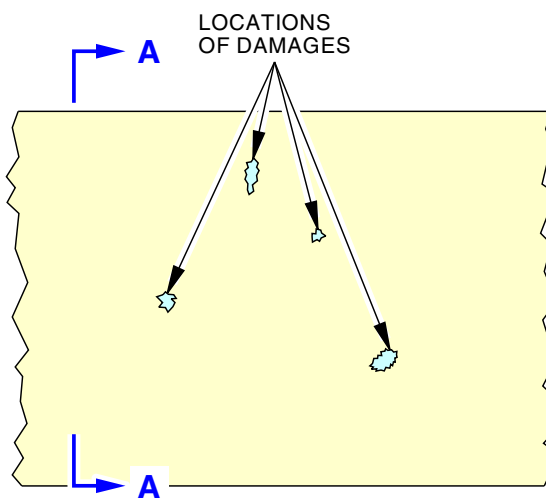
Page 225
Sep 15/2023



(NOT ACCEPTABLE)

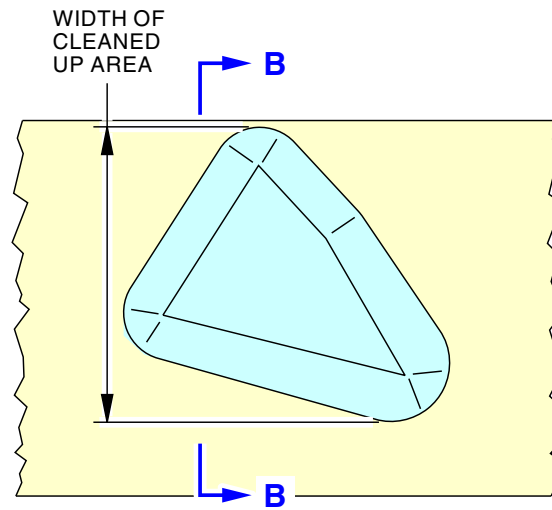


(ACCEPTABLE)



(VIEW IN THE DOWN DIRECTION)
(NOT ACCEPTABLE)

A



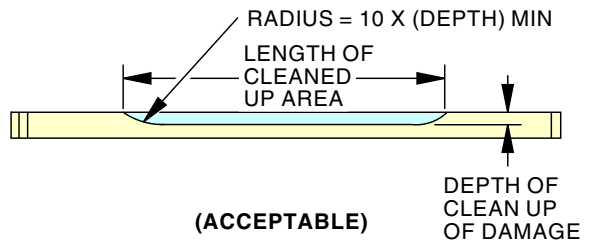
(VIEW IN THE DOWN DIRECTION)
(ACCEPTABLE)

B



(NOT ACCEPTABLE)

A-A



(ACCEPTABLE)

B-B

2539680 S0000603333_V1

Typical Example of Acceptable Cleanup of Material Pits
Figure 205/29-11-00-990-806

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

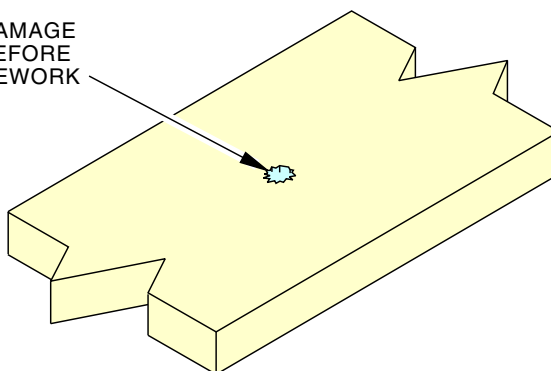
29-11-00

Page 226
Sep 15/2023

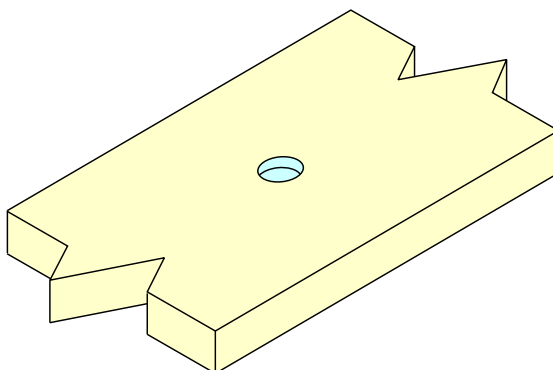


737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

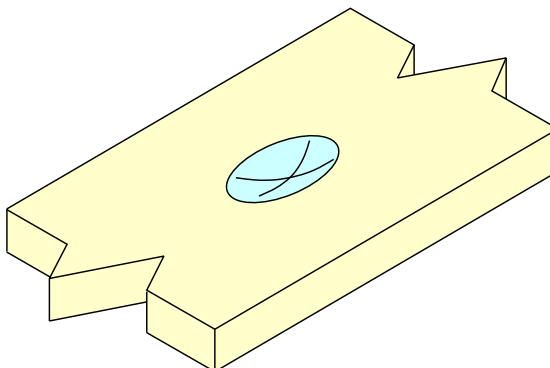
DAMAGE
BEFORE
REWORK



1. PIT HAS BEEN CLEANED UP TO THE EXTENT THAT
ALL LOOSE PRODUCTS HAVE BEEN REMOVED



2. ROUGH EDGES HAVE BEEN SMOOTHED
DEPRESSION HAS NOT BEEN SHAPED



3. DISH-OUT AFTER BLENDING DISH MINOR RADIUS
SHOULD BE MINIMUM TEN TIMES THE DEPTH

2539681 S0000603334_V1

Blend Out of Material as a Single Depression
Figure 206/29-11-00-990-807

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 227
Sep 15/2023



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

HYDRAULIC SYSTEMS A AND B - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) Operational Test of Hydraulic Systems A and B - Use this test to do a quick check of hydraulic systems A and B.
- (2) System Test of Hydraulic Systems A and B - Use this test to make sure hydraulic systems A and B operate correctly.

TASK 29-11-00-700-801

2. Operational Test of the Hydraulic Systems A and B

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
71-00-00-910-808-G00	Dry Motor Procedure (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 29-11-00-860-022



CAUTION

DO NOT OPERATE SYSTEM A OR B HYDRAULIC PUMPS FOR MORE THAN TWO MINUTES WITHOUT FUEL IN THE FUEL TANKS. THE NO. 1 (FOR SYSTEM A) AND NO. 2 (FOR SYSTEM B) FUEL TANKS MUST HAVE A MINIMUM OF 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN THEM. IF THERE IS NOT SUFFICIENT FUEL IN THE FUEL TANKS, THE HYDRAULIC FLUID WILL BECOME TOO HOT.

- (1) Make sure that the No. 1 and No. 2 fuel tanks each have 250 gallons, 1675 lb (760 kg) of fuel in them.

SUBTASK 29-11-00-860-023

- (2) Make sure that the flap control lever is in the FLAP UP position.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 501
Sep 15/2023



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

SUBTASK 29-11-00-860-054

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-11-00-010-004

- (4) To get access to the P91 (P92) panel, open this access panel:

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

SUBTASK 29-11-00-860-025



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



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

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

Power Distribution Panel Number 2, P92

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

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-11-00-210-002

- (6) Make sure that the supply shutoff valves for the Engine Driven Pump (EDP) are open.

SUBTASK 29-11-00-860-026

- (7) Make sure that the hydraulic reservoirs are full.

- (a) To fill the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-00-860-027

- (8) If it is necessary, pressurize the hydraulic reservoirs (TASK 29-09-00-860-801).

E. Operational Test of the Hydraulic System A and B

SUBTASK 29-11-00-710-001

- (1) Do the operational test of the hydraulic systems A and B:

- (a) Make sure that the LOW PRESSURE lights for HYD PUMPS A ENG 1, ELEC 2, and HYD PUMPS B ELEC 1, ENG 2, on the P5 forward overhead panel, are on.

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 502
Sep 15/2023

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



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

- (b) Pressurize the applicable hydraulic system with an Electric Motor-Driven Pump (EMDP):
- 1) For hydraulic system A, set the HYD PUMPS A ELEC 2 switch to the ON position.
 - 2) For hydraulic system B, set the HYD PUMPS B ELEC 1 switch to the ON position.
 - 3) Make sure that the HYDRAULIC PRESS indicator for the applicable hydraulic system becomes stable between 3000 $\pm$ 200 psi (3000 $\pm$ 200 psig).
NOTE: The HYDRAULIC PRESS indicator is shown on the P2 pilots center panel.
 - 4) Make sure that the applicable LOW PRESSURE light goes off.
- (c) Set the HYD PUMPS A ELEC 2 or HYD PUMPS B ELEC 1 to the OFF position.
- 1) If it is necessary, operate the rudder until the hydraulic pressure is zero.
NOTE: The HYDRAULIC PRESS indicator for the applicable hydraulic system will show the pressure between 60 psi (414 kPa) to 100 psi (689 kPa).
 - 2) Make sure that the applicable LOW PRESSURE light comes on.



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

- (d) Pressurize the applicable hydraulic system with an EDP:
- 1) For hydraulic system A, set the HYD PUMPS A ENG 1 switch to the ON position.
 - 2) For hydraulic system B, set the HYD PUMPS B ENG 2 switch to the ON position.
 - 3) Motor the applicable engine to pressurize hydraulic system A or B (TASK 71-00-00-910-808-G00).
 - 4) Make sure that the applicable LOW PRESSURE light goes off.
 - 5) Make sure that the HYDRAULIC PRESS indicator for the applicable hydraulic system becomes stable between 3000 $\pm$ 200 psi (3000 $\pm$ 200 psig).
NOTE: The HYDRAULIC PRESS indicator is shown on the P2 pilots center panel.
 - 6) Stop the dry motor procedure on the applicable engine (TASK 71-00-00-910-808-G00).
 - 7) If it is necessary, operate the rudder until the hydraulic pressure is zero.
NOTE: The HYDRAULIC PRESS indicator for the applicable hydraulic system will show the pressure between 60 psi (414 kPa) to 100 psi (689 kPa).
 - 8) Make sure that the applicable LOW PRESSURE light comes on.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-00-860-028

- (1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 503
Sep 15/2023



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

SUBTASK 29-11-00-860-029



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



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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-11-00-410-003

- (3) Close this access panel:

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

SUBTASK 29-11-00-860-055

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

————— END OF TASK —————

TASK 29-11-00-700-802

3. System Test of the Hydraulic Systems A and B

A. References

<u>Reference</u>	<u>Title</u>
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-11-000-801	Hydraulic Systems A and B Engine-Driven Pump (EDP) Removal (P/B 401)
71-00-00-910-808-G00	Dry Motor Procedure (P/B 201)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 504
Sep 15/2023



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

B. Tools/Equipment

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

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 29-11-00-860-030

- (1) If the hydraulic system is to be opened, make sure that hydraulic pressure is removed and hydraulic reservoirs are depressurized:
 - (a) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-00-860-031

 CAUTION	DO NOT OPERATE SYSTEM A OR B HYDRAULIC PUMPS FOR MORE THAN TWO MINUTES WITHOUT FUEL IN THE FUEL TANKS. THE NO. 1 (FOR SYSTEM A) AND NO. 2 (FOR SYSTEM B) FUEL TANKS MUST HAVE A MINIMUM OF 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN THEM. IF THERE IS NOT SUFFICIENT FUEL IN THE FUEL TANKS, THE HYDRAULIC FLUID WILL BECOME TOO HOT.

- (2) Make sure that the No. 1 and No. 2 fuel tanks each have 250 gallons 1675 lb (760 kg) of fuel in them.

SUBTASK 29-11-00-860-032

- (3) Make sure that the flap control lever is in the FLAP UP position.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 505
Sep 15/2023



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

SUBTASK 29-11-00-860-056

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-11-00-010-005

- (5) To get access to the P91 (P92) panel, open this access panel:

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

SUBTASK 29-11-00-860-034



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



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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-11-00-860-035

- (7) Make sure that these switches on the P5 forward overhead panel are in the OFF position:

- (a) HYD PUMPS A ENG 1
- (b) HYD PUMPS B ENG 2
- (c) HYD PUMPS A ELEC 2
- (d) HYD PUMPS B ELEC 1.

SUBTASK 29-11-00-010-002

- (8) Open the fan cowl panel for the applicable engine (TASK 71-11-04-010-801-G00).

SUBTASK 29-11-00-480-005

- (9) Install the 3000 PSI, 30 GPM portable hydraulic cart, COM-163:

- (a) Do not operate the Engine Driven Pump (EDP) or Electric Motor-Driven Pump (EMDP) with the portable hydraulic cart return and pressure lines connected.

NOTE: This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

- (b) Disconnect the pressure line and supply line from the applicable EDP.

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 506
Sep 15/2023



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

- (c) Install caps/plugs, STD-14686, on the pressure and supply ports on the EDP.
- (d) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the pressure line that you disconnected from the EDP.
- (e) Connect the return line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the supply line that you disconnected from the EDP.

SUBTASK 29-11-00-860-036

- (10) Make sure that the supply shutoff valves for the EDP are open.

F. System Test of the Hydraulic Systems A and B

SUBTASK 29-11-00-710-002

- (1) Do the pressure test of the hydraulic system A or B:
 - (a) Make sure that the LOW PRESSURE lights for HYD PUMPS A ENG 1, ELEC 2 or HYD PUMPS B ELEC 1, ENG 2, on the P5 forward overhead panel, are on.



WARNING

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

- (b) Slowly increase the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to 3000 psig (20,684 kPa).
 - 1) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2) goes off when the pressure is between 1400 $\pm$ 200 psi (1400 $\pm$ 200 psig).
 - 2) Make sure that the applicable HYD P indicator shows between 3000 $\pm$ 200 psi (3000 $\pm$ 200 psig).
- NOTE: The HYD P indicator is shown on the P2 pilots center panel.
- (c) Slowly decrease the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.
 - 1) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2) comes on when the pressure is between 1300 $\pm$ 200 psi (1300 $\pm$ 200 psig).
- (d) Remove pressure from the applicable hydraulic system (TASK 29-11-00-860-805).

SUBTASK 29-11-00-480-006

- (2) Do these steps to remove the 3000 PSI, 30 GPM portable hydraulic cart, COM-163:
 - (a) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the pressure line that you disconnected from the EDP.
 - (b) Disconnect the return line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the supply line that you disconnected from the EDP.
 - (c) Remove the caps/plugs, STD-14686, on the pressure and supply ports on EDP.
 - (d) Connect the pressure line and supply line to the applicable EDP (TASK 29-11-11-000-801).

SUBTASK 29-11-00-860-037

- (3) Make sure that the hydraulic reservoirs are full.
 - (a) To fill the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

Page 507
Sep 15/2023



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

SUBTASK 29-11-00-710-003



WARNING

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

- (4) Pressurize the applicable hydraulic system with the EMDP (TASK 29-11-00-860-803):
- (a) For hydraulic system A, set the HYD PUMPS A ELEC 2 switch to the ON position.
 - (b) For hydraulic system B, set the HYD PUMPS B ELEC 1 switch to the ON position.
 - (c) Make sure that the HYD P indicator for the applicable hydraulic system becomes stable between 2800 psig (19,305 kPa) and 3200 psig (22,063 kPa).
NOTE: The HYD P indicator is shown on the P2 pilots center panel.
 - (d) Set the HYD PUMPS A ELEC 2 or HYD PUMPS B ELEC 1 to the OFF position.
 - (e) Make sure that the applicable LOW PRESSURE light (ELEC 1 or ELEC 2) comes on when the pressure is between 1100 psig (7584 kPa) and 1500 psig (10,342 kPa).

SUBTASK 29-11-00-720-001



WARNING

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

- (5) Motor the applicable engine to pressurize hydraulic system A or B (TASK 71-00-00-910-808-G00).
- (a) For hydraulic system A, set the HYD PUMPS A ENG 1 switch to the ON position.
 - (b) For hydraulic system B, set the HYD PUMPS B ENG 2 switch to the ON position.
 - (c) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2) goes off.
 - (d) Make sure that the HYD P indicator for the applicable hydraulic system becomes stable between 3000 $\pm$ 200 psi (3000 $\pm$ 200 psig).
NOTE: The HYD P indicator is shown on the P2 pilots center panel.
 - (e) Set the HYD PUMPS A ENG 1 or HYD PUMPS B ENG 2 to the OFF position.
 - (f) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2) comes on.
 - 1) If it is necessary, operate the flight controls to remove pressure from the hydraulic systems.
 - (g) Set the HYD PUMPS A ENG 1 or HYD PUMPS B ENG 2 back to the ON position.
 - (h) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2) goes off.
 - (i) Make sure that the HYD P indicator for the applicable hydraulic system becomes stable between 3000 $\pm$ 200 psi (3000 $\pm$ 200 psig).
 - (j) Make sure that there is no hydraulic leakage at the EDP.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 508
Sep 15/2022



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

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-00-860-038

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-00-860-039



WARNING

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



WARNING

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

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

Power Distribution Panel Number 2, P92

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

SUBTASK 29-11-00-410-004

(3) Close this access panel:

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

SUBTASK 29-11-00-860-057

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 509
Sep 15/2023



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

HYDRAULIC SYSTEMS A, B, AND STANDBY - INSPECTION/CHECK

1. General

- A. This procedure has one task. This task does a check of the hydraulic fluid.
- B. The operational environment of the airplane hydraulic system can affect the service life of the hydraulic fluid. Follow local procedures to determine the need to take a sample of the hydraulic fluid for analysis. Make sure that the fluid analysis results agree with the fluid specification limits shown in the BMS 3-11 hydraulic fluid property limits table shown below. If the fluid properties are greater than the limits in table, replace some quantity of fluid with new fluid until the fluid properties agree with the limits shown. Follow local procedures to determine the quantity of fluid that must be replaced.
- C. A polyethylene bottle or a glass bottle can be used to collect the hydraulic fluid.

TASK 29-11-00-200-801

2. Hydraulic Fluid Check

(Figure 601)

A. General

- (1) It is necessary to supply clean bottles that will hold the fluid samples. If this is not done, it is possible that the fluid samples will not be correct.
- (2) Supply clean sample bottles from a satisfactory laboratory, or a vendor (for example, Fisher, Catalog #02-893-5D or equivalent). Use non-powdered gloves to prevent contamination during the sampling procedure. Remove the bottle cap immediately before you collect the sample. Put the cap face down on a clean (lint-free, dirt-free) surface during sampling.
 - (a) If the first sample has a high particle count, you can sample the hydraulic fluid again with the hydraulic fluid check task.

NOTE: This will show if there was contamination during the sampling procedure and could prevent replacing all the systems fluid.

- (3) It is necessary to get one hydraulic fluid sample from each hydraulic reservoir.
- (4) A polyethylene bottle (500ml), STD-1104, or a capacity 2 ounces, with polyethylene screw cap and seal, glass bottle, STD-1105, can be used to collect the hydraulic fluid.

NOTE: The glass bottle is shown as an alternate choice because low quality polyethylene containers can allow organic contaminants to pass into the oil sample and affect the test results. Polyethylene containers made from high grade PE, especially those obtained from the hydraulic fluid supplier, are permitted for use.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-00-00-900-801	Hydraulic Fluid Replacement (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-00

Page 601
Sep 15/2023



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

C. Tools/Equipment

Reference	Description
STD-1104	Bottle - HDPE Polyethylene, Capacity 500ml, with LDPE Polyethylene Internal Plug and Self Seal Polypropylene Screw Cap
STD-1105	Bottle - Glass, Capacity 2 Ounces, with Polyethylene Screw Cap and Seal

D. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G01505	Lockwire - Safety And Lock	NASM20995

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Prepare for the Check

SUBTASK 29-11-00-680-007

- (1) Pressurize the hydraulic reservoirs (TASK 29-09-00-860-801).

SUBTASK 29-11-00-860-048



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

- (2) Supply hydraulic power to hydraulic systems A and system B with the applicable electric motor-driven pump.
- (a) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-11-00-860-049



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

- (3) Supply hydraulic power to the standby hydraulic system.
- (a) Do this task: Standby Hydraulic System Pressurization, TASK 29-21-00-000-801.

SUBTASK 29-11-00-860-050

- (4) Operate all of the flight controls 6 to 8 times to let the fluid flow through all the systems.

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 602
Sep 15/2023



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

SUBTASK 29-11-00-860-051

- (5) Remove hydraulic power from the hydraulic systems.

NOTE: Get the samples of the hydraulic fluid not more than one hour after you remove power from the hydraulic systems.

- (a) To remove power from hydraulic system A and system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
- (b) To remove hydraulic power from the standby system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-11-00-680-008

- (6) Depressurize the hydraulic reservoirs (TASK 29-09-00-860-802).

G. Hydraulic Fluid Check

SUBTASK 29-11-00-160-005

- (1) Clean the sampling valve on the reservoir with cotton wiper, G00034.
 - (a) Make sure that there is no contamination in the port before the fluid is drained.

SUBTASK 29-11-00-680-009

- (2) Remove the lockwire from the sampling valve.

SUBTASK 29-11-00-680-010

- (3) Open the sampling valve on the reservoir to supply a smooth flow of fluid.

SUBTASK 29-11-00-680-011

- (4) Drain a minimum of one pint of hydraulic fluid before you get a sample.

SUBTASK 29-11-00-020-002

- (5) Remove the cap from the bottle and put the cap face down on a clean (lint-free dirt-free) surface.

SUBTASK 29-11-00-680-012

- (6) Do these steps to fill the bottle:

NOTE: It is only necessary to get samples from the A and B hydraulic systems. The standby hydraulic system reservoir gets fluid from the hydraulic system B.

- (a) Put the bottle in the fluid flow but do not touch the sample valve.
- (b) When the bottle is full, remove it from the fluid flow.

NOTE: Do not close the sample valve while the bottle is in the fluid flow. This will prevent contamination of the sample.

SUBTASK 29-11-00-420-007

- (7) Install the cap on the bottle.

SUBTASK 29-11-00-680-013

- (8) Close the sampling valve.

SUBTASK 29-11-00-420-008

- (9) Safety the sampling valve with lockwire, G01505 (TASK 20-10-44-400-801).

SUBTASK 29-11-00-930-002

- (10) Identify the bottle with this data:

- (a) Airplane model
- (b) Airplane number
- (c) Hydraulic system number

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-00

Page 603
Sep 15/2023



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

- (d) Date
- (e) Location.

NOTE: After you remove a fluid sample from the hydraulic reservoir, you can make an analysis of the fluid properties as seen in Table 601. If one of the fluid properties is more than the limit, replace a sufficient quantity of the fluid until the property is less than the limit. Follow local procedures to find the quantity of fluid that must be replaced.

NOTE: If petroleum contamination is found, immediate hydraulic fluid replacement is required (TASK 29-00-00-900-801).

Table 601/29-11-00-993-802 Hydraulic Fluid, BMS 3-11, Property Limits

FLUID PROPERTIES	IN-SERVICE FLUID LIMITS	TEST PROCEDURE
Visual	Must be transparent. No phase separation or precipitation. All colors are satisfactory	Visual
Specific Gravity 77°F/77°F (25°C/25°C)	0.970 - 1.066	ASTM D1217 or ASTM D4052
Percent of Water By Weight	0.8 max.	ASTM D6304 or Infrared
Neutralization No. mg KOH/gm	1.5 max.	ASTM D974
Viscosity, cs at 100°F (at 37.78°C)	6.0 to 12.5	ASTM D445
Organic Contamination	Not Found by Test	Supplier Test ^{*[1][2]}
Elemental Contamination ^{*[2][3][4]}		A Procedure with the Precision that Follows:
Calcium	50 ppm max.	±4 ppm
Potassium	50 ppm max.	±2 ppm
Sodium	50 ppm max.	±3 ppm
Chlorine	200 ppm max.	±20 ppm
Sulfur	500 ppm max.	±10 ppm ^{*[5]}
Particulate Contamination	NAS 1638, Class 9 ^{*[6]}	SAE ARP 598
Particulate Contamination	SAE AS4059 (Method A or B) ^{*[6]}	SAE AS598 FL2 FL5 ^{*[7]}
Particle Size Range (Microns)	Maximum Number of Particles Allowed	
5 to 15	128,000	
15 to 25	22,800	
25 to 50	4,050	
50 to 100	720	
Over 100	128	

*[1] If you think that there is contamination, then speak to your hydraulic fluid supplier for the test procedure.

*[2] For routine hydraulic fluid analysis, it is not necessary to test for organic or elemental contaminants.

*[3] Contamination is a quantity that is more than that in the base stock or the group of items which you add. Compare the data from the fluid analysis with the limits put on the new fluid.

*[4] Analysis is only required if contamination is suspected. If contamination exceeds the maximum values specified, flush the system until values are below the maximum limit.

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-00

Page 604
Sep 15/2023



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

- *[5] The precision of ± 10 ppm is applicable to total values in the range from 0 to 1000 ppm. In the range from 1000 to 3000 ppm, the precision will decrease to ± 50 ppm with some equipment.
- *[6] These are the maximum contamination limits based on a 3.4 fl-oz (100 ml) sample size.
- *[7] Refer to BMS3-11 documentation for FL2 and FL5 instructions.

SUBTASK 29-11-00-610-003

- (11) Service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

———— **END OF TASK** ————

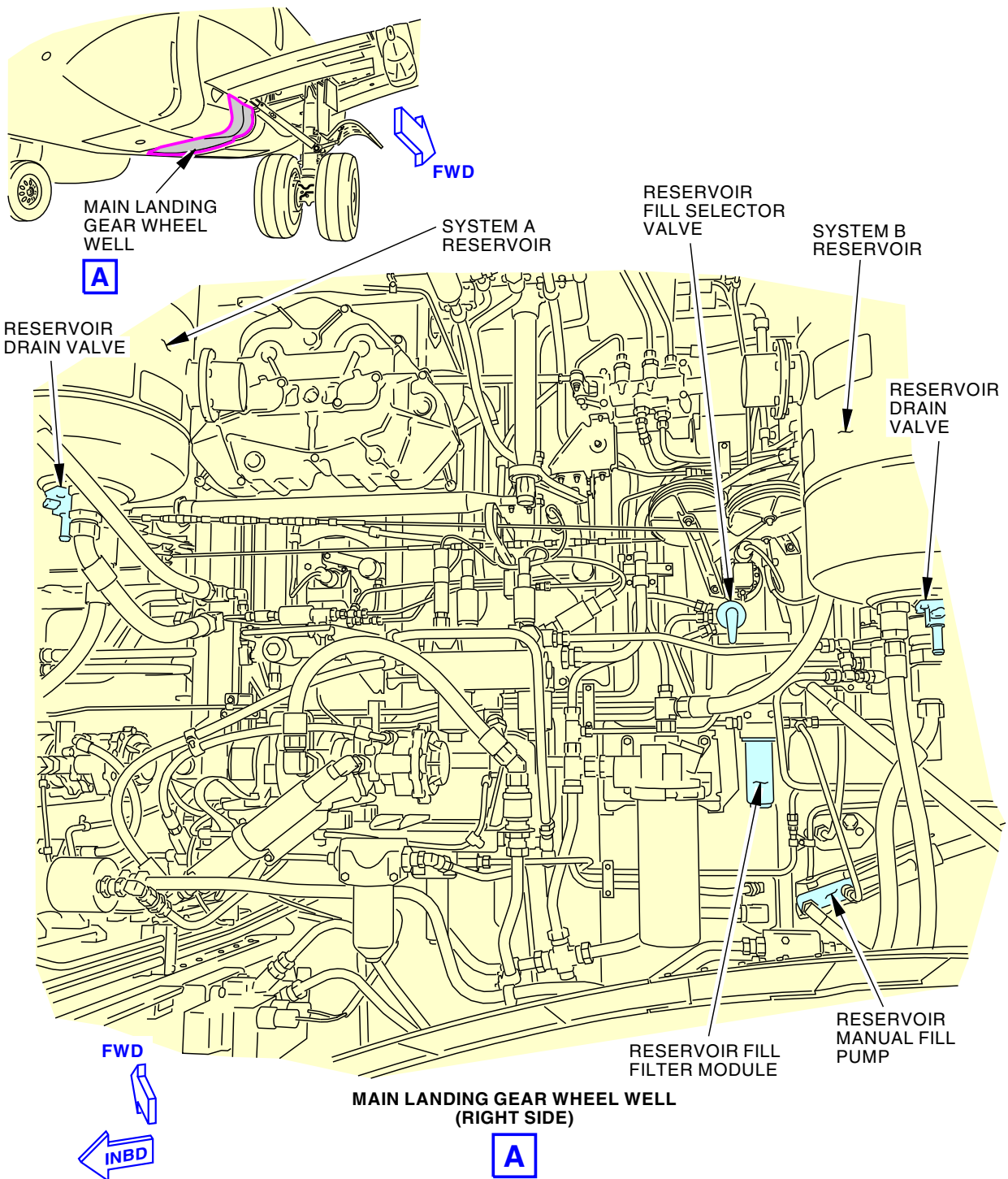
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-00

Page 605
Sep 15/2023



2413776 S00061533347_V1

Hydraulic Fluid Check
Figure 601/29-11-00-990-809

EFFECTIVITY
SIA ALL

29-11-00

D633AM101-SIA

Page 606
Sep 15/2023



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

HEAT EXCHANGER - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
- (1) Heat exchanger removal
 - (2) Heat exchanger installation.

TASK 29-11-04-000-801

2. **Heat Exchanger Removal**

(Figure 401, Figure 402, Figure 403, Figure 404, Figure 405, Figure 406, Figure 407, Figure 408, Figure 409)

A. **General**

- (1) This task gives the instructions on how to remove the heat exchanger for the hydraulic system A or B.
- (2) The heat exchanger for hydraulic system A is installed in the bottom of the fuel tank on the left wing.
- (3) The heat exchanger for hydraulic system B is installed in the bottom of the fuel tank on the right wing.

B. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
20-10-51-400-806	Externally Swaged (Permaswage) Fittings Installation (P/B 801)
28-11-00-910-802	Purging and Fuel Tank Entry (P/B 201)
28-11-11-000-801	Main Tank Access Door Removal (P/B 401)
28-22-15-000-801	Fuel Line, Fitting and Coupling Removal (P/B 401)
28-26-00-650-801	Fuel Tank Defueling (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-55-000-801	Bulkhead Fitting Removal (P/B 401)

C. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
532	Left Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing BL 643.50
632	Right Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing Station 643.50

D. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 401
Sep 15/2023



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

E. Prepare for the Removal

SUBTASK 29-11-04-860-001

- (1) Remove hydraulic power from system A and system B (TASK 29-11-00-860-805).

SUBTASK 29-11-04-860-002

- (2) Release pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-04-010-006

- (3) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-11-04-860-003



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-04-650-001

- (5) Defuel the applicable fuel tank (TASK 28-26-00-650-801).

SUBTASK 29-11-04-100-002



DO NOT LET HYDRAULIC FLUID GET ON EQUIPMENT. IF HYDRAULIC FLUID GETS ON EQUIPMENT, IMMEDIATELY CLEAN IT FROM THE EQUIPMENT. HYDRAULIC FLUID CAN CAUSE DAMAGE TO EQUIPMENT.

- (6) During this procedure, if you get hydraulic fluid on the airplane, clean it off immediately (TASK 12-40-00-100-801 or TASK 12-40-00-100-802).

SUBTASK 29-11-04-010-001

- (7) Remove the applicable main fuel tank access door (TASK 28-11-11-000-801).

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

Page 402
Jan 15/2023



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

Open these access panels:

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-04-650-002



OBEY THE PRECAUTIONS FOR PURGING AND FUEL TANK ENTRY. IF YOU DO NOT OBEY THE PRECAUTIONS, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (8) Prepare the fuel tank before you go into it (TASK 28-11-00-910-802).

F. Heat Exchanger Removal

SUBTASK 29-11-04-020-001



USE TWO WRENCHES TO DISCONNECT OR CONNECT TUBES. IF YOU DO NOT USE A WRENCH ON EACH SIDE OF THE CONNECTION, DAMAGE TO THE TUBES CAN OCCUR.

- (1) Method (a) - disconnect the hydraulic lines from the penetration fittings (TASK 29-11-55-000-801).

SUBTASK 29-11-04-010-003

- (2) Remove the fuel tubes in the fuel tank adjacent to the hydraulic tubes to get access to the heat exchanger/related hydraulic tubes (TASK 28-22-15-000-801).

SUBTASK 29-11-04-010-004

- (3) Cut the hydraulic tubes at the inlet port [11] and outlet port [13] (Figure 401) (TASK 20-10-51-400-806).

NOTE: This is for an easy removal of the heat exchanger.

SUBTASK 29-11-04-020-002

- (4) Remove the three nuts [5], three washers [3], three washers [4], two bolts [2], and bolt [14] that attaches the heat exchanger [1] to the main tank.
- (a) Make sure that you keep a record of the location and the number of washers for the installation.

SUBTASK 29-11-04-020-007

- (5) Remove the bolt [9], washer [3], washer [10], washer [8], and nut [5] that attaches the heat exchanger [1] to the main tank.
- (a) Make sure that you keep a record of the location and the number of washers for the installation.

SUBTASK 29-11-04-020-005

- (6) Remove the heat exchanger [1] through the main fuel tank access door.

SUBTASK 29-11-04-020-004

- (7) Remove the two bolts [7], washer [3], washer [4], and nut [5] that attach the two brackets [12] to the heat exchanger [1].

SUBTASK 29-11-04-020-006

- (8) Remove the brackets [12] from the heat exchanger [1].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 403
Sep 15/2023



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

SUBTASK 29-11-04-010-005

- (9) Remove or rework the heat exchanger hydraulic tubes, if necessary:
- (a) Method (a) - the heat exchanger [1] and all heat exchanger tubes that you will replace with new parts:
 - 1) Cut the remaining 0.5 in. (12.7 mm) hydraulic tubing at applicable locations.
 - 2) Remove and keep support clamps.
 - 3) Remove and keep fasteners from bulkhead penetration fittings.
 - 4) Remove all heat exchanger tubes, this includes the bulkhead penetration fittings.
 - (b) Method (b) - the heat exchanger [1] that you will replace with new part or splice to existing heat exchanger tubes:
 - 1) Cut the 0.5 in. (12.7 mm) hydraulic tubes at the recommended locations shown in Figure 402 and Figure 403, based on the ease of accessibility (TASK 20-10-51-400-806).
 - a) Make sure that you cut the 0.5 in. (12.7 mm) tubing, not the $\frac{5}{8}$ in. (15.9 mm) tubing on the heat exchanger [1].
 - 2) Remove and keep support clamps.
 - 3) Remove the cut tube sections.
 - a) If you make replacement tube sections from the same aluminum tube material, make sure that you keep the cut tube sections for reference.

————— **END OF TASK** —————

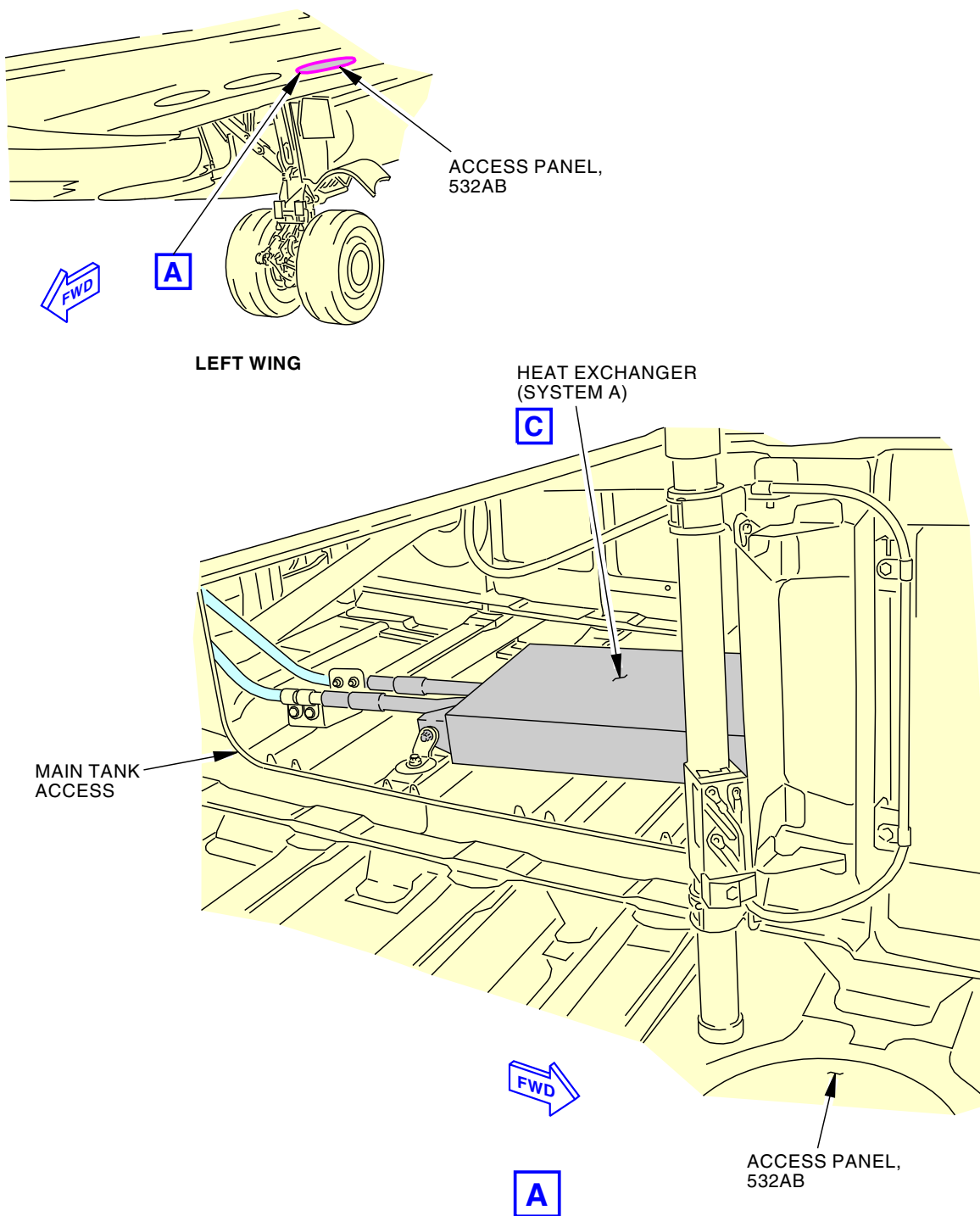
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 404
Jan 15/2023



2413777 S00061533351_V3

Heat Exchanger Installation
Figure 401/29-11-04-990-801 (Sheet 1 of 4)

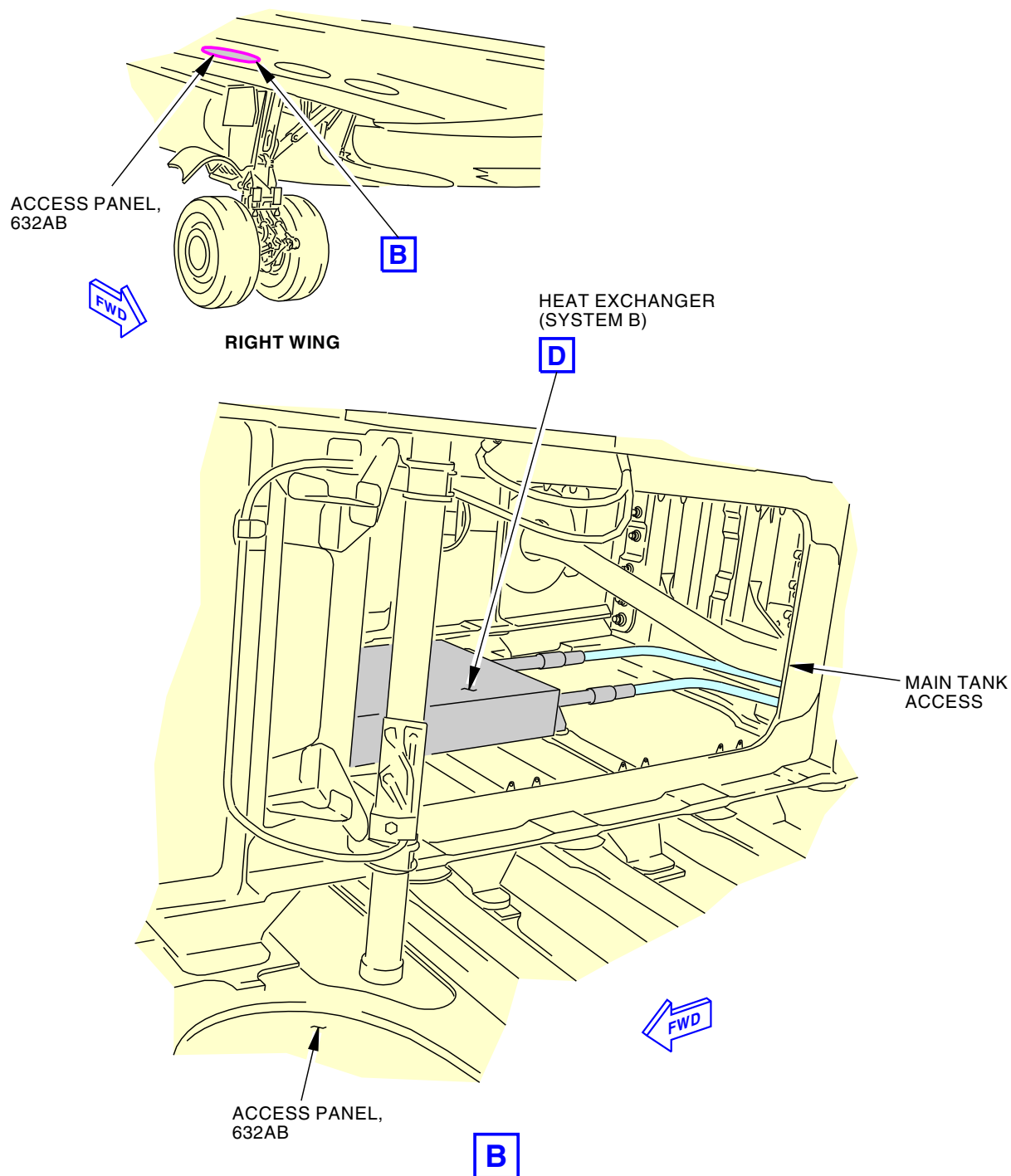
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 405
Sep 15/2021



2413778 S00061533352_V2

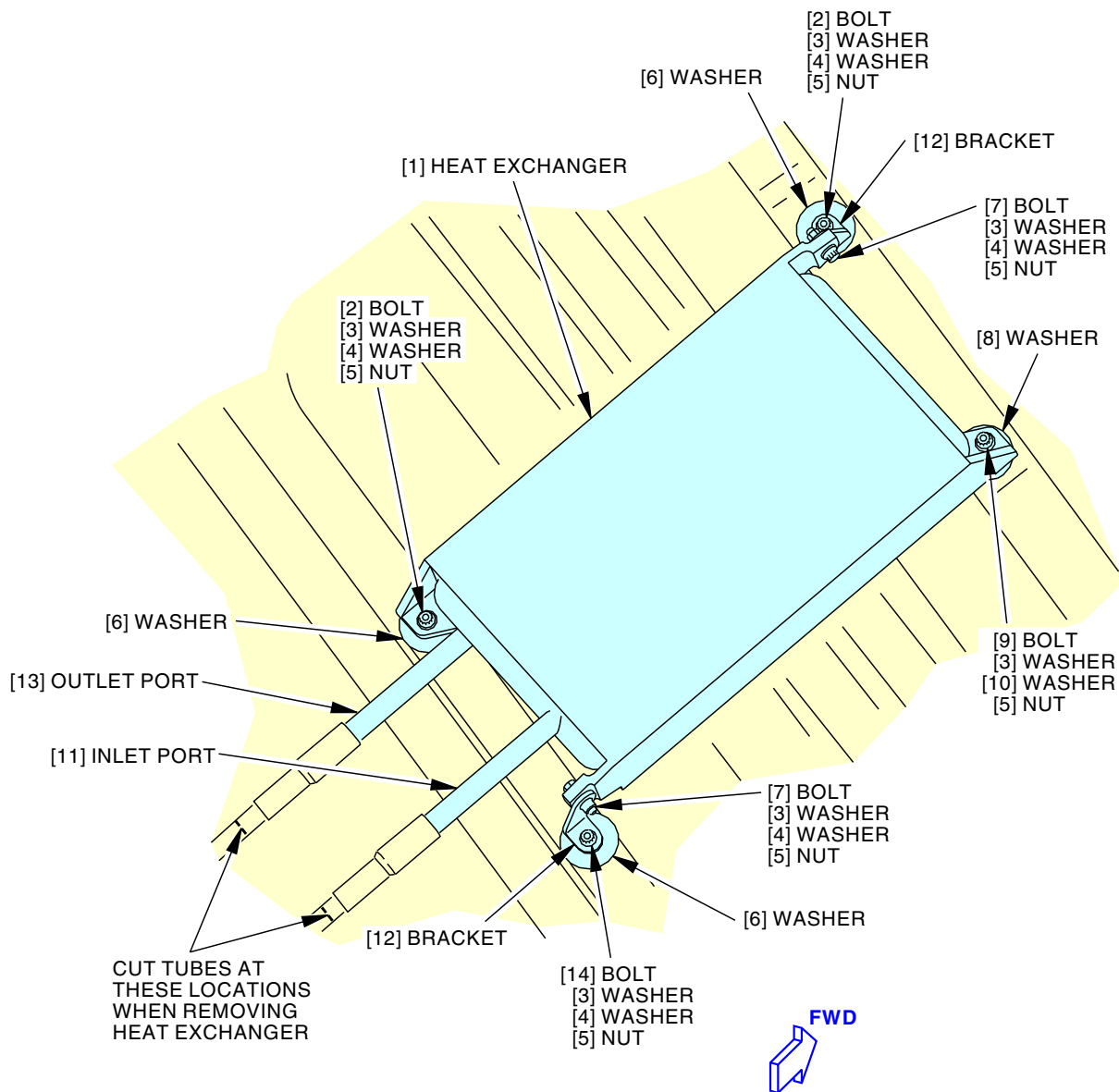
Heat Exchanger Installation
Figure 401/29-11-04-990-801 (Sheet 2 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-04

Page 406
Sep 15/2021



HEAT EXCHANGER
(SYSTEM A)



2413779 S00061533353_V3

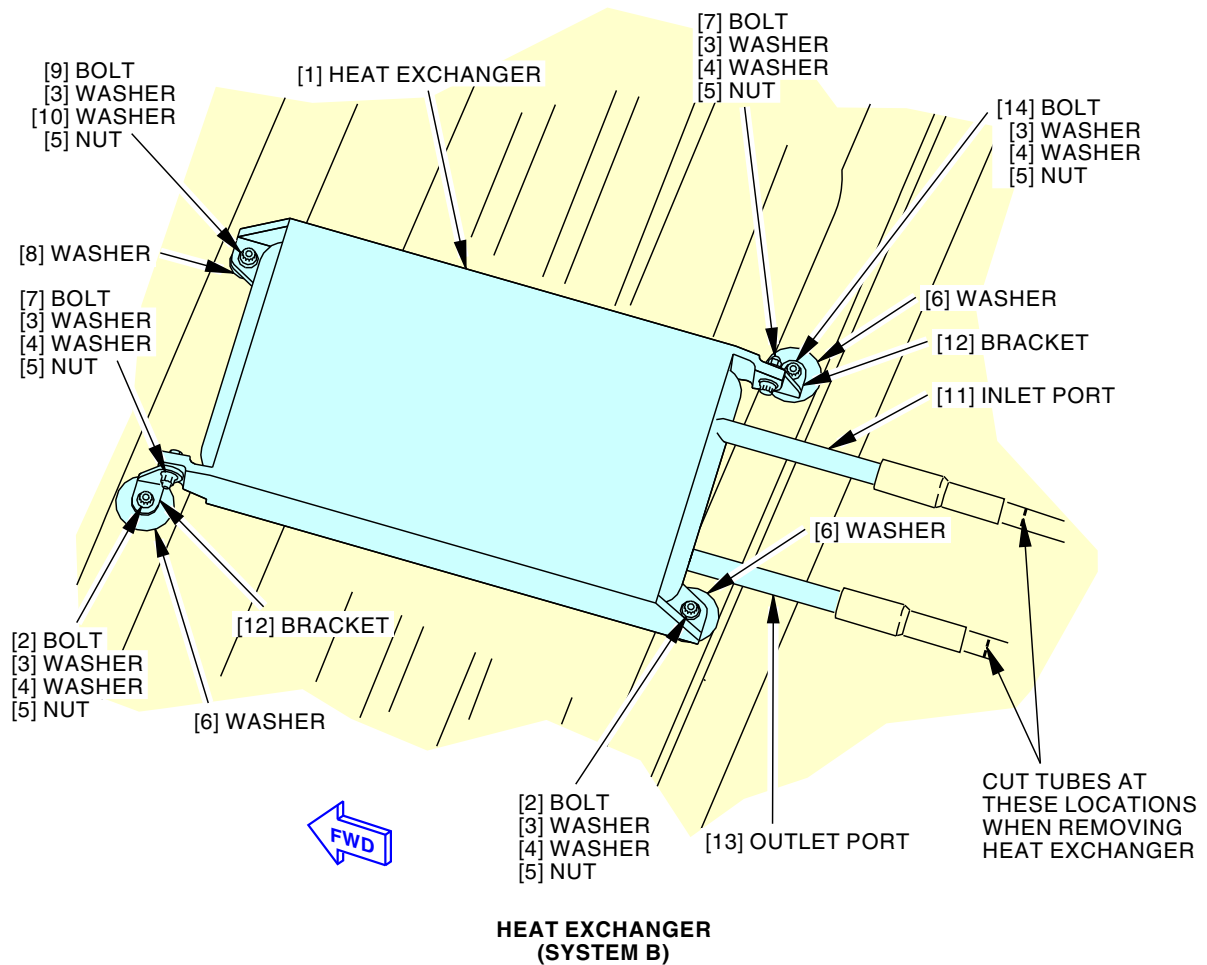
Heat Exchanger Installation
Figure 401/29-11-04-990-801 (Sheet 3 of 4)

EFFECTIVITY
SIA ALL

29-11-04

Page 407
Sep 15/2021

D633AM101-SIA



D

2413780 S00061533354_V3

Heat Exchanger Installation
Figure 401/29-11-04-990-801 (Sheet 4 of 4)

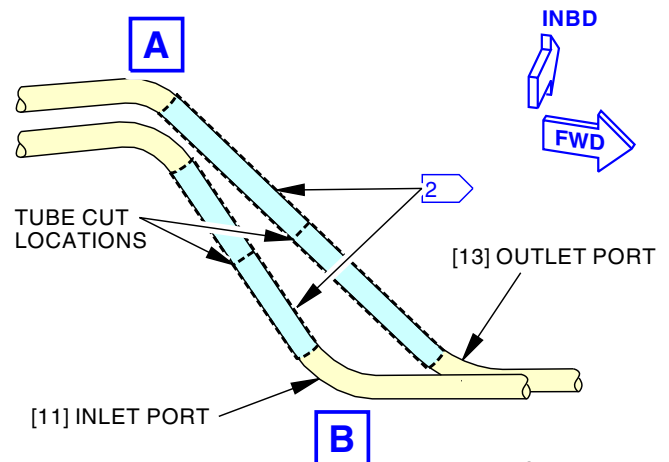
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

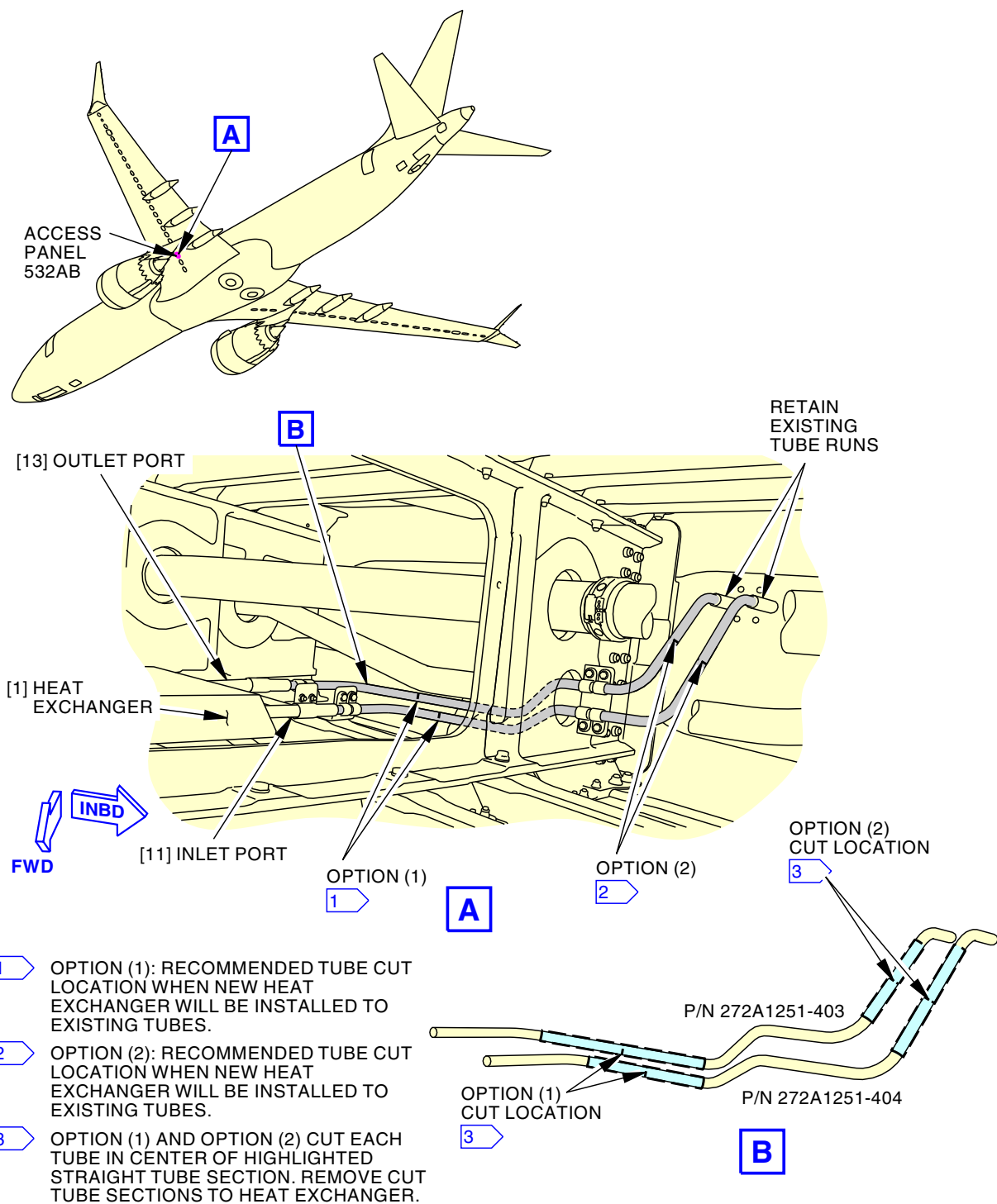
29-11-04

Page 408
Sep 15/2021



- 1 RECOMMENDED TUBE CUT LOCATIONS WHEN NEW HEAT EXCHANGER WILL BE INSTALLED TO EXISTING TUBES.
- 2 CUT EACH TUBE IN CENTER OF HIGHLIGHTED STRAIGHT TUBE SECTION.

ECCN 9E991 BOEING PROPRIETARY - See title page for details



2578221 S0000620570_V1

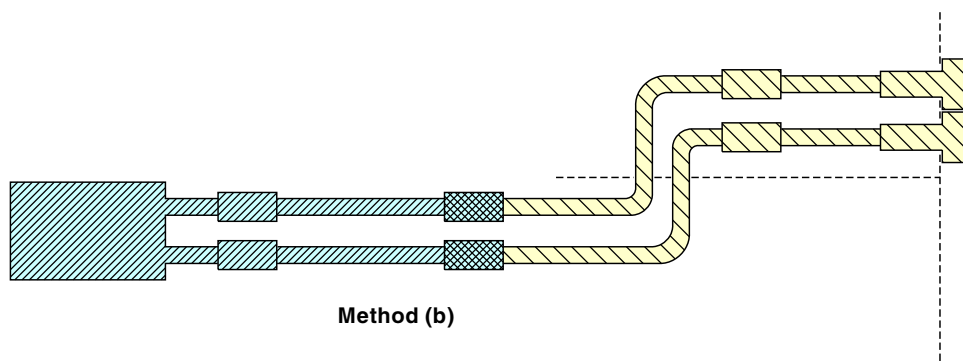
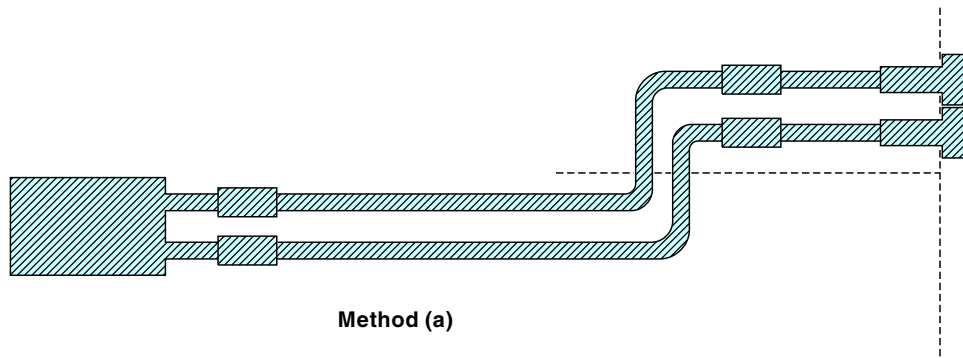
System B (Right Wing) - Heat Exchanger Tube Cuts
Figure 403/29-11-04-990-804

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

Page 410
Sep 15/2021



METHOD (a) REQUIRES :

- 1 NEW HEAT EXCHANGER
- 4 NEW TUBES
- 4 PERMANENT FITTINGS
- 2 PENETRATION FITTINGS
- SEALANT

METHOD (b) REQUIRES :

- 1 NEW HEAT EXCHANGER
- 2 NEW TUBES OR EQUIVALENT
- 4 PERMANENT FITTINGS

-  REMOVE AND INSTALL NEW
-  ADD TO THE INSTALLATION
-  KEPT INSTALLED

2578188 S0000620571_V1

Selection of Repair Method - System A (Left Wing)
Figure 404/29-11-04-990-805

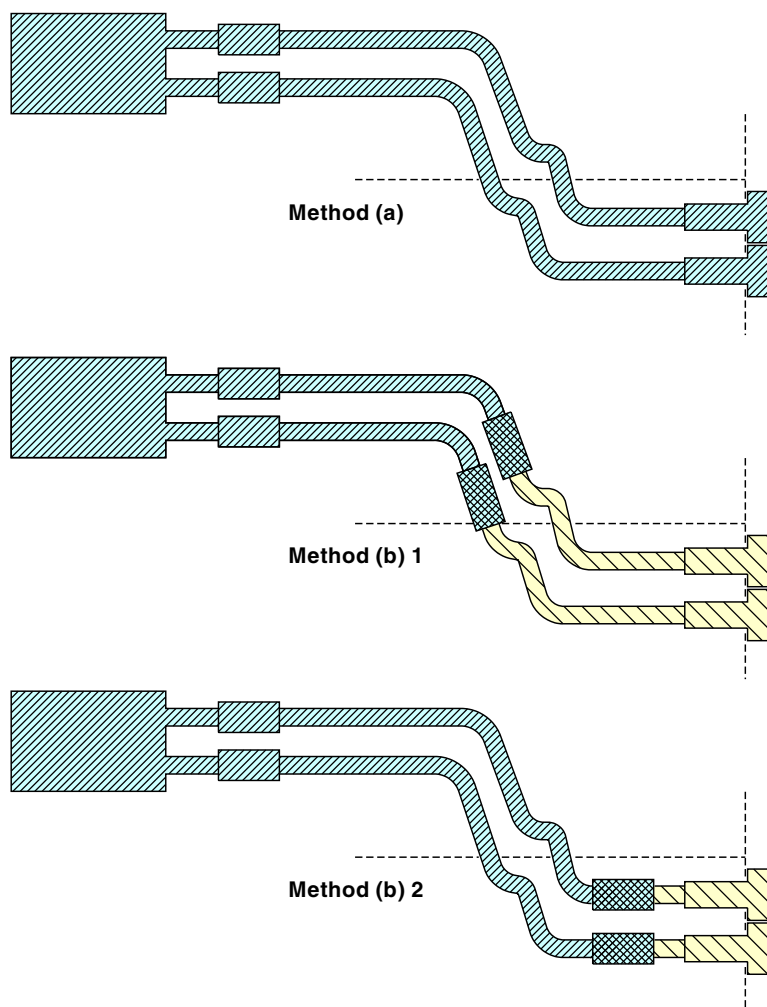
EFFECTIVITY SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

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



METHOD (a) REQUIRES :

- 1 NEW HEAT EXCHANGER
- 2 NEW TUBES
- 2 PERMANENT FITTINGS
- 2 PENETRATION FITTINGS
- SEALANT

METHOD (b)1 REQUIRES :

- 1 NEW HEAT EXCHANGER
- 2 NEW TUBES OR EQUIVALENT
- 4 PERMANENT FITTINGS

METHOD (b)2 REQUIRES :

- 1 NEW HEAT EXCHANGER
- 2 NEW TUBES
- 4 PERMANENT FITTINGS

-  REMOVE AND INSTALL NEW
-  ADD TO THE INSTALLATION
-  KEPT INSTALLED

2578187 S0000620572_V1

Selection of Repair Method - System B (Right Wing) Figure 405/29-11-04-990-806

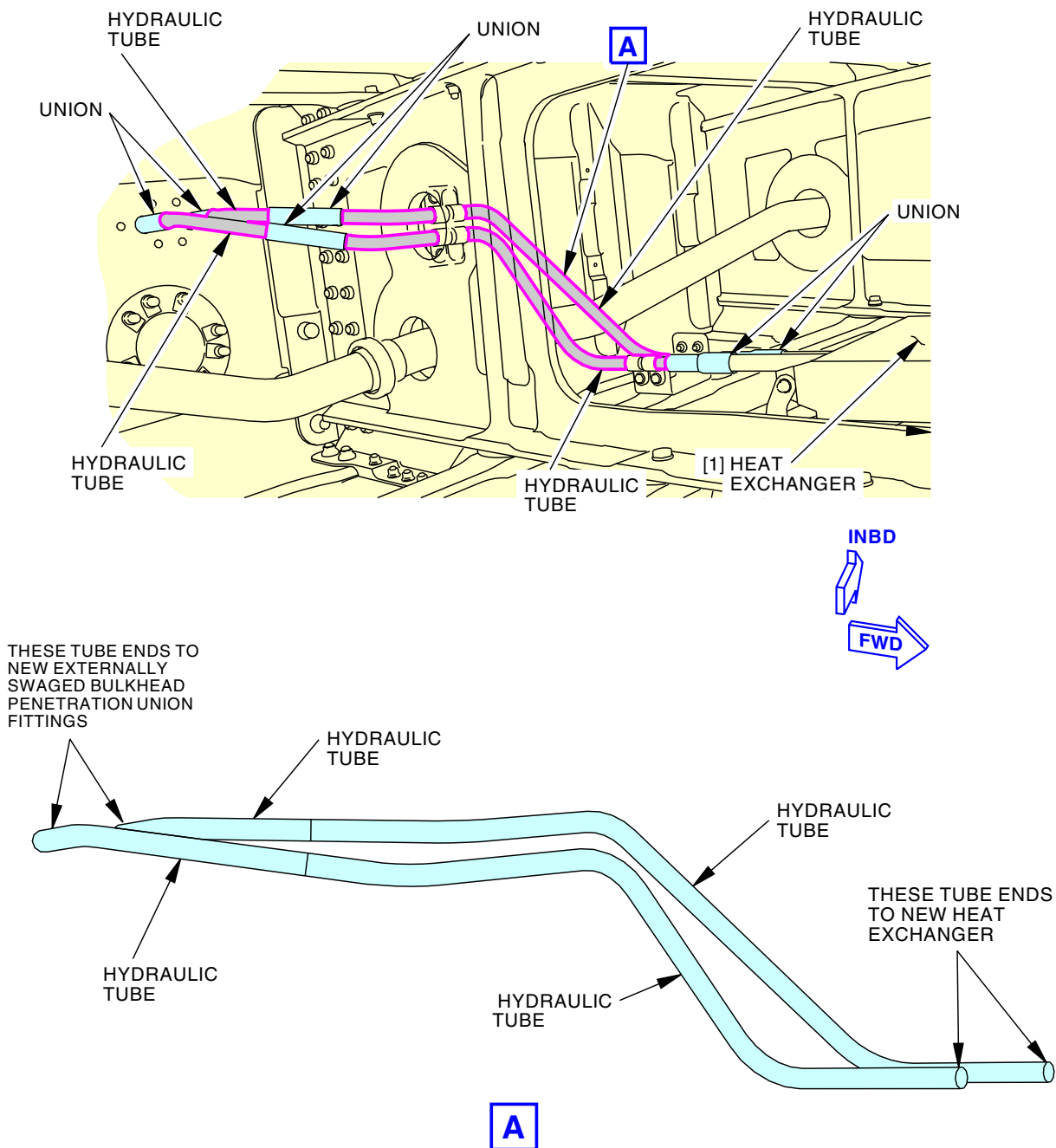
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 412
Sep 15/2021



2578185 S0000620652_V1

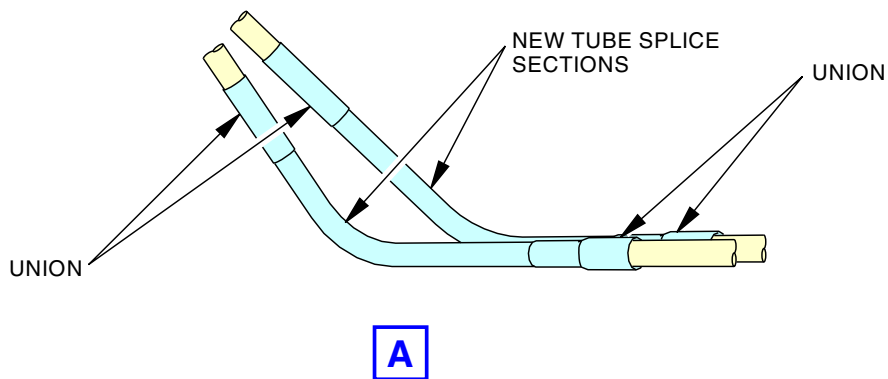
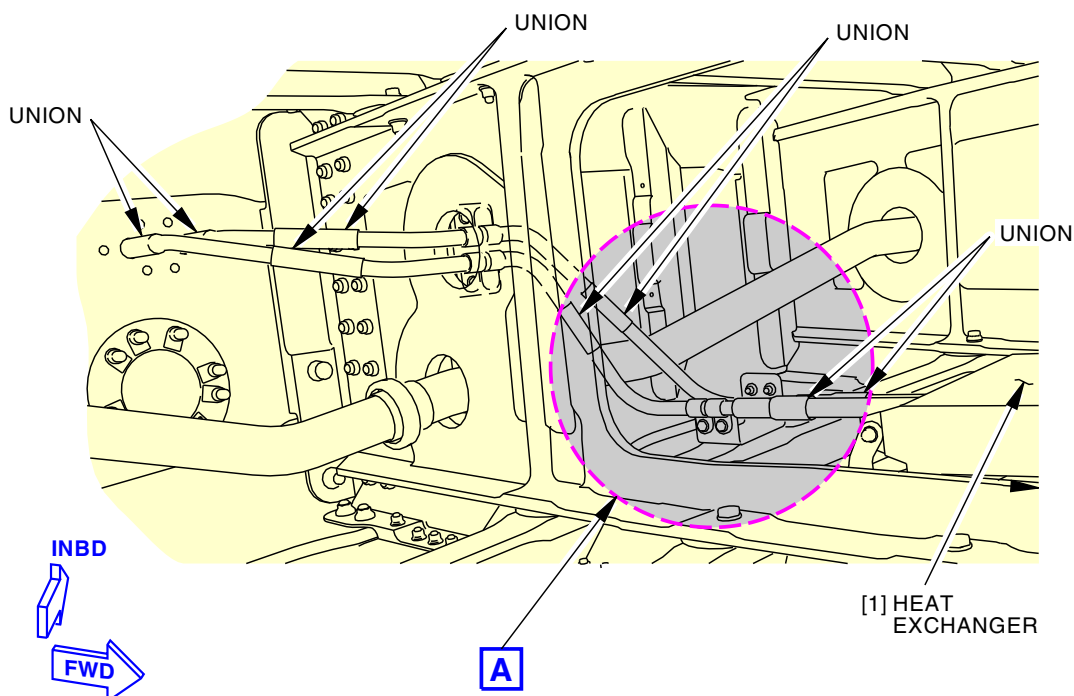
System A (Left Wing) Method (a) - New Heat Exchanger to New Hydraulic Tube Runs
Figure 406/29-11-04-990-807

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



CAUTION:

USE CARE DURING INSTALLATION OF THE TUBE SPLICES TO AVOID DAMAGE TO REMAINING HEAT EXCHANGER PLUMBING FITTINGS (FOR EXAMPLE, THE BULKHEAD PENETRATION FITTINGS).

2578184 S0000620656_V1

System A (L Wing) Method (b) - Splicing New heat exchanger to existing hydraulic tube runs
Figure 407/29-11-04-990-808

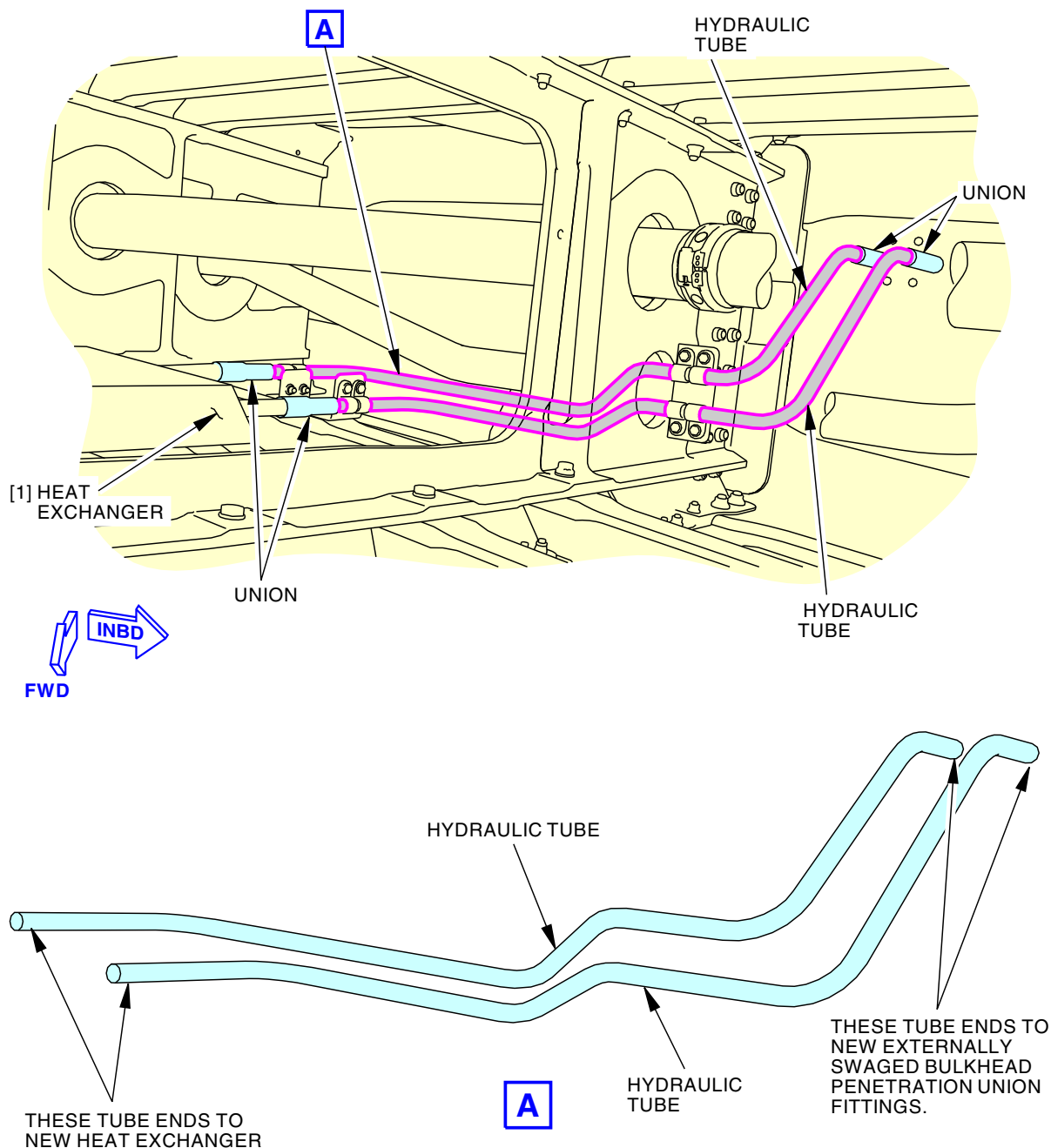
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 414
Sep 15/2021



2578183 S0000620653_V1

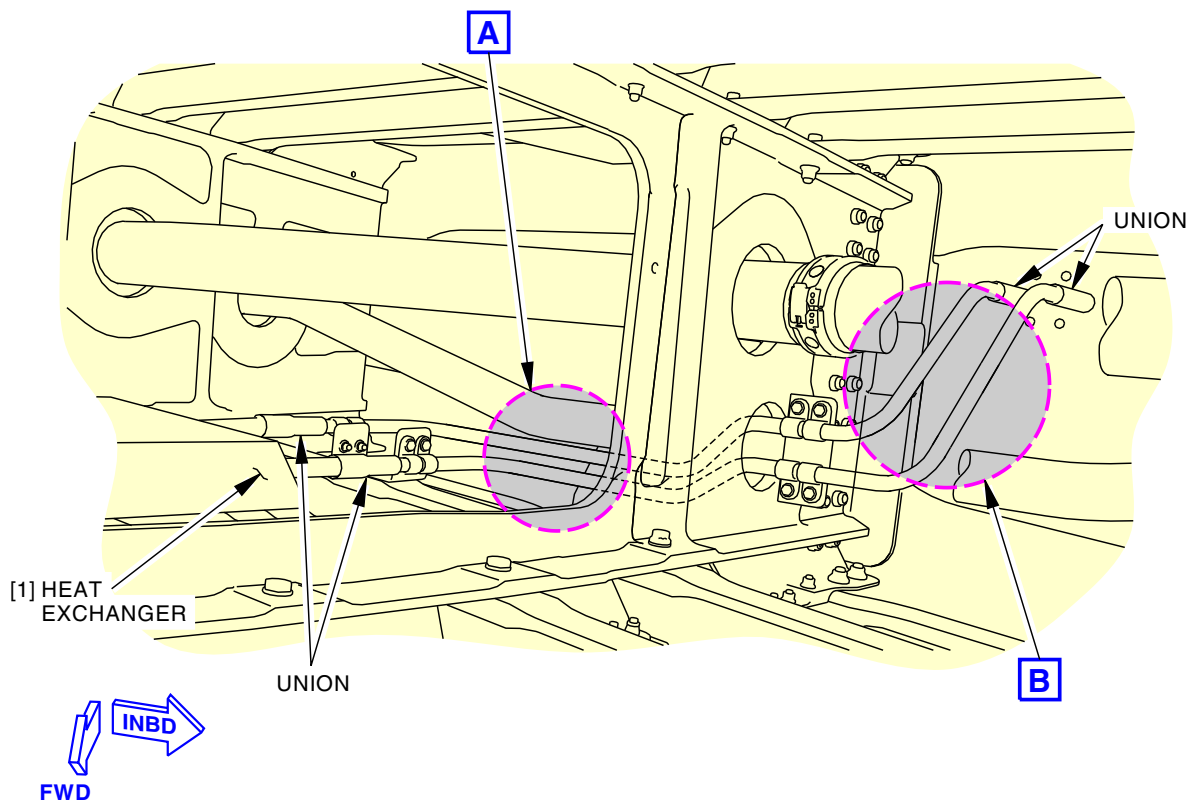
System B (Right Wing) Method (a) - New Heat Exchanger to New Hydraulic Tube Runs
Figure 408/29-11-04-990-809

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



2578182 S0000620654_V1

System B (Right Wing) Method (b) - Installing New Heat Exchanger to Existing Hydraulic Tube Runs
Figure 409/29-11-04-990-810 (Sheet 1 of 2)

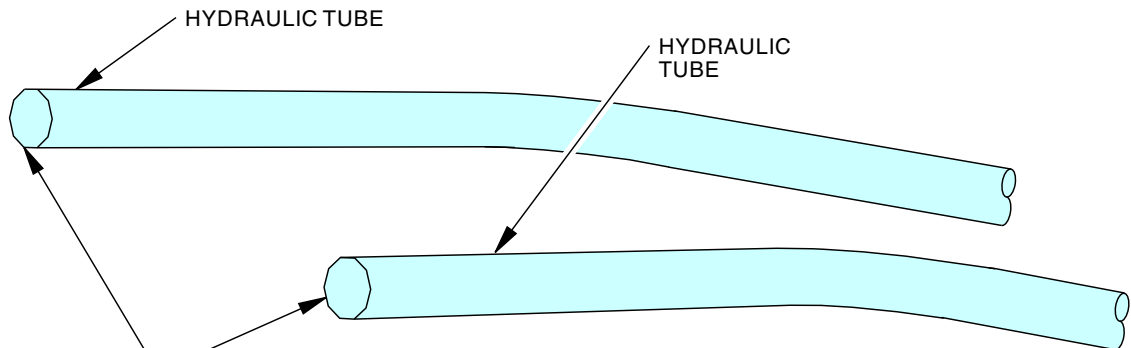
EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

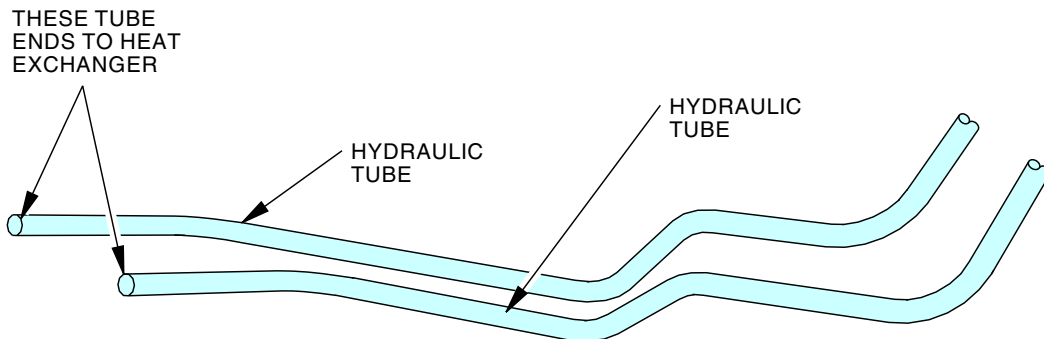
Page 416
Sep 15/2021



NOTE:

OPTION (b)1: SPLICE TUBE SECTIONS (HIDDEN IN ILLUSTRATION ABOVE) - CAN BE MADE FROM SECTION OF NEW TUBES OF SAME P/N OR FORMED FROM LOCALLY OBTAINED ALUMINUM TUBE MATERIAL - TO EXISTING TUBES IN THE AIRPLANE FUEL TANK.

A



NOTE:

OPTION (b)2: SPLICE TUBE SECTIONS - RECOMMEND TO MAKE FROM SECTION OF NEW TUBES OF SAME P/N TO EXISTING TUBES IN THE AIRPLANE FUEL TANK.

B

CAUTION:

USE CARE DURING INSTALLATION OF THE TUBE SPLICES TO AVOID DAMAGE TO REMAINING HEAT EXCHANGER PLUMBING FITTINGS (FOR EXAMPLE, THE BULKHEAD PENETRATION FITTINGS).

2578181 S0000620655_V1

System B (Right Wing) Method (b) - Installing New Heat Exchanger to Existing Hydraulic Tube Runs
Figure 409/29-11-04-990-810 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-04

Page 417
Sep 15/2021



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

TASK 29-11-04-400-801

3. Heat Exchanger Installation

(Figure 401, Figure 402, Figure 403, Figure 404, Figure 405, Figure 406, Figure 407, Figure 408, Figure 409)

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 29-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

B. References

Reference	Title
12-11-00-650-801	Precautions and Limits for the Refuel Operation (P/B 301)
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-51-200-801	Tubing Clearances Check (P/B 401)
20-10-51-300-801	Tube Repair (P/B 801)
20-10-51-400-806	Externally Swaged (Permaswage) Fittings Installation (P/B 801)
20-10-51-760-801	Electrical Resistance Specifications in the Fuel Tank Check (P/B 401)
28-11-00-600-801	Apply the Corrosion Resistant Finish (Topcoat) (P/B 701)
28-11-11-000-801	Main Tank Access Door Removal (P/B 401)
28-11-11-400-801	Main Tank Access Door Installation (P/B 401)
28-22-15-400-801	Fuel Line, Fitting and Coupling Installation (P/B 401)
29-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-04-200-801	Hydraulic Lines to Heat Exchanger - Bonding Resistance Check (P/B 601)
29-11-04-990-802	Figure: Hydraulic Lines to Heat Exchanger - Bonding Resistance Measurement (P/B 601)
29-11-55-400-801	Bulkhead Fitting Installation (P/B 401)
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.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 418
Sep 15/2021



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

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

D. Consumable Materials

Reference	Description	Specification
A00436	Sealant - Fuel Tank	BMS5-45 (Supersedes BMS5-26)
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
A50110	Sealant - Fuel Tank	BMS5-45 Class B-2
A50155	Sealant - Fuel Tank	BMS5-45 Class C
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C00307	Coating - Corrosion Resistant Finish For Integral Fuel Tanks	BMS10-20 Type II
C50315	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Heat exchanger	29-11-04-01-065 29-11-04-01-265	SIA ALL SIA ALL

F. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
532	Left Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing BL 643.50
632	Right Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing Station 643.50

G. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

H. Prepare for the Installation

SUBTASK 29-11-04-420-001

- (1) Put the heat exchanger [1] through the main tank access door.
 - (a) Put the end of the heat exchanger [1] with the inlet port [11] and outlet port [13] in first.

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 419
Sep 15/2023



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

SUBTASK 29-11-04-420-007

- (2) Loosely install the bolts [7], washer [3], washer [4], and nut [5] between the bracket [12] and heat exchanger [1] (2 locations).

SUBTASK 29-11-04-420-002

- (3) Loosely install the washer [6], washer [4], washer [3], bolt [2], and nut [5].

SUBTASK 29-11-04-420-003

- (4) Loosely install the washer [8], washer [10], washer [3], bolt [9], and nut [5].

SUBTASK 29-11-04-420-005

- (5) Measure the clearance between the washer [6] and heat exchanger [1].
 - (a) If the clearance is more than 0.007 in. (0.178 mm), add more washers [6] to fill the clearance.

SUBTASK 29-11-04-020-008

- (6) Remove the heat exchanger [1], as follows:
 - (a) Make sure that you keep a record of the number of washers for each location.
 - (b) Remove the washer [6], washer [4], washer [3], bolt [2], and nut [5].
 - (c) Remove the washer [8], washer [10], washer [3], bolt [9], and nut [5].
 - (d) Remove the heat exchanger [1].

SUBTASK 29-11-04-760-003

- (7) Prepare a fay surface bond between the mating surfaces of one of the mounting foot of the heat exchanger [1] and stringer in the fuel tank (SWPM 20-20-00).
 - (a) Do the abrasive clean procedure for the mating surfaces of the mounting foot of the heat exchanger [1] and stringer.
 - (b) Do the abrasive clean procedure for the mating surfaces of the washer [6].

SUBTASK 29-11-04-390-001

28-AWL-10: CDCCL

- (8) Apply a fay sealed fay surface bond to the mating surfaces on a mounting foot of the heat exchanger [1] and stringer in the fuel tank (SWPM 20-20-00).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (a) Use sealant, A50110, or sealant, A50155.

I. Heat Exchanger Installation

SUBTASK 29-11-04-420-004

- (1) Install the washer [6], washer [4], washer [3], bolt [2], and nut [5] (2 locations).

SUBTASK 29-11-04-420-011

- (2) Install the washer [6], washer [4], washer [3], bolt [14], and nut [5] (2 locations).

SUBTASK 29-11-04-420-012

- (3) Install the washer [8], washer [10], washer [3], bolt [9], and nut [5] (2 locations).

SUBTASK 29-11-04-420-006

- (4) Tighten the six nuts [5].

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 420
Sep 15/2023



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

SUBTASK 29-11-04-860-004

28-AWL-10: CDCCL

- (5) Measure the electrical bonding resistance between the structure and heat exchanger [1] (SWPM 20-20-00).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (a) Use an intrinsically safe approved bonding meter, COM-1550.

28-AWL-10: CDCCL

- (b) Make sure that the electrical bonding resistance is 0.0015 ohm (1.5 milliohms) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

SUBTASK 29-11-04-390-002



DO NOT GET THE ALODINE SOLUTION IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. AIR MUST FLOW FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (6) Manually apply Bonderite M-CR 600 Aero coating, C50315, or coating, C00064, to the abraded surfaces on the stringer.

SUBTASK 29-11-04-390-003

- (7) Apply a protective finish of coating, C00307, to the bare metal areas on the stringer (TASK 28-11-00-600-801).

SUBTASK 29-11-04-420-008

- (8) Connect the inlet port [11] and outlet port [13], on the new heat exchanger [1], to the hydraulic lines by performing one of the following methods, as shown in (Figure 404) or (Figure 405) or (TASK 29-11-04-200-801):

NOTE: Method chosen is based on the step that was taken when the heat exchanger was removed.

- (a) Method (a) - hydraulic tubes to new heat exchanger, replaced with new tubes (Figure 406 and Figure 408):
- 1) Loosely install new tube runs of the same part number with new externally swaged fittings (TASK 20-10-51-400-806)
 - a) Make sure that you observe the requirements for bonding and grounding/faying surfaces on permaswage bulkhead penetration fittings during part installation (TASK 29-11-04-200-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-04

Page 421
Sep 15/2023



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

 28-AWL-10: CDCCL

- b) Make sure that you observe the electrical bonding resistance requirements for the permaswage fitting (TASK 20-10-51-760-801).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- c) Make sure that there are sufficient tube clearances (TASK 20-10-51-200-801).
d) Use the kept support clamps and fasteners.



USE TWO WRENCHES TO DISCONNECT OR CONNECT TUBES. IF YOU DO NOT USE A WRENCH ON EACH SIDE OF THE CONNECTION, DAMAGE TO THE TUBES CAN OCCUR.

- 2) Connect the hydraulic lines to the penetration fittings (TASK 29-11-55-400-801).

- (b) Method (b) - new heat exchanger [1] spliced to existing hydraulic heat exchanger tubes Figure 407 and Figure 409):

- 1) Cut replacement tube splice sections from new tubes of correct part numbers or fabricate suitable replacement tube splice sections from 0.5 in. (12.7 mm) diameter and 0.035 in. (0.89 mm) wall thickness 6061-T6 aluminum tube material per AMS4083.

- a) Use previously removed tube sections as pattern.
b) Use the replacement tubes to connect the new heat exchanger [1] to the remaining tube sections (TASK 20-10-51-300-801).

NOTE: There is one recommended location for hydraulic system A heat exchanger in the left wing and two optional locations (for inlet port [11] and outlet port [13]) for hydraulic system B heat exchanger in the right wing.

- 2) Install the splice tube sections (TASK 20-10-51-400-806).

 28-AWL-10: CDCCL

- a) Make sure that you observe the electrical bonding resistance requirements for the permaswage fitting (TASK 20-10-51-760-801).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- b) Make sure that there are sufficient tube clearances (TASK 20-10-51-200-801).
c) Use the kept support clamps and fasteners.

SUBTASK 29-11-04-420-015

- (9) Install the fuel tubes removed to get access to the hydraulic tubes before the heat exchanger removal and replacement (TASK 28-22-15-400-801).

- (a) Obey the electrical bonding requirements.

SUBTASK 29-11-04-940-001

- (10) Make sure that you remove all of the tools, unwanted parts, and unwanted objects from the wing fuel tank.

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

Page 422
Sep 15/2023



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

J. Heat Exchanger Installation Test

SUBTASK 29-11-04-760-001

 28-AWL-10: CDCCL

- (1) Measure the electrical bonding resistance between the hydraulic heat exchanger [1] and each externally swaged hydraulic tube fitting (SWPM 20-20-00).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (a) Use an intrinsically safe approved bonding meter, COM-1550.

 28-AWL-10: CDCCL

- (b) Make sure that the electrical bonding resistance is 0.00041 ohm (0.41 milliohm) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

SUBTASK 29-11-04-760-002

 28-AWL-10: CDCCL

- (2) Measure the electrical bonding resistance between the hydraulic tubes and externally swaged hydraulic tube fittings (SWPM 20-20-00).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (a) Use an intrinsically safe approved bonding meter, COM-1550.

 28-AWL-10: CDCCL

- (b) Make sure that the electrical bonding resistance is 0.0005 ohm (0.5 milliohm) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

SUBTASK 29-11-04-211-001

- (3) Do a check of the seals on the bulkhead fittings.

- (a) If it is necessary, replace the fillet seal on the bulkhead fittings on the outside of the tank.

1) Use sealant, A02315, to apply the fillet seal.

- (b) If it is necessary, replace the full bodied fillet seal on the inside of the tank.

1) Use sealant, A00436, to apply a fillet seal.

SUBTASK 29-11-04-410-001

- (4) Install the applicable main tank access door (TASK 28-11-11-400-801).

Close these access panels:

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

532AB	Main Tank Access Door - Wing Station 216

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 423
Sep 15/2023



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

(Continued)

<u>Number</u>	<u>Name/Location</u>
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-04-860-005



WARNING

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



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-04-860-006

- (6) Pressurize the applicable hydraulic system reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-04-860-007



WARNING

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



CAUTION

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

- (7) Pressurize the hydraulic system with the applicable electric motor-driven pump (EMDP) (TASK 29-11-00-860-803).

SUBTASK 29-11-04-780-001

- (8) After a few minutes, remove hydraulic pressure (TASK 29-09-00-860-802).

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 424
Jan 15/2023



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

SUBTASK 29-11-04-010-002

- (9) Remove the applicable main tank access door (TASK 28-11-11-000-801).

Open these access panels:

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-04-790-001

- (10) Make sure that there is no hydraulic fluid leakage at the hydraulic lines or from the heat exchanger [1] (Figure 29-11-04-990-802).

(a) If it is necessary, repair leakage .

K. Put the Airplanes Back to Its Usual Condition

SUBTASK 29-11-04-410-004

- (1) Close this access panel:

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

SUBTASK 29-11-04-860-008

- (2) Remove hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-04-410-002

- (3) Install the applicable main tank access door (TASK 28-11-11-400-801).

Close these access panels:

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-04-610-001

- (4) Refuel the fuel tank (TASK 12-11-00-650-801).

SUBTASK 29-11-04-610-002

- (5) If it is necessary, fill the applicable hydraulic system reservoir (TASK 12-12-00-610-801).

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 425
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL
HEAT EXCHANGER - INSPECTION/CHECK

1. General

- A. This procedure contains a functional check of the bonding resistance between the structure and the hydraulic line spar penetrations.

TASK 29-11-04-200-801

2. Hydraulic Lines to Heat Exchanger - Bonding Resistance Check

(Figure 601)

A. References

Reference	Title
29-11-55-300-801	Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond (P/B 801)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

B. Tools/Equipment

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

Reference	Description
COM-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

C. Location Zones

Zone	Area
532	Left Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing BL 643.50
632	Right Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing Station 643.50

D. Access Panels

Number	Name/Location
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

E. Procedure

SUBTASK 29-11-04-560-001

- (1) Get access to the inlet and outlet hydraulic lines for the main tank heat exchangers (outside the fuel tank).

Open these access panels:

Number	Name/Location
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 601
May 15/2023



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

(Continued)

<u>Number</u>	<u>Name/Location</u>
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

SUBTASK 29-11-04-765-001

- (2) Measure the electrical bonding resistance between each of the bulkhead (penetration) fittings on the hydraulic lines and the structure with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).
- (a) Make sure that the electrical fay surface bonding resistance is less than or equal to 0.0005 Ω (0.5 milli- Ω).
- (b) If the resistance is above the specified value, loosen the bulkhead fittings to repair the electrical bond:
- 1) Do this task: Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond, TASK 29-11-55-300-801.

SUBTASK 29-11-04-410-003

- (3) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

————— END OF TASK —————

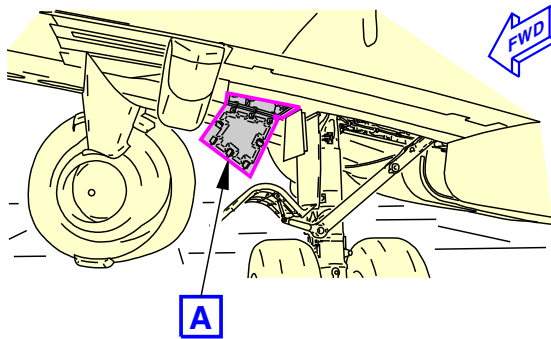
EFFECTIVITY
SIA ALL

D633AM101-SIA

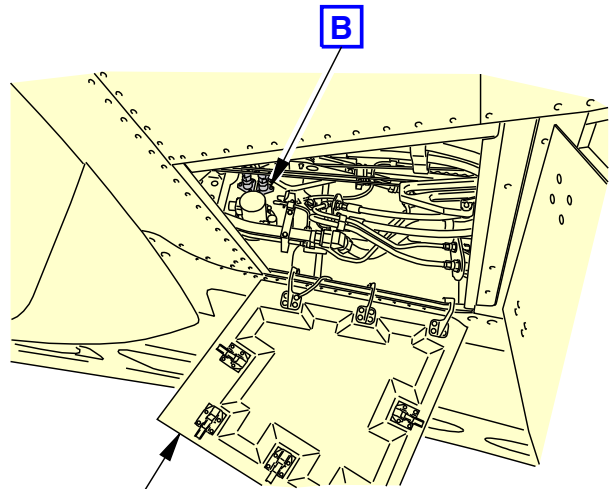
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-04

Page 602
May 15/2023



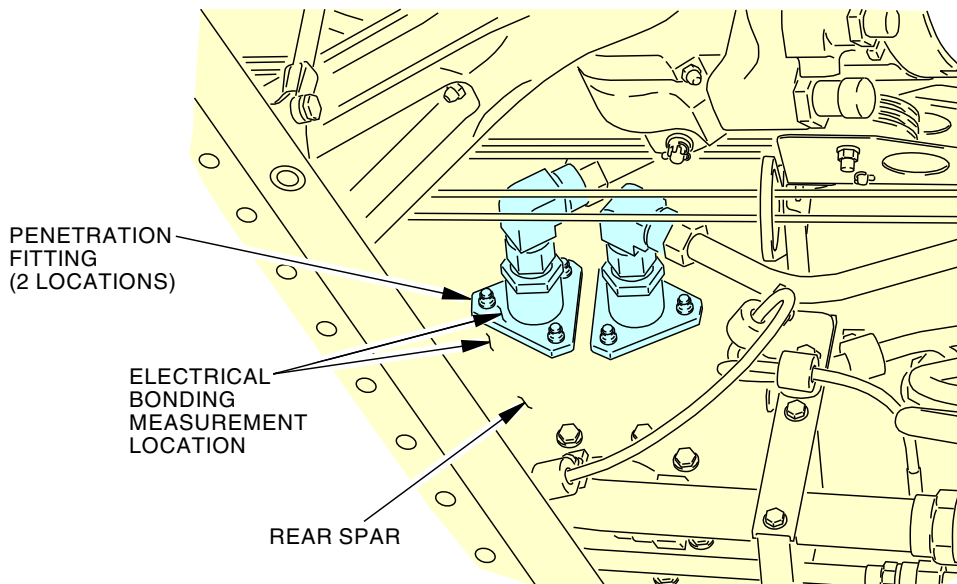
A
LEFT WING
(RIGHT WING IS OPPOSITE)



B
LEFT (RIGHT) ACCESS
PANEL, 551DB (651DB)

A

FWD



**PENETRATION FITTINGS OF HYDRAULIC LINES
BONDING MEASUREMENT**

B

FWD

2413781 S00061533358_V1

Hydraulic Lines to Heat Exchanger - Bonding Resistance Measurement
Figure 601/29-11-04-990-802

EFFECTIVITY
SIA ALL

29-11-04

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

GROUND SERVICE DISCONNECT FILTER - MAINTENANCE PRACTICES

1. **General**

- A. This procedure has these tasks:
- (1) Ground service disconnect filter removal.
 - (2) Ground service disconnect filter installation.
 - (3) Ground service disconnect filter module removal.
 - (4) Ground service disconnect filter module installation.
- B. The ground service disconnect module is used to supply hydraulic power to the airplane from a hydraulic test stand. There are two ground service disconnect modules one for hydraulic system A and one for hydraulic system B. These procedures tell you how to replace the filter that is in the module and the module.

TASK 29-11-08-000-801

2. **Ground Service Disconnect Filter - Removal**

(Figure 201)

A. **References**

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. **Consumable Materials**

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
G01043	Cloth - Lint-free	
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. **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

D. **Access Panels**

Number	Name/Location
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

E. **General**

SUBTASK 29-11-08-860-005

- (1) This task has instructions for the removal/cleaning of the filter element. To remove/clean the filter element, it is not necessary to remove the filter module.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-08

Page 201
Sep 15/2021



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

F. Prepare for the Removal

SUBTASK 29-11-08-040-001

- (1) Remove hydraulic power from the applicable systems A or B, (TASK 29-11-00-860-805).

SUBTASK 29-11-08-040-002

- (2) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-08-010-001

- (3) Open the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

G. Filter Assembly Removal

SUBTASK 29-11-08-020-001

- (1) Remove the MS20995N32 lockwire, G50177 that attaches the filter assembly [1] to the filter module housing, (TASK 20-10-44-000-801).

SUBTASK 29-11-08-020-002

- (2) Unscrew and remove the filter bowl [9] from the filter module housing.

SUBTASK 29-11-08-020-008

- (3) Remove the packing [8] and two backup rings [7] from the grooves of the filter bowl [9].

SUBTASK 29-11-08-020-009

- (4) Remove the filter element [6], packing [4] and backup ring [5] from the filter fitting [2].

SUBTASK 29-11-08-020-010

- (5) Remove the packing [4] and backup ring [5] from the grooves of the filter element [6].

SUBTASK 29-11-08-020-011

- (6) Unscrew and remove the filter fitting [2] from the filter module housing.

SUBTASK 29-11-08-020-003

- (7) Remove packing [3] from the filter fitting [2].

SUBTASK 29-11-08-020-012

- (8) Discard the filter element [6], packing [3] and packing [8].

SUBTASK 29-11-08-160-001

- (9) Clean the filter bowl [9] with solvent, B00062 or alcohol, B00068.

SUBTASK 29-11-08-100-001

- (10) Rinse and dry filter bowl [9] thoroughly with compressed air or with clean lint-free cloth, G01043.

————— **END OF TASK** —————

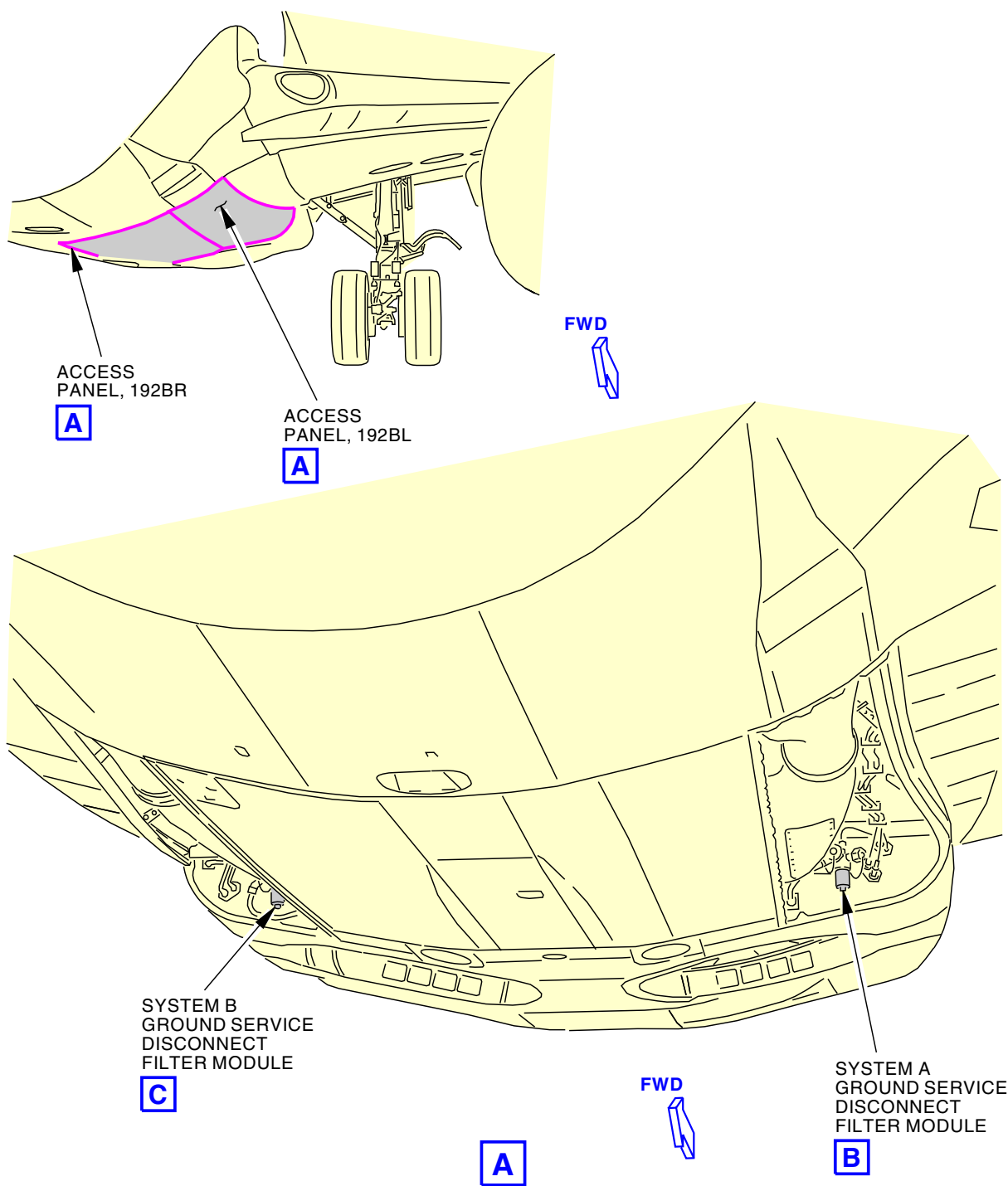
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-08

Page 202
Sep 15/2021



2413782 S00061533362_V1

Ground Service Disconnect Filter Installation
Figure 201/29-11-08-990-801 (Sheet 1 of 3)

EFFECTIVITY
SIA ALL

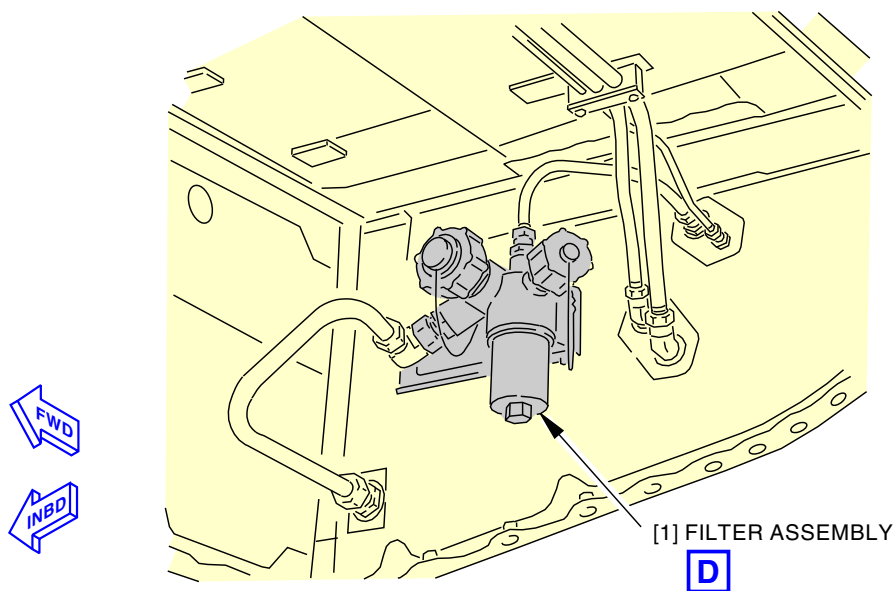
29-11-08

D633AM101-SIA

Page 203
Sep 15/2021

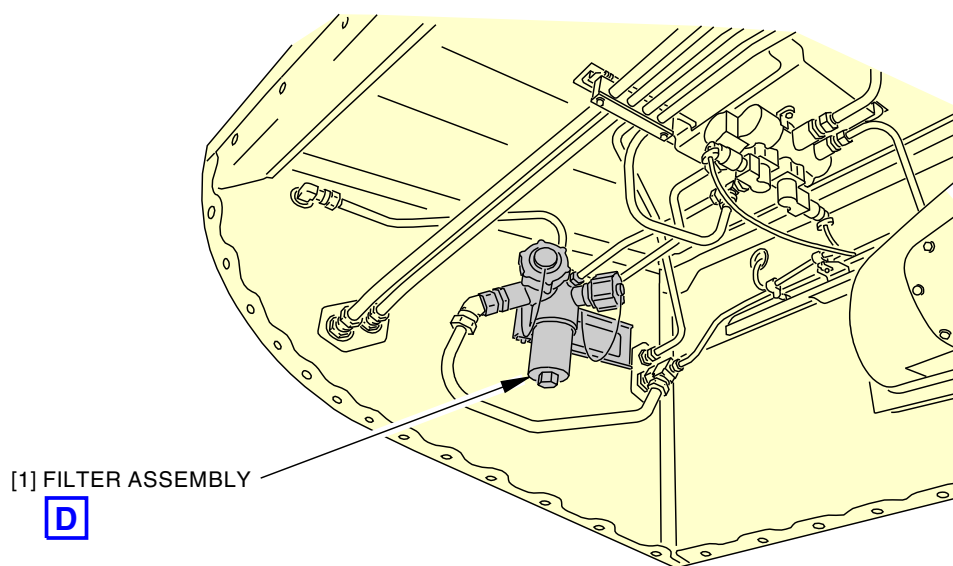


737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



SYSTEM A GROUND SERVICE DISCONNECT FILTER MODULE

[B]



SYSTEM B GROUND SERVICE DISCONNECT FILTER MODULE

[C]

2413783 S00061533363_V1

Ground Service Disconnect Filter Installation
Figure 201/29-11-08-990-801 (Sheet 2 of 3)

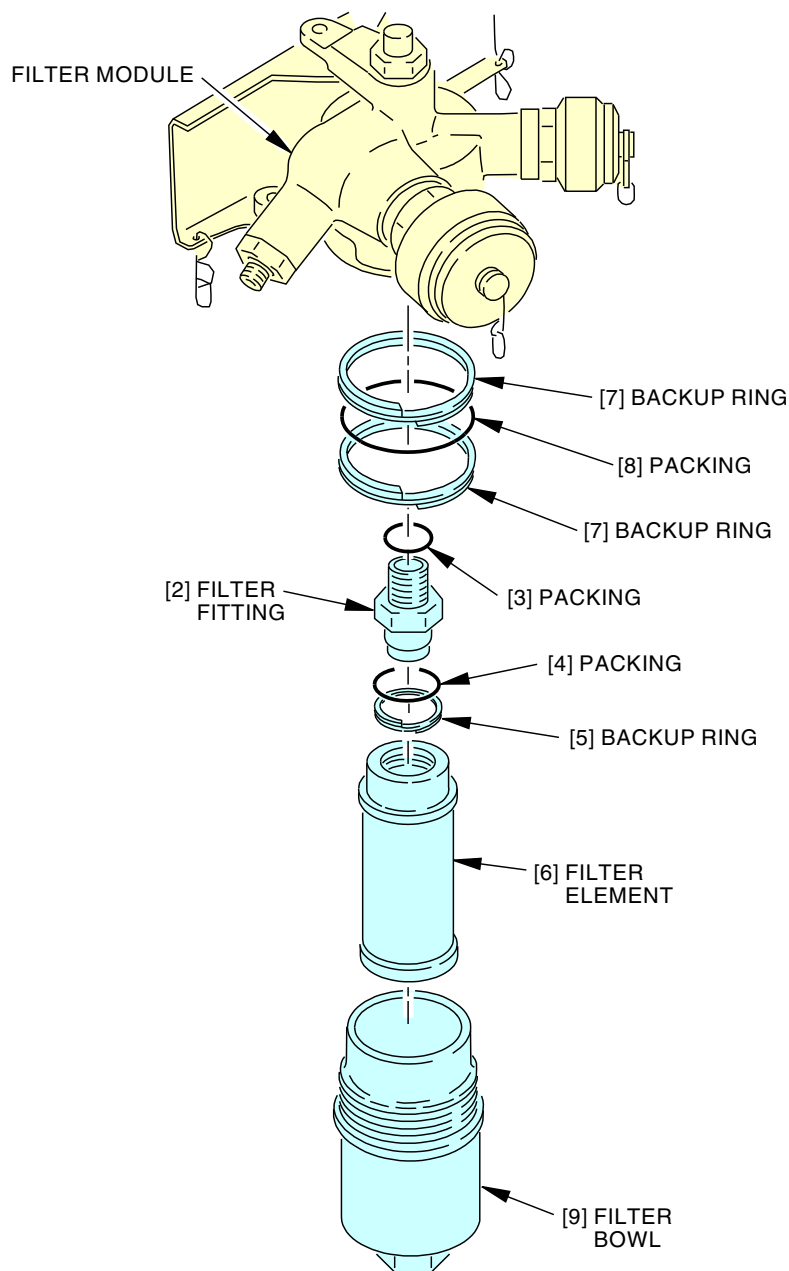
EFFECTIVITY
SIA ALL

29-11-08

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 204
Sep 15/2021



(EXAMPLE)
FILTER ASSEMBLY



2413784 S00061533364_V1

Ground Service Disconnect Filter Installation
Figure 201/29-11-08-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-08

Page 205
Sep 15/2021



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

TASK 29-11-08-400-801

3. Ground Service Disconnect Filter - Installation

(Figure 201)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Packing	29-11-08-01-125	SIA ALL
		29-11-08-02-125	SIA ALL
4	Packing	29-11-08-01-115	SIA ALL
		29-11-08-02-115	SIA ALL
6	Filter element	29-11-08-01-095	SIA ALL
		29-11-08-02-095	SIA ALL
8	Packing	29-11-08-01-105	SIA ALL
		29-11-08-02-105	SIA ALL

D. 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

E. Access Panels

Number	Name/Location
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

F. General

SUBTASK 29-11-08-860-004

- (1) This task has instructions for the installation of the filter assembly on the filter module.

G. Procedure

SUBTASK 29-11-08-400-008

- (1) Lubricate the new new packing [8] and the two backup rings [7] with hydraulic fluid, D00153 or MCS 352B fluid, D00054.

EFFECTIVITY
SIA ALL

29-11-08

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 206
Sep 15/2021



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

SUBTASK 29-11-08-400-005

- (2) Install the new new packing [8] and two backup rings [7] in the grooves of the filter module housing.

SUBTASK 29-11-08-400-009

- (3) Lubricate the new new packing [3] with hydraulic fluid, D00153 or MCS 352B fluid, D00054.

SUBTASK 29-11-08-400-010

- (4) Slide the new new packing [3] on the filter fitting [2].

SUBTASK 29-11-08-400-011

- (5) Screw the filter fitting [2] into the filter module housing and tighten to 125 $\pm$ 75 in-lb (14.1 $\pm$ 8.5 N·m).

SUBTASK 29-11-08-400-002

- (6) Lubricate the new packing [4] and the backup ring [5] with hydraulic fluid, D00153 or MCS 352B fluid, D00054.

SUBTASK 29-11-08-400-003

- (7) Install the new new packing [4] and the backup ring [5] in the grooves of the new filter element [6].

NOTE: The backup ring [5] is installed below the packing [4].

SUBTASK 29-11-08-400-012

- (8) Slide the new filter element [6] onto the filter fitting [2] until bottomed.

SUBTASK 29-11-08-420-001



PUT HYDRAULIC FLUID IN THE FILTER BOWL BEFORE YOU INSTALL THE FILTER BOWL. AIR CAUGHT BELOW THE FILTER ELEMENT CAN CAUSE DAMAGE TO THE FILTER ELEMENT.

- (9) Fill the filter bowl [9] approximately 1/3 full with hydraulic fluid, D00153.

SUBTASK 29-11-08-400-007

- (10) Slide the filter bowl [9] over the filter element [6] and screw onto the filter module housing.
 - (a) Tighten the filter bowl [9] to 62.5 $\pm$ 25.0 in-lb (7.1 $\pm$ 2.9 N·m).
 - (b) Attach the filter assembly [1] to the filter module with MS20995N32 lockwire, G50177, (TASK 20-10-44-400-801).

H. Ground Service Disconnect Filter Installation Test

SUBTASK 29-11-08-780-001

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

SUBTASK 29-11-08-780-002

- (2) With a portable hydraulic cart, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-08-790-001

- (3) Make sure the filter assembly [1] does not leak.

SUBTASK 29-11-08-040-003

- (4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-08

Page 207
Sep 15/2021



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

I. Put the Airplane Back to its Usual Condition

SUBTASK 29-11-08-410-001

- (1) Close the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

————— END OF TASK —————

TASK 29-11-08-000-802

4. Ground Service Disconnect Filter Module - Removal

(Figure 202)

A. References

<u>Reference</u>	<u>Title</u>
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

B. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

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

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

E. Prepare for the Removal

SUBTASK 29-11-08-860-001

- (1) Remove hydraulic power from the applicable system. To remove hydraulic power, do this task: (TASK 29-11-00-860-805).

SUBTASK 29-11-08-860-002

- (2) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-08-010-002

- (3) Open the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

F. Removal

SUBTASK 29-11-08-020-004

- (1) Disconnect hydraulic line [13] and hydraulic line [14].
(a) Install cap/plug, STD-14686 on hydraulic line [13] and hydraulic line [14] to prevent contamination, (TASK 70-00-01-910-802-G00).

EFFECTIVITY
SIA ALL

29-11-08

D633AM101-SIA

Page 208
May 15/2023



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

SUBTASK 29-11-08-020-005

- (2) Disconnect the two lanyards [12] from the bracket assembly.

SUBTASK 29-11-08-020-006

- (3) Remove the three bolts [10] and the three washers [11] that secure the ground service disconnect filter assembly [1] to the bracket assembly.

SUBTASK 29-11-08-020-007

- (4) Remove the ground service disconnect filter assembly [1] from the airplane.

———— **END OF TASK** ————

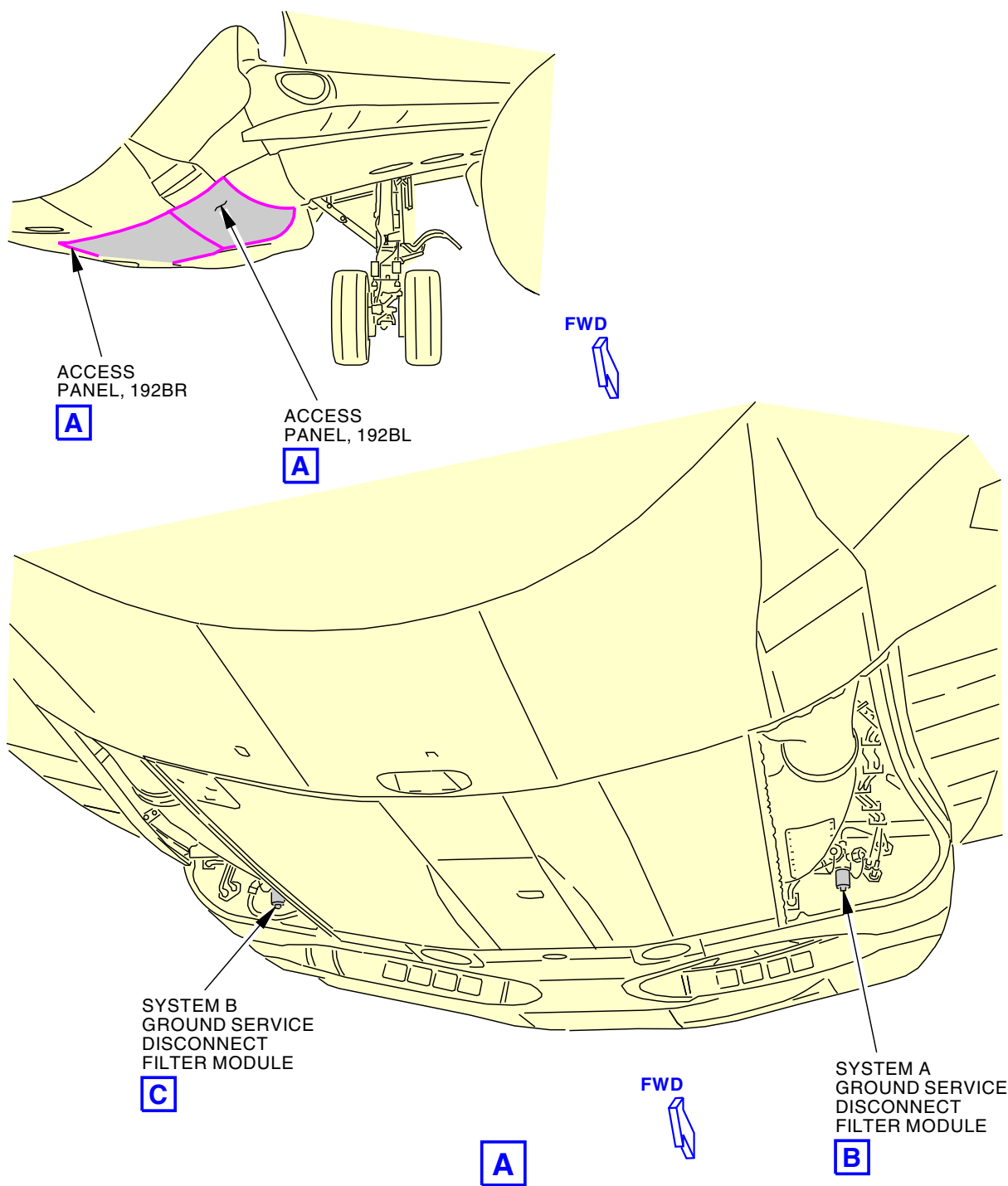
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-08

Page 209
Sep 15/2021



2413782 S00061533362_V1

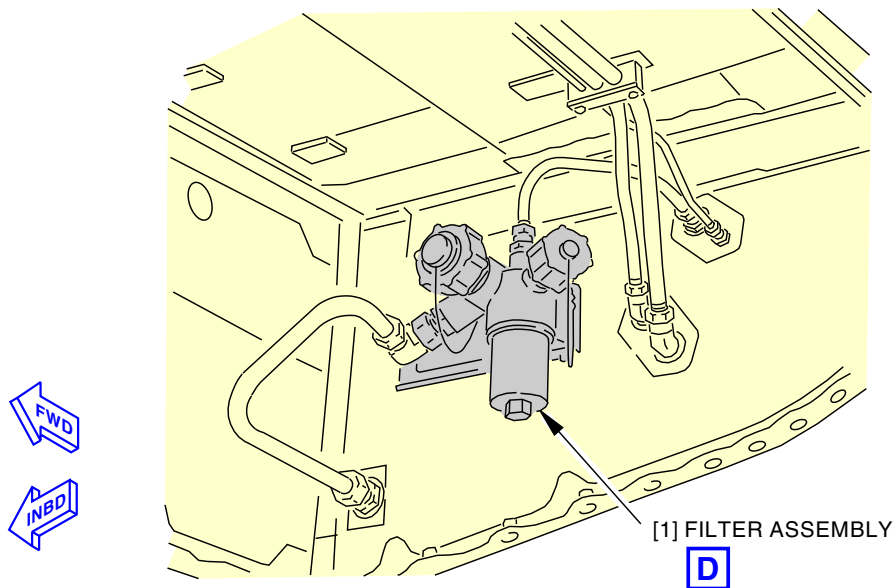
Ground Service Disconnect Filter Installation
Figure 202/29-11-08-990-802 (Sheet 1 of 3)

EFFECTIVITY
SIA ALL

29-11-08

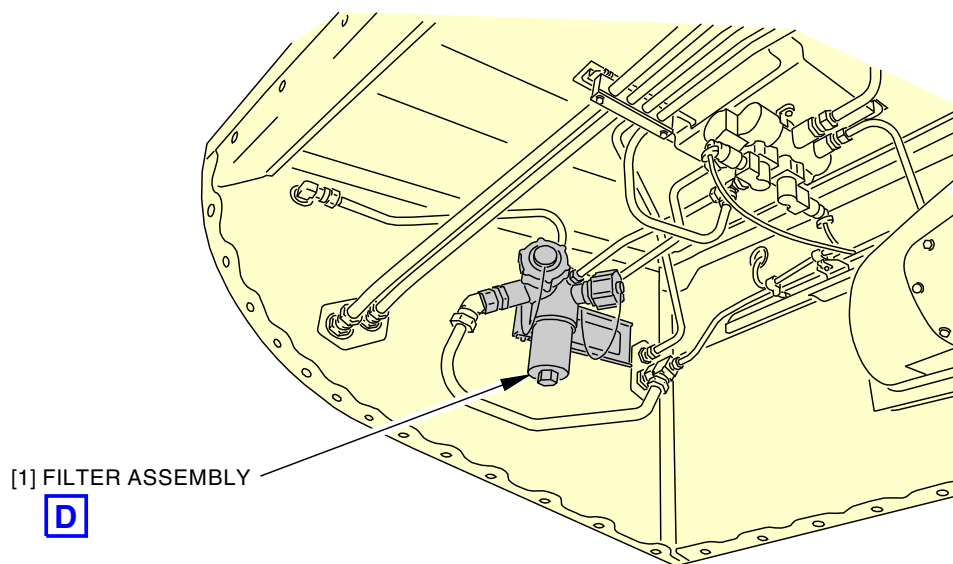
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



SYSTEM A GROUND SERVICE DISCONNECT FILTER MODULE

B



SYSTEM B GROUND SERVICE DISCONNECT FILTER MODULE

C

2413783 S00061533363_V1

Ground Service Disconnect Filter Installation
Figure 202/29-11-08-990-802 (Sheet 2 of 3)

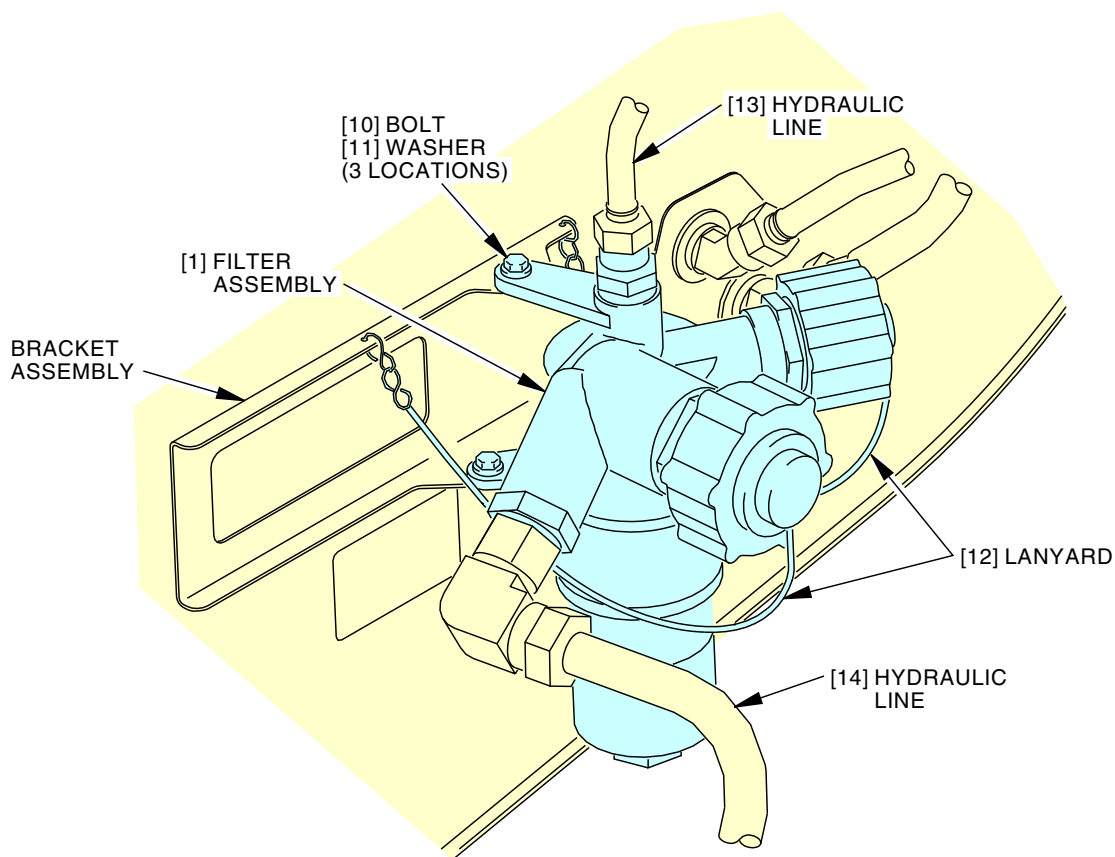
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-08

Page 211
Sep 15/2021



**FILTER ASSEMBLY
(EXAMPLE)**



2413785 S00061533367_V2

**Ground Service Disconnect Filter Installation
Figure 202/29-11-08-990-802 (Sheet 3 of 3)**

EFFECTIVITY
SIA ALL

29-11-08

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 212
Sep 15/2021



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

TASK 29-11-08-400-802

5. Ground Service Disconnect Filter Module - Installation

(Figure 202)

A. References

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Filter assembly	29-11-08-01-005	SIA ALL
		29-11-08-02-005	SIA ALL

E. 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

F. Access Panels

Number	Name/Location
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

G. Installation

SUBTASK 29-11-08-400-013



WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (1) Apply Cor-Ban 27L Compound, G50237 to the threads and shanks of bolts [10].

SUBTASK 29-11-08-420-002

- (2) Place the ground service disconnect filter assembly [1] into position on the bracket assembly.

SUBTASK 29-11-08-420-003

- (3) Install the three bolts [10] and three washers [11] that secure the ground service disconnect filter assembly [1] to the bracket assembly and tighten.

SUBTASK 29-11-08-020-013

- (4) Remove the cap/plug, STD-14686 from hydraulic line [13] and hydraulic line [14].

EFFECTIVITY
SIA ALL

29-11-08

D633AM101-SIA

Page 213
May 15/2023



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

SUBTASK 29-11-08-420-004

- (5) Connect the hydraulic lines to the ground service disconnect filter assembly [1].
 - (a) Tighten the B-nut on hydraulic line [13] to 500 $\pm$ 25 in-lb (56 $\pm$ 3 N·m).
 - (b) Tighten the B-nut on hydraulic line [14] to 450 $\pm$ 23 in-lb (51 $\pm$ 3 N·m).

SUBTASK 29-11-08-420-005

- (6) Attach the two lanyards [12] to the bracket assembly.

H. Ground Service Disconnect Filter Installation Test

SUBTASK 29-11-08-790-002

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

SUBTASK 29-11-08-790-003

- (2) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-08-790-004

- (3) Check the ground service disconnect filter assembly [1] for leaks.
 - (a) Repair any leaks.

SUBTASK 29-11-08-860-003

- (4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

I. Put the Airplane Back to its Usual Condition

SUBTASK 29-11-08-410-002

- (1) Close the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-08

Page 214
Sep 15/2021



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

HYDRAULIC SYSTEMS A AND B ENGINE-DRIVEN PUMP (EDP) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) Hydraulic systems A and B engine-driven pump removal
- (2) Hydraulic systems A and B engine-driven pump installation
- (3) Hydraulic systems A and B engine-driven pump depressurization valve solenoid removal
- (4) Hydraulic systems A and B engine-driven pump depressurization valve solenoid installation.

TASK 29-11-11-000-801

2. Hydraulic Systems A and B Engine-Driven Pump (EDP) Removal

(Figure 401)

A. General

- (1) Each engine has one engine-driven pump located on the forward side of the Accessory Gear Box (AGB) at the 3 o'clock position.
- (2) The hydraulic hose connections have self-sealing disconnects to prevent leakage of hydraulic fluid and to keep air out of the hydraulic system.
- (3) For this procedure, the hydraulic systems A and B engine-driven pump will be referred to as the hydraulic pump.

B. References

Reference	Title
12-13-11-100-801	Engine Oil System Flushing (P/B 301)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-43-17-300-801-G00	Mating Surfaces and Inserts Standard Repair (P/B 201)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)
72-60-00-200-801-G00	Accessory Drives Inspection (P/B 601)
72-64-01-000-801-G00	Accessory Gearbox Rotating Seals Removal (P/B 401)
72-64-01-400-801-G00	Accessory Gearbox Rotating-Seals Installation (P/B 401)
79-00-00-211-801-G00	Engine Oil System (Fluids (Fuel or Skydrol) and Solids Contamination) Detailed Inspection (P/B 601)

C. Tools/Equipment

Reference	Description
STD-205	Container - Oil Resistant, 5 U.S. Gallon (19 Liter)

D. Location Zones

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

E. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

EFFECTIVITY
SIA ALL

29-11-11

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

F. Prepare for the Removal

SUBTASK 29-11-11-860-001

- (1) For the applicable hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-11-860-002

- (2) Release pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-11-860-003

- (3) For engine 1, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

SUBTASK 29-11-11-860-004

- (4) For engine 2, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2

SUBTASK 29-11-11-010-005

- (5) On the applicable engine, open the left fan cowl panel (TASK 71-11-04-010-801-G00).
 - (a) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

G. Hydraulic Systems A and B Engine-Driven Pump (EDP) Removal

SUBTASK 29-11-11-020-001

- (1) Disconnect the electrical connector (W100) [4], from the receptacle on the hydraulic pump [3] (TASK 70-43-17-300-801-G00).

SUBTASK 29-11-11-480-001

- (2) Put a oil resistant container (5 gal), STD-205, under the hydraulic pump [3] to catch spills.

SUBTASK 29-11-11-020-025

- (3) Disconnect the hydraulic supply line [5] from the quick-release fitting [14].
 - (a) Rotate the quick-release outer sleeve in the clockwise direction and pull the outer sleeve axially away from the male quick-release fitting to disengage the lock tab.
 - (b) Rotate the quick-release outer sleeve in the counterclockwise direction to unthread the hose quick-release fitting from the male quick-release fitting.

SUBTASK 29-11-11-020-026

- (4) Disconnect the hydraulic pressure line [2] from the quick-release fitting [17].
 - (a) Rotate the quick-release outer sleeve in the clockwise direction and pull the outer sleeve axially away from the male quick-release fitting to disengage the lock tab.
 - (b) Rotate the quick-release outer sleeve in the counterclockwise direction to unthread the hose quick-release fitting from the male quick-release fitting.

SUBTASK 29-11-11-020-002

- (5) Disconnect the hydraulic case drain line [1] from the quick-release fitting [6].

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Jan 15/2023



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

- (a) Rotate the quick-release outer sleeve in the clockwise direction and pull the outer sleeve axially away from the male quick-release fitting to disengage the lock tab.
- (b) Rotate the quick-release outer sleeve in the counterclockwise direction to unthread the hose quick-release fitting from the male quick-release fitting.

SUBTASK 29-11-11-020-006

- (6) Do these steps to remove the hydraulic pump [3]:



MAKE SURE THAT YOU GIVE SUPPORT TO THE PUMP WHILE YOU LOOSEN THE CLAMP RING. IF YOU DO NOT, THE PUMP CAN FALL. DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) As you give support to the hydraulic pump [3], loosen the pump clamp ring nut [10] on the pump clamp ring [9].



BE CAREFUL WHEN YOU MOVE THE PUMP. A LEAK OF HYDRAULIC FLUID COULD OCCUR FROM THE OPEN PORTS OF THE PUMP. MAKE SURE THAT YOU WEAR PROTECTIVE CLOTHES AND GLOVES WHEN YOU MOVE THE PUMP. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT COULD OCCUR.

- (b) Move the hydraulic pump [3] forward until the spline is free of the adapter plate [18].
- (c) Move the hydraulic pump [3] outboard until it is free of the engine.

SUBTASK 29-11-11-020-007

- (7) Remove the quick-release fitting [6] from the hydraulic case drain union [7] on the hydraulic pump [3].

SUBTASK 29-11-11-020-016

- (8) Remove the quick-release fitting [14] and hydraulic supply line elbow [13] from the hydraulic supply union [12] on the hydraulic pump [3].

SUBTASK 29-11-11-020-017

- (9) Remove the quick-release fitting [17] from the hydraulic pressure union [16] on the hydraulic pump [3].

SUBTASK 29-11-11-020-008

- (10) If the replacement hydraulic pump [3] does not have the hydraulic case drain union [7], hydraulic supply union [12], and hydraulic pressure union [16] installed, do these steps:
 - (a) Remove the hydraulic case drain union [7].
 - (b) Discard the packing [8].
 - (c) Remove the hydraulic supply union [12].
 - (d) Discard the packing [11].
 - (e) Remove the hydraulic pressure union [16].
 - (f) Discard the packing [15].

SUBTASK 29-11-11-020-009

- (11) Do these steps only if you are replacing the adapter plate [18] (Figure 401):

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

NOTE: The adapter plate, the pump clamp ring and the packing are all part of the Vickers hydraulic pump assembly.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 403
Jan 15/2023



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

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

NOTE: The adapter plate, the pump clamp ring and the packing are all part of a separate Quick Attach/Detach (QAD) kit for the Abex hydraulic pump assembly.

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

NOTE: An Abex hydraulic pump together with its QAD kit may replace a Vickers hydraulic pump.

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

NOTE: A Vickers hydraulic pump may replace an Abex hydraulic pump and its QAD kit.

SIA ALL

- (a) Remove the nuts [23] that attaches the adapter plate [18] to the mounting pad on the AGB.
- (b) Remove the adapter plate [18] and the gasket [22].

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

- (c) Remove and discard the packing [19] located in the groove of the hydraulic pump [3].

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

- (d) Remove and discard the packing [19] located in the groove on the inside surface of the adapter plate [18].

SIA ALL

SUBTASK 29-11-11-211-002

- (12) If you remove the EDP due to a defect, do this step:
 - (a) Do the steps to examine the components of the AGB rotating seal assembly in this task: Accessory Drives Inspection, TASK 72-60-00-200-801-G00.

SUBTASK 29-11-11-211-001

- (13) If you find at least one of these conditions:
 - Evidence of hydraulic fluid coking or heat damage on the hydraulic pump [3].
 - Evidence of heat damage or mechanical distress on the accessory gearbox rotating seal after the hydraulic pump [3] has been removed.
 - Loss of the associated hydraulic system fluid quantity and evidence of hydraulic fluid contamination to the engine oil system.

NOTE: Evidence of potential hydraulic fluid contamination to the engine oil system are rotating seal heat damage, odor of hydraulic fluid in engine oil, engine oil tank overflowing, oil showing black and thick aspect, etc.



FLUSH THE ENGINE OIL SYSTEM IF IT CONTAINS CONTAMINATION.
OIL CONTAMINATION CAN CAUSE ENGINE DAMAGE.

- (a) Do these steps:
 - 1) Examine the hydraulic case drain line [1] and case drain hoses for contamination or blockage.
 - 2) If contamination or blockage is found, clean or replace the hydraulic case drain line [1].
 - 3) Method I: (Preferred)

EFFECTIVITY
SIA ALL

29-11-11

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**

- a) Replace the rotating seal on the hydraulic pump pad (TASK 72-64-01-000-801-G00 and TASK 72-64-01-400-801-G00).
 - b) Replace the Engine Driven Pump (EDP) (TASK 29-11-11-400-801).
 - c) Flush the Engine Oil System (TASK 12-13-11-100-801).
- 4) Method II: (Alternate)
- a) Replace the rotating seal on the hydraulic pump pad (TASK 72-64-01-000-801-G00 and TASK 72-64-01-400-801-G00).
 - b) Replace the EDP (TASK 29-11-11-400-801).
 - c) Do a check for Skydrol contamination (TASK 79-00-00-211-801-G00).
 - d) Flush the Engine Oil System (TASK 12-13-11-100-801).

SUBTASK 29-11-11-910-001

- (14) If you will not install the hydraulic pump [3] immediately, put a protective cover on the gearbox mount pad on the AGB.

———— **END OF TASK** ————

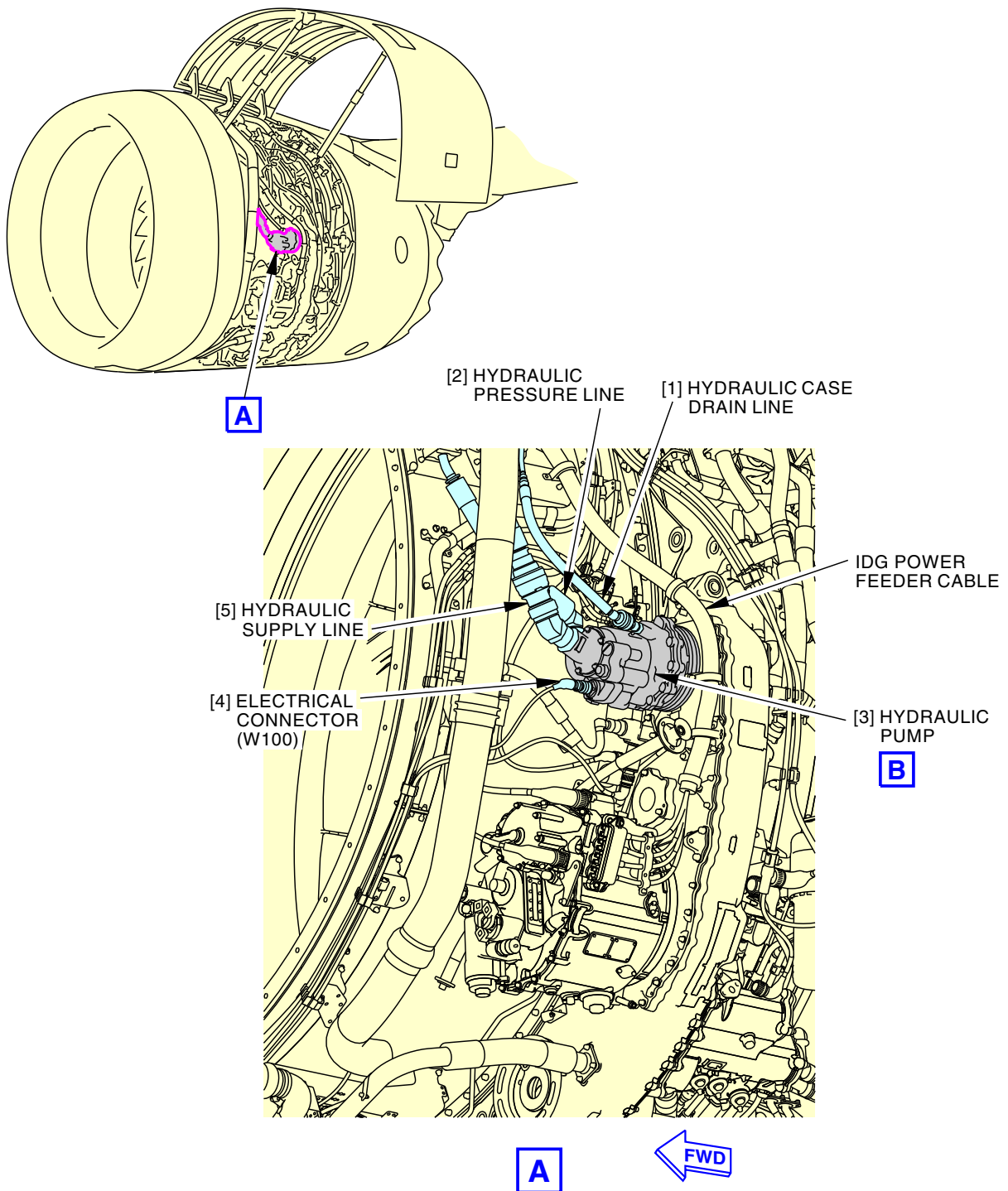
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 405
Sep 15/2023



2413786 S00061533372_V2

Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation
Figure 401/29-11-11-990-801 (Sheet 1 of 6)

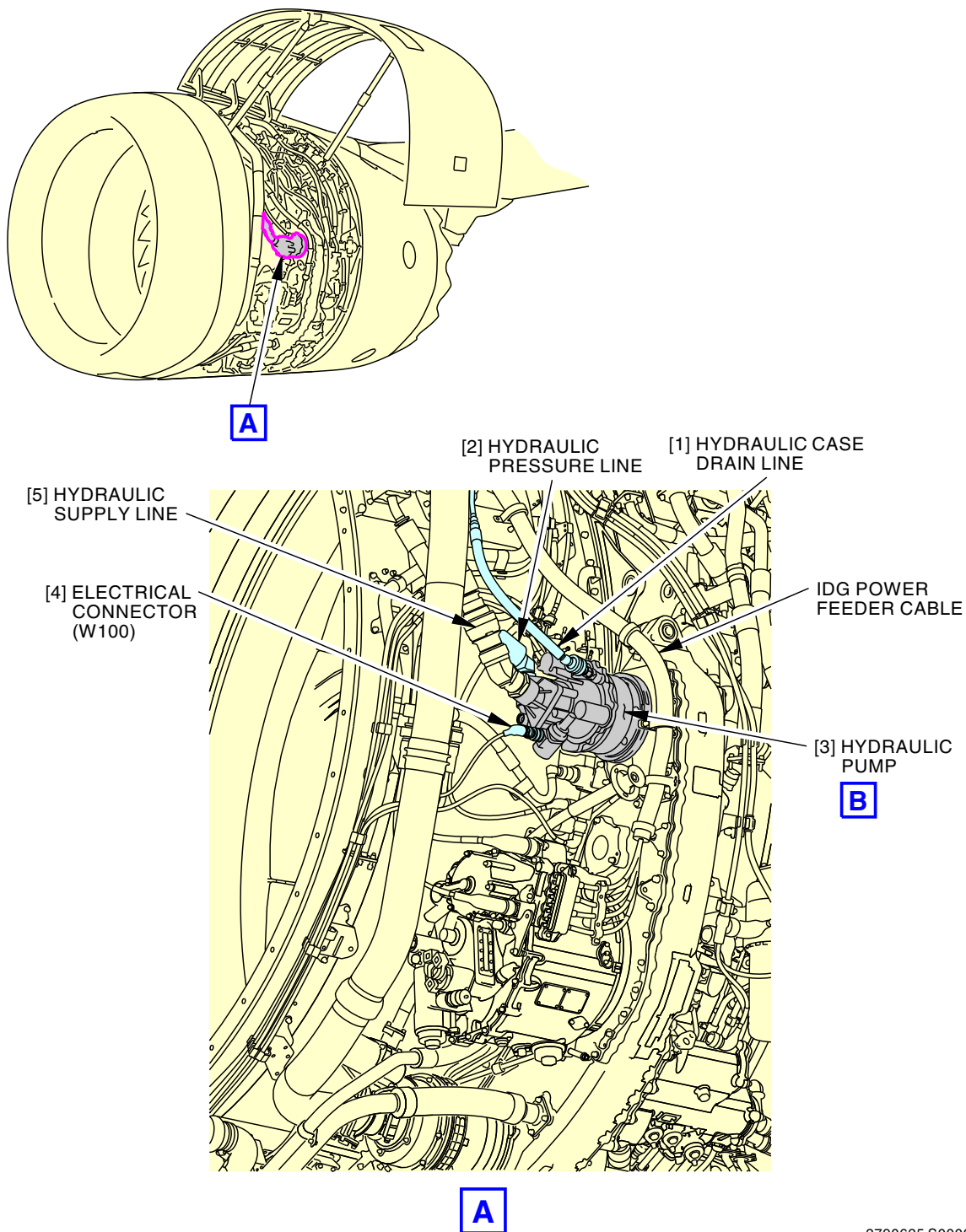
EFFECTIVITY
SIA ALL; AIRPLANES WITH VICKERS (EATON)
ENGINE DRIVEN PUMP (EDP)

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 406
Sep 15/2022



2790625 S0000635014_V1

Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation
Figure 401/29-11-11-990-801 (Sheet 2 of 6)

EFFECTIVITY
SIA ALL; AIRPLANES WITH ABEX (PARKER)
ENGINE DRIVEN PUMP (EDP)

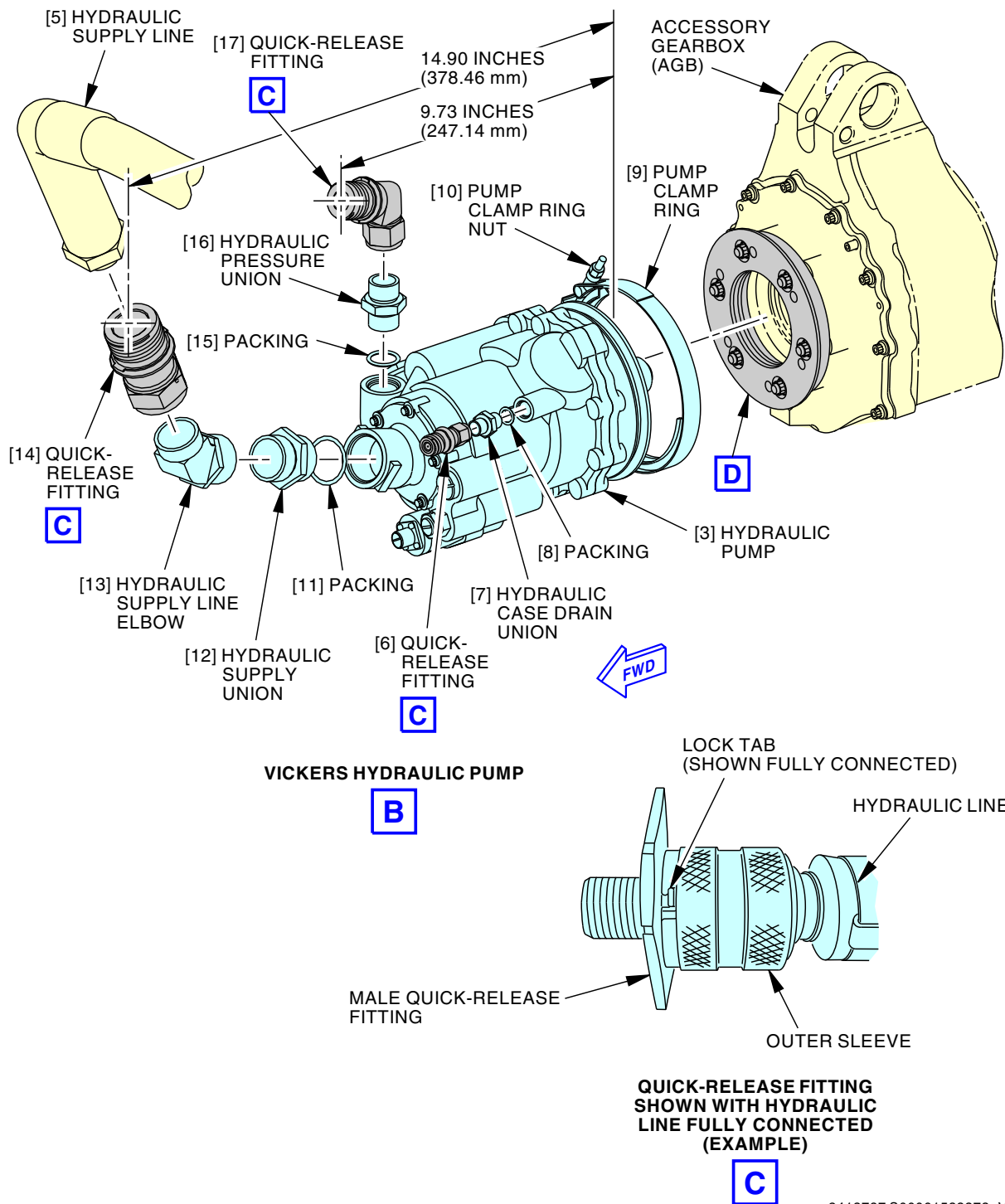
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 407
Sep 15/2022

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



2413787 S00061533373_V3

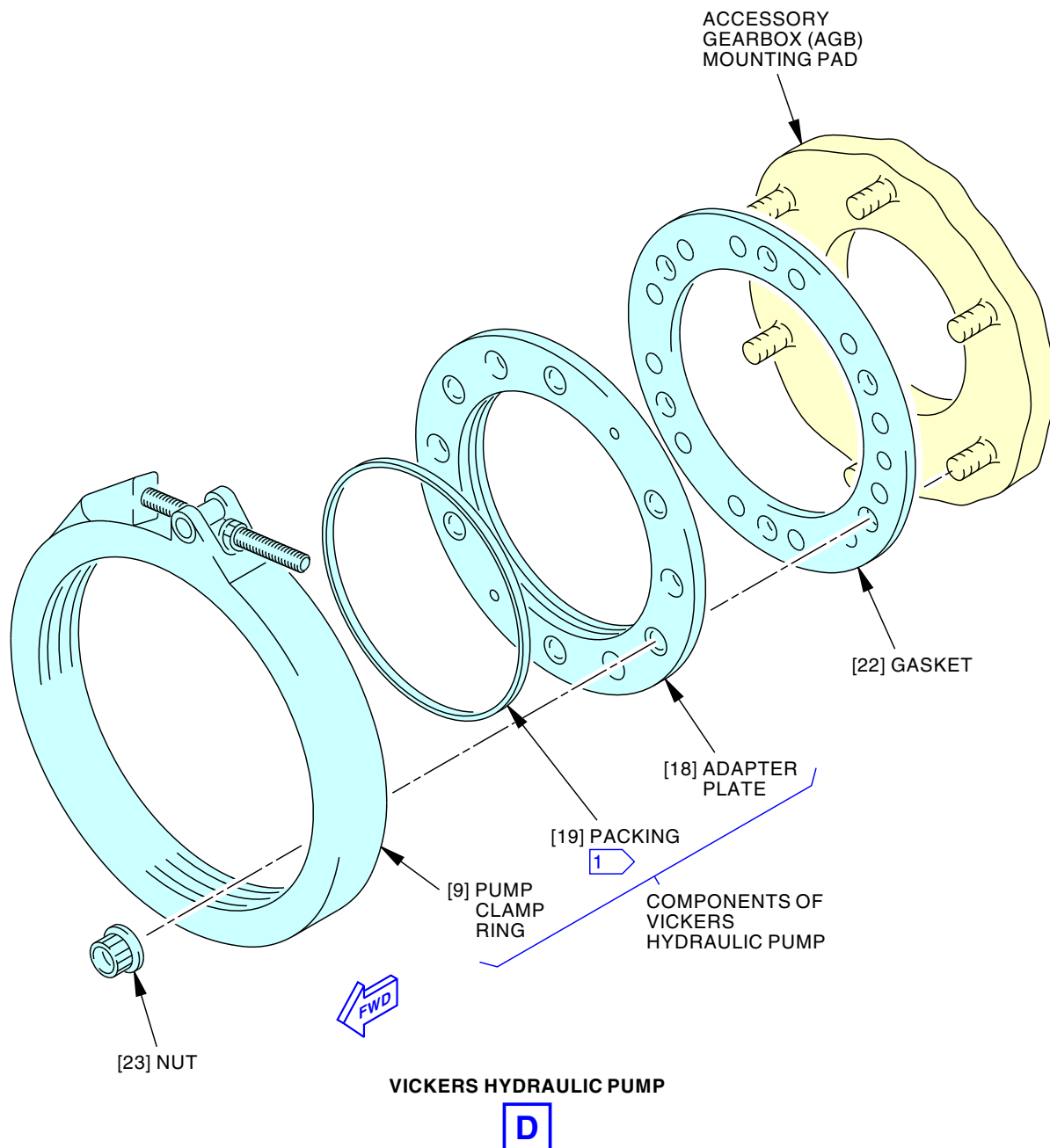
Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation
Figure 401/29-11-11-990-801 (Sheet 3 of 6)

EFFECTIVITY
 SIA ALL; AIRPLANES WITH VICKERS (EATON)
 ENGINE DRIVEN PUMP (EDP)

D633AM101-SIA

29-11-11

Page 408
 Jan 15/2023



1 PACKING [19] IS INSTALLED IN GROOVE OF HYDRAULIC PUMP [3].

2413788 S00061533374_V2

Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation
Figure 401/29-11-11-990-801 (Sheet 4 of 6)

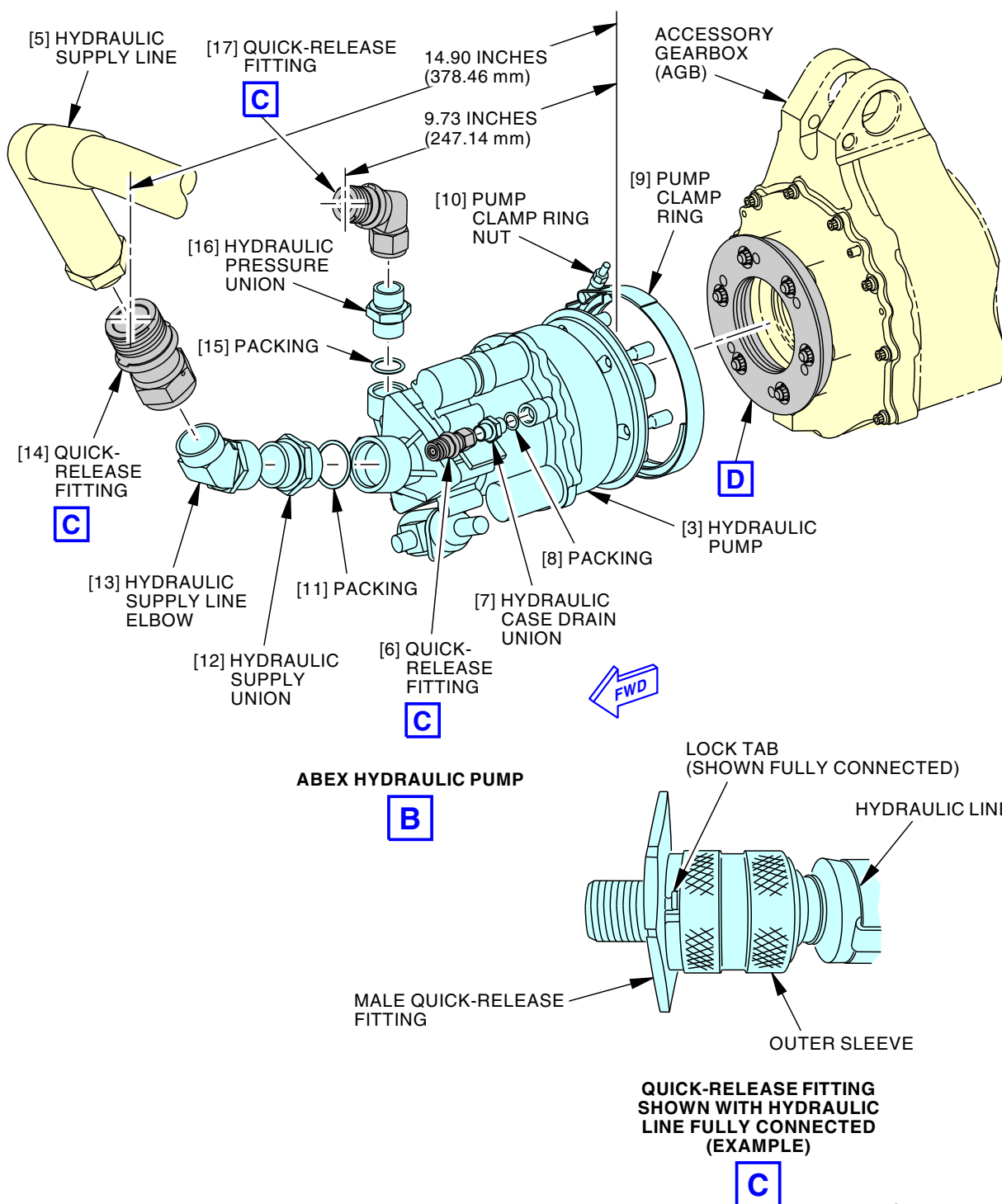
EFFECTIVITY
SIA ALL; AIRPLANES WITH VICKERS (EATON)
ENGINE DRIVEN PUMP (EDP)

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 409
Sep 15/2022



2413789 S00061533375_V3

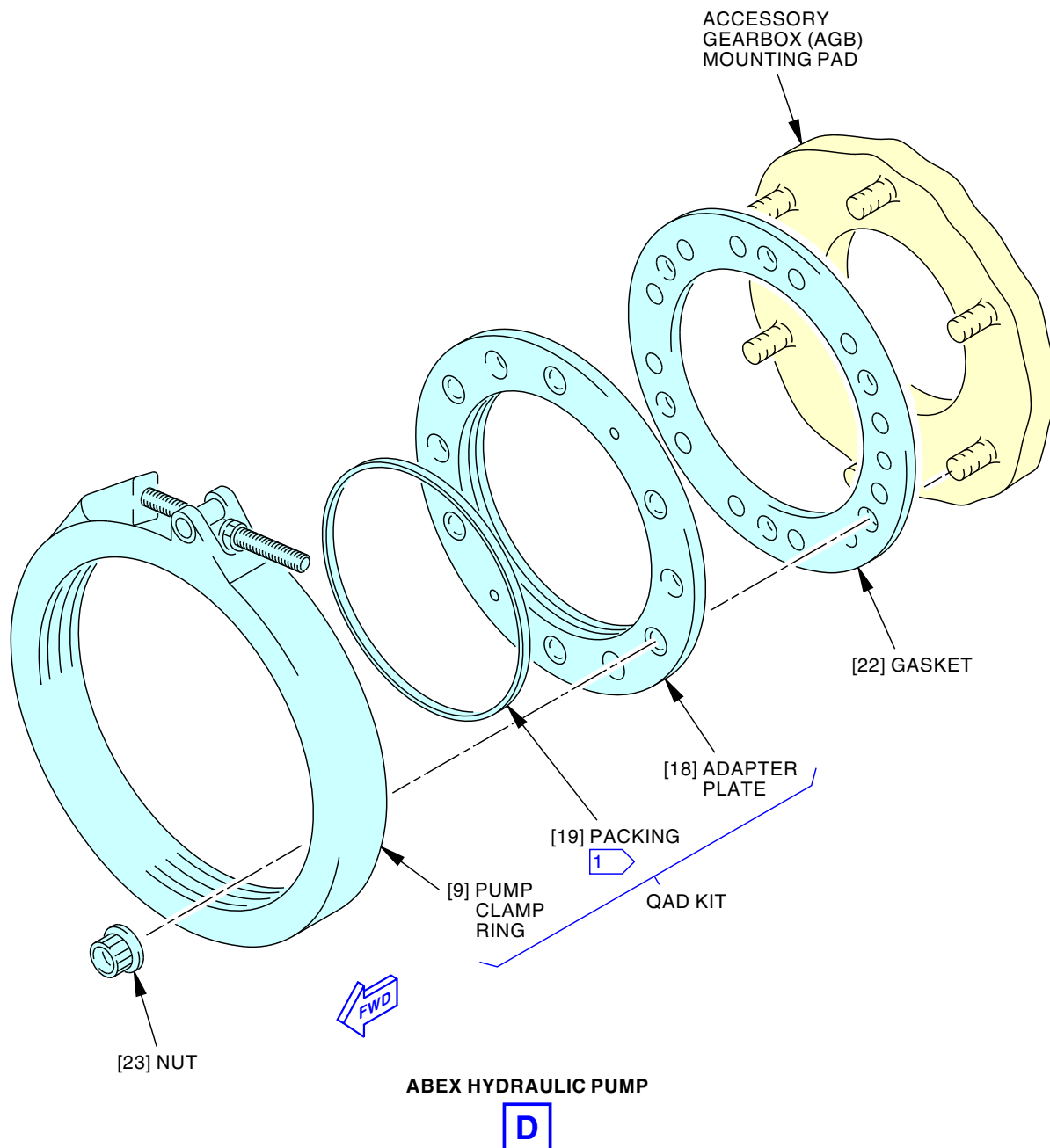
Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation
Figure 401/29-11-11-990-801 (Sheet 5 of 6)

EFFECTIVITY
SIA ALL; AIRPLANES WITH ABEX (PARKER)
ENGINE DRIVEN PUMP (EDP)

D633AM101-SIA

29-11-11

Page 410
Jan 15/2023



1 PACKING [19] IS INSTALLED IN GROOVE OF ADAPTER PLATE [18].

2413790 S00061533376_V2

Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation
Figure 401/29-11-11-990-801 (Sheet 6 of 6)

EFFECTIVITY
SIA ALL; AIRPLANES WITH ABEX (PARKER)
ENGINE DRIVEN PUMP (EDP)

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 411
Sep 15/2022



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

TASK 29-11-11-400-801

3. Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation

(Figure 401)

A. General

- (1) Each engine has one engine-driven pump located on the forward side of the Accessory Gear Box (AGB) at the 3 o'clock position.
- (2) The hydraulic hose connections have self-sealing disconnects to prevent leakage of hydraulic fluid and to keep air out of the hydraulic system.
- (3) For this task, the hydraulic systems A and B Engine Driven Pump (EDP) will be referred to as the hydraulic pump.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-00-00-870-801	Bleed the Hydraulic Systems (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-170-801	Hydraulic System A or B Flushing (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-51-200-801	EDP Case Drain Filter Element and Bowl Inspection (P/B 601)
71-00-00-910-806-G00	Stop the Engine (Usual Engine Stop) (P/B 201)
71-00-00-910-808-G00	Dry Motor Procedure (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-583	Mallet - Non-metallic
STD-664	Pliers - Teflon-jawed (or Equivalent Soft-Jawed)
STD-1010	Wrench - Strap

D. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
D00254	Compound - Silicone	SAE AS8660 (NATO S-736) (Supersedes MIL-S-8660)
D00276	Compound - Silicone (Novagard Silicones - G624)	SAE AS8660 (Supercedes MIL-S-8660)
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Hydraulic pump	29-11-11-02-065	SIA ALL

EFFECTIVITY
SIA ALL

29-11-11

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)

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Packing	29-11-11-02-050	SIA ALL
11	Packing	29-11-11-02-020	SIA ALL
15	Packing	29-11-11-02-035	SIA ALL
19	Packing	29-11-11-02-120	SIA ALL
22	Gasket	29-11-11-02-060	SIA ALL

F. Location Zones

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

G. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

H. Prepare for the Installation

SUBTASK 29-11-11-680-001

- (1) If the pump is replaced because of a mechanical malfunction, flush applicable system (TASK 29-11-00-170-801).

SUBTASK 29-11-11-160-001

- (2) Do these steps before the hydraulic pump installation:
- (a) Examine the hydraulic case drain line [1], case drain hose, and case drain hose quick-disconnect for debris or blockage.
 - (b) If debris or blockage are found, clean or replace the hydraulic case drain line [1] as required.
 - (c) Do a check of the case drain filter element and bowl for metal particle contamination (TASK 29-11-51-200-801).

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

SUBTASK 29-11-11-210-004

- (3) Visually examine the packing [19] located in the groove of the hydraulic pump [3] for damage.
- (a) If you find damage, replace the packing [19].
 - 1) Remove the damaged packing [19] from the hydraulic pump [3].
 - 2) Discard the packing [19].
 - 3) Lubricate the new packing [19] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.
 - 4) Install the new packing [19] in the groove of the hydraulic pump [3].

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

SUBTASK 29-11-11-210-001

- (4) Visually examine the packing [19] in the groove on the inside surface of the adapter plate [18] for damage.
- (a) If you find damage, replace the packing [19].
 - 1) Remove the damaged packing [19] from the adapter plate [18].

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 413
Sep 15/2023



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

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP) (Continued)

- 2) Discard the packing [19].
- 3) Lubricate the new packing [19] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.
- 4) Install the new packing [19] in the groove of the adapter plate [18].

SIA ALL

SUBTASK 29-11-11-420-001

- (5) If the adapter plate [18] was removed, install the adapter plate [18], do these steps:

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

NOTE: The adapter plate, pump clamp ring, and packing are all part of the Vickers hydraulic pump assembly.

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

NOTE: The adapter plate, pump clamp ring, and packing are all part of a separate Quick Attach/Detach (QAD) kit for the Abex hydraulic pump assembly.

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

NOTE: An Abex hydraulic pump together with its QAD kit may replace a Vickers hydraulic pump.

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

NOTE: A Vickers hydraulic pump may replace an Abex hydraulic pump and its QAD kit.

SIA ALL

- (a) Apply a thin layer of Novagard G624 Compound, D00276, or silicone compound, D00254, to both sides of the gasket [22].
- (b) Put the gasket [22], packing [19], and adapter plate [18] on the AGB mounting pad as follows:

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

- 1) For Vickers EDP installation (Figure 401).

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

- 2) For Abex EDP installation (Figure 401).

SIA ALL

- (c) Secure in place with the nuts [23] as follows:
 - 1) Cross-tighten nuts [23] to 290 ±30 in-lb (33 ±4 N·m).

I. Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation

SUBTASK 29-11-11-420-002

- (1) If the replacement hydraulic pump [3] does not have the hydraulic supply union [12], hydraulic case drain union [7], and hydraulic pressure union [16] installed, do these steps:
 - (a) Lubricate the packing [11], packing [8], and packing [15] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.
 - (b) Lubricate the threads of the hydraulic case drain union [7], hydraulic supply union [12], and hydraulic pressure union [16] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

EFFECTIVITY
SIA ALL

29-11-11

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

- (c) Install the new packing [11] on the hydraulic supply union [12].
- (d) Install the new packing [8] on the hydraulic case drain union [7].
- (e) Install the new packing [15] on the hydraulic pressure union [16].

NOTE: The hydraulic supply union has two sets of threads on one side and one set of threads on the other. The packing must be installed on the side of the hydraulic supply union with one set of threads. This is the side that is installed into the hydraulic pump.

- (f) Fill the pump approximately half full with hydraulic fluid, D00153, before installation.
 - 1) Fill the hydraulic pump through the port of the hydraulic case drain line [1].
- (g) Install the hydraulic supply union [12] in the forward port of the hydraulic pump [3].
 - 1) Tighten the hydraulic supply union [12] to 900 ± 45 in-lb (101.7 ± 5.1 N·m).
- (h) Install the hydraulic case drain union [7] in the center port of the hydraulic pump [3].
 - 1) Tighten the hydraulic case drain union [7] to 170 ± 8 in-lb (19 ± 1 N·m).
- (i) Install the hydraulic pressure union [16] in the inboard port of the hydraulic pump [3].
 - 1) Tighten the hydraulic pressure union [16] to 450 ± 22 in-lb (51 ± 3 N·m).
- (2) Install the hydraulic supply line elbow [13] to the hydraulic supply union [12] as follows:
 - (a) Lubricate the threads of the hydraulic supply union [12] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.
 - (b) Install the hydraulic supply line elbow [13] onto the hydraulic supply union [12].



USE TWO WRENCHES TO TIGHTEN THE FITTING-NUT. USE ONE TO HOLD THE UNION. USE THE OTHER TO TIGHTEN THE FITTING. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE UNION AND FITTING CAN OCCUR.

- 1) Tighten the hydraulic supply line elbow [13] to 900 ± 45 in-lb (101.7 ± 5.1 N·m).
- (3) Install the quick-release fitting [14], quick-release fitting [6], and quick-release fitting [17] on the hydraulic supply line elbow [13], hydraulic case drain union [7], and hydraulic pressure union [16] as follows:
 - (a) Lubricate the threads of the hydraulic supply line elbow [13], hydraulic case drain union [7], and hydraulic pressure union [16] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.



MAKE SURE THAT YOU FOLLOW THE STEPS FOR THE CORRECT POSITION OF THE QUICK-RELEASE FITTING ON THE HYDRAULIC PRESSURE UNION. IF YOU DO NOT, YOU CAN CAUSE MISALIGNMENT OF THE HYDRAULIC PRESSURE HOSE DURING INSTALLATION. MISALIGNMENT CAN CAUSE FAILURE OF THE HOSE OR FITTING.

- (b) Loosely install the quick-release fitting [14] onto the hydraulic supply line elbow [13].
- (c) Orient the quick-release fitting [14] until the center of the fitting is 14.90 in. (378.46 mm) from the pump mounting surface.

EFFECTIVITY
SIA ALL

29-11-11

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



USE TWO WRENCHES TO TIGHTEN THE FITTING-NUT. USE ONE TO HOLD THE UNION. USE THE OTHER TO TIGHTEN THE FITTING. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE UNION AND FITTING CAN OCCUR.

- 1) Tighten the quick-release fitting [14] to 1600 $\pm$ 80 in-lb (180.8 $\pm$ 9.1 N·m).
 - a) Do a check of the quick-release fitting [14] again to make sure that the center of the fitting is 14.90 in. (378.46 mm) from the pump mounting surface.
<1> If outside limit, loosen and readjust quick-release fitting [14].
- (d) Install the quick-release fitting [6] onto the hydraulic case drain union [7].



USE TWO WRENCHES TO TIGHTEN THE FITTING-NUT. USE ONE TO HOLD THE UNION. USE THE OTHER TO TIGHTEN THE FITTING. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE UNION AND FITTING CAN OCCUR.

- 1) Tighten the quick-release fitting [6] to 270 $\pm$ 13 in-lb (30.5 $\pm$ 1.5 N·m).



MAKE SURE THAT YOU FOLLOW THE STEPS FOR THE CORRECT POSITION OF THE QUICK-RELEASE FITTING ON THE HYDRAULIC PRESSURE UNION. IF YOU DO NOT, YOU CAN CAUSE MISALIGNMENT OF THE HYDRAULIC PRESSURE HOSE DURING INSTALLATION. MISALIGNMENT CAN CAUSE FAILURE OF THE HOSE OR FITTING.

- (e) Loosely attach the quick-release fitting [17] to the hydraulic pressure union [16].
- (f) Orient the quick-release fitting [17] until the center of the quick disconnect elbow fitting is 9.73 in. (247.14 mm) from the pump mounting surface.



USE TWO WRENCHES TO TIGHTEN THE FITTING-NUT. USE ONE TO HOLD THE UNION. USE THE OTHER TO TIGHTEN THE FITTING. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE UNION AND FITTING CAN OCCUR.

- 1) Tighten the quick-release fitting [17] to 900 $\pm$ 45 in-lb (101.7 $\pm$ 5.1 N·m).
 - a) Do a check of the quick-release fitting [17] again to make sure that the center of the quick disconnect elbow fitting is 9.73 in. (247.14 mm) from the pump mounting surface.
<1> If outside limit, loosen and readjust quick-release fitting [17].

SUBTASK 29-11-11-420-003



DO NOT PUT GREASE IN THE ACCESSORY GEARBOX (AGB) SPLINE-CAVITY OR APPLY GREASE TO THE PUMP SPLINES. DAMAGE TO THE PUMP, THE SPLINE, OR AGB CAN OCCUR.

- (4) Do these steps to install the hydraulic pump [3]:
 - (a) Loosely install the pump clamp ring [9] on the flange of the adapter plate [18] mounted on the AGB pad.
 - (b) Install the hydraulic pump [3] on the adapter plate [18].



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

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

NOTE: For the Vickers pump, the adapter plate is part of the pump assembly and must be installed with indexing pins at the 2 and 8 o'clock position.

SIA ALL

- (c) Make sure that the indexing pins are aligned on the hydraulic pump with the indexing holes on the adapter plate.
- (d) Position the pump clamp ring [9] and make sure that it is clear of the engine drain port approximately (Figure 401).

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

- (e) Tighten the pump clamp ring nut [10] on the loosely installed pump clamp ring [9] to 50 ± 2 in-lb (6 ± 0 N·m).
 - 1) Lightly tap the outer periphery of the pump clamp ring [9] with a non-metallic mallet.
NOTE: This will cause the pump clamp ring to seat on the pump-adapter plate flanges and may also cause the pump clamp ring nut to loosen.
- (f) Tighten the pump clamp ring nut [10] to the recommended final torque value as follows:
 - 1) Tighten the pump clamp ring nut [10] on the pump clamp ring [9] to 50 ± 2 in-lb (6 ± 0 N·m).
 - 2) Lightly tap the outer periphery of coupling with a non-metallic mallet, STD-583.
NOTE: This will seat the flanges of the clamp and loosen the pump clamp ring.
 - 3) Tighten the pump clamp ring nut [10] again on the pump clamp ring [9] to 50 ± 2 in-lb (6 ± 0 N·m).

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

- (g) Tighten the pump clamp ring nut [10] on the loosely installed pump clamp ring [9] to the following value:
 - 1) For clamp part number 24765 and 27763, tighten to 75 ± 2 in-lb (8 ± 0 N·m).
 - 2) For clamp part number 22807, tighten to 38.5 ± 3.5 in-lb (4.3 ± 0.4 N·m).
 - 3) Lightly tap the outer periphery of the pump clamp ring [9] with a non-metallic mallet.
NOTE: This will cause the pump clamp ring to seat on the pump-adapter plate flanges and may also cause the pump clamp ring nut to loosen.
- (h) Tighten the pump clamp ring nut [10] on the loosely installed pump clamp ring [9] to the following value:
 - 1) For clamp part number 24765 and 27763, tighten to 75 ± 2 in-lb (8 ± 0 N·m).
 - 2) For clamp part number 22807, tighten to 46.5 ± 4.5 in-lb (5.3 ± 0.5 N·m).
 - 3) Lightly tap the outer periphery of the pump clamp ring [9] with a non-metallic mallet.
NOTE: This will cause the pump clamp ring to seat on the pump-adapter plate flanges and may also cause the pump clamp ring nut to loosen.
- (i) Tighten the pump clamp ring nut [10] on the loosely installed pump clamp ring [9] to the following value:
 - 1) For clamp part number 24765 and 27763, tighten to 75 ± 2 in-lb (8 ± 0 N·m).
 - 2) For clamp part number 22807, tighten to 55 ± 5 in-lb (6 ± 1 N·m).
 - 3) Repeat the tapping of the pump clamp ring [9] and slowly increase torque to the recommended torque value until the pump clamp ring [9] does not move.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 417
Sep 15/2023



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

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP) (Continued)

- 4) For the clamp part number 22807, install the MS20995N32 lockwire, G50177, on the pump clamp ring [9].

SIA ALL

SUBTASK 29-11-11-020-010

- (5) Connect the hydraulic pressure line [2] to the quick-release fitting [17].
 - (a) Align and connect the hydraulic pressure line [2] end to the quick-release fitting [17] on the hydraulic pump and engage the mating threads.
 - (b) Hand tighten the hydraulic pressure line [2] end until the outer sleeve snaps forward.
 - (c) Make sure that the outer sleeve snaps fully forward to prevent the axial movement of the outer sleeve.



MAKE SURE THAT YOU FULLY CONNECT THE COUPLING. IF YOU DO NOT, YOU CAN CAUSE DAMAGE TO THE HYDRAULIC PUMP.

- (d) Make sure that the quick-release fitting [17] is properly connected both visually and by pulling the outer sleeve away from the male quick-release fitting.
 - 1) Without applying axial force, make sure that the outer sleeve cannot be rotated counterclockwise.

NOTE: Without applying axial force, the outer sleeve should only rotate approximately 5 degrees in the clockwise direction.
 - 2) Without turning the outer sleeve, apply axial force to the outer sleeve and make sure that there is little or no movement.
 - 3) If the outer sleeve rotates counterclockwise or pulls away from the male quick-release fitting, repeat the steps above to connect the hydraulic hose.

NOTE: The quick-release fitting is not properly installed.
 - 4) Make sure that the outer sleeve is fully engaged with the lock tab on the male quick-release fitting (View C, Figure 401).

SUBTASK 29-11-11-420-004

- (6) Connect the hydraulic case drain line [1] to the quick-release fitting [6].
 - (a) Align and connect the hydraulic case drain line [1] end to the quick-release fitting [6] on the hydraulic pump and engage the mating threads.
 - (b) Hand tighten the hydraulic case drain line [1] end until the outer sleeve snaps forward.
 - (c) Make sure that the outer sleeve snaps fully forward to prevent the axial movement of the outer sleeve.



MAKE SURE THAT YOU FULLY CONNECT THE COUPLING. IF YOU DO NOT, YOU CAN CAUSE DAMAGE TO THE HYDRAULIC PUMP.

- (d) Make sure that the quick-release fitting [6] is properly connected both visually and by pulling the outer sleeve away from the male quick-release fitting.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 418
Sep 15/2023



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

- 1) Without applying axial force, make sure that the outer sleeve cannot be rotated counterclockwise.

NOTE: Without applying axial force, the outer sleeve should only rotate approximately 5 degrees in the clockwise direction.

- 2) Without turning the outer sleeve, apply axial force to the outer sleeve and make sure that there is little or no movement.

- 3) If the outer sleeve rotates counterclockwise or pulls away from the male quick-release fitting, repeat the steps above to connect the hydraulic hose.

NOTE: The quick-release fitting is not properly installed.

- 4) Make sure that the outer sleeve is fully engaged with the lock tab on the male quick-release fitting (View C, Figure 401).

SUBTASK 29-11-11-420-005

- (7) Connect the hydraulic supply line [5] to the quick-release fitting [14].
 - (a) Align and connect the hydraulic supply line [5] end to the quick-release fitting [14] on the hydraulic pump and engage the mating threads.
 - (b) Hand tighten the hydraulic supply line [5] end until the outer sleeve snaps forward.
 - (c) Make sure that the outer sleeve snaps fully forward to prevent the axial movement of the outer sleeve.



CAUTION

MAKE SURE THAT YOU FULLY CONNECT THE COUPLING. IF YOU DO NOT, YOU CAN CAUSE DAMAGE TO THE HYDRAULIC PUMP.

- (d) Make sure that the quick-release fitting [14] is properly connected both visually and by pulling the outer sleeve away from the male quick-release fitting.
 - 1) Without applying axial force, make sure that the outer sleeve cannot be rotated counterclockwise.

NOTE: Without applying axial force, the outer sleeve should only rotate approximately 5 degrees in the clockwise direction.
 - 2) Without turning the outer sleeve, apply axial force to the outer sleeve and make sure that there is little or no movement.
 - 3) If the outer sleeve rotates counterclockwise or pulls away from the male quick-release fitting, repeat the steps above to connect the hydraulic hose.

NOTE: The quick-release fitting is not properly installed.
 - 4) Make sure that the outer sleeve is fully engaged with the lock tab on the male quick-release fitting (View C, Figure 401).

SUBTASK 29-11-11-020-012



CAUTION

DO NOT TIGHTEN THE PLUG COUPLING RINGS TOO MUCH. DO NOT USE WATER PUMP PLIERS, PIPE WRENCHES, OR VICE GRIPS TO TIGHTEN THE COUPLING RING OR DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (8) Connect the electrical connector (W100) [4], to the connector receptacle on the hydraulic pump [3].
 - (a) Turn knurled coupling ring while wiggling backshell assembly.

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

Page 419
May 15/2023



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

- 1) Do not twist backshell while tightening coupling.
- 2) After fully seating the coupling ring, use teflon-jawed pliers, STD-664, or strap wrench, STD-1010, and tighten coupling ring an additional 1/8 turn or until plier slippage occurs.

NOTE: After tightening, minor rotation of the mated backshell is acceptable, and the connector may appear loose.

J. Engine-Driven Pump Installation Test

SUBTASK 29-11-11-860-005

- (1) For engine 1, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

SUBTASK 29-11-11-860-006

- (2) For engine 2, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2

SUBTASK 29-11-11-710-001

- (3) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-11-870-001

- (4) Do this task: Bleed the Hydraulic Systems, TASK 29-00-00-870-801

SUBTASK 29-11-11-710-002

- (5) Make sure that all hydraulic pumps are not operating.

SUBTASK 29-11-11-860-007

- (6) Make sure that the flight control switches, on the P5 flight control panel, are set to the OFF position.

SUBTASK 29-11-11-710-003

- (7) Set the engine pump switch, for the applicable system, to the ON position.

SUBTASK 29-11-11-710-004



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (8) Dry-motor the applicable engine to pressurize the hydraulic system (TASK 71-00-00-910-808-G00).

SUBTASK 29-11-11-210-007

- (9) Make sure that the hydraulic pressure becomes stable at 2800 psi (197 kg/cm²) - 3200 psi (225 kg/cm²).

NOTE: The hydraulic pressure, for the applicable system, is shown on the display unit for the engine display.

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 420
May 15/2023



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

SUBTASK 29-11-11-710-005

- (10) Set the engine pump switch, for the applicable engine, to the OFF position until the hydraulic pressure goes to zero.

SUBTASK 29-11-11-710-006

- (11) Set the engine pump switch, for the applicable system, to the ON position.
- (a) Make sure that the pressure becomes stable at 2800 psi (197 kg/cm²) - 3200 psi (225 kg/cm²).

SUBTASK 29-11-11-860-008

- (12) Set the engine pump switch, for the applicable system, to the OFF position and let the system pressure go to zero.

NOTE: The residual hydraulic pressure in the A and B pressure system can cause the precise pressure to be above zero.

NOTE: The precise pressure can approximately increase to 50 psi (345 kPa) - 80 psi (552 kPa) after the engine pump switch is set to the OFF position. This can be caused by the position of the control surfaces that changes the interval volume and residual pressure.

NOTE: Time after the engine pump switch is set to the OFF position and stabilization time can also have the effect on the precise pressure. If the stabilization time is prolonged, the pressure can approach zero.

SUBTASK 29-11-11-710-007

- (13) Stop the engine, do this task: Stop the Engine (Usual Engine Stop),
TASK 71-00-00-910-806-G00.

SUBTASK 29-11-11-210-011

- (14) Make sure that the hydraulic hoses and quick disconnects are fully engaged in the lock slot and connected correctly.

SUBTASK 29-11-11-210-008

- (15) Make sure that the pump does not have a hydraulic leak.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-11-840-001

- (1) Remove power from the applicable hydraulic system (TASK 29-11-00-860-805).

SUBTASK 29-11-11-860-009

- (2) If it is necessary, do the servicing for the system A and B reservoirs (TASK 12-12-00-610-801).

SUBTASK 29-11-11-410-004

- (3) On the applicable engine, close the left fan cowl panel (TASK 71-11-04-410-801-G00).
- (a) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 421
May 15/2023



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

TASK 29-11-11-000-802

4. Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Valve Solenoid Removal
(Figure 402)

A. General

(1) This task is for the removal of the Engine-Driven Pump (EDP) depressurization valve solenoid.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (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)

C. Tools/Equipment

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Location Zones

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

E. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

F. Prepare for the Removal

SUBTASK 29-11-11-860-011

(1) Release pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-11-860-012

(2) For engine 1, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

SUBTASK 29-11-11-860-013

(3) For engine 2, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2

SUBTASK 29-11-11-010-004

(4) On the applicable engine, open the left fan cowl panel (TASK 71-11-04-010-801-G00).

(a) Open these access panels:

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 422
May 15/2023



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

G. Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Valve Solenoid Removal

SUBTASK 29-11-11-020-014

- (1) Disconnect the electrical connector (W100) [4] from the receptacle on the hydraulic pump [3] (TASK 70-00-01-910-803-G00).

SUBTASK 29-11-11-210-002

- (2) Do a visual inspection of the electrical connector (W100) [4], DP1204, as follows (TASK 70-00-01-910-803-G00):
 - (a) Visually examine the electrical connector and the receptacle for signs of damage, bent pins, contamination, or corrosion.
 - (b) If you find damage, repair or replace the component.

SUBTASK 29-11-11-480-002

- (3) Put a 1 U.S.-gal (3.81 l) oil resistant container, STD-203, under the hydraulic pump [3] to catch spills.

SUBTASK 29-11-11-020-013



CLEAN THE PARTS IF HYDRAULIC FLUID GETS ON THEM. IF THE HYDRAULIC FLUID STAYS ON THE PARTS, IT CAN CAUSE CORROSION.

- (4) Disconnect the hydraulic supply hose from the hydraulic pump [3].

SUBTASK 29-11-11-480-004

- (5) Install the caps/plugs, STD-14686, in the supply hose and supply port of the hydraulic pump [3].

SUBTASK 29-11-11-160-002

- (6) Clean the area around the depressurization valve solenoid [20] to keep dirt out of the pump when the solenoid is removed.

SUBTASK 29-11-11-000-001

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

- (7) Remove the lockwire from the screws [21].

SIA ALL

SUBTASK 29-11-11-020-022

- (8) Remove the screws [21] that hold the depressurization valve solenoid [20] to the hydraulic pump [3].

SUBTASK 29-11-11-020-015



MAKE SURE CONTAMINATION DOES NOT GO INTO THE PARTS DURING MAINTENANCE OPERATIONS. CONTAMINATION WILL MAKE THE PARTS UNSERVICEABLE.

- (9) Remove the depressurization valve solenoid [20] from the hydraulic pump [3].

SUBTASK 29-11-11-020-023

- (10) Remove the packing and backup rings from the depressurization valve solenoid [20].
 - (a) Discard the packing and backup rings.

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

Page 423
May 15/2023



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

SUBTASK 29-11-11-480-005

- (11) Install the cap/plug, STD-14686, in the solenoid port of the hydraulic pump [3].

———— **END OF TASK** ————

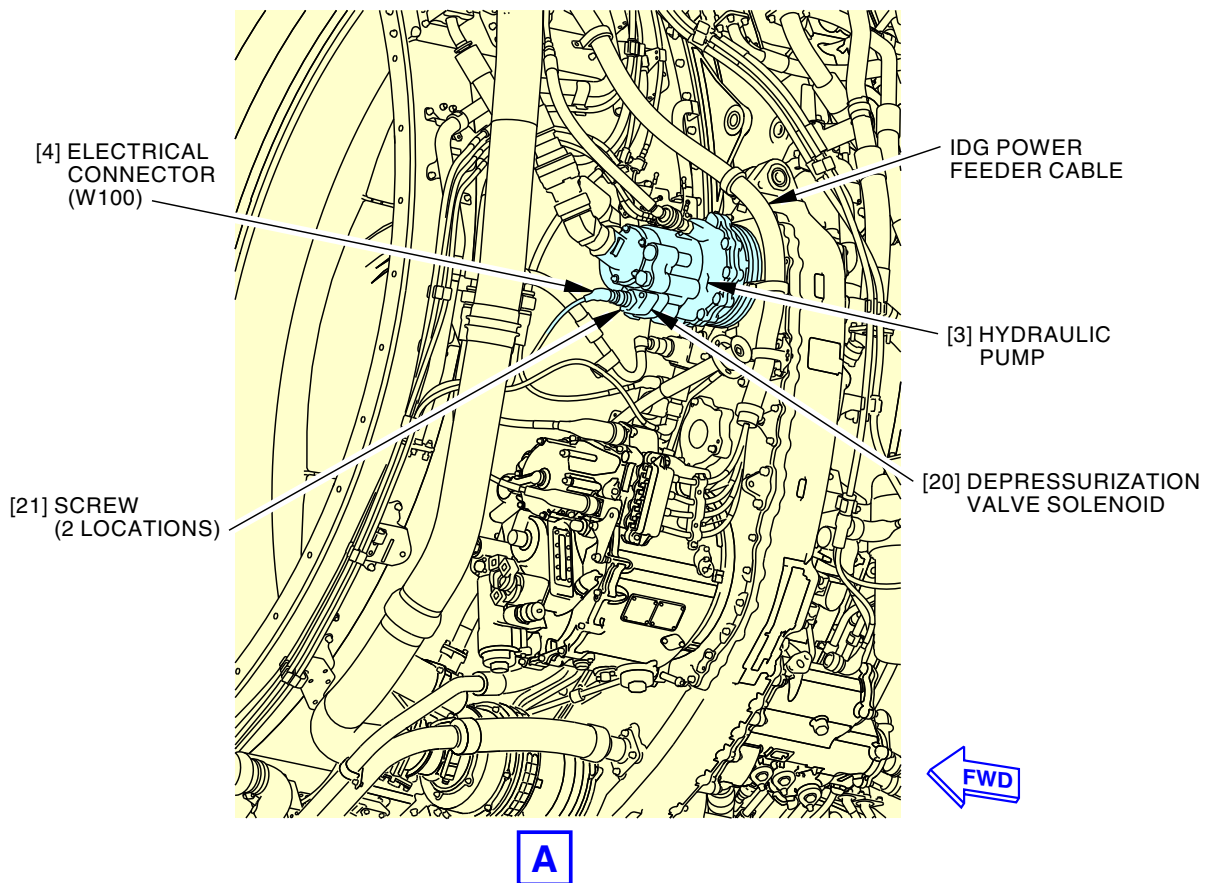
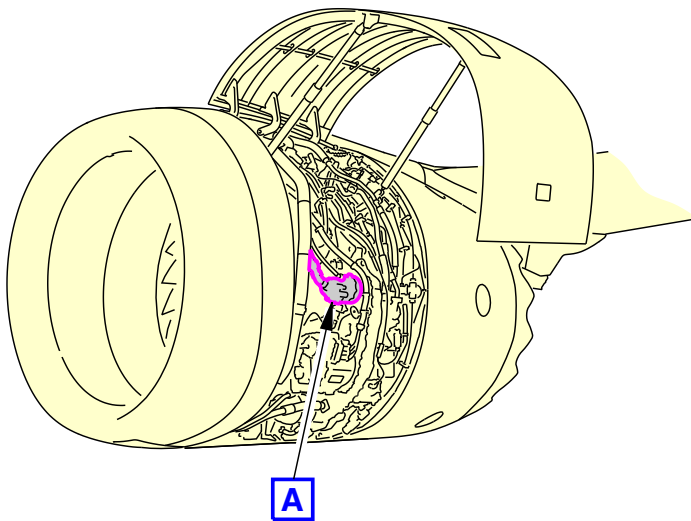
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 424
May 15/2023



2413791 S00061533379_V3

Engine-Driven Pump (EDP) Depressurization Valve Solenoid Installation
Figure 402/29-11-11-990-804 (Sheet 1 of 2)

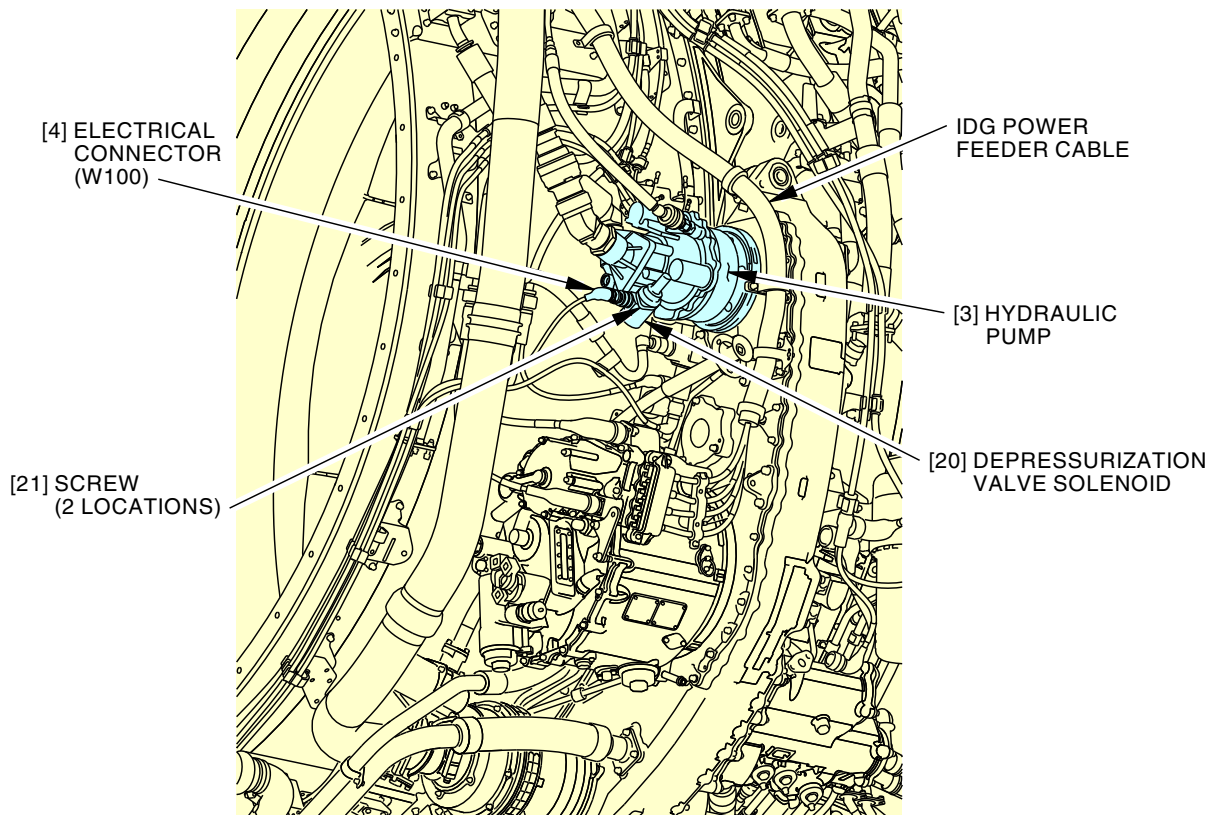
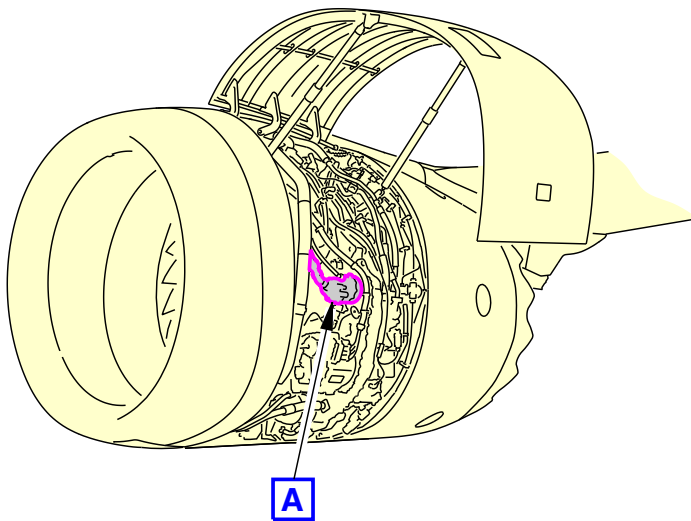
EFFECTIVITY
SIA ALL; AIRPLANES WITH VICKERS (EATON)
ENGINE DRIVEN PUMP (EDP)

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 425
May 15/2023



A

2775383 S0000625047_V2

Engine-Driven Pump (EDP) Depressurization Valve Solenoid Installation
Figure 402/29-11-11-990-804 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL; AIRPLANES WITH ABEX (PARKER)
ENGINE DRIVEN PUMP (EDP)

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 426
May 15/2023



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

TASK 29-11-11-400-802

5. **Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Valve Solenoid Installation**

(Figure 402)

A. General

(1) This task is for installation of the Engine-Driven Pump (EDP) depressurization valve solenoid.

B. References

Reference	Title
29-11-11-710-801	Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Solenoid Valve - Operational Check (P/B 501)
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)

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Consumable Materials

Reference	Description	Specification
D50348	Fluid - Hydraulic Fluid, Fire Resistant	BMS 3-11, Type IV, Class 1, Grade A
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Location Zones

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

F. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

G. Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Valve Solenoid Installation

SUBTASK 29-11-11-420-006

(1) Use a replacement solenoid assembly with packing and backup rings installed.

SUBTASK 29-11-11-210-009

(2) Do a visual inspection of the packing and backup rings to make sure that they are in a good condition and installed correctly.

SUBTASK 29-11-11-600-001

(3) Lightly lubricate the packing and backup rings with hydraulic fluid, D50348.

SUBTASK 29-11-11-080-001

(4) Remove the cap/plug, STD-14686, from the solenoid port of the hydraulic pump [3].

SUBTASK 29-11-11-420-007

(5) Install the depressurization valve solenoid [20] into the hydraulic pump [3].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 427
May 15/2023



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

SUBTASK 29-11-11-420-015

- (6) Install the screws [21] to connect the depressurization valve solenoid [20] to the hydraulic pump [3].

SIA ALL; AIRPLANES WITH ABEX (PARKER) ENGINE DRIVEN PUMP (EDP)

- (a) Tighten the screws [21] to 40 in-lb (5 N·m) - 50 in-lb (6 N·m).
(b) Install MS20995C32 lockwire, G01048, on the screws [21].

SIA ALL; AIRPLANES WITH VICKERS (EATON) ENGINE DRIVEN PUMP (EDP)

- (c) Tighten the screws [21] to 150 in-lb (17 N·m) - 160 in-lb (18 N·m).

SIA ALL

SUBTASK 29-11-11-430-002



DO NOT TIGHTEN THE PLUG COUPLING RINGS TOO MUCH. DO NOT USE WATER PUMP PLIERS, PIPE WRENCHES, OR VICE GRIPS TO TIGHTEN THE COUPLING RING OR DAMAGE TO THE ELECTRICAL CONNECTOR CAN OCCUR.

- (7) Connect the electrical connector (W100) [4] to the hydraulic pump [3] (TASK 70-00-01-910-803-G00).

SUBTASK 29-11-11-080-002

- (8) Remove the caps/plugs, STD-14686, from the supply hose and supply port of the hydraulic pump [3].

SUBTASK 29-11-11-420-008

- (9) Connect the hydraulic supply hose to the hydraulic pump [3].

SUBTASK 29-11-11-710-040

- (10) Do this task: Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Solenoid Valve - Operational Check, TASK 29-11-11-710-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-11-410-005

- (1) On the applicable engine, close the left fan cowl panel (TASK 71-11-04-410-801-G00).
(a) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 428
May 15/2023



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

HYDRAULIC SYSTEMS A AND B ENGINE-DRIVEN PUMP (EDP) - ADJUSTMENT/TEST

1. General

A. This procedure has one task:

- (1) Operational check of the depressurization solenoid valve.

TASK 29-11-11-710-801

2. Hydraulic Systems A and B Engine-Driven Pump (EDP) Depressurization Solenoid Valve - Operational Check

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) Each engine has one engine-driven pump located on the forward side of the Accessory Gear Box (AGB) at the 3 o'clock position.
- (2) The Engine 1 and Engine 2 engine-driven pumps are the same.
- (3) The hydraulic hose connections have self-sealing disconnects to prevent leakage of hydraulic fluid and to keep air out of the hydraulic system.
- (4) For this procedure, the hydraulic systems A and B engine-driven pump will be referred to as the hydraulic pump.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
71-00-00-790-802-G00	Test No. 2 - Dry Motor Leak Test (P/B 501)
71-00-00-910-806-G00	Stop the Engine (Usual Engine Stop) (P/B 201)
71-00-00-910-808-G00	Dry Motor Procedure (P/B 201)

C. Location Zones

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

D. Depressurization Solenoid Valve Operational Check

SUBTASK 29-11-11-860-017

- (1) Do this task: Test No. 2 - Dry Motor Leak Test, TASK 71-00-00-790-802-G00.

SUBTASK 29-11-11-860-022

- (2) For engine 1, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

SUBTASK 29-11-11-860-018

- (3) For engine 2, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 501
May 15/2022



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

SUBTASK 29-11-11-710-018

- (4) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-11-710-019

- (5) Make sure that all hydraulic pumps are not operating.

SUBTASK 29-11-11-860-019

- (6) Make sure that the flight control switches, on the P5 flight control panel, are set to the OFF position.

SUBTASK 29-11-11-710-020

- (7) Set the engine pump switch, for the applicable system, to the ON position.

SUBTASK 29-11-11-710-021



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (8) Dry-motor the applicable engine to pressurize the hydraulic system (TASK 71-00-00-910-808-G00).
 - (a) Make sure that the hydraulic pressure becomes stable at 2800 psi (19,305 kPa) - 3200 psi (22,063 kPa).

NOTE: You can view the hydraulic pressure, for the applicable system, on the display unit for the engine display.

SUBTASK 29-11-11-710-022

- (9) Set the engine pump switch, for the applicable engine, to the OFF position until the hydraulic pressure decreases to 200 psi (1379 kPa) or less.

NOTE: To accelerate pressure decay, it is acceptable to exercise flight controls to relieve residual, high pressure as long as safety precautions are observed.

SUBTASK 29-11-11-710-023

- (10) Set the engine pump switch, for the applicable system, to the ON position and make sure the pressure becomes stable at 2800 psi (19,305 kPa) - 3200 psi (22,063 kPa).

SUBTASK 29-11-11-860-020

- (11) Set the engine pump switch, for the applicable system, to the OFF position and let the system pressure decrease to 200 psi (1379 kPa) or less.

NOTE: To accelerate pressure decay, it is acceptable to exercise flight controls to relieve residual, high pressure as long as safety precautions are observed.

SUBTASK 29-11-11-710-024

- (12) Stop the engine (TASK 71-00-00-910-806-G00).

SUBTASK 29-11-11-710-025

- (13) Make sure that the pump does not have a hydraulic leak.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-11-710-026

- (1) Set the flight control switches, on the P5 flight control panel, to the ON position.

SUBTASK 29-11-11-710-027

- (2) Set the engine pump switch, for the applicable system, to the ON position.

EFFECTIVITY
SIA ALL

29-11-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 502
May 15/2022



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

SUBTASK 29-11-11-840-003

(3) Remove power from the applicable hydraulic system (TASK 29-11-00-860-805).

SUBTASK 29-11-11-860-021

(4) If it is necessary, service the system A and B reservoirs (TASK 12-12-00-610-801).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-11

Page 503
Sep 15/2021



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

HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR-DRIVEN PUMP (EMDP) - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) - Deactivation
- (2) Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) - Activation

TASK 29-11-21-800-801

2. Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) - Deactivation

(Figure 201)

A. General

- (1) This task will deactivate the hydraulic systems A and B Electric Motor-Driven Pumps (EMDP).

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (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. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Procedure

SUBTASK 29-11-21-010-001

- (1) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-11-21-860-001



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 201
Jan 15/2023



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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-860-002

- (3) Do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.

SUBTASK 29-11-21-860-003

- (4) Release the pressure from the hydraulic systems A and B reservoirs. To release them, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

G. Tryout

NOTE: This tryout is to make sure the hydraulic systems A and B electric motor-driven pumps (EMDP) are in a zero energy state.

SUBTASK 29-11-21-860-005

- (1) Set these switches on the P5–8 Hydraulics Pumps Panel on the P5 Forward Overhead Panel to the ON position:
- (a) HYD PUMPS A ELEC 2
 - (b) HYD PUMPS B ELEC 1

SUBTASK 29-11-21-860-006

- (2) Set the BUS TRANS switch on the P5–4 AC System Generator and APU panel to the OFF position.

SUBTASK 29-11-21-860-007

- (3) Set the FLT CONTROL and SPOILER system A and B switches on the P5 panel to the OFF position.

SUBTASK 29-11-21-210-001

- (4) Make sure that the HYD P indicator for each hydraulic system on the left or right inboard display unit is 0 psig.

SUBTASK 29-11-21-860-008

- (5) Set the HYD PUMPS A ELEC 2 and the HYD PUMPS B ELEC 1 switches on the P5-8 panel to the OFF position.

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 202
Jan 15/2023



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

- (a) Attach a DO NOT OPERATE tag, STD-858 on the HYD PUMPS A ELEC 2 and the HYD PUMPS B ELEC 1 switches.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

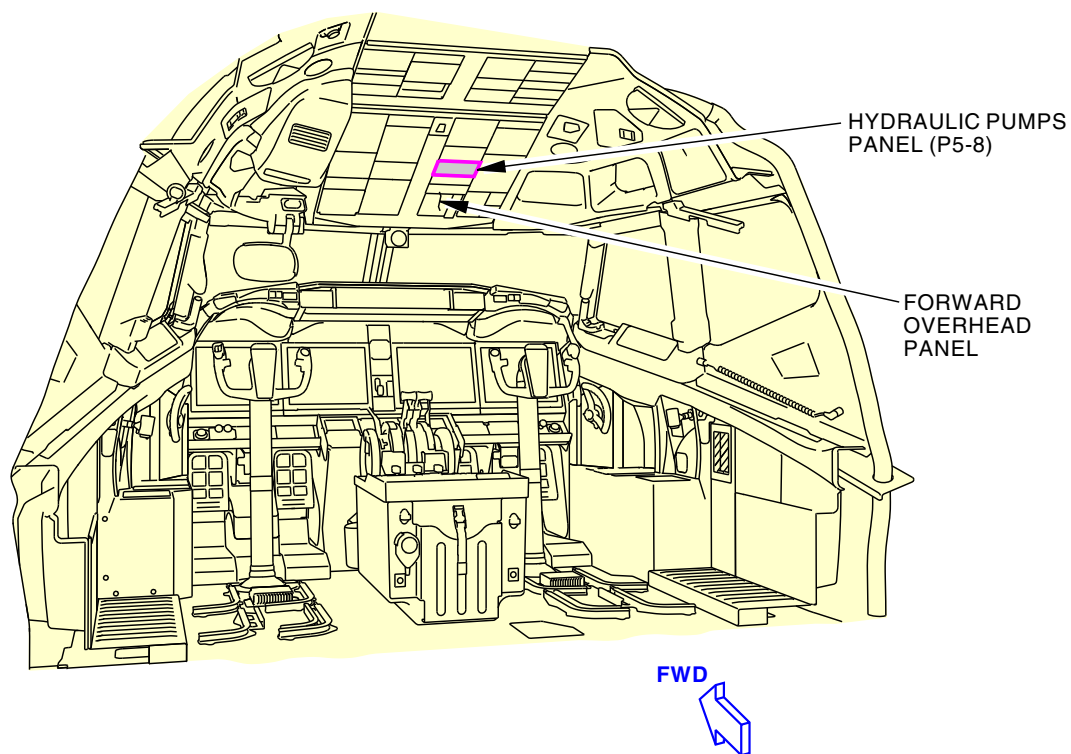
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

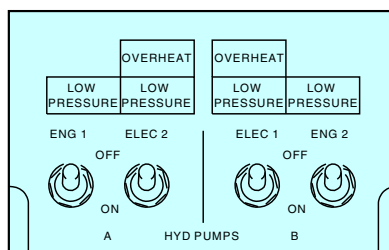
Page 203
Jan 15/2023



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



FLIGHT COMPARTMENT



HYDRAULIC PUMPS PANEL (P5-8)

A

2413747 S00061533250_V1

Hydraulic System Control Panel
Figure 201/29-11-21-990-801

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 204
Jan 15/2023



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

TASK 29-11-21-800-802

3. Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) - Activation

(Figure 201)

A. General

- (1) This task will activate the hydraulic systems A and B Electric Motor-Driven Pumps (EMDP).

B. References

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Procedure

SUBTASK 29-11-21-860-010

- (1) Pressurize the hydraulic systems A and B reservoirs. To pressurize the reservoirs do this task:
Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-21-860-011



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 205
Jan 15/2023



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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-080-001

- (3) Remove the DO NOT OPERATE tag, STD-858 on the HYD PUMPS A ELEC 2 and the HYD PUMPS B ELEC 1 switches on the P5–8 Hydraulics Pumps Panel.

SUBTASK 29-11-21-860-012



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

- (4) Pressurize hydraulic system A and B with the EMDP. To do this, do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.

SUBTASK 29-11-21-210-002

- (5) Make sure that the HYD P indicator on the left or right inboard display unit becomes stable between 2800 and 3200 psig.

SUBTASK 29-11-21-860-013

- (6) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-21-410-001

- (7) Close this access panel:

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

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 206
Jan 15/2023



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

HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR-DRIVEN PUMP (EMDP) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Electric Motor-Driven Pump (EMDP) Removal
 - (2) Electric Motor-Driven Pump (EMDP) Installation.
- B. Other Boeing documents may use the term ACMP (Alternating Current Motor Pump) instead of EMDP.

TASK 29-11-21-000-801

2. Electric Motor-Driven Pump (EMDP) Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-27-000-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal (P/B 401)

B. Tools/Equipment

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

Reference	Description
SPL-14206	AC Motor Driven Hydraulic Pump Torque Tool Part #: C29007-1 Supplier: 81205
STD-1054	Container - Fuel Resistant, 5-Gallon (19-Liter)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 29-11-21-010-002

- (1) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 401
Jan 15/2023



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

SUBTASK 29-11-21-860-015



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



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

- (2) For hydraulic system A EMDP, open these circuit breakers and install safety tags:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-860-016



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



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

- (3) For hydraulic system B EMDP, open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

SUBTASK 29-11-21-860-017

- (4) Release the pressure from the hydraulic reservoirs (TASK 29-09-00-860-802).

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 402
Jan 15/2023



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

SUBTASK 29-11-21-020-001



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (5) Disconnect the supply line [13] of the EMDP [1] at the quick-disconnect [2] of the applicable reservoir.

NOTE: The quick-disconnect [2] for the hydraulic system A is on the bottom of the hydraulic A reservoir. The quick-disconnect [2] for the hydraulic system B is on the inboard side of the hydraulic system B reservoir.

F. EMDP Removal

SUBTASK 29-11-21-020-002

- (1) Disconnect the electrical connector [16] from the EMDP [1].

SUBTASK 29-11-21-020-003

- (2) Disconnect the supply line [13] from the EMDP [1].
- (a) Drain the hydraulic fluid into a 5-gallon (19-liter) fuel resistant container, STD-1054.
 - (b) Install a plug on the supply line [13] and a cap on the union [14] in the EMDP supply port.

SUBTASK 29-11-21-020-004

- (3) Disconnect the case drain line [9] from the EMDP [1].
- (a) Drain the hydraulic fluid into 5-gallon (19-liter) fuel resistant container, STD-1054.
 - (b) Install a plug on the case drain line [9] and a cap on the union [8] in the EMDP case drain port.

SUBTASK 29-11-21-860-018

- (4) Remove the acoustic filter assy [12] from the EMDP [1] (TASK 29-11-27-000-801).
- (a) Install a plug on the acoustic filter assy [12] and a cap on the union [11] on the EMDP [1].

SUBTASK 29-11-21-860-019

- (5) For the hydraulic system A EMDP, remove the nuts [6], washers [5], and bolts [4] that connect the two EMDP cables [3] to the airplane structure.

SUBTASK 29-11-21-020-009

- (6) For the hydraulic system B Vickers EMDP, remove the bolt [29], washer [30], washer [33], and nut [34], from the clamp [31] and clamp [32] (Figure 401).

SUBTASK 29-11-21-020-005

- (7) Remove the EMDP [1].
- (a) Remove the bolt [28] as follows:
 - 1) Remove the lockwire from the bolt [28] and bracket.



USE THE TORQUE TOOL SET WHEN YOU REMOVE OR INSTALL A BOLT IN THE EMDP MOTOR MOUNT. IF YOU DO NOT USE THE TORQUE TOOL SET, DAMAGE TO THE MOTOR MOUNT CAN OCCUR.

- 2) Insert one of the tools from the torque tool set, torque tool, SPL-14206, into the hole in the side of the protrusion at the top of the EMDP motor mount:

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 403
Jan 15/2023

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

- a) Firmly hold the torque set tool to prevent the protrusion from turning while you remove the bolt [28], washer [27], jumper [26], and washer [25] from the EMDP [1].
- (b) Remove the bolt [20] as follows:
 - 1) Remove the lockwire from the bolt [20] and bracket.



USE THE TORQUE TOOL SET WHEN YOU REMOVE OR INSTALL A BOLT IN THE EMDP MOTOR MOUNT. IF YOU DO NOT USE THE TORQUE TOOL SET, DAMAGE TO THE MOTOR MOUNT CAN OCCUR.

- 2) Insert one of the tools from the torque tool set, torque tool, SPL-14206, into the hole in the side of the protrusion at the top of the EMDP motor mount:
 - a) Firmly hold the torque set tool to prevent the protrusion from turning while you remove the bolt [20], washer [21], and washer [22] from the EMDP [1].
- (c) Remove the nuts [19], washers [18], and bolts [17] from the EMDP [1].
- (d) Remove the EMDP [1] from the airplane.

G. Servicing Procedure for EMDP

SUBTASK 29-11-21-200-001

- (1) Do an inspection of the plug and bleeder for hydraulic fluid leaks.
 - (a) Replace packing if leaks occur.

————— **END OF TASK** —————

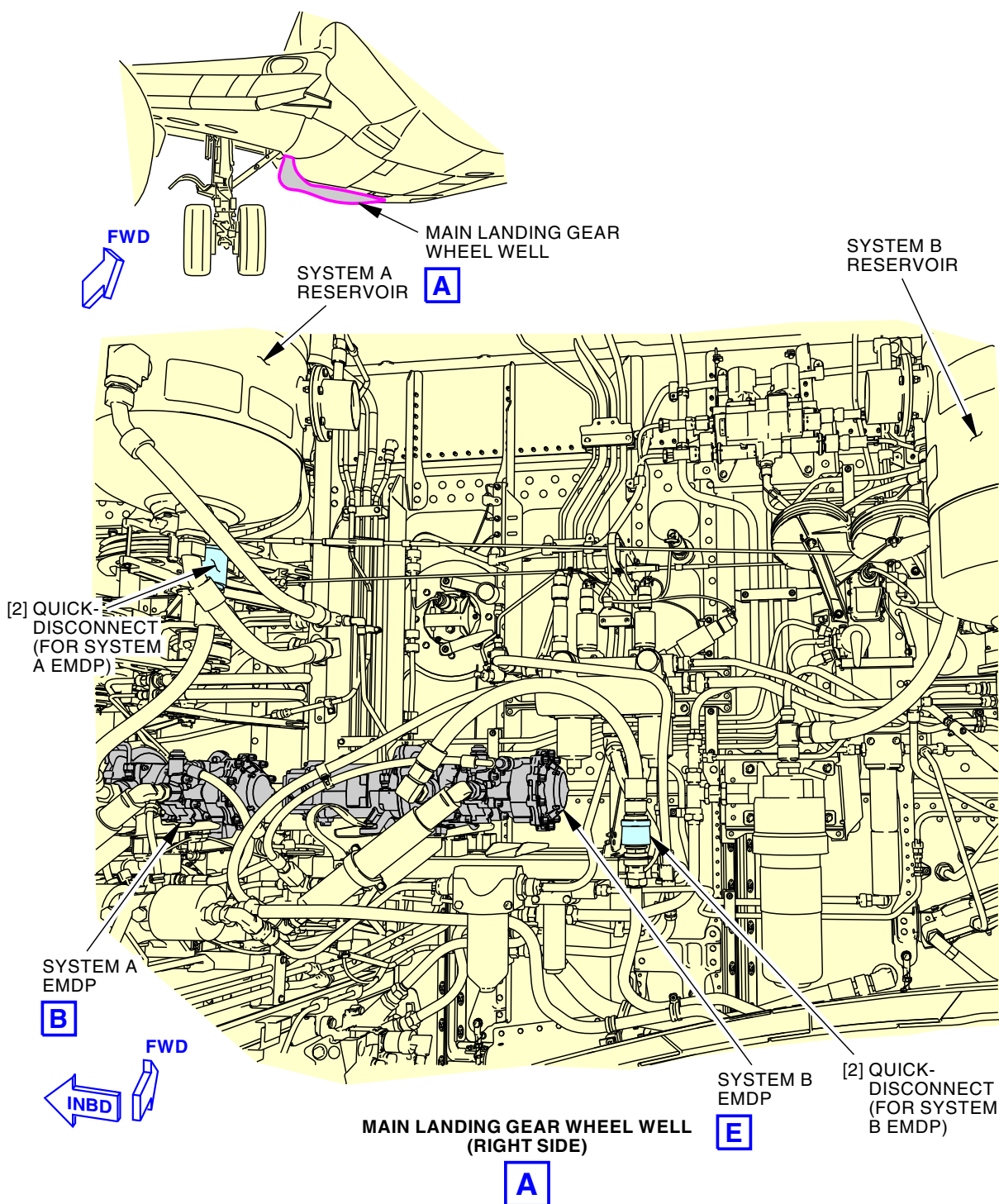
EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Jan 15/2023



2413798 S00061533393_V1

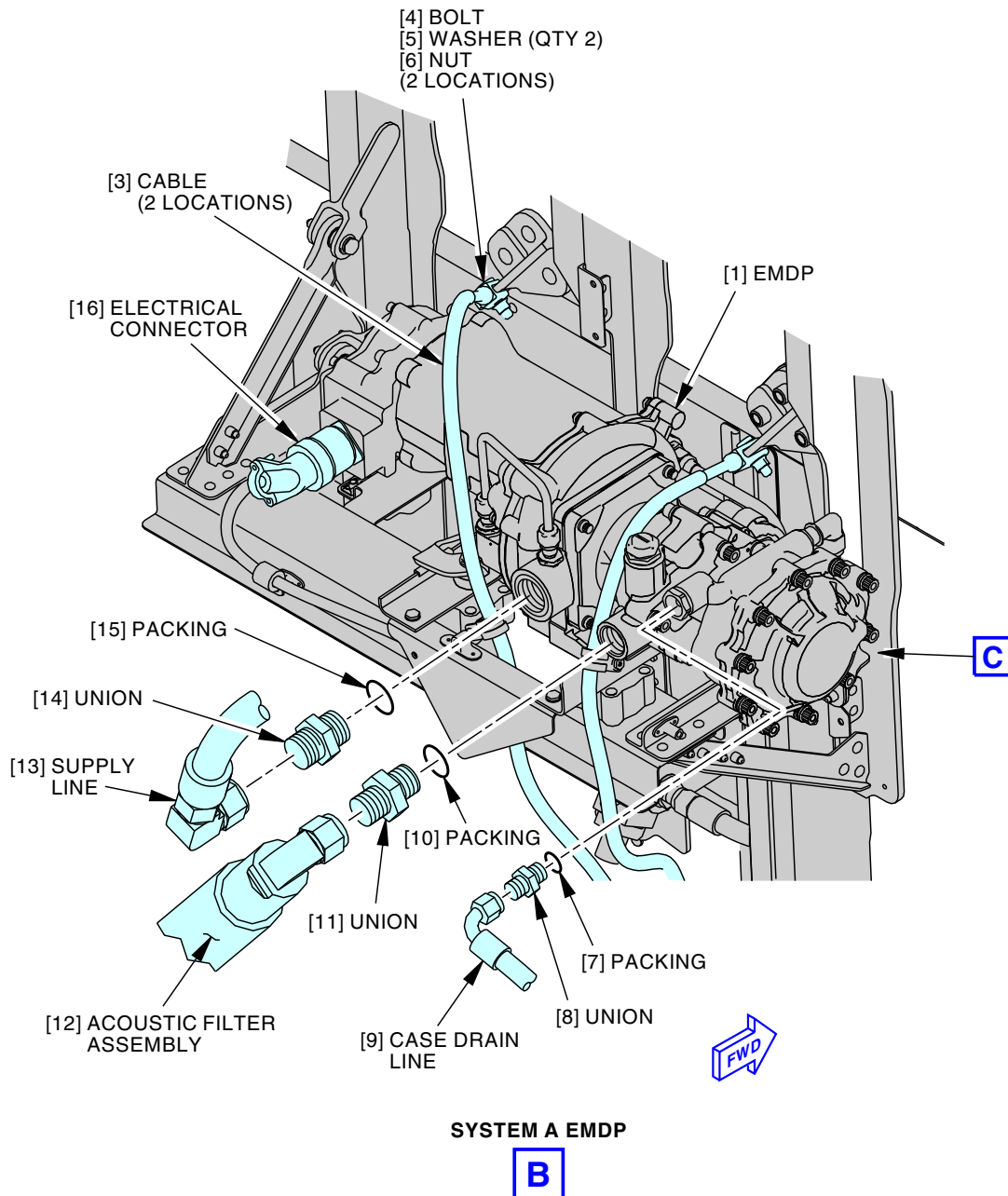
Hydraulic Systems A and B Vickers Electric Motor-Driven Pump (EMDP) Installation
Figure 401/29-11-21-990-802 (Sheet 1 of 5)

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 405
Jan 15/2023



2413793 S00061533388_V1

Hydraulic Systems A and B Vickers Electric Motor-Driven Pump (EMDP) Installation
Figure 401/29-11-21-990-802 (Sheet 2 of 5)

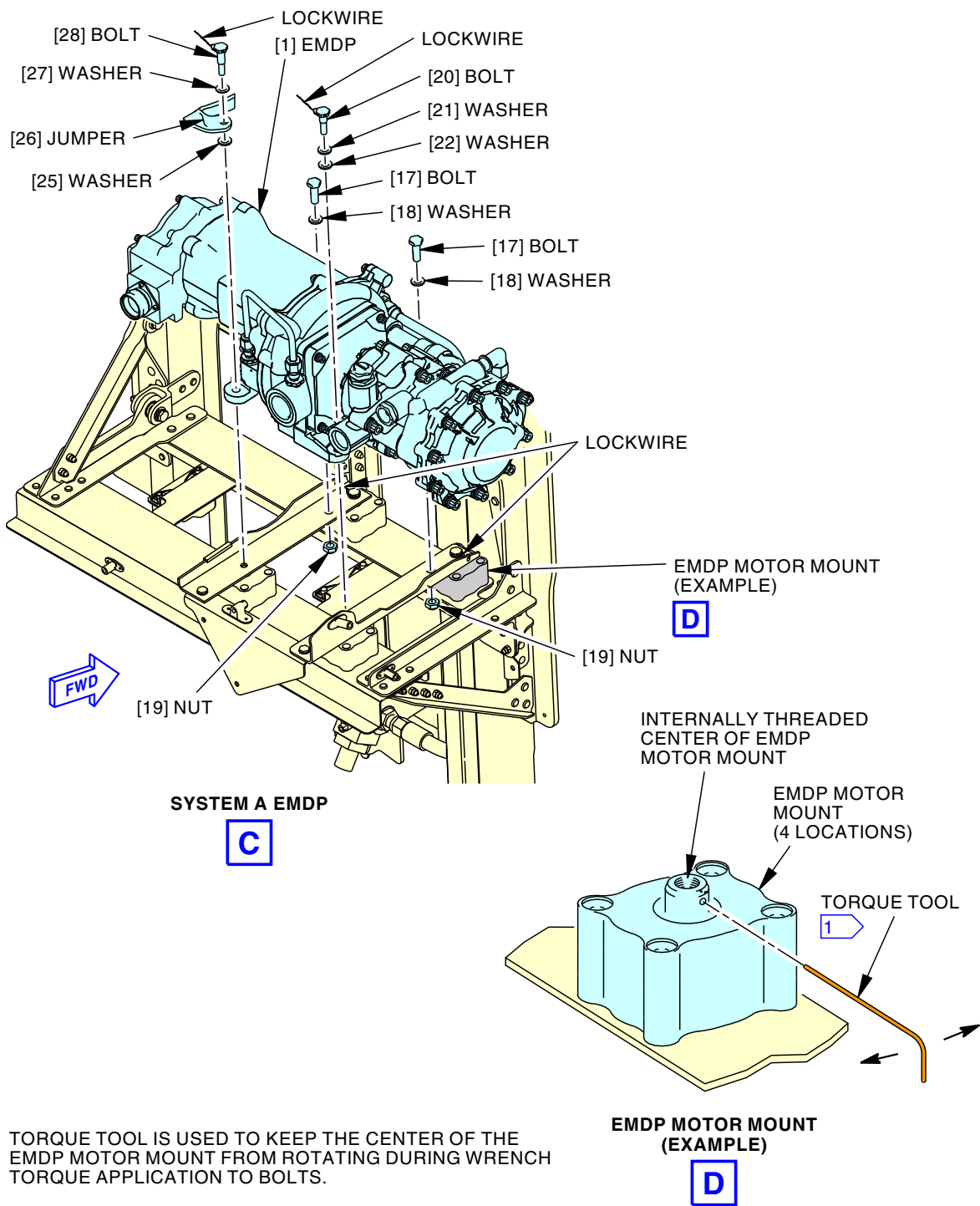
EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 406
Jan 15/2023

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



2413794 S00061533389_V2

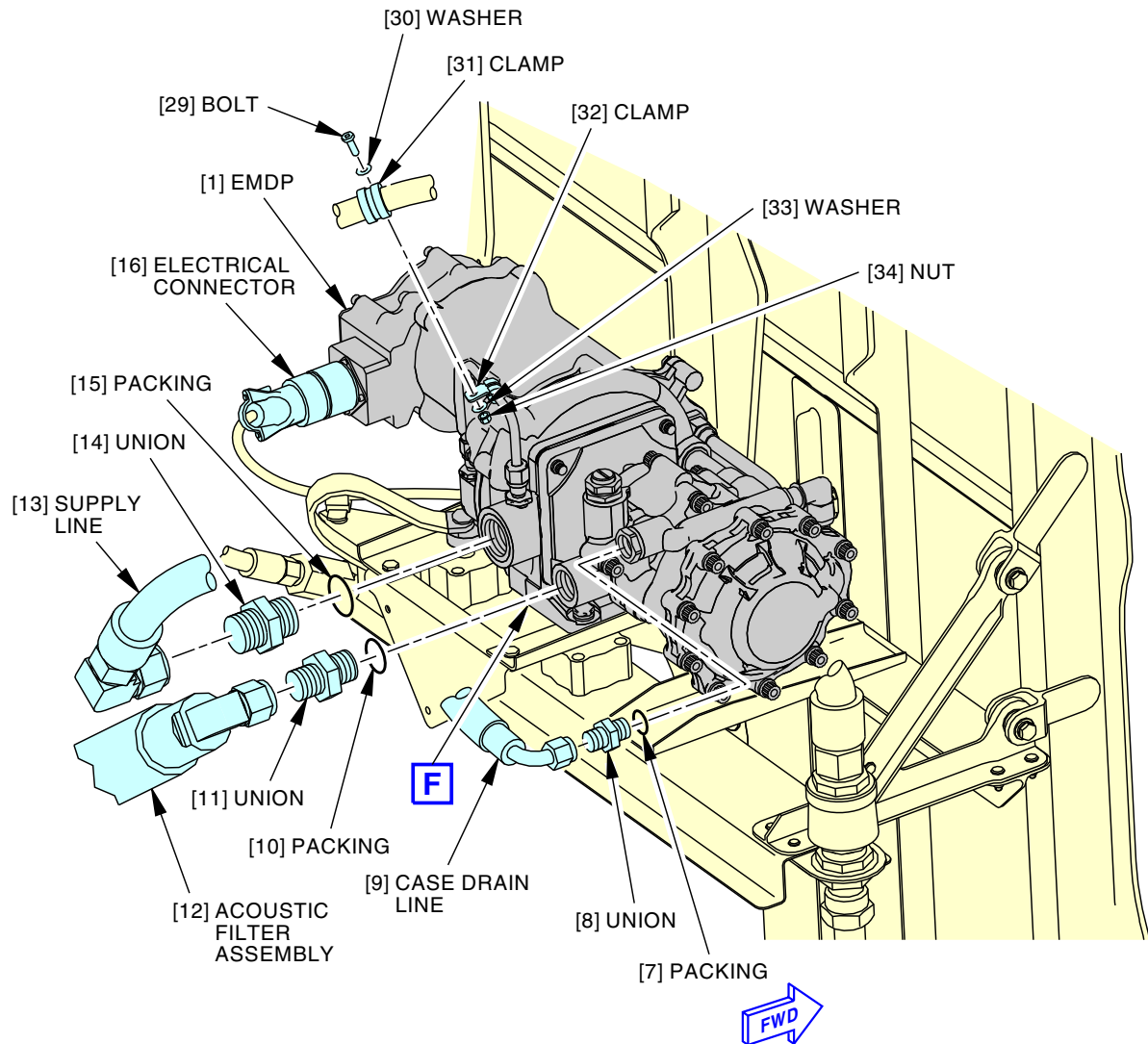
Hydraulic Systems A and B Vickers Electric Motor-Driven Pump (EMDP) Installation
Figure 401/29-11-21-990-802 (Sheet 3 of 5)

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-21

Page 407
Jan 15/2023



SYSTEM B EMDP

E

2413795 S00061533390_V1

Hydraulic Systems A and B Vickers Electric Motor-Driven Pump (EMDP) Installation
Figure 401/29-11-21-990-802 (Sheet 4 of 5)

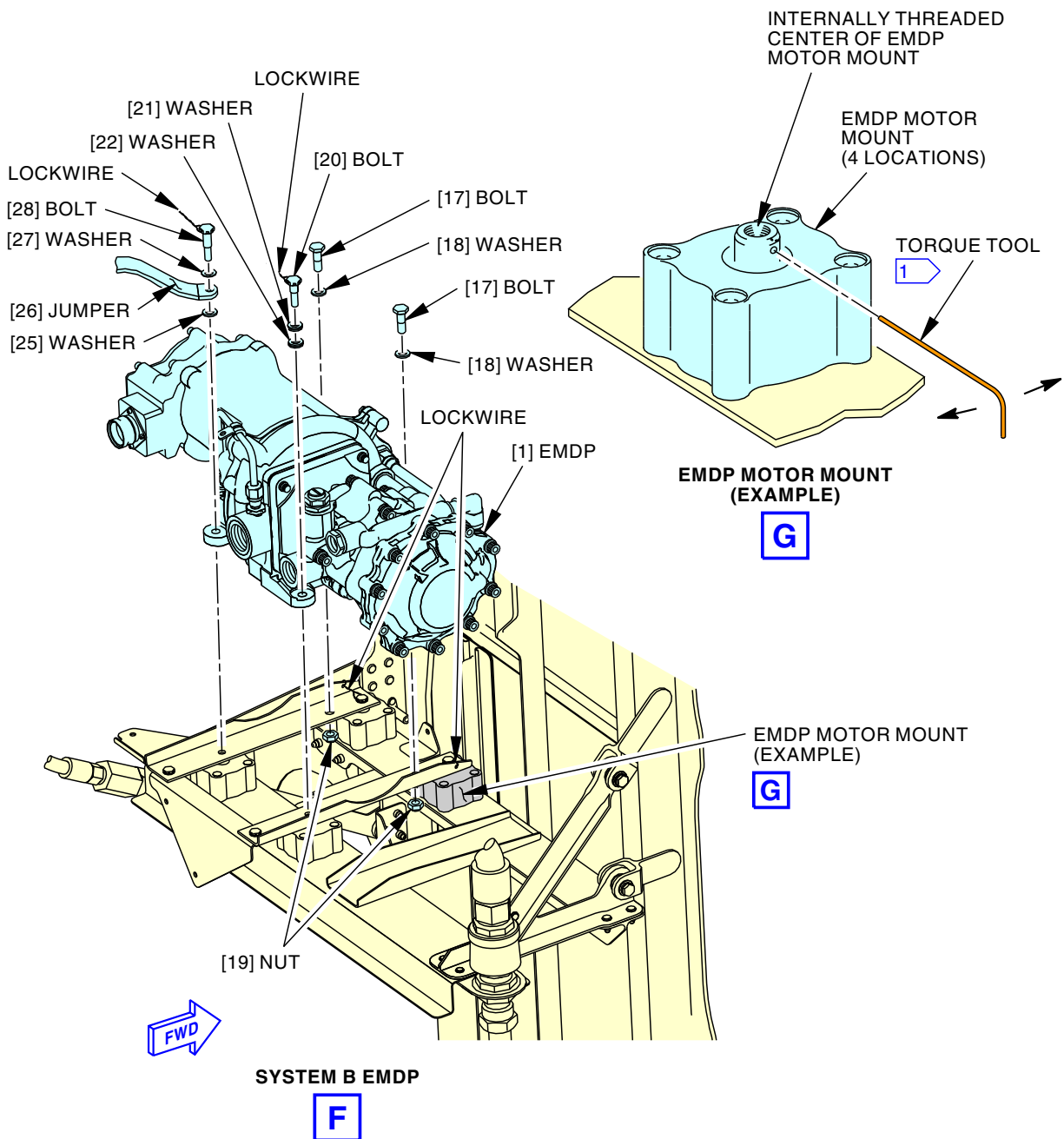
EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 408
Jan 15/2023



2413797 S00061533392_V2

Hydraulic Systems A and B Vickers Electric Motor-Driven Pump (EMDP) Installation
Figure 401/29-11-21-990-802 (Sheet 5 of 5)

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Jan 15/2023



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

TASK 29-11-21-400-801

3. Electric Motor-Driven Pump (EMDP) Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-10-51-200-801	Tubing Clearances Check (P/B 401)
20-10-51-200-802	Space Between Tubing Clamps Check (P/B 401)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-100-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning (P/B 201)
29-11-00-170-801	Hydraulic System A or B Flushing (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-27-400-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation (P/B 401)
SWPM 20-10-06	INSPECTION OF WIRING
SWPM 20-10-11	WIRING ASSEMBLY AND INSTALLATION CONFIGURATION
SWPM 20-10-12	WIRE HARNESS SUPPORTS
SWPM 20-10-13	REPAIR OF ELECTRICAL WIRE AND CABLE
SWPM 20-10-19	WIRE SEPARATION
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES
SWPM 20-60-03	SPECIAL PROTECTION OF ELECTRICAL CONNECTORS

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
SPL-14206	AC Motor Driven Hydraulic Pump Torque Tool Part #: C29007-1 Supplier: 81205

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 410
May 15/2023



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

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00767	Sealant - Fuel Tank	BMS5-45
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G50170	Compound - Corrosion Inhibiting Compound, Soft Film, Exterior Use - Ardrex AV25	
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	EMDP	29-11-21-01-240	SIA ALL
		29-11-21-02-170	SIA ALL
7	Packing	29-11-21-01-225	SIA ALL
		29-11-21-02-155	SIA ALL
10	Packing	29-11-21-01-230	SIA ALL
		29-11-21-02-160	SIA ALL
15	Packing	29-11-21-01-235	SIA ALL
		29-11-21-02-165	SIA ALL

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Prepare for the Installation

SUBTASK 29-11-21-170-001

- (1) If you replaced the pump because of a mechanical malfunction, then flush the hydraulic lines (TASK 29-11-00-170-801).

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 411
Jan 15/2023



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

SUBTASK 29-11-21-960-001

- (2) If you removed the hydraulic pump because of a mechanical malfunction in the pump, do these steps:

NOTE: If the airplane experiences repeated failures of a pump at one location, there may be debris in the case drain line, case drain hose or case drain hose quick-disconnect that cannot be flushed by accomplishing this procedure. Careful examination/cleaning/replacement of the case drain hose or quick-disconnect may be required.

- (a) Examine the case drain line, case drain hose, or case drain hose quick-disconnect for debris or blockage.
- (b) If you find debris or blockage, clean or replace the case drain hose or the quick-disconnect, as required.
- (c) Do a check of the acoustic filter for metal particle contamination (TASK 29-11-00-100-801).

SUBTASK 29-11-21-220-001

- (3) If the unions and packings are not installed in the EMDP [1], then do these steps:
- (a) Lubricate the unions and packings with MCS 352B fluid, D00054 or hydraulic fluid, D00153.
 - (b) Install the new packing [15] and union [14] in the supply port.
 - 1) Tighten the union [14] to 428.0 in-lb (48.4 N·m)-473.0 in-lb (53.4 N·m).
 - (c) Install the new packing [10] and union [11] in the pressure output port.
 - 1) Tighten the union [11] to 665.0 in-lb (75.1 N·m)-735.0 in-lb (83.0 N·m).
 - (d) Install the new packing [7] and union [8] in the case drain port.
 - 1) Tighten the union [8] to 162.0 in-lb (18.3 N·m)-179.0 in-lb (20.2 N·m).

SUBTASK 29-11-21-110-001

- (4) Clean the mounting bolts, the washers, the mating surfaces of the EMDP, and the mating surfaces for the bonding jumper [26] (TASK 20-10-34-110-802).

SUBTASK 29-11-21-210-003

- (5) Make sure the EMDP [1] is full of hydraulic fluid and does not have contamination.

H. EMDP Installation

SUBTASK 29-11-21-420-001

- (1) Install clamps and spacers when you install the EMDP [1].
- (a) For the positive separation requirements, refer to SWPM 20-10-11.

SUBTASK 29-11-21-420-002

- (2) Install the EMDP [1]:
- (a) Put the EMDP [1] on the bracket.
 - (b) Install the bolts [17], washers [18], and nuts [19] to the EMDP [1].



USE THE TORQUE TOOL SET WHEN YOU REMOVE OR INSTALL A BOLT IN THE EMDP MOTOR MOUNT. IF YOU DO NOT USE THE TORQUE TOOL SET, DAMAGE TO THE MOTOR MOUNT CAN OCCUR.

- (c) Install the bolt [20] as follows:
- 1) Insert one of the tools from the torque tool set, torque tool, SPL-14206, into the hole in the side of the protrusion at the top of the EMDP motor mount:

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 412
Jan 15/2023



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

- a) Firmly hold the torque set tool to prevent the protrusion from turning while you install the bolt [20], washer [21], and washer [22] to the EMDP [1].
 - b) Tighten the bolt [20] to 80 $\pm$ 2 in-lb (9.0 $\pm$ 0.3 N·m).
 - c) Install the MS20995NC32 lockwire, G01912 (TASK 20-10-44-400-801).
- (d) Apply coating, C00064 to the aluminum surfaces before you install the bonding jumper [26].



CAUTION

USE THE TORQUE TOOL SET WHEN YOU REMOVE OR INSTALL A BOLT IN THE EMDP MOTOR MOUNT. IF YOU DO NOT USE THE TORQUE TOOL SET, DAMAGE TO THE MOTOR MOUNT CAN OCCUR.

- (e) Install the bolt [28] as follows:
- 1) Insert one of the tools from the torque tool set, torque tool, SPL-14206, into the hole in the side of the protrusion at the top of the EMDP motor mount:
 - a) Firmly hold the torque set tool to prevent the protrusion from turning while you install the bolt [28], washer [27], jumper [26], and washer [25] to the EMDP [1].
 - b) Tighten the bolt [28] to 80 $\pm$ 2 in-lb (9.0 $\pm$ 0.3 N·m).
 - c) Install the MS20995NC32 lockwire, G01912 (TASK 20-10-44-400-801).

SUBTASK 29-11-21-760-001

- (3) Measure the bonding resistance between the EMDP [1] and the airplane structure with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).
- (a) Make sure that the bonding resistance is 0.001 ohm (1 milliohm) or less.

SUBTASK 29-11-21-390-001

- (4) Seal the head of bolt [28] with sealant, A02315, sealant, A00247, or sealant, A00767.

SUBTASK 29-11-21-020-006

- (5) Remove the caps and plugs.

SUBTASK 29-11-21-420-003

- (6) Connect the supply line [13] to the EMDP supply port.
- (a) Tighten the supply line [13] to 428.0 in-lb (48.4 N·m)-473.0 in-lb (53.4 N·m).

SUBTASK 29-11-21-420-004

- (7) Install the acoustic filter assy [12] (TASK 29-11-27-400-801).

SUBTASK 29-11-21-420-005



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- (8) Connect the supply line [13] to the quick-disconnect [2].

SUBTASK 29-11-21-860-020

- (9) Make sure the hydraulic fluid is up to the case drain port.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 413
Jan 15/2023



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

SUBTASK 29-11-21-420-006

- (10) Connect the case drain line [9] to the EMDP case drain port.
- (a) Tighten the case drain line [9] to 162.0 in-lb (18.3 N·m)–179.0 in-lb (20.2 N·m).

SUBTASK 29-11-21-420-007

- (11) For the hydraulic system A EMDP, install the bolts [4], washers [5], and nuts [6] to connect the two cables [3] to the airplane structure.

NOTE: Abex and Vickers electric and motor driven pumps are interchangeable but the two safety cables that secure the two types of EMDPs are different and have different part numbers. Be sure to use safety cables p/n 271A1495-13 and -14 for Abex pumps and p/n 271A1495-15 and -16 for Vickers pumps.

- (a) Adjust the two cables [3] to give maximum clearance from the EMDP [1].

SUBTASK 29-11-21-420-013

- (12) For the hydraulic system B Vickers EMDP, install the bolt [29], washer [30], washer [33], and nut [34] to the clamp [31] and clamp [32] (Figure 401).

SUBTASK 29-11-21-420-008

- (13) Inspect the electrical contacts of the electrical connector [16] and repair if necessary (TASK 20-60-07-910-802).
- (a) Apply the D5026NS or ZC-026 compound, G50171 to the electrical connector (SWPM 20-60-03).

SUBTASK 29-11-21-420-009



OBEY THE SPECIFIED LIMITS. IF YOU IGNORE THE LIMITS, DAMAGE TO EQUIPMENT WILL OCCUR.

- (14) Connect the electrical connector [16] to the EMDP [1].
- (a) Measure the distance between the hoses of the pump and the wire bundles.
- 1) Make sure that the minimum distance is 0.50 in. (12.70 mm).
- (b) Apply the Ardrox AV25 compound, G50170 to the electrical connector [16] (SWPM 20-60-03).

SUBTASK 29-11-21-420-010

- (15) Install the clamps and spacers (TASK 20-10-51-200-801).

I. Hydraulic System A and B Electric Motor-Driven Pump Installation Test

SUBTASK 29-11-21-860-021

- (1) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-21-860-022



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 414
Jan 15/2023



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

(WARNING PRECEDES)



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

- (2) For hydraulic system A EMDP, remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-860-023



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



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

- (3) For hydraulic system B EMDP, remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

SUBTASK 29-11-21-860-024



KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

- (4) Pressurize hydraulic system with the applicable EMDP [1] (TASK 29-11-00-860-803).

SUBTASK 29-11-21-860-025

- (5) Operate the rudder slowly, through full travel, a minimum of ten cycles.

NOTE: This will bleed the EMDP [1] and system of air.

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 415
Jan 15/2023



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

SUBTASK 29-11-21-210-004

- (6) Make sure that the HYD P indicator on the left or right inboard display unit becomes stable between 2800 and 3200 psig.

SUBTASK 29-11-21-210-005

- (7) Make sure that there is no hydraulic leakage at the EMDP [1].

SUBTASK 29-11-21-210-007

- (8) Do a general visual inspection for signs of chafing or damage to the wire bundles (SWPM 20-10-06).
- (a) If one of the wire bundles is damaged, repair or replace the wire bundles (SWPM 20-10-11, SWPM 20-10-12, SWPM 20-10-13, and SWPM 20-10-19).

SUBTASK 29-11-21-210-008

- (9) Do a general visual inspection for signs of chafing or damage to the hydraulic tubes.
- (a) Do this task: Tubing Clearances Check, TASK 20-10-51-200-801.
- (b) Do this task: Space Between Tubing Clamps Check, TASK 20-10-51-200-802.
- (c) If one the hydraulic tubes is damaged, repair or replace the hydraulic tubes.

SUBTASK 29-11-21-860-026

- (10) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-21-600-001

- (11) Fill the hydraulic reservoir (TASK 12-12-00-610-801).

SUBTASK 29-11-21-410-002

- (12) Close this access panel:

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

J. Servicing Procedure for EMDP

SUBTASK 29-11-21-200-002

- (1) Do an inspection of the plug and bleeder for hydraulic fluid leaks.
- (a) Replace packing if leaks occur.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 416
Jan 15/2023



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

HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR DRIVEN PUMP (EMDP) - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) A test of the Electric Motor-Driven Pump (EMDP).
 - (a) You must use the engine generators or the APU generator to do this procedure. You can not do the test with external ground power.
 - (2) An operational test of the Ground Fault Protection System for the EMDP.

TASK 29-11-21-700-801

2. Electric Motor-Driven Pump (EMDP) Test

A. Location Zones

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

B. Electric Motor-Driven Pump (EMDP) Test

SUBTASK 29-11-21-860-028



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



DO NOT OPERATE THE SYSTEM A OR THE SYSTEM B EMDP FOR MORE THAN 2 MINUTES IF THE NO. 1 OR THE NO. 2 FUEL TANK (RESPECTIVELY) CONTAINS LESS THAN 250 GALLONS (1675 POUNDS, 760 KG) OF FUEL. YOU MUST LET THE RESERVOIR TEMPERATURE DECREASE TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN. DAMAGE TO THE EQUIPMENT CAN OCCUR.

- (1) Set the ELEC 1 and the ELEC 2 HYD PUMP switches, on the forward overhead panel, P5 to the ON position.

SUBTASK 29-11-21-860-029

- (2) Set the BUS TRANS switch, on the P5-4 panel, to the OFF position.

SUBTASK 29-11-21-860-030

- (3) If the engines are in operation, set the ENG 1 and the ENG 2 HYD PUMP switches, on the P5 panel, to the OFF position.

SUBTASK 29-11-21-860-031

- (4) Set the FLT CONTROL and SPOILER system A and B switches, on the P5 panel, to the OFF position.

SUBTASK 29-11-21-710-001

- (5) Make sure the HYD P indicator for each hydraulic system on the captain's display unit, P1, or first officer's display unit, P3, is 2800-3200 psig.

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

Page 501
Sep 15/2021



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

SUBTASK 29-11-21-860-032

- (6) Set the applicable switch, on the P5 panel, to the OFF position to remove electrical power from the system A EMDP:
 - (a) The GEN 2 switch (if the engine is your supply of electrical power).
 - (b) The right APU GEN switch (if the APU is your supply of electrical power).

SUBTASK 29-11-21-710-002

- (7) Make sure that the HYD PUMPS A ELEC 2 LOW PRESSURE light, on the P5 panel, comes on.

SUBTASK 29-11-21-860-033

- (8) Set the GEN 2 or the right APU GEN switch back to the ON position.

SUBTASK 29-11-21-710-003

- (9) Make sure the HYD PUMPS A ELEC 2 LOW PRESSURE light goes out.

SUBTASK 29-11-21-860-034

- (10) Set the applicable switch, on the P5 panel, to the OFF position to remove electrical power from the system B pump:
 - (a) GEN 1 (if the engine is your supply of electrical power).
 - (b) The left APU GEN switch (if the APU is your supply of electrical power).

SUBTASK 29-11-21-710-004

- (11) Make sure the HYD PUMPS B ELEC 1 LOW PRESSURE light, on the P5 panel, comes on.

SUBTASK 29-11-21-860-035

- (12) Set the GEN 1 or the left APU GEN switch back to the ON position.

SUBTASK 29-11-21-710-005

- (13) Make sure the HYD PUMPS B ELEC 1 LOW PRESSURE light goes out.

C. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-21-860-036

- (1) Set the ENG 1 and the ENG 2 HYD PUMP switches, on the P5 panel, to the ON position.

SUBTASK 29-11-21-860-037

- (2) Set the FLT CONTROL and the SPOILER systems A and B switches, on the P5 panel, to the ON position.

SUBTASK 29-11-21-860-038

- (3) Set the ELEC 1 and ELEC 2 HYD PUMP switches, on the P5 panel, to the OFF position.

SUBTASK 29-11-21-860-039

- (4) Set the BUS TRANS switch, on the P5-4 panel, to the AUTO position.

————— END OF TASK —————

TASK 29-11-21-700-802

3. Ground Fault Protection System Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 502
Sep 15/2023



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

A. References

Reference	Title
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

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-1792	GFCI Tester - Hydraulic Pump Part #: G29015-1 Supplier: 81205 Opt Part #: F72917-19 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
G50170	Compound - Corrosion Inhibiting Compound, Soft Film, Exterior Use - Ardrex AV25	
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Test

SUBTASK 29-11-21-010-003

(1) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-11-21-210-009



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 503
Sep 15/2023



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

(WARNING PRECEDES)



WARNING

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

- (2) Make sure that the reset switch for the system B electric 1 hydraulic pump ground fault detector (M1106), in the P91 panel and the system A electric 2 hydraulic pump ground fault detector (M1105), in the P92 panel are reset (View B, Figure 501).

SUBTASK 29-11-21-860-041



WARNING

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



WARNING

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

- (3) For hydraulic system A, open these circuit breakers and install safety tags:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-860-042



WARNING

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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 504
Sep 15/2023

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

(WARNING PRECEDES)



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

- (4) For hydraulic system B, open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

SUBTASK 29-11-21-860-044

- (5) Make sure that these switches, on the P5-8 hydraulic pumps panel on the P5 forward overhead panel, are set to the OFF position:
- (a) For the hydraulic system A, HYD PUMPS A ELEC 2.
 - (b) For the hydraulic system B, HYD PUMPS B ELEC 1.

G. System A Ground Fault Detector Test

SUBTASK 29-11-21-020-007



CONNECT THE TEST-EQUIPMENT GROUNDING CABLE TO THE AIRPLANE GROUND BEFORE YOU CONNECT THE PUMP ELECTRICAL CONNECTOR TO THE TEST EQUIPMENT. INJURY TO PERSONS CAN OCCUR.

- (1) Disconnect the electrical connector (D2664) from the system A Electric Motor-Driven Pump (EMDP).

SUBTASK 29-11-21-480-001

- (2) Connect the test ground clip (green) of the hydraulic pump GFCI tester, SPL-1792, to the ground strap on the EMDP.

SUBTASK 29-11-21-480-002

- (3) Connect the test conductor return clip (black) of the hydraulic pump GFCI tester, SPL-1792, to the ground strap on the EMDP.

SUBTASK 29-11-21-480-003

- (4) Connect the test connector of the hydraulic pump GFCI tester, SPL-1792, to the electrical connector (D2664) for the EMDP.

SUBTASK 29-11-21-860-045



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

EFFECTIVITY
SIA ALL

29-11-21

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

(WARNING PRECEDES)



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

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-860-046

- (6) Set the HYD PUMPS A ELEC 2 switch, on the P5-8 panel, to the ON position.

SUBTASK 29-11-21-860-047

- (7) Set the test switch S2, on the test hydraulic pump GFCI tester, SPL-1792, to the NO TRIP position.

SUBTASK 29-11-21-860-048

- (8) Push and hold the test switch S1, on the test hydraulic pump GFCI tester, SPL-1792.
(a) Make sure that the light L1 comes on.

SUBTASK 29-11-21-860-049

- (9) Release the test switch S1.

SUBTASK 29-11-21-860-050

- (10) Put the test switch S2 to the TRIP position.
(a) Make sure that the light L1 goes off.

SUBTASK 29-11-21-860-051

- (11) Put the test switch S2 to the NO TRIP position.
(a) Make sure that the light L1 stays off.

SUBTASK 29-11-21-860-052

- (12) Momentarily push the reset switch on the ground fault detector (M1105) for hydraulic system A (View B, Figure 501).

NOTE: The reset switch on the ground fault detector (M1105) is located in the equipment center on the P92 panel.

SUBTASK 29-11-21-860-053

- (13) Push and hold the test switch S1.
(a) Make sure that the light L1 comes on.

SUBTASK 29-11-21-860-054

- (14) Release the test switch S1.

SUBTASK 29-11-21-860-055

- (15) Set the HYD PUMPS A ELEC 2 switch, on the P5 panel, to the OFF position.
(a) Make sure that the test light L1 goes off.

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 506
Sep 15/2023



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

SUBTASK 29-11-21-860-056



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



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

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-080-007

- (17) Disconnect the test connector of the hydraulic pump GFCI tester, SPL-1792, from the electrical connector (D2664) for the system A EMDP.

SUBTASK 29-11-21-080-005

- (18) Disconnect the test conductor return clip (black) of the hydraulic pump GFCI tester, SPL-1792, from the ground strap on the EMDP.

SUBTASK 29-11-21-080-006

- (19) Disconnect the test ground clip (green) of the hydraulic pump GFCI tester, SPL-1792, from the ground strap on the EMDP.

H. System B Ground Fault Detector Test

SUBTASK 29-11-21-020-008



CONNECT THE TEST-EQUIPMENT GROUNDING CABLE TO THE AIRPLANE GROUND BEFORE YOU CONNECT THE PUMP ELECTRICAL CONNECTOR TO THE TEST EQUIPMENT. INJURY TO PERSONS CAN OCCUR.

- (1) Disconnect the electrical connector (D2666) from the system B EMDP.

SUBTASK 29-11-21-480-005

- (2) Connect the test hydraulic pump GFCI tester, SPL-1792, to the ground strap on the EMDP.

SUBTASK 29-11-21-480-004

- (3) Connect the test connector of the hydraulic pump GFCI tester, SPL-1792, to the electrical connector (D2666) for the EMDP.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 507
Sep 15/2023



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

SUBTASK 29-11-21-860-057



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



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

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

SUBTASK 29-11-21-860-058

- (5) Set the HYD PUMPS B ELEC 1 switch, on the P5 panel, to the ON position.

SUBTASK 29-11-21-860-059

- (6) Set the test switch S2, on the test hydraulic pump GFCI tester, SPL-1792, to the NO TRIP position.

SUBTASK 29-11-21-860-060

- (7) Push and hold the test switch S1, on the test hydraulic pump GFCI tester, SPL-1792.
(a) Make sure that the light L1 comes on.

SUBTASK 29-11-21-860-061

- (8) Release the test switch S1.

SUBTASK 29-11-21-860-062

- (9) Put the test switch S2 to the TRIP position.
(a) Make sure that the light L1 goes off.

SUBTASK 29-11-21-860-063

- (10) Put the test switch S2 to the NO TRIP position.
(a) Make sure that the light L1 stays off.

SUBTASK 29-11-21-860-064

- (11) Momentarily push the reset switch on the ground fault detector (M1106) for hydraulic system B (View B, Figure 501).

NOTE: The reset switch on the ground fault detector (M1106) is located in the equipment center on the P91 panel.

SUBTASK 29-11-21-860-065

- (12) Push and hold the test switch S1.
(a) Make sure that the light L1 comes on.

EFFECTIVITY
SIA ALL

29-11-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 508
Sep 15/2023



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

SUBTASK 29-11-21-860-066

- (13) Release the test switch S1.

SUBTASK 29-11-21-860-067

- (14) Set the HYD PUMPS B ELEC 1 switch, on the P5 panel, to the OFF position.
- (a) Make sure that the test light L1 goes off.

SUBTASK 29-11-21-860-068



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

SUBTASK 29-11-21-080-003

- (16) Disconnect the test connector of the hydraulic pump GFCI tester, SPL-1792, from the electrical connector (D2666) for the system B EMDP.

SUBTASK 29-11-21-080-004

- (17) Disconnect the test hydraulic pump GFCI tester, SPL-1792, from the ground strap.

SUBTASK 29-11-21-420-011

- (18) Make an inspection of the electrical contacts of the system B and the system A EMDP electrical connectors and repair if necessary (TASK 20-60-07-910-802).
- (a) Apply D5026NS or ZC-026 compound, G50171, to the system B and the system A EMDP electrical connectors (SWPM 20-60-03).

SUBTASK 29-11-21-420-012

- (19) Reconnect the electrical connectors to the system B and the system A EMDP.
- (a) Apply Ardrex AV25 compound, G50170 to the system B and the system A EMDP electrical connectors (SWPM 20-60-03).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 509
Sep 15/2023



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

SUBTASK 29-11-21-860-069



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-21-010-004

- (21) Close this access panel:

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

SUBTASK 29-11-21-720-001

- (22) After the electrical connectors have been reconnected to the pumps, do a test of the EMDPs (TASK 29-11-21-700-801).

————— END OF TASK —————

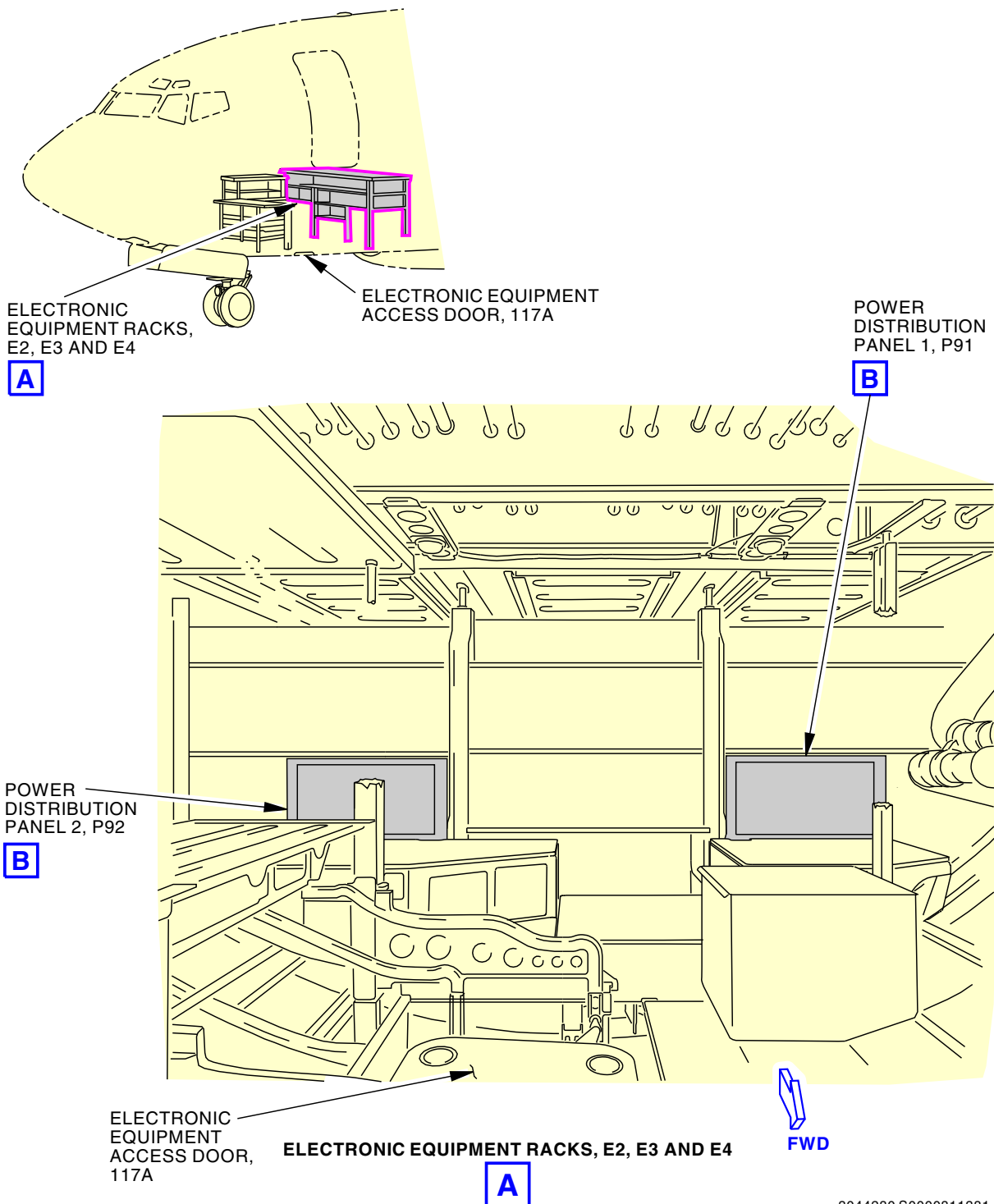
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 510
Sep 15/2023



3044280 S0000811381_V1

Ground Fault Detector
Figure 501/29-11-21-990-804 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

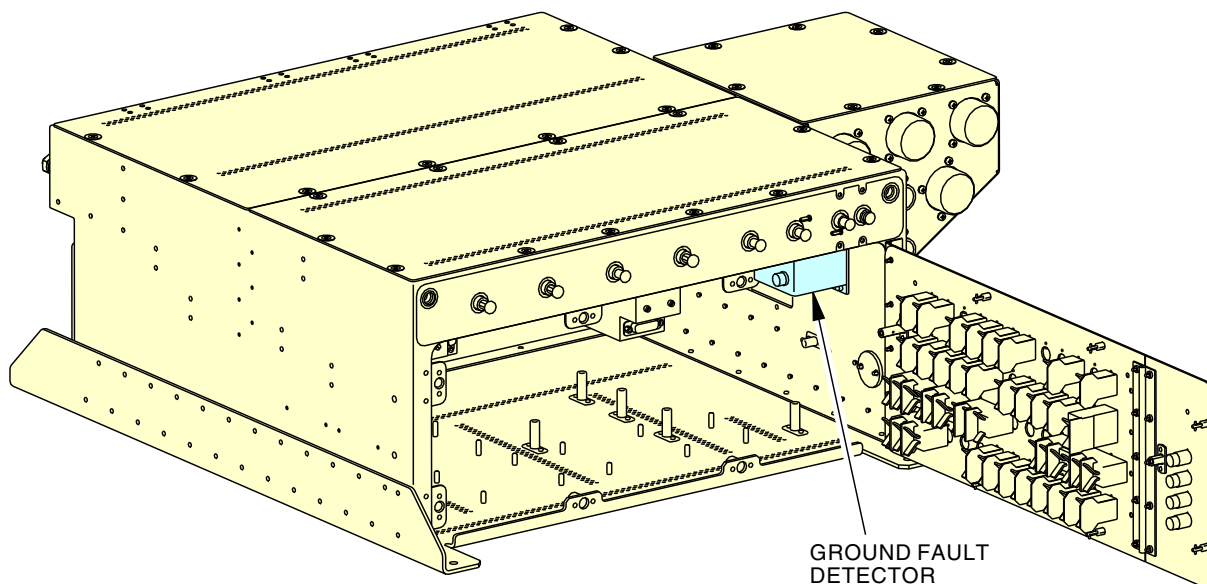
D633AM101-SIA

29-11-21

Page 511
Sep 15/2023



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



P91 PANEL
(DOOR IN THE OPEN POSITION)
(P92 PANEL IS OPPOSITE)
(EXAMPLE)

B

3044290 S0000811383_V1

Ground Fault Detector
Figure 501/29-11-21-990-804 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-21

Page 512
Sep 15/2023



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

**HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR-DRIVEN PUMP (EMDP) ACOUSTIC FILTER -
REMOVAL/INSTALLATION**

1. General

A. This procedure has these tasks:

- (1) A removal of the hydraulic systems A and B electric motor driven pump (EMDP) acoustic filter
- (2) An installation of the hydraulic systems A and B EMDP acoustic filter.

B. In this procedure the EMDP acoustic filter is referred to as the acoustic filter.

C. This procedure is applicable for hydraulic systems A and B acoustic filters.

TASK 29-11-27-000-801

2. Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal
(Figure 401)

A. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 29-11-27-010-001

- (1) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-27

Page 401
Sep 15/2023



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

SUBTASK 29-11-27-860-001



WARNING

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



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-27-840-001

- (3) Remove the hydraulic power from the applicable system A or B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-27-860-002

- (4) Remove the pressure from the applicable hydraulic system A or B, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-27-480-003

- (5) Put the 1 U.S.-gal (3.81 l) oil resistant container, STD-203, below the applicable quick-disconnect [2].

SUBTASK 29-11-27-020-001

- (6) Disconnect the supply line [4] at the quick-disconnect [2].

SUBTASK 29-11-27-480-001

- (7) Use the 1 U.S.-gal (3.81 l) oil resistant container, STD-203, to catch hydraulic fluid from the disconnected line.

SUBTASK 29-11-27-160-001

- (8) If it is necessary, clean all of the hydraulic fluid from the installation area, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

F. Acoustic Filter Removal

SUBTASK 29-11-27-020-002

- (1) Remove the mounting clamp [8].
(a) Remove the bolts [6] and washers [7].

EFFECTIVITY
SIA ALL

29-11-27

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 29-11-27-480-002

- (2) Put the 1 U.S.-gal (3.81 l) oil resistant container, STD-203, under the acoustic filter [1] to catch spills.

SUBTASK 29-11-27-020-003

- (3) Disconnect the pressure line [3] from the acoustic filter [1].

SUBTASK 29-11-27-020-005

- (4) Disconnect the swivel nut [12] from the union of the EMDP [5].

SUBTASK 29-11-27-020-004

- (5) Remove the acoustic filter [1] from the EMDP [5].

SUBTASK 29-11-27-210-002

- (6) To inspect the packing [9], packing [10], and backup rings [11], do these steps:
- (a) Remove and discard the lockwires.
 - (b) Remove the filter head [14] from the barrel [13].
 - (c) Inspect the packing [9], packing [10], and backup rings [11] for damage.
 - (d) If it is necessary, remove packing [9], packing [10], and backup rings [11].

———— **END OF TASK** ————

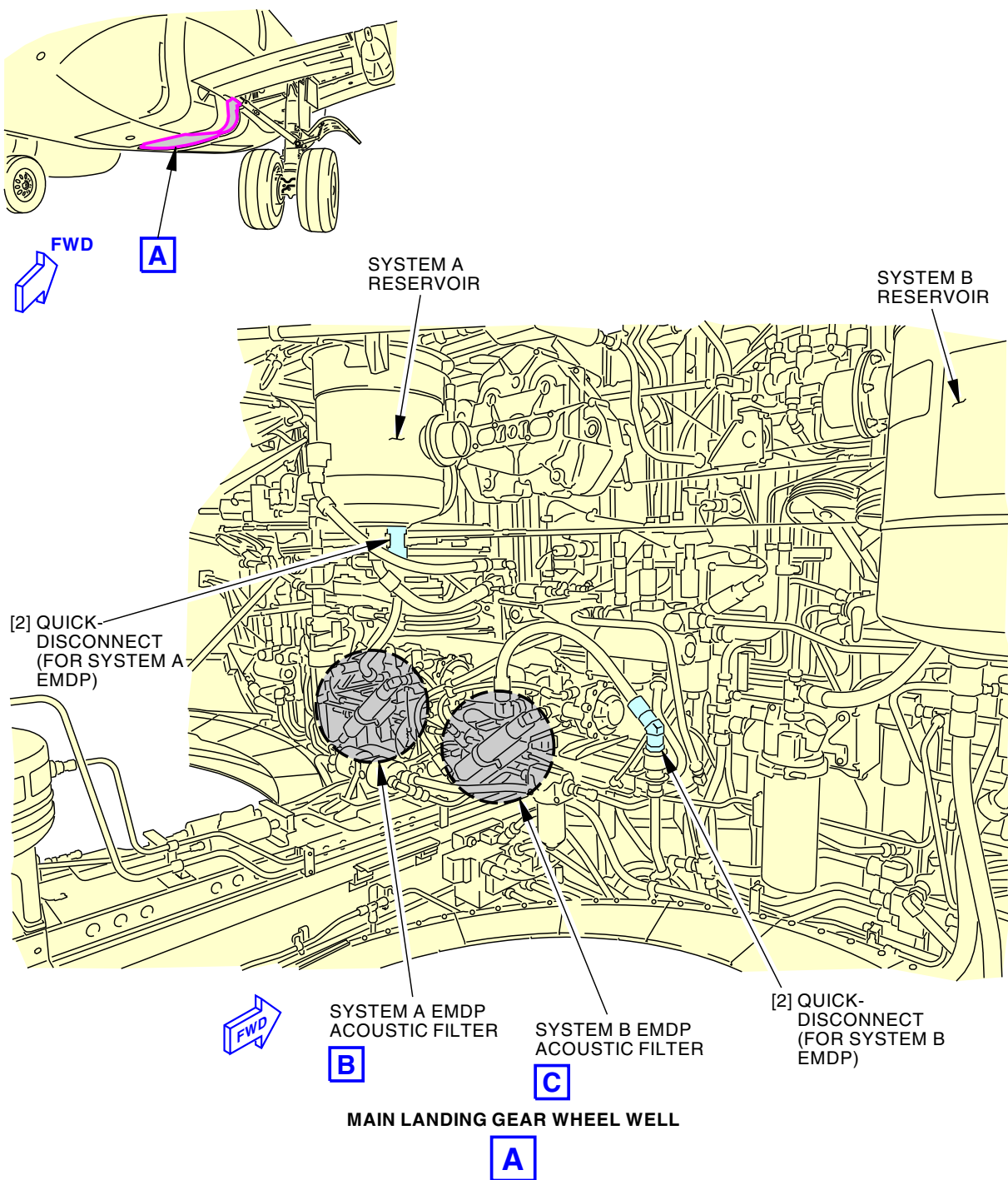
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-27

Page 403
Sep 15/2023



2413774 S00061533340_V2

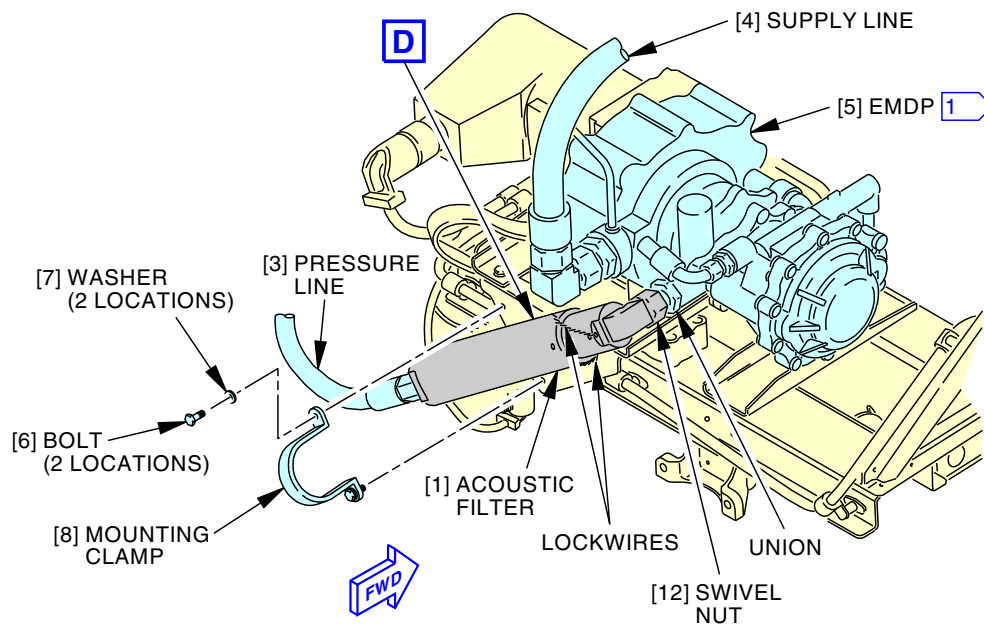
Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation
Figure 401/29-11-27-990-801 (Sheet 1 of 3)

EFFECTIVITY
SIA ALL

29-11-27

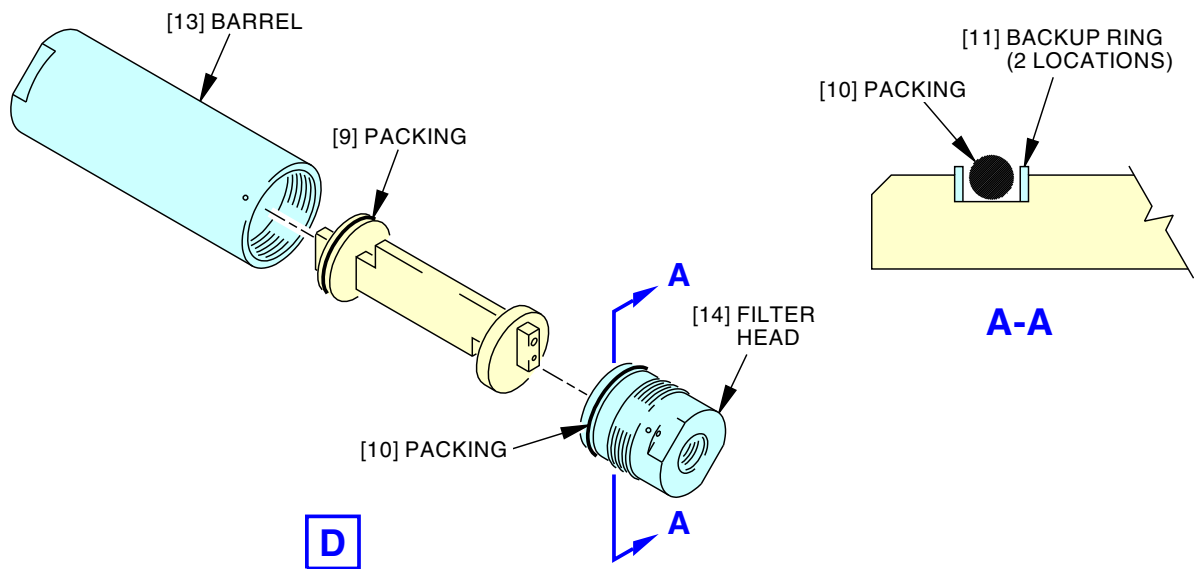
D633AM101-SIA

Page 404
May 15/2022



SYSTEM A EMDP ACOUSTIC FILTER

B



1 VICKERS PUMP SHOWN. INSTALLATION OF THE ACOUSTIC FILTER IS EQUIVALENT FOR ABEX PUMPS.

2994620 S0000771280_V2

Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation
Figure 401/29-11-27-990-801 (Sheet 2 of 3)

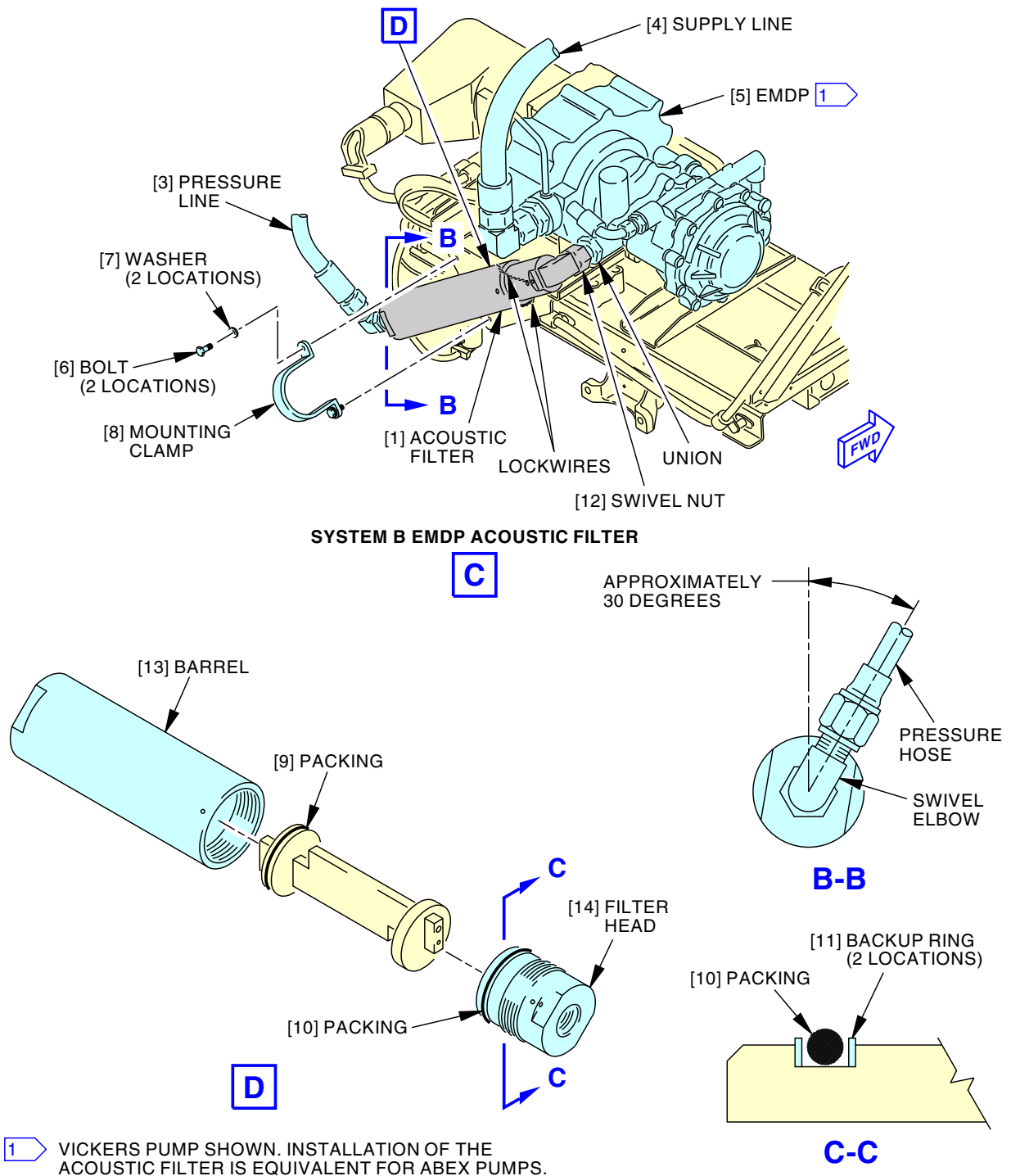
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-27

Page 405
Jan 15/2023



Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation
Figure 401/29-11-27-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-27

Page 406
Jan 15/2023



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

TASK 29-11-27-400-801

3. Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation
(Figure 401)

A. References

Reference	Title
20-10-31-400-801	Teflon Backup Rings Installation (P/B 401)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-50-11-910-801	Standard Torque Values (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D50122	Fluid - Hydraulic	BMS3-11 Type IV or Type V
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995
G51751	Putty/Lacquer - Tamper-proof, Hydraulic Fluid Resistant	BMS8-45 Type III

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Acoustic filter	29-11-27-01-020	SIA ALL
9	Packing	29-11-27-01-050	SIA ALL
10	Packing	29-11-27-01-055	SIA ALL
11	Backup ring	29-11-27-01-065	SIA ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Acoustic Filter Installation

SUBTASK 29-11-27-420-006

- (1) If the packing [9], packing [10], and backup rings [11] were removed, install a new packing [9], new packing [10], and new backup rings [11].
 - (a) To install the backup rings [11], do this task: Teflon Backup Rings Installation, TASK 20-10-31-400-801.

EFFECTIVITY
SIA ALL

29-11-27

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

SUBTASK 29-11-27-210-003



CAUTION

MAKE SURE THAT YOU CORRECTLY ALIGN AND INSTALL BACKUP RINGS. EXTRUSION AND LEAKS CAN OCCUR IF YOU DO NOT CORRECTLY INSTALL BACKUP RINGS.

- (2) Make sure that the backup rings [11] are aligned and installed correctly.

SUBTASK 29-11-27-420-007

- (3) If the filter head [14] was removed, do these steps:
- (a) Apply hydraulic fluid, D50122, to the threads of the barrel [13] and filter head [14].
 - (b) Install the filter head [14] onto the barrel [13].
 - 1) Tighten the filter head [14] to 480 in-lb (54 N·m) - 540 in-lb (61 N·m).
 - (c) Apply tamper-proof putty/lacquer, G51751, on the thread connection of the barrel [13] and filter head [14].
 - (d) Install MS20995C20 lockwires, G50225, with double twist method (TASK 20-10-44-400-801).

SUBTASK 29-11-27-420-001

- (4) Put the acoustic filter [1] in its mounting position on the EMDP [5].

SUBTASK 29-11-27-420-008

- (5) If the end fittings of the acoustic filter [1] were removed, install them (TASK 20-50-11-910-801).

SUBTASK 29-11-27-420-002

- (6) Install the mounting clamp [8].
- (a) Put the mounting clamp [8] in its position.
 - (b) Install the washers [7] and bolts [6].

SUBTASK 29-11-27-420-003

- (7) Connect the acoustic filter [1] to the EMDP [5].
- (a) Tighten the swivel nut [12] to 665 in-lb (75 N·m) - 735 in-lb (83 N·m).

SUBTASK 29-11-27-420-004

- (8) Connect the pressure line [3] to the acoustic filter [1].
- (a) Tighten the pressure line [3] to 475 in-lb (54 N·m) - 525 in-lb (59 N·m).

NOTE: For hydraulic system A acoustic filter only, position the pressure line so that it provides the maximum clearance between the pressure line and the filter bowl clamp on the system A return filter module.

SUBTASK 29-11-27-420-005



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- (9) Connect the supply line [4] at the quick-disconnect [2].

EFFECTIVITY
SIA ALL

29-11-27

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 29-11-27-860-003

- (10) Pressurize the applicable hydraulic system A or B reservoir, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-27-860-004



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-27-410-002

- (12) Close this access panel:

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

SUBTASK 29-11-27-860-005

- (13) Pressurize the applicable hydraulic system A or B, do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.

SUBTASK 29-11-27-210-001

- (14) Make sure that the acoustic filter [1] and its connections do not leak.

SUBTASK 29-11-27-860-006

- (15) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-11-27

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Jan 15/2023



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

HYDRAULIC SYSTEMS A AND B RESERVOIRS - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the hydraulic system A reservoir
 - (2) An installation of the hydraulic system A reservoir
 - (3) A removal of the hydraulic system B reservoir
 - (4) An installation of the hydraulic system B reservoir.

TASK 29-11-31-000-801

2. Hydraulic System A Reservoir Removal

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-33-12-000-801	Hydraulic Fluid Quantity Transmitter/Indicator - Removal (P/B 401)

B. **Tools/Equipment**

Reference	Description
STD-858	Tag - DO NOT OPERATE
STD-1158	Container - 20 Gallon (76 Liter)

C. **Location Zones**

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. **Prepare for the Removal**

SUBTASK 29-11-31-860-001

- (1) Remove power from Hydraulic System A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-31-930-001

- (2) Put the DO NOT OPERATE tags, STD-858, on the applicable hydraulic system pump switches on the P5 forward overhead panel.

SUBTASK 29-11-31-860-002

- (3) Depressurize the system A hydraulic reservoir [1], do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-31-480-001

- (4) Place a 20 gallon (76 liter) container, STD-1158, beneath the system A hydraulic reservoir drain valve [21].

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
May 15/2022



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

SUBTASK 29-11-31-020-019

- (5) Remove the lockwire from the drain valve handle.

SUBTASK 29-11-31-020-001

- (6) Open the drain valve [21].

SUBTASK 29-11-31-680-001

- (7) Drain the fluid from the system A reservoir [1] into the 20 gallon (76 liter) container, STD-1158.

NOTE: The system A reservoir capacity is approximately 5.7 gal (21.6 l).

SUBTASK 29-11-31-160-001

- (8) If it is necessary, clean all hydraulic fluid from the installation area, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

E. Hydraulic System A Reservoir Removal

SUBTASK 29-11-31-020-002

- (1) Disconnect the reservoir pressurization line [4].

SUBTASK 29-11-31-020-003

- (2) Disconnect the hydraulic line [15], hydraulic line [16], and hydraulic line [22] from the system A reservoir [1].

SUBTASK 29-11-31-420-018

- (3) Install protective covers on all of the fittings and hoses.

SUBTASK 29-11-31-020-005

- (4) Disconnect the electrical connector [10] from the fluid quantity transmitter.

SUBTASK 29-11-31-420-019

- (5) Install a cap on the electrical connector [10] to prevent contamination or damage.

SUBTASK 29-11-31-020-007

- (6) Install a cap on the fluid quantity transmitter to prevent contamination or damage.

SUBTASK 29-11-31-020-020

- (7) Remove the bolt [8], washer [7], jumper [6], and washer [5] from the system A reservoir [1].

SUBTASK 29-11-31-020-008

- (8) Remove the bolts [2] and washers [3].

SUBTASK 29-11-31-020-009

- (9) Remove the system A reservoir [1].

SUBTASK 29-11-31-020-010

- (10) If it is necessary to keep components for installation on the replacement reservoir [1], do these steps:
 - (a) Remove the disconnect coupling [13], reducer [17], and reducer [23].
 - (b) Do these steps to remove the drain valve [21]:
 - 1) Remove the lockwire from the drain valve [21].
 - 2) Remove the bolts [19] and washers [20] from the drain valve [21].
 - 3) Remove the drain valve [21] from the reservoir [1].
 - (c) Do this task: Hydraulic Fluid Quantity Transmitter/Indicator - Removal, TASK 29-33-12-000-801.
 - (d) Install caps on all the open ports of the reservoir [1].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-31

Page 402
May 15/2022



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

- (e) Discard the packing [11], packing [12], packing [18], and packing [24].

———— **END OF TASK** ————

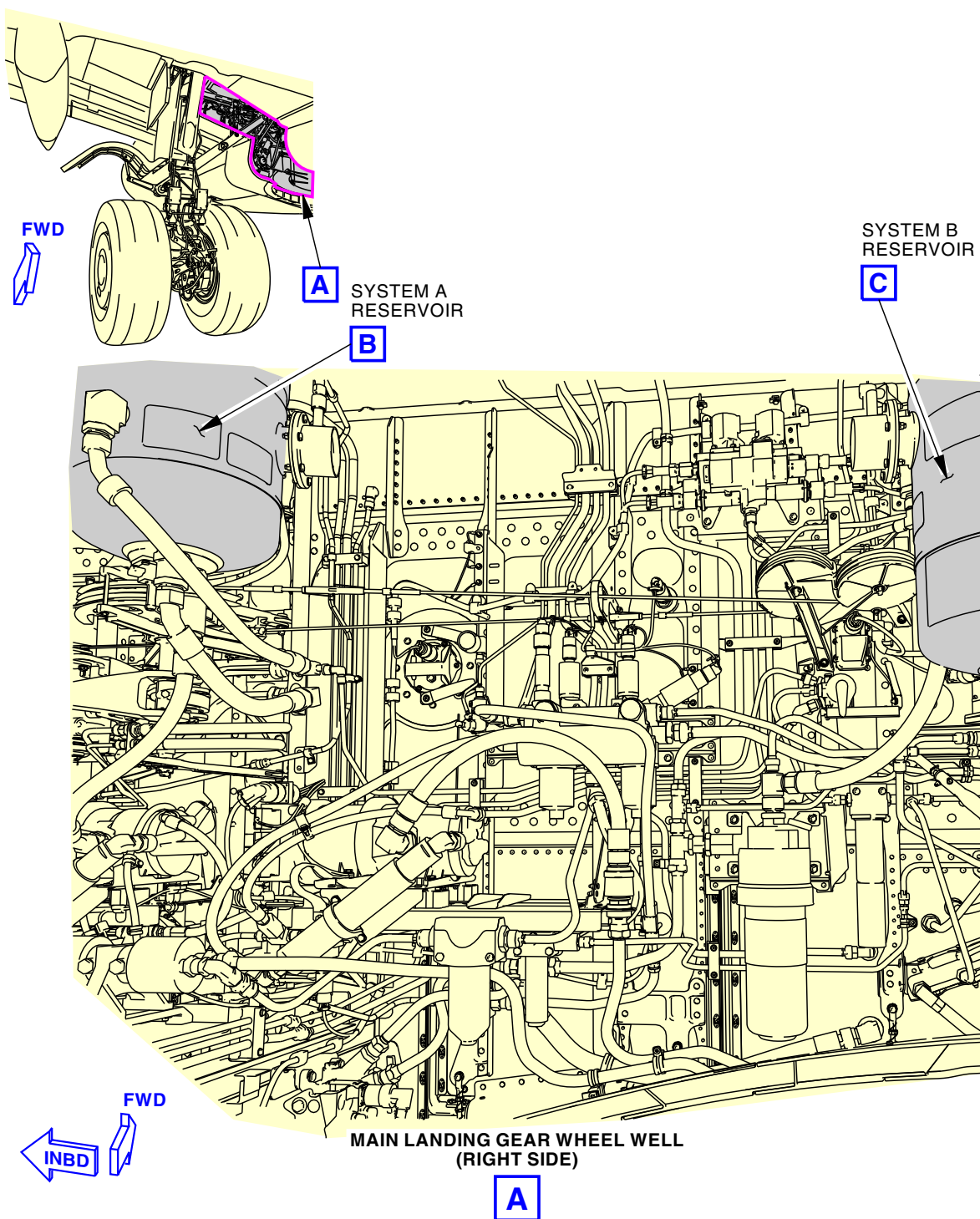
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-31

Page 403
Sep 15/2021



2413804 S00061533410_V2

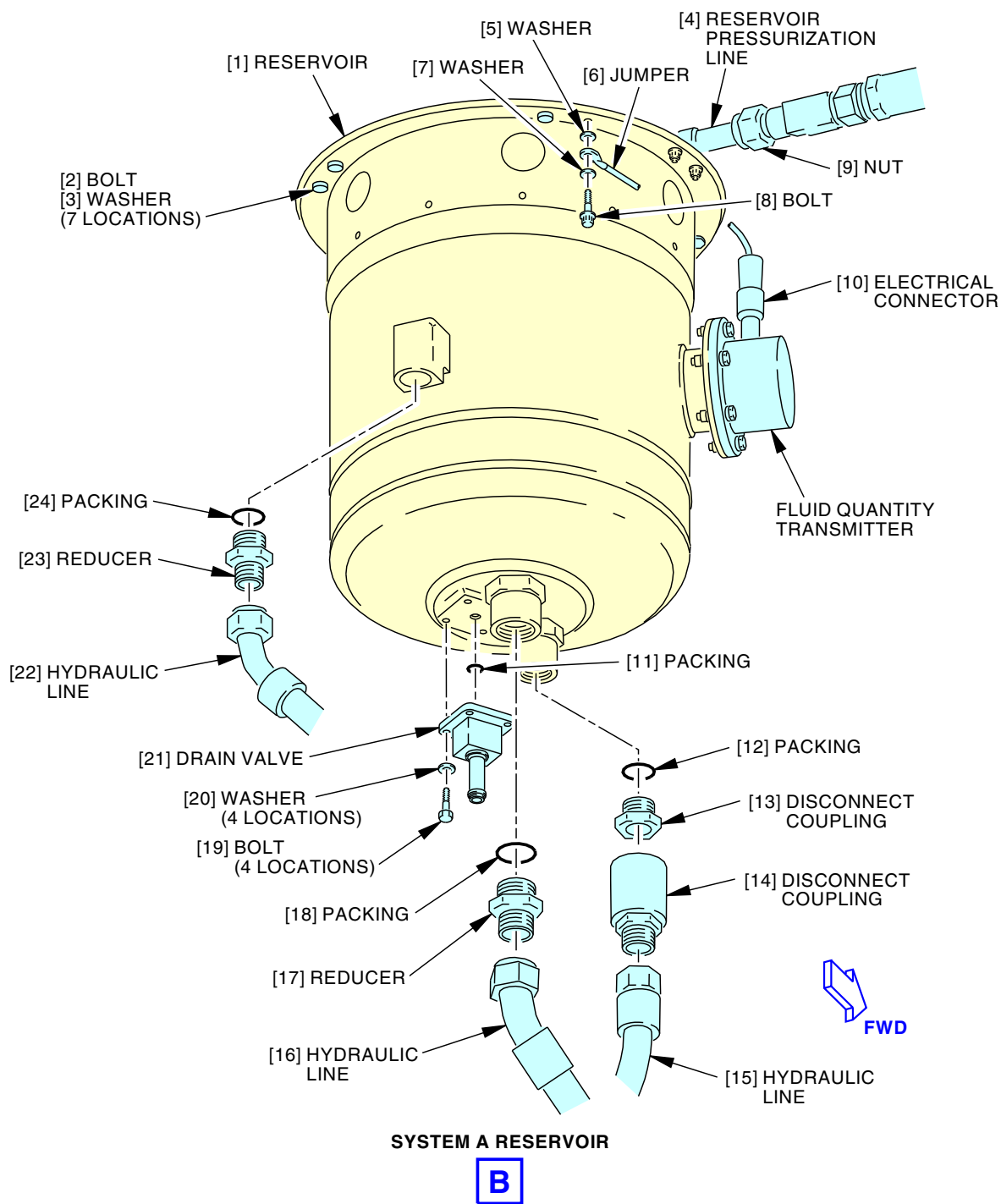
Hydraulic System A and B Reservoirs Installation
Figure 401/29-11-31-990-801 (Sheet 1 of 3)

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

Page 404
Sep 15/2021



2413805 S00061533411_V2

Hydraulic System A and B Reservoirs Installation
Figure 401/29-11-31-990-801 (Sheet 2 of 3)

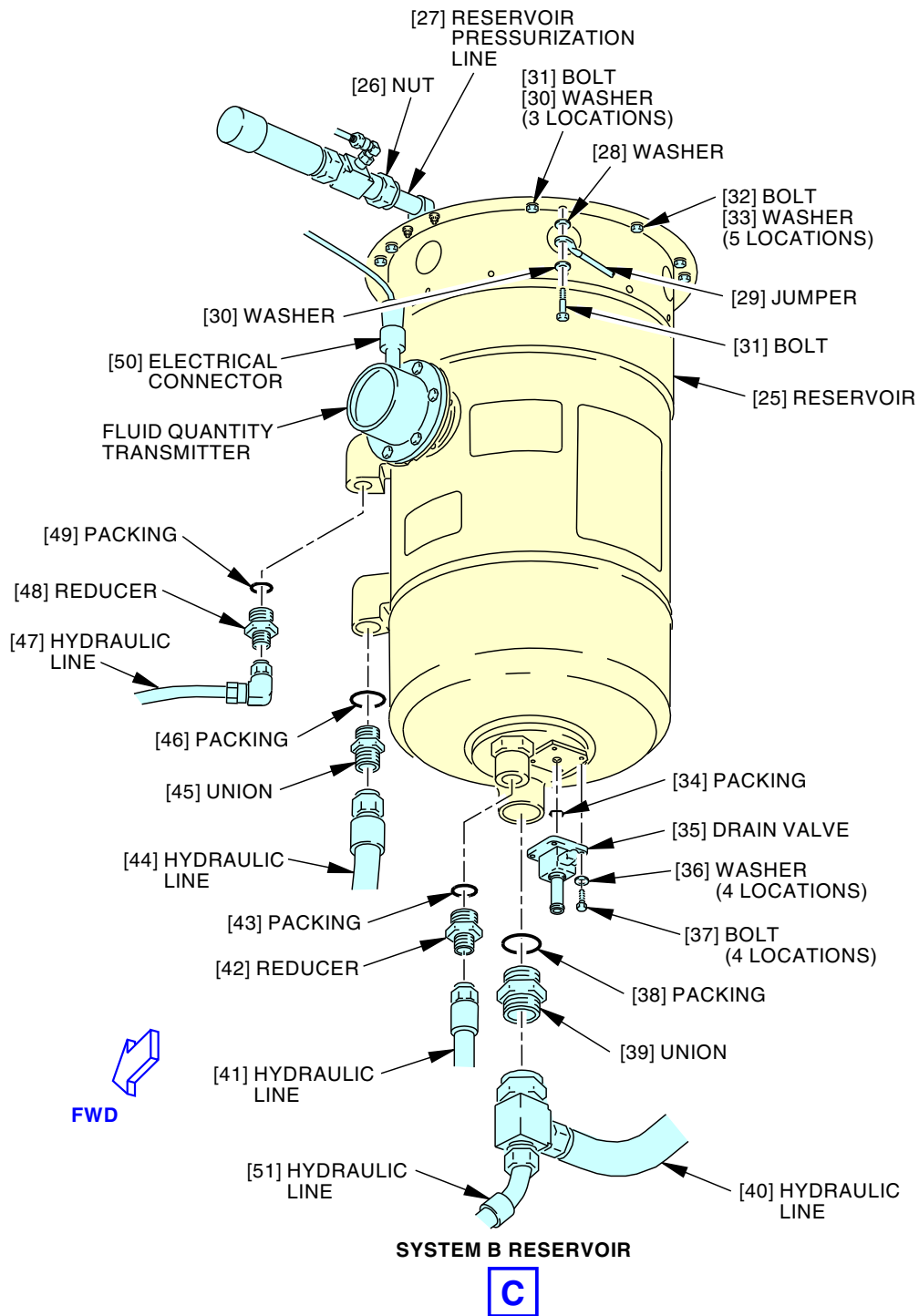
EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

Page 405
May 15/2022

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



2413806 S00061533412_V3

Hydraulic System A and B Reservoirs Installation
Figure 401/29-11-31-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

Page 406
May 15/2022



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

TASK 29-11-31-400-801

3. Hydraulic System A Reservoir Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-33-12-400-801	Hydraulic Fluid Quantity Transmitter/Indicator - Installation (P/B 401)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES
SWPM 20-20-10	REPLACEMENT OF GROUND STUDS AND BONDING JUMPER INSTALLATION

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
A50231	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class B
A50337	Sealant - Fuel Tank	BMS5-45 Class B
A50359	Sealant - Low Density, Non-Chromate Type	BMS5-142 Type II Class B
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-31

Page 407
May 15/2023



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

(Continued)

Reference	Description	Specification
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III
C50178	Coating - Chemical And Solvent Resistant Finish - (BAC 707 Gray Color)	BMS10-11 Type II
C50315	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51293	Cotton Wiper - Knit, Process Cleaning Absorbent Wiper	BMS15-5 Class B

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Reservoir	29-11-31-01-019 29-33-12-01-005	SIA ALL SIA ALL
11	Packing	29-11-31-01-060	SIA ALL
12	Packing	29-11-31-01-075	SIA ALL
18	Packing	29-11-31-01-040	SIA ALL
21	Drain valve	29-11-31-01-045	SIA ALL
24	Packing	29-11-31-01-030	SIA ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Prepare for the Installation

SUBTASK 29-11-31-210-001

- (1) Make sure that the surfaces of the system A reservoir [1] are clean.

SUBTASK 29-11-31-210-002

- (2) Make sure that unwanted material does not get in the reservoir [1].

SUBTASK 29-11-31-420-001

- (3) If it is necessary to install components on the replacement reservoir [1], do these steps:
- (a) Install the drain valve [21]:
 - 1) Remove the caps from the ports on the reservoir [1].
 - 2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, on the new packing [11].

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA



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

- 3) Install the new packing [11] in the groove of the flange of the drain valve [21].
 - 4) Put the drain valve [21] on the flange.
 - 5) Install the bolts [19] and the washers [20].
 - 6) Install MS20995C32 lockwire, G01048, on the drain valve [21], do this task:
Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.
 - 7) Put the drain valve handle in the CLOSED position.
 - 8) Install MS20995C32 lockwire, G01048, on the drain valve handle, do this task:
Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.
- (b) Install the disconnect coupling [13], reducer [17], and reducer [23]:
- 1) Remove the caps from the ports on the reservoir [1].
 - 2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [12], new packing [18], new packing [24], disconnect coupling [13], reducer [17], and reducer [23].
 - 3) Install the new packing [12], new packing [18], new packing [24], disconnect coupling [13], reducer [17], and reducer [23] in the reservoir ports.
- (c) Do this task: Hydraulic Fluid Quantity Transmitter/Indicator - Installation, TASK 29-33-12-400-801.

G. Hydraulic System A Reservoir Installation

SIA 001-014

SUBTASK 29-11-31-390-001

- (1) Apply primer, C00259, to all areas of the fastener hole for the bolts [2].
- (a) Make sure to let primer, C00259, dry.

SIA ALL

SUBTASK 29-11-31-420-002

- (2) Put the hydraulic reservoir [1] in its mounting position.

SUBTASK 29-11-31-420-003

- (3) Install the bolts [2] and washers [3].
- (a) Apply compound, C00528, to all areas of the fastener hole.
- (b) Immediately install the bolts [2] and washers [3].

SUBTASK 29-11-31-420-020

- (4) Do these steps to install the washer [5], jumper [6], washer [7], and bolt [8]:
- (a) Clean the surfaces of the aluminum reservoir [1] and jumper [6] (SWPM 20-20-00).
- 1) Use cleaning method 1 to manually clean the surfaces of the reservoir [1] and jumper [6].
 - a) Use an abrasive pad to clean the surfaces.
 - b) Move the pad in a circular movement while you press with your thumb.
 - 2) Final clean the surfaces of the reservoir [1] and jumper [6].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-31

Page 409
May 15/2022

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



DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR CAUSE DAMAGE TO THE ENVIRONMENT. REFER TO THE MATERIAL SAFETY DATA SHEETS (MSDS) AND THE LOCAL SAFETY PRECAUTIONS.

- a) Use a new cotton wiper, G00034 (preferred), knit cotton wiper, G51293 (alternate), soaked with solvent, B00062, or solvent, B00184.
- b) Rub dry with a clean cotton wiper.
- c) Continue to clean and dry the surfaces until the cotton wiper stays clean.

SIA 001-014

- (b) Manually apply coating, C00064 (preferred), Bonderite M-CR 600 Aero coating, C50315(alternate), to the bare aluminum surfaces of the reservoir [1] and jumper [6].
- (c) Apply primer, C00259, to all areas of the fastener hole.
 - 1) Make sure to let primer, C00259, dry.

SIA ALL

- (d) Apply compound, C00528, to all areas of the fastener hole.
- (e) Immediately install the washer [5], jumper [6], washer [7], and bolt [8].
- (f) Measure the electrical bonding resistance between the jumper [6] and reservoir [1] (SWPM 20-20-10).
 - 1) Use an intrinsically safe approved bonding meter, COM-1550.
 - 2) Make sure that the electrical bonding resistance is 0.001 ohm (1.0 miliohms) or less.

SIA 001-014

- (g) Seal the jumper [6] connector with sealant, A02315.

SIA 015-999

- (h) Apply a fillet seal with sealant, A50337, sealant, A50231, or sealant, A50359, to cover the washer [5], jumper [6], washer [7], and bolt [8].
- (i) If reservoir exterior surface had primer, apply coating, C00064, and primer, C00259, to the bare aluminium surfaces of the reservoir [1] and jumper [6].
- (j) If reservoir exterior surface had enamel, apply coating, C00064, primer, C00259, and coating, C50178, to the bare aluminium surfaces of the reservoir [1] and jumper [6].

SIA ALL

SUBTASK 29-11-31-420-004

- (5) Remove the caps from the electrical connector [10], fluid quantity transmitter, hydraulic line [15], hydraulic line [16], hydraulic line [22], reservoir pressurization line [4], and ports on the reservoir [1].

SUBTASK 29-11-31-210-005

- (6) Inspect the electrical connector [10] and repair if necessary, do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-11-31-420-005

- (7) Connect the electrical connector [10] to the fluid quantity transmitter.

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

Page 410
May 15/2022



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

SUBTASK 29-11-31-420-006

- (8) Connect the hydraulic line [15] and hydraulic line [22] to the hydraulic reservoir [1].
 - (a) Tighten the B-nuts on hydraulic line [15] and hydraulic line [22] to 750 $\pm$ 38 in-lb (85 $\pm$ 5 N·m).

SUBTASK 29-11-31-420-024

- (9) Connect the hydraulic line [16] to the hydraulic reservoir [1].
 - (a) Tighten the B-nut on hydraulic line [16] to 450 $\pm$ 23 in-lb (51 $\pm$ 3 N·m).

SUBTASK 29-11-31-420-007

- (10) Connect the reservoir pressurization line [4].

H. Hydraulic System A Reservoir Installation Test

SUBTASK 29-11-31-020-021

- (1) Remove the DO NOT OPERATE tags from the applicable hydraulic system pump switches on the P5 forward overhead panel.

SUBTASK 29-11-31-610-001

- (2) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-31-860-003

- (3) Pressurize the hydraulic system A reservoir [1], do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-31-790-001

- (4) Do a check for leaks.

SUBTASK 29-11-31-860-007

- (5) Depressurize the hydraulic system A reservoir [1], do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

————— END OF TASK —————

TASK 29-11-31-000-802

4. Hydraulic System B Reservoir Removal

(Figure 401)

A. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
29-33-12-000-801	Hydraulic Fluid Quantity Transmitter/Indicator - Removal (P/B 401)

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE
STD-1158	Container - 20 Gallon (76 Liter)

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 411
May 15/2022



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

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 29-11-31-860-004

- (1) Do these steps to remove power from Hydraulic System B and Standby Hydraulic System:
 - (a) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) Do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-11-31-930-003

- (2) Put the DO NOT OPERATE tags, STD-858, on the applicable hydraulic system pump switches on the P5 forward overhead panel.

SUBTASK 29-11-31-860-005

- (3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-31-480-002

- (4) Place a 20 gallon (76 liter) container, STD-1158, beneath the system B hydraulic reservoir drain valve [35].

SUBTASK 29-11-31-020-022

- (5) Remove the lockwire from the drain valve handle.

SUBTASK 29-11-31-020-011

- (6) Open the drain valve [35].

SUBTASK 29-11-31-680-002

- (7) Drain the fluid from the system B reservoir [25] into the 20 gallon (76 liter) container, STD-1158.

NOTE: The system B reservoirs capacity is approximately 8.2 gal (31.0 l).

SUBTASK 29-11-31-160-002

- (8) If it is necessary, clean all hydraulic fluid from the installation area, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

E. Hydraulic System B Reservoir Removal

SUBTASK 29-11-31-020-012

- (1) Disconnect the reservoir pressurization line [27].

SUBTASK 29-11-31-020-013

- (2) Disconnect the hydraulic line [40], hydraulic line [41], hydraulic line [44], hydraulic line [47], and hydraulic line [51] from the system B reservoir [25].

SUBTASK 29-11-31-420-017

- (3) Install protective covers on the fittings and hoses.

SUBTASK 29-11-31-020-015

- (4) Disconnect the electrical connector [50] from the fluid quantity transmitter.

SUBTASK 29-11-31-420-016

- (5) Install a cap on the electrical connector [50] to prevent contamination or damage.

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 412
May 15/2022



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

SUBTASK 29-11-31-020-023

- (6) Remove the bolt [31], washer [30], jumper [29], and washer [28] from the system B reservoir [25].

SUBTASK 29-11-31-020-016

- (7) Remove the bolts [31], washers [30], bolts [32], and washers [33].

SUBTASK 29-11-31-020-017

- (8) Remove the system B reservoir [25].

SUBTASK 29-11-31-020-018

- (9) If it is necessary to keep components for installation on the replacement reservoir [25], do these steps:
- (a) Remove the union [39], reducer [42], union [45], and reducer [48].
 - (b) Do these steps to remove the drain valve [35]:
 - 1) Remove the lockwire from the drain valve [35].
 - 2) Remove the bolts [37] and washers [36] from the drain valve [35].
 - 3) Remove the drain valve [35] from the reservoir [25].
 - (c) Do this task: Hydraulic Fluid Quantity Transmitter/Indicator - Removal, TASK 29-33-12-000-801.
 - (d) Install caps on all the open ports of the system B reservoir [25].
 - (e) Discard the packing [34], packing [38], packing [43], packing [46], and packing [49].

————— END OF TASK —————

TASK 29-11-31-400-802

5. Hydraulic System B Reservoir Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-33-12-400-801	Hydraulic Fluid Quantity Transmitter/Indicator - Installation (P/B 401)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES
SWPM 20-20-10	REPLACEMENT OF GROUND STUDS AND BONDING JUMPER INSTALLATION

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.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-31

Page 413
May 15/2022



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

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

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
A50110	Sealant - Fuel Tank	BMS5-45 Class B-2
A50155	Sealant - Fuel Tank	BMS5-45 Class C
A50231	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class B
A50296	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class C
A50337	Sealant - Fuel Tank	BMS5-45 Class B
A50359	Sealant - Low Density, Non-Chromate Type	BMS5-142 Type II Class B
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III
C50178	Coating - Chemical And Solvent Resistant Finish - (BAC 707 Gray Color)	BMS10-11 Type II
C50315	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-31

Page 414
May 15/2023



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

(Continued)

Reference	Description	Specification
G51293	Cotton Wiper - Knit, Process Cleaning Absorbent Wiper	BMS15-5 Class B

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
25	Reservoir	29-11-31-02-020	SIA ALL
34	Packing	29-11-31-02-095	SIA ALL
35	Drain valve	29-11-31-02-090	SIA ALL
38	Packing	29-11-31-02-065	SIA ALL
43	Packing	29-11-31-02-075	SIA ALL
46	Packing	29-11-31-02-055	SIA ALL
49	Packing	29-11-31-02-045	SIA ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Prepare for the Installation

SUBTASK 29-11-31-210-003

- (1) Make sure that the surfaces of the system B reservoir [25] are clean.

SUBTASK 29-11-31-210-004

- (2) Make sure that unwanted material does not get in the system B reservoir [25].

SUBTASK 29-11-31-420-008

- (3) If it is necessary to install components on the replacement reservoir [25], do these steps:

- (a) Install the drain valve [35]:

- 1) Remove the caps from the ports on the reservoir [25].
- 2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, on the new packing [34].
- 3) Install the new packing [34] in the groove of the flange of the drain valve [35].
- 4) Put the drain valve [35] on the flange.
- 5) Install the washers [36] and bolts [37].
- 6) Install MS20995C32 lockwire, G01048, on the drain valve [35], do this task:
Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.
- 7) Put the drain valve handle in the CLOSED position.
- 8) Install MS20995C32 lockwire, G01048, on the drain valve handle, do this task:
Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

- (b) Install the union [39], reducer [42], union [45], and reducer [48]:

- 1) Remove the caps from the ports on the reservoir [25].
- 2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [38], new packing [43], new packing [46], new packing [49], union [39], reducer [42], union [45], and reducer [48].
- 3) Install the new packing [38], new packing [43], new packing [46], new packing [49], union [39], reducer [42], union [45], and reducer [48].

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

Page 415
May 15/2023



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

- (c) Do this task: Hydraulic Fluid Quantity Transmitter/Indicator - Installation, TASK 29-33-12-400-801.

G. Hydraulic System B Reservoir Installation

SIA 001-014

SUBTASK 29-11-31-390-002

- (1) Apply primer, C00259, to all areas of the fastener hole for the bolts [32] and three bolts [31].
(a) Make sure to let primer, C00259, dry.

SIA ALL

SUBTASK 29-11-31-420-009

- (2) Put the hydraulic system B reservoir [25] in its mounting position.

SUBTASK 29-11-31-420-010

- (3) Install the washers [33], bolts [32], three washers [30], and three bolts [31].
(a) Apply compound, C00528, to all areas of the fastener hole.
(b) Immediately install the washers [33], bolts [32], three washers [30], and three bolts [31].

SUBTASK 29-11-31-420-015

- (4) Do these steps to install the washer [28], jumper [29], washer [30], and bolt [31]:
(a) Clean the surfaces of the aluminum reservoir [25] and jumper [29] (SWPM 20-20-00).
1) Use cleaning method 1 to manually clean the surfaces of the reservoir [25] and jumper [29].
a) Use an abrasive pad to clean the surfaces.
b) Move the pad in a circular movement while you press with your thumb.
2) Final clean the surfaces of the reservoir [25] and jumper [29].



WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR CAUSE DAMAGE TO THE ENVIRONMENT. REFER TO THE MATERIAL SAFETY DATA SHEETS (MSDS) AND THE LOCAL SAFETY PRECAUTIONS.

- a) Use a new cotton wiper, G00034 (preferred), knit cotton wiper, G51293 (alternate), soaked with solvent, B00062, or solvent, B00184.
b) Rub dry with a clean cotton wiper.
c) Continue to clean and dry the surfaces until the cotton wiper stays clean.

SIA 001-010

- (b) Manually apply coating, C00064 (preferred), Bonderite M-CR 600 Aero coating, C50315 (alternate), to the bare aluminum surfaces of the reservoir [25] and jumper [29].

SIA 001-014

- (c) Apply primer, C00259, to all areas of the fastener hole.
1) Make sure to let primer, C00259, dry.

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 416
May 15/2023



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

SIA 011-014

- (d) Apply sealant, A50155, sealant, A50110, sealant, A50296, or sealant, A50231, to the mating surfaces of the washer [28], jumper [29], washer [30], and bolt [31].

SIA ALL

- (e) Apply compound, C00528, to all areas of the fastener hole.
- (f) Immediately install the washer [28], jumper [29], washer [30], and bolt [31].
- (g) Measure the electrical bonding resistance between the reservoir [25] and jumper [29] (SWPM 20-20-10).
 - 1) Use an intrinsically safe approved bonding meter, COM-1550.
 - 2) Make sure that the electrical bonding resistance is 0.001 ohm (1.0 miliohms) or less.

SIA 001-010

- (h) Seal the jumper [29] connector with sealant, A02315.

SIA 015-999

- (i) Apply a fillet seal with sealant, A50337, sealant, A50231, or sealant, A50359, to cover the washer [28], jumper [29], washer [30], and bolt [31].

SIA 011-999

- (j) If reservoir exterior surface had primer, apply coating, C00064, and primer, C00259, to the bare aluminium surfaces of the reservoir [25] and jumper [29].
- (k) If reservoir exterior surface had enamel, apply coating, C00064, primer, C00259, and coating, C50178, to the bare aluminium surfaces of the reservoir [25] and jumper [29].

SIA ALL

SUBTASK 29-11-31-420-011

- (5) Remove the caps from the electrical connector [50], fluid quantity transmitter, hydraulic line [40], hydraulic line [41], hydraulic line [44], hydraulic line [47], reservoir pressurization line [27], and ports on the reservoir [25].

SUBTASK 29-11-31-210-006

- (6) Inspect the electrical connector [50].
 - (a) If it is necessary, repair the electrical connector [50], do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-11-31-420-012

- (7) Connect the electrical connector [50] to the fluid quantity transmitter.

SUBTASK 29-11-31-420-013

- (8) Connect the hydraulic line [40] to the hydraulic reservoir [25].
 - (a) Tighten the B-nut on the hydraulic line [40] to 750 $\pm$ 38 in-lb (85 $\pm$ 5 N·m).

SUBTASK 29-11-31-420-021

- (9) Connect the hydraulic line [41] to the hydraulic reservoir [25].
 - (a) Tighten the B-nut on the hydraulic line [41] to 360 $\pm$ 18 in-lb (41 $\pm$ 2 N·m).

SUBTASK 29-11-31-420-022

- (10) Connect the hydraulic line [44] and hydraulic line [51] to the hydraulic reservoir [25].
 - (a) Tighten the B-nuts on the hydraulic line [44] and hydraulic line [51] to 450 $\pm$ 23 in-lb (51 $\pm$ 3 N·m).

EFFECTIVITY
SIA ALL

29-11-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 417
May 15/2022



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

SUBTASK 29-11-31-420-023

- (11) Connect the hydraulic line [47] to the hydraulic reservoir [25].
 - (a) Tighten the B-nut on the hydraulic line [47] to 500 ±25 in-lb (56 ±3 N·m).

SUBTASK 29-11-31-420-014

- (12) Connect the reservoir pressurization line [27].

H. Hydraulic System B Reservoir Installation Test

SUBTASK 29-11-31-080-001

- (1) Remove the DO NOT OPERATE tags from the hydraulic pump switches.

SUBTASK 29-11-31-610-002

- (2) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-31-860-006

- (3) Pressurize the hydraulic system B reservoir [25], do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-31-790-002

- (4) Do a check for leaks.

SUBTASK 29-11-31-860-008

- (5) Depressurize the hydraulic system B reservoir [25], do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-31

Page 418
May 15/2022



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

**SYSTEMS A AND B ELECTRIC MOTOR DRIVEN PUMP (EMDP) CASE DRAIN FILTER MODULE AND
COMPONENTS - REMOVAL/INSTALLATION**

1. General

A. This procedure has these tasks:

- (1) A removal of a EMDP case drain filter element
- (2) An installation of a EMDP case drain filter element
- (3) A removal of a EMDP case drain filter module
- (4) An installation of a EMDP case drain filter module
- (5) A metal contamination check of the EMDP case drain filter.

B. The EMDP case drain filter module is referred to as the "filter" in this procedure.

C. This procedure is applicable for the hydraulic systems A and B filter.

TASK 29-11-41-000-801

2. EMDP Case Drain Filter Element Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task includes the steps to remove the Electric Motor-Driven Pump (EMDP) Case Drain Filter Element.

B. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
20-10-44-000-802	Safety Cable Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-41-200-801	EMDP Case Drain Filter Element and Bowl Inspection (P/B 601)

C. Tools/Equipment

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

Reference	Description
COM-7293	Pick - O-Ring, 90-degree Tip Part #: YA145-2 Supplier: 55719

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-41

Page 401
Sep 15/2023



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

F. Prepare for the Removal

SUBTASK 29-11-41-840-001

- (1) Remove hydraulic power from the applicable system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-41-010-001

- (2) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-11-41-860-001



WARNING

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



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-41-860-002

- (4) Remove pressure from the applicable hydraulic reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-41-860-003

- (5) Disconnect the supply line at the system A EMDP quick-disconnect or the system B EMDP quick-disconnect, as applicable (Figure 401).

G. EMDP Case Drain Filter Element Removal

NOTE: If necessary, the filter element can be removed from the filter module after removing the module from the airplane. These are the tasks: EMDP Case Drain Filter Module Removal, TASK 29-11-41-000-802 and EMDP Case Drain Filter Module Installation, TASK 29-11-41-400-802.

SUBTASK 29-11-41-020-001

- (1) Remove the lockwire or safety cable from the filter bowl [13] (TASK 20-10-44-000-801 or TASK 20-10-44-000-802).

EFFECTIVITY
SIA ALL

29-11-41

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 29-11-41-020-002

- (2) Remove the filter bowl [13] from the filter head.
- (a) Put a container below the filter bowl [13] when you do this to catch any hydraulic fluid.

SUBTASK 29-11-41-020-003

- (3) Remove the filter element [12] from the outlet of the filter assembly [6].

SUBTASK 29-11-41-020-004

- (4) Remove the packing [9] from the filter element [12].
- (a) Discard the packing [9].

SUBTASK 29-11-41-020-005

- (5) Remove the packing [11] and backup rings [10] from the filter head.
- NOTE: An o-ring pick, COM-7293, may be used to remove the packing [11].
- (a) Make sure you do not scratch the filter head.
- (b) Discard the packing [11].
- (c) If you find a crack, damage or deformation on a backup ring [10], discard the part.

SUBTASK 29-11-41-210-001

- (6) Check the EMDP for condition every time that the filter is removed (TASK 29-11-41-200-801).

SUBTASK 29-11-41-140-001

- (7) Clean the filter bowl [13].

END OF TASK

EFFECTIVITY
SIA ALL

D633AM101-SIA

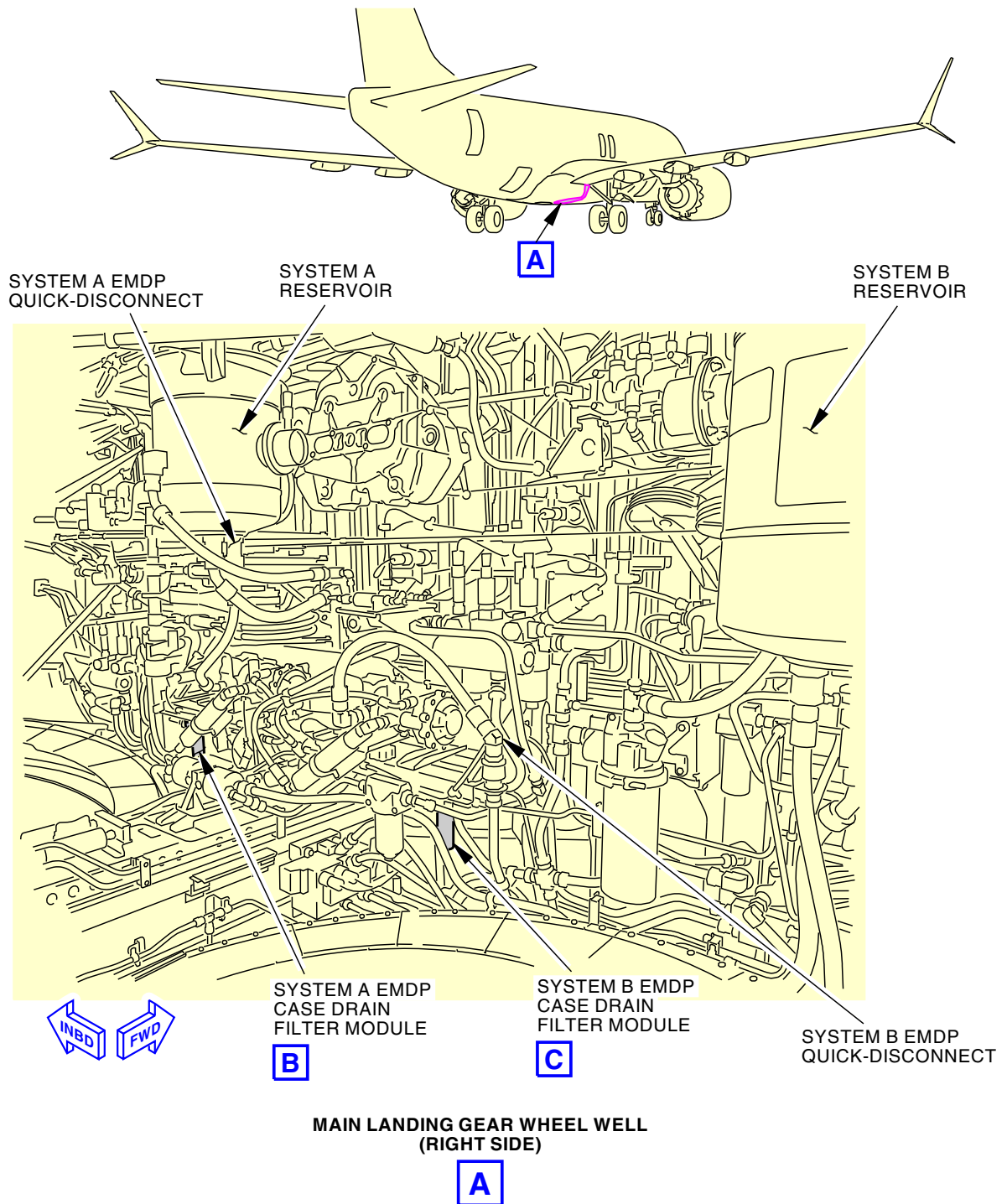
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-41

Page 403
Sep 15/2023



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



2413807 S00061533419_V1

Systems A and B Electric Motor-Driven Pump (EMDP) Case Drain Filter Installation
Figure 401/29-11-41-990-801 (Sheet 1 of 3)

EFFECTIVITY
SIA ALL

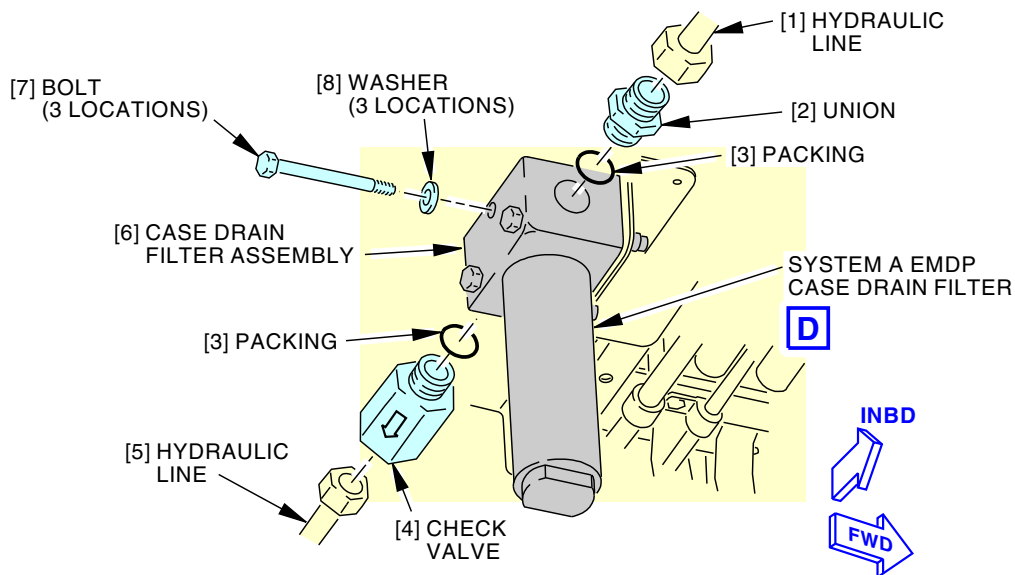
29-11-41

D633AM101-SIA

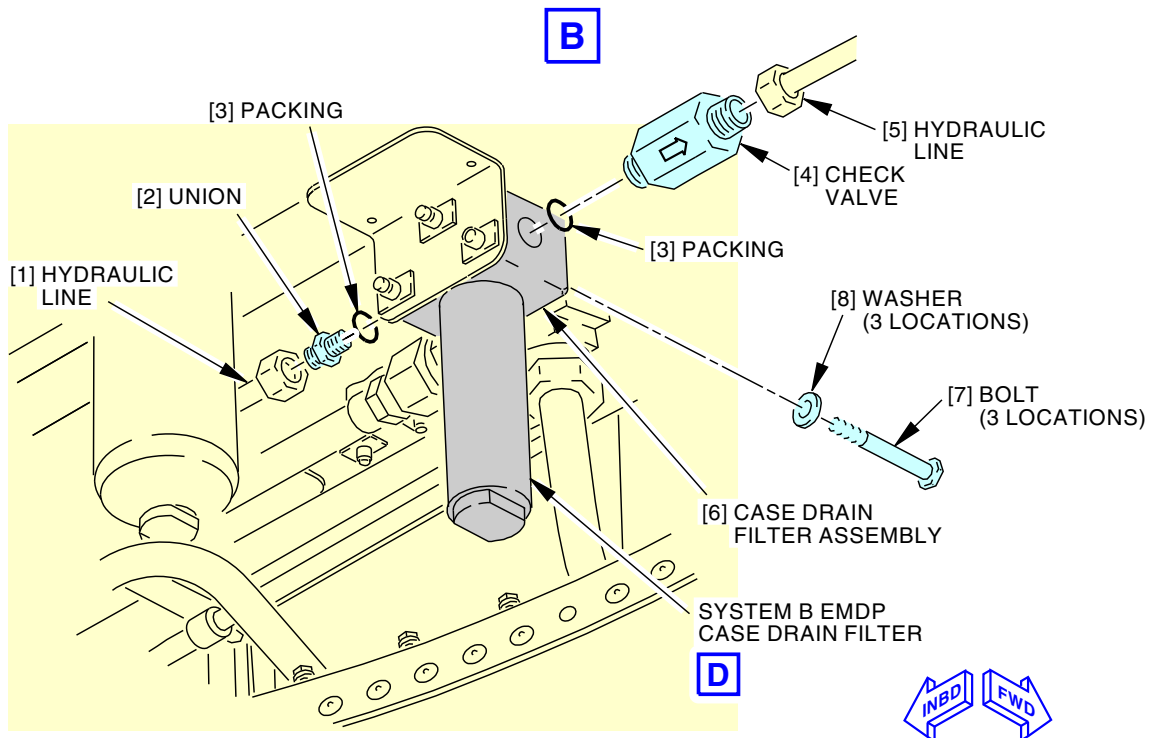
Page 404
Jan 15/2023



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



SYSTEM A EMDP CASE DRAIN FILTER MODULE



SYSTEM B EMDP CASE DRAIN FILTER MODULE

2413808 S00061533420_V1

Systems A and B Electric Motor-Driven Pump (EMDP) Case Drain Filter Installation
Figure 401/29-11-41-990-801 (Sheet 2 of 3)

EFFECTIVITY
SIA ALL

29-11-41

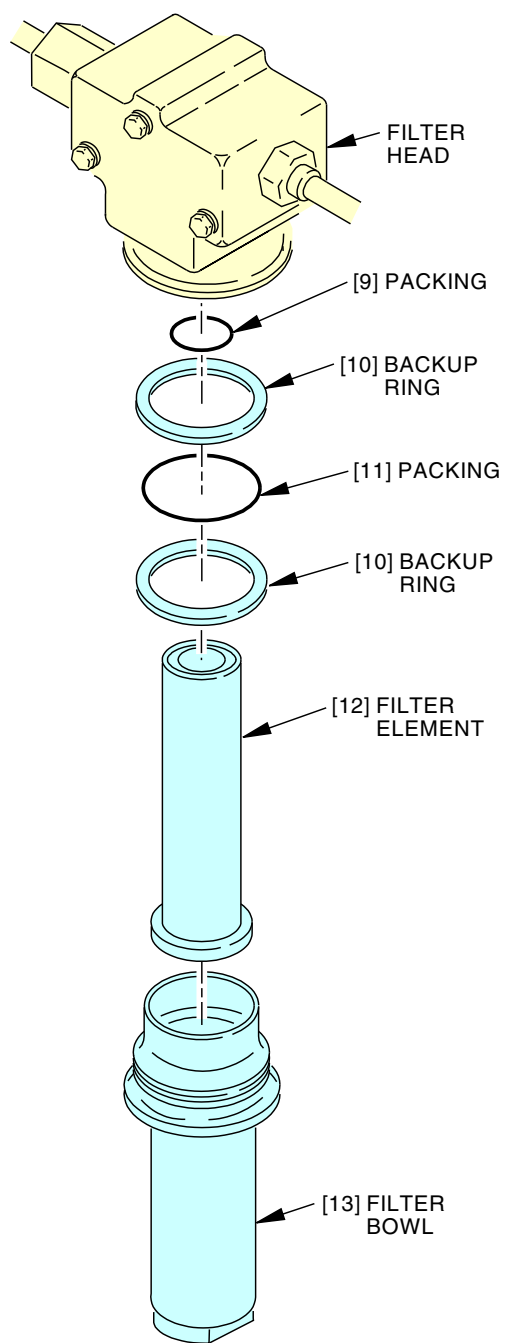
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Jan 15/2023



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



CASE DRAIN FILTER
(EXAMPLE)



2413809 S00061533421_V1

Systems A and B Electric Motor-Driven Pump (EMDP) Case Drain Filter Installation
Figure 401/29-11-41-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

29-11-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Jan 15/2023



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

TASK 29-11-41-400-801

3. EMDP Case Drain Filter Element Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-10-44-400-802	Safety Cable Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689
G51674	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long	BACC13AT3K12

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Packing	29-11-41-03-045	SIA ALL
		29-11-41-04-045	SIA ALL
11	Packing	29-11-41-03-050	SIA ALL
		29-11-41-04-050	SIA ALL
12	Filter element	29-11-41-03-040	SIA ALL
		29-11-41-04-040	SIA ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

EFFECTIVITY
SIA ALL

29-11-41

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. Access Panels

Number	Name/Location

117A	Electronic Equipment Access Door

F. EMDP Case Drain Filter Element Installation

SUBTASK 29-11-41-640-001

- (1) Lubricate the two backup rings [10], and the new packing [11] with MCS 352B fluid, D00054 or hydraulic fluid, D00153.

NOTE: Boeing recommends that new backup rings are installed.

NOTE: As an alternative, use the backup rings from the removal procedure again if you do not find damage.

SUBTASK 29-11-41-420-001

- (2) Install the two backup rings [10], and the new packing [11] in the filter head.

SUBTASK 29-11-41-640-002

- (3) Lubricate the new packing [9] with MCS 352B fluid, D00054 or hydraulic fluid, D00153.

SUBTASK 29-11-41-420-002

- (4) Install the new packing [9] in the new filter element [12].

SUBTASK 29-11-41-020-006

- (5) Install the filter element [12] into the outlet of the filter assembly [6].

SUBTASK 29-11-41-640-003

- (6) Lubricate the threads of the filter bowl [13] with MCS 352B fluid, D00054 or hydraulic fluid, D00153.

SUBTASK 29-11-41-420-004

- (7) Install the filter bowl [13] on the filter head.

SUBTASK 29-11-41-420-005

- (8) Tighten the filter bowl [13] from 96 in-lb (11 N·m) to 120 in-lb (14 N·m).

SUBTASK 29-11-41-420-006

- (9) Install MS20995C32 lockwire, G01048, or safety cable kit, G51674, or safety cable kit, G51490, on the filter bowl [13] (TASK 20-10-44-400-801 or TASK 20-10-44-400-802).

G. EMDP Case Drain Filter Element Installation Test

SUBTASK 29-11-41-860-004



MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY TO DO THE INSTALLATION, DISCONNECT THE SELF-SEAL DISCONNECT AND AGAIN MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER THE INSTALLATION, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 INCH. IF THE INDICATOR PINS DO NOT EXTEND CORRECTLY, FLUID FLOW CAN DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR OR THE PUMP.

- (1) Connect the supply line at the system A Electric Motor-Driven Pump (EMDP) quick-disconnect or the system B EMDP quick-disconnect, as applicable (Figure 401).

SUBTASK 29-11-41-600-001

- (2) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-41

Page 408
Sep 15/2023



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

SUBTASK 29-11-41-860-005

- (3) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801 to pressurize the applicable hydraulic reservoir.

SUBTASK 29-11-41-860-006



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-41-010-003

- (5) Close this access panel:

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

SUBTASK 29-11-41-860-008

- (6) Do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803 to pressurize the applicable hydraulic system with the EMDP.

SUBTASK 29-11-41-210-002

- (7) Make sure the applicable EMDP operates.

SUBTASK 29-11-41-210-003

- (8) Make sure the case drain filter assembly [6] does not have leaks.

SUBTASK 29-11-41-860-014

- (9) Remove hydraulic power from the applicable system (TASK 29-11-00-860-805).

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-11-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



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

TASK 29-11-41-000-802

4. **EMDP Case Drain Filter Module Removal**

(Figure 401)

A. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Removal

SUBTASK 29-11-41-840-002

- (1) Remove hydraulic power from the applicable system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-41-010-004

- (2) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-11-41-860-009



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-41

Page 410
Sep 15/2023



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

(WARNING PRECEDES)



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-41-860-010

- (4) Release the pressure from the applicable hydraulic reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

E. EMDP Case Drain Filter Module Removal

SUBTASK 29-11-41-020-007

- (1) Disconnect the hydraulic line [1] and hydraulic line [5] from the filter assembly [6].

SUBTASK 29-11-41-680-001

- (2) Drain the hydraulic fluid into a container.

SUBTASK 29-11-41-160-001

- (3) Clean all hydraulic fluid from the installation area if it is necessary (TASK 12-40-00-100-801 or TASK 12-40-00-100-802).

SUBTASK 29-11-41-020-008

- (4) If it is necessary to keep components for installation on the replacement filter assembly, do these steps:
- (a) Remove the union [2], check valve [4], and packings [3] from the ports of the filter assembly [6].

SUBTASK 29-11-41-020-009

- (5) Install caps on the hydraulic line [1] and hydraulic line [5] to prevent contamination.

SUBTASK 29-11-41-020-010

- (6) Install caps on the open ports on the filter assembly [6] to prevent contamination.

SUBTASK 29-11-41-020-011

- (7) Remove bolts [7] and washers [8] that attach the filter assembly [6] to the airplane.

SUBTASK 29-11-41-020-012

- (8) Remove the filter assembly [6] from the airplane.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-11-41

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

TASK 29-11-41-400-802

5. **EMDP Case Drain Filter Module Installation**

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689
G51674	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long	BACC13AT3K12

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Packing	29-11-41-03-020	SIA ALL
		29-11-41-04-020	SIA ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Procedure

SUBTASK 29-11-41-420-007

- (1) If it is necessary to install components on the replacement filter assembly, do these steps:
 - (a) If plugs are installed in the ports for the hydraulic line [1] and hydraulic line [5] remove them.
 - (b) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the new new packings [3], the threads on the union [2], and the check valve [4].
 - (c) Install the new packing [3] on the union [2].
 - (d) Install the new packing [3] on the check valve [4].

EFFECTIVITY
SIA ALL

29-11-41

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

- (e) Install the packing [3] and the union [2] in the inlet port of the filter assembly [6].



CAUTION

MAKE SURE THAT YOU INSTALL THE CHECK VALVE IN THE "OUT" PORT, AND THE ARROW ON THE CHECK VALVE AGREES WITH THE ARROW ON THE FILTER HEAD. FAILURE TO DO THIS CAN CAUSE DAMAGE TO THE EMDP.

- (f) Install the packing [3] and the check valve [4] in the outlet port of the filter assembly [6].

SUBTASK 29-11-41-640-004

- (2) Lubricate the threaded fittings with MCS 352B fluid, D00054 or hydraulic fluid, D00153.

SUBTASK 29-11-41-420-008



CAUTION

MAKE SURE THAT THE ARROW ON THE FILTER HEAD WILL POINT OUTBOARD. A FAILURE TO DO THIS CAN CAUSE DAMAGE TO THE EMDP.

- (3) Put the filter assembly [6] in its position.

SUBTASK 29-11-41-420-009

- (4) Install the bolts [7] and the washers [8] to attach the filter assembly [6] to the airplane.

SUBTASK 29-11-41-020-013

- (5) If caps are installed in the hydraulic line [1] and hydraulic line [5] remove them.

SUBTASK 29-11-41-420-010

- (6) Connect hydraulic line [1] and hydraulic line [5] to the filter assembly [6].

- (a) Tighten the B-nuts on hydraulic line [1] and hydraulic line [5] to 170 ± 9 in-lb (19 ± 1 N·m).

SUBTASK 29-11-41-420-011

- (7) Make sure that the filter bowl [13] has MS20995C32 lockwire, G01048, or safety cable kit, G51674, or safety cable kit, G51490, installed.

G. EMDP Case Drain Filter Module Installation Test

SUBTASK 29-11-41-610-001

- (1) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-41-840-003

- (2) Pressurize the applicable hydraulic reservoir, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-41-860-012



WARNING

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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-41

Page 413
Sep 15/2023



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

(WARNING PRECEDES)



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-41-010-005

- (4) Close this access panel:

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

SUBTASK 29-11-41-790-001



WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (5) Put the applicable switch, on the forward overhead panel, P5, in the ON position.
- (a) ELEC 2 for system A.
 - (b) ELEC 1 for system B.

SUBTASK 29-11-41-790-002

- (6) Make sure the case drain filter module does not have a leak.

SUBTASK 29-11-41-840-004

- (7) Put the ELEC 2 or ELEC 1 switch in the OFF position.

SUBTASK 29-11-41-600-002

- (8) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

————— **END OF TASK** —————

TASK 29-11-41-700-801

6. EMDP Case Drain Filter - Metal Contamination Check

(Figure 401)

A. General

- (1) Do this task if you found unacceptable metal contamination in the case drain filter for the Electric Motor-Driven Pump (EMDP).

EFFECTIVITY
SIA ALL

29-11-41

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

B. References

Reference	Title
29-11-00-100-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning (P/B 201)
29-11-21-000-801	Electric Motor-Driven Pump (EMDP) Removal (P/B 401)
29-11-21-400-801	Electric Motor-Driven Pump (EMDP) Installation (P/B 401)
29-11-27-000-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal (P/B 401)
29-11-27-400-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation (P/B 401)
29-11-71-000-802	Hydraulic Systems A and B Pressure Module Filter Element Removal (P/B 401)
29-11-71-400-802	Hydraulic Systems A and B Pressure Module Filter Element Installation (P/B 401)
29-22-00-730-801	Power Transfer Unit (PTU) System Test (P/B 501)
29-22-11-000-801	Power Transfer Unit (PTU) Removal (P/B 401)
29-22-11-400-801	Power Transfer Unit (PTU) Installation (P/B 401)
29-22-21-000-802	PTU Pressure Filter Element Removal (P/B 401)
29-22-21-400-802	PTU Pressure Filter Element Installation (P/B 401)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Procedure

SUBTASK 29-11-41-170-001

- (1) Flush the hydraulic lines between the case drain filter and the hydraulic pump.

SUBTASK 29-11-41-210-004

- (2) Look for metal contamination in the pressure filter for the EMDP, do this task: Hydraulic Systems A and B Pressure Module Filter Element Removal, TASK 29-11-71-000-802.
 - (a) If you find metal contamination, do these steps:
 - 1) Flush the hydraulic lines between the pressure filter and the EMDP.
 - 2) Install a new pressure filter element.

These are the tasks: Hydraulic Systems A and B Pressure Module Filter Element Removal, TASK 29-11-71-000-802, Hydraulic Systems A and B Pressure Module Filter Element Installation, TASK 29-11-71-400-802.
 - 3) Install a new EMDP.

These are the tasks: Electric Motor-Driven Pump (EMDP) Removal, TASK 29-11-21-000-801, Electric Motor-Driven Pump (EMDP) Installation, TASK 29-11-21-400-801.
 - (b) If you do not find metal contamination in the pressure filter of the EMDP, do this task: Hydraulic Systems A and B Pressure Module Filter Element Installation, TASK 29-11-71-400-802.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-41

Page 415
Sep 15/2023



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

SUBTASK 29-11-41-210-005

- (3) Look for metal contamination in the acoustic filter for the EMDP, do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal, TASK 29-11-27-000-801.
- (a) If you find metal contamination, do these steps:
- 1) Clean the acoustic filter, do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Cleaning, TASK 29-11-00-100-801.
 - 2) Install a new EMDP.
These are the tasks: Electric Motor-Driven Pump (EMDP) Removal, TASK 29-11-21-000-801, Electric Motor-Driven Pump (EMDP) Installation, TASK 29-11-21-400-801.
- (b) If you do not find metal contamination in the acoustic filter, do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation, TASK 29-11-27-400-801.

SUBTASK 29-11-41-210-006

- (4) If the acoustic filter and the pressure filter for the EMDP do not have metal contamination, then do these steps:
- (a) Look for metal contamination in the pressure filter for the Power Transfer Unit (PTU), do this task: PTU Pressure Filter Element Removal, TASK 29-22-21-000-802.
- (b) If you find metal contamination, do these steps:
- 1) Flush the hydraulic lines between the pressure filter and the PTU.
 - 2) Install a new PTU pressure filter element.
These are the tasks: PTU Pressure Filter Element Removal, TASK 29-22-21-000-802, PTU Pressure Filter Element Installation, TASK 29-22-21-400-802.
 - 3) Install a new PTU.
These are the tasks: Power Transfer Unit (PTU) Removal, TASK 29-22-11-000-801, Power Transfer Unit (PTU) Installation, TASK 29-22-11-400-801.
- (c) If the pressure filter for the PTU does not have metal contamination, do these steps:
- 1) Do this task: Power Transfer Unit (PTU) System Test, TASK 29-22-00-730-801.
 - 2) If the PTU does not operate correctly, replace the PTU.
These are the tasks: Power Transfer Unit (PTU) Removal, TASK 29-22-11-000-801, Power Transfer Unit (PTU) Installation, TASK 29-22-11-400-801.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-41

Page 416
Sep 15/2023



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

**SYSTEMS A AND B ELECTRIC MOTOR DRIVEN PUMP (EMDP) CASE DRAIN FILTER MODULE AND
COMPONENTS - INSPECTION/CHECK**

1. General

A. This procedure has this task:

- (1) EMDP Case Drain Filter Element And Bowl Inspection.

TASK 29-11-41-200-801

2. EMDP Case Drain Filter Element and Bowl Inspection

A. References

Reference	Title
29-11-00 P/B 501	HYDRAULIC SYSTEMS A AND B - ADJUSTMENT/TEST
29-11-00-170-801	Hydraulic System A or B Flushing (P/B 201)
29-11-21-000-801	Electric Motor-Driven Pump (EMDP) Removal (P/B 401)
29-11-21-400-801	Electric Motor-Driven Pump (EMDP) Installation (P/B 401)
29-11-41-000-801	EMDP Case Drain Filter Element Removal (P/B 401)
29-11-41-400-801	EMDP Case Drain Filter Element Installation (P/B 401)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Inspection

SUBTASK 29-11-41-000-001

- (1) Do this task: EMDP Case Drain Filter Element Removal, TASK 29-11-41-000-801.

D. Inspection

SUBTASK 29-11-41-200-001

- (1) Examine the filter element, the filter bowl, and the fluid in the filter bowl for metal contamination.
- (a) If you find a small quantity of metal particles that have equal dimensions, do these steps:
- NOTE:** It is not necessary to replace a pump if the quantity of metal particles is small and they have equal dimensions. The filter can have more particles during initial operation of a new pump while mating parts wear away small surface defects. It is not necessary to replace the pump if more small particles are found at the next filter change after installation of a new pump.
- 1) Replace the filter element.
 - 2) Do this task: HYDRAULIC SYSTEMS A AND B - ADJUSTMENT/TEST, PAGEBLOCK 29-11-00/501.
 - 3) Examine the filter again at the next scheduled filter change interval.
- (b) If you find a large quantity of small metal particles, large metal particles that are not of equal dimensions, or a large quantity of steel particles, do these steps:
- NOTE:** A large quantity of small metal particles, or large metal particles that are not of equal dimensions, can be an indication of an unsatisfactory pump. The particles are usually bronze mixed with a small quantity of steel. A large quantity of steel particles is an indication of unsatisfactorily worn bearings.

EFFECTIVITY
SIA ALL

29-11-41

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**

- 1) Replace the pump at the next maintenance opportunity (TASK 29-11-21-000-801 and TASK 29-11-21-400-801).
- 2) Write down the results of the filter inspection and give them to the pump overhaul facility.

NOTE: The filter inspection results can be used as an aid to find the condition of the pump. A pump with an unsatisfactory bearing can pass the functional test and be returned to service with no fault found. Giving the filter inspection data to the overhaul facility can prevent the return of an unsatisfactory pump to service.

- 3) Replace the filter element.



CAUTION

FLUSH THE HYDRAULIC LINES TO REMOVE METAL CONTAMINATION. IF A LARGE QUANTITY OF METAL CONTAMINATION STAYS IN THE LINES, THE FILTER CAN BECOME BLOCKED. A BLOCKED FILTER CAN CAUSE DAMAGE TO THE PUMP.

- (c) If you will remove a pump because of metal contamination in the filter, flush the hydraulic lines and replace the applicable filter elements (TASK 29-11-00-170-801).

SUBTASK 29-11-41-210-007

- (2) Inspect the filter element for damages.
 - (a) Discard and replace the filter element if damages are found.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-41-400-001

- (1) Do this task: EMDP Case Drain Filter Element Installation, TASK 29-11-41-400-801.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

29-11-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 602
Sep 15/2021



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

**ENGINE DRIVEN PUMP (EDP) CASE DRAIN FILTER MODULE AND COMPONENTS - REMOVAL/
INSTALLATION**

1. General

A. This procedure has these tasks:

- (1) EDP case drain filter element removal
- (2) EDP case drain filter element installation
- (3) EDP case drain filter module removal
- (4) EDP case drain filter module installation.

TASK 29-11-51-000-801

2. EDP Case Drain Filter Element Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task is for the removal of the case drain filter element.
- (2) Each engine has one case drain filter for each engine-driven pump located at the 11 o'clock position.
- (3) The case drain filter module on Engine 1 is for hydraulic system A. The case drain filter module on Engine 2 is for hydraulic system B.

B. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
20-10-44-000-802	Safety Cable Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-51-200-801	EDP Case Drain Filter Element and Bowl Inspection (P/B 601)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)

C. Location Zones

Zone	Area
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

D. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51

Page 401
Sep 15/2023



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

E. Prepare for the Removal

SUBTASK 29-11-51-860-022

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

CAPT Electrical System Panel, P18-2

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

SUBTASK 29-11-51-860-023

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

F/O Electrical System Panel, P6-2

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

SUBTASK 29-11-51-860-024

- (3) Remove the hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-51-860-025

- (4) Remove the pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-51-010-003

- (5) On the applicable engine, open the left fan cowl panel (TASK 71-11-04-010-801-G00).

- (a) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

F. EDP Case Drain Filter Element Removal

SUBTASK 29-11-51-020-014



DO NOT DISCONNECT THE QUICK-RELEASE FITTING FOR THE HYDRAULIC CASE DRAIN-LINE AT THE SUPPORT BEAM FOR THE STRUT FAN COWL. A DISCONNECTED CASE DRAIN LINE WITH A QUICK-RELEASE FITTING CAN CAUSE TO INCORRECT INSTALLATION. AN INCORRECTLY INSTALLED QUICK-RELEASE FITTING CAN CAUSE DAMAGE TO THE HYDRAULIC PUMP.

- (1) Do not disconnect the hydraulic case drain line quick release fitting at the strut fan cowl support beam.

NOTE: It is not necessary to disconnect the hydraulic case drain line quick release fitting. A check valve is installed on the downstream side of the Engine Driven Pump (EDP) case drain filter module. The check valve will prevent hydraulic fluid loss when the EDP case drain filter element is removed.

SUBTASK 29-11-51-020-015

- (2) If it is necessary, you can remove the filter element after you remove the case drain filter module (TASK 29-11-51-000-802).

SUBTASK 29-11-51-020-016

- (3) Remove the lockwire or safety cable from the filter bowl [8] (TASK 20-10-44-000-801 or TASK 20-10-44-000-802).

SUBTASK 29-11-51-020-017

- (4) Remove the filter bowl [8] from the filter head.

EFFECTIVITY
SIA ALL

29-11-51

D633AM101-SIA

Page 402
Sep 15/2023



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

- (a) Drain the hydraulic fluid into a container.

SUBTASK 29-11-51-020-018

- (5) Remove the filter element [7] from the outlet of the case drain filter assembly [9].

SUBTASK 29-11-51-020-019

- (6) Remove the packing [6] from the filter element [7].

SUBTASK 29-11-51-020-020

- (7) Remove the packing [10], and the backup rings [5] from the filter head.

- (a) Discard the packing [10].

- (b) If you find a crack, damage or deformation on the backup ring [5], discard the part.

SUBTASK 29-11-51-210-003

- (8) Check the EDP for condition every time that the filter is removed (TASK 29-11-51-200-801).

SUBTASK 29-11-51-160-003

- (9) Clean the filter bowl [8].

———— **END OF TASK** ————

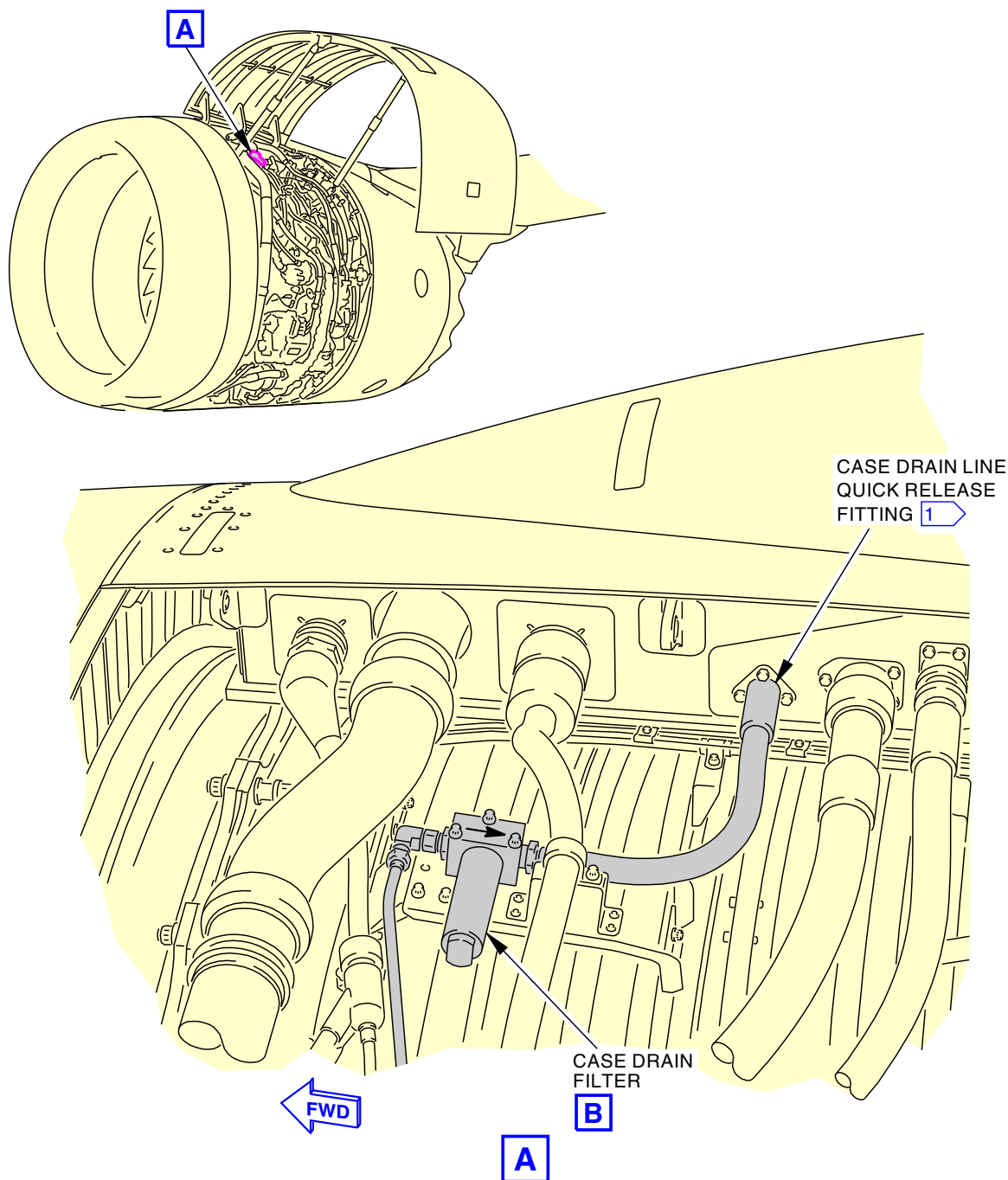
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51

Page 403
Sep 15/2023



- 1 DO NOT DISCONNECT THE CASE DRAIN LINE QUICK RELEASE FITTING AT THE STRUT FAN COWL SUPPORT BEAM. IT IS NOT NECESSARY TO DISCONNECT THE QUICK RELEASE FITTING TO PREVENT HYDRAULIC FLUID LOSS.

3017385 S0000790035_V1

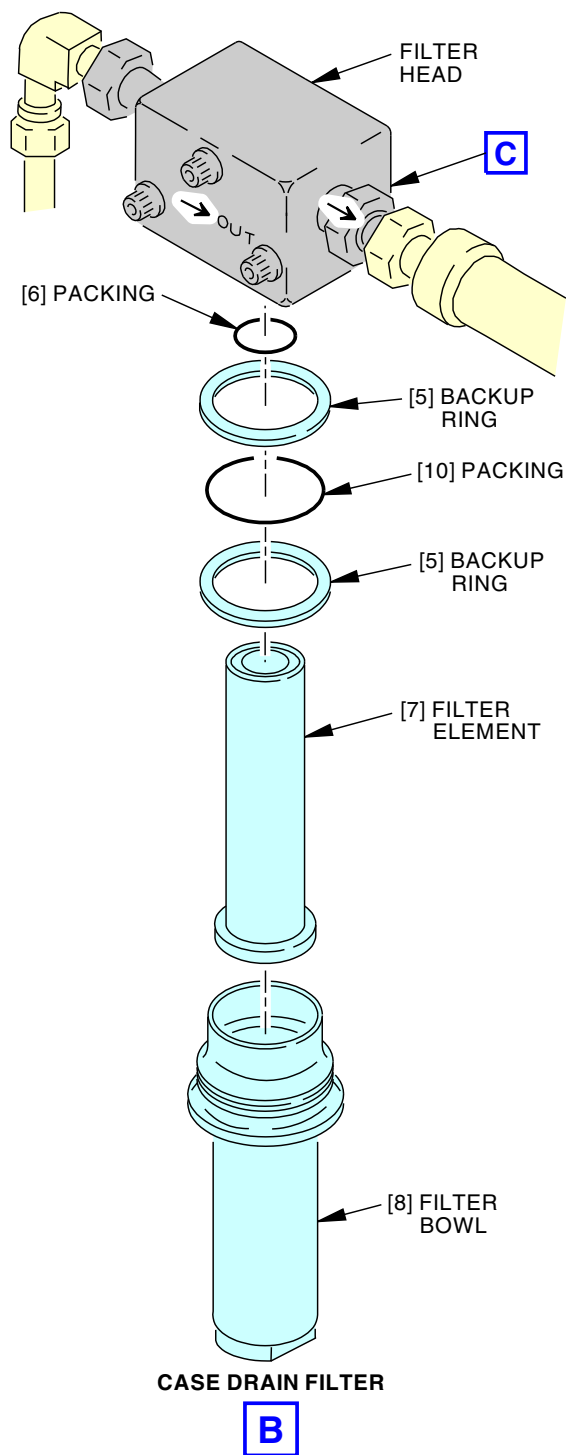
Hydraulic Systems A and B Engine-Driven Pump (EDP) Case Drain Filter Installation
Figure 401/29-11-51-990-804 (Sheet 1 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51



2413811 S00061533433_V2

Hydraulic Systems A and B Engine-Driven Pump (EDP) Case Drain Filter Installation
Figure 401/29-11-51-990-804 (Sheet 2 of 3)

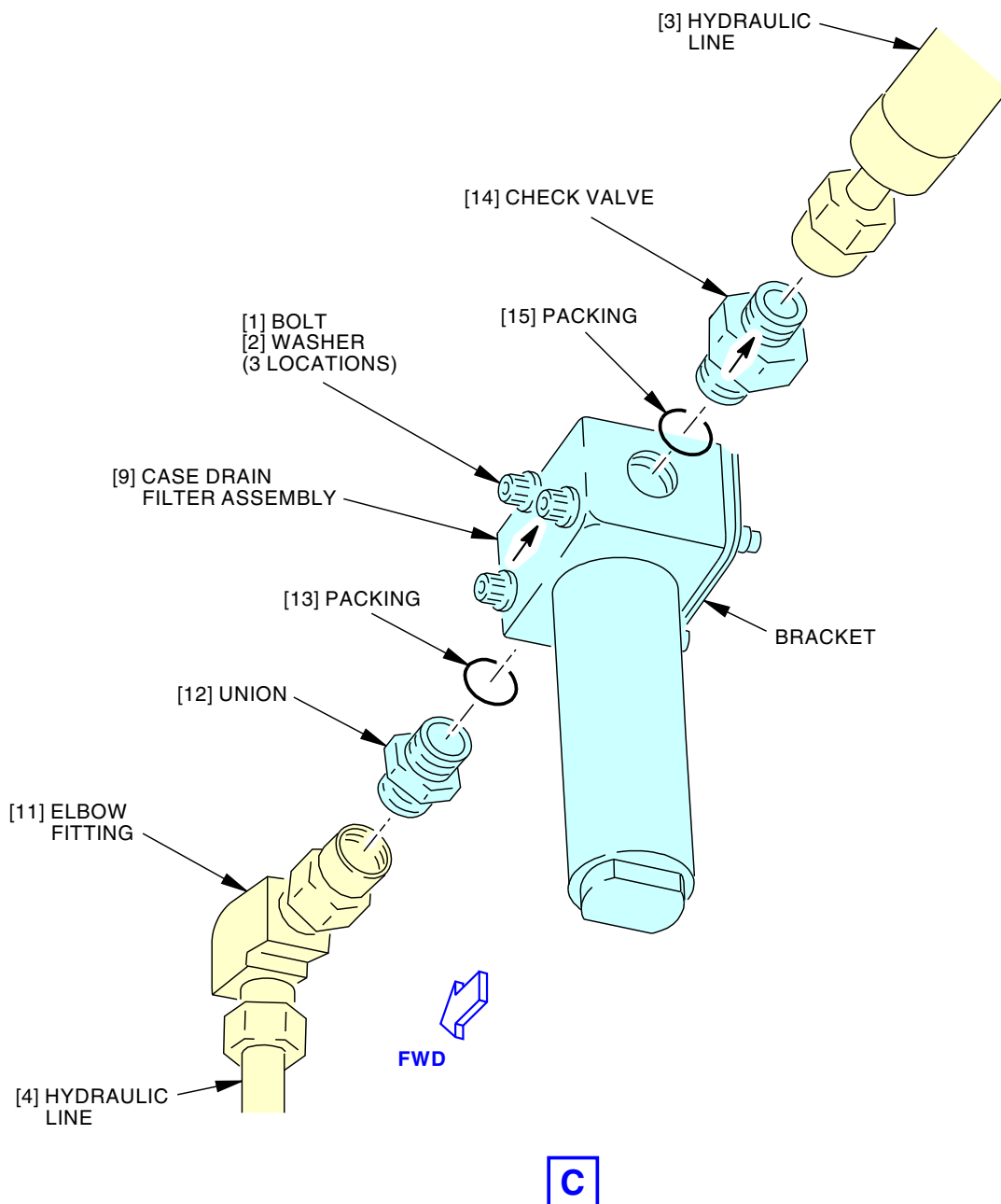
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51

Page 405
Sep 15/2023



3041266 S0000808890_V1

Hydraulic Systems A and B Engine-Driven Pump (EDP) Case Drain Filter Installation
Figure 401/29-11-51-990-804 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

29-11-51

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

TASK 29-11-51-400-801

3. EDP Case Drain Filter Element Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is for the installation of the case drain filter element.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-10-44-400-802	Safety Cable Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
71-00-00-910-808-G00	Dry Motor Procedure (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689
G51674	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long	BACC13AT3K12

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Backup ring	29-11-51-01-190	SIA ALL
6	Packing	29-11-51-01-180	SIA ALL
7	Filter element	29-11-51-01-175	SIA ALL
10	Packing	29-11-51-01-185	SIA ALL

E. Location Zones

Zone	Area
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

EFFECTIVITY
SIA ALL

29-11-51

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

F. Access Panels

Number	Name/Location

413	Left Fan Cowl, Engine 1

423	Left Fan Cowl, Engine 2

G. EDP Case Drain Filter Element Installation

SUBTASK 29-11-51-640-001

- (1) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the backup rings [5] and new packing [10].

NOTE: Boeing recommends that new backup rings [5] are installed.

NOTE: As an alternative, use the backup rings [5] from the removal procedure again if you do not find damage.

SUBTASK 29-11-51-420-001

- (2) Install the backup rings [5] and new packing [10] in the filter head groove.

SUBTASK 29-11-51-640-002

- (3) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [6].

SUBTASK 29-11-51-420-002

- (4) Install the new packing [6] into the groove of the filter element [7].

SUBTASK 29-11-51-420-003

- (5) Install the filter element [7] into the outlet of the case drain filter assembly [9].

SUBTASK 29-11-51-640-003

- (6) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the threads of the filter bowl [8].

SUBTASK 29-11-51-420-006

- (7) Install the filter bowl [8] into the filter head.
 - (a) Tighten the filter bowl [8] to 96 in-lb (10.8 N·m) - 120 in-lb (13.6 N·m).
 - (b) Install MS20995C32 lockwire, G01048, or safety cable kit, G51674, or safety cable kit, G51490, on the filter bowl [8] (TASK 20-10-44-400-801 or TASK 20-10-44-400-802).

H. EDP Case Drain Filter Element Installation Test

SUBTASK 29-11-51-860-004

- (1) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-51-860-014

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	8	C01103	ENGINE 1 START VALVE

SUBTASK 29-11-51-860-015

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	4	C00154	ENGINE 2 START VALVE

SUBTASK 29-11-51-860-005

- (4) Pressurize the applicable system with the engine driven pump (TASK 71-00-00-910-808-G00).

EFFECTIVITY
SIA ALL

29-11-51

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 29-11-51-860-006

- (5) Make sure that the hydraulic pressure becomes stable between 2800 psi (19,305 kPa) and 3200 psi (22,063 kPa).

SUBTASK 29-11-51-790-001

- (6) Make sure that the case drain filter assembly [9] does not have a leak.

SUBTASK 29-11-51-790-003

- (7) Make sure that the case drain line quick release fitting is properly installed and does not have a leak.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-51-860-007

- (1) Remove the hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-51-410-003

- (2) On the applicable engine, close the left fan cowl panel (TASK 71-11-04-410-801-G00).

- (a) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

SUBTASK 29-11-51-600-001

- (3) If it is necessary, service the applicable hydraulic reservoir (TASK 12-12-00-610-801).

————— END OF TASK —————

TASK 29-11-51-000-802

4. EDP Case Drain Filter Module Removal

(Figure 402)

A. General

- (1) This task is for the removal of the EDP case drain filter module.
- (2) Each engine has one case drain filter module for the engine-driven pump located at the 11 o'clock position.
- (3) The case drain filter module on Engine 1 is for hydraulic system A. The case drain filter module on Engine 2 is for hydraulic system B.

B. References

<u>Reference</u>	<u>Title</u>
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
71-11-04-010-801-G00	Open the Fan Cowl Panels (Selection) (P/B 201)

C. Location Zones

<u>Zone</u>	<u>Area</u>
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left

EFFECTIVITY
SIA ALL

29-11-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



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

(Continued)

Zone	Area
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

D. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

E. Prepare for the Removal

SUBTASK 29-11-51-860-016

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	8	C01103	ENGINE 1 START VALVE

SUBTASK 29-11-51-860-017

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	4	C00154	ENGINE 2 START VALVE

SUBTASK 29-11-51-860-008

- (3) Remove the hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-51-860-009

- (4) Remove the pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-51-010-002

- (5) On the applicable engine, open the left fan cowl panel (TASK 71-11-04-010-801-G00).

- (a) Open these access panels:

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

F. EDP Case Drain Filter Module Removal

SUBTASK 29-11-51-020-006

- (1) Disconnect the hydraulic line [3] from the check valve [14].

SUBTASK 29-11-51-020-007

- (2) Disconnect the hydraulic line [4] from the elbow fitting [11].

SUBTASK 29-11-51-680-001

- (3) Put a container below the case drain filter assembly [9] to catch the hydraulic fluid.

SUBTASK 29-11-51-160-002

- (4) If it is necessary, clean all hydraulic fluid from the installation area (TASK 12-40-00-100-801 or TASK 12-40-00-100-802).

SUBTASK 29-11-51-020-008

- (5) If it is necessary to keep components for installation on the replacement filter assembly, do this step:

EFFECTIVITY
SIA ALL

29-11-51

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

- (a) Remove the union [12], check valve [14], packing [13], and packing [15] from the ports of the case drain filter assembly [9] assembly.

SUBTASK 29-11-51-420-008

- (6) Install caps on the hydraulic lines.

SUBTASK 29-11-51-020-009

- (7) Remove the bolts [1] and washers [2]] from the case drain filter assembly [9].

SUBTASK 29-11-51-020-010

- (8) Remove the case drain filter assembly [9] from bracket.

———— **END OF TASK** ————

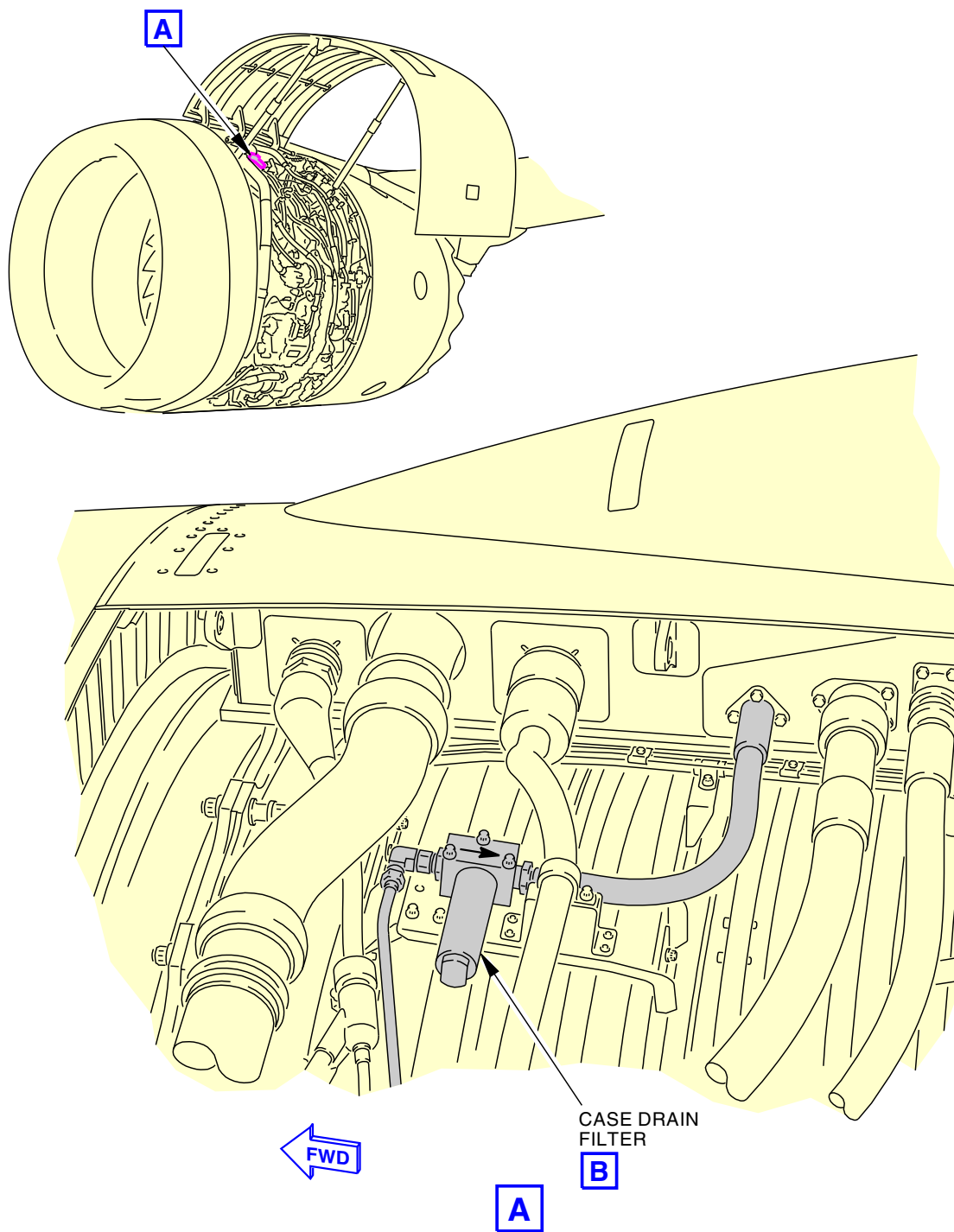
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51

Page 411
Sep 15/2023



2413810 S00061533432_V1

Hydraulic Systems A and B Engine-Driven Pump (EDP) Case Drain Filter Module Installation
Figure 402/29-11-51-990-803 (Sheet 1 of 2)

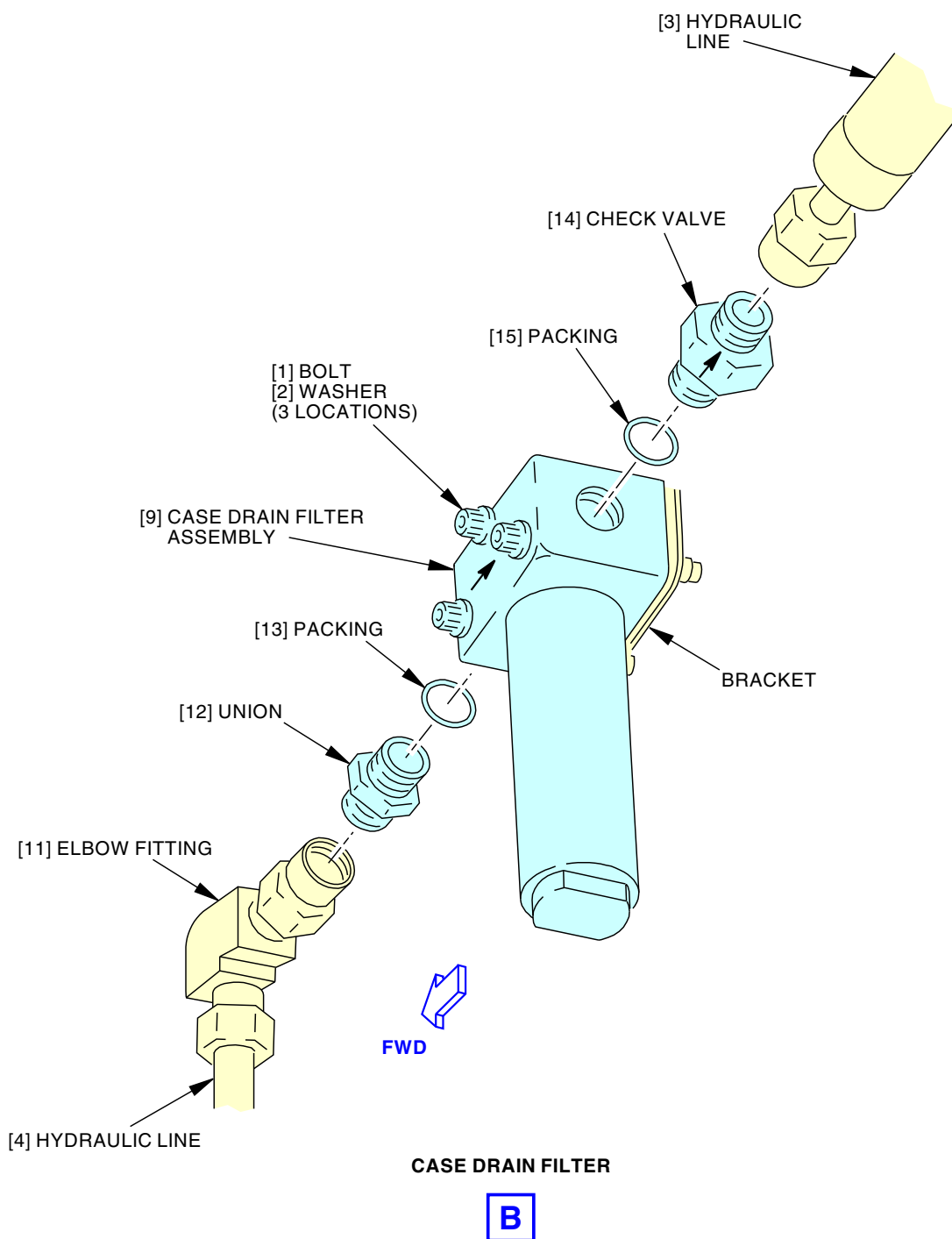
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51

Page 412
Sep 15/2023



2413812 S00061533434_V1

Hydraulic Systems A and B Engine-Driven Pump (EDP) Case Drain Filter Module Installation
Figure 402/29-11-51-990-803 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-11-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 413
Sep 15/2023



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

TASK 29-11-51-400-802

5. EDP Case Drain Filter Module Installation

(Figure 401, Figure 402)

A. General

(1) This task is for the installation of the Engine Driven Pump (EDP) case drain filter module.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-804	Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
71-11-04-410-801-G00	Close the Fan Cowl Panels (Selection) (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689
G51674	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long	BACC13AT3K12

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Case drain filter assembly	29-11-51-01-160	SIA ALL
13	Packing	29-11-51-01-140	SIA ALL
15	Packing	29-11-51-01-140	SIA ALL

E. Location Zones

Zone	Area
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

F. Access Panels

Number	Name/Location
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

EFFECTIVITY
SIA ALL

29-11-51

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

G. EDP Case Drain Filter Module Installation

SUBTASK 29-11-51-420-009

- (1) If it is necessary to install components on the replacement filter assembly, do these steps:
 - (a) Remove the plugs from the ports of the case drain filter assembly [9].
 - (b) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153, to the new packing [13], packing [15] and to the threads on the union [12], and the check valve [14].
 - (c) Install the new packing [13] on the union [12].
 - (d) Install the new packing [15] on the check valve [14].
 - (e) Install the packing [13] and the union [12] in the inlet port of case drain filter assembly [9].
 - 1) Tighten the union [12] to 162 in-lb (18 N·m) - 178 in-lb (20 N·m).



CAUTION

MAKE SURE THAT THE ARROWS ON THE CHECK VALVE, AND HYDRAULIC FILTER POINT IN SAME DIRECTION. IF THE ARROWS POINT IN DIFFERENT DIRECTIONS, DAMAGE TO THE EDP WILL OCCUR.

- (f) Install the packing [15], and the check valve [14] in the outlet port of the case drain filter assembly [9].
 - 1) Tighten the check valve [14] to 162 in-lb (18 N·m) - 178 in-lb (20 N·m).

SUBTASK 29-11-51-420-010



CAUTION

MAKE SURE THAT THE ARROW ON THE FILTER HEAD POINTS AFT. IF YOU DO NOT, DAMAGE TO THE EDP CAN OCCUR.

- (2) Put the case drain filter assembly [9] in its position on the mounting bracket.

SUBTASK 29-11-51-420-011

- (3) Install the bolts [1], and the washers [2] to attach the case drain filter assembly [9] to the bracket.

SUBTASK 29-11-51-020-011

- (4) Remove the caps from hydraulic line [3] and hydraulic line [4].

SUBTASK 29-11-51-420-012

- (5) Connect the hydraulic line [3] to the check valve [14].
 - (a) Tighten the B-nut on hydraulic line [3] to 170 ±9 in-lb (19 ±1 N·m).

SUBTASK 29-11-51-420-013

- (6) Connect the hydraulic line [4] to the elbow fitting [11].
 - (a) Tighten the B-nut on hydraulic line [4] to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 29-11-51-420-014

- (7) Make sure that the filter bowl [8] on the case drain filter assembly [9] has MS20995C32 lockwire, G01048, or safety cable kit, G51674, or safety cable kit, G51490, installed.

H. EDP Case Drain Filter Module Installation Test

SUBTASK 29-11-51-860-011

- (1) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51

Page 415
Sep 15/2023



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

SUBTASK 29-11-51-860-020

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

CAPT Electrical System Panel, P18-2

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

SUBTASK 29-11-51-860-021

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

F/O Electrical System Panel, P6-2

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

SUBTASK 29-11-51-860-012

- (4) Pressurize the applicable system with the engine driven pump (TASK 29-11-00-860-804).

SUBTASK 29-11-51-790-002

- (5) Examine the filter and connections for leaks.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-51-410-004

- (1) On the applicable engine, close the left fan cowl panel (TASK 71-11-04-410-801-G00).
(a) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
413	Left Fan Cowl, Engine 1
423	Left Fan Cowl, Engine 2

SUBTASK 29-11-51-860-013

- (2) Remove the hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-51-600-002

- (3) If it is necessary, service the applicable hydraulic reservoir (TASK 12-12-00-610-801).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

29-11-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 416
Sep 15/2023



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

**ENGINE DRIVEN PUMP (EDP) CASE DRAIN FILTER MODULE AND COMPONENTS - INSPECTION/
CHECK**

1. General

A. This procedure has this task:

- (1) EDP Case Drain Filter Element And Bowl Inspection.

TASK 29-11-51-200-801

2. EDP Case Drain Filter Element and Bowl Inspection

A. References

Reference	Title
29-11-00-170-801	Hydraulic System A or B Flushing (P/B 201)
29-11-00-700-801	Operational Test of the Hydraulic Systems A and B (P/B 501)
29-11-11-000-801	Hydraulic Systems A and B Engine-Driven Pump (EDP) Removal (P/B 401)
29-11-11-400-801	Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation (P/B 401)
29-11-51-000-801	EDP Case Drain Filter Element Removal (P/B 401)
29-11-51-400-801	EDP Case Drain Filter Element Installation (P/B 401)

B. Location Zones

Zone	Area
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

C. Prepare for the Inspection

SUBTASK 29-11-51-000-001

- (1) Do this task: EDP Case Drain Filter Element Removal, TASK 29-11-51-000-801.

D. Inspection

SUBTASK 29-11-51-200-001

- (1) Examine the filter element, the filter bowl, and the fluid in the filter bowl for metal contamination.
- (a) If you find a small quantity of metal particles that have equal dimensions, do these steps:
- NOTE:** It is not necessary to replace a pump if the quantity of metal particles is small and they have equal dimensions. The filter can have more particles during initial operation of a new pump while mating parts wear away small surface defects. It is not necessary to replace the pump if more small particles are found at the next filter change after installation of a new pump.
- 1) Replace the filter element.
 - 2) Do an operational test of the engine driven pump (TASK 29-11-00-700-801).
 - 3) Examine the filter again at the next scheduled filter change interval.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-51

Page 601
Sep 15/2021



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

- (b) If you find a large quantity of small metal particles, large metal particles that are not of equal dimensions, or a large quantity of steel particles, do these steps:

NOTE: A large quantity of small metal particles, or large metal particles that are not of equal dimensions, can be an indication of an unsatisfactory pump. The particles are usually bronze mixed with a small quantity of steel. A large quantity of steel particles is an indication of unsatisfactorily worn bearings.

- 1) Replace the pump at the next maintenance opportunity (TASK 29-11-11-000-801 and TASK 29-11-11-400-801).
- 2) Write down the results of the filter inspection and give them to the pump overhaul facility.

NOTE: The filter inspection results can be used as an aid to find the condition of the pump. A pump with an unsatisfactory bearing can pass the functional test and be returned to service with no fault found. Giving the filter inspection data to the overhaul facility can prevent the return of an unsatisfactory pump to service.

- 3) Replace the filter element.



FLUSH THE HYDRAULIC LINES TO REMOVE METAL CONTAMINATION. IF A LARGE QUANTITY OF METAL CONTAMINATION STAYS IN THE LINES, THE FILTER CAN BECOME BLOCKED. A BLOCKED FILTER CAN CAUSE DAMAGE TO THE PUMP.

- (c) If you will remove a pump because of metal contamination in the filter, flush the hydraulic lines and replace the applicable filter elements (TASK 29-11-00-170-801).

SUBTASK 29-11-51-210-002

- (2) Inspect the filter element for damages.
 - (a) Discard and replace the filter element if damages are found.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-51-400-001

- (1) Do this task: EDP Case Drain Filter Element Installation, TASK 29-11-51-400-801.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

29-11-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 602
Sep 15/2021



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

BULKHEAD FITTINGS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of a bulkhead fitting.
- (2) An installation of a bulkhead fitting.

TASK 29-11-55-000-801

2. Bulkhead Fitting Removal

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
28-11-00-910-802	Purging and Fuel Tank Entry (P/B 201)
28-11-11-000-801	Main Tank Access Door Removal (P/B 401)
28-26-00-650-801	Fuel Tank Defueling (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
SRM 51-40-02-0G-0	Fastener Installation and Removal

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-541	Kit - Tube Repair, 3000 PSI Part #: DLTFRPSKT3300 Supplier: 14798 Part #: PLTFRPSKT3000 Supplier: 14798 Opt Part #: DLTFRPSKT3000 Supplier: 14798 Opt Part #: DLTFRPSKT3028A Supplier: 14798
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
532	Left Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing BL 643.50
551	Left Wing - Rear Spar To Landing Gear Support Beam
632	Right Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing Station 643.50
651	Right Wing - Rear Spar to Landing Gear Support Beam

D. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 401
Sep 15/2023



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

(Continued)

Number	Name/Location
532AB	Main Tank Access Door - Wing Station 216
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
632AB	Main Tank Access Door - Wing Station 216
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

E. Prepare for the Removal

SUBTASK 29-11-55-860-001

- (1) Remove hydraulic power from system A and system B (TASK 29-11-00-860-805).

SUBTASK 29-11-55-860-002

- (2) Release pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-55-010-012

- (3) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-11-55-860-003



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



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

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-650-001

- (5) Defuel the applicable fuel tank (TASK 28-26-00-650-801).

SUBTASK 29-11-55-010-001

- (6) Remove the applicable main fuel tank access panel:
(TASK 28-11-11-000-801)

EFFECTIVITY
SIA ALL

29-11-55

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

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-55-650-002



WARNING

OBEY ALL OF THE FUEL TANK PURGING AND ENTRY PRECAUTIONS. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- (7) Prepare the applicable fuel tank before you get into it (TASK 28-11-00-910-802).

SUBTASK 29-11-55-010-002

- (8) Get access to the inlet and outlet hydraulic line bulkhead fittings for the main tank heat exchangers (outside the fuel tank).
- (a) Open the applicable access panel:

<u>Number</u>	<u>Name/Location</u>
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

SUBTASK 29-11-55-160-001



CAUTION

DO NOT LET HYDRAULIC FLUID GET ON EQUIPMENT. IF HYDRAULIC FLUID GETS ON EQUIPMENT, IMMEDIATELY CLEAN IT FROM THE EQUIPMENT. HYDRAULIC FLUID CAN CAUSE DAMAGE TO EQUIPMENT.

- (9) During this procedure, if you get hydraulic fluid on the airplane, clean it off immediately (TASK 12-40-00-100-801 or TASK 12-40-00-100-802).

F. Bulkhead Fitting Removal

SUBTASK 29-11-55-020-001



CAUTION

USE TWO WRENCHES TO DISCONNECT OR CONNECT TUBES. IF YOU DO NOT USE A WRENCH ON EACH SIDE OF THE CONNECTION, DAMAGE TO THE TUBES CAN OCCUR.

- (1) Disconnect the hydraulic line B-nuts attached to the applicable bulkhead fitting [1] on the outside of the fuel tank.
- (a) Drain the hydraulic fluid into a 1 U.S.-gal (3.81 l) oil resistant container, STD-203.
- (b) Install a cap in the hydraulic line and bulkhead fitting [1] to prevent contamination.

SUBTASK 29-11-55-020-002

- (2) If necessary, remove the support clamps or blocks from the tube you will remove.

SUBTASK 29-11-55-020-003

- (3) Cut the tube attached to the applicable bulkhead fitting [1] with the tube repair kit, SPL-541.
- (a) Cut the 0.5 in. (12.7 mm) tubes only.
- (b) Make sure that the cut is in a straight section and 0.5 in. (12.7 mm) tubing.

NOTE: This will make sure that the fitting and swage tool attach for installation.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 403
Jan 15/2023



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

SUBTASK 29-11-55-680-001

- (4) Use a 1 U.S.-gal (3.81 l) oil resistant container, STD-203 to catch any hydraulic fluid that drains from the cut line.

SUBTASK 29-11-55-020-004

- (5) Install a cap in the cut hydraulic line.

SUBTASK 29-11-55-020-005

- (6) Do these steps to remove the applicable bulkhead fitting [1].
- (a) Remove the sealant from around the bulkhead fitting [1], spar [2] and bolts [4].
 - (b) Remove the collars [5] from the bolts [4] (SRM PROCEDURE 51-40-02-0G-0).
 - (c) Remove the bulkhead fitting [1] from the spar [2].
 - (d) Remove and discard the O-ring [3].
 - (e) If necessary, remove the union [6] from the bulkhead fitting [1]. Keep for the installation procedure.

———— **END OF TASK** ————

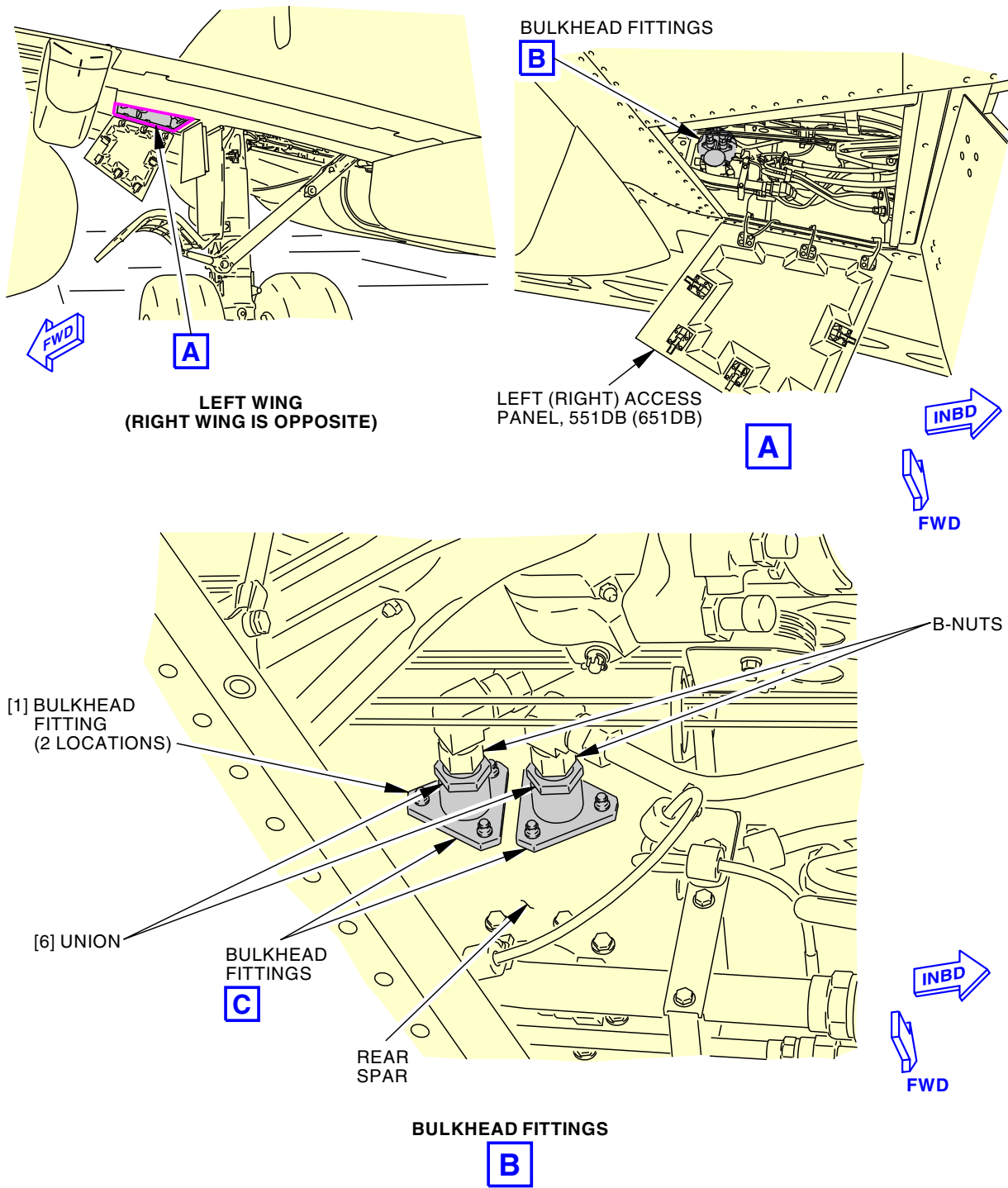
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 404
Jan 15/2023



2413813 S00061533438_V1

Bulkhead Fittings Installation
Figure 401/29-11-55-990-801 (Sheet 1 of 2)

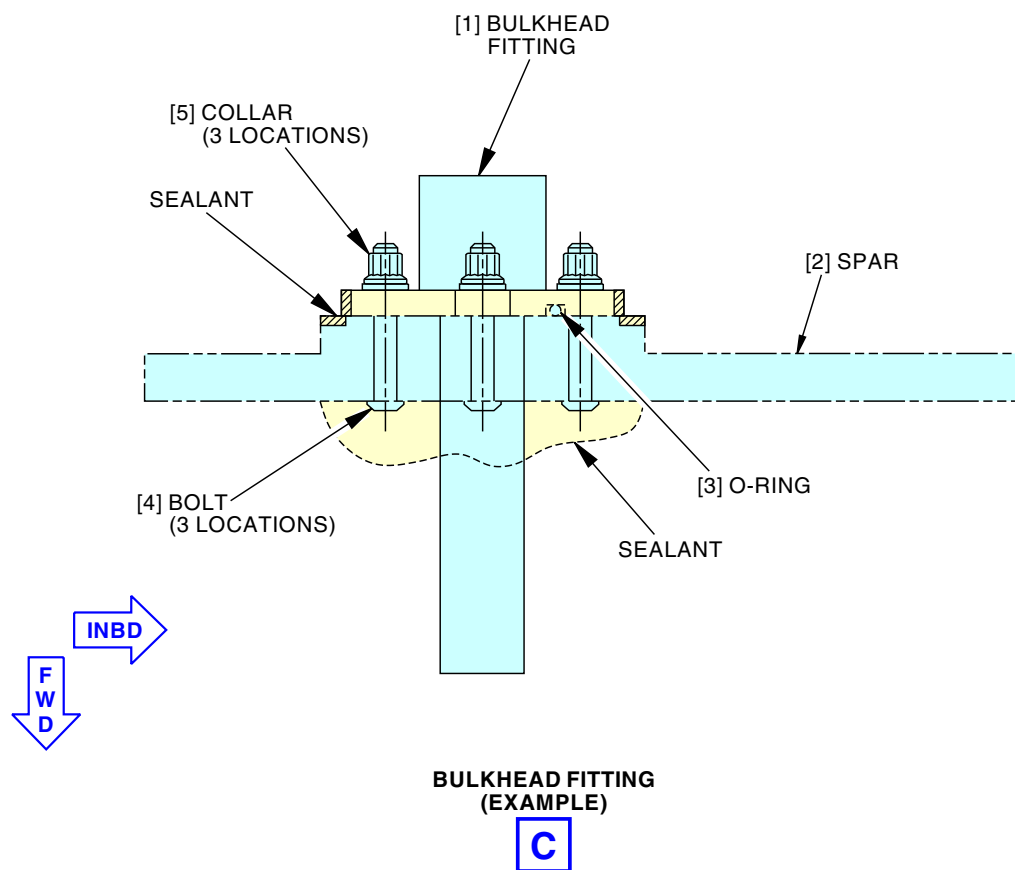
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 405
Sep 15/2021



2413814 S00061533439_V1

Bulkhead Fittings Installation
Figure 401/29-11-55-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 406
Sep 15/2021



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

TASK 29-11-55-400-801

3. **Bulkhead Fitting 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 29-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

B. References

Reference	Title
12-11-00-650-803	Pressure Refuel Procedure (P/B 301)
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-51-400-801	Flareless Tubing Assembly Installation (P/B 401)
20-10-51-400-806	Externally Swaged (Permaswage) Fittings Installation (P/B 801)
20-10-51-760-801	Electrical Resistance Specifications in the Fuel Tank Check (P/B 401)
28-11-00-910-802	Purging and Fuel Tank Entry (P/B 201)
28-11-11-000-801	Main Tank Access Door Removal (P/B 401)
28-11-11-400-801	Main Tank Access Door Installation (P/B 401)
29-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-55-300-801	Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond (P/B 801)
51-22-00-390-806	Fillet Seal Application (P/B 201)
SRM 51-40-02-0G-0	Fastener Installation and Removal
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

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-55

Page 407
May 15/2023



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

D. Consumable Materials

Reference	Description	Specification
A50009	Sealant - Low Density, Non-Chromate Type. (Formerly Chromate - Synthetic Rubber)	BMS5-142 Type II Class B-1 or B-2
A50110	Sealant - Fuel Tank	BMS5-45 Class B-2
A50155	Sealant - Fuel Tank	BMS5-45 Class C
B00065	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002 (Supersedes O-A-396)
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
C50315	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G50481	Pad - Scotch Brite Type No. 7496, Fine To Medium (Light Green)	

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
532	Left Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing BL 643.50
551	Left Wing - Rear Spar To Landing Gear Support Beam
632	Right Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing Station 643.50
651	Right Wing - Rear Spar to Landing Gear Support Beam

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
532AB	Main Tank Access Door - Wing Station 216
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
632AB	Main Tank Access Door - Wing Station 216
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

G. Prepare for Installation

SUBTASK 29-11-55-120-001

- (1) Clean around the hole on the spar [2] for the bulkhead fitting [1] with Scotch-Brite 7496 pad, G50481, abrasive pads.
 - (a) Remove all surface finishes, until a bright, aluminum bonding surface shows.

SUBTASK 29-11-55-120-002

- (2) Clean the faying surface of the bulkhead fitting [1] with Scotch-Brite 7496 pads, G50481.
 - (a) Remove all surface finishes, until a bright, aluminum bonding surface shows.

EFFECTIVITY
SIA ALL

29-11-55

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 29-11-55-160-002

- (3) Clean the area around the hole and the bulkhead fitting [1] with a cotton wiper, G00034, and alcohol, B00065.

H. Bulkhead Fitting Installation

SUBTASK 29-11-55-650-003



WARNING

OBEY THE PRECAUTIONS FOR PURGING AND FUEL TANK ENTRY. IF YOU DO NOT OBEY THE PRECAUTIONS, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Prepare the fuel tank before you go into it (TASK 28-11-00-910-802).

SUBTASK 29-11-55-420-001

- (2) Do these steps to install the bulkhead fitting [1]:



28-AWL-10: CDCCL

- (a) Apply a category 2 fay sealed fay surface bond between the bulkhead fitting [1] and spar [2] outside the tank (SWPM 20-20-00).

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- 1) Do not fay seal surface below the o-ring groove.
- 2) Use one of these sealants to apply the fay sealed fay surface bond:
 - sealant, A50110
 - sealant, A50155

- (b) Install the bulkhead fitting [1] in the rear spar [2].



28-AWL-10: CDCCL

- (c) Install (wet) the bolts [4] (fasteners) with sealant:

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

NOTE: Install new bolts [4] if necessary.

- 1) Use one of these sealants to install the bolts [4].
 - sealant, A50110
 - sealant, A50155

- (d) Use one of these sealants to install the collars [5] (SRM PROCEDURE 51-40-02-0G-0).

- sealant, A50110
- sealant, A50155

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 409
Sep 15/2023

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

 28-AWL-10: CDCCL



MAKE SURE THAT THE BONDING RESISTANCE IS LESS THAN THE LIMITS. THE RESISTANCE OF THE ELECTRICAL BOND IS VERY IMPORTANT IF LIGHTNING HITS THE AIRPLANE. AN EXPLOSION CAN OCCUR IF THE BONDING RESISTANCE IS NOT IN THE LIMITS DURING A LIGHTNING STRIKE.

- (e) Measure the electrical bonding resistance between the bulkhead fitting [1] and the rear spar [2] outside the fuel tank (SWPM 20-20-00).

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- 1) Use an intrinsically safe approved bonding meter, COM-1550.

 28-AWL-10: CDCCL

- 2) Make sure that the electrical bonding resistance is 0.0005 ohm (0.5 milliohm) or less.

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- 3) If the resistance is above the specified value, loosen the bulkhead fittings to repair the electrical bond:
- a) Do this task: Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond, TASK 29-11-55-300-801.

 28-AWL-10: CDCCL

- (f) Apply a fillet seal to the interface of the bulkhead fitting [1] and the rear spar [2] outside the tank (TASK 51-22-00-390-806).

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- 1) Use sealant, A50009, to apply the fillet seal.

 28-AWL-10: CDCCL

- (g) Apply a fillet seal to the bolts [4]. And the interface of bulkhead fitting [1] and the rear spar [2] in the tank (TASK 51-22-00-390-806).

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- 1) Use one of these sealants to apply the fillet seal:
- sealant, A50110
 - sealant, A50155



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

SUBTASK 29-11-55-420-002

- (3) To connect the cut tube, do this task: Externally Swaged (Permaswage) Fittings Installation, TASK 20-10-51-400-806.

(a) If necessary, replace the tube with a new one.

 28-AWL-10: CDCCL

- (b) Make sure that you obey the electrical bonding resistance requirements for the permaswage fitting (TASK 20-10-51-760-801).

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

SUBTASK 29-11-55-760-001

 28-AWL-10: CDCCL



MAKE SURE THAT THE BONDING RESISTANCE IS LESS THAN THE LIMITS. THE RESISTANCE OF THE ELECTRICAL BOND IS VERY IMPORTANT IF LIGHTNING HITS THE AIRPLANE. AN EXPLOSION CAN OCCUR IF THE BONDING RESISTANCE IS NOT IN THE LIMITS DURING A LIGHTNING STRIKE.

- (4) Measure the electrical bonding resistance between the hydraulic tube and the bulkhead fitting [1] in the fuel tank (SWPM 20-20-00).

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (a) Use an intrinsically safe approved bonding meter, COM-1550.

 28-AWL-10: CDCCL

- (b) Make sure that the electrical bonding resistance is 0.0005 ohm (0.5 milliohm) or less.

NOTE: CDCCL - Refer to the Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (c) Remove and install a new hydraulic tube to the bulkhead fitting [1], if resistance is above the specified value.

SUBTASK 29-11-55-420-003

- (5) Install the clamps or blocks removed for access in the fuel tank.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 411
Sep 15/2021



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

SUBTASK 29-11-55-370-001



DO NOT GET THE ALODINE SOLUTION IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. AIR MUST FLOW FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Apply (touch-up) finishes removed for bonding in this sequence:

- (a) Bonderite M-CR 600 Aero coating, C50315
- (b) primer, C00259

SUBTASK 29-11-55-420-004



USE TWO WRENCHES TO DISCONNECT OR CONNECT TUBES. IF YOU DO NOT USE A WRENCH ON EACH SIDE OF THE CONNECTION, DAMAGE TO THE TUBES CAN OCCUR.

(7) Install the hydraulic line B-nuts removed for access.

- (a) Torque the B-nuts (TASK 20-10-51-400-801). Tighten the B-nuts on the hydraulic lines to 280 ± 14 in-lb (32 ± 2 N·m).

I. Bulkhead Fitting Installation Test

SUBTASK 29-11-55-410-001

(1) Install the applicable main fuel tank access panel:

(TASK 28-11-11-400-801)

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

NOTE: The fuel tank must be closed before power can be applied to the airplane.

SUBTASK 29-11-55-860-004



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 412
Jan 15/2023



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

(WARNING PRECEDES)



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-860-005



WARNING

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



CAUTION

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

- (3) Do this task to pressurize the applicable hydraulic system: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.

SUBTASK 29-11-55-720-001

- (4) Operate the controls for the hydraulic system that contains the repaired hydraulic line.

NOTE: This helps to remove air from the hydraulic system.

SUBTASK 29-11-55-860-006



CAUTION

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

- (5) After some minutes, remove hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-55-860-007

- (6) Release pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

EFFECTIVITY
SIA ALL

29-11-55

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 413
Jan 15/2023



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

SUBTASK 29-11-55-860-008



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-010-003

- (8) Remove the applicable main fuel tank access panel:

(TASK 28-11-11-000-801)

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-55-650-004



OBEY ALL OF THE FUEL TANK PURGING AND ENTRY PRECAUTIONS. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- (9) Prepare the applicable fuel tank before you go into it (TASK 28-11-00-910-802).

SUBTASK 29-11-55-790-001

- (10) Examine the union and the bulkhead fitting [1] installed on the cut hydraulic line for leaks.
(a) Also examine the heat exchanger.

SUBTASK 29-11-55-780-001

- (11) Do a check of the applicable hydraulic line B-nuts for leaks.

SUBTASK 29-11-55-790-002

- (12) Repair all leaks.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 414
Jan 15/2023



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

J. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-55-860-009



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-410-011

- (2) Close this access panel:

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

SUBTASK 29-11-55-860-010

- (3) Remove hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-55-410-002

- (4) Install the applicable main fuel tank access panel:

(TASK 28-11-11-400-801)

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-55-410-003

- (5) Close the applicable access panel:

<u>Number</u>	<u>Name/Location</u>
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

SUBTASK 29-11-55-610-001

- (6) Refuel the fuel tank (TASK 12-11-00-650-803).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 415
Jan 15/2023



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

SUBTASK 29-11-55-610-002

(7) Fill the applicable hydraulic system reservoir, if necessary (TASK 12-12-00-610-801).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 416
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL
BULKHEAD FITTINGS - INSPECTION/CHECK

1. General

- A. This procedure contains a functional check of the bonding resistance between the structure and the hydraulic line spar penetrations.

TASK 29-11-55-700-801

2. Bulkhead Fittings to Spar and Hydraulic Lines - Bonding Resistance Check

(Figure 601)

A. General

- (1) This task has one or more steps which are controlled by 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 29-00-00-910-801.

NOTE: This is applicable to Airworthiness Limitation 29-AWL-10.

B. References

Reference	Title
12-11-00-650-801	Precautions and Limits for the Refuel Operation (P/B 301)
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
28-11-00-910-802	Purging and Fuel Tank Entry (P/B 201)
28-11-11-000-801	Main Tank Access Door Removal (P/B 401)
28-11-11-400-801	Main Tank Access Door Installation (P/B 401)
28-26-00-650-801	Fuel Tank Defueling (P/B 201)
29-00-00-910-801	Airworthiness Limitation Precautions (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-55-300-801	Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond (P/B 801)
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

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-55

Page 601
May 15/2023



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

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
532	Left Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing BL 643.50
551	Left Wing - Rear Spar To Landing Gear Support Beam
632	Right Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing Station 643.50
651	Right Wing - Rear Spar to Landing Gear Support Beam

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
532AB	Main Tank Access Door - Wing Station 216
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
632AB	Main Tank Access Door - Wing Station 216
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

F. Prepare for the Procedure

SUBTASK 29-11-55-860-011

- (1) Remove hydraulic power from system A and system B. To do this, do this task: (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-11-55-860-012

- (2) Release pressure from the applicable hydraulic reservoir. To do this, do this task: (Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802).

SUBTASK 29-11-55-010-013

- (3) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-11-55-860-013



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 602
Sep 15/2023



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

(WARNING PRECEDES)



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-650-005

- (5) Defuel the applicable fuel tank. To do this, do this task: (Fuel Tank Defueling, TASK 28-26-00-650-801).

SUBTASK 29-11-55-010-004

- (6) Remove the applicable main fuel tank access panel:
(Main Tank Access Door Removal, TASK 28-11-11-000-801)

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-55-650-006



WARNING

OBEY ALL OF THE FUEL TANK PURGING AND ENTRY PRECAUTIONS. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- (7) Prepare the applicable fuel tank before you get into it. To do this, do this task: (Purging and Fuel Tank Entry, TASK 28-11-00-910-802).

SUBTASK 29-11-55-010-005

- (8) Get access to the inlet and outlet hydraulic line bulkhead fittings for the main tank heat exchangers (outside the fuel tank).
(a) Open the applicable access panel:

<u>Number</u>	<u>Name/Location</u>
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 603
Jan 15/2023



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

G. Bulkhead Fittings to Spar and Hydraulic Lines Bonding Resistance Check

SUBTASK 29-11-55-760-002

28-AWL-10: CDCCL

- (1) Measure the electrical bonding resistance between the bulkhead fitting [1] and the rear spar [2] outside the fuel tank (SWPM 20-20-00).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (a) Use an intrinsically safe approved bonding meter, COM-1550.

28-AWL-10: CDCCL



MAKE SURE THAT THE BONDING RESISTANCE IS LESS THAN THE LIMITS. THE RESISTANCE OF THE ELECTRICAL BOND IS VERY IMPORTANT IF LIGHTNING HITS THE AIRPLANE. AN EXPLOSION CAN OCCUR IF THE BONDING RESISTANCE IS NOT IN THE LIMITS DURING A LIGHTNING STRIKE.

- (b) Make sure that the electrical bonding resistance is 0.0005 Ω (0.5 milli- Ω) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (c) If resistance is above the specified value, loosen the bulkhead fittings to repair the electrical bond between the bulkhead fitting [1] and the rear spar [2]:

- 1) Do this task: Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond, TASK 29-11-55-300-801.

SUBTASK 29-11-55-760-003

28-AWL-10: CDCCL

- (2) Measure the electrical bonding resistance between the bulkhead fitting [1] and the hydraulic tube inside the fuel tank (SWPM 20-20-00).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (a) Use an intrinsically safe approved bonding meter, COM-1550

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 604
Sep 15/2023



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

28-AWL-10: CDCCL



MAKE SURE THAT THE BONDING RESISTANCE IS LESS THAN THE LIMITS. THE RESISTANCE OF THE ELECTRICAL BOND IS VERY IMPORTANT IF LIGHTNING HITS THE AIRPLANE. AN EXPLOSION CAN OCCUR IF THE BONDING RESISTANCE IS NOT IN THE LIMITS DURING A LIGHTNING STRIKE.

- (b) Make sure the electrical bonding resistance is 0.0005 Ω (0.5 milli- Ω) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

- (c) Remove and install a new hydraulic tube to the bulkhead fitting [1], if resistance is above the specified value.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-55-860-014



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-410-012

- (2) Close this access panel:

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

SUBTASK 29-11-55-860-015

- (3) Remove hydraulic power from the applicable system. Do this task: (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

EFFECTIVITY
SIA ALL

29-11-55

D633AM101-SIA

Page 605
Jan 15/2023



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

SUBTASK 29-11-55-410-004

- (4) Install the applicable main fuel tank access panel:
(Main Tank Access Door Installation, TASK 28-11-11-400-801)

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-55-410-005

- (5) Close the applicable access panel:

<u>Number</u>	<u>Name/Location</u>
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

SUBTASK 29-11-55-610-003

- (6) Refuel the fuel tank. Do this task: (Precautions and Limits for the Refuel Operation, TASK 12-11-00-650-801).

SUBTASK 29-11-55-610-004

- (7) Fill the applicable hydraulic system reservoir, if necessary. Do this task: (Hydraulic Reservoir Servicing, TASK 12-12-00-610-801).

———— **END OF TASK** ————

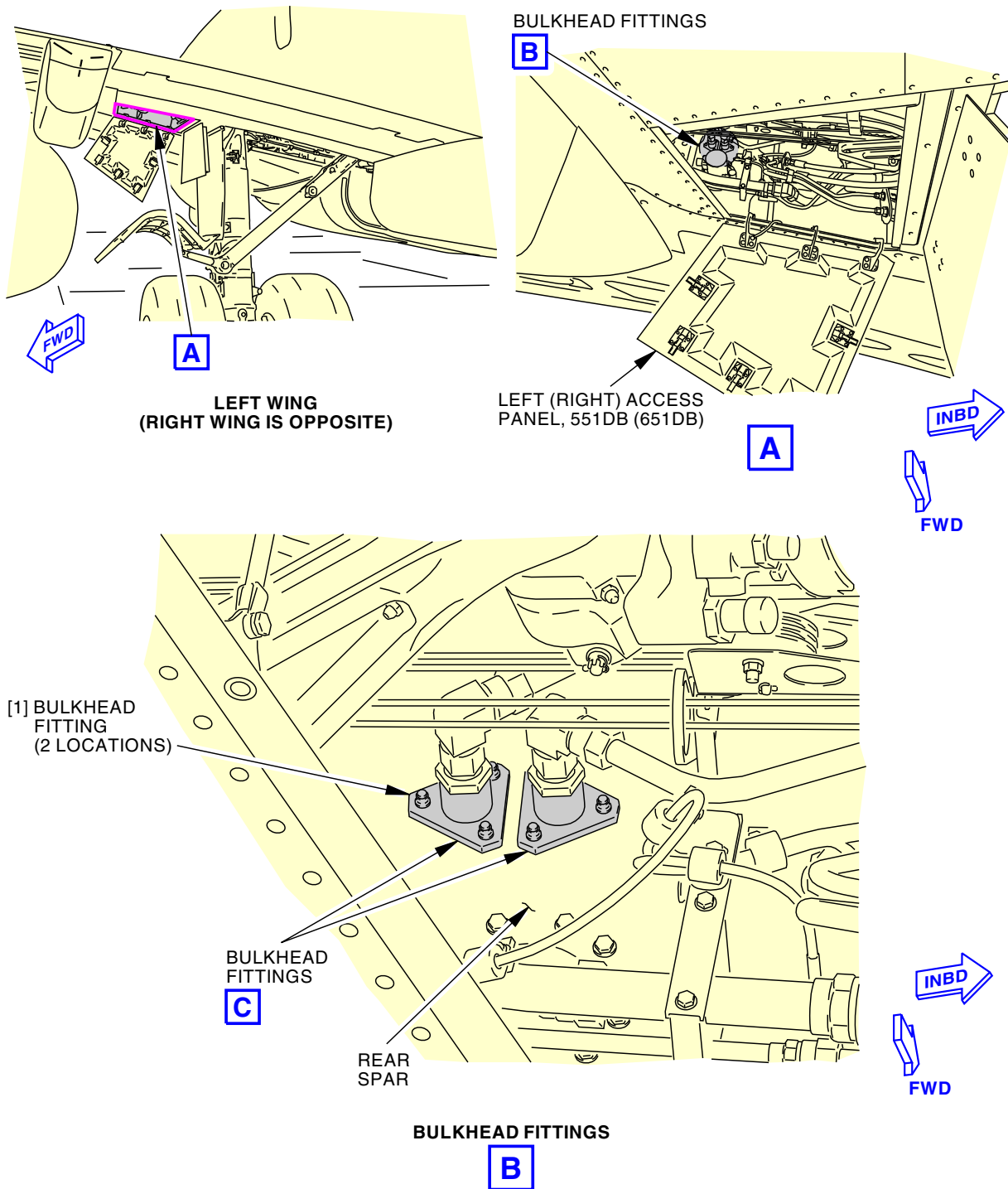
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 606
Jan 15/2023



2413815 S00061533443_V1

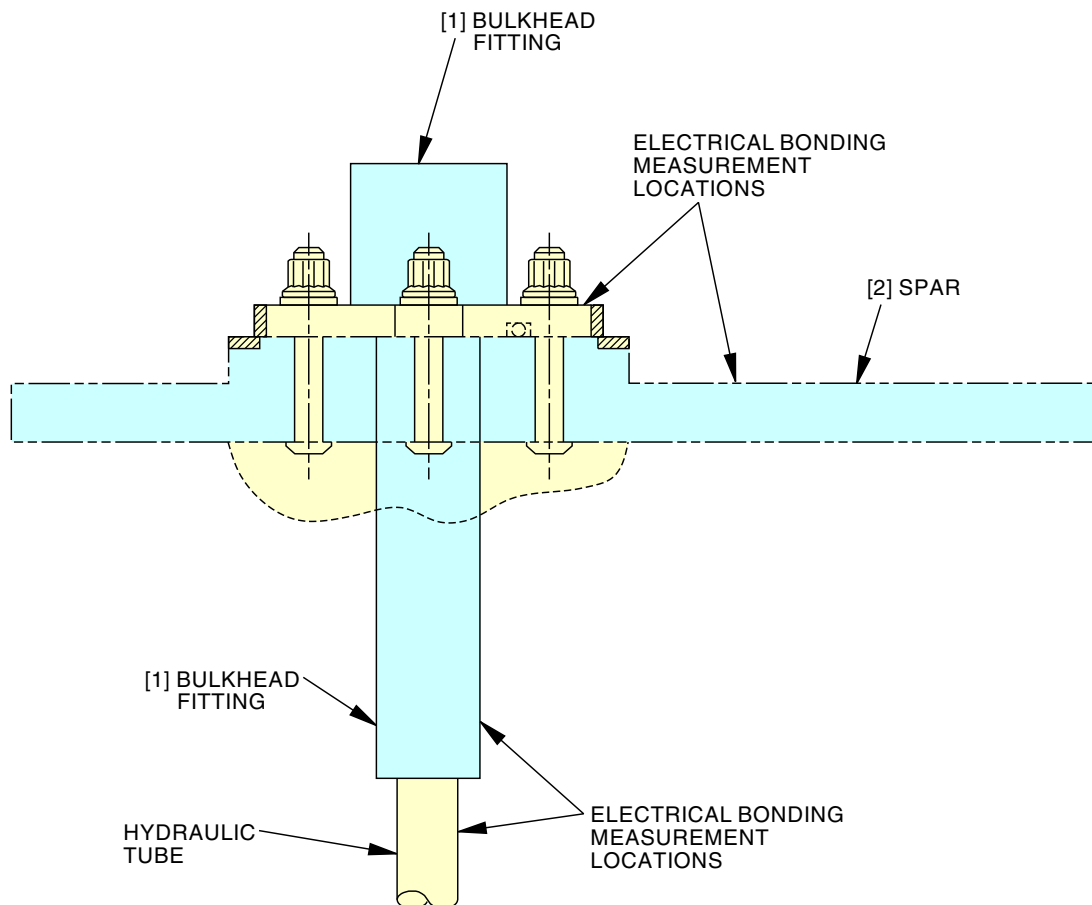
Bulkhead Fittings to Spar and Hydraulic Lines - Bonding Resistance Check
Figure 601/29-11-55-990-802 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-11-55

D633AM101-SIA

Page 607
Jan 15/2023



BULKHEAD FITTING
(EXAMPLE)

C

2413816 S00061533444_V1

Bulkhead Fittings to Spar and Hydraulic Lines - Bonding Resistance Check
Figure 601/29-11-55-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-11-55

D633AM101-SIA

Page 608
Jan 15/2023



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

BULKHEAD FITTINGS - REPAIRS

1. General

A. This procedure has this task:

- (1) Loosen the bulkhead fittings and heat exchanger without the removal from the airplane to repair the electrical bond.

B. 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.

- (1) For important information on CDCCL requirements, refer to this task: Airworthiness Limitation Precautions, TASK 29-00-00-910-801

NOTE: This is applicable to Airworthiness Limitation 28-AWL-10.

TASK 29-11-55-300-801

2. Bulkhead Fittings - Separate From Rear Spar to Repair Electrical Bond

(Figure 801)

A. **References**

Reference	Title
12-11-00-650-803	Pressure Refuel Procedure (P/B 301)
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
28-11-00-910-802	Purging and Fuel Tank Entry (P/B 201)
28-11-11-000-801	Main Tank Access Door Removal (P/B 401)
28-11-11-400-801	Main Tank Access Door Installation (P/B 401)
28-22-15-000-801	Fuel Line, Fitting and Coupling Removal (P/B 401)
28-26-00-650-801	Fuel Tank Defueling (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-04-400-801	Heat Exchanger Installation (P/B 401)
29-11-55-000-801	Bulkhead Fitting Removal (P/B 401)
29-11-55-400-801	Bulkhead Fitting Installation (P/B 401)
SRM 51-40-02-0G-0	Fastener Installation and Removal

B. **Tools/Equipment**

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)
STD-6401	Scraper - PVC/Acrylic
STD-11161	Scraper - Wood

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 801
Jan 15/2022



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

C. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
532	Left Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing BL 643.50
551	Left Wing - Rear Spar To Landing Gear Support Beam
632	Right Wing - Main Tank, Rib 5 to Rib 22, Wing Station 204.25 to Wing Station 643.50
651	Right Wing - Rear Spar to Landing Gear Support Beam

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
532AB	Main Tank Access Door - Wing Station 216
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
632AB	Main Tank Access Door - Wing Station 216
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

F. Prepare for the Procedure

SUBTASK 29-11-55-860-027

- (1) Remove hydraulic power from system A and system B (TASK 29-11-00-860-805).

SUBTASK 29-11-55-860-028

- (2) Release pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-55-010-014

- (3) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-11-55-860-029



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

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 802
Sep 15/2023



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

(WARNING PRECEDES)



WARNING

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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-650-011

- (5) Defuel the applicable fuel tank (TASK 28-26-00-650-801).

SUBTASK 29-11-55-010-010

- (6) Remove the applicable main fuel tank access panel:
(TASK 28-11-11-000-801)

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-55-650-012



WARNING

OBEY ALL OF THE FUEL TANK PURGING AND ENTRY PRECAUTIONS. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- (7) Prepare the applicable fuel tank before you get into it (TASK 28-11-00-910-802).

SUBTASK 29-11-55-010-011

- (8) Get access to the inlet and outlet hydraulic line bulkhead fittings for the main tank heat exchangers (outside the fuel tank).
(a) Open the applicable access panel:

<u>Number</u>	<u>Name/Location</u>
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 803
Jan 15/2023



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

G. Separate the Bulkhead Fittings from the Rear Spar:

SUBTASK 29-11-55-100-002



DO NOT LET HYDRAULIC FLUID GET ON EQUIPMENT. IF HYDRAULIC FLUID GETS ON EQUIPMENT, IMMEDIATELY CLEAN IT FROM THE EQUIPMENT. HYDRAULIC FLUID CAN CAUSE DAMAGE TO EQUIPMENT.

- (1) During this procedure, if you get hydraulic fluid on the airplane, clean it off immediately (TASK 12-40-00-100-801 or TASK 12-40-00-100-802).

SUBTASK 29-11-55-020-025



USE TWO WRENCHES TO DISCONNECT OR CONNECT TUBES. IF YOU DO NOT USE A WRENCH ON EACH SIDE OF THE CONNECTION, DAMAGE TO THE TUBES CAN OCCUR.

- (2) Disconnect the hydraulic line B-nuts attached to the applicable bulkhead fitting [2] on the outside of the fuel tank.
- (a) Drain the hydraulic fluid into a 1 U.S.-gal (3.81 l) oil resistant container, STD-203.
- (b) Install a cap in the hydraulic line and bulkhead fitting [2] to prevent contamination.

SUBTASK 29-11-55-020-026

- (3) If necessary, remove clamps (blocks) from the disconnected hydraulic tubes [1] to move the fittings [2] from the spar [3].

SUBTASK 29-11-55-020-027

- (4) Do these steps to loosen the bulkhead fittings [2] from the rear spar [3]:
- (a) Remove the sealant from around the bulkhead fittings [2]. The rear spar [3] and bolts [4] with a scraper, STD-6401 or scraper, STD-11161. Removed the sealant from the two sides of the rear spar [3].
- NOTE: Remove sealant with cutting tools or spatulas made from fiberglass, hardwood, or plastic. Use only metal tools for the sealant removal on metal structures.
- NOTE: The unions [5] can stay installed on their bulkhead fittings [2].
- (b) Remove the collars [6] from the bolts [4] (SRM PROCEDURE 51-40-02-0G-0).

SUBTASK 29-11-55-020-028

- (5) Remove the fuel tubes adjacent to hydraulic tubes in the fuel tank if necessary to get access to the heat exchanger and related hydraulic tubing (TASK 28-22-15-000-801).

SUBTASK 29-11-55-020-029

- (6) Disconnect the clamps [7], from the tank structure, on the hydraulic lines from the heat exchanger to the bulkhead fittings.

SUBTASK 29-11-55-020-030

- (7) Do these steps to loosen the applicable exchanger [8] from the attach points in the main fuel tank:
- (a) Make sure that you keep a record of the fastener stack-up and location for installation.
- (b) Remove the nuts [9], washers [11], washers [10], bolts [12] and the bolts [13] that attaches the heat exchanger [8] to the main tank.
- (c) Remove the bolt [14], washer [11], washer [15], washer [16], and the nut [9] that attaches the heat exchanger [8] to the main tank.

EFFECTIVITY
SIA ALL

29-11-55

D633AM101-SIA

Page 804
Jan 15/2023



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

SUBTASK 29-11-55-020-031



MAKE SURE THAT YOU ARE CAREFUL WHEN YOU DISCONNECT THE BULKHEAD FITTINGS FROM THE REAR SPAR. YOU MUST KEEP THE O-RINGS SERVICEABLE. IF YOU DO NOT OBEY, YOU MUST REPLACE THE BULKHEAD FITTINGS.

- (8) (7) Carefully move the heat exchanger [8] and connected hydraulic tubing aft to disconnect the bulkhead fittings [2] from the rear spar [3].

H. Prepare for Re-Installation of the Bulkhead Fittings and the Heat Exchanger

SUBTASK 29-11-55-200-007

- (1) Examine the condition of the o-ring [17] on each bulkhead fitting [2]. Clean unwanted material from the o-ring [17] with a cotton wiper, G00034.
- (a) If the o-ring [17] is damaged, then replace the bulkhead fitting [2]. Do these tasks:
- Bulkhead Fitting Removal, TASK 29-11-55-000-801
 - Bulkhead Fitting Installation, TASK 29-11-55-400-801

SUBTASK 29-11-55-160-011

- (2) Do the prepare for installation steps of task: Bulkhead Fitting Installation, TASK 29-11-55-400-801.
- (a) Carefully move the o-ring [17] if necessary during cleaning.

SUBTASK 29-11-55-160-012

- (3) Do the prepare for installation steps of task: Heat Exchanger Installation, TASK 29-11-04-400-801.

I. Installation of the Bulkhead Fittings and the Heat Exchanger to Repair Electrical Bonds

SUBTASK 29-11-55-420-030

- (1) In the tank, move the heat exchanger [8] and the connected hydraulic tubing forward to connect the bulkhead fitting [2] with the rear spar [3].

SUBTASK 29-11-55-420-031

- (2) Install the bulkhead fittings [2] to the rear spar [3] (TASK 29-11-55-400-801).
- (a) Ignore the steps for cut tubes and the step to Put the Airplane Back to Its Usual Condition.
- (b) Do the Bulkhead Fitting Installation Test after the heat exchanger [8] is installed.
- (3) Install the heat exchanger [8] to the tank structure (TASK 29-11-04-400-801).
- (a) Ignore the steps for cut tubes and the step to Put the Airplanes Back to Its Usual Condition.
- (b) Do the Bulkhead Fitting Installation Test and the Heat Exchanger Installation Test, at the same time.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 805
Jan 15/2023



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

J. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-55-860-030



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



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

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-55-410-013

- (2) Close this access panel:

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

SUBTASK 29-11-55-860-031

- (3) Remove hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-55-410-009

- (4) Install the applicable main fuel tank access panel:

(TASK 28-11-11-400-801)

<u>Number</u>	<u>Name/Location</u>
532AB	Main Tank Access Door - Wing Station 216
632AB	Main Tank Access Door - Wing Station 216

SUBTASK 29-11-55-410-010

- (5) Close the applicable access panel:

<u>Number</u>	<u>Name/Location</u>
551DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel
651DB	Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel

SUBTASK 29-11-55-650-013

- (6) Refuel the fuel tank (TASK 12-11-00-650-803).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 806
Jan 15/2023



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

SUBTASK 29-11-55-610-006

(7) Fill the applicable hydraulic system reservoir, if necessary (TASK 12-12-00-610-801).

———— **END OF TASK** ————

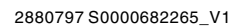
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 807
Jan 15/2023



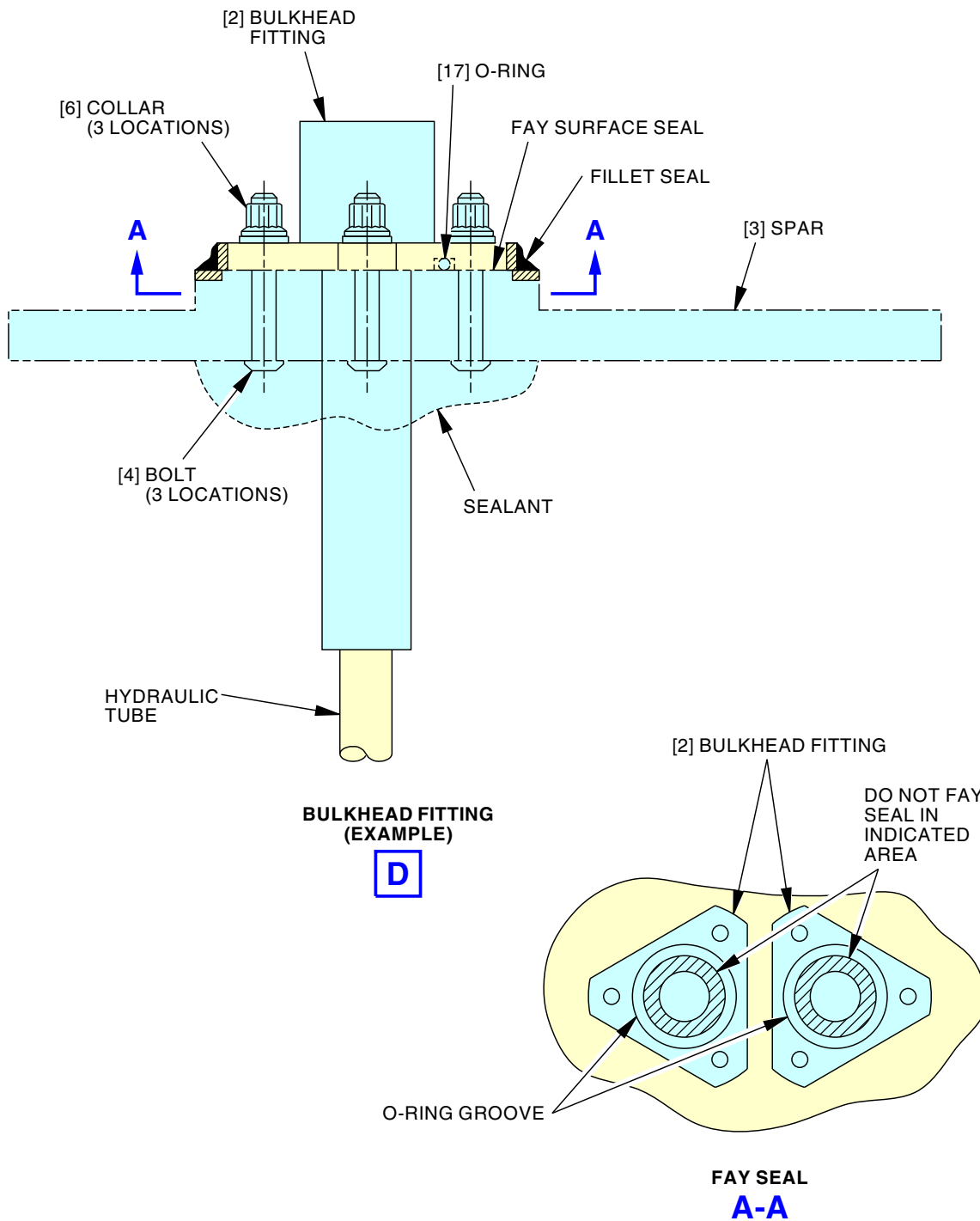
Bulkhead Fittings - Re-Establish Electrical Bonds

Figure 801/29-11-55-990-804 (Sheet 1 of 4)

29-11-55

D633AM101-SIA

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



2880799 S0000682266_V1

Bulkhead Fittings - Re-Establish Electrical Bonds
Figure 801/29-11-55-990-804 (Sheet 2 of 4)

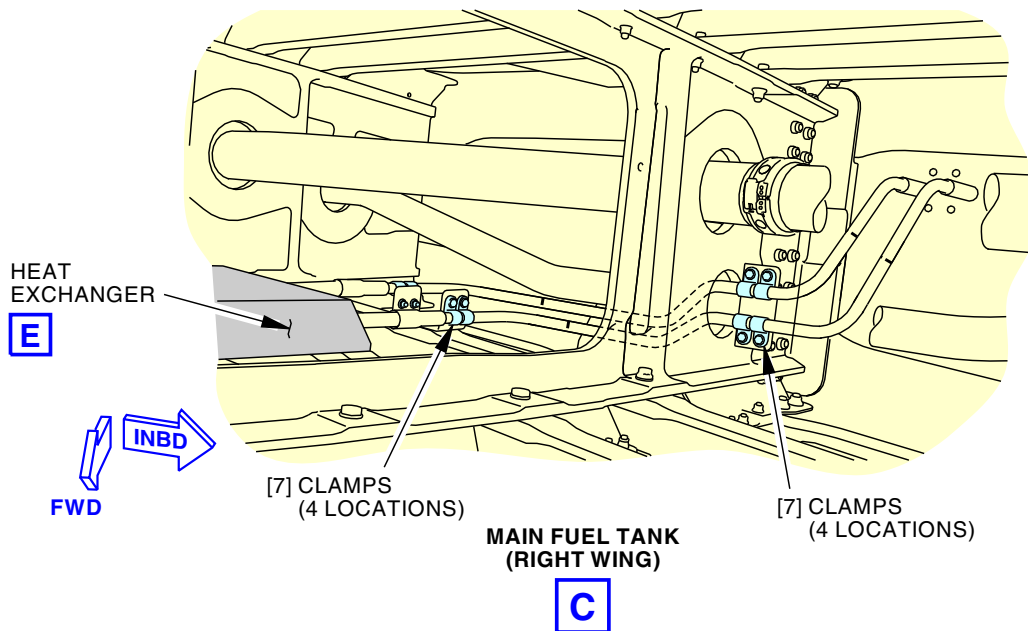
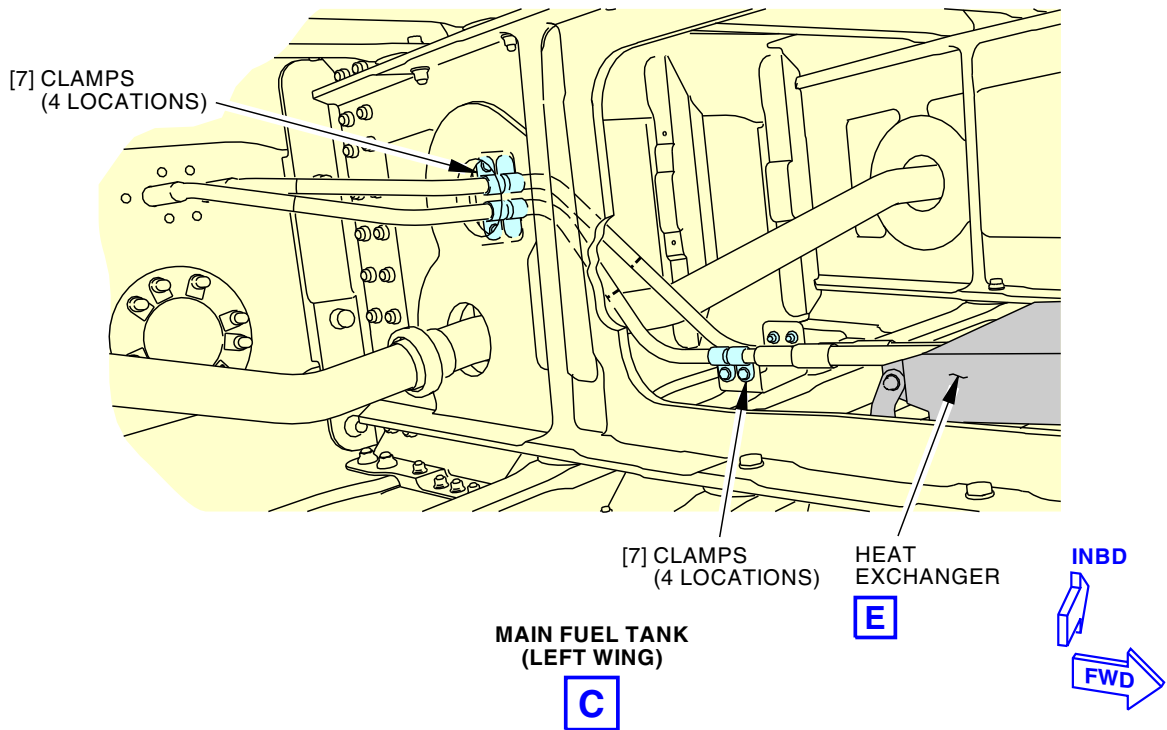
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-55

Page 809
Jan 15/2023



2880809 S0000682267_V1

Bulkhead Fittings - Re-Establish Electrical Bonds
Figure 801/29-11-55-990-804 (Sheet 3 of 4)

EFFECTIVITY
SIA ALL

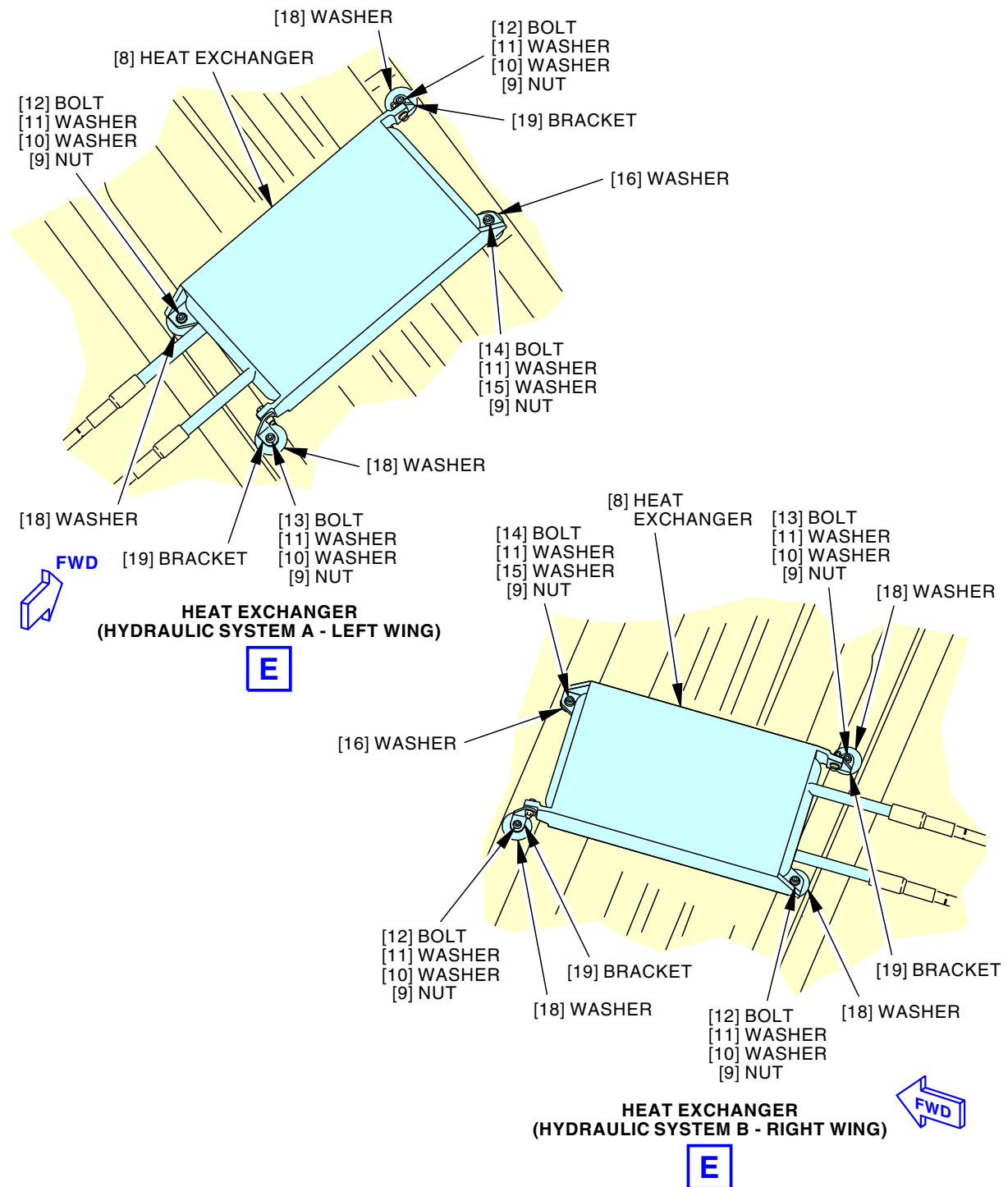
29-11-55

Page 810
Jan 15/2023

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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



2880830 S0000682268_V1

Bulkhead Fittings - Re-Establish Electrical Bonds
Figure 801/29-11-55-990-804 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-55

Page 811
Jan 15/2023



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

**HYDRAULIC SYSTEMS A AND B RETURN FILTER MODULE AND COMPONENTS - REMOVAL/
INSTALLATION**

1. General

- A. This procedure contains these tasks:
- (1) A removal of the return filter element.
 - (2) An installation of the return filter element.
 - (3) A removal of the return filter module.
 - (4) An installation of the return filter module.
- B. In this procedure, the return filter module is referred to as the "filter module" and the return filter element is referred to as the "filter element".

TASK 29-11-61-000-801

2. Return Filter Element Removal

(Figure 401)

A. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-6569	Container - Hydraulic Fluid Resistant, 1 Gallon (3.8 Liter)

C. Consumable Materials

Reference	Description	Specification
G01043	Cloth - Lint-free	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Removal

SUBTASK 29-11-61-840-001

- (1) Remove hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-61-860-001

- (2) Remove pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

F. Return Filter Element Removal

SUBTASK 29-11-61-800-001

- (1) Put a 1 gallon (3.8 liter) hydraulic fluid resistant container, STD-6569, below the filter bowl [11] to catch all spills.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-61

Page 401
Sep 15/2021



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

SUBTASK 29-11-61-020-011

- (2) If it is necessary, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-11-61-020-001

- (3) Remove the filter bowl [11] from the filter head assembly [10].
- (a) Pull the lockring [9] down and turn it to the disengaged position.
 - (b) Loosen the filter bowl [11] from the filter head assembly [10] and turn it in the counterclockwise direction.
NOTE: The shutoff valve in the filter head will close as the filter bowl [11] is loosened.
 - (c) Remove the filter bowl [11].

SUBTASK 29-11-61-020-002

- (4) Remove the filter element [15] from the nipple inside the filter head assembly [10].

SUBTASK 29-11-61-020-010

- (5) Remove and discard the filter element [15] with attached packing [16].

SUBTASK 29-11-61-020-003

- (6) Remove and discard packing [14] from the filter bowl [11].

SUBTASK 29-11-61-160-001

- (7) Fully clean the filter bowl [11] and wipe dry with lint-free cloth, G01043.

———— **END OF TASK** ————

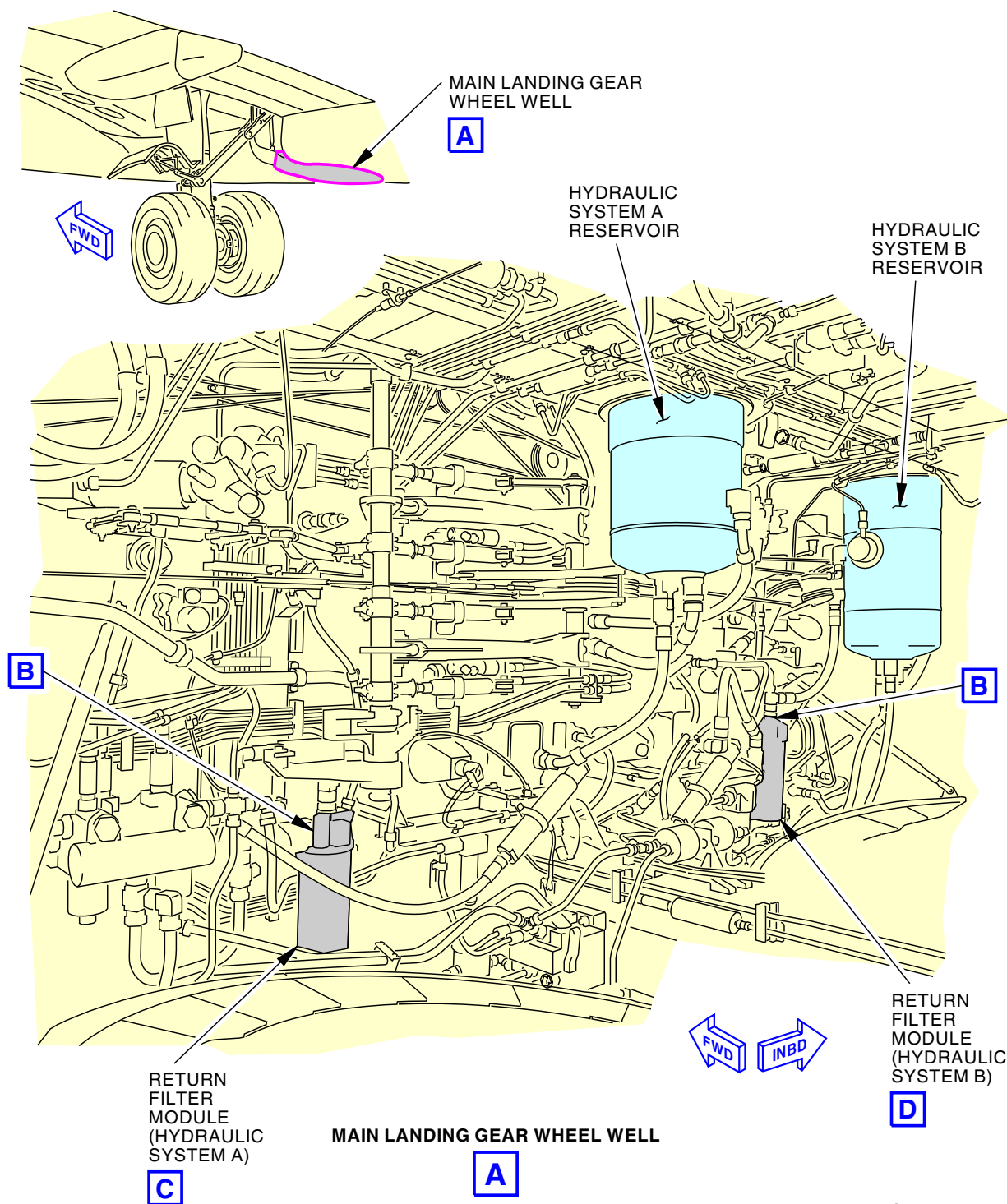
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-61

Page 402
Sep 15/2023



2413817 S00061533448_V1

Hydraulic Systems A and B Return Filter Module and Components Installation
Figure 401/29-11-61-990-801 (Sheet 1 of 3)

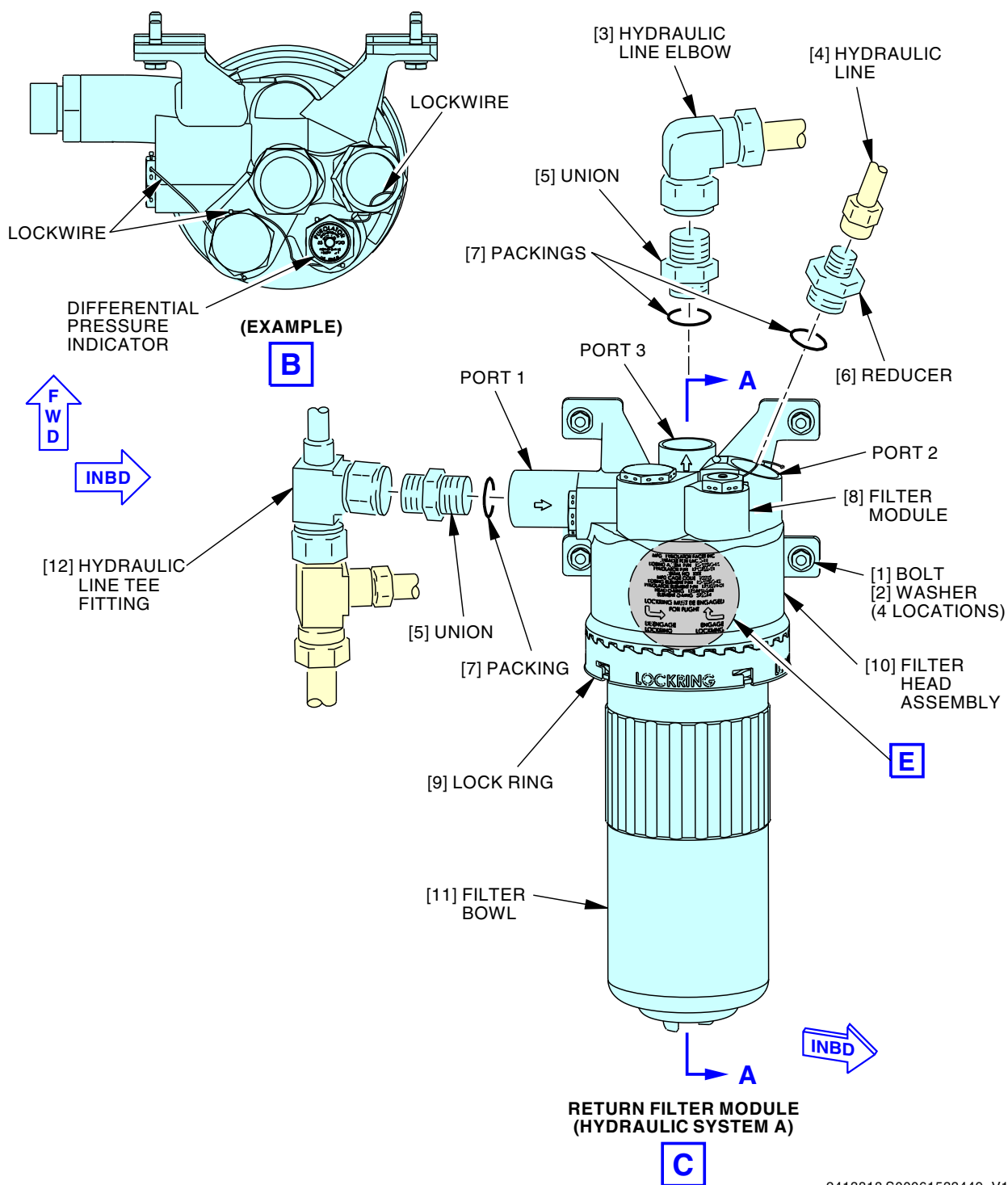
EFFECTIVITY
SIA ALL

29-11-61

D633AM101-SIA

Page 403
Sep 15/2021

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



2413818 S00061533449 V1

Hydraulic Systems A and B Return Filter Module and Components Installation

Figure 401/29-11-61-990-801 (Sheet 2 of 3)

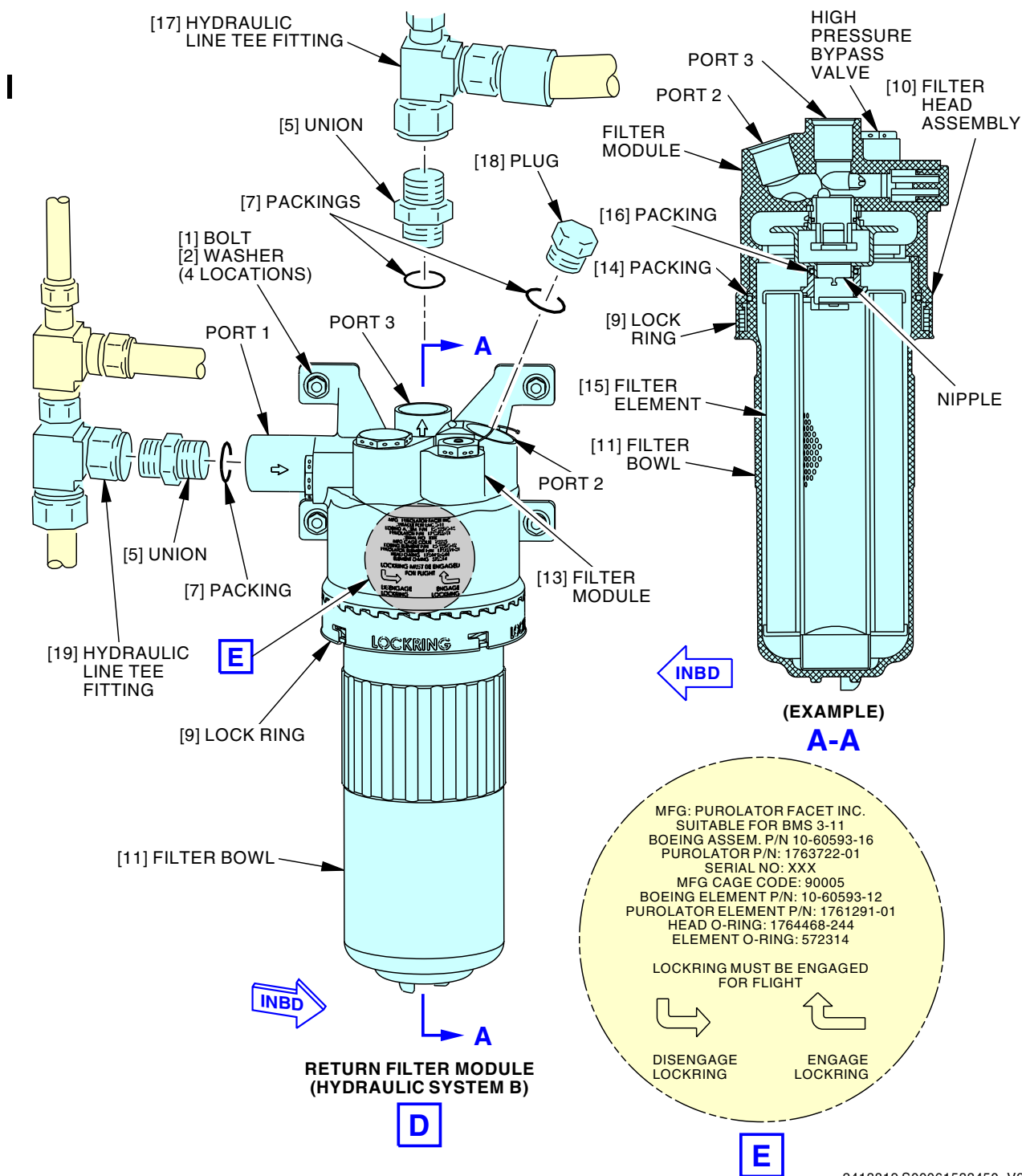
— EFFECTIVITY
SIA ALL

29-11-61

D633AM101-SIA

Page 404
Sep 15/2021

ECCN 9E991 BOEING PROPRIETARY - See title page for details



Hydraulic Systems A and B Return Filter Module and Components Installation
Figure 401/29-11-61-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

29-11-61

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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

TASK 29-11-61-400-801

3. Return Filter Element Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
14	Packing	29-11-61-03-100	SIA ALL
15	Filter element	29-11-61-03-060	SIA ALL
16	Packing	29-11-61-03-095	SIA ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Return Filter Element Installation

SUBTASK 29-11-61-420-001

(1) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the packing [14].

SUBTASK 29-11-61-420-002

(2) Install the packing [14] on the filter bowl [11].

SUBTASK 29-11-61-420-007

(3) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [16].

SUBTASK 29-11-61-420-008

(4) Install the packing [16] into the groove of the new filter element [15].

SUBTASK 29-11-61-420-003

(5) Put the new filter element [15] in the filter bowl [11].

SUBTASK 29-11-61-420-004

(6) Install the filter bowl [11] into the filter head assembly [10]:

(a) Turn the lockring [9] in the counterclockwise direction on the filter bowl [11] to let it move back into the up position.

(b) Thread the filter bowl [11] into the filter head assembly [10].

(c) Tighten the filter bowl [11] by hand until snug against the filter head assembly [10].

NOTE: The lock ring engages the filter head when the filter bowl [11] is tight.

EFFECTIVITY
SIA ALL

29-11-61

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 29-11-61-420-005

- (7) Push to reset the differential pressure indicator button on the filter module if it is necessary.

SUBTASK 29-11-61-610-003

- (8) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

F. Return Filter Element Installation Test

SUBTASK 29-11-61-860-002

- (1) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-61-860-004

- (2) Pressurize the applicable hydraulic system (TASK 29-11-00-860-801).

SUBTASK 29-11-61-790-001

- (3) Examine the filter module for leaks.

————— END OF TASK —————

TASK 29-11-61-000-802

4. Return Filter Module Removal

(Figure 401)

A. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-6569	Container - Hydraulic Fluid Resistant, 1 Gallon (3.8 Liter)
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
G50375	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule)	BACC13AT3K, AMS 5689

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Removal

SUBTASK 29-11-61-840-002

- (1) Remove hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-61-860-005

- (2) Release the pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802)..

EFFECTIVITY
SIA ALL

29-11-61

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

F. Return Filter Module Removal

SUBTASK 29-11-61-020-004

- (1) Do these steps to remove the system A filter module [8]:
 - (a) Disconnect the hydraulic line elbow fitting [3] from the union [5] at port 3.
 - (b) Disconnect the hydraulic line [4] from the reducer [6] at port 2.
 - (c) Disconnect the hydraulic line tee fitting [12] from the union [5] at port 1.
 - 1) Install the caps/plugs, STD-14686, on the ends of the hydraulic line elbow fitting [3], hydraulic line [4], hydraulic line tee fitting [12] and ports of the filter module [8].

SUBTASK 29-11-61-020-005

- (2) Do these steps to remove the system B filter module [13]:
 - (a) Disconnect the hydraulic line tee fitting [17] from the union [5] at port 3.
 - (b) Disconnect the hydraulic line tee fitting [19] from the union [5] at port 1.
 - 1) Install the caps/plugs, STD-14686, on the ends of the hydraulic line tee fitting [17], hydraulic line tee fitting [19] and ports of the filter module [13].

SUBTASK 29-11-61-680-001

- (3) Put a 1 gallon (3.8 liter) hydraulic fluid resistant container, STD-6569, below the filter module to catch all spills.

SUBTASK 29-11-61-160-002

- (4) If it is necessary, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-11-61-020-007

- (5) Remove the four bolts [1] and the four washers [2] that attach the filter module to the bracket assembly.

SUBTASK 29-11-61-020-008

- (6) Remove the filter module [8] or filter module [13].

SUBTASK 29-11-61-020-009

- (7) To remove the packings and fittings from the filter module, do these steps:
 - (a) For system A filter module [8]:
 - 1) Cut the safety cable kit, G50375, that attaches the reducer [6] in port 2 to the differential pressure indicator and discard (TASK 20-10-44-000-801).
 - 2) Remove the unions [5] from ports 1 and 3 on the filter head assembly [10] .
 - a) Remove and discard the packings [7] from the unions [5].
 - 3) Remove the reducer [6] from port 2 on the filter head assembly [10] .
 - a) Remove and discard the packing [7] from the reducer [6].
 - 4) Install the caps/plugs, STD-14686, in the ports of the filter module [8].
 - (b) For system B filter module [13]:
 - 1) Cut the safety cable kit, G50375, that attaches the plug [18] in port 2 to the differential pressure indicator and discard (TASK 20-10-44-000-801).
 - 2) Remove the unions [5] from ports 1 and 3 on the filter head assembly [10] .
 - a) Remove and discard the packings [7] from the unions [5].
 - 3) Remove the plug [18] from port 2 on the filter head assembly [10] .

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-61

Page 408
Sep 15/2023



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

- a) Remove and discard the packing [7] from the plug [18].
- 4) Install the caps/plugs, STD-14686, in the ports of filter module [13].

————— **END OF TASK** —————

TASK 29-11-61-400-802

5. Return Filter Module Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)

B. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50375	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule)	BACC13AT3K, AMS 5689

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Packing	29-11-61-02-040	SIA ALL
		29-11-61-02-540	SIA ALL
8	Filter module	29-11-61-02-005	SIA ALL
13	Filter module	29-11-61-02-507	SIA ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Return Filter Module Installation

SUBTASK 29-11-61-420-006

- (1) Install the filter module.
 - (a) If the packings and fittings are not installed on the filter module, then do these steps:
 - 1) For the system A filter module [8]:
 - a) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packings [7] and to the threads of the unions [5] and the reducer [6].

EFFECTIVITY
SIA ALL

29-11-61

D633AM101-SIA

Page 409
Sep 15/2023



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

- b) Install the new packings [7] on the unions [5] and on the reducer [6].
 - c) Install the unions [5] into ports 1 and 3 on the filter head assembly [10] and tighten.
 - d) Install the reducer [6] into port 2 on the filter head assembly [10] and tighten.
 - e) Install safety cable kit, G50375, from the reducer [6] in port 2 to the differential pressure indicator (TASK 20-10-44-400-801).
- 2) For the system B filter module [13], do these steps:
- a) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packings [7] and to the threads of the unions [5] and the plug [18].
 - b) Install the new packings [7] on the unions [5] and on the plug [18].
 - c) Install the unions [5] into ports 1 and 3 on the filter head assembly [10] and tighten.
 - d) Install the plug [18] into port 2 on the filter head assembly [10] and tighten.
 - e) Install safety cable kit, G50375, from the plug [18] in port 2 to the differential pressure indicator (TASK 20-10-44-400-801).
- (b) To install the filter module on the bracket assembly, do these steps:
- 1) For system A filter module [8]:
- a) Put the filter module [8] in position on the bracket assembly.
 - b) Install the four bolts [1] and the four washers [2] to attach the filter module [8] to the bracket assembly and tighten.
 - c) Remove the caps/plugs, STD-14686, from the ends of the hydraulic line elbow fitting [3], hydraulic line [4], hydraulic line tee fitting [12] and ports of the filter module [8].
 - d) Attach the hydraulic line tee fitting [12] to the union [5] at port 1 and tighten.
 - e) Attach the hydraulic line [4] to the reducer [6] at port 2 and tighten.
 - f) Tighten the B-nut on hydraulic line [4] to 280 ± 14 in-lb (32 ± 2 N·m).
 - g) Attach the hydraulic line elbow fitting [3] to the union [5] at port 3 and tighten.
- 2) For system B filter module [13]:
- a) Put the filter module [13] in position on the bracket assembly.
 - b) Install the four bolts [1] and the four washers [2] to attach the filter module [13] to the bracket assembly and tighten.
 - c) Remove the caps/plugs, STD-14686, from the ends of the hydraulic line tee fitting [17], hydraulic line tee fitting [19] and ports of the filter module [13].
 - d) Attach the hydraulic line tee fitting [19] to the union [5] at port 1 and tighten.
 - e) Attach the hydraulic line tee fitting [17] to the union [5] at port 2 and tighten.

G. Return Filter Module Installation Test

SUBTASK 29-11-61-600-001

- (1) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-61-860-006

- (2) Pressurize the applicable reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-61-860-007

- (3) Pressurize the applicable hydraulic system (TASK 29-11-00-860-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-61

Page 410
Sep 15/2023



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

SUBTASK 29-11-61-790-002

- (4) Examine the filter module and hydraulic line connections for leaks.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-61

Page 411
Sep 15/2023



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

HYDRAULIC SYSTEMS A AND B RETURN FILTER MODULE - INSPECTION/CHECK

1. General

A. This procedure has these tasks:

- (1) Hydraulic Systems A and B Return Filter Modules Differential Pressure Indicator - Visual Check.
- (2) Hydraulic Systems A and B Return Filter Elements - Inspection.

TASK 29-11-61-210-801

2. Hydraulic Systems A and B Return Filter Modules Differential Pressure Indicator - Visual Check

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
29-11-61-000-801	Return Filter Element Removal (P/B 401)
29-11-61-400-801	Return Filter Element Installation (P/B 401)

B. **Location Zones**

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. **Prepare for the Check**

SUBTASK 29-11-61-010-001

- (1) Get access to the main wheel well.

D. **Hydraulic Systems A and B Return Filter Modules Differential Pressure Indicator Visual Check**

(Figure 601)

SUBTASK 29-11-61-210-001

- (1) Do a visual check of the differential pressure indication of the Hydraulic Systems A and B return filter modules.

SUBTASK 29-11-61-210-002

- (2) Make sure the red differential pressure indicator is not visible.
 - (a) If the red differential pressure indicator shows, replace the return filter element.
 - 1) Do this task: Return Filter Element Removal, TASK 29-11-61-000-801.
 - 2) Do this task: Return Filter Element Installation, TASK 29-11-61-400-801.

———— **END OF TASK** ————

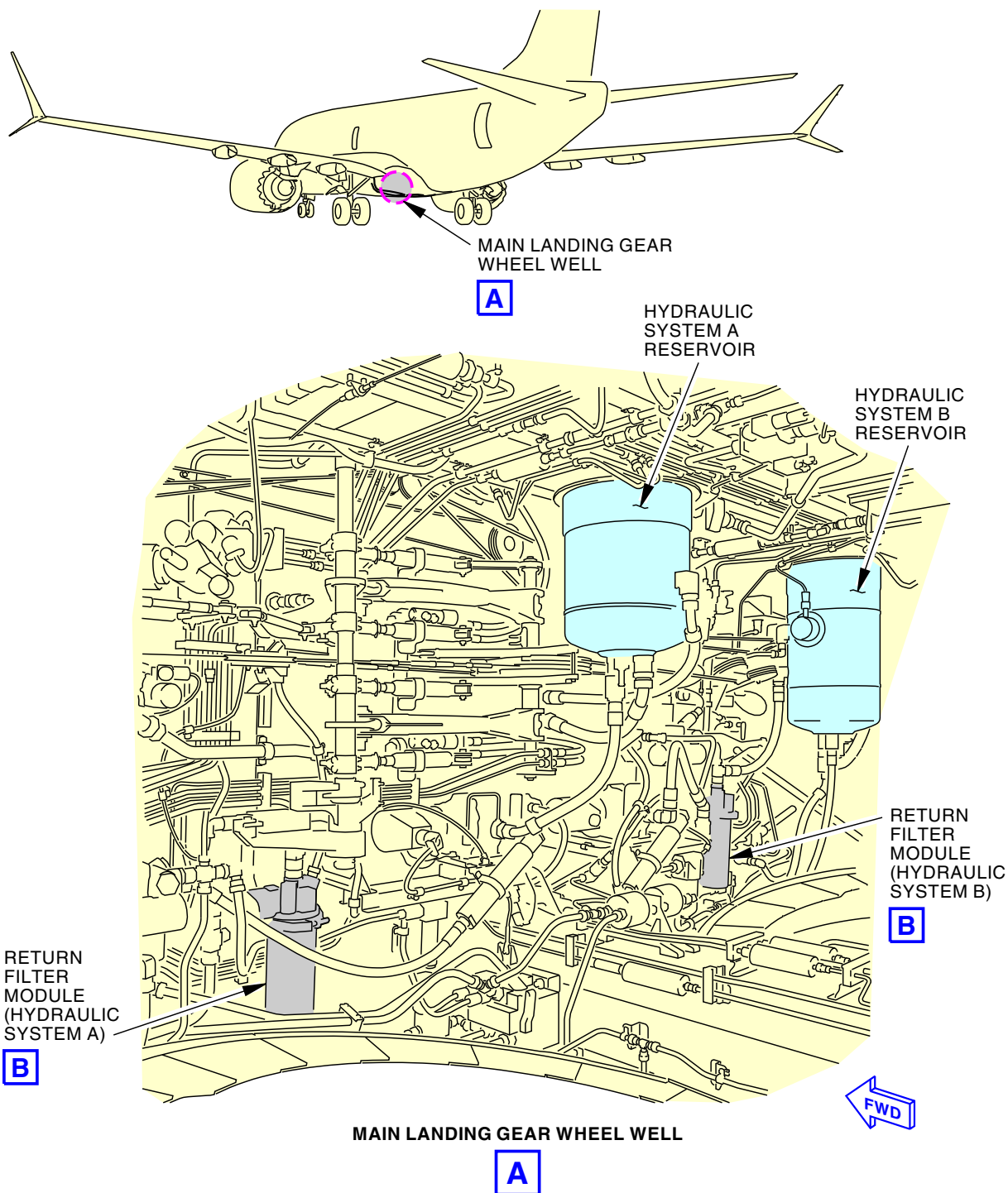
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-61

Page 601
Sep 15/2021



2413820 S00061533456_V1

Hydraulic Systems A and B Return Filter Modules Differential Pressure Indicator Visual Check
Figure 601/29-11-61-990-802 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

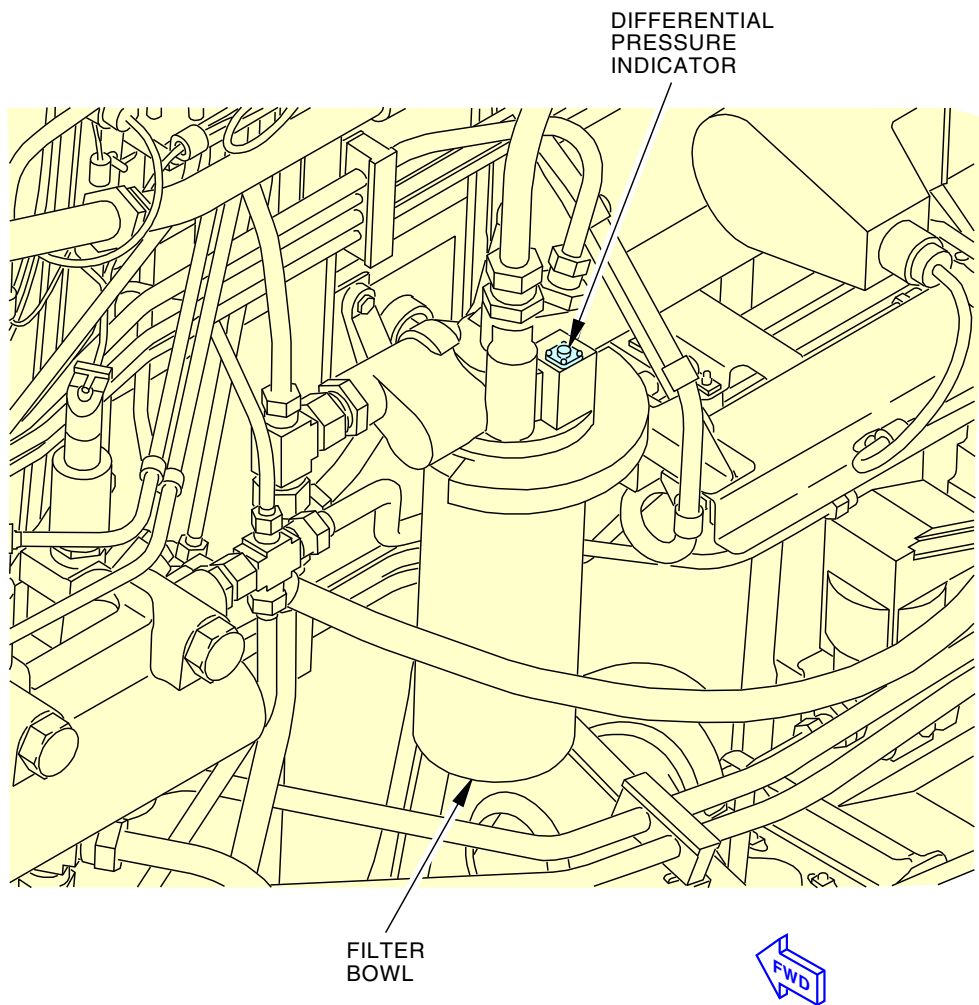
29-11-61

D633AM101-SIA

Page 602
Sep 15/2021



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



RETURN FILTER MODULE
(HYDRAULIC SYSTEM A IS SHOWN,
HYDRAULIC SYSTEM B IS ALMOST THE SAME)

B

2413821 S00061533457_V1

Hydraulic Systems A and B Return Filter Modules Differential Pressure Indicator Visual Check
Figure 601/29-11-61-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-61

Page 603
Sep 15/2021



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

TASK 29-11-61-200-801

3. Hydraulic Systems A and B Return Filter Element - Inspection

A. References

Reference	Title
29-11-61-000-801	Return Filter Element Removal (P/B 401)
29-11-61-400-801	Return Filter Element Installation (P/B 401)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Inspection

SUBTASK 29-11-61-000-001

- (1) Remove the return filter element (TASK 29-11-61-000-801).

D. Inspection

SUBTASK 29-11-61-210-003

- (1) Examine the filter element to make sure that it is not filled with unwanted material and it does not have damage.
- (a) If the filter element is not serviceable, discard and replace the filter element.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-61-400-001

- (1) Install the return filter element: (TASK 29-11-61-400-801).

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-61

Page 604
Sep 15/2021



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

HYDRAULIC SYSTEMS A AND B PRESSURE MODULE AND COMPONENTS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) The removal of the hydraulic systems A and B pressure module
- (2) The installation of the hydraulic systems A and B pressure module
- (3) The removal of the hydraulic systems A and B pressure module filter element
- (4) The installation of the hydraulic systems A and B pressure module filter element
- (5) The removal of the hydraulic systems A and B pressure module check valve
- (6) The installation of the hydraulic systems A and B pressure module check valve
- (7) The removal of the hydraulic systems A and B pressure module relief valve
- (8) The installation of the hydraulic systems A and B pressure module relief valve

TASK 29-11-71-000-801

2. Hydraulic Systems A and B Pressure Module Removal

(Figure 401)

A. General

- (1) This task gives the instructions on how to remove the pressure module for the hydraulic system A or B.

B. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
20-10-51-000-801	Flareless Tubing Assembly Removal (P/B 401)
24-22-00-860-802	Remove Electrical Power (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liter)
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
May 15/2023



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

F. Prepare for the Removal

SUBTASK 29-11-71-860-001

- (1) Remove the hydraulic power from the applicable system (TASK 29-11-00-860-805).

SUBTASK 29-11-71-860-002

- (2) Depressurize the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-11-71-860-028

- (3) If you will remove the system B pressure module, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-11-71-010-002

- (4) To get access to the P91 and P92 panels, open this access panel:

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

SUBTASK 29-11-71-860-003



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



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

- (5) If you will remove the system A pressure module, open these circuit breakers and install safety tags:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-71-860-004



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

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
May 15/2023

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

(WARNING PRECEDES)



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

- (6) If you will remove the system B pressure module, open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

SUBTASK 29-11-71-440-001

- (7) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.

G. Hydraulic Systems A and B Pressure Module Removal

SUBTASK 29-11-71-480-001

- (1) Put a 5 gallon (19 liter) container, STD-1154, below the applicable pressure module [57].

SUBTASK 29-11-71-020-002



DO NOT LET UNWANTED MATERIALS GO INTO THE PRESSURE MODULE OR THE HYDRAULIC LINES. DAMAGE TO THE EQUIPMENT CAN OCCUR.

- (2) If you will disconnect the System A pressure module [57], do these steps (TASK 20-10-51-000-801):
- Disconnect the electrical connector [1], electrical connector [2], and electrical connector [3].
 - Disconnect the hydraulic line [13] and hydraulic line [24].
 - Disconnect the cross fitting [10], cross fitting [20], and tee fitting [27].
 - Install caps/plugs, STD-14686, on the hydraulic lines, tee fitting and cross fittings (TASK 70-00-01-910-802-G00).
 - Remove the union [8], union [11], union [18], union [22], and union [25].
 - Remove and discard the packing [9], packing [12], packing [19], packing [23], and packing [26].
 - Remove the two bolts [4], two bolts [14], two washers [5], and two washers [15].
 - Remove the pressure module [57].
 - Install cap/plug, STD-14686, on the open ports of the pressure module [57] (TASK 70-00-01-910-802-G00).

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-71

Page 403
May 15/2023



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

SUBTASK 29-11-71-020-028



CAUTION

DO NOT LET UNWANTED MATERIALS GO INTO THE PRESSURE MODULE OR THE HYDRAULIC LINES. DAMAGE TO THE EQUIPMENT CAN OCCUR.

- (3) If you will disconnect System B pressure module [57], do these steps (TASK 20-10-51-000-801):
- (a) Disconnect the electrical connector [1], electrical connector [2], electrical connector [3], and electrical connector [31].
 - (b) Disconnect the hydraulic line [28], hydraulic line [29], hydraulic line [30], and hydraulic line [60].
 - (c) Disconnect the tee fitting [27].
 - (d) Install caps/plugs, STD-14686, on the hydraulic lines and tee fitting (TASK 70-00-01-910-802-G00).
 - (e) Remove the union [8], union [11], union [18], union [22], and union [25].
 - (f) Remove and discard the packing [9], packing [12], packing [19], packing [23], and packing [26].
 - (g) Remove the two bolts [4], two bolts [14], two washers [5], and two washers [15].
 - (h) Remove the pressure module [57].
 - (i) Install cap/plug, STD-14686, on the open ports of the pressure module [57] (TASK 70-00-01-910-802-G00).

SUBTASK 29-11-71-160-001

- (4) Do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

————— END OF TASK —————

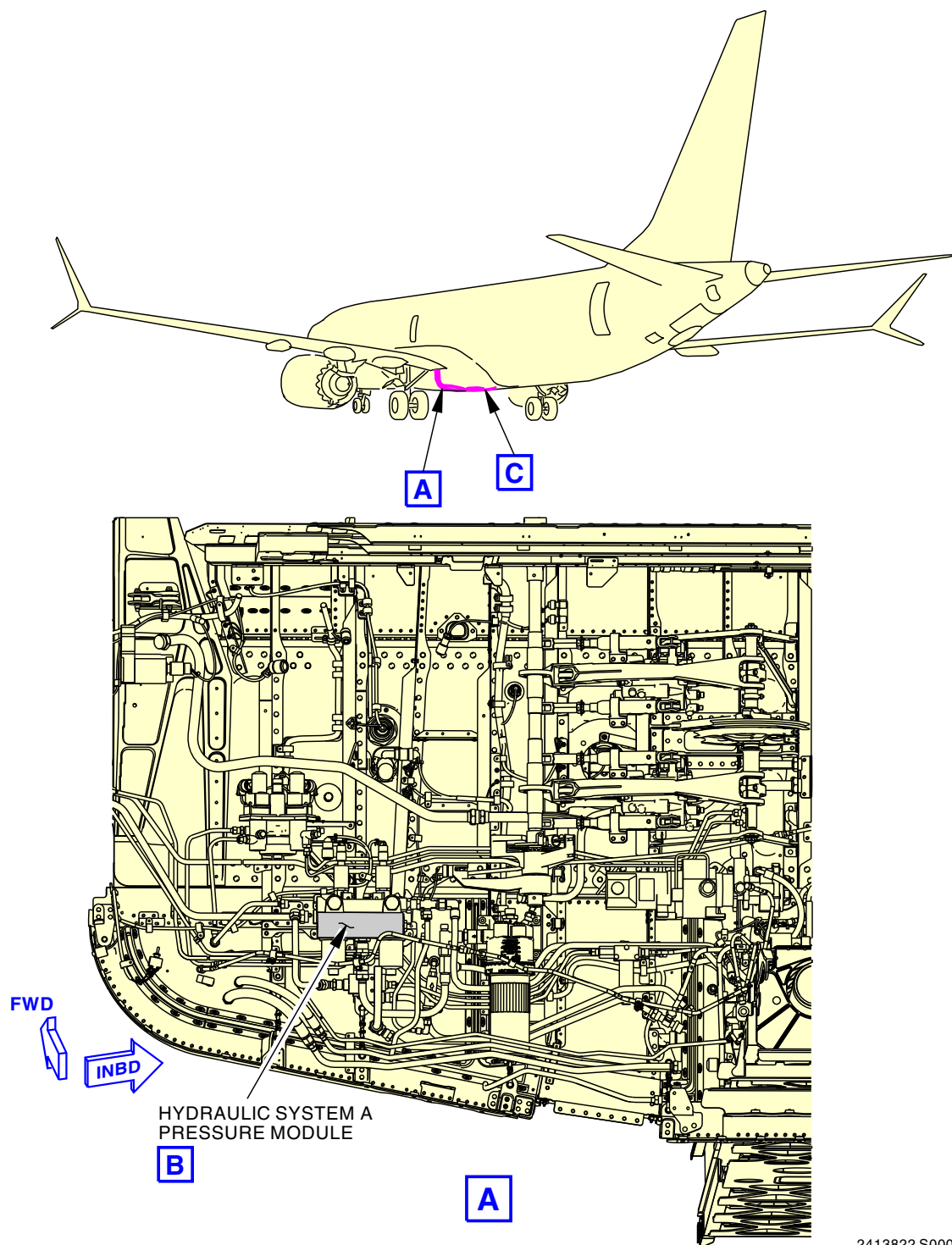
EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
May 15/2023



2413822 S00061533461_V1

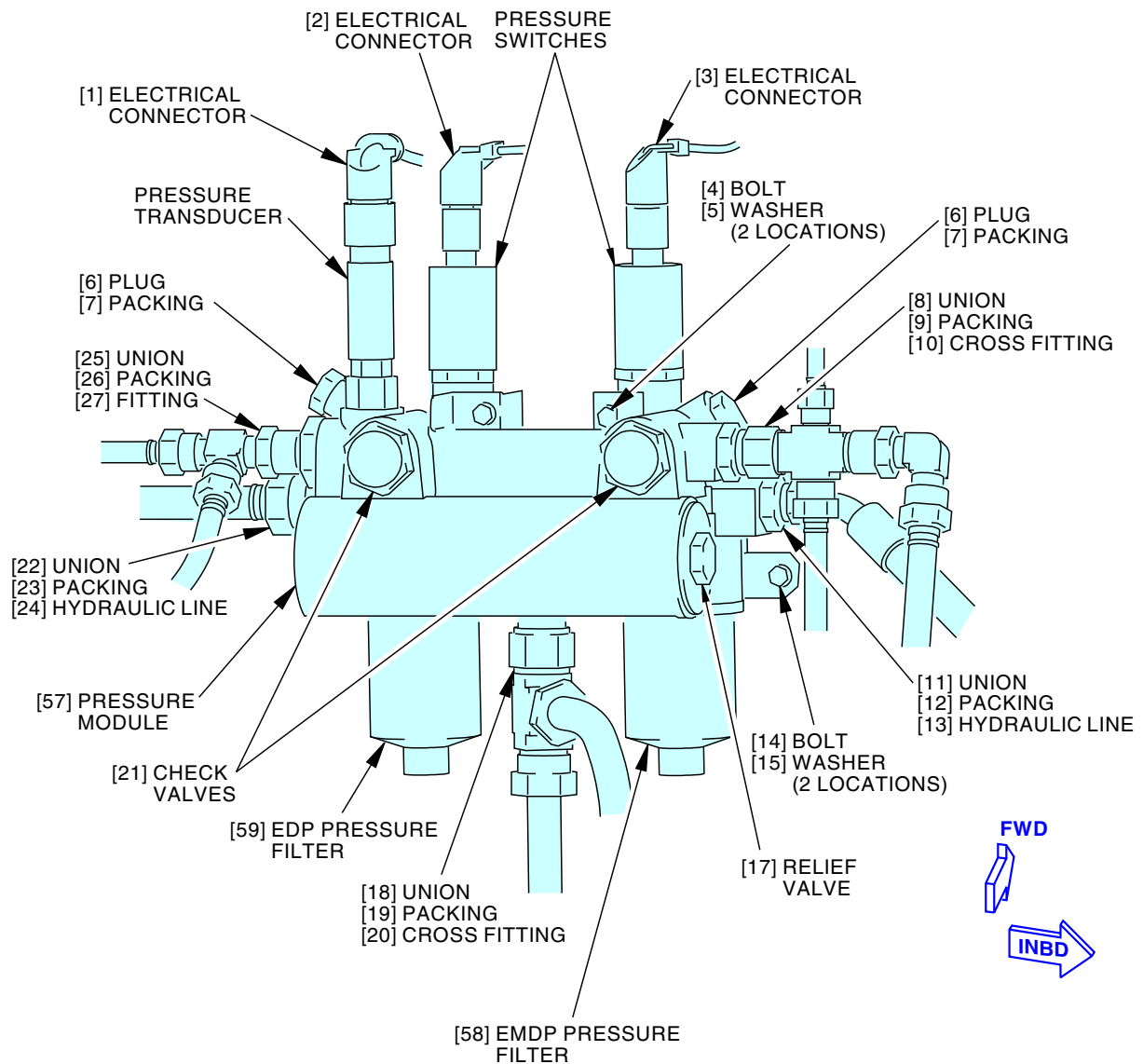
Hydraulic Systems A and B Pressure Module Installation
Figure 401/29-11-71-990-801 (Sheet 1 of 4)

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 405
Jan 15/2023



HYDRAULIC SYSTEM A PRESSURE MODULE

B

2413823 S00061533462_V3

Hydraulic Systems A and B Pressure Module Installation
Figure 401/29-11-71-990-801 (Sheet 2 of 4)

EFFECTIVITY
SIA ALL

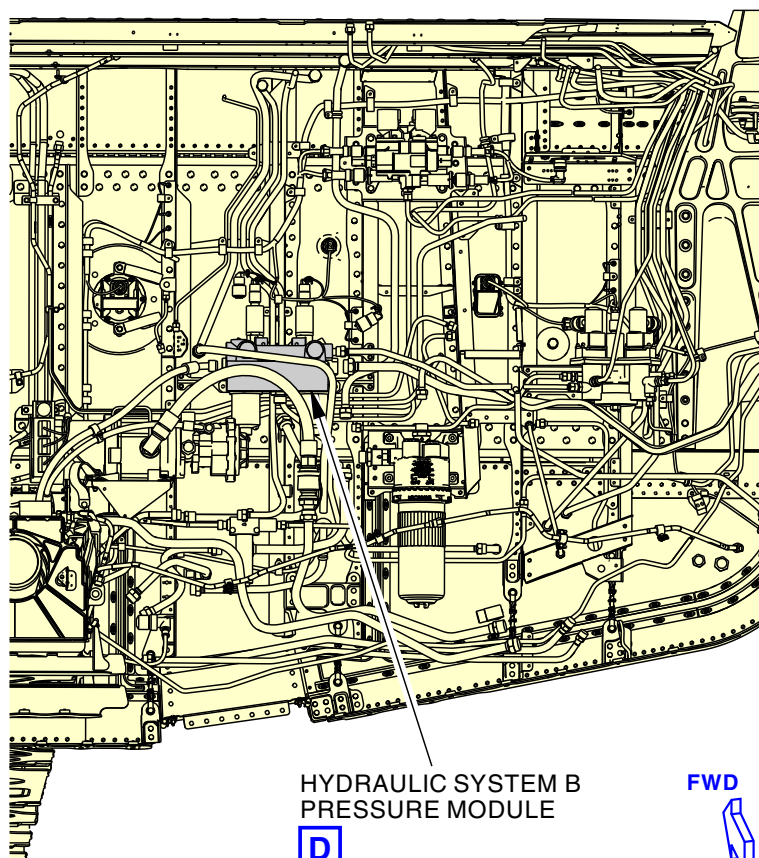
29-11-71

D633AM101-SIA

Page 406
Jan 15/2023



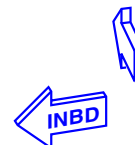
737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



HYDRAULIC SYSTEM B
PRESSURE MODULE

D

FWD



C

2413824 S00061533463_V1

Hydraulic Systems A and B Pressure Module Installation
Figure 401/29-11-71-990-801 (Sheet 3 of 4)

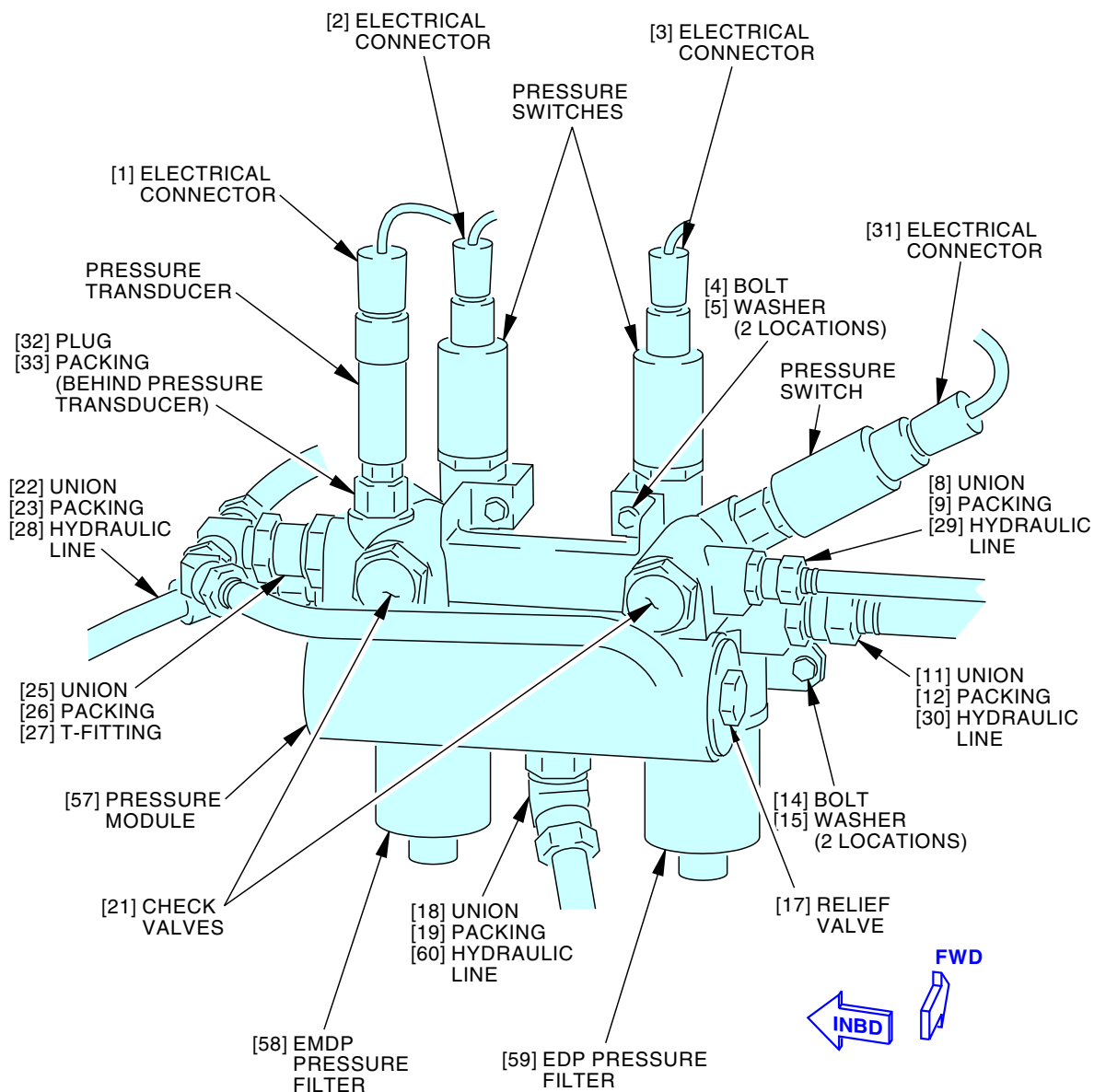
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 407
Jan 15/2023



HYDRAULIC SYSTEM B PRESSURE MODULE

D

2413825 S00061533464_V4

Hydraulic Systems A and B Pressure Module Installation
Figure 401/29-11-71-990-801 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 408
May 15/2023



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

TASK 29-11-71-400-801

3. Hydraulic Systems A and B Pressure Module Installation

(Figure 401)

A. General

- (1) This task gives the instructions on how to install the pressure module for the hydraulic system A or B.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-51-000-801	Flareless Tubing Assembly Removal (P/B 401)
20-10-51-400-801	Flareless Tubing Assembly Installation (P/B 401)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
24-22-00-860-801	Supply Electrical Power (P/B 201)
24-22-00-860-802	Remove Electrical Power (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-804	Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (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-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 409
May 15/2023



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

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Packing	29-11-71-01-060	SIA ALL
		29-11-71-02-065	SIA ALL
12	Packing	29-11-71-01-080	SIA ALL
		29-11-71-02-070	SIA ALL
19	Packing	29-11-71-01-090	SIA ALL
		29-11-71-02-085	SIA ALL
21	Check valve	29-11-71-01-125	SIA ALL
		29-11-71-02-115	SIA ALL
23	Packing	29-11-71-01-070	SIA ALL
		29-11-71-02-050	SIA ALL
26	Packing	29-11-71-01-050	SIA ALL
		29-11-71-02-055	SIA ALL
33	Packing	29-11-71-01-040	SIA ALL
		29-11-71-02-035	SIA ALL
57	Pressure module	29-11-71-01-005	SIA ALL
		29-11-71-02-005	SIA ALL

F. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
212	Flight Compartment - Right

G. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

H. Hydraulic Systems A and B Pressure Module Installation

SUBTASK 29-11-71-420-030

(1) If you will install System A pressure module [57], do these steps (TASK 20-10-51-000-801):

- (a) Lubricate the new packings, threads of the plug and unions as follows:
 - 1) Use MCS 352B fluid, D00054, or hydraulic fluid, D00153, for lubrication.
 - 2) Lubricate the new packing [9], new packing [12], new packing [19], new packing [23], and new packing [26] for pressure module [57].

NOTE: Use all new packings for the installation.
 - 3) Lubricate the threads of the union [8], union [11], union [18], union [22], and union [25].
 - 4) Install the new packings on the unions for the pressure module [57] as follows:
 - a) Install the packing [9] on the union [8].
 - b) Install the packing [12] on the union [11].
 - c) Install the packing [19] on the union [18].

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 410
May 15/2023



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

- d) Install the packing [23] on the union [22].
- e) Install the packing [26] on the union [25].
- (b) Remove the cap/plug, STD-14686, from the ports of the pressure module [57] (TASK 70-00-01-910-802-G00).
- (c) Install the union [8], union [11], union [18], union [22], and union [25].
 - 1) Tighten the union [8] to 280 ±14 in-lb (32 ±2 N·m).
 - 2) Tighten the union [11] to 360 ±18 in-lb (41 ±2 N·m).
 - 3) Tighten the union [18] to 450 ±23 in-lb (51 ±3 N·m).
 - 4) Tighten the union [22] to 360 ±18 in-lb (41 ±2 N·m).
 - 5) Tighten the union [25] to 450 ±23 in-lb (51 ±3 N·m).
- (d) Install the packings [7] on the plugs [6].
- (e) Make sure that the check valves [21] are on the pressure module [57]
- (f) Put the pressure module [57] in its position.
- (g) Install the two bolts [4] and two washers [5].
- (h) Install the two bolts [14] and two washers [15].
- (i) Use an intrinsically safe approved bonding meter, COM-1550, as follows:
 - 1) Make sure that the resistance is not more than 0.001 ohm.
- (j) Remove the cap/plug, STD-14686, from the hydraulic lines on the applicable hydraulic system (TASK 70-00-01-910-802-G00).
- (k) Connect the hydraulic lines and fittings to the pressure module [57] (TASK 20-10-51-400-801).
 - 1) Connect the cross fitting [10], cross fitting [20], and tee fitting [27].
 - a) Tighten the B-nut on the cross fitting [10] to 700 ±35 in-lb (79 ±4 N·m).
 - b) Tighten the B-nut on the cross fitting [20] to 450 ±23 in-lb (51 ±3 N·m).
 - c) Tighten the B-nut on the tee fitting [27] to 700 ±35 in-lb (79 ±4 N·m).
 - 2) Connect the hydraulic line [13] and hydraulic line [24].
 - a) Tighten the B-nut on the hydraulic line [13] to 500 ±25 in-lb (56 ±3 N·m).
 - b) Tighten the B-nut on the hydraulic line [24] to 900 ±45 in-lb (102 ±5 N·m).

SUBTASK 29-11-71-420-031

- (2) If you will install System B pressure module [57], do these steps (TASK 20-10-51-000-801):
 - (a) Lubricate the new packings, threads of the plug and unions as follows:
 - 1) Use MCS 352B fluid, D00054, or hydraulic fluid, D00153, for lubrication.
 - 2) Lubricate the new packing [9], new packing [12], new packing [19], new packing [23], and new packing [26] for the pressure module [57].
NOTE: Use all new packings for the installation.
 - 3) Lubricate the threads of the union [8], union [11], union [18], union [22], and union [25].
 - 4) Install the new packings on the unions for the pressure module [57] as follows:
 - a) Install the packing [9] on the union [8].
 - b) Install the packing [12] on the union [11].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 411
May 15/2023



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

- c) Install the packing [19] on the union [18].
- d) Install the packing [23] on the union [22].
- e) Install the packing [26] on the union [25].
- (b) Remove the cap/plug, STD-14686, from the ports of pressure module [57] (TASK 70-00-01-910-802-G00).
- (c) Install the union [8], union [11], union [18], union [22], and union [25].
 - 1) Tighten the union [8] to 280 ±14 in-lb (32 ±2 N·m).
 - 2) Tighten the union [11] to 360 ±18 in-lb (41 ±2 N·m).
 - 3) Tighten the union [18] to 450 ±23 in-lb (51 ±3 N·m).
 - 4) Tighten the union [22] to 360 ±18 in-lb (41 ±2 N·m).
 - 5) Tighten the union [25] to 450 ±23 in-lb (51 ±3 N·m).
- (d) Install the new packing [33] on the plug [32].
- (e) Make sure that the check valves [21] are on the pressure module [57].
- (f) Put the pressure module [57] in its position.
- (g) Install the two bolts [4] and two washers [5].
- (h) Install two bolts [14] and two washers [15].
- (i) Use an intrinsically safe approved bonding meter, COM-1550, as follows:
 - 1) Make sure that the resistance is not more than 0.001 ohm.
- (j) Remove the cap/plug, STD-14686, from the hydraulic lines on the applicable hydraulic system (TASK 70-00-01-910-802-G00).
- (k) Connect the hydraulic lines and fittings to the pressure module [57] (TASK 20-10-51-400-801).
 - 1) Connect the tee fitting [27].
 - a) Tighten the B-nut on the tee fitting [27] to 900 ±45 in-lb (102 ±5 N·m).
 - 2) Connect the hydraulic line [28], hydraulic line [29], hydraulic line [30], and hydraulic line [60].
 - a) Tighten the B-nut on the hydraulic line [28] to 500 ±25 in-lb (56 ±3 N·m).
 - b) Tighten the B-nut on the hydraulic line [29] to 500 ±25 in-lb (56 ±3 N·m).
 - c) Tighten the B-nut on the hydraulic line [30] to 900 ±45 in-lb (102 ±5 N·m).
 - d) Tighten the B-nut on the hydraulic line [60] to 450 ±23 in-lb (51 ±3 N·m).

SUBTASK 29-11-71-100-001

- (3) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-11-71-420-006

- (4) Connect the electrical connectors to the system A or B pressure module [57] as follows:
 - (a) Connect the electrical connector [1], electrical connector [2], and electrical connector [3] to the pressure transducer and pressure switches.
 - (b) Connect the electrical connector [31] to the pressure switch on the system B pressure module [57].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 412
May 15/2023



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

I. Hydraulic System A and B Pressure Module Installation Test

SUBTASK 29-11-71-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 29-11-71-860-006



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



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

(2) If you will install the system A pressure module, remove the safety tag and close these circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	3	C00881	ELEC HYD PUMP SYS A

SUBTASK 29-11-71-860-007



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



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

(3) If you will install the system B pressure module, remove the safety tag and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
F	3	C00882	ELEC HYD PUMP SYS B

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 413
May 15/2023



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

SUBTASK 29-11-71-860-027

- (4) If you will install the system B pressure module, remove the safety tag and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-11-71-860-008

- (5) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-71-710-001

- (6) Do an operational check of the system A pressure module [57]:
- (a) Make sure that the ENG 1 HYD PUMPS switch, on the P5 panel, is in the ON position.
 - (b) Make sure that the ELEC 2 HYD PUMPS switch, on the P5 panel, is in the OFF position.
 - (c) Make sure that the ENG 1 and ELEC 2 LOW PRESSURE lights, on the P5 panel, are on.
 - (d) Pressurize hydraulic system A with EDP (TASK 29-11-00-860-804).
 - (e) Make sure that the ENG 1 LOW PRESSURE light goes off.
 - (f) Make sure that the ELEC 2 LOW PRESSURE light stays on.
 - (g) Examine the module and connections for leaks.
 - (h) Remove hydraulic system A power (TASK 29-11-00-860-805).
 - (i) Operate the rudder until the ENG 1 LOW PRESSURE light comes on.
 - (j) Pressurize system A with EMDP (TASK 29-11-00-860-803).
 - (k) Make sure that the ELEC 2 LOW PRESSURE light goes off.
 - (l) Make sure that the ENG 1 LOW PRESSURE light stays on.
 - (m) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (n) Make sure that the ELEC 2 LOW PRESSURE light comes on.

SUBTASK 29-11-71-710-002

- (7) Do an operational check of system B pressure module [57]:
- (a) Make sure that the ENG 2 HYD PUMPS switch, on the P5 panel, is in the ON position.
 - (b) Make sure that the ELEC 1 HYD PUMPS switch, on the P5 panel, is in the OFF position.
 - (c) Make sure that the ENG 2 and ELEC 1 LOW PRESSURE lights, on the P5 panel, are on.
 - (d) Pressurize hydraulic system B with EDP (TASK 29-11-00-860-804).
 - (e) Make sure that the ENG 2 LOW PRESSURE light goes off.
 - (f) Make sure that the ELEC 1 LOW PRESSURE light stays on.
 - (g) Examine the module and the connections for leaks.
 - (h) Remove hydraulic system B power (TASK 29-11-00-860-805).
 - (i) Operate the rudder until the ENG 2 LOW PRESSURE light comes on.
 - (j) Pressurize system B with EMDP (TASK 29-11-00-860-803).
 - (k) Make sure that the ELEC 1 LOW PRESSURE light goes off.
 - (l) Make sure that the ENG 2 LOW PRESSURE light stays on.
 - (m) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 414
May 15/2023



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

- (n) Make sure that the ELEC 1 LOW PRESSURE light comes on.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-71-610-001

- (1) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-71-410-003

- (2) Close this access panel:

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

SUBTASK 29-11-71-860-009

- (3) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.

————— **END OF TASK** —————

TASK 29-11-71-000-802

4. Hydraulic Systems A and B Pressure Module Filter Element Removal

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives instructions on how to remove the filter element in the hydraulic systems A and B pressure modules.
- (2) There is one pressure module [57] for each hydraulic system. Each pressure module [57] has two pressure filter assemblies, one filter for the Electric Motor Driven Pump (EMDP) and one for the Engine Driven Pump (EDP).

B. References

<u>Reference</u>	<u>Title</u>
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-11-000-801	Hydraulic Systems A and B Engine-Driven Pump (EDP) Removal (P/B 401)
29-11-11-400-801	Hydraulic Systems A and B Engine-Driven Pump (EDP) Installation (P/B 401)
29-11-21-000-801	Electric Motor-Driven Pump (EMDP) Removal (P/B 401)
29-11-21-400-801	Electric Motor-Driven Pump (EMDP) Installation (P/B 401)
29-11-27-000-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal (P/B 401)
29-11-27-400-801	Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation (P/B 401)

C. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-3907	Mirror - Dental

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 415
May 15/2023



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

(Continued)

Reference	Description
STD-6569	Container - Hydraulic Fluid Resistant, 1 Gallon (3.8 Liter)

D. Consumable Materials

Reference	Description	Specification
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)
G50347	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Prepare for the Removal

SUBTASK 29-11-71-860-010

- (1) Remove hydraulic power from the applicable system, (TASK 29-11-00-860-805).

SUBTASK 29-11-71-860-011

- (2) Depressurize the applicable hydraulic reservoir, (TASK 29-09-00-860-802).

SUBTASK 29-11-71-020-009



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (3) Disconnect the self-seal (quick) disconnect hose from the applicable hydraulic system reservoir, (TASK 29-11-27-000-801).

G. Hydraulic Systems A and B Pressure Module Filter Element Removal

SUBTASK 29-11-71-020-008

- (1) Remove the MS20995NC32 lockwire, G50347 that attaches the filter bowl [16] to the pressure module housing, (TASK 20-10-44-000-801).

SUBTASK 29-11-71-480-002

- (2) Place a 1 gallon (3.8 liter) hydraulic fluid resistant container, STD-6569 under the filter bowl [16] to catch spills.

SUBTASK 29-11-71-020-010

- (3) Unscrew and remove the filter bowl [16] from the pressure module housing.

SUBTASK 29-11-71-020-024

- (4) Remove the packing [45] and two backup rings [46] from the grooves of the pressure module housing.

SUBTASK 29-11-71-020-011

- (5) Remove the filter element [47] from the filter fitting [42].

SUBTASK 29-11-71-020-025

- (6) Remove the packing [43] and backup ring [44] from the grooves of the filter element [47].

SUBTASK 29-11-71-020-026

- (7) Unscrew and remove the filter fitting [42] from the filter module housing.

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 416
May 15/2023



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

SUBTASK 29-11-71-020-027

- (8) Remove the packing [48] from the filter fitting [42].

SUBTASK 29-11-71-020-029

- (9) Retain the filter fitting [42].

SUBTASK 29-11-71-020-012

- (10) Discard packing [48], packing [43] and packing [45].

SUBTASK 29-11-71-160-002

- (11) Clean the filter bowl [16] with solvent, B00074, (Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802).

SUBTASK 29-11-71-210-004

- (12) Use a dental mirror, STD-3907 to examine the inside of the filter element [47] for metal contamination.
- (a) If the filter element [47] in the EMDP pressure filter [58] has metal contamination, replace the EMDP (TASK 29-11-21-000-801 and TASK 29-11-21-400-801).
 - (b) If the filter element [47] in the EDP pressure filter [59] has metal contamination, replace the EDP (TASK 29-11-11-000-801 and TASK 29-11-11-400-801).
 - (c) If you find metal contamination in the pressure filter, flush the hydraulic lines between the pressure module [57] and the affected hydraulic pump.
 - (d) If you find metal contamination in the EMDP pressure filter, do these steps:
 - 1) Do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Removal, TASK 29-11-27-000-801.
 - 2) Examine the EMDP acoustic filter for contamination.
 - 3) Do this task: Hydraulic Systems A and B Electric Motor-Driven Pump (EMDP) Acoustic Filter Installation, TASK 29-11-27-400-801.

SUBTASK 29-11-71-020-013

- (13) Discard filter element [47].

————— **END OF TASK** —————

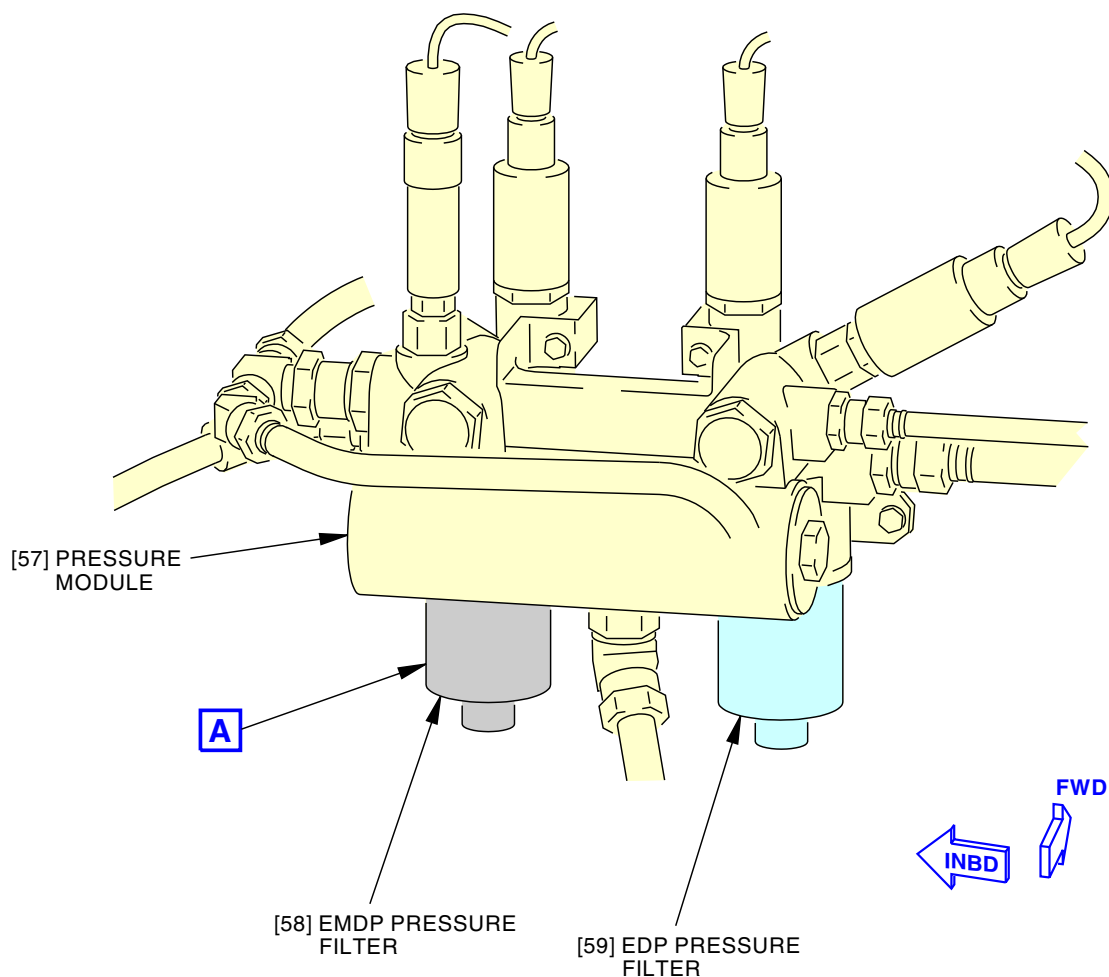
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 417
May 15/2023



2532704 S0000600028_V2

Hydraulic Systems A and B Pressure Module Filter Element Installation
Figure 402/29-11-71-990-803 (Sheet 1 of 2)

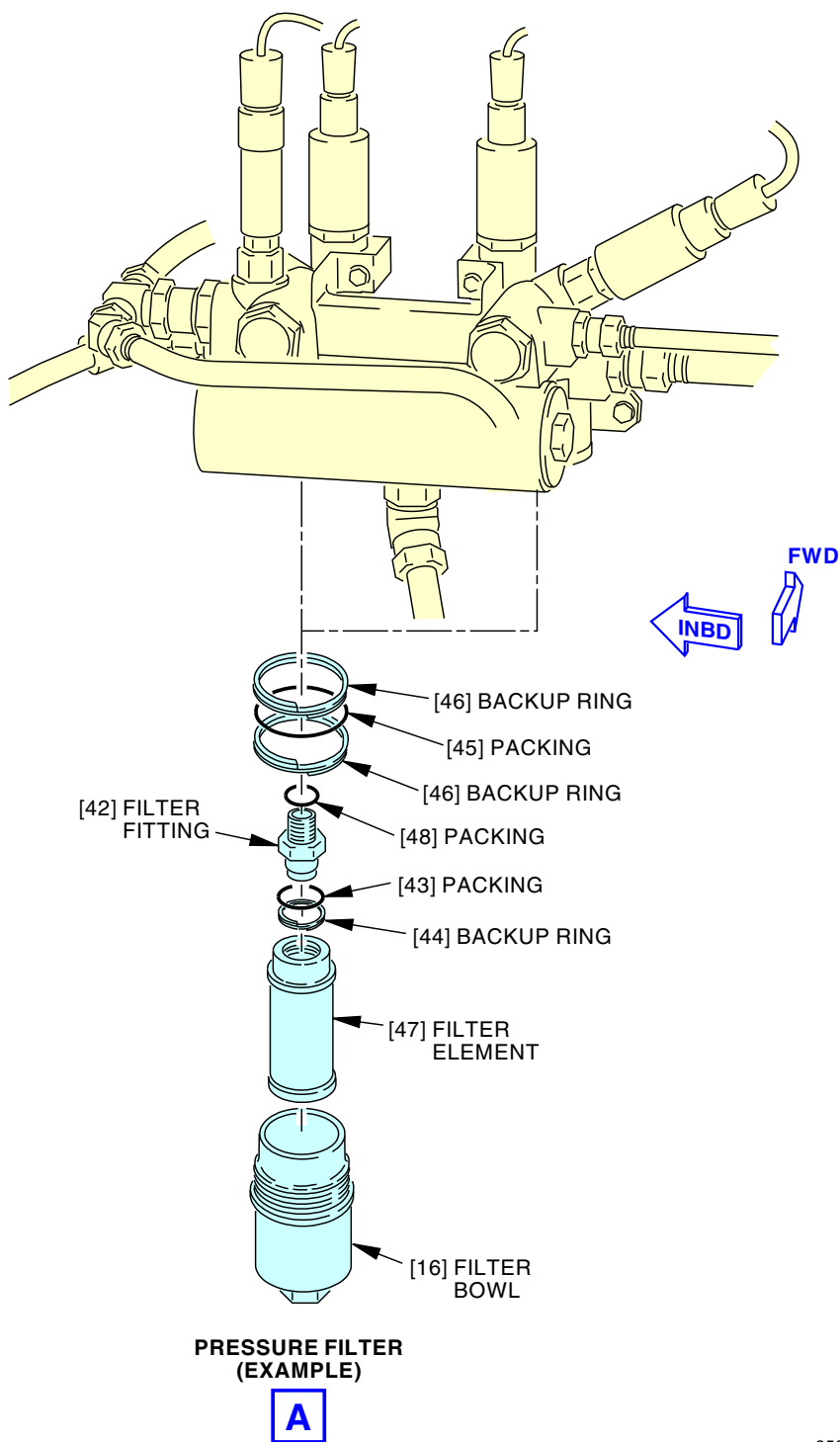
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 418
Jan 15/2023



2532742 S0000600029_V2

Hydraulic Systems A and B Pressure Module Filter Element Installation
Figure 402/29-11-71-990-803 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 419
Jan 15/2023



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

TASK 29-11-71-400-802

5. Hydraulic Systems A and B Pressure Module Filter Element Installation

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the instructions on how to install a filter element in the hydraulic systems A and B pressure modules.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
43	Packing	29-11-71-01-190	SIA ALL
		29-11-71-02-165	SIA ALL
44	Backup ring	29-11-71-01-185	SIA ALL
		29-11-71-02-160	SIA ALL
45	Packing	29-11-71-01-225	SIA ALL
		29-11-71-02-200	SIA ALL
46	Backup ring	29-11-71-01-220	SIA ALL
		29-11-71-02-195	SIA ALL
47	Filter element	29-11-71-01-230	SIA ALL
		29-11-71-02-205	SIA ALL
48	Packing	29-11-71-01-200	SIA ALL
		29-11-71-02-170	SIA ALL
57	Pressure module	29-11-71-01-005	SIA ALL
		29-11-71-02-005	SIA ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 420
Jan 15/2023



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

F. Hydraulic Systems A and B Pressure Module Filter Element Installation

SUBTASK 29-11-71-640-002

- (1) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the new packing [45] and the two new backup rings [46].

SUBTASK 29-11-71-420-007

- (2) Install the new packing [45] and the two new backup rings [46] in the housing grooves of the pressure module [57].

NOTE: Make sure that you set the new packing [45] and the two new backup rings [46] correctly to prevent leakage.

SUBTASK 29-11-71-640-010

- (3) Apply hydraulic fluid, D00153 or MCS 352B fluid, D00054 to the new packing [48].

SUBTASK 29-11-71-420-026

- (4) Install the new new packing [48] onto the filter fitting [42].

SUBTASK 29-11-71-420-027

- (5) Install the filter fitting [42] into the housing of the pressure module [57] and tighten.

NOTE: Be careful not to cause damage to the seal surface of the fittings.

SUBTASK 29-11-71-640-003

- (6) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the new packing [43] and the new backup ring [44].

SUBTASK 29-11-71-420-008

- (7) Install the new packing [43] and the new backup ring [44] in the grooves at the top of the new filter element [47].

NOTE: The new packing [43] goes on top of the new backup ring [44].

SUBTASK 29-11-71-420-028

- (8) Move the new filter element [47] fully onto the filter fitting [42].

SUBTASK 29-11-71-400-001



PUT HYDRAULIC FLUID IN THE FILTER BOWL BEFORE YOU INSTALL THE FILTER BOWL. AIR CAUGHT BELOW THE FILTER ELEMENT CAN CAUSE DAMAGE TO THE FILTER ELEMENT.

- (9) Fill the filter bowl [16] approximately 1/3 full with hydraulic fluid, D00153.

SUBTASK 29-11-71-640-004

- (10) Lightly apply hydraulic fluid, D00153 or MCS 352B fluid, D00054 to the threads of the filter bowl [16].

SUBTASK 29-11-71-420-029

- (11) Move the filter bowl [16] above the new filter element [47] and install onto the filter module housing.
 - (a) Torque the filter bowl [16] to 350 in-lb (40 N·m) - 375 in-lb (42 N·m).
 - (b) Attach the filter bowl [16] to the pressure module [57] with MS20995N32 lockwire, G50177, (TASK 20-10-44-400-801).

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 421
Jan 15/2023



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

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-71-420-012



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (1) Connect the self-seal (quick) disconnect hose.

H. Hydraulic System A and B Pressure Module Filter Element Installation Test

SUBTASK 29-11-71-600-001

- (1) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-71-860-013

- (2) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-71-860-014



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (3) Pressurize the hydraulic system with the applicable hydraulic pump for the filter element installation as follows:

NOTE: The hydraulic pressure module [57] has one set of hydraulic circuits and filter elements [47] for the Electric Motor-Driven Pump (EMDP) and one more set for the Engine Driven Pump (EDP). The correct pump must be operated to do the leakage check.

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

SUBTASK 29-11-71-790-001

- (4) Examine the pressure module filter for leaks.

SUBTASK 29-11-71-860-015

- (5) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

————— END OF TASK —————

TASK 29-11-71-000-803

6. Hydraulic Systems A and B Pressure Module Check Valve Removal

(Figure 403)

A. General

- (1) This task gives the instructions on how to remove the check valve(s) on the hydraulic system pressure module.

B. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 422
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Consumable Materials

Reference	Description	Specification
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Prepare for the Removal

SUBTASK 29-11-71-860-017

- (1) Remove the hydraulic power from the applicable hydraulic system, (TASK 29-11-00-860-805).

SUBTASK 29-11-71-860-018

- (2) Depressurize the applicable hydraulic reservoir, (TASK 29-09-00-860-802).

G. Hydraulic Systems A and B Pressure Module Check Valve Removal

SUBTASK 29-11-71-020-022

- (1) Remove the MS20995N32 lockwire, G50177 that attaches the check valve [21] to the housing of the pressure module [57], (TASK 20-10-44-000-801).

SUBTASK 29-11-71-020-014

- (2) Loosen and remove the check valve [21] from the pressure module [57].

SUBTASK 29-11-71-420-013

- (3) Install a cap/plug, STD-14686 on the open port of pressure module [57], (TASK 70-00-01-910-802-G00).

SUBTASK 29-11-71-020-019

- (4) Remove and discard packing [36] and packing [38] from check valve [21].

SUBTASK 29-11-71-020-020

- (5) Remove backup ring [35], two backup rings [37] and backup ring [39] from check valve [21].

————— END OF TASK —————

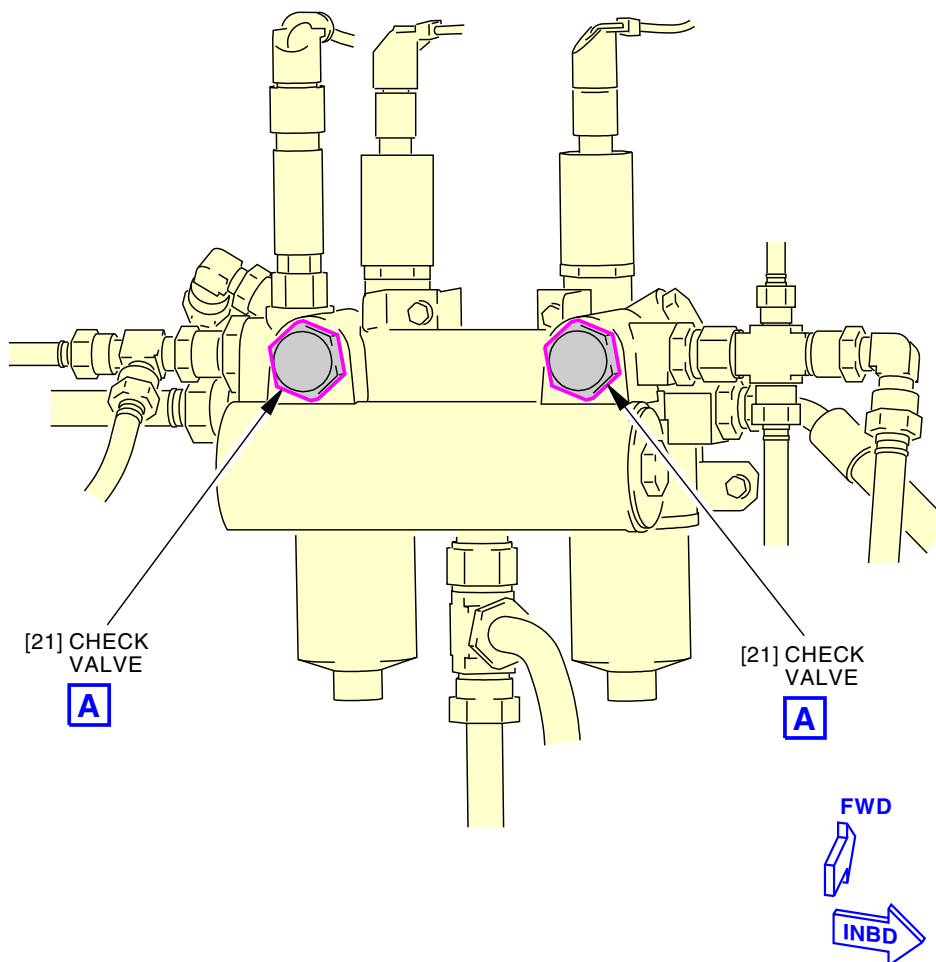
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 423
May 15/2023



NOTE:
THE PRESSURE MODULE AND CHECK VALVES
FOR SYSTEM A AND B ARE IDENTICAL.

2521353 S0000593350_V2

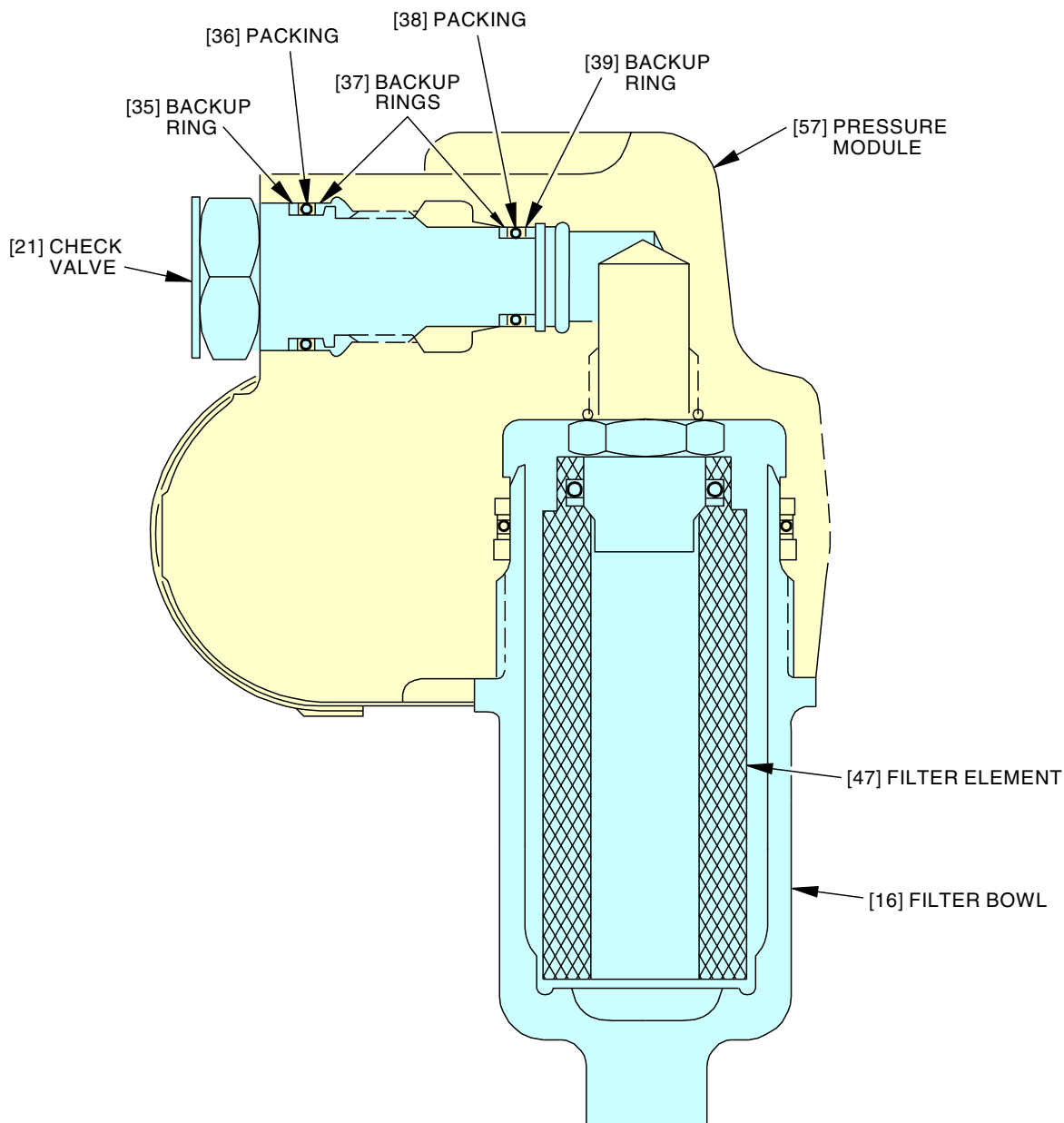
Hydraulic Pressure Module Check Valve Installation
Figure 403/29-11-71-990-802 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-11-71

Page 424
Jan 15/2023



CHECK VALVE

A

2521358 S0000593351_V2

Hydraulic Pressure Module Check Valve Installation
Figure 403/29-11-71-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 425
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-11-71-400-803

7. Hydraulic Systems A and B Pressure Module Check Valve Installation

(Figure 401)

A. General

- (1) This task gives the instructions on how to install the check valve(s) on the hydraulic system pressure module.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-804	Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)
71-00-00-910-803-G00	Start the Engine (Normal Start) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50177	Lockwire - MS20995N32, Inconel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
21	Check valve	29-11-71-01-125 29-11-71-02-115	SIA ALL SIA ALL
36	Packing	29-11-71-01-135 29-11-71-02-125	SIA ALL SIA ALL
38	Packing	29-11-71-01-145 29-11-71-02-135	SIA ALL SIA ALL
57	Pressure module	29-11-71-01-005 29-11-71-02-005	SIA ALL SIA ALL

F. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 426
May 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

G. Hydraulic Systems A and B Pressure Module Check Valve Installation

SUBTASK 29-11-71-640-005

- (1) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to new packing [36] and new packing [38].

SUBTASK 29-11-71-640-009

- (2) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to backup ring [35], two backup rings [37] and backup ring [39].

SUBTASK 29-11-71-420-014

- (3) Install new packing [36] and new packing [38] in the applicable grooves on check valve [21].

SUBTASK 29-11-71-420-024

- (4) Install backup ring [35], two backup rings [37] and backup ring [39] in the applicable grooves on check valve [21].

SUBTASK 29-11-71-640-006

- (5) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the threads of check valve [21].

SUBTASK 29-11-71-020-015

- (6) Remove cap/plug, STD-14686 from pressure module [57], (TASK 70-00-01-910-802-G00).

SUBTASK 29-11-71-420-015

- (7) Install check valve [21] into the housing of the pressure module [57].

SUBTASK 29-11-71-420-016

- (8) Tighten check valve [21] to 200 in-lb (22.6 N·m) - 250 in-lb (28.2 N·m).

SUBTASK 29-11-71-420-017

- (9) Attach the check valve [21] to the housing of the pressure module [57] with MS20995N32 lockwire, G50177, (TASK 20-10-44-400-801).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-71-600-002

- (1) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

I. Hydraulic Systems A and B Pressure Module Check Valve Installation Test

SUBTASK 29-11-71-860-019

- (1) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

SUBTASK 29-11-71-860-021

- (2) Do these steps if you replace check valve [21] for the electric motor-driven pump:
 - (a) Pressurize the applicable hydraulic system, do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.
 - (b) Remove Hydraulic Power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (c) Operate the engine driven pump (TASK 71-00-00-910-803-G00).
 - (d) Make sure that the LOW PRESSURE light for the electrical pump stays on.

SUBTASK 29-11-71-860-022

- (3) Do these steps if you replace check valve [21] for the engine-driven pump:

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 427
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (a) Pressurize the applicable hydraulic system, do this task: Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP), TASK 29-11-00-860-804.
- (b) Remove Hydraulic Power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
- (c) Operate the electric motor-driven pump (TASK 29-11-00-860-803).
- (d) Make sure that the LOW PRESSURE light for the engine driven pump stays on.

SUBTASK 29-11-71-790-002

- (4) Examine check valve [21] for leaks.

SUBTASK 29-11-71-420-032

- (5) Install a lockwire, do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

————— **END OF TASK** —————

TASK 29-11-71-000-804

8. Hydraulic Systems A and B Pressure Module Relief Valve Removal

(Figure 401)

A. General

- (1) This task gives the instructions on how to remove the pressure module relief valve for the hydraulic system A or B.

B. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

C. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

D. Consumable Materials

Reference	Description	Specification
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Prepare for the Removal

SUBTASK 29-11-71-860-023

- (1) Remove hydraulic power from the applicable system, (TASK 29-11-00-860-805).

SUBTASK 29-11-71-860-024

- (2) Depressurize the applicable hydraulic reservoir, (TASK 29-09-00-860-802).

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 428
May 15/2023



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

G. Procedure

SUBTASK 29-11-71-020-023

- (1) Remove the MS20995C20 lockwire, G50225 that attaches the relief valve [17] to the housing of the pressure module [57], (TASK 20-10-44-000-801).

SUBTASK 29-11-71-020-016

- (2) Loosen and remove the relief valve [17] from the housing of the pressure module [57].

SUBTASK 29-11-71-420-018

- (3) Install a cap/plug, STD-14686 in the open port of pressure module [57] to prevent contamination or damage, (TASK 70-00-01-910-802-G00).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

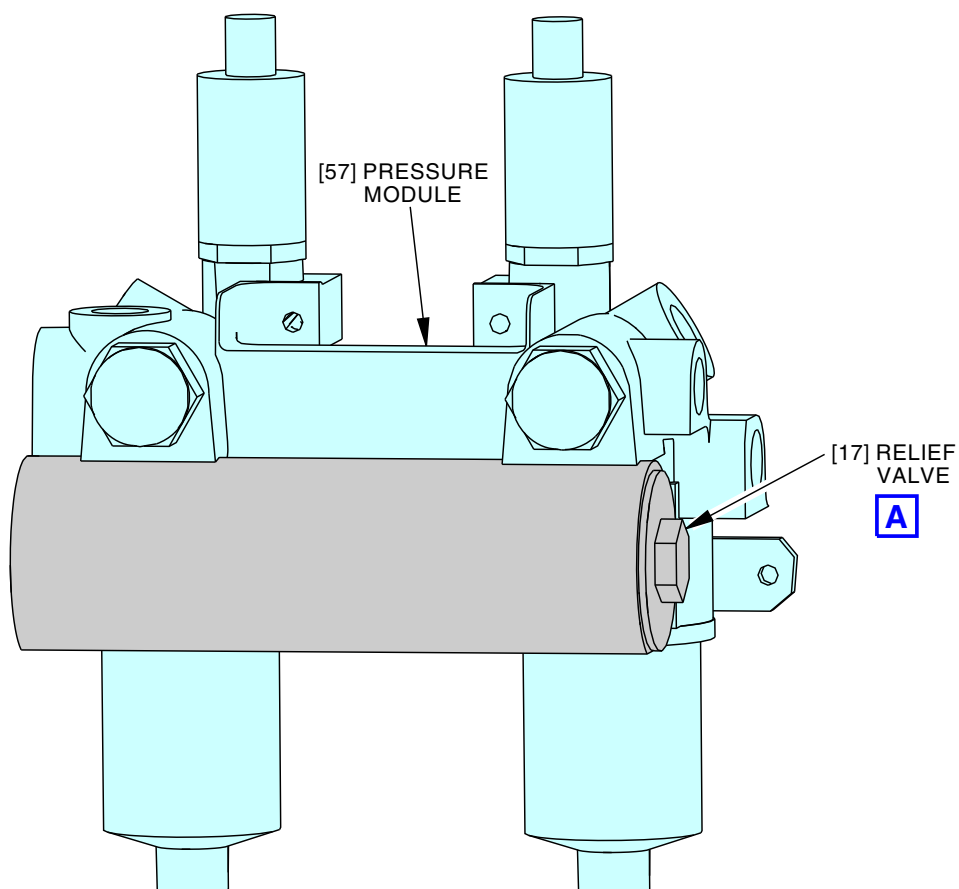
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 429
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



2535478 S0000601197_V1

Hydraulic Systems A and B Pressure Module Relief Valve Installation
Figure 404/29-11-71-990-804

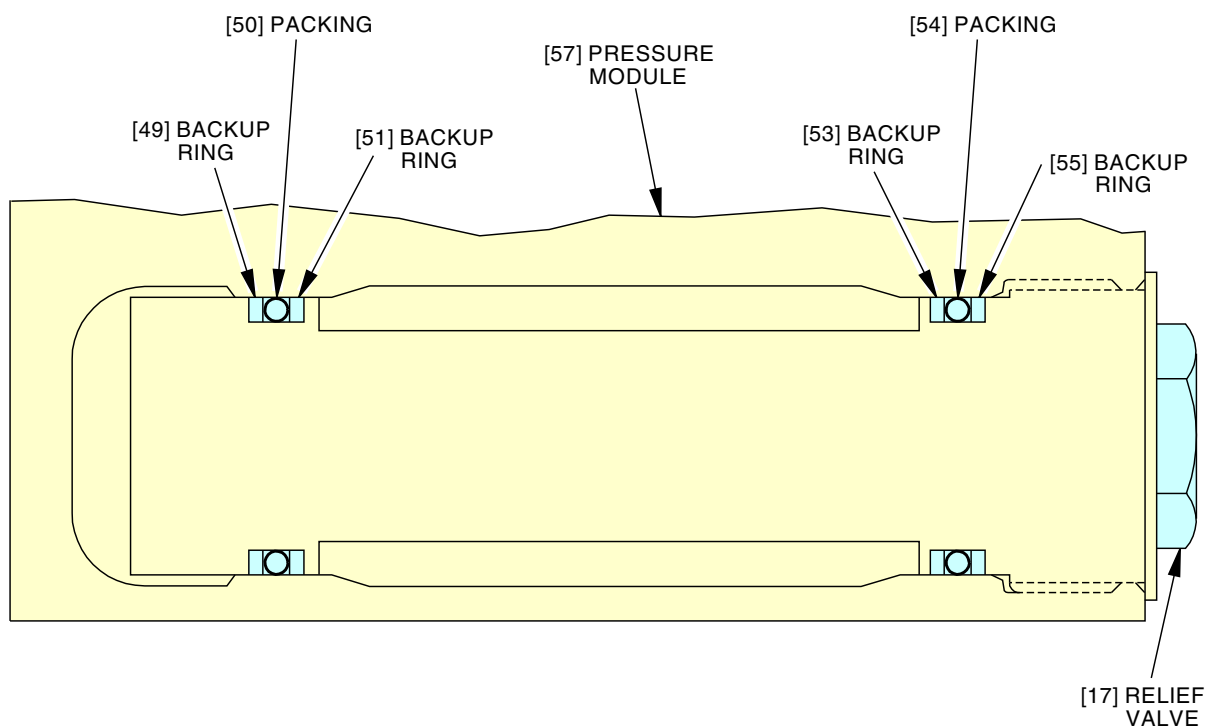
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 430
Jan 15/2023



RELIEF VALVE
(EXAMPLE)

A

2413827 S00061533466_V1

Hydraulic Systems A and B Pressure Module Relief Valve Installation
Figure 405/29-11-71-990-805

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 431
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-11-71-400-804

9. Hydraulic Systems A and B Pressure Module Relief Valve Installation
(Figure 401)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
70-00-01-910-802-G00	Use of Protective Covers, Caps, Plugs and Tape (P/B 201)

B. Tools/Equipment

Reference	Description
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50225	Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
50	Packing	29-11-71-01-160	SIA ALL
		29-11-71-02-150	SIA ALL
54	Packing	29-11-71-01-160	SIA ALL
		29-11-71-02-150	SIA ALL
57	Pressure module	29-11-71-01-005	SIA ALL
		29-11-71-02-005	SIA ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Procedure

SUBTASK 29-11-71-640-007

- (1) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the new packing [50], new packing [54], backup ring [49], backup ring [51], backup ring [53] and backup ring [55].

SUBTASK 29-11-71-420-019

- (2) Install the new packing [50], packing [54], backup ring [49], backup ring [51], backup ring [53] and backup ring [55] in each groove of the relief valve [17].

SUBTASK 29-11-71-640-008

- (3) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the threads of the relief valve [17].

EFFECTIVITY
SIA ALL

29-11-71

D633AM101-SIA

Page 432
May 15/2023



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

SUBTASK 29-11-71-020-017

- (4) Remove the cap/plug, STD-14686 from pressure module [57], (TASK 70-00-01-910-802-G00).

SUBTASK 29-11-71-420-020

- (5) Install the relief valve [17] into the housing of the pressure module [57].

SUBTASK 29-11-71-420-021

- (6) Tighten the relief valve [17] to 362.5 ± 12.5 in-lb (41.0 ± 1.5 N·m).

G. Hydraulic Systems A and B Pressure Module Relief Valve Installation Test

SUBTASK 29-11-71-600-003

- (1) If it is necessary, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-71-860-025

- (2) Pressurize the applicable hydraulic system (TASK 29-11-00-860-801).

SUBTASK 29-11-71-790-003

- (3) Examine the relief valve [17] for leaks.

SUBTASK 29-11-71-860-026

- (4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-71-420-022

- (5) Attach the relief valve [17] to the housing of the pressure module [57] with MS20995C20 lockwire, G50225, (TASK 20-10-44-400-801).

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-71

Page 433
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

ENGINE DRIVEN PUMP (EDP) SUPPLY SHUTOFF VALVE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) EDP Supply Shutoff Valve Removal
 - (2) EDP Supply Shutoff Valve Installation

TASK 29-11-81-000-801

2. EDP Supply Shutoff Valve Removal

(Figure 401)

A. General

- (1) Supply shutoff valves for the hydraulic fluid are installed in the supply lines to each engine-driven pump (EDP).
- (2) The supply shutoff valves (referred to as the valves) are mounted in the rear spar area immediately outboard of the wheel wells.
- (3) A container of about 10-gallon capacity will be necessary to catch fluid when removing the valve.

B. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

Reference	Description
STD-6908	Container - Hydraulic Fluid Resistant, 10 Gallon (40 Liter)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Procedure

SUBTASK 29-11-81-840-001

- (1) Remove hydraulic power from the applicable system. To remove it, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-11-81-420-001

- (2) For the applicable engine, attach a DO-NOT-OPERATE tag on engine start lever.

SUBTASK 29-11-81-420-002

- (3) For Engine NO. 1

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-81

Page 401
Sep 15/2021



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	C01103	ENGINE 1 START VALVE

SUBTASK 29-11-81-420-003

- (4) For Engine NO. 2

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	4	C00154	ENGINE 2 START VALVE

SUBTASK 29-11-81-860-001

- (5) Release the pressure from the applicable hydraulic reservoir.

NOTE: The system A reservoir is connected to the No. 1 engine. The system B reservoir is connected to the No. 2 engine.

- (a) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-11-81-680-001

- (6) Drain the applicable reservoir.

- (a) Put the 10 gallon (40 liter) hydraulic fluid resistant container, STD-6908, under the applicable reservoir.
- (b) Open the drain valve at the bottom of the applicable reservoir and drain into a container.
- (c) When the hydraulic fluid has drained, close the drain valve.

SUBTASK 29-11-81-100-001

- (7) If you get hydraulic fluid on the airplane, do the step that follows:

- (a) Do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-11-81-860-002

- (8) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C00348	HYDRAULIC SYSTEM SHUTOFF VALVE ENG 2
C	19	C00347	HYDRAULIC SYSTEM SHUTOFF VALVE ENG 1

SUBTASK 29-11-81-020-001

- (9) Disconnect the electrical connector [4] from the shutoff valve [5].

SUBTASK 29-11-81-480-001

- (10) Install a protective cap on the electrical connector [4].

SUBTASK 29-11-81-020-002

- (11) Remove the bolt [8], washer [7], bonding jumper [6], washer [9], washer [10], and nut [11] from the adapter flanges that are on the sides of the shutoff valve [5].

SUBTASK 29-11-81-020-005

- (12) Remove the bolts [12], bolt [13], washers [2], and nuts [3] from the adapter flanges that are on the sides of the shutoff valve [5].

EFFECTIVITY
SIA ALL

29-11-81

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 29-11-81-020-003

- (13) Pull the shutoff valve [5] out from between the adapter flanges.

SUBTASK 29-11-81-020-004

- (14) Remove the packings [1].

————— **END OF TASK** —————

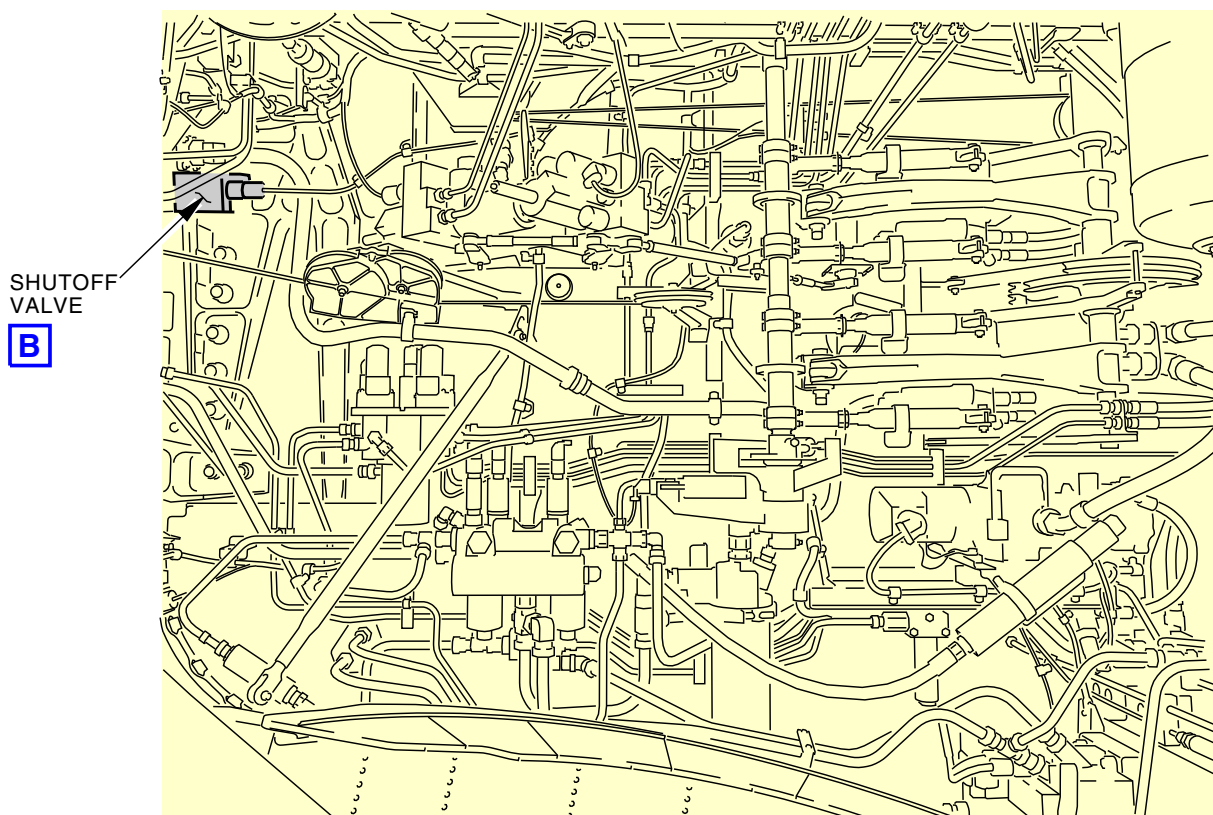
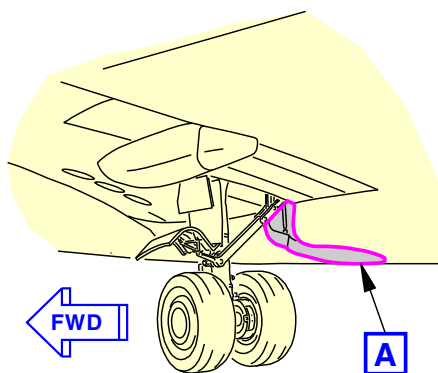
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

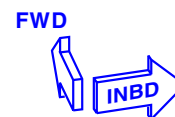
29-11-81

Page 403
Sep 15/2021



MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

A



2413828 S00061533477_V1

Engine-Driven Pump (EDP) Supply Shutoff Valve Installation
Figure 401/29-11-81-990-801 (Sheet 1 of 2)

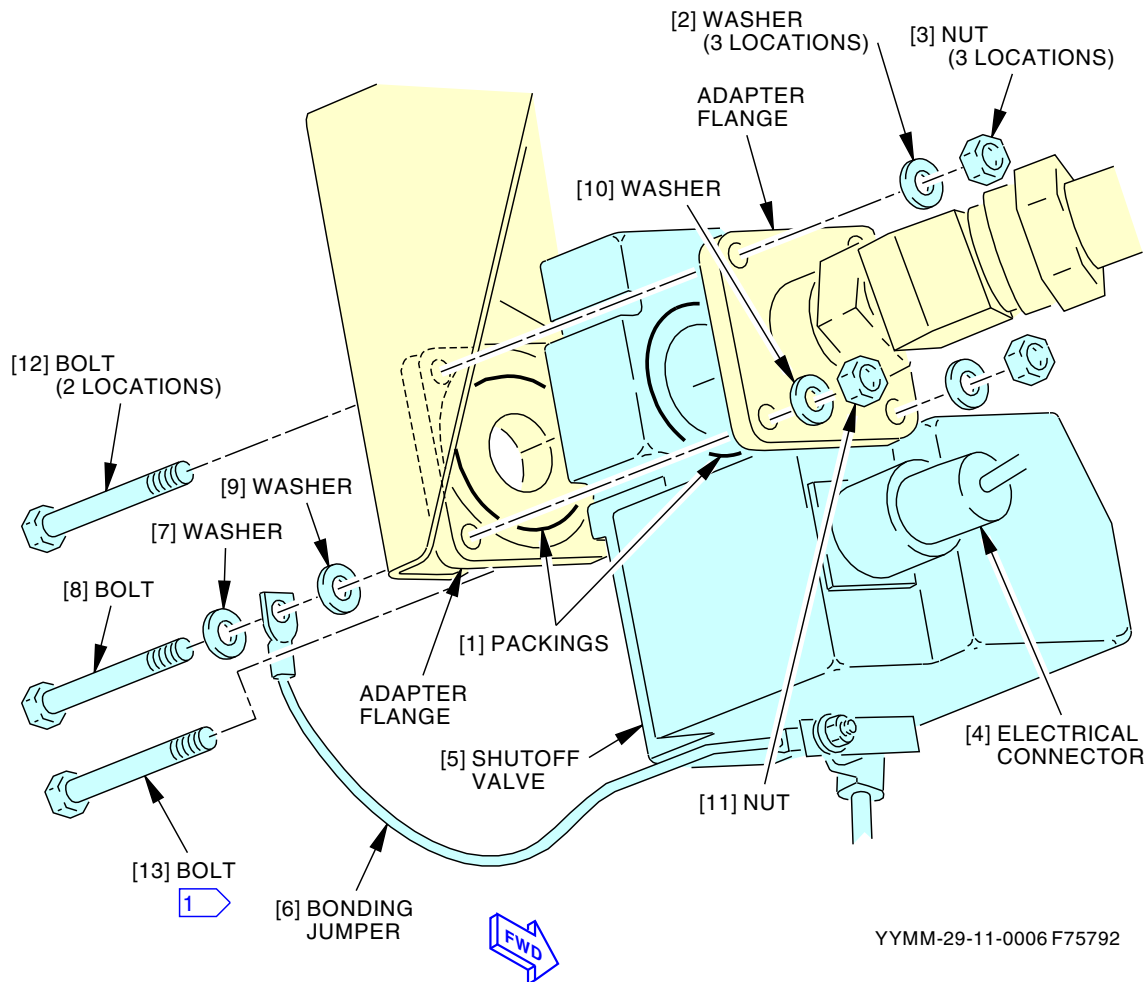
EFFECTIVITY
SIA ALL

29-11-81

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Sep 15/2021



LEFT EDP SHUTOFF VALVE
(RIGHT EDP SHUTOFF VALVE IS EQUIVALENT)

B

NOTE:

1 BOLT [13] IS INSTALLED IN THE LOWER FORWARD CORNER OF THE ADAPTER FLANGE.

2413829 S00061533478_V3

Engine-Driven Pump (EDP) Supply Shutoff Valve Installation
Figure 401/29-11-81-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-81

Page 405
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-11-81-400-801

3. EDP Supply Shutoff Valve Installation

(Figure 401)

A. References

Reference	Title
29-11-81-710-802	EDP Supply Shutoff Valve Operational Test (P/B 501)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES
SWPM 20-60-03	SPECIAL PROTECTION OF ELECTRICAL CONNECTORS

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Consumable Materials

Reference	Description	Specification
A50110	Sealant - Fuel Tank	BMS5-45 Class B-2
A50155	Sealant - Fuel Tank	BMS5-45 Class C
A50231	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class B
A50296	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class C
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G50170	Compound - Corrosion Inhibiting Compound, Soft Film, Exterior Use - Ardrex AV25	
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	
G51293	Cotton Wiper - Knit, Process Cleaning Absorbent Wiper	BMS15-5 Class B

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-81

Page 406
May 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Packing	29-11-81-01-055	SIA ALL
		29-11-81-02-050	SIA ALL
5	Shutoff valve	29-11-81-01-060	SIA ALL
		29-11-81-01-130	SIA ALL
		29-11-81-02-060	SIA ALL
		29-11-81-02-130	SIA ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Procedure

SUBTASK 29-11-81-640-001

- (1) Lubricate the new packings [1] with MCS 352B fluid, D00054 or hydraulic fluid, D00153 and put them in their positions on the shutoff valve [5].

SUBTASK 29-11-81-420-004

- (2) Carefully put the shutoff valve [5] between the adapter flanges.
 - (a) Make sure the packings [1] do not get damaged or move out of their positions when you install the shutoff valve [5].

SUBTASK 29-11-81-420-009

- (3) Install the bolts [12], bolt [13], washers [2], and nuts [3].

SUBTASK 29-11-81-120-001

- (4) Clean the surfaces of the adapter flange and bonding jumper [6] (SWPM 20-20-00).
 - (a) Use cleaning method 1 to manually clean the surfaces of the adapter flange and bonding jumper [6].
 - 1) Use an abrasive pad to clean the surfaces.
 - 2) Move the pad in a circular movement while you press with your thumb.
 - (b) Final clean the surfaces of the adapter flange and bonding jumper [6].



DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR CAUSE DAMAGE TO THE ENVIRONMENT. REFER TO THE MATERIAL SAFETY DATA SHEETS (MSDS) AND THE LOCAL SAFETY PRECAUTIONS.

- 1) Use a new cotton wiper, G00034 (alternate: knit cotton wiper, G51293) soaked with solvent, B00062 or solvent, B00184.
- 2) Rub dry with a clean cotton wiper.
- 3) Continue to clean and dry the surfaces until the cotton wiper stays clean.

SUBTASK 29-11-81-390-002

- (5) Apply a layer of sealant, A50110, sealant, A50155, sealant, A50231, or sealant, A50296 to the threads and shank of the bolt [8] used to install the bonding jumper [6].

EFFECTIVITY
SIA ALL

29-11-81

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
May 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-11-81-390-003

- (6) Apply a thin continuous layer of sealant, A50110, sealant, A50155, sealant, A50231, or sealant, A50296 to the mating surfaces of the bolt [8], washer [7], washer [9], washer [10], nut [11], and terminal of the bonding jumper [6].

SUBTASK 29-11-81-420-006

- (7) Install the bolt [8], washer [7], bonding jumper [6], washer [9], washer [10], and nut [11].

SUBTASK 29-11-81-760-001

- (8) With the electrical bonding intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the bonding jumper [6] and the airplane structure is not more than 0.001 ohm.

SUBTASK 29-11-81-420-007

- (9) Remove the protective cap from the electrical connector [4].

SUBTASK 29-11-81-210-001

- (10) Before you connect the electrical connector [4], examine the electrical connector [4] for corrosion.



WARNING

DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

- (a) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.
- (b) Apply the D5026NS or ZC-026 compound, G50171 to the electrical connector [4] (SWPM 20-60-03).

SUBTASK 29-11-81-420-008

- (11) Connect the electrical connector [4] to the shutoff valve [5].

NOTE: Corrosion inhibiting compound is applied to the exterior of the mated electrical connectors after the operational test is completed.

- (a) Tighten the electrical connector [4] with your hand plus 1/8 turn.

SUBTASK 29-11-81-710-001

- (12) Do this task: EDP Supply Shutoff Valve Operational Test, TASK 29-11-81-710-802.

SUBTASK 29-11-81-390-001

- (13) Apply the Ardrox AV25 compound, G50170 to the mated electrical connector [4] assembly completely, until the compound drips from the electrical connector [4] (SWPM 20-60-03).

NOTE: Do not remove the excess corrosion inhibiting compound.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-11-81-400-001

- (1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	C01103	ENGINE 1 START VALVE

EFFECTIVITY
SIA ALL

29-11-81

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 408
May 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

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
C	18	C00348	HYDRAULIC SYSTEM SHUTOFF VALVE ENG 2
C	19	C00347	HYDRAULIC SYSTEM SHUTOFF VALVE ENG 1

SUBTASK 29-11-81-400-002

- (2) For the applicable engine, remove the DO-NOT-OPERATE tag on engine start lever.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-81

Page 409
May 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

ENGINE DRIVEN PUMP (EDP) SUPPLY SHUTOFF VALVE - OPERATIONAL TEST

1. General

A. This procedure has this task:

- (1) EDP Supply Shutoff Valve Operational Test.

TASK 29-11-81-710-802

2. EDP Supply Shutoff Valve Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. **References**

<u>Reference</u>	<u>Title</u>
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)

B. **Location Zones**

<u>Zone</u>	<u>Area</u>
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. **Procedure**

SUBTASK 29-11-81-611-001

- (1) Make sure that the hydraulic system is fully operational. If necessary, do this task to service the reservoir: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-11-81-863-001

- (2) Make sure that the hydraulic system is fully operational. If necessary, do this task to pressurize the hydraulic reservoir: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-11-81-865-001

- (3) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C00348	HYDRAULIC SYSTEM SHUTOFF VALVE ENG 2
C	19	C00347	HYDRAULIC SYSTEM SHUTOFF VALVE ENG 1

SUBTASK 29-11-81-865-002

- (4) For Engine NO. 1

Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	C01103	ENGINE 1 START VALVE

SUBTASK 29-11-81-865-003

- (5) For Engine NO. 2

Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	4	C00154	ENGINE 2 START VALVE

EFFECTIVITY
SIA ALL

29-11-81

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

SUBTASK 29-11-81-860-003



CAUTION

DO NOT TURN THE FIRE HANDLE. THE EXTINGUISHER BOTTLES WILL DISCHARGE AND CAUSE DAMAGE TO THE ENGINE IF YOU TURN THE FIRE HANDLE.

(6) Push the override button behind the fire handle for the applicable engine and pull the handle (on the P-8 panel).

(a) Make sure that the shutoff valve operates by observing that the position indicator arm on the valve actuator moves from OPEN to CLOSED.

NOTE: An indicator arm on the output shaft of the electrical actuator assembly aligns with the CLOSED and OPEN markings on the actuator nameplate to indicate the valve position.

SUBTASK 29-11-81-860-004

(7) Push in the fire handle for the applicable engine.

(a) Make sure that the shutoff valve operates by observing that the position indicator arm on the valve actuator moves from CLOSED to OPEN.

(b) Examine the shutoff valve for leaks.

———— **END OF TASK** ————

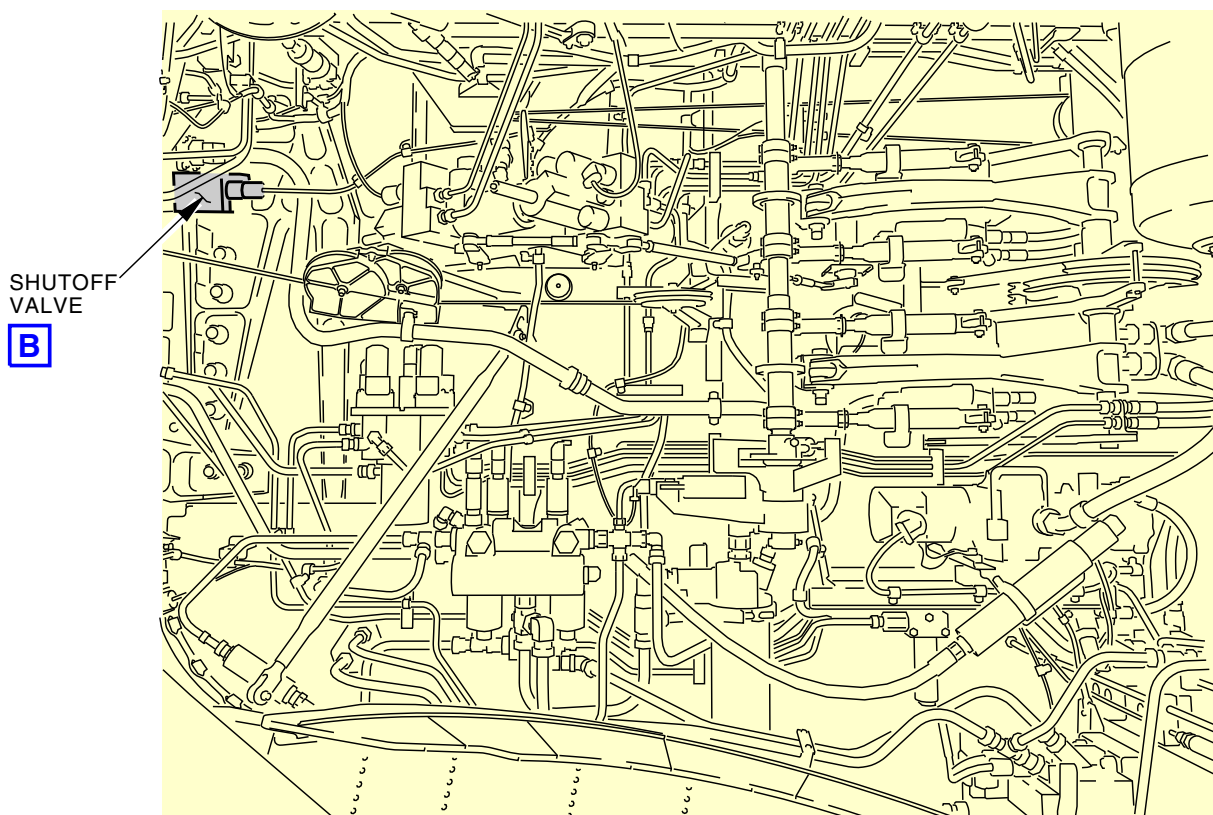
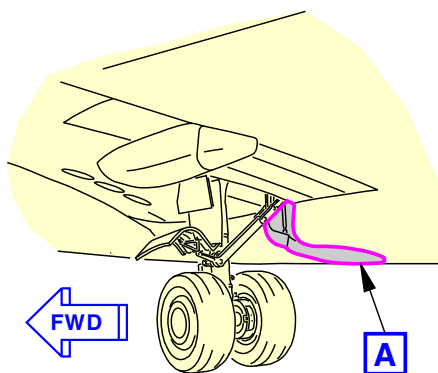
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

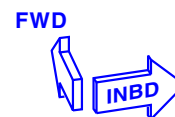
29-11-81

Page 502
Sep 15/2021



MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

A



2413828 S00061533477_V1

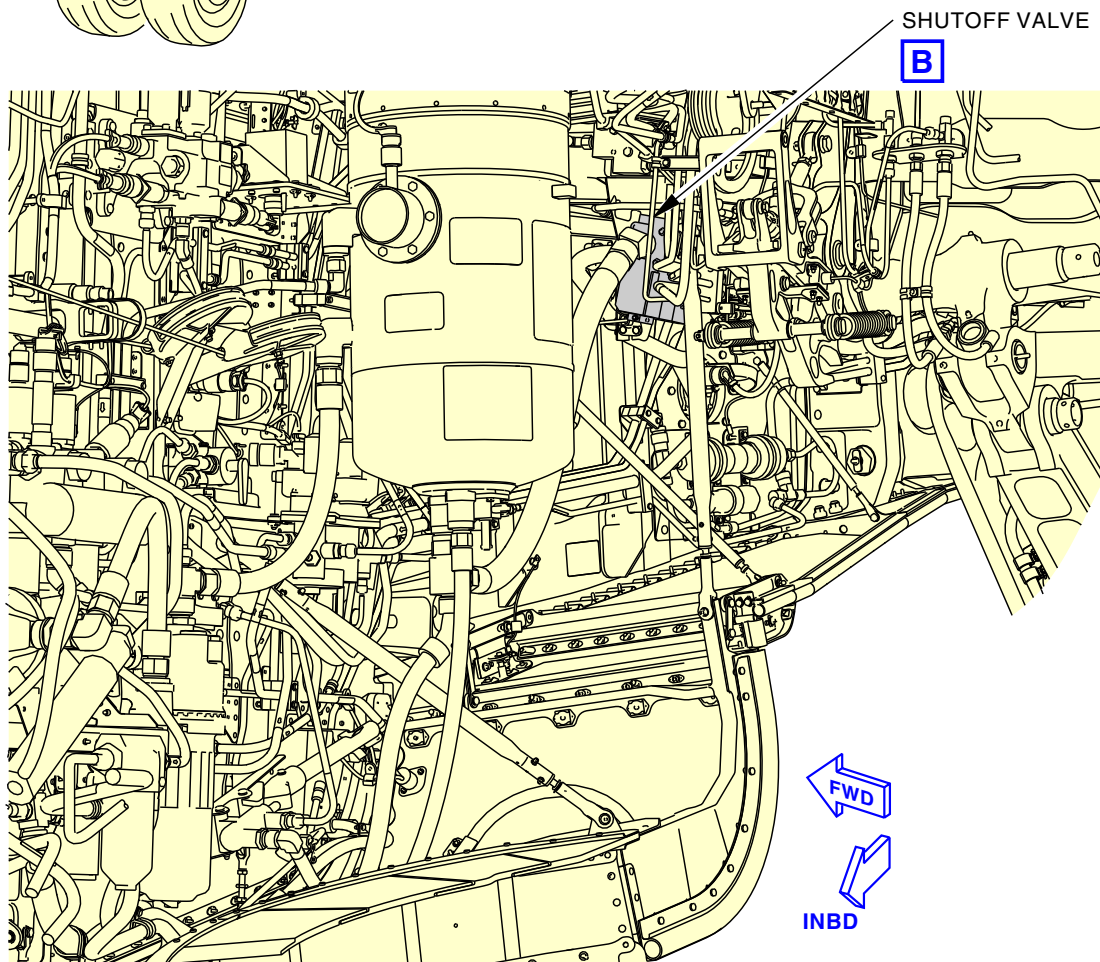
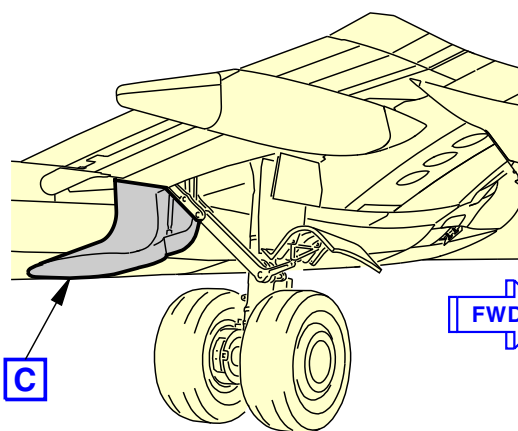
Engine-Driven Pump (EDP) Supply Shutoff Valve Installation
Figure 501/29-11-81-990-802 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-11-81

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

C

2929920 S0000708187_V1

Engine-Driven Pump (EDP) Supply Shutoff Valve Installation
Figure 501/29-11-81-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-11-81

D633AM101-SIA

Page 504
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC PUMPS MODULE, P5-8 - REMOVAL/INSTALLATION

1. General

- A. The hydraulic pumps module is panel P5-8 and is located on the right middle section of the P5 forward overhead panel in the flight deck.
- B. This procedure has these tasks:
- (1) Removal of the hydraulic pumps module, P5-8.
 - (2) Installation of the hydraulic pumps module, P5-8.

TASK 29-11-91-000-801

2. Removal of the Hydraulic Pumps Module, P5-8

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access Panels

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

C. Hydraulic Pumps Module, P5-8 Removal

SUBTASK 29-11-91-860-007

- (1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

SUBTASK 29-11-91-860-011

- (2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	12	C01276	MASTER CAUTION ANNUNCIATOR CONT 2
E	10	C00328	OVERHEAD 5V SECONDARY
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-11-91-010-003

- (3) To get access to the P91 and P92 panels, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-91

Page 401
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-11-91-860-001



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-91-010-001

- (5) Get access to the electrical connectors on the back of the P5-8 hydraulic pumps module [1] on the P5 forward overhead panel:
- (a) Loosen the 1/4-turn fasteners that hold the P5 forward overhead panel in position and let the panel rotate downward.

SUBTASK 29-11-91-020-001

- (6) Remove the P5-8 hydraulic pumps module [1] from the P5 forward overhead panel as follows:
- (a) Disconnect the electrical connectors D642 and D2486 at the back of the hydraulic pumps module [1].



HOLD THE HYDRAULIC PUMPS MODULE WHEN YOU LOOSEN THE 1/4-TURN FASTENERS. IF THE MODULE FALLS, INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Hold the hydraulic pumps module [1] in place and loosen the 1/4-turn fasteners that hold the hydraulic pumps module [1] to the P5 forward overhead panel.
- (c) Remove the hydraulic pumps module [1].

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

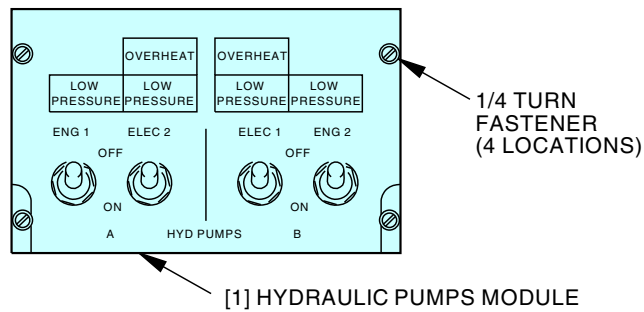
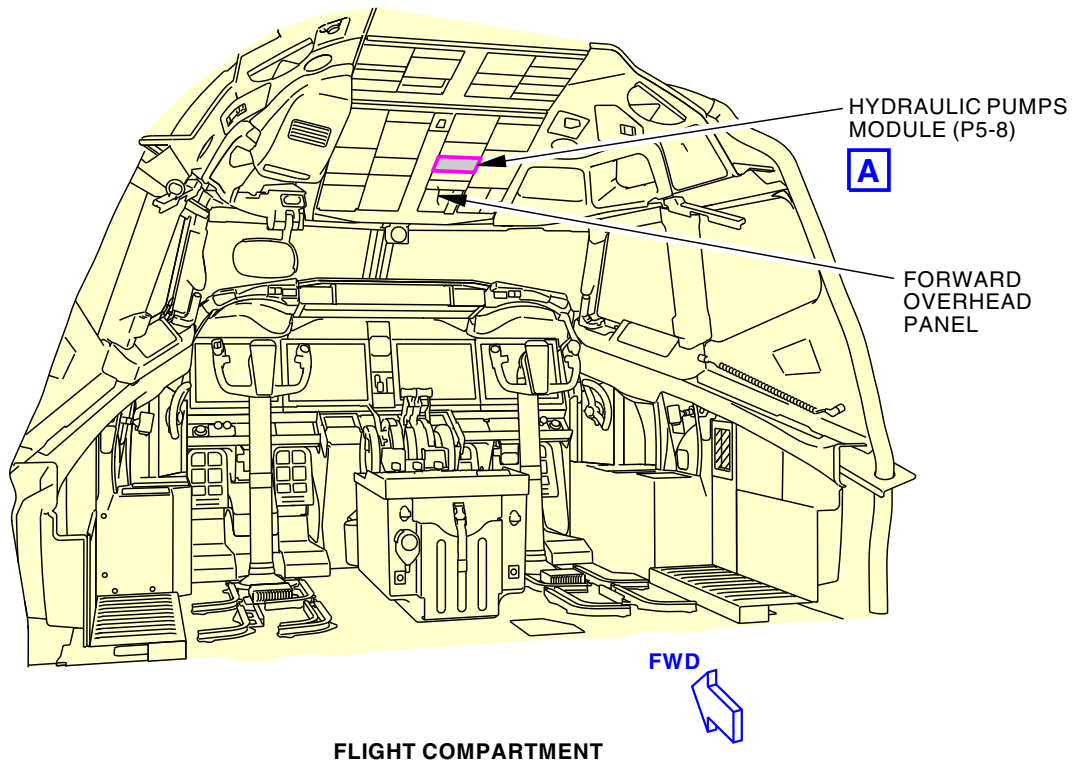
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-91

Page 402
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



HYDRAULIC PUMPS MODULE (P5-8)

A

2413830 S00061533484_V1

Hydraulic Pumps Module Installation
Figure 401/29-11-91-990-801

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-91

Page 403
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-11-91-400-801

3. Installation of the Hydraulic Pumps Module, P5-8

(Figure 401)

A. References

Reference	Title
29-11-00-700-801	Operational Test of the Hydraulic Systems A and B (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Hydraulic pumps module	29-11-91-01-050	SIA ALL
		31-11-94-01-055	SIA 001-014
		31-11-94-02-055	SIA 015-999

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Hydraulic Pumps Module Installation

SUBTASK 29-11-91-010-002

(1) If it has not already been done, lower the P5 forward overhead panel.

SUBTASK 29-11-91-420-001

(2) Install the P5-8 hydraulic pumps module [1] into the P5 forward overhead panel as follows:

- (a) Put the hydraulic pumps module [1] into the P5 forward overhead panel and hold it in position.
- (b) Turn the 1/4-turn fasteners on the hydraulic pumps module [1] to hold the hydraulic pumps module [1] to the P5 forward overhead panel.
- (c) Connect the electrical connectors D642 and D2486 to the hydraulic pumps module [1].

SUBTASK 29-11-91-410-001

(3) Lift the P5 forward overhead panel to the closed position and turn the 1/4-turn fasteners.

SUBTASK 29-11-91-860-002



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

29-11-91

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

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-11-91-010-004

- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-11-91-860-012

- (6) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	12	C01276	MASTER CAUTION ANNUNCIATOR CONT 2
E	10	C00328	OVERHEAD 5V SECONDARY
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-11-91-860-008

- (7) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

F. Hydraulic Pumps Module Installation Test

SUBTASK 29-11-91-710-001

- (1) Do a test of the P5-8 hydraulic pumps module [1] switches and low pressure lights, do this task: Operational Test of the Hydraulic Systems A and B, TASK 29-11-00-700-801.

SUBTASK 29-11-91-710-002

- (2) Do a test of the P5-8 hydraulic pumps module [1] overheat indicator lights.
- (a) Press the overheat indicator light(s) on the P5-8 panel.
 - 1) Make sure that the light(s) comes on.
 - (b) Release the overheat indicator light(s) on the P5-8 panel.

EFFECTIVITY
SIA ALL

29-11-91

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

I

- 1) Make sure that the light(s) go off.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-11-91

Page 406
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

RESERVOIR MANUAL FILL PUMP - REMOVAL/INSTALLATION

1. General

A. This procedure contains these two tasks:

- (1) Reservoir Manual Fill Pump Removal
- (2) Reservoir Manual Fill Pump Installation

TASK 29-18-01-000-801

2. Reservoir Manual Fill Pump Removal

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-1154	Container - 5 Gallon (19 Liter)

C. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. **Reservoir Manual Fill Pump Removal**

SUBTASK 29-18-01-860-001

- (1) Release the pressure from the reservoirs, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-18-01-860-002

- (2) Put the reservoir fill selector valve to the CLOSED position.

SUBTASK 29-18-01-020-001

- (3) Disconnect hydraulic line [2] and hydraulic line [5] from the reservoir manual fill pump [1].

SUBTASK 29-18-01-680-001

- (4) Drain the hydraulic fluid into a 5 gallon (19 liter) container, STD-1154.

SUBTASK 29-18-01-160-001

- (5) Do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-18-01-420-001

- (6) Install the caps on hydraulic line [2] and hydraulic line [5] to prevent contamination or damage.

SUBTASK 29-18-01-420-002

- (7) Install the covers on the inlet and outlet ports of the reservoir manual fill pump [1] to prevent contamination or damage.
 - (a) If the replacement reservoir manual fill pump [1] does not have unions in the inlet and outlet ports, remove the union [4] and union [7].
 - (b) Remove and discard the packing [3] and packing [6].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-01

Page 401
Sep 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-18-01-020-002

- (8) Remove the bolts [8], washers [9] (under the bolthead), washers [10] (under the nut), and nuts [11].

SUBTASK 29-18-01-020-003

- (9) Remove the reservoir manual fill pump [1].

SUBTASK 29-18-01-020-006

- (10) If it is necessary, remove the handle [12] from the reservoir manual fill pump [1].
(a) Remove the bolt [13], washer [14], washer [15], and nut [16].

———— **END OF TASK** ————

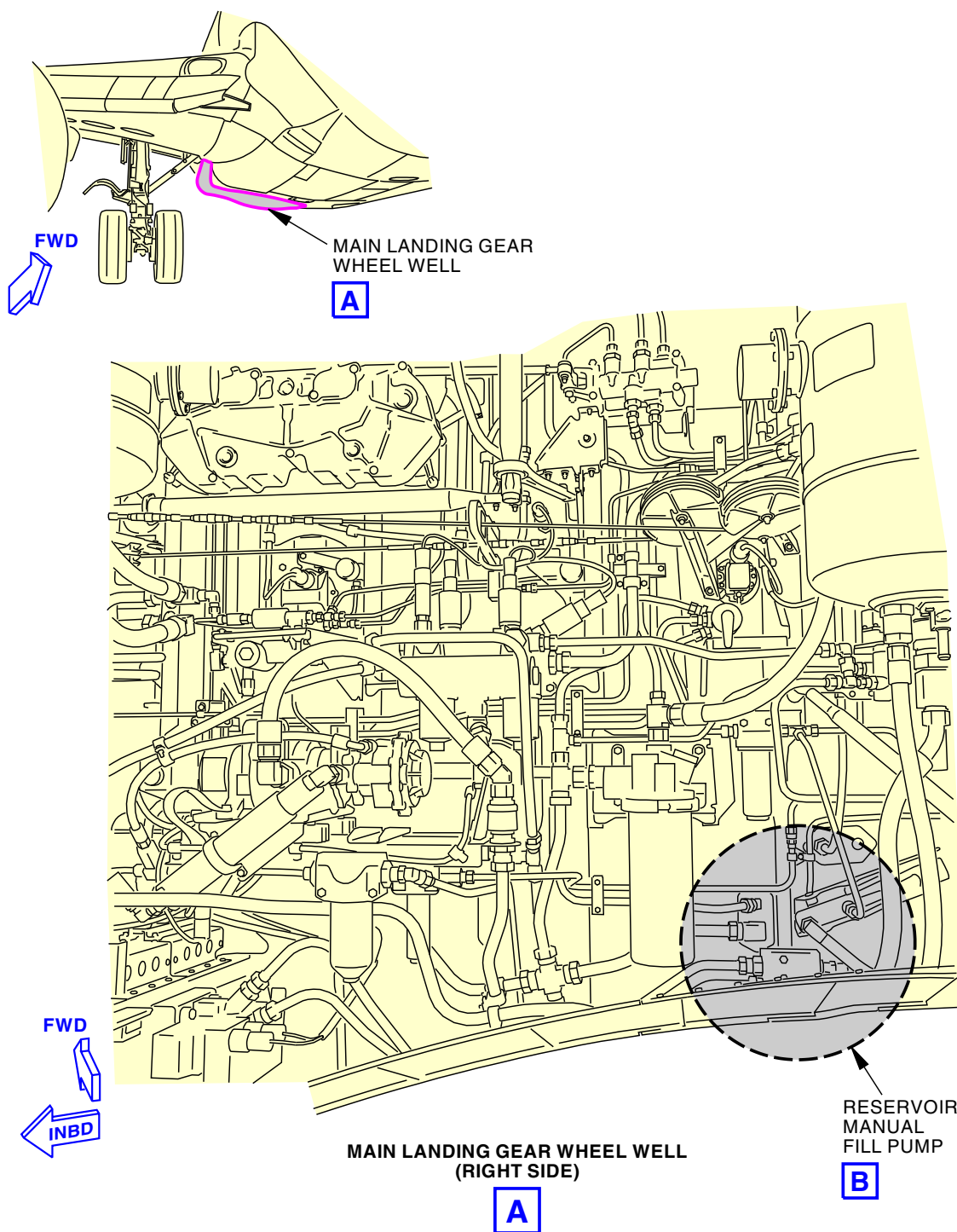
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-01

Page 402
Sep 15/2022



2413831 S00061533490_V1

Reservoir Manual Fill Pump Installation
Figure 401/29-18-01-990-801 (Sheet 1 of 3)

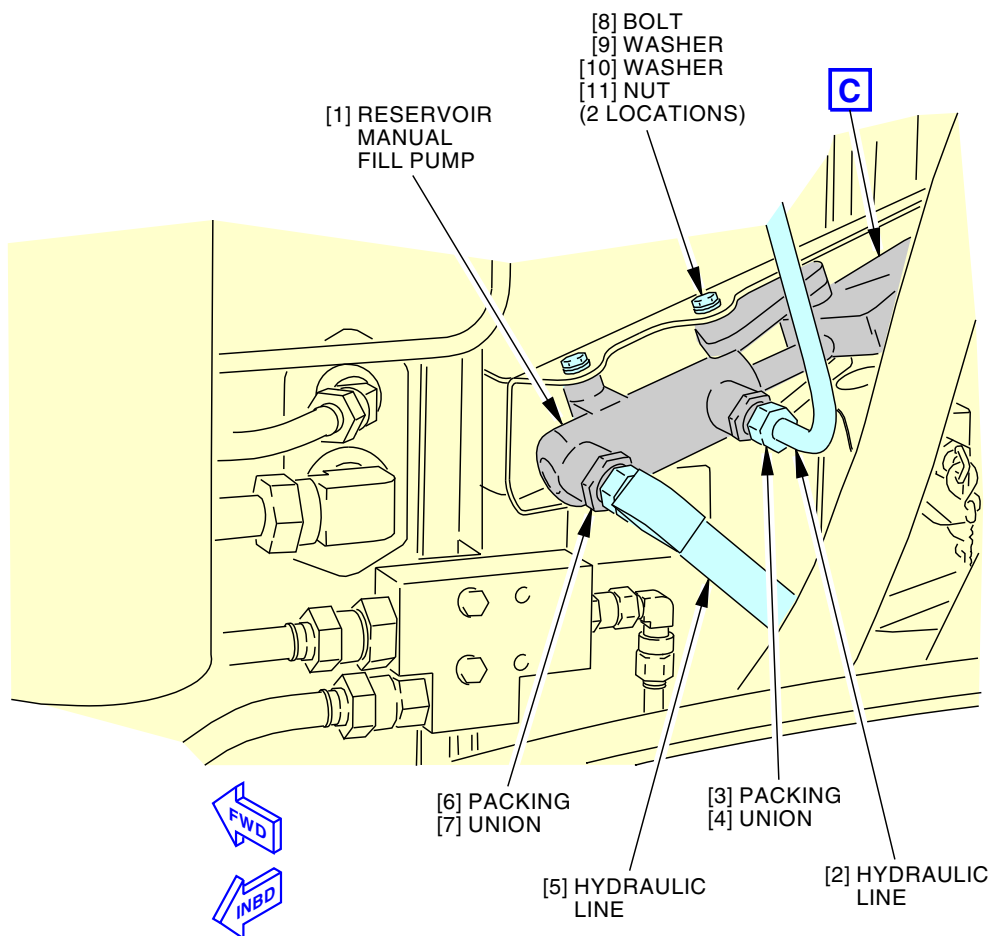
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-01

Page 403
Sep 15/2022



RESERVOIR MANUAL FILL PUMP

B

2413832 S00061533491_V2

Reservoir Manual Fill Pump Installation
Figure 401/29-18-01-990-801 (Sheet 2 of 3)

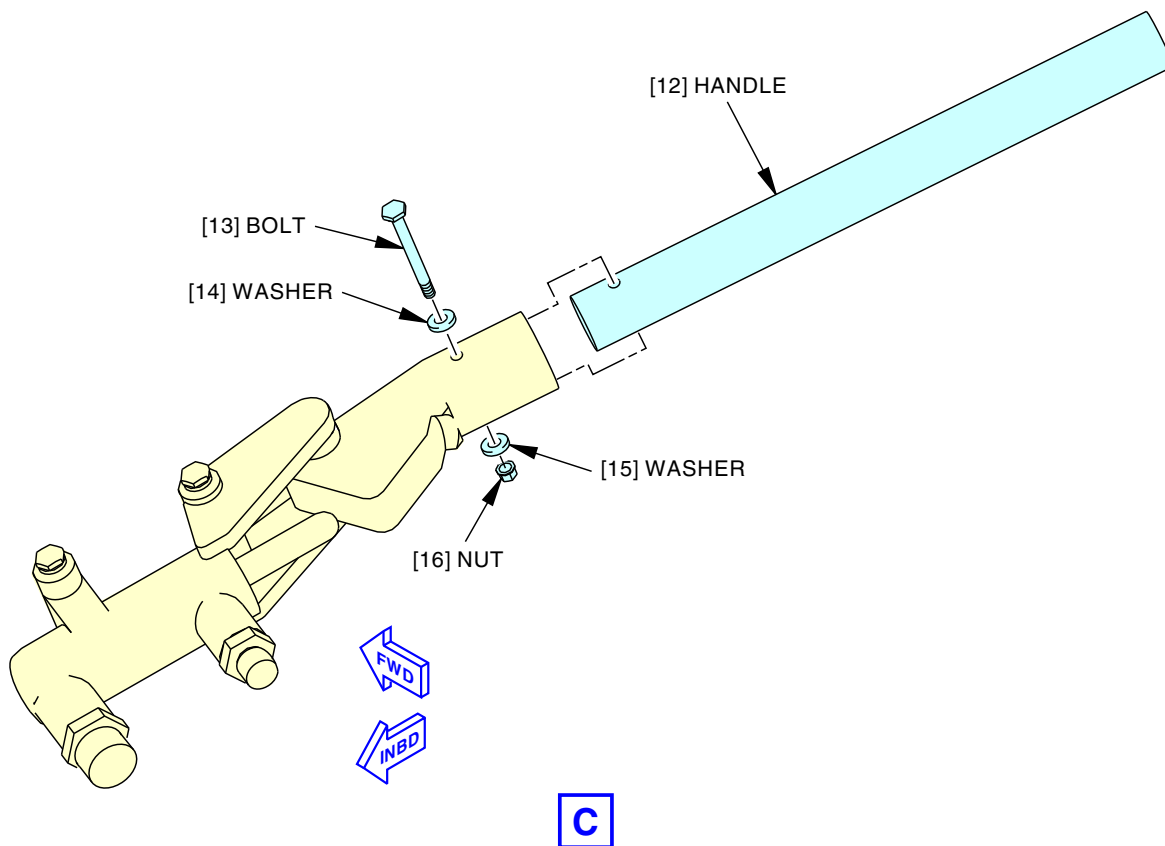
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-01

Page 404
Sep 15/2022



3011614 S0000785503_V1

Reservoir Manual Fill Pump Installation
Figure 401/29-18-01-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-01

Page 405
Sep 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-18-01-400-801

3. Reservoir Manual Fill Pump Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-51-200-801	Tubing Clearances Check (P/B 401)
SWPM 20-10-11	WIRING ASSEMBLY AND INSTALLATION CONFIGURATION

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Reservoir manual fill pump	29-18-01-01-115	SIA ALL
3	Packing	29-18-01-01-110	SIA ALL
6	Packing	29-18-01-01-100	SIA ALL

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Reservoir Manual Fill Pump Installation

SUBTASK 29-18-01-420-003

- (1) Make sure to install clamps and spacers when you install the reservoir manual fill pump [1].
 - (a) For positive separation, refer to SWPM 20-10-11.

SUBTASK 29-18-01-020-004

- (2) Remove the covers from the pump inlet and outlet ports of the reservoir manual fill pump [1].

SUBTASK 29-18-01-420-004

- (3) If the replacement pump does not have unions already installed in the inlet and outlet ports, do these steps:
 - (a) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [3], and new packing [6], union [4], and union [7].
 - (b) Install the packing [6] and union [7] in the inlet port.
 - (c) Install the packing [3] and union [4] in the outlet port.

SUBTASK 29-18-01-420-012

- (4) If it was removed, install the handle [12] on the reservoir manual fill pump [1].
 - (a) Install the bolt [13], washer [14], washer [15], and nut [16].

SUBTASK 29-18-01-420-005

- (5) Put the reservoir manual fill pump [1] in its mounting position.

EFFECTIVITY
SIA ALL

29-18-01

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

SUBTASK 29-18-01-420-006

- (6) Install the reservoir manual fill pump [1] with the bolts [8], washers [9] (under the bolthead), washers [10] (under the nut) and nuts [11].

SUBTASK 29-18-01-020-005

- (7) Remove the caps from the hydraulic line [2] and hydraulic line [5].

SUBTASK 29-18-01-420-007

- (8) Connect the hydraulic line [2] to the inlet port of the reservoir manual fill pump [1].

SUBTASK 29-18-01-420-009

- (9) Tighten the B-nut on the hydraulic line [2] to 170 $\pm$ 9 in-lb (19 $\pm$ 1 N·m).

SUBTASK 29-18-01-420-010

- (10) Connect the hydraulic line [5] to the outlet port of the reservoir manual fill pump [1].

SUBTASK 29-18-01-420-011

- (11) Tighten the B-nut on the hydraulic line [5] to 280 $\pm$ 14 in-lb (32 $\pm$ 2 N·m).

SUBTASK 29-18-01-420-008

- (12) Install clamps and spacers, do this task: Tubing Clearances Check, TASK 20-10-51-200-801.

F. Reservoir Manual Fill Pump Installation Test

SUBTASK 29-18-01-610-001

- (1) Pump a small quantity of fluid through the reservoir manual fill pump [1] (Hydraulic Reservoir Servicing, TASK 12-12-00-610-801).

SUBTASK 29-18-01-790-001

- (2) Examine the reservoir manual fill pump [1] connections for leaks.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-01

Page 407
Sep 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

RESERVOIR FILL FILTER MODULE AND COMPONENTS - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Reservoir Fill Filter Module Removal
 - (2) Reservoir Fill Filter Module Installation
 - (3) Reservoir Fill Filter Element Removal
 - (4) Reservoir Fill Filter Element Installation.

TASK 29-18-11-000-801

2. Reservoir Fill Filter Module Removal

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. **Location Zones**

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. **Prepare for the Removal**

SUBTASK 29-18-11-860-001

- (1) Release the pressure from the hydraulic reservoirs (TASK 29-09-00-860-802).

SUBTASK 29-18-11-980-001

- (2) Put the reservoir fill selector valve to the CLOSED position.

E. **Reservoir Fill Filter Module Removal**

SUBTASK 29-18-11-020-003

- (1) Disconnect the hydraulic line [2] and the hydraulic line [5] from the inlet and outlet ports of the filter head.

SUBTASK 29-18-11-170-001

- (2) Put a 1 U.S.-gal (3.81 l) oil resistant container, STD-203 below the reservoir fill filter module [1] to catch hydraulic fluid.

SUBTASK 29-18-11-680-001

- (3) Drain the hydraulic fluid into the 1 U.S.-gal (3.81 l) oil resistant container, STD-203.

SUBTASK 29-18-11-480-001

- (4) Install caps on the hydraulic line [2] and the hydraulic line [5].

SUBTASK 29-18-11-480-002

- (5) Install caps on the unions [4] of the filter head inlet and outlet ports.

EFFECTIVITY
SIA ALL

29-18-11

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 29-18-11-020-004

- (6) If the new reservoir fill filter module [1] does not have unions [4] installed:
- (a) Remove the unions [4] and the packings [3].
 - (b) Discard the packings [3].

SUBTASK 29-18-11-020-001

- (7) Remove the reservoir fill filter module [1].
- (a) Remove the two bolts [12] and washers [13] on the filter head.
 - (b) Remove the reservoir fill filter module [1].

SUBTASK 29-18-11-100-001

- (8) Clean all hydraulic fluid from the installation area (TASK 12-40-00-100-801 or TASK 12-40-00-100-802).

———— **END OF TASK** ————

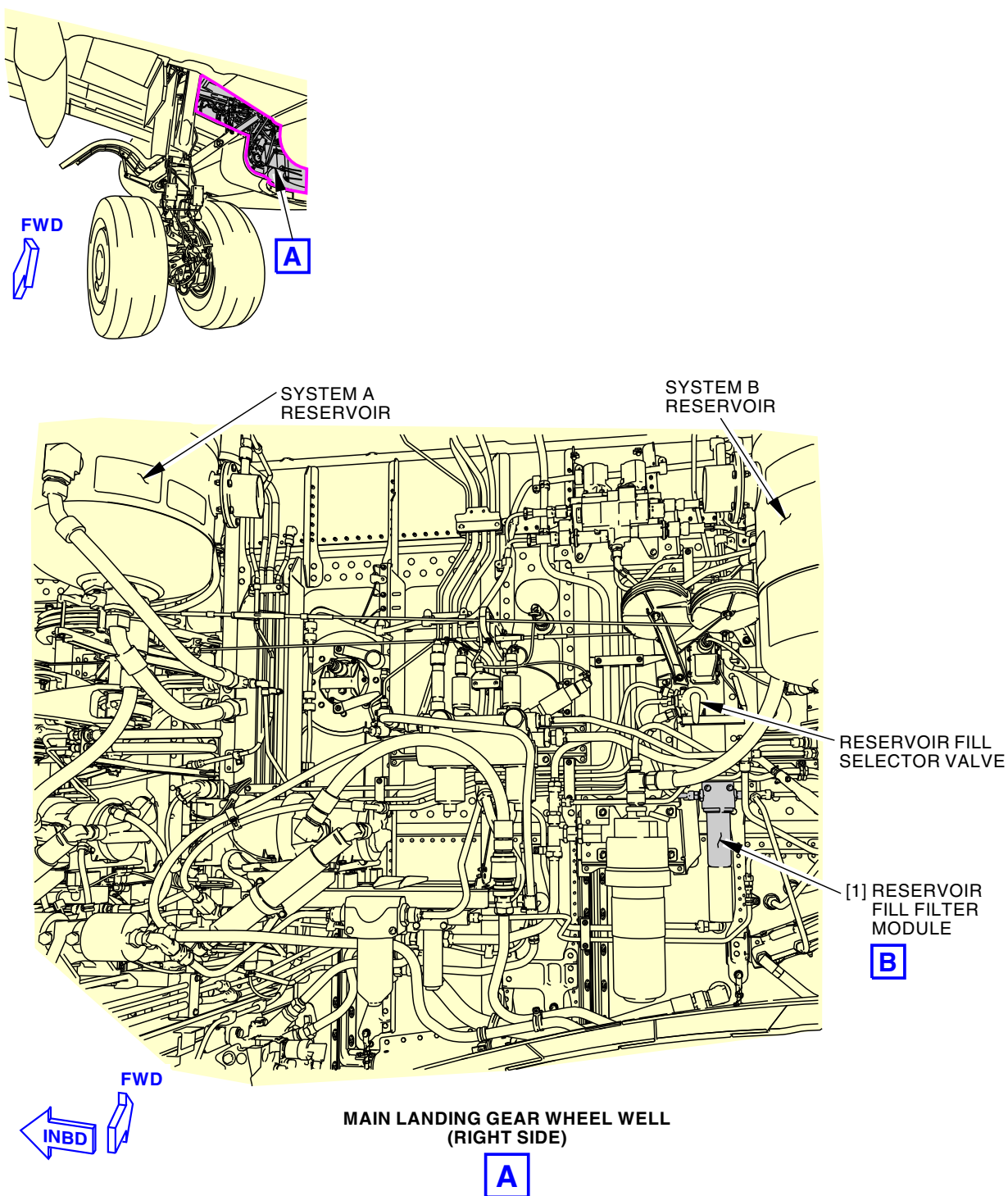
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-11

Page 402
Sep 15/2021



2413833 S00061533496_V2

Reservoir Fill Filter Module Installation
Figure 401/29-18-11-990-801 (Sheet 1 of 3)

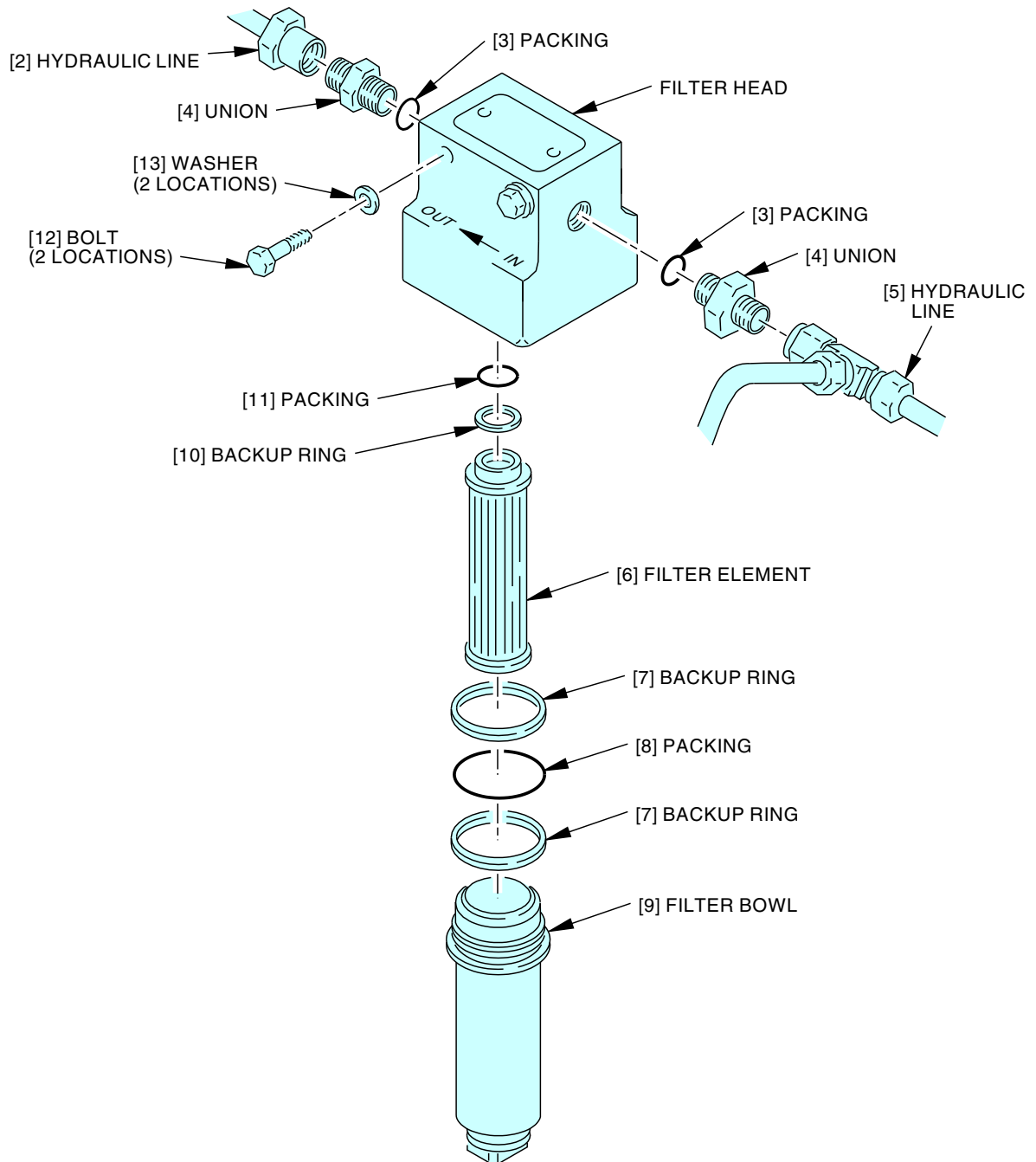
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-11

Page 403
Sep 15/2021



PALL RESERVOIR FILL FILTER MODULE

B

2413834 S00061533497_V4

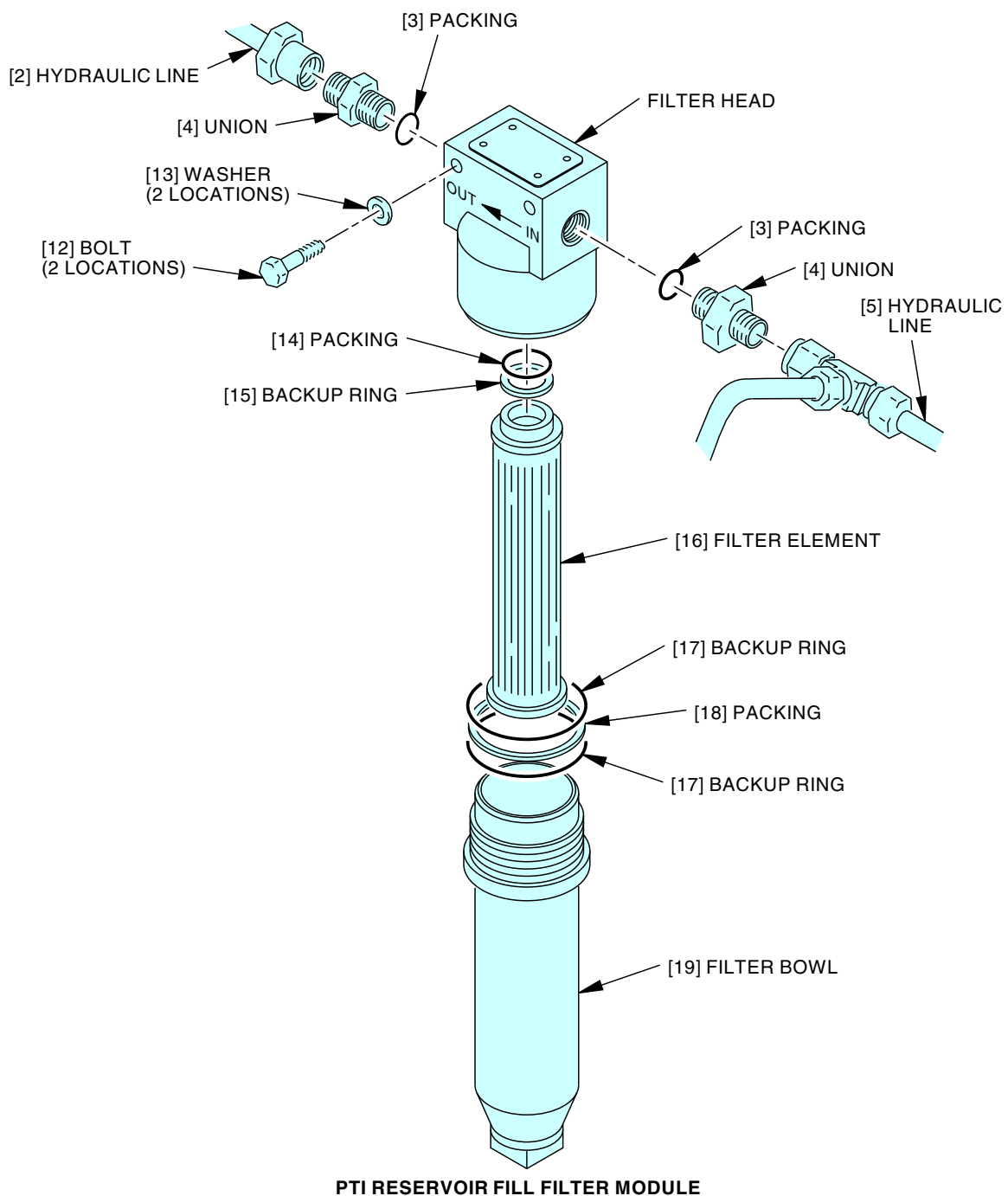
Reservoir Fill Filter Module Installation
Figure 401/29-18-11-990-801 (Sheet 2 of 3)

EFFECTIVITY
SIA ALL

29-18-11

D633AM101-SIA

Page 404
Jan 15/2022



PTI RESERVOIR FILL FILTER MODULE

B

2934383 S0000711028_V2

Reservoir Fill Filter Module Installation
Figure 401/29-18-11-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-11

Page 405
Jan 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-18-11-400-801

3. **Reservoir Fill Filter Module Installation**

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Reservoir fill filter module	29-18-11-02-005	SIA ALL
3	Packing	29-18-11-02-025	SIA ALL

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Installation

SUBTASK 29-18-11-420-003

- (1) If the unions [4] are not installed on the filter head:
 - (a) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the packings [3] and the threads on the unions [4].
 - (b) Install the new packings [3] on the unions [4].
 - (c) Install the unions [4] in the inlet and outlet ports of the reservoir fill filter module [1].

SUBTASK 29-18-11-640-001

- (2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the threads on the bolts [12].

F. Reservoir Fill Filter Module Installation

SUBTASK 29-18-11-420-001

- (1) Install the reservoir fill filter module [1] to the structure with the bolts [12] and washers [13].

NOTE: The install direction of the fill filter outlet port ("OUT") should be inboard.

SUBTASK 29-18-11-080-001

- (2) Remove the caps from the hydraulic line [2] and hydraulic line [5].

SUBTASK 29-18-11-080-002

- (3) Remove caps or plugs that are installed on the inlet and outlet ports of the filter head.

SUBTASK 29-18-11-420-004

- (4) Connect the hydraulic line [2] and hydraulic line [5] to the inlet and outlet ports of reservoir fill filter module [1].
 - (a) Tighten the B-nuts on hydraulic line [2] and hydraulic line [5] to 161 in-lb (18 N·m) - 179 in-lb (20 N·m).

EFFECTIVITY
SIA ALL

29-18-11

D633AM101-SIA

Page 406
Jan 15/2022



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

G. Reservoir Fill Filter Module Installation Test

SUBTASK 29-18-11-790-001

- (1) Service the hydraulic reservoir (TASK 12-12-00-610-801).
 - (a) While you service the reservoir examine the reservoir fill filter module [1], hydraulic line [2], and hydraulic line [5] for leaks.

————— END OF TASK —————

TASK 29-18-11-000-802

4. Reservoir Fill Filter Element Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the instructions to remove the reservoir fill filter element.
- (2) The reservoir fill filter element is referred to as the filter element in this task.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

C. Tools/Equipment

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Removal

SUBTASK 29-18-11-860-002

- (1) Release the pressure from the hydraulic reservoirs (TASK 29-09-00-860-802).

SUBTASK 29-18-11-980-002

- (2) Put the reservoir fill selector valve to the CLOSED position.

SUBTASK 29-18-11-160-001

- (3) Put a 1 U.S.-gal (3.81 l) oil resistant container, STD-203 below the filter bowl [9] to catch hydraulic fluid.

SUBTASK 29-18-11-020-005



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (4) Disconnect the self-seal (quick) disconnect hose for the applicable hydraulic system.

F. PALL Reservoir Fill Filter Element Removal

SUBTASK 29-18-11-020-006

- (1) Remove the lockwire between the filter bowl [9] and filter head.

SUBTASK 29-18-11-020-007

- (2) Remove the filter bowl [9] from the filter head.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-11

Page 407
Sep 15/2021



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-18-11-020-002

- (3) Remove the filter element [6].
 - (a) Remove and discard the filter element [6].
 - (b) Remove and discard the packing [8] and packing [11].
 - (c) Remove and discard backup rings [7] and backup ring [10].

SUBTASK 29-18-11-100-002

- (4) Clean the filter bowl [9].

G. PTI Reservoir Fill Filter Element Removal

SUBTASK 29-18-11-020-008

- (1) Remove the lockwire between the filter bowl [19] and filter head.

SUBTASK 29-18-11-020-009

- (2) Remove the filter bowl [19] from the filter head.

SUBTASK 29-18-11-020-010

- (3) Remove the filter element [16].
 - (a) Remove and discard the filter element [16].
 - (b) Remove and discard the packing [14] and packing [18].
 - (c) Remove and discard the backup rings [17] and backup ring [15].

SUBTASK 29-18-11-100-003

- (4) Clean the filter bowl [19].

————— END OF TASK —————

TASK 29-18-11-400-802

5. Reservoir Fill Filter Element Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task gives the instructions to install the reservoir fill filter element.
- (2) The reservoir fill filter element is referred to as the filter element in this task.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-11

Page 408
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Filter element	29-18-11-02-060	SIA ALL
		29-18-11-02-110	SIA ALL
7	Backup ring	29-18-11-02-090	SIA ALL
8	Packing	29-18-11-02-095	SIA ALL
10	Backup ring	29-18-11-02-100	SIA ALL
11	Packing	29-18-11-02-055	SIA ALL
		29-18-11-02-105	SIA ALL
14	Packing	29-18-11-02-055	SIA ALL
15	Backup ring	29-18-11-02-050	SIA ALL
16	Filter element	29-18-11-02-110	SIA ALL
17	Backup ring	29-18-11-02-065	SIA ALL
18	Packing	29-18-11-02-070	SIA ALL

E. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. PALL Reservoir Fill Filter Element Installation

SUBTASK 29-18-11-640-002

- (1) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [8], new packing [11], new backup rings [7], new backup ring [10], and to the threads of the filter bowl [9].

SUBTASK 29-18-11-420-002

- (2) Install the new packing [11] and new backup ring [10] in the groove in the top end of the filter element [6].

SUBTASK 29-18-11-420-005

- (3) Install the new backup rings [7] and new packing [8] in the groove of the filter head.

SUBTASK 29-18-11-420-006

- (4) Put the filter element [6] in the filter bowl [9].

SUBTASK 29-18-11-420-007

- (5) Install the filter bowl [9] into the filter head.

SUBTASK 29-18-11-420-009

- (6) Tighten the filter bowl [9] to 50.0 in-lb (5.6 N·m) – 75.0 in-lb (8.5 N·m).

SUBTASK 29-18-11-420-011

- (7) Install the MS20995C32 lockwire, G01048, between the filter head and filter bowl [9].

G. PTI Reservoir Fill Filter Element Installation

SUBTASK 29-18-11-640-003

- (1) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [14], new packing [18], new backup rings [17], new backup ring [15], and to the threads of the filter bowl [19].

SUBTASK 29-18-11-420-012

- (2) Install the new packing [14] and new backup ring [15] in the groove in the top end of the filter element [16].

EFFECTIVITY
SIA ALL

29-18-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-18-11-420-013

- (3) Install the new backup rings [17] and new packing [18] in the groove of the filter head.

SUBTASK 29-18-11-420-014

- (4) Put the filter element [16] in the filter bowl [19].

SUBTASK 29-18-11-420-015

- (5) Install the filter bowl [19] into the filter head.

SUBTASK 29-18-11-420-008

- (6) Tighten the filter bowl [19] to 75.0 in-lb (8.5 N·m) - 100.0 in-lb (11.3 N·m).

SUBTASK 29-18-11-420-016

- (7) Install the MS20995C32 lockwire, G01048, between the filter head and filter bowl [19].

H. Reservoir Fill Filter Element Installation Test

SUBTASK 29-18-11-420-010



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (1) Reconnect the self-seal (quick) disconnect hose.

SUBTASK 29-18-11-790-002

- (2) Service the hydraulic reservoirs (TASK 12-12-00-610-801).
 - (a) While you service the reservoir examine the reservoir fill filter module [1] for leaks.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-11

Page 410
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

RESERVOIR FILL SELECTOR VALVE - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
- (1) A removal of the reservoir fill selector valve
 - (2) An installation of the reservoir fill selector valve.

TASK 29-18-21-000-801

2. **Reservoir Fill Selector Valve Removal**

(Figure 401)

A. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 29-18-21-860-001

- (1) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

D. Reservoir Fill Selector Valve Removal

SUBTASK 29-18-21-020-001

- (1) Disconnect the hydraulic line [1], hydraulic line [10] and hydraulic line [15] from the reservoir fill selector valve [6].

SUBTASK 29-18-21-680-001

- (2) Put a container below the reservoir fill selector valve [6] to drain the hydraulic fluid.

SUBTASK 29-18-21-160-001

- (3) Clean all hydraulic fluid from the installation area, if it is necessary. To clean it, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-18-21-420-001

- (4) Install plugs to the hydraulic lines and caps to the ports of the reservoir fill selector valve [6].

SUBTASK 29-18-21-020-002

- (5) Remove the reservoir fill selector valve [6]:
 - (a) Remove the nuts [9], washers [8], washers [5], bolts [4] and spacers [7] that attach the reservoir fill selector valve [6].
 - (b) Remove the reservoir fill selector valve [6] from the airplane.

SUBTASK 29-18-21-020-003

- (6) Remove union [11], union [14], check valve [2], packing [3], packing [12] and packing [13].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-21

Page 401
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (a) Discard packing [3], packing [12] and packing [13].

———— **END OF TASK** ————

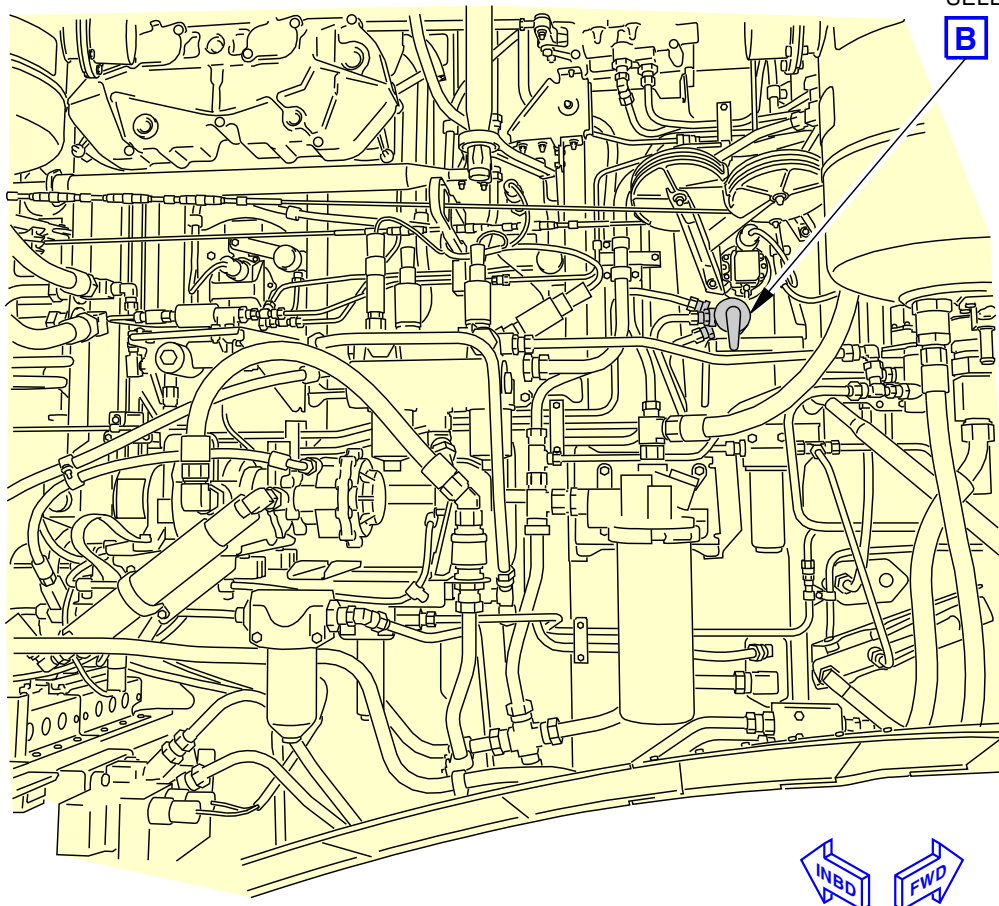
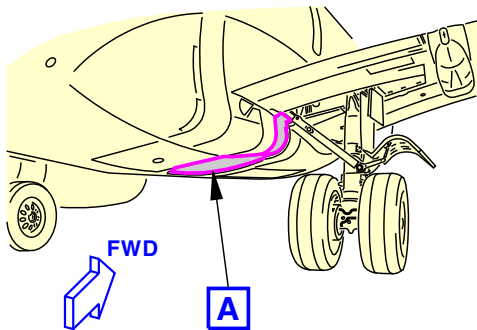
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-21

Page 402
Sep 15/2021



RESERVOIR FILL
SELECTOR VALVE

B

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

A

2413836 S00061533505_V1

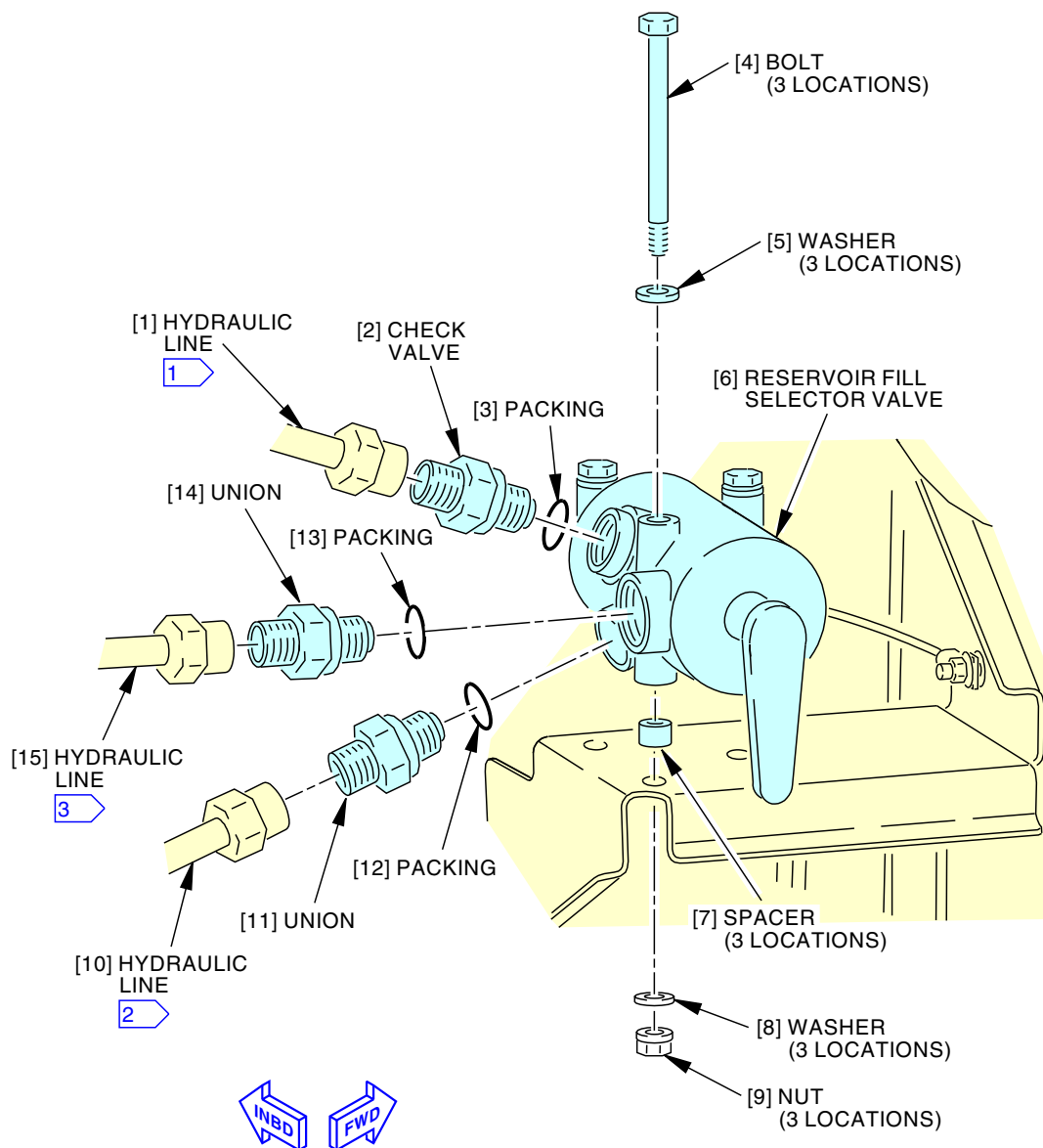
Reservoir Fill Selector Valve Installation
Figure 401/29-18-21-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-18-21

D633AM101-SIA

Page 403
Sep 15/2021



RESERVOIR FILL SELECTOR VALVE

B

- 1** TO THE SYSTEM A RESERVOIR
- 2** TO THE STANDBY AND THE SYSTEM B RESERVOIR
- 3** TO THE RESERVOIR FILL FILTER MODULE

2413837 S00061533506_V1

Reservoir Fill Selector Valve Installation
Figure 401/29-18-21-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-21

Page 404
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-18-21-400-801

3. Reservoir Fill Selector Valve Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Packing	29-18-21-01-020	SIA ALL
6	Valve	29-18-21-01-025	SIA ALL
12	Packing	29-18-21-01-020	SIA ALL
13	Packing	29-18-21-01-020	SIA ALL

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Reservoir Fill Selector Valve Installation

SUBTASK 29-18-21-420-002

- (1) If the check valve, unions, and packings are not installed on the new reservoir fill selector valve [6], then do these steps:
 - (a) Lubricate the new packing [3], packing [12], packing [13], union [11], union [14] and check valve [2] with MCS 352B fluid, D00054 or hydraulic fluid, D00153.
 - (b) Remove the caps from the ports of the reservoir fill selector valve [6].
 - (c) Install the check valve [2] and new packing [3] on the port of the reservoir fill selector valve [6].
 - (d) Install the union [11] and new packing [12] on the port of the reservoir fill selector valve [6].
 - (e) Install the union [14] and new packing [13] on the port of the reservoir fill selector valve [6].

SUBTASK 29-18-21-420-003

- (2) Install the reservoir fill selector valve [6]:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-21

Page 405
Sep 15/2021



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**



USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (a) Apply a thin coat of corrosion inhibiting material, G50136 to the shanks and threads of the bolts [4].
- (b) Put the reservoir fill selector valve [6] in its position.
- (c) Install the spacers [7], bolts [4], washers [5], washers [8] and nuts [9] that attach the reservoir fill selector valve [6] to the airplane structure.
 - 1) Tighten bolts [4] to 50 in-lb (6 N·m)-60 in-lb (7 N·m).

SUBTASK 29-18-21-080-001

- (3) Remove the plugs from hydraulic line [1], hydraulic line [10] and hydraulic line [15].

SUBTASK 29-18-21-420-004

- (4) Connect hydraulic line [1] to the reservoir fill selector valve [6].
 - (a) Tighten the B-nut on hydraulic line [1] to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 29-18-21-420-005

- (5) Connect hydraulic line [10] to the reservoir fill selector valve [6].
 - (a) Tighten the B-nut on hydraulic line [10] to 170 ±9 in-lb (19 ±1 N·m).

SUBTASK 29-18-21-420-006

- (6) Connect hydraulic line [15] to the reservoir fill selector valve [6].
 - (a) Tighten the B-nut on hydraulic line [15] to 270 ±14 in-lb (31 ±2 N·m).

F. Reservoir Fill Selector Valve Installation Test

SUBTASK 29-18-21-610-001

- (1) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-18-21-790-001

- (2) Make sure that there is no hydraulic leakage at the reservoir fill selector valve [6].

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-18-21

Page 406
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY HYDRAULIC SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Standby Hydraulic System Pressurization
 - (2) Standby Hydraulic System Power Removal.

TASK 29-21-00-000-801

2. Standby Hydraulic System Pressurization

(Figure 201)

A. **References**

Reference	Title
24-22-00-860-801	Supply Electrical Power (P/B 201)

B. **Location Zones**

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Standby Hydraulic System Pressurization**

SUBTASK 29-21-00-860-001



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 29-21-00-010-001

- (2) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-21-00-860-002

- (3) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-00

Page 201
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-00-860-044



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Make sure that this circuit breaker is closed:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-21-00-410-001

- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-21-00-860-003

- (6) To pressurize the standby hydraulic system, do one of these steps:
- Set the FLT CONTROL A switch, on the P5-3 flight controls panel, to the STBY RUD position.
 - Make sure that the STANDBY HYD STBY RUD ON light, on the P5-3 flight controls panel, is on.
 - Set the FLT CONTROL B switch, on the P5-3 flight controls panel, to the STBY RUD position.
 - Make sure that the STANDBY HYD STBY RUD ON light, on the P5-3 flight controls panel, is on.
 - Set the ALTERNATE FLAPS switch, on the P5-3 flight controls panel, to the ARM position.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-21-00

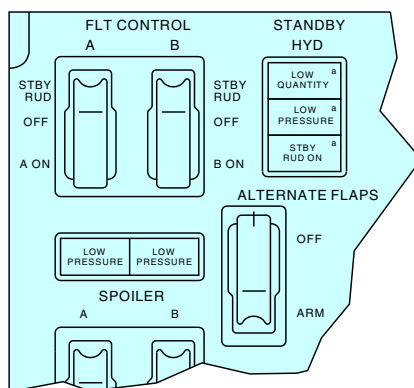
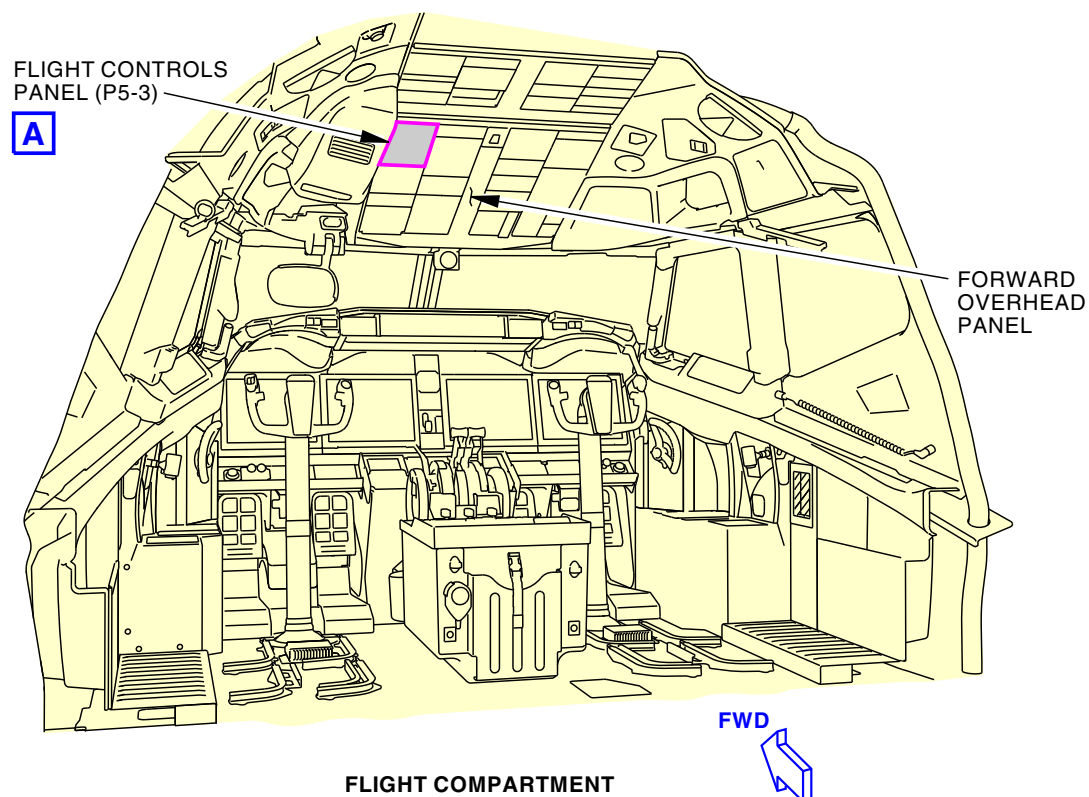
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 202
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



FLIGHT CONTROLS PANEL (P5-3)

A

2413838 S00061533512_V1

Standby Hydraulic System Control Switches
Figure 201/29-21-00-990-801

EFFECTIVITY
SIA ALL

29-21-00

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

TASK 29-21-00-000-802

3. Standby Hydraulic System Power Removal

(Figure 201)

A. Location Zones

Zone	Area

211	Flight Compartment - Left

B. Standby Hydraulic System Power Removal

SUBTASK 29-21-00-860-004

(1) To remove power from the standby hydraulic system, do these steps:

(a) Set the FLT CONTROL A switch, on the P5-3 flight controls panel, to the OFF position.

1) Make sure that the STANDBY HYD STBY RUD ON light, on the P5-3 flight controls panel, is off.

(b) Set the FLT CONTROL B switch, on the P5-3 flight controls panel, to the OFF position.

1) Make sure that the STANDBY HYD STBY RUD ON light, on the P5-3 flight controls panel, is off.

(c) Set the ALTERNATE FLAPS switch, on the P5-3 flight controls panel, to the OFF position.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-00

Page 204
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY HYDRAULIC SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) Operational Test of the Standby Hydraulic System - Use this test to do a quick check of the standby hydraulic system.
- (2) System Test of the Standby Hydraulic System - Use this test to make sure the hydraulic system operates correctly.
- (3) Operational Test of the Standby Hydraulic Actuation System - Use this test to do a check of the standby hydraulic system and standby rudder.

TASK 29-21-00-700-801

2. Operational Test of the Standby Hydraulic System

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. **Location Zones**

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Prepare for the Test**

SUBTASK 29-21-00-010-002

- (1) To get access to the P92 panel, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-21-00-860-006



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-00

Page 501
Sep 15/2023

737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (2) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-21-00-860-007

- (3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01392	STICK SHAKER LEFT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01393	STICK SHAKER RIGHT

SUBTASK 29-21-00-860-008

- (4) Pressurize the hydraulic system B reservoir (Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801).

SUBTASK 29-21-00-860-009



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) Pressurize the hydraulic system B (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

SUBTASK 29-21-00-860-010

- (6) Set the flap control lever to the one-unit position.

SUBTASK 29-21-00-860-011

- (7) Remove pressure from the hydraulic system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

E. Operational Test of the Standby Hydraulic System

SUBTASK 29-21-00-710-001

- (1) Do the operational test of the standby hydraulic system:
- (a) Set both the FLT CONTROL A and FLT CONTROL B switches, on the P5 forward overhead panel, to the off position.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

Page 502
Sep 15/2023

737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure that both the A and B flight control low pressure lights, on the P5 forward overhead panel, are on.
- (b) Set the FLT CONTROL A switch, on the P5 forward overhead panel, to the STDBY RUD position.
 - 1) Make sure that the STANDBY HYD LOW PRESSURE Light, on the P5 forward overhead panel, is on.
 - 2) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
 - 3) Make sure that the flight control low pressure light system A is off and that the flight control low pressure light system B is on.



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (c) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

- 1) Make sure that the standby electric motor-driven pump (EMDP) operates.
- 2) Make sure that the STANDBY HYD LOW PRESSURE Light, on the P5 forward overhead panel, goes off.
- 3) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
- 4) Move the rudder pedals to the left forward stop and to the right forward stop at a high rate of 5 cycles.
- 5) Put in full left pedal and slowly release.
- 6) Make sure that the rudder pedals are centered.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

Page 503
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- 7) Put in full right pedal and slowly release.
- 8) Make sure that the rudder pedals are centered.
- 9) Do a visual check of the rudder control surface, to make sure that it is in the approximate neutral position, within the deadband range of the Standby Rudder Control Unit (SPCU).

NOTE: The purpose of the visual check is to examine for a large rudder offset from the neutral position that may result from a failure in the input linkage to the standby rudder control unit. The visual check can be done from the ground without physical measurement of the position of the rudder surface.

- (d) Set the FLT CONTROL A switch to the OFF position.
 - 1) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is off.
 - 2) Make sure that the standby EMDP stops.



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (e) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

- (f) Set the FLT CONTROL B switch, on the P5 forward overhead panel, to the STDBY RUD position.
 - 1) Make sure that the flight control low pressure light system A is on and that the flight control low pressure light system B is off.
 - 2) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THEAILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 504
Sep 15/2023

**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

(WARNING PRECEDES)



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (g) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

- 1) Make sure that the standby EMDP operates.
 - 2) Make sure that the STANDBY HYD LOW PRESSURE light goes off.
 - 3) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
- (h) Set the FLT CONTROL B switch to the OFF position.
- 1) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is off.
 - 2) Make sure that the standby EMDP stops.



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-00

Page 505
Sep 15/2023

**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (i) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

- (j) Set the ALTERNATE FLAPS, on the P5 forward overhead panel, to the ARM position.
- 1) Make sure that the STANDBY HYD LOW PRESSURE light is on.
 - 2) If it is necessary, operate the rudder to remove pressure from the standby hydraulic system.



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THEAILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (k) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

EFFECTIVITY
SIA ALL

29-21-00



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure that the standby EMDP operates.
- 2) Make sure that the STANDBY HYD LOW PRESSURE light goes off.
- (l) Set the ALTERNATE FLAPS to the OFF position.
 - 1) Make sure that the standby EMDP stops.
- (m) Set the FLT CONTROL A switch to the ON position.



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (n) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
 - 1) Make sure that the standby EMDP operates.
- (o) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
 - 1) Make sure that the standby EMDP stops.
- (p) Set the FLT CONTROL A switch to the OFF position.
- (q) Set the FLT CONTROL B switch to the ON position.



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (r) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
 - 1) Make sure that the standby EMDP operates.
- (s) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
 - 1) Make sure that the standby EMDP stops.
- (t) Set the FLT CONTROL A switch to the ON position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 29-21-00-410-002

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-21-00-860-012

- (2) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01392	STICK SHAKER LEFT

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 507
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01393	STICK SHAKER RIGHT

SUBTASK 29-21-00-860-013



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Pressurize the hydraulic system B (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

SUBTASK 29-21-00-860-014

- (4) Set the flap control lever to the FLAP UP position.

SUBTASK 29-21-00-860-015

- (5) Remove power from the hydraulic system (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

————— END OF TASK —————

TASK 29-21-00-700-802

3. System Test of the Standby Hydraulic System

A. References

<u>Reference</u>	<u>Title</u>
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

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.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 508
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

Reference	Description
COM-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
SPL-8419	Adapter - Tee, Standby Hydraulic System Test Part #: C29005-1 Supplier: 81205

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

E. Prepare for the Test

SUBTASK 29-21-00-860-018

- (1) Pressurize the hydraulic system B reservoir (Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801).

SUBTASK 29-21-00-860-019



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Pressurize the hydraulic system B (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

SUBTASK 29-21-00-860-020

- (3) Set the flap control lever to the one-unit position.

SUBTASK 29-21-00-860-021

- (4) Remove hydraulic power from the system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-21-00-860-022

- (5) Set the FLT CONTROL A, B, and ALTERNATE FLAPS switches on the forward overhead panel, P5, to the OFF position.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 509
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-00-480-001

- (6) Install the 3000 PSI, 30 GPM portable hydraulic cart, COM-163:

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

- (a) Disconnect the pressure line for the standby electric motor-driven pump (EMDP).
- (b) Connect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the pressure line for the standby EMDP.

NOTE: Do not connect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the flexible line from the standby EMDP.

- (c) You can connect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the either the system B ground service return port, or the standby system reservoir. Connect the supply line to the airplane at one of these locations:

NOTE: The system B reservoir and the standby reservoir are connected by a balance line.

- 1) To connect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the system B ground service return port, do these steps.
 - a) Open this access panel:

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward
 - b) Connect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the system B ground service return port located forward of the right wheel well.
- 2) To connect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the standby system reservoir, do these steps.
 - a) Disconnect the supply line for the standby system EMDP at the quick disconnect fitting below the standby reservoir.



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- b) Connect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the quick disconnect fitting on the bottom of the standby reservoir.

SUBTASK 29-21-00-020-001

- (7) Disconnect the electrical connector from the standby EMDP.

F. System Test of the Standby Hydraulic System

SUBTASK 29-21-00-730-001

- (1) Do a pressure test of the standby hydraulic system:

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-21-00

Page 510
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (a) Set the ALTERNATE FLAPS switch on the forward overhead panel, P5, to the ARM position.
 - 1) Make sure the STANDBY HYD LOW PRESSURE light on the forward overhead panel, P5, is on.



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) Slowly increase the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163 to 3000 psig (20,684 kPa).
 - 1) Make sure the STANDBY HYD LOW PRESSURE light goes off when the pressure is between 1100 psig (7584 kPa) and 1500 psig (10,342 kPa).
- (c) Slowly decrease the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.
 - 1) Make sure the STANDBY HYD LOW PRESSURE light comes on when the pressure is between 1500 psig (10,342 kPa) and 1000 psig (6895 kPa).
- (d) Release all the pressure from the standby hydraulic system.

NOTE: If it is necessary, operate the rudder to remove pressure from the standby hydraulic system.
- (e) Set the ALTERNATE FLAPS switch on the forward overhead panel, P5, to the OFF position.

SUBTASK 29-21-00-080-001

- (2) Remove the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the airplane:
 - (a) Disconnect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the airplane.
 - 1) If the supply line is connected to the system B ground service return port, do these steps.
 - a) Disconnect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the system B ground service return port located forward of the right wheel well.
 - b) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward
 - 2) If the supply line is connected to the standby system reservoir, do these steps.
 - a) Disconnect the supply line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the quick disconnect fitting on the bottom of standby system reservoir.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 511
Sep 15/2023

737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- b) Connect the supply line for the standby EMDP to the quick disconnect fitting on the bottom of the standby reservoir.
- (b) Disconnect the pressure line of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the pressure line for the standby EMDP.

SUBTASK 29-21-00-480-002

- (3) Connect the adapter, SPL-8419, to the pressure line from the standby EMDP.
 - (a) Connect the pressure line from the standby EMDP to the pressure port on the Standby EMDP.

SUBTASK 29-21-00-420-001

- (4) Connect the electrical connector to the standby EMDP.

SUBTASK 29-21-00-730-002

- (5) Do a system test of the standby hydraulic system:



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the STDBY RUD position.
 - 1) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.
 - 2) Make sure the pressure becomes stable at 2800 psig (19,305 kPa) - 3200 psig (22,063 kPa).
 - 3) Make sure that the flight control low pressure light system A is off and that the flight control low pressure light system B is on.
- (b) Set the FLT CONTROL A switch to the OFF position.
 - 1) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is off.
 - 2) Make sure the standby EMDP stops.
- (c) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the STDBY RUD position.
 - 1) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- 2) Make sure the standby EMDP operates.
- (d) Set the FLT CONTROL B switch to the OFF position.
 - 1) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is off.
 - 2) Make sure the standby EMDP stops.
- (e) Set the ALTERNATE FLAPS switch on the forward overhead panel, P5, to the ARM position.
 - 1) Make sure the standby EMDP operates.
- (f) Set the ALTERNATE FLAPS switch to the OFF position.
 - 1) Make sure the standby EMDP stops.
- (g) Set the FLT CONTROL A switch to the ON position.
 - 1) Make sure the standby EMDP does not operate.



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (h) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
 - 1) Make sure the standby EMDP operates.
 - 2) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.
- (i) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
 - 1) Make sure the standby EMDP stops.
 - 2) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is off.
- (j) Set the FLT CONTROL A switch to the OFF position.
- (k) Set the FLT CONTROL B switch to the ON position.
 - 1) Make sure the standby EMDP does not operate.



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (l) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
 - 1) Make sure the standby EMDP operates.
 - 2) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.
- (m) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
 - 1) Make sure the standby EMDP stops.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 513
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- 2) Make sure the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is off.
- (n) Set the FLT CONTROL B switch to the OFF position.
- (o) Release the pressure from the standby hydraulic system.

NOTE: If it is necessary, operate the rudder to remove pressure from the standby hydraulic system.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-21-00-080-002

- (1) Remove the adapter, SPL-8419, from the pressure line.
 - (a) Connect the pressure line from the standby EMDP to the pressure line on the Standby EMDP after you remove the adapter, SPL-8419.

SUBTASK 29-21-00-860-023

- (2) Do this task: (Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802).

SUBTASK 29-21-00-860-024



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Pressurize the hydraulic system B (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

SUBTASK 29-21-00-860-025

- (4) Set the flap control lever to the UP position.

SUBTASK 29-21-00-860-026

- (5) Remove hydraulic power from system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

————— **END OF TASK** —————

TASK 29-21-00-700-803

4. Operational Test of the Standby Hydraulic Actuation System

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This test makes sure that the standby hydraulic pump and the related indications operate correctly. This test checks the standby hydraulic pumps low pressure indications through the system A and system B flight control switches, alternate flaps switch and the auto standby system relay.
- (2) When you do the steps that use the system A (B) flight control switches, do the steps for one systems switch then repeat the steps again for the other system switch.

B. References

Reference	Title
27-32-00-710-801	Stall Warning System - Operational Test (P/B 501)

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 514
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Title
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
31-65-00-750-801	Fault Interrogation for a Maintenance Message (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 29-21-00-040-001

- (1) Make sure that the weather radar will not operate.
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 29-21-00-010-003

- (2) To get access to the P92 panel, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-21-00-860-028



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-00

Page 515
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-21-00-860-029

- (4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01392	STICK SHAKER LEFT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01393	STICK SHAKER RIGHT

SUBTASK 29-21-00-860-030

- (5) Pressurize the hydraulic system B reservoir (Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801).

SUBTASK 29-21-00-860-031



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Pressurize the hydraulic system B (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

SUBTASK 29-21-00-480-003



MAKE SURE THAT YOU INSTALL THE DOWNLOCK PINS ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 516
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-00-860-032



CAUTION

MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED, AND IN THE STOWED POSITION, OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (8) Set the flap control lever to the one-unit position.

SUBTASK 29-21-00-860-033

- (9) Remove pressure from hydraulic system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-21-00-860-034

- (10) Set the FLT CONTROL A and FLT CONTROL B switches, on the P5 forward overhead panel, to the OFF position.

F. Operational Test of the Standby Hydraulic System

SUBTASK 29-21-00-710-002

- (1) Do the operational test of the standby hydraulic system:
- (a) Set the FLT CONTROL A (B) switch, on the P5 forward overhead panel, to the STDBY RUD position.
 - 1) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 forward overhead panel, comes on.
 - 2) Make sure that the FLIGHT CONTROL LOW PRESSURE light A(B) is OFF.
 - 3) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
 - (b) Set the FLT CONTROL A(B) Switch, on the P5 forward overhead panel, to the OFF position.
 - 1) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 forward overhead panel, goes off.
 - 2) Make sure that the FLIGHT CONTROL LOW PRESSURE light A(B) is ON.
 - 3) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is off.
 - (c) Set the ALTERNATE FLAPS switch, on the P5 forward overhead panel, to the ARM position.
 - 1) Make sure that the STANDBY HYD LOW PRESSURE light comes on.
 - 2) If it is necessary, operate the rudder to remove the pressure from the standby hydraulic system.
 - (d) Set the ALTERNATE FLAPS switch, on the P5 forward overhead panel, to the OFF position.
 - 1) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 forward overhead panel, goes off.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 517
Sep 15/2023

737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (e) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: The Standby Hydraulic Pump circuit breaker is located behind the P92 front panel.

- (f) Set the FLT CONTROL A (B) switch, on the P5 forward overhead panel, to the STDBY RUD position.

- 1) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
- 2) Make sure that the standby Electric Motor-Driven Pump (EMDP) operates.
- 3) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 forward overhead panel, goes off.

NOTE: The STANDBY HYD LOW PRESSURE light goes off when the system is pressurized. The light can come on momentarily when the pump starts and the system is not at its usual pressure.

- 4) Move the rudder pedals.
 - a) Move the rudder pedals to the left forward stop and to the right forward stop at a high rate of 5 cycles and visually check that the rudder surface moves approximately 27 in. (69 cm) left and right from the neutral position.

NOTE: The visual check can be done from the ground without physical measurement of the rudder travel.
 - b) Put in full left pedal and slowly release.
 - c) Make sure that the rudder pedals are centered.
 - d) Put in full right pedal and slowly release.

EFFECTIVITY
SIA ALL

29-21-00



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- e) Make sure that the rudder pedals are centered.
- f) Do a visual check of the rudder control surface to make sure that it is in the approximate neutral position, within the deadband range of the Standby Rudder Power Control Unit (PCU).

NOTE: The purpose of the visual check is to examine for a large rudder offset from the neutral position that may result from a failure in the input linkage to the standby rudder power control unit (PCU). The visual check can be done from the ground without physical measurement of the position of the rudder surface.

- (g) Set the FLT CONTROL A(B) switch, on the P5 forward overhead panel, to the OFF position.
 - 1) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is off.
 - 2) Make sure that the standby EMDP stops.
- (h) Set the ALTERNATE FLAPS switch, on the P5 forward overhead panel, to the ARM position.
 - 1) Make sure that the standby EMDP operates.
 - 2) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 forward overhead panel, goes off.

NOTE: The STANDBY HYD LOW PRESSURE light goes off when the system is pressurized. The light can come on momentarily when the pump starts and the system is not at its usual pressure.

- (i) Set the ALTERNATE FLAPS switch, on the P5 forward overhead panel, to the OFF position.
 - 1) Make sure that the standby EMDP stops.
- (j) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (k) Close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: This CB was opened during the previous step to put the airplane in the Air Mode.

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 519
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (l) Set the FLT CONTROL A(B) switch to the ON position.
 - 1) Make sure that the standby EMDP operates.
 - 2) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is ON.
- (m) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
 - 1) Make sure that the standby EMDP stops.
- (n) Set the FLT CONTROL A(B) switch to the OFF position.
 - 1) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is OFF.
- (o) Make sure that the levers on the two motor-operated valves on the standby modules are in the closed position (Position 1).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-21-00-410-003

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-21-00-860-035

- (2) Make sure that the FLT CONTROL A and FLT CONTROL B switches, on the P5 forward overhead panel, are in the ON position and the FLT CONT A and B LOW PRESS lights are ON.

SUBTASK 29-21-00-860-036

- (3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01392	STICK SHAKER LEFT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01393	STICK SHAKER RIGHT

SUBTASK 29-21-00-860-040

- (4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 520
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 29-21-00-860-037



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-21-00-860-041

- (6) Make sure that the FLT CONTROL A and FLT CONTROL B switches, on the P5 forward overhead panel, are in the ON position and the FLT CONT A and B LOW PRESS lights are OFF.

SUBTASK 29-21-00-860-038

- (7) Set the flap control lever to the FLAP UP position.

SUBTASK 29-21-00-860-039

- (8) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-21-00-710-003

- (9) Do a check for latched "STALL WARNING SYS L" and "STALL WARNING SYS R" status messages on the MAX Display System (MDS) (TASK 31-65-00-750-801).

SUBTASK 29-21-00-710-004

- (10) If "STALL WARNING SYS L" and "STALL WARNING SYS R" status messages are shown on the STATUS page, do these steps:
- (a) Manually erase the latched "STALL WARNING SYS L" and "STALL WARNING SYS R" status messages (TASK 31-65-00-750-801).
 - (b) Do this task: Stall Warning System - Operational Test, TASK 27-32-00-710-801.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-21-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 521
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY HYDRAULIC SYSTEM ELECTRIC MOTOR-DRIVEN PUMP (EMDP) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the standby hydraulic system EMDP
- (2) An installation of the standby hydraulic system EMDP.

TASK 29-21-21-000-801

2. Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Removal

(Figure 401)

A. References

Reference	Title
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
194	Lower Wing-To-Body Fairing - Aft of Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
194DR	Aft Wing To Body Fairing Panel
194HL	Aft Wing To Body Fairing Panel

D. Prepare for the Removal

SUBTASK 29-21-21-860-016

- (1) Remove the hydraulic power from standby hydraulic system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-21-21-860-017

- (2) Release the pressure from the standby hydraulic reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-21-21-010-004

- (3) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-21

Page 401
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-21-860-018



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP
F	3	C00881	ELEC HYD PUMP SYS A

NOTE: The standby hydraulic pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-21-21-010-003

- (5) Open this access panel to get access to the standby hydraulic reservoir:

<u>Number</u>	<u>Name/Location</u>
194HL	Aft Wing To Body Fairing Panel

SUBTASK 29-21-21-020-001

- (6) Disconnect the supply line for the standby hydraulic system Electric Motor-Driven Pump (EMDP) from the standby hydraulic reservoir at the quick-disconnect.

NOTE: The quick-disconnect is at the bottom of the standby hydraulic reservoir.

SUBTASK 29-21-21-010-002

- (7) Open this access panel to get access to the standby hydraulic system EMDP:

<u>Number</u>	<u>Name/Location</u>
194DR	Aft Wing To Body Fairing Panel

E. Standby Hydraulic EMDP Removal

SUBTASK 29-21-21-020-002

- (1) Remove the standby hydraulic EMDP [13].
(a) Disconnect the electrical connector [12] from the standby hydraulic EMDP [13].

EFFECTIVITY
SIA ALL

29-21-21

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

- 1) If it is necessary, inspect the electrical connector [12] for corrosion (TASK 20-60-07-910-802).

NOTE: The inspection of the electrical connector can be done after the removal step of before the installation step of the electrical connector. This is an operator option.

- (b) Put a container below the standby hydraulic EMDP [13] to catch hydraulic fluid.
- (c) Disconnect the supply line [11], pressure line [10], and case drain line [6] from the standby hydraulic EMDP [13].
- (d) Install caps and plugs on the hydraulic lines and ports.
- (e) Remove the bolts [2], washers [1], bolt [14], and washer [15] that attach the standby hydraulic EMDP [13] to the airplane structure.
- (f) Remove the standby hydraulic EMDP [13] from the airplane.
- (g) Remove the reducer [4], reducer [5], and reducer [9].
- (h) Remove and discard the packing [3], packing [7], packing [8], and cap ports.

———— **END OF TASK** ————

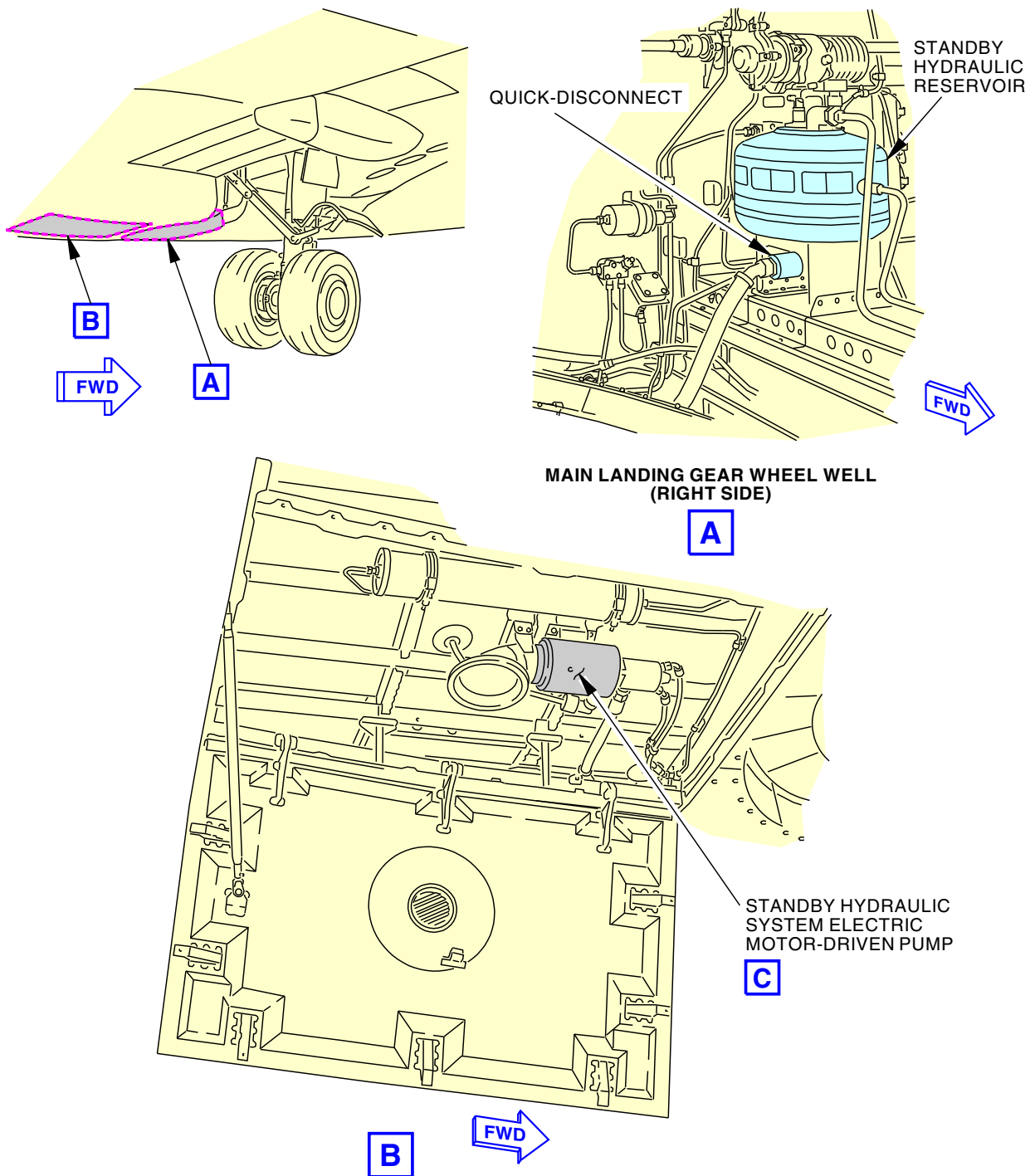
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-21

Page 403
Sep 15/2023



2413839 S00061533524_V2

Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation
Figure 401/29-21-21-990-802 (Sheet 1 of 2)

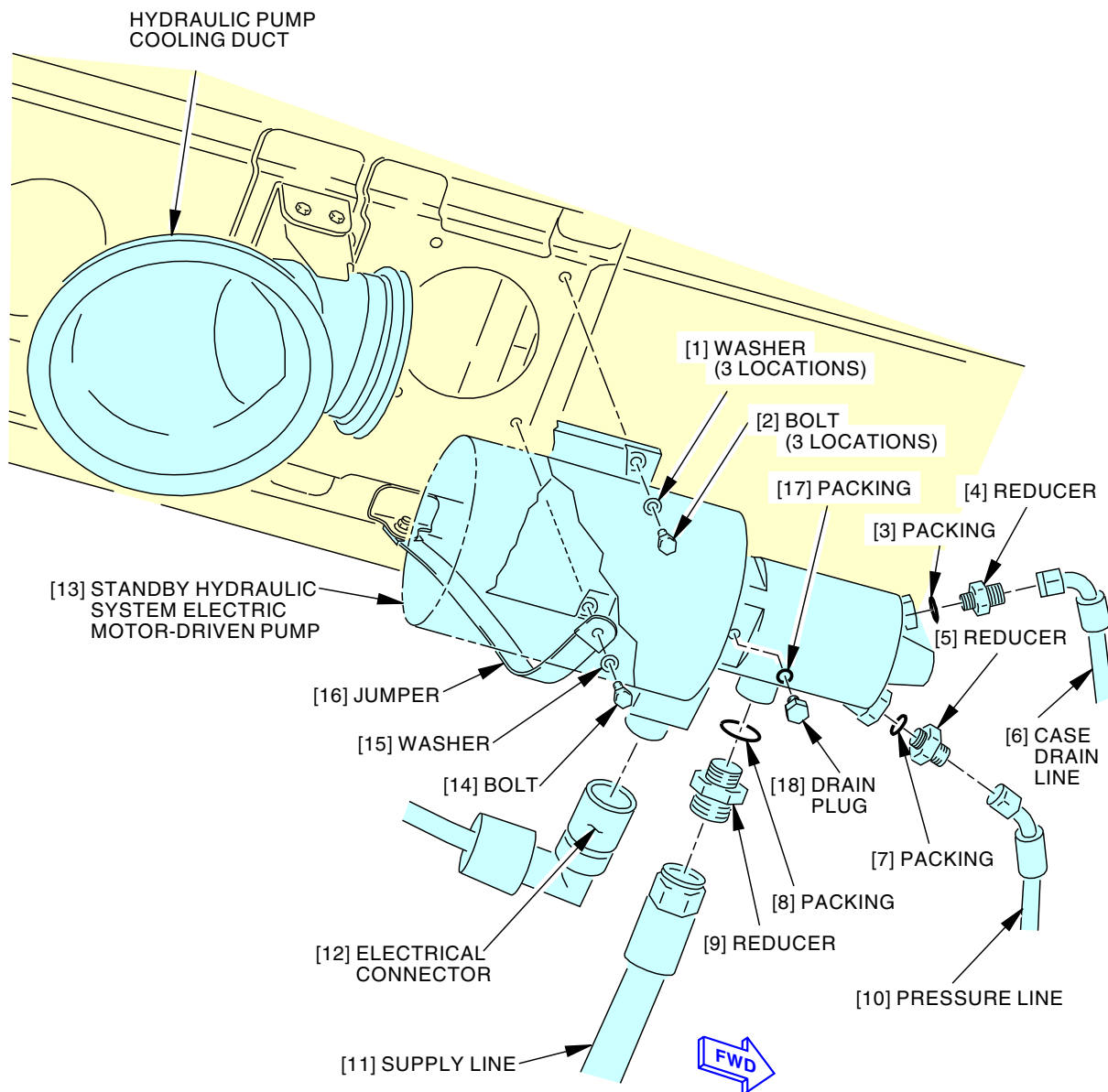
EFFECTIVITY
SIA ALL

29-21-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Sep 15/2023



STANDBY HYDRAULIC SYSTEM
ELECTRIC MOTOR-DRIVEN PUMP (EMDP)

C

2413840 S00061533525_V2

Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation
Figure 401/29-21-21-990-802 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-21

Page 405
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-21-21-400-801

3. **Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation**

(Figure 401)

A. **References**

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-170-801	Hydraulic System A or B Flushing (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
29-21-41-000-801	Standby EMDP Case Drain Filter Element Removal (P/B 401)
29-21-41-400-801	Standby EMDP Case Drain Filter Element Installation (P/B 401)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES
SWPM 20-20-00, Paragraph 2	CLEANING OF FAY SURFACES
SWPM 20-20-10	Replacement of Ground Studs and Bonding Jumper Installation

B. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. **Consumable Materials**

Reference	Description	Specification
A50359	Sealant - Low Density, Non-Chromate Type	BMS5-142 Type II Class B
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

D. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Packing	29-21-21-01-165	SIA ALL
7	Packing	29-21-21-01-170	SIA ALL
8	Packing	29-21-21-01-155	SIA ALL
13	EMDP	29-21-21-01-175	SIA ALL

EFFECTIVITY
SIA ALL

29-21-21

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
17	Packing	29-21-21-01-160	SIA ALL

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
194	Lower Wing-To-Body Fairing - Aft of Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
194DR	Aft Wing To Body Fairing Panel
194HL	Aft Wing To Body Fairing Panel

G. Prepare for the Installation

SUBTASK 29-21-21-960-001

- (1) If the hydraulic pump is removed because of a mechanical malfunction of the pump, do these steps:

NOTE: If the airplane experiences repeated failures of a pump at one location, there may be debris in the case drain line, case drain hose, or case drain hose quick-disconnect that cannot be flushed by the accomplishment of this procedure. Careful examination/cleaning/replacement of the case drain hose or case drain hose quick-disconnect may be required.

- (a) Examine the case drain line, case drain hose, or case drain hose quick-disconnect for debris or blockage.
- (b) If debris or blockage is found, clean or replace the case drain hose or quick-disconnect, as applicable.
- (c) Inspect the standby case drain filter for metal particle contamination (TASK 29-21-41-000-801 and TASK 29-21-41-400-801).

SUBTASK 29-21-21-640-001

- (2) If the packings, reducers and drain plug [18] are not installed on the standby hydraulic EMDP [13], do these steps:

- (a) Lubricate the packings and reducers with MCS 352B fluid, D00054, or hydraulic fluid, D00153.
- (b) Install the packing [3], reducer [4], packing [7], reducer [5], packing [8], reducer [9], packing [17], and drain plug [18] on the standby hydraulic EMDP [13].

SUBTASK 29-21-21-100-002

- (3) Clean the bolts [2], washers [1], and contact surfaces (TASK 20-10-34-120-801).

SUBTASK 29-21-21-100-001

- (4) Clean the mating surfaces on the EMDP [13], bolt [14], washer [15], and jumper [16] (SWPM 20-20-00, Paragraph 2).

EFFECTIVITY
SIA ALL

29-21-21

D633AM101-SIA

Page 407
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-21-860-019

- (5) Fill the standby hydraulic EMDP [13] half full with hydraulic fluid through the supply port.

H. Standby Hydraulic EMDP Installation

SUBTASK 29-21-21-420-001

- (1) Install the standby hydraulic EMDP [13]:
 - (a) Put the standby hydraulic EMDP [13] in its position.
 - (b) Install the washers [1], bolts [2], washer [15], bolt [14], and jumper [16] that attach the standby hydraulic EMDP [13] to the airplane structure.
 - (c) Remove the plugs from the standby hydraulic EMDP [13].
 - (d) Remove the caps from the supply line [11], pressure line [10], and case drain line [6].
 - (e) Connect the supply line [11], pressure line [10], and case drain line [6] to the standby hydraulic EMDP [13].
 - (f) Connect the supply line for the standby hydraulic system EMDP [13] to the standby hydraulic reservoir at the quick-disconnect.

NOTE: The quick-disconnect is at the bottom of the standby hydraulic reservoir.
 - (g) Remove the cap from electrical connector [12].
 - (h) Inspect the electrical connector for corrosion or damage, do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

NOTE: The inspection of the electrical connector can be done after the removal step of before the installation step of the electrical connector. This is an operator option.
 - (i) Connect the electrical connector [12] to the standby hydraulic EMDP [13].

SUBTASK 29-21-21-170-001

- (2) If the pump is replaced because of a mechanical malfunction, flush the applicable hydraulic system, do this task: Hydraulic System A or B Flushing, TASK 29-11-00-170-801.

I. Standby Hydraulic System Electric Motor - Driven Pump (EMDP) Installation Test

SUBTASK 29-21-21-760-001

- (1) Measure the electrical bonding resistance between bonded parts (SWPM 20-20-00).
 - (a) Use an intrinsically safe approved bonding meter, COM-1550.
 - (b) Make sure that the electrical bonding resistance is 0.0005 ohm (0.5 milliohm) or less.

SUBTASK 29-21-21-390-001

- (2) Seal the jumper [16] terminal connections with sealant, A50359 (SWPM 20-20-10).

SUBTASK 29-21-21-610-001

- (3) If it is necessary, fill the standby hydraulic reservoir and hydraulic system B reservoir, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-21-21-860-020

- (4) Pressurize the standby system reservoir, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-21

Page 408
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-21-860-022



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (5) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP
F	3	C00881	ELEC HYD PUMP SYS A

NOTE: The standby hydraulic pump circuit breaker is located behind the P92 front panel.

SUBTASK 29-21-21-410-004

- (6) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-21-21-860-023



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) Pressurize the standby hydraulic system to bleed the air out of standby hydraulic EMDP [13].
- Set the FLT CONTROL A or FLT CONTROL B switch, on the P5 forward overhead panel, to the STBY RUD position.
 - Make sure that the standby EMDP [13] operates.
 - Make sure that the LOW PRESSURE light is not on.
 - Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
 - Operate the rudder slowly through a minimum of two full cycles.

EFFECTIVITY
SIA ALL

29-21-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (f) Set the FLT CONTROL A or FLT CONTROL B switch, on the P5 forward overhead panel, to the OFF position.
- (g) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is off.
- (h) Make sure that there is no hydraulic leakage at the standby hydraulic EMDP [13].

SUBTASK 29-21-21-860-024

- (8) Remove power from the standby hydraulic system, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-21-21-410-002

- (9) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
194DR	Aft Wing To Body Fairing Panel

SUBTASK 29-21-21-410-003

- (10) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
194HL	Aft Wing To Body Fairing Panel

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-21

Page 410
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY HYDRAULIC SYSTEM RESERVOIR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the standby hydraulic system reservoir
- (2) An installation of the standby hydraulic system reservoir.

B. The standby reservoir is installed on the keel beam between the left and right wheel wells.

TASK 29-21-31-000-801

2. Standby Hydraulic System Reservoir Removal

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
24-22-00-860-802	Remove Electrical Power (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-33-21-000-801	Standby Reservoir Low Quantity Switch Removal (P/B 401)

B. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-6107	Drain Hose - Hydraulic Reservoir Part #: C29004-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE
STD-1154	Container - 5 Gallon (19 Liter)
STD-3901	Container - Hydraulic Fluid Resistant, 50 Gallon (190 l)

C. **Location Zones**

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

D. **Access Panels**

Number	Name/Location
194DR	Aft Wing To Body Fairing Panel

E. **Prepare for the Removal**

SUBTASK 29-21-31-860-001

- (1) Release pressure from the system B hydraulic reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-21-31-020-001

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-31

Page 401
Sep 15/2022



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-31-860-002

- (3) Put the ALTERNATE FLAPS switch to the OFF position.

SUBTASK 29-21-31-420-014

- (4) Attach the DO NOT OPERATE tag, STD-858, on the ALTERNATE FLAPS switch.

SUBTASK 29-21-31-860-003

- (5) Put the FLT CONTROL A and B switches, on the P5 overhead panel, to the OFF position.

SUBTASK 29-21-31-420-001

- (6) Attach the DO NOT OPERATE tags, STD-858, on the FLT CONTROL switches.

SUBTASK 29-21-31-020-002

- (7) Drain the hydraulic fluid from the standby hydraulic system reservoir [1] using either Method 1 or Method 2:

- (a) Do these steps to accomplish Method 1:



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- 1) Disconnect the supply line [21] for the standby hydraulic pump at the quick-disconnect [15] at the bottom of the standby hydraulic system reservoir [1].
- 2) Connect a drain hose, SPL-6107, to the quick-disconnect [15].
- 3) Put the end of the drain hose, SPL-6107, into a 5 gallon (19 liter) container, STD-1154.
- 4) Drain the hydraulic fluid into the 5 gallon (19 liter) container, STD-1154.
NOTE: The System B reservoir will also drain.
NOTE: The standby hydraulic system reservoir contains approximately 3.5 gal (13.2 l).
- 5) Disconnect the drain hose, SPL-6107, from the quick-disconnect [15].



MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- 6) Reconnect the supply line [21] at the quick-disconnect [15].
- (b) Do these steps to accomplish Method 2:
- 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
194DR	Aft Wing To Body Fairing Panel
 - 2) Put a 5 gallon (19 liter) container, STD-1154, below the standby Electric Motor-Driven Pump (EMDP).
 - 3) Disconnect the supply line [21] at the standby EMDP.

EFFECTIVITY
SIA ALL

29-21-31

D633AM101-SIA

Page 402
Sep 15/2022



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

- 4) Put the disconnected end of the supply line [21] into the 5 gallon (19 liter) container, STD-1154.
- 5) Allow the hydraulic fluid from the standby hydraulic system reservoir [1] to drain into the 5 gallon (19 liter) container, STD-1154.
- 6) Reconnect the supply line [21] to the standby EMDP.
- 7) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
194DR	Aft Wing To Body Fairing Panel
- 8) Drain the hydraulic fluid collected from the standby hydraulic system reservoir [1] into a 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.

SUBTASK 29-21-31-160-001

- (8) If you get hydraulic fluid on the airplane, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

F. Standby Hydraulic System Reservoir Removal

SUBTASK 29-21-31-020-003

- (1) Disconnect the electrical connector from the low quantity switch [2].
 - (a) If it is necessary, inspect the electrical connector for corrosion, do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

NOTE: This step is also done in the installation task.

SUBTASK 29-21-31-020-004

- (2) Install a cap on the electrical connector to prevent contamination or damage.

SUBTASK 29-21-31-020-005

- (3) Remove the nut [11] and washer [10] to disconnect the bonding jumper [9] from the standby hydraulic system reservoir [1].

SUBTASK 29-21-31-020-006

- (4) Disconnect the tube assembly [5] and tube assembly [6] from the standby hydraulic system reservoir [1].

SUBTASK 29-21-31-020-007

- (5) Disconnect the L-fitting [22] from the union [20].

SUBTASK 29-21-31-020-015

- (6) Disconnect the supply line [21] at the quick-disconnect [15].

SUBTASK 29-21-31-020-008

- (7) Install caps on the openings in the standby hydraulic system reservoir [1] and on the tube assembly [5], supply line [21], tube assembly [6], and L-fitting [22] to prevent contamination.

SUBTASK 29-21-31-020-009

- (8) Remove the nut [19], washer [18], and bolt [16] to disconnect the clamp [17] and tube assembly from the standby hydraulic system reservoir [1].

SUBTASK 29-21-31-020-010

- (9) Remove the bolts [12], washers [13], bolts [14], and washers [24] that attach the standby hydraulic system reservoir [1] to the structure.

SUBTASK 29-21-31-020-011

- (10) Remove the standby hydraulic system reservoir [1].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-31

Page 403
Sep 15/2022



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

SUBTASK 29-21-31-020-012

- (11) If it is necessary, to keep the components for installation on the replacement standby hydraulic system reservoir [1], do these steps:
- (a) To remove the low quantity switch [2], do this task: Standby Reservoir Low Quantity Switch Removal, TASK 29-33-21-000-801.

SUBTASK 29-21-31-020-013

- (12) If it is necessary, remove the reducer [4], packing [3], check valve [7], packing [8], union [20], and packing [23] from the standby hydraulic system reservoir [1].
- (a) Discard the packing [3], packing [8], and packing [23].

SUBTASK 29-21-31-020-014

- (13) Install caps on the ports in the standby hydraulic system reservoir [1] to prevent contamination.

———— **END OF TASK** ————

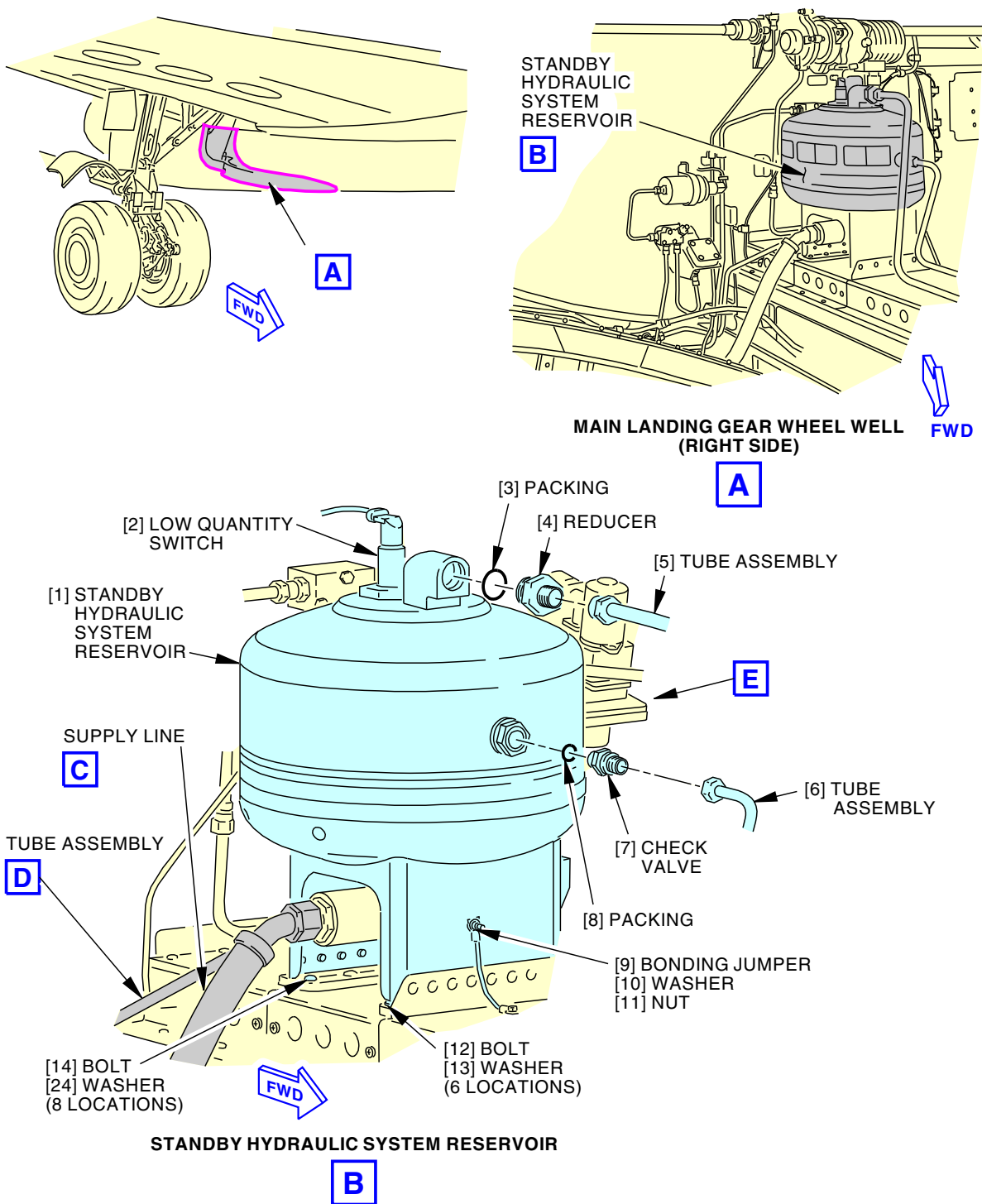
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-31

Page 404
Sep 15/2022



2413841 S00061533530_V1

Standby Hydraulic System Reservoir Installation
Figure 401/29-21-31-990-801 (Sheet 1 of 2)

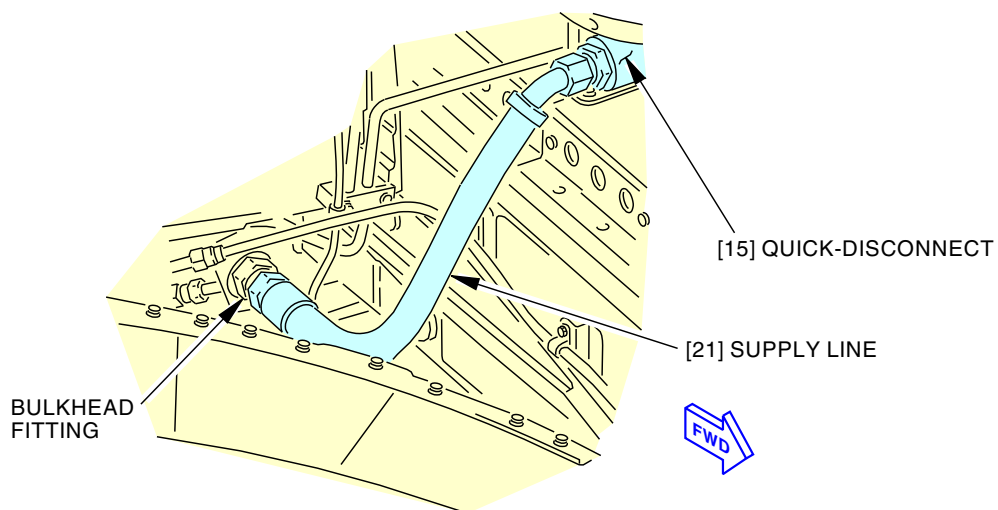
EFFECTIVITY
SIA ALL

29-21-31

D633AM101-SIA

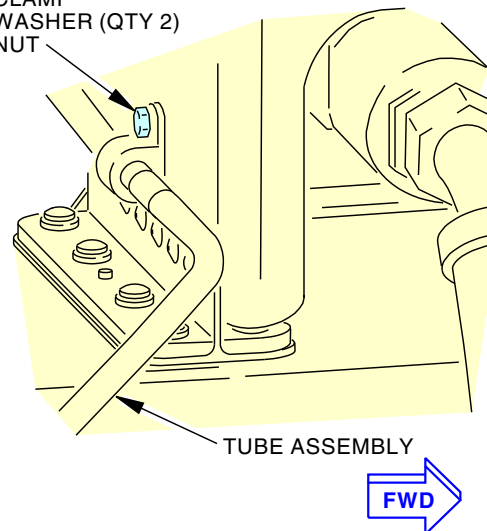
ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2021

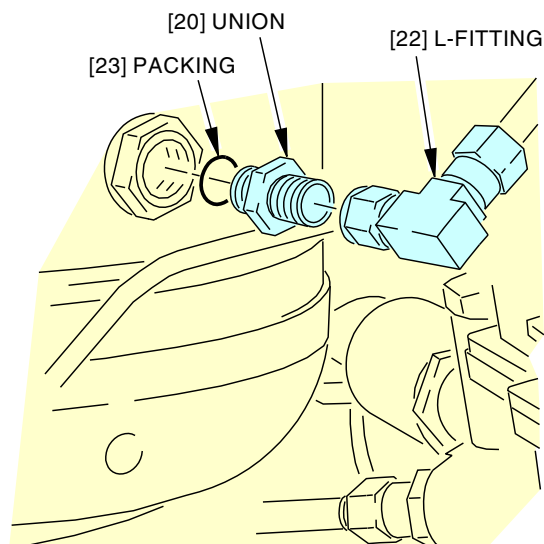


C

- [16] BOLT
- [17] CLAMP
- [18] WASHER (QTY 2)
- [19] NUT



D



E

2413842 S00061533531_V1

Standby Hydraulic System Reservoir Installation
Figure 401/29-21-31-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-31

Page 406
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-21-31-400-801

3. Standby Hydraulic System Reservoir Installation

(Figure 401)

A. References

Reference	Title
08-20-04-400-801	Inclinometer Installation (P/B 401)
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-50-11-910-801	Standard Torque Values (P/B 201)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-33-21-400-801	Standby Reservoir Low Quantity Switch Installation (P/B 401)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES
SWPM 20-20-10	Replacement of Ground Studs and Bonding Jumper Installation

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Standby hydraulic system reservoir	29-21-31-03-025	SIA ALL
3	Packing	29-21-31-03-085	SIA ALL
7	Check valve	29-21-31-03-090	SIA ALL

EFFECTIVITY
SIA ALL

29-21-31

D633AM101-SIA

Page 407
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Packing	29-21-31-03-095	SIA ALL
23	Packing	29-21-31-03-095	SIA ALL

E. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

F. Standby Hydraulic System Reservoir Installation

SUBTASK 29-21-31-210-001



CAUTION

MAKE SURE THAT THE RESERVOIR MOUNTING SURFACES ARE CLEAN. MAKE SURE THAT UNWANTED MATERIAL DOES NOT GO INTO THE RESERVOIR OR THE HYDRAULIC LINES. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (1) Make sure that there are no unwanted materials on the reservoir surfaces and in the reservoir or the hydraulic lines.

SUBTASK 29-21-31-420-002

- (2) If it is necessary to install the reducer [4], packing [3], check valve [7], packing [8], union [20], and packing [23] in the ports of the standby hydraulic system reservoir [1], do these steps:
 - (a) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the new packing [3], new packing [8], new packing [23], and to the threads of the reducer [4], check valve [7], and union [20].
 - (b) Install the new packing [3] on reducer [4], new packing [8] on check valve [7], and new packing [8] on union [20].
 - (c) Remove the caps from the ports on the standby hydraulic system reservoir [1].
 - (d) Install the new packing [3], reducer [4], new packing [8], check valve [7], new packing [8], and union [20] in the ports on the standby hydraulic system reservoir [1].

SUBTASK 29-21-31-420-003

- (3) If it is necessary to install the components on the replacement standby hydraulic system reservoir [1], do these steps:
 - (a) Remove the caps from the ports on the standby hydraulic system reservoir [1].
 - (b) For the low quantity switch [2], do this task: Standby Reservoir Low Quantity Switch Installation, TASK 29-33-21-400-801.
 - (c) For the pitch inclinometer, do this task: Inclinometer Installation, TASK 08-20-04-400-801.

SUBTASK 29-21-31-420-004

- (4) Hold the standby standby hydraulic system reservoir [1] in its position while you do these steps:

EFFECTIVITY
SIA ALL

29-21-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 408
May 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (a) Apply Cor-Ban 27L Compound, G50237 (preferred) or corrosion inhibiting material, G50136 (optional) to the shank and threads of bolts [12] and bolts [14].
 - 1) Use the applicable dry or lube torque value corresponding to the choice of the corrosion inhibitor, refer to Standard Torque Values, TASK 20-50-11-910-801 or BAC5009.
- (b) Install the bolts [12], washers [13], bolts [14], and washers [24].

SUBTASK 29-21-31-420-005

- (5) Remove the caps from the openings in the standby hydraulic system reservoir [1] and from the tube assembly [5], tube assembly [6], and L-fitting [22].

SUBTASK 29-21-31-420-006

- (6) Connect the tube assembly [5], tube assembly [6], and L-fitting [22] to the standby hydraulic system reservoir [1]:
 - (a) Tighten the B-nut on tube assembly [5] to 280 ± 14 in-lb (32 ± 2 N·m).
 - (b) Tighten the B-nut on tube assembly [6] to 170 ± 9 in-lb (19 ± 1 N·m).
 - (c) Tighten the B-nut on L-fitting [22] to 170 ± 9 in-lb (19 ± 1 N·m).

SUBTASK 29-21-31-420-007

- (7) Remove the cap from the supply line [21].

SUBTASK 29-21-31-420-009



MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- (8) Connect the supply line [21] to the standby reservoir quick-disconnect [15].

SUBTASK 29-21-31-420-010

- (9) Remove the cap from the electrical connector for the low quantity switch [2].

SUBTASK 29-21-31-420-015

- (10) Inspect the electrical connector for corrosion or damage, do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-21-31-420-011

- (11) Connect the electrical connector to the low quantity switch [2].

SUBTASK 29-21-31-420-012

- (12) Do these steps to install the bonding jumper [9]:

EFFECTIVITY
SIA ALL

29-21-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (a) Abrasive clean the mating surface of the standby hydraulic system reservoir [1] and solvent clean the terminal of the bonding jumper [9], washer [10], nut [11] (SWPM 20-20-00).
- (b) Install the bonding jumper [9], washer [10], and nut [11] on the standby hydraulic system reservoir [1].
- (c) Measure resistance between the standby hydraulic system reservoir [1] and adjacent structure with a intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-10).
 - 1) The maximum resistance across the bonding jumper [9], between the standby hydraulic system reservoir [1] and adjacent structure is .0005 ohms (.5 milliohms).
- (d) Apply sealant, A02315, to the jumper terminal connection (SWPM 20-20-10).

G. Standby System Reservoir Installation Test

SUBTASK 29-21-31-210-002

- (1) Make sure that the STANDBY HYD LOW QUANTITY (P5), FLT CONT (P2) and left and right MASTER CAUTION (P2) lights are on.

SUBTASK 29-21-31-610-001

- (2) Do the servicing for the standby and system B hydraulic reservoirs:
 - (a) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-21-31-420-013

- (3) Close the system B hydraulic reservoir depressurization valve.

SUBTASK 29-21-31-860-004

- (4) Pressurize the standby and system B hydraulic reservoirs, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-21-31-930-001

- (5) Remove the DO NOT OPERATE tags from the FLT CONTROL switches.

SUBTASK 29-21-31-860-005



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Put the FLT CONTROL B switch (P5) to STDBY RUD.
 - (a) Make sure that the STANDBY HYD STBY RUD ON light on the P5 overhead panel, is on.

SUBTASK 29-21-31-860-006

- (7) Operate the rudder full travel in each direction for a minimum of three times.
 - (a) Make sure that the STDBY HYD LOW QUANTITY light stays off.

SUBTASK 29-21-31-860-007

- (8) Put the FLT CONTROL B switch (P5) to the OFF position.
 - (a) Make sure that the STANDBY HYD STBY RUD ON light on the P5 overhead panel, is off.

SUBTASK 29-21-31-790-001

- (9) Do a check of the standby hydraulic system reservoir [1] and all connections for leaks.

EFFECTIVITY
SIA ALL

29-21-31

D633AM101-SIA

Page 410
Jan 15/2023



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-21-31-860-008

- (1) Remove the DO NOT OPERATE tag from the ALTERNATE FLAPS switch, on the P5 overhead panel.
 - (a) Make sure that ALTERNATE FLAPS switch is in the OFF position.

SUBTASK 29-21-31-860-009

- (2) Put FLT CONTROL A and B switches, on the P5 overhead panel, to the ON position.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-31

Page 411
Sep 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY EMDP CASE DRAIN FILTER - REMOVAL/INSTALLATION

1. General

A. This procedure contains these tasks:

- (1) Remove the filter element.
- (2) Install the filter element.
- (3) Remove the filter as a unit.
- (4) Install the filter as a unit.

TASK 29-21-41-000-801

2. Standby EMDP Case Drain Filter Element Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
20-10-44-000-802	Safety Cable Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
29-21-21-000-801	Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Removal (P/B 401)
29-21-21-400-801	Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation (P/B 401)

B. **Location Zones**

Zone	Area
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Standby EMDP Case Drain Filter Element Removal**

SUBTASK 29-21-41-860-014

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

SUBTASK 29-21-41-010-002

- (2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-41

Page 401
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-21-41-860-001



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-21-41-840-001

- (4) Do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-21-41-860-002

- (5) Release the pressure from the system B reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

NOTE: The standby reservoir is pressurized through the system B reservoir.

SUBTASK 29-21-41-480-001

- (6) Put a container below the filter bowl [11] to catch the hydraulic fluid.

SUBTASK 29-21-41-020-001

- (7) Remove the lockwire or safety cable from the filter bowl [11] (TASK 20-10-44-000-801 or TASK 20-10-44-000-802).

SUBTASK 29-21-41-020-002



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (8) Disconnect the self-seal (quick) disconnect hose for the applicable hydraulic system.

SUBTASK 29-21-41-020-003

- (9) Remove the filter bowl [11] and filter element [10] from the filter head.

SUBTASK 29-21-41-020-004

- (10) Remove the filter element [10] from the filter bowl [11].

SUBTASK 29-21-41-210-001

- (11) Look for metal contamination on the filter element [10] and in the filter bowl [11].

SUBTASK 29-21-41-900-001

- (12) If you find metal contamination, replace the standby Electric Motor-Driven Pump (EMDP).

EFFECTIVITY
SIA ALL

29-21-41

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

- (a) Do this task: Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Removal, TASK 29-21-21-000-801.
- (b) Do this task: Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation, TASK 29-21-21-400-801.

SUBTASK 29-21-41-020-005

- (13) Discard the filter element [10].

SUBTASK 29-21-41-020-006

- (14) Remove the packing [7], packing [9], and backup rings [8].
 - (a) Discard the packing [7] and packing [9].
 - (b) If you find a crack, damage or deformation on a backup ring [8], discard the part.

SUBTASK 29-21-41-140-001

- (15) Clean the filter bowl [11].

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

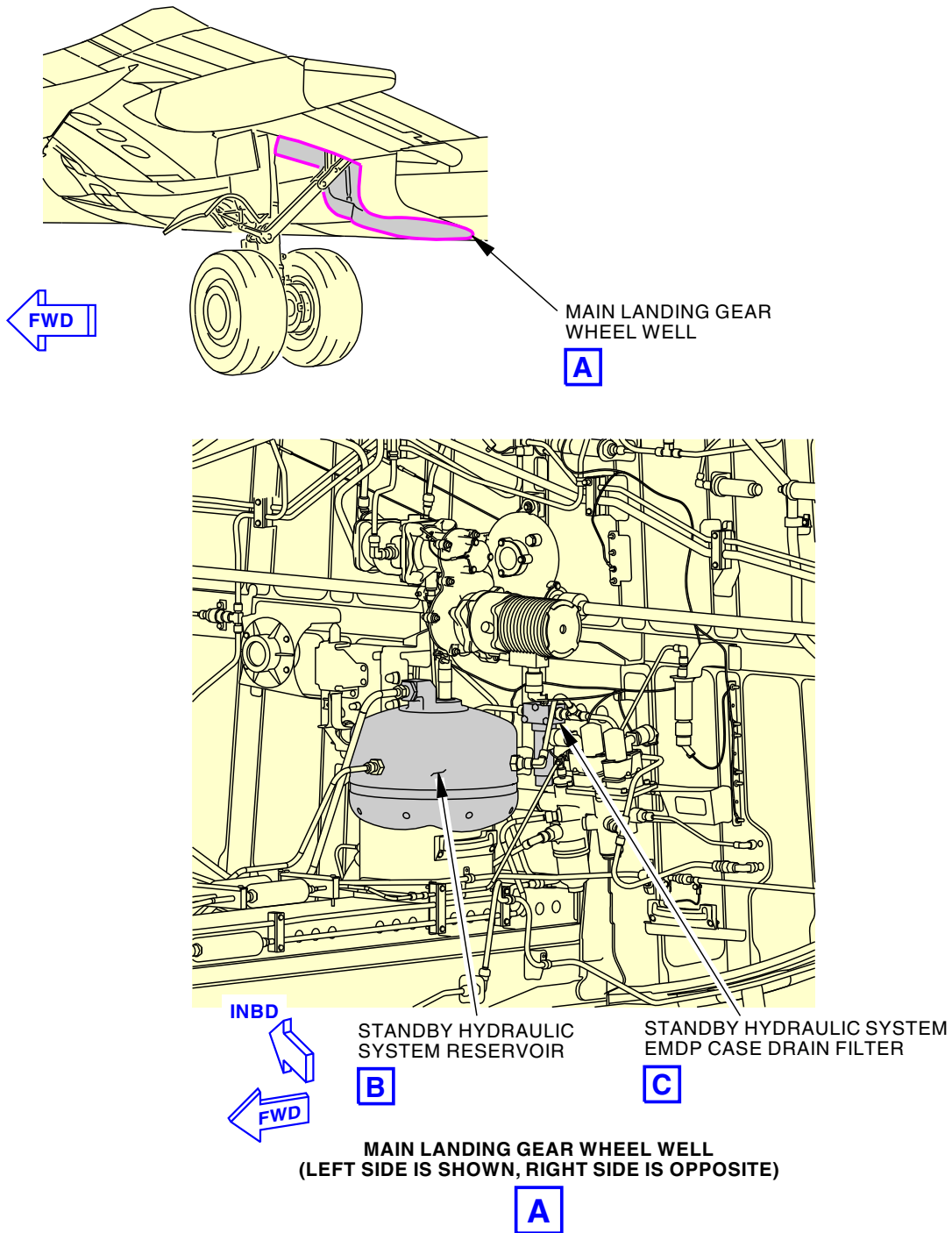
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-41

Page 403
Sep 15/2023

BOEING
737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



2413843 S00061533536_V2

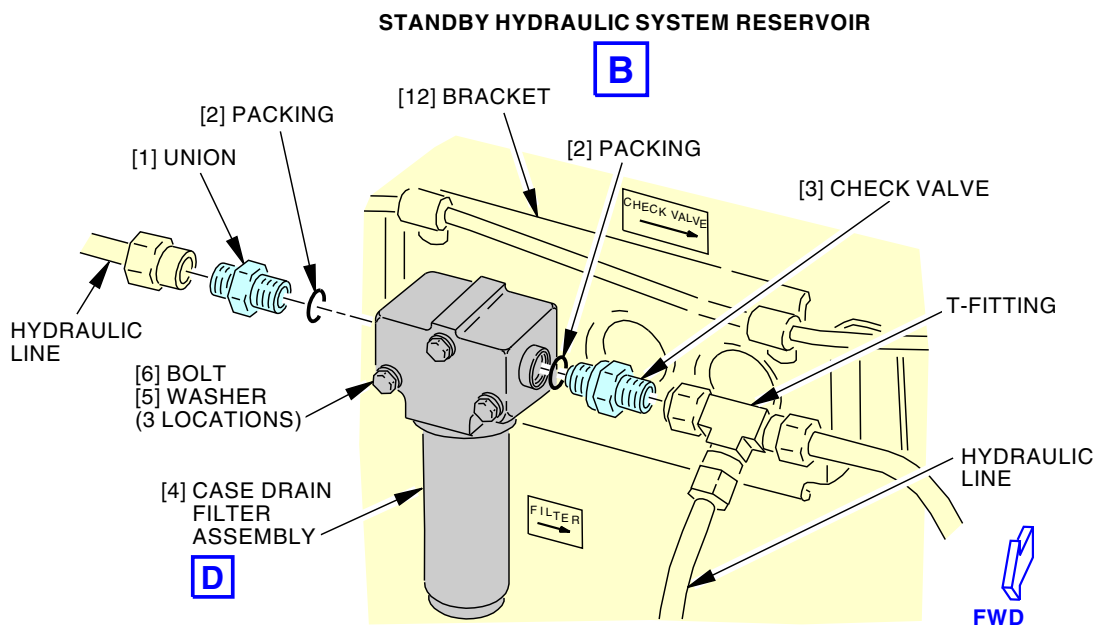
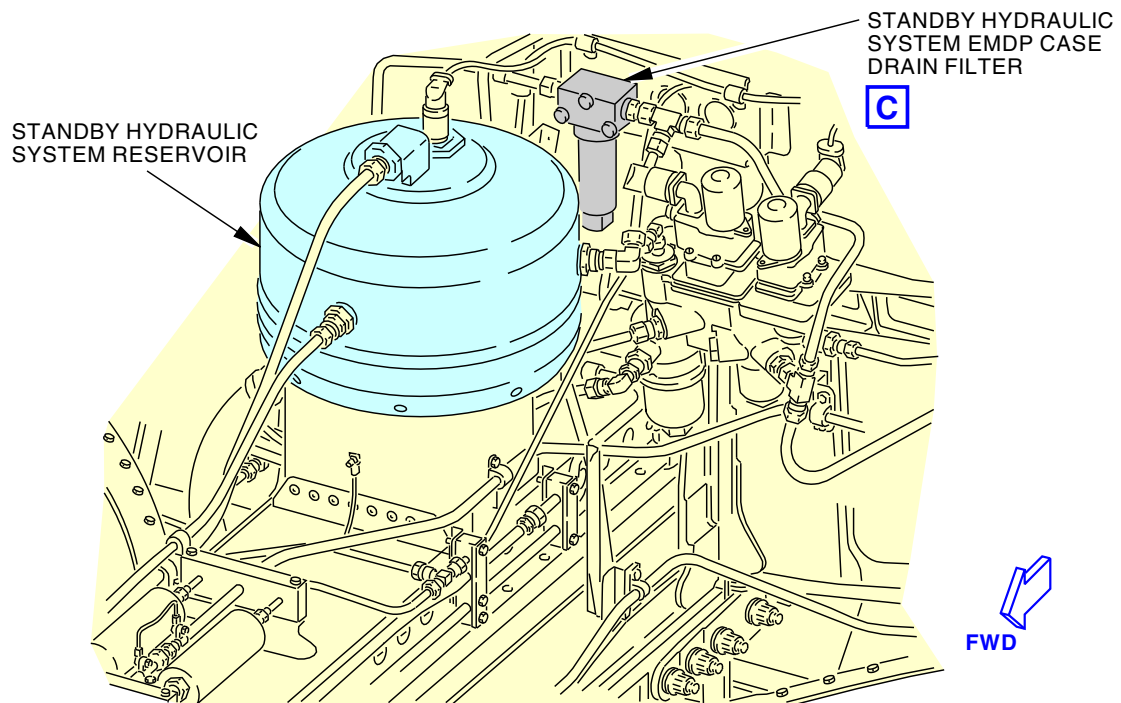
Standby Hydraulic System EMDP Case Drain Filter Installation
Figure 401/29-21-41-990-801 (Sheet 1 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-21-41

Page 404
Sep 15/2023



STANDBY HYDRAULIC SYSTEM EMDP CASE DRAIN FILTER

C

2413844 S00061533537_V2

Standby Hydraulic System EMDP Case Drain Filter Installation
Figure 401/29-21-41-990-801 (Sheet 2 of 3)

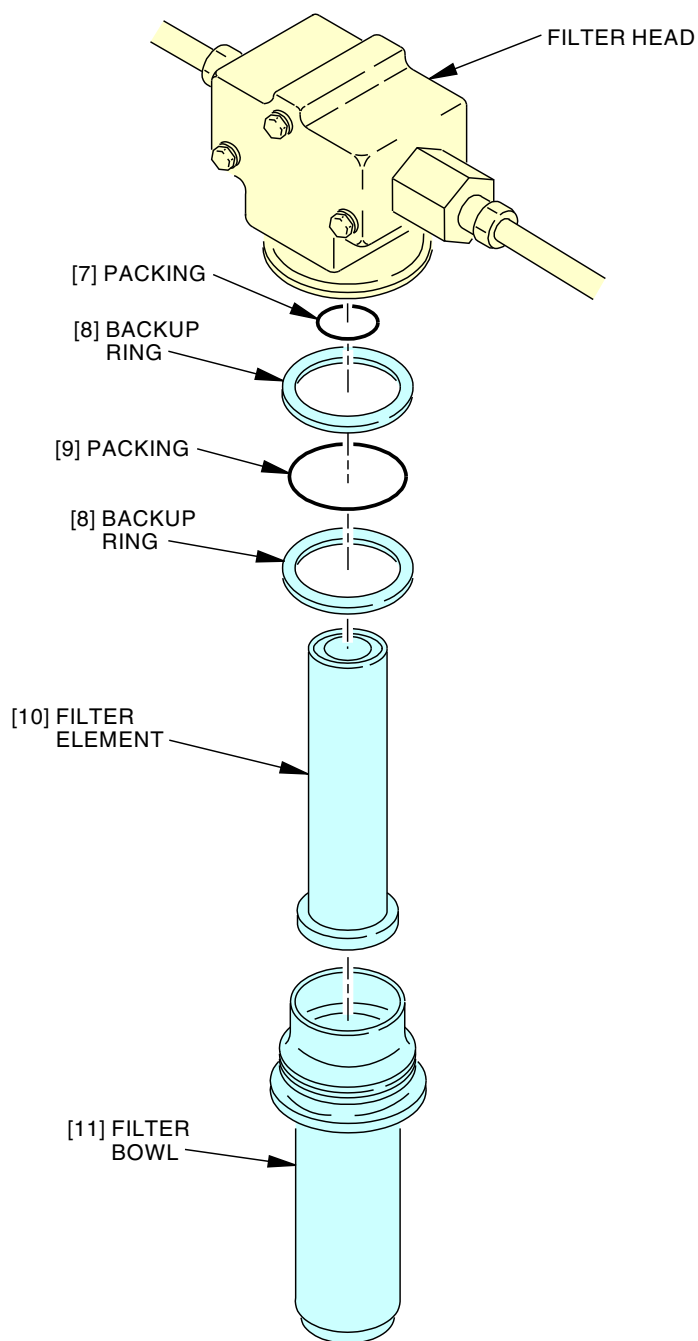
EFFECTIVITY
SIA ALL

29-21-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2023



CASE DRAIN FILTER ASSEMBLY



2413845 S00061533538_V1

Standby Hydraulic System EMDP Case Drain Filter Installation
Figure 401/29-21-41-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

29-21-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-21-41-400-801

3. **Standby EMDP Case Drain Filter Element Installation**

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-10-44-400-802	Safety Cable Installation (P/B 401)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689
G51674	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long	BACC13AT3K12

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Packing	29-21-52-05A-230	SIA ALL
9	Packing	29-21-52-05A-235	SIA ALL
10	Filter element	29-21-52-05A-225	SIA ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-21-41

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

F. Standby EMDP Case Drain Filter Element Installation

SUBTASK 29-21-41-640-001

- (1) Lubricate the new packing [7], new packing [9], and threads of the filter bowl [11] with hydraulic fluid, D00153, or MCS 352B fluid, D00054.

SUBTASK 29-21-41-420-001

- (2) Install the backup rings [8] and new packing [9] in the filter head.

NOTE: Boeing recommends that new backup rings are installed.

NOTE: As an alternative, use the backup rings from the removal procedure again if you do not find damage.

SUBTASK 29-21-41-640-003

- (3) Install the new packing [7] in the new filter element [10].

SUBTASK 29-21-41-020-007

- (4) Put the new filter element [10] in the filter bowl [11].

SUBTASK 29-21-41-980-001

- (5) Put the filter bowl [11] and new filter element [10] in their positions under the filter head.

(a) Raise the new filter element [10] from the filter bowl [11] and press it onto the filter head.

SUBTASK 29-21-41-020-008

- (6) Install the filter bowl [11] on the filter head.

(a) Tighten the filter bowl [11] to 50 in-lb (6 N·m) - 75 in-lb (8 N·m).

SUBTASK 29-21-41-420-002

- (7) Install MS20995C32 lockwire, G01048, or safety cable kit, G51674, or safety cable kit, G51490, on the filter bowl [11] (TASK 20-10-44-400-801 or TASK 20-10-44-400-802).

SUBTASK 29-21-41-420-003



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (8) Reconnect the self-seal (quick) disconnect hose.

SUBTASK 29-21-41-100-001

- (9) To clean the area near the case drain filter of hydraulic fluid spilled during filter change, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

G. Standby Hydraulic System EMDP Case Drain Filter Element Installation Test

SUBTASK 29-21-41-860-003

- (1) Pressurize the system B reservoir, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

EFFECTIVITY
SIA ALL

29-21-41

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 29-21-41-860-004



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (2) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-21-41-410-002

- (3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-21-41-860-015

- (4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

SUBTASK 29-21-41-860-006

- (5) Do this task: Standby Hydraulic System Pressurization, TASK 29-21-00-000-801.

SUBTASK 29-21-41-210-002

- (6) Make sure that the standby Electric Motor-Driven Pump (EMDP) operates.

SUBTASK 29-21-41-790-001

- (7) Make sure that the case drain filter assembly [4] does not have leaks.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-21-41-860-013

- (1) If it is necessary, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-21-41-610-003

- (2) If it is necessary, fill the system B reservoir, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-21-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-21-41-000-802

4. **Standby EMDP Case Drain Filter Removal**

(Figure 401)

A. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. **Location Zones**

Zone	Area
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Prepare for the Removal**

SUBTASK 29-21-41-860-016

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

SUBTASK 29-21-41-010-001

- (2) To get access to the P91 and P92 panel, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 29-21-41-860-008



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

EFFECTIVITY
SIA ALL

29-21-41

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

SUBTASK 29-21-41-860-009

- (4) Remove pressure from standby hydraulic reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802

NOTE: The standby reservoir is pressurized through the system B reservoir.

E. Standby EMDP Case Drain Filter Removal

SUBTASK 29-21-41-020-009

- (1) Disconnect the hydraulic lines from the case drain filter assembly [4].
 - (a) Put caps on the hydraulic lines to prevent contamination or damage.

SUBTASK 29-21-41-020-010

- (2) Remove the washers [5] and bolts [6] that attach the case drain filter assembly [4] to the airplane.

SUBTASK 29-21-41-020-011

- (3) Remove the case drain filter assembly [4] from the airplane.

SUBTASK 29-21-41-020-012

- (4) Remove the union [1], check valve [3], and packings [2].
 - (a) Discard the packings [2].

————— END OF TASK —————

TASK 29-21-41-400-802

5. Standby EMDP Case Drain Filter Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689
G51674	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long	BACC13AT3K12

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-41

Page 411
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Packing	29-21-52-05A-200	SIA ALL
4	Case drain filter assembly	29-21-52-05A-190	SIA ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Standby EMDP Case Drain Filter Installation

SUBTASK 29-21-41-640-005

- (1) Lubricate the new packings [2], threaded fittings of the union [1], and check valve [3] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

SUBTASK 29-21-41-420-004

- (2) Install the new packing [2] and union [1] in the inlet port of the case drain filter assembly [4].

SUBTASK 29-21-41-420-005

- (3) Install the new packing [2] and check valve [3] in the outlet port of the case drain filter assembly [4].

SUBTASK 29-21-41-620-001



WARNING

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (4) Apply a thin layer of corrosion inhibiting material, G50136, to these items:
- (a) The shank, thread, and thread relief of the bolts [6]
 - (b) Mating surfaces of the case drain filter assembly [4] and mounting bracket [12].

SUBTASK 29-21-41-160-001

- (5) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 29-21-41-420-006

- (6) Put the case drain filter assembly [4] in its position.

NOTE: The arrow on the case drain filter assembly must point in the same direction as the arrow on the airplane.

SUBTASK 29-21-41-420-007

- (7) Install the washers [5] and bolts [6] to attach the case drain filter assembly [4] to the airplane.

SUBTASK 29-21-41-020-013

- (8) Remove the caps from the hydraulic lines.

SUBTASK 29-21-41-420-008

- (9) Install the hydraulic lines to the case drain filter assembly [4].

EFFECTIVITY
SIA ALL

29-21-41

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

- (a) Tighten the hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 29-21-41-420-009

- (10) Make sure that the filter bowl [11] has MS20995C32 lockwire, G01048, or safety cable kit, G51674, or safety cable kit, G51490, installed.

SUBTASK 29-21-41-610-002

- (11) Fill the applicable hydraulic reservoir, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-21-41-100-002

- (12) To clean the area near the case drain filter of hydraulic fluid spilled during filter assembly change, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

G. Leak Check for the Case Drain Filter Assembly

SUBTASK 29-21-41-860-011



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-21-41-410-001

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-21-41-860-017

- (3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-41

Page 413
Sep 15/2023



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

SUBTASK 29-21-41-790-002



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) To look for leakage at the case drain filter assembly [4] for the standby Electric Motor-Driven Pump (EMDP), do these steps:
- (a) Put the FLT CONTROL A or the FLT CONTROL B switch in the STDBY RUD position.
 - (b) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
 - (c) Make sure that the case drain filter does not have a leak.
 - (d) Put the FLT CONTROL switch in the ON position.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-41

Page 414
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY HYDRAULIC SYSTEM PRESSURE MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure contains these tasks:
- (1) The removal of the standby hydraulic system pressure module.
 - (2) The installation of the standby hydraulic system pressure module.
 - (3) The removal of the standby hydraulic system pressure filter.
 - (4) The installation of the standby hydraulic system pressure filter.
 - (5) The removal of the pressure relief valve
 - (6) The installation of the pressure relief valve.
- B. In this procedure the standby hydraulic system pressure module is referred to as the "pressure module", the standby hydraulic system pressure filter is referred to as the "filter element" and the pressure relief valve is referred to as the "pressure relief valve".

TASK 29-21-51-000-801

2. Standby Hydraulic System Pressure Module Removal

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-1154	Container - 5 Gallon (19 Liter)

C. **Location Zones**

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

D. **Prepare for the Removal**

SUBTASK 29-21-51-860-001

- (1) Make sure that the hydraulic power is off (TASK 29-11-00-860-805).

SUBTASK 29-21-51-860-002

- (2) Release pressure from system B and standby hydraulic reservoirs, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-21-51-860-003

- (3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 401
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

Standby Power Control Unit, M01720

Row	Col	Number	Name
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

E. Standby Hydraulic System Module Removal

SUBTASK 29-21-51-020-001

- (1) Remove the pressure module [1], do these steps:
 - (a) Disconnect the electrical connector [4] from the leading edge standby shutoff valve.
 - (b) Disconnect the electrical connector [13] from the low pressure switch.
 - (c) Disconnect the electrical connector [5] from the standby rudder shutoff valve.
 - (d) Install protective caps on the electrical connector [4], electrical connector [13], and electrical connector [5].
 - (e) Disconnect the hydraulic line [24], hydraulic line [25], hydraulic line [26], and hydraulic line [28] from the ports of the pressure module [1].
 - (f) Disconnect the tee fitting [8] from the check valve [9].
 - (g) Remove the reducer [7], unions [12], check valve [9], and packings [6].
 - 1) Discard the packings [6].
 - (h) Drain the hydraulic fluid into a 5 gallon (19 liter) container, STD-1154.
 - (i) Install plugs in the hydraulic line [24], hydraulic line [25], hydraulic line [26], hydraulic line [28], and tee fitting [8].
 - (j) Install protective caps on the open fittings of the pressure module [1].
 - (k) If it is necessary, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.
 - (l) Remove the bolts [2] and washers [3].
 - (m) Remove the pressure module [1].

————— **END OF TASK** —————

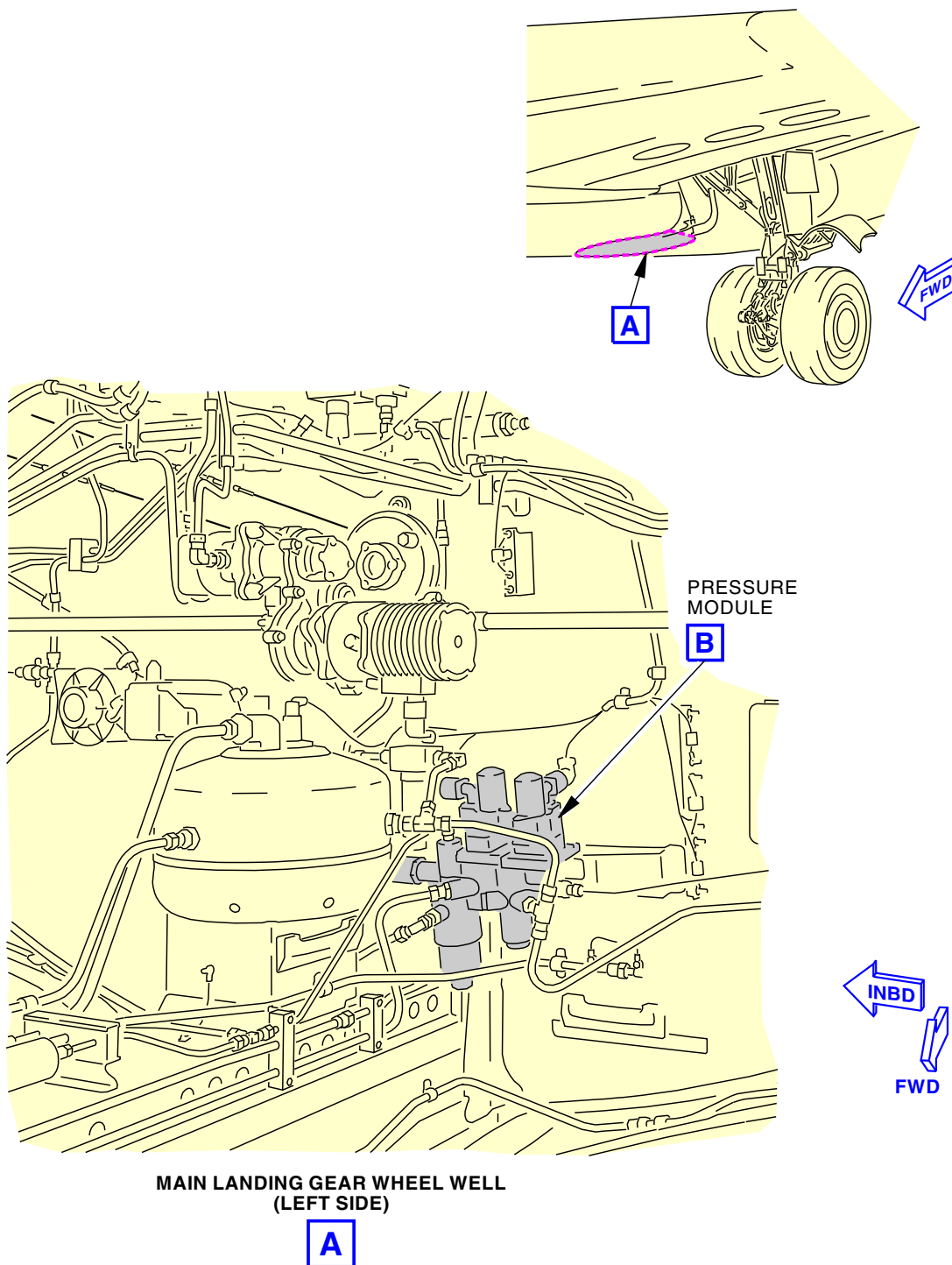
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 402
Sep 15/2023



2413846 S00061533545_V1

Standby Hydraulic System Pressure Module Installation
Figure 401/29-21-51-990-801 (Sheet 1 of 3)

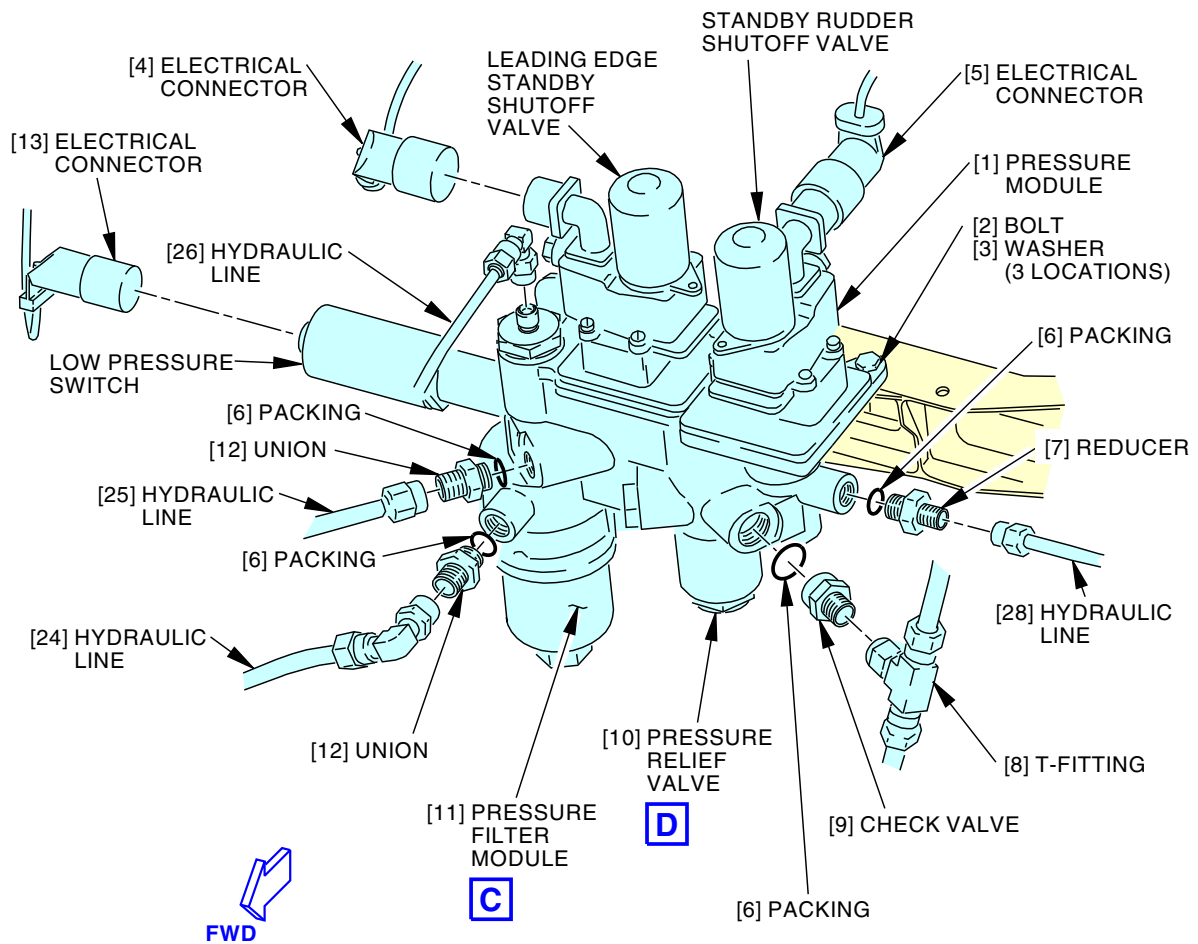
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 403
Sep 15/2021



PRESSURE MODULE FOR THE STANDBY
HYDRAULIC SYSTEM

B

2413847 S00061533546_V3

Standby Hydraulic System Pressure Module Installation
Figure 401/29-21-51-990-801 (Sheet 2 of 3)

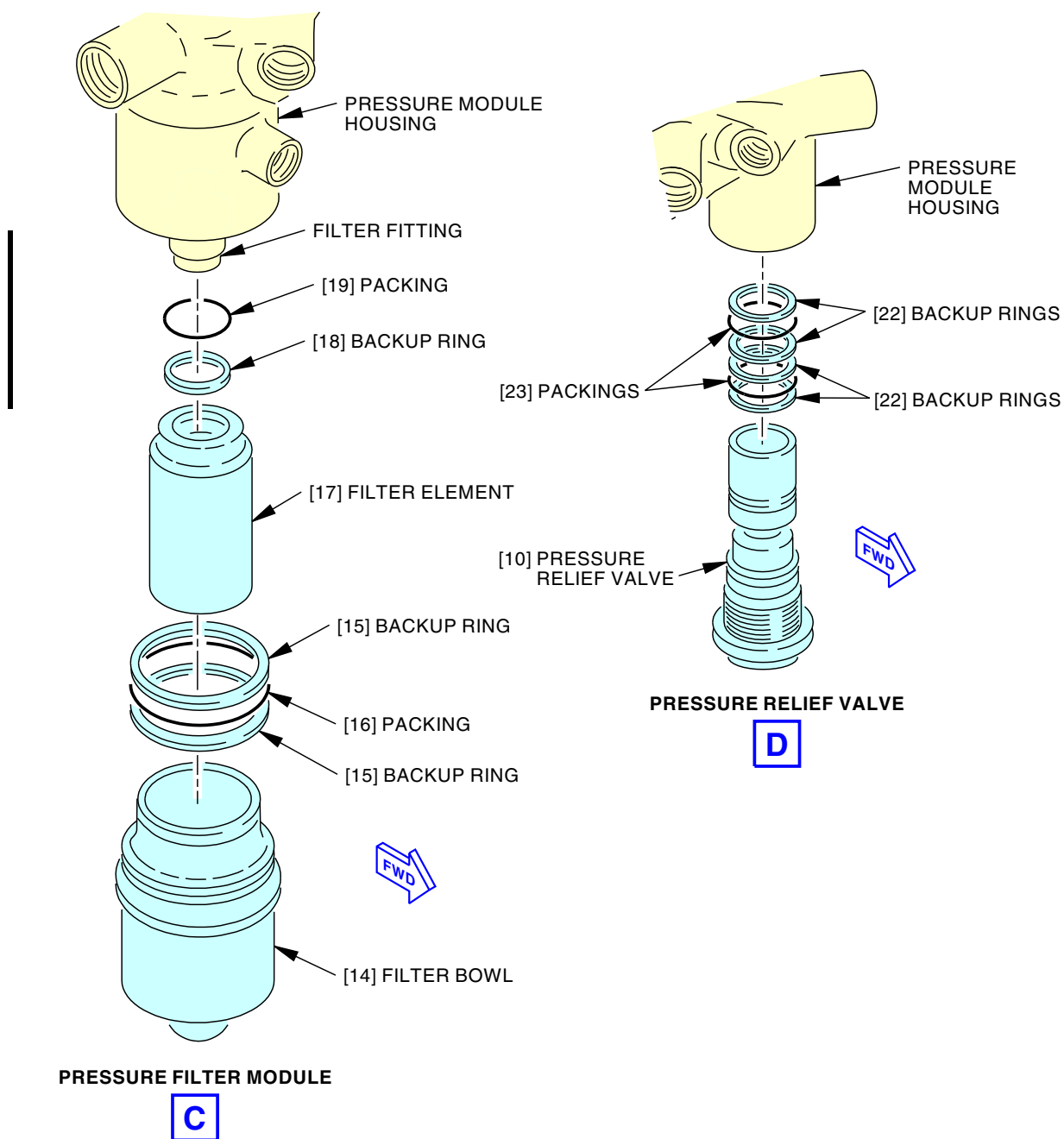
EFFECTIVITY
SIA ALL

29-21-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Sep 15/2021



2413848 S00061533547_V3

Standby Hydraulic System Pressure Module Installation
Figure 401/29-21-51-990-801 (Sheet 3 of 3)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 405
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-21-51-400-801

3. Standby Hydraulic System Pressure Module Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
24-22-00-860-801	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pressure module	29-21-51-01A-030	SIA ALL
6	Packing	29-21-51-01A-025	SIA ALL

D. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

E. Standby Hydraulic System Module Installation

SUBTASK 29-21-51-210-001



CAUTION

DO NOT LET UNWANTED MATERIALS GO INTO THE PRESSURE MODULE OR THE HYDRAULIC LINES. DAMAGE TO THE EQUIPMENT CAN OCCUR.

- (1) Make sure that unwanted material does not go into the pressure module [1], hydraulic line [24], hydraulic line [25], hydraulic line [26], hydraulic line [28], or tee fitting [8].

SUBTASK 29-21-51-420-001

- (2) If the packings [6], unions [12], reducer [7], and check valve [9] are not already installed on the pressure module [1], do these steps:
- (a) Apply hydraulic fluid, D00153, or MCS 352B fluid, D00054, to the new packings [6], threads of the unions [12], reducer [7], and check valve [9].
 - (b) Install the packings [6], unions [12], reducer [7], and check valve [9] into the pressure module [1].

SUBTASK 29-21-51-420-002

- (3) Install the pressure module [1], do these steps:
- (a) Put the pressure module [1] in its mounting position.
 - (b) Install the bolts [2] and washers [3].

EFFECTIVITY
SIA ALL

29-21-51

D633AM101-SIA

Page 406
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (c) Remove the plugs from the hydraulic line [24], hydraulic line [25], hydraulic line [26], hydraulic line [28], and tee fitting [8].
- (d) Remove the protective caps installed on the pressure module fittings during the removal procedure.
- (e) Connect the hydraulic line [24], hydraulic line [25], hydraulic line [26], and hydraulic line [28] to the ports of the pressure module [1].
 - 1) Tighten the B-nuts on the hydraulic line [24] and hydraulic line [25] to 270 ±14 in-lb (31 ±2 N·m).
 - 2) Tighten the B-nuts on the hydraulic line [26] and hydraulic line [28] to 140 ±7 in-lb (16 ±1 N·m).
- (f) Connect the tee fitting [8] to the check valve [9].
- (g) Remove the protective caps from electrical connector [4], electrical connector [13], and electrical connector [5].
- (h) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.
- (i) Connect the electrical connector [4] to the leading edge standby shutoff valve.
- (j) Connect the electrical connector [13] to the low pressure switch.
- (k) Connect the electrical connector [5] to the standby rudder shutoff valve.

SUBTASK 29-21-51-710-001

- (4) Do the operational test of the Standby Hydraulic System Pressure Module, do these steps:
 - (a) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

- (b) Make sure that the electrical power is on (TASK 24-22-00-860-801).



WARNING

MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (c) To pressurize the standby hydraulic system, do this task: Standby Hydraulic System Pressurization, TASK 29-21-00-000-801.
 - 1) Put the FLT CONTROL A switch, on the P5 forward overhead panel, to the STDBY RUD position.
 - a) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.
 - 2) Put the ALTERNATE FLAPS arm switch, on the P5 forward overhead panel, to the ARM position.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 407
Sep 15/2023

737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



WARNING

MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (d) Operate the leading edge flaps and slats and the rudder, do these steps:
- 1) Operate the rudder to full travel slowly a minimum of three times.
 - 2) Put the FLT CONTROL switch A, on the P5 forward overhead panel, to the ON position.



WARNING

MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- 3) Put the ALTERNATE FLAPS control switch to the DOWN position.
- 4) Put the ALTERNATE FLAPS control switch to the OFF position when the trailing edge flaps are extended to 10 degrees.
- 5) Make sure that all leading edge flaps and slats are extended.
- 6) Put the ALTERNATE FLAPS control switch to the UP position.
- 7) Put the ALTERNATE FLAPS control switch to the OFF position when the trailing edge flaps are fully retracted.
- 8) Put the ALTERNATE FLAPS arm switch to the OFF position.



WARNING

MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- 9) To pressurize the System B hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
 - 10) Make sure that the leading edge flaps and slats fully retract.
 - 11) Put the FLT CONTROL A switch, on the P5 forward overhead panel, to the OFF position.
- (e) Examine the pressure module [1] and all hydraulic line connections to the pressure module for leaks.

SUBTASK 29-21-51-860-005

- (5) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

————— **END OF TASK** —————

TASK 29-21-51-000-802

4. Standby Hydraulic System Pressure Module Filter Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

EFFECTIVITY
SIA ALL

29-21-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

A. General

- (1) The standby pressure module is installed on the center of the aft wheel well bulkhead above the keel beam.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-170-801	Hydraulic System A or B Flushing (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-21-000-801	Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Removal (P/B 401)
29-21-21-400-801	Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation (P/B 401)

C. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

D. Prepare for the Removal

SUBTASK 29-21-51-860-006

- (1) Remove the power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-21-51-860-007

- (2) Release pressure from system B and standby hydraulic reservoirs, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-21-51-860-008

- (3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

Standby Power Control Unit, M01720

Row	Col	Number	Name
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

E. Standby Hydraulic System Pressure Module Filter Removal

SUBTASK 29-21-51-480-001

- (1) Put a container below the filter bowl [14] to catch the hydraulic fluid.

SUBTASK 29-21-51-020-002

- (2) Remove the filter element [17]:
 - (a) Remove the lockwire.



CAUTION

PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (b) Disconnect the self-seal (quick) disconnect hose for the applicable hydraulic system.

EFFECTIVITY
SIA ALL

29-21-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (c) Remove the filter bowl [14].
- (d) Remove the backup rings [15] and packing [16].
 - 1) Discard the packing [16]
- (e) Remove the filter element [17].
- (f) Remove the backup ring [18] and packing [19].
 - 1) Discard the packing [19].
- (g) Look for metal contamination in the filter element [17] and in the filter bowl [14].
 - 1) If you find metal contamination, do these steps:
 - a) Replace the standby Electric Motor-Driven Pump (EMDP).
 - <1> Do this task: Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Removal, TASK 29-21-000-801.
 - <2> Do this task: Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation, TASK 29-21-21-400-801.
 - b) Flush the hydraulic lines from the standby, do this task: Hydraulic System A or B Flushing, TASK 29-11-00-170-801.
- (h) Discard the filter element [17].

————— **END OF TASK** —————

TASK 29-21-51-400-802

5. Standby Hydraulic System Pressure Module Filter Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1499	Pin - Lock, NLG Towing Lever Part #: A09003-2 Supplier: 81205 Opt Part #: A09003-1 Supplier: 81205
STD-3731	Streamer - REMOVE BEFORE FLIGHT

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 410
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Description	Specification
G50347	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
16	Packing	29-21-51-01A-085	SIA ALL
17	Filter element	29-21-51-01A-125	SIA ALL
19	Packing	29-21-51-01A-080	SIA ALL

E. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

F. Standby Hydraulic System Pressure Module Filter Installation

SUBTASK 29-21-51-420-003

- (1) Install the filter module element.
 - (a) Lightly apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the backup rings [15], backup ring [18], new packing [16], new packing [19], and to the threads of the filter bowl [14].
 - (b) Install the packing [19] and backup ring [18] in the groove on top of the filter element [17].
 - (c) Install the filter element [17] on the filter fitting in the pressure module housing.
 - (d) Install the backup rings [15] and packing [16] in the groove in the pressure module housing.
 - (e) Fill the filter bowl [14] approximately half full with hydraulic fluid, D00153.
 - (f) Install the filter bowl [14] into the pressure module housing.
 - 1) Tighten the filter bowl [14] to 350 in-lb (40 N·m) - 375 in-lb (42 N·m).
 - (g) Install MS20995NC32 lockwire, G50347.



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- (h) Reconnect the self-seal (quick) disconnect hose.

G. Standby Hydraulic System Pressure Module Filter Installation Test

SUBTASK 29-21-51-860-009

- (1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

EFFECTIVITY
SIA ALL

29-21-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

Standby Power Control Unit, M01720

Row	Col	Number	Name
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

SUBTASK 29-21-51-860-011

- (2) Do this task: Standby Hydraulic System Pressurization, TASK 29-21-00-000-801.

SUBTASK 29-21-51-210-002

- (3) Examine the pressure filter module [11] for leaks.

SUBTASK 29-21-51-860-027

- (4) Install the NLG towing lever pin, SPL-1499 through the pin hole towing lever to hold the lever in the towing position.

SUBTASK 29-21-51-860-028

- (5) Install the split rings and the REMOVE BEFORE FLIGHT streamer, STD-3731 to the lever lock NLG towing lever pin, SPL-1499.
- (a) Make sure that the REMOVE BEFORE FLIGHT streamer, STD-3731 is extended and can be easily seen.

SUBTASK 29-21-51-710-002



MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (6) Put the FLT CONTROL A switch to the STBY RUD position.
- (a) Make sure that the STANDBY HYD STBY RUD ON light, on the P5 forward overhead panel, is on.

SUBTASK 29-21-51-860-012

- (7) Slowly operate the rudder to full travel.

SUBTASK 29-21-51-860-013

- (8) Put the FLT CONTROL switch A to the ON position.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-21-51-860-014

- (1) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-21-51-860-029

- (2) Remove the lever lock NLG towing lever pin, SPL-1499 from the towing lever.

SUBTASK 29-21-51-860-030

- (3) Remove the split rings and the REMOVE BEFORE FLIGHT streamer, STD-3731 from the lever lock NLG towing lever pin, SPL-1499.

SUBTASK 29-21-51-860-016

- (4) Do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-21-51

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

TASK 29-21-51-000-803

6. **Standby Hydraulic System Pressure Module Relief Valve Removal**

(Figure 401)

A. **References**

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. **Consumable Materials**

Reference	Description	Specification
G50347	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. **Location Zones**

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

D. **Prepare for the Removal**

SUBTASK 29-21-51-860-017

- (1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

Standby Power Control Unit, M01720

Row	Col	Number	Name
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

SUBTASK 29-21-51-860-018

- (2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-21-51-860-019

- (3) Release pressure from the system B and the standby hydraulic reservoirs, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

E. **Procedure**

SUBTASK 29-21-51-020-003

- (1) Remove the pressure relief valve [10]:
- (a) Remove the MS20995NC32 lockwire, G50347.
 - (b) Remove the pressure relief valve [10] from the pressure module [1].
 - (c) Remove the backup rings [22] and packings [23] from the pressure relief valve [10].
 - 1) Discard the packings [23].
 - (d) Install a plug in the open port of the pressure module [1].

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 413
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-21-51-400-803

7. **Standby Hydraulic System Pressure Module Relief Valve Installation**

(Figure 401)

A. References

Reference	Title
24-22-00-860-801	Supply Electrical Power (P/B 201)
24-22-00-860-802	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G50347	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Pressure filter module	29-21-51-01A-030	SIA ALL
23	Packing	29-21-51-01A-045	SIA ALL

D. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

E. Procedure

SUBTASK 29-21-51-420-004

- (1) If the backup rings [22] and packings [23] are not already installed on the pressure relief valve [10], do these steps:
 - (a) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the backup rings [22], new packings [23], and the threads of the pressure relief valve [10].
 - (b) Install the backup rings [22] and packings [23] in the grooves of the pressure relief valve [10].

SUBTASK 29-21-51-020-004

- (2) Remove the plug from the relief valve port of the pressure filter module [11] installed during the pressure relief valve [10] removal procedure.

SUBTASK 29-21-51-420-005

- (3) Install the pressure relief valve [10] into the pressure module housing.
 - (a) Tighten the pressure relief valve [10] to 350 in-lb (40 N·m)-375 in-lb (42 N·m).

SUBTASK 29-21-51-420-006

- (4) Install the MS20995NC32 lockwire, G50347.

F. Standby Hydraulic System Pressure Module Relief Valve Installation Test

SUBTASK 29-21-51-860-020

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

EFFECTIVITY
SIA ALL

29-21-51

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

SUBTASK 29-21-51-860-021

- (2) Pressurize the system B and the standby hydraulic reservoirs, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-21-51-860-022

- (3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C00362	FLIGHT CONT SHUTOFF VALVES STBY RUD

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

SUBTASK 29-21-51-860-023

- (4) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-21-51-860-024

- (5) Put one of these switches on the P5 panel to the specified position:
- (a) The FLT CONTROL A switch to STDBY RUD
 - 1) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.
 - (b) The FLT CONTROL B switch to STDBY RUD
 - 1) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.
 - (c) The ALTERNATE FLAPS arm switch to ARM

SUBTASK 29-21-51-790-001

- (6) Examine the pressure relief valve [10] for leaks.

SUBTASK 29-21-51-860-025

- (7) Put the FLIGHT CONTROL A or B switch to ON or the ALTERNATE FLAPS arm switch to OFF.

SUBTASK 29-21-51-860-026

- (8) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-21-51

Page 415
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC POWER TRANSFER UNIT (PTU) SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) An operational test of the power transfer unit (PTU)
- (2) A system test of the PTU.

TASK 29-22-00-710-801

2. Power Transfer Unit Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-22-11-000-801	Power Transfer Unit (PTU) Removal (P/B 401)
29-22-11-400-801	Power Transfer Unit (PTU) Installation (P/B 401)
29-22-21-000-802	PTU Pressure Filter Element Removal (P/B 401)
29-22-21-400-802	PTU Pressure Filter Element Installation (P/B 401)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. **Location Zones**

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Prepare for the Test**

SUBTASK 29-22-00-860-001

- (1) Pressurize the hydraulic reservoirs (Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801).

SUBTASK 29-22-00-860-003

- (2) Make sure the two Stall Warning Vanes (AOA) are at the zero position.

NOTE: You can use your hands to move the Stall Warning Vanes (AOA).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-00

Page 501
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-00-860-004



WARNING

KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

- (3) Supply hydraulic power to systems A and B (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

SUBTASK 29-22-00-860-005



WARNING

KEEP ALL PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES AND THE FLIGHT CONTROL DRIVE MECHANISMS. THESE COMPONENTS WILL MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Move the flap control lever to the 5 unit position.

SUBTASK 29-22-00-860-006

- (5) Remove the hydraulic power from hydraulic system B once the flaps stop moving (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

D. PTU Operational Test

SUBTASK 29-22-00-860-007



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Put the ALTERNATE FLAPS arm switch on the P5 panel in the ARM position.
 - (a) Make sure the standby hydraulic pump operates.

SUBTASK 29-22-00-710-001

- (2) Momentarily move the ALTERNATE FLAPS control switch on the P5 panel to the DOWN position and immediately move it back to the OFF position.
 - (a) Make sure the leading edge slats move to the fully extended position.

NOTE: The LE FLAPS TRANSIT light will stay on.

NOTE: The LE devices can retract a small amount when you move them to the fully extended position.

SUBTASK 29-22-00-860-008

- (3) Put the ALTERNATE FLAPS arm switch in the OFF position.
 - (a) Make sure the standby hydraulic pump stops.

EFFECTIVITY
SIA ALL

29-22-00

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 29-22-00-210-001



CAUTION

PRESSURIZE THE RESERVOIR TO THE CORRECT PRESSURE. THE INCORRECT PRESSURE CAN CAUSE DAMAGE TO THE CHECK VALVE FOR THE PTU.

- (4) Look at the pressure gages for the system B hydraulic reservoir (above the electric motor driven pump in the main wheel well).
 - (a) Make sure the system B hydraulic reservoir has a pressure of 45-65 psig.

SUBTASK 29-22-00-860-009



WARNING

MAKE SURE THAT YOU INSTALL CHOCKS AT THE WHEELS. THE BRAKES WILL RELEASE WHEN YOU PUT THE AIRPLANE IN AIR MODE. THIS CAN CAUSE THE AIRPLANE TO MOVE SUDDENLY. IF YOU DO NOT INSTALL THE CHOCKS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.



WARNING

IF THE ENGINE-DRIVEN PUMP (EDP) IS USED TO PRESSURIZE THE HYDRAULIC SYSTEM, DO NOT LIFT THE AIRPLANE ON JACKS TO PUT THE AIRPLANE IN THE AIR MODE. THE AIRPLANE MAY MOVE SUDDENLY IF THE ENGINE IS RUN WITH THE AIRPLANE ON JACKS. THIS MAY CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) Make sure that the wheels have chocks around them (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 29-22-00-860-038

- (6) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: When the airplane is put in the air mode with the engines running, the engines will advance to flight idle speed.

SUBTASK 29-22-00-860-039

- (7) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-22-00-210-002

- (8) Make sure the PTU starts.

SUBTASK 29-22-00-210-003

- (9) Make sure the leading edge slats retract to the intermediate position.

SUBTASK 29-22-00-860-010

- (10) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 29-22-00-710-002

- (11) Do the steps that follow to check the PTU check valve:
 - (a) Remove pressure from the hydraulic system A (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).
 - (b) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

EFFECTIVITY
SIA ALL

29-22-00

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

- (c) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

- (d) Supply hydraulic power to system B with the EMDP (Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803).
- (e) Move the flap control lever to the 1 unit position.
- (f) Make sure the PTU control valve is open.
- (g) Feel and listen to the PTU to make sure it does not operate.
- (h) Make sure the hydraulic pressure in system A does not increase.
- (i) If the PTU operates or the pressure in hydraulic system A increases, then do these steps:
- 1) Replace the PTU check valve.
 - 2) Replace the PTU (Power Transfer Unit (PTU) Removal, TASK 29-22-11-000-801; Power Transfer Unit (PTU) Installation, TASK 29-22-11-400-801).
 - 3) Replace the PTU pressure filter element (PTU Pressure Filter Element Removal, TASK 29-22-21-000-802; PTU Pressure Filter Element Installation, TASK 29-22-21-400-802).

E. Put the Airplane Back to Its Usual Condition

SUBTASK 29-22-00-860-011

- (1) Move the flap control lever on the control stand to the UP position.

SUBTASK 29-22-00-860-012

- (2) Remove the hydraulic power from hydraulic system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-22-00-860-013

- (3) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

———— **END OF TASK** ————

TASK 29-22-00-730-801

3. Power Transfer Unit (PTU) System Test

NOTE: This procedure is a scheduled maintenance task.

A. References

<u>Reference</u>	<u>Title</u>
10-11-05 P/B 201	CHOCK INSTALLATION
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-22-11-000-801	Power Transfer Unit (PTU) Removal (P/B 401)
29-22-11-400-801	Power Transfer Unit (PTU) Installation (P/B 401)
29-22-21-000-802	PTU Pressure Filter Element Removal (P/B 401)
29-22-21-400-802	PTU Pressure Filter Element Installation (P/B 401)

EFFECTIVITY
SIA ALL

29-22-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 504
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Title
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1139	Timer - stopwatch, accurate to within 1 second

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 29-22-00-610-001

- (1) Fill the hydraulic reservoirs if it is necessary (Hydraulic Reservoir Servicing, TASK 12-12-00-610-801).

SUBTASK 29-22-00-860-015

- (2) Make sure that the two Angle of Attack (AOA) Vanes are at the zero position.

SUBTASK 29-22-00-860-016



WARNING

MAKE SURE THAT YOU INSTALL WHEEL CHOCKS AND THAT THE AREA AROUND THE MAIN LANDING GEAR AND BRAKES IS CLEAR. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Make sure that there are chocks installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 29-22-00-860-040

- (4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	16	C01356	LANDING GEAR AIR/GND SYS 1

SUBTASK 29-22-00-010-001

- (5) To get access to the P92 panel, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-00

Page 505
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-00-860-043



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (6) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-00-860-017

- (7) Retract the flaps if they are not fully retracted:



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Pressurize hydraulic power to the hydraulic system B (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).
- (b) Move the flap control lever on the control stand to the UP position.
- (c) Make sure that the flaps are in the fully retracted position.
- (d) Remove the hydraulic power from the hydraulic system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-22-00-730-001

- (8) Make sure that the position indicator on the Power Transfer Unit (PTU) control valve is in the closed position.

NOTE: The position indicator will point forward of inboard when the valve is open. The position indicator will point aft of inboard when the valve is closed.

F. PTU System Test

SUBTASK 29-22-00-730-002

- (1) Move the ALTERNATE FLAPS arm switch, on the P5 panel, to the ARM position.

EFFECTIVITY
SIA ALL

29-22-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 506
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-00-860-018



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.

- (2) Move the ALTERNATE FLAPS control switch to the DOWN position to extend the trailing edge flaps to the 1 unit position.
 - (a) Move the ALTERNATE FLAPS arm switch to the OFF position.
 - (b) Make sure that the PTU control valve moves to the open position.

SUBTASK 29-22-00-730-003

- (3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	16	C01356	LANDING GEAR AIR/GND SYS 1

- (a) Make sure that the PTU control valve moves to the closed position.

SUBTASK 29-22-00-860-019

- (4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

- (a) Make sure that the PTU control valve stays in the closed position.

SUBTASK 29-22-00-860-020

- (5) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2

- (a) Make sure that the PTU control valve moves to the open position.

SUBTASK 29-22-00-860-021

- (6) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2

- (a) Make sure that the PTU control valve moves to the closed position.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-00

Page 507
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-00-860-022



MAKE SURE THAT THE SYSTEM-B HYDRAULIC RESERVOIR IS PRESSURIZED. YOU CAN CAUSE DAMAGE TO THE PTU CHECK VALVE IF YOU OPERATE THE PTU WITHOUT PRESSURE IN THE HYDRAULIC RESERVOIR.

- (7) Pressurize the hydraulic reservoirs (Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801).

SUBTASK 29-22-00-860-023



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (8) Pressurize hydraulic power to the hydraulic system A at 3000 psig (20,684 kPa) with a ground service cart or the Engine Driven Pump (EDP)(Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

NOTE: The electric motor driven pump does not have the capacity to operate the PTU correctly.

- (a) Make sure that the PTU does not operate.

SUBTASK 29-22-00-860-024

- (9) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-22-00-730-004



MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (10) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	16	C01356	LANDING GEAR AIR/GND SYS 1

- (a) Make sure that the PTU operates (after approximately 0.5 second).

EFFECTIVITY
SIA ALL

29-22-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 508
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-00-860-025



WARNING

MAKE SURE THAT YOU INSTALL WHEEL CHOCKS AND THAT THE AREA AROUND THE MAIN LANDING GEAR AND BRAKES IS CLEAR. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.



WARNING

IF THE ENGINE-DRIVEN PUMP (EDP) IS USED TO PRESSURIZE THE HYDRAULIC SYSTEM, DO NOT LIFT THE AIRPLANE ON JACKS TO PUT THE AIRPLANE IN THE AIR MODE. THE AIRPLANE MAY MOVE SUDDENLY IF THE ENGINE IS RUN WITH THE AIRPLANE ON JACKS. THIS MAY CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (11) Make sure that there are chocks installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 29-22-00-860-041

- (12) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: When the airplane is put in the air mode with the engines running, the engines will advance to flight idle speed.

SUBTASK 29-22-00-730-005



WARNING

MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.



WARNING

YOU MUST WEAR PROTECTIVE GLOVES WHEN YOU TURN THE ANGLE OF ATTACK VANE. THE ANGLE OF ATTACK VANE IS HOT WHEN YOU OPERATE THE ENGINE AND THE ANGLE OF ATTACK VANE IS HEATED. IF YOU DO NOT OBEY, INJURY TO PERSONNEL CAN OCCUR.

- (13) Turn the left AOA Vane counterclockwise until the leading edge slats extend.
- (a) Make sure that the leading edge slats extend fully, equally and smoothly.
 - (b) Use a stopwatch, STD-1139, to make sure that the time necessary to extend the leading edge slats is not more than 4 seconds.

SUBTASK 29-22-00-730-006



WARNING

MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.



WARNING

YOU MUST WEAR PROTECTIVE GLOVES WHEN YOU TURN THE ANGLE OF ATTACK VANE. THE ANGLE OF ATTACK VANE IS HOT WHEN YOU OPERATE THE ENGINE AND THE ANGLE OF ATTACK VANE IS HEATED. IF YOU DO NOT OBEY, INJURY TO PERSONNEL CAN OCCUR.

- (14) Turn the left AOA Vane back to its zero position.

SUBTASK 29-22-00-860-026

- (15) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802 to put the airplane in the ground mode.

EFFECTIVITY
SIA ALL

29-22-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 509
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-00-860-027

- (16) Move the ALTERNATE FLAPS arm switch to the ARM position.

SUBTASK 29-22-00-860-028

- (17) Move the ALTERNATE FLAPS control switch to the UP position to fully retract the trailing edge flaps.

SUBTASK 29-22-00-730-007

- (18) Move the ALTERNATE FLAPS arm switch to the OFF position.
(a) Make sure that the PTU control valve stays closed.

SUBTASK 29-22-00-860-029

- (19) Remove hydraulic power from the hydraulic system A (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-22-00-860-030

- (20) Move the flap control lever to the 1 unit position.

SUBTASK 29-22-00-860-031



MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE SLATS AND FLAPS DURING THIS PROCEDURE. THE SLATS AND FLAPS WILL MOVE DURING THIS PROCEDURE.

- (21) Provide hydraulic pressure to system B with the EDP (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

NOTE: This step verifies that the system B EDP low pressure switch operates correctly. The system B EDP must be used to test the EDP low pressure switch and circuit.

SUBTASK 29-22-00-860-032

- (22) Remove hydraulic power from system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-22-00-860-033

- (23) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2

SUBTASK 29-22-00-870-001

- (24) Move the rudder pedals (if it is necessary) until the hydraulic pressure in system A and in system B is less than 200 psig (1379 kPa).

- (a) Make sure that the PTU control valve opens.

SUBTASK 29-22-00-860-034

- (25) Pressurize hydraulic power to the hydraulic system B with the Electric Motor-Driven Pump (EMDP) or a ground service cart (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

NOTE: You cannot use the EDP because the EDP pressure switch must indicate low pressure.

- (a) Feel and listen to the PTU to make sure that it does not operate.
(b) Make sure that the hydraulic pressure in system A does not increase.
(c) If the PTU operates or the pressure in hydraulic system A increases, then do these steps:

EFFECTIVITY
SIA ALL

29-22-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 510
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- 1) Replace the PTU (Power Transfer Unit (PTU) Removal, TASK 29-22-11-000-801; Power Transfer Unit (PTU) Installation, TASK 29-22-11-400-801).
- 2) Replace the PTU check valve.
- 3) Replace the PTU pressure filter element (PTU Pressure Filter Element Removal, TASK 29-22-21-000-802; PTU Pressure Filter Element Installation, TASK 29-22-21-400-802).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-22-00-860-035

- (1) Move the flap control lever to the UP position to retract the flaps and slats.

SUBTASK 29-22-00-860-036

- (2) Remove hydraulic power from the hydraulic system B (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 29-22-00-860-044



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-00-410-001

- (4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-00-860-037

- (5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1

EFFECTIVITY
SIA ALL

29-22-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 511
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-00

Page 512
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

POWER TRANSFER UNIT (PTU) - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

- (1) A removal of the power transfer unit (PTU)
- (2) An installation of the PTU.

TASK 29-22-11-000-801

2. **Power Transfer Unit (PTU) Removal**

(Figure 401)

A. **General**

- (1) This task includes the steps to remove the power transfer unit.

B. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

C. **Tools/Equipment**

Reference	Description
STD-3901	Container - Hydraulic Fluid Resistant, 50 Gallon (190 l)

D. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

F. **Prepare for the Removal**

SUBTASK 29-22-11-860-001

- (1) Remove power from the standby hydraulic system (TASK 29-21-00-000-802).

SUBTASK 29-22-11-860-002

- (2) Remove power from hydraulic systems A and B (TASK 29-11-00-860-805).

SUBTASK 29-22-11-860-003

- (3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-11

Page 401
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-11-010-002

- (4) To get access to the P91 and P92 panels, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-11-860-007



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (5) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-11-860-004

- (6) Depressurize the hydraulic reservoirs for hydraulic systems A and B and the standby hydraulic system (TASK 29-09-00-860-802).

SUBTASK 29-22-11-650-001

- (7) Open the drain valve on the system B reservoir.

SUBTASK 29-22-11-010-001

- (8) Fully drain the system B reservoir in a 50 Gallon (190 l) hydraulic fluid resistant container, STD-3901.

G. Power Transfer Unit Removal

SUBTASK 29-22-11-650-002

- (1) Do these steps to disconnect the hydraulic line [1], hydraulic line [6], hydraulic line [7], hydraulic line [15], hydraulic line [17], and hydraulic line [21] from the power transfer unit [10]:
- Put a container below the hydraulic line [1], hydraulic line [6], hydraulic line [7], hydraulic line [15], hydraulic line [17], and hydraulic line [21] to catch the hydraulic fluid.
 - Disconnect the hydraulic line [1], hydraulic line [6], hydraulic line [7], hydraulic line [15], hydraulic line [17], and hydraulic line [21] from the power transfer unit [10].
 - Install caps on the hydraulic line [1], hydraulic line [6], hydraulic line [7], hydraulic line [15], hydraulic line [17], and hydraulic line [21].

EFFECTIVITY
SIA ALL

29-22-11

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 29-22-11-650-003

- (2) Remove the power transfer unit [10]:
- (a) Remove the bolts [11] and washers [12] that attach the power transfer unit [10] to the airplane structure.
 - (b) Remove the power transfer unit [10].

SUBTASK 29-22-11-020-001

- (3) Remove the check valve [24] from the union [2].

SUBTASK 29-22-11-650-004

- (4) Remove the unions [2], union [5], union [8], union [13], union [16], union [20], and port-drain [22].
- (a) Discard the packing [3], packing [4], packing [9], packing [14], packing [18], packing [19], and packing [23].
 - (b) Install plugs in the hydraulic ports in the power transfer unit [10].

———— **END OF TASK** ————

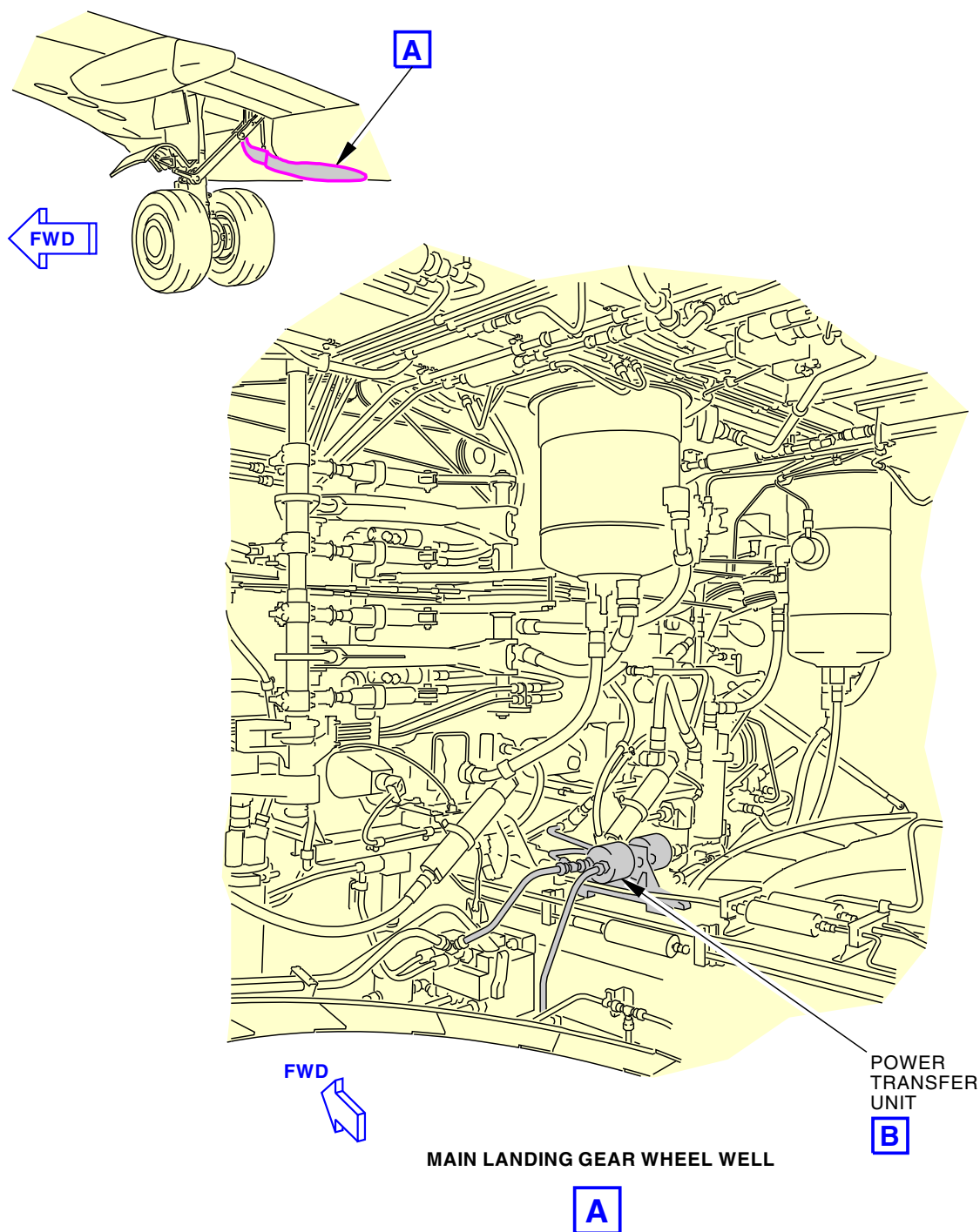
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-11

Page 403
Sep 15/2023



2413849 S00061533561_V1

Power Transfer Unit Installation
Figure 401/29-22-11-990-801 (Sheet 1 of 2)

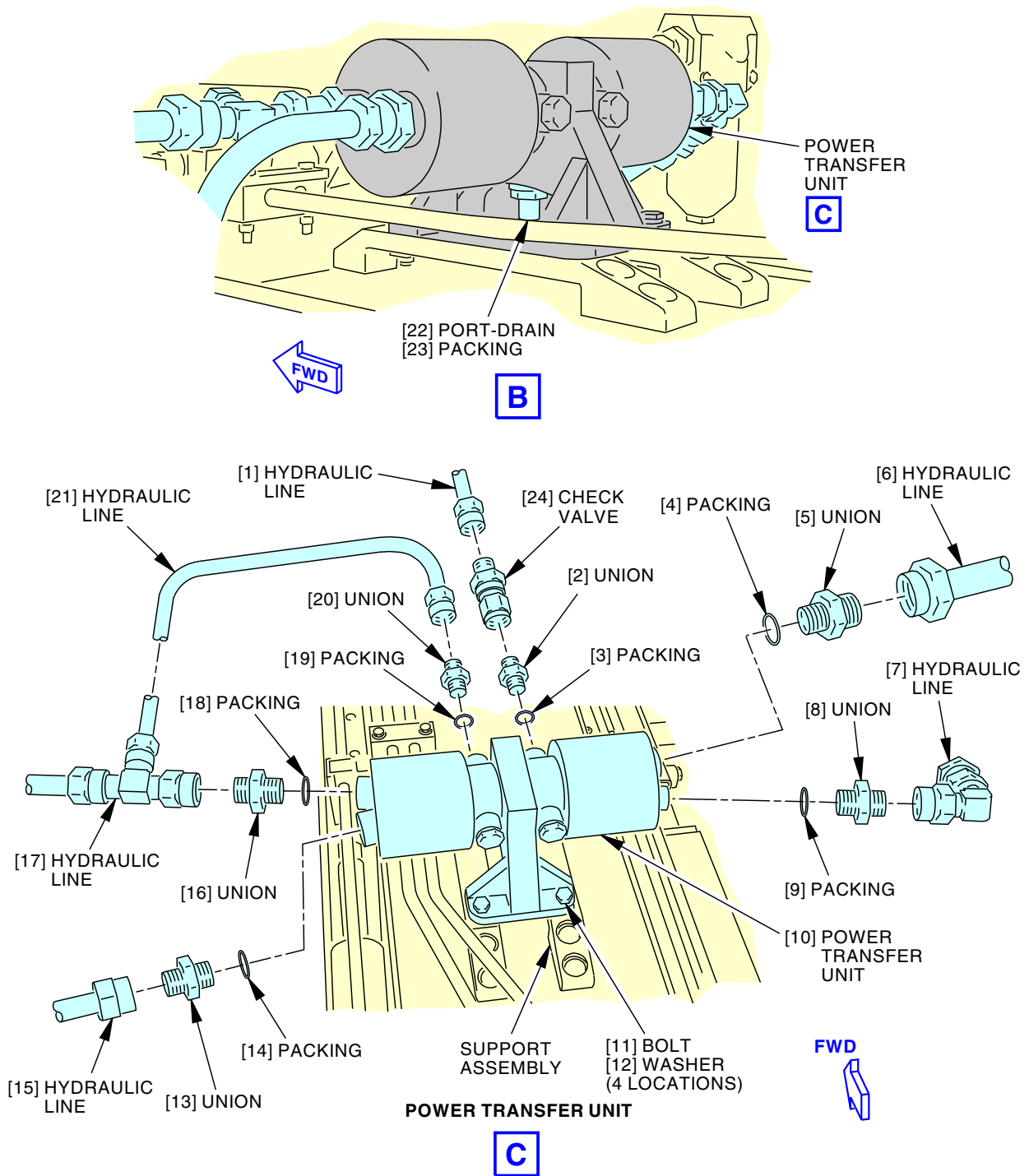
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-11

Page 404
Sep 15/2023



2413850 S00061533562_V1

Power Transfer Unit Installation
Figure 401/29-22-11-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-11

Page 405
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-22-11-400-801

3. **Power Transfer Unit (PTU) Installation**

(Figure 401)

A. General

(1) This task includes the steps to install the power transfer unit.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-11-61-000-801	Return Filter Element Removal (P/B 401)
29-11-61-400-801	Return Filter Element Installation (P/B 401)
29-21-00-000-801	Standby Hydraulic System Pressurization (P/B 201)
29-22-00-710-801	Power Transfer Unit Operational Test (P/B 501)
29-22-21-000-802	PTU Pressure Filter Element Removal (P/B 401)
29-22-21-400-802	PTU Pressure Filter Element Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Packing	29-22-11-01-015	SIA ALL
4	Packing	29-22-11-01-050	SIA ALL
9	Packing	29-22-11-01-050	SIA ALL
10	Power transfer unit	29-22-11-01-065	SIA ALL
14	Packing	29-22-11-01-025	SIA ALL
18	Packing	29-22-11-01-035	SIA ALL
19	Packing	29-22-11-01-015	SIA ALL
23	Packing	29-22-11-01-060	SIA ALL

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Prepare for the Installation

SUBTASK 29-22-11-200-001

(1) Do these steps if you replace the power transfer unit [10] because of mechanical malfunction:

EFFECTIVITY
SIA ALL

29-22-11

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

- (a) Replace the PTU pressure filter, do these tasks:
 - 1) PTU Pressure Filter Element Removal, TASK 29-22-21-000-802.
 - 2) PTU Pressure Filter Element Installation, TASK 29-22-21-400-802.
- (b) Replace the hydraulic system A return filter, do these tasks:
 - 1) Return Filter Element Removal, TASK 29-11-61-000-801.
 - 2) Return Filter Element Installation, TASK 29-11-61-400-801.
- (c) Replace the hydraulic system B return filter, do these tasks:
 - 1) Return Filter Element Removal, TASK 29-11-61-000-801.
 - 2) Return Filter Element Installation, TASK 29-11-61-400-801.

H. Power Transfer Unit Installation

SUBTASK 29-22-11-640-001

- (1) Do these steps to install the hydraulic fittings in the power transfer unit [10]:
 - (a) Remove the plugs from the hydraulic ports in the power transfer unit [10].
 - (b) Apply hydraulic fluid, D00153, or MCS 352B fluid, D00054, to the new packing [3], packing [4], packing [9], packing [14], packing [18], packing [19], and packing [23].
 - (c) Install the new packing [3], packing [4], packing [9], packing [14], packing [18], packing [19], and packing [23] with the union [2], union [5], union [8], union [13], union [16], union [20], and port-drain [22] in the power transfer unit [10].
 - 1) Tighten the union [2] and union [20] to 110 ± 11 in-lb (12 ± 2 N·m).
 - 2) Tighten the union [8] to 170 ± 17 in-lb (19 ± 2 N·m).
 - 3) Tighten the union [13] and union [16] to 280 ± 28 in-lb (32 ± 4 N·m).
 - 4) Tighten the union [5] to 360 ± 36 in-lb (41 ± 4 N·m).
 - 5) Tighten the port-drain [22] to 110 ± 6 in-lb (12 ± 1 N·m).

SUBTASK 29-22-11-420-001

- (2) Install the check valve [24] on the union [2].

SUBTASK 29-22-11-100-001

- (3) Fill the power transfer unit [10] (motor and pump) with hydraulic fluid, D00153, until it is approximately one-half full.

SUBTASK 29-22-11-420-002



INSTALL THE POWER TRANSFER UNIT (PTU) WITH THE MOTOR ON THE LEFT SIDE OF THE AIRPLANE. IF YOU DO NOT INSTALL THE PTU CORRECTLY, THE SYSTEM WILL NOT OPERATE.

- (4) Do these steps to install the power transfer unit [10]:
 - (a) Put the power transfer unit [10] in its position in the airplane with the motor on the left side.
 - (b) Install the bolts [11], and the washers [12] to attach the power transfer unit [10] to the airplane structure.
 - (c) Connect the hydraulic line [1], hydraulic line [6], hydraulic line [7], hydraulic line [15], hydraulic line [17], and hydraulic line [21] to the power transfer unit [10].
 - 1) Tighten the B-nuts on hydraulic line [1], and hydraulic line [21] to 270 ± 14 in-lb (31 ± 2 N·m).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-11

Page 407
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- 2) Tighten the B-nuts on hydraulic line [7] and hydraulic line [15] to 500 $\pm$ 25 in-lb (56 $\pm$ 3 N·m).
- 3) Tighten the B-nut on hydraulic line [6] to 450 $\pm$ 23 in-lb (51 $\pm$ 3 N·m).
- 4) Tighten the B-nut on hydraulic line [17] to 280 $\pm$ 14 in-lb (32 $\pm$ 2 N·m).

SUBTASK 29-22-11-610-001

- (5) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

I. Power Transfer Unit Installation Test

SUBTASK 29-22-11-860-008



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-11-410-001

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-11-860-009

- (3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

EFFECTIVITY
SIA ALL

29-22-11

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 29-22-11-860-006



MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Supply power to the standby hydraulic system (TASK 29-21-00-000-801).

SUBTASK 29-22-11-610-002

- (5) Do this task: Power Transfer Unit Operational Test, TASK 29-22-00-710-801.
- (a) While you do the operational test of the power transfer unit [10], make sure that there are no leaks at the hydraulic tube connections to the power transfer unit [10].

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-11

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

PTU PRESSURE FILTER MODULE - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

- (1) A removal of the power transfer unit (PTU) pressure filter module
- (2) An installation of the PTU pressure filter module
- (3) A removal of the PTU pressure filter element
- (4) An installation of the PTU pressure filter element
- (5) An operational test of the PTU pressure filter module.

B. In this procedure, the PTU pressure filter module is referred to as the "filter assembly" and the PTU pressure filter element is referred to as the "filter element".

TASK 29-22-21-000-801

2. **PTU Pressure Filter Module Removal**

(Figure 401)

A. General

- (1) This task is for the removal of the Power Transfer Unit (PTU) pressure filter module.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Removal

SUBTASK 29-22-21-860-002

- (1) Make sure that these switches, on the P5 forward overhead panel, are in the OFF position:
 - (a) HYD PUMPS B ENG 2
 - (b) HYD PUMPS A ENG 1
 - (c) HYD PUMPS B ELEC 1
 - (d) HYD PUMPS A ELEC 2
 - (e) FLT CONTROL B
 - (f) FLT CONTROL A
 - (g) ALTERNATE FLAPS.

SUBTASK 29-22-21-860-003

- (2) Release pressure from the system B hydraulic reservoir (TASK 29-09-00-860-802).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-21

Page 401
Sep 15/2022



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

F. PTU Pressure Filter Module Removal

SUBTASK 29-22-21-860-004

- (1) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, below the filter assembly [7] to catch the hydraulic fluid.

SUBTASK 29-22-21-020-014

 CAUTION	PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL-DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL-DISCONNECT.

- (2) Disconnect the self-seal (quick) disconnect hose for the applicable hydraulic system.

SUBTASK 29-22-21-020-001

- (3) Disconnect the hydraulic lines [4] from the inlet and outlet ports of the filter assembly [7].

SUBTASK 29-22-21-020-002

- (4) Install protective caps on the hydraulic lines [4] to prevent contamination and damage.

SUBTASK 29-22-21-020-003

- (5) Remove the reducers [3] and packings [2] from the filter assembly [7].

SUBTASK 29-22-21-020-004

- (6) Discard the packings [2].

SUBTASK 29-22-21-020-005

- (7) Install the plugs on the inlet and outlet ports of the filter assembly [7] to prevent contamination and damage.

SUBTASK 29-22-21-020-006

- (8) Remove the nuts [5], washers [6], and bolts [10] that attach the filter assembly [7] to the airplane structure.

SUBTASK 29-22-21-020-007

- (9) Remove the filter assembly [7] from the airplane.

———— **END OF TASK** ————

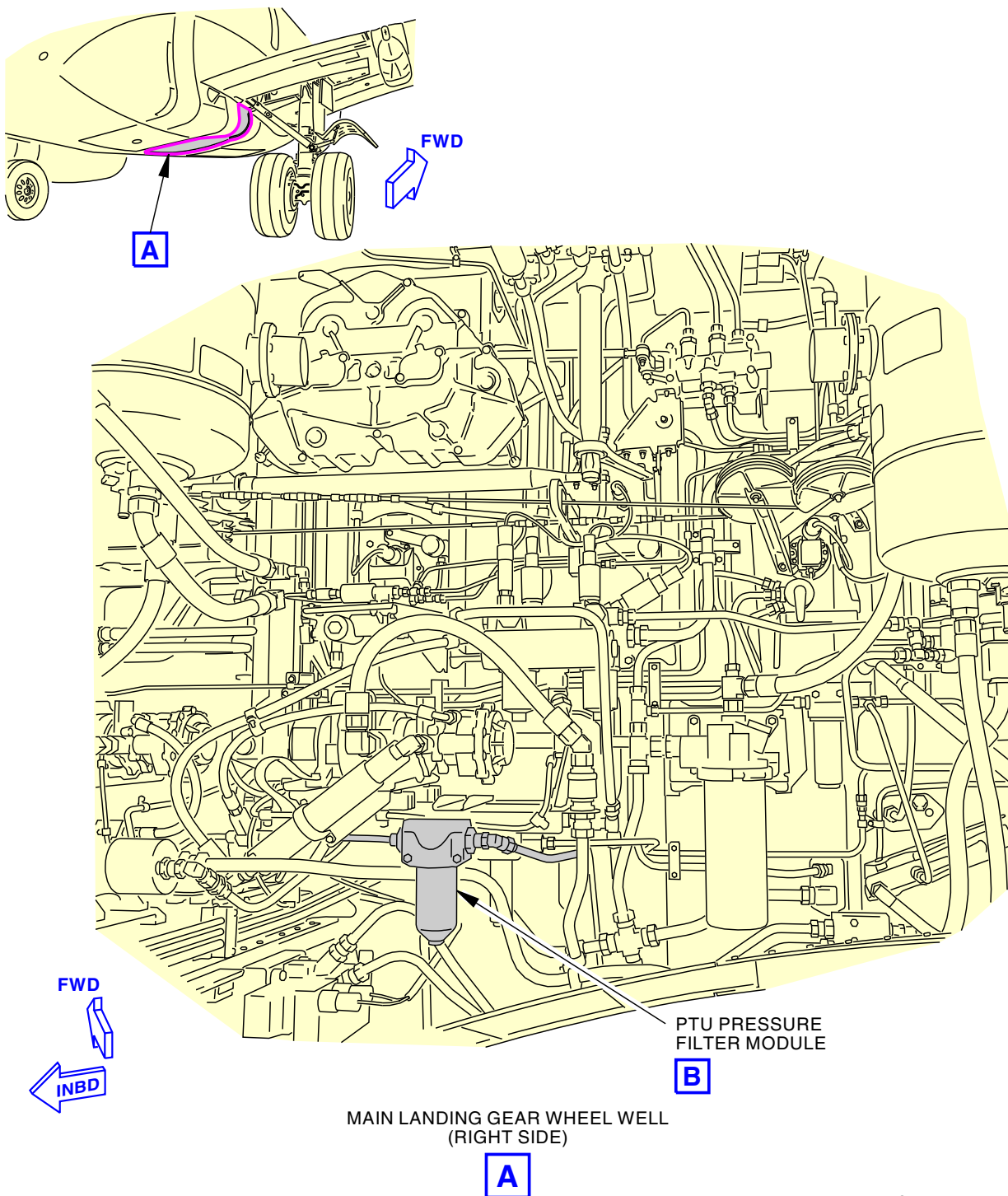
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-21

Page 402
Sep 15/2022



2413851 S00061533567_V1

Power Transfer Unit (PTU) Pressure Filter Module Installation
Figure 401/29-22-21-990-801 (Sheet 1 of 2)

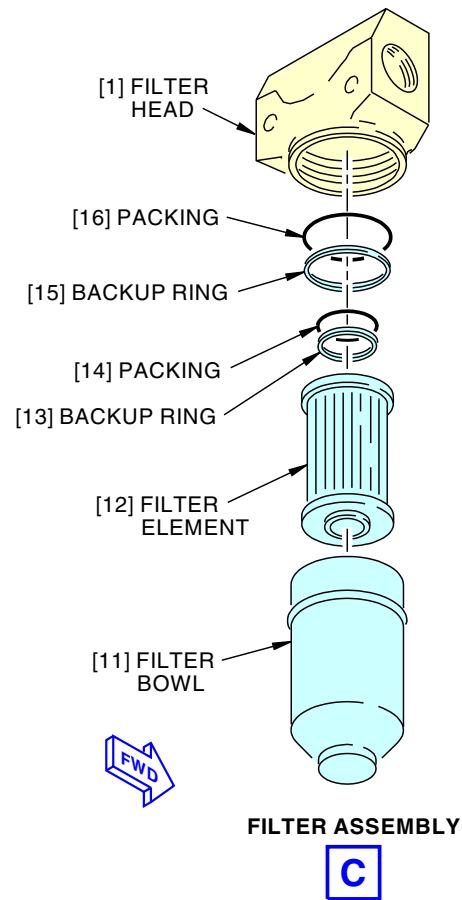
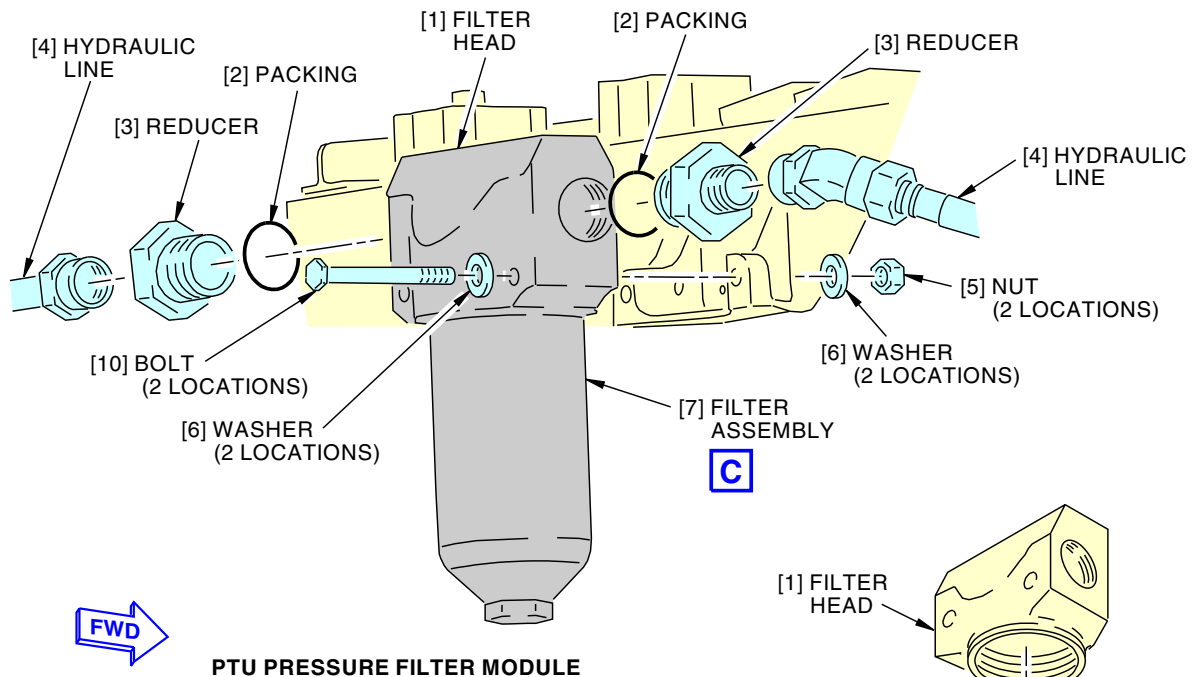
EFFECTIVITY
SIA ALL

29-22-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Sep 15/2021



2413852 S00061533568_V1

Power Transfer Unit (PTU) Pressure Filter Module Installation
Figure 401/29-22-21-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-21

Page 404
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-22-21-400-801

3. **PTU Pressure Filter Module Installation**

(Figure 401)

A. General

- (1) This task is for the installation of the Power Transfer Unit (PTU) pressure filter module.

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Packing	29-22-21-02-030	SIA ALL
7	Filter assembly	29-22-21-02-005	SIA ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. PTU Pressure Filter Module Installation

SUBTASK 29-22-21-420-001

- (1) If the reducers [3] and new packings [2] are not on the filter assembly [7], do these steps:
- (a) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the reducers [3] and new packings [2].
 - (b) Remove the plugs from the inlet and outlet ports of the filter assembly [7].
 - (c) Install the new packings [2] and reducers [3] in the inlet and outlet ports of the filter assembly [7].

SUBTASK 29-22-21-420-002

- (2) Put the filter assembly [7] in its position with the flow direction arrow outboard and filter bowl down.

SUBTASK 29-22-21-420-003

- (3) Install the bolts [10], washers [6], and nuts [5] to attach the filter assembly [7] to the airplane structure.

SUBTASK 29-22-21-420-004

- (4) Remove the protective caps from the hydraulic lines [4].

SUBTASK 29-22-21-420-005

- (5) Connect the hydraulic lines [4] to the filter assembly [7].

EFFECTIVITY
SIA ALL

29-22-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2022



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-21-420-016



MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY TO DO THE INSTALLATION, DISCONNECT THE SELF-SEAL DISCONNECT AND AGAIN MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER THE INSTALLATION, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 INCH. IF THE INDICATOR PINS DO NOT EXTEND CORRECTLY, FLUID FLOW CAN DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR OR THE PUMP.

- (6) Reconnect the self-seal (quick) disconnect hose.

SUBTASK 29-22-21-420-013

- (7) Tighten the B-nuts on hydraulic lines [4] to 500 $\pm$ 25 in-lb (56 $\pm$ 3 N·m).

SUBTASK 29-22-21-440-001

- (8) Put the FLT CONTROL B switch, on the P5 panel, in the ON position.

F. PTU Pressure Filter Module Installation Test

SUBTASK 29-22-21-710-001

- (1) Do this task: PTU Pressure Filter Module Operational Test, TASK 29-22-21-710-801.

————— END OF TASK —————

TASK 29-22-21-000-802

4. PTU Pressure Filter Element Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task is for the removal of the Power Transfer Unit (PTU) pressure filter element.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-170-801	Hydraulic System A or B Flushing (P/B 201)
29-22-11-000-801	Power Transfer Unit (PTU) Removal (P/B 401)
29-22-11-400-801	Power Transfer Unit (PTU) Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-22-21

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

F. Prepare for the Removal

SUBTASK 29-22-21-860-007

(1) Make sure that these switches, on the P5 forward overhead panel, are in the OFF position:

- (a) HYD PUMPS B ENG 2
- (b) HYD PUMPS A ENG 1
- (c) HYD PUMPS B ELEC 1
- (d) HYD PUMPS A ELEC 2
- (e) FLT CONTROL B
- (f) FLT CONTROL A
- (g) ALTERNATE FLAPS.

SUBTASK 29-22-21-860-008

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

SUBTASK 29-22-21-010-001

(3) To get access to the P91 and P92 panels, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-21-860-024



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(4) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

EFFECTIVITY
SIA ALL

29-22-21

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-21-860-009

- (5) Release the pressure from the system B hydraulic reservoir (TASK 29-09-00-860-802).

G. PTU Pressure Filter Element Removal

SUBTASK 29-22-21-020-008

- (1) Remove lockwire from the filter assembly [7].

SUBTASK 29-22-21-940-001

- (2) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, below the filter assembly [7] to catch the hydraulic fluid.

SUBTASK 29-22-21-020-009



PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL DISCONNECT.

- (3) Disconnect the self-seal (quick) disconnect hose for the applicable hydraulic system.

SUBTASK 29-22-21-020-010

- (4) Remove the filter bowl [11] and filter element [12] from the filter head [1].

SUBTASK 29-22-21-020-011

- (5) Remove the filter element [12].

SUBTASK 29-22-21-020-012

- (6) Remove the packing [16], backup ring [15], packing [14], and backup ring [13].

SUBTASK 29-22-21-020-013

- (7) Discard packing [14] and packing [16].

SUBTASK 29-22-21-210-001

- (8) Examine the filter element [12] and filter bowl [11] for metal contamination.

- (a) If contamination is found, do these steps:

- 1) Replace the PTU, do these tasks:
 - Power Transfer Unit (PTU) Removal, TASK 29-22-11-000-801
 - Power Transfer Unit (PTU) Installation, TASK 29-22-11-400-801.
- 2) Flush the system B hydraulic lines (TASK 29-11-00-170-801).

SUBTASK 29-22-21-160-001

- (9) Discard the filter element [12].

SUBTASK 29-22-21-100-001

- (10) Clean the filter bowl [11].

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-22-21

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

TASK 29-22-21-400-802

5. **PTU Pressure Filter Element Installation**

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is for the installation of the PTU pressure filter element.

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
12	Filter element	29-22-21-02-060	SIA ALL
14	Packing	29-22-21-02-050	SIA ALL
16	Packing	29-22-21-02-040	SIA ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. PTU Pressure Filter Element Installation

SUBTASK 29-22-21-160-002

(1) Make sure that the filter bowl [11] is clean.

SUBTASK 29-22-21-640-001

(2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the backup ring [15], backup ring [13], new packing [16] and new packing [14].

SUBTASK 29-22-21-420-006

(3) Install the new packing [16] and backup ring [15] in the filter head [1].

SUBTASK 29-22-21-420-007

(4) Install the new packing [14] and backup ring [13] in the new filter element [12].

SUBTASK 29-22-21-420-008

(5) Install the new filter element [12] in the filter bowl [11].

SUBTASK 29-22-21-640-002

(6) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the threads of the filter bowl [11].

EFFECTIVITY
SIA ALL

29-22-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-21-420-015

- (7) Put the filter bowl [11] and filter element [12] under the filter assembly [7].

SUBTASK 29-22-21-420-014

- (8) Raise the filter element [12] from the filter bowl [11] and push it into the filter assembly [7].

SUBTASK 29-22-21-420-009

- (9) Install the filter bowl [11] on the filter head [1].

SUBTASK 29-22-21-420-010

- (10) Torque the filter bowl [11] to 25 ±5 ft-lb (34 ±7 N·m).

SUBTASK 29-22-21-420-011



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY TO DO THE INSTALLATION, DISCONNECT THE SELF-SEAL DISCONNECT AND AGAIN MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER THE INSTALLATION, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 INCH. IF THE INDICATOR PINS DO NOT EXTEND CORRECTLY, FLUID FLOW CAN DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR OR THE PUMP.

- (11) Reconnect the self-seal (quick) disconnect hose.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 29-22-21-860-025



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP

EFFECTIVITY
SIA ALL

29-22-21

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

SUBTASK 29-22-21-410-001

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-21-860-010

- (3) Close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
A	17	C04001	HYD SYS ENG PUMP DEPRESS VALVE 2
B	15	C04000	HYD SYS ENG PUMP DEPRESS VALVE 1

SUBTASK 29-22-21-440-002

- (4) Put the FLT CONTROL A and B switches, on the P5 panel, in the ON position.

H. PTU Pressure Filter Element Installation Test

SUBTASK 29-22-21-710-002

- (1) Do this task: PTU Pressure Filter Module Operational Test, TASK 29-22-21-710-801.

SUBTASK 29-22-21-420-012

- (2) Install a MS20995C32 lockwire, G01048, on the filter assembly [7].

————— END OF TASK —————

TASK 29-22-21-710-801

6. PTU Pressure Filter Module Operational Test

A. General

- (1) This task is for the operational test of the PTU pressure filter module.

B. References

<u>Reference</u>	<u>Title</u>
29-22-00-710-801	Power Transfer Unit Operational Test (P/B 501)

C. Location Zones

<u>Zone</u>	<u>Area</u>
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. PTU Pressure Filter Module Operational Test

SUBTASK 29-22-21-700-001

- (1) Do this task: Power Transfer Unit Operational Test, TASK 29-22-00-710-801.
- (a) While you do the operational test of the PTU (Power Transfer Unit), make sure that there are no leaks at the hydraulic tube connections to the PTU pressure filter module.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-22-21

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

POWER TRANSFER UNIT (PTU) CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the control valve for the Power Transfer Unit (PTU)
- (2) An installation of the control valve for the PTU.

B. The PTU control valve will be referred to the "control valve" throughout this procedure.

TASK 29-22-31-000-801

2. Power Transfer Unit (PTU) Control Valve Removal

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)

C. **Location Zones**

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

D. **Prepare for the Removal**

SUBTASK 29-22-31-860-001

- (1) Remove power from hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-22-31-860-002

- (2) Make sure that these switches, on the P5 panel, are in the OFF position:
 - (a) The ENG 1 HYD PUMPS A switch
 - (b) The ELEC 2 HYD PUMPS A switch
 - (c) The FLT CONTROL A switch.

SUBTASK 29-22-31-860-003

- (3) Depressurize the hydraulic system A reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-22-31-860-022

- (4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

EFFECTIVITY
SIA ALL

29-22-31

D633AM101-SIA

Page 401
Jan 15/2022



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

E. Power Transfer Unit (PTU) Control Valve Removal

SUBTASK 29-22-31-020-001

- (1) Disconnect the electrical connector [2] from the control valve [1].

SUBTASK 29-22-31-020-002

- (2) Disconnect hydraulic line [7] and hydraulic line [8] from the control valve [1].

SUBTASK 29-22-31-680-001

- (3) Drain hydraulic fluid into a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110.

SUBTASK 29-22-31-160-001

- (4) If it is necessary, clean all hydraulic fluid from the installation area, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

SUBTASK 29-22-31-020-003

- (5) Remove the mounting bolts [3] and washers [4].

SUBTASK 29-22-31-020-004

- (6) Remove the control valve [1].

SUBTASK 29-22-31-020-005

- (7) Remove the unions [5] and packings [6] from the ports on the control valve [1].

SUBTASK 29-22-31-020-006

- (8) Discard the packings [6].

SUBTASK 29-22-31-020-007

- (9) Install protective caps on the electrical connector [2], hydraulic lines, and open ports on the control valve [1] to prevent contamination or damage.

— END OF TASK —

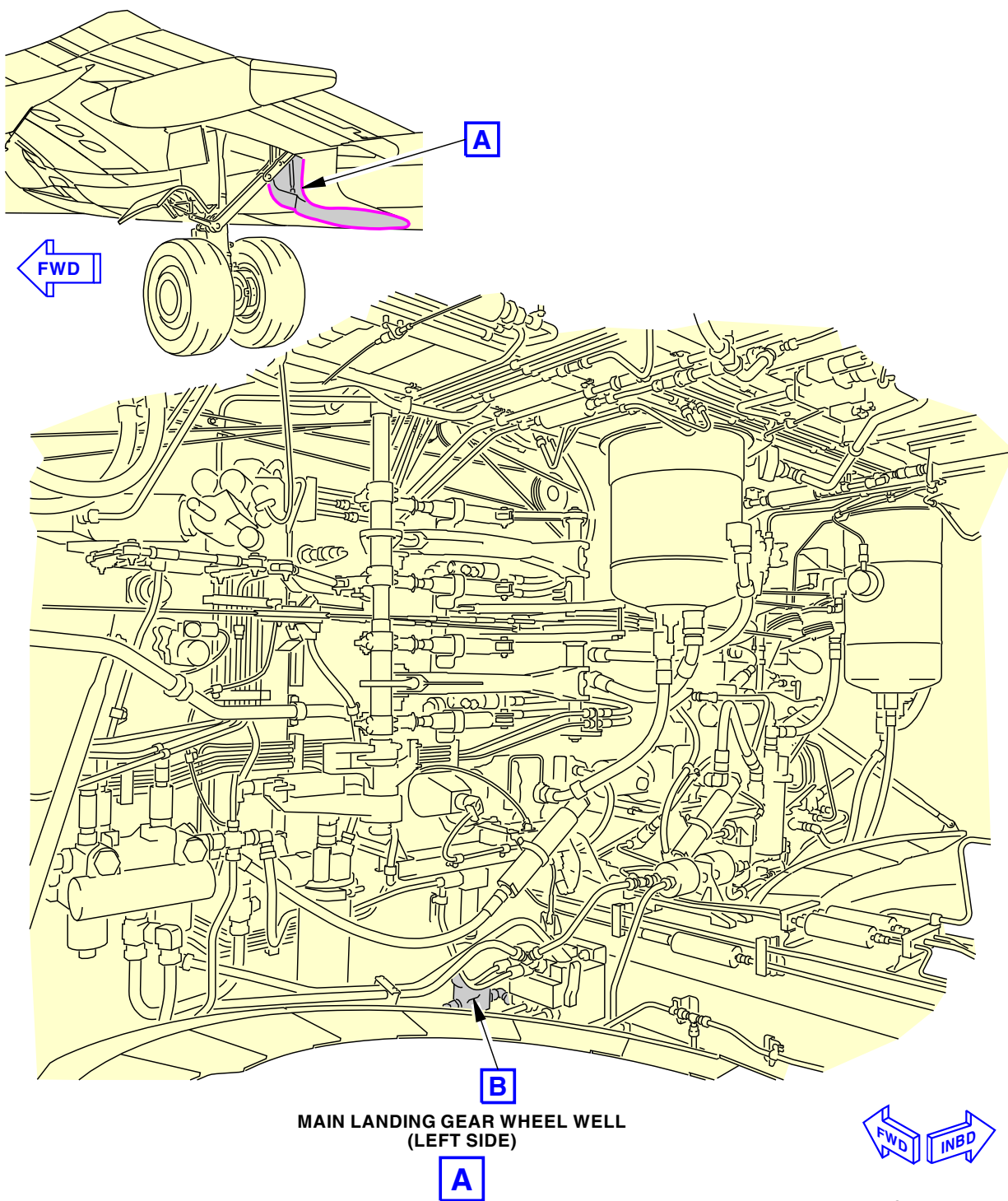
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-31

Page 402
Jan 15/2022



2413853 S00061533576_V1

Power Transfer Unit (PTU) Control Valve Installation
Figure 401/29-22-31-990-801 (Sheet 1 of 2)

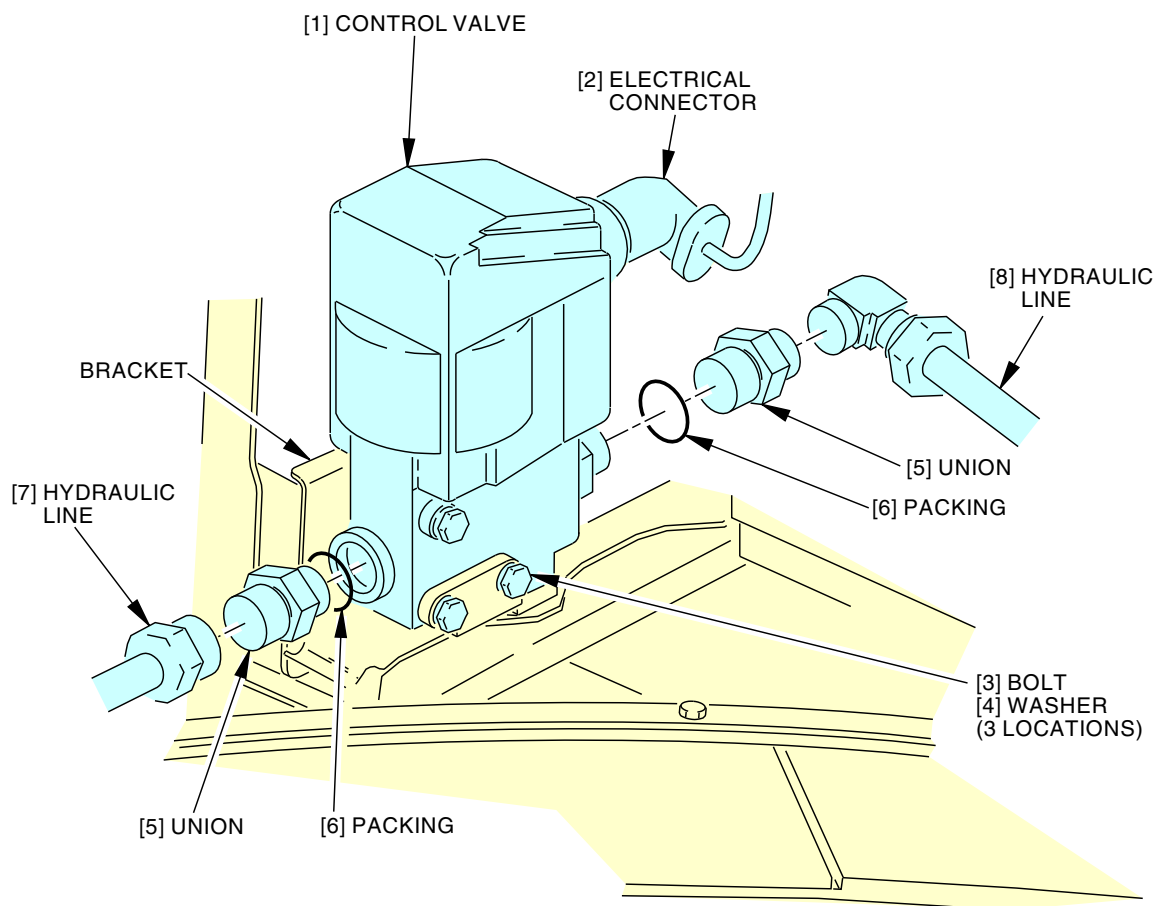
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-31

Page 403
Sep 15/2021



PTU CONTROL VALVE

B

2413854 S00061533577_V2

Power Transfer Unit (PTU) Control Valve Installation
Figure 401/29-22-31-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-22-31

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

TASK 29-22-31-400-801

3. **Power Transfer Unit (PTU) Control Valve Installation**

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
20-40-11-760-802	Airplane Electrical Resistance to Ground Measurement (P/B 201)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Control valve	29-22-31-01-030	SIA 001-014
		29-22-31-01-100	SIA ALL
6	Packing	29-22-31-01-025	SIA ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Power Transfer Unit (PTU) Control Valve Installation

SUBTASK 29-22-31-860-023

- (1) Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

EFFECTIVITY
SIA ALL

29-22-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-31-640-001

- (2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packings [6] and to the threads on the unions [5].

SUBTASK 29-22-31-420-001

- (3) Install the new packings [6] on the unions [5].

SUBTASK 29-22-31-420-002

- (4) Remove the protective caps from the open ports on the control valve [1].

SUBTASK 29-22-31-420-003

- (5) Install the unions [5] with the new packings [6] in the ports on the control valve [1].

SUBTASK 29-22-31-160-002

- (6) Clean the mounting surfaces (TASK 20-10-34-110-802).

SUBTASK 29-22-31-420-004

- (7) Put the control valve [1] in its position.

SUBTASK 29-22-31-420-005

- (8) Install the mounting bolts [3] and washers [4].

SUBTASK 29-22-31-420-006

- (9) Remove the protective caps from the hydraulic lines.

SUBTASK 29-22-31-420-007

- (10) Connect the hydraulic line [7] and hydraulic line [8] to the control valve [1].
 - (a) Tighten the B-nuts on the hydraulic line [7] and hydraulic line [8] to 500 $\pm$ 25 in-lb (56 $\pm$ 3 N·m).

SUBTASK 29-22-31-280-001

- (11) Make sure that the electrical resistance is not more than 0.0005 ohm between the control valve [1] and mounting structure (TASK 20-40-11-760-802).

SUBTASK 29-22-31-420-008

- (12) Remove the protective cap from the electrical connector [2].

SUBTASK 29-22-31-600-001

- (13) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-22-31-420-009

- (14) Connect the electrical connector [2] to the control valve [1].

SUBTASK 29-22-31-440-001

- (15) Put the FLT CONTROL A switch, on the P5 panel, to the ON position.

G. Power Transfer Unit (PTU) Control Valve Installation Test

SUBTASK 29-22-31-860-004

- (1) Pressurize the reservoirs for hydraulic system A and system B (TASK 29-09-00-860-801).

SUBTASK 29-22-31-010-001

- (2) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-22-31

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 29-22-31-860-006



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-31-860-007

- (4) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1

SUBTASK 29-22-31-210-001

- (5) Pressurize hydraulic system A and system B (TASK 29-11-00-860-801).

SUBTASK 29-22-31-860-008



MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. IF YOU DO NOT OBEY, THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (6) Move the flap control lever to the 1-unit detent.

SUBTASK 29-22-31-210-002

- (7) Make sure that the Power Transfer Unit (PTU) control valve [1] is closed.

NOTE: The position indicator arm on PTU control valve should move and point to the CLOSED position that is marked on the valve nameplate.

SUBTASK 29-22-31-860-009

- (8) Remove power from hydraulic system B (TASK 29-11-00-860-805).

SUBTASK 29-22-31-860-010

- (9) Put the airplane in the Air Mode (TASK 32-09-00-860-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-31

Page 407
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-31-860-020

- (10) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1

SUBTASK 29-22-31-860-021

- (11) Make sure that the PTU control valve [1] opens.

NOTE: The position indicator arm on the PTU control valve should move and point to the OPEN position that is marked on the valve nameplate.

SUBTASK 29-22-31-860-011

- (12) Move the ALTERNATE FLAPS arm switch, on the P5 panel, to the ARM position.

SUBTASK 29-22-31-860-012



MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. IF YOU DO NOT OBEY, THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (13) Move the ALTERNATE FLAPS control switch to the up position.

NOTE: This should fully retract the trailing edge flaps.

SUBTASK 29-22-31-210-003

- (14) Make sure that the PTU control valve [1] closes.

NOTE: The position indicator should move and point to the closed position. The position indicator will point approximately 45° aft of inboard when the valve is closed.

SUBTASK 29-22-31-790-001

- (15) Examine the PTU control valve [1] and all connections for leaks.

SUBTASK 29-22-31-869-001

- (16) Move the ALTERNATE FLAPS control switch to the OFF position.

SUBTASK 29-22-31-860-013

- (17) Move the ALTERNATE FLAPS arm switch, on the P5 panel, to the OFF position.

SUBTASK 29-22-31-860-014

- (18) Move the flap control lever to the FLAP UP detent.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-22-31-860-015

- (1) Remove power from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 29-22-31-860-016

- (2) Return the airplane to the Ground Mode (TASK 32-09-00-860-802).

SUBTASK 29-22-31-860-017

- (3) If it is necessary, do the servicing for the system A and B reservoirs (TASK 12-12-00-610-801).

EFFECTIVITY
SIA ALL

29-22-31

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 29-22-31-860-024



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-31-410-001

- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-31-860-018

- (6) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-22-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

ENGINE DRIVEN PUMP (EDP) PRESSURE SWITCH AUTO SLAT SYSTEM - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the Engine Driven Pump (EDP) pressure switch for the auto slat system
 - (2) An installation of the EDP pressure switch for the auto slat system.
- B. The EDP pressure switch will be referred to as the "pressure switch" in this procedure.

TASK 29-22-41-000-801

2. Engine Driven Pump (EDP) Pressure Switch Auto Slat System Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 29-22-41-860-001

- (1) Remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-22-41-860-002

- (2) Depressurize the system B hydraulic reservoir, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-22-41-860-003

- (3) Make sure that these switches, on the P5 panel, are in the OFF position:
 - (a) ELEC 1 HYD PUMPS B
 - (b) FLT CONTROL B
 - (c) ALTERNATE FLAPS.

SUBTASK 29-22-41-860-004

- (4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

D. EDP Pressure Switch Auto Slat System Removal

SUBTASK 29-22-41-020-001

- (1) Disconnect the electrical connector [2] from the pressure switch [1].

SUBTASK 29-22-41-020-005

- (2) Remove the lockwire.

SUBTASK 29-22-41-020-002

- (3) Remove the pressure switch [1].

EFFECTIVITY
SIA ALL

29-22-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
Sep 15/2023



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

SUBTASK 29-22-41-020-003

- (4) Remove the packing [3] from the pressure switch [1].

SUBTASK 29-22-41-020-004

- (5) Install protective caps on the electrical connector [2] and the open port on the pressure module to prevent contamination or damage.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

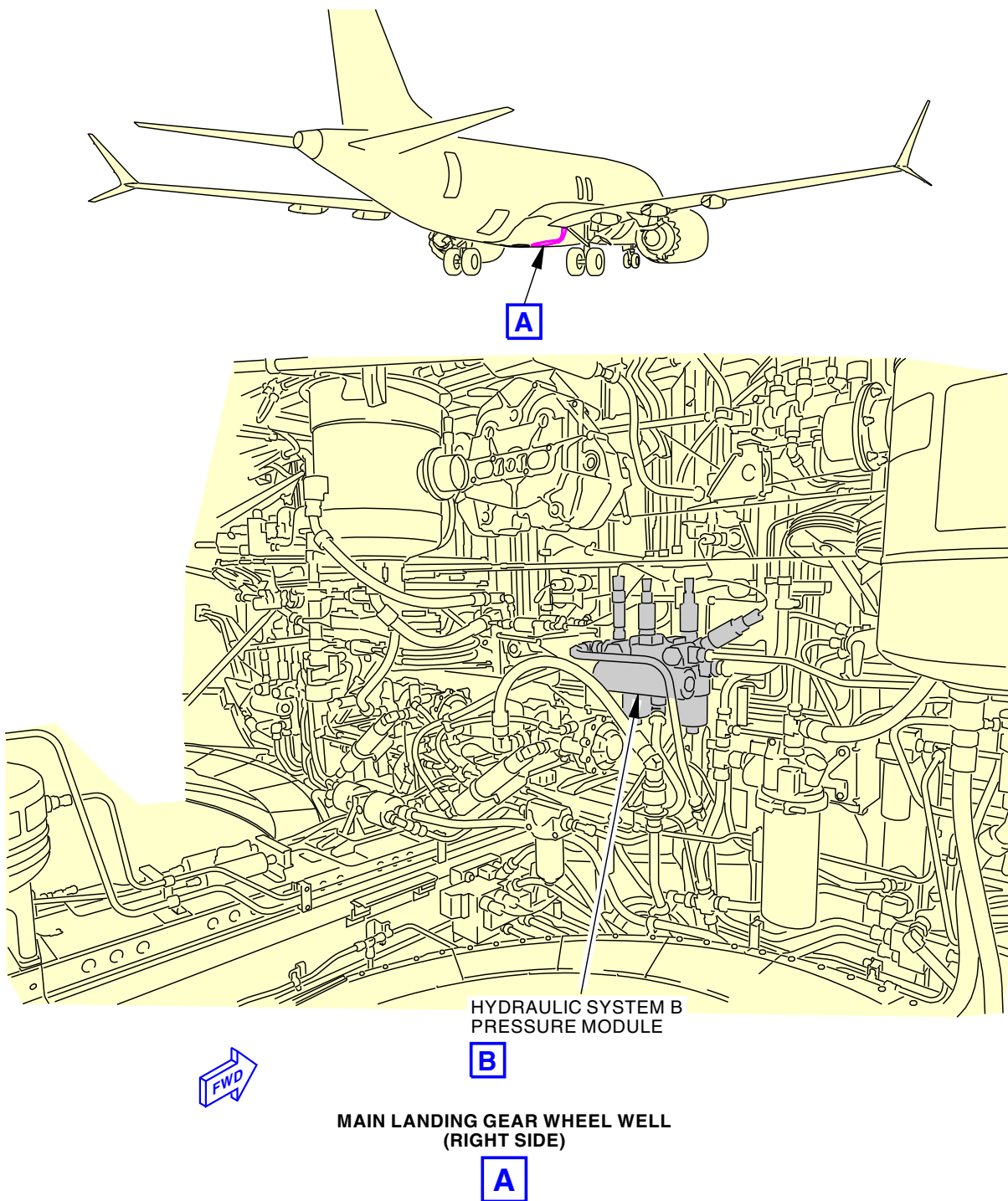
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-41

Page 402
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



2413855 S00061533582_V1

Engine-Driven Pump (EDP) Pressure Switch Auto Slat System Installation
Figure 401/29-22-41-990-801 (Sheet 1 of 2)

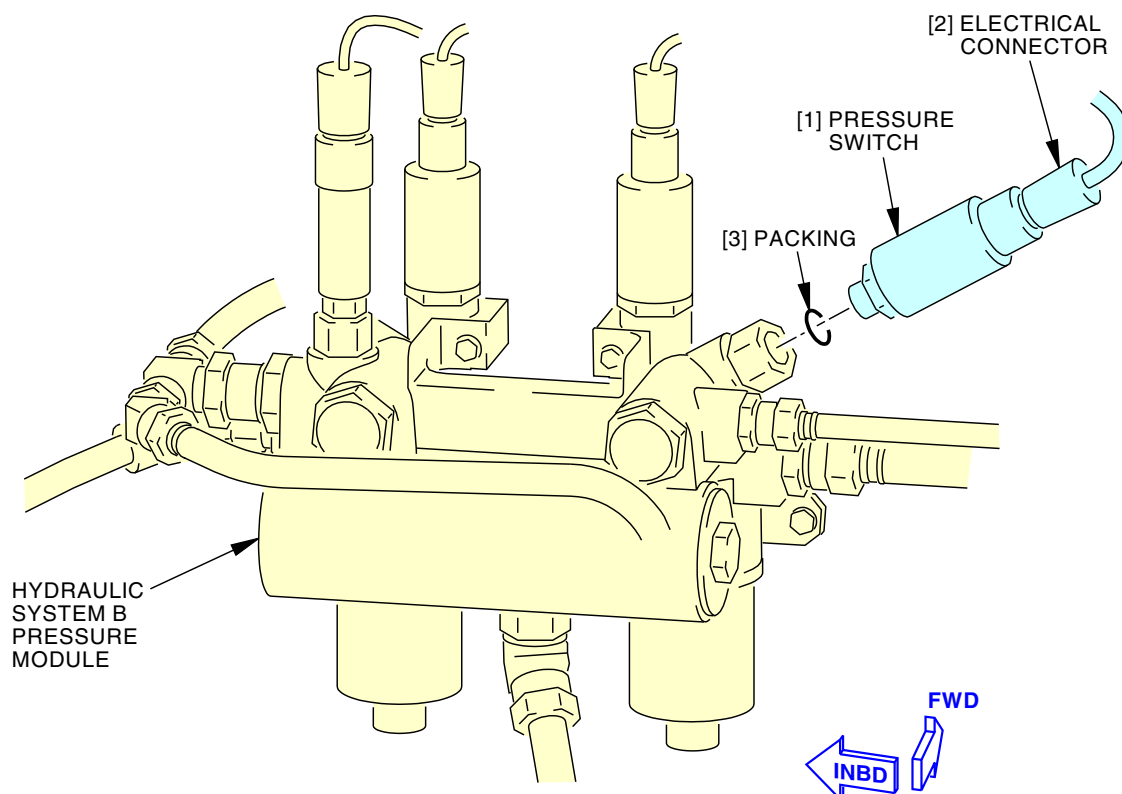
EFFECTIVITY
SIA ALL

29-22-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Sep 15/2021



HYDRAULIC SYSTEM B PRESSURE MODULE

B

2413856 S00061533583_V1

Engine-Driven Pump (EDP) Pressure Switch Auto Slat System Installation
Figure 401/29-22-41-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

29-22-41

D633AM101-SIA

Page 404
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-22-41-400-801

3. **Engine Driven Pump (EDP) Pressure Switch Auto Slat System Installation**

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
24-22-00-860-801	Supply Electrical Power (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pressure switch	29-11-71-01-015	SIA ALL
3	Packing	29-11-71-01-020	SIA ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. EDP Pressure Switch Auto Slat System Installation

SUBTASK 29-22-41-640-001

- (1) Lubricate the new packing [3] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

SUBTASK 29-22-41-420-001

- (2) Do these steps to install the pressure switch [1] in the hydraulic system B pressure module:
- (a) Install the new packing [3] on the pressure switch [1].
 - (b) Remove the protective cap from the pressure module.
 - (c) Put the pressure switch [1] in the pressure module.
 - (d) Tighten the pressure switch [1].

EFFECTIVITY
SIA ALL

29-22-41

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

- (e) Install the MS20995NC32 lockwire, G01912.

SUBTASK 29-22-41-420-002

- (3) Remove the protective cap from the electrical connector [2].

SUBTASK 29-22-41-210-001



WARNING

DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

- (4) Before you connect the electrical connector [2], do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-22-41-420-003

- (5) Connect the electrical connector [2] to the pressure switch [1].

SUBTASK 29-22-41-440-001

- (6) Put the FLT CONTROL B switch, on the P5 panel, in the ON position.

G. EDP Pressure Switch Auto Slat System Installation Test

SUBTASK 29-22-41-860-005

- (1) Pressurize the reservoirs for hydraulic system A and system B, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-22-41-860-006

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 29-22-41-860-007

- (3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-22-41-860-008

- (4) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1

SUBTASK 29-22-41-010-002

- (5) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-22-41

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 29-22-41-860-019



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (6) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-41-210-002

- (7) Pressurize hydraulic system A and system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-22-41-860-009



MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. IF YOU DO NOT OBEY, THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (8) Move the flap control lever to the 1-unit detent.

SUBTASK 29-22-41-210-003

- (9) Make sure that the Power Transfer Unit (PTU) control valve is closed.

NOTE: The position indicator will point approximately 45° forward of inboard when the valve is open. The position indicator will point approximately 45° aft of inboard when the valve is closed.

SUBTASK 29-22-41-860-010

- (10) Remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-22-41-860-011



MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. IF YOU DO NOT OBEY, THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (11) Put the airplane in the Air Mode, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

EFFECTIVITY
SIA ALL

29-22-41

D633AM101-SIA

Page 407
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure that the PTU control valve opens.

NOTE: The position indicator will point approximately 45° forward of inboard when the valve is open. The position indicator will point approximately 45° aft of inboard when the valve is closed.

SUBTASK 29-22-41-210-004

- (12) Pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-22-41-860-012



MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. IF YOU DO NOT OBEY, THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (13) Move the flap control lever to the FLAP UP detent.

SUBTASK 29-22-41-210-005

- (14) Make sure that the PTU control valve closes.

NOTE: The position indicator will point approximately 45° forward of inboard when the valve is open. The position indicator will point approximately 45° aft of inboard when the valve is closed.

SUBTASK 29-22-41-790-001

- (15) Examine the Engine Driven Pump (EDP) pressure switch and all connections for leaks.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 29-22-41-860-013

- (1) Remove power from hydraulic system A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-22-41-860-014

- (2) Return the airplane to the Ground Mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 29-22-41-860-015

- (3) Do the servicing for the system A and B reservoirs if it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-22-41-860-020



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

29-22-41

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

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-41-410-002

- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-41-860-016

- (6) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

————— END OF TASK —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-41

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

POWER TRANSFER UNIT (PTU) FLOW LIMITER ASSEMBLY - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

- (1) Power Transfer Unit (PTU) Flow Limiter Assembly - Removal
- (2) Power Transfer Unit (PTU) Flow Limiter Assembly - Installation

TASK 29-22-51-000-801

2. **Power Transfer Unit (PTU) Flow Limiter Assembly - Removal**

(Figure 401)

A. **References**

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter)

C. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

D. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

E. **Prepare for the Removal**

SUBTASK 29-22-51-860-001

- (1) Remove power from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 29-22-51-860-003

- (2) Make sure that these switches, on the P5 panel, are in the OFF position:
 - (a) The ENG 1 HYD PUMPS A switch
 - (b) The ELEC 2 HYD PUMPS A switch
 - (c) The FLT CONTROL A switch.

SUBTASK 29-22-51-860-004

- (3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

EFFECTIVITY
SIA ALL

29-22-51

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-22-51-010-001

- (4) To get access to the P91 and P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-51-860-007



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (5) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-51-860-002

- (6) Depressurize the hydraulic system A reservoir (TASK 29-09-00-860-802).

F. PTU Flow Limiter Assembly Removal

SUBTASK 29-22-51-020-001

- (1) Remove the clamps [2] from hydraulic lines [3].

SUBTASK 29-22-51-020-002

- (2) Disconnect the hydraulic lines [3] from the PTU flow limiter assembly [1].

SUBTASK 29-22-51-680-001

- (3) Drain hydraulic fluid into a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110.

SUBTASK 29-22-51-020-003

- (4) Remove the PTU flow limiter assembly [1].

SUBTASK 29-22-51-620-001

- (5) Install caps on all hydraulic lines and open ports on the PTU flow limiter assembly [1] to prevent contamination or damage.

EFFECTIVITY
SIA ALL

29-22-51

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 29-22-51-160-001

- (6) Clean all hydraulic fluid from the installation area if it is necessary (TASK 12-40-00-100-801 or TASK 12-40-00-100-802).

———— **END OF TASK** ————

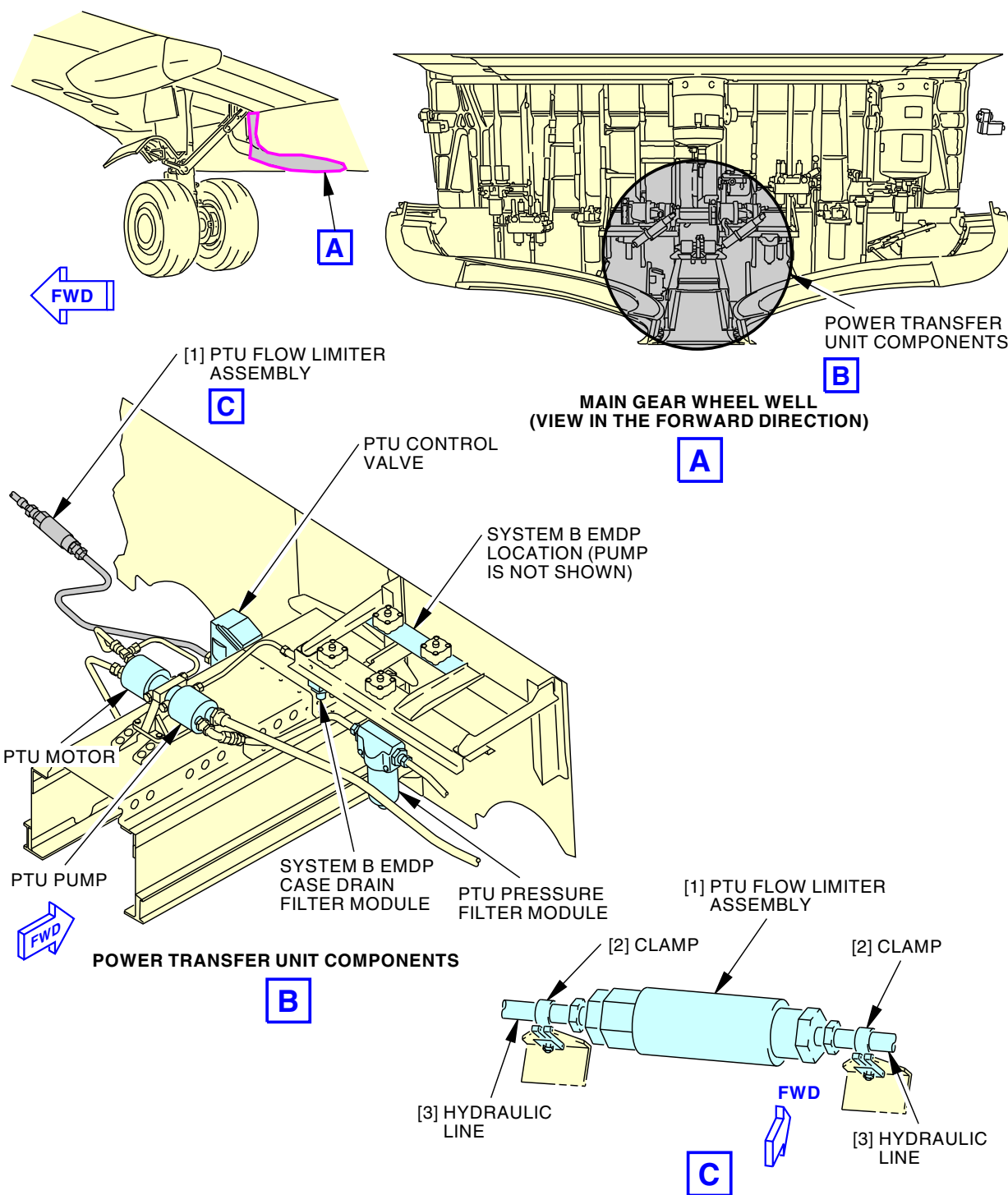
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-51

Page 403
Sep 15/2023



2796563 S0000638685_V1

Power Transfer Unit (PTU) Flow Limiter Assembly Installation
Figure 401/29-22-51-990-801

EFFECTIVITY
SIA ALL

29-22-51

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

TASK 29-22-51-400-801

3. **Power Transfer Unit (PTU) Flow Limiter Assembly - Installation**

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-22-00-710-801	Power Transfer Unit Operational Test (P/B 501)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. PTU Flow Limiter Assembly Installation

SUBTASK 29-22-51-630-001

(1) Remove the caps from the hydraulic lines [3] and PTU flow limiter assembly [1].

SUBTASK 29-22-51-420-001

(2) Install hydraulic lines [3] to PTU flow limiter assembly [1] in the correct direction of flow.

(a) Torque the B-nuts on hydraulic lines [3] to a torque of 500 $\pm$ 25 in-lb (56 $\pm$ 3 N·m).

SUBTASK 29-22-51-400-001

(3) Install the clamps [2] on the hydraulic lines [3].

SUBTASK 29-22-51-600-001

(4) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-22-51-440-001

(5) Put the FLT CONTROL A switch, on the P5 panel, in the ON position.

E. PTU Flow Limiter Installation Test

SUBTASK 29-22-51-860-008



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-22-51

Page 405
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-22-51-410-001

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-22-51-860-005

- (3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 29-22-51-710-001

- (4) Do this task: Power Transfer Unit Operational Test, TASK 29-22-00-710-801.

- (a) While you do the operational test of the PTU flow limiter assembly [1], make sure that there are no leaks at the hydraulic tube connections to the PTU flow limiter assembly [1].

————— END OF TASK —————

EFFECTIVITY
SIA ALL

29-22-51

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

SYSTEM PRESSURE TRANSMITTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the system pressure transmitter
 - (2) An installation of the system pressure transmitter.
 - (3) A removal of the standby system pressure transmitter.
 - (4) An installation of the standby system pressure transmitter.
- B. The pressure transmitters for systems A and B are equivalent units. The pressure transmitters are installed on the Hydraulic System Pressure Module assembly located on the forward bulkhead of the Main Landing Gear wheel well. You can get access to the system A transmitter through the left wheel well and the system B transmitter through the right wheel well.
- C. The standby system pressure transmitter is located on the forward bulkhead of the Main Landing Gear wheel well. You can get access to the standby system pressure transmitter through the left wheel well.

TASK 29-31-12-000-801

2. System Pressure Transmitter Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Procedure

SUBTASK 29-31-12-860-001

- (1) Remove the power from the applicable hydraulic system. To remove it, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

SUBTASK 29-31-12-860-002

- (2) Remove the pressure from the applicable system hydraulic reservoir. To remove it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-31-12-860-003

- (3) To remove the pressure transmitter [1] for hydraulic system A, do these steps:
 - (a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	5	C04023	DISPLAY DPC 1 PRI

- (b) Remove the electrical connector [3] from the pressure transmitter [1].
- (c) Install a protective cap on the electrical connector [3].
- (d) Remove the pressure transmitter [1].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 401
Sep 15/2021



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

- (e) Remove and discard the packing [2].

SUBTASK 29-31-12-860-004

- (4) To remove the pressure transmitter [4] for hydraulic system B, do these steps:

- (a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

- (b) Remove the electrical connector [6] from the pressure transmitter [4].
(c) Install a protective cap on the electrical connector [6].
(d) Remove the pressure transmitter [4].
(e) Remove and discard the packing [5].

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

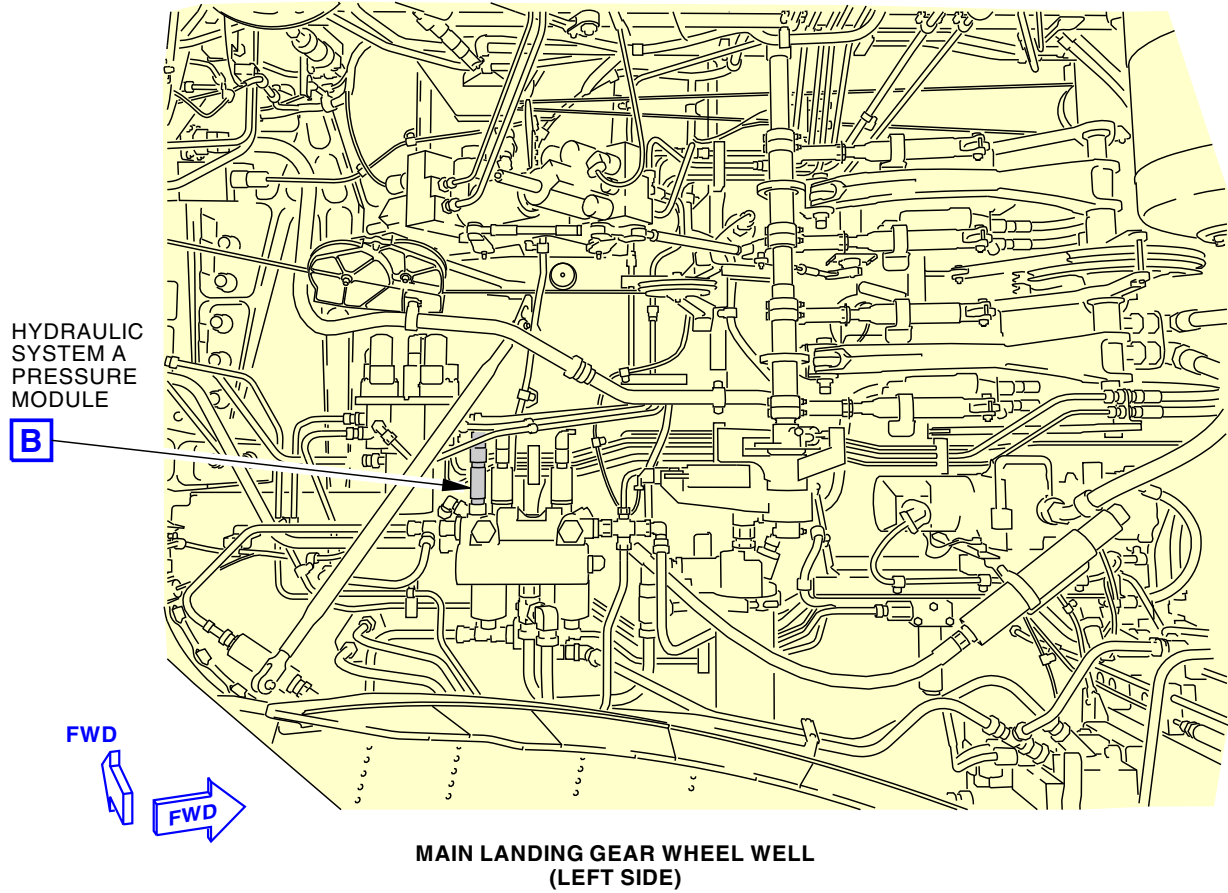
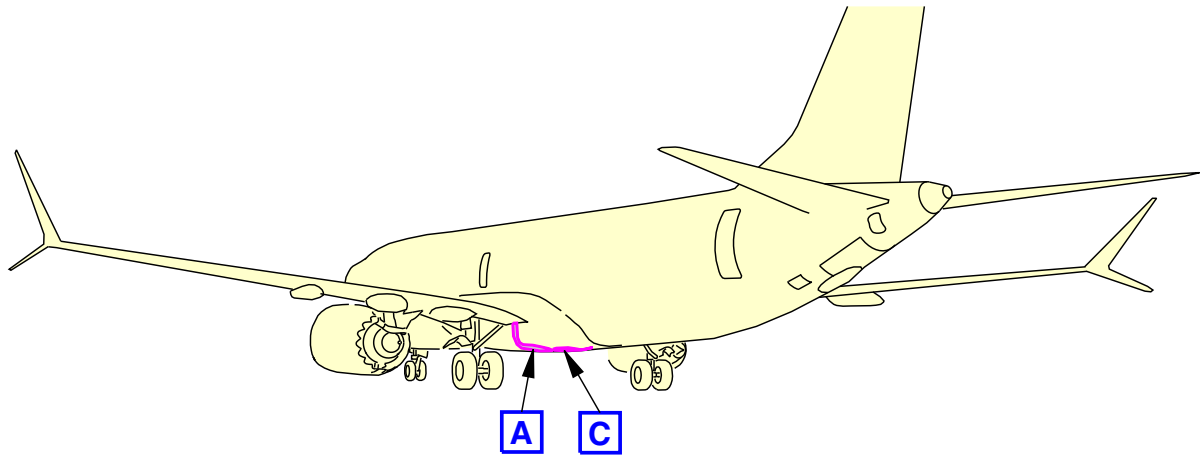
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 402
Sep 15/2021

BOEING
737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



2413857 S00061533590_V1

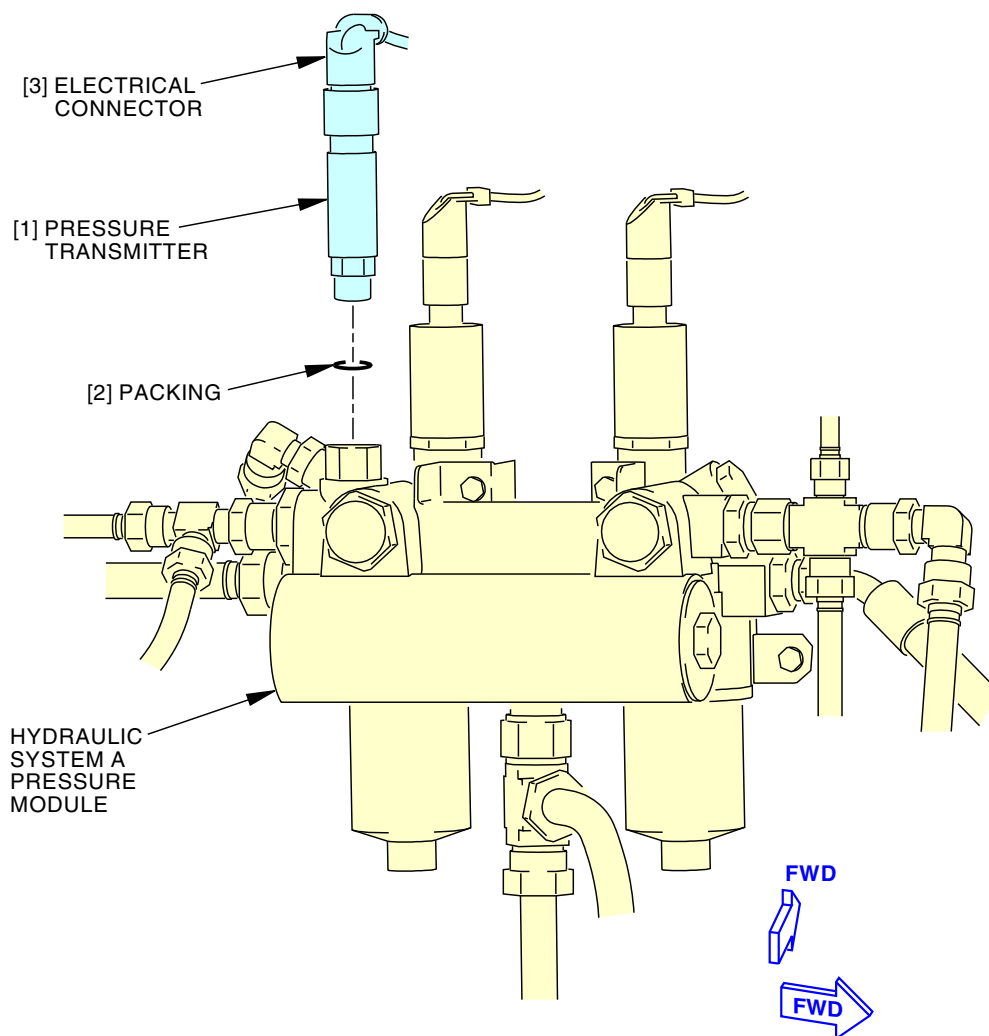
System Pressure Transmitter Installation
Figure 401/29-31-12-990-801 (Sheet 1 of 4)

EFFECTIVITY
SIA ALL

29-31-12

D633AM101-SIA

Page 403
Sep 15/2021



HYDRAULIC SYSTEM A PRESSURE MODULE

B

2413858 S00061533591_V2

System Pressure Transmitter Installation
Figure 401/29-31-12-990-801 (Sheet 2 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

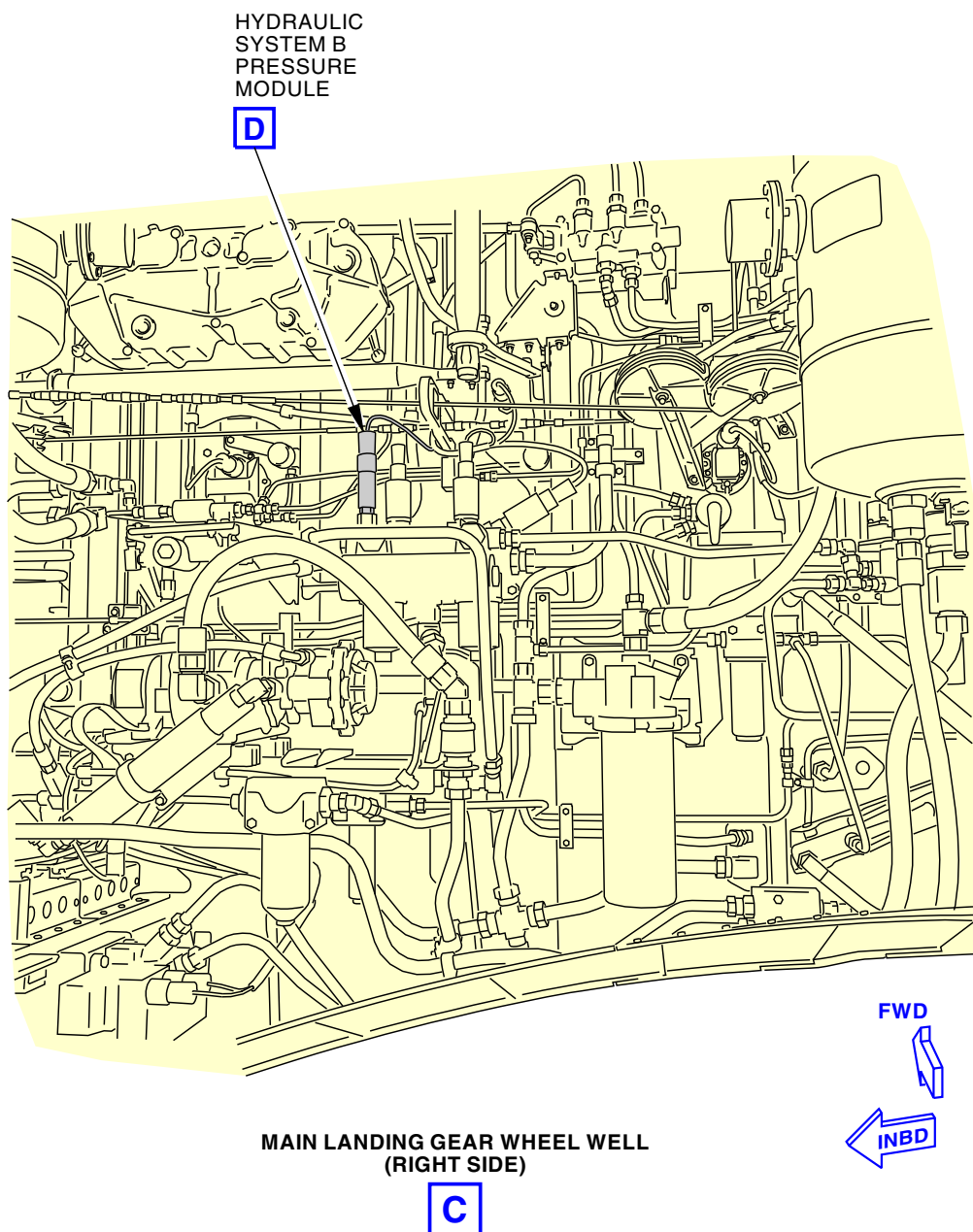
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 404
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



2413859 S00061533592_V1

System Pressure Transmitter Installation
Figure 401/29-31-12-990-801 (Sheet 3 of 4)

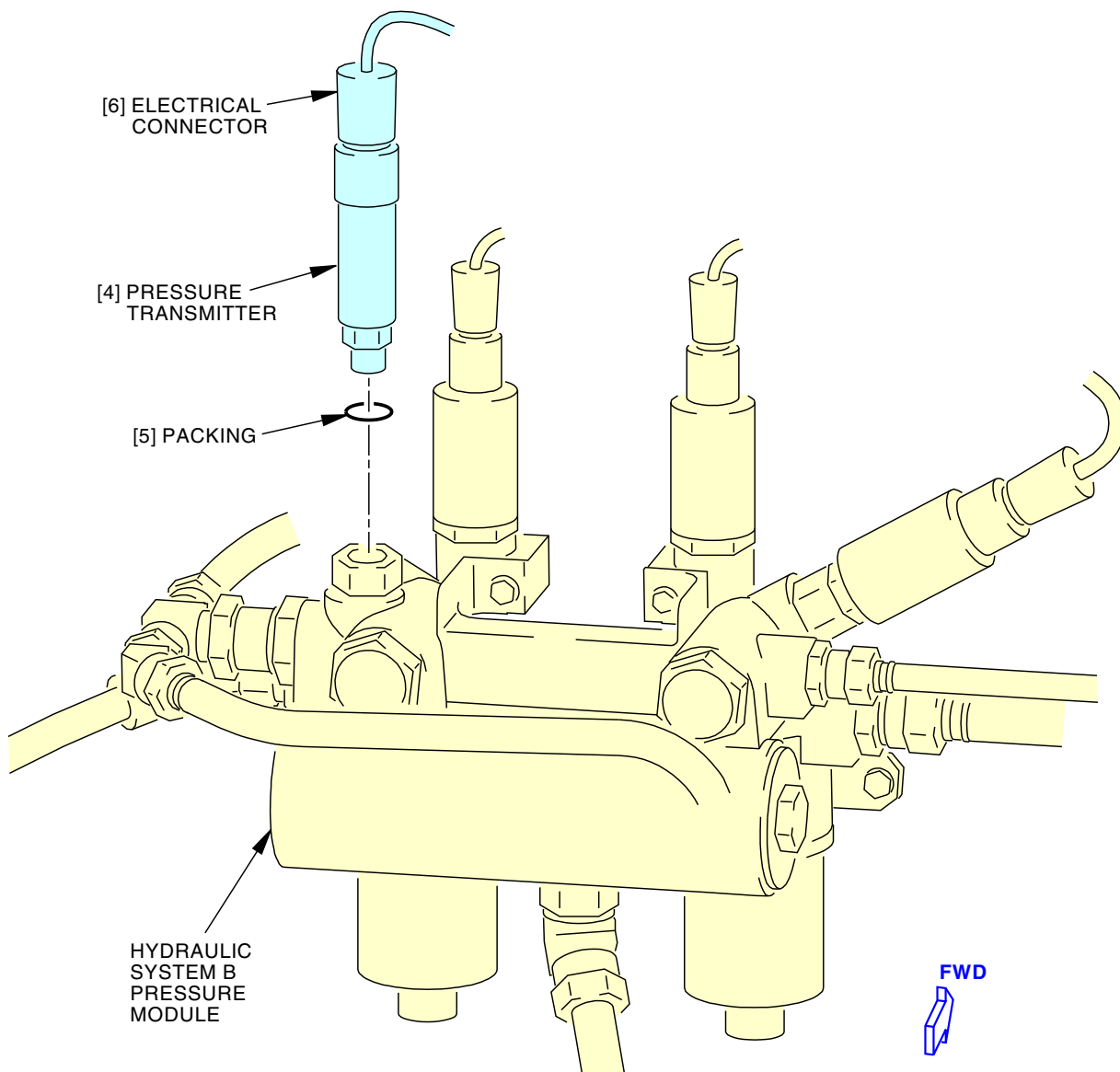
EFFECTIVITY
SIA ALL

29-31-12

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2021



HYDRAULIC SYSTEM B PRESSURE MODULE

D

2413860 S00061533593_V2

System Pressure Transmitter Installation
Figure 401/29-31-12-990-801 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 406
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-31-12-400-801

3. System Pressure Transmitter Installation

(Figure 401)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Pressure transmitter	29-11-71-02-010	SIA ALL
2	Packing	29-11-71-02-015	SIA ALL
4	Pressure transmitter	29-11-71-01-010	SIA ALL
		29-11-71-02-010	SIA ALL
5	Packing	29-11-71-01-020	SIA ALL
		29-11-71-02-015	SIA ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Procedure

SUBTASK 29-31-12-640-001

- (1) Apply MCS 352B fluid, D00054 or hydraulic fluid, D00153 to the new packing [2] for system A or new packing [5] for system B.

SUBTASK 29-31-12-420-001

- (2) Install the new packing [2] in the pressure transmitter [1] port for system A.

SUBTASK 29-31-12-420-007

- (3) Install the new packing [5] in the pressure transmitter [4] port for system B.

SUBTASK 29-31-12-420-002

- (4) Install pressure transmitter [1] or pressure transmitter [4].

EFFECTIVITY
SIA ALL

29-31-12

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
Sep 15/2021



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-31-12-420-003

- (5) Remove the protective cap from electrical connector [3] or electrical connector [6].

SUBTASK 29-31-12-600-001

- (6) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802

SUBTASK 29-31-12-420-004

- (7) Connect the electrical connector [3] to the pressure transmitter [1] for system A.

SUBTASK 29-31-12-420-008

- (8) Connect the electrical connector [6] to the pressure transmitter [4] for system B.

SUBTASK 29-31-12-420-005

- (9) Install MS20995C32 lockwire, G01048 to pressure transmitter [1] or pressure transmitter [4]. To install it, do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801

SUBTASK 29-31-12-860-005

- (10) If you installed the pressure transmitter [1] for hydraulic system A, do this step:
(a) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

SUBTASK 29-31-12-860-006

- (11) If you installed the pressure transmitter [4] for hydraulic system B, do this step:
(a) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

F. System Pressure Transmitter Installation Test

SUBTASK 29-31-12-860-008

- (1) Pressurize the applicable hydraulic reservoir. To pressurize it, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801

SUBTASK 29-31-12-860-009

- (2) Pressurize the applicable hydraulic system. To pressurize it, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-31-12-790-001

- (3) Examine all connections for leaks.

SUBTASK 29-31-12-860-010

- (4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-31-12

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

TASK 29-31-12-000-802

4. **Standby System Pressure Transmitter Removal**

(Figure 402)

A. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. **Consumable Materials**

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. **Location Zones**

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

D. **Prepare for the Removal**

SUBTASK 29-31-12-865-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 29-31-12-040-001



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 29-31-12-040-002

- (3) Do this task to remove power from hydraulic systems A and B: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-31-12-864-001

- (4) Do this task to release pressure from the system A, B, and standby hydraulic reservoirs: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

E. **Standby System Pressure Transmitter Removal**

SUBTASK 29-31-12-020-001

- (1) Do these steps to remove the standby system pressure transmitter [7].
- (a) Disconnect the electrical connector [12] from the standby system pressure transmitter [7].
 - (b) Remove the hydraulic tube [10] from the standby system pressure transmitter [7].
 - (c) Install a plug in the hydraulic tube [10].
 - (d) Remove MS20995C32 lockwire, G01048, from the standby system pressure transmitter [7].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 409
May 15/2022



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

- (e) Remove the nut [8] and washer [9].
- (f) Remove the standby system pressure transmitter [7].

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

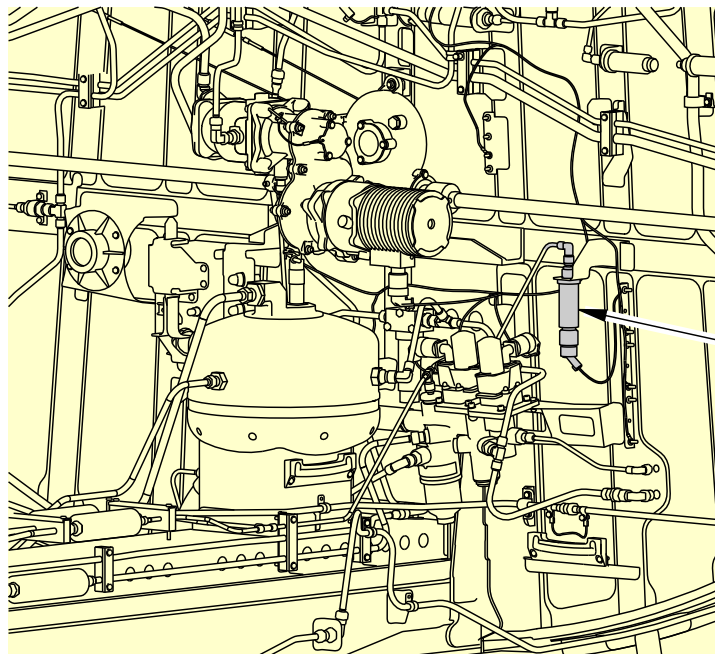
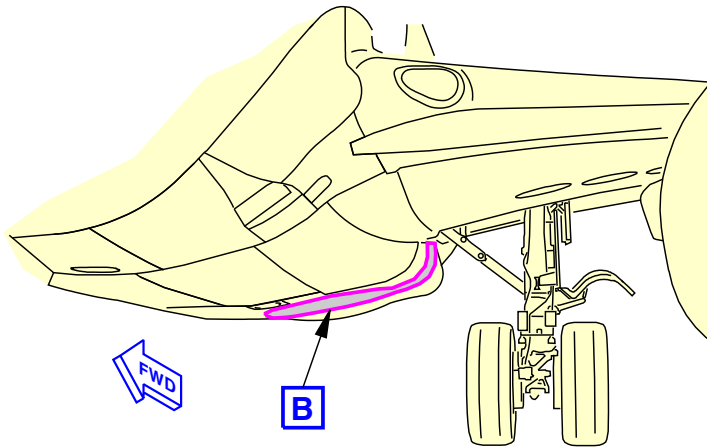
D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 410
May 15/2022

BOEING
737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



STANDBY SYSTEM
PRESSURE
TRANSMITTER, T3019

C

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

B

2413861 S00061533595_V1

Standby System Pressure Transmitter Installation
Figure 402/29-31-12-990-802 (Sheet 1 of 2)

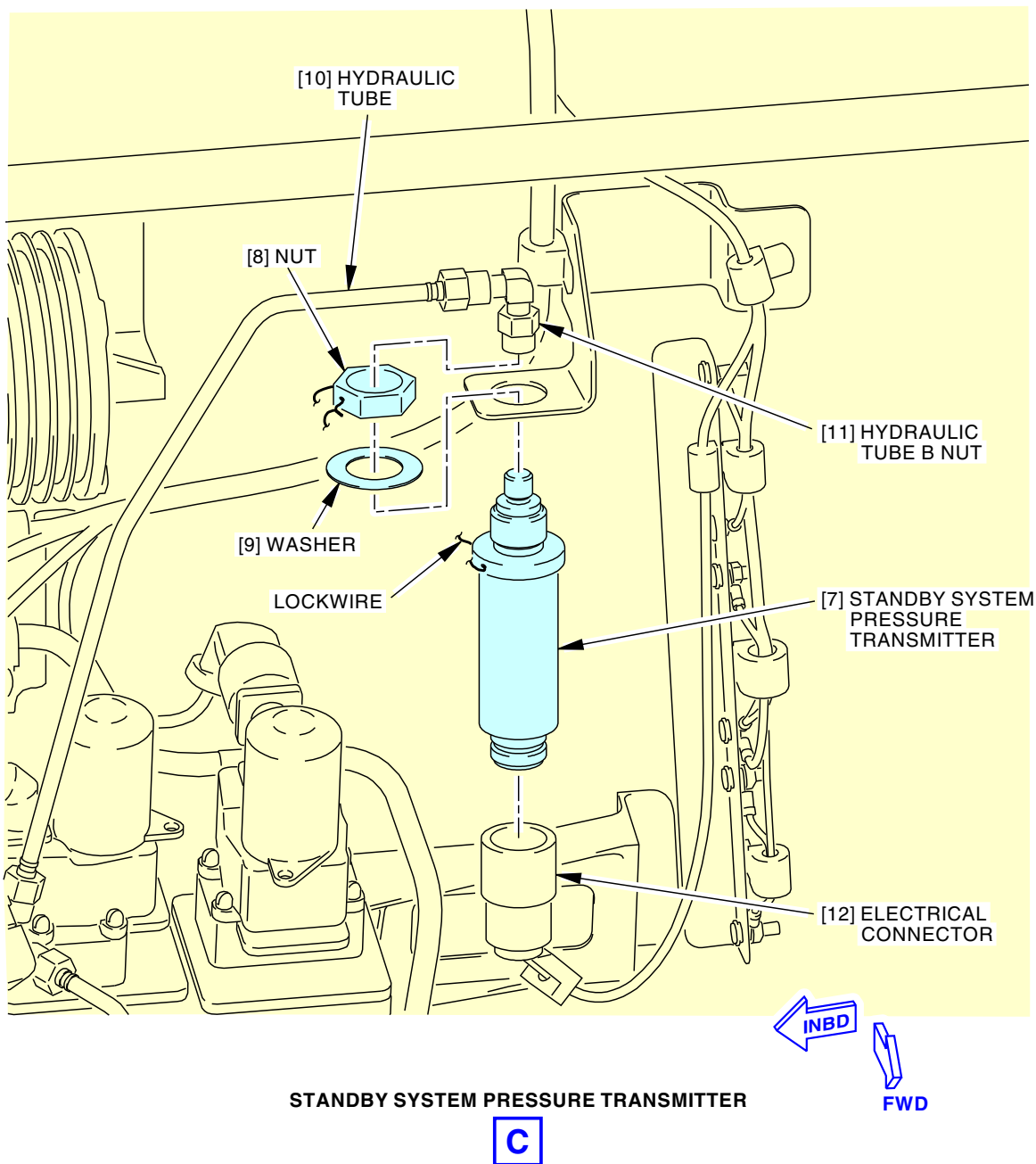
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 411
Sep 15/2021



Standby System Pressure Transmitter Installation
Figure 402/29-31-12-990-802 (Sheet 2 of 2)

2413862 S00061533596_V1

EFFECTIVITY
SIA ALL

29-31-12

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-31-12-400-802

5. Standby System Pressure Transmitter Installation

(Figure 402)

A. References

Reference	Title
20-10-34-110-801	Remove Paint from Metal Surfaces with Lacquer Thinner or Solvent (P/B 701)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
31-31-00-730-801	Flight Data Recorder System - System Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
C50005	Coating - Chemical Conversion - Bonderite M-CR 1200S Aero (Formerly Alodine 1200S)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Standby system pressure transmitter	29-31-12-01-030	SIA ALL

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 413
May 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

F. Prepare for Installation

SUBTASK 29-31-12-160-001

- (1) Do these steps to prepare the bonding areas:
 - (a) Clean the bonding surfaces (Remove Paint from Metal Surfaces with Lacquer Thinner or Solvent, TASK 20-10-34-110-801).
 - (b) Apply solvent, B00083 to the bonding surfaces with a cotton wiper, G00034.
 - (c) Dry the surfaces with a clean cotton wiper, G00034.

SUBTASK 29-31-12-100-001

- (2) Manually apply chemical conversion coating, Bonderite M-CR 1200S Aero coating, C50005, to all bare aluminum surfaces on the bracket.

G. Installation

SUBTASK 29-31-12-420-006

- (1) Do these steps to install the standby system pressure transmitter [7].
 - (a) Install the standby system pressure transmitter [7] into the bracket.
 - (b) Install the washer [9] and the nut [8] on to the standby system pressure transmitter [7].
 - 1) Tighten the nut [8] to 360 ±36 in-lb (41 ±4 N·m).

SUBTASK 29-31-12-765-001

- (2) Measure the resistance between the standby system pressure transmitter [7] and the bracket with a intrinsically safe approved bonding meter, COM-1550.
 - (a) Make sure the resistance value is less than .0025 ohms.

SUBTASK 29-31-12-430-001

- (3) Install the MS20995C32 lockwire, G01048 between the standby system pressure transmitter [7] and the nut [8].

SUBTASK 29-31-12-390-001

- (4) Apply sealant, A00247 along the edges of the joint between the faying surface to form a fillet seal.

SUBTASK 29-31-12-430-002

- (5) Remove the plug from the hydraulic tube [10].

SUBTASK 29-31-12-420-009

- (6) Install the hydraulic tube [10] on to the standby system pressure transmitter [7].
 - (a) Tighten the hydraulic tube B nut [11].

SUBTASK 29-31-12-600-002

- (7) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802

SUBTASK 29-31-12-430-003

- (8) Install the electrical connector [12] on to the standby system pressure transmitter [7].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 414
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-31-12-865-002

- (9) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

H. Installation Test

SUBTASK 29-31-12-863-002

- (1) Do this task to pressurize the hydraulic reservoirs: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801

SUBTASK 29-31-12-863-003

- (2) Do this task to pressurize the hydraulic systems: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 29-31-12-790-002

- (3) Examine all connections for leaks.

SUBTASK 29-31-12-864-002

- (4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-31-12-730-001

- (5) Do a system test of the Standby System Pressure Transmitter (Flight Data Recorder System - System Test, TASK 31-31-00-730-801).

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-31-12

Page 415
Jan 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC FLUID OVERHEAT WARNING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

NOTE: The Operator/Airline has the option between the Preferred Method or the Alternate Method to complete this task.

(1) Case Drain Overheat Switch Test (Preferred Method)

NOTE: This test functionally checks the case drain line overheat switches for the Hydraulic System A or B electric motor-driven pump (EMDP) and the associated OVERHEAT lights (ELEC 1 & 2) on the hydraulic panel, P5.

(2) Case Drain Overheat Switch Test (Alternate Method)

NOTE: This test functionally checks the OVERHEAT lights (ELEC 1 & 2) on the hydraulic panel, P5, and the associated wiring. It requires the replacement of the case drain line overheat switches for the Hydraulic System A or B electric motor-driven pump (EMDP) with a New or Serviceable switch.

TASK 29-32-00-730-801

2. Case Drain Overheat Switch Test (Preferred Method)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This test will functionally check the hydraulic system A & B case drain overheat switches and the associated OVERHEAT lights (ELEC 1 & 2) on the hydraulic panel, P5.
- (2) With increasing temperature, the overheat switch contacts close at $220 \pm 5^{\circ}\text{F}$ ($104 \pm 3^{\circ}\text{C}$). With decreasing temperature, overheat switch contacts open at minimum 165°F (74°C). The OVERHEAT lights (ELEC 1 & 2) come on when the overheat switches are closed.

B. References

Reference	Title
29-32-12-000-801	Hydraulic Fluid Overheat Warning Switch Removal (P/B 401)
29-32-12-400-801	Hydraulic Fluid Overheat Warning Switch 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-3924	Tester - Thermo Switch, K-Type Thermocouple Switches Part #: H394 SERIES Supplier: 98869 Part #: H394R Supplier: 98869 Opt Part #: H294 Supplier: 98869
SPL-3952	Kit - Heater Probes, TEMPCAL Part #: BH24944-13 Supplier: 98869 Part #: BH24944-14 Supplier: 98869 Part #: BH24944-16 Supplier: 98869

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

EFFECTIVITY
SIA ALL

29-32-00

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)

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Case Drain Overheat Switch Test (Hydraulic System A)

SUBTASK 29-32-00-020-001

(1) Remove the system A case drain overheat switch (S798) (TASK 29-32-12-000-801).

(a) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	12	C00318	INDICATOR MASTER DIM SECT 6

(b) Reconnect electrical connector, D2688, to the overheat switch (S798).

(c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-32-00-480-001

(2) Connect the K-Type thermocouple switch tester, SPL-3924, and heater probe, BH16440-40, from the overheat switch.

NOTE: The heater probe, BH16440-40, is for use with the hydraulic fluid overheat warning switches, and is found in the TEMPCAL heater probe kit, SPL-3952.

SUBTASK 29-32-00-720-001

(3) Do these steps to functionally check the overheat switch:

NOTE: The following steps should be repeated twice.

(a) Do a check of the overheat switch's actuation "closed" temperature:

- 1) Stabilize the overheat switch temperature at $200 \pm 5^{\circ}\text{F}$ ($93 \pm 3^{\circ}\text{C}$) for a minimum of two (2) minutes.
- 2) Slowly increase the overheat switch temperature at a rate of $5 \pm 1^{\circ}\text{F/minute}$ ($2.8 \pm 0.6^{\circ}\text{C/minute}$) until the OVERHEAT light (ELEC 2) on the hydraulic panel, P5, comes on.
- 3) Make a record of the temperature when OVERHEAT light (ELEC 2) came on.
- 4) Make sure that the overheat switch actuated "closed" at a temperature of $220 \pm 5^{\circ}\text{F}$ ($104 \pm 3^{\circ}\text{C}$) when the OVERHEAT light (ELEC 2) came on.

(b) Do a check of the overheat switch's actuation "open" temperature:

- 1) Slowly decrease the overheat switch temperature at a rate of $5 \pm 1^{\circ}\text{F/minute}$ ($2.8 \pm 0.6^{\circ}\text{C/minute}$) until the OVERHEAT light (ELEC 2) on the hydraulic panel, P5, goes off.
- 2) Make a record of the temperature when OVERHEAT light (ELEC 2) went off.
- 3) Make sure that the overheat switch actuated "open" at a temperature no less than 165°F (74°C) when the OVERHEAT light (ELEC 2) went off.

(c) Make sure that there is no less than 5°F (2.8°C) of temperature differential between the recorded temperatures of the overheat switch "closed" and "open" actuations.

EFFECTIVITY
SIA ALL

29-32-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 502
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (d) Do each of the above steps a second time.

SUBTASK 29-32-00-080-001

- (4) Disconnect the K-Type thermocouple switch tester, SPL-3924, and heater probe, BH16440-40, from the overheat switch.

SUBTASK 29-32-00-420-001

- (5) Reinstall the system A case drain overheat switch (S798):
(a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

- (b) Disconnect electrical connector, D2688, from overheat switch (S798).
(c) Install the system A case drain overheat switch (S798) (TASK 29-32-12-400-801).
(d) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

F. Case Drain Overheat Switch Test (Hydraulic System B)

SUBTASK 29-32-00-020-002

- (1) Remove the system B case drain overheat switch (S799) (TASK 29-32-12-000-801).
(a) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

- (b) Reconnect electrical connector, D2690, to the overheat switch (S799).
(c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

SUBTASK 29-32-00-480-002

- (2) Connect the K-Type thermocouple switch tester, SPL-3924, and heater probe, BH16440-40, to the overheat switch.

NOTE: The heater probe, BH16440-40, is for use with the hydraulic fluid overheat warning switches, and is found in the TEMPCAL heater probe kit, SPL-3952.

SUBTASK 29-32-00-720-002

- (3) Do these steps to functionally check the overheat switch:

NOTE: The following steps should be repeated twice.

- (a) Do a check of the overheat switch's actuation "closed" temperature:
- 1) Stabilize the overheat switch temperature at $200 \pm 5^{\circ}\text{F}$ ($93 \pm 3^{\circ}\text{C}$) for a minimum of two (2) minutes.
 - 2) Slowly increase the overheat switch temperature at a rate of $5 \pm 1^{\circ}\text{F/minute}$ ($2.8 \pm 0.6^{\circ}\text{C/minute}$) until the OVERHEAT light (ELEC 1) on the hydraulic panel, P5, comes on.

EFFECTIVITY
SIA ALL

29-32-00

D633AM101-SIA

Page 503
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- 3) Make a record of the temperature when OVERHEAT light (ELEC 1) came on.
 - 4) Make sure that the overheat switch actuated "closed" at a temperature of $220 \pm 5^{\circ}\text{F}$ ($104 \pm 3^{\circ}\text{C}$) when the OVERHEAT light (ELEC 1) came on.
- (b) Do a check of the overheat switch's actuation "open" temperature:
- 1) Slowly decrease the overheat switch temperature at a rate of $5 \pm 1^{\circ}\text{F/minute}$ ($2.8 \pm 0.6^{\circ}\text{C/minute}$) until the OVERHEAT light (ELEC 1) on the hydraulic panel, P5, goes off.
 - 2) Make a record of the temperature when OVERHEAT light (ELEC 1) went off.
 - 3) Make sure that the overheat switch actuated "open" at a temperature no less than 165°F (74°C) when the OVERHEAT light (ELEC 1) went off.
- (c) Make sure that there is no less than 5°F (2.8°C) of temperature differential between the recorded temperatures of the overheat switch "closed" and "open" actuations.
- (d) Do each of the above steps a second time.

SUBTASK 29-32-00-080-002

- (4) Disconnect the K-Type thermocouple switch tester, SPL-3924, and heater probe, BH16440-40, from the overheat switch.

SUBTASK 29-32-00-420-002

- (5) Reinstall the system B case drain overheat switch (S799):
- (a) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

- (b) Disconnect electrical connector, D2690, from overheat switch (S799).
- (c) Install the system B case drain overheat switch (S799) (TASK 29-32-12-400-801).
- (d) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

————— **END OF TASK** —————

TASK 29-32-00-730-802

3. Case Drain Overheat Switch Test (Alternate Method)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This test will functionally check the OVERHEAT lights (ELEC 1 & 2) on the hydraulic panel, P5, and the associated wiring.

NOTE: The case drain overheat switch for hydraulic system A & B must be replaced with either a New or Serviceable switch when this test method is chosen.

B. References

<u>Reference</u>	<u>Title</u>
29-32-12-000-801	Hydraulic Fluid Overheat Warning Switch Removal (P/B 401)
29-32-12-400-801	Hydraulic Fluid Overheat Warning Switch Installation (P/B 401)

EFFECTIVITY
SIA ALL

29-32-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 504
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Case Drain Overheat Switch Test (Hydraulic System A)

SUBTASK 29-32-00-020-003

- (1) Remove the system A case drain overheat switch (S798) (TASK 29-32-12-000-801).

- (a) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	12	C00318	INDICATOR MASTER DIM SECT 6

- (b) On connector, D2688, install a jumper wire from pin A to pin B.

NOTE: This will simulate a closed case drain overheat switch.

- (c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	12	C00318	INDICATOR MASTER DIM SECT 6

- (d) Make sure the OVERHEAT light (ELEC 2) on the hydraulic panel, P5, came on.

- (e) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	12	C00318	INDICATOR MASTER DIM SECT 6

- (f) On connector, D2688, remove the jumper wire from pin A to pin B.

- (g) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	12	C00318	INDICATOR MASTER DIM SECT 6

- (h) Make sure the OVERHEAT light (ELEC 2) on the hydraulic panel, P5, went off.

- (i) Install a New or Serviceable system A case drain overheat switch (S798) (TASK 29-32-12-400-801).

E. Case Drain Overheat Switch Test (Hydraulic System B)

SUBTASK 29-32-00-020-004

- (1) Remove the system B case drain overheat switch (S799) (TASK 29-32-12-000-801).

- (a) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	11	C00317	INDICATOR MASTER DIM SECT 5

- (b) On connector, D2690, install a jumper wire from pin A to pin B.

NOTE: This will simulate a closed case drain overheat switch.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-32-00

Page 505
Sep 15/2021



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

- (c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

- (d) Make sure the OVERHEAT light (ELEC 1) on the hydraulic panel, P5, came on.
(e) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

- (f) On connector, D2690, remove the jumper wire from pin A to pin B.
(g) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

- (h) Make sure the OVERHEAT light (ELEC 1) on the hydraulic panel, P5, went off.
(i) Install a New or Serviceable system B case drain overheat switch (S799) (TASK 29-32-12-400-801).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-32-00

Page 506
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC FLUID OVERHEAT WARNING SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the hydraulic fluid overheat warning switch (referred to as the overheat switch in this procedure)
 - (2) An installation of the hydraulic fluid overheat warning switch.
- B. There is one overheat switch for hydraulic system A and one for hydraulic system B. The overheat switches are installed in systems A and B Electric Motor-Driven Pump (EMDP) case drain lines. These overheat switches can be found directly below the pump on the forward wheel well bulkhead.

TASK 29-32-12-000-801

2. Hydraulic Fluid Overheat Warning Switch Removal

(Figure 401)

A. **References**

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. **Location Zones**

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. **Hydraulic Fluid Overheat Warning Switch Removal**

SUBTASK 29-32-12-860-001

- (1) Release the pressure from the applicable reservoir, do this task: TASK 29-09-00-860-802.

SUBTASK 29-32-12-860-002

- (2) For hydraulic system A, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-32-12-860-003

- (3) For hydraulic system B, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	11	C00317	INDICATOR MASTER DIM SECT 5

SUBTASK 29-32-12-020-001

- (4) Disconnect the supply line quick-disconnect to prevent high leakage of fluid.

NOTE: The quick-disconnect for system A at the reservoir and quick-disconnect for system B can be found at the Electric Motor-Driven Pump (EMDP).

SUBTASK 29-32-12-020-002

- (5) Remove the electrical connector [3] from the overheat switch [2].

SUBTASK 29-32-12-480-001

- (6) Install a protective cap on the electrical connector [3].

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-32-12

Page 401
Sep 15/2022



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

SUBTASK 29-32-12-020-003

(7) Remove the overheat switch [2] from the switch tee.

SUBTASK 29-32-12-020-004

(8) Discard the packing [1].

SUBTASK 29-32-12-420-001

(9) Install a cover on the open port of the switch tee.

———— **END OF TASK** ————

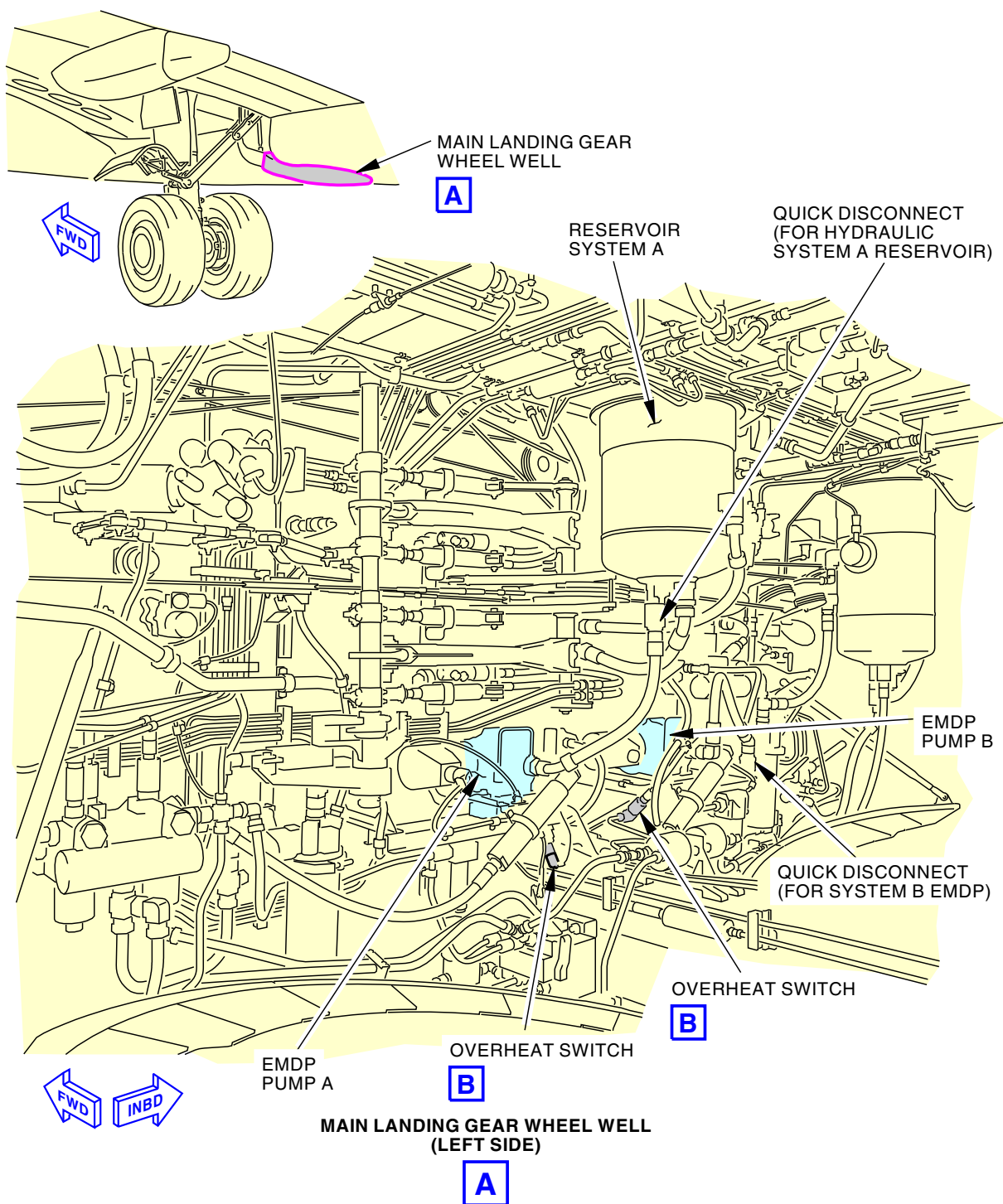
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-32-12

Page 402
Sep 15/2022



2413863 S00061533606_V2

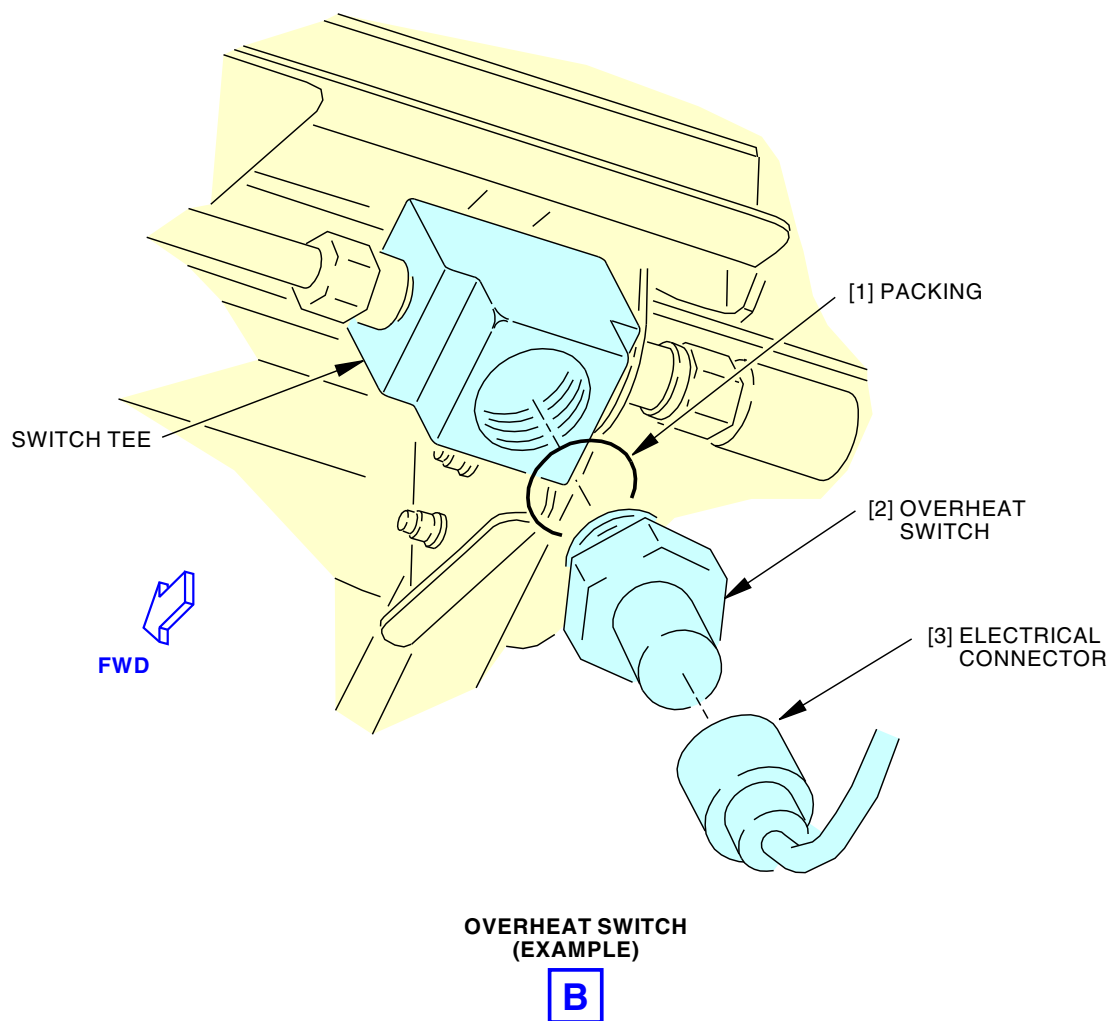
Hydraulic Fluid Overheat Warning Switch Installation
Figure 401/29-32-12-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-32-12

D633AM101-SIA

Page 403
May 15/2023



2413864 S00061533607_V1

Hydraulic Fluid Overheat Warning Switch Installation
Figure 401/29-32-12-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-32-12

Page 404
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-32-12-400-801

3. Hydraulic Fluid Overheat Warning Switch Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Packing	29-32-12-02-010 29-32-12-03-010	SIA ALL SIA ALL
2	Overheat switch	29-32-12-02-015 29-32-12-03-015	SIA ALL SIA ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Hydraulic Fluid Overheat Warning Switch Installation

SUBTASK 29-32-12-080-002

(1) Remove the cover from the port on the switch tee.

SUBTASK 29-32-12-640-001

(2) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [1] and switch tee threads.

SUBTASK 29-32-12-420-002

(3) Install the packing [1] on the overheat switch [2].

SUBTASK 29-32-12-420-005

(4) Install the overheat switch [2] in the open port of the switch tee.

SUBTASK 29-32-12-080-001

(5) Remove the protective cap from the electrical connector [3].

SUBTASK 29-32-12-600-002

(6) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

EFFECTIVITY
SIA ALL

29-32-12

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2022



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-32-12-420-003

- (7) Connect the electrical connector [3] to the overheat switch [2].

SUBTASK 29-32-12-860-004

- (8) For hydraulic system A, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-32-12-860-005

- (9) For hydraulic system B, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

SUBTASK 29-32-12-420-004



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY, DISCONNECT THE SELF-SEAL DISCONNECT, AND MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER YOU INSTALL IT, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 IN. (1.52 MM). IF THE INDICATOR PINS ARE NOT CORRECTLY EXTENDED, FLUID FLOW WILL DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR, AND THE PUMP.

- (10) Connect the supply line quick-disconnect.

F. Hydraulic Fluid Overheat Warning Switch Installation Test

SUBTASK 29-32-12-600-001

- (1) If it is necessary fill the hydraulic reservoir, do this task: TASK 12-12-00-610-801.

SUBTASK 29-32-12-860-006

- (2) Pressurize the applicable hydraulic reservoir (TASK 29-09-00-860-801).

SUBTASK 29-32-12-860-007

- (3) For the applicable hydraulic system, do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.

SUBTASK 29-32-12-790-001

- (4) Examine the overheat switch [2] for leaks.

SUBTASK 29-32-12-860-008

- (5) For the applicable hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-32-12

Page 406
Sep 15/2022



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC FLUID QUANTITY TRANSMITTER/INDICATOR - REMOVAL/INSTALLATION

1. General

A. This procedure contains the following tasks:

- (1) A removal of the hydraulic fluid quantity transmitter/indicator
- (2) An installation of the hydraulic fluid quantity transmitter/indicator.

TASK 29-33-12-000-801

2. Hydraulic Fluid Quantity Transmitter/Indicator - Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-6907	Container - Hydraulic Fluid Resistant, 15 Gallon (57 Liter)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Hydraulic Fluid Quantity Transmitter/Indicator Removal

SUBTASK 29-33-12-860-001

- (1) Remove the power from the applicable hydraulic system (TASK 29-11-00-860-805).

SUBTASK 29-33-12-860-002

- (2) If the hydraulic system B fluid quantity transmitter/indicator is being removed, do this task:
Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-33-12-860-003

- (3) Release the pressure from the applicable hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-33-12-020-001



DO NOT CLOSE THE DRAIN VALVE UNTIL YOU REPLACE THE TRANSMITTER. IF YOU CLOSE THE DRAIN VALVE, FLUID CAN COLLECT IN THE RESERVOIR. THEN IT CAN GET ON PERSONS AND EQUIPMENT WHEN YOU REMOVE THE TRANSMITTER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Open the drain valve.
 - (a) Do not close the drain valve until you replace the transmitter [1].

SUBTASK 29-33-12-860-004

- (5) Drain the applicable system reservoir into a 15 gallon (57 liter) hydraulic fluid resistant container, STD-6907.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-12

Page 401
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-33-12-860-005

- (6) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

SUBTASK 29-33-12-020-002

- (7) Disconnect the electrical connector [2].

SUBTASK 29-33-12-020-003

- (8) Install a protective cap on the electrical connector [2].

SUBTASK 29-33-12-020-004

- (9) Remove the bolts [3], washers [4] (under the bolthead), washers [6] (under the nut) and nuts [7] that attach the transmitter [1].

SUBTASK 29-33-12-020-005



MAKE SURE THAT THE TRANSMITTER-FLOAT DOES NOT TOUCH THE INTERNAL STAND PIPE. IF THE TRANSMITTER-FLOAT TOUCHES THE INTERNAL STAND PIPE, DAMAGE TO THE TRANSMITTER-FLOAT CAN OCCUR.

- (10) Carefully remove the transmitter [1] from the reservoir through the reservoir opening.

SUBTASK 29-33-12-020-006

- (11) Remove the packing [5].
(a) Discard the packing [5].

————— **END OF TASK** —————

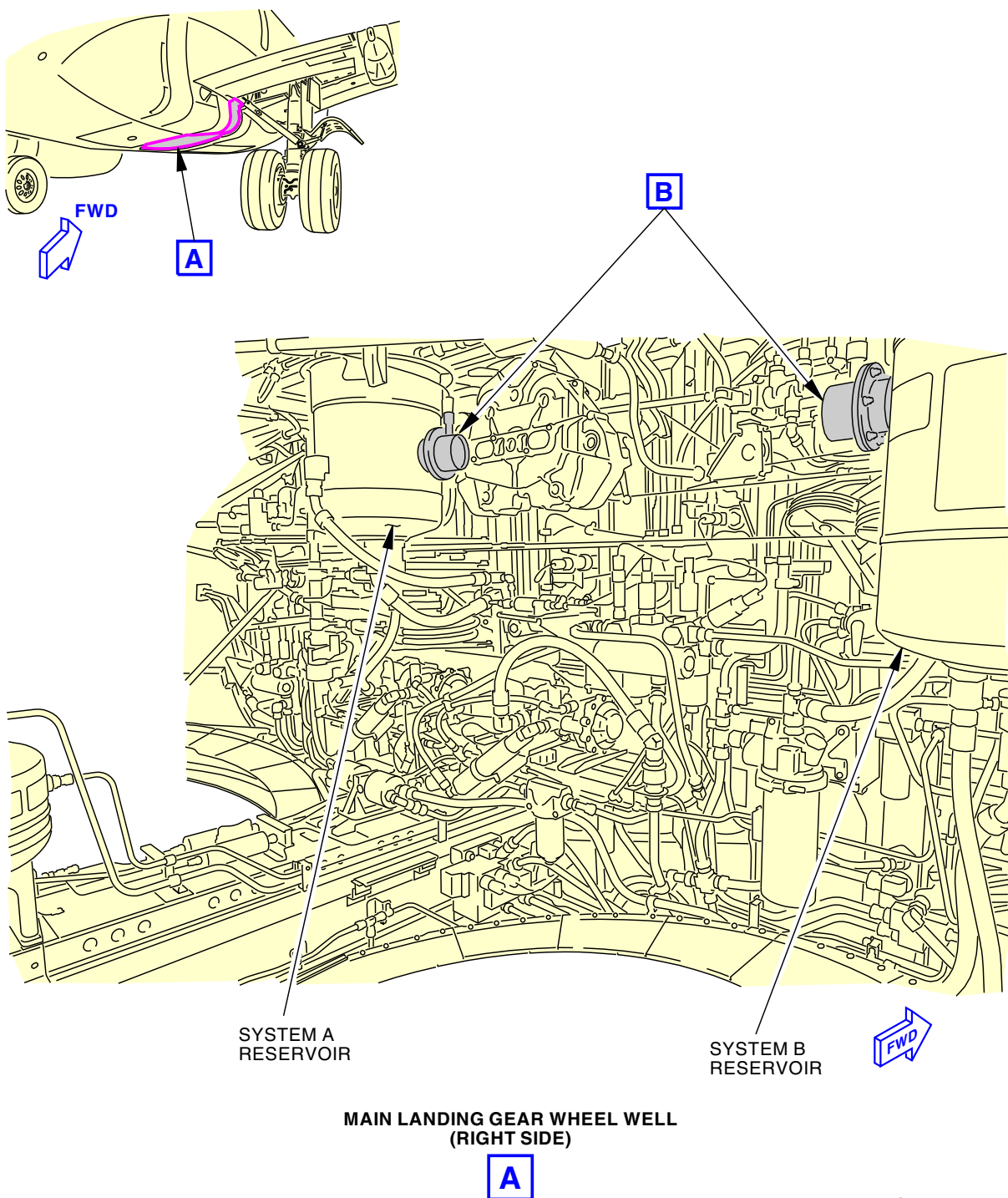
EFFECTIVITY
SIA ALL

29-33-12

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Sep 15/2021



2413865 S00061533613_V1

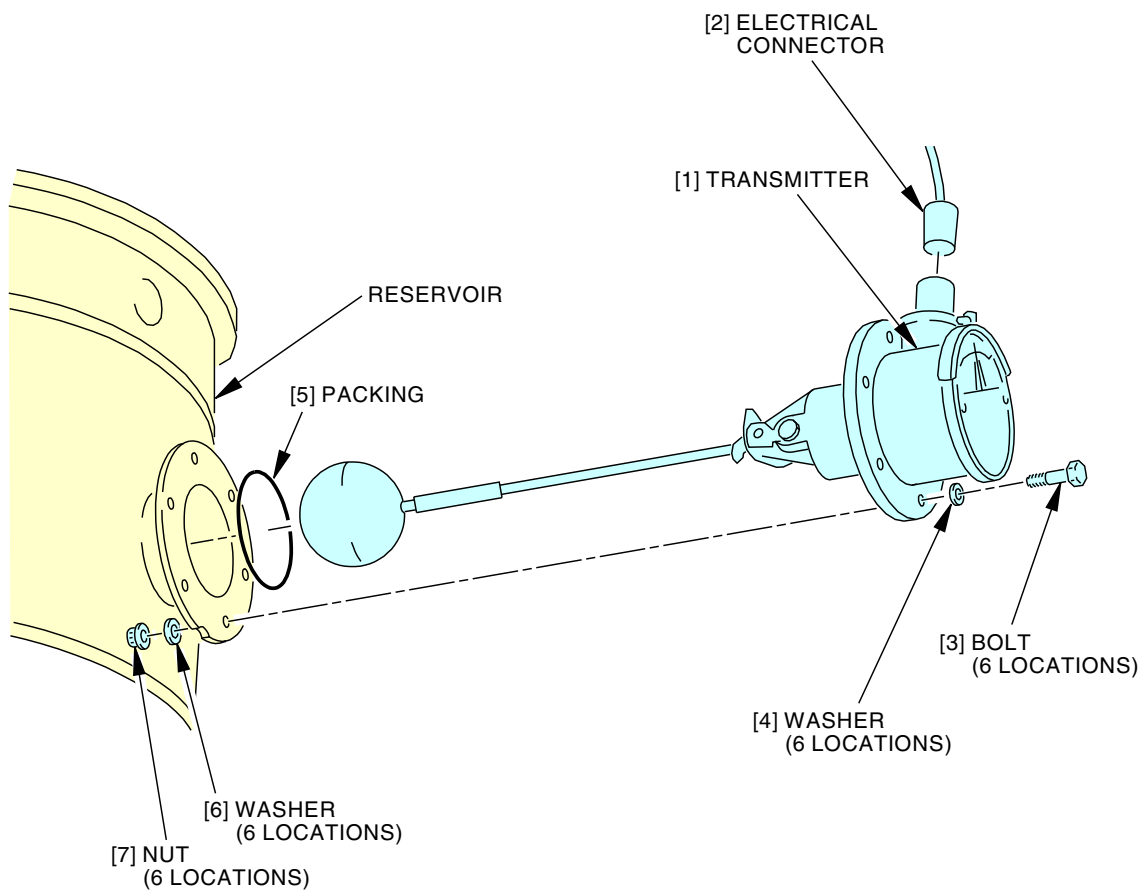
Hydraulic Fluid Quantity Transmitter/Indicator Installation
Figure 401/29-33-12-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

29-33-12

D633AM101-SIA

Page 403
Sep 15/2021



EXAMPLE

B

2413866 S00061533614_V1

Hydraulic Fluid Quantity Transmitter/Indicator Installation
Figure 401/29-33-12-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-12

Page 404
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-33-12-400-801

3. Hydraulic Fluid Quantity Transmitter/Indicator - Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Transmitter	29-33-12-01-010	SIA ALL
		29-33-12-02-035	SIA ALL
5	Packing	29-11-31-01-020	SIA ALL
		29-11-31-02-035	SIA ALL

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Hydraulic Fluid Quantity Transmitter/Indicator Installation

SUBTASK 29-33-12-210-001

- (1) Make sure that the mounting surfaces on the reservoir flange and the transmitter [1] are clean and free of nicks.

SUBTASK 29-33-12-420-001

- (2) Install the new packing [5] on the flange of the transmitter [1].

SUBTASK 29-33-12-420-002



MAKE SURE THAT THE TRANSMITTER-FLOAT DOES NOT TOUCH THE INTERNAL STAND PIPE. IF THE TRANSMITTER-FLOAT TOUCHES THE INTERNAL STAND PIPE, DAMAGE TO THE TRANSMITTER-FLOAT CAN OCCUR.

- (3) Carefully install the float of the transmitter [1] in the reservoir opening.

SUBTASK 29-33-12-420-003

- (4) Put the transmitter [1] in its mounting position.

SUBTASK 29-33-12-420-005

- (5) Install the bolts [3], washers [4] (under the bolthead), washers [6] (under the nut) and nuts [7] that attach the transmitter [1].

SUBTASK 29-33-12-420-004

- (6) Remove the protective cap from the electrical connector.

SUBTASK 29-33-12-600-001

- (7) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-33-12-420-006

- (8) Install the electrical connector [2].

EFFECTIVITY
SIA ALL

29-33-12

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 29-33-12-420-007

- (9) Close the reservoir drain valve.

E. Hydraulic Fluid Quantity Transmitter/Indicator Installation Test

SUBTASK 29-33-12-860-007

- (1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C04023	DISPLAY DPC 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C04025	DISPLAY DPC 2 PRI

SUBTASK 29-33-12-210-002

- (2) Make sure that the indicators in the flight deck and at the reservoir show zero.

NOTE: It is a failure indication, if the indicators show a value below zero.

SUBTASK 29-33-12-610-001

- (3) Do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 29-33-12-860-008

- (4) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 29-33-12-790-001

- (5) Examine the connections for leaks.

SUBTASK 29-33-12-210-003

- (6) With the indicators on the reservoir transmitters [1] serviced to the F (full) position, make sure that the quantity indication shown on the system display in the flight deck shows 100 +6%/-9%.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-12

Page 406
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC FLUID QUANTITY TRANSMITTER/INDICATOR - INSPECTION/CHECK

1. General

- A. This procedure has a task for the inspection of the hydraulic fluid quantity transmitter.
- B. A hydraulic fluid quantity transmitter is installed on the side of both the system A and B reservoirs. The transmitter sends signals to the systems display. The quantity information shows as a percentage of full on the systems display, for the hydraulic systems A and B.

TASK 29-33-12-200-801

2. Hydraulic Fluid Quantity Transmitter/Indicator Inspection

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
IFIM and do the applicable procedure(s)	Interactive Fault Isolation Manual

B. Tools/Equipment

Reference	Description
STD-6907	Container - Hydraulic Fluid Resistant, 15 Gallon (57 Liter)

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Procedure

SUBTASK 29-33-12-860-010

- (1) Release pressure from the applicable hydraulic reservoir. To release it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-33-12-420-011

- (2) Remove the MS20995C32 lockwire, G01048, from the drain valve (TASK 20-10-44-000-801).

SUBTASK 29-33-12-020-008

- (3) Open the drain valve on the bottom of the hydraulic reservoir.

SUBTASK 29-33-12-680-001

- (4) Drain the fluid into a 15 gallon (57 liter) hydraulic fluid resistant container, STD-6907.

SUBTASK 29-33-12-420-009

- (5) Close the drain valve.

SUBTASK 29-33-12-420-010

- (6) Install the MS20995C32 lockwire, G01048, on the drain valve (TASK 20-10-44-400-801).

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-12

Page 601
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-33-12-610-002

- (7) Slowly fill the applicable hydraulic reservoir with the fluid quantity specified below. To fill it, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

NOTE: The fluid quantities are correct only if all supply and return lines to the reservoir are full.

- (a) The fluid quantity must be 5.7 gal (21.6 l) for system A.
- (b) The fluid quantity must be 8.2 gal (31.0 l) for system B.

SUBTASK 29-33-12-210-004

- (8) Make sure the fluid level on the transmitter indicator and the cockpit indicator increases as you fill the reservoir.

- (a) If the fluid level does not increase, refer to the Observed Fault List in the FIM.

SUBTASK 29-33-12-210-005

- (9) Make sure the indicators on the transmitters show full when the system A reservoir is 5.7 gal (21.6 l) and system B reservoir is 8.2 gal (31.0 l).
- (a) When the indicators on the reservoir transmitters show full, make sure that the HYD Q % indicators on the Systems display show 100 +6%/- 9%.
 - (b) If the transmitters and/or the engine display fail to meet these requirements, refer to the IFIM and do the applicable procedure(s).

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-12

Page 602
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY HYDRAULIC SYSTEM RESERVOIR LOW QUANTITY SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the low quantity switch for the standby hydraulic system reservoir
 - (2) An installation of the low quantity switch.
- B. The low quantity switch is installed on top of the standby hydraulic reservoir found above the keel beam in the wheel well area.

TASK 29-33-21-000-801

2. Standby Reservoir Low Quantity Switch Removal

(Figure 401)

A. References

Reference	Title
12-40-00-100-801	Clean (Wet Wash) the External Surfaces of the Airplane (P/B 201)
12-40-00-100-802	Clean (Waterless Wash) the External Surfaces of the Airplane (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
29-21-21-000-801	Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Removal (P/B 401)
29-21-21-400-801	Standby Hydraulic System Electric Motor-Driven Pump (EMDP) Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liter)

C. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

D. Prepare for the Removal

SUBTASK 29-33-21-860-001

- (1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
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

EFFECTIVITY
SIA ALL

29-33-21

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

(Continued)

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-33-21-860-002

- (2) Remove the hydraulic power from system B and the standby system:
 - (a) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) Do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 29-33-21-860-003

- (3) Release pressure from the system B hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-33-21-020-001

- (4) Do these steps to drain the standby hydraulic system reservoir [4]:



CAUTION

PULL DOWN ON THE KNURLED RING OF THE SELF-SEAL-DISCONNECT BEFORE YOU TURN IT. IF YOU DO NOT DO THIS, TOO MUCH TORQUE WILL BE NECESSARY TO TURN THE RING. THIS WILL CAUSE DAMAGE TO THE SELF-SEAL-DISCONNECT.

- (a) Disconnect the supply line for the standby hydraulic pump at the quick-disconnect at the bottom of the standby hydraulic system reservoir [4].
- (b) If a spare quick-disconnect hose assembly is available, do the following steps:
 - 1) Put the hose end of the spare quick-disconnect hose assembly into 5 gallon (19 liter) container, STD-1154.
 - 2) Connect the quick-disconnect end of the spare hose assembly to the standby reservoir.
- (c) If a spare quick-disconnect hose is not available, do the following steps:
 - 1) Disconnect the supply hose at the standby hydraulic pump.
 - a) To disconnect the supply hose from the pump, reference the applicable steps in TASK 29-21-21-000-801.
 - 2) Put the end of the standby pump supply hose into a 5 gallon (19 liter) container, STD-1154.



CAUTION

MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY TO DO THE INSTALLATION, DISCONNECT THE SELF-SEAL DISCONNECT AND AGAIN MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER THE INSTALLATION, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 INCH. IF THE INDICATOR PINS DO NOT EXTEND CORRECTLY, FLUID FLOW CAN DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR OR THE PUMP.

- 3) Connect the quick-disconnect end of the supply hose to the standby hydraulic system reservoir [4].

EFFECTIVITY
SIA ALL

29-33-21

D633AM101-SIA

Page 402
Jan 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (d) Drain the hydraulic fluid into the 5 gallon (19 liter) container, STD-1154.

NOTE: The standby hydraulic system reservoir [4] contains approximately 3.6 gal (13.6 l).

SUBTASK 29-33-21-080-001

- (5) If a spare quick-disconnect hose assembly was used to drain the standby hydraulic system reservoir [4], do these steps:
- (a) Remove the spare quick-disconnect hose assembly.



MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY TO DO THE INSTALLATION, DISCONNECT THE SELF-SEAL DISCONNECT AND AGAIN MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER THE INSTALLATION, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 INCH. IF THE INDICATOR PINS DO NOT EXTEND CORRECTLY, FLUID FLOW CAN DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR OR THE PUMP.

- (b) Connect the supply line for the standby hydraulic pump at the quick-disconnect at the bottom of the standby hydraulic system reservoir [4].

SUBTASK 29-33-21-080-002

- (6) If the supply hose to the standby hydraulic pump was disconnected to drain the standby hydraulic system reservoir [4], connect it to the supply port of the pump.
- (a) To connect the supply hose to the pump, reference the applicable steps in TASK 29-21-21-400-801.

SUBTASK 29-33-21-420-001



MAKE SURE THAT THE DISCONNECT POPPET IS STRAIGHT BEFORE YOU INSTALL THE HOSE HALF OF THE SELF-SEAL DISCONNECT. IF TOO MUCH TORQUE IS NECESSARY TO DO THE INSTALLATION, DISCONNECT THE SELF-SEAL DISCONNECT AND AGAIN MAKE SURE THAT THE POPPET IS STRAIGHT. AFTER THE INSTALLATION, MAKE SURE THAT THE INDICATOR PINS EXTEND A MINIMUM OF 0.06 INCH. IF THE INDICATOR PINS DO NOT EXTEND CORRECTLY, FLUID FLOW CAN DECREASE OR STOP. THIS CAN CAUSE DAMAGE TO THE RESERVOIR OR THE PUMP.

- (7) Connect the supply line for the standby hydraulic pump at the quick-disconnect at the bottom of the standby hydraulic system reservoir [4].

SUBTASK 29-33-21-160-001

- (8) If you get hydraulic fluid on the airplane, do this task: Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802.

E. Procedure

SUBTASK 29-33-21-020-002

- (1) Remove the electrical connector [1] from the low quantity switch [2].

SUBTASK 29-33-21-480-002

- (2) Install a protective cap on the electrical connector [1].

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-33-21

Page 403
Jan 15/2023



**737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL**

SUBTASK 29-33-21-020-003

- (3) Remove the low quantity switch [2] from the standby hydraulic system reservoir [4].

SUBTASK 29-33-21-020-004

- (4) Remove the packing [3].
(a) Discard the packing [3].

————— **END OF TASK** —————

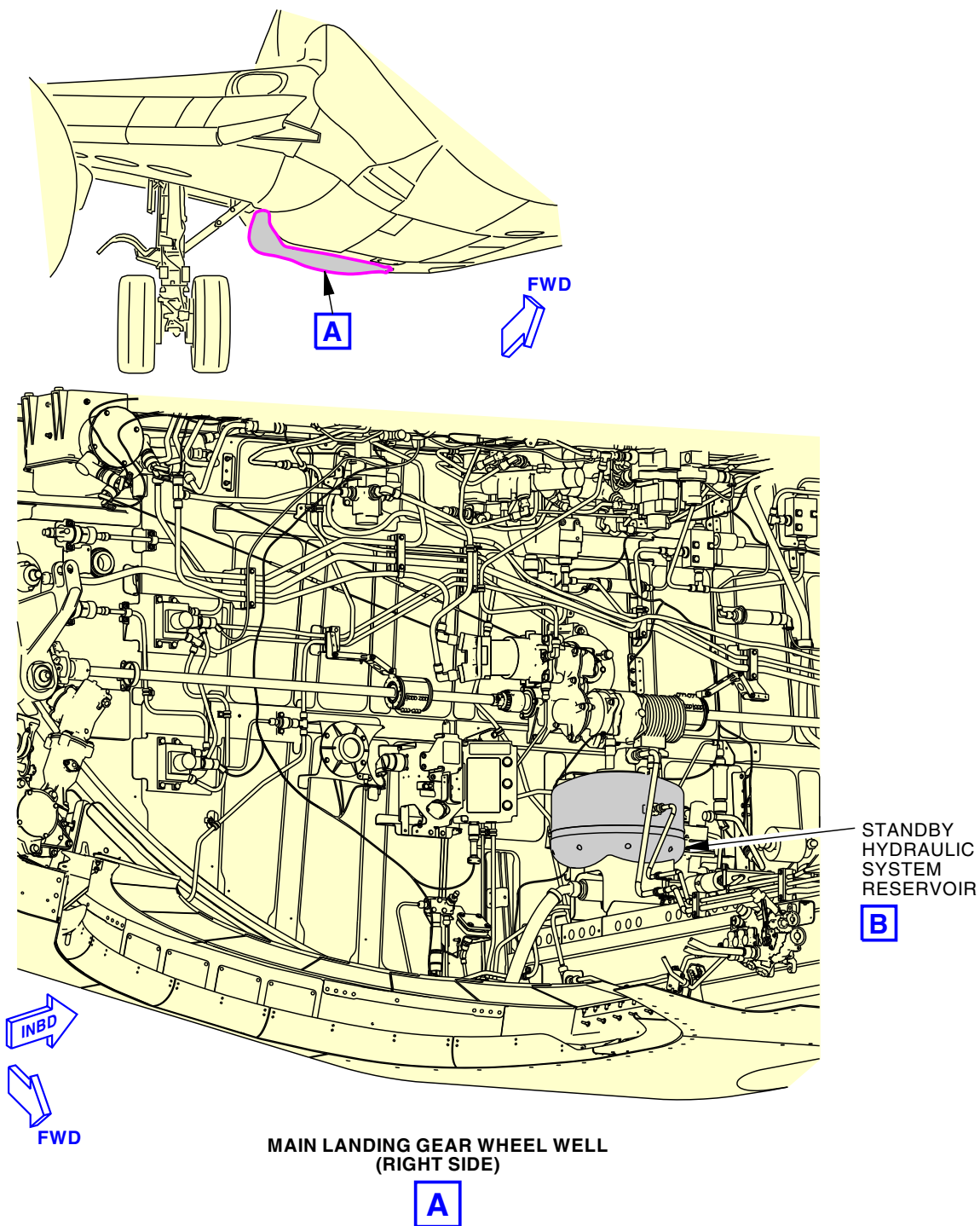
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-21

Page 404
Jan 15/2023



2413867 S00061533621_V2

Standby Hydraulic System Reservoir Low Quantity Switch Installation
Figure 401/29-33-21-990-801 (Sheet 1 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

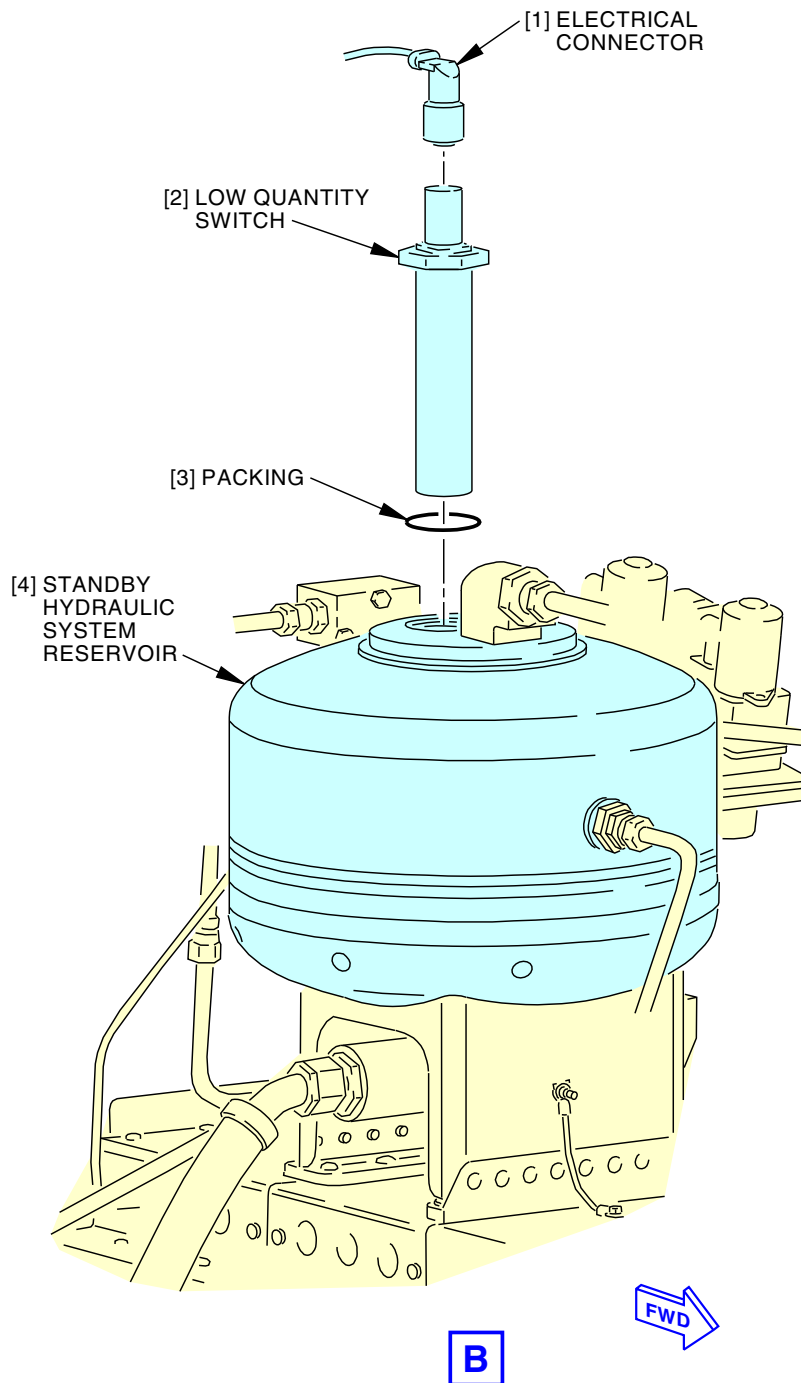
ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-21

Page 405
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



2413868 S00061533622_V2

Standby Hydraulic System Reservoir Low Quantity Switch Installation
Figure 401/29-33-21-990-801 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-33-21

Page 406
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-33-21-400-801

3. Standby Reservoir Low Quantity Switch Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Low quantity switch	29-33-21-01-010	SIA ALL
3	Packing	29-33-21-01-015	SIA ALL

D. Location Zones

Zone	Area
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

E. Procedure

SUBTASK 29-33-21-640-001

(1) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the new packing [3].

SUBTASK 29-33-21-420-002

(2) Install the new packing [3] on the low quantity switch [2].

SUBTASK 29-33-21-420-003

(3) Install the low quantity switch [2] in the port on top of the standby hydraulic system reservoir [4].

(a) Tighten the low quantity switch [2].

SUBTASK 29-33-21-390-001

(4) Apply a fillet seal of sealant, A00247, around the hex nut of the low quantity switch [2].

SUBTASK 29-33-21-420-004

(5) Remove the protective cap from the electrical connector [1].

SUBTASK 29-33-21-210-001

(6) Before you connect the electrical connector [1], do the following steps:

EFFECTIVITY
SIA ALL

29-33-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
Sep 15/2021



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL



DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

- (a) Examine the electrical connector [1] for corrosion.
- (b) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-33-21-420-005

- (7) Install the electrical connector [1] to the low quantity switch [2].

SUBTASK 29-33-21-420-006

- (8) Remove the cap from the hydraulic reservoir quick-disconnect.

F. Standby Hydraulic System Reservoir Low Quantity Switch Installation Test

SUBTASK 29-33-21-860-005

- (1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
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

SUBTASK 29-33-21-210-002

- (2) Make sure that the STANDBY HYD LOW QUANTITY light, on the P5 panel, is on.

SUBTASK 29-33-21-610-001

- (3) Fill the standby and the system B reservoirs, do this task: TASK 12-12-00-610-801.

SUBTASK 29-33-21-210-003

- (4) Make sure that the STANDBY HYD LOW QUANTITY light goes off.

SUBTASK 29-33-21-860-006

- (5) Close the system B depressurization valve.

SUBTASK 29-33-21-860-007

- (6) Pressurize the standby and system B hydraulic reservoirs (TASK 29-09-00-860-801).

SUBTASK 29-33-21-860-008

- (7) Remove the DO-NOT-OPERATE tags from the pump switches.

EFFECTIVITY
SIA ALL

29-33-21

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**

SUBTASK 29-33-21-860-009



WARNING

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER, LEADING EDGE SLATS, AND THRUST REVERSERS. THEY CAN MOVE QUICKLY WHEN YOU SUPPLY STANDBY HYDRAULIC POWER.

- (8) Put the FLT CONTROL B switch (P5) to STDBY RUD.
- (a) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.

SUBTASK 29-33-21-860-010

- (9) Operate the rudder full travel in each direction for a minimum of three times.
- (a) Make sure that the STDBY HYD LOW QUANTITY light stays off.

SUBTASK 29-33-21-860-011

- (10) Put the FLT CONTROL B switch (P5) to OFF.
- (a) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is off.

SUBTASK 29-33-21-790-001

- (11) Examine all the connections for leaks.

SUBTASK 29-33-21-210-004

- (12) Do a check of the system B hydraulic quantity.

SUBTASK 29-33-21-610-002

- (13) Do the servicing for hydraulic system B if it is necessary (TASK 12-12-00-610-801).

SUBTASK 29-33-21-620-001



CAUTION

IF THE AIRPLANE IS EXPOSED TO RUNWAY DEICING FLUIDS THAT CONTAIN POTASSIUM FORMATE, CORROSION OF THE ELECTRICAL CONNECTORS CAN OCCUR. CORROSION CAN CAUSE DAMAGE TO AND THE MALFUNCTION OF CRITICAL SYSTEMS NECESSARY FOR SAFE FLIGHT.

- (14) Do the step below if the airplane is exposed to deicing fluid at any time during the year.
- (a) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

29-33-21

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

PUMP LOW PRESSURE WARNING SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has a test of the pump low pressure warning system. This procedure is applicable for hydraulic systems A, B, and standby.
- B. The test of the pump low pressure warning system is a check for electrical continuity between the low pressure lights and the pressure switches. It is also a check for correct operation and pressure settings of the pressure switches. The pressure settings of the switches are not adjustable.
- C. Do a check of the engine driven pumps (EDPs) and electric motor-driven pumps (EMDPs), one at a time, to get an accurate check of the pressures and light operations.

NOTE: If you stop an EDP when the EMDP is on, it is possible the LOW PRESSURE light for the EDP will not come on for two minutes or more. This is because pressure is caught in the line between the EDP and the pressure module. With the EMDP in operation, this pressure can only bleed back through the blocking valve in the EDP. If this is your problem, ignore it, the system is O.K.

TASK 29-34-00-700-801

2. Pump Low Pressure Warning System Test

A. General

- (1) This task includes a test of the pump low pressure warning system.

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-163	Portable Hydraulic Cart, 3000 PSI, 30 GPM Part #: 5833 Supplier: 59603 Part #: 673A5FCBBCLMNY4 Supplier: 59603 Part #: 9780-0327 Supplier: 05172 Part #: HGPU50-30-1SX Supplier: 0022N Part #: HT2000-1-E/1-S Supplier: H6394 Part #: HT2000-1-E/1-S2 Supplier: H6394 Part #: HT2000-1-F-S Supplier: H6394 Part #: HT2000-1-F-S2 Supplier: H6394 Part #: PH50D Supplier: 10000 Part #: PH50E Supplier: 10000 Opt Part #: 57301FC3BBCILMNY Supplier: 59603 Opt Part #: 57305KV3BBCI-A1 Supplier: 59603
STD-1154	Container - 5 Gallon (19 Liter)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
413	Engine 1 - Fan Cowl, Left

EFFECTIVITY
SIA ALL

D633AM101-SIA

29-34-00

Page 501
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Zone	Area
423	Engine 2 - Fan Cowl, Left

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Pump Low Pressure Warning System Test for Hydraulic System A or B

SUBTASK 29-34-00-860-002

- (1) Set the LIGHTS switch, on the P1 panel, to the TEST position.

SUBTASK 29-34-00-210-001

- (2) Make sure that these lights come on:
- (a) The two MASTER CAUTION lights, on the P7 panel.
 - (b) The HYD light, on the P7 panel.
 - (c) The LOW PRESSURE lights (ENG 1 and ELEC 2 for system A; ELEC 1 and ENG 2 for system B), on the P5 panel, for the applicable system.

NOTE: Other annunciator lights will come on but you can ignore those lights.

SUBTASK 29-34-00-860-003

- (3) Set the LIGHTS switch back to the DIM or BRT position.

SUBTASK 29-34-00-480-001

- (4) Install the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

- (a) Disconnect the pressure line from the applicable Engine Driven Pump (EDP) or Electric Motor-Driven Pump (EMDP).
 - 1) Put a 5 gallon (19 liter) container, STD-1154, or equivalent, under the hydraulic lines to catch all hydraulic fluid.
- (b) Install a cap on the pressure port of the EDP or EMDP.
- (c) Connect the pump pressure line to the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.
- (d) Connect the return hose of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the return port of the ground service module for the applicable system.

SUBTASK 29-34-00-210-002

- (5) Make sure that the applicable LOW PRESSURE lights (ENG 1 and ELEC 2 for system A; ENG 2 and ELEC 1 for system B) come on.

SUBTASK 29-34-00-780-001



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Slowly increase the hydraulic pressure.

EFFECTIVITY
SIA ALL

29-34-00

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 502
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure that the MASTER CAUTION and the applicable LOW PRESSURE lights (ENG 1 and ELEC 2 for system A; ELEC 1 and ENG 2 for system B) go off between 1300 psig (8963 kPa) and 1600 psig (11,032 kPa).

SUBTASK 29-34-00-780-002

- (7) Slowly decrease the pressure.

- (a) Make sure that the MASTER CAUTION and the applicable LOW PRESSURE lights (ENG 1 and ELEC 2 for system A; ELEC 1 and ENG 2 for system B) come on between 1500 psig (10,342 kPa) and 1200 psig (8274 kPa).

SUBTASK 29-34-00-080-001

- (8) Remove the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.
 - (a) Disconnect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the pressure line.
 - (b) Remove the cap from the pressure port of the EDP or EMDP.
 - (c) Connect the pressure line to the pressure port of the applicable EDP or EMDP.
 - (d) Disconnect the return hose of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the ground service module.

F. Pump Low Pressure Warning System Test for the Standby Hydraulic System

SUBTASK 29-34-00-860-004

- (1) Set the LIGHTS switch, on the P1 panel, to the TEST position.
 - (a) Make sure that the STANDBY HYD LOW PRESSURE light comes on.

SUBTASK 29-34-00-860-005

- (2) Set the LIGHTS switch back to the DIM or BRT position.

SUBTASK 29-34-00-010-001

- (3) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-34-00-860-006



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-00

Page 503
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-34-00-860-007

- (5) Set the ALTERNATE FLAPS arm switch to the ARM position.

- (a) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 panel, comes on.

SUBTASK 29-34-00-480-002

- (6) Install the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

NOTE: Do not operate the EDPs or EMDPs with the portable hydraulic cart return and pressure lines connected. This may prevent the pumps from receiving enough hydraulic fluid from their respective reservoirs and cavitate the pump.

- (a) Disconnect the pressure line of the standby EMDP at the disconnect half on the aft bulkhead.
- 1) Put a 5 gallon (19 liter) container, STD-1154 or equivalent, under the hydraulic lines to catch any hydraulic fluid.
- (b) Attach the pressure hose of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the disconnect half on the aft bulkhead.
- (c) Attach the return hose for the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the return port of the hydraulic system B ground service.

SUBTASK 29-34-00-780-003



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) Slowly increase the hydraulic pressure.
- (a) Make sure that the STANDBY HYD LOW PRESSURE light goes off between 1100 psig (7584 kPa) and 1600 psig (11,032 kPa).

SUBTASK 29-34-00-780-004

- (8) Slowly decrease the pressure.
- (a) Make sure that the STANDBY HYD LOW PRESSURE light comes on at 1500 psig (10,342 kPa) and 1000 psig (6895 kPa).

SUBTASK 29-34-00-080-002

- (9) Remove the 3000 PSI, 30 GPM portable hydraulic cart, COM-163.

EFFECTIVITY
SIA ALL

29-34-00

D633AM101-SIA

Page 504
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (a) Remove the pressure hose of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the disconnect half on the aft bulkhead.
- (b) Connect the pressure line of the standby EMDP to the disconnect half on the aft bulkhead.
- (c) Disconnect the return hose of the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, from the hydraulic system B ground service module.

SUBTASK 29-34-00-860-008

- (10) Set the ALTERNATE FLAPS arm switch to the OFF position.

SUBTASK 29-34-00-860-009



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (11) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 29-34-00-410-001

- (12) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

29-34-00

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

HYDRAULIC SYSTEMS A AND B EDP LOW PRESSURE SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of an EDP low pressure switch.
 - (2) Installation of an EDP low pressure switch.
- B. The hydraulic systems A and B EDP low pressure switch is referred to as the "EDP low pressure switch in this procedure.
- C. The EDP low pressure switch for engine driven pump (EDP) No. 1 is on the hydraulic system A pressure modules. The EDP low pressure switch for the EDP No. 2 is on the hydraulic system B pressure module.
- D. This procedure is applicable for the EDP low pressure switch on the hydraulic system A pressure module and hydraulic system B pressure module.

TASK 29-34-11-000-801

2. Engine Driven Pump (EDP) Low Pressure Switch Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 29-34-11-860-001

- (1) For the applicable hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-34-11-860-002

- (2) For the applicable hydraulic system, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 29-34-11-860-003

- (3) For the EDP low pressure switch on the hydraulic system A pressure module, do this step:

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-11

Page 401
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

- (b) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (c) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-34-11-860-004

- (4) For the EDP low pressure switch on the hydraulic system B pressure module, do this step:

- (a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

- (b) To get access to the P91 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

29-34-11

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

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (c) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

F. EDP Low Pressure Switch Removal

SUBTASK 29-34-11-020-001

- (1) Disconnect the electrical connector [2] from the EDP low pressure switch [3].

SUBTASK 29-34-11-020-002

- (2) Install a dust cap, STD-7394, on the electrical connector [2].

SUBTASK 29-34-11-020-003

- (3) Remove the EDP low pressure switch [3] from the applicable pressure module [5].
- (a) Remove the ring [1] and packing [4].
- (b) Discard the ring [1] and packing [4].
- (c) Install a cap/plug, STD-14686, on the open port of the pressure module [5].

————— **END OF TASK** —————

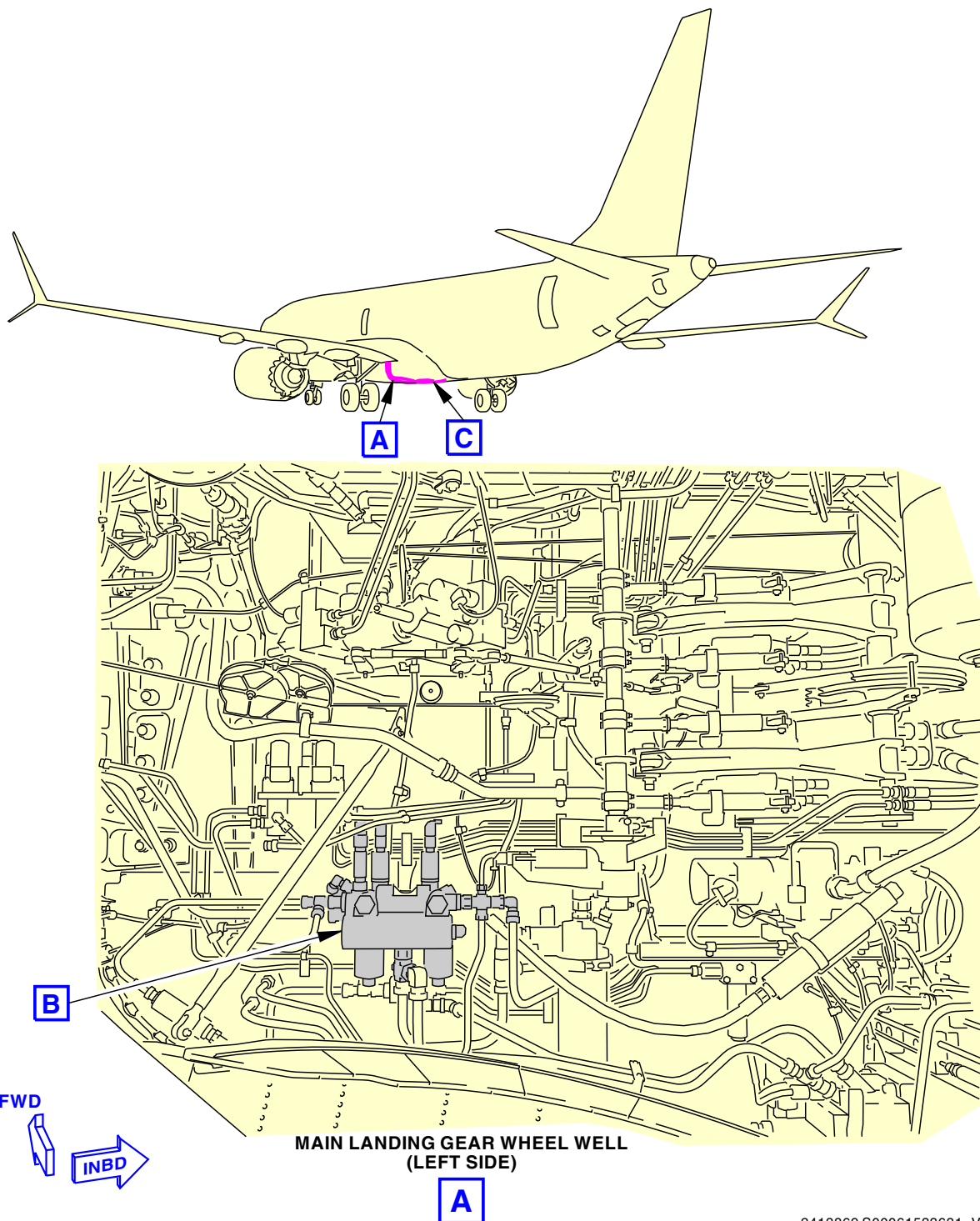
EFFECTIVITY
SIA ALL

29-34-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Sep 15/2023



2413869 S00061533631_V1

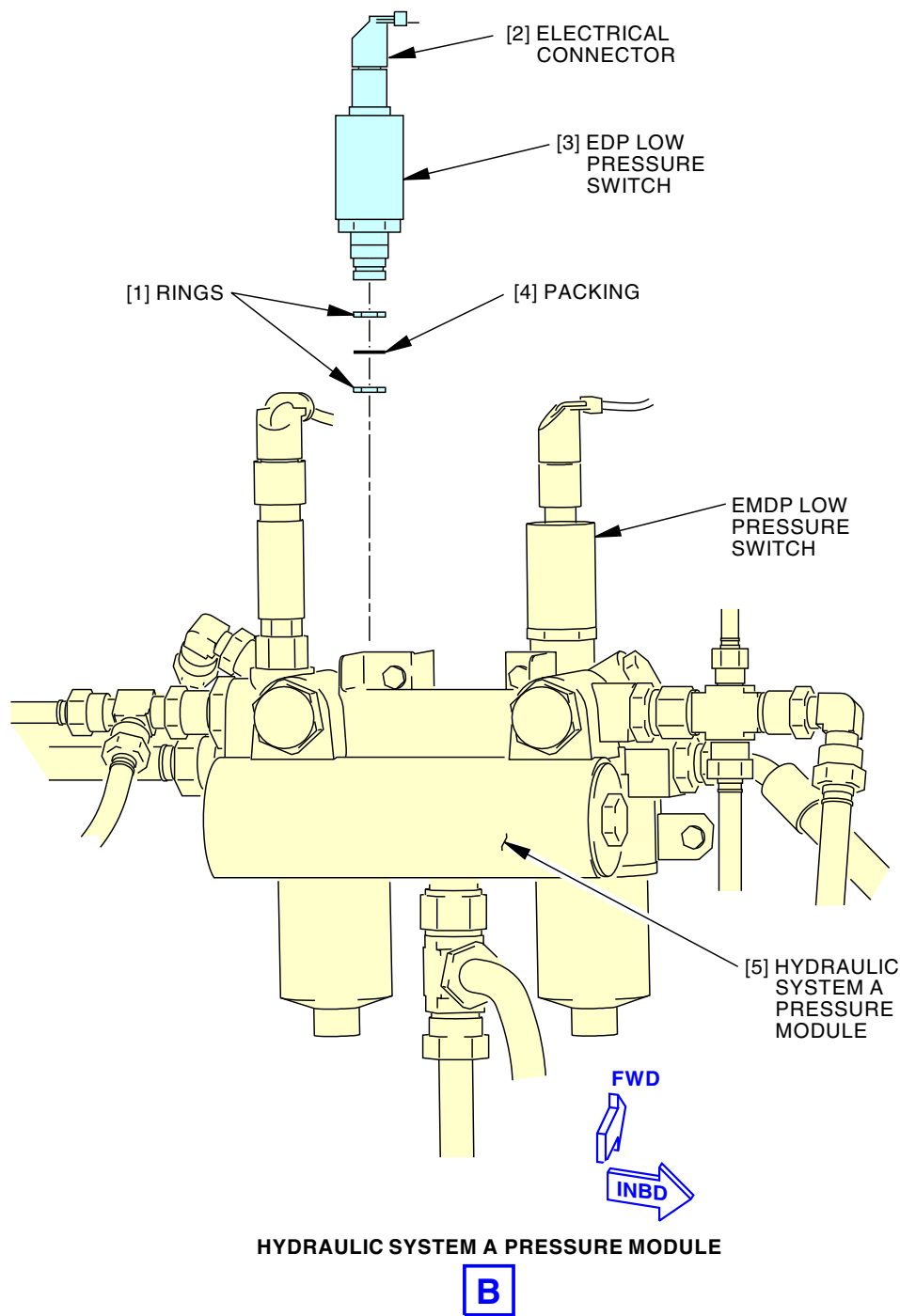
Hydraulic Systems A and B EDP Low Pressure Switch Installation
Figure 401/29-34-11-990-801 (Sheet 1 of 4)

EFFECTIVITY
SIA ALL

29-34-11

D633AM101-SIA

Page 404
Sep 15/2023



2413870 S00061533632_V1

Hydraulic Systems A and B EDP Low Pressure Switch Installation
Figure 401/29-34-11-990-801 (Sheet 2 of 4)

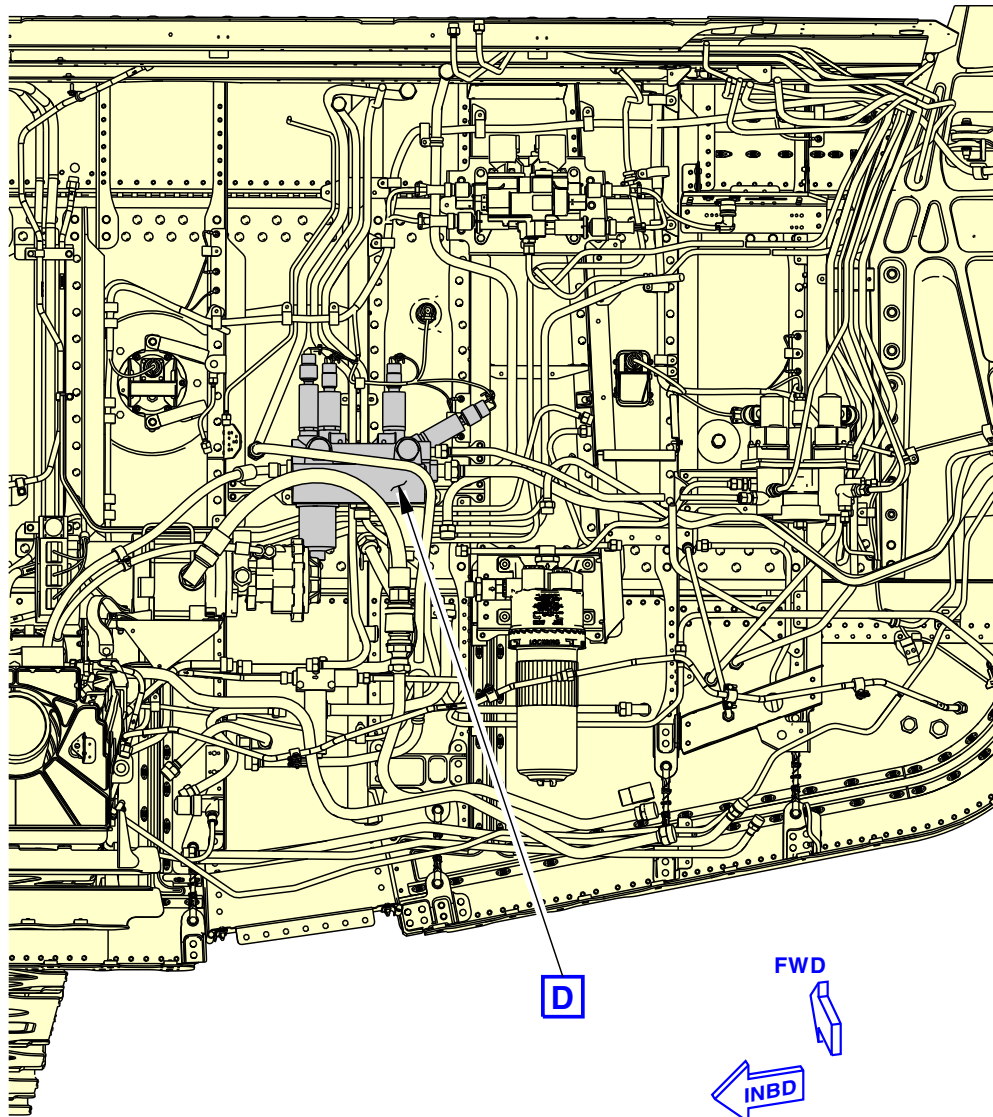
EFFECTIVITY
SIA ALL

29-34-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Sep 15/2023



MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

C

2413871 S00061533633_V1

Hydraulic Systems A and B EDP Low Pressure Switch Installation
Figure 401/29-34-11-990-801 (Sheet 3 of 4)

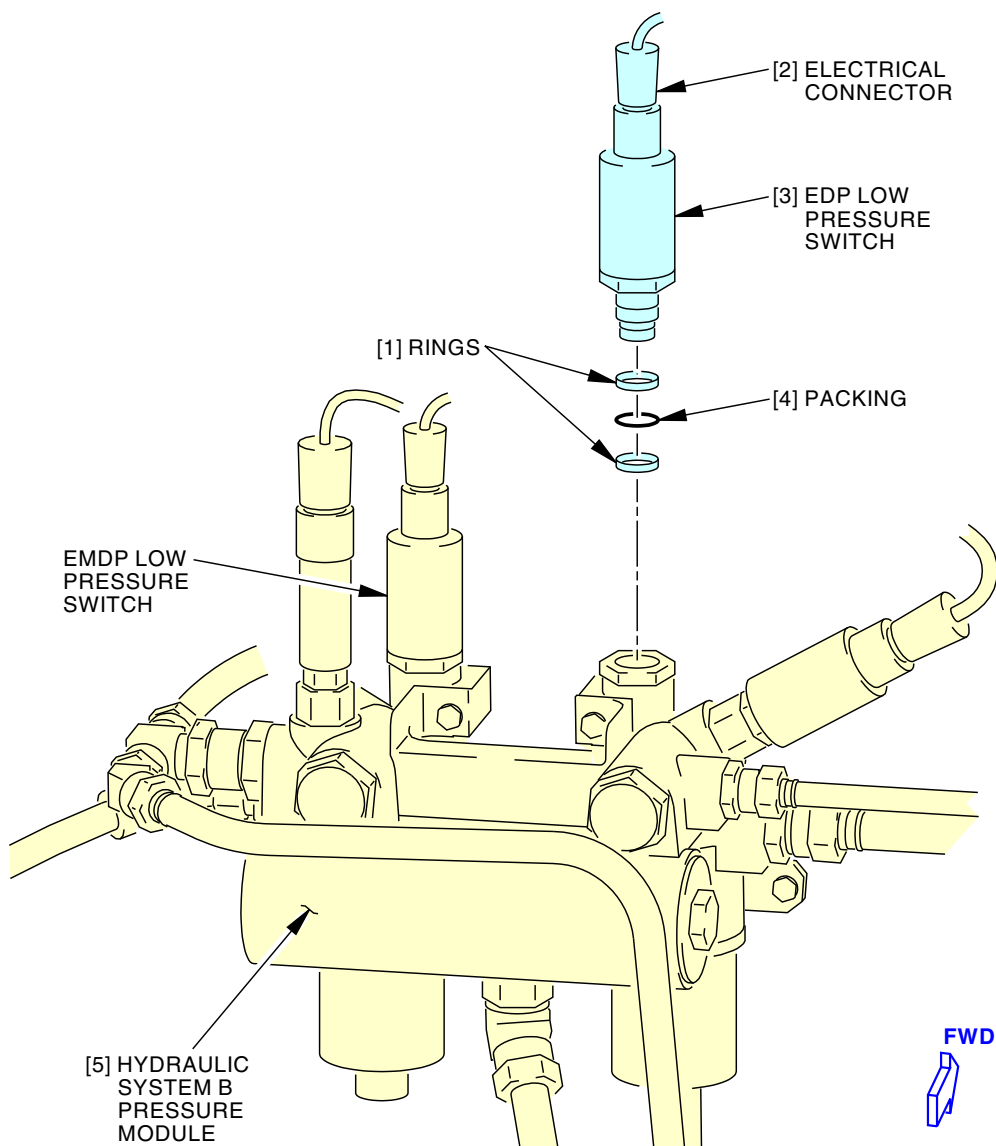
EFFECTIVITY
SIA ALL

29-34-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Sep 15/2023



HYDRAULIC SYSTEM B PRESSURE MODULE

D

2413872 S00061533634_V1

Hydraulic Systems A and B EDP Low Pressure Switch Installation
Figure 401/29-34-11-990-801 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-11

Page 407
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-34-11-400-801

3. Engine Driven Pump (EDP) Low Pressure Switch Installation

(Figure 401)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
29-11-00-860-804	Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Ring	29-11-71-01-115	SIA ALL
		29-11-71-02-105	SIA ALL
3	EDP low pressure switch	29-11-71-01-110	SIA ALL
		29-11-71-02-100	SIA ALL
4	Packing	29-11-71-01-120	SIA ALL
		29-11-71-02-110	SIA ALL

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-34-11

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

G. EDP Low Pressure Switch Installation

SUBTASK 29-34-11-640-001

- (1) Lubricate the new rings [1] and new packing [4] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

SUBTASK 29-34-11-420-001

- (2) Install the EDP low pressure switch [3] in the applicable pressure module [5]:
 - (a) Install the new rings [1] and new packing [4] on the EDP low pressure switch [3].
 - (b) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the threads of the EDP low pressure switch [3].
 - (c) Remove the cap/plug, STD-14686, from the pressure module [5].
 - (d) Put the EDP low pressure switch [3] in the pressure module [5].
 - (e) Tighten the EDP low pressure switch [3] to 350 in-lb (39.5 N·m) - 375 in-lb (42.4 N·m).
 - (f) Install the MS20995NC32 lockwire, G01912 (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801).

SUBTASK 29-34-11-420-002

- (3) Remove the dust cap, STD-7394, from the electrical connector [2].

SUBTASK 29-34-11-420-003

- (4) Connect the electrical connector [2] to the EDP low pressure switch [3].

H. EDP Low Pressure Switch Installation Test

SUBTASK 29-34-11-860-005

- (1) For the EDP low pressure switch on the hydraulic system A pressure module, do this step:



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (a) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

- (b) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-34-11

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-34-11-860-006

- (2) For the EDP low pressure switch on the hydraulic system B pressure module, do this step:



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (a) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

- (b) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

- (c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

SUBTASK 29-34-11-710-001

- (3) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2), on the P5 panel, is on.

NOTE: The ENG 1 LOW PRESSURE light is for hydraulic system A EDP. The ENG 2 LOW PRESSURE light is for hydraulic system B EDP.

SUBTASK 29-34-11-710-002

- (4) Supply hydraulic power with the EDP for the applicable hydraulic system (TASK 29-11-00-860-804).

SUBTASK 29-34-11-710-003

- (5) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2) goes off.

SUBTASK 29-34-11-790-001

- (6) Make sure that there is no leak at the applicable EDP low pressure switch.

EFFECTIVITY
SIA ALL

29-34-11

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

SUBTASK 29-34-11-860-008

- (7) Remove hydraulic power from the applicable hydraulic system (TASK 29-11-00-860-805).

SUBTASK 29-34-11-710-004

- (8) Make sure that the applicable LOW PRESSURE light (ENG 1 or ENG 2), on the P5 panel, is on.

NOTE: The ENG 1 LOW PRESSURE light is for hydraulic system A EDP. The ENG 2 LOW PRESSURE light is for hydraulic system B EDP.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-11

Page 411
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC SYSTEMS A AND B EMDP LOW PRESSURE SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of a hydraulic system A or B EMDP low pressure switch.
 - (2) Installation of a hydraulic system A or B EMDP low pressure switch.
- B. The hydraulic system A or B EMDP low pressure switch is referred to as the EMDP low pressure switch in this procedure.
- C. The EMDP low pressure switch for electric motor driven pump (EMDP) No. 2 is on the hydraulic system A pressure modules. The EMDP low pressure switch for the EMDP No. 1 is on the hydraulic system B pressure module.
- D. This procedure is applicable for the EMDP low pressure switch on the hydraulic system A pressure module and hydraulic system B pressure module.

TASK 29-34-21-000-801

2. Hydraulic System A or B EMDP Low Pressure Switch Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 29-34-21-860-001

- (1) For the applicable hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 29-34-21-860-002

- (2) For the applicable hydraulic system, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-21

Page 401
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-34-21-860-003

(3) For the EMDP low pressure switch on the hydraulic system A pressure module, do this step:

(a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

(b) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(c) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

SUBTASK 29-34-21-860-004

(4) For the EMDP low pressure switch on the hydraulic system B pressure module, do this step:

(a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

(b) To get access to the P91 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
SIA ALL

29-34-21

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

(WARNING PRECEDES)



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (c) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

F. EMDP Low Pressure Switch Removal

SUBTASK 29-34-21-020-001

- (1) Disconnect the electrical connector [2] from the EMDP low pressure switch [3].

SUBTASK 29-34-21-020-002

- (2) Install a dust cap, STD-7394, on the electrical connector [2].

SUBTASK 29-34-21-020-003

- (3) Remove the EMDP low pressure switch [3] from the applicable pressure module [5].
- (a) Remove the rings [1] and packing [4].
- (b) Discard the rings [1] and packing [4].
- (c) Install a cap/plug, STD-14686, on the open port of the pressure module [5].

————— **END OF TASK** —————

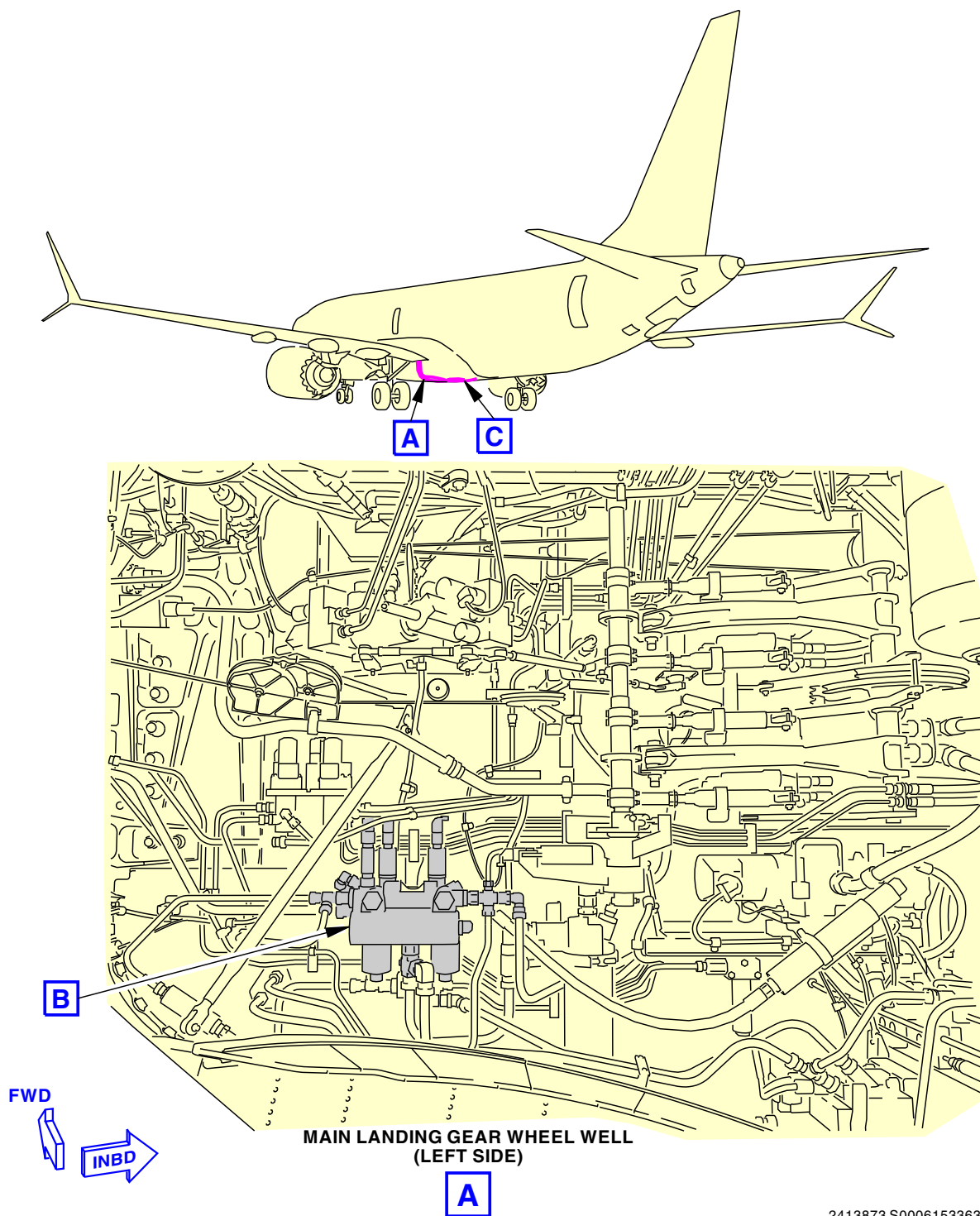
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-21

Page 403
Sep 15/2023



2413873 S00061533639_V1

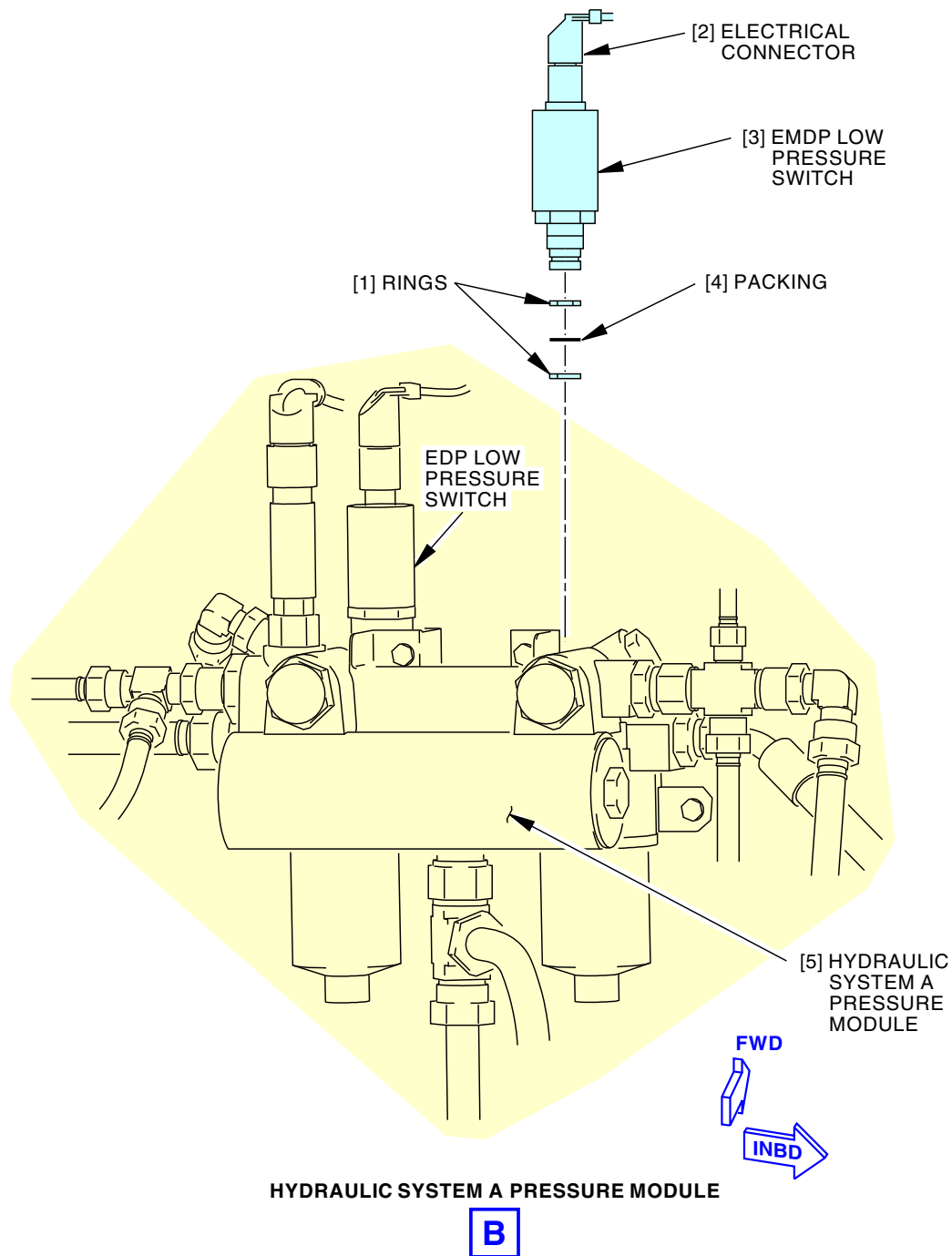
Hydraulic Systems A and B EMDP Low Pressure Switch Installation
Figure 401/29-34-21-990-801 (Sheet 1 of 4)

EFFECTIVITY
SIA ALL

29-34-21

D633AM101-SIA

Page 404
Sep 15/2023



2413874 S00061533640_V1

Hydraulic Systems A and B EMDP Low Pressure Switch Installation
Figure 401/29-34-21-990-801 (Sheet 2 of 4)

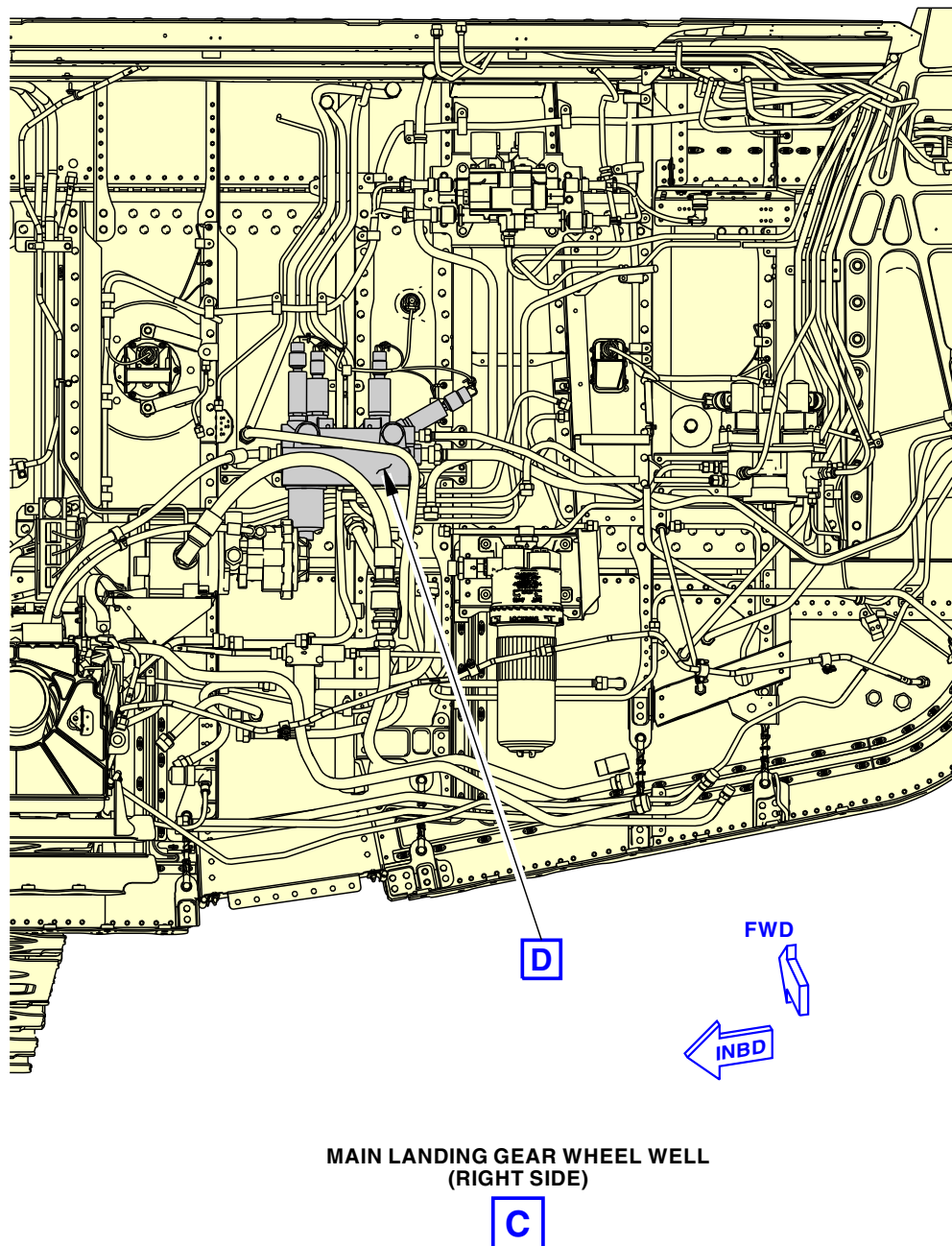
EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-21

Page 405
Sep 15/2023



2413875 S00061533641_V1

Hydraulic Systems A and B EMDP Low Pressure Switch Installation
Figure 401/29-34-21-990-801 (Sheet 3 of 4)

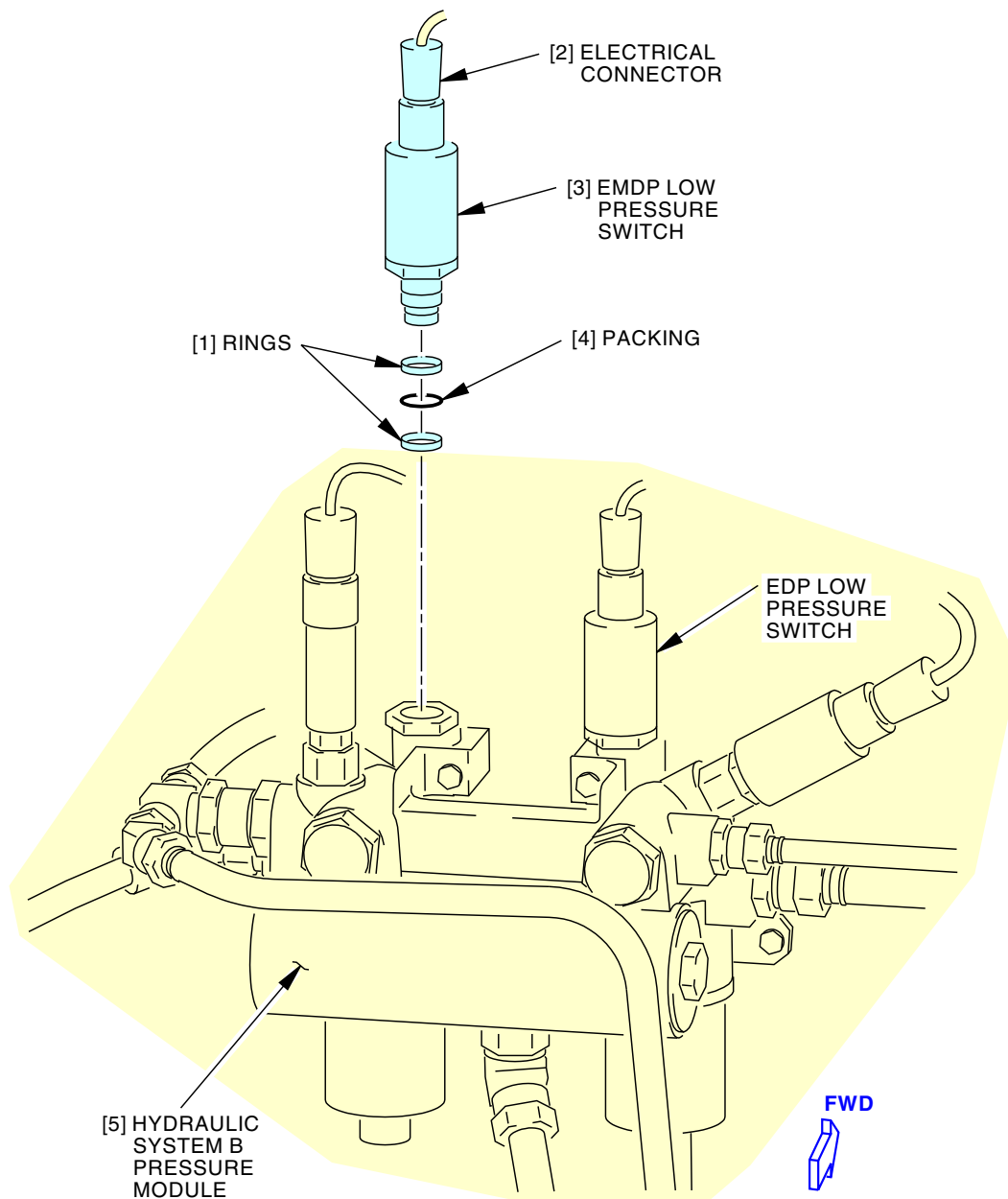
EFFECTIVITY
SIA ALL

29-34-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Sep 15/2023



HYDRAULIC SYSTEM B PRESSURE MODULE



2413876 S00061533642_V1

Hydraulic Systems A and B EMDP Low Pressure Switch Installation
Figure 401/29-34-21-990-801 (Sheet 4 of 4)

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-21

Page 407
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

TASK 29-34-21-400-801

3. Hydraulic System A or B EMDP Low Pressure Switch Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-801	Supply Electrical Power (P/B 201)
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
70-41-00-400-801-G00	Lockwire Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Ring	29-11-71-01-115	SIA ALL
		29-11-71-02-105	SIA ALL
3	EMDP low pressure switch	29-11-71-01-110	SIA ALL
		29-11-71-02-100	SIA ALL
4	Packing	29-11-71-01-120	SIA ALL
		29-11-71-02-110	SIA ALL

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-34-21

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

G. EMDP Low Pressure Installation

SUBTASK 29-34-21-640-001

- (1) Lubricate the new rings [1] and new packing [4] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

SUBTASK 29-34-21-420-001

- (2) Install the EMDP low pressure switch [3] in the applicable pressure module [5]:
 - (a) Install the new rings [1] and new packing [4] on the EMDP low pressure switch [3].
 - (b) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the threads of the EMDP low pressure switch [3].
 - (c) Remove the cap/plug, STD-14686, from the pressure module [5].
 - (d) Put the EMDP low pressure switch [3] in the pressure module [5].
 - (e) Tighten the EMDP low pressure switch [3] to 350 in-lb (39.5 N·m) - 375 in-lb (42.4 N·m).
 - (f) Install the MS20995NC32 lockwire, G01912 (TASK 70-41-00-400-801-G00).

SUBTASK 29-34-21-420-002

- (3) Remove the dust cap, STD-7394, from the electrical connector [2].

SUBTASK 29-34-21-420-003

- (4) Connect the electrical connector [2] to the EMDP low pressure switch [3].

H. EMDP Low Pressure Switch Installation Test

SUBTASK 29-34-21-860-005

- (1) For the EMDP low pressure switch on the hydraulic system A pressure module, do this step:



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (a) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

- (b) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

EFFECTIVITY
SIA ALL

29-34-21

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 409
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

- (c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 29-34-21-860-006

- (2) For the EMDP low pressure switch on the hydraulic system B pressure module, do this step:



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (a) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B

- (b) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

- (c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5

SUBTASK 29-34-21-860-007

- (3) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 29-34-21-710-001



CAUTION

DO NOT OPERATE THE HYDRAULIC SYSTEMS A AND B ELECTRIC MOTOR-DRIVEN PUMPS FOR MORE THAN TWO MINUTES WITHOUT FUEL IN THE FUEL TANKS. THE NO. 1 (FOR HYDRAULIC SYSTEM A), AND NO. 2 (FOR HYDRAULIC SYSTEM B), FUEL TANKS MUST HAVE A MINIMUM OF 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN THEM. IF THERE IS NOT SUFFICIENT FUEL IN THE FUEL TANKS, THE ELECTRIC MOTOR-DRIVEN PUMPS WILL BECOME TOO HOT. THIS CAN CAUSE DAMAGE TO THE ELECTRIC MOTOR-DRIVEN PUMPS.

- (4) Do the EMDP low pressure switch installation test:

EFFECTIVITY
SIA ALL

29-34-21

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

- (a) Make sure that the applicable LOW PRESSURE light (ELEC 1 or ELEC 2), on the P5 panel, is on.
NOTE: The ELEC 2 LOW PRESSURE light is for the hydraulic system A EMDP. The ELEC 1 LOW PRESSURE light is for the hydraulic system B EMDP.
- (b) Pressurize the applicable hydraulic system (TASK 29-11-00-860-803).
- (c) Put the applicable ELEC (1 or 2) HYD PUMPS switch to the ON position.
 - 1) Make sure that the applicable LOW PRESSURE light (ELEC 1 or ELEC 2) goes off.
- (d) Put the applicable ELEC (1 or 2) HYD PUMPS switch to the OFF position.
 - 1) Make sure that the applicable LOW PRESSURE light (ELEC 1 or ELEC 2) comes on.

SUBTASK 29-34-21-790-001

- (5) Make sure that there is no leakage at the applicable EMDP low pressure switch.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-21

Page 411
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

STANDBY HYDRAULIC SYSTEM EMDP LOW PRESSURE SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of a standby hydraulic system EMDP low pressure switch.
 - (2) An installation of a standby hydraulic system EMDP low pressure switch.
- B. The EMDP low pressure switch for standby electric motor driven pump (EMDP) is on the standby hydraulic system pressure module.
- C. The standby system EMDP low pressure switch will be referred to as the low pressure switch throughout this procedure.

TASK 29-34-31-000-801

2. Standby System EMDP Low Pressure Switch Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 29-34-31-860-001

- (1) Remove the hydraulic power from the standby system (TASK 29-21-00-000-802).

SUBTASK 29-34-31-860-002

- (2) Release pressure from the system B hydraulic reservoir (TASK 29-09-00-860-802).

SUBTASK 29-34-31-860-003

- (3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT
E	14	C00316	INDICATOR MASTER DIM SECT 4

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-31

Page 401
Sep 15/2023



737-7/8/8200/9/10 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-34-31-010-001

- (4) To get access to the P92 panel, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-34-31-860-010



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (5) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

F. Standby System EMDP Low Pressure Switch Removal

SUBTASK 29-34-31-020-001

- (1) Disconnect the electrical connector [2] from the low pressure switch [1].

SUBTASK 29-34-31-020-002

- (2) Install a dust cap, STD-7394, on the electrical connector [2].

SUBTASK 29-34-31-020-003

- (3) Remove the low pressure switch [1] from the standby system pressure module [5].
- (a) Remove the packing [4] and backup rings [3] from the low pressure switch [1].
 - (b) Discard the packing [4].
 - (c) Install a cap/plug, STD-14686, on the open port on the standby system pressure module [5].

————— END OF TASK —————

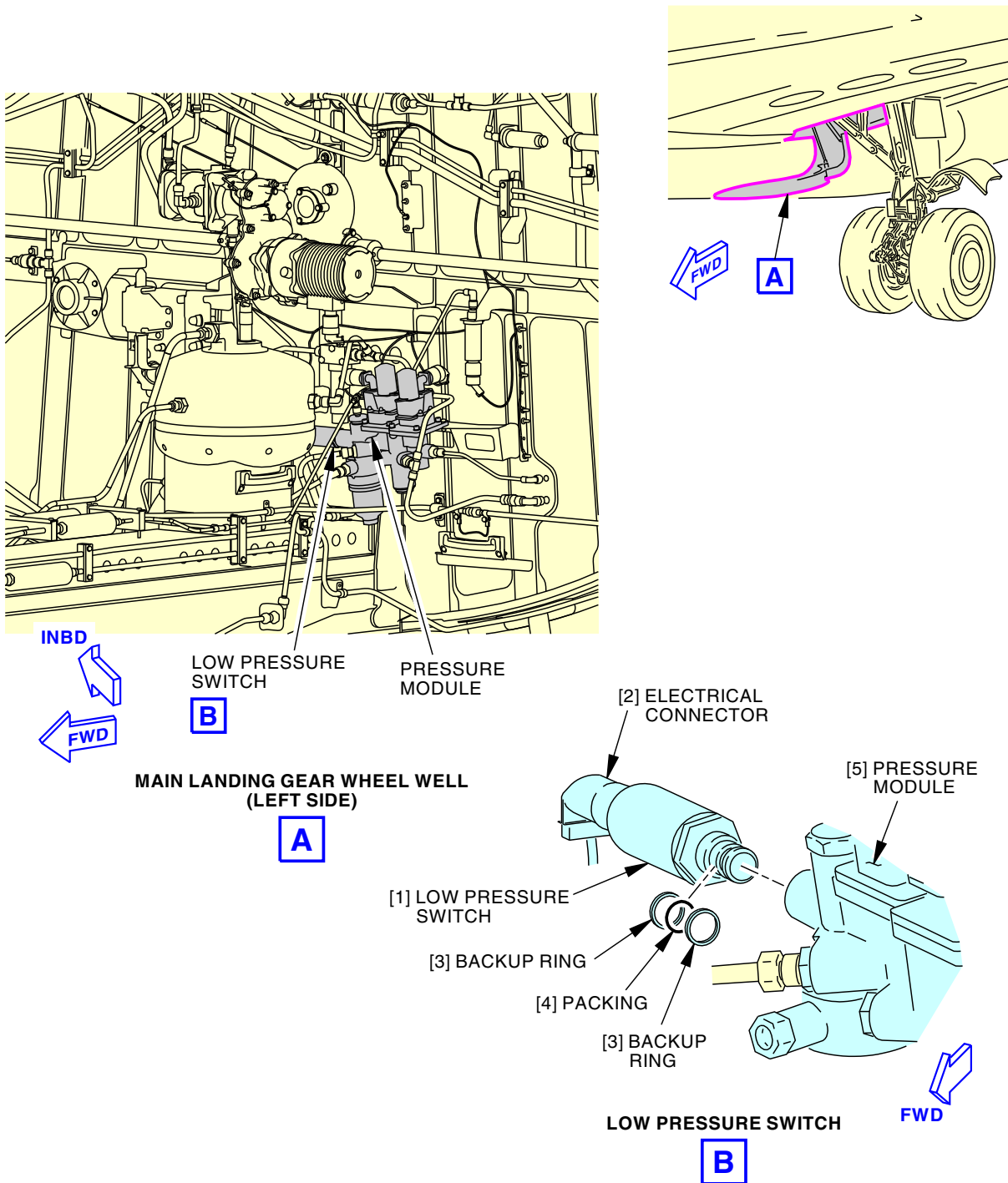
EFFECTIVITY
SIA ALL

29-34-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Sep 15/2023



2413877 S00061533647_V1

Standby Hydraulic System Electric-Motor-Driven-Pump (EMDP) Low Pressure Switch Installation
Figure 401/29-34-31-990-801

EFFECTIVITY
SIA ALL

29-34-31

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

TASK 29-34-31-400-801

3. **Standby System EMDP Low Pressure Switch Installation**

(Figure 401)

A. References

Reference	Title
20-60-07-910-802	Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
70-41-00-400-801-G00	Lockwire Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector
STD-14686	Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX)

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V)	BMS3-11 Type IV
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Low pressure switch	29-34-31-02A-005	SIA ALL

E. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
139	Keel Beam, (Part) Body Station 540.00 to Body Station 727.00

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Standby System EMDP Low Pressure Switch Installation

SUBTASK 29-34-31-640-001

- (1) Lubricate the new packing [4] and backup rings [3] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

SUBTASK 29-34-31-020-008

- (2) Install the low pressure switch [1] to the standby system pressure module [5]:
- (a) Install the new packing [4] and the backup rings [3] in the low pressure switch [1].
 - (b) Apply MCS 352B fluid, D00054, or hydraulic fluid, D00153, to the threads of the low pressure switch [1].
 - (c) Remove the cap/plug, STD-14686, from the standby system pressure module [5].
 - (d) Install the low pressure switch [1] on the standby system pressure module [5].

EFFECTIVITY
SIA ALL

29-34-31

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

- (e) Tighten the low pressure switch [1] to 350 in-lb (39.5 N·m) - 375 in-lb (42.4 N·m).
- (f) Install the MS20995NC32 lockwire, G01912 (TASK 70-41-00-400-801-G00).

SUBTASK 29-34-31-420-001

- (3) Remove the dust cap, STD-7394, from the electrical connector [2].

SUBTASK 29-34-31-210-001



WARNING

DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

- (4) Before you connect the electrical connector [2], do the following steps:
 - (a) Examine the electrical connector [2] for corrosion.
 - (b) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

SUBTASK 29-34-31-420-002

- (5) Connect the electrical connector [2] to the low pressure switch [1].

H. Standby Hydraulic System EMDP Low Pressure Switch Installation Test

SUBTASK 29-34-31-860-004

- (1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT
E	14	C00316	INDICATOR MASTER DIM SECT 4

SUBTASK 29-34-31-860-006

- (2) Pressurize the standby system reservoir (TASK 29-09-00-860-801).

SUBTASK 29-34-31-860-007



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Put the FLT CONTROL A or B switch, on the P5 panel, to the STDBY RUD position.
 - (a) Make sure that the STANDBY HYD STBY RUD ON light on the forward overhead panel, P5, is on.
 - (b) Make sure that the STANDBY HYD LOW PRESSURE light, on the P5 panel, comes on.

EFFECTIVITY
SIA ALL

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

29-34-31

Page 405
Sep 15/2023



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 29-34-31-860-008



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

- (a) Make sure that the STANDBY HYD LOW PRESSURE light goes off.

SUBTASK 29-34-31-410-001

- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 29-34-31-860-009

- (6) Put the FLT CONTROL A or B switch to the ON position.

- (a) Make sure that the STANDBY HYD LOW PRESSURE light stays off.

SUBTASK 29-34-31-790-001

- (7) Make sure that there is no leakage at the low pressure switch.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

29-34-31

D633AM101-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Sep 15/2023