

**CHAPTER**

**34**

**NAVIGATION**



**737-600/700/800/900  
AIRCRAFT MAINTENANCE MANUAL**

**CHAPTER 34  
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EFFECTIVE PAGES			34-11-00 (cont)			34-11-00 (cont)		
1 thru 8	Jun 15/2009		R 205	Jun 15/2009		512	Feb 10/2005	
			206	Feb 15/2009		513	Jun 10/2007	
34-CONTENTS			207	Feb 15/2009		514	Feb 15/2009	
1	Feb 15/2008		208	Feb 15/2009		R 515	Jun 15/2009	
2	Feb 15/2009		209	Feb 15/2009		516	Jun 15/2008	
3	Feb 15/2009		210	Feb 15/2009		517	Jun 15/2008	
4	Feb 15/2008		34-11-00			518	Jun 15/2008	
5	Feb 15/2008		301	Feb 15/2009		519	Feb 15/2009	
6	Feb 15/2008		302	Feb 15/2009		R 520	Jun 15/2009	
7	Jun 15/2008		303	Feb 15/2009		521	Feb 15/2009	
8	Feb 15/2008		304	Feb 15/2009		522	Feb 15/2009	
9	Feb 15/2009		305	Feb 15/2009		523	Feb 15/2009	
10	Feb 15/2009		306	Feb 15/2009		R 524	Jun 15/2009	
11	Feb 15/2008		307	Feb 15/2009		525	Feb 15/2009	
12	Feb 15/2008		308	Feb 15/2009		526	Feb 15/2009	
13	Feb 15/2009		309	Feb 15/2009		527	Feb 15/2009	
14	Feb 15/2009		310	Feb 15/2009		R 528	Jun 15/2009	
15	Feb 15/2009		311	Feb 15/2009		529	Feb 15/2009	
O 16	Jun 15/2009		312	Feb 15/2009		530	Feb 15/2009	
O 17	Jun 15/2009		313	Feb 15/2009		531	Feb 15/2009	
O 18	Jun 15/2009		314	Feb 15/2009		R 532	Jun 15/2009	
O 19	Jun 15/2009		315	Feb 15/2009		533	Feb 15/2009	
O 20	Jun 15/2009		316	Feb 15/2009		534	Feb 15/2009	
O 21	Jun 15/2009		317	Oct 10/2005		535	Feb 15/2009	
O 22	Jun 15/2009		318	Oct 10/2005		536	Feb 15/2009	
O 23	Jun 15/2009		319	Feb 15/2009		537	Feb 15/2009	
O 24	Jun 15/2009		320	Feb 15/2009		R 538	Jun 15/2009	
34-00-00			34-11-00			539	Feb 15/2009	
901	Oct 10/2003		501	Feb 15/2009		540	Feb 15/2009	
902	Oct 10/2003		R 502	Jun 15/2009		541	Feb 15/2009	
903	Feb 10/2006		503	Jun 15/2008		542	Feb 15/2009	
904	Feb 10/2006		504	Jun 15/2008		543	Feb 15/2009	
905	Feb 10/2006		505	Jun 15/2008		R 544	Jun 15/2009	
906	BLANK		506	Jun 15/2008		545	Feb 15/2009	
34-11-00			507	Jun 10/2004		546	Feb 15/2009	
R 201	Jun 15/2009		508	Jun 10/2004		547	Feb 15/2009	
202	Oct 15/2008		R 509	Jun 15/2009		548	Feb 15/2009	
203	Oct 15/2008		510	Feb 15/2008		549	Feb 15/2009	
204	Oct 15/2008		511	Feb 10/2006		550	BLANK	

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**CHAPTER 34  
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34-11-01			34-11-02 (cont)			34-21-00 (cont)		
401	Oct 15/2008		419	Feb 15/2009		209	Oct 10/2007	
402	Feb 15/2009		420	BLANK		210	Oct 10/2007	
403	Feb 15/2009		34-11-02			34-21-00		
404	Oct 10/2007		601	Feb 15/2009		501	Feb 15/2009	
405	Feb 15/2009		602	Feb 15/2009		502	Oct 10/2005	
406	Oct 10/2007		603	Feb 15/2009		503	Oct 10/2006	
R 407	Jun 15/2009		604	Feb 15/2009		504	Oct 10/2006	
408	Feb 15/2009		605	Feb 15/2009		505	Oct 10/2006	
409	Oct 10/2007		606	Feb 10/2007		506	Oct 10/2006	
410	Oct 10/2007		607	Feb 10/2007		507	Oct 10/2006	
34-11-01			608	Feb 10/2007		508	Oct 10/2006	
601	Feb 15/2009		609	Feb 10/2007		509	Oct 10/2006	
602	Feb 15/2009		610	BLANK		510	Oct 10/2006	
603	Feb 15/2009		34-13-00			511	Oct 10/2006	
604	Feb 15/2009		501	Feb 15/2009		512	Oct 10/2006	
605	Oct 10/2003		R 502	Jun 15/2009		513	Oct 10/2006	
606	Jun 10/2004		503	Jun 10/2007		514	Oct 10/2006	
34-11-01			504	Jun 10/2007		515	Oct 10/2006	
701	Oct 10/2004		505	Jun 10/2007		516	Oct 10/2006	
702	Oct 10/2004		506	Jun 10/2007		517	Feb 15/2009	
34-11-02			34-13-01			R 518	Jun 15/2009	
401	Jun 10/2006		401	Feb 15/2008		519	Feb 15/2009	
402	Jun 10/2006		402	Feb 15/2008		520	Feb 15/2009	
403	Oct 10/2003		403	Jun 10/2007		521	Feb 15/2009	
404	Oct 10/2003		404	Oct 15/2008		522	Feb 15/2009	
405	Jun 15/2008		405	Oct 15/2008		523	Feb 15/2009	
406	Jun 10/2005		406	BLANK		524	Feb 15/2009	
407	Oct 15/2008		34-16-00			525	Feb 15/2009	
408	Feb 10/2007		501	Feb 15/2009		526	Feb 15/2009	
409	Feb 10/2007		502	BLANK		527	Feb 15/2009	
410	Feb 10/2007		34-21-00			528	Oct 10/2005	
411	Feb 15/2009		201	Oct 10/2003		34-21-01		
412	Feb 15/2009		202	Oct 10/2007		401	Oct 10/2003	
413	Feb 15/2009		203	Oct 10/2007		402	Jun 10/2005	
414	Feb 15/2009		204	Oct 10/2007		403	Oct 10/2003	
415	Feb 15/2009		205	Oct 10/2007		404	Feb 15/2009	
416	Oct 15/2008		206	Oct 10/2007		405	Jun 10/2005	
417	Feb 15/2009		207	Oct 10/2007		406	Jun 10/2004	
418	Feb 15/2009		208	Oct 10/2007				

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34-21-02			34-21-06			34-23-01		
401	Jun 10/2005		401	Jun 10/2007		401	Oct 10/2003	
402	Feb 10/2005		402	Jun 10/2007		402	Jun 10/2004	
403	Feb 15/2009		403	Feb 15/2009		403	Jun 15/2008	
404	Feb 15/2009		R 404	Jun 15/2009		404	Jun 15/2008	
34-21-03			O 405	Jun 15/2009		34-24-00		
401	Jun 10/2005		406	BLANK		501	Jun 10/2007	
402	Oct 10/2003		34-21-06			502	Jun 10/2007	
R 403	Jun 15/2009		601	Oct 15/2008		34-24-01		
O 404	Jun 15/2009		602	Oct 15/2008		201	Jun 10/2007	
34-21-04			603	Jun 10/2007		202	Jun 10/2007	
401	Oct 10/2003		604	Jun 10/2007		203	Jun 10/2007	
402	Oct 10/2003		34-21-07			204	Jun 10/2007	
403	Oct 10/2003		401	Feb 15/2008		34-24-01		
404	Oct 10/2003		402	Feb 15/2008		401	Jun 10/2007	
405	Oct 10/2003		403	Oct 10/2003		402	Jun 10/2007	
406	Oct 10/2003		404	Feb 15/2008		403	Jun 10/2007	
407	Oct 10/2003		405	Oct 10/2003		404	Oct 15/2008	
408	Oct 10/2003		406	BLANK		405	Oct 15/2008	
409	Oct 10/2003		34-22-01			406	BLANK	
410	Oct 10/2003		401	Jun 10/2005		34-24-02		
411	Feb 15/2009		402	Oct 10/2003		401	Feb 15/2009	
412	Feb 15/2009		403	Feb 15/2009		402	Feb 15/2009	
34-21-05			404	Feb 15/2009		403	Feb 15/2009	
401	Oct 15/2008		34-23-00			404	Feb 15/2009	
402	Feb 10/2005		201	Feb 15/2009		405	Feb 15/2009	
403	Oct 10/2003		202	Jun 15/2008		406	Feb 15/2009	
404	Feb 15/2009		203	Jun 15/2008		34-24-02		
405	Jun 10/2007		204	Jun 15/2008		501	Feb 15/2009	
406	Jun 10/2007		205	Jun 15/2008		502	Feb 15/2009	
407	Jun 10/2007		206	Feb 10/2006		R 503	Jun 15/2009	
408	Jun 10/2007		207	Jun 15/2008		504	Feb 15/2009	
409	Jun 10/2007		208	Jun 15/2008		505	Feb 15/2009	
410	Jun 10/2007		209	Jun 15/2008		506	Feb 15/2009	
34-21-05			210	Jun 15/2008		507	Feb 15/2009	
601	Jun 15/2008		34-23-01			508	Feb 15/2009	
602	Jun 15/2008		201	Oct 10/2003		509	Feb 15/2009	
603	Jun 15/2008		202	Jun 10/2004		510	Feb 15/2009	
604	Oct 10/2003		203	Oct 10/2003		34-24-03		
			204	BLANK		401	Feb 15/2009	

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34-24-03 (cont)			34-31-42			34-32-11		
402	Feb 15/2009		401	Feb 15/2009		401	Oct 15/2008	
403	Feb 15/2009		402	Jun 10/2005		402	Jun 10/2005	
404	Feb 15/2009		403	Oct 10/2003		403	Feb 10/2005	
405	Feb 15/2009		404	Feb 15/2009		R 404	Jun 15/2009	
406	Feb 15/2009		405	Feb 15/2009		405	Feb 15/2009	
407	Feb 15/2009		406	Feb 15/2009		406	Jun 15/2008	
408	Feb 15/2009		R 407	Jun 15/2009		34-33-00		
34-31-00			408	BLANK		201	Feb 10/2005	
501	Feb 15/2009		34-31-52			202	Feb 15/2009	
R 502	Jun 15/2009		401	Jun 10/2005		203	Oct 15/2008	
503	Feb 15/2009		402	Oct 10/2003		204	Oct 15/2008	
504	Feb 15/2009		403	Oct 15/2008		205	Oct 15/2008	
505	Feb 15/2009		R 404	Jun 15/2009		206	Oct 15/2008	
506	Feb 15/2009		405	Feb 15/2009		34-33-00		
507	Feb 15/2009		406	BLANK		501	Oct 10/2003	
508	Feb 15/2009		34-31-62			R 502	Jun 15/2009	
509	Feb 15/2009		401	Jun 10/2005		O 503	Jun 15/2009	
510	Feb 15/2009		402	Oct 10/2003		R 504	Jun 15/2009	
511	Feb 15/2009		403	Oct 10/2003		R 505	Jun 15/2009	
512	BLANK		404	Jun 15/2008		R 506	Jun 15/2009	
34-31-21			405	Feb 15/2009		34-33-11		
401	Feb 15/2009		406	Jun 10/2007		R 401	Jun 15/2009	
402	Jun 10/2005		407	Jun 10/2007		R 402	Jun 15/2009	
403	Oct 10/2003		408	BLANK		403	Oct 10/2003	
404	Oct 10/2003		34-31-72			404	Feb 15/2009	
405	Oct 15/2008		401	Jun 10/2005		405	Oct 15/2008	
406	Feb 15/2009		402	Jun 10/2005		406	Feb 15/2009	
407	Feb 15/2009		403	Oct 10/2003		34-33-11		
408	Feb 15/2008		404	Oct 10/2003		R 601	Jun 15/2009	
34-31-31			405	Jun 15/2008		O 602	Jun 15/2009	
401	Feb 15/2009		406	Feb 15/2009		34-33-21		
402	Jun 10/2005		407	Feb 15/2009		401	Oct 10/2003	
403	Oct 10/2003		408	Feb 15/2009		402	Jun 10/2005	
404	Oct 10/2003		34-32-00			403	Oct 10/2003	
405	Oct 15/2008		501	Oct 10/2003		R 404	Jun 15/2009	
406	Feb 15/2009		502	Feb 15/2008		405	Oct 10/2003	
407	Feb 15/2009		503	Feb 15/2008		406	BLANK	
408	Feb 15/2008		504	Feb 15/2008		34-43-00 Config 2		
						501	Oct 10/2003	

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34-43-00 Config 2 (cont)			34-43-31			34-45-00 (cont)		
502	Feb 10/2007		401	Jun 10/2005		516	Feb 15/2009	
503	Feb 10/2007		402	Jun 10/2005		34-45-01		
504	Feb 10/2007		403	Oct 10/2003		401	Jun 10/2005	
505	Jun 10/2007		404	Oct 10/2003		402	Oct 10/2003	
506	Feb 15/2009		405	Feb 15/2009		403	Jun 10/2005	
507	Feb 15/2009		406	Feb 15/2009		404	Jun 10/2006	
508	Feb 15/2009		34-43-41			34-45-02		
509	Feb 15/2009		401	Oct 15/2008		401	Oct 15/2008	
510	Feb 15/2009		402	Oct 10/2007		402	Jun 15/2008	
511	Feb 15/2009		403	Oct 10/2007		403	Jun 10/2007	
512	Feb 10/2007		404	Feb 15/2009		404	Feb 15/2009	
34-43-09			405	Feb 15/2009		405	Feb 15/2009	
401	Jun 15/2008		406	BLANK		406	Feb 15/2008	
402	Oct 10/2003		34-43-91			407	Jun 10/2006	
403	Jun 15/2008		401	Jun 10/2005		408	BLANK	
404	BLANK		402	Oct 10/2003		34-46-00		
34-43-09			R 403	Jun 15/2009		R 201	Jun 15/2009	C
701	Oct 10/2003		404	Feb 15/2009		R 202	Jun 15/2009	C
702	BLANK		405	Feb 15/2009		R 203	Jun 15/2009	C
34-43-11			406	BLANK		R 204	Jun 15/2009	C
401	Oct 15/2008		34-45-00			R 205	Jun 15/2009	C
402	Feb 15/2008		201	Feb 15/2009		R 206	Jun 15/2009	C
403	Oct 10/2006		202	Feb 15/2009		R 207	Jun 15/2009	C
404	Feb 15/2009		34-45-00			208	BLANK	C
405	Feb 15/2009		501	Oct 10/2003		34-46-00 Config 1		
406	Jun 15/2008		502	Jun 10/2006		D 501	Jun 15/2009	
407	Feb 15/2009		503	Jun 10/2006		D 502	Jun 15/2009	
408	Feb 15/2009		504	Jun 10/2006		D 503	Jun 15/2009	
409	Oct 15/2008		R 505	Jun 15/2009		D 504	Jun 15/2009	
410	BLANK		R 506	Jun 15/2009		D 505	Jun 15/2009	
34-43-21			507	Oct 15/2008		D 506	Jun 15/2009	
401	Oct 10/2003		R 508	Jun 15/2009		D 507	Jun 15/2009	
402	Feb 15/2008		509	Oct 15/2008		D 508	Jun 15/2009	
403	Oct 10/2003		510	Oct 15/2008		D 509	Jun 15/2009	
404	Oct 10/2003		511	Oct 15/2008		D 510	Jun 15/2009	
405	Oct 10/2003		R 512	Jun 15/2009		D 511	Jun 15/2009	
406	Feb 15/2009		513	Feb 15/2009		D 512	Jun 15/2009	
407	Feb 15/2009		514	Feb 15/2009		D 513	Jun 15/2009	
408	Feb 15/2009		515	Feb 15/2009		D 514	BLANK	

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Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
34-46-00 Config 2			34-51-00 (cont)			34-53-00 (cont)		
R 501	Jun 15/2009	C	503	Feb 15/2009		R 511	Jun 15/2009	
R 502	Jun 15/2009	C	504	Feb 15/2009		R 512	Jun 15/2009	
R 503	Jun 15/2009	C	505	Feb 15/2009		R 513	Jun 15/2009	
R 504	Jun 15/2009	C	506	Feb 15/2009		514	Feb 15/2009	
R 505	Jun 15/2009	C	507	Feb 15/2009		515	Feb 15/2009	
R 506	Jun 15/2009	C	508	Feb 15/2009		516	Feb 15/2009	
R 507	Jun 15/2009	C	509	Feb 15/2009		517	Feb 15/2009	
R 508	Jun 15/2009	C	510	Feb 15/2009		R 518	Jun 15/2009	
R 509	Jun 15/2009	C	511	Feb 15/2009		R 519	Jun 15/2009	
R 510	Jun 15/2009	C	R 512	Jun 15/2009		520	Feb 15/2009	
R 511	Jun 15/2009	C	O 513	Jun 15/2009		521	Feb 15/2009	
R 512	Jun 15/2009	C	514	Feb 15/2009		522	Feb 15/2009	
R 513	Jun 15/2009	C	515	Feb 15/2009		R 523	Jun 15/2009	
R 514	Jun 15/2009	C	516	Feb 15/2009		R 524	Jun 15/2009	
R 515	Jun 15/2009	C	34-51-01			525	Feb 15/2009	
R 516	Jun 15/2009	C	401	Oct 10/2003		526	Feb 15/2009	
R 517	Jun 15/2009	C	402	Jun 10/2005		527	Feb 15/2009	
R 518	Jun 15/2009	C	403	Oct 10/2003		528	Feb 15/2009	
R 519	Jun 15/2009	C	404	Feb 15/2009		34-53-01		
R 520	Jun 15/2009	C	405	Oct 10/2003		401	Feb 10/2006	
A 521	Jun 15/2009	C	406	BLANK		402	Oct 10/2003	
A 522	BLANK		34-51-02			403	Feb 15/2009	
34-46-01			401	Oct 10/2007		404	Feb 15/2008	
401	Feb 15/2009		402	Oct 10/2007		405	Feb 15/2008	
402	Jun 10/2005		403	Oct 10/2003		406	BLANK	
R 403	Jun 15/2009		404	Feb 15/2008		34-53-01		
R 404	Jun 15/2009	C	405	Feb 15/2009		601	Feb 15/2009	
R 405	Jun 15/2009		406	Feb 15/2008		602	BLANK	
R 406	Jun 15/2009	C	34-53-00			34-53-02		
D 407	Jun 15/2009		501	Feb 15/2009		401	Oct 10/2003	
D 408	Jun 15/2009		502	Feb 15/2009		402	Jun 10/2005	
34-46-02			503	Feb 15/2009		403	Oct 10/2003	
401	Jun 10/2005		504	Feb 15/2009		404	Oct 10/2003	
402	Oct 10/2003		R 505	Jun 15/2009		405	Oct 10/2003	
403	Feb 15/2009		O 506	Jun 15/2009		406	BLANK	
404	Oct 15/2008		O 507	Jun 15/2009		34-53-03		
34-51-00			O 508	Jun 15/2009		401	Jun 10/2005	
501	Oct 10/2003		O 509	Jun 15/2009		402	Oct 10/2003	
R 502	Jun 15/2009		O 510	Jun 15/2009		R 403	Jun 15/2009	

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34-53-03 (cont)			34-57-00 (cont)			34-61-00		
404	Feb 15/2009		R 502	Jun 15/2009		201	Feb 15/2009	
34-53-04			503	Oct 15/2008		202	Feb 15/2009	
401	Jun 10/2005		504	BLANK		203	Feb 15/2009	
402	Oct 10/2003		34-57-01			204	Feb 15/2009	
403	Oct 10/2003		401	Oct 15/2008		205	Feb 15/2009	
404	Feb 15/2009		402	Feb 15/2009		R 206	Jun 15/2009	
405	Oct 15/2008		403	Oct 15/2008		207	Oct 15/2008	
406	Oct 15/2008		404	Oct 15/2008		208	Feb 15/2009	
34-55-00			405	Feb 15/2009		209	Feb 15/2009	
501	Oct 10/2003		406	Feb 15/2009		210	Feb 15/2009	
R 502	Jun 15/2009		407	Feb 15/2009		211	Jun 10/2007	
O 503	Jun 15/2009		408	Feb 15/2009		212	Jun 10/2007	
O 504	Jun 15/2009		34-57-02			213	Feb 15/2009	
505	Feb 15/2009		401	Feb 15/2009		214	Feb 15/2009	
506	Feb 15/2009		402	Oct 10/2003		215	Feb 15/2009	
507	Jun 10/2007		R 403	Jun 15/2009		216	Feb 15/2009	
508	Feb 15/2009		404	Feb 15/2009		217	Feb 15/2009	
509	Jun 10/2007		34-57-03			218	Oct 15/2008	
510	Feb 15/2009		401	Feb 15/2009		219	Jun 10/2007	
511	Jun 10/2007		402	Jun 10/2005		220	Feb 15/2009	
512	BLANK		403	Jun 10/2007		221	Feb 15/2009	
34-55-11			R 404	Jun 15/2009		222	Feb 15/2009	
401	Jun 10/2005		O 405	Jun 15/2009		223	Feb 15/2009	
402	Oct 10/2003		O 406	Jun 15/2009		224	Jun 10/2007	
403	Feb 15/2009		34-58-00			225	Feb 15/2009	
404	Feb 15/2009		501	Feb 15/2009		226	Feb 15/2009	
405	Feb 15/2009		502	Feb 15/2009		34-61-00		
406	Oct 15/2008		503	Feb 15/2009		501	Feb 15/2009	
407	Oct 15/2008		504	Feb 15/2009		502	Feb 15/2009	
408	BLANK		34-58-02			503	Feb 15/2009	
34-55-21			401	Oct 15/2008		504	Feb 15/2009	
401	Oct 10/2003		402	Jun 15/2008		505	Feb 15/2009	
402	Jun 10/2005		403	Jun 15/2008		506	Feb 15/2009	
403	Oct 10/2003		404	Feb 15/2009		507	Feb 15/2009	
404	Feb 15/2009		405	Feb 15/2009		508	Jun 10/2006	
405	Oct 10/2003		406	Feb 15/2009		509	Feb 15/2009	
406	BLANK		407	Feb 15/2009		510	Feb 15/2009	
34-57-00			408	BLANK		511	Feb 15/2009	
501	Jun 10/2007					512	Feb 15/2009	

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34-61-00 (cont)			34-61-02 (cont)					
513	Feb 15/2009		402	Feb 15/2009				
514	Feb 15/2009		403	Jun 10/2007				
515	Feb 15/2009		404	Feb 15/2009				
R 516	Jun 15/2009		405	Feb 15/2009				
R 517	Jun 15/2009		406	Feb 15/2009				
R 518	Jun 15/2009		34-61-03					
O 519	Jun 15/2009		201	Feb 15/2009				
R 520	Jun 15/2009		202	Feb 15/2009				
521	Feb 15/2009		34-61-03					
522	Feb 15/2009		401	Feb 15/2009				
523	Feb 15/2009		402	Feb 15/2009				
524	BLANK		403	Feb 15/2009				
34-61-01			404	BLANK				
201	Feb 15/2009							
202	Feb 15/2009							
203	Feb 15/2009							
204	Feb 15/2008							
205	Feb 15/2008							
206	Feb 15/2009							
207	Feb 15/2008							
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<u>TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - MAINTENANCE PRACTICES</u>	34-45-00		201	HAP 031-054, 101-999
Flight History Data Download TASK 34-45-00-970-801			201	HAP 031-054, 101-999
<u>TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - ADJUSTMENT/TEST</u>	34-45-00		501	HAP ALL
TCAS - Operational Test TASK 34-45-00-710-801			501	HAP ALL
TCAS - System Test (With the IFR TCAS- 201 Test Set) TASK 34-45-00-730-801			505	HAP ALL
TCAS - System Test (with the TIC T-49 Test Set) TASK 34-45-00-730-802			511	HAP ALL
<u>TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) COMPUTER - REMOVAL/INSTALLATION</u>	34-45-01		401	HAP ALL
TCAS Computer Removal TASK 34-45-01-000-801			401	HAP ALL
TCAS Computer Installation TASK 34-45-01-400-801			403	HAP ALL
<u>TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) ANTENNA - REMOVAL/INSTALLATION</u>	34-45-02		401	HAP ALL
TCAS Antenna Removal TASK 34-45-02-000-801			401	HAP ALL
TCAS Antenna Installation TASK 34-45-02-400-801			405	HAP ALL
<u>GROUND PROXIMITY WARNING SYSTEM - MAINTENANCE PRACTICES</u>	34-46-00		201	HAP ALL
Load the Terrain Database TASK 34-46-00-470-802			201	HAP ALL

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Verify the Terrain Database Part Number TASK 34-46-00-700-801			205	HAP ALL
Flight History Data Download TASK 34-46-00-970-801			206	HAP ALL
<u>GROUND PROXIMITY WARNING SYSTEM - ADJUSTMENT/TEST</u>	34-46-00	2	501	HAP ALL
Ground Proximity Warning System - Operational Test TASK 34-46-00-710-804-002		2	501	HAP ALL
Ground Proximity Warning System - System Test TASK 34-46-00-730-804-002		2	506	HAP ALL
<u>GROUND PROXIMITY WARNING COMPUTER - REMOVAL/INSTALLATION</u>	34-46-01		401	HAP ALL
Ground Proximity Warning Computer Removal TASK 34-46-01-000-801			401	HAP ALL
Ground Proximity Warning Computer Installation TASK 34-46-01-400-801			405	HAP ALL
<u>GROUND PROXIMITY WARNING MODULE - REMOVAL/INSTALLATION</u>	34-46-02		401	HAP ALL
Ground Proximity Warning Module Removal TASK 34-46-02-000-801			401	HAP ALL
Ground Proximity Warning Module Installation TASK 34-46-02-400-801			403	HAP ALL
<u>VOR SYSTEM - ADJUSTMENT/TEST</u>	34-51-00		501	HAP ALL
VOR System - Operational Test TASK 34-51-00-710-801			501	HAP ALL
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VOR/MKR Receiver Removal TASK 34-51-01-000-801			401	HAP ALL
VOR/MKR Receiver Installation TASK 34-51-01-400-801			404	HAP ALL
<u>VOR/LOC ANTENNA - REMOVAL/ INSTALLATION</u>	34-51-02		401	HAP ALL
VOR/LOC Antenna Removal TASK 34-51-02-000-801			401	HAP ALL
VOR/LOC Antenna Installation TASK 34-51-02-400-801			404	HAP ALL
<u>AIR TRAFFIC CONTROL (ATC) SYSTEM - ADJUSTMENT/TEST</u>	34-53-00		501	HAP ALL
Air Traffic Control System - Operational Test TASK 34-53-00-710-801			501	HAP ALL
ATC System Test (With IFR ATC-601 Test Set) TASK 34-53-00-730-803			502	HAP ALL
System Test - ATC System (With the TIC T-48 or T-49 Series Test Set) TASK 34-53-00-730-802			511	HAP ALL
ATC System - System Test (With the IFR 6000 Test Set) TASK 34-53-00-730-805			517	HAP ALL
ATC System Test (With the TR-220 Test Set) TASK 34-53-00-730-806			522	HAP ALL
<u>AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION</u>	34-53-01		401	HAP ALL
ATC Antenna Removal TASK 34-53-01-000-801			401	HAP ALL

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ATC Antenna Installation TASK 34-53-01-400-801			403	HAP ALL
<u>AIR TRAFFIC CONTROL (ATC) ANTENNA - INSPECTION/CHECK</u>	34-53-01		601	HAP ALL
Air Traffic Control (ATC) Antenna - Inspection/Check TASK 34-53-01-200-801			601	HAP ALL
<u>AIR TRAFFIC CONTROL (ATC) TRANSPONDER - REMOVAL/ INSTALLATION</u>	34-53-02		401	HAP ALL
ATC Transponder Removal TASK 34-53-02-020-801			401	HAP ALL
ATC Transponder Installation TASK 34-53-02-400-801			404	HAP ALL
<u>ATC CONTROL PANEL - REMOVAL/ INSTALLATION</u>	34-53-03		401	HAP ALL
ATC Control Panel Removal TASK 34-53-03-000-801			401	HAP ALL
ATC Control Panel Installation TASK 34-53-03-400-801			403	HAP ALL
<u>AIR TRAFFIC CONTROL (ATC) ANTENNA SWITCH - REMOVAL/INSTALLATION</u>	34-53-04		401	HAP ALL
ATC Antenna Switch Removal TASK 34-53-04-000-801			401	HAP ALL
ATC Antenna Switch Installation TASK 34-53-04-400-801			404	HAP ALL
<u>DME SYSTEM - ADJUSTMENT/TEST</u>	34-55-00		501	HAP ALL
DME System - Operational Test TASK 34-55-00-710-801			501	HAP ALL
DME System - System Test TASK 34-55-00-730-801			503	HAP ALL

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DME Antenna Removal TASK 34-55-11-000-801			401	HAP ALL
DME Antenna Installation TASK 34-55-11-400-801			403	HAP ALL
<u>DME INTERROGATOR - REMOVAL/ INSTALLATION</u>	34-55-21		401	HAP ALL
DME Interrogator Removal TASK 34-55-21-000-801			401	HAP ALL
DME Interrogator Installation TASK 34-55-21-400-801			404	HAP ALL
<u>AUTOMATIC DIRECTION FINDER SYSTEM - ADJUSTMENT/TEST</u>	34-57-00		501	HAP ALL
Automatic Direction Finder System - System Test TASK 34-57-00-730-802			501	HAP ALL
<u>ADF ANTENNA - REMOVAL/INSTALLATION</u>	34-57-01		401	HAP ALL; AIRPLANES WITH ADF ANTENNA
ADF Antenna Removal TASK 34-57-01-000-801			401	HAP ALL; AIRPLANES WITH ADF ANTENNA
ADF Antenna Installation TASK 34-57-01-400-801			405	HAP ALL; AIRPLANES WITH ADF ANTENNA
<u>ADF CONTROL PANEL - REMOVAL/ INSTALLATION</u>	34-57-02		401	HAP ALL; AIRPLANES WITH ADF CONTROL PANEL
ADF Control Panel Removal TASK 34-57-02-000-801			401	HAP ALL; AIRPLANES WITH ADF CONTROL PANEL

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<u>ADF RECEIVER - REMOVAL/INSTALLATION</u>	34-57-03		401	HAP ALL; AIRPLANES WITH ADF RECEIVER
ADF Receiver Removal TASK 34-57-03-000-801			401	HAP ALL; AIRPLANES WITH ADF RECEIVER
ADF Receiver Installation TASK 34-57-03-400-801			404	HAP ALL; AIRPLANES WITH ADF RECEIVER
<u>GLOBAL POSITIONING SYSTEM - ADJUSTMENT/TEST</u>	34-58-00		501	HAP ALL
Global Positioning System - Operational Test TASK 34-58-00-710-802			501	HAP ALL
Global Positioning System - System Test TASK 34-58-00-730-802			502	HAP ALL
<u>GPS ANTENNA - REMOVAL/INSTALLATION</u>	34-58-02		401	HAP ALL
GPS Antenna Removal TASK 34-58-02-000-802			401	HAP ALL
GPS Antenna Installation TASK 34-58-02-400-802			404	HAP ALL
<u>FLIGHT MANAGEMENT COMPUTER SYSTEM - MAINTENANCE PRACTICES</u>	34-61-00		201	HAP ALL
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FMC Software Installation with a Portable Data Loader TASK 34-61-00-470-805			206	HAP 001-013, 015-026, 028-030

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FMC Software Configuration Check TASK 34-61-00-750-801			214	HAP ALL
CDU Software Installation with an Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) TASK 34-61-00-470-807			215	HAP 031-054, 101-999
CDU Software Installation with a Portable Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) TASK 34-61-00-470-808			217	HAP 006-013, 015-026, 028-030
CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) TASK 34-61-00-750-802			220	HAP 006-013, 015-026, 028-054, 101-999
Software Installation when the Airborne Data Loader is Inoperative TASK 34-61-00-470-809			221	HAP 031-054, 101-999
FMC Diagnostic Data Transfer TASK 34-61-00-810-801			223	HAP ALL
Setting Zero Fuel Weight TASK 34-61-00-400-801			226	HAP ALL
<u>FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST</u>	34-61-00		501	HAP ALL
Flight Management Computer System - Operational Test TASK 34-61-00-710-801			501	HAP ALL
Flight Management Computer System - System Test TASK 34-61-00-730-801			505	HAP ALL
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<u>FMCS CONTROL DISPLAY UNIT - MAINTENANCE PRACTICES</u>	34-61-01		201	HAP ALL
FMCS CDU Cooling Vent and Surfaces Cleaning TASK 34-61-01-100-801			201	HAP ALL
FMCS CDU Display Cleaning TASK 34-61-01-100-802			205	HAP ALL
FMCS CDU Keyboard Removal TASK 34-61-01-000-801			205	HAP ALL
FMCS CDU Keyboard Installation TASK 34-61-01-400-801			208	HAP ALL
<u>FMCS CONTROL DISPLAY UNIT - SERVICING</u>	34-61-01		301	HAP ALL
Annunciator Replacement (CRT CDU P/ N 10-XXXXX-XXX) TASK 34-61-01-960-801			301	HAP 001-005
EXEC Key Replacement (CRT CDU P/N 10-XXXXX-XXX) TASK 34-61-01-960-802			304	HAP 001-005
CDU Lamp Test TASK 34-61-01-710-801			305	HAP ALL
<u>FMCS CONTROL DISPLAY UNIT - REMOVAL/INSTALLATION</u>	34-61-01		401	HAP ALL
FMCS Control Display Unit (CDU) Removal TASK 34-61-01-000-802			401	HAP ALL
FMCS Control Display Unit (CDU) Installation TASK 34-61-01-400-802			404	HAP ALL
<u>FMCS COMPUTER - REMOVAL/ INSTALLATION</u>	34-61-02		401	HAP ALL
FMCS Computer Removal TASK 34-61-02-000-801			401	HAP ALL

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FMCS Computer Installation TASK 34-61-02-400-801			405	HAP ALL
<u>AIRBORNE DATA LOADER - MAINTENANCE PRACTICES</u>	34-61-03		201	HAP 031-054, 101-999
Airborne Data Loader Head Cleaning TASK 34-61-03-100-801			201	HAP 031-054, 101-999
<u>AIRBORNE DATA LOADER - REMOVAL/ INSTALLATION</u>	34-61-03		401	HAP 031-054, 101-999; AIRPLANES WITH AN AIRBORNE DATA LOADER
Airborne Data Loader Removal TASK 34-61-03-000-801			401	HAP 031-054, 101-999; AIRPLANES WITH AN AIRBORNE DATA LOADER
Airborne Data Loader Installation TASK 34-61-03-400-801			401	HAP 031-054, 101-999; AIRPLANES WITH AN AIRBORNE DATA LOADER

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**NAVIGATION - 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 Procedures Guide (DDPG). 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 navigation system:
  - (1) MMEL 34-20 (DDPG) Preparation - Low Range Radio Altimeter (LRRRA) Inoperative
  - (2) MMEL 34-20 (DDPG) Restoration - Low Range Radio Altimeter (LRRRA) Inoperative
  - (3) MMEL 34-26 (DDPG) Preparation - Ground Proximity Warning System (GPWS) Inoperative
  - (4) MMEL 34-26 (DDPG) Restoration - Ground Proximity Warning System (GPWS) Inoperative
  - (5) MMEL 34-40 (DDPG) Preparation - Traffic Collision and Avoidance System (TCAS) Inoperative
  - (6) MMEL 34-40 (DDPG) Restoration - Traffic Collision and Avoidance System (TCAS) Inoperative

**TASK 34-00-00-040-802**

**2. MMEL 34-20 (DDPG) Preperation - Low Range Radio Altimeter (LRRRA) Inoperative**

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the Low Range Radio Altimeter (LRRRA) inoperative.

B. Location Zones

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

C. LRRRA Deactivation, Left

SUBTASK 34-00-00-040-002

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

CAPT Electrical System Panel, P18-1

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

D. LRRRA Deactivation, Right

SUBTASK 34-00-00-040-003

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

F/O Electrical System Panel, P6-1

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

————— **END OF TASK** —————

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## TASK 34-00-00-440-802

### 3. M MEL 34-20 (DDPG) Restoration - Low Range Radio Altimeter (LRRRA) Inoperative

#### A. General

- (1) This task puts the airplane back to its usual condition after operation with the Low Range Radio Altimeter (LRRRA) inoperative.

#### B. References

Reference	Title
34-33-00-710-801	Low Range Radio Altimeter (LRRRA) System - Operational Test (P/B 501)

#### C. Location Zones

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

#### D. LRRRA Reactivation, Left

SUBTASK 34-00-00-440-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

#### E. LRRRA Reactivation, Right

SUBTASK 34-00-00-440-003

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

#### F. FCC-A Re-initialization (left)

SUBTASK 34-00-00-440-004

- (1) Momentarily open and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
D	2	C01045	AFCS SYS A FCC DC

#### G. FCC-B Re-initialization (right)

SUBTASK 34-00-00-440-005

- (1) Momentarily open and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	3	C01046	AFCS SYS B FCC DC

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## H. LRRRA Repair

SUBTASK 34-00-00-740-002

- (1) Do this task: Low Range Radio Altimeter (LRRRA) System - Operational Test, TASK 34-33-00-710-801.

SUBTASK 34-00-00-810-003

- (2) Go to the Fault Code Index in the FIM and find the fault code (the first two digits of the fault code are the FIM chapter).
  - (a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.
  - (b) Find the task number on the same line as the maintenance message number.

SUBTASK 34-00-00-810-004

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

————— END OF TASK —————

### TASK 34-00-00-040-803

#### 4. M MEL 34-26 (DDPG) Preparation - Ground Proximity Warning System (GPWS) Inoperative

##### A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the Ground Proximity Warning System (GPWS) inoperative.

##### B. Location Zones

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

##### C. GPWS Deactivation

SUBTASK 34-00-00-040-004

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

————— END OF TASK —————

### TASK 34-00-00-440-803

#### 5. M MEL 34-26 (DDPG) Restoration - Ground Proximity Warning System (GPWS) Inoperative

##### A. General

- (1) This task puts the airplane back to its usual condition after operation with the Ground Proximity Warning System (GPWS) inoperative.

##### B. References

Reference	Title
FIM 34-46 TASK 801	GPWS BITE Procedure

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C. Location Zones

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

D. GPWS Reactivation

SUBTASK 34-00-00-440-006

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

E. GPWS Repair

SUBTASK 34-00-00-740-003

- (1) Do this task: FIM 34-46 TASK 801.

SUBTASK 34-00-00-810-005

- (2) Go to the Fault Code Index in the FIM and find the fault code (the first two digits of the fault code are the FIM chapter).
- (a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.
- (b) Find the task number on the same line as the maintenance message number.

SUBTASK 34-00-00-810-006

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

————— **END OF TASK** —————

**TASK 34-00-00-040-801**

**6. M MEL 34-40 (DDPG) Preparation - Traffic Collision and Avoidance System (TCAS) Inoperative**

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the Traffic Collision and Avoidance System (TCAS) inoperative.

B. Location Zones

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

C. TCAS Deactivation

SUBTASK 34-00-00-040-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

————— **END OF TASK** —————

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## TASK 34-00-00-440-801

### 7. M MEL 34-40 (DDPG) Restoration - Traffic Collision and Avoidance System (TCAS) Inoperative

#### A. General

- (1) This task puts the airplane back to its usual condition after operation with the Traffic Collision and Avoidance System (TCAS) inoperative.

#### B. References

Reference	Title
FIM 34-45 TASK 801	Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure

#### C. Location Zones

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

#### D. TCAS Reactivation

SUBTASK 34-00-00-440-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

#### E. TCAS Repair

SUBTASK 34-00-00-740-001

- (1) Do this task: FIM 34-45 TASK 801.

SUBTASK 34-00-00-810-001

- (2) Go to the Fault Code Index in the FIM and find the fault code (the first two digits of the fault code are the FIM chapter).
  - (a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.
  - (b) Find the task number on the same line as the maintenance message number.

SUBTASK 34-00-00-810-002

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

————— **END OF TASK** —————

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## STATIC AND TOTAL AIR PRESSURE SYSTEM - MAINTENANCE PRACTICES

### 1. General

A. This procedure has these tasks:

- (1) Pressurization of the Captain's Total Air Pressure System to simulate an airspeed.
- (2) Pressurization of the Static and Total Air Pressure System to simulate an altitude and airspeed.

### **TASK 34-11-00-790-803**

### 2. Captain's Total Air Pressure System - Pressurization

A. General

- (1) This task contains the steps to pressurize the Captain's Total Air Pressure System.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: ORD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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Reference	Description
SPL-1917	Fixture - Test, Angle of Attack Probe (Part #: J34002-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: A34012-24, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: J34002-18, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

E. Prepare for the Captain's Total Air Pressure System - Pressurization

SUBTASK 34-11-00-860-062

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-00-860-063

- (2) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 34-11-00-730-002

**CAUTION:** OBEY THESE PRECAUTIONS BEFORE YOU APPLY PRESSURE TO THE PITOT SYSTEM. IF YOU DO NOT OBEY THESE PRECAUTIONS, DAMAGE TO THE EQUIPMENT AND INSTRUMENTS CAN OCCUR.

- (3) Obey these precautions before you apply pressure to the pitot system.
  - (a) Supply the electrical power for the ADIRS before you make the total pressure hook-up.
  - (b) Keep power on until the pressure hook-up is opened.
  - (c) Pressure changes must be flow controlled to prevent sudden changes in pressure and possible damage to the air data hardware.
  - (d) Keep the total pressure in the range of 3.26 to 41.34 inches Hg.
  - (e) When you adjust the pressure, make sure the rate of change of airspeed is less than 300 knots per minute.
  - (f) Make sure the difference between the static and pitot line pressure is not larger than 10 inches Hg.

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(g) Make sure the autopilot system stays off during the test.

**CAUTION:** MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. THIS CAN CAUSE DAMAGE TO THE PITOT PROBE.

(h) Make sure the pitot probe heaters stay off during the test.

(i) Make sure the AOA vanes are set to 0 ±5 degree, with respect to the AOA sensor alignment pin with an angle of attack probe test fixture, SPL-1917.

(j) Do not connect or disconnect the test equipment while you have pressure in the pitot system.

(k) Make sure that you do these steps before installing the adapter, kit, COM-1916, on the probe:

1) Flush the adapter, kit, COM-1916, with water.

**NOTE:** Use equal parts of ethylene glycol and water when the temperature is between 32° and -40°F.

2) Blow dry, filtered air through the adapter.

3) Wipe the probe with a damp cloth.

#### F. Captain's Total Air Pressure System - Pressurization

SUBTASK 34-11-00-860-064

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT

SUBTASK 34-11-00-170-072

**CAUTION:** MAKE SURE THAT YOU FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

(2) Flush the adapter, kit, COM-1916, with water.

**NOTE:** Use equal parts of water and ethylene glycol when the temperature is between 32° and -40°F.

SUBTASK 34-11-00-480-084

(3) Blow dry, filtered air through the adapter, kit, COM-1916.

SUBTASK 34-11-00-480-085

(4) Wipe the probe with a damp cloth.

SUBTASK 34-11-00-480-086

(5) Attach a red paper tag that has PITOT PROBES and or STATIC PORTS COVERED printed on it in black letters, to the left control wheel in the flight deck with wire.

**WARNING:** WHEN THE PITOT PROBES HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE PITOT PROBES HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE PITOT PROBES, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

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**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

(6) Install the adapter, kit, COM-1916, on the left pitot probe.

SUBTASK 34-11-00-480-087

(7) Connect the air data model test set, COM-1914 to the adapter, kit, COM-1916.

SUBTASK 34-11-00-790-057

**CAUTION:** MAKE SURE THAT THE PRESSURE IN THE ADM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG WILL CAUSE DAMAGE TO THE ADM.

(8) Operate the air data model test set, COM-1914 to apply the desired pressure to the pitot system.

SUBTASK 34-11-00-790-058

(9) Stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-059

(10) Read the appropriate instrument.

### G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-065

(1) Put the system back to ambient pressure.

SUBTASK 34-11-00-080-046

**CAUTION:** DO NOT DISCONNECT THE PITOT SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. IF YOU DO, DAMAGE TO THE ADM CAN OCCUR.

(2) Disconnect the air data model test set, COM-1914 from the adapter, kit, COM-1916.

SUBTASK 34-11-00-080-047

(3) Remove the adapter, kit, COM-1916, from the pitot probe.

SUBTASK 34-11-00-860-066

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-00-860-067

(5) Do this task: Remove External Power, TASK 24-22-00-860-814.

————— **END OF TASK** —————

### TASK 34-11-00-790-802

### 3. Static and Total Air Pressure System - Pressurization

#### A. General

(1) This task contains the steps to pressurize the static and total air pressure system.

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### B. References

Reference	Title
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)

### C. Tools/Equipment

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

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: ORD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1917	Fixture - Test, Angle of Attack Probe (Part #: J34002-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: A34012-24, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: J34002-18, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

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#### D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

#### E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

#### F. Prepare for the Static and Total Air Pressure System - Pressurization

SUBTASK 34-11-00-730-003

**CAUTION:** OBEY THESE PRECAUTIONS BEFORE YOU APPLY PRESSURE TO THE PITOT- STATIC SYSTEM. IF YOU DO NOT OBEY THESE PRECAUTIONS, DAMAGE TO THE EQUIPMENT AND INSTRUMENTS CAN OCCUR.

- (1) Obey these precautions before you apply pressure to the pitot-static system.
  - (a) Supply the electrical power to the ADIRS before you make the static or total pressure hook-ups.
  - (b) Keep electrical power on the ADIRS until all pressure hook-ups are opened.
  - (c) Make sure that the Autopilot Flight Director System is off during the test.

**CAUTION:** MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. THIS CAN CAUSE DAMAGE TO THE PITOT PROBE.

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

- (e) Make sure that you do these steps before installing the adapter, kit, COM-1916, on the probe:
  - 1) Flush the adapter, kit, COM-1916, with water.
 

**NOTE:** Use equal parts of ethylene glycol and water when the temperature is between 32° and -40°F.
  - 2) Blow dry, filtered air through the adapter.
  - 3) Wipe the probe with a damp cloth.
- (f) Install the adapter on the probe.

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- (g) Connect the captain's, F/O's, and alternate static systems together during the test.
- (h) Connect the captain's, F/O's, and alternate pitot systems together during the test.
- (i) Pressure changes must be flow controlled to prevent sudden changes in pressure and possible damage to the air data hardware.
  - 1) Apply static pressure to all systems at the same time.
    - a) Keep the static pressure in the range of 3.26 to 33.31 inches Hg.
    - b) Do not permit the static pressure to be more than 28 inches Hg. from the ambient pressure.
    - c) Keep the static line pressure less than the pitot line pressure.
  - 2) Apply pitot pressure to all systems at the same time.
    - a) Keep the total pressure in the range of 3.26 to 41.34 inches Hg.
  - 3) Make sure the difference between the static and pitot line pressure is not larger than 10 inches Hg.
  - 4) When you adjust the pressure, make sure the rate of change of altitude is less than 5,000 feet per minute.
  - 5) When you adjust the pressure, make sure the rate of change of airspeed is less than 300 knots per minute.
- (j) Do not connect or disconnect the test equipment while you have pressure in the pitot-static system.

SUBTASK 34-11-00-860-068

- (2) Turn the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter through the full range.

SUBTASK 34-11-00-860-069

- (3) Set the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter to 29.92 inches of Hg.

SUBTASK 34-11-00-860-070

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (4) Set the ATC mode switch on the ATC control panel, P8-29, to the STBY position.

SUBTASK 34-11-00-860-071

- (5) Set the AOA vanes to  $0 \pm 5$  degrees, with respect to the AOA sensor alignment pin with an angle of attack probe test fixture, SPL-1917.

### G. Installation of Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-160

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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**CAUTION:** DO NOT EXTEND THE TAPE INTO THE STATIC PORTS. DAMAGE TO THE SURFACE OF THE PORT CAN OCCUR WHEN YOU REMOVE THE TAPE.

- (1) Seal these primary static ports with vinyl adhesive Scotch Brand No.471 tape, G02219:
  - (a) Seal the upper and lower primary static ports on the right side of the fuselage.
  - (b) Seal the upper and lower primary static ports on the left side of the fuselage.

SUBTASK 34-11-00-480-161

- (2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment.

- (a) Do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801.

SUBTASK 34-11-00-480-162

- (3) Remove the caps from the left and right static system drains.

**NOTE:** The forward drain is for the left system. The aft drain is for the right system. The forward drain is known as the No.3 Captain's Static Drain. The aft drain is known as the No.4 First Officer's Static Drain.

SUBTASK 34-11-00-480-163

- (4) Install the coupling, COM-1927, on the left and right static system drains.

SUBTASK 34-11-00-480-164

- (5) Connect the air data model test set, COM-1914 to each coupling, COM-1927.

### H. Installation of Static Port Adapter, 33410LH-125-4 (Alternate):

SUBTASK 34-11-00-480-165

**CAUTION:** INSTALL THE ADAPTER, 33410LH-125-4, SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the static ports at these locations:
  - (a) The captain's static port on the right side of the fuselage.
  - (b) The first officer's static port on the right side of the fuselage.

SUBTASK 34-11-00-480-166

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (2) Seal the static ports at these locations with Scotch Brand No.471 tape, G02219:
  - (a) The captain's static port on the left side of the fuselage.
  - (b) The first officer's static port on the left side of the fuselage.

### I. Static and Total Air Pressure System - Pressurization

SUBTASK 34-11-00-780-001

- (1) Apply the desired pressures to the static and total air pressure system.

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SUBTASK 34-11-00-800-001

- (2) Stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-970-001

- (3) Read the appropriate instrument.

### J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-080-087

- (1) Removal of Drain Coupling, 1QF2-3-64

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (a) Disconnect the air data model test set, COM-1914 from each coupling, COM-1927.
- (b) Disconnect each coupling, COM-1927, from the left and right static system drains.
- (c) Install the cap on the left and right static system drains.
- (d) Do a visual inspection of the quick-disconnect fittings that you connected.
  - 1) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

**WARNING:** MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. IF YOU DO NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (e) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:
  - 1) The two primary static ports on the right side of the fuselage.
  - 2) The two primary static ports on the left side of the fuselage.
- (f) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment.
  - 1) Do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801.

SUBTASK 34-11-00-480-169

- (2) Removal of Static Port Adapter, 33410LH-125-4, (Alternate)

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (a) Disconnect the air data model test set, COM-1914, from the static port adapter, SPL-1921.

**CAUTION:** REMOVE THE ADAPTER, 33410LH-125-4, SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (b) Remove the static port adapter, SPL-1921, from the static ports at these locations:
  - 1) The captain's static port on the right side of the fuselage.
  - 2) The first officer's static port on the right side of the fuselage.

**WARNING:** MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. IF YOU DO NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (c) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

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- 1) The captain's static port on the left side of the fuselage.
- 2) The first officer's static port on the left side of the fuselage.

SUBTASK 34-11-00-080-090

- (3) Removal of the Probe Adapters:

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (a) Disconnect the air data model test set, COM-1914 from each adapter, kit, COM-1916.

SUBTASK 34-11-00-860-073

- (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	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## STATIC AND TOTAL AIR PRESSURE SYSTEM - SERVICING

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure supplies instructions for the servicing of the Static and Total Air Pressure System.

#### **TASK 34-11-00-170-801**

### 2. Static and Total Air Pressure System - Servicing

(Figure 301, Figure 302)

#### A. References

Reference	Title
21-33-02-000-801	Cabin Altitude and Differential Pressure Indicator Removal (P/B 401)
21-33-02-400-801	Cabin Altitude and Differential Pressure Indicator Installation (P/B 401)
25-21-46-000-801	Sidewall Panel Removal (P/B 401)
25-21-46-400-801	Sidewall Panel Installation (P/B 401)
25-22-00-000-801	Passenger Seat Removal (P/B 401)
25-22-00-400-802	Passenger Seat Installation (P/B 401)
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)
25-52-09-000-801	Cargo Compartment Ceiling Liner Removal (P/B 401)
25-52-09-400-801	Cargo Compartment Ceiling Liner - Installation (P/B 401)
34-13-01-000-801	Standby Altimeter/Airspeed Indicator Removal (P/B 401)
34-13-01-400-801	Standby Altimeter/Airspeed Indicator Installation (P/B 401)
34-24-02-000-801	Integrated Standby Flight Display Removal (P/B 401)
34-24-02-400-801	Integrated Standby Flight Display Installation (P/B 401)

#### B. Tools/Equipment

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

Reference	Description
COM-1926	Coupling - Quick Disconnect, Pitot System Drain Line (Part #: 1QF2-2-64A, Supplier: 24984, A/P Effectivity: 737-ALL)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
STD-3940	Air Source - Regulated, Dry Filtered, 0 to 150 psig
STD-6642	Cap Assembly - Pressure Seal, P/N BACC14AD08

#### C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

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Zone	Area
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

**D. Prepare to Flush the Pitot-Static System**

SUBTASK 34-11-00-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

**E. Flush the Left Static System**

SUBTASK 34-11-00-010-001

- (1) For the applicable passenger seats, do this task: Passenger Seat Removal, TASK 25-22-00-000-801.

SUBTASK 34-11-00-010-002

- (2) For the applicable sidewall panel, do this task: Sidewall Panel Removal, TASK 25-21-46-000-801.

SUBTASK 34-11-00-020-001

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE STATIC SYSTEM CAN OCCUR.

- (3) Disconnect the static hoses at these locations:
- (a) The static port located at STA 410, WL 220, LBL 73
  - (b) The static port located at STA 410, WL 218, RBL 73.

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SUBTASK 34-11-00-020-002

- (4) Install pressure seal cap assembly on the disconnected hoses.

SUBTASK 34-11-00-020-003

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSES ARE TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Temporarily attach the static hoses to prevent movement.

SUBTASK 34-11-00-010-003

- (6) For the applicable ceiling liner in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner Removal, TASK 25-52-09-000-801.

SUBTASK 34-11-00-010-004

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (7) Disconnect the static hose from the Air Data Module-Left Static located at STA 409, WL 205, LBL 0.35.

SUBTASK 34-11-00-020-004

- (8) Install a pressure seal cap assembly on the disconnected hose.

SUBTASK 34-11-00-020-005

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSE IS TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (9) Temporarily attach the static hose to prevent movement.

SUBTASK 34-11-00-480-001

**CAUTION:** DO NOT APPLY PRESSURE TO THE SYSTEM WHEN AN AIR DATA MODULE IS CONNECTED TO THE SYSTEM. IF YOU DO, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (10) Use a coupling, COM-1927 to connect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, to the left static system at drain fitting No. 3.

**NOTE:** Drain fitting No. 3 is located at approximately STA 410, WL180, LBL 56.

SUBTASK 34-11-00-170-001

- (11) Remove the pressure seal cap assembly from the hose located at STA 410, WL 220, LBL 73.

SUBTASK 34-11-00-170-002

- (12) Apply 15 psig (103 kPa) of dry filtered air to the left static system.

SUBTASK 34-11-00-170-003

- (13) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-004

- (14) Continue for three minutes or more.

SUBTASK 34-11-00-860-002

- (15) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-050

- (16) Install a pressure seal cap assembly on the hose.

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SUBTASK 34-11-00-170-005

(17) Remove the pressure seal cap assembly from the hose located at STA 410, WL 218, RBL 73.

SUBTASK 34-11-00-170-006

(18) Apply 15 psig (103 kPa) of dry filtered air to the left static system.

SUBTASK 34-11-00-170-007

(19) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-008

(20) Continue for three minutes or more.

SUBTASK 34-11-00-840-005

(21) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-051

(22) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-009

(23) Remove the pressure seal cap assembly from the hose located at STA 409, WL 205, LBL 0.35.

SUBTASK 34-11-00-170-010

(24) Apply 15 psig (103 kPa) of dry filtered air to the left static system.

SUBTASK 34-11-00-170-011

(25) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-012

(26) Continue for three minutes or more.

SUBTASK 34-11-00-840-007

(27) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-052

(28) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-080-001

(29) Disconnect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, from drain fitting No. 3.

SUBTASK 34-11-00-420-004

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE STATIC SYSTEM CAN OCCUR.

(30) Connect the static hoses at these locations:

(a) The static port located at STA 410, WL 220, LBL 73

(b) The static port located at STA 410, WL 218, RBL 73.

SUBTASK 34-11-00-420-005

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE TO AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(31) Connect the static hose to the Air Data Module-Left Static located at STA 409, WL 205, LBL 0.35.

SUBTASK 34-11-00-410-001

(32) For the applicable ceiling liner in the forward cargo compartment, do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801.

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## AIRCRAFT MAINTENANCE MANUAL

SUBTASK 34-11-00-410-002

- (33) For the applicable passenger seats, do this task: Passenger Seat Installation, TASK 25-22-00-400-802.

SUBTASK 34-11-00-410-003

- (34) For the applicable sidewall panel, do this task: Sidewall Panel Installation, TASK 25-21-46-400-801.

### F. Flush the Right Static System

SUBTASK 34-11-00-010-005

- (1) For the applicable passenger seats, do this task: Passenger Seat Removal, TASK 25-22-00-000-801.

SUBTASK 34-11-00-010-006

- (2) For the applicable sidewall panel, do this task: Sidewall Panel Removal, TASK 25-21-46-000-801.

SUBTASK 34-11-00-020-009

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE STATIC SYSTEM CAN OCCUR.

- (3) Disconnect the static hoses at these locations:
- (a) The static port located at STA 410, WL 220, RBL 73
  - (b) The static port located at STA 410, WL 218, LBL 73.

SUBTASK 34-11-00-020-010

- (4) Install pressure seal cap assembly on the disconnected hoses.

SUBTASK 34-11-00-020-011

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSES ARE TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Temporarily attach the static hoses to prevent movement.

SUBTASK 34-11-00-010-007

- (6) For the applicable ceiling liner in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner Removal, TASK 25-52-09-000-801.

SUBTASK 34-11-00-020-012

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (7) Disconnect the static hose from the Air Data Module-Right Static located at STA 430, WL 205, RBL 0.35.

SUBTASK 34-11-00-020-013

- (8) Install a pressure seal cap assembly on the disconnected hose.

SUBTASK 34-11-00-020-014

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSE IS TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (9) Temporarily attach the static hose to prevent movement.

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SUBTASK 34-11-00-480-002

**CAUTION:** DO NOT APPLY PRESSURE TO THE SYSTEM WHEN AN AIR DATA MODULE IS CONNECTED TO THE SYSTEM. IF YOU DO, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (10) Use a coupling, COM-1927 to connect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, to the right static system at drain fitting No. 4.

**NOTE:** Drain fitting No. 4 is located at approximately STA 410, WL180, LBL 56.

SUBTASK 34-11-00-170-013

- (11) Remove the pressure seal cap assembly from the hose located at STA 410, WL 220, RBL 73.

SUBTASK 34-11-00-170-014

- (12) Apply 15 psig (103 kPa) of dry filtered air to the right static system.

SUBTASK 34-11-00-170-015

- (13) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-016

- (14) Continue for three minutes or more.

SUBTASK 34-11-00-840-011

- (15) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-053

- (16) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-017

- (17) Remove the pressure seal cap assembly from the hose located at STA 410, WL 218, LBL 73.

SUBTASK 34-11-00-170-018

- (18) Apply 15 psig (103 kPa) of dry filtered air to the right static system.

SUBTASK 34-11-00-170-019

- (19) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-020

- (20) Continue for three minutes or more.

SUBTASK 34-11-00-840-013

- (21) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-054

- (22) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-021

- (23) Remove the pressure seal cap assembly from the hose located at STA 410, WL180, LBL 56.

SUBTASK 34-11-00-170-022

- (24) Apply 15 psig (103 kPa) of dry filtered air to the right static system.

SUBTASK 34-11-00-170-023

- (25) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-024

- (26) Continue for three minutes or more.

SUBTASK 34-11-00-840-015

- (27) Put the system back to ambient pressure.

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SUBTASK 34-11-00-020-055

(28) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-080-002

(29) Disconnect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, from drain fitting No. 4.

SUBTASK 34-11-00-420-009

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE STATIC SYSTEM CAN OCCUR.

(30) Connect the static hoses at these locations:

(a) The static port located at STA 410, WL 220, RBL 73

(b) The static port located at STA 410, WL 218, LBL 73.

SUBTASK 34-11-00-420-010

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE TO AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(31) Connect the static hose to the Air Data Module-Right Static located at STA 430, WL 205, RBL 0.35.

SUBTASK 34-11-00-410-004

(32) For the applicable ceiling liner in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner - Installation, TASK 25-52-09-400-801.

SUBTASK 34-11-00-410-005

(33) For the applicable sidewall panel, do this task: Sidewall Panel Installation, TASK 25-21-46-400-801.

SUBTASK 34-11-00-410-006

(34) For the applicable passenger seats, do this task: Passenger Seat Installation, TASK 25-22-00-400-802.

### G. Flush the Alternate Static System

SUBTASK 34-11-00-010-008

(1) For the applicable sidewall liners in the forward cargo compartment, do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801.

SUBTASK 34-11-00-020-018

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE STATIC SYSTEM CAN OCCUR.

(2) Disconnect the static hoses at these locations:

(a) The static port at STA 430, WL 167, LBL 49.

(b) The static port at STA 430, WL 167, RBL 49.

SUBTASK 34-11-00-020-019

(3) Install pressure seal cap assembly on the disconnected hoses.

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SUBTASK 34-11-00-020-020

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSES ARE TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Temporarily attach the static hoses to prevent movement.

SUBTASK 34-11-00-020-021

- (5) Do this task: Cabin Altitude and Differential Pressure Indicator Removal, TASK 21-33-02-000-801.

SUBTASK 34-11-00-020-022

- (6) Install a pressure seal cap assembly on the disconnected hose.

SUBTASK 34-11-00-020-023

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSE IS TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (7) Temporarily attach the static hose to prevent movement.

### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPED INDICATOR

SUBTASK 34-11-00-010-009

- (8) Remove the standby altitude/airspeed indicator. To remove the standby altitude/airspeed indicator, do this task: Standby Altimeter/Airspeed Indicator Removal, TASK 34-13-01-000-801.

### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-11-00-010-017

- (9) Remove the integrated standby flight display. To remove the integrated standby flight display, do this task: Integrated Standby Flight Display Removal, TASK 34-24-02-000-801.

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SUBTASK 34-11-00-020-024

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSE IS TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (10) Temporarily attach the static hose to prevent movement.

SUBTASK 34-11-00-480-003

**CAUTION:** DO NOT APPLY PRESSURE TO THE SYSTEM WHEN AN AIR DATA INSTRUMENT IS CONNECTED TO THE SYSTEM. IF YOU DO, DAMAGE TO THE AIR DATA INSTRUMENT CAN OCCUR.

- (11) Use a coupling, COM-1927 to connect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, to the alternate static system at drain fitting No. 5.

**NOTE:** Drain fitting No. 5 is located at approximately STA 226, WL 155, RBL 18.

SUBTASK 34-11-00-170-025

- (12) Remove the pressure seal cap assembly from the hose located at STA 430, WL 167, LBL 49.

SUBTASK 34-11-00-170-026

- (13) Apply 15 psig (103 kPa) of dry filtered air to the alternate static system.

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SUBTASK 34-11-00-170-027

(14) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-028

(15) Continue for three minutes or more.

SUBTASK 34-11-00-840-019

(16) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-056

(17) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-029

(18) Remove the pressure seal cap assembly from the hose located at STA 430, WL 167, RBL 49.

SUBTASK 34-11-00-170-030

(19) Apply 15 psig (103 kPa) of dry filtered air to the alternate static system.

SUBTASK 34-11-00-170-031

(20) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-032

(21) Continue for three minutes or more.

SUBTASK 34-11-00-840-021

(22) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-057

(23) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-033

(24) Remove the pressure seal cap assembly from the hose located at STA 220, WI 260, RBL 3.

SUBTASK 34-11-00-170-034

(25) Apply 15 psig (103 kPa) of dry filtered air to the alternate static system.

SUBTASK 34-11-00-170-035

(26) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-036

(27) Continue for three minutes or more.

SUBTASK 34-11-00-840-023

(28) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-058

(29) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-037

(30) Remove the pressure seal cap assembly from the hose located in the flight compartment.

SUBTASK 34-11-00-170-038

(31) Apply 15 psig (103 kPa) of dry filtered air to the alternate static system.

SUBTASK 34-11-00-170-039

(32) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-040

(33) Continue for three minutes or more.

SUBTASK 34-11-00-840-025

(34) Put the system back to ambient pressure.

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SUBTASK 34-11-00-020-059

(35) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-080-003

(36) Disconnect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, from drain fitting No. 5.

SUBTASK 34-11-00-420-015

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE STATIC SYSTEM CAN OCCUR.

(37) Connect the static hoses at these locations:

(a) The static port located at STA 430, WL 167, LBL 49

(b) The static port located at STA 430, WL 167, RBL 49.

SUBTASK 34-11-00-410-007

(38) For the applicable ceiling liner in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner - Installation, TASK 25-52-09-400-801.

SUBTASK 34-11-00-420-016

(39) Do this task: Cabin Altitude and Differential Pressure Indicator Installation, TASK 21-33-02-400-801.

### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-11-00-410-008

(40) To install the standby altitude/airspeed indicator, do this task: Standby Altimeter/Airspeed Indicator Installation, TASK 34-13-01-400-801.

### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-11-00-410-013

(41) Install the integrated standby flight display. To install the integrated standby flight display, do this task: Integrated Standby Flight Display Installation, TASK 34-24-02-400-801.

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SUBTASK 34-11-00-410-009

(42) For the applicable sidewall panel, do this task: Sidewall Panel Installation, TASK 25-21-46-400-801.

SUBTASK 34-11-00-410-010

(43) For the applicable passenger seats, do this task: Passenger Seat Installation, TASK 25-22-00-400-802.

## H. Flush the Left Pitot System

SUBTASK 34-11-00-020-029

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(1) Disconnect the pitot hose from the pitot probe located at STA 192, WL 225, LBL 34.

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SUBTASK 34-11-00-020-030

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(2) Disconnect the pitot hose from the Air Data Module-Left Pitot located at STA 200, WL 175, LBL 13.

SUBTASK 34-11-00-020-031

(3) Install pressure seal cap assembly on the disconnected hoses.

SUBTASK 34-11-00-020-032

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSES ARE TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Temporarily attach the pitot hoses to prevent movement.

SUBTASK 34-11-00-480-004

**CAUTION:** DO NOT APPLY PRESSURE TO THE SYSTEM WHEN AN AIR DATA MODULE IS CONNECTED TO THE SYSTEM. IF YOU DO, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(5) Use a coupling, COM-1926 to connect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, to the left pitot system at drain fitting No. 1.

**NOTE:** Drain fitting No. 1 is located at STA 210, WL 171, LBL 15.

SUBTASK 34-11-00-170-042

(6) Remove the pressure seal cap assembly from the hose located at STA 192, WL 225, LBL 34.

SUBTASK 34-11-00-170-043

(7) Apply 15 psig (103 kPa) of dry filtered air to the left pitot system.

SUBTASK 34-11-00-170-044

(8) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-045

(9) Continue for three minutes or more.

SUBTASK 34-11-00-840-027

(10) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-060

(11) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-046

(12) Remove the pressure seal cap assembly from the hose located at STA 200, WL 175, LBL 13.

SUBTASK 34-11-00-170-047

(13) Apply 15 psig (103 kPa) of dry filtered air to the left pitot system.

SUBTASK 34-11-00-170-048

(14) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-049

(15) Continue for three minutes or more.

SUBTASK 34-11-00-840-029

(16) Put the system back to ambient pressure.

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SUBTASK 34-11-00-020-061

- (17) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-080-004

- (18) Disconnect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, from drain fitting No. 1.

SUBTASK 34-11-00-420-019

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (19) Connect the pitot hose to the pitot probe located at STA 192, WL 225, LBL 34.

SUBTASK 34-11-00-420-020

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (20) Connect the pitot hose to the Air Data Module-Left Pitot located at STA 200, WL 175, LBL 13.

### I. Flush the Right Pitot System

SUBTASK 34-11-00-020-035

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (1) Disconnect the pitot hose from the pitot probe located at STA 192, WL 224, RBL 34.

SUBTASK 34-11-00-020-036

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (2) Disconnect the pitot hose from the Air Data Module-Right Pitot located at STA 200, WL 177, RBL 18.

SUBTASK 34-11-00-020-037

- (3) Install pressure seal cap assembly on the disconnected hoses.

SUBTASK 34-11-00-020-038

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSES ARE TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Temporarily attach the pitot hoses to prevent movement.

SUBTASK 34-11-00-480-005

**CAUTION:** DO NOT APPLY PRESSURE TO THE SYSTEM WHEN AN AIR DATA MODULE IS CONNECTED TO THE SYSTEM. IF YOU DO, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

- (5) Use a coupling, COM-1926 to connect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, to the right pitot hose at drain fitting No. 2.

**NOTE:** Drain fitting No. 2 is located at STA 204, WL 171, RBL 15.

SUBTASK 34-11-00-170-051

- (6) Remove the pressure seal cap assembly from the hose located at STA 192, WL 224, RBL 34.

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SUBTASK 34-11-00-170-052

(7) Apply 15 psig of dry filtered air to the right pitot system.

SUBTASK 34-11-00-170-053

(8) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-054

(9) Continue for three minutes or more.

SUBTASK 34-11-00-840-031

(10) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-062

(11) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-170-055

(12) Remove the pressure seal cap assembly from the hose located at STA 200, WL 177, RBL 18.

SUBTASK 34-11-00-170-056

(13) Apply 15 psig (103 kPa) of dry filtered air to the right pitot system.

SUBTASK 34-11-00-170-057

(14) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-058

(15) Continue for three minutes or more.

SUBTASK 34-11-00-840-033

(16) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-063

(17) Install a pressure seal cap assembly on the hose.

SUBTASK 34-11-00-080-005

(18) Disconnect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, from drain fitting No. 2.

SUBTASK 34-11-00-420-023

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(19) Connect the pitot hose to the pitot probe located at STA 192, WL 224, RBL 34.

SUBTASK 34-11-00-420-024

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(20) Connect the pitot hose to the Air Data Module-Right Pitot located at STA 200, WL 177, RBL 18.

### J. Flush the Alternate Pitot System

SUBTASK 34-11-00-020-041

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(1) Disconnect the pitot hose from the pitot probe located at STA 192, WL 213, RBL 34.

SUBTASK 34-11-00-020-042

(2) Install a pressure seal cap assembly on the disconnected hose.

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SUBTASK 34-11-00-020-043

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSE IS TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Temporarily attach the pitot hose to prevent movement.

### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPED INDICATOR

SUBTASK 34-11-00-010-010

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSES ARE TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Remove the standby altitude/airspeed indicator. To remove the standby altitude/airspeed indicator, do this task: Standby Altimeter/Airspeed Indicator Removal, TASK 34-13-01-000-801.

### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-11-00-010-019

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSES ARE TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Remove the integrated standby flight display. To remove the integrated standby flight display, do this task: Integrated Standby Flight Display Removal, TASK 34-24-02-000-801.

### HAP ALL

SUBTASK 34-11-00-020-044

**WARNING:** YOU MUST MAKE SURE THAT THE DISCONNECTED HOSE IS TEMPORARILY ATTACHED TO PREVENT MOVEMENT. IF YOU DO NOT, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Temporarily attach the pitot hose to prevent movement.

SUBTASK 34-11-00-480-006

**CAUTION:** DO NOT APPLY PRESSURE TO THE SYSTEM WHEN AN AIR DATA INSTRUMENT IS CONNECTED TO THE SYSTEM. IF YOU DO, DAMAGE TO THE AIR DATA INSTRUMENT CAN OCCUR.

- (7) Connect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, to the alternate pitot hose located at STA 192, WL 213, RBL 34.

SUBTASK 34-11-00-170-060

- (8) Apply 15 psig (103 kPa) of dry filtered air to the alternate pitot system.

SUBTASK 34-11-00-170-061

- (9) Make sure that you can feel air come out of the hose.

SUBTASK 34-11-00-170-062

- (10) Continue for three minutes or more.

SUBTASK 34-11-00-840-035

- (11) Put the system back to ambient pressure.

SUBTASK 34-11-00-020-064

- (12) Install a pressure seal cap assembly, STD-6642 on the hose.

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SUBTASK 34-11-00-170-063

(13) Apply 10 psig (69 kPa) of dry filtered air to the alternate pitot system.

SUBTASK 34-11-00-170-064

(14) Make sure that you can feel air come out of the other disconnected hose.

SUBTASK 34-11-00-170-065

(15) Continue for three minutes or more.

SUBTASK 34-11-00-860-017

(16) Put the system back to ambient pressure.

SUBTASK 34-11-00-080-006

(17) Disconnect the dry filtered 0 to 150 psig dry filtered regulated air source, STD-3940, from the alternate pitot hose located at STA 192, WL 213, RBL 34.

SUBTASK 34-11-00-420-025

**CAUTION:** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT A HOSE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(18) Connect the pitot hose to the pitot probe located at STA 192, WL 213, RBL 34.

## HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-11-00-410-011

(19) To install the standby altitude/airspeed indicator, do this task: Standby Altimeter/Airspeed Indicator Installation, TASK 34-13-01-400-801.

## HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-11-00-410-015

(20) Install the integrated standby flight display. To install the integrated standby flight display, do this task: Integrated Standby Flight Display Installation, TASK 34-24-02-400-801.

### HAP ALL

#### K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-210-003

(1) Do a visual inspection of the quick-disconnect fittings that you reconnected.

- (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-860-018

(2) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C00357	STBY ALTM/ASI VIB

### HAP 001-013, 015-026, 028-030

D	10	C00357	STBY ALTM/ASI VIB
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HAP 001-013, 015-026, 028-030 (Continued)

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-730-001

(3) Do this task: Pitot System - Detailed Inspection of Drains, TASK 34-11-00-210-801.

————— **END OF TASK** —————

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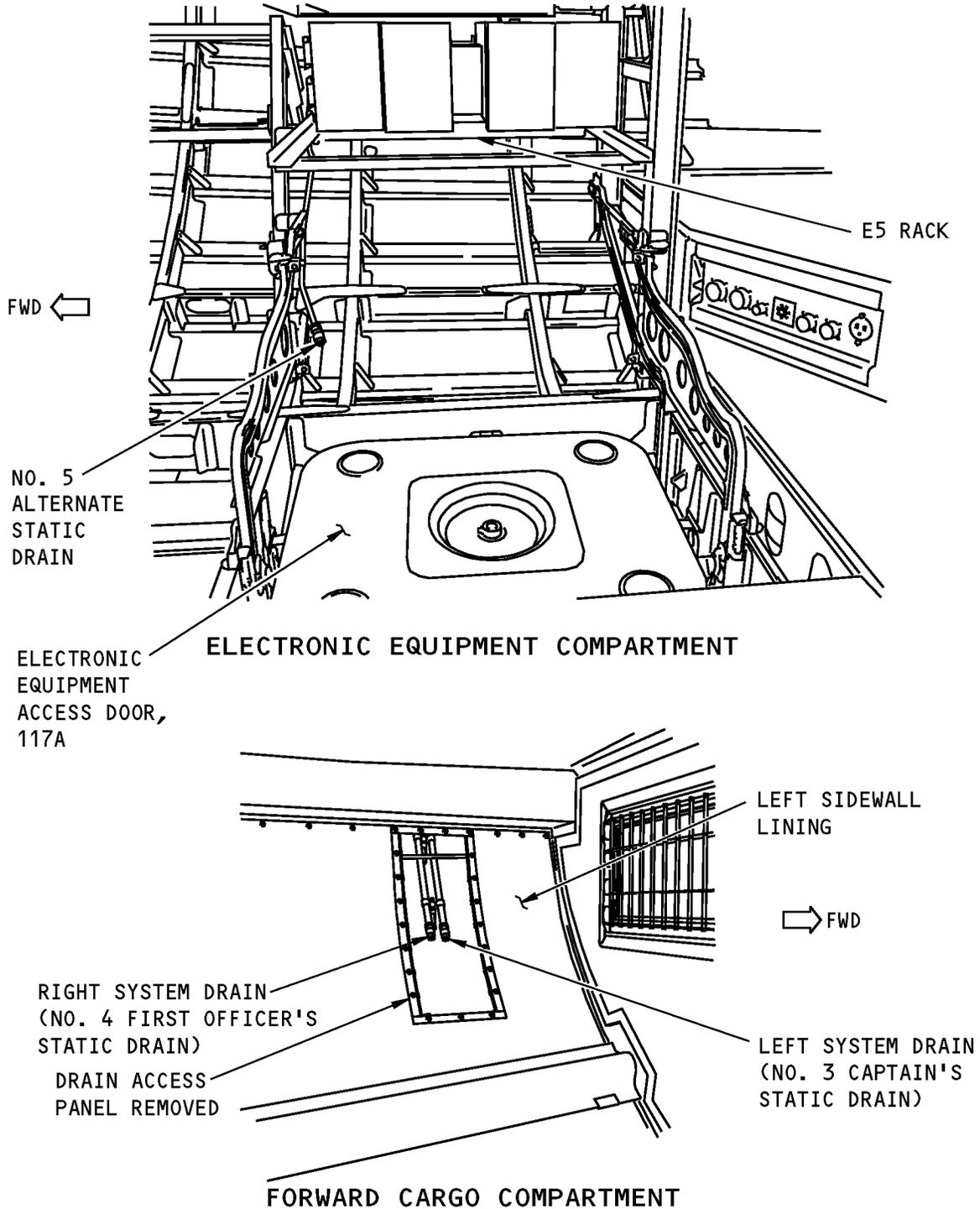
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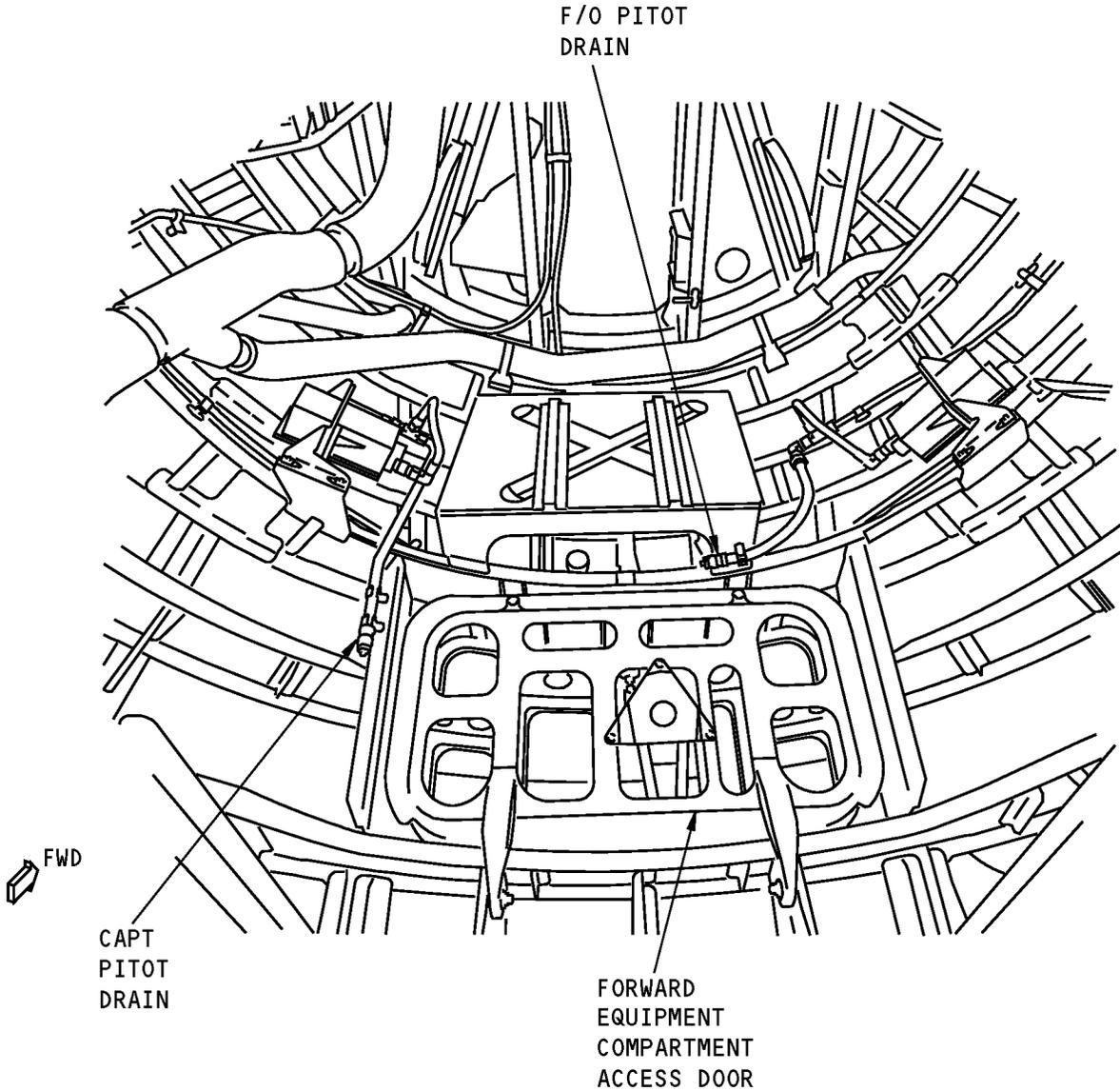
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**Static System Drains**  
**Figure 301/34-11-00-990-802**

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**FORWARD EQUIPMENT COAMPMENT**

**Pitot System Drains  
Figure 302/34-11-00-990-803**

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#### TASK 34-11-00-210-801

#### 3. Pitot System - Detailed Inspection of Drains

##### A. General

(1) This procedure is a scheduled maintenance task.

##### B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

##### C. Procedure

SUBTASK 34-11-00-210-001

(1) Do a detailed inspection for moisture for the Captains and First Officers pitot system drains.

**NOTE:** The alternate pitot system does not have a drain fitting. The probe is at the lowest part of the system line so that moisture can drain from the probe.

SUBTASK 34-11-00-680-001

(2) If you find moisture in at least one of the locations above, do this task: Static and Total Air Pressure System - Servicing, TASK 34-11-00-170-801.

————— **END OF TASK** —————

#### TASK 34-11-00-210-802

#### 4. Static System - Detailed Inspection of Drains

##### A. General

(1) This procedure is a scheduled maintenance task.

##### B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

##### C. Procedure

SUBTASK 34-11-00-210-002

(1) Do a detailed inspection for moisture in the static system drains for these systems:

(a) Alternate Static System

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- (b) First Officers Static System
- (c) Captains Static System

SUBTASK 34-11-00-680-002

- (2) If you find moisture in at least one of the locations above, do this task: Static and Total Air Pressure System - Servicing, TASK 34-11-00-170-801.

————— **END OF TASK** —————

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## STATIC AND TOTAL AIR PRESSURE SYSTEM - ADJUSTMENT/TEST

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
  - (1) Left Static System Low-range Leak Test
  - (2) Right Static System Low-range Leak Test
  - (3) Alternate Static System Low-range Leak Test
  - (4) Left Pitot System Leak Test
  - (5) Right Pitot System Leak Test
  - (6) Alternate Pitot System Leak Test
  - (7) Left Static System Full-range Leak Test
  - (8) Right Static System Full-range Leak Test
  - (9) Alternate Static System Full-range Leak Test

### **TASK 34-11-00-790-804**

### 2. Left Static System Low-range Leak Test

(Figure 501)

#### A. General

- (1) This procedure is a scheduled maintenance task.
- (2) You must do the static system low-range leak test when you remove a fitting other than a quick disconnect. You must do the low-range leak test after you flush the pitot-static system.
- (3) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

#### B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)

#### C. Tools/Equipment

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

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Prepare for the Low-range Leak Test

SUBTASK 34-11-00-860-075

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

(1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-076

(2) Make sure that the Autopilot Flight Director System is off.

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SUBTASK 34-11-00-860-077

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-078

- (4) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**HAP 001-013, 015-026, 028-030**

D	10	C00357	STBY ALTM/ASI VIB
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E	8	C00425	ADIRU LEFT EXC
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F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-079

- (5) Do this task: Supply External Power, TASK 24-22-00-860-813.

## G. Installation of Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-092

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (1) Seal these two primary static ports with vinyl adhesive Scotch Brand No.471 tape, G02219.
  - (a) The CAPTAIN static port on the right side of the fuselage.
  - (b) The CAPTAIN static port on the left side of the fuselage.

SUBTASK 34-11-00-480-093

- (2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801

SUBTASK 34-11-00-480-094

- (3) Remove the cap from the No. 3 Captain's Static Drain.

**NOTE:** The No. 3 Captain's Static Drain is the forward drain, and is connected to the left static system.

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SUBTASK 34-11-00-480-096

- (4) Install the coupling, COM-1927, on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-480-210

- (5) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

### H. Installation of Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-012

**CAUTION:** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the CAPTAIN static port, on the right side of the fuselage.

SUBTASK 34-11-00-480-211

- (2) Connect the air data model test set, COM-1914 to the static port adapter, SPL-1921.

SUBTASK 34-11-00-400-013

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (3) Seal the CAPTAIN static port on the left side of the fuselage with Scotch Brand No.471 tape, G02219.

### I. Left Static System Low-range Leak Test

SUBTASK 34-11-00-790-060

**CAUTION:** MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

- (1) Operate the air data model test set, COM-1914 to apply a vacuum to the static system equal to 5,000 feet of altitude above field elevation (ambient pressure minus  $5.25 \pm 0.25$  in. Hg).

SUBTASK 34-11-00-790-061

- (2) When the system reaches 5,000 feet above field elevation, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-062

- (3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-063

- (4) Make sure the altitude does not decrease more than 80 feet (0.07 in. Hg) in one minute.

SUBTASK 34-11-00-860-080

- (5) Put the system back to ambient pressure.

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### J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-114

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-115

- (2) Disconnect the coupling, COM-1927, from the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-480-213

- (3) Install the cap on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-210-004

- (4) Do a visual inspection of the quick-disconnect fittings that you connected.

- (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-214

- (5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801

SUBTASK 34-11-00-080-116

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

- (a) The CAPTAIN static port on the right side of the fuselage.
- (b) The CAPTAIN static port on the left side of the fuselage.

### K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-215

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914, from the static port adapter, SPL-1921.

SUBTASK 34-11-00-480-216

**CAUTION:** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (2) Remove the static port adapter, SPL-1921, from the CAPTAIN static port on the right side of the fuselage.

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SUBTASK 34-11-00-080-054

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF YOU DO NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (3) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the CAPTAIN static port on the left side of the fuselage.

L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-081

- (1) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB

**HAP ALL**

E	8	C00425	ADIRU LEFT EXC
---	---	--------	----------------

F/O Electrical System Panel, P6-1

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

————— **END OF TASK** —————

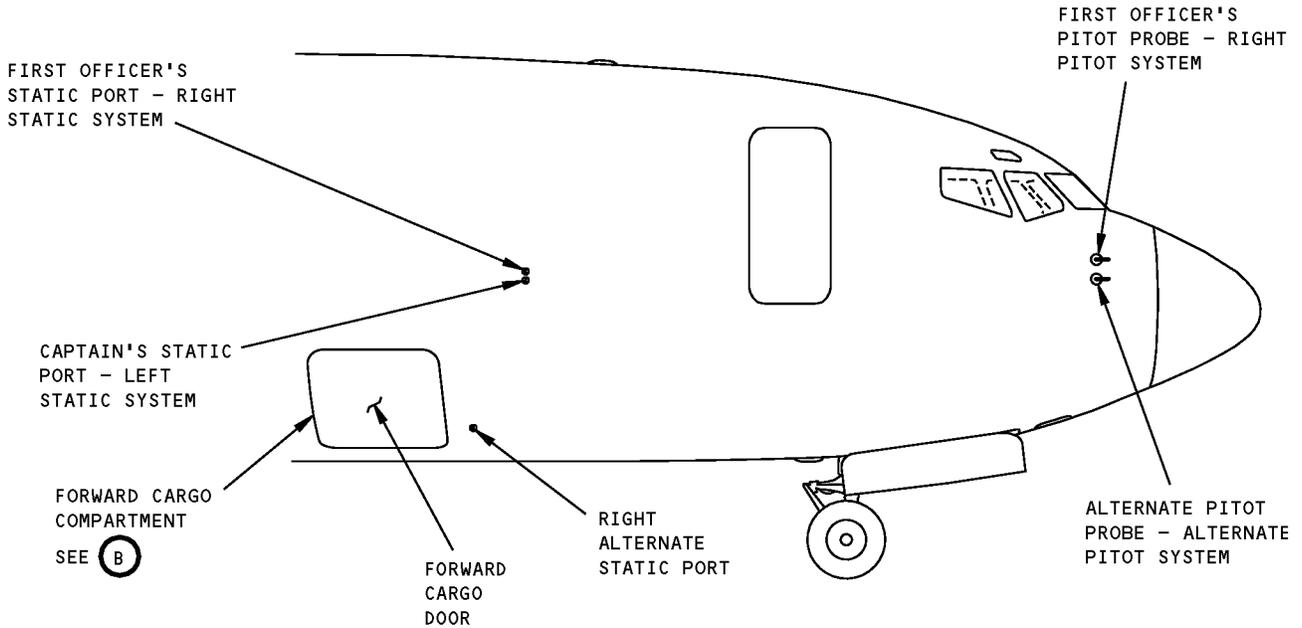
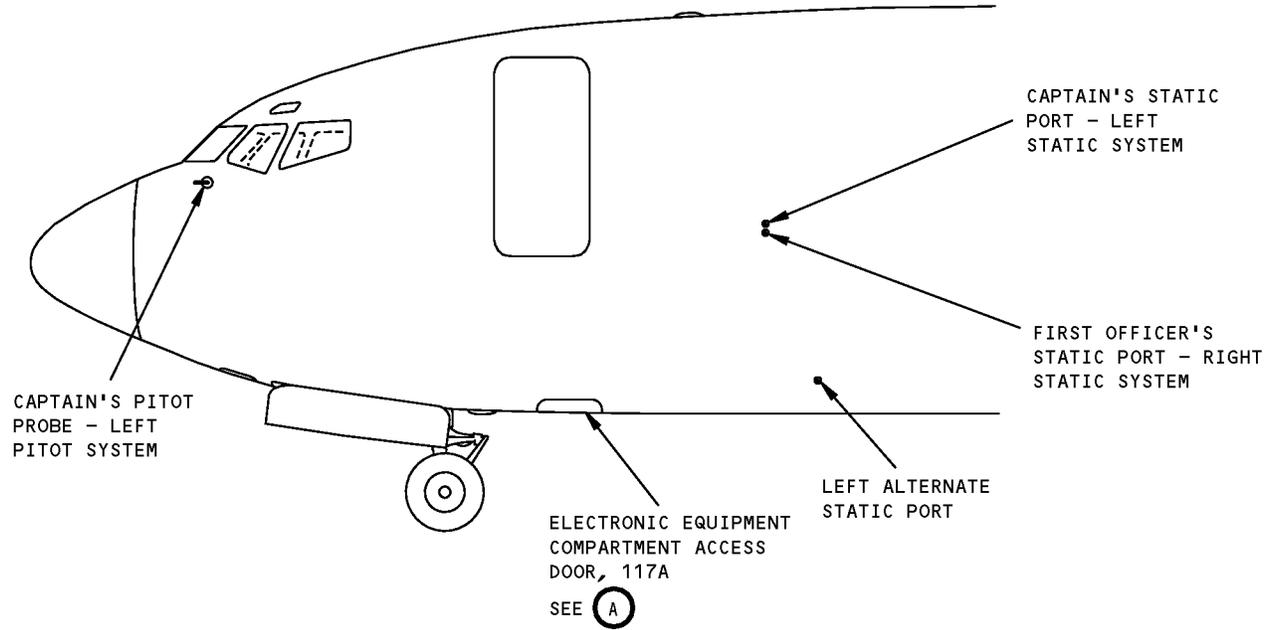
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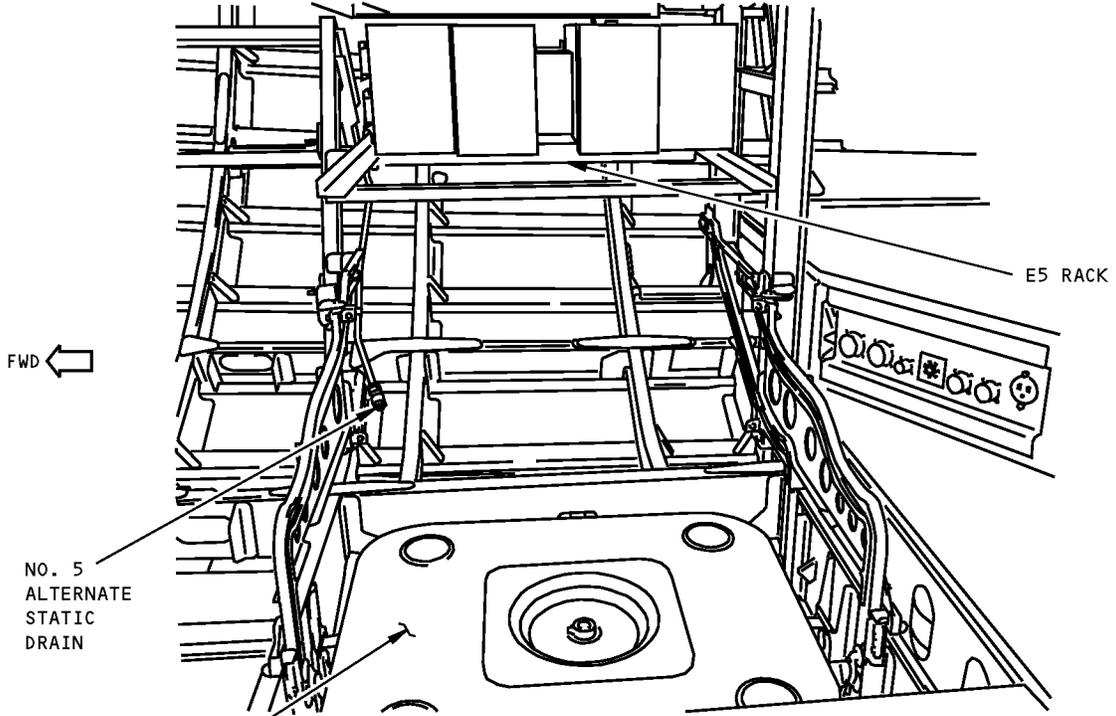


**Pitot Static Leakage Test**  
**Figure 501 (Sheet 1 of 2)/34-11-00-990-801**

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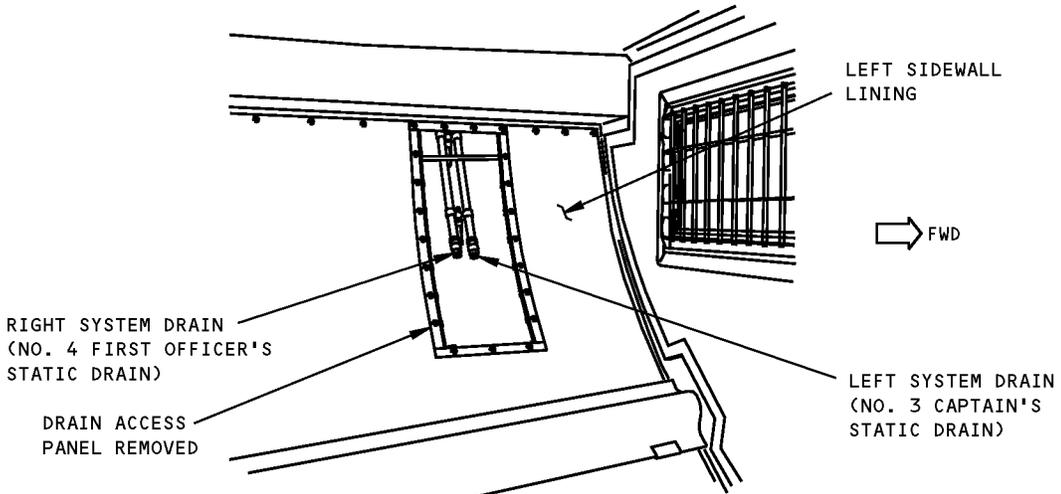
NO. 5  
ALTERNATE  
STATIC  
DRAIN

E5 RACK

FWD ←

ELECTRONIC EQUIPMENT COMPARTMENT

(A)



LEFT SIDEWALL  
LINING

→ FWD

RIGHT SYSTEM DRAIN  
(NO. 4 FIRST OFFICER'S  
STATIC DRAIN)

DRAIN ACCESS  
PANEL REMOVED

LEFT SYSTEM DRAIN  
(NO. 3 CAPTAIN'S  
STATIC DRAIN)

FORWARD CARGO COMPARTMENT

(B)

**Pitot Static Leakage Test  
Figure 501 (Sheet 2 of 2)/34-11-00-990-801**

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TASK 34-11-00-790-806

#### 3. Right Static System Low-range Leak Test

(Figure 501)

##### A. General

- (1) This procedure is a scheduled maintenance task.
- (2) You must do the static system low-range leak test when you remove a fitting other than a quick disconnect. You must do the low-range leak test after you flush the pitot-static system.
- (3) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

##### B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)

##### C. Tools/Equipment

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

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

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#### D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

#### E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### F. Prepare for the Low-range Leak Test

SUBTASK 34-11-00-860-091

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-092

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-093

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-094

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-095

- (5) Do this task: Supply External Power, TASK 24-22-00-860-813.

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### G. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-106

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (1) Seal these two primary static ports with vinyl adhesive Scotch Brand No.471 tape, G02219.
  - (a) The FIRST OFFICER static port on the left side of the fuselage.
  - (b) The FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-480-107

- (2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801

SUBTASK 34-11-00-480-108

- (3) Remove the cap from the No. 4 First Officer's Static Drain.

**NOTE:** The No. 4 First Officer's Static Drain is the aft drain, and is connected to the right static system.

SUBTASK 34-11-00-400-014

- (4) Install the coupling, COM-1927, on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-400-015

- (5) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

### H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-001

**CAUTION:** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-400-016

- (2) Connect the air data model test set, COM-1914 to the static port adapter, SPL-1921.

SUBTASK 34-11-00-400-017

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (3) Seal the FIRST OFFICER static port on the left side of the fuselage with Scotch Brand No.471 tape, G02219.

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### I. Right Static System Low-range Leak Test

SUBTASK 34-11-00-790-068

**CAUTION:** MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

- (1) Operate the air data model test set, COM-1914 to apply a vacuum to the static system equal to 5,000 feet of altitude above field elevation (ambient pressure minus  $5.25 \pm 0.25$  in. Hg).

SUBTASK 34-11-00-790-069

- (2) When the system reaches 5,000 feet above field elevation, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-070

- (3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-071

- (4) Make sure the altitude does not decrease more than 80 feet (0.07 in. Hg) in one minute.

SUBTASK 34-11-00-860-096

- (5) Put the system back to ambient pressure.

### J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-092

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-093

- (2) Disconnect the coupling, COM-1927, from the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-480-173

- (3) Install the cap on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-210-005

- (4) Do a visual inspection of the quick-disconnect fittings that you connected.

- (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-217

- (5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801

SUBTASK 34-11-00-080-094

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

- (a) The FIRST OFFICER static port on the right side of the fuselage.
- (b) The FIRST OFFICER static port on the left side of the fuselage.

## K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-175

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the static port adapter, SPL-1921.

SUBTASK 34-11-00-480-176

**CAUTION:** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static port adapter, SPL-1921, from the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-080-058

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the FIRST OFFICER static port on the left side of the fuselage.

## L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-097

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB

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HAP 001-013, 015-026, 028-030 (Continued)

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

F/O Electrical System Panel, P6-1

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

END OF TASK

TASK 34-11-00-790-808

4. Alternate Static System Low-range Leak Test

(Figure 501)

A. General

- (1) This procedure is a scheduled maintenance task.
- (2) You must do the static system low-range leak test when you remove a fitting other than a quick disconnect. You must do the low-range leak test after you flush the pitot-static system.
- (3) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-813	Supply External Power (P/B 201)

C. Tools/Equipment

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

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

#### D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

#### E. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

#### G. Prepare for the Low-range Leak Test

SUBTASK 34-11-00-860-107

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

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SUBTASK 34-11-00-860-108

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-109

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-110

- (4) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB

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E	8	C00425	ADIRU LEFT EXC
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F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-111

- (5) Do this task: Supply External Power, TASK 24-22-00-860-813.

H. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-118

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (1) Seal the two alternate static ports with vinyl adhesive Scotch Brand No.471 tape, G02219 at these locations:
  - (a) The ALTERNATE static port on the right side of the fuselage.
  - (b) The ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-480-119

- (2) Remove the cap from the No. 5 Alternate Static Drain, in the electronic equipment compartment, below the E-5 rack.

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Get access to the drain in the electronic equipment compartment through this access panel:

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

SUBTASK 34-11-00-400-019

- (3) Install the coupling, COM-1927, on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-400-020

- (4) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

### I. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-004

**CAUTION:** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-400-021

- (2) Connect the air data model test set, COM-1914 to the static port adapter, SPL-1921.

SUBTASK 34-11-00-400-022

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (3) Seal the ALTERNATE static port on the right side of the fuselage with Scotch Brand No.471 tape, G02219.

### J. Alternate Static System Low-range Leak Test

SUBTASK 34-11-00-790-076

- (1) Operate the air data model test set, COM-1914 to apply a vacuum to the static system equal to 5,000 feet of altitude above field elevation (ambient pressure minus  $5.25 \pm 0.25$  in. Hg).

SUBTASK 34-11-00-790-077

- (2) When the system reaches 5,000 feet above field elevation, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-078

- (3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-079

- (4) Make sure the altitude does not decrease more than 80 feet (0.07 in. Hg) in one minute.

SUBTASK 34-11-00-860-112

- (5) Put the system back to ambient pressure.

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### K. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-096

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE INDICATORS CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-097

- (2) Disconnect the coupling, COM-1927, from the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-480-179

- (3) Install the cap on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-210-006

- (4) Do a visual inspection of the quick-disconnect fittings that you connected.

- (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-080-098

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (5) Remove the Scotch Brand No.471 tape, G02219, from the ALTERNATE static ports at these locations:

- (a) The ALTERNATE static port on the right side of the fuselage.
- (b) The ALTERNATE static port on the left side of the fuselage.

### L. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-181

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the static port adapter, SPL-1921.

SUBTASK 34-11-00-480-182

**CAUTION:** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (2) Remove the static port adapter, SPL-1921, from the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-080-063

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the ALTERNATE static port on the right side of the fuselage.

M. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-113

(1) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

**END OF TASK**

**TASK 34-11-00-790-810**

## 5. Left Pitot System Leak Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-813	Supply External Power (P/B 201)

C. Tools/Equipment

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

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

E. Location Zones

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

F. Prepare for the Leak Test

SUBTASK 34-11-00-860-123

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-124

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-125

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

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SUBTASK 34-11-00-860-195

- (4) Make sure that that AOA vanes are set to zero degrees.

SUBTASK 34-11-00-860-126

- (5) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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D	10	C00357	STBY ALTM/ASI VIB
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E	8	C00425	ADIRU LEFT EXC
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CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-127

- (6) Do this task: Supply External Power, TASK 24-22-00-860-813.

**NOTE:** You must use external power to do this test. APU generator power will not work for this test.

SUBTASK 34-11-00-860-128

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT

**G. Installation of Pitot Probe Adapter**

SUBTASK 34-11-00-170-076

- (1) Prepare the adapter, kit, COM-1916, before you install it on the pitot probe:

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**CAUTION:** MAKE SURE THAT YOU FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

- (a) Flush the adapter with water.

**NOTE:** Use equal parts of water and ethylene glycol when the temperature is between 32°F and -40°F (-40°C to 0°C).

- (b) Blow dry filtered air through the adapter.

SUBTASK 34-11-00-160-002

- (2) Wipe the pitot probe with a damp cotton wiper, G00034.

SUBTASK 34-11-00-480-130

**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

- (3) Install the adapter, kit, COM-1916, on the pitot probe on the left side of the forward fuselage.

SUBTASK 34-11-00-480-131

- (4) Connect the air data model test set, COM-1914 to the adapter, kit, COM-1916.

### H. Left Pitot System Low-range Leak Test

SUBTASK 34-11-00-790-084

**CAUTION:** MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

- (1) Operate the air data model test set, COM-1914 to apply pressure of  $4.53 \pm 0.16$  inches Hg (gauge),  $(2.22 \pm 0.08 \text{ psig})$  ( $153.4 \pm 5.4 \text{ mB}$ ), or  $300 \pm 5$  knots on the airspeed indicator.

SUBTASK 34-11-00-790-085

- (2) When the test pressure is reached, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-086

- (3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-087

- (4) Make sure the pressure does not decrease more than 0.16 inches Hg (5.4 mB) (approximately 5 knots) in one minute.

SUBTASK 34-11-00-860-129

- (5) Put the system back to ambient pressure.

### I. Removal of Pitot Probe Adapter

SUBTASK 34-11-00-080-069

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the adapter, kit, COM-1916.

SUBTASK 34-11-00-080-070

- (2) Remove the adapter, kit, COM-1916, from the pitot probe.

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#### J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-131

(1) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

**END OF TASK**

#### TASK 34-11-00-790-811

#### 6. Right Pitot System Leak Test

(Figure 501)

##### A. General

(1) This procedure is a scheduled maintenance task.

##### B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-813	Supply External Power (P/B 201)

##### C. Tools/Equipment

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

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

E. Location Zones

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

F. Prepare for the Leak Test

SUBTASK 34-11-00-860-133

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-134

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-135

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

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SUBTASK 34-11-00-860-196

- (4) Make sure the AOA vanes are set to zero degrees.

SUBTASK 34-11-00-860-136

- (5) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**HAP 001-013, 015-026, 028-030**

D	10	C00357	STBY ALTM/ASI VIB
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**HAP ALL**

E	8	C00425	ADIRU LEFT EXC
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CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-137

- (6) Do this task: Supply External Power, TASK 24-22-00-860-813.

**NOTE:** You must use external power to do this test. APU generator power will not work for this test.

SUBTASK 34-11-00-860-138

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C00525	HEATERS F/O PITOT

**G. Installation of Pitot Probe Adapter**

SUBTASK 34-11-00-170-077

- (1) Prepare the adapter, kit, COM-1916 before you install the adapter on the pitot probe:

<p><b>EFFECTIVITY</b></p> <p><b>HAP ALL</b></p>	
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**CAUTION:** MAKE SURE THAT YOU FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

- (a) Flush the adapter with water.

**NOTE:** Use equal parts of water and ethylene glycol when the temperature is between 32°F and -40°F (-40°C to 0°C).

- (b) Blow dry filtered air through the adapter.

SUBTASK 34-11-00-160-003

- (2) Wipe the pitot probe with a damp cotton wiper, G00034.

SUBTASK 34-11-00-480-133

**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

- (3) Install the adapter, kit, COM-1916, on the upper pitot probe on the right side of the forward fuselage.

SUBTASK 34-11-00-480-134

- (4) Connect the air data model test set, COM-1914, to the adapter, kit, COM-1916.

### H. Right Pitot System Low-range Leak Test

SUBTASK 34-11-00-790-088

**CAUTION:** MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

- (1) Operate the air data model test set, COM-1914 to apply pressure of  $4.53 \pm 0.16$  inches Hg (gauge),  $(2.22 \pm 0.08 \text{ psig})$  ( $153.4 \pm 5.4 \text{ mB}$ ), or  $300 \pm 5$  knots on the airspeed indicator.

SUBTASK 34-11-00-790-089

- (2) When the test pressure is reached, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-090

- (3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-091

- (4) Make sure the pressure does not decrease more than 0.16 inches Hg (5.4 mB) (approximately 5 knots) in one minute.

SUBTASK 34-11-00-860-139

- (5) Put the system back to ambient pressure.

### I. Removal of the Pitot Probe Adapter

SUBTASK 34-11-00-080-071

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914, from the adapter, kit, COM-1916.

SUBTASK 34-11-00-080-072

- (2) Remove the adapter, kit, COM-1916, from the pitot probe.

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J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-141

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

END OF TASK

TASK 34-11-00-790-812

7. Alternate Pitot System Leak Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)

C. Tools/Equipment

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

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

E. Location Zones

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

F. Prepare for the Leak Test

SUBTASK 34-11-00-860-143

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-144

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-145

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

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SUBTASK 34-11-00-860-197

- (4) Make sure the AOA vanes are set to zero degrees.

SUBTASK 34-11-00-860-146

- (5) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**HAP 001-013, 015-026, 028-030**

D	10	C00357	STBY ALTM/ASI VIB
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**HAP ALL**

E	8	C00425	ADIRU LEFT EXC
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CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-147

- (6) Do this task: Supply External Power, TASK 24-22-00-860-813.

**NOTE:** You must use external power to do this test. APU generator power will not work for this test.

SUBTASK 34-11-00-860-148

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C00524	HEATERS AUX PITOT

**G. Installation of the Pitot Probe Adapter**

SUBTASK 34-11-00-170-078

- (1) Prepare the adapter, kit, COM-1916 before you install the adapter on the pitot probe:

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**CAUTION:** MAKE SURE THAT YOU FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

- (a) Flush the adapter with water.

**NOTE:** Use equal parts of water and ethylene glycol when the temperature is between 32°F and -40°F (-40°C to 0°C).

- (b) Blow dry filtered air through the adapter.

SUBTASK 34-11-00-160-004

- (2) Wipe the pitot probe with a damp cotton wiper, G00034.

SUBTASK 34-11-00-480-136

**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

- (3) Install the adapter, kit, COM-1916, on the lower pitot probe on the right side of the forward fuselage.

SUBTASK 34-11-00-480-137

- (4) Connect the air data model test set, COM-1914, to the adapter, kit, COM-1916.

### H. Alternate Pitot System Low-range Leak Test

SUBTASK 34-11-00-790-092

- (1) Operate the air data model test set, COM-1914 to apply pressure of  $4.53 \pm 0.16$  inches Hg (gauge), ( $2.22 \pm 0.08$  psig) ( $153.4 \pm 5.4$  mB), or  $300 \pm 5$  knots on the airspeed indicator.

SUBTASK 34-11-00-790-093

- (2) When the test pressure is reached, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-094

- (3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-095

- (4) Make sure the pressure does not decrease more than 0.16 inches Hg (5.4 mB) (approximately 5 knots) in one minute.

SUBTASK 34-11-00-860-149

- (5) Put the system back to ambient pressure.

### I. Removal of the Pitot Probe Adapter

SUBTASK 34-11-00-080-073

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE INDICATORS CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the adapter, kit, COM-1916.

SUBTASK 34-11-00-080-074

- (2) Remove the adapter, kit, COM-1916, from the pitot probe.

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#### J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-151

(1) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB

**HAP ALL**

E	8	C00425	ADIRU LEFT EXC
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CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

**END OF TASK**

#### TASK 34-11-00-790-813

#### 8. Left Static System Full-range Leak Test

(Figure 501)

##### A. General

- (1) The static system full-range leak test is not required. However, leaks are easier to detect with the higher pressure.
- (2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

##### B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-813	Supply External Power (P/B 201)
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)

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#### C. Tools/Equipment

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

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: ORD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

#### D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

#### E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

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#### F. Prepare for the Leak Test

SUBTASK 34-11-00-860-153

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-154

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-155

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-156

- (4) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-157

- (5) Do this task: Supply External Power, TASK 24-22-00-860-813.

**NOTE:** You must use external power to do this test. APU generator power will not work for this test.

#### G. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-400-024

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (1) Seal these static ports on the with Scotch Brand No.471 tape, G02219:
  - (a) The CAPTAIN static port on the right side of the fuselage.
  - (b) The CAPTAIN static port on the left side of the fuselage.

SUBTASK 34-11-00-480-141

- (2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To open it, do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801.

SUBTASK 34-11-00-480-142

- (3) Remove the cap from the No. 3 Captain's Static Drain.

**NOTE:** The No. 3 Captain's Static Drain is the forward drain and is connected to the left static system.

SUBTASK 34-11-00-400-007

- (4) Install the coupling, COM-1927, on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-400-025

- (5) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

### H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-008

**CAUTION:** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the CAPTAIN static port, on the right side of the fuselage.

SUBTASK 34-11-00-400-026

- (2) Connect the air data model test set, COM-1914 to the static port adapter, SPL-1921.

SUBTASK 34-11-00-400-027

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (3) Seal the CAPTAIN static port on the left side of the fuselage with Scotch Brand No.471 tape, G02219.

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### I. Left Static System Full-range Leak Test

SUBTASK 34-11-00-790-101

**CAUTION:** DO NOT MAKE THE STATIC PRESSURE LESS THAN 4 IN. HG. (135.5 MILLIBARS). STATIC PRESSURE LESS THAN 4 IN. HG. (135.5 MILLIBARS) CAN CAUSE DAMAGE TO THE AIR DATA MODULE.

(1) Use the air data model test set, COM-1914 to supply a vacuum of 18.82 in. Hg. (637.3 millibars), but do not make the static pressure less than 4.3 in. Hg. (145.6 millibars) absolute.

(a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.

SUBTASK 34-11-00-790-102

(2) When the system reaches 25,000 feet, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-103

(3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-104

(4) Make sure the pressure does not decrease more than 0.20 inches Hg or 6.77 mB (approximately 400 feet) in one minute.

SUBTASK 34-11-00-860-158

(5) Put the system back to ambient pressure.

(a) When you release pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.

### J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-100

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-101

(2) Disconnect the coupling, COM-1927, from the No. 3 Captains Static Drain.

SUBTASK 34-11-00-480-185

(3) Install the cap on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-210-007

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-218

(5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To close it, do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801.

SUBTASK 34-11-00-480-223

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

- (a) The CAPTAIN static port on the right side of the fuelage.
- (b) The CAPTAIN static port on the left side of the fuselage.

## K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-187

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the static port adapter, SPL-1921.

SUBTASK 34-11-00-480-188

**CAUTION:** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static port adapter, SPL-1921, from the CAPTAIN static port on the right side of the fuselage.

SUBTASK 34-11-00-480-189

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the Scotch Brand No.471 tape, G02219, from the CAPTAIN static port on the left side of the fuselage.

## L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-178

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB

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HAP 001-013, 015-026, 028-030 (Continued)

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

F/O Electrical System Panel, P6-1

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

————— **END OF TASK** —————

#### TASK 34-11-00-790-814

#### 9. Right Static System Full-range Leak Test

(Figure 501)

##### A. General

- (1) The static system full-range leak test is not required. However, leaks are easier to detect with the higher pressure.
- (2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

##### B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-813	Supply External Power (P/B 201)
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)

##### C. Tools/Equipment

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

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

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#### F. Prepare for the Leak Test

SUBTASK 34-11-00-860-161

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-162

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-163

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-164

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-165

- (5) Do this task: Supply External Power, TASK 24-22-00-860-813.

**NOTE:** You must use external power to do this test. APU generator power will not work for this test.

#### G. Installation of Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-400-010

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (1) Seal these static ports with vinyl adhesive Scotch Brand No.471 tape, G02219:
  - (a) The FIRST OFFICER static port on the left side of the fuselage.
  - (b) The FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-400-028

- (2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To open it, do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801.

SUBTASK 34-11-00-400-029

- (3) Remove the cap from the No. 4 First Officer's Static Drain.

**NOTE:** The No. 4 First Officer's Static Drain is the aft drain, and is connected to the right static system.

SUBTASK 34-11-00-400-030

- (4) Install the coupling, COM-1927, on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-400-031

- (5) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

### H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-011

**CAUTION:** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-400-032

- (2) Connect the air data model test set, COM-1914 to the static port adapter, SPL-1921.

SUBTASK 34-11-00-400-033

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (3) Seal the FIRST OFFICER static port on the left side of the fuselage with vinyl adhesive Scotch Brand No.471 tape, G02219.

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### I. Right Static System Full-range Leak Test

SUBTASK 34-11-00-790-105

**CAUTION:** DO NOT MAKE THE STATIC PRESSURE LESS THAN 4 IN. HG. (135.5 MILLIBARS). STATIC PRESSURE LESS THAN 4 IN. HG. (135.5 MILLIBARS) CAN CAUSE DAMAGE TO THE AIR DATA MODULE.

(1) Use the air data model test set, COM-1914 to supply a vacuum of 18.82 in. Hg. (637.3 millibars), but do not make the static pressure less than 4.3 in. Hg. (145.6 millibars) absolute.

(a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.

SUBTASK 34-11-00-790-106

(2) When the system reaches 25,000 feet, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-107

(3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-108

(4) Make sure the pressure does not decrease more than 0.20 inches Hg or 6.77 mB (approximately 400 feet) in one minute.

SUBTASK 34-11-00-860-166

(5) Put the system back to ambient pressure.

(a) When you release pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.

### J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-104

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-105

(2) Disconnect the coupling, COM-1927, from the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-480-197

(3) Install the cap on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-210-008

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-220

(5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To close it, do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801.

SUBTASK 34-11-00-080-106

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

- (a) The FIRST OFFICER static port on the right side of the fuselage.
- (b) The FIRST OFFICER static port on the left side of the fuselage.

## K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-199

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the static port adapter, SPL-1921.

SUBTASK 34-11-00-080-107

**CAUTION:** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static port adapter, SPL-1921, from the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-080-108

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the Scotch Brand No.471 tape, G02219, from the FIRST OFFICER static port on the left side of the fuselage.

## L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-167

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB

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

F/O Electrical System Panel, P6-1

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

END OF TASK

TASK 34-11-00-790-815

10. Alternate Static System Full-range Leak Test

(Figure 501)

A. General

- (1) The static system full-range leak test is not required. However, leaks are easier to detect with the higher pressure.
- (2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-813	Supply External Power (P/B 201)

C. Tools/Equipment

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

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

#### D. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

#### E. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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#### F. Prepare for the Leak Test

SUBTASK 34-11-00-860-169

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-11-00-860-170

- (2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-171

- (3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-172

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB
<b>HAP ALL</b>			
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

SUBTASK 34-11-00-860-173

- (5) Do this task: Supply External Power, TASK 24-22-00-860-813.

**NOTE:** You must use external power to do this test. APU generator power will not work for this test.

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### G. Installation of Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-153

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (1) Seal these static ports with vinyl adhesive Scotch Brand No.471 tape, G02219:
  - (a) The ALTERNATE static port on the right side of the fuselage.
  - (b) The ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-480-154

- (2) Remove the cap from the No. 5 Alternate Static Drain, in the electronic equipment compartment, below the E-5 rack.

SUBTASK 34-11-00-480-155

- (3) Install the coupling, COM-1927, on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-480-221

- (4) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

### H. Installation of Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-034

**CAUTION:** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-480-222

- (2) Connect the air data model test set, COM-1914 to the static port adapter, SPL-1921.

SUBTASK 34-11-00-400-035

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (3) Seal the ALTERNATE static port on the right side of the fuselage with Scotch Brand No.471 tape, G02219.

### I. Installation of the Pitot Probe Adapter

SUBTASK 34-11-00-170-080

- (1) Prepare the adapter, kit, COM-1916 before you install the adapter on the pitot probe.

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**CAUTION:** MAKE SURE THAT YOU FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

- (a) Flush the adapter with water.

**NOTE:** Use equal parts of water and ethylene glycol when the temperature is between 32°F and -40°F (-40°C to 0°C).

- (b) Blow dry filtered air through the adapter.

SUBTASK 34-11-00-480-157

- (2) Wipe the pitot probe with a damp cotton wiper, G00034.

SUBTASK 34-11-00-480-158

**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

- (3) Install the adapter, kit, COM-1916, on the lower pitot probe on the right side of the forward fuselage.

SUBTASK 34-11-00-480-159

- (4) Connect the air data model test set, COM-1914 to the adapter, kit, COM-1916.

### J. Alternate Static System Full-range Leak Test

SUBTASK 34-11-00-790-109

**CAUTION:** KEEP THE RATE OF STATIC CHANGE BELOW 5000 FEET PER MINUTE, AND KEEP THE DIFFERENTIAL PRESSURE BETWEEN THE PITOT AND STATIC SYSTEM LESS THAN 10 INCHES OF MERCURY (339 MILLIBARS). FAILURE TO DO THIS COULD CAUSE DAMAGE TO THE INDICATORS.

- (1) Operate the air data model test set, COM-1914 to apply vacuum to the alternate pitot system to keep the pressure difference between the pitot and static systems less than 10 inches Hg (339 mB).

SUBTASK 34-11-00-790-123

**CAUTION:** DO NOT MAKE THE STATIC PRESSURE LESS THAN 4 IN. HG. (135.5 MILLIBARS). STATIC PRESSURE LESS THAN 4 IN. HG. (135.5 MILLIBARS) CAN CAUSE DAMAGE TO THE AIR DATA MODULE.

- (2) Use the air data model test set, COM-1914 to supply a vacuum of 18.82 in. Hg. (637.3 millibars), but do not make the static pressure less than 4.3 in. Hg. (145.6 millibars) absolute.
- (a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.

SUBTASK 34-11-00-790-110

- (3) When the system reaches 25,000 feet, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-111

- (4) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-112

- (5) Make sure the pressure does not decrease more than 0.20 inches Hg or 6.77 mB (approximately 400 feet) in one minute.

SUBTASK 34-11-00-860-174

- (6) Put the system back to ambient pressure.

- (a) When you release pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.

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### K. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-082

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE INDICATORS CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-117

- (2) Disconnect the coupling, COM-1927 from the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-080-083

- (3) Install the cap on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-210-009

- (4) Do a visual inspection of the quick-disconnect fittings that you connected.

- (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-080-086

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (5) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the alternate static ports at these locations:

- (a) The ALTERNATE static port on the right side of the fuselage.
- (b) The ALTERNATE static port on the left side of the fuselage.

### L. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-203

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the static port adapter, SPL-1921.

SUBTASK 34-11-00-480-204

**CAUTION:** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (2) Remove the static port adapter, SPL-1921, from the ALTERNATE static port on the left side of the fuselage.

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SUBTASK 34-11-00-480-205

**WARNING:** MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. IF YOU DO NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (3) Remove the Scotch Brand No.471 tape, G02219, from the ALTERNATE static port on the right side of the fuselage.

## M. Removal of the Probe Adapters

SUBTASK 34-11-00-080-110

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE INDICATORS CAN OCCUR.

- (1) Disconnect the air data model test set, COM-1914 from the adapter, kit, COM-1916.

SUBTASK 34-11-00-080-118

- (2) Remove the adapter, kit, COM-1916, from the auxiliary pitot probe.

## N. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-175

- (1) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001-013, 015-026, 028-030</b>			
D	10	C00357	STBY ALTM/ASI VIB

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E	8	C00425	ADIRU LEFT EXC
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CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-1

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

————— **END OF TASK** —————

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## PITOT PROBE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the pitot probe
- (2) An installation of the pitot probe.

**TASK 34-11-01-000-801**

### 2. Pitot Probe Removal

(Figure 401)

A. References

Reference	Title
20-10-44-000-801	Lockwires 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
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

C. Location Zones

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

D. Removal Procedure

SUBTASK 34-11-01-860-001

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

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SUBTASK 34-11-01-140-004

**CAUTION:** MAKE SURE THAT THE AREA AROUND THE PITOT PROBE IS CLEAR OF UNWANTED MATERIAL. CONTAMINATION OF THE PITOT SYSTEM CAN OCCUR.

- (2) Use the sealant removal tool, COM-2481 to remove the sealant from around the baseplate [1] of the PITOT PROBE [9].

SUBTASK 34-11-01-020-002

- (3) Remove the screws [7] from the baseplate [1] of the PITOT PROBE [9].

SUBTASK 34-11-01-020-003

**WARNING:** MAKE SURE THAT THE PITOT PROBE HEAT IS OFF. INJURY TO PERSONS CAN OCCUR.

**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT. THE PITOT PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

- (4) Do these steps to loosen the PITOT PROBE [9] from the airplane skin:
  - (a) Hold the probe strut [8].

**HAP 001-005, 023, 026, 028-030 PRE SB 737-34-1811**

- (b) Loosen the gasket [3].

**HAP 006-013, 015-022, 024, 025, 031-054, 101-999; HAP 001-005, 023, 026, 028-030 POST SB 737-34-1811**

- (c) Loosen the bonding plate [12] and gasket [3].

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- (d) Pull the PITOT PROBE [9] out from the airplane skin until you can get access to the pitot hose fitting [11] and electrical connector [6] on the base of the PITOT PROBE [9].

SUBTASK 34-11-01-020-004

**CAUTION:** USE WRENCHES TO APPLY COUNTER PRESSURE ON EACH SIDE OF THE FITTING DURING DISASSEMBLY. DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

- (5) Disconnect the pitot hose fitting [11] at the base of the PITOT PROBE [9].

SUBTASK 34-11-01-020-005

- (6) Remove the long screw [10] from the pitot probe side of the electrical connector [6].

SUBTASK 34-11-01-020-006

- (7) Disconnect the electrical connector [6].

SUBTASK 34-11-01-020-007

- (8) Remove the PITOT PROBE [9].

SUBTASK 34-11-01-420-001

- (9) Install the long screw [10] in the electrical connector [6].

SUBTASK 34-11-01-020-008

- (10) Temporarily attach the electrical connector [6] and pitot hose fitting [11] so they do not fall inside the fuselage.

SUBTASK 34-11-01-020-009

- (11) Put a cap on the pitot hose fitting [11] that stays on the airplane to keep out unwanted material.

**NOTE:** This step is not necessary when you replace the PITOT PROBE [9] immediately.

SUBTASK 34-11-01-020-010

- (12) For the bolts [4] in the baseplate [1], do this task: Lockwires Removal, TASK 20-10-44-000-801.

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SUBTASK 34-11-01-020-011

- (13) Remove the bolts [4], washers [5], and the PITOT PROBE [9] from the baseplate [1].

NOTE: Hardened sealant can be softened with heat for easier removal. The baseplate and probe may be heated in an oven, 150 degrees F (65.5 C) for 20 minutes to soften the sealant.

SUBTASK 34-11-01-020-012

- (14) Keep the baseplate [1] for another installation.

NOTE: The baseplates [1] are not interchangeable between positions.

**HAP 006-013, 015-022, 024, 025, 031-054, 101-999; HAP 001-005, 023, 026, 028-030 POST SB 737-34-1811**

SUBTASK 34-11-01-030-001

- (15) Disconnect the bonding jumper [13] from the bonding plate [12].

SUBTASK 34-11-01-030-002

- (16) Remove the bonding plate [12].

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SUBTASK 34-11-01-020-013

- (17) Remove the gasket [3] and discard it.

————— **END OF TASK** —————

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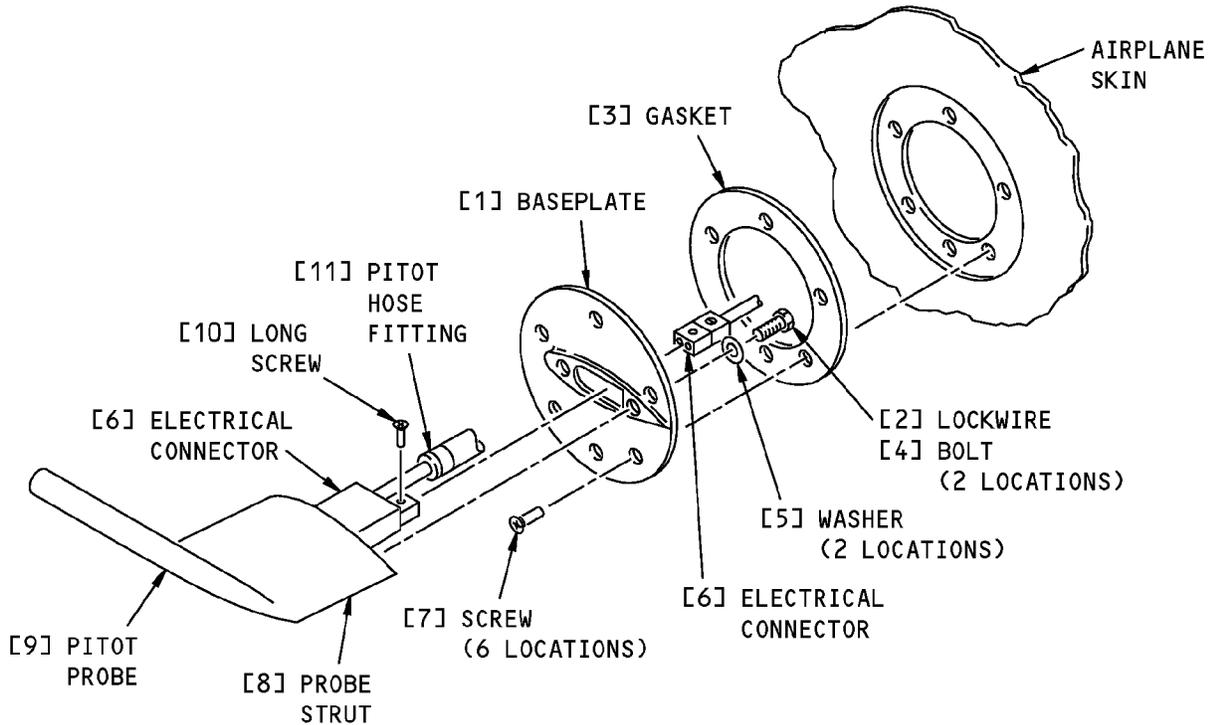
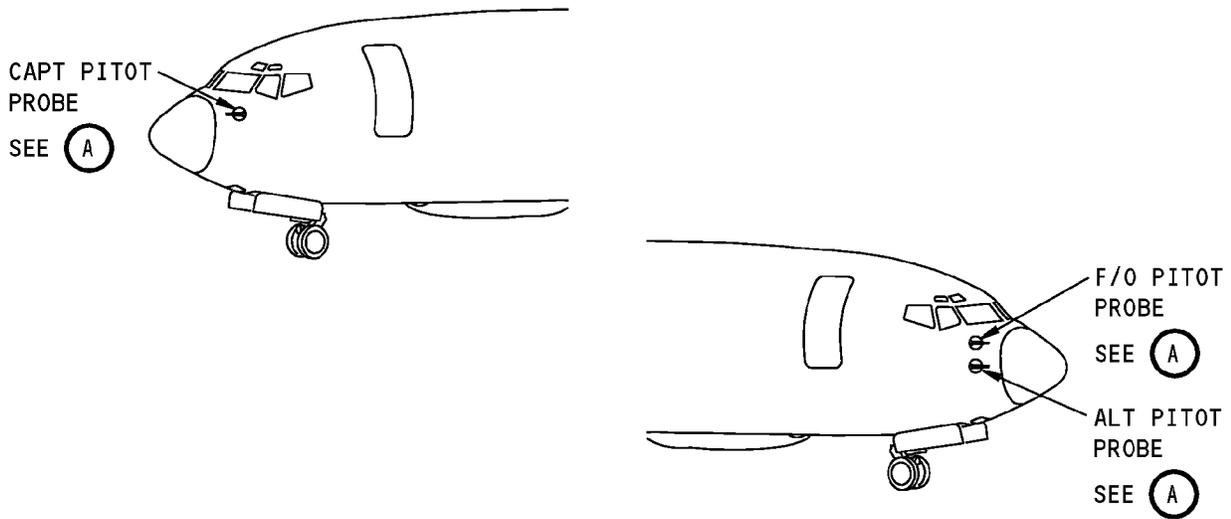
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**CAPTAIN'S PITOT PROBE SHOWN  
(FIRST OFFICER'S AND ALTERNATE ARE OPPOSITE)**

(A)

**Pitot Probe Installation  
Figure 401 (Sheet 1 of 2)/34-11-01-990-801**

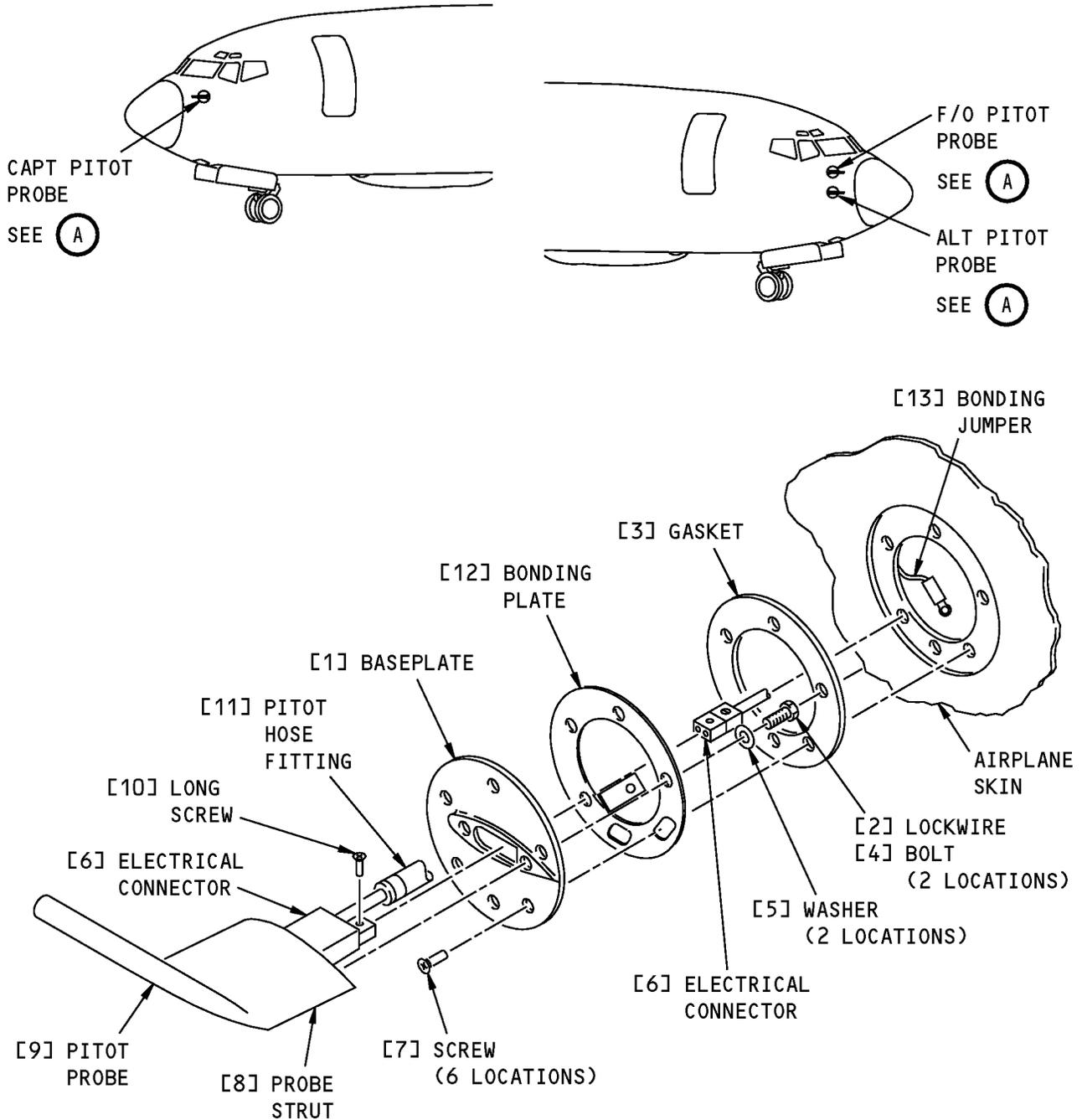
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**CAPTAIN'S PITOT PROBE SHOWN  
(FIRST OFFICER'S AND ALTERNATE ARE OPPOSITE)**

**(A)**

**Pitot Probe Installation  
Figure 401 (Sheet 2 of 2)/34-11-01-990-801**

**EFFECTIVITY**  
HAP 006-013, 015-022, 024, 025, 031-054, 101-999; HAP 001-005, 023, 026, 028-030 POST SB 737-34-1811

**34-11-01**

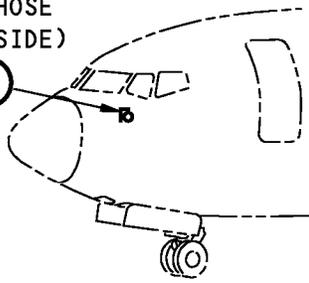
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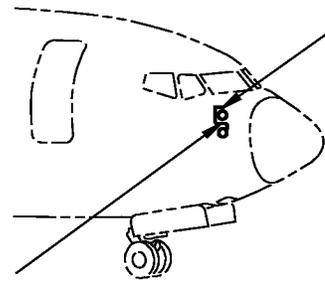
CAPTAIN'S FLEXIBLE PITOT HOSE (LEFT SIDE)

SEE (A)



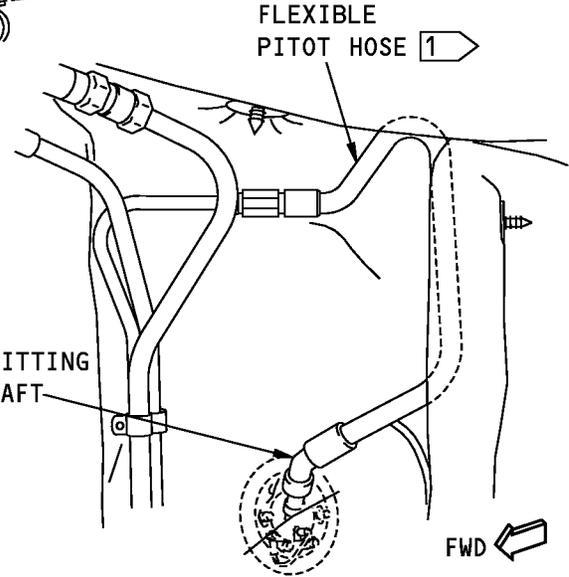
FIRST OFFICER'S FLEXIBLE PITOT HOSE (RIGHT SIDE)

SEE (B)

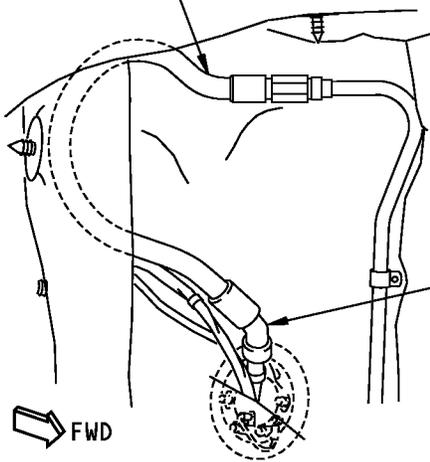


ALTERNATE FLEXIBLE PITOT HOSE (RIGHT LOWER SIDE)

SEE (C)



FLEXIBLE PITOT HOSE 1



CLOCK FITTING UP AND AFT

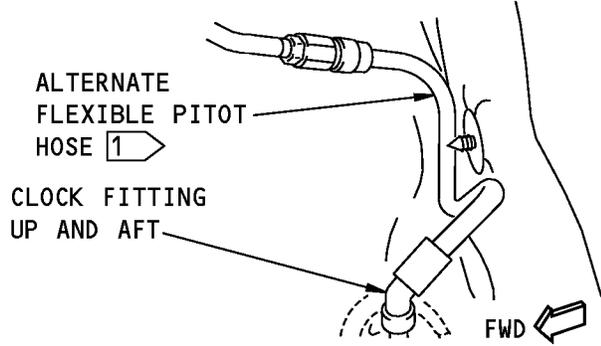
CLOCK FITTING UP AND AFT

FIRST OFFICER'S FLEXIBLE PITOT HOSE (RIGHT SIDE)

(B)

CAPTAIN'S FLEXIBLE PITOT HOSE (LEFT SIDE)

(A)



ALTERNATE FLEXIBLE PITOT HOSE 1

CLOCK FITTING UP AND AFT

ALTERNATE FLEXIBLE PITOT HOSE (RIGHT LOWER SIDE)

(C)

1 EXCESS TUBING SHOULD BE PUSHED UP INTO FRAME CAVITY WHICH WILL ALLOW WATER TO FLOW TO THE DRAIN OR OUT THE PROBE.

**Pitot Probe Flex Hose Installation**  
**Figure 402/34-11-01-990-805**

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TASK 34-11-01-400-801

#### 3. Pitot Probe Installation

(Figure 401)

##### A. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
20-10-44-400-801	Lockwires Installation (P/B 401)
20-10-52-400-801	Flexible Hose Installation (P/B 401)
24-22-00-860-811	Supply Electrical Power (P/B 201)
30-31-00-730-801	Pitot Probe, AOA Sensor, and TAT Probe Heater Test (P/B 501)
34-11-00-790-810	Left Pitot System Leak Test (P/B 501)
34-11-00-790-811	Right Pitot System Leak Test (P/B 501)
34-11-00-790-812	Alternate Pitot System Leak Test (P/B 501)
51-31-00-390-804	Fillet Seal Application (P/B 201)

##### B. Tools/Equipment

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

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

##### C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

##### D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	PITOT PROBE	34-11-01-01-030	HAP 001-013, 015-026
		34-11-01-01-075	HAP 001-013, 015-026
		34-11-01-03-035	HAP 028-054, 101-999
		34-11-01-03-080	HAP 028-030
		34-11-01-03-230	HAP 028-054, 101-999

##### E. Location Zones

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

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## F. Installation Procedure

SUBTASK 34-11-01-860-166

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-01-110-001

- (2) For the surface of the baseplate [1], do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

SUBTASK 34-11-01-420-002

- (3) Put the baseplate [1] on the PITOT PROBE [9].

SUBTASK 34-11-01-420-003

- (4) Install the bolts [4] and washers [5] in the baseplate [1].

SUBTASK 34-11-01-420-004

- (5) For the bolts [4], do this task: Lockwires Installation, TASK 20-10-44-400-801.

SUBTASK 34-11-01-420-047

- (6) Apply fillet seal around the head of the two bolts [4] only, with sealant, A00247.

SUBTASK 34-11-01-420-046

- (7) Apply fillet seal to bridge the gap between the probe base and the baseplate [1], with sealant, A00247.

NOTE: Do not inject sealant.

### HAP 001-005, 023, 026, 028-030 PRE SB 737-34-1811

SUBTASK 34-11-01-420-005

- (8) Put the new gasket [3] into position on the baseplate [1].

### HAP 006-013, 015-022, 024, 025, 031-054, 101-999; HAP 001-005, 023, 026, 028-030 POST SB 737-34-1811

SUBTASK 34-11-01-430-001

- (9) Put the bonding plate [12] and new gasket [3] into position on the baseplate [1].

SUBTASK 34-11-01-430-002

- (10) Connect the bonding jumper [13] to the bonding plate [12].

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SUBTASK 34-11-01-420-006

**CAUTION:** USE WRENCHES TO APPLY COUNTER PRESSURE ON EACH SIDE OF THE FITTING DURING ASSEMBLY. DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

- (11) Connect the pitot hose fitting [11] at the base of the PITOT PROBE [9].

- (a) Make sure that the flexible pitot line is not twisted and does not have a kink. Flexible Hose Installation, TASK 20-10-52-400-801

SUBTASK 34-11-01-210-007

- (12) Do a visual inspection of the quick-disconnect fittings that you reconnected.

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- (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-01-420-007

- (13) Remove the long screw [10] from the PITOT PROBE [9] side of the electrical connector [6].

SUBTASK 34-11-01-210-001

- (14) Examine the electrical connector [6] for loose, bent, or broken pins.

SUBTASK 34-11-01-420-008

- (15) Connect the electrical connector [6].

SUBTASK 34-11-01-420-009

- (16) Install the long screw [10] in the electrical connector [6].

SUBTASK 34-11-01-420-010

- (17) Do these steps to put the PITOT PROBE [9] into position:

- (a) Hold the probe strut [8].
- (b) Put the pitot hose fitting [11] and electrical connector [6] in the installation hole.
  - 1) Make sure there is not a loop or downward oriented dip in the flexible pitot hose.

**NOTE:** A loop or downward oriented dip in the flexible pitot hose can cause water accumulation. Water accumulation can cause an erratic airspeed indication, resulting in an Indicated Airspeed (IAS) disagree message.

- (c) Put the PITOT PROBE [9] into position on the airplane skin.
  - 1) Make sure the airplane skin and the baseplate [1] are aligned in  $\pm 0.04$  inch or less.

SUBTASK 34-11-01-420-011

- (18) Install the screws [7] in the baseplate [1] of the PITOT PROBE [9].

SUBTASK 34-11-01-420-012

- (19) Tighten the screws [7] to 25-35 pound-inches.

SUBTASK 34-11-01-760-001

- (20) Measure the resistance between the strut of the PITOT PROBE [9] and the airplane skin with a bonding meter, COM-1550.

- (a) If the resistance is more than 0.010 ohms, do these steps:
  - 1) Remove the PITOT PROBE [9].
  - 2) Clean the bonding surfaces, including the countersunk holes in the PITOT PROBE [9] (SWPM 20-20-00).
  - 3) Replace the screws with new screws.
  - 4) Re-install the PITOT PROBE [9].
  - 5) Measure the resistance between the strut of the PITOT PROBE [9] and the airplane skin with a bonding meter, COM-1550.
  - 6) If the resistance is more than 0.010 ohms, do these steps:
    - a) Remove the PITOT PROBE [9].
    - b) Replace the nutplates and rivets that attach the PITOT PROBE [9] (SRM 51-40-02).
    - c) Reinstall the PITOT PROBE [9] and make sure the bonding resistance is not more than 0.010 ohm.

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SUBTASK 34-11-01-860-002

(21) 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	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

**G. Installation Test**

SUBTASK 34-11-01-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-11-01-790-001

(2) Do the leak check for the applicable PITOT PROBE [9]:

- (a) For the left pitot probe, do this task: Left Pitot System Leak Test, TASK 34-11-00-790-810.
- (b) For the right pitot probe, do this task: Right Pitot System Leak Test, TASK 34-11-00-790-811.
- (c) For the alternate pitot probe, do this task: Alternate Pitot System Leak Test, TASK 34-11-00-790-812.

SUBTASK 34-11-01-710-001

(3) For the probe heater circuit on the PITOT PROBE [9], do this task: Pitot Probe, AOA Sensor, and TAT Probe Heater Test, TASK 30-31-00-730-801.

SUBTASK 34-11-01-390-002

**CAUTION:** DO NOT USE TOO MUCH SEALANT. TOO MUCH SEALANT CAN CAUSE DAMAGE WHEN YOU REMOVE THE PROBE. IF YOU DO NOT USE SUFFICIENT SEALANT, CORROSION CAN OCCUR.

(4) Apply fillet seal to the gap between the baseplate [1] and the airplane skin with sealant, A00247, (Fillet Seal Application, TASK 51-31-00-390-804).

**NOTE:** It is not necessary to apply the sealant immediately if the cure time will cause a flight delay. But to prevent moisture damage to the airplane, sealant should be applied as soon as it is convenient for the operator.

(a) Make sure the baseplate [1] and sealant are flat with the airplane skin.

————— **END OF TASK** —————

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## PITOT PROBE - INSPECTION/CHECK

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
  - (1) A detailed inspection of the pitot probe.
  - (2) A special detailed inspection of the pitot probe.
- C. Fly Back Limits
  - (1) Replace the pitot probe for one or more of the conditions that follow:
    - (a) The flight crew sees a cross panel airspeed difference that is not acceptable.
    - (b) There is mechanical damage.
  - (2) Do these steps when you see deterioration of the pitot probe:
    - (a) You can dispatch the airplane from a base without maintenance facilities until one of the conditions that follow occur:
      - 1) 24 hours elapse
      - 2) The airplane gets to a maintenance base.

### **TASK 34-11-01-200-804**

### 2. Pitot Probe - Detailed Inspection

(Figure 601)

- A. General
  - (1) This procedure is a scheduled maintenance task.
- B. Location Zones

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

### C. Pitot Probe Inspection

SUBTASK 34-11-01-860-167

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-01-210-006

- (2) Visually examine the pitot probe for damage or unwanted material in the drain holes, the pitot opening, or the contour of the probe.

SUBTASK 34-11-01-220-017

- (3) Make sure the edge of the pitot opening is sharp.

SUBTASK 34-11-01-220-018

- (4) Make sure the inner surface of the probe tip is smooth and rounded.

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SUBTASK 34-11-01-220-019

(5) Make sure that the outer surface of the probe tip is smooth and rounded.

SUBTASK 34-11-01-220-020

(6) Make sure the leading edge of the pitot probe does not have nicks.

SUBTASK 34-11-01-220-021

(7) Make sure the leading edge of the pitot probe axis (pitot scarf) is even.

SUBTASK 34-11-01-220-022

(8) If the detailed inspection of the pitot probe is not satisfactory, do a special detailed inspection of the pitot probe (TASK 34-11-01-200-803).

SUBTASK 34-11-01-860-168

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

## TASK 34-11-01-200-803

### 3. Pitot Probe - Special Detailed Inspection

(Figure 601)

#### A. General

(1) You can use a micrometer or you can use gages or wires to measure damage to the tip and the leading edge of the pitot probe. To measure most accurately, a micrometer is recommended. To use a micrometer, you must remove the pitot probe from the airplane.

#### B. References

Reference	Title
34-11-01-000-801	Pitot Probe Removal (P/B 401)
34-11-01-400-801	Pitot Probe Installation (P/B 401)

#### C. Tools/Equipment

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

Reference	Description
COM-2039	Micrometer, Optical, 200 Power, Depths to .295 Inch, Thickness to .440 Inch, Accuracy +/- .0002 Inch (Part #: 8400K, Supplier: 65956, A/P Effectivity: 737-ALL) (Part #: MODEL 966A1, Supplier: 0ZYB5, A/P Effectivity: 737-ALL) (Opt Part #: 8400PCK, Supplier: 65956, A/P Effectivity: 737-ALL)

#### D. Location Zones

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

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E. Pitot Probe Inspection

(Figure 601)

SUBTASK 34-11-01-860-169

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

CAPT Electrical System Panel, P18-3

Table with 4 columns: Row, Col, Number, Name. Rows include C00523 HEATERS CAPT PITOT, C00525 HEATERS F/O PITOT, and C00524 HEATERS AUX PITOT.

SUBTASK 34-11-01-210-004

- (2) Visually examine the pitot probe for damage or unwanted material in the drain holes, the pitot opening, or the contour of the probe.

SUBTASK 34-11-01-020-061

- (3) If you will use a micrometer ( accuracy +/-0.0002 Inch), COM-2039, for the inspection of the pitot probe, remove the pitot probe. To remove it, do this task: Pitot Probe Removal, TASK 34-11-01-000-801.

NOTE: When the pitot probe is on the airplane, you cannot hold the micrometer sufficiently stable to measure accurately. If you will use gages or wires for the inspection, it is not necessary to remove the pitot probe.

NOTE: Gages or wires, 0.015 to 0.470 inch (0.381 mm to 11.938 mm), can be used to measure nicks, dents, or scratches in or around the opening of a pitot probe.

SUBTASK 34-11-01-220-012

- (4) Make sure the edge of the pitot opening is sharp.

NOTE: New probes are sharpened to 0.010 inch (0.254 mm) maximum flat.

- (a) Replace the pitot probe if the pitot opening dimension is 0.025 inch (0.635 mm) or more.

These are the tasks:

- Pitot Probe Removal, TASK 34-11-01-000-801, Pitot Probe Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-220-013

WARNING: IF PITOT PROBE DAMAGE OR WORN AREAS ARE MORE THAN THE LIMITS SHOWN IN FIGURE 601, YOU MUST REPLACE THE PROBE. IF YOU DO NOT REPLACE THE PROBE, ERRORS IN AIR DATA CAN HAVE AN UNWANTED EFFECT ON SAFE FLIGHT.

- (5) Make sure the inner surface of the probe tip is smooth and rounded.

- (a) Make sure the pitot probe has no dents more than 0.060 inch (1.522 mm) in depth.

NOTE: The dent can be at any location around the opening, but must not affect more than 1/5 (20%) of the lip area.

- (b) Replace the pitot probe if the damage is more than this limit.

These are the tasks:

- Pitot Probe Removal, TASK 34-11-01-000-801, Pitot Probe Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-220-014

- (6) Make sure that the outer surface of the probe tip is smooth and rounded.

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- (a) Replace the pitot probe if the tip is flared out more than 0.470 inch (11.938 mm).

These are the tasks:

Pitot Probe Removal, TASK 34-11-01-000-801,

Pitot Probe Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-220-015

- (7) Make sure the leading edge of the pitot probe does not have nicks.

- (a) Replace the pitot probe if there are two or more nicks between 0.050 and 0.060 inch (1.27-1.52 mm) in depth.

These are the tasks:

Pitot Probe Removal, TASK 34-11-01-000-801,

Pitot Probe Installation, TASK 34-11-01-400-801.

- (b) Replace the pitot probe if there is a nick more than 0.060 inch (1.52 mm) in depth.

These are the tasks:

Pitot Probe Removal, TASK 34-11-01-000-801,

Pitot Probe Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-220-016

- (8) Make sure the leading edge of the pitot scarf is even.

- (a) Replace the pitot probe if the side to side difference is 0.015 inch (0.381 mm) or more.

These are the tasks:

Pitot Probe Removal, TASK 34-11-01-000-801,

Pitot Probe Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-420-044

- (9) If you removed the pitot probe for the inspection, re-install it. To install it, do this task: Pitot Probe Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-860-170

- (10) 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	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

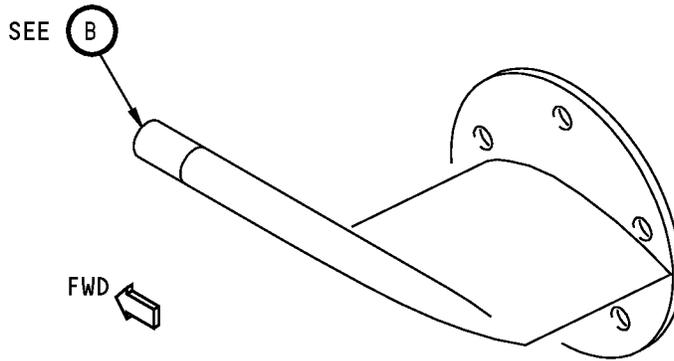
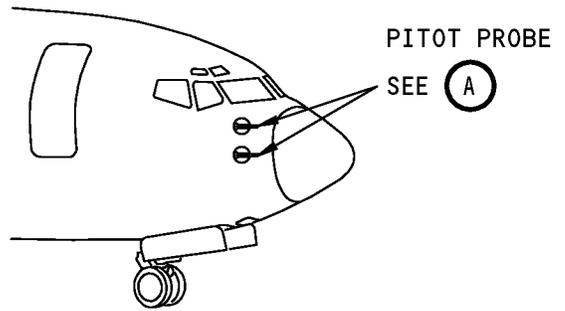
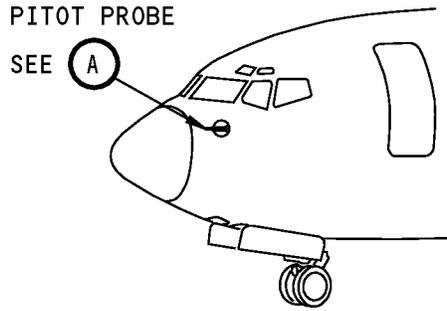
**END OF TASK**

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**PITOT PROBE (EXAMPLE)**

**(A)**

**Pitot Probe Inspection  
Figure 601 (Sheet 1 of 2)/34-11-01-990-802**

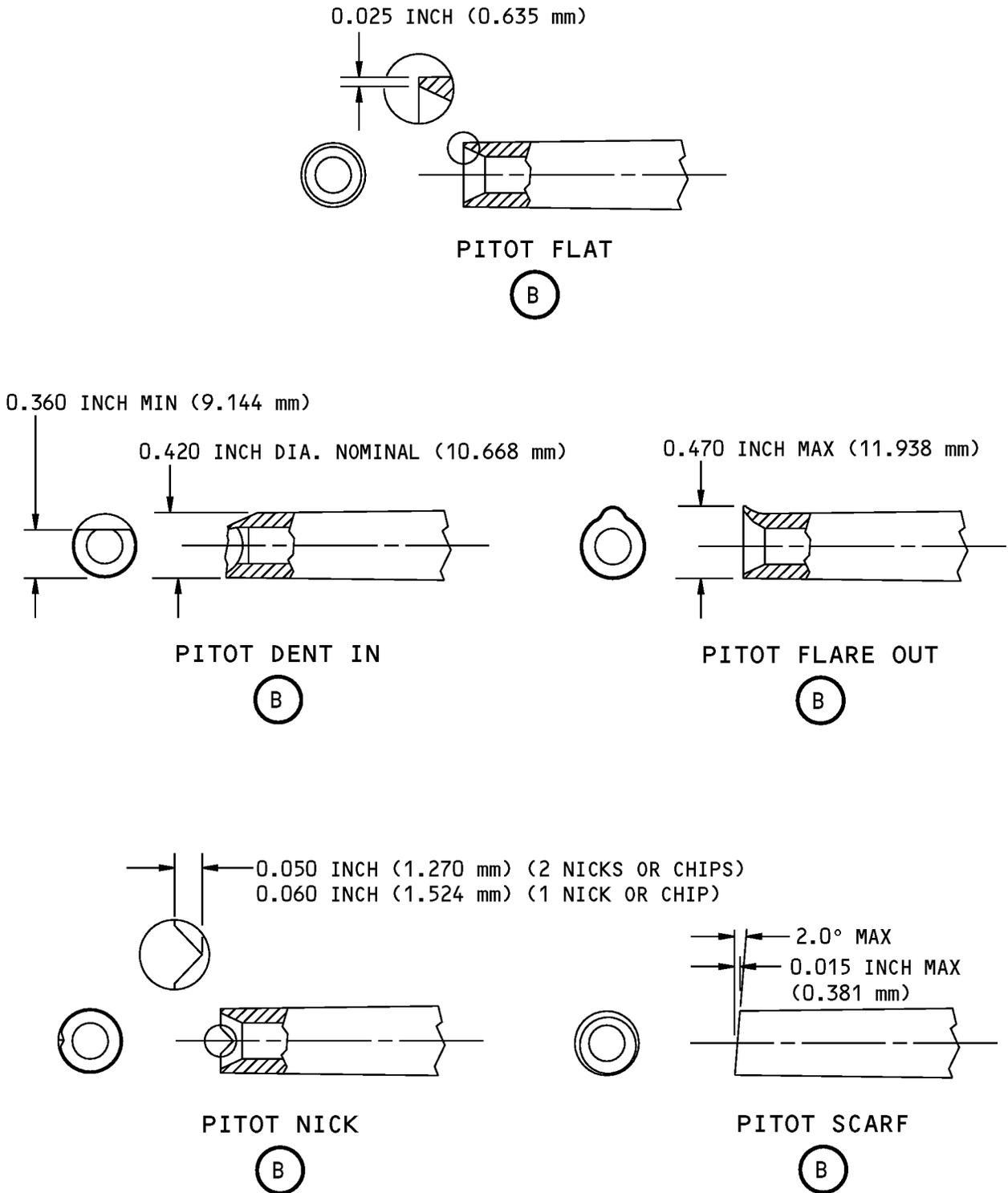
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**Pitot Probe Inspection  
Figure 601 (Sheet 2 of 2)/34-11-01-990-802**

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## PITOT PROBE - CLEANING/PAINTING

### 1. General

A. This procedure shows how to clean the inner and outer surfaces of the pitot probe.

#### **TASK 34-11-01-100-801**

### 2. Pitot Probe Cleaning

A. General

**CAUTION:** DO NOT PAINT THE PITOT PROBE. PAINT ON THE PITOT PROBE CAN CAUSE THE PITOT SYSTEM TO MALFUNCTION.

(1) The pitot probe must not be painted.

(2) To make sure that the probes do not have any damage, do this task: Pitot Probe - Special Detailed Inspection, TASK 34-11-01-200-803.

B. References

Reference	Title
34-11-01-000-801	Pitot Probe Removal (P/B 401)
34-11-01-200-803	Pitot Probe - Special Detailed Inspection (P/B 601)
34-11-01-400-801	Pitot Probe Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-77	Air Source - Regulated, Dry Filtered, 0-50 psig
STD-1108	Bit - Drill, 0.026 Inch Diameter
STD-1109	Bit - Drill, 0.031 Inch Diameter

D. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
112A	Forward Access Door

G. Clean the Inner Surface of the Pitot Probe

SUBTASK 34-11-01-010-001

(1) To get access to the applicable pitot hose, open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-11-01-020-001

(2) Disconnect the hose from the pitot probe.

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SUBTASK 34-11-01-160-001

**CAUTION:** DO NOT USE MORE THAN 60 PSI (414 KPA) OF DRY, COMPRESSED AIR IN THE PITOT PROBE. AIR PRESSURE MORE THAN 60 PSI (414 KPA) CAN CAUSE DAMAGE TO THE PITOT PROBE.

- (3) Use the 0-50 psig dry filtered regulated air source, STD-77 to force air through the line and out the ports on the pitot probe.

SUBTASK 34-11-01-170-001

- (4) If unwanted material remains, do the steps that follow:
  - (a) Do this task: Pitot Probe Removal, TASK 34-11-01-000-801.
  - (b) Soak or flush the unit with water until it is clean.
  - (c) Drain the probe.
  - (d) Do this task: Pitot Probe Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-140-001

**CAUTION:** MAKE SURE THE DRILL BIT DOES NOT MAKE THE DRAIN HOLE LARGER WHEN YOU CLEAN IT. DAMAGE TO THE PITOT PROBE CAN OCCUR.

- (5) If the forced air and soak methods do not clean the pitot probe, insert first a small 0.026 Inch diameter drill bit, STD-1108 and then a slightly larger 0.031 Inch diameter drill bit, STD-1109 into the drain hole.

SUBTASK 34-11-01-420-045

- (6) Connect the hose to the pitot probe.

SUBTASK 34-11-01-410-001

- (7) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

## H. Clean the Outer Surface of the Pitot Probe

SUBTASK 34-11-01-140-002

**CAUTION:** DO NOT PERMIT SOLVENTS, OIL, OR GREASE TO GET ON THE PITOT PROBE. SOLVENTS, OIL, OR GREASE CAN CAUSE DAMAGE TO THE PITOT PROBE.

- (1) Use clean water to remove unwanted materials from the outer surface of the pitot probe.

SUBTASK 34-11-01-140-003

- (2) Dry the pitot probe with a cotton wiper, G00034.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## STATIC PORT - REMOVAL/INSTALLATION

### 1. General

- A. This procedure has these tasks:
  - (1) A removal of the primary static port
  - (2) An installation of the primary static port
  - (3) A removal of the alternate static port
  - (4) An installation of the alternate static port.

### **TASK 34-11-02-020-801**

### 2. Primary Static Port Removal

(Figure 401)

#### A. References

Reference	Title
20-10-44-000-801	Lockwires Removal (P/B 401)
25-21-46-000-801	Sidewall Panel Removal (P/B 401)
25-22-00-000-801	Passenger Seat Removal (P/B 401)
25-80-00-000-801	Insulation Blanket Removal (P/B 401)

#### B. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

#### C. Removal Procedure

SUBTASK 34-11-02-010-005

- (1) For the applicable passenger seats, do this task: Passenger Seat Removal, TASK 25-22-00-000-801.

SUBTASK 34-11-02-010-006

- (2) For the applicable sidewall panel, do this task: Sidewall Panel Removal, TASK 25-21-46-000-801.

SUBTASK 34-11-02-010-007

- (3) For the applicable insulation blanket, do this task: Insulation Blanket Removal, TASK 25-80-00-000-801.

SUBTASK 34-11-02-020-017

- (4) Loosen the fitting [1] that connects the hose [2] to the alternate static port [6].

SUBTASK 34-11-02-020-018

**WARNING:** DO NOT BEND OR TWIST THE HOSE [2] WHEN YOU DISCONNECT THE HOSE [2]. A BENT OR TWISTED HOSE [2] CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

- (5) Disconnect the hose [2].

SUBTASK 34-11-02-020-019

- (6) Remove the fitting [1] from the primary static port [6].

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SUBTASK 34-11-02-020-020

(7) Remove the O-ring [8] from the primary static port [6].

SUBTASK 34-11-02-020-021

(8) Put a cap on the hose [2] to prevent contamination.

SUBTASK 34-11-02-020-022

(9) Use the sealant removal tool to remove the sealant from around the primary static port [6] and retaining nut [3].

SUBTASK 34-11-02-020-023

(10) For the lockwire [7] on the retaining nut [3], do this task: Lockwires Removal, TASK 20-10-44-000-801.

SUBTASK 34-11-02-020-024

**CAUTION:** DO NOT CAUSE DAMAGE TO THE OUTER SURFACE OF THE AIRPLANE SKIN. THIS CAN CAUSE THE STATIC SYSTEM TO BE INACCURATE.

(11) Remove the retaining nut [3], washer [4] and washer [5].

SUBTASK 34-11-02-020-025

(12) Remove the primary static port [6] from the mounting hole.

————— **END OF TASK** —————

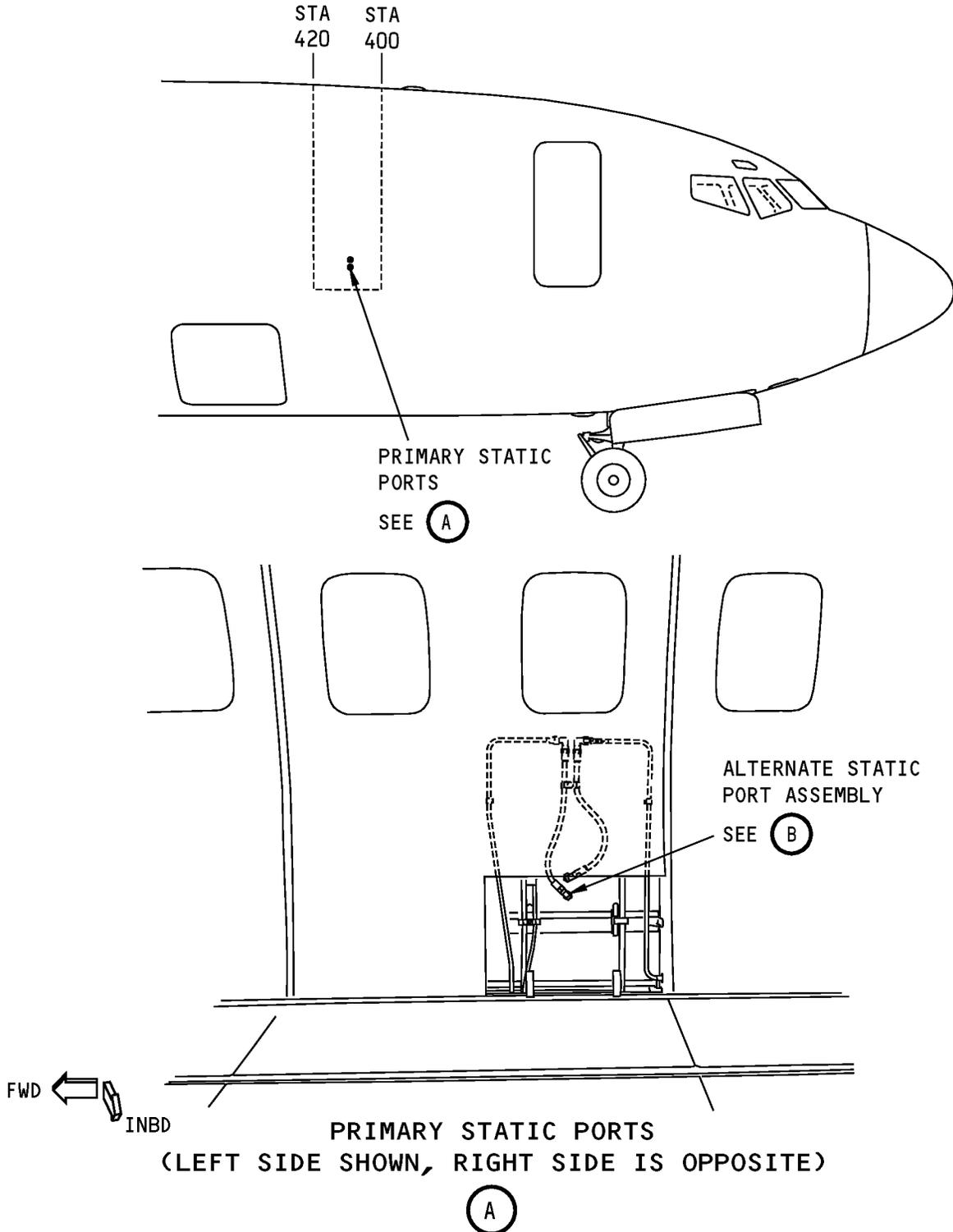
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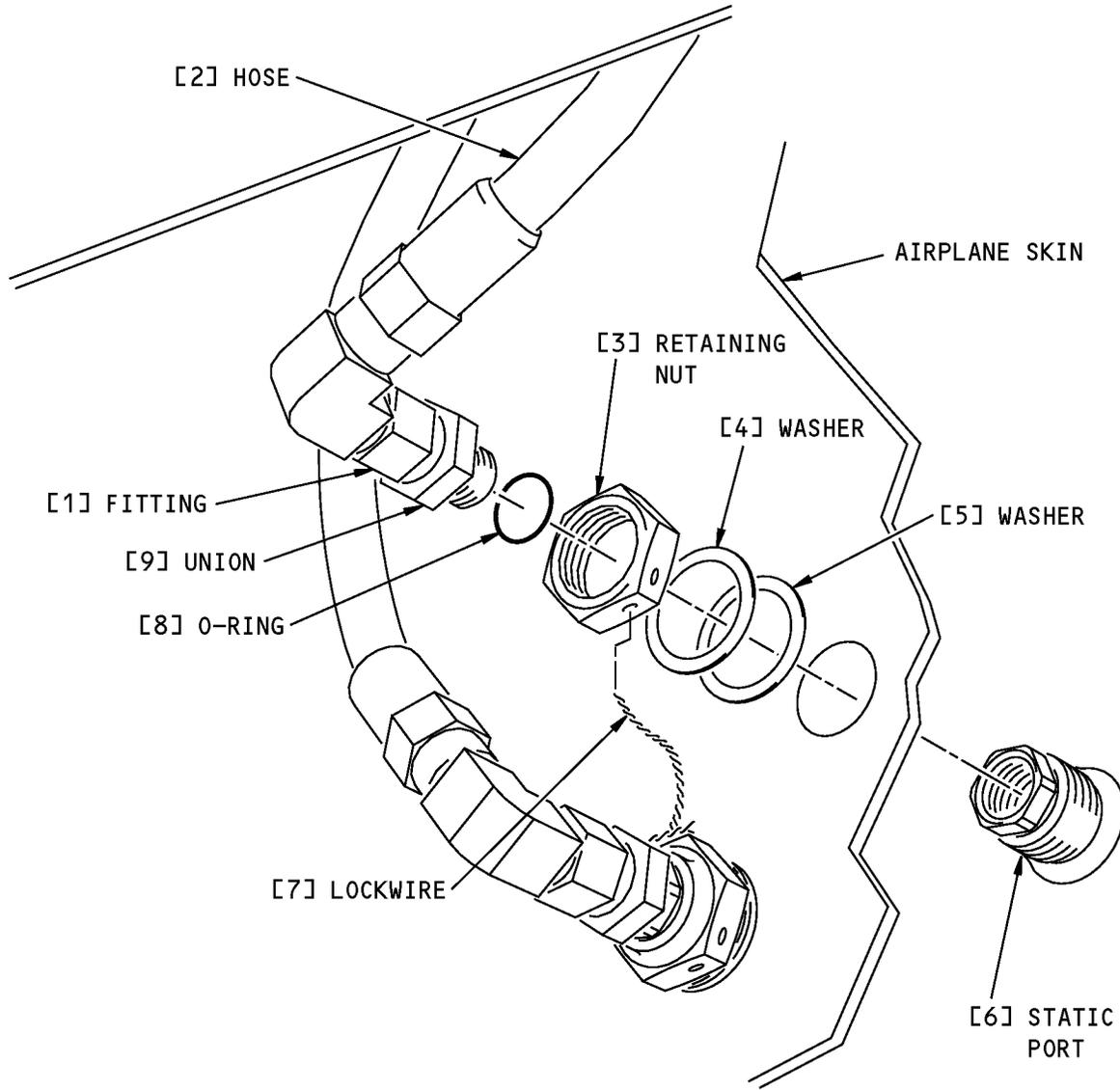
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**Primary Static Port Installation**  
**Figure 401 (Sheet 1 of 2)/34-11-02-990-802**

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**PRIMARY STATIC PORT ASSEMBLY  
(EXAMPLE)**

**B**

**Primary Static Port Installation  
Figure 401 (Sheet 2 of 2)/34-11-02-990-802**

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# AIRCRAFT MAINTENANCE MANUAL

## TASK 34-11-02-400-801

### 3. Primary Static Port Installation

(Figure 401)

#### A. References

Reference	Title
20-10-44-400-801	Lockwires Installation (P/B 401)
25-21-46-400-801	Sidewall Panel Installation (P/B 401)
25-22-00-400-802	Passenger Seat Installation (P/B 401)
25-80-00-400-801	Insulation Blanket Installation (P/B 401)
34-11-00-790-804	Left Static System Low-range Leak Test (P/B 501)
34-11-00-790-806	Right Static System Low-range Leak Test (P/B 501)
34-11-02-200-801	Static Port - Special Detailed Inspection (P/B 601)
51-21-95-300-801	Alodine Treatment Application (P/B 701)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SRM 51-10-01	Structural Repair Manual

#### B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

#### C. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

#### D. Installation Procedure

SUBTASK 34-11-02-390-001

(1) Apply sealant, A00247, on the inner surface of the static port installation hole.

SUBTASK 34-11-02-420-001

(2) Put the primary static port in the mounting hole.

SUBTASK 34-11-02-420-002

(3) Install the washer [5], washer [4] and retaining nut [3] on the primary static port.

SUBTASK 34-11-02-420-003

(4) Tighten the retaining nut [3] to 100-105 pound-inches (11.3-11.9 newton-meters).

SUBTASK 34-11-02-420-004

(5) For the retaining nut [3], do this task: Lockwires Installation, TASK 20-10-44-400-801.

SUBTASK 34-11-02-420-005

(6) Make the primary static port flush with the airplane skin to + 0.003/- 0.00 inch (+0.076/-0.00 mm).

(a) Use the microshaving tool, ZT306, to make the static port flush (SRM 51-10-01).

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SUBTASK 34-11-02-220-003

- (7) Make sure that there are no scratches, burrs, or deformations on the static port finish and around the sensing holes in the primary static port.

SUBTASK 34-11-02-210-002

- (8) Make sure that there is no unwanted material in the holes of the primary static port.

SUBTASK 34-11-02-620-001

- (9) For the surface of the primary static port, do this task: Alodine Treatment Application, TASK 51-21-95-300-801.

SUBTASK 34-11-02-420-006

- (10) Install the O-ring [8] on the fitting [1].

SUBTASK 34-11-02-420-007

- (11) Install the fitting [1] on the primary static port.

**CAUTION:** APPLY COUNTER PRESSURE TO THE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

- (a) Make sure that you apply counter pressure to the primary static port while you install the fitting.

SUBTASK 34-11-02-390-002

- (12) For the retaining nut [3] and the primary static port, do this task: Fastener Seal Application, TASK 51-31-00-390-805.

SUBTASK 34-11-02-420-008

- (13) Remove the cap from the hose [2].

SUBTASK 34-11-02-420-009

**CAUTION:** DO NOT BEND OR TWIST THE HOSE [2] WHEN YOU CONNECT THE HOSE [2]. A BENT OR TWISTED HOSE [2] CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

- (14) Connect the hose [2] to the primary static port.

**CAUTION:** APPLY COUNTER PRESSURE TO THE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

- (a) Make sure that you apply counter pressure to the primary static port while you install the fitting [1].

SUBTASK 34-11-02-420-010

- (15) Tighten the fitting [1] to 100-125 pound-inches (11.3-14.1 newton-meters).

SUBTASK 34-11-02-700-003

- (16) Do a detailed inspection of the primary static port. To do the inspection, do this task: Static Port - Special Detailed Inspection, TASK 34-11-02-200-801.

SUBTASK 34-11-02-790-001

- (17) For the primary static system, do the applicable leak test below:

- (a) Do this task: Left Static System Low-range Leak Test, TASK 34-11-00-790-804.  
(b) Do this task: Right Static System Low-range Leak Test, TASK 34-11-00-790-806.

SUBTASK 34-11-02-410-001

- (18) For the insulation blanket, do this task: Insulation Blanket Installation, TASK 25-80-00-400-801.

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# AIRCRAFT MAINTENANCE MANUAL

SUBTASK 34-11-02-410-002

(19) For the sidewall panel, do this task: Sidewall Panel Installation, TASK 25-21-46-400-801.

SUBTASK 34-11-02-410-003

(20) For the passenger seats, do this task: Passenger Seat Installation, TASK 25-22-00-400-802.

————— **END OF TASK** —————

## HAP 101-999; 737-700

### TASK 34-11-02-000-802

#### 4. Alternate Static Port Removal

(Figure 402)

##### A. References

Reference	Title
20-10-44-000-801	Lockwires Removal (P/B 401)
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)

##### B. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

##### C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

##### D. Removal Procedure

SUBTASK 34-11-02-010-004

(1) For the applicable cargo liner, do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801.

SUBTASK 34-11-02-020-009

(2) Loosen the fitting [1] that connects the hose [2] to the ALTERNATE STATIC PORT [6].

SUBTASK 34-11-02-020-010

**CAUTION:** DO NOT BEND OR TWIST THE HOSE [2] WHEN YOU DISCONNECT THE HOSE [2]. A BENT OR TWISTED HOSE [2] CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

(3) Disconnect the hose [2].

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HAP 101-999; 737-700 (Continued)

SUBTASK 34-11-02-020-011

(4) Put a cap on the hose [2] to prevent contamination.

SUBTASK 34-11-02-020-012

(5) Remove the fitting [1] from the ALTERNATE STATIC PORT [6].

SUBTASK 34-11-02-020-013

(6) Remove the O-ring [8] from the ALTERNATE STATIC PORT [6].

SUBTASK 34-11-02-140-002

(7) Use the sealant removal tool, COM-2481 to remove the sealant from around the ALTERNATE STATIC PORT [6] and the retaining nut [3].

SUBTASK 34-11-02-020-014

(8) For the lockwire [7] on the retaining nut [3], do this task: Lockwires Removal, TASK 20-10-44-000-801.

SUBTASK 34-11-02-020-015

**CAUTION:** DO NOT CAUSE DAMAGE TO THE OUTER SURFACE OF THE AIRPLANE SKIN. THIS CAN CAUSE THE STATIC SYSTEM TO BE INACCURATE.

(9) Remove the retaining nut [3], washer [4] and washer [5].

SUBTASK 34-11-02-020-016

(10) Remove the ALTERNATE STATIC PORT [6] from its mounting hole.

————— **END OF TASK** —————

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HAP ALL

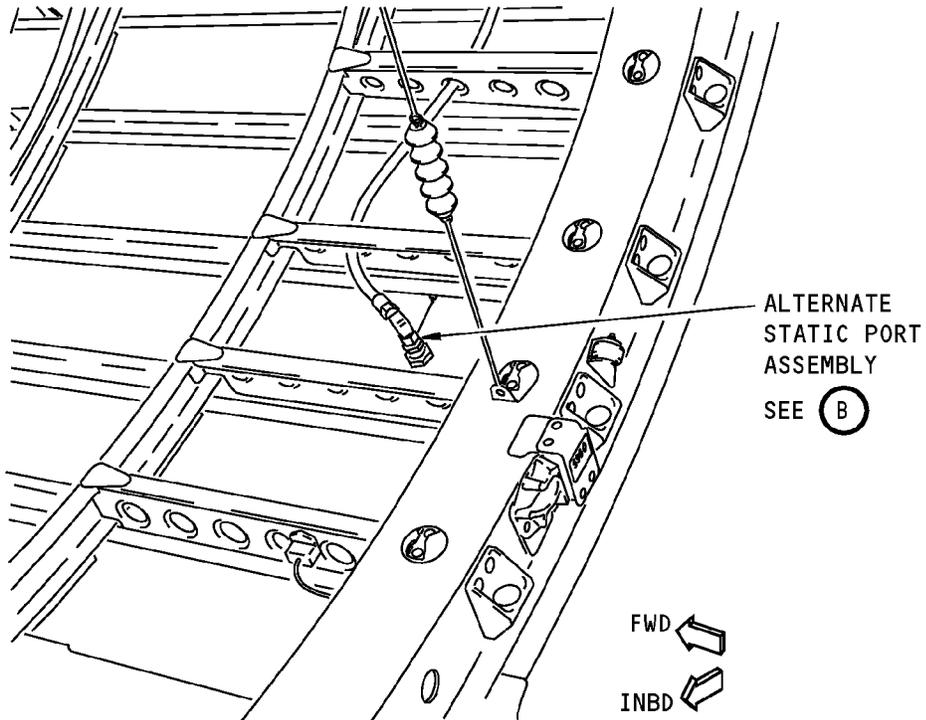
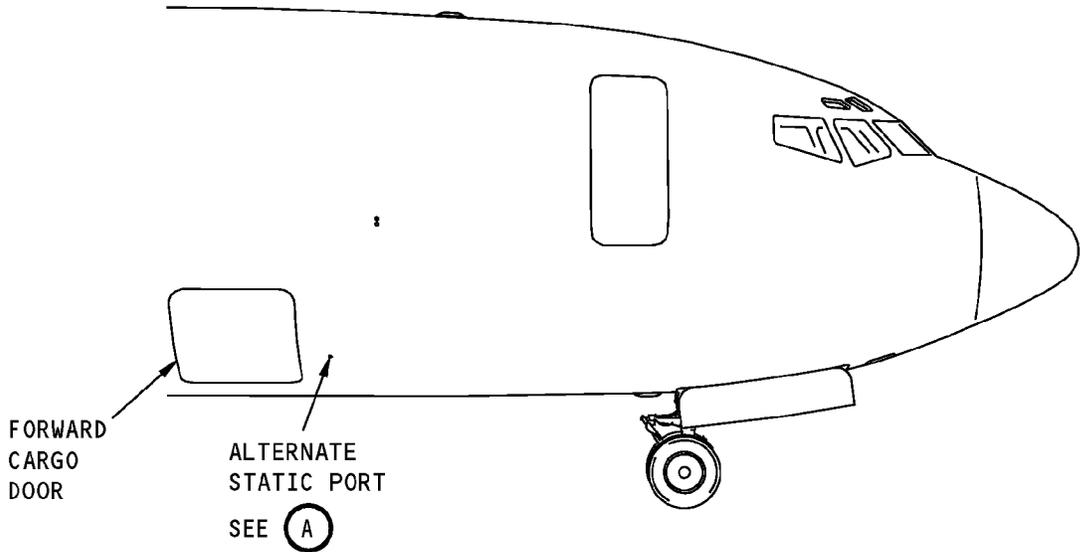
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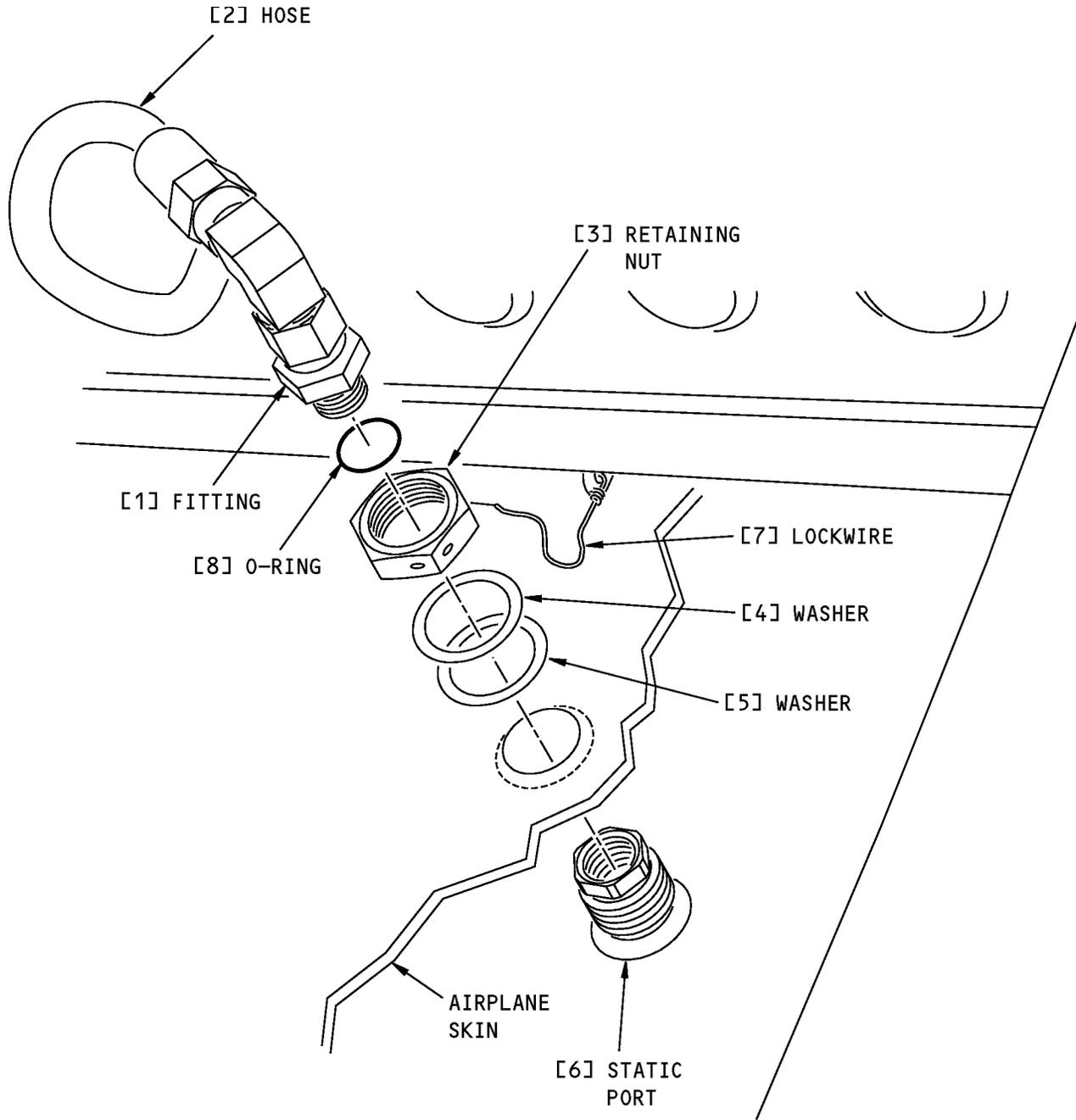
**RIGHT SIDE ALTERNATE STATIC PORT LOCATION SHOWN  
(LEFT SIDE IS OPPOSITE)**

(A)

**Alternate Static Port Installation  
Figure 402 (Sheet 1 of 2)/34-11-02-990-803**

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HAP 101-999

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**ALTERNATE STATIC PORT ASSEMBLY**

**B**

**Alternate Static Port Installation**  
**Figure 402 (Sheet 2 of 2)/34-11-02-990-803**

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HAP 101-999

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# AIRCRAFT MAINTENANCE MANUAL

HAP 101-999; 737-700 (Continued)

HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900

TASK 34-11-02-000-803

## 5. Alternate Static Port Removal

(Figure 403)

### A. References

Reference	Title
20-10-44-000-801	Lockwires Removal (P/B 401)
25-52-06-000-801	Remove the Sidewall Lining for the Cargo Compartment (P/B 401)

### B. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

### C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

### D. Removal Procedure

SUBTASK 34-11-02-010-008

- (1) For the applicable cargo liner, do this task: Remove the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-000-801.

SUBTASK 34-11-02-020-026

- (2) Loosen the fitting [1] that connects the hose [2] to the alternate static port [11].

SUBTASK 34-11-02-020-027

**CAUTION:** DO NOT BEND OR TWIST THE HOSE [2] WHEN YOU DISCONNECT THE HOSE [2]. A BENT OR TWISTED HOSE [2] CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

- (3) Disconnect the hose [2].

SUBTASK 34-11-02-020-028

- (4) Put a cap on the hose [2] to prevent contamination.

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**AIRCRAFT MAINTENANCE MANUAL**

**HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900 (Continued)**

SUBTASK 34-11-02-020-029

(5) Remove the fitting [1] from the alternate static port [11].

SUBTASK 34-11-02-020-030

(6) Remove the O-ring [8] from the alternate static port [11].

SUBTASK 34-11-02-140-004

(7) Use the sealant removal tool, COM-2481 to remove the sealant from around the alternate static port [11] and the retaining nut [3].

SUBTASK 34-11-02-020-031

(8) For the lockwire [7] on the retaining nut [3], do this task: Lockwires Removal, TASK 20-10-44-000-801.

SUBTASK 34-11-02-020-032

**CAUTION:** DO NOT CAUSE DAMAGE TO THE OUTER SURFACE OF THE AIRPLANE SKIN. THIS CAN CAUSE THE STATIC SYSTEM TO BE INACCURATE.

(9) Remove the retaining nut [3] and washer [9].

SUBTASK 34-11-02-020-033

(10) Remove the alternate static port [11] from its mounting hole.

SUBTASK 34-11-02-020-034

(11) Remove the laminated shim [10] from the assembly.

**END OF TASK**

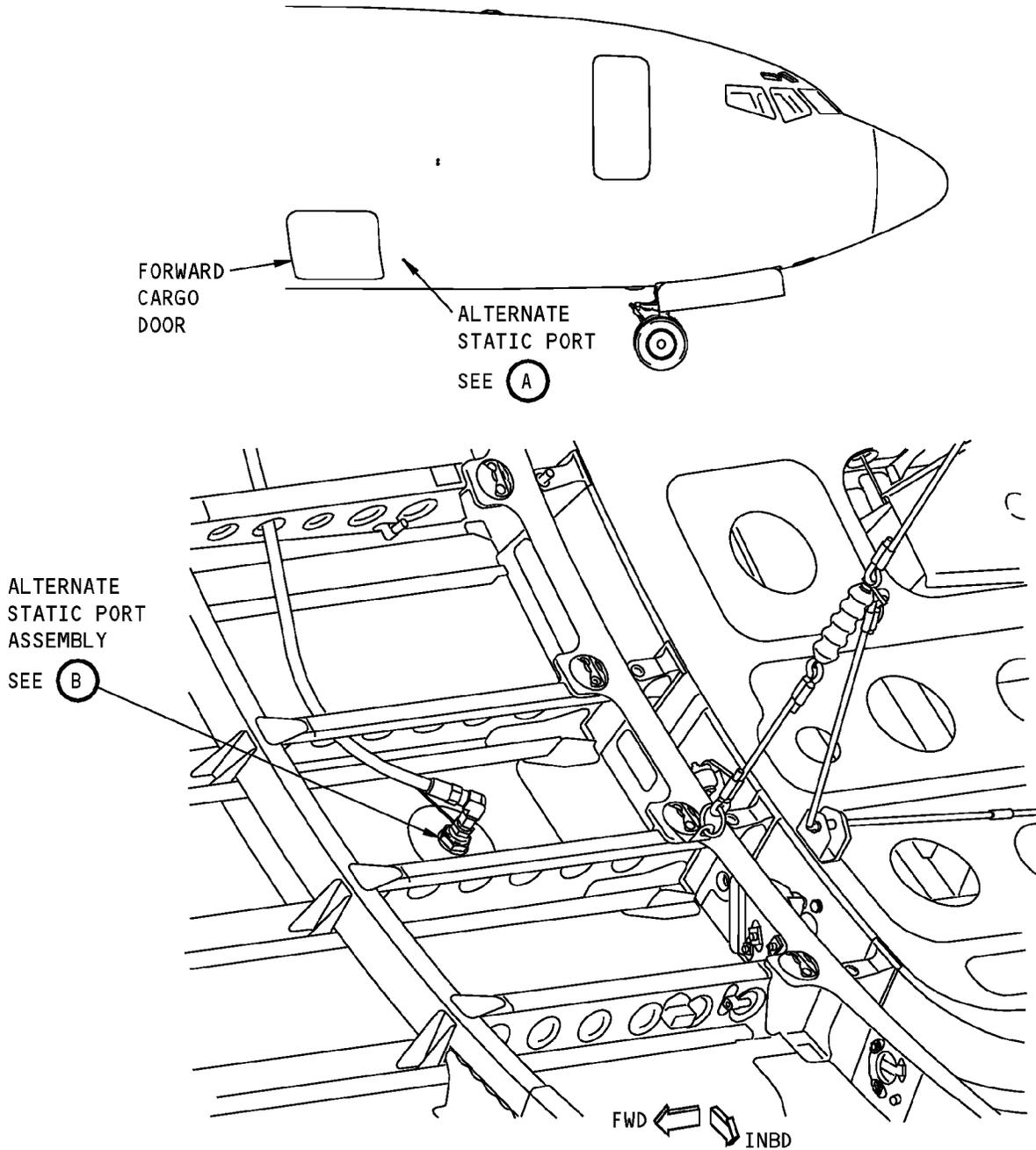
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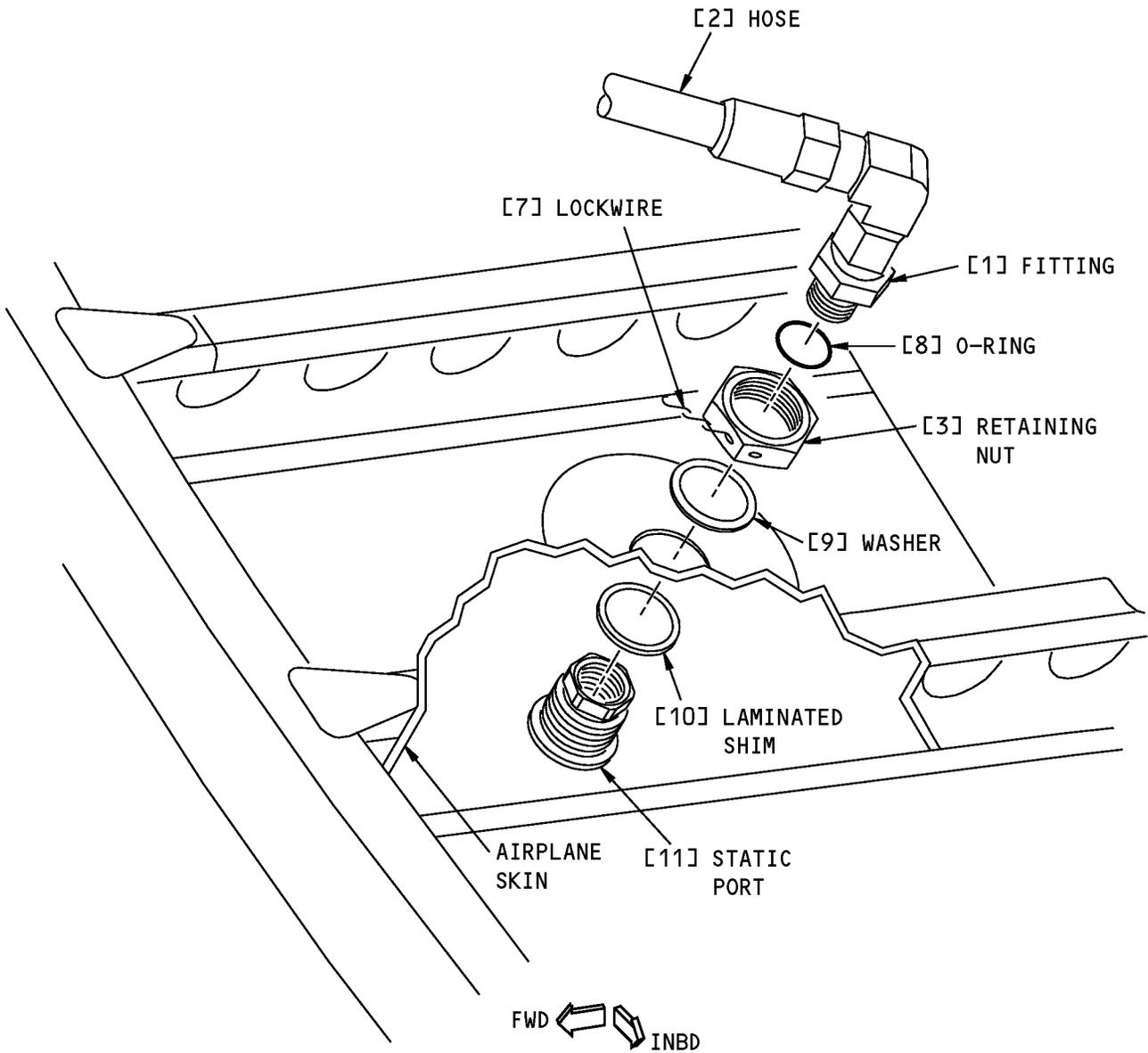
**RIGHT SIDE ALTERNATE STATIC PORT LOCATION SHOWN  
(LEFT SIDE IS OPPOSITE)**

(A)

**Alternate Static Port Installation  
Figure 403 (Sheet 1 of 2)/34-11-02-990-808**

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HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900

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**ALTERNATE STATIC PORT ASSEMBLY**

**B**

**Alternate Static Port Installation  
Figure 403 (Sheet 2 of 2)/34-11-02-990-808**

**EFFECTIVITY**  
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HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900 (Continued)

HAP 101-999; 737-700

TASK 34-11-02-400-802

## 6. Alternate Static Port Installation

(Figure 402)

### A. References

Reference	Title
20-10-44-400-801	Lockwires Installation (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)
34-11-00-790-808	Alternate Static System Low-range Leak Test (P/B 501)
34-11-02-200-801	Static Port - Special Detailed Inspection (P/B 601)
51-21-95-300-801	Alodine Treatment Application (P/B 701)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SRM 51-10-01	Structural Repair Manual

### B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

### C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

### D. Installation Procedure

SUBTASK 34-11-02-390-003

(1) Apply sealant, A00247, on the inner surface of the static port installation hole.

SUBTASK 34-11-02-420-011

(2) Put the ALTERNATE STATIC PORT [6] in the mounting hole.

SUBTASK 34-11-02-420-012

(3) Install the washer [5], washer [4] and retaining nut [3] on the ALTERNATE STATIC PORT [6].

SUBTASK 34-11-02-420-013

(4) Tighten the retaining nut [3] to 100-105 pound-inches (11.3-11.9 newton-meters).

SUBTASK 34-11-02-420-014

(5) For the retaining nut [3], do this task: Lockwires Installation, TASK 20-10-44-400-801.

SUBTASK 34-11-02-420-015

(6) Make the alternate static port flush with the airplane skin to + 0.003/- 0.00 inch (+0.076/-0.00 mm).

(a) Use the microshaving tool to make the static port flush (SRM 51-10-01).

SUBTASK 34-11-02-220-004

(7) Make sure that there are no scratches, burrs, or deformations on the static port finish and around the sensing holes in the ALTERNATE STATIC PORT [6].

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## AIRCRAFT MAINTENANCE MANUAL

HAP 101-999; 737-700 (Continued)

SUBTASK 34-11-02-210-003

(8) Make sure that there is no unwanted material in the holes of the ALTERNATE STATIC PORT [6].

SUBTASK 34-11-02-140-003

(9) For the surface of the ALTERNATE STATIC PORT [6], do this task: Alodine Treatment Application, TASK 51-21-95-300-801.

SUBTASK 34-11-02-420-016

(10) Install the O-ring [8] on the fitting [1].

SUBTASK 34-11-02-420-017

(11) Install the fitting [1] on the ALTERNATE STATIC PORT [6].

**CAUTION:** APPLY COUNTER PRESSURE TO THE ALTERNATE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the ALTERNATE STATIC PORT [6] while you install the fitting [1].

SUBTASK 34-11-02-390-004

(12) For the retaining nut [3] and the ALTERNATE STATIC PORT [6], do this task: Fastener Seal Application, TASK 51-31-00-390-805.

SUBTASK 34-11-02-420-018

(13) Remove the cap from the hose [2].

SUBTASK 34-11-02-420-019

**CAUTION:** DO NOT BEND OR TWIST THE HOSE [2] WHEN YOU CONNECT THE HOSE [2]. A BENT OR TWISTED HOSE [2] CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

(14) Connect the hose [2] to the ALTERNATE STATIC PORT [6].

**CAUTION:** APPLY COUNTER PRESSURE TO THE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the ALTERNATE STATIC PORT [6] while you install the fitting [1].

SUBTASK 34-11-02-420-020

(15) Tighten the fitting [1] to 100-125 pound-inches (11.3-14.1 newton-meters).

SUBTASK 34-11-02-700-001

(16) Do a detailed inspection of the alternate static port. To do the inspection, do this task: Static Port - Special Detailed Inspection, TASK 34-11-02-200-801.

SUBTASK 34-11-02-790-002

(17) For the alternate static system, do this task: Alternate Static System Low-range Leak Test, TASK 34-11-00-790-808.

SUBTASK 34-11-02-410-004

(18) For the applicable sidewall liner, do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801.

————— END OF TASK —————

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# AIRCRAFT MAINTENANCE MANUAL

HAP 101-999; 737-700 (Continued)

HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900

**TASK 34-11-02-400-803**

## 7. Alternate Static Port Installation

(Figure 403)

### A. References

Reference	Title
20-10-44-400-801	Lockwires Installation (P/B 401)
25-52-06-400-801	Install the Sidewall Lining for the Cargo Compartment (P/B 401)
34-11-00-790-808	Alternate Static System Low-range Leak Test (P/B 501)
34-11-02-200-801	Static Port - Special Detailed Inspection (P/B 601)
51-21-95-300-801	Alodine Treatment Application (P/B 701)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SRM 51-10-01	Structural Repair Manual

### B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
11	Alternate static port	34-11-02-01-037	HAP 001-013, 015-026, 028-030
		34-11-02-02-010	HAP 031-054
		34-11-02-02-065	HAP 031-054

### D. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

### E. Installation Procedure

SUBTASK 34-11-02-390-005

(1) Apply sealant, A00247, on the inner surface of the static port installation hole.

SUBTASK 34-11-02-420-021

(2) Install the laminated shim [10] on the alternate static port [11].

SUBTASK 34-11-02-420-022

(3) Put the alternate static port [11] in the mounting hole.

SUBTASK 34-11-02-420-023

(4) Install the washer [9] and retaining nut [3] on the alternate static port [11].

SUBTASK 34-11-02-420-024

(5) Tighten the retaining nut [3] to 100-105 pound-inches (11.3-11.9 newton-meters).

SUBTASK 34-11-02-420-025

(6) For the retaining nut [3], do this task: Lockwires Installation, TASK 20-10-44-400-801.

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HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900 (Continued)

SUBTASK 34-11-02-420-026

**CAUTION:** DO NOT MICROSHAVE THE COUNTERBORE ALTERNATE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE PORT WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(7) Make the alternate static port flush with the airplane skin to + 0.003/- 0.00 inch (+0.076/-0.00 mm).

(a) Add a laminated shim [10] if necessary, to make the static port flush (SRM 51-10-01).

SUBTASK 34-11-02-220-007

(8) Make sure that there are no scratches, burrs, or deformations on the static port finish and around the sensing holes in the alternate static port [11].

SUBTASK 34-11-02-210-005

(9) Make sure that there is no unwanted material in the holes of the alternate static port [11].

SUBTASK 34-11-02-140-005

(10) For the surface of the alternate static port [11], do this task: Alodine Treatment Application, TASK 51-21-95-300-801.

SUBTASK 34-11-02-420-027

(11) Install the O-ring [8] on the fitting [1].

SUBTASK 34-11-02-420-028

(12) Install the fitting [1] on the alternate static port [11].

**CAUTION:** APPLY COUNTER PRESSURE TO THE STATIC PORT [11]. IF YOU DO NOT, THE STATIC PORT [11] CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the alternate static port [11] while you install the fitting [1].

SUBTASK 34-11-02-390-006

(13) For the retaining nut [3] and the alternate static port [11], do this task: Fastener Seal Application, TASK 51-31-00-390-805.

SUBTASK 34-11-02-420-029

(14) Remove the cap from the hose [2].

SUBTASK 34-11-02-420-030

**CAUTION:** DO NOT BEND OR TWIST THE HOSE [2] WHEN YOU CONNECT THE HOSE [2]. A BENT OR TWISTED HOSE [2] CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

(15) Connect the hose [2] to the alternate static port [11].

**CAUTION:** APPLY COUNTER PRESSURE TO THE STATIC PORT [11]. IF YOU DO NOT, THE STATIC PORT [11] CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the alternate static port [11] while you install the fitting [1].

SUBTASK 34-11-02-420-031

(16) Tighten the fitting [1] to 100-125 pound-inches (11.3-14.1 newton-meters).

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**AIRCRAFT MAINTENANCE MANUAL**

**HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900 (Continued)**

SUBTASK 34-11-02-700-002

- (17) Do a detailed inspection of the alternate static port. To do the inspection, do this task: Static Port - Special Detailed Inspection, TASK 34-11-02-200-801.

SUBTASK 34-11-02-790-003

- (18) For the alternate static system, do this task: Alternate Static System Low-range Leak Test, TASK 34-11-00-790-808.

SUBTASK 34-11-02-410-005

- (19) For the applicable sidewall liner, do this task: Install the Sidewall Lining for the Cargo Compartment, TASK 25-52-06-400-801.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## STATIC PORT - INSPECTION/CHECK

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
  - (1) A detailed inspection of the static ports and the skin surface near the port
  - (2) A special detailed inspection of the static ports and the skin surface near the port.

#### **TASK 34-11-02-200-803**

### 2. Static Port - Detailed Inspection

(Figure 601 or Figure 602)

#### A. General

- (1) This procedure is a scheduled maintenance task.

#### B. References

Reference	Title
34-11-02-000-802	Alternate Static Port Removal (P/B 401)
34-11-02-000-803	Alternate Static Port Removal (P/B 401)
34-11-02-020-801	Primary Static Port Removal (P/B 401)
34-11-02-400-801	Primary Static Port Installation (P/B 401)
34-11-02-400-802	Alternate Static Port Installation (P/B 401)
34-11-02-400-803	Alternate Static Port Installation (P/B 401)
SRM 51-10-01	Structural Repair Manual

#### C. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

#### D. Inspection Procedure

SUBTASK 34-11-02-220-011

- (1) Visually examine the static port for damage.

SUBTASK 34-11-02-210-008

- (2) Visually examine the holes in the port for contamination.

SUBTASK 34-11-02-900-008

- (3) If there is a problem with a primary static port, replace the port.

- (a) These are the tasks:

Primary Static Port Removal, TASK 34-11-02-020-801,  
 Primary Static Port Installation, TASK 34-11-02-400-801.

SUBTASK 34-11-02-900-009

- (4) If there is a problem with an alternate static port, replace the port.

#### **HAP 101-999; 737-700**

- (a) These are the tasks:

Alternate Static Port Removal, TASK 34-11-02-000-802,

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HAP 101-999; 737-700 (Continued)

Alternate Static Port Installation, TASK 34-11-02-400-802.

### HAP 001-013, 015-026, 028-054; 737-600, 737-800 OR 737-900

(b) These are the tasks:

Alternate Static Port Removal, TASK 34-11-02-000-803,

Alternate Static Port Installation, TASK 34-11-02-400-803.

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SUBTASK 34-11-02-220-012

(5) Visually examine the surface of the airplane skin in a three inch radius around the port:

(a) Make sure that the surface of the skin is not rough.

(b) If the skin is rough, refer to the Structural Repair Manual (SRM 51-10-01).

SUBTASK 34-11-02-200-001

(6) If the detailed inspection of the static port is not satisfactory, do the Static Port - Special Detailed Inspection (TASK 34-11-02-200-801).

————— **END OF TASK** —————

### TASK 34-11-02-200-801

### 3. Static Port - Special Detailed Inspection

(Figure 601 or Figure 602)

#### A. References

Reference	Title
34-11-02-020-801	Primary Static Port Removal (P/B 401)
34-11-02-400-801	Primary Static Port Installation (P/B 401)
SRM 51-10-01	Structural Repair Manual
SRM 51-10-03	Structural Repair Manual

#### B. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

#### C. Inspection Procedure for the Primary Static Ports

SUBTASK 34-11-02-220-001

(1) Visually examine the primary static port for damage.

(a) Make sure that the depth of any scratches on the port are less than 0.010 inch (0.254 mm).

SUBTASK 34-11-02-210-001

(2) Visually examine the holes in the port for contamination.

SUBTASK 34-11-02-900-001

(3) If there is a problem with a primary static port, replace the port.

(a) These are the tasks:

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Primary Static Port Removal, TASK 34-11-02-020-801,  
Primary Static Port Installation, TASK 34-11-02-400-801.

SUBTASK 34-11-02-900-003

(4) Measure the step height of the primary static ports.

**NOTE:** The step height is the distance between the surface of the skin and the primary static ports.

(a) Make sure the primary static port step height is 0.000 to +0.003 inch (0.076 mm) above the skin.

(b) If the step height is too low, then replace the port.

These are the tasks:

Primary Static Port Removal, TASK 34-11-02-020-801,

Primary Static Port Installation, TASK 34-11-02-400-801.

(c) If the step height is too high, then decrease the port step height (SRM 51-10-03).

SUBTASK 34-11-02-210-006

(5) Visually examine the airplane skin surface in a three inch radius around the static port.

(a) Make sure the surface of the skin is not rough.

(b) If the skin is rough, refer to the Structural Repair Manual (SRM 51-10-01).

SUBTASK 34-11-02-900-004

(6) Find the surface waviness of the airplane skin in the area of each primary static port:

(a) Find the primary static ports on each side of the airplane.

(b) Measure the skin waviness in an approximate 3 inch (76.20 mm) area around each primary static port (Figure 601 or Figure 602).

1) Align the center of a metal 6-inch scale with the center of the static port.

2) Measure horizontally.

(c) Examine the area for a dip or bulge condition (Table 601).

Table 601/34-11-02-993-806

Skin Condition	Description
Dip	The skin touches the two ends of the scale but not the middle part of the scale.
Bulge	The skin touches the middle part of the scale but not at the ends of the scale. There are two types of bulges:
Bulge with Movement	The 6-inch scale can easily move up or down on the bulge.
Bulge with Plateau	The 6-inch scale is on a level area of the bulge and is resistant to up and down movement.

(d) Measure and record the waviness:

**NOTE:** Use the table in Figure 601 (Sheet 2) as an example. Record the data in the table in Figure 601 (Sheet 3). A dip value is always a negative number. A bulge value is always a positive number.

1) For a dip, use these steps:

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- a) Use a feeler gage to measure the maximum clearance between the scale and the skin.
- b) Record this data as a negative number.
- 2) For a bulge with movement, use these steps:
  - a) Move the scale up or down to make the end touch the skin.
  - b) When one end touches the skin, use a feeler gage to measure the clearance between the high end of the scale and the skin.
  - c) Move the other end of the scale against the skin.
  - d) Measure the clearance.
  - e) Use the larger of the two values and record the data as a positive number.
- 3) For a bulge with plateau, use these steps:
  - a) Put the scale on the level area.
  - b) Use a feeler gage to measure the clearance between the two ends of the scale and the skin.
  - c) Use the larger of the two values and record the data as a positive number.
- (e) Calculate the waviness for each of the four static ports.
  - 1) Use this formula if the measurements above and below the static ports are dips:
    - a)  $\text{Waviness} = (\text{DIP above} + \text{DIP below})/2$
  - 2) Use this formula if the measurements above and below the static ports are bulges with movement:
    - a)  $\text{Waviness} = (\text{BULGE above} + \text{BULGE below})/4$
  - 3) Use this formula if the measurements above and below the static ports are bulges with plateau:
    - a)  $\text{Waviness} = (\text{BULGE above} + \text{BULGE below})/2$
  - 4) Use this formula if one measurement is a dip and the other measurement is a bulge with movement:
    - a)  $\text{Waviness} = (\text{DIP} + 1/2 \text{ BULGE})/2$
  - 5) Use this formula if one measurement is a dip and the other measurement is a bulge with plateau:
    - a)  $\text{Waviness} = (\text{DIP} + \text{BULGE})/2$
- (f) Make sure the waviness is not more than  $\pm 0.02$  inch ( $\pm 0.51$  mm).

SUBTASK 34-11-02-900-005

- (7) If the skin waviness is not satisfactory, go to the Structural Repair Manual (SRM 51-10-01), (SRM 51-10-03).

SUBTASK 34-11-02-900-006

- (8) Make sure rivets in a 3-inch radius from the center of a static pressure port are flush with the skin surface to a tolerance of +0.003 to -0.000 inch (+0.076 to -0.00 mm).
  - (a) If any of the conditions above are not satisfactory, go to the Structural Repair Manual (SRM 51-10-01), (SRM 51-10-03).

### D. Inspection Procedure for the Alternate Static Ports

SUBTASK 34-11-02-220-008

- (1) Visually examine the primary static port for damage.

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- (a) Make sure that the depth of any scratches on the port are less than 0.010 inch (0.254 mm).
- (2) Inspect the alternate static ports with the following steps:
  - (a) Put the edge of a steel rule horizontally across the center of the static pressure port.
  - (b) Measure the space between the skin and the steel rule.
  - (c) Make sure the surface does not have a space of more than 0.010 inch (0.254 mm) in a 3-inch radius from the center of the static port.
  - (d) Make sure rivets in a 3-inch radius from the center of a static pressure port are flush with the skin surface to a tolerance of +0.003 to -0.000 inch (+0.076 to -0.000 mm).
  - (e) Make sure the alternate static port step height is 0.000 to +0.003 inch (0.076 mm) above the skin.

SUBTASK 34-11-02-220-009

- (3) If any of the conditions above are not satisfactory, go to the Structural Repair Manual (SRM 51-10-01), (SRM 51-10-03).

————— **END OF TASK** —————

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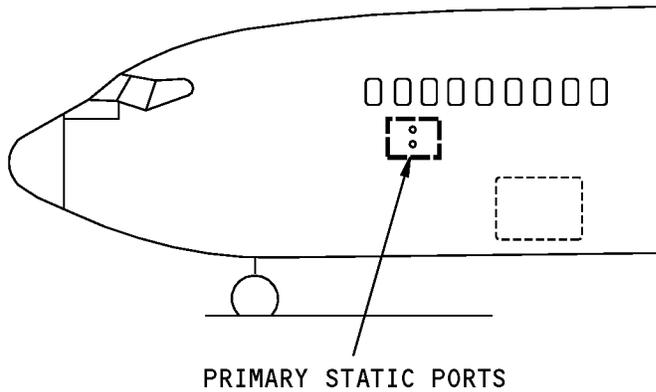
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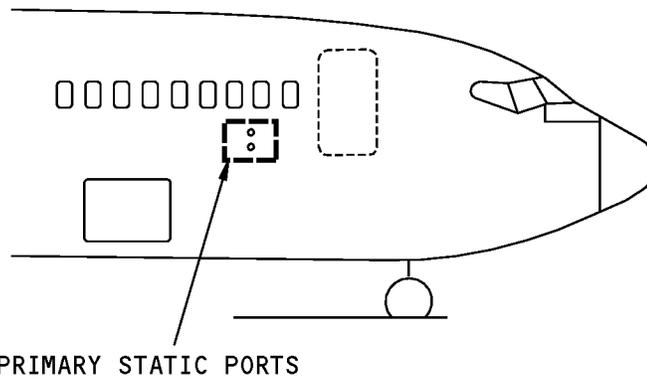
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(LEFT SIDE)



(RIGHT SIDE)

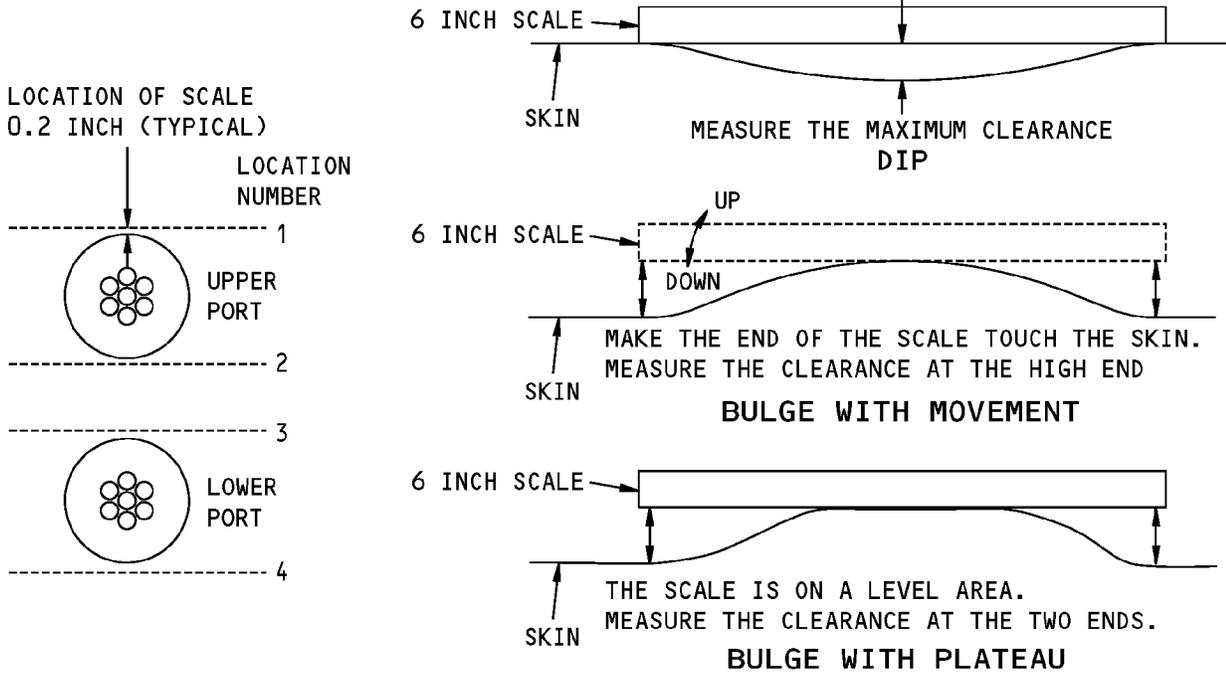
**Primary Static Port Inspection**  
Figure 601 (Sheet 1 of 3)/34-11-02-990-801

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LEFT SIDE								
	LOCATION	DIP	BULGE WITH MOVEMENT			BULGE WITH PLATEAU		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1	-0.010						
	2	-0.004						
	WAVINESS	-0.007						
LOWER PORT	3		0.008	0.000	0.008			
	4		0.020	0.010	0.020			
	WAVINESS				0.007			
RIGHT SIDE								
	LOCATION	DIP	BULGE WITH MOVEMENT			BULGE WITH PLATEAU		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1	-0.010						
	2	-0.000						
	WAVINESS	-0.005						
LOWER PORT	3					0.008	0.000	0.008
	4					0.020	0.010	0.020
	WAVINESS							0.014

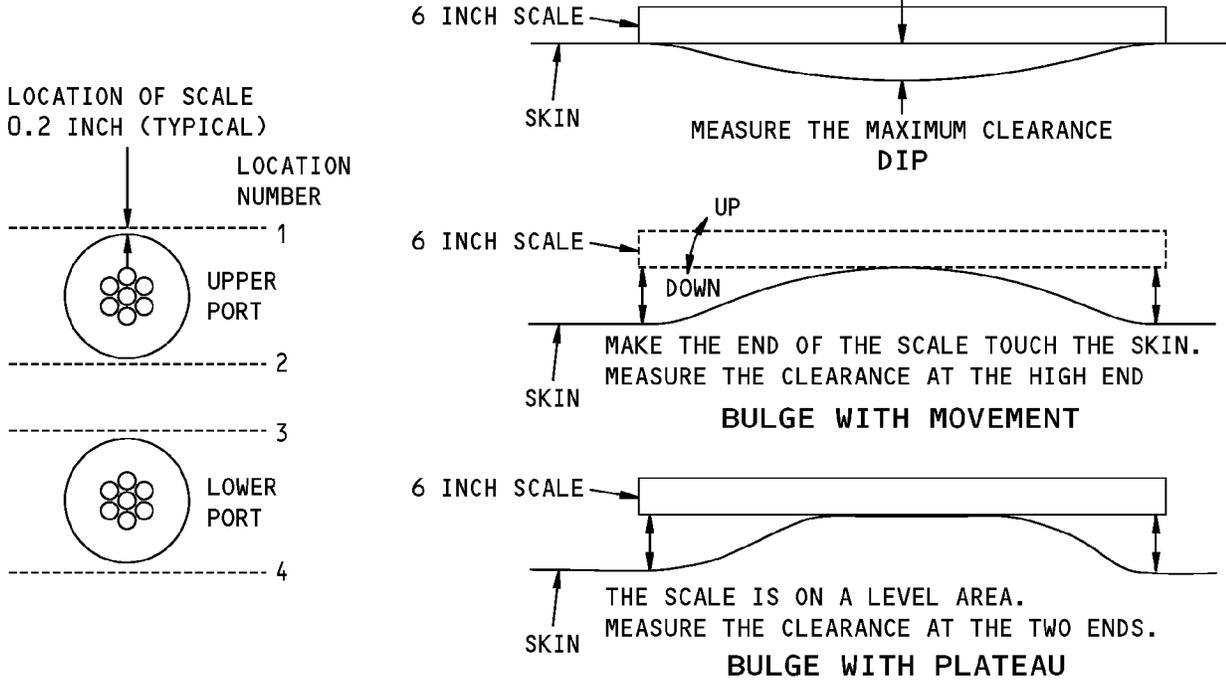
EXAMPLE CALCULATIONS OF SKIN WAVINESS MEASUREMENT NEAR PRIMARY STATIC PORTS

Primary Static Port Inspection  
Figure 601 (Sheet 2 of 3)/34-11-02-990-801

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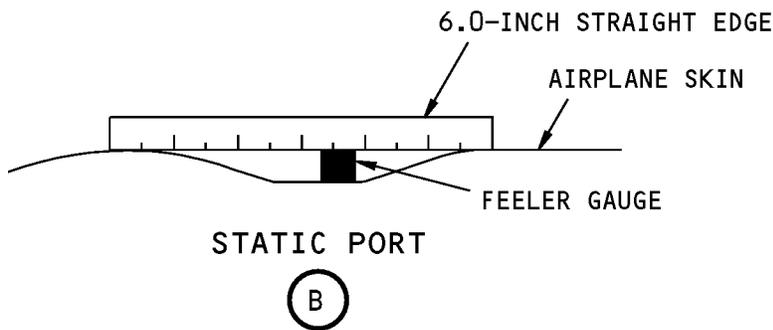
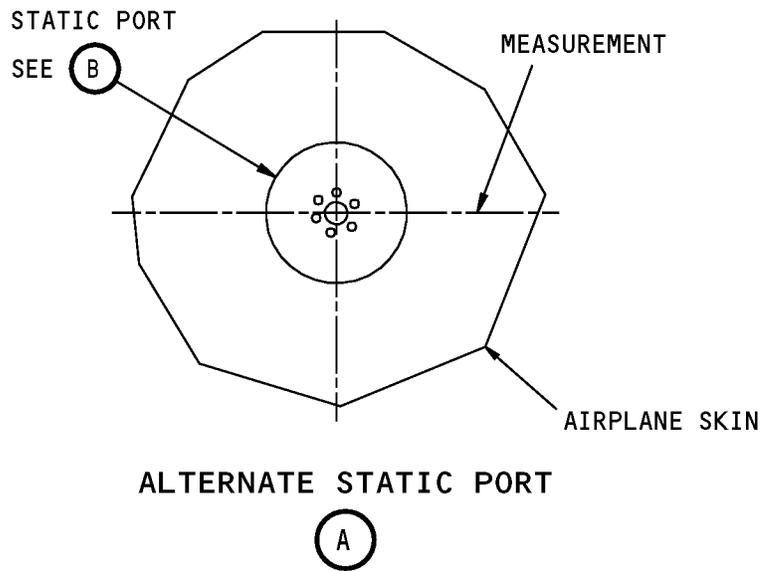
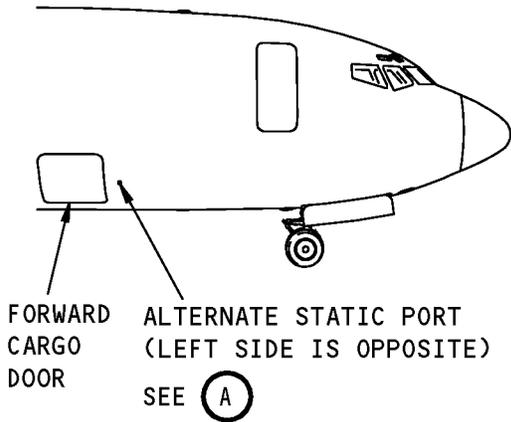
LEFT SIDE								
	LOCATION	DIP	BULGE WITH MOVEMENT			BULGE WITH PLATEAU		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1							
	2							
	WAVINESS							
LOWER PORT	3							
	4							
	WAVINESS							
RIGHT SIDE								
	LOCATION	DIP	BULGE WITH MOVEMENT			BULGE WITH PLATEAU		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1							
	2							
	WAVINESS							
LOWER PORT	3							
	4							
	WAVINESS							

FORM FOR SKIN WAVINESS MEASUREMENT NEAR PRIMARY STATIC PORTS

Primary Static Port Inspection  
Figure 601 (Sheet 3 of 3)/34-11-02-990-801

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**Alternate Static Port Inspection  
Figure 602/34-11-02-990-805**

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## AIRCRAFT MAINTENANCE MANUAL

### AIR DATA INSTRUMENTS - ADJUSTMENT/TEST

#### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has this task:
  - (1) A system test of the Standby Altimeter/Airspeed Indicator.

#### **TASK 34-13-00-730-801**

#### 2. Air Data Instruments - System Test

##### A. General

(1) These instructions apply to the task:

- (a) When you apply pressure to a static system, the rate must not be more than 5,000 feet for each minute.
- (b) When you release pressure from a static system, the rate must not be more than 5,000 feet for each minute.
- (c) When you apply pressure to a pitot system, the rate must not be more than 300 knots for each minute.
- (d) When you release pressure from a pitot system, the rate must not be more than 300 knots for each minute.
- (e) Do not connect or disconnect the test equipment while you have pressure in the pitot-static system.
- (f) Make sure that you do these steps before installing the probe adapter on the probe:
  - 1) Flush the probe adapter with water.
 

NOTE: Use equal parts of water and ethylene glycol when the temperature is between 32° and -40°F (-40° to 0°C).
  - 2) Blow dry, filtered air through the adapter.
  - 3) Wipe the probe with a damp cloth.
- (g) Make sure that the seals used on the static ports do not extend into the static ports.
- (h) Make sure that you do not cause damage to the surface of the static ports when you remove the seals.
- (i) At each test value, permit the pressure to become stable for one minute.
- (j) Do not hit or shake the indicators before you read the values.

##### B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)

##### C. Tools/Equipment

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

<p>EFFECTIVITY</p> <p>HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR</p>
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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)

#### D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

#### E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### F. Prepare for the System Test

SUBTASK 34-13-00-860-011

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (1) Make sure that the ATC transponders are in standby mode.

EFFECTIVITY  
 HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE  
 STANDBY ALTITUDE/AIRSPEED INDICATOR

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# AIRCRAFT MAINTENANCE MANUAL

SUBTASK 34-13-00-860-001

## HAP 001-013, 015-026, 028-030

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

## HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-860-002

(3) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 34-13-00-750-001

(4) Make sure that you feel vibration on the casing of the Standby Altimeter/Airspeed Indicator.

SUBTASK 34-13-00-860-004

(5) Set the BARO scale of the standby indicator to 29.92 inches of mercury (1013 millibars).

SUBTASK 34-13-00-480-001

**CAUTION:** DO NOT EXTEND THE SEALS INTO THE STATIC PORTS. DAMAGE TO THE SURFACE OF THE PORT CAN OCCUR WHEN YOU REMOVE THE SEAL.

(6) Seal the alternate static ports with vinyl adhesive Scotch Brand No.471 tape, G02219 at these locations:

- (a) The static port located at STA 430, WL 167, RBL 49.
- (b) The static port located at STA 430, WL 167, LBL 49.

SUBTASK 34-13-00-480-003

(7) Remove the cap from the alternate static drain located near STA 226, WL 155, RBL 18, in the electronic equipment compartment below the E-5 rack.

SUBTASK 34-13-00-480-007

(8) Install the coupling, COM-1927, on the alternate static drain.

SUBTASK 34-13-00-480-006

(9) Connect the air data model test set, COM-1914, to the coupling, COM-1927.

SUBTASK 34-13-00-170-001

## HAP 001-013, 015-026, 028-030

**CAUTION:** MAKE SURE THAT YOU FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

(10) Flush the adapter, kit, COM-1916, with water.

**NOTE:** Use equal parts of water and ethylene glycol when the temperature is between 32° and -40°F (-40° to 0°C).

## HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

<p>EFFECTIVITY</p> <p>HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR</p>
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SUBTASK 34-13-00-480-008

**HAP 001-013, 015-026, 028-030**

(11) Blow dry, filtered air through the adapter, kit, COM-1916.

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPD INDICATOR**

SUBTASK 34-13-00-480-009

(12) Wipe the probe with a damp cloth.

SUBTASK 34-13-00-480-004

**HAP 001-013, 015-026, 028-030**

**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

(13) Install the adapter, kit, COM-1916, on the lower pitot probe located at STA 192, WL 213, RBL 34.

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPD INDICATOR**

SUBTASK 34-13-00-480-005

**HAP 001-013, 015-026, 028-030**

(14) Connect the air data model test set, COM-1914, to the adapter, kit, COM-1916.

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPD INDICATOR**

SUBTASK 34-13-00-010-001

(15) Lower 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 34-13-00-020-001

(16) Disconnect the static pressure hose located behind the P5 forward overhead panel.

**G. Air Data Instruments Test**

SUBTASK 34-13-00-860-005

(1) Apply pressure to the alternate pitot and alternate static systems for each test point as shown in (Table 501):

Table 501/34-13-00-993-801

TEST POINT	STATIC (In. Hg)	PITOT (In. Hg)	STBY ALT. (feet)	STBY A/S (knots)
1	29.921	30.311	0 ± 30	90 ± 3.5
2	24.896	27.996	5,000 ± 50	250 ± 3.5
3	16.886	17.703	15,000 ± 110	130 ± 3.5
4	11.104	17.013	25,000 ± 160	340 ± 8
5	7.041	10.963	35,000 ± 210	279 ± 6
6	5.286	7.95	41,000 ± 235	233 ± 6

SUBTASK 34-13-00-730-001

(2) Make sure that the altitude and airspeed information displayed on the standby altitude/airspeed indicator is in tolerance for each test point shown in Table 501.

**EFFECTIVITY**  
**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPD INDICATOR**

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### H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-13-00-860-006

- (1) Put the system back to ambient pressure.

SUBTASK 34-13-00-080-001

**CAUTION:** DO NOT DISCONNECT THE STATIC SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. IF YOU DO, DAMAGE TO THE STANDBY ALTIMETER/AIRSPEED INDICATOR CAN OCCUR.

- (2) Disconnect the air data model test set, COM-1914, and the coupling, COM-1927, from the alternate static drain located near STA 226, WL 155, RBL 18.

SUBTASK 34-13-00-080-002

- (3) Install the cap on the alternate static drain.

SUBTASK 34-13-00-080-003

- (4) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from both of the alternate static ports.

**WARNING:** MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. IF YOU DO NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (a) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the static port located at STA 430, WL 167, RBL 49.
- (b) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the static port located at STA 430, WL 167, LBL 49.

SUBTASK 34-13-00-080-004

### HAP 001-013, 015-026, 028-030

**CAUTION:** DO NOT DISCONNECT THE PITOT SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. IF YOU DO, DAMAGE TO THE STANDBY ALTIMETER/AIRSPEED INDICATOR CAN OCCUR.

- (5) Disconnect the air data model test set, COM-1914, from the adapter, kit, COM-1916.

### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-080-005

### HAP 001-013, 015-026, 028-030

- (6) Remove the adapter, kit, COM-1916, from the pitot probe.

### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-410-001

- (7) Connect the static pressure hose located behind the P5 forward overhead panel.

SUBTASK 34-13-00-210-001

- (8) Do a visual inspection of the quick-disconnect fittings that you connected.
  - (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-13-00-410-002

- (9) Lift the P5 forward overhead panel to the closed position and turn the 1/4-turn fasteners.

EFFECTIVITY

HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

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SUBTASK 34-13-00-860-007

**HAP 001-013, 015-026, 028-030**

(10) 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	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR**

SUBTASK 34-13-00-860-008

(11) Do this task: Remove External Power, TASK 24-22-00-860-814.

————— **END OF TASK** —————

EFFECTIVITY

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE  
STANDBY ALTITUDE/AIRSPEED INDICATOR**

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## AIRCRAFT MAINTENANCE MANUAL

### STANDBY ALTIMETER/AIRSPEED INDICATOR - REMOVAL/INSTALLATION

#### 1. General

A. This procedure has these tasks:

- (1) A removal of the standby altimeter/airspeed indicator
- (2) An installation of the standby altimeter/airspeed indicator.

#### **TASK 34-13-01-000-801**

#### 2. Standby Altimeter/Airspeed Indicator Removal

(Figure 401)

A. References

Reference	Title
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-13-01-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	8	C00701	EMER PANEL LTG

SUBTASK 34-13-01-020-001

- (2) Remove the standby altimeter/airspeed INDICATOR [3]:

- (a) Loosen the two adjustment screws [1] adjacent to the INDICATOR [3] (Figure 401).

**NOTE:** Do not remove the adjustment screws [1]. Loosen the adjustment screws [1] until the standby altimeter/airspeed INDICATOR [3] can be removed.

**CAUTION:** CAREFULLY PULL THE INDICATOR FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AND THE HOSES ON THE REAR OF THE INDICATOR.

- (b) Pull the INDICATOR [3] from the instrument panel until you can get access to the electrical connector [4], pitot hose [5] and static hose [6].

**NOTE:** If the INDICATOR [3] is not easy to remove, loosen the remaining two mounting screws [2] to make the removal procedure easier.

**CAUTION:** DO NOT DISCONNECT THE PITOT-STATIC SYSTEM HOSES WHEN THE SYSTEM IS NOT AT AMBIENT PRESSURE. THIS CAN CAUSE DAMAGE TO THE INDICATOR.

- (c) Disconnect the pitot hose [5] and static hose [6] from the INDICATOR [3].

#### EFFECTIVITY

HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

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- (d) Disconnect the electrical connector [4].
- (e) Remove the INDICATOR [3].
- (f) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.
- (g) Remove the quick disconnect fitting, if installed, from the INDICATOR [3].

————— **END OF TASK** —————

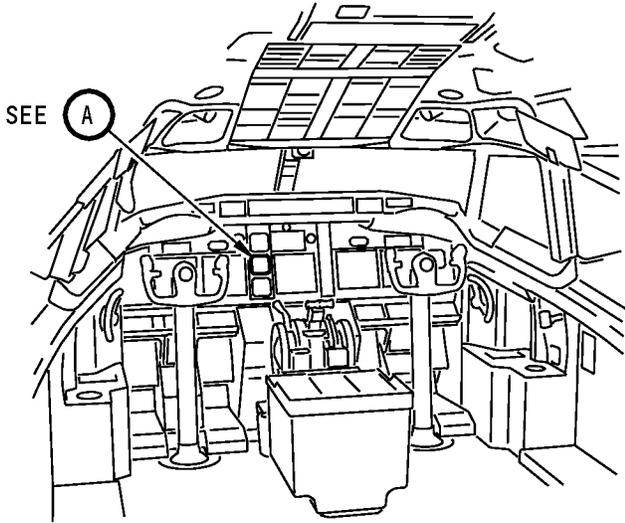
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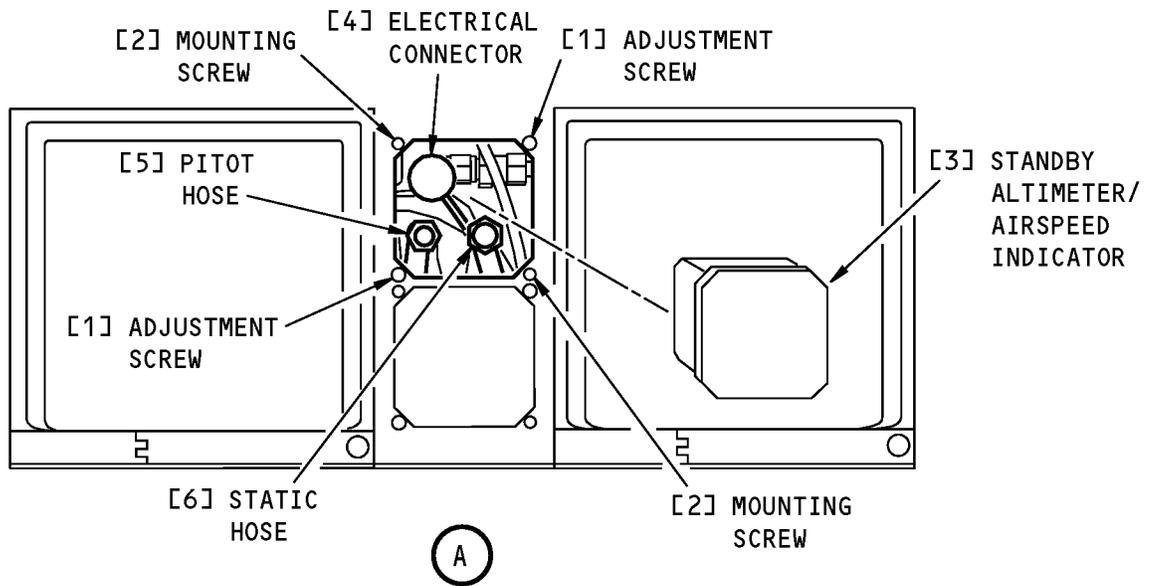
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**FLIGHT COMPARTMENT**



**Standby Altimeter/Airspeed Indicator Installation**  
**Figure 401/34-13-01-990-801**

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### AIRCRAFT MAINTENANCE MANUAL

**TASK 34-13-01-400-801**

#### 3. Standby Altimeter/Airspeed Indicator Installation

(Figure 401)

##### A. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Conductor Cover Removal (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-11-00-790-808	Alternate Static System Low-range Leak Test (P/B 501)
34-11-00-790-812	Alternate Pitot System Leak Test (P/B 501)

##### B. Tools/Equipment

Reference	Description
STD-1014	Wrench - Torque, 0 to 150 in-lbs (0 to 16.9 N-m)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	INDICATOR	31-11-31-02-100	HAP 001-013, 015-026, 028-030
		34-13-01-01-060	HAP 001-013, 015-026, 028-030

##### D. Location Zones

Zone	Area
211	Flight Compartment - Left

##### E. Installation Procedure

SUBTASK 34-13-01-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	8	C00701	EMER PANEL LTG

SUBTASK 34-13-01-420-001

- (2) Install the standby altimeter/airspeed INDICATOR [3]:
  - (a) Install the quick disconnect fitting you removed, if necessary, to the INDICATOR [3].
  - (b) Do this task: Conductive Dust Cap and Conductor Cover Removal, TASK 20-40-12-000-804.
  - (c) Examine the electrical connector [4] for bent or broken pins.
  - (d) Connect the electrical connector [4] at the rear of the INDICATOR [3].

<p>EFFECTIVITY</p> <p>HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR</p>
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**CAUTION:** DO NOT CONNECT THE PITOT-STATIC SYSTEM HOSES WHEN THE SYSTEM IS NOT AT AMBIENT PRESSURE. THIS CAN CAUSE DAMAGE TO THE INDICATOR.

- (e) Connect the pitot hose [5] and static hose [6] to the INDICATOR [3].
- (f) Do a visual inspection to make sure that the pitot-static system hose connections and quick-disconnect fittings that you connected are locked in the sealed position.
  - 1) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.
- (g) Install the INDICATOR [3] into the instrument panel.
- (h) Tighten the two adjustment screws [1] adjacent to the INDICATOR [3] (Figure 401).

**NOTE:** If necessary, tighten the two mounting screws [2].

SUBTASK 34-13-01-420-002

- (3) If you removed or installed a quick disconnect fitting from or to the hose, tighten the fitting with a torque wrench to 100 +5 / -0 in-lb (11 +1 / -0 N-m) using tool torque wrench 0 to 150 in-lbs (0 to 16.9 N-m), STD-1014.

SUBTASK 34-13-01-860-003

- (4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-13-01-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C00701	EMER PANEL LTG

SUBTASK 34-13-01-750-001

- (6) Make sure that the INDICATOR [3] lights are on.

SUBTASK 34-13-01-780-001

- (7) If you install a quick-disconnect fitting on the replacement indicator, do these steps:

**NOTE:** If you do a replacement or installation of a quick-disconnect fitting, you must do a leak check. If you only disconnect a quick-disconnect fitting, no leak check is required.

- (a) Do this task: Alternate Pitot System Leak Test, TASK 34-11-00-790-812.
- (b) Do this task: Alternate Static System Low-range Leak Test, TASK 34-11-00-790-808.

SUBTASK 34-13-01-860-005

- (8) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**END OF TASK**

<p>EFFECTIVITY</p> <p>HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR</p>
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# AIRCRAFT MAINTENANCE MANUAL

## MACH AIRSPEED WARNING SYSTEM - ADJUSTMENT/TEST

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has this task:
  - (1) An aural warning discrete output test of the Mach Airspeed Warning System.

#### **TASK 34-16-00-730-801**

### 2. Mach Airspeed Warning System - Aural Warning Discrete Output Test

- A. General
  - (1) This procedure is a scheduled maintenance task.
- B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

### C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

### D. Prepare for the Aural Warning Discrete Output Test

SUBTASK 34-16-00-860-002

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

### E. Test Procedure

SUBTASK 34-16-00-710-001

- (1) Push and hold the NO. 1 MACH AIRSPEED WARNING TEST switch on the P5 panel.
  - (a) Make sure you hear the warning clacker.

SUBTASK 34-16-00-860-005

- (2) Release the NO. 1 MACH AIRSPEED WARNING TEST switch.
  - (a) Make sure you cannot hear the warning clacker.

SUBTASK 34-16-00-710-002

- (3) Push and hold the NO. 2 MACH AIRSPEED WARNING TEST switch on the P5 panel.
  - (a) Make sure you hear the warning clacker.

SUBTASK 34-16-00-860-006

- (4) Release the NO. 2 MACH AIRSPEED WARNING TEST switch.
  - (a) Make sure you cannot hear the warning clacker.

### F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-16-00-840-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

<p>EFFECTIVITY</p> <p>HAP ALL</p>	
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AIR DATA INERTIAL REFERENCE SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) Air Data Inertial Reference System (ADIRS) alignment from the FMC CDU
(2) An alignment of the ADIRS from the ISDU
(3) An IR radial position error check procedure
(4) A IR residual groundspeed error check procedure.

TASK 34-21-00-820-801

2. Air Data Inertial Reference System - Alignment from the FMC CDU

A. General

- (1) This task provides instructions to align the air data inertial reference system (ADIRS) at regular latitude and high latitude.
(a) Regular latitude alignment is from latitude 70.2 degrees South to latitude 70.2 degrees North. A regular latitude alignment takes 10 minutes.
(b) High latitude alignment is from latitude 70.2 degrees to latitude 78.2 degrees North or South. The high latitude alignment takes 17 minutes.
(c) Above the latitude of 78.2 degrees North and below the latitude of 78.2 degrees South, you cannot accurately align the ADIRS.
(2) You cannot move the airplane while you align the ADIRS.
(3) The local latitude and longitude are necessary to align the ADIRS.

B. References

Table with 2 columns: Reference, Title. Rows include 24-22-00-860-811 (Supply Electrical Power) and 34-61-00-710-801 (Flight Management Computer System).

C. Location Zones

Table with 2 columns: Zone, Area. Rows include 211 (Flight Compartment - Left) and 212 (Flight Compartment - Right).

D. Procedure

SUBTASK 34-21-00-860-054

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-00-860-055

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

CAPT Electrical System Panel, P18-1

Table with 4 columns: Row, Col, Number, Name. Rows include E 5 C01009 (ADIRU LEFT DC) and E 7 C01007 (ADIRU LEFT AC).

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row includes E 8 C00425 (ADIRU LEFT EXC).

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F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-00-860-056

(3) Make sure the Flight Management Computer System is on (TASK 34-61-00-710-801).

SUBTASK 34-21-00-820-001

(4) Do these steps to align the ADIRS at regular latitude:

- (a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the NAV position.
  - 1) A regular latitude alignment takes 10 minutes. Make a note of the present time for later use in this procedure.
- (b) Make sure the ON DC lights on the IRS MSU come on for a short time.
- (c) Make sure the ALIGN lights on the IRS MSU come on.
- (d) Do these steps to enter the latitude and longitude from a control display unit (CDU):

NOTE: CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys (LSK). Six keys are on each side of the display. LSK 1L thru 6L are on the left side, and LSK 1R thru 6R are on the right side.

- 1) Push the INIT REF key on the CDU.
- 2) Push the LSK 6L adjacent to the < INDEX prompt on the CDU.
  - a) Make sure the CDU shows the INIT/REF INDEX 1/1 page.
- 3) Push the LSK 2L adjacent to the < POS prompt on the CDU.
  - a) Make sure the CDU shows the POS INIT 1/3 page.
- 4) Put the latitude and longitude data in the scratch pad line of the CDU.

NOTE: Do not put a space between the latitude and longitude. The format of the latitude and longitude data is as follows:

Latitude and longitude: XDDMM.MYDDMM.M

Where:

X is N or S for latitude

Y is E or W for longitude

D is the number of degrees

M is the number of minutes

- 5) Push the LSK 4R adjacent to the SET IRS POS > prompt on the CDU.
  - a) Make sure the CDU shows the latitude and longitude below the SET IRS POS line.

< 1 > Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.
- 6) After 10 minutes, make sure the ALIGN lights on the IRS MSU go off.

NOTE: The ADIRS is now aligned and in the navigation mode.

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## AIRCRAFT MAINTENANCE MANUAL

SUBTASK 34-21-00-820-002

- (5) Do these steps to align the ADIRS at high latitude:
- (a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the ALIGN position.
    - 1) A high latitude alignment takes 17 minutes. Make a note of the present time for later use in this procedure.
  - (b) Make sure the ON DC lights on the IRS MSU come on for a short time.
  - (c) Make sure the ALIGN lights on the IRS MSU come on.
  - (d) Do these steps to enter the latitude and longitude from a control display unit (CDU):

**NOTE:** CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys (LSK). Six keys are on each side of the display. LSK 1L thru 6L are on the left side, and LSK 1R thru 6R are on the right side.

- 1) Push the INIT REF key on the CDU.
- 2) Push the LSK 6L adjacent to the < INDEX prompt on the CDU.
  - a) Make sure the CDU shows the INIT/REF INDEX 1/1 page.
- 3) Push the LSK 2L adjacent to the < POS prompt on the CDU.
  - a) Make sure the CDU shows the POS INIT 1/3 page.
- 4) Put the latitude and longitude data in the scratch pad line of the CDU.

**NOTE:** Do not put a space between the latitude and longitude. The format of the latitude and longitude data is as follows:

Latitude and longitude: XDDMM.MYDDMM.M

Where:

X is N or S for latitude

Y is E or W for longitude

D is the number of degrees

M is the number of minutes

- 5) Push the LSK 4R adjacent to the SET IRS POS > prompt on the CDU.
  - a) Make sure the CDU shows the latitude and longitude below the SET IRS POS line.
    - < 1 > Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.
- 6) After 17 minutes, set the mode select switches on the IRS MSU to the NAV position.
  - a) Make sure the ALIGN lights on the IRS MSU go off.

**NOTE:** The ADIRS is now aligned and in the navigation mode.

————— **END OF TASK** —————

### TASK 34-21-00-820-802

#### 3. Air Data Inertial Reference System - Alignment from the ISDU

##### A. General

- (1) This task provides instructions to align the air data inertial reference system (ADIRS) from the inertial system display unit (ISDU) at regular latitude and high latitude.

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- (a) Regular latitude alignment is from latitude 70.2 degrees South to latitude 70.2 degrees North. A regular latitude alignment takes 10 minutes.
  - (b) High latitude alignment is from latitude 70.2 degrees to latitude 78.2 degrees North or South. The high latitude alignment takes 17 minutes.
  - (c) Above the latitude of 78.2 degrees North and below the latitude of 78.2 degrees South, you cannot accurately align the ADIRS.
- (2) You cannot move the airplane while you align the ADIRS.
- (3) The local latitude and longitude are necessary to align the ADIRS.

#### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

#### C. Location Zones

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

#### D. Procedure

SUBTASK 34-21-00-860-057

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-00-860-058

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-00-860-059

- (3) Make sure the Flight Management Computer System is on (TASK 34-61-00-710-801).

SUBTASK 34-21-00-820-003

- (4) Do these steps to align the ADIRS at regular latitude:
  - (a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the NAV position.
    - 1) A regular latitude alignment takes 10 minutes. Make a note of the present time for later use in this procedure.

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- (b) Make sure the ON DC lights on the IRS MSU come on for a short time.
- (c) Make sure the ALIGN lights on the IRS MSU come on.
- (d) Do these steps to enter the latitude and longitude from the ISDU:
  - 1) Set the DSPL SEL switch on the ISDU to the PPOS position.
  - 2) Push the applicable N or S key on the ISDU.
  - 3) Put in the degrees and minutes of the local latitude on the ISDU.
    - a) Make sure the latitude shows on the left side of the ISDU.
    - b) Make sure the ENT key light on the ISDU comes on.
  - 4) Push the ENT key on the ISDU to transmit the latitude to the ADIRUs.
  - 5) Push the applicable W or E key on the ISDU.
  - 6) Put in the degrees and minutes of the local longitude on the ISDU.
    - a) Make sure the longitude shows on the right side of the ISDU.
    - b) Make sure the ENT key light on the ISDU comes on.
  - 7) Push the ENT key on the ISDU to transmit the longitude to the ADIRUs.
    - a) Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.
  - 8) After 10 minutes, make sure the ALIGN lights on the IRS MSU go off.

NOTE: The ADIRS is now aligned and in the navigation mode.

SUBTASK 34-21-00-820-004

- (5) Do these steps to align the ADIRS at high latitude:
  - (a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the ALIGN position.
    - 1) A high latitude alignment takes 17 minutes. Make a note of the present time for later use in this procedure.
  - (b) Make sure the ON DC lights on the IRS MSU come on for a short time.
  - (c) Make sure the ALIGN lights on the IRS MSU come on.
  - (d) Do these steps to enter the latitude and longitude from the ISDU:
    - 1) Set the DSPL SEL switch on the ISDU to the PPOS position.
    - 2) Push the applicable N or S key on the ISDU.
    - 3) Put in the degrees and minutes of the local latitude on the ISDU.
      - a) Make sure the latitude shows on the left side of the ISDU.
      - b) Make sure the ENT key light on the ISDU comes on.
    - 4) Push the ENT key on the ISDU to transmit the latitude to the ADIRUs.
    - 5) Push the applicable W or E key on the ISDU.
    - 6) Put in the degrees and minutes of the local longitude on the ISDU.
      - a) Make sure the longitude shows on the right side of the ISDU.
      - b) Make sure the ENT key light on the ISDU comes on.
    - 7) Push the ENT key on the ISDU to transmit the longitude to the ADIRUs.
      - a) Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.

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- 8) After 17 minutes, set the mode select switches on the IRS MSU to the NAV position.
  - a) Make sure the ALIGN lights on the IRS MSU go off.

NOTE: The ADIRS is now aligned and in the navigation mode.

————— **END OF TASK** —————

#### TASK 34-21-00-200-801

#### 4. IR Radial Position Error Check

(Figure 201)

##### A. General

- (1) This task provides the instructions to do a check of the inertial reference (IR) radial position error.
- (2) At the end of a flight, the radial position error of the IR can be calculated by comparing the IR final position to the airport position. The IR position data is available on the control display unit (CDU).
- (3) The IR radial position error limits are shown in a chart in this procedure.

##### B. References

Reference	Title
34-21-01-000-801	Air Data Inertial Reference Unit Removal (P/B 401)
34-21-01-400-801	Air Data Inertial Reference Unit Installation (P/B 401)

##### C. Procedure

SUBTASK 34-21-00-860-073

- (1) Make sure the mode select switches on the mode select unit (MSU) are in the NAV position.

NOTE: You must record the IR position data at the end of the flight while the IR stays in the NAV mode.

SUBTASK 34-21-00-200-001

- (2) Do these steps to enter the airport identification into the CDU.

- (a) Push the RTE key on the CDU.
  - 1) Make sure the RTE 1/1 shows on the CDU.
- (b) Put the airport identification into the CDU scratchpad.
- (c) Push the line select key (LSK) adjacent to the DEST on the CDU.
  - 1) Make sure the airport identification shows below the DEST on the CDU.

SUBTASK 34-21-00-200-002

- (3) Do these steps to enter the airplane present position into the CDU:

NOTE: When the airplane is parked at an airport gate, the present position of the airplane is the gate latitude and longitude.

- (a) Put the gate latitude and longitude into the CDU scratchpad.

NOTE: Do not use a space between the latitude and longitude. The format of the latitude and longitude data is as follows:

Latitude and longitude: XDDMM.MYDDMM.M

Where:

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X is N or S for latitude

Y is E or W for longitude

D is the number of degrees

M is the number of minutes

- (b) Push the LEGS key on the CDU.
  - 1) Make sure the LEGS 1/3 page shows on the CDU.
- (c) Push the LSK 1L on the CDU.
  - 1) Make sure an identification waypoint of the gate latitude and longitude shows adjacent to the LSK 1L on the CDU.
- (d) Record the number in nautical miles that shows next to the first identification waypoint.

**NOTE:** The first identification way point is the active waypoint that shows at the top of the LEGS 1/3 page.

SUBTASK 34-21-00-200-003

- (4) Do these steps to transfer the left IRS position from the POS REF page to the LEGS page on the CDU:
  - (a) Push the INIT/REF key on the CDU.
    - 1) Make sure the INIT/REF INDEX page shows on the CDU.
  - (b) Push the LSK adjacent to the <POS prompt on the CDU.
    - 1) Make sure the POS INIT 1/3 page shows on the CDU.
  - (c) Push the NEXT PAGE key on the CDU.
    - 1) Make sure the POS REF 2/3 page shows on the CDU.
  - (d) Push the LSK adjacent to the IRS L on the CDU.
    - 1) Make sure the left IRS latitude and longitude data show on the CDU scratchpad.
  - (e) Push the LEGS key on the CDU.
    - 1) Make sure the LEGS 1/3 page shows on the CDU.
  - (f) Push the LSK 2L on the CDU.
    - 1) Make sure an identification waypoint of the IRS latitude and longitude shows adjacent to the LSK 2L on the CDU.
  - (g) Record the number in nautical miles that shows next to the second identification waypoint.
  - (h) Repeat these steps to record the number in nautical miles for the right IRS.

SUBTASK 34-21-00-200-004

- (5) The difference between the gate and the IRS waypoints in nautical miles is the IR radial position error.

SUBTASK 34-21-00-200-005

- (6) Compare the IR radial position error and the time the IRS was in the NAV mode to the radial position error limits (Figure 201).

SUBTASK 34-21-00-020-001

- (7) If one of these conditions occurs, replace the applicable ADIRU:
  - (a) The IR radial position error is in the REPLACE-1 FLIGHT area.
  - (b) The IR radial position error is in the REPLACE-2 CONSECUTIVE FLIGHTS area for the second consecutive flight.

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(c) These are the tasks:

Air Data Inertial Reference Unit Removal, TASK 34-21-01-000-801

Air Data Inertial Reference Unit Installation, TASK 34-21-01-400-801

————— **END OF TASK** —————

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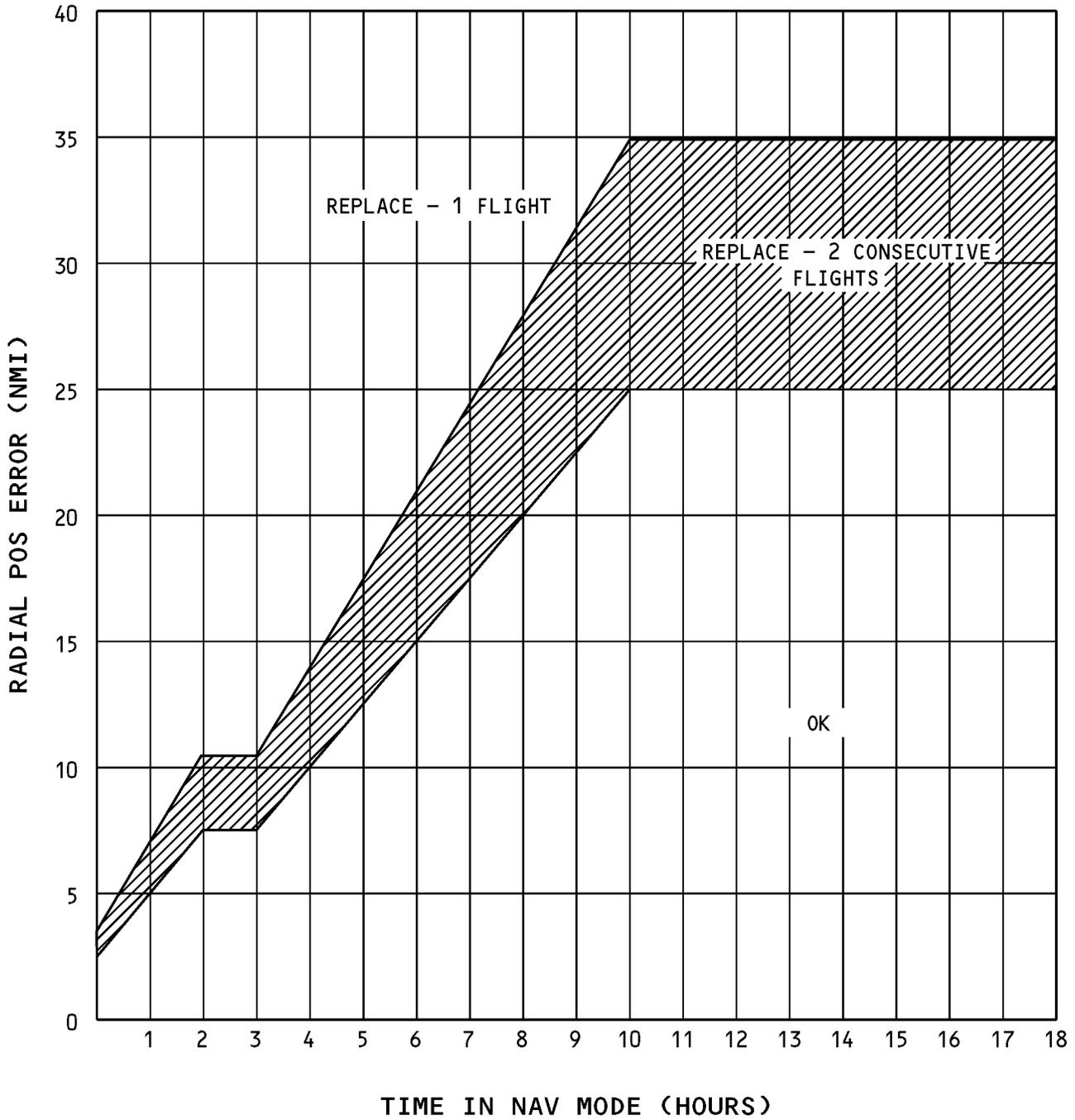
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IR Radial Position Error  
Figure 201/34-21-00-990-804

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## TASK 34-21-00-200-802

### 5. Inertial Reference Residual Groundspeed Error Check

#### A. General

- (1) This task provides the instructions to do a check of the inertial reference (IR) residual groundspeed error.
- (2) Groundspeed readout must be taken before the airplane has been stationary for three minutes. The system may zero the display after three minutes.

#### B. References

Reference	Title
34-21-01-000-801	Air Data Inertial Reference Unit Removal (P/B 401)
34-21-01-400-801	Air Data Inertial Reference Unit Installation (P/B 401)

#### C. Procedure

SUBTASK 34-21-00-860-075

- (1) Set the SYS switch to the L position on the ISDU.

SUBTASK 34-21-00-200-006

- (2) Set the DSPL switch to the TRK/GS position on the ISDU.

SUBTASK 34-21-00-200-007

- (3) When the airplane is stationary, the ISDU display shows the residual groundspeed error.

SUBTASK 34-21-00-200-008

- (4) Make sure these conditions do not occur:
  - (a) The residual groundspeed error is 15 knots or larger after each of two checks, one after the other.
  - (b) The residual groundspeed error is 21 knots or larger at the end of one check.

SUBTASK 34-21-00-200-009

- (5) If one of these conditions occurs replace the ADIRU.

These are the tasks:

Air Data Inertial Reference Unit Removal, TASK 34-21-01-000-801,

Air Data Inertial Reference Unit Installation, TASK 34-21-01-400-801.

SUBTASK 34-21-00-200-010

- (6) Set the SYS switch to the R position.

SUBTASK 34-21-00-200-011

- (7) Do the procedure again for the right ADIRU.

————— **END OF TASK** —————

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## AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
  - (1) The Air Data Inertial Reference System (ADIRS) operational test
  - (2) The Inertial Reference (IR) system test
  - (3) The Air Data Reference (ADR) system test.

#### **TASK 34-21-00-710-801**

### 2. Air Data Inertial Reference System - Operational Test

#### A. General

- (1) This task contains these tests:
  - (a) The Self-Test of the inertial reference (IR) system
  - (b) The self-test of the air data reference (ADR) system
  - (c) The Built-In Test Equipment (BITE) ground test of the IR
  - (d) The BITE ground test of the ADR.

#### B. References

Reference	Title
21-27-00-700-802	Equipment Cooling Fans - Operational Test (P/B 501)
23-43-00-710-801	Flight and Ground Crew Call System - Operational Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
31-62-00-710-801	Common Display System - Operational Test (P/B 501)
32-09-10-710-801	Proximity Switch Electronics Unit (PSEU) - Operational Test (P/B 501)
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)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)
FIM 34-21 TASK 801	ADIRS BITE Procedure

#### 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. Prepare for the Operational Test

SUBTASK 34-21-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-00-860-060

- (2) Make sure the equipment cooling system is operational (TASK 21-27-00-700-802).

SUBTASK 34-21-00-860-061

- (3) Make sure the common display system (CDS) is operational (TASK 31-62-00-710-801).

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SUBTASK 34-21-00-860-062

- (4) Make sure the flight management computer system (FMCS) is operational (TASK 34-61-00-710-801).

SUBTASK 34-21-00-860-063

- (5) Make sure the proximity switch electronic unit is operational (TASK 32-09-10-710-801).

SUBTASK 34-21-00-860-064

- (6) Make sure the flight crew cabin system is operational (TASK 23-43-00-710-801).

SUBTASK 34-21-00-860-065

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

CAPT Electrical System Panel, P18-1

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00549	MACH WARN SYS-2
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-00-860-066

**WARNING:** FAILURE TO OPEN THE FLAP LOAD RELIEF CIRCUIT BREAKER MAY CAUSE INJURY TO PERSONNEL.

- (8) 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	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-21-00-860-004

- (9) Make sure the mode select switches on the Mode Select Unit (MSU) are in the OFF position.

**NOTE:** Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

SUBTASK 34-21-00-860-005

- (10) Set the IRS Transfer switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-076

- (11) Set the mode select switch on the captain's and first officer's EFIS control panel to the VOR position.

SUBTASK 34-21-00-860-006

- (12) Set the VHF NAV switch on the P5 overhead panel to the NORMAL position.

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SUBTASK 34-21-00-860-007

(13) Set the CDS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-008

(14) Set the EQUIPMENT COOLING switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-009

(15) Set the FMCS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-010

(16) Set the STBY PWR switch on the P5 overhead panel to the AUTO position.

### E. Air Data Inertial Reference System - Self-Test

SUBTASK 34-21-00-740-001

(1) Do these steps to do a self-test of the left IR system:

(a) Set the mode select switches on the MSU to the ALIGN position.

**NOTE:** Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

1) Make sure the ALIGN lights on the MSU are on.

(b) Set the SYS DSPL switch on the Inertial System Display Unit (ISDU) to the L position.

(c) Set and hold the DSPL SEL switch on the ISDU in the TEST position.

**NOTE:** The DSPL SEL switch is spring-loaded in the TEST position. It will return to the TK/GS position when released. Release the switch to stop the test. You will possibly have to do this step again to see all results of the test.

(d) For seconds 0-2, make sure that:

1) The display segments and indicators on the ISDU come on.

2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators on the left side of the MSU come on.

3) The MASTER CAUTION and IRS lights on the captain's glareshield come on.

(e) For seconds 2-10, make sure that:

1) The display segments and indicators on the ISDU are blank.

2) The FAULT, ON DC, and DC FAIL annunciators on the left side of the MSU go off.

3) The MASTER CAUTION and IRS lights on the captain's glareshield go off.

4) The HDG flag comes into view and the compass card goes out of view on the captain's Navigation Display (ND) and Primary Flight Display (PFD).

5) The HDG flag on the Standby Radio Magnetic Indicator (RMI) comes into view.

6) The ATT flag on the captain's PFD comes into view.

7) The VERT flag on the captain's PFD comes into view.

(f) For seconds 10 and on, make sure that:

1) The 5° pitch up shows on the captain's PFD.

2) The 45° roll right shows on the captain's PFD.

3) The 15° heading shows on the captain's PFD and ND.

4) The 15° heading shows on the RMI.

5) The -10° slip/skid indicator angle shows on the captain's primary display.

**NOTE:** The slip/skid indicator shows below the bank pointer on the PFD.

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- 6) The vertical speed of -600 feet/minute descending (down pitch) shows on the captain's PFD.
- (g) Set the IRS switch on the P5 overhead panel to BOTH ON R.
  - 1) Make sure that "—" shows in the HDG field on the ND or actual heading is shown if the system is fully aligned.
- (h) Release the DSPL SEL switch.
- (i) Set the IRS Transfer switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-710-001

(2) Do these steps to do the self-test of the right IR system:

- (a) Set the SYS DSPL switch on the ISDU to the R position.
- (b) Set and hold the DSPL SEL switch on the ISDU in the TEST position.

**NOTE:** The DSPL SEL switch is spring-loaded in the TEST position. It will return to the TK/GS position when released. Release the switch to stop the test. You will possibly have to do this step again to see all results of the test.

- (c) For seconds 0-2, make sure that:
  - 1) The display segments and indicators on the ISDU come on.
  - 2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators on the right side of the MSU come on.
  - 3) The MASTER CAUTION light on the first officer's glareshield comes on.
- (d) For seconds 2-10, make sure that:
  - 1) The display segments and indicators on the ISDU go off.
  - 2) The FAULT, ON DC, and DC FAIL annunciators on the right side of the MSU go off.
  - 3) The MASTER CAUTION light on the first officer's glareshield goes off.
  - 4) The HDG flag comes into view and the compass card goes out of view on the first officer's PFD and ND.
  - 5) The ATT flag on the first officer's PFD comes into view.
  - 6) The VERT flag on the first officer's PFD comes into view.
- (e) For seconds 10 and on, make sure that:
  - 1) The 5° pitch up shows on the first officer's PFD.
  - 2) The 45° roll right shows on the first officer's PFD.
  - 3) The 15° heading shows on the first officer's PFD and ND.
  - 4) The -10° slip/skid indicator angle shows on the first officer's PFD.
  - 5) The vertical speed of 600 feet/minute descending (down pitch) shows on the first officer's PFD.
- (f) Set the IRS switch on the P5 overhead panel to BOTH ON L.
  - 1) Make sure that "—" shows in the HDG field on the ND or actual heading is displayed if the system is fully aligned.
- (g) Release the DSPL SEL switch.
- (h) Set the IRS Transfer switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-710-002

(3) Do these steps to do the self-test of the left ADR system:

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- (a) Push the MACH AIRSPEED WARNING TEST NO. 1 switch on the the P5 aft overhead panel for a moment.
  - 1) Make sure the overspeed warning clacker comes on momentarily.
- (b) Push the MACH AIRSPEED WARNING TEST NO. 2 switch on the P5 aft overhead panel for a moment.
  - 1) Make sure the overspeed warning clacker comes on momentarily.
- (c) Set the left mode select switch on the MSU to the ALIGN position.
- (d) Set the left altimeter baro correction data to 29.92 inches of Hg.
- (e) Set the SYS DSPL switch on the ISDU to the L position.
- (f) Set and hold the DSPL SEL switch on the ISDU in the TEST position.
- (g) For the 0-2 seconds, make sure the overspeed warning clacker comes on for 2 seconds.
- (h) After 7 seconds, make sure that:
  - 1) The altitude of 10,000  $\pm$  40 feet shows on the captain's PFD.
  - 2) The true airspeed of 170  $\pm$  4 knots shows on the captain's ND.
  - 3) Total air temperature of 35.0  $\pm$  2°C shows on the engine display.
- (i) Release the DSPL SEL switch.

SUBTASK 34-21-00-710-003

- (4) Do these steps to do the the self-test of the right ADR system :

- (a) Push the MACH AIRSPEED WARNING TEST NO. 1 switch on the the P5 aft overhead panel for a moment.
  - 1) Make sure the overspeed warning clacker comes on momentarily.
- (b) Push the MACH AIRSPEED WARNING TEST NO. 2 switch on the P5 aft overhead panel for a moment.
  - 1) Make sure the overspeed warning clacker comes on momentarily.
- (c) Set the right mode select switch on the MSU to the ALIGN position.
- (d) Set the right altimeter baro correction data to 29.92 inches of Hg.
- (e) Set the SYS DSPL switch on the ISDU to the R position.
- (f) Set and hold the DSPL SEL switch on the ISDU in the TEST position.
- (g) For the 0-2 seconds, make sure the overspeed warning clacker comes on for 2 seconds.
- (h) After 7 seconds, make sure that:
  - 1) The altitude of 10,000  $\pm$  40 feet shows on the first officer's primary display.
  - 2) The mach indication on the first officer's primary display is blank.  
NOTE: The CDU will indicate .25 Mach.
  - 3) The true airspeed of 170  $\pm$  4 knots shows on the first officer's secondary display.
- (i) Release the DSPL SEL switch.

### F. Air Data Inertial Reference System - BITE Test

SUBTASK 34-21-00-860-012

- (1) Do these steps to access the ADIRS maintenance index on the CDU:

NOTE: CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys. Six keys are on each side of the display. 1L thru 6L are on the left side, and 1R thru 6R are on the right side.

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- (a) Push the INIT REF key.
  - 1) Make sure the CDU shows the PERF INIT page.
- (b) Push the LSK 6L adjacent to the INDEX > prompt on the CDU.
  - 1) Make sure the CDU shows the INIT REF INDEX 1/1 page.
- (c) Push the LSK 6R adjacent to the MAINT > prompt on the CDU.
  - 1) Make sure the CDU shows the MAINT BITE INDEX 1/1 page.
- (d) Push the LSK 4L adjacent to the < ADIRS prompt on the CDU.
  - 1) Make sure the CDU shows the ADIRS BITE INDEX page.

SUBTASK 34-21-00-710-004

- (2) Do these steps to access the left ADIRS current faults:
    - (a) Push the LSK 1L adjacent to the < ADIRS L prompt on the CDU.
      - 1) Make sure the CDU shows the ADIRS L BITE MAIN MENU page.
    - (b) Push the LSK 1L adjacent to the < CURRENT STATUS prompt on the CDU.
      - 1) Make sure the CDU shows the ADIRS L BITE CURRENT FAULTS page.
      - 2) Make sure the CDU shows the NO CURRENT STATUS message.
- NOTE:** If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedures to fix the fault FIM 34-21 TASK 801.

SUBTASK 34-21-00-710-005

- (3) Do these steps to access the right ADIRS current faults.
    - (a) Push the LSK 2L adjacent to the < ADIRS R prompt on the CDU from the ADIRS BITE 1/1 page.
      - 1) Make sure the CDU shows the ADIRS R BITE MAIN MENU page.
    - (b) Push the LSK 1L adjacent to the < CURRENT STATUS prompt on the CDU.
      - 1) Make sure the CDU shows the ADIRS R BITE CURRENT FAULTS page.
      - 2) Make sure the CDU shows the NO CURRENT FAULTS message.
- NOTE:** If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedure to fix the fault FIM 34-21 TASK 801.
- (c) Push the INIT REF key on the CDU two times.
    - 1) Make sure the CDU shows the MAIN BITE INDEX page.
  - (d) Push the LSK 6L adjacent to the INDEX prompt on the CDU.

SUBTASK 34-21-00-740-002

- (4) Do these steps to do a BITE ground test of the left and right IR system:

**NOTE:** You can do a separate ground test of the left ADIRS and the right ADIRS. The ADIRS L BITE MAIN MENU contains the ground test for the left ADIRS. The ADIRS R BITE MAIN MENU contains the ground test for the right ADIRS.

- (a) Make sure the air data inertial reference unit (ADIRU) is aligned to the NAV mode. To align it, 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
- (b) Push the LSK 3L adjacent to the < ADIRS-IR L + R GND TEST prompt on the CDU from the ADIRS BITE 1/1 page.
  - 1) Make sure the CDU shows the ADIRS-IR L + R BITE GROUND TEST 1/3 page.

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- (c) Push the LSK 5L adjacent to the <TEST START prompt on the CDU to start the IR ground test.

NOTE: After you start the test, you can push the LSK 5R adjacent to the TEST STOP > prompt on the CDU to stop the test.

- 1) For seconds 0-2, make sure that:
  - a) All the display segments and indicators on the ISDU come on.
  - b) The ALIGN, FAULT, ON DC, and DC FAIL annunciators on the MSU come on.
  - c) The MASTER CAUTION and IRS lights on the glareshield come on.
- 2) For seconds 2-10, make sure that:
  - a) All the display segments and indicators on the ISDU are blank.
  - b) The ALIGN, FAULT, ON DC, and DC FAIL annunciators on the MSU go off.
  - c) The HDG flag comes into view and the compass card goes out of view on the PFD.
  - d) The HDG flag on the Standby Radio Magnetic Indicator (RMI) comes into view.
  - e) The ATT flags on the PFD come into view.
  - f) The VERT flag on the captain's PFD comes into view.
  - g) The VERT flag on the first officer's PFD comes into view.
- 3) Push the NEXT PAGE key on the CDU to go to page 2/3 of this test.
- 4) For seconds 10 and on, make sure that:
  - a) The 5° pitch up angles show on the PFDs.
  - b) The 45° roll right angles on the PFDs.
  - c) The groundspeed of 200 knots shows on the ISDU display.
  - d) The latitude of N22°30.0' shows on the ISDU display.

NOTE: The CDU will indicate N22deg.50.
  - e) The longitude of E22°30.0' shows on the ISDU display.

NOTE: The CDU will indicate E22deg.50.
- 5) Push the LSK 5R adjacent to the <TEST STOP prompt on the CDU to stop the test.
- 6) Push the INIT REF key on the CDU to go out of the ADIRS BITE page.

SUBTASK 34-21-00-710-006

- (5) Do these steps to do a ground test for the left and right ADR system:
- (a) Push the LSK 4L adjacent to the <ADIRS-ADR L + R GND TEST prompt on the CDU from the ADIRS BITE 1/1 page.
    - 1) Make sure the CDU shows the ADIRS-ADR L + R BITE GROUND TEST 1/2 page.
  - (b) Push the LSK 5L adjacent to the <TEST START prompt on the CDU to start the ADR ground test.

NOTE: After you start the test, you can push the LSK 5R adjacent to the <TEST STOP prompt on the CDU to stop the test.
  - (c) For 0-2 seconds, make sure that:
    - 1) The overspeed warning and the flags on the PFDs come into view.
  - (d) For 0-7 seconds, make sure that:
    - 1) The ALT flag shows on the captain's PFD/ND.

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- 2) The ALT flag shows on the first officer's PFD.
  - 3) The total air temperature does not show on the engine display.
  - (e) For seconds 7 and on, make sure that:
    - 1) The altitude of 10000 feet shows on the captain's PFD/ND.
    - 2) The altitude of 10000 feet shows on the first officer's PFD.
    - 3) The true airspeed of 170 knots show on the PFD/ND.
  - (f) Push the LSK 5R adjacent to the < TEST STOP prompt on the CDU to stop the test.
  - (g) Push the MASTER CAUTION reset switch.
    - 1) Make sure the MASTER CAUTION and IRS lights on the captain's glareshield go off.
  - (h) Push the INIT REF key on the CDU to go out of the ADIRS BITE page.
- G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-00-860-013

- (1) Set the mode select switches on the MSU to the OFF position.

SUBTASK 34-21-00-860-050

- (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	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

————— END OF TASK —————

#### TASK 34-21-00-730-801

### 3. Inertial Reference - System Test

#### A. General

- (1) The system test contains these tests:
  - (a) The ON DC Operation and No Cooling Warning Test
  - (b) The MSU ALIGN and DC FAIL Annunciator and MCU DC FAIL Annunciator Test
  - (c) The Master Dim and Test
  - (d) The Five Minute Time Delay Check
  - (e) The ISDU/FMC digital and MCU fault discrete interface test.

#### B. References

<u>Reference</u>	<u>Title</u>
21-27-00-700-802	Equipment Cooling Fans - Operational Test (P/B 501)
23-43-00-710-801	Flight and Ground Crew Call System - Operational Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
31-62-00-710-801	Common Display System - Operational Test (P/B 501)
32-09-10-710-801	Proximity Switch Electronics Unit (PSEU) - Operational Test (P/B 501)
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)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

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#### 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. Prepare for the IR System Test

SUBTASK 34-21-00-860-015

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-00-860-067

(2) Make sure the equipment cooling system is operational (TASK 21-27-00-700-802).

SUBTASK 34-21-00-860-068

(3) Make sure the common display system (CDS) is operational (TASK 31-62-00-710-801).

SUBTASK 34-21-00-860-069

(4) Make sure the flight management computer system (FMCS) is operational (TASK 34-61-00-710-801).

SUBTASK 34-21-00-860-070

(5) Make sure the proximity switch electronics unit (PSEU) is operational (TASK 32-09-10-710-801).

SUBTASK 34-21-00-860-071

(6) Make sure the flight crew call system is operational (TASK 23-43-00-710-801).

SUBTASK 34-21-00-860-016

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-00-860-017

**WARNING:** FAILURE TO OPEN THE FLAP LOAD RELIEF CIRCUIT BREAKER MAY CAUSE INJURY TO PERSONNEL.

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

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SUBTASK 34-21-00-860-018

(9) Make sure the mode select switches on the MSU are in the OFF position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

SUBTASK 34-21-00-860-019

(10) Set the IRS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-020

(11) Set the VHF NAV switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-021

(12) Set the CDS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-022

(13) Set the EQUIPMENT COOLING switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-023

(14) Set the FMCS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-024

(15) Set the STBY PWR switch on the P5 overhead panel to the AUTO position.

E. ON DC Operation and No Cooling Warning Test

SUBTASK 34-21-00-860-025

(1) Do these steps to do a check of the ADIRU ON DC Operation.

(a) Set the mode select switches on the MSU to the ATT position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

- 1) Make sure the left ON DC light on the MSU comes on.
- 2) Make sure the MASTER CAUTION and the IRS lights on the glareshield come on.
- 3) After at least 25 seconds, make sure the crew call horn sounds.

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

- 1) Make sure the crew call horn stops.
- 2) Make sure the left ON DC light on the MSU goes off.

(d) Push the MASTER CAUTION button on the pilot's glareshield to turn off the MASTER CAUTION and the IRS lights.

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

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- 1) Make sure the right ON DC light on the MSU comes on.
  - 2) Make sure the MASTER CAUTION and the IRS lights on the captain's glareshield come on.
  - 3) After at least 25 seconds, make sure the crew call horn sounds.
- (f) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC

- 1) Make sure the crew call horn stops.
  - 2) Make sure the right ON DC light on the MSU goes off.
- (g) Push the MASTER CAUTION button on the captain's glareshield to turn off the MASTER CAUTION and the IRS lights.

SUBTASK 34-21-00-860-034

- (2) Do these steps to do a ADIRU No Cooling Warning Test:

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01435	EQUIPMENT COOLING EXHAUST FAN CONTROL NORMAL

- 1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel is on.
- 2) Within 60 seconds after the EQUIPMENT COOLING OFF light comes on, make sure the crew call horn sounds.

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01435	EQUIPMENT COOLING EXHAUST FAN CONTROL NORMAL

- 1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel goes off.
- 2) Make sure the crew call horn stops.

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	12	C01116	EQUIPMENT COOLING SUPPLY FAN CONTROL NORMAL

- 1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel is on.
- 2) Within 60 seconds after the EQUIPMENT COOLING OFF light comes on, make sure the crew call horn sounds.

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	12	C01116	EQUIPMENT COOLING SUPPLY FAN CONTROL NORMAL

- 1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel goes off.
- 2) Make sure the crew call horn stops.

(e) Set the mode select switches on the MSU to the OFF position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

F. DC FAIL and ALIGN Annunciators Test

SUBTASK 34-21-00-730-011

(1) Do these steps to do a DC FAIL and ALIGN Annunciators Test:

(a) Set the left mode select switch on the MSU to the ATT position.

- 1) Make sure the left ALIGN light on the MSU comes on for not more than 40 seconds.

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

CAPT Electrical System Panel, P18-1

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

- 1) Make sure the left DC FAIL light on the MSU comes on.
- 2) Make sure the MASTER CAUTION and IRS light on the pilot's glareshield come on.

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

CAPT Electrical System Panel, P18-1

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

- 1) Make sure the left DC FAIL light goes off.

(d) Push the MASTER CAUTION button on the pilot's glareshield to turn off the MASTER CAUTION and the IRS light.

(e) Set the left mode select switch on the MSU to the OFF position.

(f) Set the right mode select switch on the MSU to the ATT position.

- 1) Make sure the right ALIGN light on the MSU comes on for not more than 40 seconds.

(g) 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>
C	17	C01010	ADIRU RIGHT DC

- 1) Make sure the right DC FAIL light on the MSU comes on.
- 2) Make sure the MASTER CAUTION and IRS lights on the captain's glareshield come on.

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(h) 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>
C	17	C01010	ADIRU RIGHT DC

1) Make sure the right DC FAIL light goes off.

(i) Push the MASTER CAUTION button on the captain's glareshield to turn off the MASTER CAUTION and the IRS light.

(j) Set the mode select switch on the MSU to the OFF position.

#### G. Master Dim and Test

SUBTASK 34-21-00-860-039

(1) Do these steps to do a Master Dim and Test for the ADIRS:

(a) Align the left and right ADIRS in the ALIGN mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(b) Make sure the mode select switches on the MSU are in the ALIGN position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

(c) Set the DSPL SEL switch on the ISDU to the PPOS position.

(d) Turn the inner DSPL SEL switch (BRT) on the ISDU clockwise.

(e) Set and hold the DIM and TEST switch on the pilot's center instrument panel to the TEST position.

1) Make sure all of the lights on the ISDU come on bright.

2) Make sure all of the lights on the MSU come on bright.

(f) Release the DIM and TEST switch.

(g) Turn the inner DSPL SEL switch (BRT) on the ISDU counterclockwise.

(h) Set the DIM and TEST switch on the pilot's center instrument panel to the DIM position.

1) Make sure the ALIGN lights on the MSU are dim.

2) Push the lights on the MSU one at a time.

3) Make sure the lights come on dim one at a time.

(i) Set the DIM and TEST switch on the pilot's center instrument panel to the BRT position.

1) Make sure only the ALIGN lights on the MSU are on.

(j) Set the mode select switches on the MSU to the OFF position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

#### H. Five Minute Time Delay Check

SUBTASK 34-21-00-860-041

(1) Do these steps to do a Five Minute Time Delay Check:

(a) Set the mode select switches on the MSU to the ALIGN position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

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- (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>
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC

- 1) In less than 30 seconds, make sure the crew call horn sounds.

- (c) 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>
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

- 1) Make sure the crew call horn stops.
- 2) Set the STANDBY POWER switch on the P5 overhead panel to the BAT position.
- 3) Make sure the ALIGN lights on the MSU are on.
- 4) Make sure the DC lights on the MSU are on.
- 5) After approximately 5 seconds, make sure the MASTER CAUTION and IRS lights on the pilot's glareshield come on.
- 6) After 5 minutes, make sure that:
  - a) The ALIGN and ON DC lights on the right side of the MSU are off.
  - b) The ALIGN and ON DC lights on the left side of the MSU are on.

- (d) 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>
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC

F/O Electrical System Panel, P6-3

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

- (e) Push the MASTER CAUTION switch on the pilot's glareshield to turn off the MASTER CAUTION and the IRS lights.
- (f) Set the left and right mode select switches on the MSU to the OFF position.
- 1) Make sure the ALIGN lights go off.

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(g) 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>
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC

(h) Wait for approximately 2 seconds, then

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>
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC

(i) Set the STANDBY POWER switch on the P5 overhead panel to the AUTO position.

I. ISDU/FMC Digital and MCU Fault Discrete Interface Test

SUBTASK 34-21-00-860-045

(1) Do these steps to do a ISDU/FMC Digital and MCU Discrete Interface Test:

(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	15	C01239	FMCS MCDU 2

(b) Set the left and right mode select switches on the MSU to the NAV position.

(c) Set the SYS DSPL switch on the ISDU to the PPOS position.

1) Make sure the left and right ALIGN lights on the MSU are on.

(d) Set the SYS DSPL switch on the ISDU to the L position.

(e) Push the INIT REF key on the CDU 1.

1) Make sure the PERF INIT page shows on the CDU 1.

(f) Push the LSK 6L adjacent to the < INDEX prompt on the CDU.

1) Make sure the INIT/REF INDEX page shows on the CDU 1.

(g) Push the LSK 2L adjacent to the < POS prompt on the CDU.

1) Make sure the POS INIT 1/3 page shows on the CDU 1.

(h) Enter the latitude of N0000.0 and the longitude of E00000.0 on the CDU 1.

1) Make sure the latitude and longitude show on the scratch pad of the CDU 1.

(i) Push the LSK 4R adjacent to the POS > prompt on the CDU.

1) Make sure the latitude and longitude show on the line 9 of the CDU 1.

2) Wait until the left and right ALIGN lights on the MSU start flashing.

NOTE: This may take up to 10 minutes.

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- 3) Make sure the ENTER IRS POSITION shows on the CDU 1.
- 4) Make sure the latitude of N00°00.0' and the longitude of E000°00.0' show on the ISDU.
- (j) Set the SYS DSPL on the ISDU to the R position.
  - 1) Make sure the latitude of N00°00.0' and the longitude of E000°00.0' show on the ISDU.
- (k) Set the SYS DSPL on the ISDU to the L position.
- (l) Re-enter the latitude of N0000.0 and the longitude of E00000.0 on the CDU 1.
  - 1) Make sure the latitude and longitude show on the scratch pad of the CDU 1.
- (m) Push the LSK 4R adjacent to the POS > prompt on the CDU.
  - 1) Make sure the latitude and longitude show on the line 9 of the CDU 1.
  - 2) Make sure the left and right ALIGN lights on the MSU come on steadily.
  - 3) Make sure the left and right ALIGN lights start to flash when the alignment time reaches zero on the ISDU.
- (n) Enter the incorrect latitude of N00°00.0' on the ISDU.
- (o) Push the ENT key on the ISDU to send the latitude data.
- (p) Enter the correct longitude on the ISDU.

NOTE: The correct longitude is dependent on the location of the airplane.
- (q) Push the ENT key on the ISDU to send the longitude data.
  - 1) Make sure the left and right ALIGN and FAULT lights come on.
  - 2) Make sure the MASTER CAUTION and the IRS lights on the glareshield come on.
- (r) Enter the correct latitude on the ISDU.

NOTE: The correct latitude is dependent on the location of the airplane.
- (s) Push the ENT key on the ISDU to send the latitude data.
- (t) Enter the correct longitude on the ISDU.

NOTE: The correct longitude is dependent on the location of the airplane.
- (u) Push the ENT key on the ISDU to send the longitude data.
  - 1) Make sure the left and right FAULT lights go off.
- (v) Push the MASTER CAUTION switch on the glareshield to turn off the MASTER CAUTION and the IRS lights.
- (w) Set the DSPL SEL switch to the HDG/STS position.
  - 1) Make sure there is no fault code shown on the ISDU.
  - 2) Make sure the left ALIGN light on the MSU comes on steadily or goes off.
  - 3) Make sure the aircraft true heading shows on the ISDU when the ALIGN light on the MSU went off.
- (x) Set the SYS DSPL switch on the ISDU to the R position.
  - 1) Make sure there is no fault code shown on the ISDU.
  - 2) Make sure the right ALIGN light on the MSU comes on steadily or goes off.
  - 3) Make sure the aircraft true heading shows on the ISDU when the ALIGN light on the MSU went off.

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#### J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-00-860-051

- (1) Set the mode select switches on the MSU to the OFF position.

**NOTE:** Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

SUBTASK 34-21-00-860-072

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

SUBTASK 34-21-00-860-052

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

END OF TASK

#### TASK 34-21-00-730-802

#### 4. Air Data Reference - System Test

Figure 501

##### A. General

- (1) This task contains these tests:

#### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

- (a) ADM and standby altimeter/airspeed indicator test

#### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

- (b) ADM and integrated standby flight display test

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- (c) TAT probe and TAT probe heater test

#### HAP 031-054, 101-999

- (d) ALTERNATE VMO/MMO switch test

#### HAP ALL

##### B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### C. Tools/Equipment

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

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Reference	Description
COM-1562	Analyzer - Data Bus, ARINC 429 (Part #: 01-1404-00, Supplier: 41364, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 429EBP, Supplier: 41364, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 800-0630, Supplier: 1JSZ6, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER) (Part #: MODEL 429HBA, Supplier: 5J927, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: TYPE 030/026, Supplier: \$0494, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
SPL-3896	Box - Breakout, Multipurpose, 100/124 pin (Part #: C22005-22, Supplier: 81205, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C22005-1, Supplier: 81205, A/P Effectivity: 737-300, -400, -500, -600, -700, -700ER, -800)
SPL-3897	Assembly - Cable, Flight Control Computer and/or Digital Flight Control System Testing (Part #: C22005-25, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1336	Thermometer - Digital, 0-150 +/- 2 Degrees F, with a Probe, Thermocouple or Equivalent

**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

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### E. Prepare for the Air Data Reference System Test

SUBTASK 34-21-00-730-002

- (1) Examine each pitot-static probe before and after this test for damage to the circular leading edge of its barrel.

SUBTASK 34-21-00-730-003

- (2) Examine each pitot-static probe before and after this test for blockage in the drain or static ports.

SUBTASK 34-21-00-730-004

**CAUTION:** OBEY THESE PRECAUTIONS BEFORE YOU APPLY PRESSURE TO THE PITOT- STATIC SYSTEM. IF YOU DO NOT OBEY THESE PRECAUTIONS, DAMAGE TO THE EQUIPMENT AND INSTRUMENTS CAN OCCUR.

- (3) Obey these precautions before you apply pressure to the pitot-static system.
  - (a) Supply the electrical power for the ADIRS before you make the static or total pressure hook-ups.
  - (b) Keep power on until all pressure hook-up are opened.
  - (c) Pressure changes must be flow controlled to prevent sudden changes in pressure and possible damage to the air data hardware.
  - (d) Keep the static pressure in the range of 3.26 to 33.31 inches Hg.
  - (e) Do not permit the static pressure to be more than 28 inches Hg. from the ambient pressure.
  - (f) Keep the total pressure in the range of 3.26 to 41.34 inches Hg.
  - (g) When you adjust the pressure, make sure the rate of change of altitude is less than 5,000 feet per minute.
  - (h) When you adjust the pressure, make sure the rate of change of airspeed is less than 300 knots per minute.
  - (i) Keep the static line pressure less than the pitot line pressure.
  - (j) Make sure the difference between the static and pitot line pressure is not larger than 10 inches Hg.
  - (k) Make sure the autopilot system stays off during the test.

**CAUTION:** MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. THIS CAN CAUSE DAMAGE TO THE PITOT PROBE.

- (l) Make sure the pitot probe heaters stay off during the test.
- (m) Connect the captain's, F/O's, and alternate static systems together during the test.
- (n) Apply static pressure to all systems at the same time.
- (o) Connect the captain's, F/O's, and alternate pitot tubes together during the test.
- (p) Apply pitot pressure to all systems at the same time.

### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

#### F. ADM and Standby Altimeter/Airspeed Indicator Test

SUBTASK 34-21-00-730-007

- (1) Do these steps to do an ADM and Standby Altimeter/Airspeed Indicator Test:
  - (a) Disconnect and plug the static pressure line at the cabin differential pressure indicator.
  - (b) Turn the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter through the full range.

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HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR (Continued)

- (c) Set the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter to 29.92 inches of Hg.

HAP 001-013, 015-026, 028-030

WARNING: MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. THESE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE VICINITY TO EXECUTE UNNECESSARY EVASIVE MANEUVERS.

- (d) Set the ATC mode switch on the ATC control panel, P8-29, to the STBY position.
(e) Make sure that the AOA vanes are set to zero degrees +/-5, with respect to the AOA sensor Alignment Pin [3].

HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

- (f) Connect the air data model test set, COM-1914, to the airplane.
(g) Apply pressures as shown in the table below for all the test points.

NOTE: At each test value, permit the pressure to become stable for one minute.

All values must be in the limits shown.

Do not hit or shake the indicators before you read the values.

Read the indicators at the same time for each value.

Make sure the indicators move smoothly during pressure changes.

Table 501/34-21-00-993-801

Table with 5 columns: Test Point, Static Pressure in. Hg, Altitude feet, Pitot Pressure in. Hg, and Airspeed Knots. It contains 6 rows of test data.

- 1) Make sure all the outputs are within the limits specified in the table below.

NOTE: The altitude and airspeed values on primary flight deck indicators do not match the altitude and airspeed pressure from the test set. This is because the test set display does not use static source error correction.

HAP 001-013, 015-026, 028-030

- a) Use this table:

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HAP 001-013, 015-026, 028-030 (Continued)

Table 502/34-21-00-993-805

Test Point	Primary Altitude feet	Primary Airspeed knots	Standby Altimeter feet	Standby Airspeed Knots
1	-38 ± 15	85 ± 2	0 ± 30	90 ± 3.5
2	4,688 ± 25	238 ± 2	5,000 ± 70	250 ± 5
3	14,880 ± 25	123 ± 2	15,000 ± 110	130 ± 3.5
4	23,887 ± 50	325 ± 2	25,000 ± 160	340 ± 8
5	33,930 ± 60	267 ± 2	35,000 ± 210	279 ± 6
6	40,018 ± 70	222 ± 2	41,000 ± 235	233 ± 6

#### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

- 2) Make sure the differences between the captain's and first officer's primary altimeters and airspeed indicators are not larger than the values shown in the table below.

Table 503/34-21-00-993-807

Test Point	Altitude Input feet	Altimeters feet	Airspeed Input knots	Airspeed Indicators knots
1	0	< 30	90	< 4
2	5,000	< 50	250	< 4
3	15,000	< 50	130	< 4
4	25,000	< 100	340	< 4
5	35,000	< 120	280	< 4
6	41,000	< 140	233	< 4

- (h) Remove the pressure from the pitot static lines.
- (i) Disconnect the air data model test set, COM-1914.
- (j) Connect the cabin altitude differential pressure indicator to its static pressure source.

SUBTASK 34-21-00-210-001

- (2) Do a visual inspection of the quick-disconnect fittings that you connected.
  - (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

#### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

##### G. ADM and Integrated Standby Flight Display Test

SUBTASK 34-21-00-730-012

- (1) Do these steps to do an ADM and Integrated Standby Flight Display Test:
  - (a) Disconnect and plug the static pressure line at the cabin differential pressure indicator.
  - (b) Turn the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and integrated standby flight display through the full range.

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HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY (Continued)

- (c) Set the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and integrated standby flight display to 29.92 inches of Hg.
- (d) Set the ATC mode switch on the ATC control panel, P8-29, to the STBY position.

HAP 031-054, 101-999

- (e) Make sure that the AOA vanes are set to zero degrees +/-5, with respect to the AOA sensor Alignment Pin [3].

HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

- (f) Connect the air data model test set, COM-1914, to the airplane.
- (g) Apply pressures as shown in the table below for all the test points.

NOTE: At each test value, permit the pressure to become stable for one minute.

All values must be in the limits shown.

Do not hit or shake the indicators before you read the values.

Read the indicators at the same time for each value.

Make sure the indicators move smoothly during pressure changes.

Table 504/34-21-00-993-808

Test Point	Static Pressure in. Hg	Altitude feet	Pitot Pressure in. Hg	Airspeed Knots
1	29.921	0	30.311	90
2	24.896	5,000	27.996	250
3	16.886	15,000	17.703	130
4	11.104	25,000	17.013	340
5	7.041	35,000	10.963	280
6	5.286	41,000	7.95	233

HAP 101-999; ALL 737-700 AND NOT 737-700C

- 1) Make sure all the outputs are within the limits specified in the table below.
  - a) Use this table:

Table 505/34-21-00-993-810

Test Point	Primary Altitude feet	Primary Airspeed knots	Standby Altitude feet	Standby Airspeed Knots
1	-39 ± 15	85 ± 2	0 ± 30	90 ± 3.5
2	4,722 ± 25	240 ± 2	5,000 ± 70	250 ± 5
3	14,882 ± 25	124 ± 2	15,000 ± 110	130 ± 3.5
4	24,148 ± 50	328 ± 2	25,000 ± 160	340 ± 8
5	34,193 ± 60	270 ± 2	35,000 ± 210	279 ± 6
6	40,230 ± 70	224 ± 2	41,000 ± 235	233 ± 6

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HAP 101-999; ALL 737-700 AND NOT 737-700C (Continued)

HAP 031-054; 737-800

- 2) Make sure all the outputs are within the limits specified in the table below.  
Use this table:

Table 506/34-21-00-993-812

Test Point	Primary Altitude feet	Primary Airspeed knots	Standby Altitude feet	Standby Airspeed Knots
1	-38 ± 15	85 ± 2	0 ± 30	90 ± 3.5
2	4,688 ± 25	238 ± 2	5,000 ± 70	250 ± 5
3	14,880 ± 25	123 ± 2	15,000 ± 110	130 ± 3.5
4	23,887 ± 50	325 ± 2	25,000 ± 160	340 ± 8
5	33,930 ± 60	267 ± 2	35,000 ± 210	279 ± 6
6	40,018 ± 70	222 ± 2	41,000 ± 235	233 ± 6

HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

- 3) Make sure the differences between the captain's and first officer's primary altimeters and airspeed indicators are not larger than the values shown in the table below.

Table 507/34-21-00-993-814

Test Point	Altitude Input feet	Altimeters feet	Airspeed Input knots	Airspeed Indicators knots
1	0	< 30	90	< 4
2	5,000	< 50	250	< 4
3	15,000	< 50	130	< 4
4	25,000	< 100	340	< 4
5	35,000	< 120	280	< 4
6	41,000	< 140	233	< 4

- (h) Remove the pressure from the pitot static lines.
- (i) Disconnect the air data model test set, COM-1914.
- (j) Connect the cabin altitude differential pressure indicator to its static pressure source.

SUBTASK 34-21-00-210-002

- (2) Do a visual inspection of the quick-disconnect fittings that you connected.
  - (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

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H. TAT Probe and TAT Probe Heater Test

SUBTASK 34-21-00-860-048

- (1) Do these steps to do the TAT probe and TAT probe heater test:

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- (a) Make sure the air data model test set, COM-1914, test fixtures, adapters, and clamps were removed from the airplane external probes.
- (b) Use the 0-150 +/- 2 degrees F digital thermometer, STD-1336 to check the temperature of the TAT probe.
- (c) Wait until the temperature shown on the thermometer is steady, then record the TAT temperature value.
- (d) Record the TAT temperature shown on the engine display.
- (e) Make sure the TAT temperature on the engine display is within 2° of the thermometer temperature.
- (f) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	6	C00524	HEATERS AUX PITOT

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	16	C00570	PROBE INDICATION F/O
F	18	C00569	PROBE INDICATION CAPT

- (h) Set the PITOT STATIC HEAT A switch on the forward overhead panel, P5, to the ON position.
- (i) Set the PITOT STATIC HEAT A switch on the forward overhead panel, P5, to the OFF position.
- (j) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

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

#### HAP 001-013, 015-026, 028-030

- (k) Connect the analyzer, COM-1562 or analyzer, COM-1562 to the FCC-L test connector J3, pin 88 (HI) and pin 89 (LO) to read the left ADIRU output, ADR label 270.

NOTE: A box, SPL-3896 and cable, SPL-3897 can be used to connect the data bus analyzer and the flight control computer.

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HAP 001-013, 015-026, 028-030 (Continued)

#### HAP 031-054, 101-999

- (l) Connect the analyzer, COM-1562 or analyzer, COM-1562 to the FCC-L test connector J3, pin 51 (HI) and pin 52 (LO) to read the left ADIRU output, ADR label 270.

NOTE: A box, SPL-3896 and cable, SPL-3897 can be used to connect the data bus analyzer and the flight control computer.

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

CAPT Electrical System Panel, P18-1

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

- (n) Set the PITOT STATIC HEAT A switch on the forward overhead panel, P5, to the ON position.

- 1) Make sure the ADR Label 270 bits 16 is set to "1".
- 2) Make sure the ADR label 270 bits 14, 16, and 17 are set to "1".

- (o) Set the PITOT STATIC HEAT A switch on the forward overhead panel, P5, to the OFF position.

- 1) Make sure the ADR Label 270 bits 16 is set to "0".
- 2) Make sure the ADR label 270 bits 14, 16, and 17 are set to "0".

- (p) Disconnect the analyzer, COM-1562 or analyzer, COM-1562 from the FCC-L test connector J3.

NOTE: Disconnect the box, SPL-3896 and cable, SPL-3897 if you used them to connect the data bus analyzer and the flight control computer.

#### HAP 001-013, 015-026, 028-030

- (q) Connect the analyzer, COM-1562 or analyzer, COM-1562 to the FCC-R test connector J3, pin 88 (HI) and pin 89 (LO) to read the right ADIRU output, ADR label 270.

NOTE: A box, SPL-3896 and cable, SPL-3897 can be used to connect the data bus analyzer and the flight control computer.

#### HAP 031-054, 101-999

- (r) Connect the analyzer, COM-1562 or analyzer, COM-1562 to the FCC-R test connector J3, pin 51 (HI) and pin 52 (LO) to read the right ADIRU output, ADR label 270.

NOTE: A box, SPL-3896 and cable, SPL-3897 can be used to connect the data bus analyzer and the flight control computer.

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

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- (t) Set the PITOT STATIC HEAT B switch on the forward overhead panel, P5, to the ON position.
  - 1) Make sure the ADR label 270 bits 14, and 17 are set to "1".
- (u) Set the PITOT STATIC HEAT A switch on the forward overhead panel, P5, to the ON position.
  - 1) Make sure the ADR label 270 bits 16 is set to "1".
- (v) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

- (w) Set the PITOT STATIC HEAT B switch on the forward overhead panel, P5, to the OFF position.
  - 1) Make sure the ADR label 270 bits 14, and 17 are set to "0".
- (x) Set the PITOT STATIC HEAT A switch on the forward overhead panel, P5, to the OFF position.
  - 1) Make sure the ADR label 270 bits 16 is set to "0".
- (y) 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	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

#### HAP 031-054, 101-999

##### I. ALTERNATE VMO/MMO Switch Test

SUBTASK 34-21-00-860-074

- (1) Do these steps to do the ALTERNATE VMO/MMO switch test:
  - (a) Connect the analyzer, COM-1562 or analyzer, COM-1562 to the FCC-L test connector J3, pin 88 (HI) and pin 89 (LO) to read the left ADIRU output, ADR label 270.
  - (b) Make sure that the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, is set to the NORM position.
    - 1) Make sure the ADR label 270 bit 23 is set to "0".
  - (c) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the ALTN position.
    - 1) Make sure the ADR label 270 bit 23 is set to "1".

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HAP 031-054, 101-999 (Continued)

- (d) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the NORM position.
  - 1) Make sure the ADR label 270 bit 23 is set to "0".
- (e) Disconnect the analyzer, COM-1562 or analyzer, COM-1562 from the FCC-L test connector J3.
- (f) Connect the analyzer, COM-1562 or analyzer, COM-1562 to the FCC-R test connector J3, pin 88 (HI) and pin 89 (LO) to read the right ADIRU output, ADR label 270.
- (g) Make sure that the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, is set to the NORM position.
  - 1) Make sure the ADR label 270 bit 23 is set to "0".
- (h) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the ALTN position.
  - 1) Make sure the ADR label 270 bit 23 is set to "1".
- (i) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the NORM position.
  - 1) Make sure the ADR label 270 bit 23 is set to "0".

### HAP ALL

J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-00-730-009

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

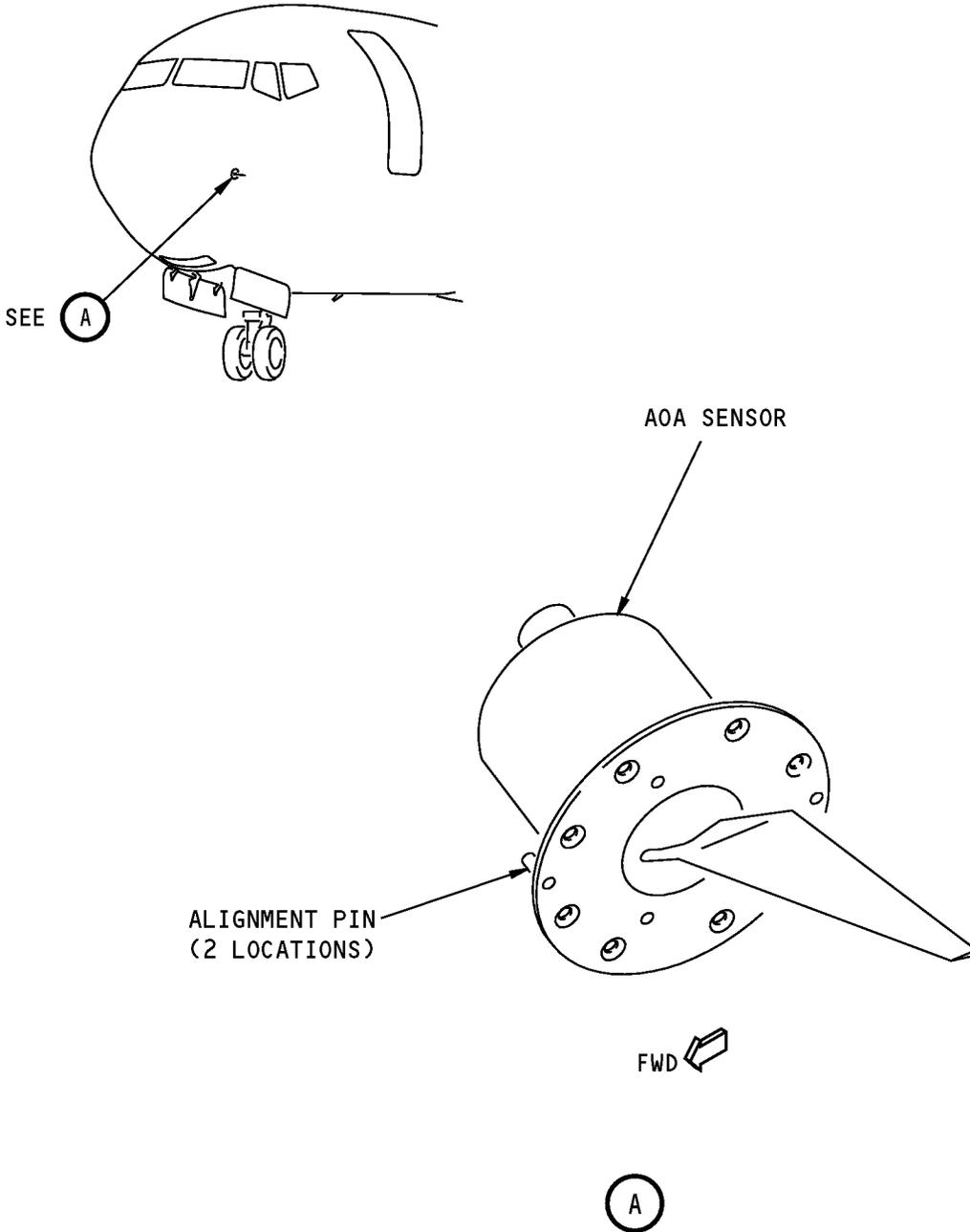
————— END OF TASK —————

EFFECTIVITY  
HAP ALL

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**NOTE:** LEFT AOA SENSOR IS SHOWN, RIGHT AOA SENSOR IS OPPOSITE.

**Angle of Attack (AOA) Alignment  
Figure 501/34-21-00-990-805**

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HAP ALL

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# AIRCRAFT MAINTENANCE MANUAL

## AIR DATA INERTIAL REFERENCE UNIT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the air data inertial reference unit (ADIRU)
- (2) An installation of the ADIRU.

B. Two ADIRUs are installed in the main equipment center. The left and right ADIRUs are installed on shelf No. 2 in the E5 electronic equipment rack.

#### **TASK 34-21-01-000-801**

### 2. Air Data Inertial Reference Unit Removal

(Figure 401)

A. General

- (1) This procedure gives instructions to remove the air data inertial reference unit (ADIRU).
- (2) The removal instructions are the same for the two ADIRUs.

B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-000-801	E/E Box Removal (P/B 201)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Removal Procedure

SUBTASK 34-21-01-860-001

- (1) Set the applicable mode select switch on the IRS mode select unit (MSU) to the OFF position.

SUBTASK 34-21-01-860-002

- (2) For the left ADIRU, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

- (3) For the right ADIRU, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

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

SUBTASK 34-21-01-010-001

(4) To get access to the main equipment center, open this access panel:

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

(TASK 06-41-00-800-801).

SUBTASK 34-21-01-020-001

**WARNING:** DO NOT REMOVE THE SHIMS FROM THE SHELF. SPECIAL EQUIPMENT AND BOEING AID IS NECESSARY TO ALIGN THE SHELF IF YOU REMOVE THE SHIMS. YOU CANNOT ALIGN THE SHELF IF YOU REMOVE THE SHIMS. IF YOU REMOVE THE SHIMS, THE AIR DATA WILL NOT BE ACCURATE, WHICH CAN CAUSE PROBLEMS WITH SAFETY OF FLIGHT.

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADIRU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADIRU.

**CAUTION:** REMOVAL OF THE ADIRU WILL DISABLE THE GROUND CREW CALL FUNCTION OF THE EQUIPMENT COOLING LOW FLOW DETECTION. THIS COOLING LOW FLOW CONDITION COULD CAUSE DAMAGE TO THE EQUIPMENT.

(5) Remove the ADIRU [1] from the shelf (TASK 20-10-07-000-801).

————— **END OF TASK** —————

EFFECTIVITY
HAP ALL

34-21-01

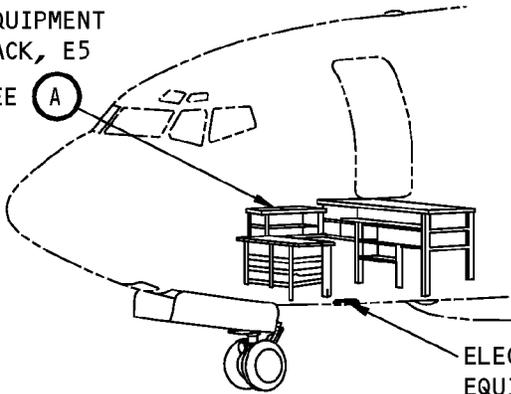
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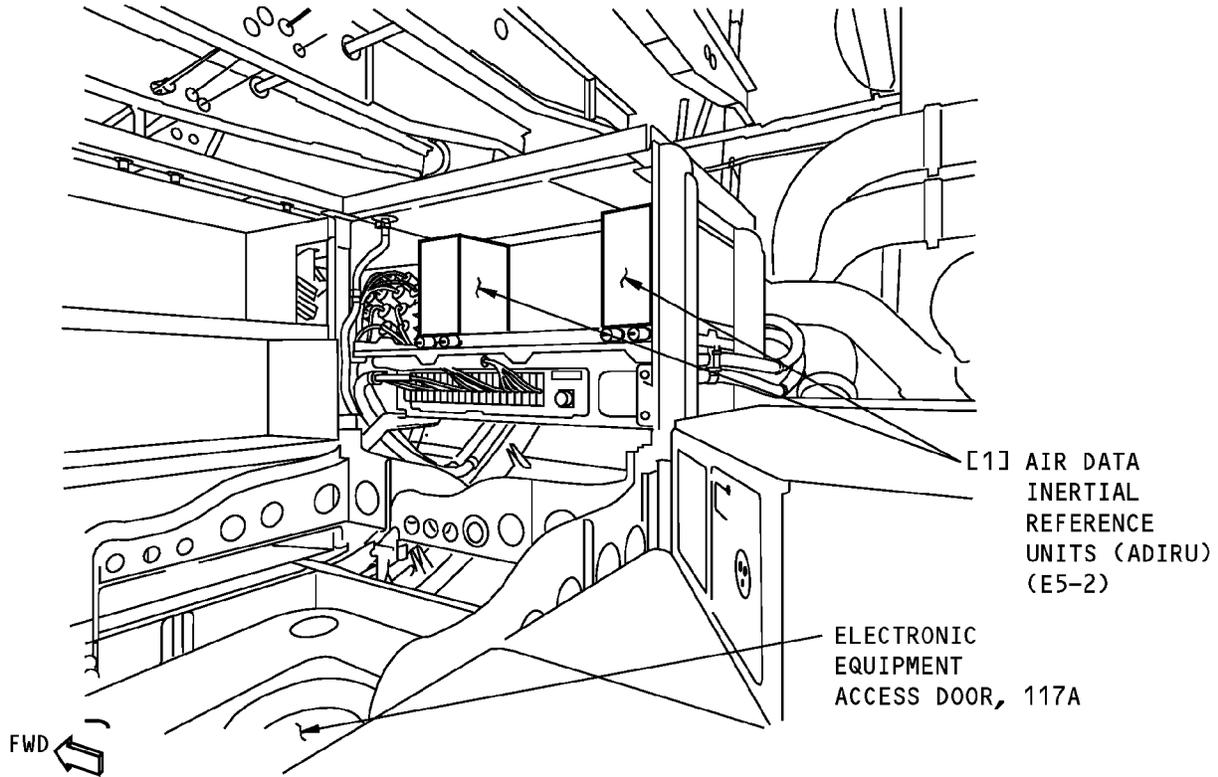
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ELECTRONIC  
EQUIPMENT  
RACK, E5

SEE (A)



ELECTRONIC  
EQUIPMENT  
ACCESS DOOR, 117A



[1] AIR DATA  
INERTIAL  
REFERENCE  
UNITS (ADIRU)  
(E5-2)

ELECTRONIC  
EQUIPMENT  
ACCESS DOOR, 117A

**ELECTRONIC EQUIPMENT RACK, E5**

(A)

**Air Data Inertial Reference Unit (ADIRU) Installation  
Figure 401/34-21-01-990-801**

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### AIRCRAFT MAINTENANCE MANUAL

#### TASK 34-21-01-400-801

#### 3. Air Data Inertial Reference Unit Installation

(Figure 401)

##### A. General

(1) This procedure gives instructions to install the ADIRU [1].

NOTE: The air data inertial reference unit is referred as the ADIRU in this task.

(2) The installation instructions are the same for the two ADIRUs.

(3) The installation test makes sure that the ADIRU [1] is installed correctly.

##### B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
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)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ADIRU	34-21-01-01-005	HAP ALL

##### D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

##### E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

##### F. Installation Procedure

SUBTASK 34-21-01-860-003

(1) Make sure the applicable mode select switch on the IRS MSU is in the OFF position.

SUBTASK 34-21-01-860-004

(2) For the left ADIRU, make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

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### AIRCRAFT MAINTENANCE MANUAL

(3) For the right ADIRU, make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-01-420-001

**WARNING:** DO NOT REMOVE THE SHIMS FROM THE SHELF. SPECIAL EQUIPMENT AND BOEING AID IS NECESSARY TO ALIGN THE SHELF IF YOU REMOVE THE SHIMS. YOU CANNOT ALIGN THE SHELF IF YOU REMOVE THE SHIMS. IF YOU REMOVE THE SHIMS, THE AIR DATA WILL NOT BE ACCURATE, WHICH CAN CAUSE PROBLEMS WITH SAFETY OF FLIGHT.

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADIRU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADIRU.

(4) Install the ADIRU [1] on the shelf (TASK 20-10-07-400-801).

SUBTASK 34-21-01-860-005

(5) For the left ADIRU, 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

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

(6) For the right ADIRU, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-01-410-001

(7) Close this access panel:

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

(TASK 06-41-00-800-801).

#### G. Installation Test

SUBTASK 34-21-01-860-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 34-21-01-741-001

(2) Do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801

SUBTASK 34-21-01-860-007

(3) For the applicable ADIRU, 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.

SUBTASK 34-21-01-860-008

(4) Set the applicable mode select switch on the IRS MSU to the OFF position.

SUBTASK 34-21-01-860-009

(5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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AIRCRAFT MAINTENANCE MANUAL

INERTIAL SYSTEM DISPLAY UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has two tasks:

- (1) A removal of the inertial system display unit (ISDU)
- (2) An installation of the ISDU.

B. The ISDU is installed on the P5 overhead panel in the flight compartment.

**TASK 34-21-02-000-801**

2. Inertial System Display Unit Removal

(Figure 401)

A. General

- (1) This procedure gives instructions to remove the ISDU [1].

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-21-02-860-001

- (1) Set the two mode select switches on the IRS mode select unit (MSU) to the OFF position.

SUBTASK 34-21-02-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-02-020-001

- (3) Do these steps to remove the ISDU [1]:

- (a) Release the quarter-turn fasteners [2] on the front of the ISDU [1].

**CAUTION:** CAREFULLY REMOVE THE ISDU FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLES ON THE REAR OF THE ISDU.

- (b) Carefully lower the ISDU [1] until you can get access to the electrical connectors [3].

- (c) Disconnect the electrical connectors [3] from the rear of the ISDU [1].

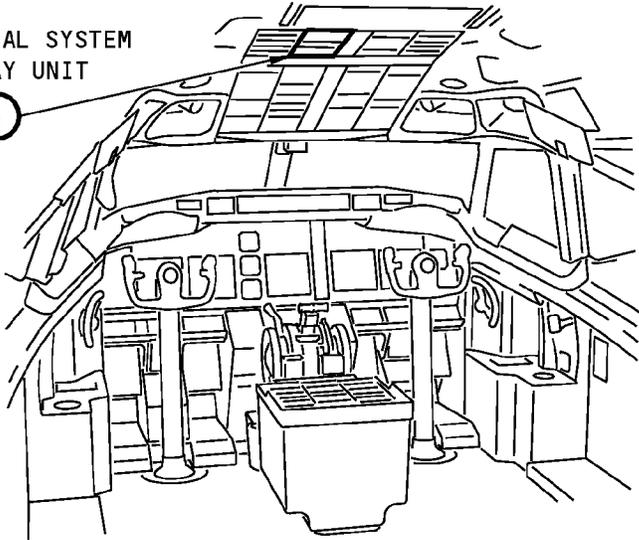
————— **END OF TASK** —————

EFFECTIVITY HAP ALL	
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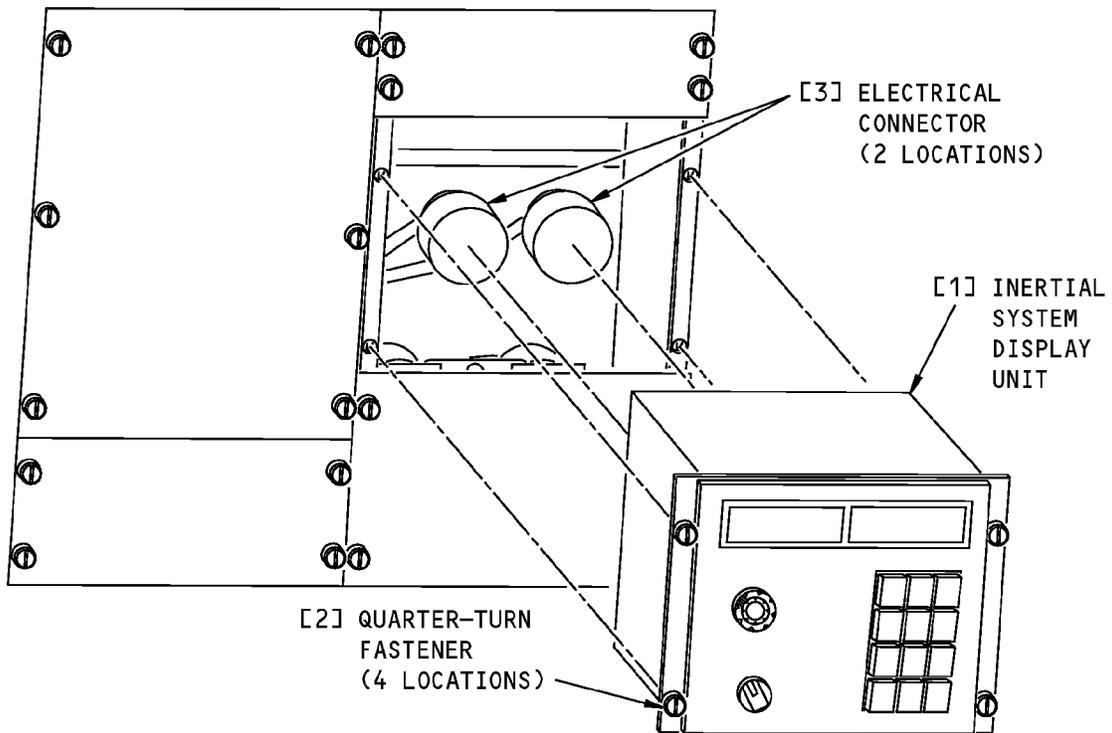
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**AIRCRAFT MAINTENANCE MANUAL**

INERTIAL SYSTEM  
DISPLAY UNIT  
SEE (A)



**FLIGHT COMPARTMENT**



**INERTIAL SYSTEM DISPLAY UNIT**

(A)

**Inertial System Display Unit Installation**  
**Figure 401/34-21-02-990-801**

EFFECTIVITY  
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#### TASK 34-21-02-400-801

#### 3. Inertial System Display Unit Installation

(Figure 401)

##### A. General

(1) This procedure gives instructions to install the ISDU [1].

##### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ISDU	31-11-95-14-035	HAP 031-036, 038
		31-11-95-32-035	HAP 101-999
		31-11-95-49L-035	HAP 029, 030
		31-11-95-64A-030	HAP 001-013, 015-026, 028
		34-21-02-01-050	HAP 001-013, 015-026, 028
		34-21-02-02-020	HAP 029-054, 101-999

##### D. Location Zones

Zone	Area
211	Flight Compartment - Left

##### E. Installation Procedure

SUBTASK 34-21-02-860-003

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-02-420-001

(2) Do these steps to install the ISDU [1]:

- (a) Connect the electrical connectors [3] to the ISDU [1].
- (b) Carefully install the ISDU [1] into the P5 panel.

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(c) Lock the quarter-turn fasteners [2] on the front of the ISDU [1].

SUBTASK 34-21-02-860-004

(3) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

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

F/O Electrical System Panel, P6-1

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

### F. Installation test

SUBTASK 34-21-02-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-02-860-006

(2) Set the two mode select switches on the IRS MSU to the NAV position.

SUBTASK 34-21-02-710-001

(3) Do a test of the ISDU as follows:

- Set the SYS DSPL switch on the ISDU [1] to the L position.
- Hold the DSPL SEL switch on the ISDU [1] in the TEST position.
- Make sure all the annunciators on the left side of the IRS MSU come on for approximately two seconds.
- Release the DSPL SEL switch.
- Set the SYS DSPL switch on the ISDU [1] to the R position.
- Hold the DSPL SEL switch on the ISDU [1] in the TEST position.
- Make sure all the annunciators on the right side of the IRS MSU come on for approximately two seconds.
- Release the DSPL SEL switch.

### G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-02-860-007

(1) Set the two mode select switches on the IRS MSU to the OFF position.

SUBTASK 34-21-02-860-008

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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AIRCRAFT MAINTENANCE MANUAL

IRS MODE SELECT UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
(1) A removal of the IRS mode select unit (MSU)
(2) An installation of the IRS MSU.
B. The IRS MSU is installed on the P5-69 aft overhead panel in the flight compartment.
C. Each mode select switch has a mechanically locked position. The mechanically locked positions prevent accidental movement of the switch. When you change the switch position, you need to pull the switch away from the unit and set the switch to the different position. This will prevent damage to the switch.

TASK 34-21-03-000-801

2. IRS Mode Select Unit Removal

(Figure 401)

A. General

- (1) This procedure gives instructions to remove the IRS MSU [2].

B. Location Zones

Table with 2 columns: Zone, Area. Row 1: 211, Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-21-03-860-001

- (1) Set the two mode select switches on the IRS MSU [2] to the OFF position.

SUBTASK 34-21-03-860-002

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

F/O Electrical System Panel, P6-3

Table with 4 columns: Row, Col, Number, Name. Row 1: D, 11, C00133, INDICATOR MASTER DIM DIM/TST CONT

SUBTASK 34-21-03-020-001

- (3) Do these steps to remove the IRS MSU [2]:

- (a) Release the quarter-turn fasteners [3] on the front of the IRS MSU [2].

CAUTION: CAREFULLY REMOVE THE IRS MSU FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AT THE REAR OF THE IRS MSU.

- (b) Carefully lower the IRS MSU [2] until you can get access to the electrical connector [1].

- (c) Disconnect the electrical connector [1] from the rear of the IRS MSU [2].

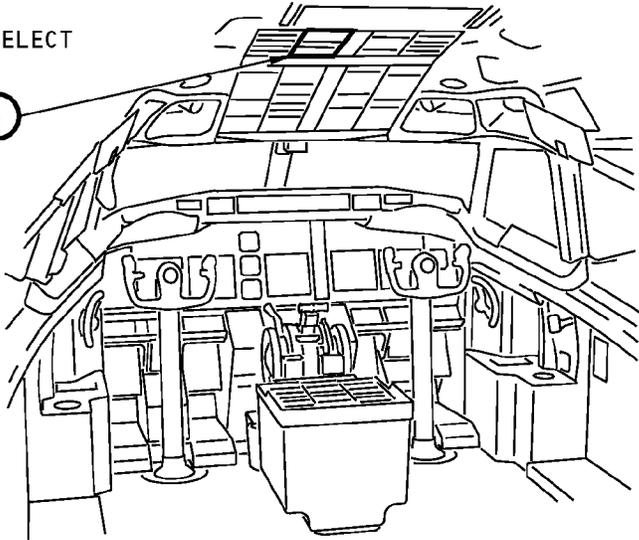
END OF TASK

EFFECTIVITY HAP ALL

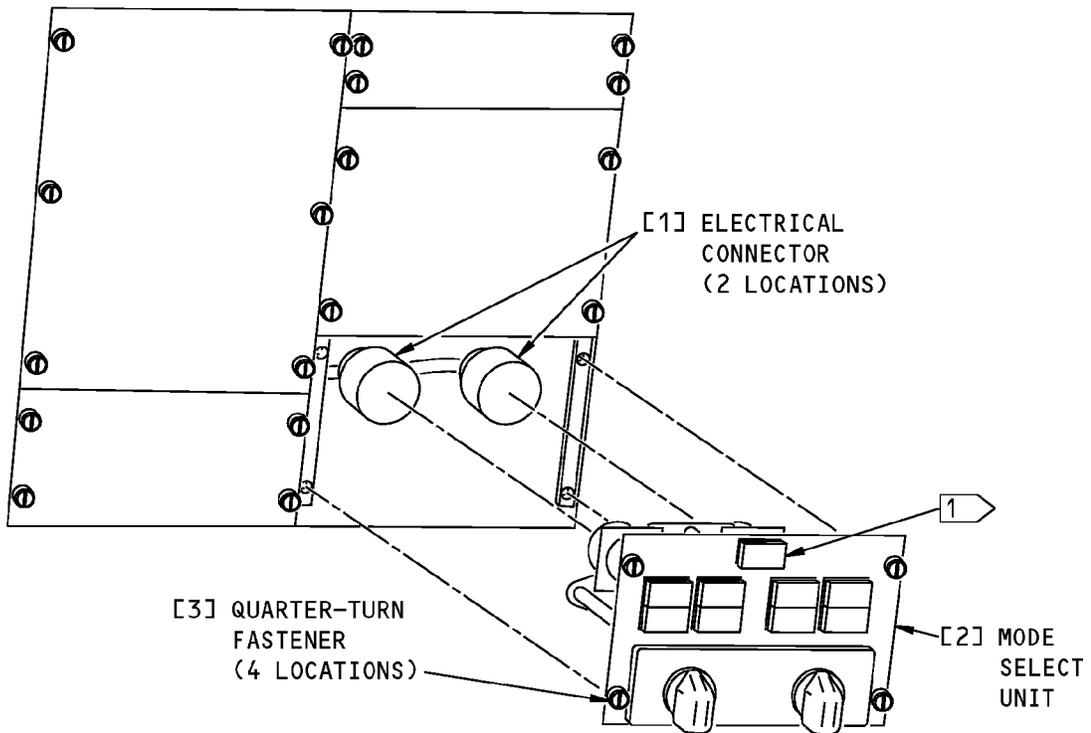
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**AIRCRAFT MAINTENANCE MANUAL**

MODE SELECT  
PANEL  
SEE (A)



**FLIGHT COMPARTMENT**



**MODE SELECT UNIT**

1 MSUs WITH GPS SWITCH

(A)

**Mode Select Unit (MSU) Installation**  
**Figure 401/34-21-03-990-801**

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HAP ALL

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#### TASK 34-21-03-400-801

#### 3. IRS Mode Select Unit Installation

(Figure 401)

##### A. General

- (1) This procedure gives instructions to install the IRS MSU [2].
- (2) The installation test makes sure the IRS MSU [2] is installed correctly.

##### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	MSU	34-26-00-01-050	HAP 001-013, 015-026, 028
		34-26-51-01-020	HAP 029-036
		34-26-51-01-150	HAP 037-054, 101-999
		34-26-51-01-310	HAP 037-054, 101-999

##### D. Location Zones

Zone	Area
211	Flight Compartment - Left

##### E. Installation Procedure

SUBTASK 34-21-03-860-003

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

SUBTASK 34-21-03-420-001

- (2) Do these steps to install the IRS MSU [2]:
  - (a) Connect the electrical connector [1] to the IRS MSU [2].
  - (b) Carefully install the IRS MSU [2] into the P5-69, aft overhead panel.
  - (c) Lock the quarter-turn fasteners [3] on the front of the IRS MSU [2].

SUBTASK 34-21-03-860-004

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

##### F. Installation Test

SUBTASK 34-21-03-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 34-21-03-860-006

(2) Set the two mode select switches on the IRS MSU [2] to the NAV position.

SUBTASK 34-21-03-750-001

(3) Make sure the two ON DC annunciators on the IRS MSU [2] come on for approximately 5 seconds.

SUBTASK 34-21-03-750-002

(4) Make sure the two ALIGN annunciators on the IRS MSU [2] come on after the two ON DC annunciators go off.

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 34-21-03-860-007

(1) Set the two mode select switches on the IRS MSU [2] to the OFF position.

SUBTASK 34-21-03-860-008

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**END OF TASK**

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**AIR DATA MODULE - REMOVAL/INSTALLATION**

**1. General**

A. This procedure has these tasks:

- (1) A removal of the pitot air data module (ADM)
- (2) A removal of the static ADM
- (3) An installation of the pitot ADM
- (4) An installation of the static ADM.

**TASK 34-21-04-000-801**

**2. Pitot Air Data Module Removal**

(Figure 401)

A. General

- (1) This procedure gives instructions to remove the pitot ADM [4]. The two pitot ADMs [4] are located in the forward equipment compartment at STA 200, WL 180. They are accessed thru the forward equipment access door.
- (2) The removal instructions are the same for the two pitot ADMs [4].

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Removal Procedure

SUBTASK 34-21-04-860-001

- (1) For the left ADM [4], 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

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

- (2) For the right ADM [4], open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-04-020-001

- (3) Do these steps to remove the pitot ADM [4]:

- (a) Disconnect the pneumatic connector [3] from the ADM [4].
- (b) Put a protective cover on the pneumatic connector [3] of the ADM [4].
- (c) While you hold the ADM [4], loosen the captive screws [1] at each corner of the ADM [4].
- (d) Disconnect the electrical connector [2] from the ADM [4].

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- (e) Put a protective cover on the electrical connector [2] of the ADM [4].
- (f) Remove the ADM [4].

————— **END OF TASK** —————

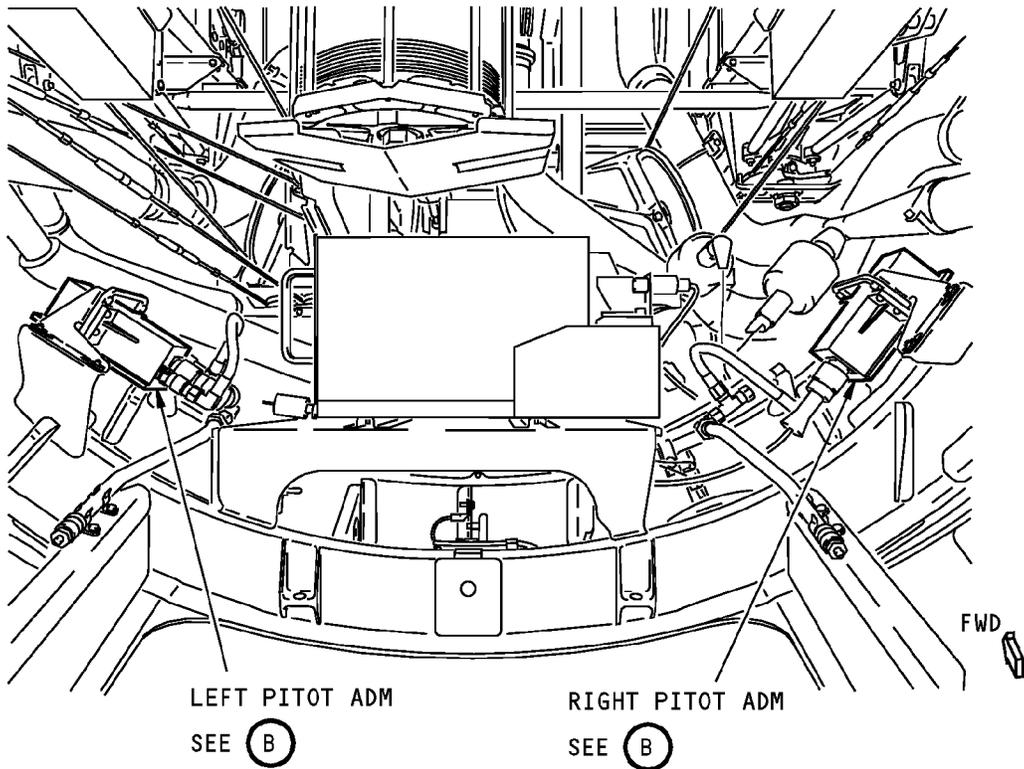
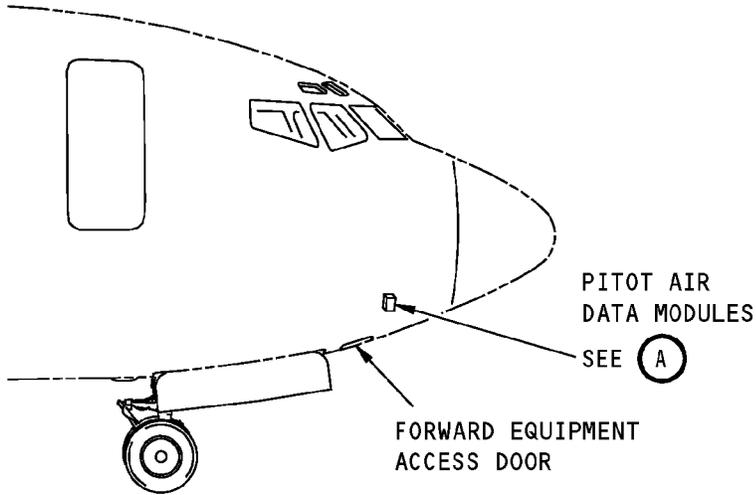
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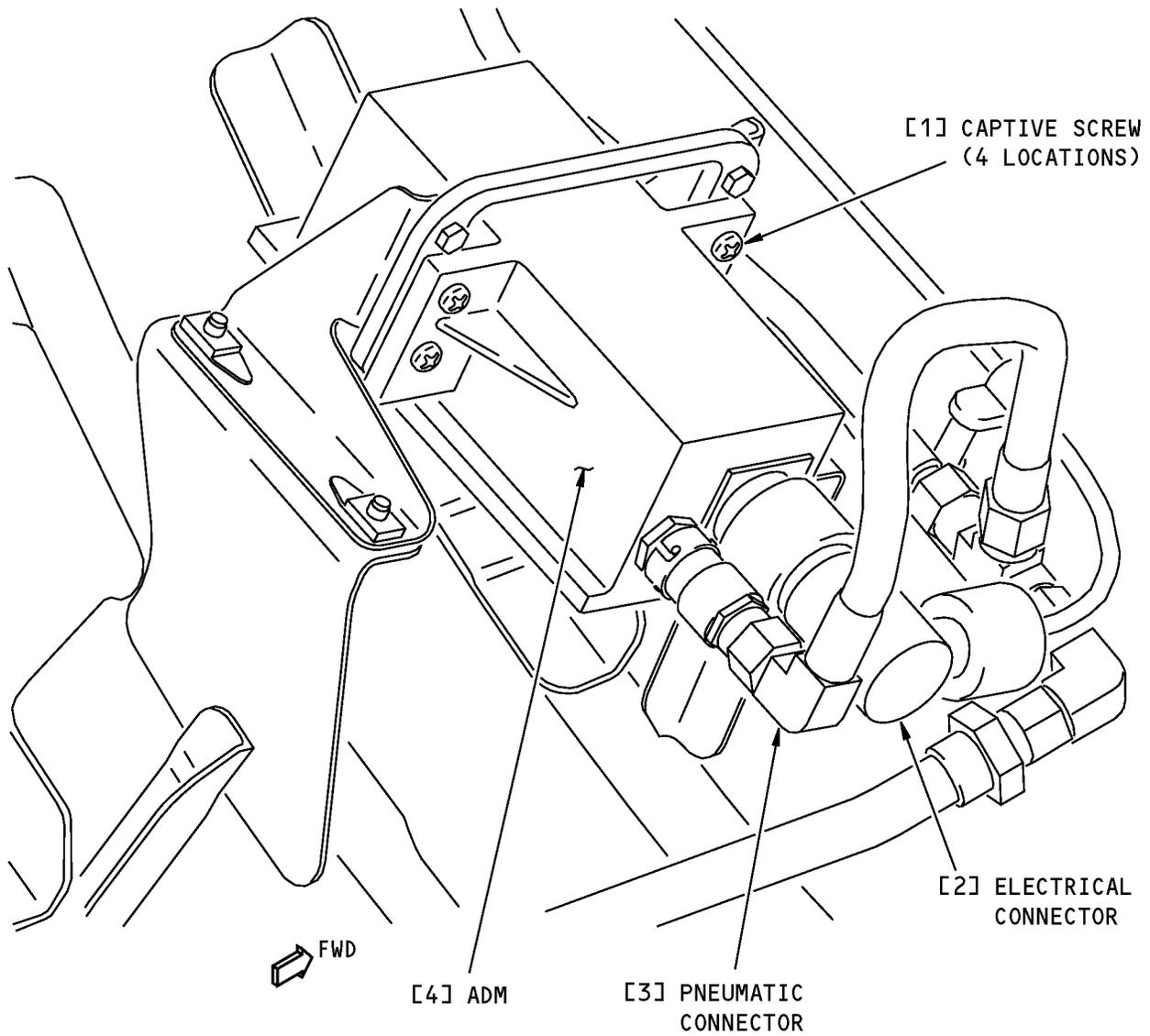
**FORWARD EQUIPMENT COMPARTMENT**

(A)

**Pitot Air Data Module (ADM) Installation  
Figure 401 (Sheet 1 of 2)/34-21-04-990-801**

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**PITOT AIR DATA MODULE (ADM)  
(EXAMPLE)**

**B**

**Pitot Air Data Module (ADM) Installation  
Figure 401 (Sheet 2 of 2)/34-21-04-990-801**

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## TASK 34-21-04-000-802

### 3. Static Air Data Module Removal

(Figure 402)

#### A. General

- (1) This procedure gives instructions to remove the static ADM [3]. The two static ADMs [3] are located in the forward cargo compartment at STA 405 and STA 435, WL 206, BL 0. They are accessed thru the forward cargo door.
- (2) The removal instructions are the same for the two static ADMs [3].

#### B. References

Reference	Title
25-52-09-000-801	Cargo Compartment Ceiling Liner Removal (P/B 401)

#### C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

#### D. Removal Procedure

SUBTASK 34-21-04-860-002

- (1) For the left ADM [3], open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

- (2) For the right ADM [3], open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-04-010-001

- (3) To remove the ceiling liner for the applicable static ADM [3] in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner Removal, TASK 25-52-09-000-801.

SUBTASK 34-21-04-020-002

- (4) Do these steps to remove the static ADM [3]:
  - (a) Disconnect the pneumatic connector [4] from the ADM [3].
  - (b) Put a protective cover on the pneumatic connector [4] of the ADM [3].
  - (c) While you hold the ADM [3], loosen the captive screws [2] at each corner of the ADM [3].
  - (d) Disconnect the electrical connector [1] from the ADM [3].

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- (e) Put a protective cover on the electrical connector [1] of the ADM [3].
- (f) Remove the ADM [3].

————— **END OF TASK** —————

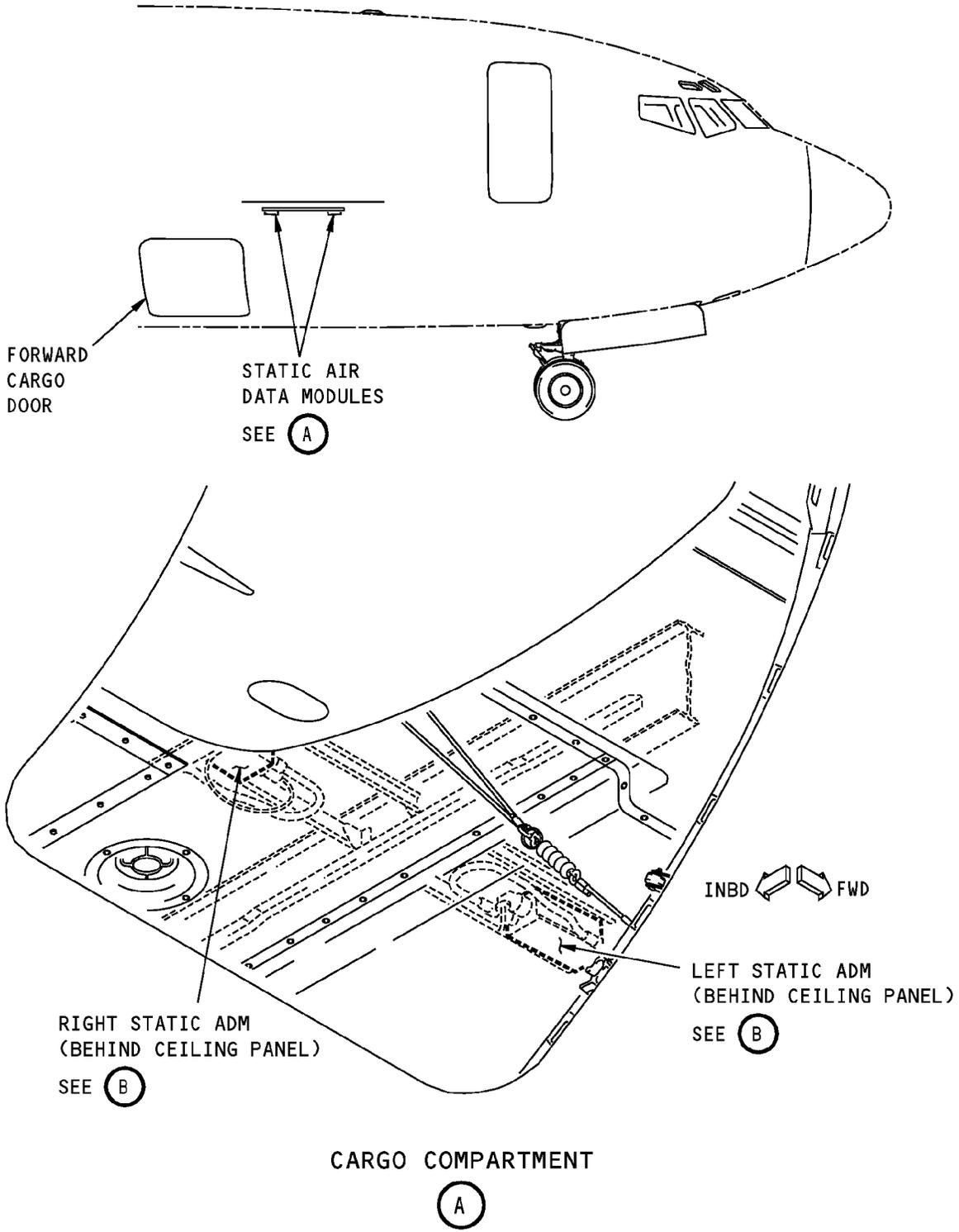
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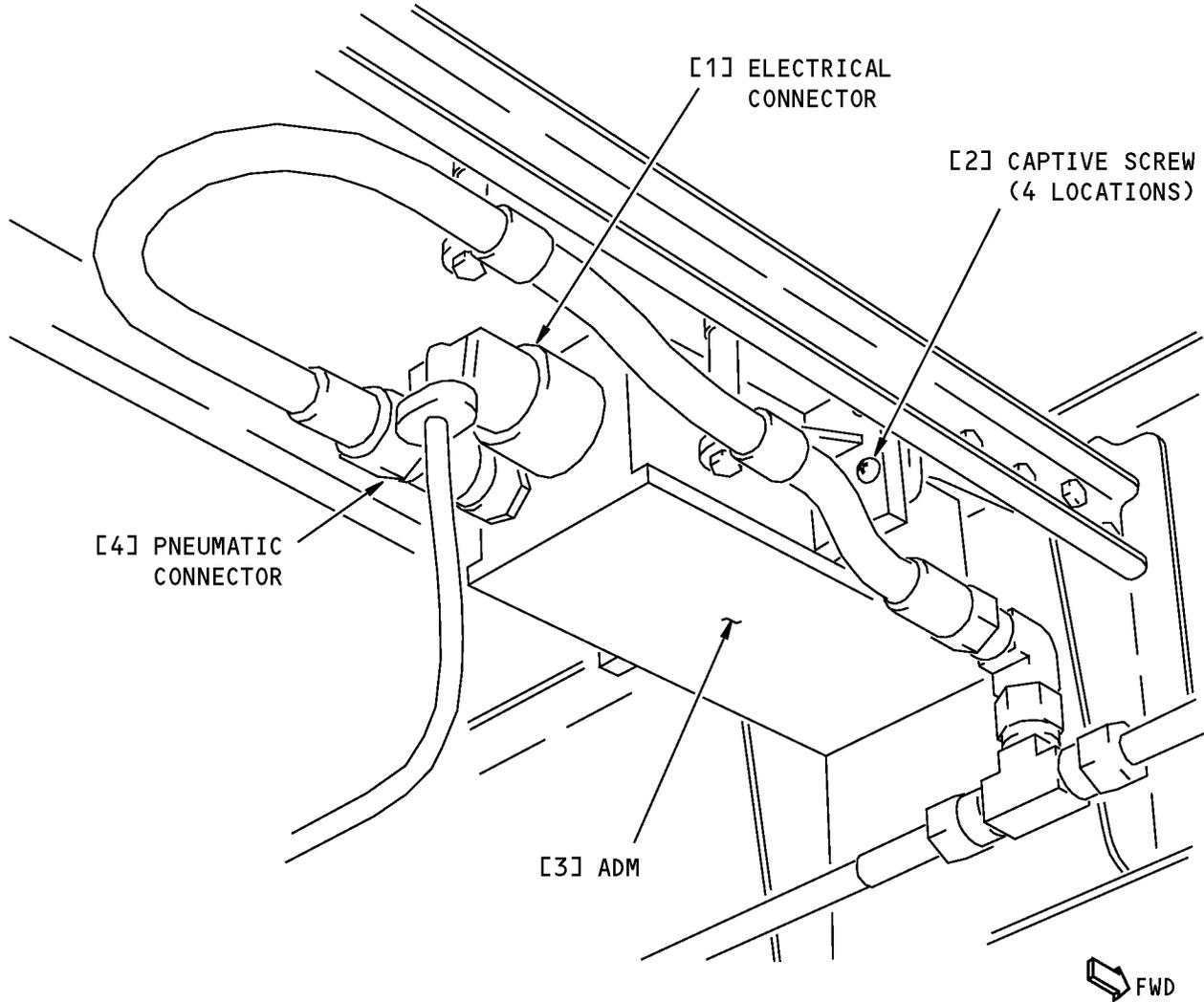


**Static Air Data Module (ADM) Installation  
Figure 402 (Sheet 1 of 2)/34-21-04-990-802**

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**STATIC AIR DATA MODULE (ADM)  
(EXAMPLE)**

**B**

**Static Air Data Module (ADM) Installation  
Figure 402 (Sheet 2 of 2)/34-21-04-990-802**

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## TASK 34-21-04-400-801

### 4. Pitot Air Data Module Installation

(Figure 401)

#### A. General

- (1) This procedure gives instructions to install the pitot ADM [4]. The two pitot ADMs [4] are located in the forward equipment compartment at STA 200, WL 180. They are accessed thru the forward equipment access door.
- (2) The installation instructions are the same for the two pitot ADMs [4].

#### B. References

Reference	Title
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
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)

#### C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

#### D. Installation Procedure

SUBTASK 34-21-04-860-003

- (1) For the left ADM [4], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

- (2) For the right ADM [4], make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-04-420-001

- (3) Do these steps to install the pitot ADM [4]:
  - (a) Remove the protective cover from the electrical connector [2] of the ADM [4].
  - (b) Examine the electrical connector [2] for loose, bent or broken pins.
  - (c) Connect the electrical connector [2] to the ADM [4].
  - (d) Put the ADM [4] into position on the airplane.

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- (e) Tighten the captive screws [1] at each corner of the ADM [4] to 15-25 inch-pounds (1.7-2.8 newton-meters).
- (f) Remove the protective cover from the pneumatic connector [3] of the ADM [4].
- (g) Connect the pneumatic connector [3] to the ADM [4].

SUBTASK 34-21-04-210-001

- (4) Do a visual inspection of the quick-disconnect fittings that you connected.
  - (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-21-04-860-004

- (5) For the left ADM [4], 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

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

- (6) For the right ADM [4], remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

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

#### E. Installation Test

SUBTASK 34-21-04-860-005

- (1) To do the ADIRS alignment, do this task: (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

SUBTASK 34-21-04-740-001

- (2) To do the BITE CURRENT STATUS check, do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801.
  - (a) Make sure the NO CURRENT FAULT message shows on the CDU.

————— END OF TASK —————

#### TASK 34-21-04-400-802

#### 5. Static Air Data Module Installation

(Figure 402)

##### A. General

- (1) This procedure gives instructions to install the static ADM [3]. The two static ADMs [3] are located in the forward cargo compartment at STA 405 and STA 435, WL 206, BL 0. They are accessed thru the forward cargo door.
- (2) The installation instructions are the same for the two static ADMs [3].

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#### B. References

Reference	Title
25-52-09-400-801	Cargo Compartment Ceiling Liner - Installation (P/B 401)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
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)

#### C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

#### D. Installation Procedure

SUBTASK 34-21-04-860-006

- (1) For the left ADM [3], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

- (2) For the right ADM [3], make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-1

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

SUBTASK 34-21-04-420-002

- (3) Do these steps to install the static ADM [3]:
- Remove the protective cover from the electrical connector [1] of the ADM [3].
  - Examine the electrical connector [1] for loose, bent or broken pins.
  - Connect the electrical connector [1] to the ADM [3].
  - Put the ADM [3] into position on the airplane.
  - Tighten the captive screws [2] at each corner of the ADM [3] to 15-25 inch-pounds (1.7-2.8 newton-meters).
  - Remove the protective cover from the pneumatic connector [4] of the ADM [3].
  - Connect the pneumatic connector [4] to the ADM [3].

SUBTASK 34-21-04-210-002

- (4) Do a visual inspection of the quick-disconnect fittings that you connected.

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- (a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-21-04-410-001

- (5) To install the ceiling liner for the applicable static ADM [3] in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner - Installation, TASK 25-52-09-400-801.

SUBTASK 34-21-04-860-007

- (6) For the left ADM [3], 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

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

- (7) For the right ADM [3], remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

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

E. Installation Test

SUBTASK 34-21-04-860-008

- (1) To do the ADIRS alignment, do this task: (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

SUBTASK 34-21-04-740-002

- (2) To do the BITE CURRENT STATUS check, do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801.

- (a) Make sure the NO CURRENT FAULT message shows on the CDU.

————— END OF TASK —————

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## ANGLE OF ATTACK SENSOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the Angle of Attack (AOA) sensor
- (2) An installation of the AOA sensor.

B. Two AOA sensors are installed on the airplane. The left and right AOA sensors are mounted on the left and right sides respectively, outboard and above the nose landing gear wheel well.

#### **TASK 34-21-05-000-801**

### 2. Angle of Attack Sensor Removal

(Figure 401)

A. General

- (1) This procedure gives instructions to remove the AOA SENSOR [1].
- (2) The removal instructions are the same for the two AOA SENSORS [1].

B. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

C. Location Zones

Zone	Area
115	Nose Landing Gear Wheel Well - Left
116	Nose Landing Gear Wheel Well - Right

D. Removal Procedure

SUBTASK 34-21-05-860-001

(1) For the left AOA sensor [1], open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

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(2) For the right AOA sensor [1], open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

SUBTASK 34-21-05-020-001

(3) Do these steps to remove the AOA SENSOR [1]:

- (a) Use a sealant removal tool, COM-2481 to remove the sealant from around the AOA SENSOR [1].
- (b) Remove the screws [2] from the AOA SENSOR [1].

**WARNING:** MAKE SURE THAT THE AOA SENSOR HEAT IS OFF. INJURY TO PERSONS CAN OCCUR.

**CAUTION:** DO NOT PULL THE AOA SENSOR AWAY FROM THE FUSELAGE WITH TOO MUCH FORCE. TOO MUCH FORCE ON THE AOA SENSOR CAN CAUSE DAMAGE TO THE AOA SENSOR, THE ELECTRICAL CONNECTORS [1], OR THE AIRPLANE SKIN.

- (c) Carefully pull the AOA SENSOR [1] out until you can get to the electrical connectors [5].
- (d) Disconnect the electrical connectors [5] from the AOA SENSOR [1].
- (e) Temporarily attach the electrical connectors [5] to make sure that they cannot fall into the fuselage.
- (f) Install protective caps on the electrical connectors [5].
- (g) Remove the gasket [4] and discard it.

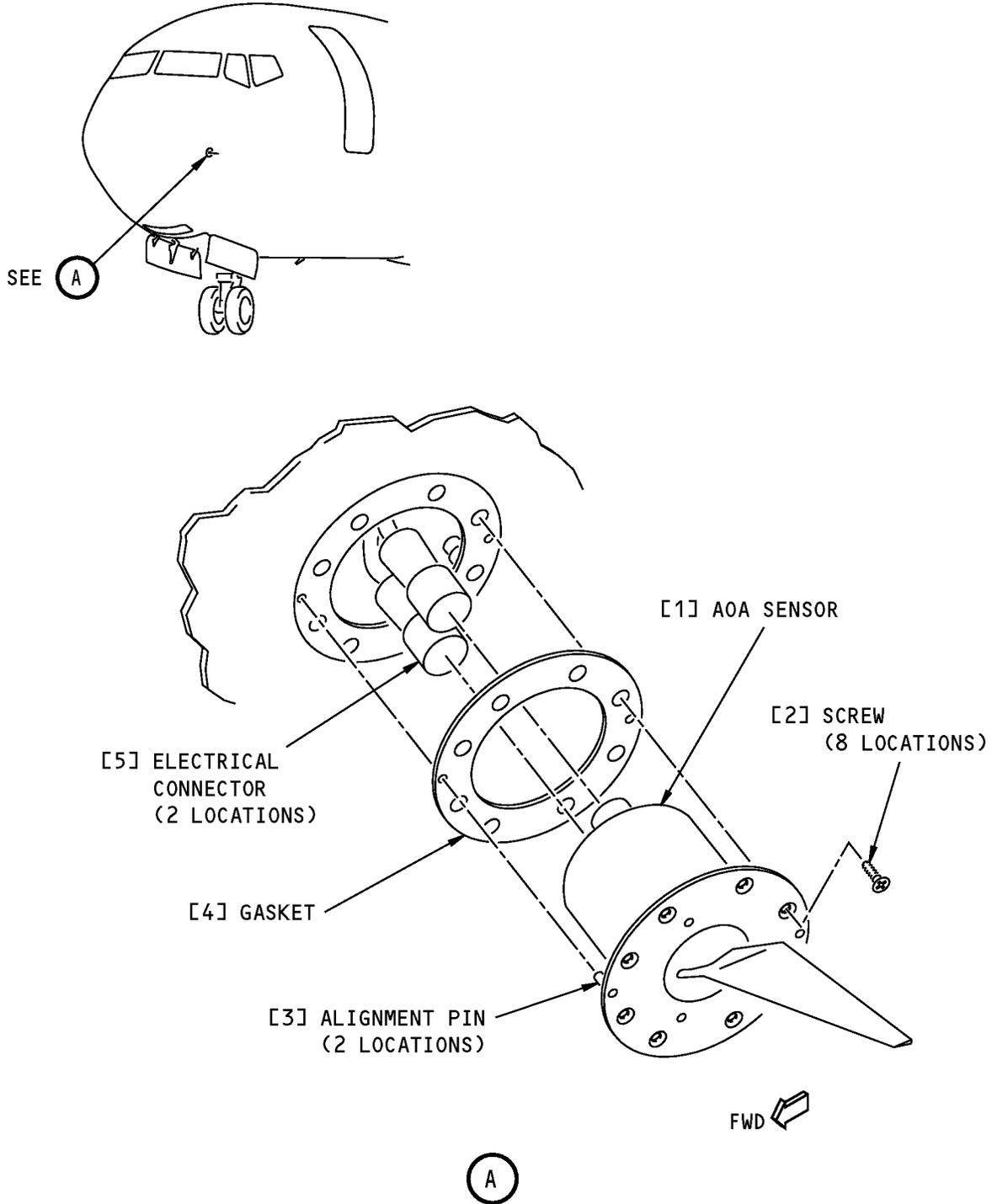
————— **END OF TASK** —————

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**NOTE:** LEFT AOA SENSOR SHOWN, RIGHT AOA SENSOR OPPOSITE.

**Angle of Attack (AOA) Sensor Installation**  
**Figure 401/34-21-05-990-801**

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TASK 34-21-05-400-801

#### 3. Angle of Attack Sensor Installation

(Figure 401)

##### A. General

- (1) This procedure gives instructions to install the AOA SENSOR [1].
- (2) The installation instructions are the same for the two AOA SENSORS [1].

##### B. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
22-11-00-740-806	BITE Library Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-32-42-400-801	Stall Management Yaw Damper (SMYD) Installation (P/B 401)
30-31-00-730-801	Pitot Probe, AOA Sensor, and TAT Probe Heater Test (P/B 501)
34-21-03-400-801	IRS Mode Select Unit Installation (P/B 401)

##### C. Tools/Equipment

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

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
SPL-1917	Fixture - Test, Angle of Attack Probe (Part #: J34002-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: A34012-24, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: J34002-18, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

##### D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)

##### E. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right

##### F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

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#### G. Installation Procedure

SUBTASK 34-21-05-860-002

- (1) For the left AOA sensor [1], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-2

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C01072	HEATERS ALPHA VANE LEFT

- (2) For the right AOA sensor [1], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

SUBTASK 34-21-05-110-001

- (3) To clean the surface around the AOA hole and the surface of the alignment pins, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

SUBTASK 34-21-05-390-001

- (4) Apply a thin layer of grease, D00015, to the alignment pins on the AOA SENSOR [1].

SUBTASK 34-21-05-420-001

- (5) Do these steps to install the AOA SENSOR [1]:

- (a) Put the new gasket [4] into position on the AOA SENSOR [1].
- (b) Remove the protective caps from the electrical connectors [5].
- (c) Examine the electrical connectors [5] for loose, bent, or broken pins.
- (d) Connect the electrical connectors [5] to the AOA SENSOR [1].
- (e) Carefully put the AOA SENSOR [1] into position.
- (f) Install the screws [2] that hold the AOA SENSOR [1] to the airplane.
- (g) Tighten the screws [2] to 32-39 inch-pounds (3.6-4.4 newton-meters).
- (h) Make sure the face of the AOA SENSOR [1] aligns to within 0.04 inch (1.02 mm) or less of the airplane skin.

**NOTE:** The surface of the sensor base must be flush with the skin surface within +/- .040 at the forward and aft edges, upper and lower edge flushness not required.

- (i) Use a bonding meter, COM-1550 to measure the resistance between the base of the AOA SENSOR [1] and the airplane skin.
- (j) Make sure the resistance is less than 0.010 ohm.
- (k) If the resistance is more than 0.010 ohm, do these steps:
  - 1) Remove the AOA SENSOR [1].

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- 2) Clean the bonding surfaces, including the countersunk holes in the AOA SENSOR [1] (SWPM 20-20-00).
- 3) Replace the screws with new screws.
- 4) Re-install the AOA SENSOR [1].
- 5) Measure the resistance between the base of the AOA SENSOR [1] and the airplane skin with a bonding meter, COM-1550.
- 6) If the resistance is more than 0.010 ohms, do these steps:
  - a) Remove the AOA SENSOR [1].
  - b) Replace the nutplates and rivets that attach the AOA SENSOR [1] (SRM 51-40-02).
  - c) Reinstall the AOA SENSOR [1] and make sure the bonding resistance is not more than 0.010 ohm.

(I) Apply sealant, A00247, around the AOA SENSOR [1].

**NOTE:** It is not necessary to apply the sealant immediately if the cure time will cause a flight delay. But to prevent moisture damage to the airplane, sealant should be applied as soon as it is convenient for the operator.

#### H. Installation Test (Recommended)

SUBTASK 34-21-05-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-05-860-006

(2) Make sure that the IRU is serviceable (TASK 34-21-03-400-801).

SUBTASK 34-21-05-860-007

(3) Make sure that the FMC is serviceable and has good weight data entered (TASK 22-11-00-740-806).

SUBTASK 34-21-05-860-008

(4) Make sure that the SMYD is serviceable (TASK 27-32-42-400-801).

SUBTASK 34-21-05-700-001

(5) Open this access panel:

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

SUBTASK 34-21-05-860-009

(6) For the left AOA sensor [1], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-2

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C01072	HEATERS ALPHA VANE LEFT

(7) For the right AOA sensor [1], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C01071	HEATERS ALPHA VANE RIGHT

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

SUBTASK 34-21-05-480-001

**WARNING:** MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU INSTALL THE TOOL. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

- (8) Install a angle of attack probe test fixture, SPL-1917, on the AOA sensor that you replaced.

SUBTASK 34-21-05-860-010

- (9) Push the ON/OFF switch on the SMYD to operate the BITE display.

**NOTE:** Use SMYD 1 to do this test if you replaced the left AOA sensor. Use SMYD 2 if you replaced the right AOA sensor.

SUBTASK 34-21-05-860-011

- (10) Push NO on the SMYD until you see GROUND TEST?

- (a) Push YES when you see GROUND TEST?

SUBTASK 34-21-05-860-012

- (11) Push NO on the SMYD until you see ANALOG INPUTS?

- (a) Push YES when you see ANALOG INPUTS?

SUBTASK 34-21-05-860-013

- (12) Push NO on the SMYD until you see AOA SENSOR?

- (a) Push YES when you see AOA SENSOR?

- 1) Make sure that the SMYD does not show these:
- Open
  - Short
  - Out of Range

SUBTASK 34-21-05-700-002

- (13) Do a test of the AOA sensor input to the SMYD:

- (a) Turn the AOA sensor trailing edge down to  $-20^{\circ} \pm 1^{\circ}$ .

- 1) Make sure that the AOA angle on the SMYD display is  $-20^{\circ} \pm 1^{\circ}$  - aerodynamic offset (left AOA sensor) or  $-20^{\circ} \pm 1^{\circ} +$  aerodynamic offset (right AOA sensor).

**NOTE:** The aerodynamic offset is written on the trailing edge of the AOA sensor.

- (b) Turn the AOA sensor to  $0^{\circ} \pm 1^{\circ}$

**NOTE:** AOA alignment pins are at  $0^{\circ}$ .

- 1) Make sure that the AOA angle on the SMYD display is  $0^{\circ} \pm 1^{\circ}$  - aerodynamic offset (left AOA sensor) or  $0^{\circ} \pm 1^{\circ} +$  aerodynamic offset (right AOA sensor).

- (c) Turn the AOA sensor trailing edge up to  $20^{\circ} \pm 1^{\circ}$ .

- 1) Make sure that the AOA angle on the SMYD display is  $20^{\circ} \pm 1^{\circ}$  - aerodynamic offset (left AOA sensor) or  $20^{\circ} \pm 1^{\circ} +$  aerodynamic offset (right AOA sensor).

SUBTASK 34-21-05-700-003

- (14) Push the ON/OFF switch on the SMYD.

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SUBTASK 34-21-05-700-004

(15) Close this access panel:

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

SUBTASK 34-21-05-700-005

(16) Remove the angle of attack probe test fixture, SPL-1917, from the AOA sensor.

SUBTASK 34-21-05-730-001

(17) Do this task: Pitot Probe, AOA Sensor, and TAT Probe Heater Test, TASK 30-31-00-730-801.

I. Installation Test (Alternative)

**NOTE:** Use the alternative test only when the recommended calibrator tool is not available.

SUBTASK 34-21-05-860-014

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-05-860-015

(2) Make sure that the IRU is serviceable (TASK 34-21-03-400-801).

SUBTASK 34-21-05-860-016

(3) Make sure that the FMC is serviceable and has good weight data entered (TASK 22-11-00-740-806).

SUBTASK 34-21-05-860-017

(4) Make sure that the SMYD is serviceable (TASK 27-32-42-400-801).

SUBTASK 34-21-05-860-018

(5) For the left AOA sensor [1], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-2

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C01072	HEATERS ALPHA VANE LEFT

(6) For the right AOA sensor [1], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

SUBTASK 34-21-05-010-001

(7) Open this access panel:

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

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SUBTASK 34-21-05-860-019

- (8) Push the ON/OFF switch on the SMYD to operate the BITE display.

**NOTE:** Use SMYD 1 to do this test if you replaced the left AOA sensor. Use SMYD 2 if you replaced the right AOA sensor.

SUBTASK 34-21-05-860-020

- (9) Push NO on the SMYD until you see GROUND TEST?

(a) Push YES when you see GROUND TEST?

SUBTASK 34-21-05-860-021

- (10) Push NO on the SMYD until you see ANALOG INPUTS?

(a) Push YES when you see ANALOG INPUTS?

SUBTASK 34-21-05-860-022

- (11) Push NO on the SMYD until you see AOA SENSOR?

(a) Push YES when you see AOA SENSOR?

1) Make sure that the SMYD does not show these:

a) Open

b) Short

c) Out of Range

SUBTASK 34-21-05-700-006

**WARNING:** MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU MOVE THE AOA SENSOR. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

- (12) Move the applicable AOA sensor vane to  $0^\circ \pm 5^\circ$ , in a line with the AOA sensor alignment pins.

(a) Make sure that the SMYD shows  $0^\circ \pm 5^\circ$ .

SUBTASK 34-21-05-700-007

- (13) Move the AOA sensor vane, trailing edge up, to the maximum upper stop.

(a) Make sure that the SMYD shows  $100^\circ \pm 5^\circ$ .

SUBTASK 34-21-05-700-008

- (14) Move the AOA sensor, trailing edge down, to the maximum lower stop.

(a) Make sure that the SMYD shows  $-100^\circ \pm 5^\circ$ .

SUBTASK 34-21-05-900-001

- (15) If the sensor angles are not satisfactory, replace the applicable AOA sensor.

SUBTASK 34-21-05-840-001

- (16) Push the ON/OFF switch on the SMYD.

SUBTASK 34-21-05-410-001

- (17) Close this access panel:

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

SUBTASK 34-21-05-730-002

- (18) Do this task: Pitot Probe, AOA Sensor, and TAT Probe Heater Test, TASK 30-31-00-730-801.

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### J. Put the Airplane Back to its Usual Condition

SUBTASK 34-21-05-980-001

(1) Move the AOA sensor in a line with the AOA sensor alignment pins.

SUBTASK 34-21-05-860-023

(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	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

————— **END OF TASK** —————

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ANGLE OF ATTACK SENSOR - INSPECTION/CHECK

1. General

A. This procedure does an inspection of the Angle of Attack (AOA) sensor for damage.

TASK 34-21-05-200-801

2. Angle of Attack Sensor - Inspection

(Figure 601)

A. References

Reference	Title
34-21-05-000-801	Angle of Attack Sensor Removal (P/B 401)
34-21-05-400-801	Angle of Attack Sensor Installation (P/B 401)

B. Tools/Equipment

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

Reference	Description
SPL-1917	Fixture - Test, Angle of Attack Probe (Part #: J34002-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: A34012-24, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: J34002-18, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
115	Nose Landing Gear Wheel Well - Left
116	Nose Landing Gear Wheel Well - Right

D. Prepare for Inspection

SUBTASK 34-21-05-860-003

(1) For the left AOA, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT

(2) For the right AOA, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

### E. Procedure

SUBTASK 34-21-05-280-001

**WARNING:** AOA PROBE HEAT MUST BE OFF. THIS WILL PREVENT BAD BURNS.

- (1) Make sure AOA probe heat is off.

SUBTASK 34-21-05-280-002

- (2) Move the AOA vane from stop to stop.

- (a) Position the vane against one stop, then lightly tap the vane to cause movement to the other stop.

- 1) The vane must move smoothly through a range of approximately 200 degrees with just a light resistance caused by the viscous damper.

**NOTE:** The vane movement gives the condition of the unit. For a satisfactory unit, the vane moves smoothly and the viscous damper will not let the vane touch the opposite stop. In a damaged unit, the vane moves easily with no resistance and hits the opposite stop, or a mechanical failure locks the mechanism.

SUBTASK 34-21-05-280-003

- (3) Make sure the vane counterweight of the AOA sensor does not stick against the vane end stop.

- (a) Turn the vane in an upward direction and put it against the upper vane end stop.
- (b) Hold the vane firmly against the vane end stop by hand for 3 seconds, then release.
- (c) Put the measurement arm of the gram gauge (angle of attack probe test fixture, SPL-1917) against the AOA vane at the base of the trailing edge.
- (d) As slowly as possible, move the vane away from the vane end stop position.
- (e) Record the results.

- 1) Make sure that the gram gauge (angle of attack probe test fixture, SPL-1917) reading is less than 170 grams.

- a) If the gram gauge (angle of attack probe test fixture, SPL-1917) reading is more than 170 grams, then replace the AOA sensor.

These are the tasks:

Angle of Attack Sensor Removal, TASK 34-21-05-000-801,

Angle of Attack Sensor Installation, TASK 34-21-05-400-801.

- (f) Turn the vane downward and put it against the lower vane end stop.
- (g) Hold the vane firmly against the vane end stop by hand for 3 seconds, then release.
- (h) Put the measurement arm of the gram gauge (angle of attack probe test fixture, SPL-1917) against the AOA vane at the base of the trailing edge.
- (i) As slowly as possible, move the vane away from the vane end stop position.
- (j) Record the results.

- 1) Make sure that the gram gauge (angle of attack probe test fixture, SPL-1917) reading is less than 170 grams.

- a) If the gram gauge (angle of attack probe test fixture, SPL-1917) reading is more than 170 grams, then replace the AOA sensor.

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These are the tasks:

- Angle of Attack Sensor Removal, TASK 34-21-05-000-801,
- Angle of Attack Sensor Installation, TASK 34-21-05-400-801.

(k) Return the vane to a horizontal position.

F. Put the Airplane Back to Its Usual Condition.

SUBTASK 34-21-05-860-004

(1) For the left AOA, 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	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C01071	HEATERS ALPHA VANE RIGHT

(2) For the right AOA, 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	3	C01072	HEATERS ALPHA VANE LEFT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

————— **END OF TASK** —————

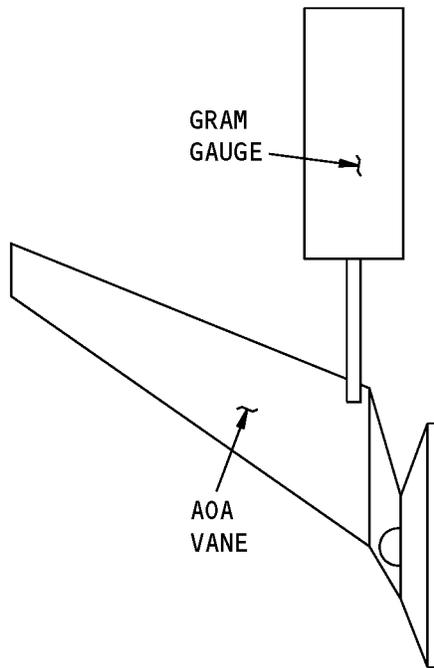
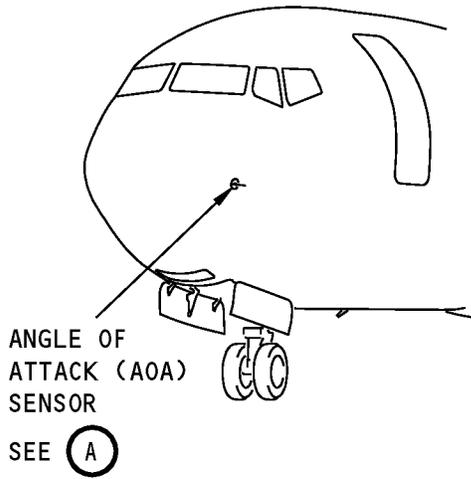
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**ANGLE OF ATTACK (AOA) SENSOR  
(EXAMPLE)**

(A)

**AOA Sensor - Inspection/Check  
Figure 601/34-21-05-990-802**

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# AIRCRAFT MAINTENANCE MANUAL

## TOTAL AIR TEMPERATURE PROBE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the Total Air Temperature (TAT) probe
- (2) An installation of the TAT probe.

#### **TASK 34-21-06-000-801**

### 2. Total Air Temperature Probe Removal

(Figure 401)

A. General

- (1) This task gives instructions to remove the TAT PROBE [4].

B. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left

C. Removal Procedure

SUBTASK 34-21-06-860-001

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

SUBTASK 34-21-06-020-001

- (2) Do these steps to remove the TAT PROBE [4]:
  - (a) Use the sealant removal tool to remove the sealant from around the TAT PROBE [4].
  - (b) Remove the screws [3] from the TAT PROBE [4].

**WARNING:** MAKE SURE THE TAT PROBE HEAT IS OFF. INJURY TO PERSONS CAN OCCUR.

**CAUTION:** DO NOT PULL THE TAT PROBE AWAY FROM THE FUSELAGE WITH TOO MUCH FORCE. TOO MUCH FORCE ON THE TAT PROBE CAN CAUSE DAMAGE TO THE ELECTRICAL CONNECTOR [1] OR THE AIRPLANE SKIN.

- (c) Carefully pull the TAT PROBE [4] from the fuselage to get access to the electrical connector [1].
- (d) Disconnect the electrical connector [1] from the TAT PROBE [4].
- (e) Temporarily attach the electrical connector [1] to make sure it does not fall into the fuselage.
- (f) Install a protective cap on the electrical connector [1].
- (g) Remove the gasket [2] and discard it.

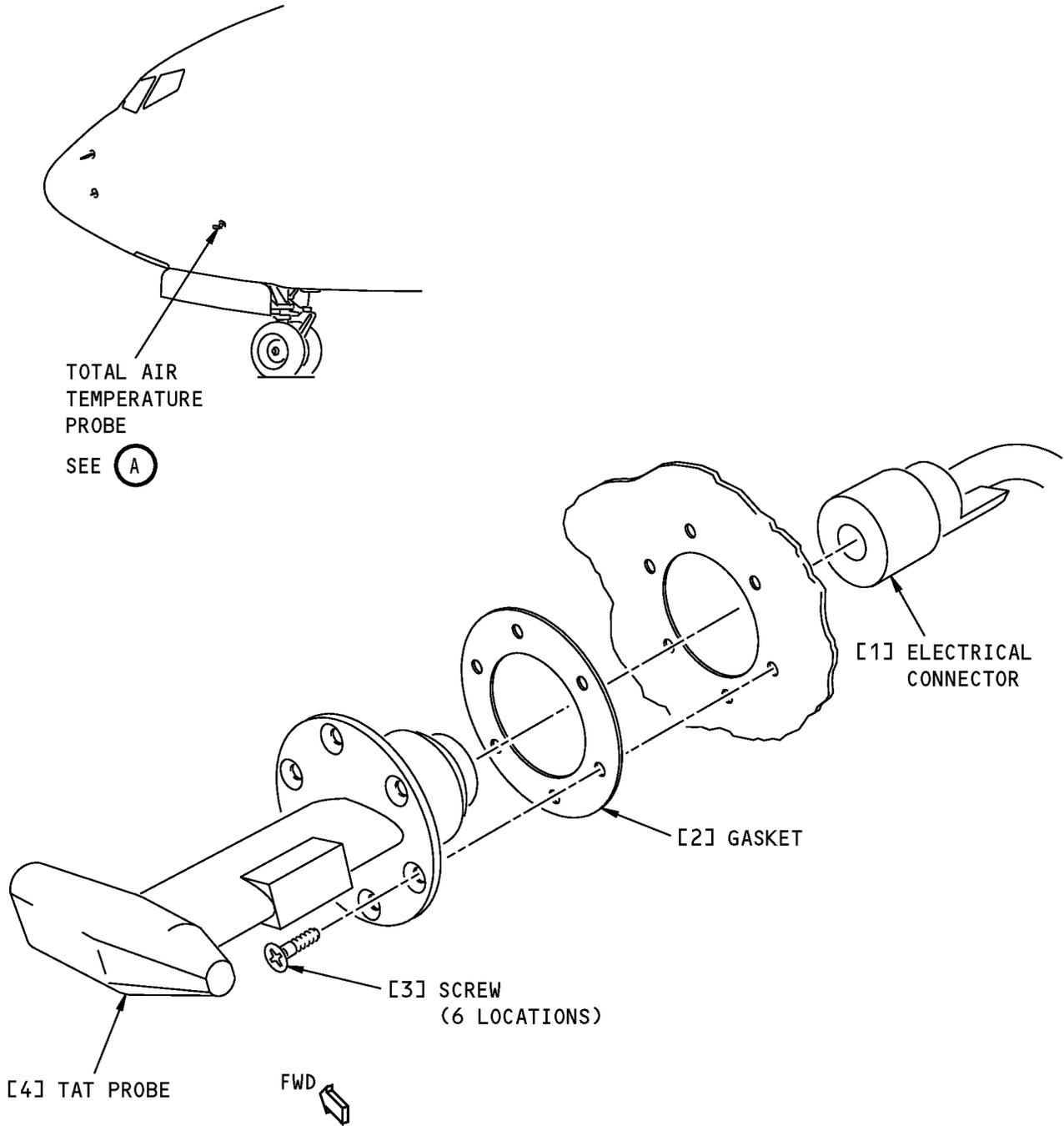
————— **END OF TASK** —————

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STA 268 (APPROX)

(A)

**Total Air Temperature (TAT) Probe Installation  
Figure 401/34-21-06-990-801**

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TASK 34-21-06-400-801

#### 3. Total Air Temperature Probe Installation

(Figure 401)

##### A. General

(1) This task gives instructions to install the TAT PROBE [4].

##### B. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
24-22-00-860-811	Supply Electrical Power (P/B 201)
30-31-00-730-801	Pitot Probe, AOA Sensor, and TAT Probe Heater Test (P/B 501)
FIM 34-21 TASK 813	TAT Probe Signal Fail - Fault Isolation

##### 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	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

##### D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

##### E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	PROBE	34-21-06-04-010	HAP 001-013, 015-026, 028-030
		34-21-06-08-010	HAP 031-054, 101-999

##### F. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left

##### G. Installation Procedure

SUBTASK 34-21-06-860-002

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

SUBTASK 34-21-06-110-001

(2) To clean and prepare the surface and the sides of the installation hole, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

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SUBTASK 34-21-06-420-001

(3) Do these steps to install the TAT PROBE [4]:

- (a) Put the new gasket [2] into position on the TAT PROBE [4].
- (b) Remove the protective cap from the electrical connector [1].
- (c) Examine the electrical connector [1] for loose, bent, or broken pins.
- (d) Connect the electrical connector [1] to the TAT PROBE [4].
- (e) Carefully put the TAT PROBE [4] into position.

NOTE: The large intake should point forward.

- (f) Install the screws [3] that hold the TAT PROBE [4] to the airplane.
- (g) Tighten the screws [3] to 18-22 inch-pounds (2-2.5 newton-meters).
- (h) Use a bonding meter, COM-1550 to measure the resistance between the body of the TAT PROBE [4] and the airplane skin.
- (i) Make sure the resistance is less than 0.010 ohms.
- (j) If the resistance is more than 0.010 ohms, do these steps:
  - 1) Remove the PROBE [4].
  - 2) Clean the bonding surfaces, including the countersunk holes in the PROBE [4] (SWPM 20-20-00).
  - 3) Replace the screws with new screws.
  - 4) Re-install the PROBE [4].
  - 5) Measure the resistance between the body of the PROBE [4] and the airplane skin with a bonding meter, COM-1550.
  - 6) If the resistance is more than 0.010 ohms, do these steps:
    - a) Remove the PROBE [4].
    - b) Replace the nutplates and rivets that attach the PROBE [4] (SRM 51-40-02).
    - c) Reinstall the PROBE [4] and make sure the bonding resistance is not more than 0.010 ohm.
- (k) Apply sealant, A00247, around the TAT PROBE [4].

NOTE: It is not necessary to apply the sealant immediately if the cure time will cause a flight delay. Up to a ten day interval is allowed before sealant must be applied. Sometime during this ten day interval, the probe must be removed again and the base of the probe plus the aircraft skin underneath the probe must be dried with a soft cloth. If corrosion is present, it must be removed. The probe is then installed and the sealant is applied and cured.

SUBTASK 34-21-06-860-003

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	2	C00238	HEATERS TEMP PROBE

## H. Installation Test

SUBTASK 34-21-06-730-001

(1) Do this task: Pitot Probe, AOA Sensor, and TAT Probe Heater Test, TASK 30-31-00-730-801.

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SUBTASK 34-21-06-860-004

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-06-860-005

(3) Do these steps to access the ADIRS maintenance index on the CDU:

NOTE: CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys. Six keys are on each side of the display. 1L thru 6L are on the left side, and 1R thru 6R are on the right side.

- (a) Push the INIT REF key.
  - 1) Make sure the CDU shows the INIT REF INDEX 1/1 page.
- (b) Push the LSK 6R adjacent to the MAINT > prompt on the CDU.
  - 1) Make sure the CDU shows the MAINT BITE INDEX 1/1 page.
- (c) Push the LSK 4L adjacent to the < ADIRS prompt on the CDU.
  - 1) Make sure the CDU shows the ADIRS BITE 1/1 page.

SUBTASK 34-21-06-710-002

(4) Do these steps to access the left ADIRS current faults:

- (a) Push the LSK 1L adjacent to the < ADIRS L prompt on the CDU.
  - 1) Make sure the CDU shows the ADIRS L BITE MAIN MENU page.
- (b) Push the LSK 1L adjacent to the < CURRENT STATUS prompt on the CDU.
  - 1) Make sure the CDU shows the ADIRS L BITE CURRENT FAULTS page.
  - 2) Make sure the CDU does not show the TAT PROBE SIGNAL FAIL message.

NOTE: If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedures to fix the fault FIM 34-21 TASK 813.

SUBTASK 34-21-06-710-003

(5) Do these steps to access the right ADIRS current faults.

- (a) Push the LSK 2L adjacent to the < ADIRS L prompt on the CDU from the ADIRS BITE 1/1 page.
  - 1) Make sure the CDU shows the ADIRS R BITE MAIN MENU page.
- (b) Push the LSK 1L adjacent to the < CURRENT STATUS prompt on the CDU.
  - 1) Make sure the CDU shows the ADIRS R BITE CURRENT FAULTS page.
  - 2) Make sure the CDU does not show the TAT PROBE SIGNAL FAIL message.

NOTE: If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedure to fix the fault FIM 34-21 TASK 813.

————— END OF TASK —————

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# AIRCRAFT MAINTENANCE MANUAL

## TOTAL AIR TEMPERATURE PROBE - INSPECTION/CHECK

### 1. General

A. This procedure does an inspection of the Total Air Temperature (TAT) probe for damage.

**TASK 34-21-06-000-802**

### 2. Total Air Temperature Probe - Inspection

A. References

Reference	Title
34-21-06-000-801	Total Air Temperature Probe Removal (P/B 401)
34-21-06-400-801	Total Air Temperature Probe Installation (P/B 401)

B. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left

C. Prepare for Inspection.

SUBTASK 34-21-06-860-006

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

D. Procedure

SUBTASK 34-21-06-200-001

**WARNING:** MAKE SURE THAT THE TAT PROBE HEAT IS OFF. THE PROBE BECOMES HOT IF IT IS ON. INJURIES TO PERSONNEL CAN OCCUR.

(1) Visually inspect the sensor for physical damage such as cracking or separation of parts on the air scoop and strut.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe Removal, TASK 34-21-06-000-801

Total Air Temperature Probe Installation, TASK 34-21-06-400-801

(2) Check for wear and indentations greater than 0.08 inches deep, measured from the leading edge of the strut. When measuring from the trailing edge of the strut, any measurement less than 1.57 inches is unacceptable.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe Removal, TASK 34-21-06-000-801

Total Air Temperature Probe Installation, TASK 34-21-06-400-801

(3) Check for wear and indentations greater than 0.04 inches deep, measured from the front of scoop. When measuring from back of scoop, any measurement less than 2.11 inches is unacceptable.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

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Total Air Temperature Probe Removal, TASK 34-21-06-000-801

Total Air Temperature Probe Installation, TASK 34-21-06-400-801

- (4) Check for wear and indentations greater than 0.04 inches deep, measured from the front of scoop. When measuring from back of scoop, any measurement less than 3.46 inches is unacceptable.

- (a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe Removal, TASK 34-21-06-000-801

Total Air Temperature Probe Installation, TASK 34-21-06-400-801

E. Put the Airplane Back to its Usual Condition.

SUBTASK 34-21-06-860-007

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	2	C00238	HEATERS TEMP PROBE

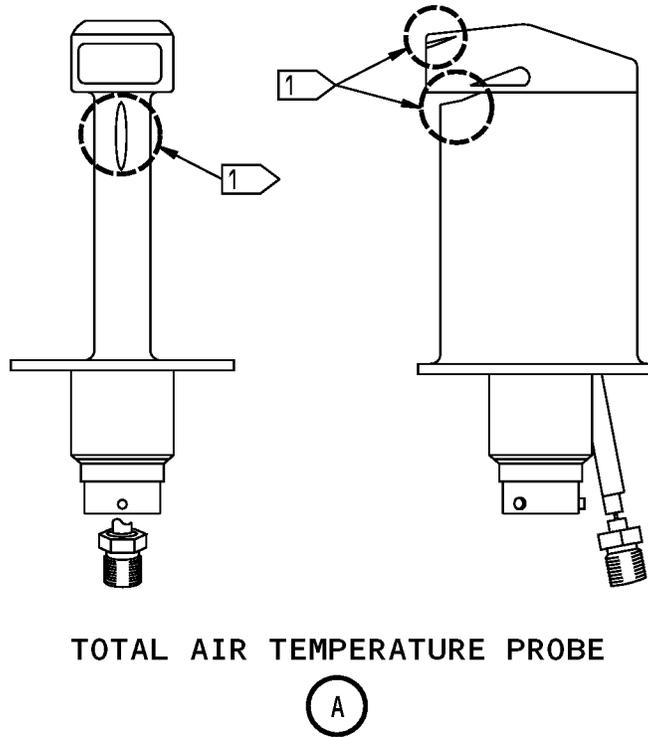
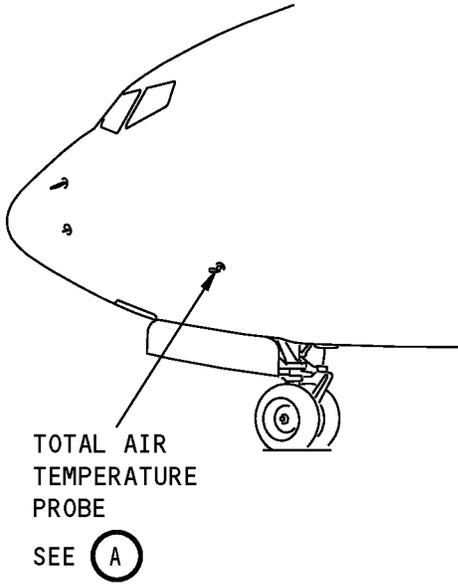
————— **END OF TASK** —————

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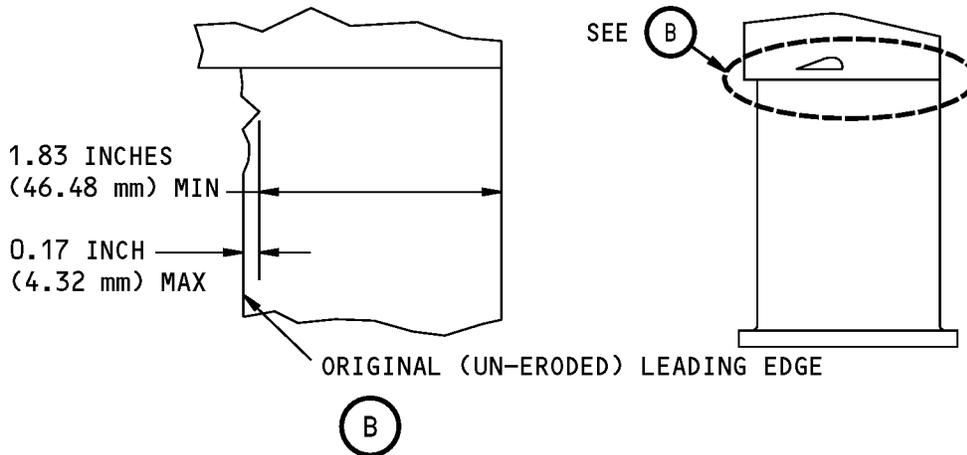
1 REJECT: CRACKING AND/OR SEPARATION VISIBLE

**TAT Probe - Inspection/Check**  
**Figure 601 (Sheet 1 of 2)/34-21-06-990-805**

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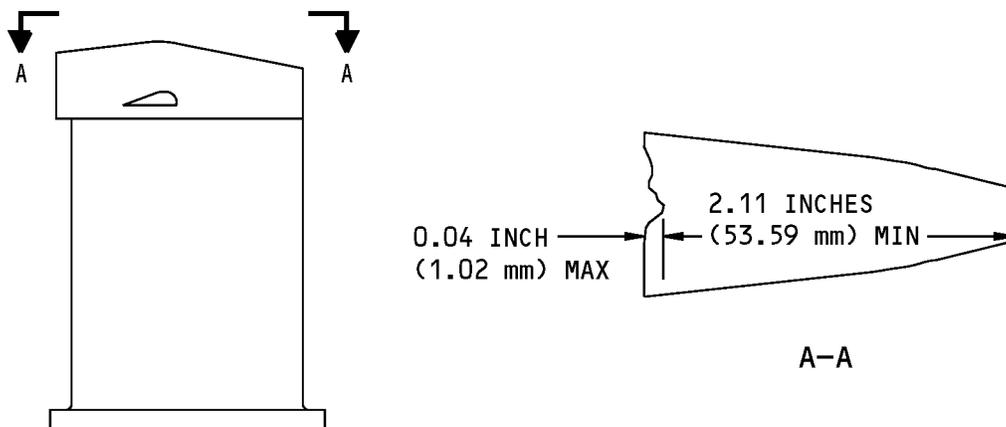
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**NOTE:** DIMENSIONS ARE STRAIGHT LINE (NOT ALONG CURVED SURFACES).

**REJECT:** WEAR/INDENTATION EXCEEDING 0.17 INCH (4.32 mm) DEEP FROM FRONT OR MEASURING LESS THAN 1.83 INCHES (46.48 mm) FROM BACK.



**NOTE:** DIMENSIONS ARE STRAIGHT LINE (NOT ALONG CURVED SURFACES).

**REJECT:** WEAR/INDENTATION EXCEEDING 0.04 INCH (1.02 mm) DEEP FROM FRONT OR MEASURING LESS THAN 2.11 INCHES (53.59 mm) FROM BACK.

**TAT Probe - Inspection/Check**  
**Figure 601 (Sheet 2 of 2)/34-21-06-990-805**

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# AIRCRAFT MAINTENANCE MANUAL

## IRS MASTER CAUTION UNIT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the IRS master caution unit (MCU)
- (2) An installation of the IRS MCU.

B. The IRS MCU is installed in the P61 panel in the flight compartment.

#### **TASK 34-21-07-000-801**

### 2. IRS Master Caution Unit Removal

(Figure 401)

A. General

- (1) This procedure gives instructions to remove the IRS MCU.

B. References

Reference	Title
20-40-12-000-801	ESDS Handling for Printed Circuit Board Removal (P/B 201)
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Removal Procedure

SUBTASK 34-21-07-860-001

- (1) Set the two mode select switches on the IRS mode select unit (MSU) to the OFF position.

SUBTASK 34-21-07-860-002

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

SUBTASK 34-21-07-020-001

- (3) Do these steps to remove the IRS MCU MODULE assembly [1]:
  - (a) Release the quarter-turn fasteners [2] on the front of the IRS MCU MODULE assembly [1].

**CAUTION:** DO NOT TOUCH THE IRS MCU MODULE ASSY BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE IRS MCU .

- (b) Before you touch the IRS MCU MODULE assembly [1], do this task: ESDS Handling for Printed Circuit Board Removal, TASK 20-40-12-000-801.

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**CAUTION:** CAREFULLY REMOVE THE IRS MCU MODULE ASSY FROM THE PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CONNECTORS AT THE REAR OF THE IRS MCU .

- (c) Carefully pull the IRS MCU MODULE assembly [1] away from the panel until you can get access to the electrical connectors.
- (d) Disconnect the electrical connectors from the rear of the IRS MCU MODULE assembly [1].
- (e) Install dust caps on the electrical connectors. To install them, do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804

————— **END OF TASK** —————

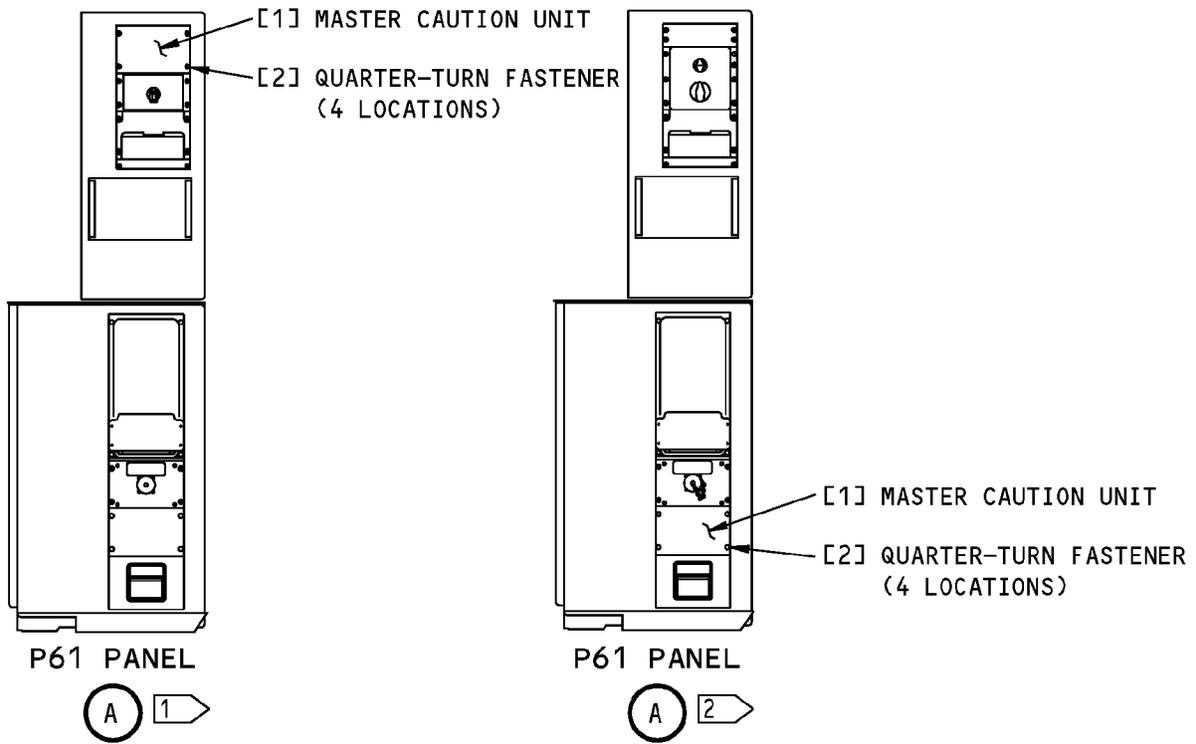
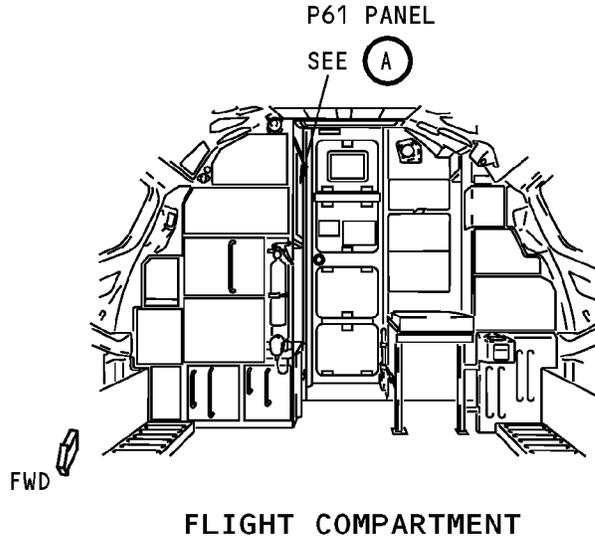
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- 1 AIRPLANES WITH ONE SWITCH ON THE DATA LOADER CONTROL PANEL
- 2 AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL

**Master Caution Unit Installation  
Figure 401/34-21-07-990-801**

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TASK 34-21-07-400-801

3. IRS Master Caution Unit Installation

(Figure 401)

A. General

- (1) This procedure gives instructions to install the IRS MCU MODULE assembly [1].
- (2) The installation test makes sure the IRS MCU MODULE assembly [1] is installed correctly.

B. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Conductor Cover Removal (P/B 201)
20-40-12-400-801	ESDS Handling for Printed Circuit Board Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Installation Procedure

SUBTASK 34-21-07-860-003

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

SUBTASK 34-21-07-420-001

- (2) Do these steps to install the IRS MCU MODULE assembly [1]:

**CAUTION:** DO NOT TOUCH THE IRS MCU MODULE ASSY BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE IRS MCU .

- (a) Before you touch the IRS MCU MODULE assembly [1], do this task: ESDS Handling for Printed Circuit Board Installation, TASK 20-40-12-400-801.
- (b) Remove the dust caps on the electrical connectors. To remove them, do this task: Conductive Dust Cap and Conductor Cover Removal, TASK 20-40-12-000-804.
- (c) Connect the electrical connectors to the IRS MCU MODULE assembly [1].

**CAUTION:** CAREFULLY INSTALL THE IRS MCU MODULE ASSY INTO THE PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CONNECTORS AT THE REAR OF THE IRS MCU .

- (d) Carefully install the IRS MCU MODULE assembly [1] into the P61 panel.
- (e) Lock the quarter-turn fasteners [2] on the front of the IRS MCU MODULE assembly [1].

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SUBTASK 34-21-07-860-004

(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>
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

**E. Installation Test**

SUBTASK 34-21-07-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-07-860-006

(2) Do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801.

**F. Put the Airplane Back to Its Usual Condition**

SUBTASK 34-21-07-860-007

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## RADIO MAGNETIC INDICATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the radio magnetic indicator (RMI)
- (2) An installation of the RMI.

B. The RMI is located on the main display panel, P2-1, in the flight compartment.

#### **TASK 34-22-01-000-801**

### 2. Radio Magnetic Indicator (RMI) Removal

(Figure 401)

A. General

- (1) This procedure gives instructions to remove the RMI [1].

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-22-01-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

SUBTASK 34-22-01-020-001

- (2) Do these steps to remove the RMI [1]:

- (a) Loosen the top right adjustment screw [2] and the bottom left adjustment screw [2].

**NOTE:** Do not loosen the top left screw [3] or the bottom right screw [3]. These screws hold the clamp behind the instrument panel.

- (b) Push on the top right adjustment screw [2] and the bottom left adjustment screw [2] to loosen the clamp.

**CAUTION:** CAREFULLY REMOVE THE RMI FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AT THE REAR OF THE RMI.

- (c) Carefully pull the RMI [1] away from the instrument panel until you can get access to the electrical connector [4].

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS ON THE RMI. IF YOU TOUCH THESE PINS, ELECTROSTATIC DISCHARGE FROM YOUR BODY CAN CAUSE DAMAGE TO THE RMI.

- (d) Disconnect the electrical connector [4] from the RMI [1].
- (e) Install protective covers on the electrical connectors [4].
- (f) Remove the RMI [1].

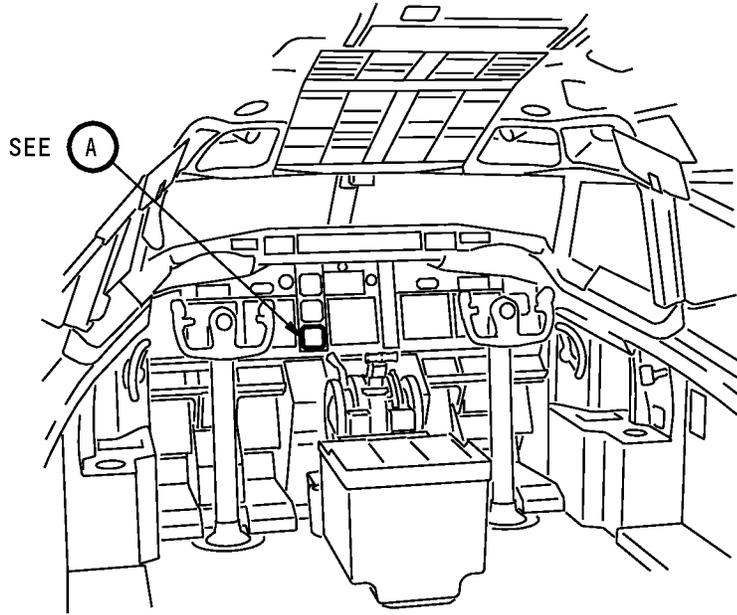
————— **END OF TASK** —————

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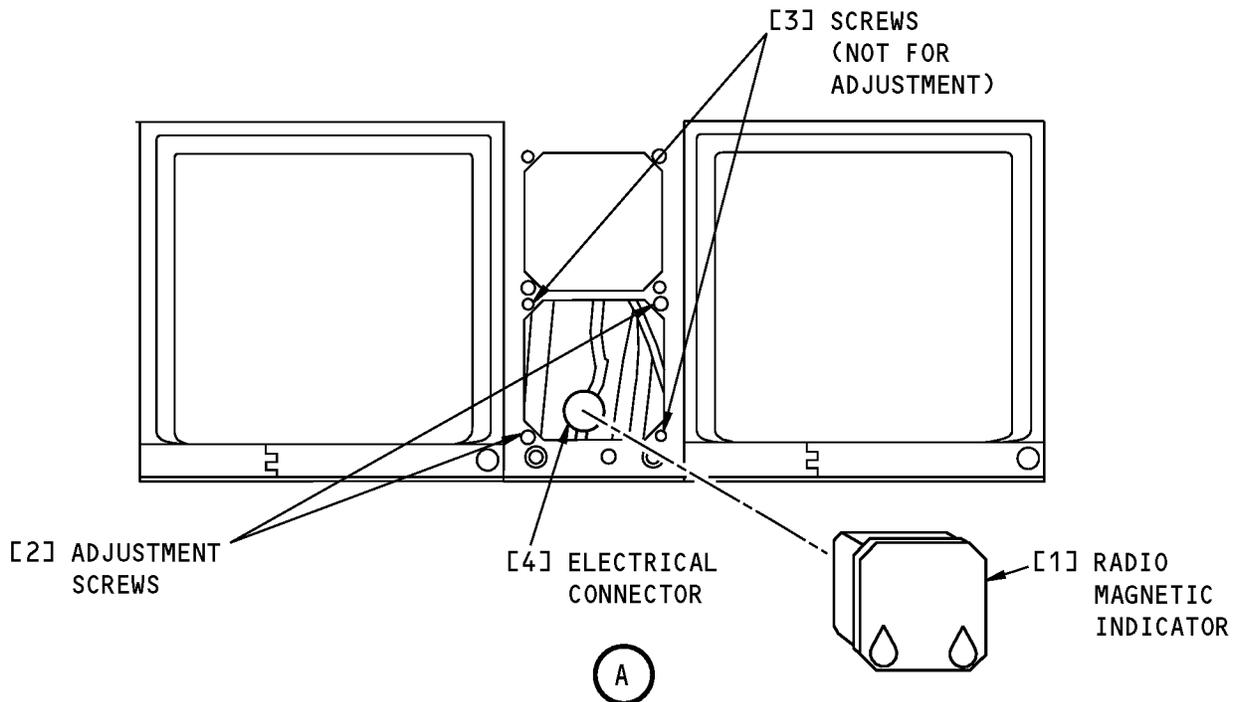
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**FLIGHT COMPARTMENT**



**Radio Magnetic Indicator Installation  
Figure 401/34-22-01-990-801**

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TASK 34-22-01-400-801

#### 3. Radio Magnetic Indicator (RMI) Installation

(Figure 401)

##### A. General

- (1) This procedure gives instructions to install the RMI [1].
- (2) The installation test makes sure the RMI [1] is installed correctly.

##### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	RMI	31-11-31-02-105	HAP 001-013, 015-026, 028-030
		31-11-31-05-070	HAP 031-054, 101-999
		34-22-07-01-040	HAP 001-013, 015-026, 028-030
		34-22-07-02-050	HAP 031-054, 101-999

##### D. Location Zones

Zone	Area
211	Flight Compartment - Left

##### E. Installation Procedure

SUBTASK 34-22-01-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

SUBTASK 34-22-01-420-001

- (2) Do these steps to install the RMI [1]:
  - (a) Remove the protective covers from the electrical connectors [4].
  - (b) Connect the electrical connector [4] to the rear of the RMI [1].
  - (c) Carefully install the RMI [1] into the clamp at the rear of the instrument panel.
  - (d) Tighten the top right adjustment screw [2] and the bottom left adjustment screw [2] on the RMI [1].

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SUBTASK 34-22-01-860-003

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C01386	RADIO NAVIGATION RMI

**F. Installation Test**

SUBTASK 34-22-01-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-22-01-750-001

(2) 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.

(a) Make sure the heading flag does not show on the RMI [1].

(b) Make sure the panel lights on the RMI [1] come on.

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 34-22-01-860-005

(1) Set the two mode select switches on the IRS MSU to the OFF position.

SUBTASK 34-22-01-860-006

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**————— END OF TASK —————**

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# AIRCRAFT MAINTENANCE MANUAL

## STANDBY MAGNETIC COMPASS - MAINTENANCE PRACTICES

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has two tasks:
  - (1) Each task is a different procedure that you can use to do a compass swing of the standby magnetic compass. One procedure is to use a standby compass calibrator (Calibrator Procedure). The other procedure is to tow the airplane around a compass rose (Tow Around Procedure). Use only one of these procedures to do a swing of the standby compass.
- NOTE:** Air bubbles can occur in the standby magnetic compass because of temperature change and/or decrease of liquid. Maintenance limits made for liquid quantity make sure of satisfactory compass operation. When air bubble is larger than 3/8 inch (9.5 mm) wide and 1/8 inch (3.2 mm) high, with the glass approximately vertical position, replace the standby compass.
- (a) Each task has two parts. The first part is to do a swing of the standby compass through four compass points (north, east, south, west). Use this procedure for compass calibration. The second part is to do a swing the standby compass through 12 compass points that are approximately 30 degrees apart. Use this procedure to measure the remaining errors and to make sure the standby compass heading is accurate. Use this data to make the compass correction card. This card must stay with the standby compass.
- C. It is not necessary to keep a constant radius or tangency during airplane tow around the compass rose or swing area. Tow direction is optional. These make no difference when you calculate the solutions.
- D. Do not park vehicles less than 220 feet (67.1 meters) from the airplane during the compass swing.
- E. You can use the auxiliary power unit (APU) during the compass swing.

### **TASK 34-23-00-820-801**

### 2. Standby Magnetic Compass Calibrator Procedure

(Figure 201)

- A. General
  - (1) Use tools that are not magnetic to adjust the standby magnetic compass.
- B. References

Reference	Title
09-11-00-580-801	Towing (P/B 201)
24-22-00-860-811	Supply Electrical Power (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)

- C. Tools/Equipment

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

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Reference	Description
COM-1925	Kit - Calibration, Standby Compass (Part #: 2591553-901, Supplier: 3BMV1, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 2591553-903, Supplier: 3BMV1, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1167	Tripod - Non-magnetic

#### D. Location Zones

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

#### E. Calibrator Adjustment

SUBTASK 34-23-00-820-001

- (1) Do this procedure to calibrate the standby compass calibrator (SCC) (standby compass calibration kit, COM-1925) to the magnetic field at the location of the compass swing area:
  - (a) Make sure there are no vehicles or airplanes less than 220 feet (67.1 meters) away.
  - (b) Make sure there are no buildings less than 220 feet (67.1 meters) away.
  - (c) Put a tripod, STD-1167 at the center of the compass swing area.
  - (d) Remove the magnet assembly from the SCC.
  - (e) Remove the knob assembly from the SCC.
  - (f) Attach a master magnetic compass to the SCC with two mounting screws.  
NOTE: You can use an accurate standby magnetic compass for a master magnetic compass. Make sure that the N-S and E-W adjustment screws are at neutral.
  - (g) Put the SCC/master compass assembly on the tripod, STD-1167.  
NOTE: Make sure the assembly is level.
  - (h) Turn the assembly until the master magnetic compass shows an indication of magnetic north (N).
    - (i) Re-install the magnet assembly to the SCC.
    - (j) Re-install the knob assembly to the SCC.
  - (k) Turn the top and bottom SCC dials to show an indication of E at the index line.
  - (l) Make a record of the heading shown on the master magnetic compass.
  - (m) Turn the top and bottom SCC dials to show an indication of W at the index line.
  - (n) Make a record of the heading shown on the master magnetic compass.
  - (o) Turn the magnetic field cancellation adjustment screw on the SCC to decrease the heading errors in each direction (E and W) to a minimum.
  - (p) Continue to adjust the SCC dials for each direction (E and W). Then use the magnetic field cancellation adjustment (MFCA) screw until the errors are at a minimum.  
NOTE: Continue to do this procedure until the error in each direction is at a minimum. When the errors are at a minimum, do not move the MFCA screw until the compass swing is completed.

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### F. Four Point Calibration Swing Procedure

SUBTASK 34-23-00-580-001

- (1) To tow the airplane to the compass swing area, do this task: Towing, TASK 09-11-00-580-801.

**NOTE:** The compass swing area must be a level area with a smooth surface. It must be sufficiently strong to hold the weight of the airplane. The area must be large enough to tow or taxi the airplane. Make sure no vehicles other than the tow vehicle are less than 220 feet (67.1 meters) from the airplane.

SUBTASK 34-23-00-860-001

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-23-00-860-002

- (3) Energize all of the electronic equipment, radios, and flight compartment lights for the usual conditions that occur in flight.

SUBTASK 34-23-00-820-002

- (4) 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.

SUBTASK 34-23-00-860-003

- (5) Set the ND mode selector on the left EFIS control panel on the glareshield to the VOR/ILS position.

SUBTASK 34-23-00-860-004

- (6) Set the heading reference switch below the captain's ND to the NORM position.

SUBTASK 34-23-00-750-001

- (7) Make sure that the captain's ND shows a magnetic heading.

SUBTASK 34-23-00-860-005

**CAUTION:** USE TOOLS THAT ARE NOT MAGNETIC. MAGNETIC TOOLS CAN CAUSE COMPASS ADJUSTMENT ERRORS.

- (8) Make sure the N-S and E-W adjustment screws on the standby compass are at neutral.

SUBTASK 34-23-00-580-002

- (9) Turn the airplane to a direction where the captain's ND shows a magnetic heading of 0 degrees.

SUBTASK 34-23-00-860-017

- (10) Lower the mounting bracket for the standby magnetic compass to give sufficient space for the SCC:

- (a) Loosen the screws on the mounting bracket to let it tilt down.
- (b) Move the mounting bracket to you and approximately 15° down.
- (c) Tighten the screws on the mounting bracket.

SUBTASK 34-23-00-020-001

- (11) Remove the lower left and upper right mounting screws on the standby magnetic compass.

SUBTASK 34-23-00-480-001

- (12) Use the two mounting screws to install the SCC on the face of the standby magnetic compass.

SUBTASK 34-23-00-820-003

- (13) Turn the top and bottom SCC dials to show an indication of E at the index line.

SUBTASK 34-23-00-970-001

- (14) Make a record of the heading shown on the standby magnetic compass.

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SUBTASK 34-23-00-820-004

- (15) Turn the top and bottom SCC dials to show an indication of W at the index line.

SUBTASK 34-23-00-970-002

- (16) Make a record of the heading shown on the standby magnetic compass.

SUBTASK 34-23-00-820-005

- (17) Turn the E-W adjustment screw on the standby magnetic compass until the error in the last two recorded values is at a minimum.

**NOTE:** Divide the error in each of the two directions as equally as possible.

SUBTASK 34-23-00-820-006

- (18) Turn the top and bottom SCC dials to show an indication of N at the index line.

SUBTASK 34-23-00-970-003

- (19) Make a record of the heading shown on the standby magnetic compass.

SUBTASK 34-23-00-820-007

- (20) Turn the top and bottom SCC dials to show an indication of S at the index line.

SUBTASK 34-23-00-970-004

- (21) Make a record of the heading shown on the standby magnetic compass.

SUBTASK 34-23-00-820-008

- (22) Turn the N-S adjustment screw on the standby magnetic compass until the error in the last two recorded values is at a minimum.

**NOTE:** Divide the error in each of the two directions as equally as possible.

SUBTASK 34-23-00-820-009

- (23) Continue to adjust the SCC dials for each pair of directions (E-W, N-S). Then, turn the E-W and N-S adjustment screws until the errors are at a minimum.

**NOTE:** Continue to do this procedure until the error in each pair of directions is at a minimum. Start with E-W and turn the E-W adjustment screw. Then, do N-S and turn the N-S adjustment screw.

SUBTASK 34-23-00-820-010

- (24) When the errors are at a minimum, do the steps that follow for the 12-point accuracy swing.

### G. Twelve Point Accuracy Swing Procedure

SUBTASK 34-23-00-580-003

- (1) Move the airplane to a location near the center of the compass swing area.

**NOTE:** For each of the magnetic headings that follow, the remaining deviation for the standby magnetic compass must not be more than  $\pm 5$  degrees.

SUBTASK 34-23-00-820-011

- (2) Adjust the SCC dials to indicate these magnetic headings: 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, and 330 degrees.

SUBTASK 34-23-00-970-005

- (3) Make a record of the magnetic heading, MH, and the standby compass heading, CH, for each 30 degree increment.

SUBTASK 34-23-00-970-006

- (4) Make a record of the standby compass heading, CH, in the steer column of the compass correction card for each 30 degree heading increment.

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### H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-23-00-080-001

- (1) Remove the SCC from the face of the standby magnetic compass:
  - (a) Remove the mounting screws that hold the SCC to the face of the standby magnetic compass.
  - (b) Remove the SCC.
  - (c) Install and tighten the mounting screws on the standby magnetic compass.

SUBTASK 34-23-00-860-018

- (2) Put the mounting bracket back to its usual position:
  - (a) Loosen the screws on the mounting bracket.
  - (b) Push the mounting bracket up and into the mounting slots.
  - (c) Tighten the screws on the mounting bracket.

SUBTASK 34-23-00-860-006

- (3) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the OFF position.

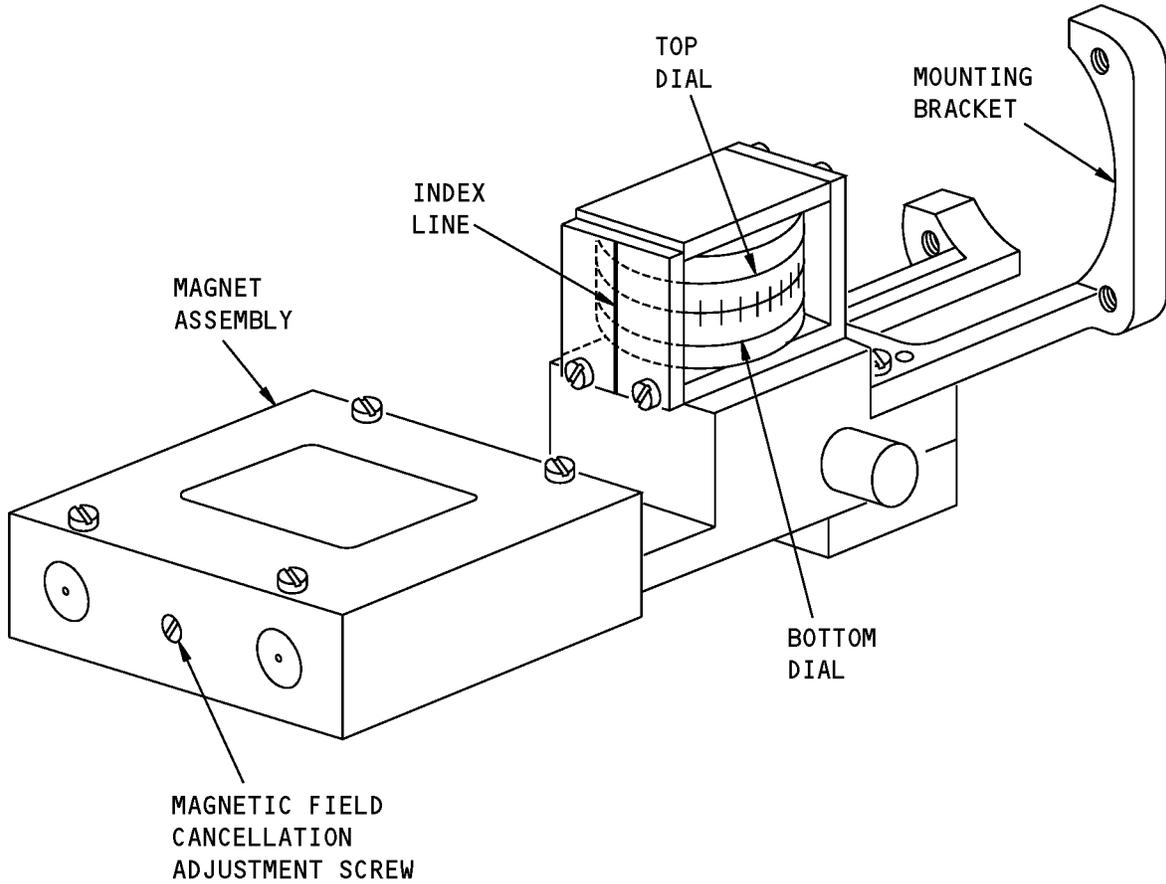
————— **END OF TASK** —————

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**Standby Compass Calibrator  
Figure 201/34-23-00-990-801**

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**TASK 34-23-00-820-802**

#### 3. Standby Magnetic Compass Taxi/Tow Around Procedure

A. General

(1) Use tools that are not magnetic to adjust the standby magnetic compass.

B. References

Reference	Title
09-11	TOWING
09-20	TAXI THE AIRPLANE
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-62-61-400-806	Ground Spoiler Interlock Valve Proximity Sensor Functional Test (P/B 501)
32-09-00-840-801	Prepare to Put the Airplane in the Air Mode (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (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)

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-1690	Set - Actuators/Deactuators, Proximity Sensor Test (Part #: 8-758-01, Supplier: 08748, A/P Effectivity: 737-ALL) (Part #: A27092-106, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: A27092-84, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

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

E. Four Point Calibration Swing Procedure

SUBTASK 34-23-00-580-004

- (1) Position the airplane in the compass swing area:
  - (a) To taxi that airplane do this task, TAXI THE AIRPLANE, SECTION 09-20
  - (b) To tow the airplane do this task, TOWING, SECTION 09-11

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- (c) If a compass rose or an approved swing site is not available, an alternate swing method is to position the airplane on a ramp line with a known magnetic heading, then continue with the standby compass adjustment/test.

**NOTE:** The compass swing area must be a level area with a smooth surface. It must be sufficiently strong to hold the weight of the airplane. The area must be large enough to tow or taxi the airplane. Make sure no vehicles other than the tow vehicle are less than 220 feet (67.1 meters) from the airplane. The horizontal component of the earth's magnetic field must be constant ( $\pm 1$  degree) for a certified compass rose. Measure the direction of the horizontal component if magnetic material (such as a new building) is less than 600 feet (182.9 meters) from the compass rose.

- (d) If you are using the alternate swing method, make sure the display on the ND is within 2 degrees of the ramp line used to align the airplane, before you begin the compass swing procedure.

**NOTE:** When accomplishing the alternate swing procedure, the airplane Navigation Display (ND) is used to align the airplane to the headings required to accomplish the swing.

SUBTASK 34-23-00-860-008

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-23-00-860-009

- (3) Energize all of the electronic equipment, radios, and flight compartment lights for the usual conditions that occur in flight.

SUBTASK 34-23-00-820-015

- (4) 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.

SUBTASK 34-23-00-840-001

**WARNING:** PREPARE THE SAFETY-SENSITIVE SYSTEMS FOR THE AIR MODE BEFORE YOU INSTALL THE DEACTUATORS. IN THE AIR MODE, MANY OF THE AIRPLANE SYSTEMS CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

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

SUBTASK 34-23-00-860-019

- (6) Attach an actuator on the Ground Spoiler Interlock Valve Close Sensor (S1050).

**NOTE:** The actuator is part of this test set: proximity sensor test set, SPL-1690. For information on the Ground Spoiler Interlock Valve Close Sensor, refer to this task: (TASK 27-62-61-400-806).

SUBTASK 34-23-00-860-015

- (7) Attach deactuators to the face of the air/ground sensors for the nose and main landing gear. To attach the deactuators, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

**NOTE:** The installation of the deactuators will energize the landing gear latch solenoid. Because the landing gear latch solenoid is close to the standby magnetic compass, the solenoid must be energized to create a normal level of magnetic and electrical interference during calibration of the compass.

- (a) Let the landing gear latch solenoid stay energized for 20 minutes before you continue.

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SUBTASK 34-23-00-860-010

- (8) Set the ND mode selector on the left EFIS control panel on the glareshield to the VOR/ILS position.

SUBTASK 34-23-00-860-011

- (9) Set the heading reference switch below the captain's ND to the NORM position.

SUBTASK 34-23-00-750-002

- (10) Make sure that the captain's ND shows a magnetic heading.

SUBTASK 34-23-00-860-012

**CAUTION:** USE TOOLS THAT ARE NOT MAGNETIC. MAGNETIC TOOLS CAN CAUSE COMPASS ADJUSTMENT ERRORS.

- (11) Make sure that the N-S and E-W adjustment screws on the standby compass are at neutral.

SUBTASK 34-23-00-580-005

- (12) Turn the airplane to a direction where the captain's ND shows a heading ( $\pm 2$  degrees) of magnetic north, (MH)n.

SUBTASK 34-23-00-970-007

- (13) Make a record of the magnetic heading, (MH)n, and the standby compass heading, (CH)n.

SUBTASK 34-23-00-970-008

- (14) Calculate and make a record of the north heading deviation,  $D_n$ , as follows:  $D_n = (MH)_n - (CH)_n$

SUBTASK 34-23-00-580-006

- (15) Turn the airplane to a direction where the captain's ND shows a heading ( $\pm 2$  degrees) of magnetic east, (MH)e.

SUBTASK 34-23-00-970-009

- (16) Make a record of the magnetic heading, (MH)e, and the standby compass heading, (CH)e.

SUBTASK 34-23-00-970-010

- (17) Calculate and make a record of the east heading deviation,  $D_e$ , as follows:  $D_e = (MH)_e - (CH)_e$

SUBTASK 34-23-00-580-007

- (18) Turn the airplane to a direction where the captain's ND shows a heading ( $\pm 2$  degrees) of magnetic south, (MH)s.

SUBTASK 34-23-00-970-011

- (19) Make a record of the magnetic heading, (MH)s, and the standby compass heading, (CH)s.

SUBTASK 34-23-00-970-012

- (20) Calculate and make a record of the south heading deviation,  $D_s$ , as follows:  $D_s = (MH)_s - (CH)_s$

SUBTASK 34-23-00-970-013

- (21) Calculate and make a record of the north-south single-cycle error coefficient,  $C$ , and its sign as follows:  $C = 0.5(D_n - D_s)$

SUBTASK 34-23-00-820-013

- (22) Turn the N-S adjustment screw on the standby compass (while at the south magnetic heading) to give a compass heading indication of  $(CH)_s - C$ .

SUBTASK 34-23-00-580-008

- (23) Turn the airplane to a direction where the captain's ND shows a heading ( $\pm 2$  degrees) of magnetic west, (MH)w.

SUBTASK 34-23-00-970-014

- (24) Make a record of the magnetic heading, (MH)w, and the standby compass heading, (CH)w.

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SUBTASK 34-23-00-970-015

- (25) Calculate and make a record of the west heading deviation,  $D_w$ , as follows:  $D_w = (MH)_w - (CH)_w$

SUBTASK 34-23-00-970-016

- (26) Calculate and make a record of the east-west single-cycle error coefficient,  $B$ , and its sign as follows:  $B = 0.5(De - Dw)$

SUBTASK 34-23-00-820-014

- (27) Turn the E-W adjustment screw on the standby compass (while at the west magnetic heading) to give a compass heading indication of  $(CH)_w - B$ .

### F. Twelve Point Correction Swing Procedure

SUBTASK 34-23-00-580-009

- (1) Move the airplane to a location near the center of the compass swing area.

**NOTE:** For each of the magnetic headings that follow, the remaining deviation for the standby magnetic compass must not be more than  $\pm 8$  degrees for FAA certification. For CAA certification, the remaining deviation must not be more than  $\pm 5$  degrees.

SUBTASK 34-23-00-580-010

- (2) Turn the airplane to each of these ND magnetic headings: 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, and 330 degrees.

SUBTASK 34-23-00-970-017

- (3) Make a record of the magnetic heading,  $MH$ , and the standby compass heading,  $CH$ , for each 30 degree increment.

SUBTASK 34-23-00-970-018

- (4) Calculate and make a record of the deviation,  $D$ , for each 30 degree heading in the steer column of the compass correction card as follows:  $D = MH - CH$

SUBTASK 34-23-00-970-020

- (5) Make a record of the standby compass heading,  $CH$ , in the steer column of the compass correction card for each 30 degree heading increment.

### G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-23-00-860-020

- (1) Remove the actuator from the Ground Spoiler Interlock Valve Sensor (S1050).

SUBTASK 34-23-00-860-016

- (2) Remove the deactuators from the nose and main landing gear.

SUBTASK 34-23-00-840-002

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

SUBTASK 34-23-00-860-013

- (4) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the OFF position.

SUBTASK 34-23-00-860-014

- (5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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**AIRCRAFT MAINTENANCE MANUAL**

**STANDBY MAGNETIC COMPASS LIGHT - MAINTENANCE PRACTICES**

**1. General**

A. This procedure has these tasks:

- (1) Standby Magnetic Compass Light - Removal
- (2) Standby Magnetic Compass Light - Installation

**TASK 34-23-01-000-802**

**2. Standby Magnetic Compass Light - Removal**

(Figure 201)

A. General

- (1) The Standby Magnetic Compass Light is located on the front of the Standby Magnetic Compass, which is below the P5 forward overhead panel.

B. Location Zones

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

C. Procedure

SUBTASK 34-23-01-860-006

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-01-000-001

- (2) Do these steps to remove the standby compass light:
  - (a) Remove the lightholder assembly and light [1].
  - (b) Remove the light from the lightholder assembly.

————— **END OF TASK** —————

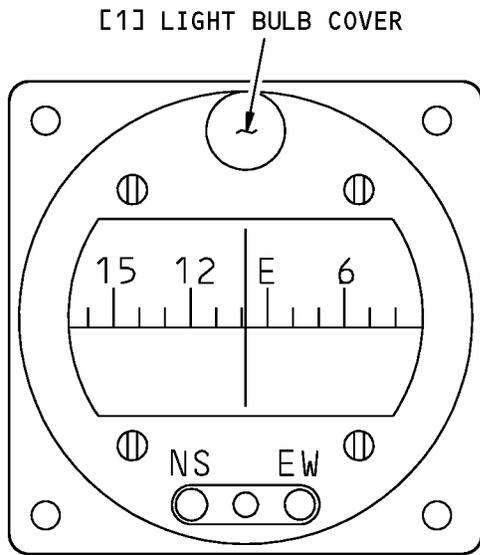
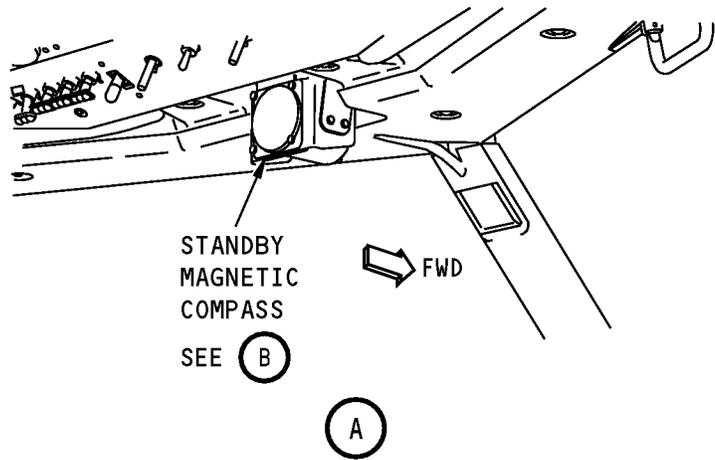
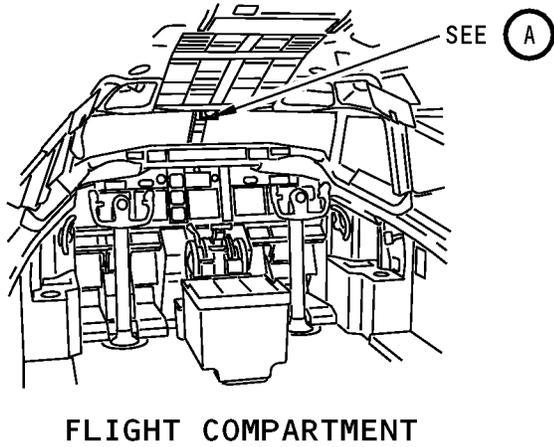
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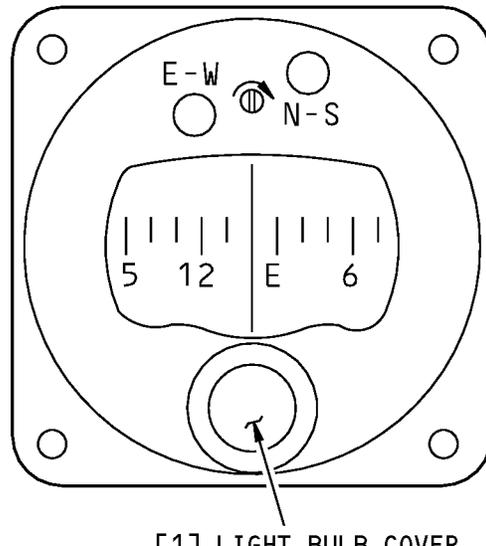
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**AIRCRAFT MAINTENANCE MANUAL**



**STANDBY MAGNETIC COMPASS**



**STANDBY MAGNETIC COMPASS**



1 AIRPLANES WITH STANDBY MAGNETIC COMPASS P/N C-5C

2 AIRPLANES WITH STANDBY MAGNETIC COMPASS P/N C-5L

**Standby Magnetic Compass Light**  
Figure 201/34-23-01-990-802

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# AIRCRAFT MAINTENANCE MANUAL

## TASK 34-23-01-400-802

### 3. Standby Magnetic Compass Light - Installation

(Figure 201)

#### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

#### B. Location Zones

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

#### C. Installation Procedure

SUBTASK 34-23-01-860-007

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-01-400-001

- (2) Do these steps to install the standby magnetic compass light:

- (a) Put the light into the lightholder assembly [1].

- (b) Install the lightholder assembly on the compass.

SUBTASK 34-23-01-860-008

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-01-860-009

- (4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-23-01-860-010

- (5) Make sure the panel light switch is in the ON position.

SUBTASK 34-23-01-210-001

- (6) Make sure the standby magnetic compass internal lights are on.

**END OF TASK**

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AIRCRAFT MAINTENANCE MANUAL

STANDBY MAGNETIC COMPASS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the standby magnetic compass
(2) An installation of the standby magnetic compass.

B. The standby magnetic compass is installed below the center of the forward overhead panel, P5, in the flight compartment.

TASK 34-23-01-000-801

2. Standby Magnetic Compass Removal

(Figure 401)

A. Location Zones

Table with 2 columns: Zone, Area. Rows: 211 Flight Compartment - Left, 212 Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-23-01-860-001

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

F/O Electrical System Panel, P6-3

Table with 4 columns: Row, Col, Number, Name. Row: A, 14, C00161, CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-01-020-001

CAUTION: USE ONLY TOOLS THAT ARE NOT MAGNETIC FOR THE REMOVAL AND THE INSTALLATION OF THE STANDBY MAGNETIC COMPASS. MAGNETIC TOOLS CAN CAUSE DAMAGE TO THE INSTRUMENT.

(2) Remove the standby magnetic COMPASS [1]:

- (a) Disconnect the electrical connector [3].
(b) Remove the four brass screws [2] that hold the standby magnetic COMPASS [1] to the mounting bracket.
(c) Remove the standby magnetic COMPASS [1].
(d) Put protective covers on the electrical connector [3] and the connector on the back of the standby magnetic COMPASS [1].

END OF TASK

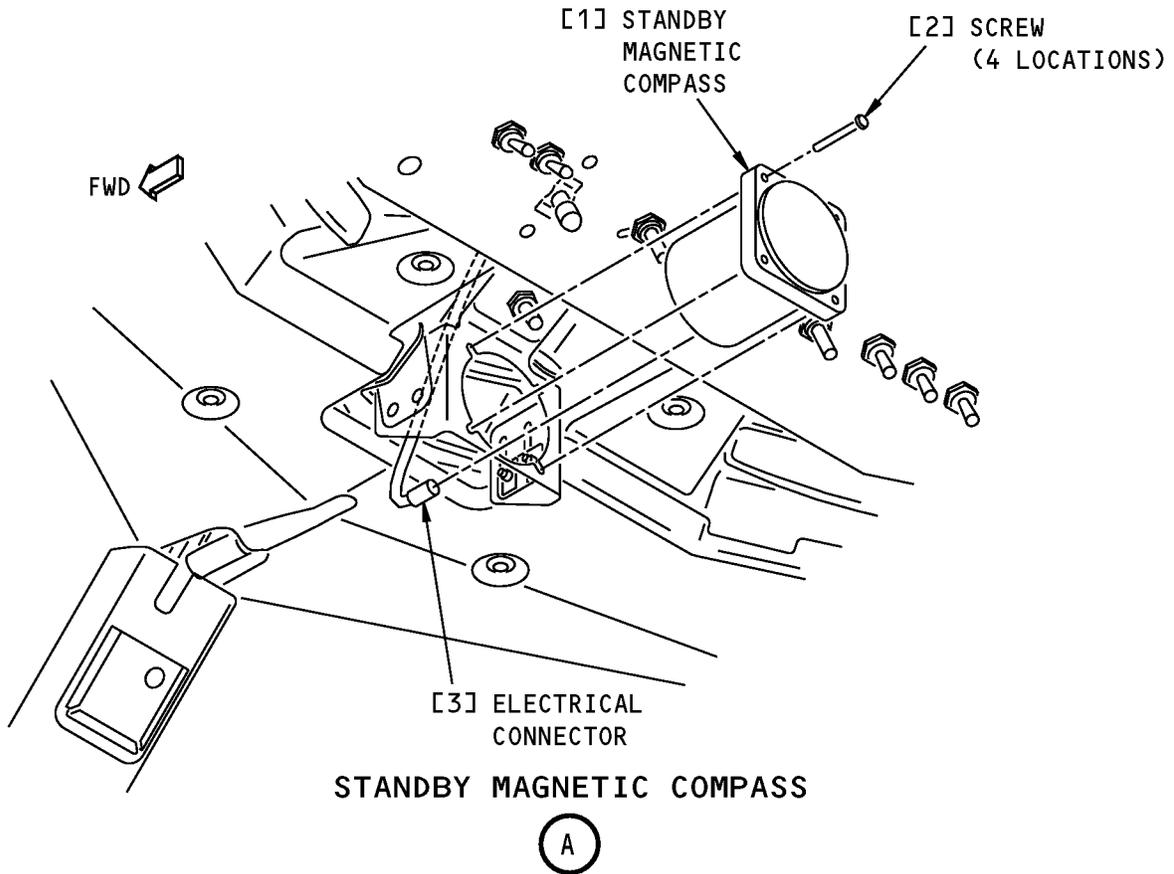
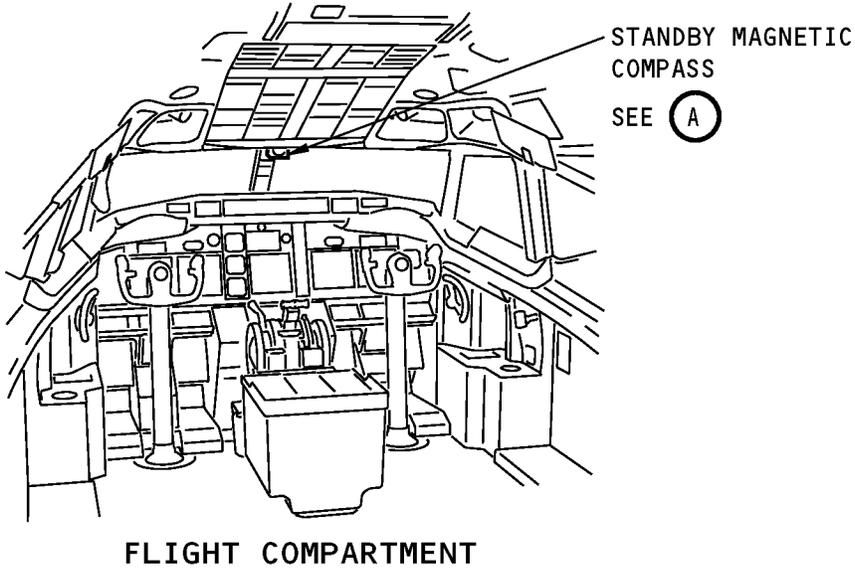
EFFECTIVITY HAP ALL

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**Standby Magnetic Compass Installation  
Figure 401/34-23-01-990-801**

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TASK 34-23-01-400-801

#### 3. Standby Magnetic Compass Installation

(Figure 401)

##### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-23-00-820-801	Standby Magnetic Compass Calibrator Procedure (P/B 201)
34-23-00-820-802	Standby Magnetic Compass Taxi/Tow Around Procedure (P/B 201)

##### B. Location Zones

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

##### C. Installation Procedure

SUBTASK 34-23-01-860-002

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-01-420-001

**CAUTION:** USE ONLY TOOLS THAT ARE NOT MAGNETIC FOR THE REMOVAL AND THE INSTALLATION OF THE STANDBY MAGNETIC COMPASS. MAGNETIC TOOLS CAN CAUSE DAMAGE TO THE INSTRUMENT.

- (2) Install the standby magnetic COMPASS [1]:
  - (a) Remove the protective covers from the electrical connector [3] and the connector on the back of the standby magnetic COMPASS [1].
  - (b) Examine the electrical connector [3] for bent or broken pins, dirt, and damage.
  - (c) Install the standby magnetic COMPASS [1] onto the mounting bracket.
  - (d) Connect the electrical connector [3] to the standby magnetic COMPASS [1].
    - 1) AIRPLANES WITH STANDBY MAGNETIC COMPASS, P/N C-5L;
 

Push the electrical connector [3] until it locks into its position with a click.
    - 2) AIRPLANES WITH STANDBY MAGNETIC COMPASS, P/N C-5L;
 

Wind 1 inch wide Scotch No. 24 wire mesh tape around the junction of the electrical connector [3] and standby magnetic COMPASS [1] a minimum of three times.

**NOTE:** The tape must touch against the rear of the standby magnetic compass case. Keep sufficient tension on the tape while you wind the junction to make it the shape of the connector. You can use thinner tape, if you wind the connector with a minimum overlap of 50 percent. Wind all parts of the connector within 1 inch of the compass with a minimum of three wrappings. Temporarily secure the end of the tape.
    - 3) AIRPLANES WITH STANDBY MAGNETIC COMPASS, P/N C-5L;

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Wind the mesh tape a minimum of two times with 1 inch wide Scotch No. 70 or A-A-59163 Type I self-fusing silicone rubber tape.

NOTE: Keep sufficient tension on the tape while you wind the junction to make it the shape of the connector. You can use thinner tape, if you wind the connector with a minimum overlap of 50 percent. Wind all of the wire mesh tape with a minimum of two wrappings of the silicone rubber tape.

- 4) AIRPLANES WITH STANDBY MAGNETIC COMPASS, P/N C-5L;

If the connector is removed for any reason, discard all tape and repeat step (d) above using new tape.

- (e) Install the four brass screws [2] at the corners of the standby magnetic COMPASS [1].

SUBTASK 34-23-01-860-003

- (3) 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>
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

**D. Installation Test**

SUBTASK 34-23-01-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-23-01-750-001

- (2) Make sure the light for the standby magnetic COMPASS [1] is on.

SUBTASK 34-23-01-820-001

- (3) Do this task: Standby Magnetic Compass Taxi/Tow Around Procedure, TASK 34-23-00-820-802 or Standby Magnetic Compass Calibrator Procedure, TASK 34-23-00-820-801.

NOTE: In the event the compass is removed and there are no modifications to the area or equipment, and the same equipment is installed, there is no need or requirement to swing the compass.

SUBTASK 34-23-01-860-005

- (4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

EFFECTIVITY
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# AIRCRAFT MAINTENANCE MANUAL

## STANDBY ATTITUDE REFERENCE SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has this task:

- (1) A system test of the standby attitude reference system.

#### **TASK 34-24-00-730-801**

### 2. Standby Attitude Reference System - System Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

## **HAP 001-013, 015-026, 028-030; AIRPLANES WITHOUT THE ALTERNATE NAVIGATION SYSTEM**

C. Procedure

SUBTASK 34-24-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-00-860-003

- (2) Set the mode selector switch on the standby attitude indicator to the OFF position.

SUBTASK 34-24-00-860-004

- (3) Let the gyro get to full speed.

**NOTE:** The gyro will reach full speed approximately 3 minutes after you supply power.

SUBTASK 34-24-00-860-006

- (4) Pull and release the cage knob on the stanby indicator.

**NOTE:** Do not let the knob hit against the front of the indicator.

SUBTASK 34-24-00-750-001

- (5) After five minutes, make sure the pitch and roll indications show the airplane attitude  $0 \pm 2.0$  degrees.

SUBTASK 34-24-00-860-007

- (6) Open this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

SUBTASK 34-24-00-750-002

- (7) Make sure the GYRO flag comes into view in less than one second.

### EFFECTIVITY

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR**

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HAP 001-013, 015-026, 028-030; AIRPLANES WITHOUT THE ALTERNATE NAVIGATION SYSTEM (Continued)

SUBTASK 34-24-00-860-008

(8) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01387	STBY ATT IND

SUBTASK 34-24-00-750-004

(9) Make sure the GYRO flag goes out of view within 3 minutes.

SUBTASK 34-24-00-860-009

(10) Tune the captain's VHF NAV receiver to the frequency of 108.35 MHz.

NOTE: To set the frequency, turn the frequency selector until the selected frequency shows in the STANDBY display window. Then, push the TFR switch. The frequency will show in the ACTIVE display window. The frequency of 108.35 MHz is the test frequency for the ILS.

SUBTASK 34-24-00-860-010

(11) Set the mode selector switch on the standby attitude indicator to the APP position.

SUBTASK 34-24-00-740-001

(12) Push the TEST switch on the captain's VHF NAV control panel.

- (a) Make sure that the G/S and LOC flags come into view and then go out of view in less than five seconds.
- (b) Make sure the localizer deviation bar moves one mark left and the glide slope deviation bar moves one mark up.
- (c) Make sure the localizer deviation bar moves one mark right and the glide slope deviation bar moves one mark down.

SUBTASK 34-24-00-860-011

(13) Set the mode selector switch on the standby attitude indicator to the B/CRS position.

SUBTASK 34-24-00-740-003

(14) Push the TEST switch on the captain's VHF NAV control panel.

- (a) Make sure the LOC flag comes into view and then goes out of view in less than five seconds.
- (b) Make sure the glide slope deviation bar and the G/S flag are out of view.
- (c) Make sure the localizer deviation bar moves to the right side of the center and then to the left side of the center.

SUBTASK 34-24-00-860-012

(15) Set the mode selector switch on the standby attitude indicator to the OFF position.

SUBTASK 34-24-00-860-013

(16) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

<p>EFFECTIVITY</p> <p>HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR</p>
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AIRCRAFT MAINTENANCE MANUAL

STANDBY ATTITUDE INDICATOR LIGHT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
(1) A removal of the standby attitude indicator light.
(2) An installation of the standby attitude indicator light.
B. The standby attitude indicator is installed on the pilots' center instrument panel (P2).
C. The lights are found on the light block assembly.

TASK 34-24-01-000-802

2. Standby Attitude Indicator Light Removal

MANUAL CONTROL - MAINTENANCE PRACTICES, PAGEBLOCK 24-22-00/201 Figure 201

A. References

Table with 2 columns: Reference, Title. Row 1: 24-22-00 P/B 201, MANUAL CONTROL - MAINTENANCE PRACTICES

B. Location Zones

Table with 2 columns: Zone, Area. Row 1: 211, Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-24-01-860-010

- (1) Open this circuit breaker and attach the DO-NO-CLOSE tag:

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row 1: D, 9, C01387, STBY ATT IND

SUBTASK 34-24-01-000-003

- (2) Do these steps to prepare to remove the standby attitude INDICATOR [1]:
(a) Loosen the two larger indicator adjustment screws [2] adjacent to the INDICATOR [1].
(b) Pull the INDICATOR [1] a sufficient distance from the instrument panel to get access to the lighting block cover [20].

SUBTASK 34-24-01-000-004

- (3) Remove the screw [25] that hold the lighting block cover [20], spring blade [30], and lighting block [35] to the top of the front face of the standby attitude INDICATOR [1].

SUBTASK 34-24-01-000-005

- (4) Remove the lighting block cover [20] and spring blade [30].

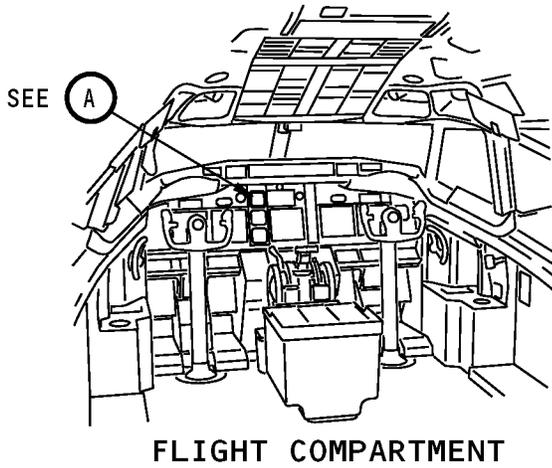
SUBTASK 34-24-01-000-006

- (5) Remove the lighting block [35].

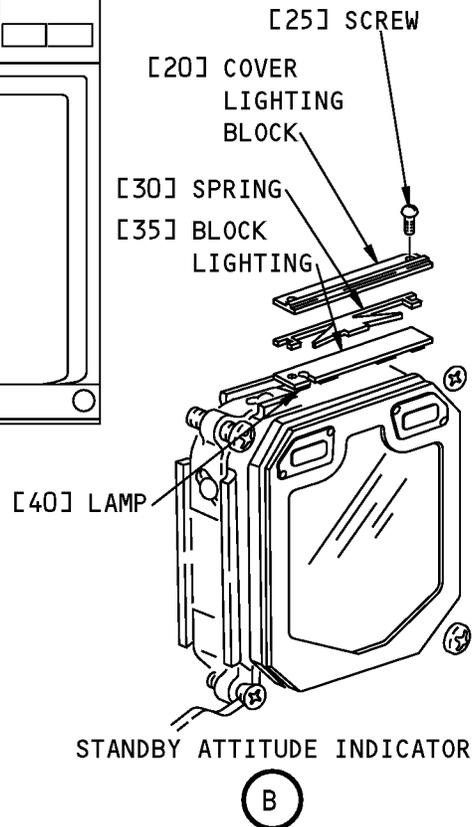
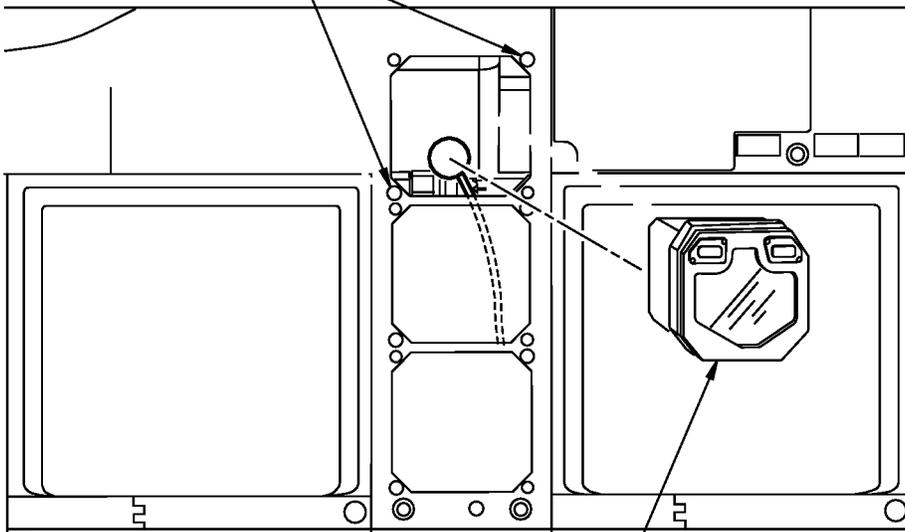
END OF TASK

EFFECTIVITY
HAP 001-013, 015-026, 028-030

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[2] ADJUSTMENT  
SCREWS



**Standby Attitude Indicator Light Installation**  
Figure 201/34-24-01-990-802

EFFECTIVITY  
HAP 001-013, 015-026, 028-030

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### AIRCRAFT MAINTENANCE MANUAL

#### TASK 34-24-01-400-802

#### 3. Standby Attitude Indicator Light Installation

Figure 201

##### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### B. Location Zones

Zone	Area
211	Flight Compartment - Left

##### C. Installation Procedure

SUBTASK 34-24-01-860-009

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

SUBTASK 34-24-01-420-003

- (2) Install the replacement lighting block [35] on the top of the front face of the standby attitude INDICATOR [1].

SUBTASK 34-24-01-430-001

- (3) Put the lighting block cover [20] and spring blade [30] back in the correct position and tighten the screw [25].

SUBTASK 34-24-01-430-002

- (4) Do these steps to install the standby attitude INDICATOR [1]:
  - (a) Move the INDICATOR [1] into the instrument panel.
  - (b) Tighten the INDICATOR [1] clamp screw [25].

SUBTASK 34-24-01-860-011

- (5) Remove the DO-NOT-CLOSE tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

##### D. Installation Test

SUBTASK 34-24-01-860-012

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 34-24-01-750-002

- (2) Make sure the panel lights for the standby attitude INDICATOR [1] are on.

SUBTASK 34-24-01-700-001

- (3) Make sure the standby attitude INDICATOR [1] flag disappears.

EFFECTIVITY
HAP 001-013, 015-026, 028-030

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SUBTASK 34-24-01-860-013

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812

————— **END OF TASK** —————

EFFECTIVITY  
HAP 001-013, 015-026, 028-030

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# AIRCRAFT MAINTENANCE MANUAL

## STANDBY ATTITUDE INDICATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the standby attitude indicator
- (2) An installation of the standby attitude indicator.

B. The standby attitude indicator is installed on the center instrument panel, P2, in the flight compartment.

#### **TASK 34-24-01-000-801**

### 2. Standby Attitude Indicator Removal

(Figure 401)

A. Location Zones

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

#### **HAP 001-013, 015-026, 028-030**

B. Removal Procedure

SUBTASK 34-24-01-860-001

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01387	STBY ATT IND

SUBTASK 34-24-01-000-001

**CAUTION:** LET THE GYRO STOP AFTER YOU REMOVE THE ELECTRICAL POWER. REMOVAL OF THE STANDBY ATTITUDE INDICATOR BEFORE THE GYRO STOPS CAN CAUSE DAMAGE TO THE GYRO.

(2) After 20 minutes, when the gyro is stopped, continue.

SUBTASK 34-24-01-020-001

(3) Remove the standby attitude INDICATOR [1]:

**CAUTION:** BE SURE TO PROPERLY PACKAGE AND HANDLE THE GYRO. IF AVAILABLE, INSTALL A DEVICE TO LOCK THE KNOB IN A CAGED POSITION. THIS CAN PREVENT DAMAGE TO THE GYRO WHEN THE INDICATOR IS MOVED.

- (a) Pull the cage knob and install a device to lock it in a caged position if it has a mechanical caging lock mechanism.
- (b) Loosen the two adjustment screws [2] at the top right corner and the bottom left corner of the INDICATOR [1].

**NOTE:** Do not remove the adjustment screws [2]. Loosen the adjustment screws [2] until the INDICATOR [1] can be removed. If the INDICATOR [1] is not easy to remove, loosen the other two screws that attach the clamp to the forward panel. This will permit easier removal of the INDICATOR [1].

- (c) Pull the INDICATOR [1] out of the instrument panel until you can get access to the electrical connector [3].

#### EFFECTIVITY

HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

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**HAP 001-013, 015-026, 028-030 (Continued)**

- (d) Disconnect the electrical connector [3] from the INDICATOR [1].
- (e) Remove the INDICATOR [1].
- (f) Put protective covers on the electrical connector [3] and the connector on the back of the INDICATOR [1].

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR**

**————— END OF TASK —————**

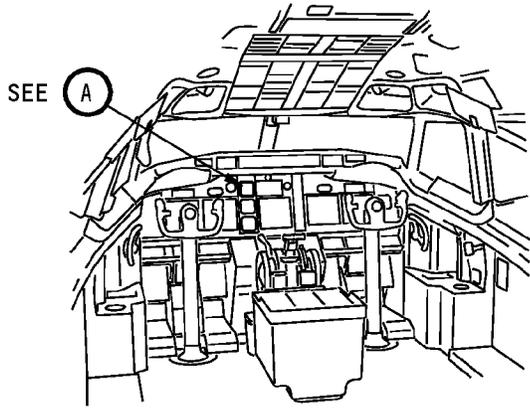
**EFFECTIVITY**

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR**

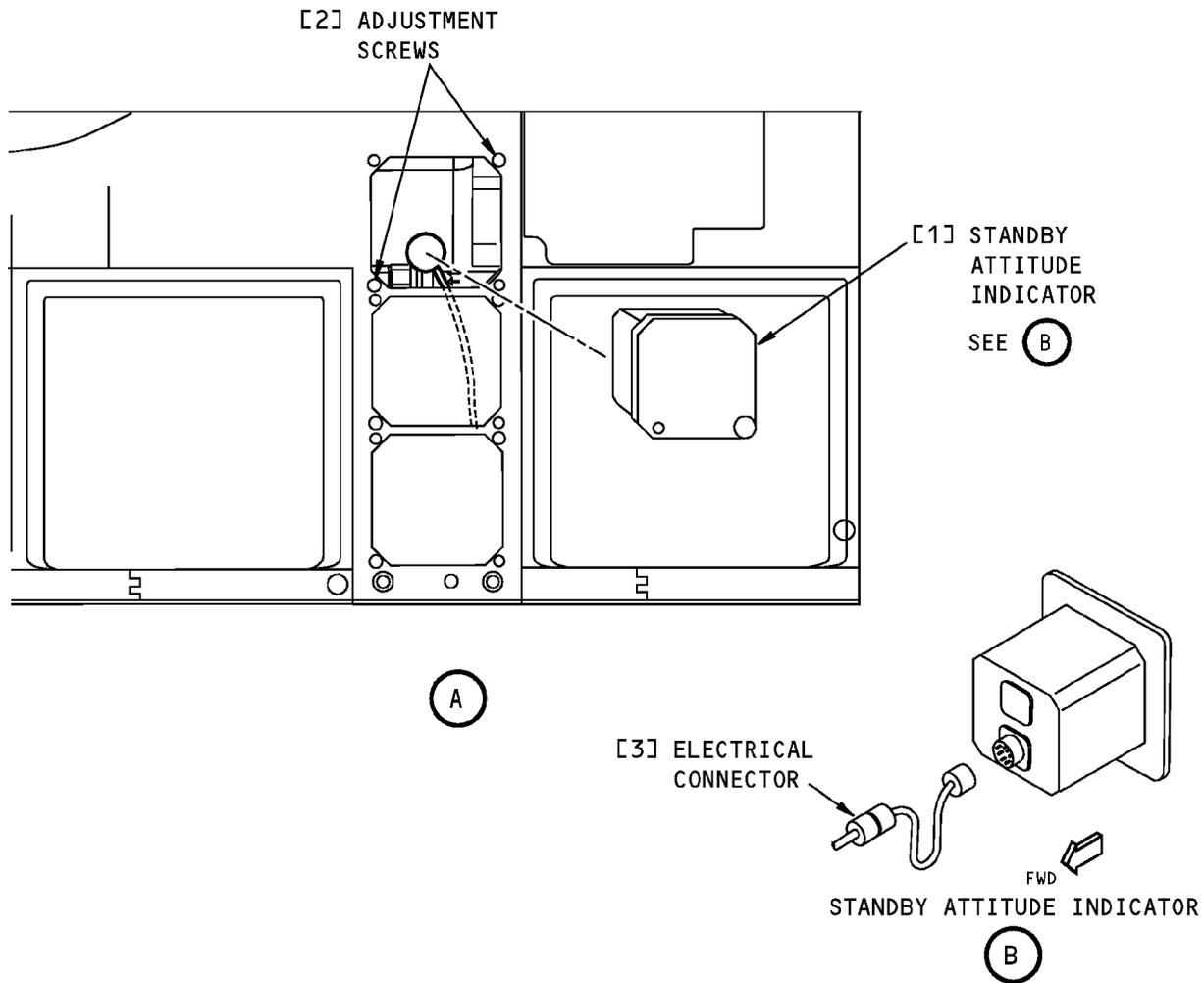
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**FLIGHT COMPARTMENT**



**Standby Attitude Indicator Installation  
Figure 401/34-24-01-990-801**

EFFECTIVITY  
HAP 001-013, 015-026, 028-030

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### AIRCRAFT MAINTENANCE MANUAL

#### TASK 34-24-01-400-801

#### 3. Standby Attitude Indicator Installation

(Figure 401)

##### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-24-00-730-801	Standby Attitude Reference System - System Test (P/B 501)

##### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	INDICATOR	31-11-31-02-095	HAP 001-013, 015-026, 028-030
		34-24-01-01-050	HAP 001-013, 015-026, 028-030

##### C. Location Zones

Zone	Area
211	Flight Compartment - Left

#### HAP 001-013, 015-026, 028-030

##### D. Installation Procedure

SUBTASK 34-24-01-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

SUBTASK 34-24-01-420-001

- (2) Install the standby attitude INDICATOR [1]:
  - (a) Remove the protective covers from the electrical connector [3] and the connector on the back of the INDICATOR [1].
  - (b) Examine the electrical connector [3] for bent or broken pins, dirt and damage.
  - (c) Connect the electrical connector [3] to the INDICATOR [1].
  - (d) Install the INDICATOR [1] into the instrument panel.
  - (e) Tighten the two adjustment screws [2] at the top right corner and the bottom left corner of the INDICATOR [1].
    - 1) Tighten the adjustment screws [2] to a maximum of 30 inch-pounds (3.4 newton-meters).
    - 2) Remove the device that locks the cage knob in a caged position.

EFFECTIVITY HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR
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HAP 001-013, 015-026, 028-030 (Continued)

SUBTASK 34-24-01-860-003

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01387	STBY ATT IND

HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

E. Installation Test

SUBTASK 34-24-01-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-01-750-001

(2) Make sure the panel lights for the INDICATOR [1] are on.

SUBTASK 34-24-01-730-001

(3) Do this task: Standby Attitude Reference System - System Test, TASK 34-24-00-730-801.

SUBTASK 34-24-01-860-005

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

<p>EFFECTIVITY</p> <p>HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR</p>
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## AIRCRAFT MAINTENANCE MANUAL

### INTEGRATED STANDBY FLIGHT DISPLAY - REMOVAL/INSTALLATION

#### 1. General

A. This procedure has these tasks:

- (1) A removal of the integrated standby flight display.
- (2) An installation of the integrated standby flight display.

#### **TASK 34-24-02-000-801**

#### 2. Integrated Standby Flight Display Removal

(Figure 401)

A. References

Reference	Title
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-24-02-860-001

- (1) Open this circuit breaker and attach a DO-NOT-CLOSE tag:

#### **HAP 031-037, 049, 102, 103**

- (a) Front of the ISFD Dedicated Battery System, M2100, E1-3:
  - 1) DBC Output breaker

#### **HAP 038-048, 050-054, 101, 104-999**

- (b) Front of the ISFD Dedicated Battery System, M2100, E4-1:
  - 1) DBC Output breaker

#### **HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

SUBTASK 34-24-02-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INTEGRATED STANDBY FLIGHT DISPLAY. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE INTEGRATED STANDBY FLIGHT DISPLAY.

- (2) Remove the integrated standby flight display [3]:

- (a) Loosen, but do not remove, the two adjustment screws [1] adjacent to the display [3] until the display [3] can be removed.

**CAUTION:** DO NOT USE THE BARO KNOB TO PULL THE DISPLAY [3] FROM THE INSTRUMENT PANEL. DAMAGE TO THE DISPLAY [3] CAN OCCUR IF THE BARO KNOB IS PULLED DURING REMOVAL.

**CAUTION:** CAREFULLY PULL THE DISPLAY [3] FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AND THE HOSES ON THE REAR OF THE DISPLAY [3].

- (b) Pull the display [3] from the instrument panel until you can get access to the electrical connector [4], pitot hose [5] and static hose [6].

EFFECTIVITY

<p><b>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</b></p>
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- (c) If the display [3] is not easy to remove, loosen the two mounting screws [2] to make the removal easier.

**NOTE:** An adjacent blank P2 panel can be removed to assist with the removal of the display [3], if available. If a blank panel is not adjacent, the P2 panel can be removed to assist with removal of the display [3].

**CAUTION:** MAKE SURE THAT THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE PITOT HOSE [5] AND THE STATIC HOSE [6]. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE DISPLAY [3] CAN OCCUR.

- (d) Disconnect the pitot hose [5] and static hose [6] from the display [3].
- (e) Disconnect the electrical connector [4].
- (f) Remove the display [3].
- (g) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

————— **END OF TASK** —————

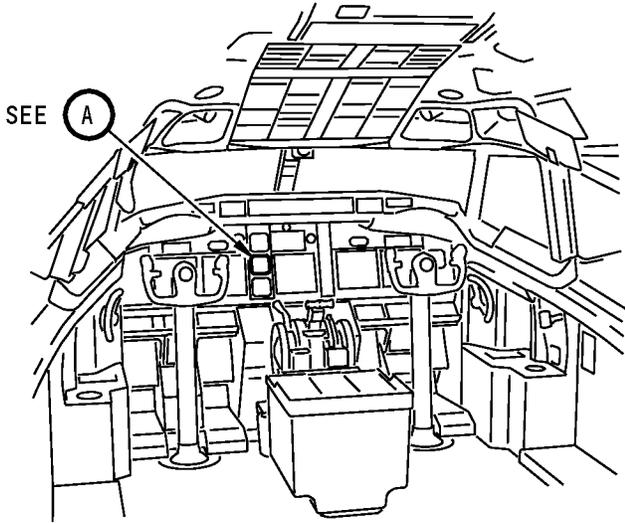
EFFECTIVITY  
HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

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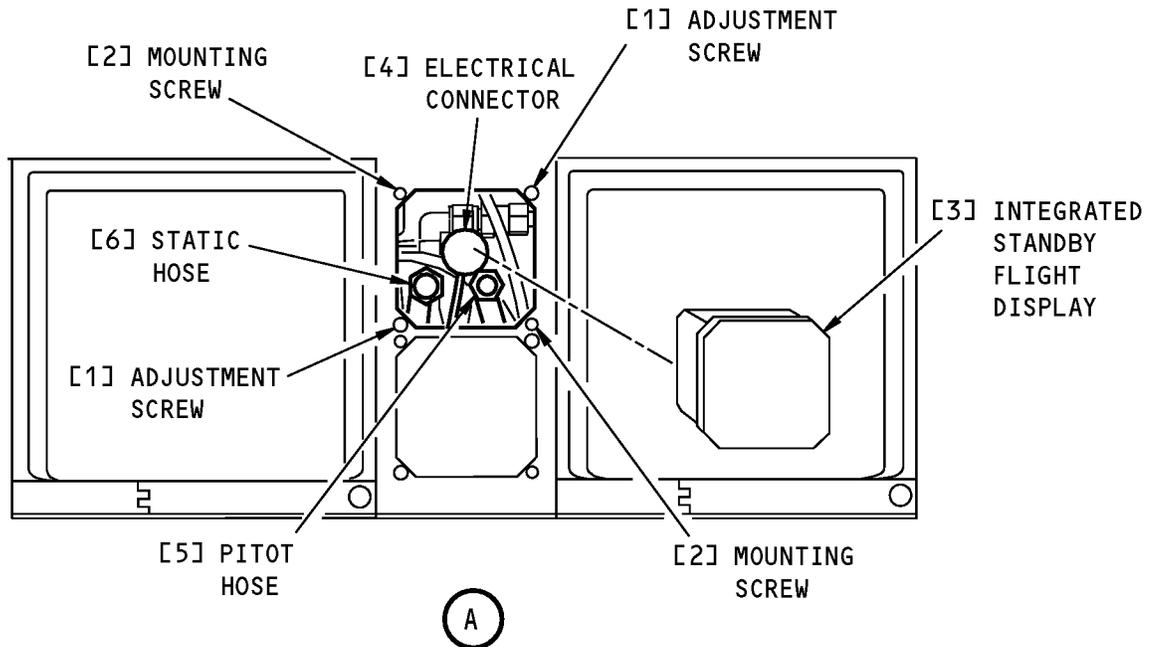
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**FLIGHT COMPARTMENT**



**Integrated Standby Flight Display Installation**  
**Figure 401/34-24-02-990-801**

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TASK 34-24-02-400-801

## 3. Integrated Standby Flight Display Installation

(Figure 401)

### A. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Conductor Cover Removal (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)

### B. Location Zones

Zone	Area
211	Flight Compartment - Left

### C. Installation Procedure

SUBTASK 34-24-02-860-002

(1) Make sure that this circuit breaker is open:

#### **HAP 031-037, 049, 102, 103**

- (a) Front of the ISFD Dedicated Battery System, M2100, E1-3:
  - 1) DBC Output Breaker

#### **HAP 038-048, 050-054, 101, 104-999**

- (b) Front of the ISFD Dedicated Battery System, M2100, E4-1:
  - 1) DBC Output Breaker

#### **HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

SUBTASK 34-24-02-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INTEGRATED STANDBY FLIGHT DISPLAY. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE INTEGRATED STANDBY FLIGHT DISPLAY.

(2) Install the integrated standby flight display [3]:

- (a) Do this task: Conductive Dust Cap and Conductor Cover Removal, TASK 20-40-12-000-804.
- (b) Examine the electrical connector [4] for bent or broken pins.
- (c) Connect the electrical connector [4] at the rear of the display [3].

**CAUTION:** MAKE SURE THAT THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT THE PITOT HOSE [5] AND THE STATIC HOSE [6] TO THE DISPLAY [3]. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE DISPLAY [3] CAN OCCUR.

- (d) Connect the pitot hose [5] and static hose [6] to the display [3].
- (e) Do a visual inspection to make sure the pitot-static system hose connections and quick-disconnect fittings are locked in the sealed position.
  - 1) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.
- (f) Install the display [3] into the instrument panel.

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- (g) Tighten the two adjustment screws [1] adjacent to the display [3].
- (h) If necessary, tighten the two mounting screws [2].

SUBTASK 34-24-02-710-003

- (3) Do the ISFD installation test.

### D. Installation Test

SUBTASK 34-24-02-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-02-700-007

- (2) Close this circuit breaker and remove the DO-NOT-CLOSE tag:

#### **HAP 031-037, 049, 102, 103**

- (a) Front of the ISFD Dedicated Battery System, M2100, E1-3:
  - 1) DBC Output Breaker

#### **HAP 038-048, 050-054, 101, 104-999**

- (b) Front of the ISFD Dedicated Battery System, M2100, E4-1:
  - 1) DBC Output Breaker

#### **HAP 031-037, 039-041, 047, 049, 050, 054, 101**

- (3) Close this circuit breaker and remove the DO-NOT-CLOSE tag:

#### **HAP 031-037, 049**

- (a) Front of the ISFD Dedicated Battery System, M2100, E1-3:
  - 1) DBC Output Breaker

#### **HAP 039-041, 047, 050, 054, 101**

- (b) Front of the ISFD Dedicated Battery System, M2100, E4-1:
  - 1) DBC Output Breaker

#### **HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

SUBTASK 34-24-02-700-001

- (4) Make sure that the display shows the following flags in approximately 15 seconds after power up:
  - (a) SPD flag
  - (b) ATT flag
  - (c) ALT flag
  - (d) INIT 90S flag.

SUBTASK 34-24-02-710-001

- (5) Make sure the following flags and indications show in approximately 15 to 90 seconds after power up:
  - (a) ATT flag
  - (b) INIT 90S flag
  - (c) Airspeed indication with no SPD flag
  - (d) Altitude indication with no ALT flag.

#### EFFECTIVITY

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SUBTASK 34-24-02-710-002

(6) Make sure the following is displayed on the ISFD after approximately 90 seconds:

(a) Attitude (normal) display with the following indications with no flags:

- 1) Fixed aircraft symbol
- 2) Roll scale
- 3) Roll index
- 4) Pitch scale.

NOTE: To restart the initialization, push and release the ATT RST button on the face of the ISFD.

SUBTASK 34-24-02-700-003

(7) Push APP and HP/IN, on the face of the ISFD, for approximately two seconds.

SUBTASK 34-24-02-700-004

(8) Push the + select key next to < TESTS.

SUBTASK 34-24-02-700-005

(9) Push the select key next to < FUNCTIONAL TEST (110s).

NOTE: The TEST screen will display IN PROGRESS 110s.

SUBTASK 34-24-02-700-006

(10) Make sure the TEST result displays TEST OK.

SUBTASK 34-24-02-700-008

(11) Push and release the RST (reset) button.

————— **END OF TASK** —————

EFFECTIVITY

HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

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## INTEGRATED STANDBY FLIGHT DISPLAY - ADJUSTMENT/TEST

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
  - (1) An operational test of the integrated standby flight display (ISFD).
  - (2) An operational test of the dedicated battery charger and battery pack for the integrated standby flight display (ISFD).

#### **TASK 34-24-02-710-801**

### 2. Integrated Standby Flight Display - Operational Test

#### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

#### B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### C. Procedure

SUBTASK 34-24-02-860-017

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-02-700-009

- (2) Close this circuit breaker and remove the DO-NOT-CLOSE tag:

#### **HAP 031-037, 049, 102, 103**

- (a) Front of the ISFD Dedicated Battery System, M2100, E1-3:
  - 1) DBC Output Breaker

#### **HAP 038-048, 050-054, 101, 104-999**

- (b) Front of the ISFD Dedicated Battery System, M2100, E4-1:
  - 1) DBC Output Breaker

#### **HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

SUBTASK 34-24-02-700-010

- (3) Make sure that the display shows the following flags in approximately 15 seconds after power up:
  - (a) SPD flag
  - (b) ATT flag
  - (c) ALT flag
  - (d) INIT 90S flag.

<p>EFFECTIVITY</p> <p><b>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</b></p>
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SUBTASK 34-24-02-710-004

- (4) Make sure the following flags and indications show in approximately 15 to 90 seconds after power up:
  - (a) ATT flag
  - (b) INIT 90S flag
  - (c) Airspeed indication with no SPD flag
  - (d) Altitude indication with no ALT flag.

SUBTASK 34-24-02-710-005

- (5) Make sure the following is displayed on the ISFD after approximately 90 seconds:
  - (a) Attitude (normal) display with the following indications with no flags:
    - 1) Fixed aircraft symbol
    - 2) Roll scale
    - 3) Roll index
    - 4) Pitch scale.

NOTE: To restart the initialization, push and release the ATT RST button on the face of the ISFD.

————— **END OF TASK** —————

**TASK 34-24-02-730-801**

**3. Integrated Standby Flight Display - System Test**

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (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.

<p>EFFECTIVITY</p> <p>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</p>
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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting (Part #: 1QF2-3-64C, Supplier: 24984, A/P Effectivity: 737-ALL)
SPL-1921	Adapter - Static Port (Part #: 33410LH-125-4, Supplier: 38002, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CSTL19725-4, Supplier: 3BSK6, A/P Effectivity: 737-ALL)

#### C. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

#### D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

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#### F. Prepare for the System Test

SUBTASK 34-24-02-730-007

- (1) Do the Operational Test for the integrated standby flight display.

SUBTASK 34-24-02-860-016

**WARNING:** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE FALSE TCAS TARGETS. FALSE TCAS TARGETS CAN CAUSE AIR TRAFFIC IN THE AREA TO DO UNNECESSARY EVASIVE MANEUVERS.

- (2) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-24-02-860-005

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-24-02-860-006

- (4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

#### HAP 031-054, 101-999

SUBTASK 34-24-02-750-002

- (5) Make sure that the altitude tape, airspeed tape, heading, and attitude pitch and roll are displayed on the ISFD with no red flags.

#### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-24-02-860-007

- (6) Set the BARO scale of the ISFD to 29.92 inches of mercury (1013 millibars).

#### G. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-24-02-480-001

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (1) Seal the two alternate static ports with vinyl adhesive Scotch Brand No.471 tape, G02219 at these locations:
  - (a) The ALTERNATE static port on the right side of the fuselage.
  - (b) The ALTERNATE static port on the left side of the fuselage.

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SUBTASK 34-24-02-480-002

- (2) Remove the cap from the No. 5 Alternate Static Drain, in the electronic equipment compartment, below the E-5 rack.

Get access to the drain in the electronic equipment compartment through this access panel:

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

SUBTASK 34-24-02-400-001

- (3) Install the coupling, COM-1927, on the No. 5 Alternate Static Drain.

SUBTASK 34-24-02-400-002

- (4) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

### H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-24-02-400-003

**CAUTION:** INSTALL THE ADAPTER, 33410LH-124-4, SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (1) Install the static port adapter, SPL-1921, on the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-24-02-400-005

- (2) Connect the air data model test set, COM-1914 to the static port adapter, SPL-1921.

SUBTASK 34-24-02-480-010

**WARNING:** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PUSH TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

- (3) Seal the ALTERNATE static port on the right side of the fuselage with vinyl adhesive Scotch Brand No.471 tape, G02219.

### I. Installation of the Pitot Probe Adapter

SUBTASK 34-24-02-170-001

**CAUTION:** MAKE SURE THAT YOU FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

- (1) Flush the adapter, kit, COM-1916 with water.

**NOTE:** Use equal parts of water and ethylene glycol when the temperature is between 32° and -40°F (-40° to 0°C).

SUBTASK 34-24-02-480-003

- (2) Blow dry, filtered air through the adapter, kit, COM-1916.

SUBTASK 34-24-02-480-004

- (3) Wipe the probe with a damp cloth.

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SUBTASK 34-24-02-480-005

**CAUTION:** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

(4) Install the adapter, kit, COM-1916 on the lower pitot probe located at STA 192, WL 213, RBL 34.

SUBTASK 34-24-02-480-006

(5) Connect the air data model test set, COM-1914 to the adapter, kit, COM-1916.

**J. Test Procedure**

SUBTASK 34-24-02-860-008

(1) Apply pressure to the alternate pitot and alternate static systems for each test point as shown in the table that follows (Table 501):

- (a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.
- (b) When you apply pressure to the pitot system, make sure that the rate is less than 300 knots for each minute.

Table 501/34-24-02-993-802

TEST POINT	STATIC (In. Hg)	STATIC (Mb)	PITOT (In. Hg)	PITOT (Mb)	ALTITUDE (feet)	ALTITUDE (meters)	AIRSPEED (knots)
1	29.921	1,010	30.311	1,040	0 ± 30	0 ± 9.14	90 ± 3.5
2	24.896	843	27.996	948	5,000 ± 50	1,524 ± 15.24	250 ± 3.5
3	16.886	577	17.703	599	15,000 ± 110	4,572 ± 33.52	130 ± 3.5
4	11.104	376	17.013	576	25,000 ± 160	7,620 ± 48.76	340 ± 8
5	7.041	238	10.963	371	35,000 ± 210	10,668 ± 64.00	279 ± 6
6	5.286	179	7.95	269	41,000 ± 235	12,496 ± 71.62	233 ± 6

SUBTASK 34-24-02-730-005

(2) At each test value, permit the pressure to become stable for one minute.

- (a) Do not hit or shake the display before you read the values.

SUBTASK 34-24-02-780-001

(3) Make sure that the altitude and airspeed data on the ISFD is in tolerance for each test point in Table 501.

SUBTASK 34-24-02-780-002

(4) Make sure that the attitude data on the ISFD is the same as the captain's attitude display ± 1 degree.

SUBTASK 34-24-02-210-005

**HAP 031-037, 049, 102, 103**

(5) Do a check to see if the ISFD dedicated battery System (E1-3) is operational:

- (a) Make sure that the red fault light on the front of the battery charger is not on.

**NOTE:** The red fault light shows that the battery charger is not serviceable. The battery charger can be not serviceable because of battery temperature or because of a cell voltage problem.

<p align="center"><b>EFFECTIVITY</b></p> <p><b>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</b></p>
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HAP 031-037, 049, 102, 103 (Continued)

### HAP 038-048, 050-054, 101, 104-999

- (6) Do a check to see if the ISFD dedicated battery System (E4-1) is operational:
- (a) Make sure that the red fault light on the front of the battery charger is not on.

**NOTE:** The red fault light shows that the battery charger is not serviceable. The battery charger can be not serviceable because of battery temperature or because of a cell voltage problem.

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SUBTASK 34-24-02-860-009

- (7) Put the system back to ambient pressure.
- (a) When you release the pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.
  - (b) When you release the pressure from the pitot system, make sure that the rate is less than 300 knots for each minute.

SUBTASK 34-24-02-080-001

- (8) Removal of Drain Coupling, coupling, COM-1927

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE INSTRUMENTS CAN OCCUR.

- (a) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.
- (b) Disconnect the coupling, COM-1927, from the No. 5 Alternate Static Drain.
- (c) Install the cap on the No. 5 Alternate Static Drain.

**WARNING:** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

**CAUTION:** DO NOT PLUG OR DEFORM THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (d) Remove the Scotch Brand No.471 tape, G02219, from the alternate static ports at these locations:
  - 1) The ALTERNATE static port on the right side of the fuselage.
  - 2) The ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-24-02-480-008

- (9) Removal of Static Port Adapter, static port adapter, SPL-1921

**CAUTION:** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE INSTRUMENTS CAN OCCUR.

- (a) Disconnect the air data model test set, COM-1914 from the static port adapter, SPL-1921.

EFFECTIVITY

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CAUTION: REMOVE THE ADAPTER, 33410LH-125-4, SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

- (b) Remove the static port adapter, SPL-1921, from the ALTERNATE static port on the left side of the fuselage.
(c) Remove the Scotch Brand No.471 tape, G02219, from the ALTERNATE static port on the right side of the fuselage.

SUBTASK 34-24-02-080-004

(10) Removal of the Pitot Probe Adapter

CAUTION: MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE INSTRUMENTS CAN OCCUR.

- (a) Disconnect the air data model test set, COM-1914 from the adapter, kit, COM-1916.
(b) Remove the adapter, kit, COM-1916, from the pitot probe.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-24-02-860-012

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

CAPT Electrical System Panel, P18-3

Table with 4 columns: Row, Col, Number, Name. Rows include heaters for CAPT PITOT, TEMP PROBE, ALPHA VANE RIGHT, F/O PITOT, and AUX PITOT.

END OF TASK

TASK 34-24-02-710-802

4. ISFD Dedicated Battery System - Operational Test

A. References

Table with 2 columns: Reference, Title. Lists references for electrical power supply and ISFD battery system removal/installation.

B. Location Zones

Table with 2 columns: Zone, Area. Lists zones 117-212 and their corresponding areas like Electrical and Electronics Compartment, Forward Cargo Compartment, and Flight Compartment.

EFFECTIVITY
HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

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## C. General

SUBTASK 34-24-02-800-001

- (1) This procedure is a scheduled maintenance task to see if the battery charger and battery pack for the integrated standby flight display are operational.

## D. Prepare for the operational test of the ISFD dedicated battery system and battery pack for the integrated standby flight display

SUBTASK 34-24-02-860-014

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

## E. Test Procedure

SUBTASK 34-24-02-210-006

### HAP 031-037, 049, 102, 103

- (1) Do a check to see if the ISFD dedicated battery system (E1-3) and battery pack are serviceable:

- (a) Make sure that the red FAULT light on the front of the battery charger is not on.

**NOTE:** The red FAULT light shows that the battery charger or the battery pack are not serviceable. The battery charger or battery pack can be not serviceable because of problems with battery charger operating temperature, battery charger voltage output, or battery pack cell voltage.

- (b) Make sure that the yellow "ALT", "SPD", "ATT" and "INIT XXs" flags are displayed on the ISFD for approximately 10 to 15 seconds after power up..

**NOTE:** "XXs" refers to the time remaining (in seconds) for the ISFD to complete its initialization. Timer starts at 90s and counts down to 0s.

- (c) After 15 seconds make sure the display still show "ATT" and "INIT XXs" on the ISFD.
- (d) After 120 seconds, make sure the display change to an attitude display.
- (e) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (f) Push and release the ATT/RST button on the face of the ISFD.
- (g) Make sure the attitude display still shows on the ISFD with no red error flags.
- (h) Wait 120 seconds.
- (i) Make sure the attitude display still shows on the ISFD with no red error flags.
- (j) 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	8	C01551	ISFD

- (k) Make sure that the red FAULT light on the face of the battery charger is not on.

**NOTE:** If the red FAULT light is not on and a display shows on the integrated standby flight display, the battery charger and battery are serviceable.

- (l) If the battery charger or battery pack are not serviceable,

These are the tasks:

ISFD Dedicated System and Battery Pack Removal, TASK 34-24-03-000-801,

EFFECTIVITY
HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

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HAP 031-037, 049, 102, 103 (Continued)

ISFD Dedicated Battery System and Battery Pack Installation, TASK 34-24-03-400-801.

HAP 038-048, 050-054, 101, 104-999

- (2) Do a check to see if the ISFD dedicated battery system (E4-1) and battery pack are serviceable:
  - (a) Make sure that the red FAULT light on the front of the battery charger is not on.

NOTE: The red FAULT light shows that the battery charger or the battery pack are not serviceable. The battery charger or battery pack can be not serviceable because of problems with battery charger operating temperature, battery charger voltage output, or battery pack cell voltage.

- (b) Make sure that the yellow "ALT", "SPD", "ATT" and "INIT XXs" flags are displayed on the ISFD for approximately 10 to 15 seconds after power up..

NOTE: "XXs" refers to the time remaining (in seconds) for the ISFD to complete its initialization. Timer starts at 90s and counts down to 0s.

- (c) After 15 seconds make sure the display still show "ATT" and "INIT XXs" on the ISFD.
- (d) After 120 seconds, make sure the display change to an attitude display.
- (e) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (f) Push and release the ATT/RST button on the face of the ISFD.
- (g) Make sure the attitude display still shows on the ISFD with no red error flags.
- (h) Wait for 120 seconds
- (i) Make sure the attitude display still shows on the ISFD with no red error flags.
- (j) 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	8	C01551	ISFD

- (k) Make sure that the red FAULT light on the face of the battery charger is not on.

NOTE: If the red FAULT light is not on and a display shows on the integrated standby flight display, the battery charger and battery are serviceable.

- (l) If the battery charger or battery pack are not serviceable,

These are the tasks:

ISFD Dedicated System and Battery Pack Removal, TASK 34-24-03-000-801,

ISFD Dedicated Battery System and Battery Pack Installation, TASK 34-24-03-400-801.

HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

F. Put the Airplane Back to Its Usual Condition

————— END OF TASK —————

<p>EFFECTIVITY</p> <p>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</p>
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AIRCRAFT MAINTENANCE MANUAL

ISFD DEDICATED BATTERY CHARGER - REMOVAL/INSTALLATION

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
  - (1) A removal of the dedicated battery charger and battery pack for the integrated standby flight display (ISFD).
  - (2) An installation of dedicated battery charger and battery pack for the ISFD.

**HAP 031-037, 049, 102, 103**

- C. The battery charger [1] is on the E1 electronic equipment rack, shelf No. 3, in the main equipment center.

**HAP 038-048, 050-054, 101, 104-999**

- D. The battery charger [1] is on the E4 electronic equipment rack, shelf No. 1, in the main equipment center.

**HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

**TASK 34-24-03-000-801**

2. ISFD Dedicated System and Battery Pack Removal

(Figure 401 or Figure 402)

A. General

- (1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-000-801	E/E Box Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Removal Procedure - ISFD Dedicated Battery System

SUBTASK 34-24-03-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

SUBTASK 34-24-03-860-002

- (2) Open this circuit breaker and attach a DO-NOT-CLOSE tag:

EFFECTIVITY
<b>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</b>

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## HAP 031-037, 049, 102, 103

- (a) Front of the battery charger, M2100, E1-3:
  - 1) DBC Output Breaker

## HAP 038-048, 050-054, 101, 104-999

- (b) Front of the battery charger, M2100, E4-1:
  - 1) DBC Output Breaker

## HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-24-03-010-001

- (3) To get access to the main equipment center, open this access panel:

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

(TASK 06-41-00-800-801).

SUBTASK 34-24-03-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ISFD DEDICATED BATTERY CHARGER [1]. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ISFD DEDICATED BATTERY CHARGER [1].

- (4) To remove the battery charger [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

## F. Removal Procedure - Battery Pack

SUBTASK 34-24-03-860-008

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

SUBTASK 34-24-03-010-002

- (2) Do these steps to remove the battery pack from the ISFD dedicated battery system:
  - (a) Do the Removal Procedure - ISFD Dedicated Battery System.
  - (b) Remove the screws [2] from the battery charger cover [1].
  - (c) Remove the screws from the battery charger hold down hook [3] on the front plate of the battery charger base.
  - (d) Remove the cover [1] of the battery charger and hold down hook [3] from the base.
  - (e) Disconnect the battery pack from the battery charger power circuit board.
  - (f) Remove the battery pack from the battery charger.

————— END OF TASK —————

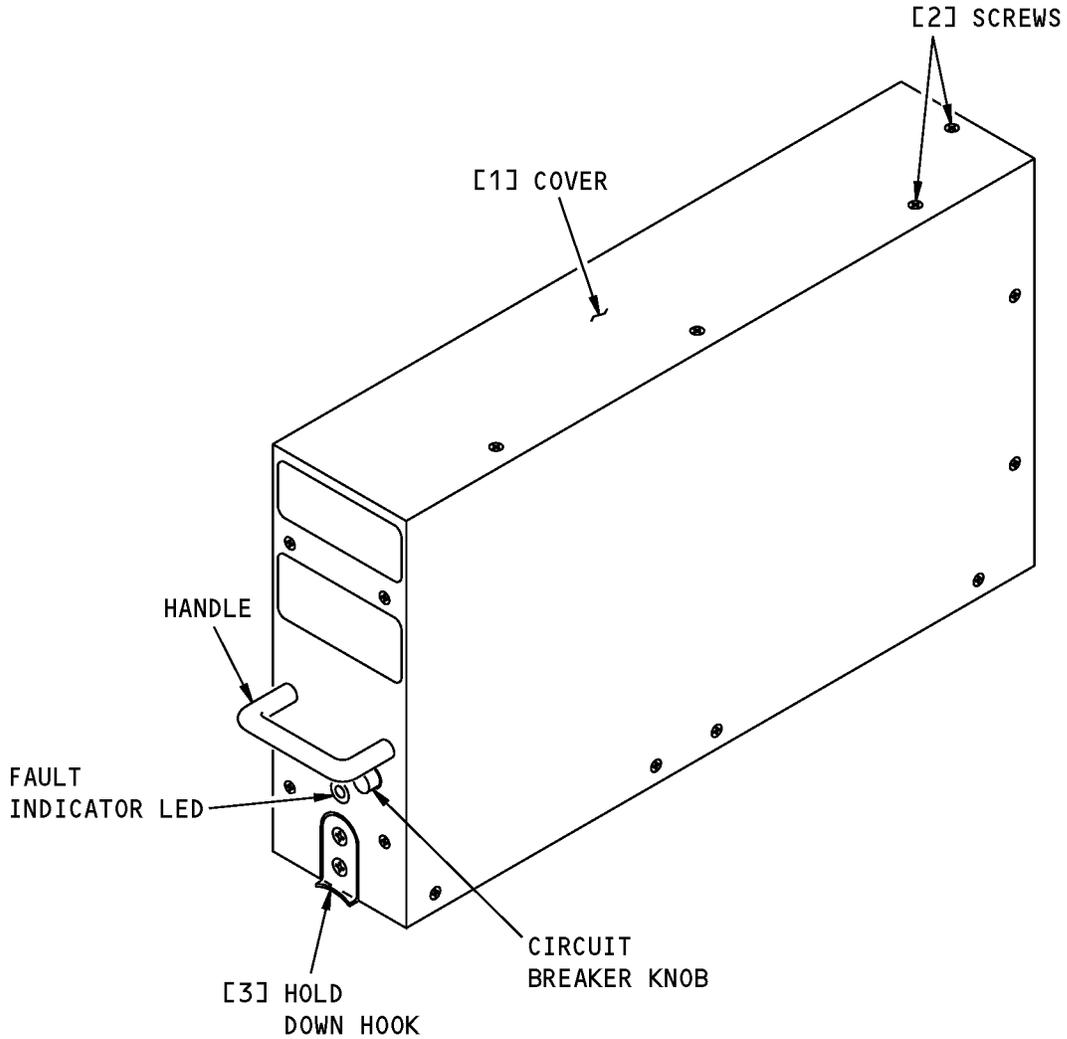
### EFFECTIVITY

<p>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</p>
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**ISFD Dedicated Battery Charger Installation  
Figure 401/34-24-03-990-802**

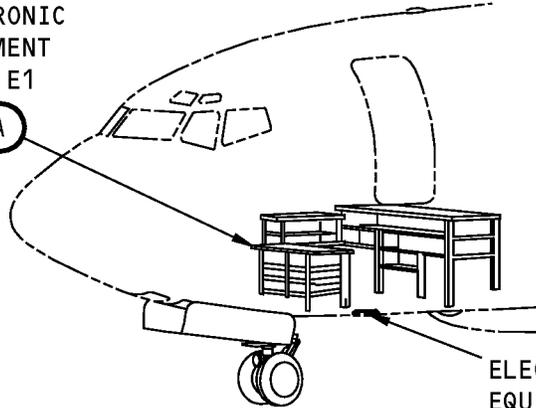
EFFECTIVITY  
HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

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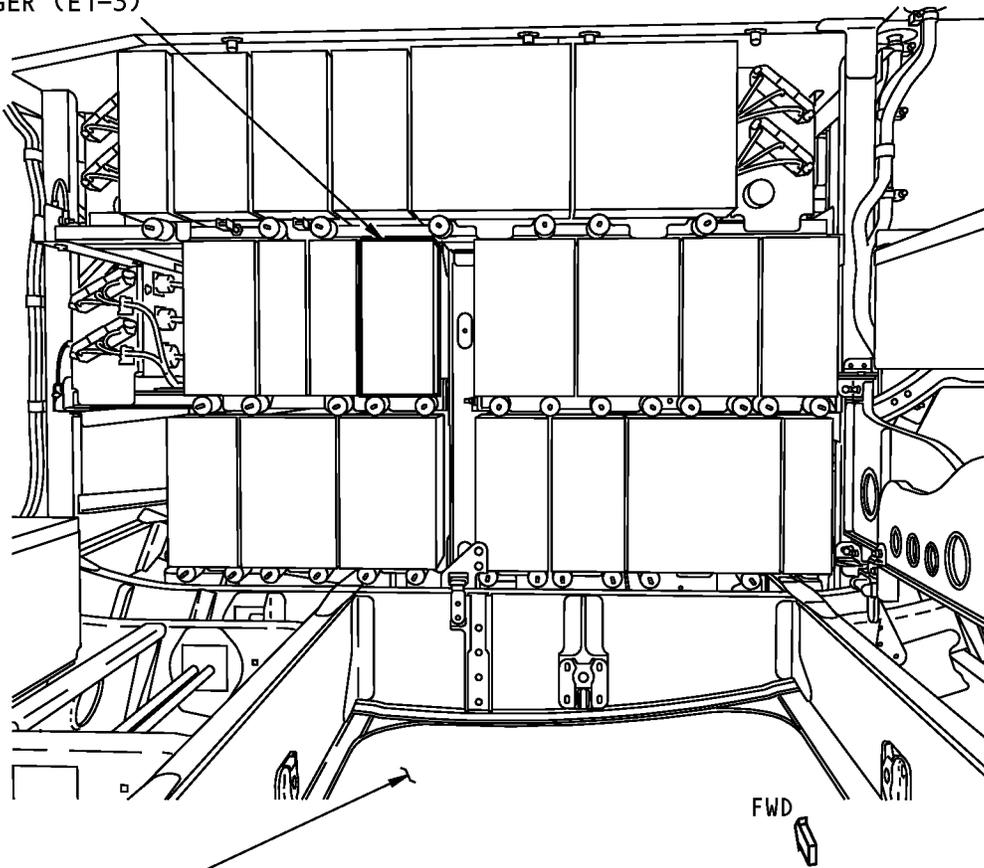
ELECTRONIC  
EQUIPMENT  
RACK, E1

SEE (A)



ELECTRONIC  
EQUIPMENT  
ACCESS DOOR, 117A

[1] DEDICATED BATTERY  
CHARGER (E1-3)



ELECTRONIC EQUIPMENT  
ACCESS DOOR, 117A

ELECTRONIC EQUIPMENT RACK, E1

(A)

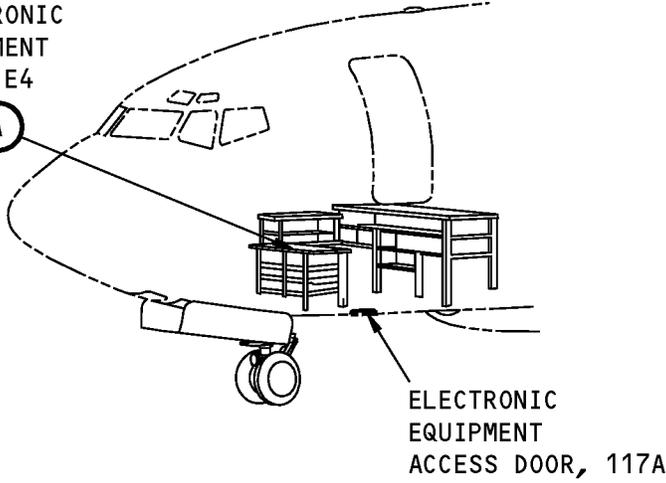
**ISFD Dedicated Battery Charger Installation  
Figure 402 (Sheet 1 of 2)/34-24-03-990-801**

EFFECTIVITY
HAP 031-037, 049, 102, 103

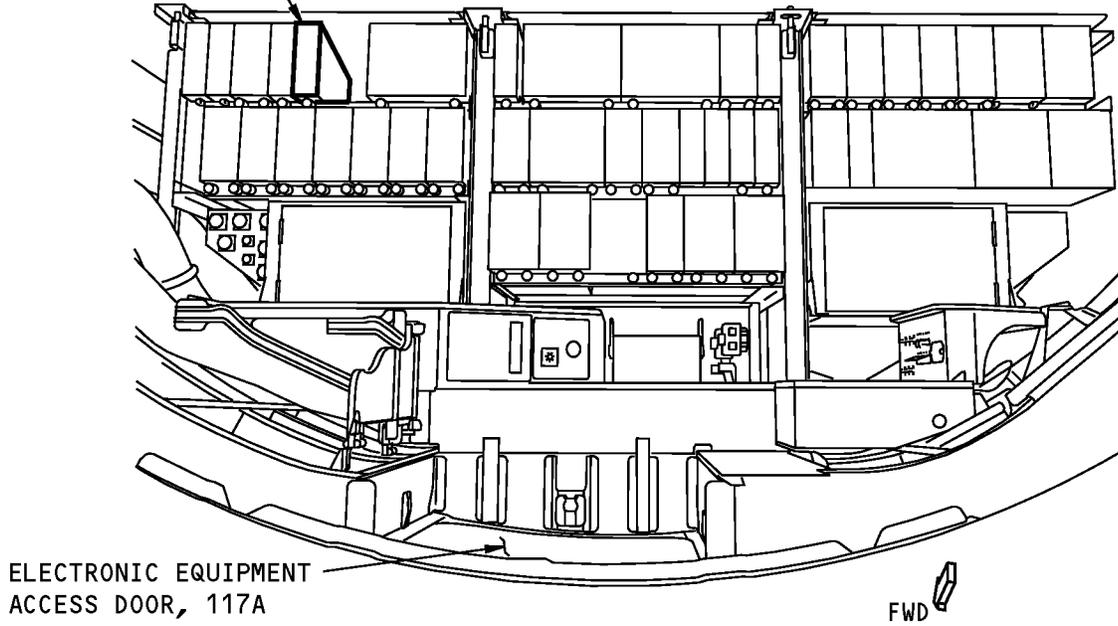
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ELECTRONIC  
EQUIPMENT  
RACK, E4  
SEE (A)



[1] DEDICATED BATTERY  
CHARGER (E4-1)



**ELECTRONIC EQUIPMENT RACK, E4**

(A)

**ISFD Dedicated Battery Charger Installation  
Figure 402 (Sheet 2 of 2)/34-24-03-990-801**

<b>EFFECTIVITY</b> HAP 038-048, 050-054, 101, 104-999
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#### TASK 34-24-03-400-801

### 3. ISFD Dedicated Battery System and Battery Pack Installation

(Figure 401 or Figure 402)

#### A. General

- (1) This procedure is a scheduled maintenance task.

#### B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)

#### C. Consumable Materials

Reference	Description	Specification
A00270	Compound - Threadlocking, Low-strength - Loctite 222	

#### D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

#### E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

#### F. Installation Procedure - Battery Pack

SUBTASK 34-24-03-860-009

- (1) Do these steps to install the battery pack in the ISFD dedicated battery system:

- (a) Put a servicable battery pack in the battery charger base.

**NOTE:** The battery pack is servicable when it has between 20 Vdc and 25Vdc. The battery pack is charged to 27.5Vdc in less than 150 minutes by the dedicated battery charger, and is maintained at 25Vdc by the charger.

- (b) Connect the battery pack to the battery charger power circuit board.
- (c) Install the battery charger cover you removed to the battery charger base by aligning the screw holes in the cover with the screw holes in the base.
- (d) Apply a small amount of Loctite 222 compound, A00270 to the screws you removed from the battery charger cover, and attach the cover to the base with the screws.
- (e) Install the hold down hook you removed on the front plate of the battery charger base by aligning the screw holes in the hold down hook with the holes in the front plate of the base.
- (f) Apply a small amount Loctite 222 compound, A00270 to the screws you removed from the hold down hook, and attach the hook to the front plate with the screws.
- (g) Torque the screws you installed to 5 in. lb. ± 1 in. lb. (.56 Nm ± .11 Nm).
- (h) Do the Installation Procedure - ISFD Dedicated Battery System.

EFFECTIVITY  
**HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

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## AIRCRAFT MAINTENANCE MANUAL

### G. Installation Procedure - ISFD Dedicated Battery System

SUBTASK 34-24-03-860-006

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

SUBTASK 34-24-03-860-003

- (2) Make sure that this circuit breaker is open:

#### HAP 031-037, 049, 102, 103

- (a) Front of the battery charger, M2100, E1-3:

- 1) DBC Output Breaker

#### HAP 038-048, 050-054, 101, 104-999

- (b) Front of the battery charger, M2100, E4-1:

- 1) DBC Output Breaker

#### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-24-03-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE BATTERY CHARGER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

- (3) To install the battery charger [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-24-03-860-007

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

SUBTASK 34-24-03-860-004

- (5) Remove the DO-NOT-CLOSE tag and close this circuit breaker:

#### HAP 031-037, 049, 102, 103

- (a) Front of the battery charger, M2100, E1-3:

- 1) DBC Output Breaker

#### HAP 038-048, 050-054, 101, 104-999

- (b) Front of the battery charger, M2100, E4-1:

- 1) DBC Output Breaker

#### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-24-03-710-001

- (6) Make sure that the red light on the face of the battery charger is not on.

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## H. Installation Test

SUBTASK 34-24-03-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-03-700-001

(2) Make sure a display shows on the integrated standby flight display.

**NOTE:** The display will show flags for approximately 15 seconds. After approximately 3 minutes, the display will change to an attitude display.

SUBTASK 34-24-03-700-002

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

SUBTASK 34-24-03-700-003

(4) Make sure a display shows on the integrated standby flight display.

**NOTE:** This step tests the dedicated battery operation. The battery is replaced every three years for normal maintenance.

**NOTE:** To restart the display initialization, push and release the ATT RST button on the face of the ISFD.

SUBTASK 34-24-03-700-004

(5) 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	8	C01551	ISFD

SUBTASK 34-24-03-710-002

(6) Make sure that the red FAULT light on the face of the battery charger is not on.

**NOTE:** If the fault light is not on and a display shows on the integrated standby flight display, the battery charger is servicable.

(a) The red FAULT light comes on when there is a fault with the battery charger or the battery, from one or more of these conditions:

- 1) Battery charger operating temperature is more than the maximum 180°F (83°C) or less than the minimum 5°F (-15°C).
- 2) Battery charger circuits do not provide the correct output voltage.
- 3) Voltage levels of the cells in the battery pack are not equal.

SUBTASK 34-24-03-410-002

(7) Close this access panel:

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

(TASK 06-41-00-800-801).

————— **END OF TASK** —————

<p>EFFECTIVITY</p> <p>HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY</p>
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INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) An operational test of the instrument landing system.
- (2) A system test of the instrument landing system.

**TASK 34-31-00-710-801**

2. Instrument Landing System - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (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)

B. Location Zones

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

C. Prepare for the Test

SUBTASK 34-31-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-31-00-710-001

- (2) Do these steps to prepare for the operational test:
  - (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the SOURCE switch on the instrument switching module to the AUTO position.
  - (c) Set the mode selector on the captain's and the first officer's EFIS control panel to the APP position.

**HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR**

- (d) Set the approach mode selector switch on the standby attitude indicator to the APP position.

**HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

- (e) Push the approach mode selector (APP) button on the Integrated Standby Flight Display (ISFD) until APP is displayed on the ISFD screen.

**HAP ALL**

- (f) Set the captain's and the first officer's course select controls on the mode control panel (MCP) to the same course as the airplane heading.
- (g) Make sure the air data inertial reference unit (ADIRU) is aligned and in the NAV mode. To align it, 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.

EFFECTIVITY HAP ALL
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## D. Power and Tuning Test

### I HAP 001-013, 015-026, 028-036

SUBTASK 34-31-00-860-002

- (1) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

### I HAP 038-054, 101-999

SUBTASK 34-31-00-860-025

- (2) Set a ILS frequency of 108.1 MHz on the captain's and the first officer's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.10" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.
    - 1) Make sure that the following on the CAPT and F/O Primary Flight Displays (PFD's):
      - a) "ILS" is displayed on the upper left corner of the attitude indicator.
      - b) Localizer and Glideslope deviation scales are displayed.

### HAP 037

SUBTASK 34-31-00-860-021

- (3) Set a ILS frequency of 108.1 MHz on the captain's and the first officer's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.10" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.
    - 1) Make sure that the following on the CAPT and F/O Primary Flight Displays (PFD's):
      - a) "ILS" is displayed on the upper left corner of the attitude indicator.
      - b) Localizer and Glideslope deviation scales are displayed.

### HAP ALL

SUBTASK 34-31-00-860-003

- (4) 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>
HAP 001, 004-013, 015-026, 028-054, 101-999	A	13	C01480 RADIO NAVIGATION MMR 2

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HAP 001, 004-013, 015-026, 028-054, 101-999 (Continued)

HAP 037

SUBTASK 34-31-00-710-014

- (5) Push and release the IRS button on the P7 glareshield panel.
  - (a) Make sure that the MASTER CAUTION PUSH TO RESET light and the IRS light on the P7 panel are illuminated.
  - (b) Make sure that the ILS, GLS, and GPS light on the IRS Mode Selector Unit (MSU) located on the P5 aft overhead panel are illuminated.

SUBTASK 34-31-00-710-015

- (6) Push and release the MASTER CAUTION PUSH TO RESET button on the P7 panel.
  - (a) Make sure that the MASTER CAUTION PUSH TO RESET light and the IRS light on the P7 panel are extinguished.

HAP ALL

SUBTASK 34-31-00-710-002

- (7) Push and release the TEST button on the captain's navigation control panel.
  - (a) Make sure that these indications show on the captain's display:
    - NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.
    - 1) The LOC and G/S flags show momentarily
    - 2) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.
    - 3) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.

SUBTASK 34-31-00-860-004

- (8) 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>
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**HAP 001, 004-013, 015-026, 028-054, 101-999**

A	13	C01480	RADIO NAVIGATION MMR 2
---	----	--------	------------------------

**HAP ALL**

SUBTASK 34-31-00-860-005

- (9) 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>
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**HAP 004, 005, 008-013, 015-026, 028-030**

A	2	C01380	RADIO NAVIGATION ILS 1
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**HAP 001, 004-013, 015-026, 028-054, 101-999**

A	2	C01479	RADIO NAVIGATION MMR 1
---	---	--------	------------------------

**HAP ALL**

SUBTASK 34-31-00-710-003

- (10) Push and release the TEST button on the first officer's navigation control panel.

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(a) Make sure that these indications show on the first officer's display:

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

- 1) The LOC and G/S flags show momentarily
- 2) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.
- 3) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.

SUBTASK 34-31-00-860-006

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1
<b>HAP ALL</b>			

E. Data Out, Source Select, and ILS Tuned Discrete Test

SUBTASK 34-31-00-710-004

(1) Push and release the TEST button on the captain's navigation control panel.

**HAP 001-013, 015-026, 028-030**

(a) Make sure that these indications show on the standby attitude indicator:

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

- 1) The LOC and G/S flags show momentarily
- 2) The glideslope deviation bar shows one dot up and the localizer deviation bar shows one dot left.
- 3) The glideslope deviation bar shows one dot down and the localizer deviation bar shows one dot right.
- 4) The LOC and G/S flags do not show at the end of the test.

**HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

(b) Make sure that these indications show on the integrated standby flight display:

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

- 1) The LOC and G/S flags show momentarily
- 2) The glideslope deviation bar shows one dot up and the localizer deviation bar shows one dot left.
- 3) The glideslope deviation bar shows one dot down and the localizer deviation bar shows one dot right.
- 4) The LOC and G/S flags do not show at the end of the test.

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HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY (Continued)

SUBTASK 34-31-00-860-022

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

CAPT Electrical System Panel, P18-1

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

(a) Make sure that G/S and LOC flags are displayed on the ISFD.

HAP 037

SUBTASK 34-31-00-710-016

(3) Push and release the IRS button on the P7 glareshield panel.

(a) Make sure that the Master Caution Push To Reset light and the IRS light on the P7 panel are illuminated.

(b) Make sure that the ILS, GLS, and GPS light on the IRS Mode Select Unit (MSU) located on the P5 aft overhead panel are illuminated.

SUBTASK 34-31-00-710-017

(4) Push and release the Master Caution Push To Reset button on the P7 panel.

(a) Make sure that the Master Caution Push To Reset light and the IRS light on the P7 panel are extinguished.

(b) Make sure that the ILS, GLS, and GPS light on the IRS Mode Select Unit (MSU) located on the P5 aft overhead panel are extinguished.

HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

SUBTASK 34-31-00-860-023

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

CAPT Electrical System Panel, P18-1

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

(a) Make sure that G/S and LOC scales are displayed on the ISFD.

HAP 037

SUBTASK 34-31-00-710-018

(6) Push and release the IRS button on the P7 glareshield panel.

(a) Make sure that the ILS, GLS, and GPS light on the IRS Mode Select Unit (MSU) located on the P5 aft overhead panel are not illuminated.

HAP ALL

SUBTASK 34-31-00-710-005

(7) Set the VHF NAV switch on the instrument switching module to the BOTH ON 1 position.

(a) Make sure the message EFIS MODE/NAV FREQ DISAGREE does not show on the captain's and the first officer's displays.

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### HAP 037

SUBTASK 34-31-00-710-019

- (8) Set a GLS channel of 21000 on the captain's navigation control panel by:
- Pushing the MODE key (V or reverse V) until "GLS" is displayed in the STBY (lower) window of the NCP.
  - Pushing the number "21000" using the NCP keypad.
  - Pushing the ACT/STBY transfer key until "GLS 21000" is displayed in the ACT (upper) window on the NCP.
    - Make sure that the following on the CAPT and F/O Primary Flight Displays (PFD's):
      - "GLS" is displayed on the upper left corner of the attitude indicator.
      - Localizer and Glideslope deviation scales are displayed.
    - Make sure that the message "EFIS MODE/NAV FREQ DISAGREE" on the CAPT and F/O Approach Mode of the Nav display format DOES NOT appear.

SUBTASK 34-31-00-710-020

- (9) Set a VOR frequency of 108.00 MHz on the captain's navigation control panel by:
- Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - Pushing the number "108.00" using the NCP keypad.
  - Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.
    - Make sure that the message "EFIS MODE/NAV FREQ DISAGREE" appears on the CAPT and F/O Approach Mode of the Nav display format.

### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-31-00-710-006

- (10) Set a frequency of 108.0 MHz on the captain's navigation control panel.
- Make sure the message EFIS MODE/NAV FREQ DISAGREE shows on the captain's and the first officer's displays.

### HAP ALL

SUBTASK 34-31-00-710-007

- (11) Set the VHF NAV switch on the instrument switching module to the BOTH ON 2 position.
- Make sure the message EFIS MODE/NAV FREQ DISAGREE does not show on the captain's and the first officer's displays.

### HAP 037

SUBTASK 34-31-00-710-021

- (12) Set a GLS channel of 21000 on the F/O navigation control panel by:
- Pushing the MODE key (V or reverse V) until "GLS" is displayed in the STBY (lower) window of the NCP.
  - Pushing the number "21000" using the NCP keypad.
  - Pushing the ACT/STBY transfer key until "GLS 21000" is displayed in the ACT (upper) window on the NCP.
    - Make sure that the following on the CAPT and F/O Primary Flight Displays (PFD's):

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### HAP 037 (Continued)

- a) "GLS" is displayed on the upper left corner of the attitude indicator.
  - b) Localizer and Glideslope deviation scales are displayed.
- 2) Make sure that the message "EFIS MODE/NAV FREQ DISAGREE" on the CAPT and F/O Approach Mode of the Nav display format DOES NOT appear.

SUBTASK 34-31-00-710-022

- (13) Set a VOR frequency of 108.00 MHz on the F/O navigation control panel by:
- (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.
- 1) Make sure that the message "EFIS MODE/NAV FREQ DISAGREE" appears on the CAPT and F/O Approach Mode of the Nav display format.

### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-31-00-710-008

- (14) Set a frequency of 108.0 MHz on the first officer's navigation control panels.
- (a) Make sure the message EFIS MODE/NAV FREQ DISAGREE shows on the captain's and the first officer's displays.

### HAP ALL

SUBTASK 34-31-00-860-007

- (15) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-31-00-860-008

- (16) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

### HAP 037

SUBTASK 34-31-00-710-023

- (17) Set a ILS frequency of 108.10 MHz on the captain's navigation control panel by:
- (a) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.10" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.
- 1) Make sure that 108.10 MHz appear on the CAPT Approach Mode of the NAV display format.

SUBTASK 34-31-00-710-024

- (18) Set a GLS channel of 21000 on the F/O navigation control panel by:
- (a) Pushing the MODE key (V or reverse V) until "GLS" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "21000" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "GLS 21000" is displayed in the ACT (upper) window on the NCP.

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HAP 037 (Continued)

1) Make sure that 21000 appear on the F/O Approach Mode of the NAV display format.

HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-31-00-860-009

(19) Set a frequency of 108.1 MHz on the captain's navigation control panel.

SUBTASK 34-31-00-710-009

(20) Set a frequency of 109.75 MHz on the first officer's navigation control panel.

- (a) Make sure 108.1 MHz shows on the captain's display.
(b) Make sure 109.75 MHz shows on the first officer's display.

SUBTASK 34-31-00-710-010

(21) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

- (a) Make sure 108.1 MHz shows on the captain's display.
(b) Make sure 109.75 MHz shows on the first officer's display.

HAP 037

SUBTASK 34-31-00-710-025

(22) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

- (a) Make sure 108.1 MHz shows on the captain's display.
(b) Make sure 21000 shows on the first officer's display.

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SUBTASK 34-31-00-860-010

(23) Set the SOURCE switch on the instrument switching module to the AUTO position.

END OF TASK

TASK 34-31-00-730-801

3. Instrument Landing System - System Test

A. References

Table with 2 columns: Reference and Title. Contains 3 rows of reference information for the Instrument Landing 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.

Effectivity table for HAP ALL, showing a large empty box for details.

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Reference	Description
COM-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)

#### C. Location Zones

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

#### D. Prepare for the System Test

SUBTASK 34-31-00-710-011

- (1) Do these steps to prepare for the system test:
  - (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the SOURCE switch on the instrument switching module to the AUTO position.
  - (c) Set the mode selector on the captain's and the first officer's EFIS control panel to the APP position.

#### HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

- (d) Set the approach mode selector switch on the standby attitude indicator to the APP position.

#### HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY

- (e) Push the approach mode selector (APP) button on the Integrated Standby Flight Display (ISFD) until APP is displayed on the ISFD screen.

#### HAP ALL

- (f) Set the captain's and the first officer's course select controls on the mode control panel (MCP) to the same course as the airplane heading.
- (g) Make sure the air data inertial reference unit (ADIRU) is aligned and in the NAV mode. To align it, 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.

#### E. Operational Test

SUBTASK 34-31-00-710-012

- (1) Do this task: Instrument Landing System - Operational Test, TASK 34-31-00-710-801.

#### F. Audio Out and Audio Discrete Test

SUBTASK 34-31-00-860-011

- (1) Set the voice range filter switch at one of the audio control panels to the R position.

SUBTASK 34-31-00-860-012

- (2) Push the receiver volume control for NAV-1 on the same audio control panel to set the volume to on.

SUBTASK 34-31-00-860-013

- (3) Turn the receiver volume control clockwise for NAV-1 to make sure you can hear sound through the flight interphone system.

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SUBTASK 34-31-00-710-013

- (4) Put the VOR/ILS ramp test set, COM-1913, near the front of the airplane and a minimum of 6 feet from the forward localizer antenna.

SUBTASK 34-31-00-730-001

- (5) Use the VOR/ILS ramp test set, COM-1913, to supply an ILS localizer signal that follows to the tail (VOR) antenna:

Table 501/34-31-00-993-801

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz
IDENT TONE	ON

- (a) Make sure you can hear an ILS tone over the flight interphone system.

SUBTASK 34-31-00-730-002

- (6) Set a frequency of 111.95 MHz on the captain's navigation control panel.
  - (a) Make sure you cannot hear an ILS tone over the flight interphone system.

SUBTASK 34-31-00-860-014

- (7) Push the receiver volume control for NAV-2 on the same audio control panel to set the volume to on.

SUBTASK 34-31-00-860-015

- (8) Turn the receiver volume control clockwise for NAV-2 to make sure you can hear sound through the flight interphone system.

SUBTASK 34-31-00-730-003

- (9) Set a frequency of 108.1 MHz on the first officer's navigation control panel.
  - (a) Make sure you can hear an ILS tone over the flight interphone system.

### G. Localizer Antenna and Antenna Switch Test

SUBTASK 34-31-00-860-016

- (1) Make sure the F/D switches on the DFCS mode control panel are in the OFF position.

SUBTASK 34-31-00-730-004

- (2) Set a frequency of 108.1 MHz on the captain's navigation control panel.
  - (a) Make sure the localizer deviation bars on the captain's and the first officer's displays show one dot right.

SUBTASK 34-31-00-860-017

- (3) Slowly decrease the RF level on the VOR/ILS ramp test set, COM-1913, until the localizer deviation bars on the captain's and the first officer's displays do not show.

SUBTASK 34-31-00-860-018

- (4) Set the F/D switches on the DFCS mode control panel to the ON position.

SUBTASK 34-31-00-730-005

- (5) Push the APP switch on the DFCS mode control panel.
  - (a) Make sure the localizer deviation bars on the captain's and the first officer's displays show one dot right.

SUBTASK 34-31-00-860-019

- (6) Set the F/D switches on the DFCS mode control panel to the OFF position.

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### H. Glideslope Antenna Test

SUBTASK 34-31-00-730-006

- (1) Use the VOR/ILS ramp test set, COM-1913, to supply an ILS glideslope signal that follows to the nose antenna:

Table 502/34-31-00-993-802

OUTPUT LEVEL	-15 dBm
DEFLECTION	Down 1 Dot (0.0875 DDM)
FREQUENCY	334.7 MHz

- (a) Make sure the glideslope deviation pointers on the captain's and the first officer's displays show one dot down.

SUBTASK 34-31-00-860-020

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## ILS GLIDE SLOPE ANTENNA - REMOVAL/INSTALLATION

### 1. General

- A. This procedure has these tasks:
  - (1) A removal of the ILS glide slope antenna
  - (2) An installation of the ILS glide slope antenna.
- B. The ILS glideslope antenna is in the nose radome.

#### **TASK 34-31-21-000-801**

### 2. ILS Glide Slope Antenna Removal

(Figure 401)

#### A. References

<u>Reference</u>	<u>Title</u>
53-52-00-000-801	Nose Radome Removal (P/B 401)
53-52-31-000-801	Glide Slope Director Bar Removal (P/B 401)
53-52-31-400-801	Glide Slope Director Bar Installation (P/B 401)

#### B. Location Zones

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

#### C. Removal Procedure

SUBTASK 34-31-21-860-001

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

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

**HAP ALL**

SUBTASK 34-31-21-860-002

**WARNING:** DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU REMOVE THE GLIDE SLOPE ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

- (2) Open the nose radome to get access to the ILS glide slope antenna [1] (TASK 53-52-00-000-801).

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SUBTASK 34-31-21-860-003

(3) Make sure the antenna director bar is not damaged.

NOTE: The antenna director bar is a 13-inch continuous strip of aluminum foil tape. The strip is installed horizontally across the centerline on the inner surface of the nose radome.

(a) If the antenna director bar is damaged, it must be replaced.

These are the tasks:

Glide Slope Director Bar Removal, TASK 53-52-31-000-801,

Glide Slope Director Bar Installation, TASK 53-52-31-400-801.

SUBTASK 34-31-21-020-001

(4) Remove the ILS glide slope antenna [1].

(a) Remove the screws [2] that attach the ILS glide slope antenna [1] to the airplane structure.

(b) Pull the ILS glide slope antenna [1] assembly away from the airplane structure to get access to the electrical connectors [3].

(c) Disconnect the electrical connectors [3].

(d) Put protective covers on the electrical connectors [3].

(e) Remove the ILS glide slope antenna [1].

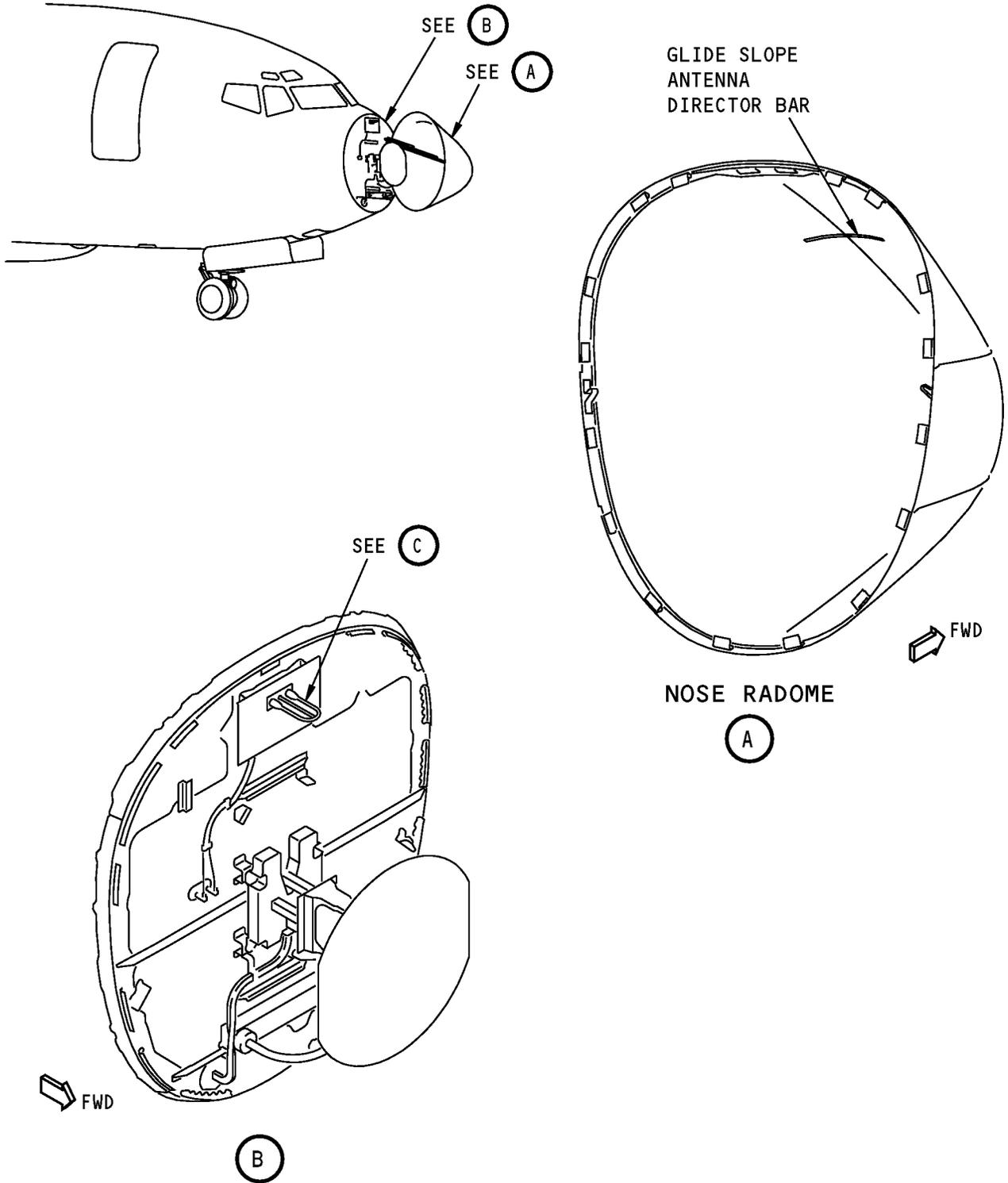
————— **END OF TASK** —————

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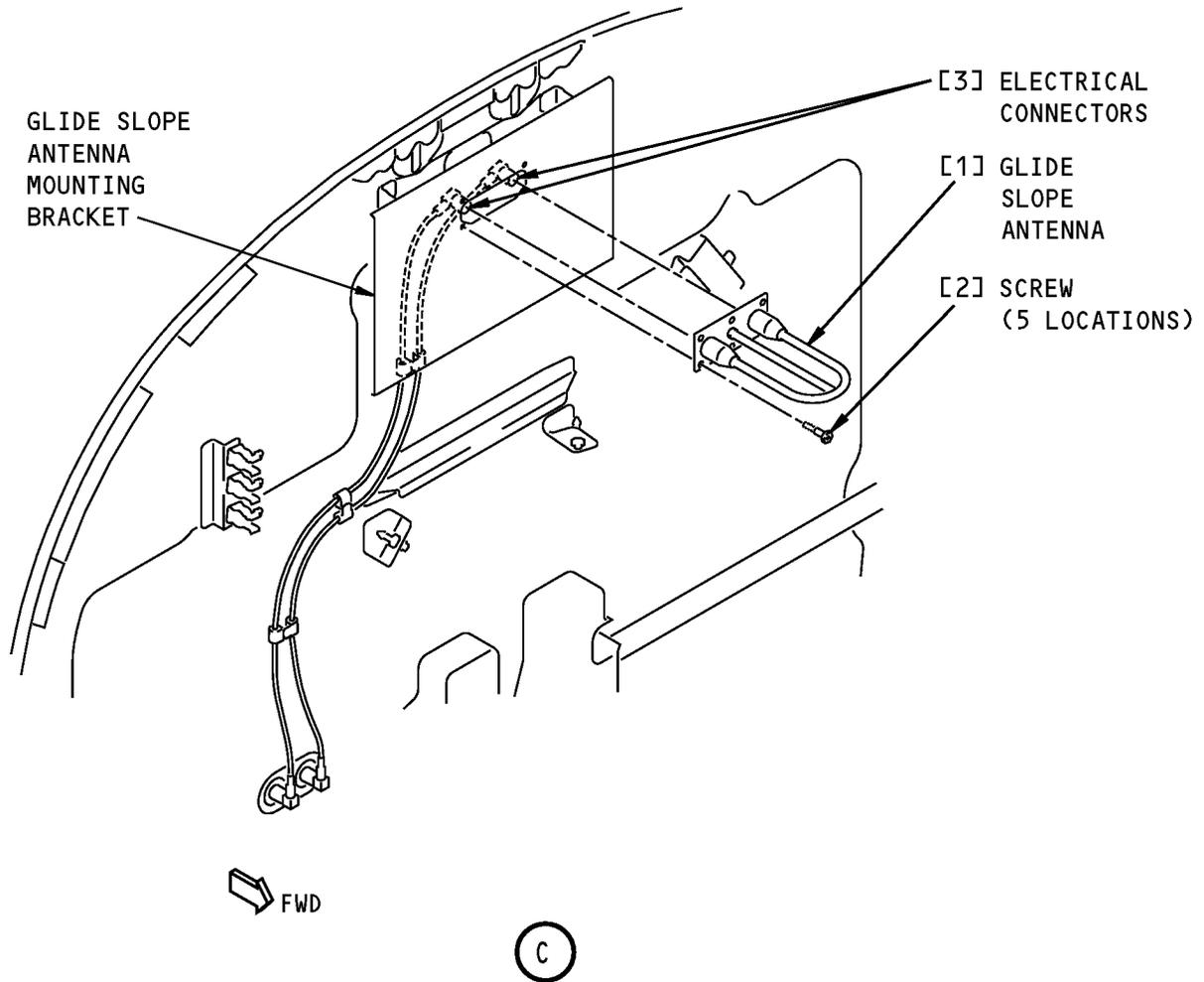
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**Glide Slope Antenna Installation  
Figure 401 (Sheet 1 of 2)/34-31-21-990-801**

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**Glide Slope Antenna Installation  
Figure 401 (Sheet 2 of 2)/34-31-21-990-801**

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**TASK 34-31-21-400-801**

#### 3. ILS Glide Slope Antenna Installation

(Figure 401)

##### A. General

- (1) The installation task has an installation test. The installation test makes sure that the ILS glide slope antenna operates correctly.

##### B. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
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)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
53-52-00-000-801	Nose Radome Removal (P/B 401)
53-52-00-400-801	Nose Radome Installation (P/B 401)

##### C. Tools/Equipment

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

Reference	Description
COM-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)

##### D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B00083	Solvent - Aliphatic Naphtha (For Acrylic Plastics)	TT-N-95 Type II, ASTM D-3735 Type III
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

##### E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Glide slope antenna	34-31-21-01-005	HAP 001-013, 015-026, 028-040, 042
		34-31-21-02-005	HAP 001-013, 015-026, 028-030

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## F. Location Zones

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

## G. Installation Procedure

SUBTASK 34-31-21-860-004

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

**HAP ALL**

SUBTASK 34-31-21-860-005

**WARNING:** DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU INSTALL THE GLIDE SLOPE ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

- (2) Open the nose radome to get access to the ILS glide slope antenna [1] (TASK 53-52-00-000-801).

SUBTASK 34-31-21-100-001

- (3) Clean the mating surfaces of the ILS glide slope antenna [1] and the airplane structure. To clean the mating surfaces, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.
  - (a) Apply solvent, B00083 to the mating surfaces of the ILS glide slope antenna [1] and the airplane structure with a cotton wiper, G00034.
  - (b) Use a cotton wiper, G00034 and clean the mating surfaces again.
  - (c) Do these two steps until the mating surfaces are bright, clean and dry.

SUBTASK 34-31-21-620-001

- (4) If the airplane surface has corrosion or other damage, do these steps to prepare the airplane mating surface:
  - (a) Apply a layer of coating, Alodine 1200 to the airplane mating surface. To apply the coating, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.
  - (b) Apply a layer of primer, C00259, to the screw holes.
  - (c) Allow the primer, C00259, to dry before you install the screws [2].

SUBTASK 34-31-21-420-001

- (5) Install the ILS glide slope antenna [1]:
  - (a) Remove the protective covers from the electrical connectors [3].
  - (b) Apply sealant, A00247 to the threads of the screws [2].

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- (c) Connect the electrical connectors [3] to the ILS glide slope antenna [1].
- (d) Align the ILS glide slope antenna [1] to the screw holes that hold the ILS glide slope antenna [1] to the airplane structure.
- (e) Install the screws [2] that attach the ILS glide slope antenna [1] to the airplane structure.

SUBTASK 34-31-21-760-001

- (6) Do a check of the resistance between the ILS glide slope antenna [1] and the airplane structure .
  - (a) Make sure the resistance is not more than 0.001 ohms.

SUBTASK 34-31-21-410-001

- (7) Close the nose radome (TASK 53-52-00-400-801).

SUBTASK 34-31-21-860-007

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

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

#### HAP ALL

#### H. Installation Test

SUBTASK 34-31-21-710-001

- (1) Do these steps to prepare for the installation test:
  - (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the SOURCE switch on the instrument switching module to the AUTO position.
  - (c) Set the mode selector on the captain's and the first officer's EFIS control panel to the APP position.
  - (d) Set the captain's and the first officer's course select controls on the DFCS mode control panel to the same course as the airplane heading.

#### HAP 001-013, 015-026, 028-036, 038-054, 101-999

- (e) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels.

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY window. Then push the TFR button. The frequency will show in the ACTIVE display.

#### HAP 037

- (f) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's navigation control panels by:
  - 1) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.

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HAP 037 (Continued)

- 2) Pushing the number "108.10" using the NCP keypad.
- 3) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

HAP ALL

- (g) Make sure the air data inertial reference unit (ADIRU) is aligned and in the NAV mode. To align it, 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.

SUBTASK 34-31-21-860-008

- (2) Put the VOR/ILS ramp test set, COM-1913, near the front of the airplane and a minimum of 6 feet from the glide slope antenna.

SUBTASK 34-31-21-710-002

- (3) Use the VOR/ILS ramp test set, COM-1913, to supply an ILS glide slope signal that follows to the nose antenna:

Table 401/34-31-21-993-801

OUTPUT LEVEL	-60 dBm
DEFLECTION	Down 1 Dot (0.0875 DDM)
FREQUENCY	334.7 MHz

- (a) Make sure the glide slope deviation pointers on the captain's and the first officer's displays show one dot down.

————— END OF TASK —————

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# AIRCRAFT MAINTENANCE MANUAL

## LOCALIZER ANTENNA - REMOVAL/INSTALLATION

### 1. General

- A. This procedure has these tasks:
  - (1) A removal of the localizer antenna
  - (2) An installation of the localizer antenna.
- B. The localizer antenna is in the nose radome.

#### **TASK 34-31-31-000-801**

### 2. Localizer Antenna Removal

(Figure 401)

#### A. References

Reference	Title
53-52-00-000-801	Nose Radome Removal (P/B 401)

#### B. Location Zones

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

#### C. Removal Procedure

SUBTASK 34-31-31-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

#### **HAP ALL**

SUBTASK 34-31-31-860-002

**WARNING:** DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU REMOVE THE LOCALIZER ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

- (2) Open the nose radome to get access to the localizer antenna [1] (TASK 53-52-00-000-801).

SUBTASK 34-31-31-020-001

- (3) Remove the localizer antenna [1].
  - (a) Remove the screws [2] that attach the localizer antenna [1] to the airplane structure.
  - (b) Pull the localizer antenna [1] away from the airplane structure to get access to the electrical connectors [3].

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- (c) Disconnect the electrical connectors [3].
- (d) Remove the localizer antenna [1].
- (e) Put protective covers on the electrical connectors [3].

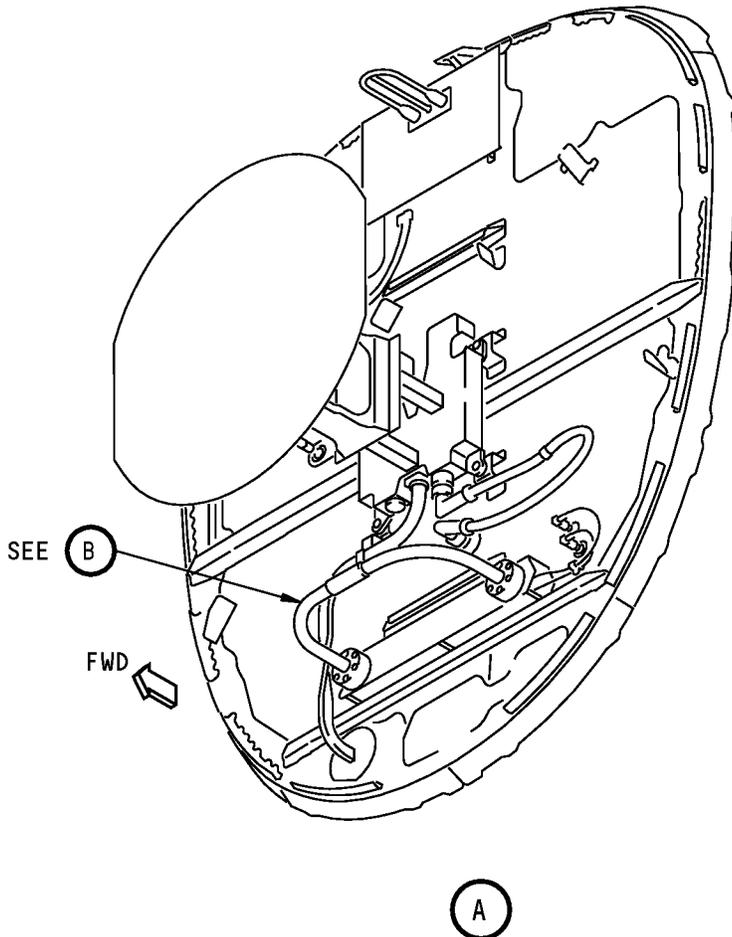
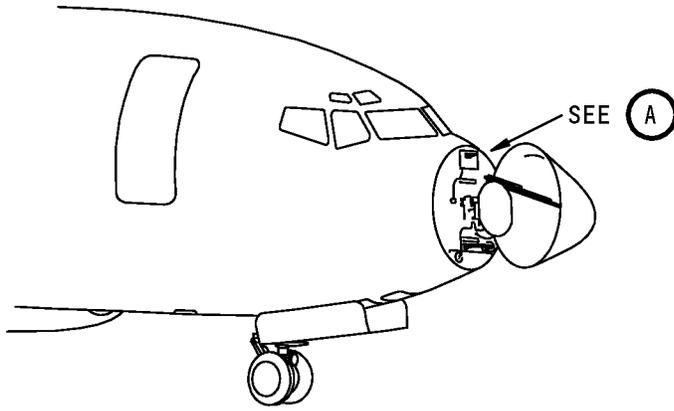
————— **END OF TASK** —————

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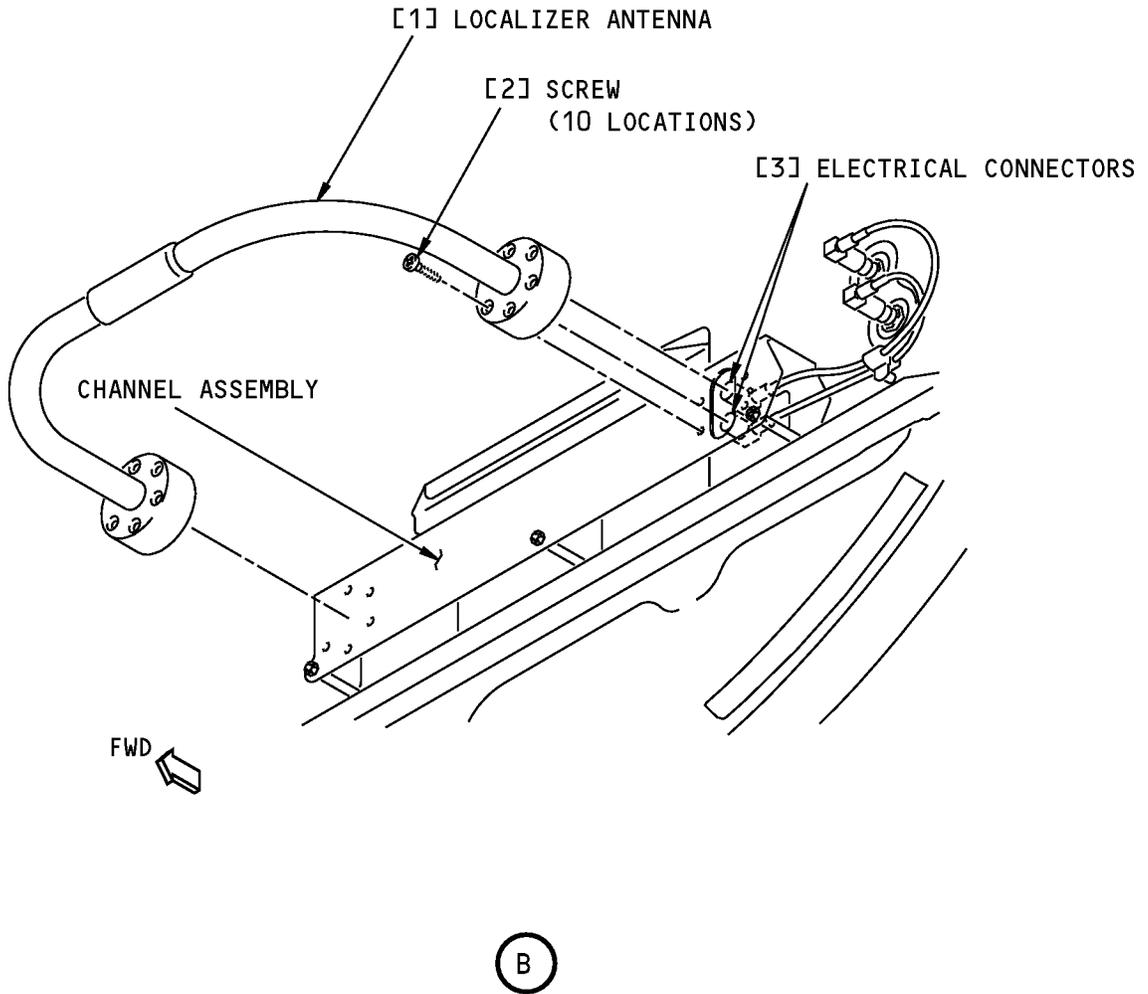


**Localizer Antenna Installation  
Figure 401 (Sheet 1 of 2)/34-31-31-990-801**

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**Localizer Antenna Installation  
Figure 401 (Sheet 2 of 2)/34-31-31-990-801**

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#### TASK 34-31-31-400-801

#### 3. Localizer Antenna Installation

(Figure 401)

##### A. General

- (1) The installation task has an installation test. The installation test makes sure that the localizer antenna operates correctly.

##### B. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
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)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
53-52-00-000-801	Nose Radome Removal (P/B 401)
53-52-00-400-801	Nose Radome Installation (P/B 401)

##### C. Tools/Equipment

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

Reference	Description
COM-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)

##### D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B00083	Solvent - Aliphatic Naphtha (For Acrylic Plastics)	TT-N-95 Type II, ASTM D-3735 Type III
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

##### E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Localizer antenna	34-31-31-01-005	HAP ALL

##### F. Location Zones

Zone	Area
111	Radome
211	Flight Compartment - Left

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(Continued)

Zone	Area
212	Flight Compartment - Right

G. Installation Procedure

SUBTASK 34-31-31-860-003

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

**HAP ALL**

SUBTASK 34-31-31-860-004

**WARNING:** DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU INSTALL THE LOCALIZER ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

- (2) Open the nose radome to get access to the localizer antenna [1] (TASK 53-52-00-000-801).

SUBTASK 34-31-31-100-001

- (3) Clean the mating surfaces of the localizer antenna [1] and the airplane structure. To clean the mating surfaces, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.
- (a) Apply solvent, B00083 to the mating surfaces of the localizer antenna [1] and the airplane structure with a cotton wiper, G00034.
  - (b) Use a clean cotton wiper, G00034, and clean the mating surfaces again.
  - (c) Do these two steps until the mating surfaces are bright, clean and dry.

SUBTASK 34-31-31-620-001

- (4) If the airplane surface has corrosion or other damage, do these steps to prepare the airplane mating surface:
- (a) Apply a layer of coating, Alodine 1200 to the airplane mating surface. To apply the coating, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.
  - (b) Apply a layer of primer, C00259 to the screw holes.
  - (c) Allow the primer, C00259 to dry before you install the screws [2].

SUBTASK 34-31-31-420-001

- (5) Install the localizer antenna [1]:
- (a) Remove the protective covers from the electrical connectors [3].
  - (b) Apply sealant, A00247, to the threads of the screws [2].
  - (c) Connect the coaxial connectors [3] to the localizer antenna [1].

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- (d) Align the localizer antenna [1] to the screw holes that hold the localizer antenna [1] to the airplane structure.
- (e) Install the screws [2] that attach the localizer antenna [1] to the airplane structure.
- (f) Torque the screws to 72 to 88 inch pounds.

SUBTASK 34-31-31-760-001

- (6) Do a check of the resistance between the localizer antenna [1] and the airplane structure .
  - (a) Make sure the resistance is not more than 0.001 ohms.

SUBTASK 34-31-31-410-001

- (7) Close the nose radome (TASK 53-52-00-400-801).

SUBTASK 34-31-31-860-006

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

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

#### HAP ALL

#### H. Installation Test

SUBTASK 34-31-31-710-001

- (1) Do these steps to prepare for the installation test:
  - (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the SOURCE switch on the instrument switching module to the AUTO position.
  - (c) Set the mode selector on the captain's and the first officer's EFIS control panel to the APP position.
  - (d) Set the captain's and the first officer's course select controls on the DFCS mode control panel to the same course as the airplane heading.

#### HAP 001-013, 015-026, 028-036, 038-054, 101-999

- (e) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels.

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY window. Then push the TFR button. The frequency will show in the ACTIVE display.

#### HAP 037

- (f) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's navigation control panels by:
  - 1) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.

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HAP 037 (Continued)

- 2) Pushing the number "108.10" using the NCP keypad.
- 3) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

HAP ALL

- (g) Make sure the air data inertial reference unit (ADIRU) is aligned and in the NAV mode. To align it, 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.

SUBTASK 34-31-31-860-007

- (2) Put the VOR/ILS ramp test set, COM-1913, near the front of the airplane and a minimum of 6 feet from the forward localizer antenna.

SUBTASK 34-31-31-860-008

- (3) Set the F/D switches on the DFCS mode control panel to the ON position.

SUBTASK 34-31-31-860-009

- (4) Push the APP switch on the DFCS mode control panel.

SUBTASK 34-31-31-710-002

- (5) Use the VOR/ILS ramp test set, COM-1913, to supply an ILS localizer signal that follows to the tail (VOR) antenna:

Table 401/34-31-31-993-801

OUTPUT LEVEL	-60 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

- (a) Make sure the localizer deviation bars on the captain's and the first officer's displays show one dot right.

SUBTASK 34-31-31-860-010

- (6) Set the F/D switches on the DFCS mode control panel to the OFF position.

END OF TASK

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# AIRCRAFT MAINTENANCE MANUAL

## RECEIVER FOR ILS - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the receiver for ILS.
- (2) An installation and an installation test of the receiver for ILS.

B. The receiver for ILS is the multi-mode receiver (MMR).

C. The receivers for ILS are in the main equipment center. The No. 1 receiver is on the E1 electronics equipment rack, shelf No. 2. The No. 2 receiver is on the E1 electronics equipment rack, shelf No. 4.

### **TASK 34-31-42-000-801**

### 2. Receiver for ILS - Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-31-42-860-006

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

**HAP ALL**

SUBTASK 34-31-42-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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SUBTASK 34-31-42-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RECEIVER FOR ILS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RECEIVER FOR ILS.

- (3) To remove the No. 1 or No. 2 Receiver for ILS [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

————— **END OF TASK** —————

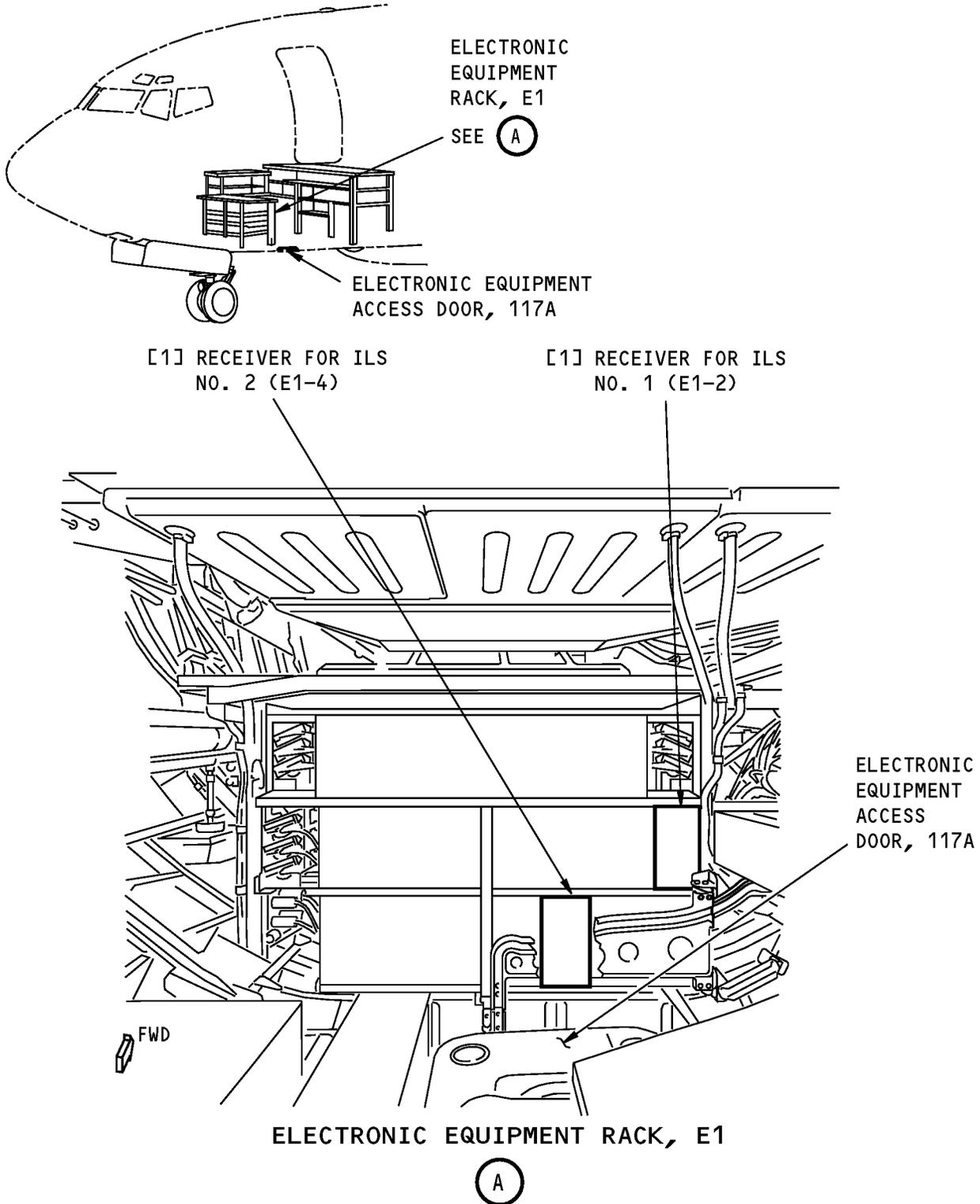
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**Receiver for ILS Installation  
Figure 401/34-31-42-990-801**

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### AIRCRAFT MAINTENANCE MANUAL

**TASK 34-31-42-400-801**

#### 3. Receiver for ILS - Installation

(Figure 401)

##### A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)
34-58-00-710-802	Global Positioning System - Operational Test (P/B 501)

##### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receiver for ILS	34-31-42-01-005	HAP 001-007
		34-31-42-01-010	HAP 008-011
		34-31-42-02-005	HAP 012, 013, 015-026, 028-054, 101-999
		34-31-42-02-006	HAP 037

##### 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. Installation Procedure

SUBTASK 34-31-42-860-007

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

**HAP ALL**

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SUBTASK 34-31-42-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RECEIVER FOR ILS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RECEIVER FOR ILS.

(2) To install the Receiver for ILS [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-31-42-860-008

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 004, 005, 008-013, 015-026, 028-030</b>			
A	2	C01380	RADIO NAVIGATION ILS 1
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

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

**HAP ALL**

SUBTASK 34-31-42-410-001

(4) Close this access panel:

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

## F. Installation Test

SUBTASK 34-31-42-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-31-42-710-002

(2) Do these steps to prepare for the installation test:

- (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
- (b) Set the SOURCE switch on the instrument switching module to the AUTO position.
- (c) Set the mode selector on the captain's and the first officer's EFIS control panel to the APP position.

### **HAP 031-054, 101-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY**

- (d) Push the approach mode selector (APP) button on the Integrated Standby Flight Display (ISFD) until APP is displayed on the ISFD screen.

### **HAP 001-013, 015-026, 028-030; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR**

- (e) Set the approach mode selector switch on the standby attitude indicator to the APP position.

### **HAP ALL**

- (f) Set the captain's and the first officer's course select controls on the DFCS mode control panel to the same course as the airplane heading.

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### HAP 001-013, 015-026, 028-036, 038-054, 101-999

- (g) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

### HAP 037

- (h) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's navigation control panels by:
- 1) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
  - 2) Pushing the number "108.10" using the NCP keypad.
  - 3) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

### HAP ALL

- (i) Make sure the air data inertial reference unit (ADIRU) is aligned and in the NAV mode. To align it, 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.

SUBTASK 34-31-42-710-003

- (3) Do these steps to do an installation test of the No. 1 (captain's) receiver for ILS:
- (a) Push and release the TEST button on the captain's navigation control panel.
- 1) Make sure that these indications show on the captain's display:
- NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.
- a) The LOC and G/S flags show momentarily.
  - b) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.
  - c) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.

SUBTASK 34-31-42-710-004

- (4) Do these steps to do an installation test of the No. 2 (first officer's) receiver for ILS:
- (a) Push and release the TEST button on the first officer's navigation control panel.
- 1) Make sure that these indications show on the first officer's display:
- NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.
- a) The LOC and G/S flags show momentarily.
  - b) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.
  - c) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.

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**HAP 037; AIRPLANES WITH COLLINS MULTI-MODE RECEIVERS**

SUBTASK 34-31-42-860-009

- (5) Push and release the TEST switch on the front panel of the receiver to start the BITE test.
- (a) Make sure that these indications occur:
- 1) All the red lights come on.
  - 2) The LRU STATUS light changes to green after 2 seconds.
  - 3) All the lights go off after 2 seconds.
  - 4) The green LRU STATUS light comes on and stays on for about 30 seconds.

**HAP 001-013, 015-026, 028-036, 038-054, 101-999; AIRPLANES WITH ALLIED SIGNAL/BENDIX MULTI-MODE RECEIVERS**

SUBTASK 34-31-42-860-010

- (6) Push and release the TEST switch on the front panel of the receiver to start the BITE test.
- (a) Make sure that these indications occur:
- 1) The LCD screen shows MMR TEST IN PROGRESS.
  - 2) The LCD screen shows MMR TEST COMPLETE NO FAILURES.

**HAP ALL**

SUBTASK 34-31-42-860-012

- (7) Do this task: Global Positioning System - Operational Test, TASK 34-58-00-710-802.

SUBTASK 34-31-42-860-005

- (8) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## NAVIGATION CONTROL PANEL - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the navigation control panel.
- (2) An installation of the navigation control panel.

B. The captain's and first officer's navigation control panels are on the aft electronics panel, P8, in the flight compartment.

#### **TASK 34-31-52-000-801**

### 2. Navigation Control Panel Removal

(Figure 401)

A. Location Zones

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

B. Removal Procedure

SUBTASK 34-31-52-860-001

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-31-52-860-002

(2) On the aft electronics panel, P8, turn the knob of the PANEL control to the OFF position.

SUBTASK 34-31-52-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE NAVIGATION CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE NAVIGATION CONTROL PANEL.

(3) Remove the NAVIGATION CONTROL PANEL [1]:

- (a) Loosen the four quarter-turn fasteners [2].
- (b) Carefully lift the NAVIGATION CONTROL PANEL [1] from the aft electronics panel, P8, to get access to the electrical connectors [3].
- (c) Disconnect the electrical connectors [3].
- (d) Put protective covers on the electrical connectors [3].

————— **END OF TASK** —————

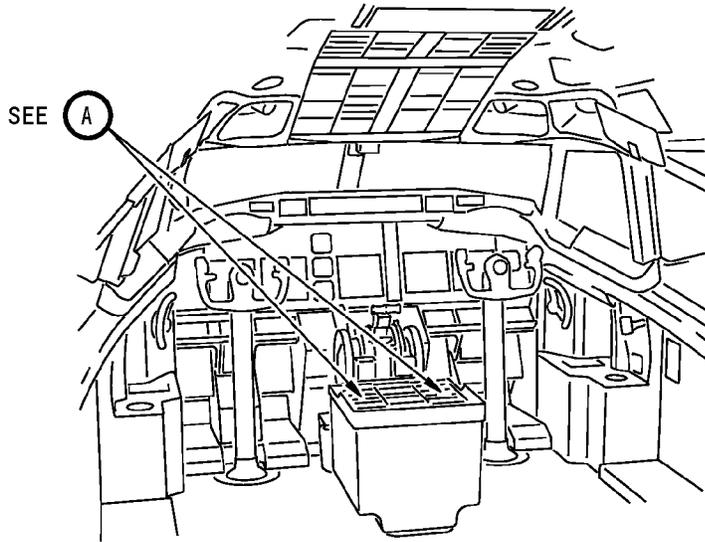
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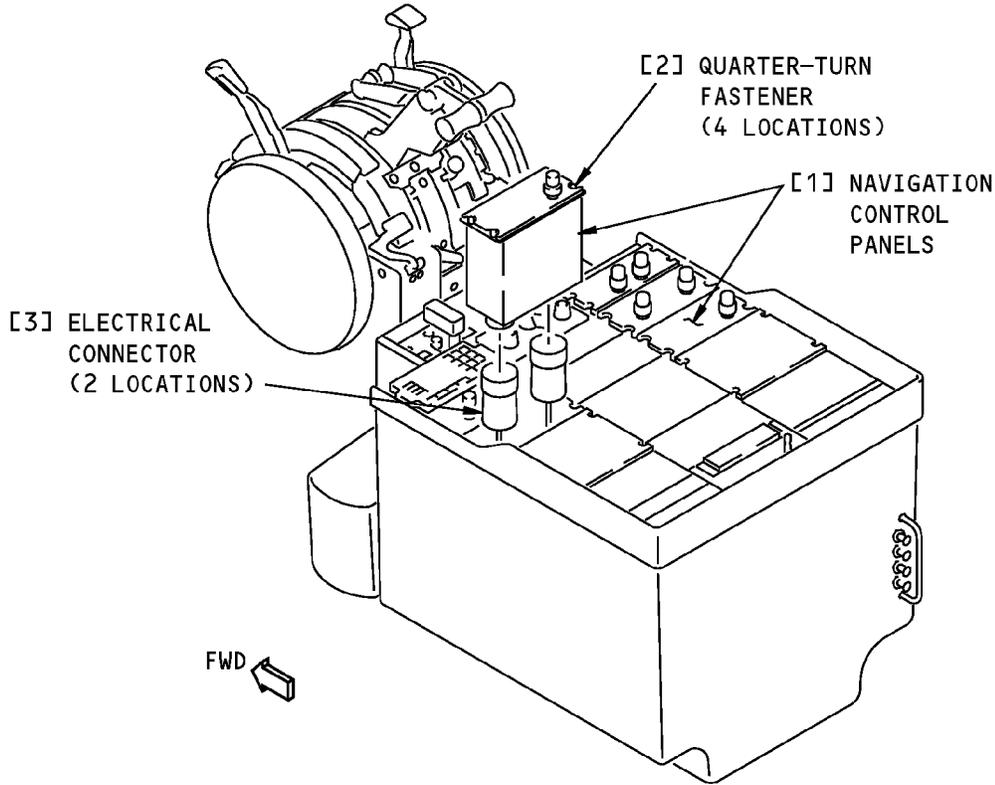
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**FLIGHT COMPARTMENT**



**AISLE STAND**



**Navigation Control Panel Installation  
Figure 401/34-31-52-990-801**

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### AIRCRAFT MAINTENANCE MANUAL

#### TASK 34-31-52-400-801

### 3. Navigation Control Panel Installation

(Figure 401)

#### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	NAVIGATION CONTROL PANEL	31-11-91-04-035	HAP 001-013, 015-026, 028-030
		34-31-52-01B-060	HAP 001-013, 015-026, 028-030

#### C. Location Zones

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

#### D. Installation Procedure

SUBTASK 34-31-52-860-003

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-31-52-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE NAVIGATION CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE NAVIGATION CONTROL PANEL.

- (2) Install the NAVIGATION CONTROL PANEL [1]:
  - (a) Remove the protective covers from the electrical connectors [3].
  - (b) Examine the electrical connectors [3] for bent or broken pins, dirt, and damage.
  - (c) Connect the electrical connectors [3].
  - (d) Put the NAVIGATION CONTROL PANEL [1] in its position on the aft electronics panel, P8.
  - (e) Tighten the four quarter-turn fasteners [2].

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SUBTASK 34-31-52-860-004

(3) 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>
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

## E. Installation Test

SUBTASK 34-31-52-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-31-52-860-007

(2) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-31-52-860-009

(3) Set the mode selector on the captain's and the first officer's EFIS control panels to the VOR position.

## I HAP 001-013, 015-026, 028-036

SUBTASK 34-31-52-710-001

(4) Set a frequency of 108.00 MHz on the captain's and the first officer's NAVIGATION CONTROL PANELS [1].

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

(a) Make sure 108.00 MHz shows on the displays.

## I HAP 038-054, 101-999

SUBTASK 34-31-52-710-005

(5) Set a VOR frequency of 108.00 MHz on the captain's and the first officer's NAVIGATION CONTROL PANELS [1] by:

(a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number "108.00" using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

1) Make sure 108.00 MHz shows on the displays.

## HAP 037

SUBTASK 34-31-52-710-003

(6) Set a VOR frequency of 108.00 MHz on the captain's and the first officer's NAVIGATION CONTROL PANELS [1] by:

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### HAP 037 (Continued)

- (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
- (b) Pushing the number "108.00" using the NCP keypad.
- (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.
  - 1) Make sure 108.00 MHz shows on the displays.

#### HAP ALL

SUBTASK 34-31-52-710-002

- (7) Set a frequency of 115.00 MHz on the captain's and the first officer's NAVIGATION CONTROL PANELS [1].
  - (a) Make sure 115.00 MHz shows on the displays.

SUBTASK 34-31-52-860-008

- (8) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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RF POWER DIVIDER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of a RF power divider.
- (2) An installation of a RF power divider.

B. The No. 1 and No. 2 RF power dividers are on the E1 electronic equipment rack in the main equipment center.

**TASK 34-31-62-000-801**

2. RF Power Divider Removal

(Figure 401)

A. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

C. Removal Procedure

SUBTASK 34-31-62-010-001

(1) To get access to the RF power divider [3], open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-31-62-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RF POWER DIVIDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RF POWER DIVIDER.

(2) Remove the RF power DIVIDER [3]:

- (a) Disconnect the coaxial connectors [4].
- (b) Remove the screws [1] and washers [2] that attach the RF power DIVIDER [3] to the electronic equipment rack.
- (c) Remove the RF power DIVIDER [3] from the electronic equipment rack.

————— **END OF TASK** —————

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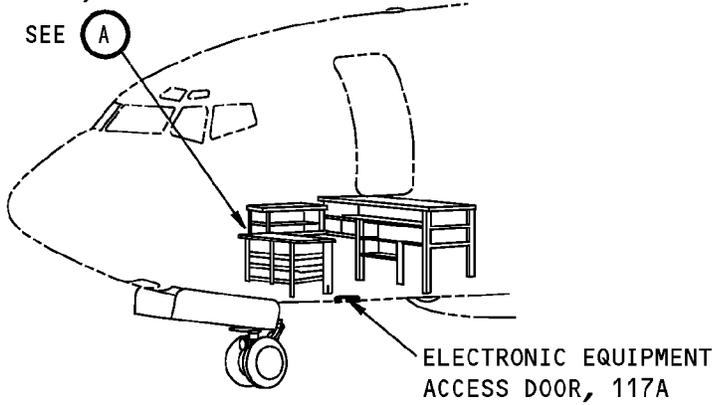
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ELECTRONIC  
EQUIPMENT  
RACK, E1 AND E5

SEE (A)

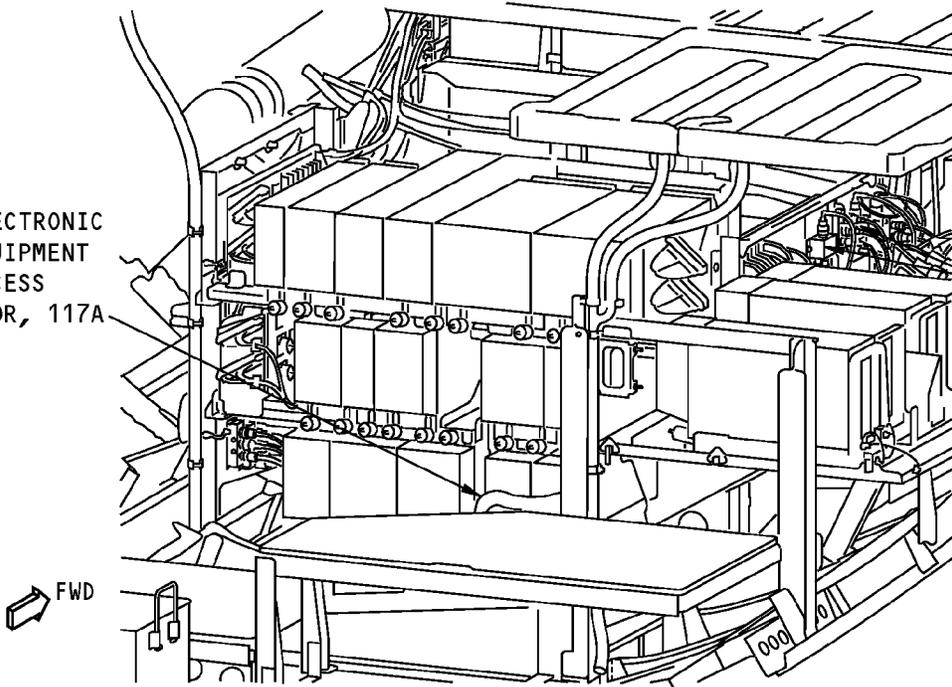


ELECTRONIC EQUIPMENT  
ACCESS DOOR, 117A

ELECTRONIC  
EQUIPMENT  
ACCESS  
DOOR, 117A

RF POWER  
DIVIDERS

SEE (B)



**ELECTRONIC EQUIPMENT RACKS, E1 AND E5**

(A)

**RF Power Divider Installation**

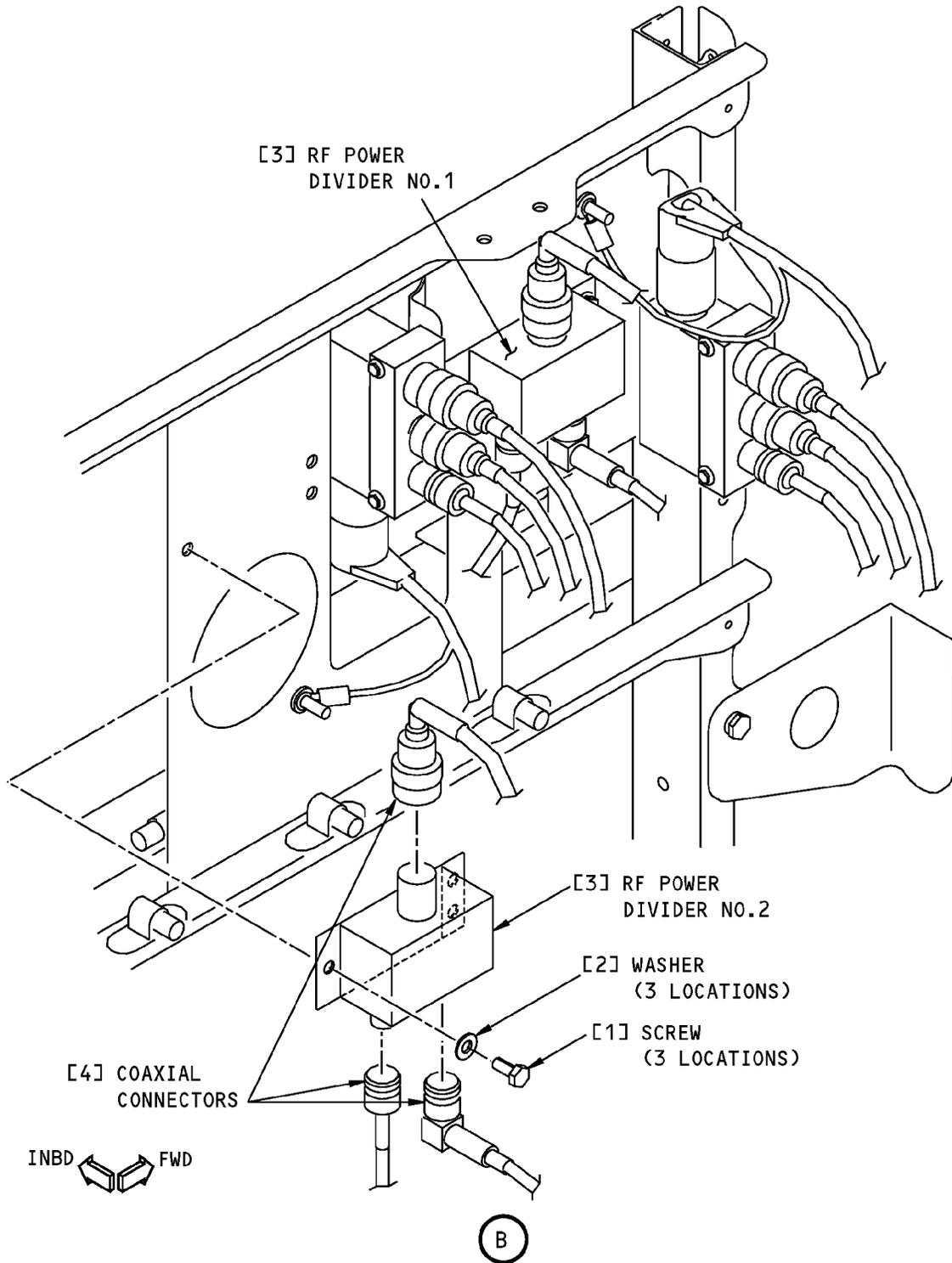
**Figure 401 (Sheet 1 of 2)/34-31-62-990-801**

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**RF Power Divider Installation  
Figure 401 (Sheet 2 of 2)/34-31-62-990-801**

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#### TASK 34-31-62-400-801

#### 3. RF Power Divider Installation

(Figure 401)

##### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)

##### 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-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	DIVIDER	34-31-62-02-005	HAP ALL

##### D. Location Zones

Zone	Area
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. Installation Procedure

SUBTASK 34-31-62-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RF POWER DIVIDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RF POWER DIVIDER.

- (1) Install the RF power DIVIDER [3]:
  - (a) Align the RF power DIVIDER [3] to the holes in the electronic equipment rack.
  - (b) Install the screws [1] and washers [2] that attach the RF power DIVIDER [3] to the electronic equipment rack.

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- (c) Connect the coaxial connectors [4] to the RF power DIVIDER [3].

SUBTASK 34-31-62-410-001

- (2) Close this access panel:

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

### G. Installation Test

SUBTASK 34-31-62-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-31-62-860-002

- (2) Do these steps to prepare for the installation test:
- Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - Set the SOURCE switch on the instrument switching module to the AUTO position.
  - Set the mode selector on the captain's and first officer's EFIS control panels to the APP position.
  - Set the captain's and first officer's course select controls on the AFCS mode control panel to the same course as the airplane heading.

### HAP 001-013, 015-026, 028-036, 038-054, 101-999

- (e) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

### HAP 037

- (f) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's navigation control panels by:
- Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
  - Pushing the number "108.10" using the NCP keypad.
  - Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

### HAP ALL

- (g) Make sure the air data inertial reference unit (ADIRU) is aligned and in the NAV mode. To align it, 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.

SUBTASK 34-31-62-710-001

- (3) Do these steps to do an installation test of the No. 1 (captain's) RF power divider:
- Make sure the F/D switches on the AFCS mode control panel are in the OFF position.
  - Put the VOR/ILS ramp test set, COM-1913, near the front of the airplane and a minimum of 6 feet from the forward localizer antenna.
  - Use the VOR/ILS ramp test set, COM-1913, to supply an ILS localizer signal that follows to the tail (VOR) antenna:

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Table 401/34-31-62-993-801

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

- 1) Make sure the localizer deviation bar on the captain's display is one dot right.
- (d) Set the mode selector on the captain's EFIS control panel to the VOR position.
- (e) Set a frequency of 108.0 MHz on the captain's navigation control panel.
- (f) Use the VOR/ILS ramp test set, COM-1913, to supply a VOR signal that follows to the tail (VOR) antenna:

Table 402/34-31-62-993-802

OUTPUT LEVEL	-60 dBm
BEARING	50 degrees
TO/FROM	TO
FREQUENCY	108.0 MHz

- (g) Make sure the No. 1 bearing pointer on the captain's and the first officer's RDML shows 50 degrees.

SUBTASK 34-31-62-710-002

- (4) Do these steps to do an installation test of the No. 2 (first officer's) RF power divider:
  - (a) Make sure the F/D switches on the AFCS mode control panel are in the OFF position.
  - (b) Put the VOR/ILS ramp test set, COM-1913, near the front of the airplane and a minimum of 6 feet from the forward localizer antenna.
  - (c) Use the VOR/ILS ramp test set, COM-1913, to supply an ILS localizer signal that follows to the tail (VOR) antenna:

Table 403/34-31-62-993-803

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

- 1) Make sure the localizer deviation bar on the captain's display is one dot right.
- (d) Set the mode selector on the first officer's EFIS control panel to the VOR position.
- (e) Set a frequency of 108.0 MHz on the first officer's navigation control panel.
- (f) Use the VOR/ILS ramp test set, COM-1913, to supply a VOR signal that follows to the tail (VOR) antenna:

Table 404/34-31-62-993-804

OUTPUT LEVEL	-60 dBm
BEARING	50 degrees
TO/FROM	TO
FREQUENCY	108.0 MHz

- (g) Make sure the No. 2 bearing pointer on the captain's and the first officer's RDML shows 50 degrees.

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SUBTASK 34-31-62-860-003

(5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## LOCALIZER ANTENNA SWITCH - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of a localizer antenna switch.
- (2) An installation of a localizer antenna switch.

B. The No. 1 and No. 2 localizer antenna switches are on the E1 electronic equipment rack in the main equipment center.

#### **TASK 34-31-72-000-801**

### 2. Localizer Antenna Switch Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
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. Removal Procedure

SUBTASK 34-31-72-860-001

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2

SUBTASK 34-31-72-010-001

(2) To get access to the localizer antenna switch [3], open this access panel:

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

SUBTASK 34-31-72-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LOCALIZER ANTENNA SWITCH. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LOCALIZER ANTENNA SWITCH.

(3) Remove the localizer antenna SWITCH [3]:

- (a) Disconnect the coaxial connectors [4].
- (b) Remove the screws [1] and washers [2] that attach the localizer antenna SWITCH [3] to the electronic equipment rack.

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- (c) Remove the localizer antenna SWITCH [3] from the electronic equipment rack.

————— **END OF TASK** —————

EFFECTIVITY  
HAP ALL

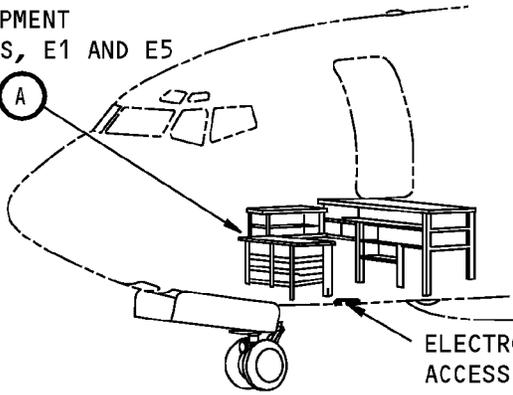
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ELECTRONIC  
EQUIPMENT  
RACKS, E1 AND E5

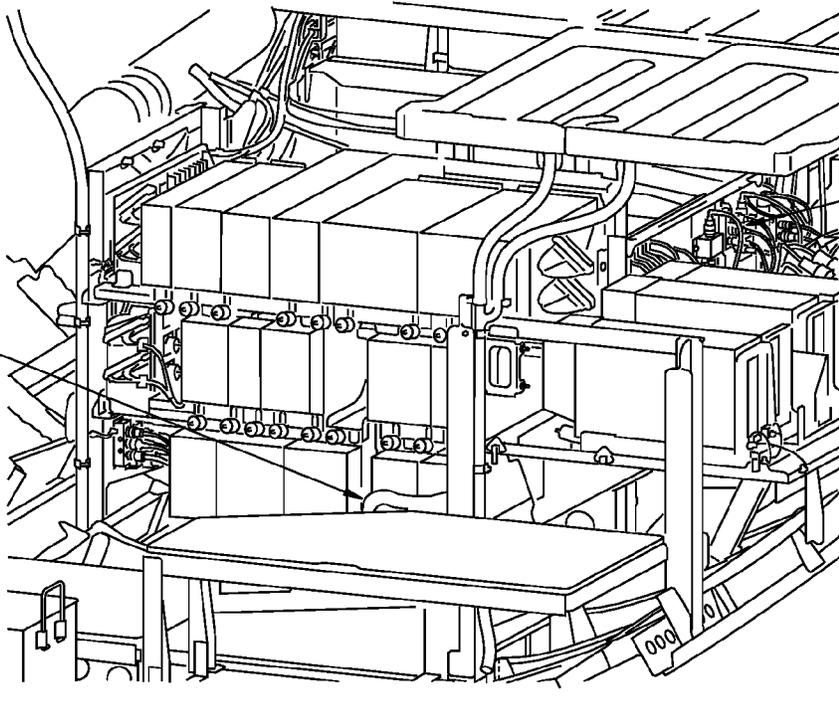
SEE (A)



ELECTRONIC EQUIPMENT  
ACCESS DOOR, 117A

ELECTRONIC  
EQUIPMENT  
ACCESS  
DOOR, 117A

FWD



LOCALIZER  
ANTENNA  
SWITCH

SEE (B)

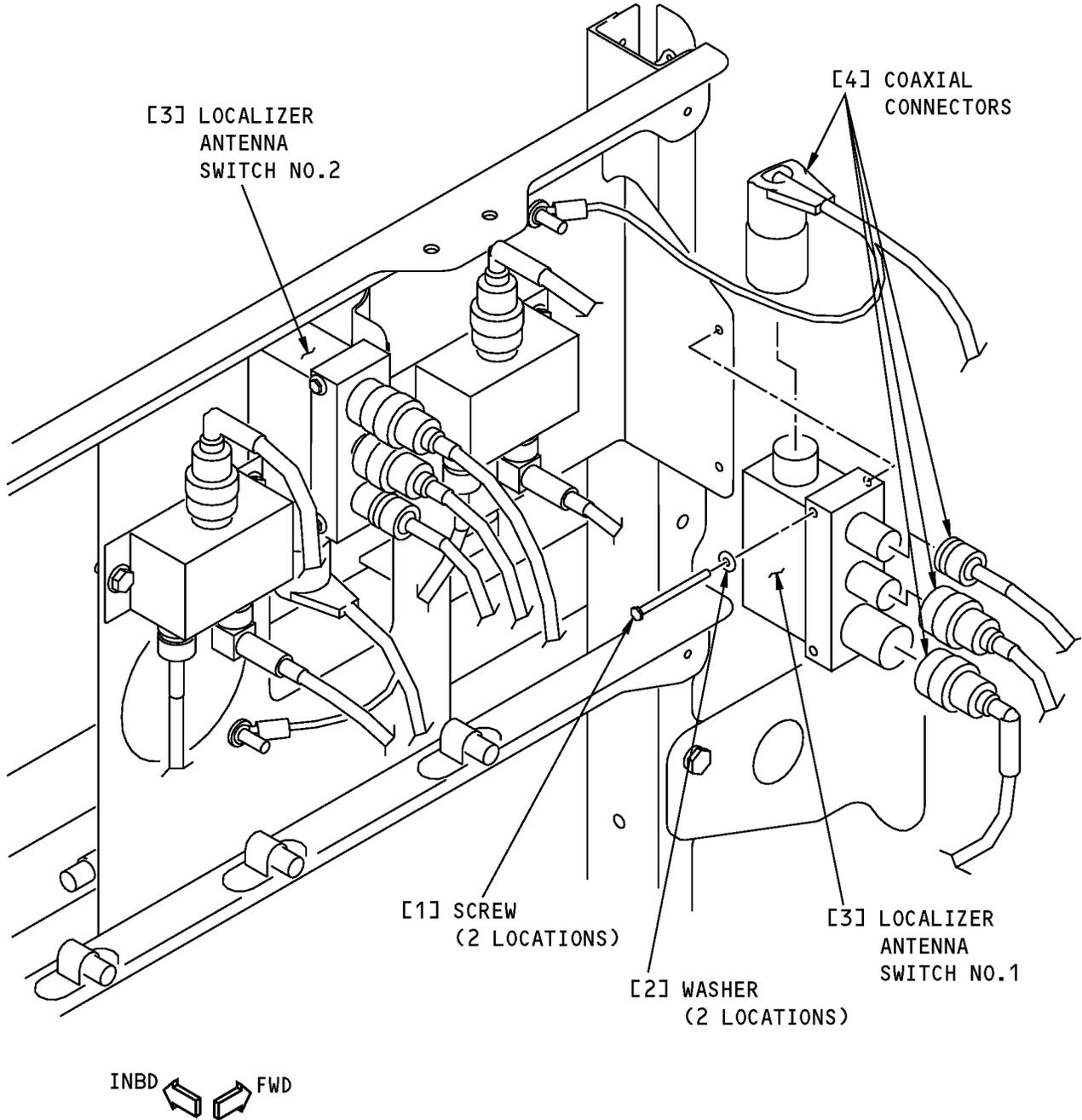
**ELECTRONIC EQUIPMENT RACKS, E1 AND E5**

(A)

**Localizer Antenna Switch Installation**  
**Figure 401 (Sheet 1 of 2)/34-31-72-990-801**

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**B**

**Localizer Antenna Switch Installation  
Figure 401 (Sheet 2 of 2)/34-31-72-990-801**

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#### TASK 34-31-72-400-801

#### 3. Localizer Antenna Switch Installation

(Figure 401)

##### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)

##### 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-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	SWITCH	34-31-72-01-005	HAP ALL

##### D. Location Zones

Zone	Area
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. Installation Procedure

SUBTASK 34-31-72-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2

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SUBTASK 34-31-72-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LOCALIZER ANTENNA SWITCH. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LOCALIZER ANTENNA SWITCH.

- (2) Install the localizer antenna SWITCH [3]:
  - (a) Align the localizer antenna SWITCH [3] to the holes in the electronic equipment rack.
  - (b) Install the screws [1] and washers [2] that attach the localizer antenna SWITCH [3] to the electronic equipment rack.
  - (c) Connect the coaxial connectors [4] to the localizer antenna SWITCH [3].

SUBTASK 34-31-72-860-003

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2

SUBTASK 34-31-72-410-001

- (4) Close this access panel:

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

## G. Installation Test

SUBTASK 34-31-72-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-31-72-860-005

- (2) Do these steps to prepare for the installation test:
  - (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the SOURCE switch on the instrument switching module to the AUTO position.
  - (c) Set the mode selector on the captain's and first officer's EFIS control panels to the APP position.
  - (d) Set the captain's and first officer's course select controls on the AFCS mode control panel to the same course as the airplane heading.

### HAP 001-013, 015-026, 028-036, 038-054, 101-999

- (e) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels.

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

EFFECTIVITY HAP ALL	
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HAP 001-013, 015-026, 028-036, 038-054, 101-999 (Continued)

HAP 037

- (f) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's navigation control panels by:
  - 1) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
  - 2) Pushing the number "108.10" using the NCP keypad.
  - 3) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

HAP ALL

- (g) Make sure the air data inertial reference unit (ADIRU) is aligned and in the NAV mode. To align it, 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.

SUBTASK 34-31-72-710-001

- (3) Do these steps to do an installation test of the No. 1 (captain's) localizer antenna switch:
  - (a) Make sure the F/D switches on the AFCS mode control panel are in the OFF position.
  - (b) Put the VOR/ILS ramp test set, COM-1913, near the front of the airplane and a minimum of 6 feet from the forward localizer antenna.
  - (c) Use the VOR/ILS ramp test set, COM-1913, to supply an ILS localizer signal that follows to the tail (VOR) antenna:

Table 401/34-31-72-993-801

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

- 1) Make sure the localizer deviation bar on the captain's display is one dot right.
- (d) Slowly decrease the RF level on the VOR/ILS ramp test set, COM-1913, until the localizer deviation bar on the captain's display does not show.
- (e) Set the F/D switches on the AFCS mode control panel to the ON position.
- (f) Push the APP switch on the AFCS mode control panel.
  - 1) Make sure the localizer deviation bar on the captain's display is one dot right.
- (g) Set the F/D switches on the AFCS mode control panel to the OFF position.

SUBTASK 34-31-72-710-002

- (4) Do these steps to do an installation test of the No. 2 (first officer's) localizer antenna switch:
  - (a) Make sure the F/D switches on the AFCS mode control panel are in the OFF position.
  - (b) Put the VOR/ILS ramp test set, COM-1913, near the front of the airplane and a minimum of 6 feet from the forward localizer antenna.
  - (c) Use the VOR/ILS ramp test set, COM-1913, to supply an ILS localizer signal that follows to the tail (VOR) antenna:

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Table 402/34-31-72-993-802

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

- 1) Make sure the localizer deviation bar on the first officer's display is one dot right.
- (d) Slowly decrease the RF level on the VOR/ILS ramp test set, COM-1913, until the localizer deviation bar on the first officer's display does not show.
- (e) Set the F/D switches on the AFCS mode control panel to the ON position.
- (f) Push the APP switch on the AFCS mode control panel.
  - 1) Make sure the localizer deviation bar on the first officer's display is one dot right.
- (g) Set the F/D switches on the AFCS mode control panel to the OFF position.

SUBTASK 34-31-72-860-006

- (5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**END OF TASK**

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## AIRCRAFT MAINTENANCE MANUAL

### MARKER BEACON SYSTEM - ADJUSTMENT/TEST

#### 1. General

A. This procedure has these tasks:

- (1) An operational test of the marker beacon system.
- (2) A system test of the marker beacon system.

#### **TASK 34-32-00-710-801**

#### 2. Marker Beacon System - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

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

C. Prepare for the Operational Test

SUBTASK 34-32-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-32-00-860-002

- (2) Do these steps to prepare for the operational test:
  - (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the mode selector on the captain's and the first officer's EFIS control panel to the VOR position.
  - (c) Set the SOURCE switch on the instrument switching module to the AUTO position.

D. Marker Beacon Receiver Self Test

SUBTASK 34-32-00-860-003

- (1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

SUBTASK 34-32-00-710-001

- (2) Push and release the TEST button on the captain's navigation control panel.
  - (a) Make sure that the marker beacon indication on the captain's and the first officer's displays agree with the data in (Table 501):

Table 501/34-32-00-993-801

TIME (Approx.)	CAPTAIN'S MARKER BEACON DISPLAY	FIRST OFFICER'S MARKER BEACON DISPLAY
3 ± 1 second	Blank	Blank
After 3 seconds	FT	FT
5 to 35 seconds	Blank	Blank

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SUBTASK 34-32-00-860-014

(3) Put the airplane back to its usual condition.

SUBTASK 34-32-00-860-004

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

**TASK 34-32-00-730-801**

**3. Marker Beacon System - System Test**

**A. References**

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)

**C. Location Zones**

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

**D. Prepare for the System Test**

SUBTASK 34-32-00-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-32-00-860-006

- (2) Do these steps to prepare for the system test:
- (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the mode selector on the captain's and the first officer's EFIS control panel to the VOR position.
  - (c) Set the SOURCE switch on the instrument switching module to the AUTO position.

**E. Operational Test**

SUBTASK 34-32-00-710-002

(1) Do this task: Marker Beacon System - Operational Test, TASK 34-32-00-710-801.

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### F. Marker Beacon Operation Test

SUBTASK 34-32-00-860-007

- (1) Push the receiver volume controls for marker beacon, MKR, on each audio selector panel to set the volume to off.

SUBTASK 34-32-00-730-001

- (2) Set up the VOR/ILS ramp test set, COM-1913, to supply a marker beacon signal of 75 MHz with a 400 Hz modulation.

**NOTE:** If the antenna on the test set is not a marker beacon test antenna tuned at 75 MHz, it is not easy to get the test results. Put the test set near the marker beacon antenna and at approximately the same height as the marker beacon antenna.

- (a) Make sure the outer marker indication, OM, shows on the captain's and the first officer's EFIS displays.

SUBTASK 34-32-00-860-008

- (3) Push the receiver volume control for marker beacon, MKR, on the captain's audio control panel to set the volume to on.

SUBTASK 34-32-00-730-002

- (4) Turn the receiver volume control clockwise for marker beacon, MKR, on the captain's audio control panel.

- (a) Make sure you can hear a tone through the interphone system.
  - (b) Make sure you can hear a tone at the captain's audio selector panel with a headset.

SUBTASK 34-32-00-860-009

- (5) Push the receiver volume control for marker beacon, MKR, on the captain's audio selector panel to set the volume to off.

SUBTASK 34-32-00-860-010

- (6) Push the receiver volume control for marker beacon, MKR, on the first officer's audio control panel to set the volume to on.

SUBTASK 34-32-00-730-003

- (7) Turn the receiver volume control clockwise for marker beacon, MKR, on the first officer's audio control panel.

- (a) Make sure you can hear a tone through the interphone system.
  - (b) Make sure you can hear a tone at the first officer's audio selector panel with a headset.

SUBTASK 34-32-00-860-011

- (8) Push the receiver volume control for marker beacon, MKR, on the first officer's audio selector panel to set the volume to off.

SUBTASK 34-32-00-730-004

- (9) Use the VOR/ILS ramp test set, COM-1913, to supply a marker beacon signal of 75 MHz with a 1300 Hz modulation.

- (a) Make sure the middle marker indication, MM, shows on the captain's and the first officer's EFIS displays.

SUBTASK 34-32-00-730-005

- (10) Use the VOR/ILS ramp test set, COM-1913, to supply a marker beacon signal of 75 MHz with a 3000 Hz modulation.

- (a) Make sure the inner marker indication, IM, shows on the captain's and the first officer's EFIS displays.

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SUBTASK 34-32-00-860-012

(11) Put the Airplane back to its usual condition.

(a) Remove the VOR/ILS ramp test set, COM-1913

(b) Do this task: Remove Electrical Power: Remove Electrical Power, TASK 24-22-00-860-812

————— **END OF TASK** —————

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## AIRCRAFT MAINTENANCE MANUAL

### MARKER BEACON ANTENNA - REMOVAL/INSTALLATION

#### 1. General

A. This procedure has these tasks:

- (1) A removal of the marker beacon antenna.
- (2) An installation of the marker beacon antenna.

**TASK 34-32-11-000-801**

#### 2. Marker Beacon Antenna Removal

(Figure 401)

A. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

B. Location Zones

Zone	Area
100	Lower Half of Fuselage

C. Removal Procedure

SUBTASK 34-32-11-860-001

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-32-11-020-001

- (2) Remove the marker beacon antenna [1]:

(a) Remove the six bolts [2] from the antenna base.

**CAUTION:** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(b) Use force around the marker beacon antenna [1] with the sealant removal tool, COM-2481 until the seal is fully broken.

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**CAUTION:** LOWER THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

- (c) Lower the marker beacon antenna [1] until you can get access to the coaxial connector [3].
- (d) Disconnect the coaxial connector [3] from the marker beacon antenna [1].
- (e) Remove the marker beacon antenna [1].

————— **END OF TASK** —————

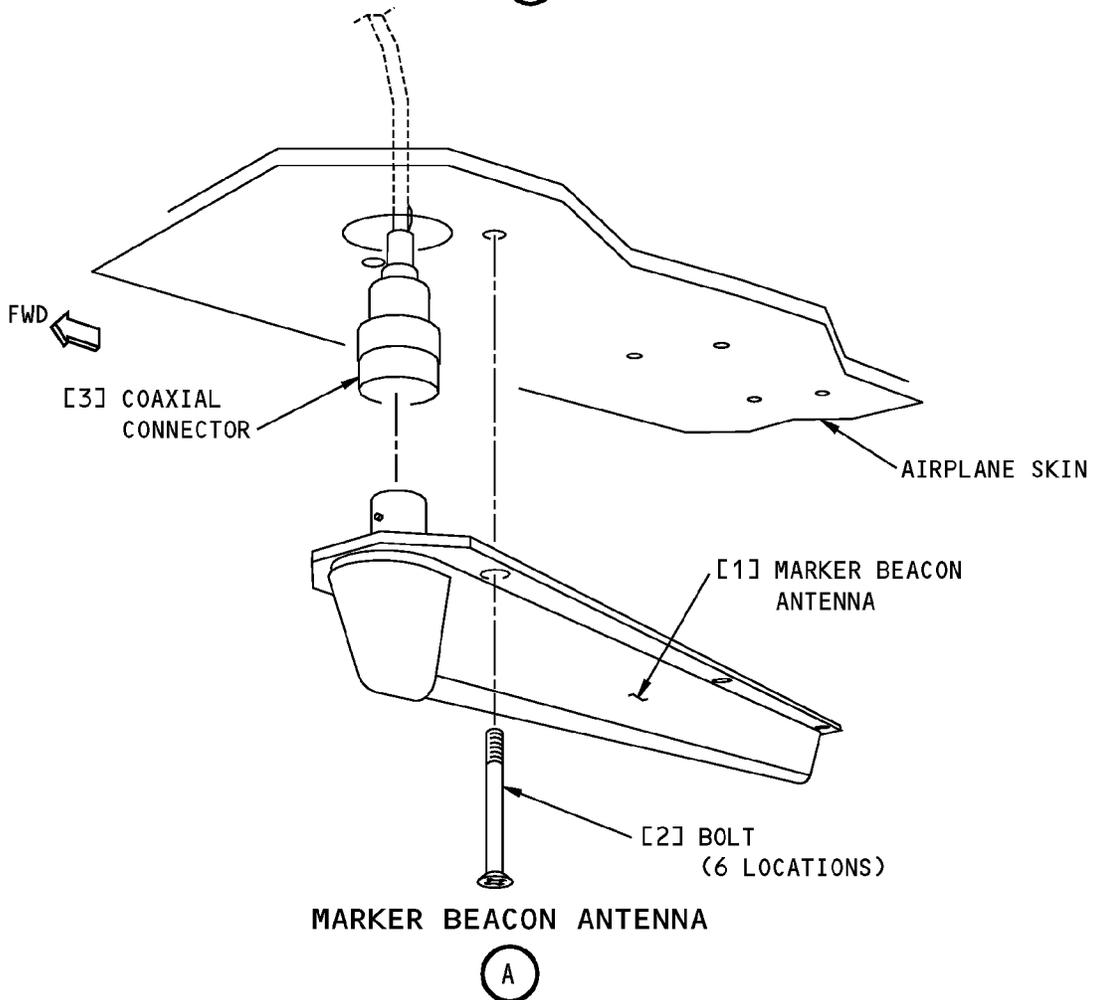
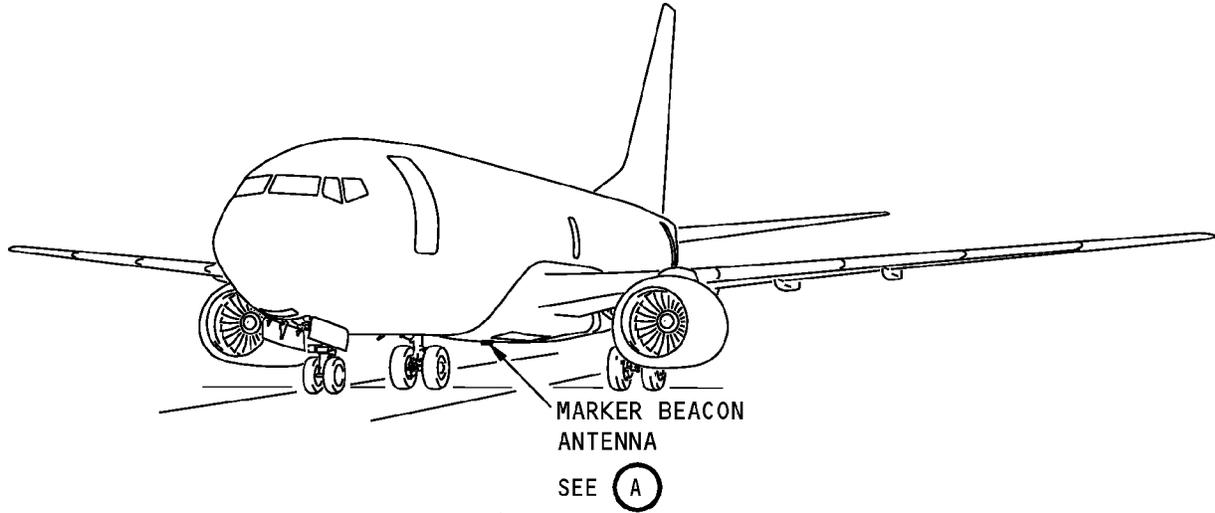
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**Marker Beacon Antenna Installation**  
**Figure 401/34-32-11-990-801**

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TASK 34-32-11-400-801

3. Marker Beacon Antenna Installation

(Figure 401)

A. References

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
51-21-31-350-806	Removal and Control of Corrosion for Plated or Phosphated Surfaces (P/B 701)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

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	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
COM-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic
STD-1045	Ohmmeter - Resistance

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding (AMM 20-30-88/201) - Series 88	
C00064	Coating - Aluminum Chemical Conversion	BAC5719, Type II, Class A (MIL-C-5541, Class A)
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Marker beacon antenna	34-32-01-01-010	HAP ALL

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## E. Location Zones

Zone	Area
100	Lower Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

## F. Installation Procedure

SUBTASK 34-32-11-860-002

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-32-11-100-001

- (2) Clean the airplane mating surface:

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (a) Clean the airplane mating surface with a cotton wiper, G00034 moistened with Series 88 solvent, B01008 (TASK 20-30-88-910-801).
- (b) Use a clean cotton wiper, G00034 and clean the airplane mating surface again.
- (c) Do these two steps above until the airplane mating surface is clean and dry.

SUBTASK 34-32-11-100-002

- (3) If the airplane surface has corrosion or other damage, do these steps to prepare the airplane mating surface:

- (a) Remove the corrosion from the airplane mating surface. To remove the corrosion, do this task: Removal and Control of Corrosion for Plated or Phosphated Surfaces, TASK 51-21-31-350-806
- (b) To apply a layer of coating, C00064 to the airplane mating surface, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.

SUBTASK 34-32-11-420-001

- (4) Install the marker beacon antenna [1]:

- (a) Connect the coaxial connector [3] to the marker beacon antenna [1].
- (b) Put the marker beacon antenna [1] in the correct position on the airplane surface.
- (c) Install five of the six bolts [2] in the base of the marker beacon antenna [1].
- (d) Manually tighten the bolts [2] to 15 pound-inch of torque (1.7 newton-meters).
- (e) Measure the resistance between the baseplate of the marker beacon antenna [1] and the airplane skin with an ohmmeter, STD-1045 or a bonding meter, COM-1550

**NOTE:** Use the empty bolt hole to get access to the antenna baseplate.

- 1) Make sure the resistance is less than 1 milliohm.

SUBTASK 34-32-11-390-001

- (5) Apply aerodynamic sealant:

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- (a) Apply an aerodynamic fillet seal around the base of the marker beacon antenna [1] with sealant, A00247 (TASK 51-31-00-390-806).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

- (b) Use the hardwood or plastic fillet smoothing spatula, STD-810 to make a smooth 45-degree fillet.
- (c) Apply sealant, A00247 to the heads of the bolts (TASK 51-31-00-390-806).
- (d) Let the sealant dry for the correct cure time.

SUBTASK 34-32-11-860-003

- (6) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

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

G. Installation Test

SUBTASK 34-32-11-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-32-11-730-001

- (2) Do this test the marker beacon antenna [1]:

- (a) Make sure the MKR controls on all the audio selector panels are off.
- (b) Use the VOR/ILS ramp test set, COM-1913, or equivalent test set to supply a marker beacon signal of 75 MHz with a 400 Hz modulation.

NOTE: If the antenna on the test set is not a marker beacon test antenna tuned at 75 MHz, it is not easy to get the test results. Put the test set near the marker beacon antenna and at approximately the same height as the marker beacon.

- 1) Make sure OM shows on the captain's display unit for the outer marker beacon.

SUBTASK 34-32-11-860-011

- (3) Put the airplane back to its usual condition.

SUBTASK 34-32-11-080-001

- (4) Remove the VOR/ILS ramp test set, COM-1913 or equivalent test set.

SUBTASK 34-32-11-860-005

- (5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

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**LOW RANGE RADIO ALTIMETER (LRRA) SYSTEM - MAINTENANCE PRACTICES**

**1. General**

A. This procedure has one task for the low range radio altimeter (LRRA) system:

- (1) A simulation test of radio altitude.

**TASK 34-33-00-700-801**

**2. Radio Altitude Simulation Test**

A. General

- (1) This task uses an Atlantis DRA707 Radio Altimeter (RA) test set to do a simulation test of radio altitude.

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- (2) You must open the weather radar (WXR) transceiver circuit breaker to make sure that the WXR system does not come on. The radio altimeter supplies radio altitude data to the WXR transceiver. The WXR transceiver uses the radio altitude data to turn the WXR system on and off.

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B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-33-21-000-801	Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal (P/B 401)
34-33-21-400-801	Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation (P/B 401)

C. Tools/Equipment

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

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Reference	Description
COM-1922	<p>Test Set - Radio Altimeter            (Part #: 01-0886-00, Supplier: 41364, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)            (Part #: 110-0430-100-02, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)            (Part #: 110-0460-102-05, Supplier: 38202, A/P Effectivity: 737-300, -400, -500)            (Part #: 110-0460-105, Supplier: 38202, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)            (Part #: 9599-607-15902, Supplier: F0052, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)            (Part #: DRA707B1, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)            (Opt Part #: 110-0430-100, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)            (Opt Part #: 110-0460-102-01, Supplier: 38202, A/P Effectivity: 737-300, -400, -500)            (Opt Part #: 2041595-5202, Supplier: 41364, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)            (Opt Part #: DRA707, Supplier: 38202, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)</p>
COM-1929	<p>Cable - RA/RT Extender Box Cable            (Part #: 4678322A, Supplier: F0052, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)            (Part #: AY969-00666-001, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)            (Part #: AY969-00666-002, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)            (Part #: AY969-00667-001, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)            (Part #: AY969-00668-001, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)            (Opt Part #: 110-0440-101, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)</p>
SPL-1928	<p>Box - Extender, Radio Altimeter Receiver Transmitter            (Part #: C34005-16, Supplier: 81205, A/P Effectivity: 737-600, -700, -800, -900)            (Opt Part #: C34005-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)</p>

#### D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

#### F. Prepare for the Test

SUBTASK 34-33-00-860-014

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 34-33-00-800-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-00-010-001

(3) To get access to the main equipment center, open this access panel:

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

SUBTASK 34-33-00-080-001

(4) Remove the applicable RA receiver/transmitter. To remove it, do this task: Low Range Radio Altimeter (LRRRA) Receiver/Transmitter (R/T) Removal, TASK 34-33-21-000-801.

NOTE: You can do a test of each radio altimeter (No. 1 or No. 2) separately, or all together.

SUBTASK 34-33-00-420-002

(5) Install the radio altimeter receiver transmitter extender box, SPL-1928.

SUBTASK 34-33-00-480-001

(6) Connect the RA/RT extender box cable, COM-1929 to the radio altimeter test set, COM-1922.

- (a) Set the POWER switch on the radio altimeter test set, COM-1922 to OFF.
- (b) Connect the RA/RT extender box cable, COM-1929 to the radio altimeter receiver transmitter extender box, SPL-1928.

NOTE: You can do a test of each radio altimeter (No. 1 or No. 2) separately, or all together.

- (c) Connect the power cable to the correct primary power source shown on the front panel of the radio altimeter test set, COM-1922.

NOTE: If the batteries in the radio altimeter test set, COM-1922 have the correct charge, the connection to a primary power source is not necessary.

**G. Procedure**

SUBTASK 34-33-00-860-015

(1) Prepare the radio altimeter test set, COM-1922 for the altitude simulation:

- (a) Set the power ON/OFF switch to the ON position.
  - 1) Make sure the 5 VDC and HOLDING lights come on.
- (b) Set the NO COMPUTED DATA switches to the NORMAL position.
- (c) Push and release the PRES ALT key.
  - 1) Make sure PRES ALT shows on the LEDs.
- (d) Use the keypad to put in a value of +4000 feet.
- (e) Push and release the ENTER key.

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1) Make sure the radio altitude value shown on the EFIS displays is blank.

SUBTASK 34-33-00-860-016

(2) Prepare the captain's and the first officer's EFIS control panels for the simulation.

- (a) Push and release the RST (reset) button.
- (b) Turn the DH control to show DH 450 at the captain's EFIS display.
- (c) Turn the DH control to show DH 400 at the first officer's EFIS display.

SUBTASK 34-33-00-860-017

(3) Set these controls on the radio altimeter test set, COM-1922:

- (a) Push and release the START ALT key.
  - 1) Make sure START ALT shown on the LEDs.
- (b) Use the keypad to put in a value of +4000 feet.
- (c) Push and release the ENTER key.
  - 1) Make sure the LEDs show START ALT +4000.
- (d) Push and release the STOP ALT key.
  - 1) Make sure the LEDs show STOP ALT.
- (e) Use the keypad to put in a value of -20 feet.
- (f) Push and release the ENTER key.
  - 1) Make sure the LEDs show STOP ALT -20.
- (g) Push and release the VERT SPD key.
  - 1) Make sure the LEDs show VERT SPD.
- (h) Use the keypad to put in a value of -4000 (feet per minute).
- (i) Push and release the ENTER key.
  - 1) Make sure the LEDs show VERT SPD -4000.

SUBTASK 34-33-00-730-009

(4) Do the altitude ramp-down procedure (typical).

- (a) Push the RAMP/HOLD key on the radio altimeter test set, COM-1922.
  - 1) Make sure the RAMPING light comes on.
- (b) Look for these indications on the captain's and the first officer's EFIS displays.
  - 1) The radio altitude goes out of view for approximately 22.5 seconds while the altitude on the radio altimeter test set, COM-1922 decreases from 4000 to 2500 feet.
- (c) After the time-out of 22.5 seconds (previous step), a radio altitude of 2500 feet comes into view on the EFIS displays and decreases to zero.

**NOTE:** The EFIS displays show the radio altitude set on the radio altimeter test set, COM-1922 within the limit of 2500 feet to -20 feet.

- (d) Look for these indications on the captain's EFIS display when the radio altitude decreases to 450 feet:
  - 1) The DH value changes to a yellow color and flashes for 3 seconds.
  - 2) The radio altitude continues to decrease to zero.
- (e) Look for these indications on the first officer's EFIS display when the radio altitude decreases to 400 feet:
  - 1) The DH value changes to a yellow color and flashes for 3 seconds.

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- 2) The DH value flashes for approximately 3 seconds.
- 3) The radio altitude continues to decrease toward zero.
- (f) Look for these indications on the EFIS displays while the radio altitude decreases to zero feet:
  - 1) The radio altitude value changes to a white color.
  - 2) The DH value changes to the numbers set at the captain's and the first officer's EFIS control panels.

#### H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-33-00-800-003

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

SUBTASK 34-33-00-080-002

- (2) Remove the radio altimeter test set, COM-1922.
  - (a) Set the POWER ON/OFF switch on the radio altimeter test set, COM-1922 to the OFF position.
  - (b) Disconnect the power cable for the radio altimeter test set, COM-1922 from the primary power source (if the power cable was used).
  - (c) Disconnect the test cable(s) from the radio altimeter test set, COM-1922.
  - (d) Put the test cables in the box for the radio altimeter test set, COM-1922.

SUBTASK 34-33-00-020-002

- (3) Remove the radio altimeter receiver transmitter extender box, SPL-1928.

SUBTASK 34-33-00-400-001

- (4) Install the applicable RA receiver/transmitter. To install it, do this task: Low Range Radio Altimeter (LRRRA) Receiver/Transmitter (R/T) Installation, TASK 34-33-21-400-801.

SUBTASK 34-33-00-860-018

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

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SUBTASK 34-33-00-410-001

(6) Close this access panel:

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

————— END OF TASK —————

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## LOW RANGE RADIO ALTIMETER (LRR) SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

- (1) An operational test of the low range radio altimeter (LRR) system.
- (2) A system test of the LRR system.

B. There are two radio altimeter systems installed on the airplane. Each radio altimeter system is made up of an LRR receiver/transmitter (R/T) and two microstrip antennas. One of the antennas is a transmit antenna and one is a receive antenna.

C. The radio altimeter system measures the altitude of the airplane in the range of -4 feet to 2,500 feet. This altitude will show on the common display system (CDS). The CDS displays radio altitude on the captain's and first officer's primary display units, on the right side of the electronic altitude director indicator (EADI).

### **TASK 34-33-00-710-801**

### 2. Low Range Radio Altimeter (LRR) System - Operational Test

A. General

- (1) The operational test includes a LRR Interface To Display Electronic Unit test.
- (2) The operational test makes sure the interface between the transceiver and the displays is ok. The operational test does not include a check of the LRR antennas.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-33-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-33-00-710-001

- (2) Set the SOURCE switch on the instrument switching module to the AUTO position.
  - (a) Make sure that -4 ±2 feet radio altitude shows on the captain's and first officer's EFIS displays.

SUBTASK 34-33-00-710-002

- (3) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.
  - (a) Make sure that -4 ±2 feet radio altitude shows on the captain's and first officer's EFIS displays.

SUBTASK 34-33-00-710-003

- (4) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

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- (a) Make sure that -4 ±2 feet radio altitude shows on the captain's and first officer's EFIS displays.

SUBTASK 34-33-00-860-002

- (5) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-33-00-860-003

- (6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

TASK 34-33-00-730-801

3. Low Range Radio Altimeter (LRRRA) System - System Test

A. General

- (1) The system test makes sure the interface between the Air/Ground relays is ok and the transmit and receive antennas operate correctly.
(2) The system test includes these tests:
(a) The LRRRA Air/Ground Discrete Input Test
(b) The LRRRA Antenna Coaxial Cable Test.
1) Interface from LRRRA equipment rack connector to antenna connector.
2) Interface from LRRRA R/T to antenna connector.

B. References

Table with 2 columns: Reference, Title. Rows include 24-22-00-860-811, 24-22-00-860-812, 34-33-21-000-801, 34-33-21-400-801, and FIM 34-33 TASK 805.

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.

Table with 2 columns: Reference, Description. Rows include COM-5187, STD-1047, STD-1231, and STD-4050.

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## 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. Prepare for the System Test

SUBTASK 34-33-00-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

## F. Air/Ground Discrete Input Test

SUBTASK 34-33-00-860-005

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-020-001

- (2) Remove the No. 1 and the No. 2 LRRR R/Ts. To remove them, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, TASK 34-33-21-000-801.

SUBTASK 34-33-00-730-001

- (3) Use a multimeter, STD-1231 to measure the resistance between the AIR/GROUND DISCRETE, pin F4, and the IND 2 STATUS, pin F6, in connector D3667B for the No. 1 radio altimeter system.
  - (a) Make sure the multimeter, STD-1231 shows 10 KOhms or more than 10 KOhms.

SUBTASK 34-33-00-730-002

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

- (4) On the Proximity Switch Electronics Unit (PSEU), push the ON/OFF button to turn the BITE display to ON.
- (5) Push the NO button for the "EXISTING FAULTS ?" display.
- (6) Push the NO button for the "FAULT HISTORY ?" display.
- (7) Push the NO button for the "GROUND TEST ?" display.
- (8) Push the YES button for the "AIR/GROUND OVRD ?" display.
- (9) Push the YES button for the "SET SYS 1 IN AIR ?" display
- (10) Push the YES button for the "ARE YOU SURE" display.
  - (a) Make sure that the multimeter, STD-1231 shows 100 Ohms or less.
- (11) Push the YES button for the "SET SYSTEM 1 ON GRD ?" display.

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- (12) Push the YES button for the “ARE YOU SURE ?” display.
- (13) Use a multimeter, STD-1231 to measure the resistance between the AIR/GROUND DISCRETE, pin F4, and the IND 2 STATUS, pin F6, in connector D3669B for the No. 2 radio altimeter system.
  - (a) Make sure that the multimeter, STD-1231 shows 10 KOhms or more than 10 KOhms.

SUBTASK 34-33-00-730-004

- (14) Push the NO button for the “SET SYS 1 IN AIR ?” display.
- (15) Push the YES button for the “SET SYS2 IN AIR ?” display.

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

- (16) Push the YES button for the “ARE YOU SURE ?” display.
  - (a) Make sure that the multimeter, STD-1231 shows 100 Ohms or less.
- (17) Push the YES button for the “SET SYSTEM 2 ON GND? “ display.
- (18) Push the YES button for the “ARE YOU SURE ?” display.
- (19) On the PSEU, push the ON/OFF button to turn the BITE display to OFF.
- (20) Push the YES button for the “TURN OFF THE DISPLAY ?” display.

SUBTASK 34-33-00-420-001

- (21) Install the No. 1 and the No. 2 LRRR R/Ts. To install them, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, TASK 34-33-21-400-801.

G. Operational Test

SUBTASK 34-33-00-860-008

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

SUBTASK 34-33-00-710-004

- (2) Do this task: Low Range Radio Altimeter (LRRR) System - Operational Test, TASK 34-33-00-710-801.

H. LRRR Antenna Coaxial Cable Test

SUBTASK 34-33-00-860-023

- (1) Interface from LRRR equipment rack connector to antenna connector.
  - (a) Perform LRRR coax cable TDR time domain reflectometer, COM-5187 check per FIM 34-33 TASK 805 step F. (1) (a) through F. (1) (e).

SUBTASK 34-33-00-860-024

- (2) Interface from LRRR R/T to antenna connector.

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SUBTASK 34-33-00-860-009

(3) 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>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-730-005

(4) There are two ways to do LRRRA coaxial cable test:

- (a) For the crystal detector, STD-4050 : Connect the Crystal Detector STD-4050 one end to the RA antenna coaxial cable and the other end to an oscilloscope. Make sure the scope shows at least 30 mVDC.
- (b) For the Generic 1N23 Crystal diode.: Hold the generic 1N23 crystal diode on the RA antenna Coaxial cable. Make sure the multimeter shows at least 30 mVDC

SUBTASK 34-33-00-860-025

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-33-00-730-006

(6) Cover the receive antenna for the No. 1 radio altimeter system with RF absorbent material, STD-1047.

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

CAPT Electrical System Panel, P18-1

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

(b) Make sure the radio altitude display on the captain's EFIS display is blank.

SUBTASK 34-33-00-860-010

(7) 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>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-860-011

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-33-00-730-007

(9) There are two ways to do LRRRA coaxial cable test:

- (a) For the crystal detector, STD-4050: Connect the Crystal Detector STD-4050 one end to the RA antenna coaxial cable and the other end to an oscilloscope. Make sure the scope shows at least 30 mVDC.

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- (b) For the Generic 1N23 Crystal diode.: Hold the generic 1N23 crystal diode on the RA antenna Coaxial cable. Make sure the multimeter shows at least 30 mVDC

SUBTASK 34-33-00-860-026

- (10) 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>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-730-008

- (11) Cover the receive antenna for the No. 2 radio altimeter system with RF absorbent material, STD-1047.

- (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>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

Make sure the radio altitude display on the first officer's EFIS display is blank.

SUBTASK 34-33-00-860-012

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-33-00-860-013

- (13) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

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## LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the low range radio altimeter (LRRRA) antenna.
- (2) An installation of the LRRRA antenna.

B. There are four LRRRA antennas installed on the bottom of the airplane. The No. 1 (M1737) and No. 2 (M1738) transmit antennas are the outer antennas. The No. 1 (M1739) and the No. 2 (M1740) receive antennas are the inner antennas.

### **TASK 34-33-11-000-801**

### 2. Low Range Radio Altimeter (LRRRA) Antenna Removal

(Figure 401)

A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

C. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

D. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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## E. Removal Procedure

SUBTASK 34-33-11-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

SUBTASK 34-33-11-080-001

(2) Remove the LRRRA Antenna [1]:

(a) Remove the screws [2] from the Antenna [1].

**CAUTION:** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(b) Use force around the antenna with the sealant removal tool, COM-2481 until the seal is fully broken.

**CAUTION:** LOWER THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

(c) Lower the Antenna [1] until you can get access to the coaxial connector [4].

(d) Disconnect the coaxial connector [4] from the Antenna [1].

1) Inspect the antenna connector for moisture and contamination. Clean it with cotton wiper, G00034as required.

(e) Remove the O-Ring [3] from the antenna base.

(f) Remove the Antenna [1].

(g) Remove the old sealant from the airplane skin (TASK 51-31-00-160-801).

————— END OF TASK —————

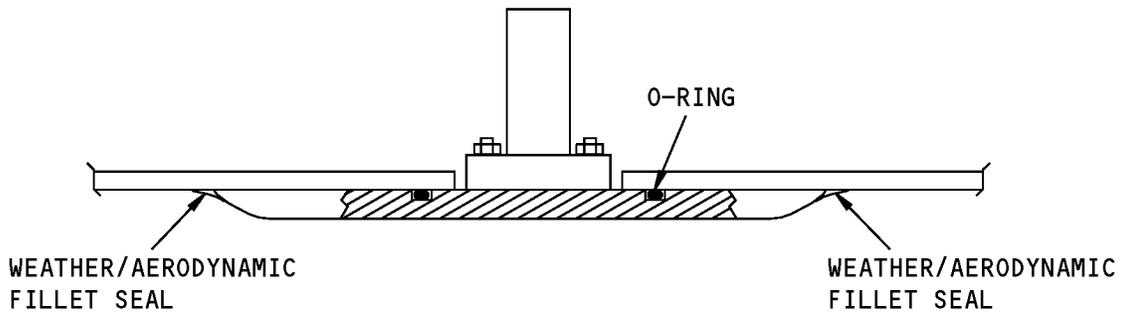
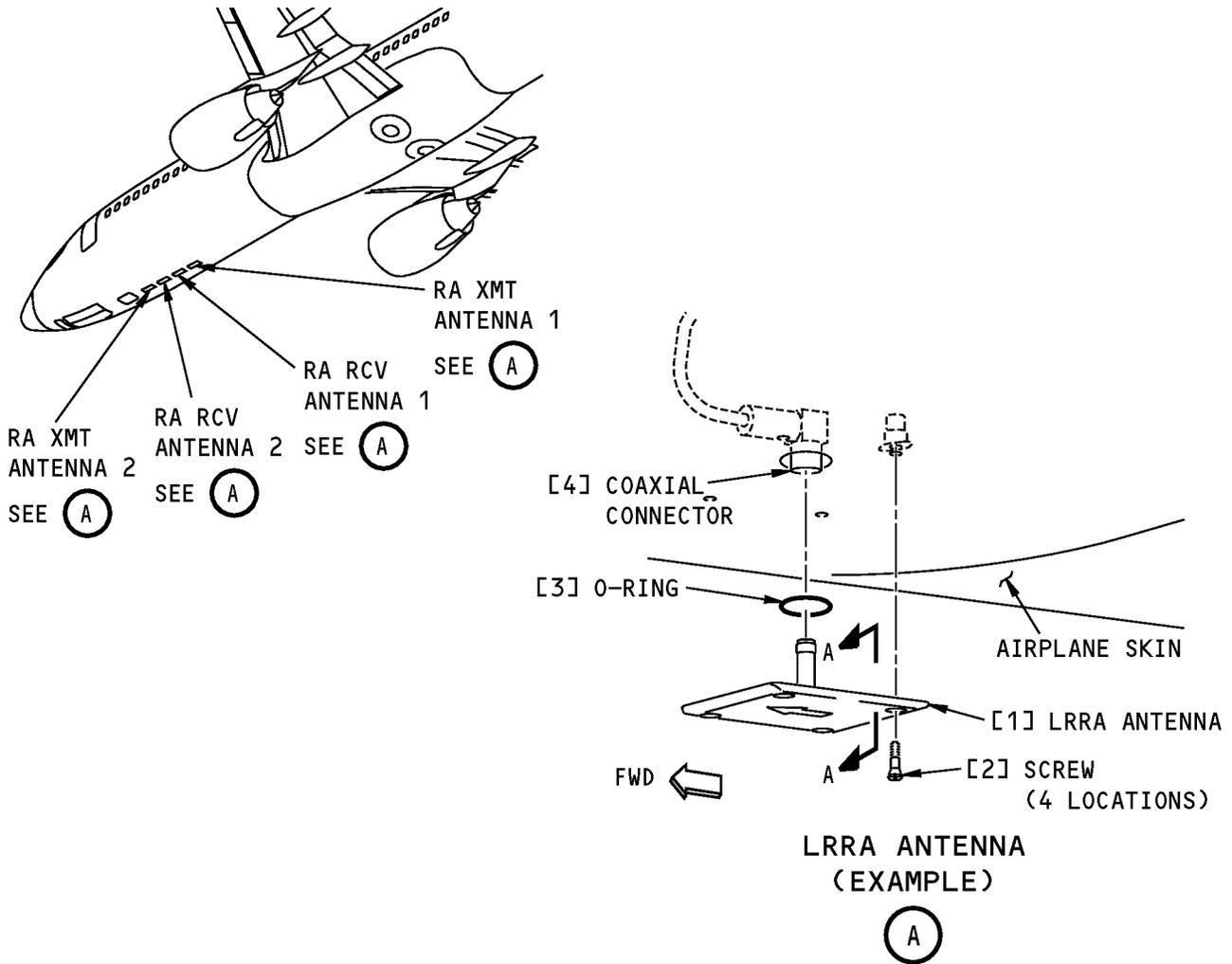
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A-A

**Low Range Radio Altimeter (LRRR) Antenna Installation**  
**Figure 401/34-33-11-990-801**

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TASK 34-33-11-400-801

3. Low Range Radio Altimeter (LRR) Antenna Installation

(Figure 401)

A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

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	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84/201) - Series 84	
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
D50180	Grease - Aircraft General Purpose (AeroShell Grease 33)	BMS 3-33, MIL-PRF-23827
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Antenna	34-33-11-01-005 34-33-11-01-125	HAP 001-013, 015-019 HAP 020-026, 028-054, 101-999

E. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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### F. Installation Procedure

SUBTASK 34-33-11-860-002

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

SUBTASK 34-33-11-110-001

- (2) Clean the airplane mating surface:

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- Clean the airplane mating surface with a cotton wiper, G00034 that is moist with Series 84 solvent, B01004 (TASK 20-30-84-910-801).
- Use a cotton wiper, G00034 and clean the mating surface again.
- Do these steps until the mating surface is clean and dry.

SUBTASK 34-33-11-300-001

- (3) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:

- Remove the corrosion or unwanted material from the airplane mating surface. To remove the corrosion or unwanted material, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.
- Apply a layer of alodine coating to the airplane mating surface. To apply the coating, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.

SUBTASK 34-33-11-420-001

- (4) Install the LRRRA Antenna [1]:

- Put the O-Ring [3] on the antenna base.
- Connect the coaxial cable to the Antenna [1].
- Put a thick layer of grease, D00015, or AeroShell Grease 33, D50180 around the connector on the antenna base.
  - Make sure the layer of grease, D00015, or AeroShell Grease 33, D50180 is above the screws ends that show for the antenna connector.
  - Make sure the grease, D00015, or AeroShell Grease 33, D50180 extends approximately 1 inch up the antenna connector.
- Put the Antenna [1] in the correct position on the airplane surface.
- Install the three of the four screws [2].
  - Make sure you manually tighten the screws to 20-25 pound-inches (2.3-2.8 newton-meters).

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SUBTASK 34-33-11-760-001

- (5) Measure the resistance between the LRRRA antenna baseplate and the airplane skin with a bonding meter, COM-1550 .

NOTE: Use the empty screw hole to get access to the antenna baseplate.

- (a) Make sure the resistance is less than 0.001 ohm.

SUBTASK 34-33-11-420-002

- (6) Install the last screw [2].

- (a) Make sure you tighten the screw [2] to 20-25 pound-inches (2.3-2.8 newton-meters).
- (b) Apply the weather/aerodynamic fillet sealant, A00247 (TASK 51-31-00-390-804).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

SUBTASK 34-33-11-860-003

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

#### G. Installation Test

SUBTASK 34-33-11-860-004

- (1) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-33-11-710-001

- (2) Make sure the captain's primary EFIS display shows -4 feet ±2 feet.

SUBTASK 34-33-11-710-002

- (3) Make sure the first officer's primary EFIS display shows -4 feet ±2 feet.

————— **END OF TASK** —————

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## LOW RANGE RADIO ALTIMETER ANTENNA - INSPECTION/CHECK

### 1. General

A. This procedure makes an inspection for the low range radio altimeter.

**TASK 34-33-11-211-802**

### 2. Low Range Radio Altimeter (LRRRA) Antenna Inspection and Check

#### A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
34-33-11 P/B 401	LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION
34-33-11-400-801	Low Range Radio Altimeter (LRRRA) Antenna Installation (P/B 401)

#### B. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### C. Procedure

SUBTASK 34-33-11-200-001

- (1) Examine the center of the outer surface of the antenna for an area 1/4 inch or larger which is not constant and smooth. If an area is found, replace the antennaLOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-33-11/401. If not, go to the next step.

NOTE: A 1/8 inch circular area in the center of the antenna is usual and not a sign of corrosion.

SUBTASK 34-33-11-020-001

- (2) Remove the radio altimeter antennaLOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-33-11/401.

NOTE: The antenna connector is inspected and cleaned during the connector removal per PGBLK 34-33-11-4.

SUBTASK 34-33-11-120-001

- (3) Remove all unwanted material from around the connector and the backplate.

SUBTASK 34-33-11-210-001

- (4) Examine the four nuts on the electrical connector for corrosion. If a nut is not there, or loose, or has corrosion, replace the antennaLOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-33-11/401. If nuts are satisfactory, go to the next step.

NOTE: Do not replace nuts that have corrosion. This will change the correct operation of the antenna.

SUBTASK 34-33-11-210-002

- (5) Examine the antenna connector and the backplate for corrosion.

NOTE: If there is corrosion on the surface in the inner diameter of the O-ring seal, but the connector nuts have no corrosion, do not replace the antenna. It will operate correctly.

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SUBTASK 34-33-11-120-002

- (6) Clean the backplate and connector where there is corrosion on the surface. Use a lint-free cheesecloth and the solventHand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

SUBTASK 34-33-11-420-006

- (7) Install the antennaLow Range Radio Altimeter (LRRR) Antenna Installation, TASK 34-33-11-400-801.

————— END OF TASK —————

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## LRRA RECEIVER/TRANSMITTER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has two tasks:

- (1) A removal of the low range radio altimeter (LRRA) receiver/transmitter (R/T)
- (2) An installation of the LRRA R/T.

B. The two LRRA R/Ts are in the main equipment center. The No. 1 LRRA R/T, is on the E3 electronics equipment rack, shelf No. 1. The No. 2 LRRA R/T is on the E3 electronics equipment rack, shelf No. 2.

### **TASK 34-33-21-000-801**

### 2. Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-33-21-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-21-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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SUBTASK 34-33-21-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LRRR R/T. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LRRR R/T.

(3) To remove the LRRR R/T [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

————— **END OF TASK** —————

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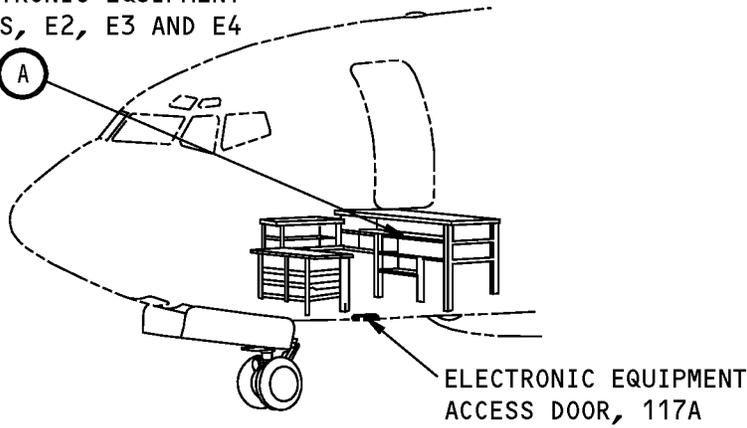
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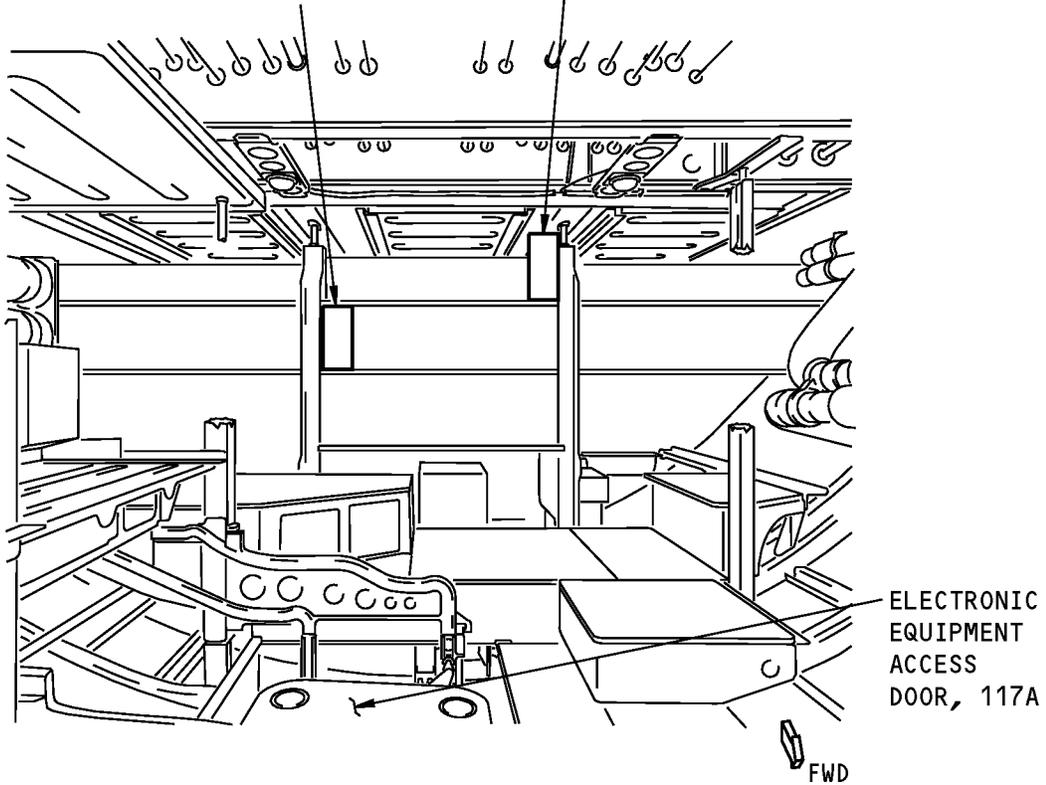
ELECTRONIC EQUIPMENT  
RACKS, E2, E3 AND E4

SEE (A)



[1] RIGHT RA RECEIVER/  
TRANSMITTER (E3-2)

[1] LEFT RA RECEIVER/  
TRANSMITTER (E3-1)



**ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4**

(A)

**Low Range Radio Altimeter (LRR) Receiver-Transmitter Installation**  
**Figure 401/34-33-21-990-801**

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#### TASK 34-33-21-400-801

### 3. Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation

(Figure 401)

#### A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	LRRR R/T	34-33-21-02-005	HAP 001-011

#### 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. Installation Procedure

SUBTASK 34-33-21-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-21-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LRRR R/T. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LRRR R/T.

- (2) To install the LRRR R/T [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-33-21-410-001

- (3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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SUBTASK 34-33-21-860-003

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

**F. Installation Test**

SUBTASK 34-33-21-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-33-21-860-005

- (2) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-33-21-710-001

- (3) Make sure  $-4 \pm 2$  feet radio altitude is displayed on the captain's and the first officer's EFIS displays.

SUBTASK 34-33-21-860-006

- (4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## AIRCRAFT MAINTENANCE MANUAL

### WEATHER RADAR (WXR) SYSTEM - ADJUSTMENT/TEST

#### 1. General

A. This procedure has these tasks:

- (1) An Operational Test
- (2) A System Test.

**TASK 34-43-00-710-803-002**

#### 2. Weather Radar (WXR) System - Operational Test

(Figure 501)

A. General

- (1) The operational test uses the TEST MODE switch on the WXR control panel. In the TEST mode, the self test circuits monitor the performance of the weather radar system.
- (2) During the self test the weather radar system operates as follows:
  - (a) It makes a test pattern which finds most system failures without test equipment.
  - (b) The WXR receiver/transmitter operates for 1 seconds.
  - (c) A special test pattern is made on the Display Units (DU).

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (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)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-43-00-860-144-002

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-43-00-860-145-002

- (2) Make sure the air data inertial reference unit (ADIRU) is aligned to the NAV mode. To align it, 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.

- (a) Make sure the ATT flags on the captains and first officers EADIs are not in view.

SUBTASK 34-43-00-860-146-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

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SUBTASK 34-43-00-860-147-002

- (4) Set the switches on the captain's and the first officer's EFIS control panels as follows:
  - (a) Set the left and right ADF/VOR control to OFF.
  - (b) Set the mode selector to VOR.

SUBTASK 34-43-00-710-004-002

- (5) Select TEST on the WXR control panel.
  - (a) Set the SOURCE switch on the instrument switching module to the ALL ON 1 (ALL ON 2) position.

**WARNING:** DO NOT OPERATE THE WEATHER RADAR UNLESS ALL PERSONNEL ARE MORE THAN 50 FT (15 M) FROM THE RADAR. DO NOT OPERATE THE WEATHER RADAR IN A HANGAR. IF YOU DO NOT OBEY THESE PRECAUTIONS, INJURIES TO PERSONNEL CAN OCCUR.

**WARNING:** IF THERE IS FUEL LEAKAGE OR AN OPEN FUEL CELL LESS THAN 50 FT (15 M) FROM THE RADAR, DO NOT OPERATE THE WEATHER RADAR. IF THERE IS FUEL IN THE 50-FOOT RADIUS AROUND THE RADAR, IT CAN CAUSE A FIRE AND EXPLOSION. THESE CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT. THESE CAN KILL PERSONNEL.

- (b) Push the WXR switch on the captain's (first officer's) EFIS control panel to the ON position.
  - 1) After 15 seconds:
    - a) Make sure WXR TEST display on the captain's and first officer's display unit (DU) is as shown on Figure 501.

SUBTASK 34-43-00-860-227-002

- (6) If no more tests are necessary,  
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	13	C00120	WEATHER RADAR RT

————— END OF TASK —————

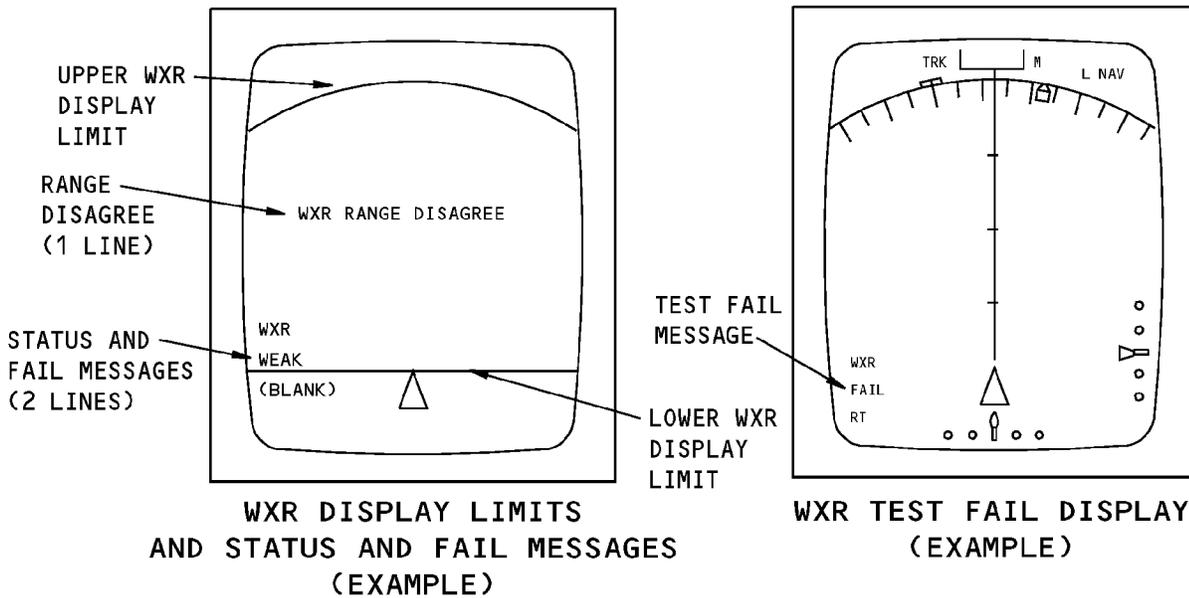
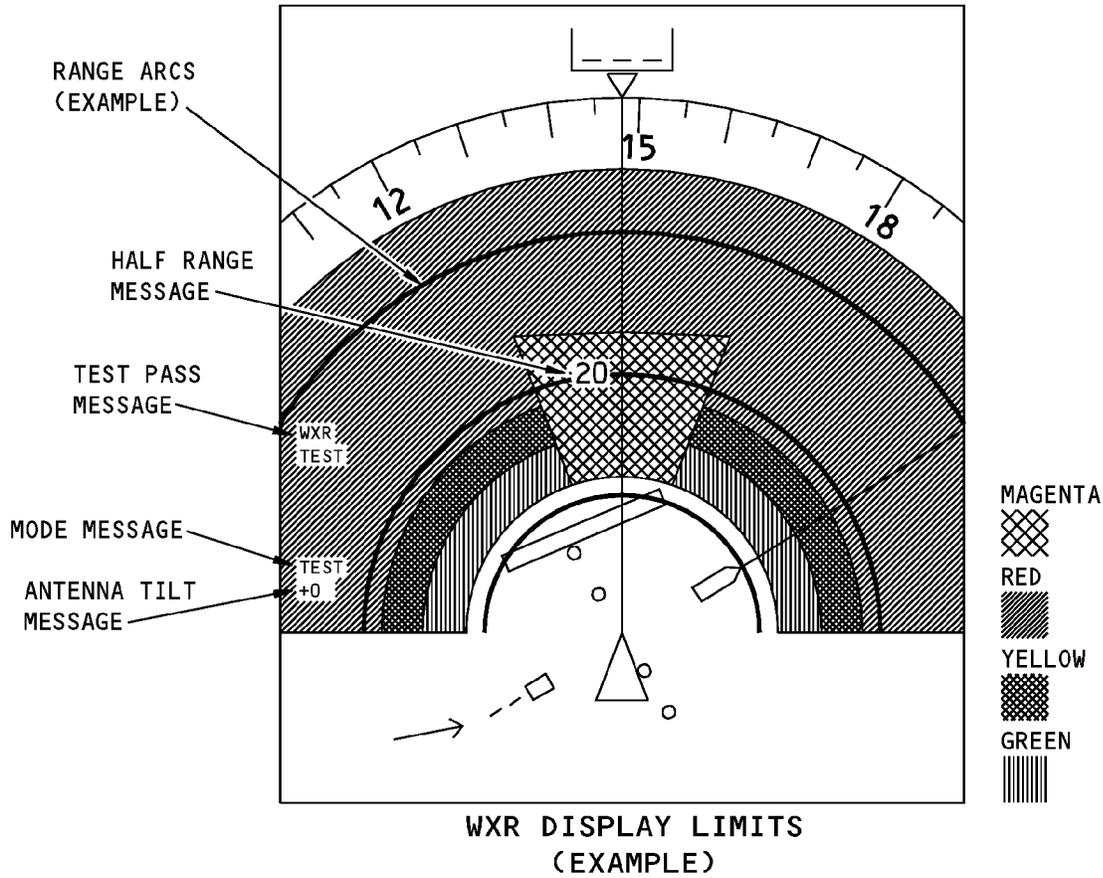
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**Weather Radar Test and Fault Display**  
**Figure 501 (Sheet 1 of 2)/34-43-00-990-805-002**

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FAULT	TILT CODE
ATTITUDE - LEFT	-1
ATTITUDE - RIGHT	1
RADIO ALTITUDE - LEFT	-2
RADIO ALTITUDE - RIGHT	2
DADC - LEFT	-3
DADC - RIGHT	3
EFIS - LEFT	-4
EFIS - RIGHT	4
QUALIFIER REASONABLENESS	-5
PITCH/ROLL REASONABLENESS	-6
AIR/GROUND REASONABLENESS	-7
W/S INHIBIT INPUT	-8

WEATHER RADAR EXTERNAL FAULT  
TILT CODES DURING WXR TEST

Weather Radar Test and Fault Display  
Figure 501 (Sheet 2 of 2)/34-43-00-990-805-002

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**TASK 34-43-00-730-803-002**

## 3. Weather Radar (WXR) System - System Test

### A. General

- (1) The system test provides an in-depth test of the weather radar system. For best test results during radar scanning, have the airplane pointed so the antenna sector scanned includes hills, mountains or structures of various heights in the distance.

### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)

### C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

### D. Prepare for the System Test

SUBTASK 34-43-00-580-002-002

**WARNING:** DO NOT OPERATE THE WEATHER RADAR UNLESS ALL PERSONNEL ARE MORE THAN 50 FT (15 M) FROM THE RADAR. DO NOT OPERATE THE WEATHER RADAR IN A HANGAR. IF YOU DO NOT OBEY THESE PRECAUTIONS, INJURIES TO PERSONNEL CAN OCCUR.

**WARNING:** IF THERE IS FUEL LEAKAGE OR AN OPEN FUEL CELL LESS THAN 50 FT (15 M) FROM THE RADAR, DO NOT OPERATE THE WEATHER RADAR. IF THERE IS FUEL IN THE 50-FOOT RADIUS AROUND THE RADAR, IT CAN CAUSE A FIRE AND EXPLOSION. THESE CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT. THESE CAN KILL PERSONNEL.

- (1) Point the airplane away from all large metal objects and to an open area.

**NOTE:** The antenna scan should include hills or mountains at different heights in the distance.

SUBTASK 34-43-00-860-148-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-149-002

- (3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 34-43-00-860-150-002

- (4) Make sure the air data inertial reference unit (ADIRU) is aligned to the NAV mode. To align it, 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.
- (a) Make sure the ATT flags on the captains and first officers EADIs are not in view.

SUBTASK 34-43-00-860-151-002

- (5) Set the switches on the captain's and the first officer's EFIS control panels as follows:
- (a) Set the range selector to 40.
- (b) Push the WXR switch to the ON position.
- (c) Set the left and right ADF/VOR control to OFF.
- (d) Set the mode selector to VOR.
- (e) Push the CTR push-button as required.
- 1) Make sure the Captain and First Officer display unit (DU)s are in expanded scale.

### HAP 001-013, 015-026, 028-030

SUBTASK 34-43-00-860-228-002

- (6) Set the switches on the WXR control panel as follows:
- (a) Set the TILT control to 0 degrees.
- (b) Set the GAIN control to AUTO.

### HAP 031-054, 101-999

SUBTASK 34-43-00-860-238-002

- (7) Set the switches on the WXR control panel as follows:
- (a) Select AUTO tilt switch to MAN (manual).
- (b) Set the TILT control to 0 degrees.
- (c) Set the GAIN control to AUTO.

### HAP ALL

#### E. Mode Test

SUBTASK 34-43-00-730-136-002

- (1) Set the controls on the WXR control panel as follows:

### HAP 001-013, 015-026, 028-030

- (a) Set the switches on the WXR control panel as follows:
- 1) Turn the MODE switch to the WX position.
- a) Make sure that WX shows on the Captain's (First Officer's) display (DU).
- 2) Turn the Mode switch to the WX/TURB position.
- a) Make sure that WX + T shows on the Captain's (First Officer's) display unit (DU).
- 3) Turn the Mode switch to the MAP position.
- a) Make sure that MAP shows on the Captain's (First Officer's) display unit (DU).

### HAP 031-054, 101-999

- (b) Set the switches on the WXR control panel as follows:

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## AIRCRAFT MAINTENANCE MANUAL

HAP 031-054, 101-999 (Continued)

- 1) Turn the MODE switch to the WX position.
  - a) Make sure that WX shows on the Captain's (First Officer's) display (DU).
- 2) Turn the Mode switch to the WX/TURB position.
  - a) Make sure that WX + T shows on the Captain's (First Officer's) display unit (DU).
- 3) Turn the Mode switch to the MAP position.
  - a) Make sure that MAP shows on the Captain's (First Officer's) display unit (DU).

### HAP ALL

#### F. Gain Test

SUBTASK 34-43-00-700-018-002

- (1) Do the Gain Test.

**NOTE:** The full gain test will not be possible when there are no radar targets from weather, mountains or large buildings. When there are no targets, only the gain message part of this test will be done.

### HAP 001-013, 015-026, 028-030

- (a) Set the switches on the WXR control panel as follows:
  - 1) Select MAP mode switch on the WXR control panel.
  - 2) Turn the TILT control to get good radar targets on Captain's (First Officer's) each display unit (DU).
  - 3) Turn the GAIN control as necessary to get a middle level of radar targets.
    - a) Make sure the Captain's (First Officer's) mode message reads VAR/MAP.
  - 4) Turn the GAIN control counterclockwise.
    - a) Make sure the radar targets on the Captain's (First Officer's) display unit (DU) decrease in intensity.
  - 5) Turn the GAIN control clockwise.
    - a) Make sure the radar returns increase in intensity on the Captain's (First Officer's) display unit (DU).
  - 6) Turn the GAIN control knob in to the AUTO position.
    - a) Make sure VAR is OFF on the Captain's (First Officer's) display unit (DU).
  - 7) Turn the TILT control to 0 degrees.

### HAP 031-054, 101-999

- (b) Set the switches on the WXR control panel as follows:
  - 1) Select MAP mode switch on the WXR control panel.
  - 2) Turn the TILT control to get good radar targets on Captain's (First Officer's) each display unit (DU).
  - 3) Turn the GAIN control as necessary to get a middle level of radar targets.
    - a) Make sure the Captain's (First Officer's) mode message reads VAR/MAP.
  - 4) Turn the GAIN control counterclockwise.
    - a) Make sure the radar returns increase in intensity on the Captain's (First Officer's) display unit (DU).

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HAP 031-054, 101-999 (Continued)

- 5) Turn the GAIN control clockwise.
  - a) Make sure the radar returns increase in intensity on the Captain's (First Officer's) display unit (DU).
- 6) Turn the GAIN control knob in to the AUTO position.
  - a) Make sure VAR is OFF on the Captain's (First Officer's) display unit (DU).
- 7) Turn the TILT control to 0 degrees.

### HAP ALL

#### G. Antenna Tilt Test

SUBTASK 34-43-00-720-017-002

- (1) Do the antenna tilt test.

### HAP 001-013, 015-026, 028-030

- (a) Do the following:
  - 1) Turn the MODE switch to WX on the WXR control panel.
  - 2) Set the range switch on the EFIS control panel to adjust the radar returns in the center of the Captain's (First Officer's) display unit (DU).
  - 3) Turn the TILT control to get good radar targets on the captain's (first officer's) display unit (DU).
    - a) Make sure the tilt messages on the Captain's (First Officer's) display unit (DU) shows the correct tilt angle  $\pm 0.5$  degrees.
  - 4) Turn the TILT control in steps from 0 to +4.75 degrees.
    - a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle  $\pm 1$  degree.
    - b) Make sure the intensity of the close-in targets on the captain's (first officer's) display unit (DU)s decrease.
  - 5) Turn the antenna TILT control in steps from +5 to 15.00 degrees.
    - a) Make sure the tilt messages on the captain's (first officer's) display show the correct tilt angle  $\pm 2$  degree.
  - 6) Turn the TILT control to 0 degrees.
  - 7) Turn the TILT control in steps from 0 to -4.75 degrees.
    - a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle  $\pm 1$  degree.
    - b) Make sure the intensity of the close-in targets on the captain's (first officer's) display unit (DU)s increase.
  - 8) Turn the antenna TILT control in steps from -5 to -15.00 degrees.
    - a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle  $\pm 2$  degrees.
  - 9) Turn the TILT control to 0 degree.

### HAP 031-054, 101-999

- (b) Do the following:
  - 1) Turn the MODE switch to WX on the WXR control panel.

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HAP 031-054, 101-999 (Continued)

- 2) Select the "TILT" switch to MAN (manual).
  - a) Verify 0 (number 0) is displayed in the weather radar tilt field followed by a "M".
- 3) Select the "TILT" switch to AUTO.
  - a) Verify "O" (letter O) is displayed in the weather radar field followed by an "A".
- 4) Select the "TILT" switch back to MAN (manual).
- 5) Set the range switch on the EFIS control panel to adjust the radar returns in the center of the Captain's (First Officer's) display unit (DU).
- 6) Turn the TILT control to get good radar targets on the captain's (first officer's) display unit (DU).
  - a) Make sure the tilt messages on the Captain's (First Officer's) display unit (DU) shows the correct tilt angle  $\pm 0.5$  degrees.
- 7) Turn the TILT control in steps from 0 to +4.75 degrees.
  - a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle  $\pm 1$  degree.
  - b) Make sure the intensity of the close-in targets on the captain's (first officer's) display unit (DU)s decrease.
- 8) Turn the antenna TILT control in steps from +5 to 15.00 degrees.
  - a) Make sure the tilt messages on the captain's (first officer's) display show the correct tilt angle  $\pm 2$  degree.
- 9) Turn the TILT control to 0 degree.
- 10) Turn the TILT control in steps from 0 to -4.75 degrees.
  - a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle  $\pm 1$  degree.
  - b) Make sure the intensity of the close-in targets on the captain's (first officer's) display unit (DU)s decrease.
- 11) Turn the antenna TILT control in steps from -5 to -15.00 degrees.
  - a) Make sure the tilt messages on the captain's (first officer's) display show the correct tilt angle  $\pm 2$  degree.
- 12) Turn the TILT control to 0 degree.

### HAP ALL

#### H. WXR System Displays Test

SUBTASK 34-43-00-710-018-002

- (1) Select TEST on the WXR control panel.

SUBTASK 34-43-00-710-019-002

- (2) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

SUBTASK 34-43-00-710-005-002

- (3) Push the WXR power switch on the Captain's EFIS control panel to the ON position.

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## AIRCRAFT MAINTENANCE MANUAL

### HAP 008-013, 015-026, 028-054, 101-999; AIRPLANES WITH PREDICTIVE WINDSHEAR

- (a) Make sure these indications occur:

NOTE: Read through these indications before you do the test. If necessary, you can do the test more than once to do a check of the indications.

NOTE: Anytime the PWS automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR Transceiver (XCVR) switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

NOTE: All times are approximate.

### HAP 008-013, 015-026, 028-054, 101-999

- (b) Make sure these indications occur in 0-3 seconds:
- 1) PWS FAIL shows on the Captain's display.
  - 2) WINDSHEAR SYS (Advisory) EICAS Message is ON.
- (c) Make sure these indications occur in 6-9 seconds;
- 1) Amber WINDSHEAR shows on the Captain's display unit (DU).
  - 2) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.
  - 3) WINDSHEAR SYS (Advisory) EICAS Message is ON.
- (d) Make sure these indications occur in 9-12 seconds;
- 1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers
  - 2) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.
  - 3) Red WINDSHEAR shows on the Captain display unit (DU).

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- (e) After 15 seconds:
- 1) Make sure the weather radar test display on the Captain's display unit (DU) has a green-yellow-red-magenta is displayed.  
NOTE: A magenta wedge will appear in the middle of the test pattern. The pattern needs not begin at the origin. The size of each band and wedge of the pattern is not critical.
  - 2) Make sure the tilt code on the DUs display 0 plus or minus one degree in the weather radar tilt field
  - 3) Turn the inner INBD DU BRT control knob on the captains instrument panel (P1/P3).
    - a) Make sure there is a change in intensity of the test pattern on the captains INBD DU.

SUBTASK 34-43-00-710-020-002

- (4) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

SUBTASK 34-43-00-710-021-002

- (5) Push the WXR power switch on the First Officers's EFIS control panel to the ON position.

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### HAP 008-013, 015-026, 028-054, 101-999; AIRPLANES WITH PREDICTIVE WINDSHEAR

- (a) Make sure these indications occur:

NOTE: Read through these indications before you do the test. If necessary, you can do the test more than once to do a check of the indications.

NOTE: Anytime the PWS automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR Transceiver (XCVR) switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

NOTE: All times are approximate.

### HAP 008-013, 015-026, 028-054, 101-999

- (b) Make sure these indications occur in 0-3 seconds:
- 1) PWS FAIL shows on the First Officers display unit (DU).
  - 2) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.
- (c) Make sure these indications occur in 6-9 seconds;
- 1) Amber WINDSHEAR shows on the First Officer's display unit (DU).
  - 2) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.
  - 3) WINDSHEAR SYS (Advisory) EICAS Message is ON.
- (d) Make sure these indications occur in 9-12 seconds;
- 1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers
  - 2) Red WINDSHEAR shows on the First Officer display unit (DU)
  - 3) WINDSHEAR SYS (Advisory) EICAS Message is ON.

### HAP ALL

- (e) After 15 seconds:
- 1) Make sure the weather radar test display on the First Officer's display unit (DU) has a green-yellow-red-magenta is displayed.  
NOTE: A magenta wedge will appear in the middle of the test pattern. The pattern needs not begin at the origin. The size of each band and wedge of the pattern is not critical.
  - 2) Make sure the tilt code on the DUs display 0 plus or minus one degree in the weather radar tilt field
  - 3) Turn the inner INBD DU BRT control knob on the first officers instrument panel (P1/P3).
    - a) Make sure there is a change in intensity of the test pattern on the first officers INBD DU.

SUBTASK 34-43-00-860-154-002

- (6) Set the SOURCE switch on the instrument switching module to the AUTO position.

- (a) Make sure the test pattern stays on the Captain's and First Officers display units (DUs).

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**AIRCRAFT MAINTENANCE MANUAL**

I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-00-860-156-002

- (1) Push the WXR switch on the captain's and the first officer's EFIS control panels to the off position.

SUBTASK 34-43-00-860-157-002

- (2) If the air data inertial reference unit (ADIRU) is not necessary, set the ADIRU switch to the OFF position.

SUBTASK 34-43-00-860-158-002

- (3) 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	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-159-002

- (4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## AIRCRAFT MAINTENANCE MANUAL

### WEATHER RADAR RECEIVER/TRANSMITTER MOUNT FILTER - REMOVAL/INSTALLATION

#### 1. General

A. This procedure has these tasks:

- (1) A removal of the receiver/transmitter (R/T) mount filter
- (2) An installation of the R/T mount filter.

B. The filters are part of the R/T mount attached to the rear of the mount.

#### **TASK 34-43-09-000-801**

#### 2. Weather Radar Receiver/Transmitter Mount Filter Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Procedure

SUBTASK 34-43-09-000-001

- (1) Do these steps to remove the R/T mount filter:
  - (a) Loosen the two knobs [1] on the filter assembly.
  - (b) Remove the filter assembly from the filter bracket.

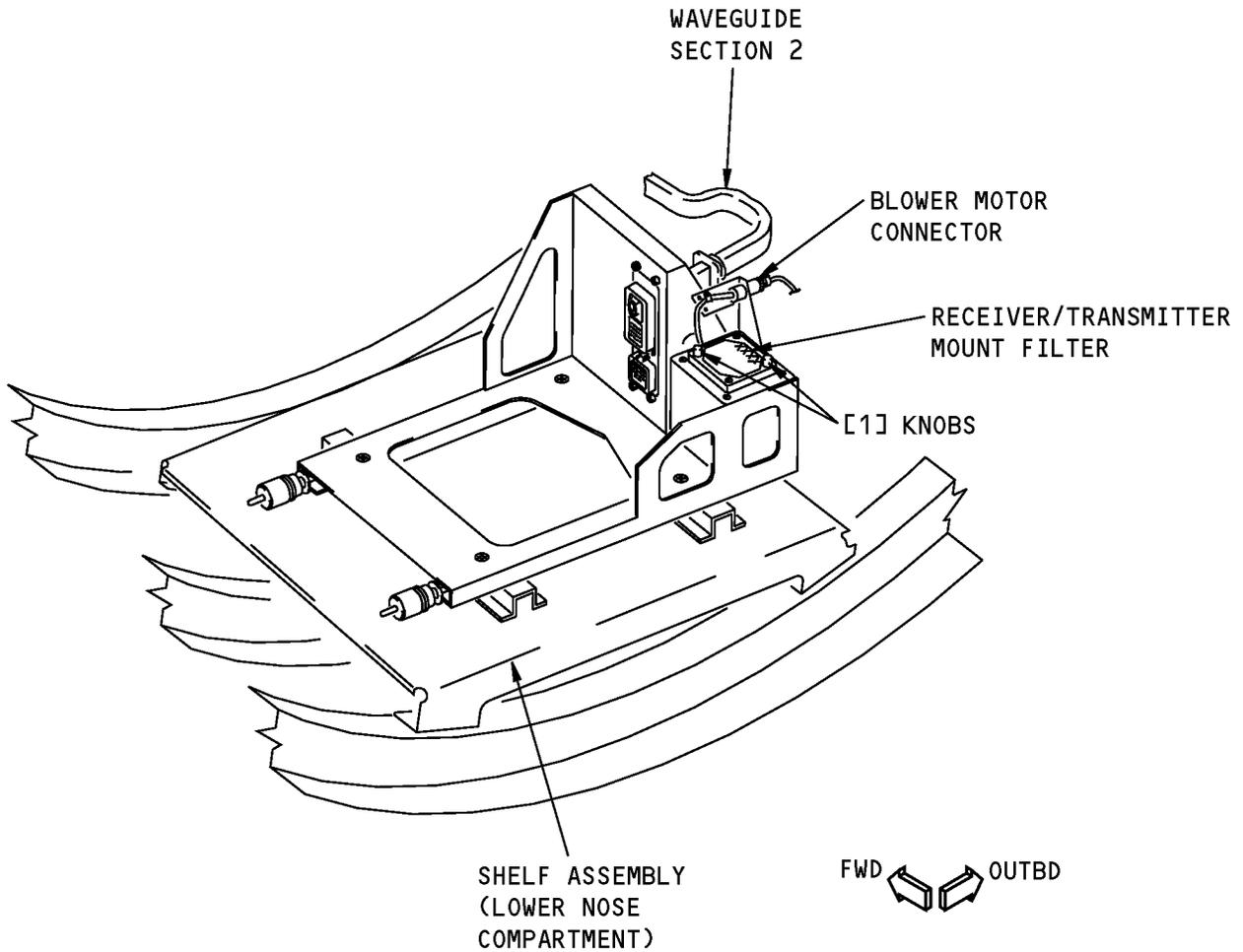
————— **END OF TASK** —————

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**Weather Radar Receiver/Transmitter Mount Filter Installation  
Figure 401/34-43-09-990-801**

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## AIRCRAFT MAINTENANCE MANUAL

**TASK 34-43-09-400-801**

### 3. Weather Radar Receiver/Transmitter Mount Filter Installation

#### A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

#### B. Procedure

SUBTASK 34-43-09-020-001

(1) Do these steps to install the R/T mount filter:

- (a) Put the filter assembly in the filter bracket.
- (b) Tighten the two knobs [1] on the filter assembly.

————— **END OF TASK** —————

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WEATHER RADAR RECEIVER/TRANSMITTER MOUNT FILTER - CLEANING/PAINTING

1. General

A. This procedure has one task:

(1) The cleaning of the weather radar receiver/transmitter (R/T) mount filter.

B. The R/T mount filter is located on the rear of the R/T mount.

**TASK 34-43-09-100-801**

2. Weather Radar R/T Mount Filter Cleaning

A. References

Reference	Title
34-43-09-000-801	Weather Radar Receiver/Transmitter Mount Filter Removal (P/B 401)
34-43-09-400-801	Weather Radar Receiver/Transmitter Mount Filter Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-77	Air Source - Regulated, Dry Filtered, 0-50 psig

C. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Procedure

SUBTASK 34-43-09-010-001

(1) Do this task: Weather Radar Receiver/Transmitter Mount Filter Removal, TASK 34-43-09-000-801.

SUBTASK 34-43-09-100-001

(2) Clean the weather radar R/T mount filter.

(a) Clean the filter in a container with general purpose household detergent cleaner, B00541 mixed with water.

(b) Dry the filter with 0-50 psig dry filtered regulated air source, STD-77.

NOTE: The air pressure must be between 25 and 38 psi (172-262 kPa).

SUBTASK 34-43-09-010-002

(3) Do this task: Weather Radar Receiver/Transmitter Mount Filter Installation, TASK 34-43-09-400-801.

————— **END OF TASK** —————

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## AIRCRAFT MAINTENANCE MANUAL

### WEATHER RADAR ANTENNA - REMOVAL/INSTALLATION

#### 1. General

A. This procedure has these tasks:

- (1) A removal of the weather radar Antenna [4] flat plate.
- (2) A removal of the weather radar Antenna Drive Unit [5].
- (3) An installation of the weather radar Antenna [4] flat plate.
- (4) An installation of the weather radar Antenna Drive Unit [5].
- (5) An installation test of the weather radar Antenna [4].

B. The weather radar Antenna [4] is located in the radome.

#### **TASK 34-43-11-000-801**

#### 2. Weather Radar Antenna Flat Plate Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
111	Radome

B. Access Panels

<u>Number</u>	<u>Name/Location</u>
111	Radome

C. Removal Procedure

SUBTASK 34-43-11-860-001

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-020-001

(2) Do these steps to open this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

(a) Remove fuselage bulkhead attachment screws from this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

**NOTE:** DO NOT OPEN THE RADOME IN THE RAINY CONDITION. IF THE WATER REMAINS ON THE FLAT PLATE, WIPE OFF THE WATER COMPLETELY BEFORE RADOME IS CLOSED.

**WARNING:** DO NOT OPEN THE RADOME IF THE WIND IS MORE THAN 15 KNOTS. THE RADOME CAN MOVE QUICKLY IF YOU OPEN THE RADOME IN THE WIND. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

- (b) Open and lock in the open position with support rods on each side, this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

SUBTASK 34-43-11-020-002

- (3) Do these steps to remove the weather radar Antenna [4] flat plate:

**CAUTION:** DURING THE ANTENNA FLAT PLATE [4] REMOVAL, MAKE SURE THE ANTENNA DRIVE UNIT [5] DOES NOT MOVE. REMOVE THE ANTENNA FLAT PLATE CAREFULLY TO PREVENT DAMAGE TO THE EQUIPMENT.

- (a) Remove the four screws [9] and washers [10].
- (b) Remove the eight screws [7] and washers [8] from the flat plate ring mount [13].

**WARNING:** DURING A ANTENNA FLAT PLATE [4] REMOVAL, USE TWO PERSONS AND A SAFELY INSTALLED WORKSTAND. THE ANTENNA FLAT PLATE [4] WEIGHS APPROXIMATELY 7 POUNDS (3.2 KILOS). REMOVE THE ANTENNA [4] FLAT PLATE CAREFULLY TO PREVENT INJURY TO PERSON OR DAMAGE TO THE EQUIPMENT.

- (c) Remove the Antenna [4] flat plate.
- (d) Install dust caps on end of the waveguide flange [12].

SUBTASK 34-43-11-020-009

- (4) If it is necessary to remove the Antenna Drive Unit [5] after you remove the Antenna [4] flat plate, do this task: Weather Radar Antenna Drive Unit Removal, TASK 34-43-11-000-802.

————— **END OF TASK** —————

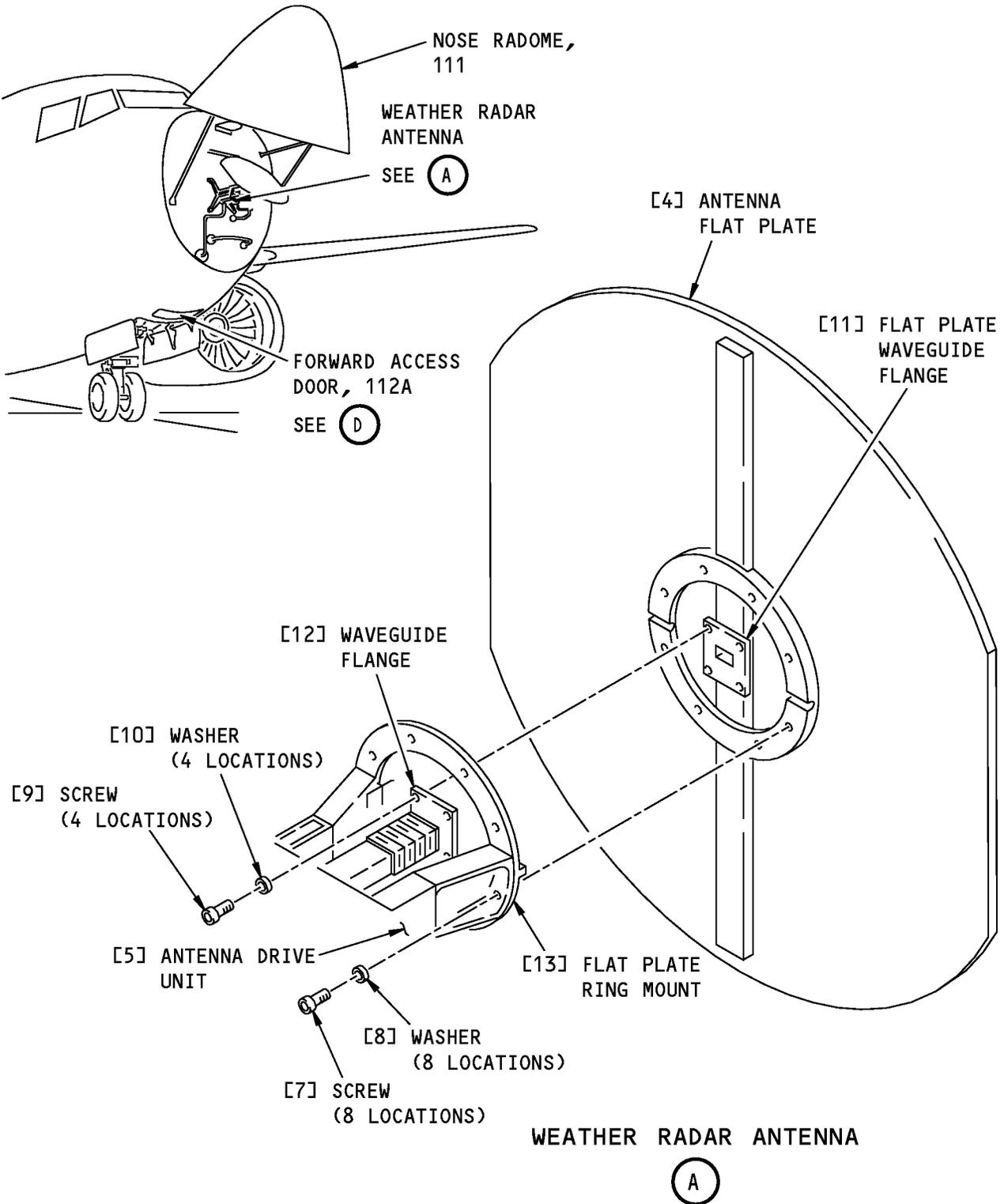
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**Weather Radar Antenna Installation**  
**Figure 401/34-43-11-990-801**

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TASK 34-43-11-400-801

#### 3. Weather Radar Antenna Flat Plate Installation

(Figure 401)

##### A. References

Reference	Title
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)

##### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Antenna	34-43-11-03-020	HAP 031-054, 101-999

##### C. Location Zones

Zone	Area
111	Radome

##### D. Access Panels

Number	Name/Location
111	Radome

##### E. Installation Procedure

SUBTASK 34-43-11-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-420-001

- (2) If closed, do these steps to open this access panel:

Number	Name/Location
111	Radome

- (a) Remove the fuselage bulkhead attachment screws from this access panel:

Number	Name/Location
111	Radome

**NOTE:** DO NOT OPEN THE RADOME IN THE RAINY CONDITION. IF THE WATER REMAINS ON THE FLAT PLATE, WIPE OFF THE WATER COMPLETELY BEFORE RADOME IS CLOSED.

**WARNING:** DO NOT OPEN THE RADOME IF THE WIND IS MORE THAN 15 KNOTS. THE RADOME CAN MOVE QUICKLY IF YOU OPEN THE RADOME IN THE WIND. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Open and lock in the open position with support rods on each side, this access panel:

Number	Name/Location
111	Radome

SUBTASK 34-43-11-420-002

- (3) Do these steps to install the weather radar Antenna [4] flat plate.

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(a) Remove dust cap from the waveguide flange [12].

**WARNING:** USE TWO PERSONS AND A WORKSTAND DURING THE INSTALLATION OF THE ANTENNA FLAT PLATE [4]. THE ANTENNA [4] FLAT PLATE WEIGHS APPROXIMATELY 7 POUNDS (3.2 KILOS). INSTALL THE ANTENNA FLAT PLATE [4] CAREFULLY TO PREVENT INJURY TO YOU OR DAMAGE TO THE EQUIPMENT.

(b) Install the Antenna [4] flat plate to the flat plate ring mount [13].

(c) Install the eight screws [7] and washers [8] on the flat plate ring mount [13].

(d) Tighten the screws [7] and [8] to between 24 and 33 pounds-inches (2.7-3.7 newton-meters).

(e) Align the waveguide flange [12] to flat plate waveguide flange [11].

(f) Install the four screws [9] and washers [10].

SUBTASK 34-43-11-410-001

(4) Close this access panel:

Number	Name/Location
111	Radome

SUBTASK 34-43-11-865-001

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-020-003

(6) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002.

————— **END OF TASK** —————

#### TASK 34-43-11-000-802

#### 4. Weather Radar Antenna Drive Unit Removal

(Figure 401)

##### A. References

Reference	Title
20-10-44-000-801	Lockwires Removal (P/B 401)

##### B. Location Zones

Zone	Area
111	Radome

##### C. Access Panels

Number	Name/Location
111	Radome

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#### D. Removal Procedure

SUBTASK 34-43-11-860-004

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-020-004

(2) Do these steps to open this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

(a) Remove fuselage bulkhead attachment screws from this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

**NOTE:** DO NOT OPEN THE RADOME IN THE RAINY CONDITION. IF THE WATER REMAINS ON THE FLAT PLATE, WIPE OFF THE WATER COMPLETELY BEFORE RADOME IS CLOSED.

**WARNING:** DO NOT OPEN THE RADOME IF THE WIND IS MORE THAN 15 KNOTS. THE RADOME CAN MOVE QUICKLY IF YOU OPEN THE RADOME IN THE WIND. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Open and lock in the open position with support rods on each side, this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

SUBTASK 34-43-11-020-005

(3) Do these steps to remove the weather radar Antenna Drive Unit [5]:

- (a) Release the waveguide quick disconnect [2] to disconnect the waveguide [1].
- (b) Disconnect the electrical connector [6].
- (c) If the bolts [3] have a drilled hole, remove the twisted lockwires (TASK 20-10-44-000-801).
- (d) Remove the two bottom bolts [3] on the Antenna Drive Unit [5].
- (e) Loosen the top two bolts [3] on the Antenna Drive Unit [5].

**WARNING:** USE TWO PERSONS AND A WORKSTAND DURING THE REMOVAL OF THE ANTENNA DRIVE UNIT [5]. THE ANTENNA DRIVE UNIT [5] WEIGHS APPROXIMATELY 18 POUNDS (8.2 KILOS). REMOVE THE ANTENNA DRIVE UNIT [5] CAREFULLY TO PREVENT INJURY TO PERSON OR DAMAGE TO EQUIPMENT.

- (f) Lift the Antenna Drive Unit [5] up and forward to remove the Antenna Drive Unit [5] from the two top bolts [3].
- (g) Install dust caps to the ends of the waveguide [1].
- (h) Install dust cap to the electrical connector [6] if you do not replace the antenna Antenna Drive Unit [5] immediately.

————— END OF TASK —————

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## TASK 34-43-11-400-802

### 5. Weather Radar Antenna Drive Unit Installation

(Figure 401)

#### A. References

Reference	Title
20-10-44-400-801	Lockwires Installation (P/B 401)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Antenna Drive Unit	34-43-11-03-045	HAP 031-054, 101-999

#### C. Location Zones

Zone	Area
111	Radome

#### D. Access Panels

Number	Name/Location
111	Radome

#### E. Installation Procedure

SUBTASK 34-43-11-860-005

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-420-003

- (2) If closed, do these steps to open this access panel:

Number	Name/Location
111	Radome

- (a) Remove the fuselage bulkhead attachment screws from this access panel:

Number	Name/Location
111	Radome

**NOTE:** DO NOT OPEN THE RADOME IN THE RAINY CONDITION. IF THE WATER REMAINS ON THE FLAT PLATE, WIPE OFF THE WATER COMPLETELY BEFORE RADOME IS CLOSED.

**WARNING:** DO NOT OPEN THE RADOME IF THE WIND IS MORE THAN 15 KNOTS. THE RADOME CAN MOVE QUICKLY IF YOU OPEN THE RADOME IN THE WIND. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Open and lock in the open position with support rods on each side, this access panel:

Number	Name/Location
111	Radome

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SUBTASK 34-43-11-420-004

**WARNING:** DO NOT OPERATE THE WEATHER RADAR UNLESS ALL PERSONNEL ARE MORE THAN 50 FT (15 M) FROM THE RADAR. DO NOT OPERATE THE WEATHER RADAR IN A HANGAR. IF YOU DO NOT OBEY THESE PRECAUTIONS, INJURIES TO PERSONNEL CAN OCCUR.

**WARNING:** IF THERE IS FUEL LEAKAGE OR AN OPEN FUEL CELL LESS THAN 50 FT (15 M) FROM THE RADAR, DO NOT OPERATE THE WEATHER RADAR. IF THERE IS FUEL IN THE 50-FOOT RADIUS AROUND THE RADAR, IT CAN CAUSE A FIRE AND EXPLOSION. THESE CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT. THESE CAN KILL PERSONNEL.

- (3) Do these steps to install the weather radar antenna Antenna Drive Unit [5]:
  - (a) Remove the dust caps from the waveguide [1] and the electrical connector [6].
  - (b) Examine the waveguide [1] for damage, dirt, and moisture.

**NOTE:** The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

- (c) Install the base of the weather radar antenna Antenna Drive Unit [5] to the two top bolts [3].
- (d) Install the two bottom bolts [3].
- (e) Tighten all four bolts [3] to 220-240 pound-inches (24.9-27.1 newton-meters).
- (f) If the bolts [3] have a drilled hole, install a double twisted lockwires, (TASK 20-10-44-400-801).
- (g) Install the electrical connector [6].
- (h) Connect the waveguide [1] to the antenna at the waveguide quick disconnect [2].

**NOTE:** Make sure you install the O-ring gasket.

SUBTASK 34-43-11-420-009

- (4) If removed, do this task to install the Antenna [4] flat plate:Weather Radar Antenna Flat Plate Installation, TASK 34-43-11-400-801

SUBTASK 34-43-11-020-006

- (5) Do an electrical bonding test between the airplane structure and the weather radar antenna.
  - (a) Make sure the resistance is less than 0.001 ohms.

SUBTASK 34-43-11-410-002

- (6) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

SUBTASK 34-43-11-865-002

- (7) 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	13	C00120	WEATHER RADAR RT

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SUBTASK 34-43-11-020-007

(8) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## WEATHER RADAR WAVEGUIDE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the weather radar (WXR) waveguide
- (2) An installation of the WXR waveguide.

B. The WXR waveguide is in the nose radome and in the lower nose compartment.

#### **TASK 34-43-21-000-801**

### 2. WXR Waveguide Removal

(Figure 401)

A. General

- (1) You must do the Prepare for Removal section before any of the waveguide assemblies are removed. You can remove one or all parts of the waveguide when necessary.

B. References

Reference	Title
34-43-41-000-801	Weather Radar Receiver/Transmitter Removal (P/B 401)

C. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
111	Radome
112A	Forward Access Door

E. Prepare for Removal

SUBTASK 34-43-21-860-001

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-21-010-001

- (2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-21-020-001

- (3) For easier access to the waveguide, do this task: Weather Radar Receiver/Transmitter Removal, TASK 34-43-41-000-801.

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### F. Waveguide Assembly [1] Removal

SUBTASK 34-43-21-010-002

**NOTE:** DO NOT OPEN THE RADOME IN THE RAINY CONDITION. IF THE WATER REMAINS ON THE FLAT PLATE, WIPE OFF THE WATER COMPLETELY BEFORE RADOME IS CLOSED.

**CAUTION:** DO NOT OPEN THE NOSE RADOME IF THE WIND IS MORE THAN 15 KNOTS. IF YOU OPEN THE NOSE RADOME IN A WIND, THE RADOME CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

- (a) Remove the screws that attach the nose radome to the fuselage bulkhead.
- (b) Open the nose radome and hold it in the open position by the installation of the support rods on each side.

SUBTASK 34-43-21-020-002

**CAUTION:** DO NOT LET THE WORKSTANDS HIT OR TOUCH THE WEATHER RADAR ANTENNA OR OTHER RADOME EQUIPMENT. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Remove waveguide assembly [1]:

- (a) Remove the screws [12] and washers [13] that attach waveguide assembly [1] to waveguide assembly [11] (in lower nose compartment).
- (b) Release the quick disconnect [2] that holds waveguide assembly [1] to the antenna drive unit.
- (c) Do these steps at the pressure seal flange [9]:
  - 1) Remove the screws [7] and screw [8].

**NOTE:** Screw [8] is longer than the other screws.

    - a) Make a note of the location of screw [8].
- (d) Remove screw [4], washer [5], nut [6], and waveguide clamp [3].
- (e) Carefully remove waveguide assembly [1], with the gasket [10].
- (f) Remove round gasket [14] from one end of waveguide assembly [1].
- (g) Put dust caps on the ends of the waveguides.

### G. Waveguide Assembly [11] Removal

SUBTASK 34-43-21-020-003

(1) Remove waveguide assembly [11]:

- (a) Remove the screws [12] and washers [13] that attach waveguide assembly [11] to the mount waveguide.
- (b) If waveguide assembly [1] is installed (because you did not remove it), then do this step:
  - 1) Remove the screws [12] and washers [13] that attach waveguide assembly [11] to waveguide assembly [1].
- (c) Remove waveguide assembly [11].
- (d) Make sure the round gasket [14] at each end of waveguide assembly [11] is removed.
- (e) Put dust caps on the ends of the waveguides.

————— **END OF TASK** —————

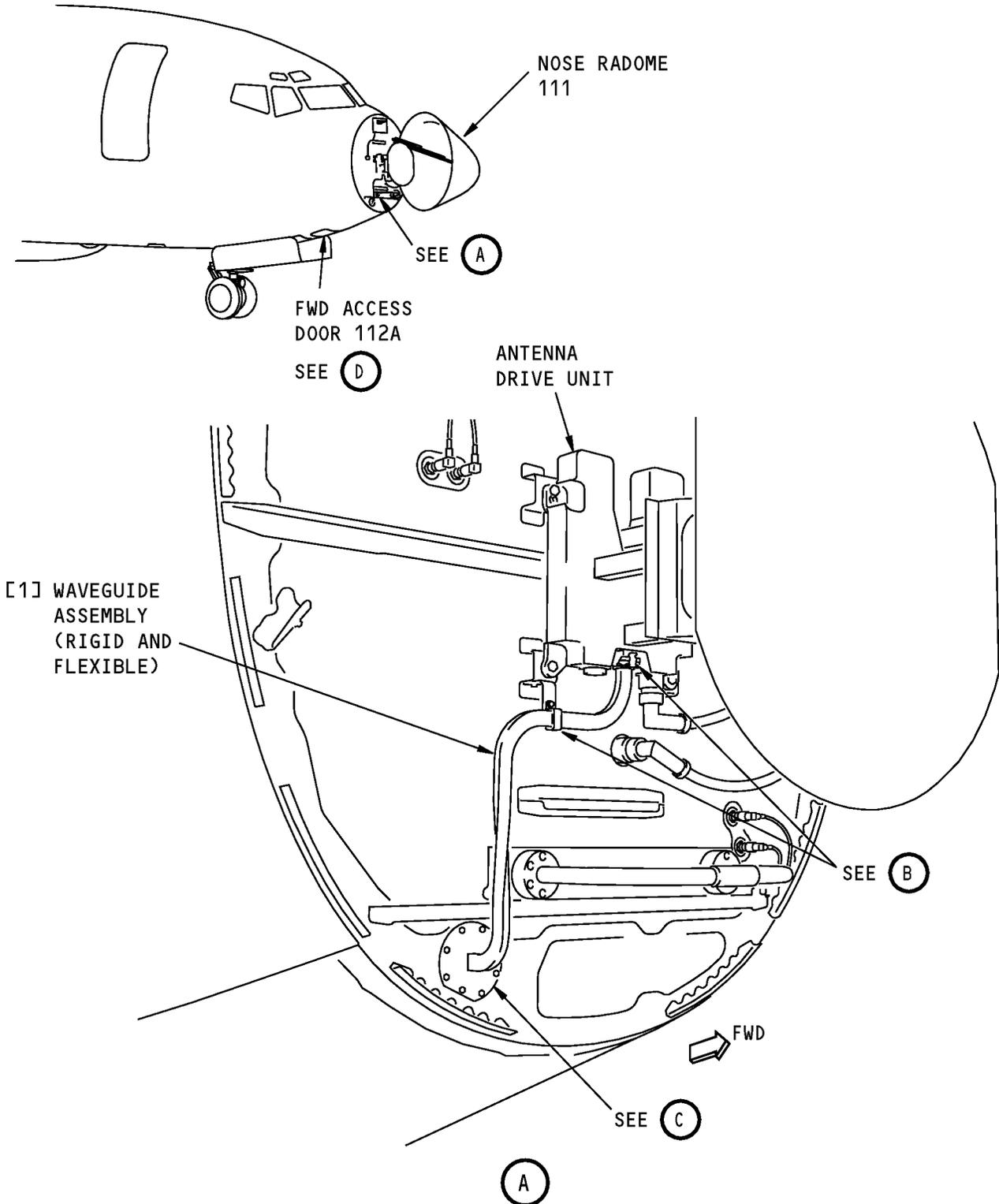
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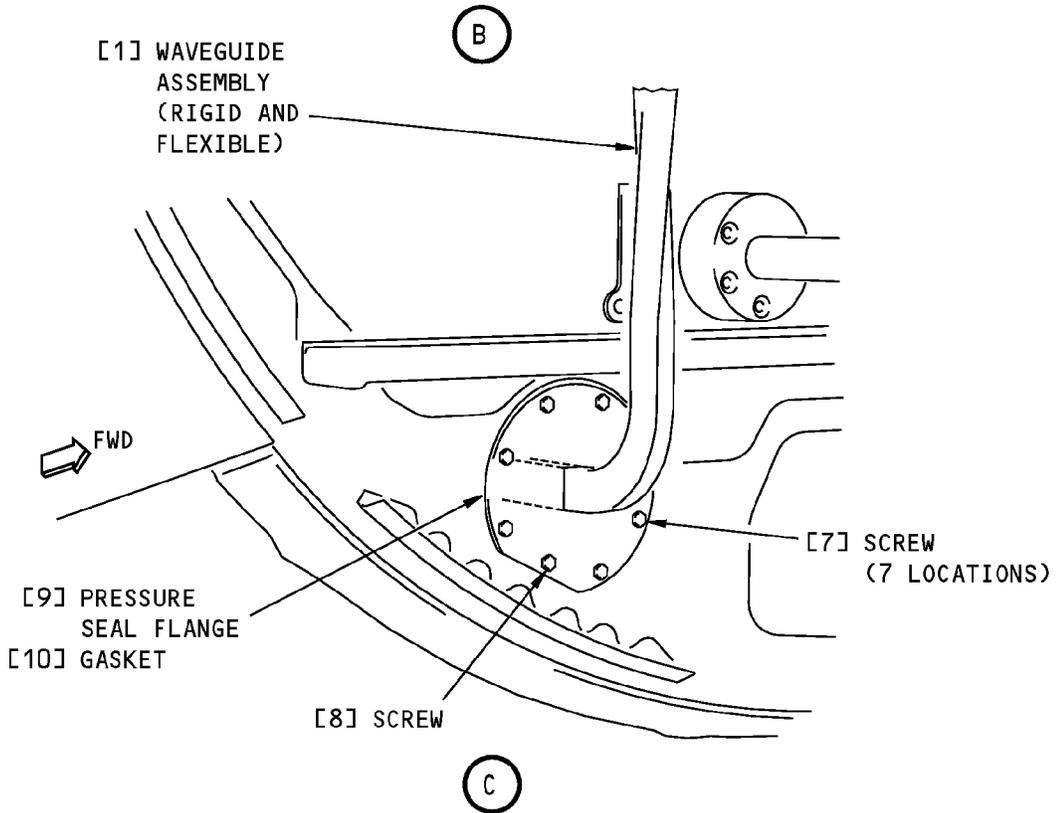
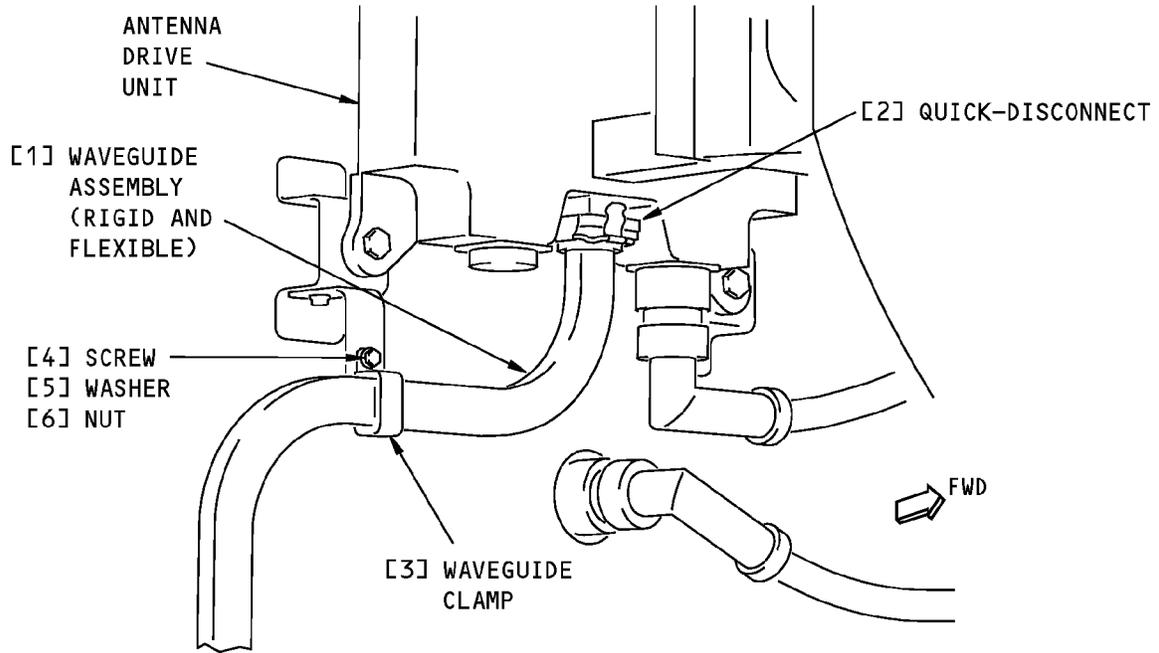


**Weather Radar Waveguide Installation  
Figure 401 (Sheet 1 of 3)/34-43-21-990-801**

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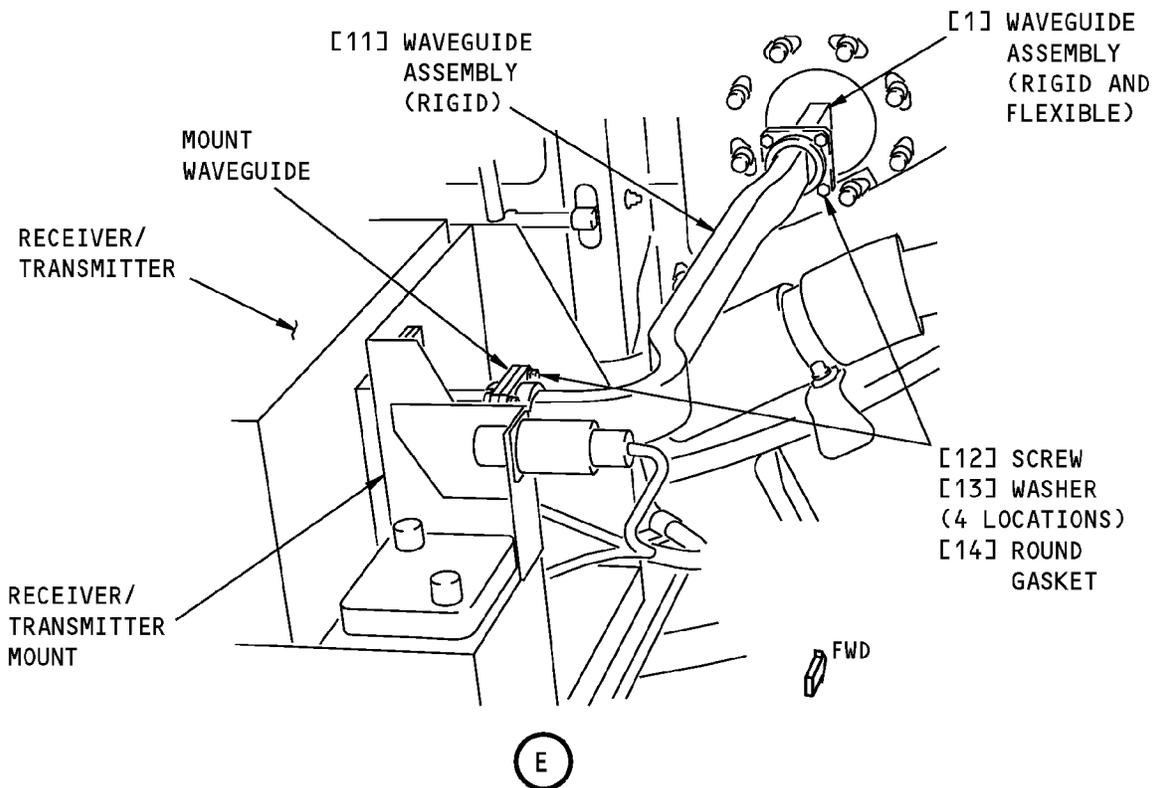
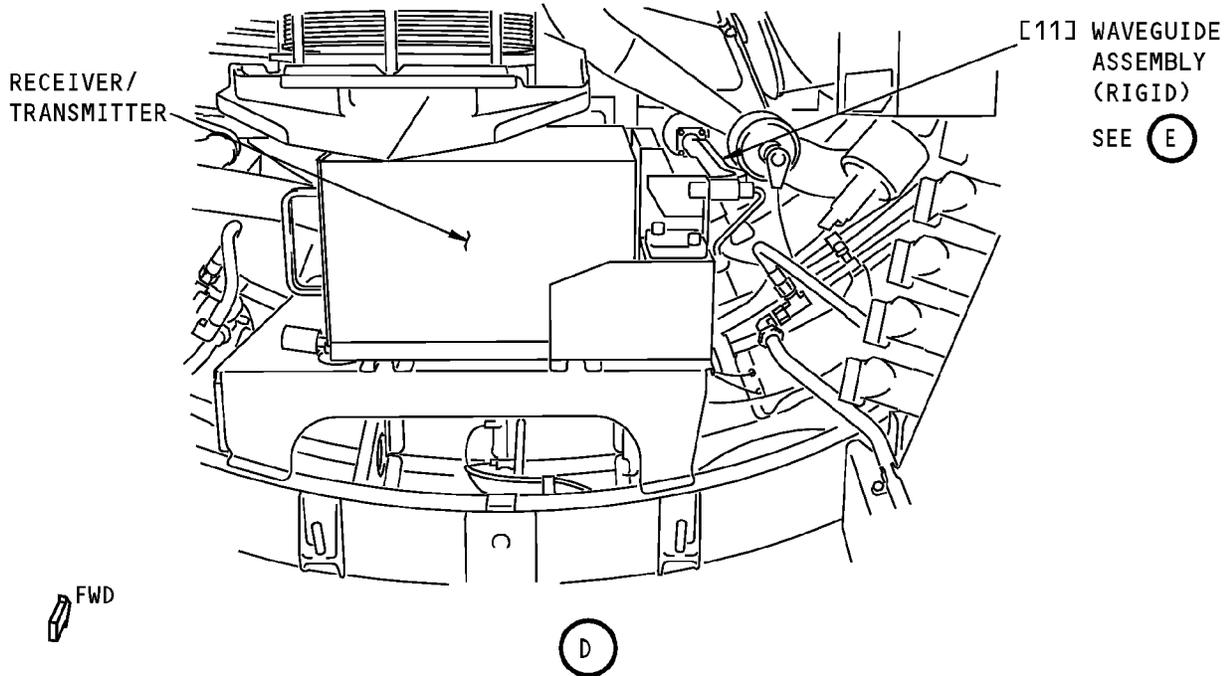


**Weather Radar Waveguide Installation**  
**Figure 401 (Sheet 2 of 3)/34-43-21-990-801**

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**Weather Radar Waveguide Installation**  
**Figure 401 (Sheet 3 of 3)/34-43-21-990-801**

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#### TASK 34-43-21-400-801

### 3. WXR Waveguide Installation

(Figure 401)

#### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-41-400-801	Weather Radar Receiver/Transmitter Installation (P/B 401)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Waveguide assembly	34-43-21-01-050	HAP ALL
11	Waveguide assembly	34-43-21-02-025	HAP ALL
		34-43-41-01-315	HAP 001-011
		34-43-41-05-610	HAP 012, 013, 015-026, 028-046, 054, 101-105

#### C. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

#### D. Access Panels

Number	Name/Location
111	Radome
112A	Forward Access Door

#### E. Procedure

SUBTASK 34-43-21-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

#### F. Waveguide Assembly [1] Installation

SUBTASK 34-43-21-860-003

**NOTE:** DO NOT OPEN THE RADOME IN THE RAINY CONDITION. IF THE WATER REMAINS ON THE FLAT PLATE, WIPE OFF THE WATER COMPLETELY BEFORE RADOME IS CLOSED.

**CAUTION:** DO NOT OPEN THE NOSE RADOME IF THE WIND IS MORE THAN 15 KNOTS. IF YOU OPEN THE NOSE RADOME IN A WIND, THE RADOME CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the nose radome is open.

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SUBTASK 34-43-21-420-001

**CAUTION:** DO NOT LET THE WORKSTANDS HIT OR TOUCH THE WEATHER RADAR ANTENNA OR OTHER RADOME EQUIPMENT. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Install waveguide assembly [1]:

- (a) Remove the dust caps from the ends of the waveguides.
- (b) Examine the waveguide assembly [1] for damage, dirt, and moisture.

**NOTE:** The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

- (c) Install a new gasket [10] on the pressure seal flange [9].
- (d) Install a new round gasket [14] at one end of waveguide assembly [1].
- (e) Move waveguide assembly [1] through the hole in the forward bulkhead and put in the correct position.
  - 1) Make sure gasket [10] and round gasket [14] are correctly installed.
- (f) Install screws [7] and screw [8] to hold the pressure seal flange [9] to the bulkhead.
  - 1) Make sure the longer screw [8] is installed in the correct location.
- (g) Install the quick disconnect [2] that holds waveguide assembly [1] to the antenna drive unit.
- (h) Install the clamp [3], screw [4], washer [5], and nut [6].
  - 1) Adjust the clamp to make sure it does not bend waveguide assembly [1].
- (i) If you did not remove waveguide assembly [11], then do this step:
  - 1) Install the screws [12] and washers [13] that attach waveguide assembly [1] to waveguide assembly [11].

### G. Waveguide Assembly [11] Installation

SUBTASK 34-43-21-420-002

(1) Install waveguide assembly [11]:

- (a) Remove the dust caps from the ends of the waveguides.
- (b) Examine the waveguide assembly [11] for damage, dirt and moisture.

**NOTE:** The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

- (c) Make sure a new round gasket [14] is installed at each end of waveguide assembly [11].
- (d) Install the screws [12] and washers [13] that attach waveguide assembly [11] to the mount waveguide.
- (e) Install the screws [12] and washers [13] that attach waveguide assembly [11] to waveguide assembly [1].

SUBTASK 34-43-21-420-003

(2) If you removed the WXR receiver/transmitter, then, do this task: Weather Radar Receiver/Transmitter Installation, TASK 34-43-41-400-801.

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SUBTASK 34-43-21-860-004

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-21-410-001

(4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 34-43-21-410-002

(5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
111	Radome

(a) Install the screws that attach the nose radome to the fuselage bulkhead.

**H. Installation Test**

SUBTASK 34-43-21-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-43-21-710-001

(2) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002.

**————— END OF TASK —————**

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## WEATHER RADAR RECEIVER/TRANSMITTER MOUNT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the weather radar receiver/transmitter (R/T) Mount [1].
- (2) An installation of the R/T Mount [1].

B. The R/T Mount [1] is in the lower nose compartment.

#### **TASK 34-43-31-000-801**

### 2. Weather Radar Receiver/Transmitter Mount Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
34-43-41-000-801	Weather Radar Receiver/Transmitter Removal (P/B 401)

B. Location Zones

<u>Zone</u>	<u>Area</u>
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-31-860-001

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-31-010-001

(2) To get access to the weather radar R/T Mount [1], open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 34-43-31-010-002

(3) Do this task: Weather Radar Receiver/Transmitter Removal, TASK 34-43-41-000-801.

SUBTASK 34-43-31-020-001

(4) Remove the weather radar R/T Mount [1]:

- (a) Disconnect the electrical connector [8].
- (b) Remove the screws [3] and washers [4] that attach the waveguide assembly [6] to the waveguide [7].
- (c) Remove the screws [2] that attach the connector assembly [9] to the rear of the weather radar R/T Mount [1].
- (d) Remove the screws [10] from the bottom of the weather radar R/T Mount [1].

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- (e) Make sure you support the connector assembly [9] and waveguide assembly [6], while you carefully remove the weather radar R/T Mount [1].
- (f) Remove the gasket [5].
- (g) Put protective covers on the electrical connector [8], connector assembly [9], and the waveguides.

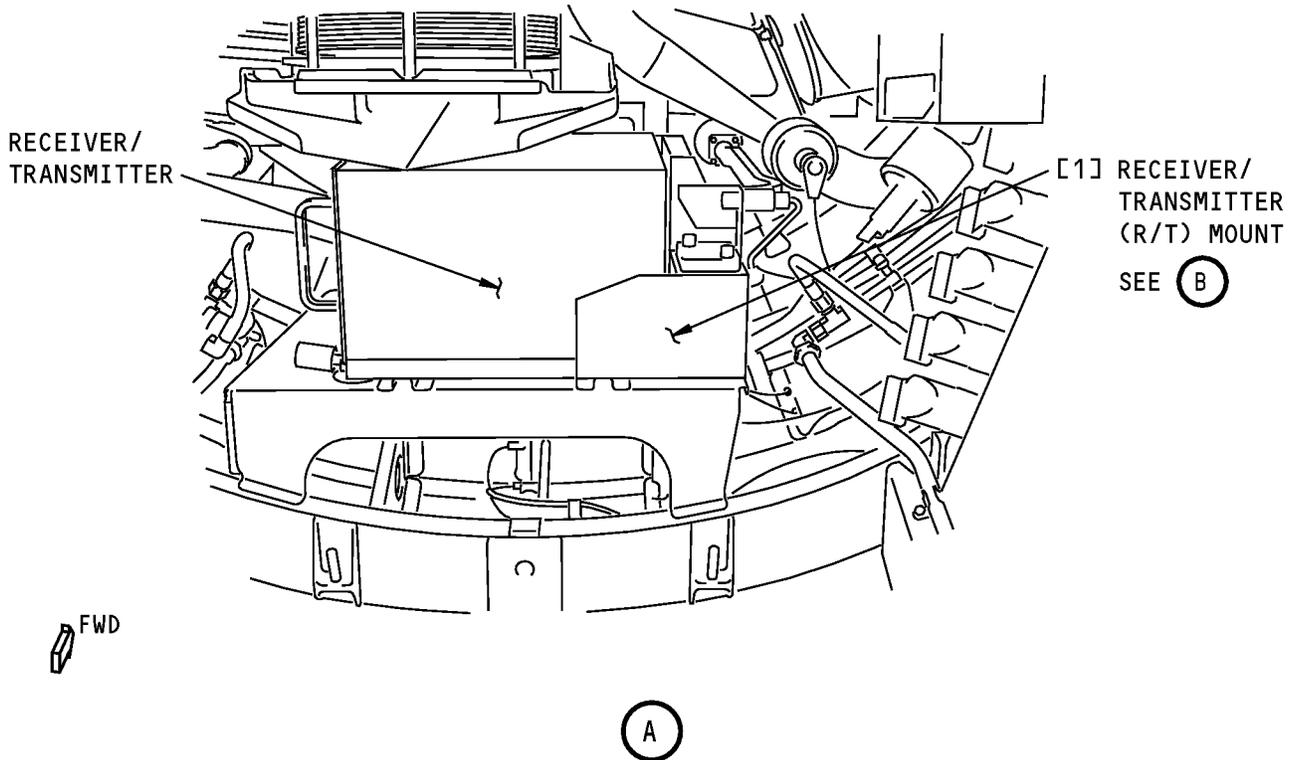
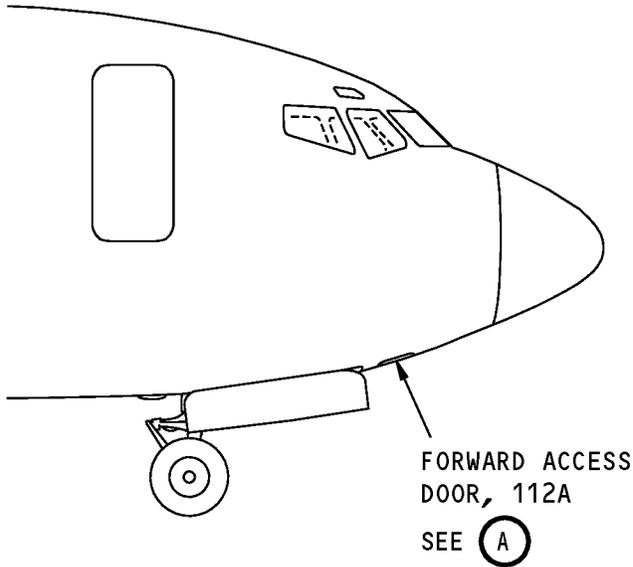
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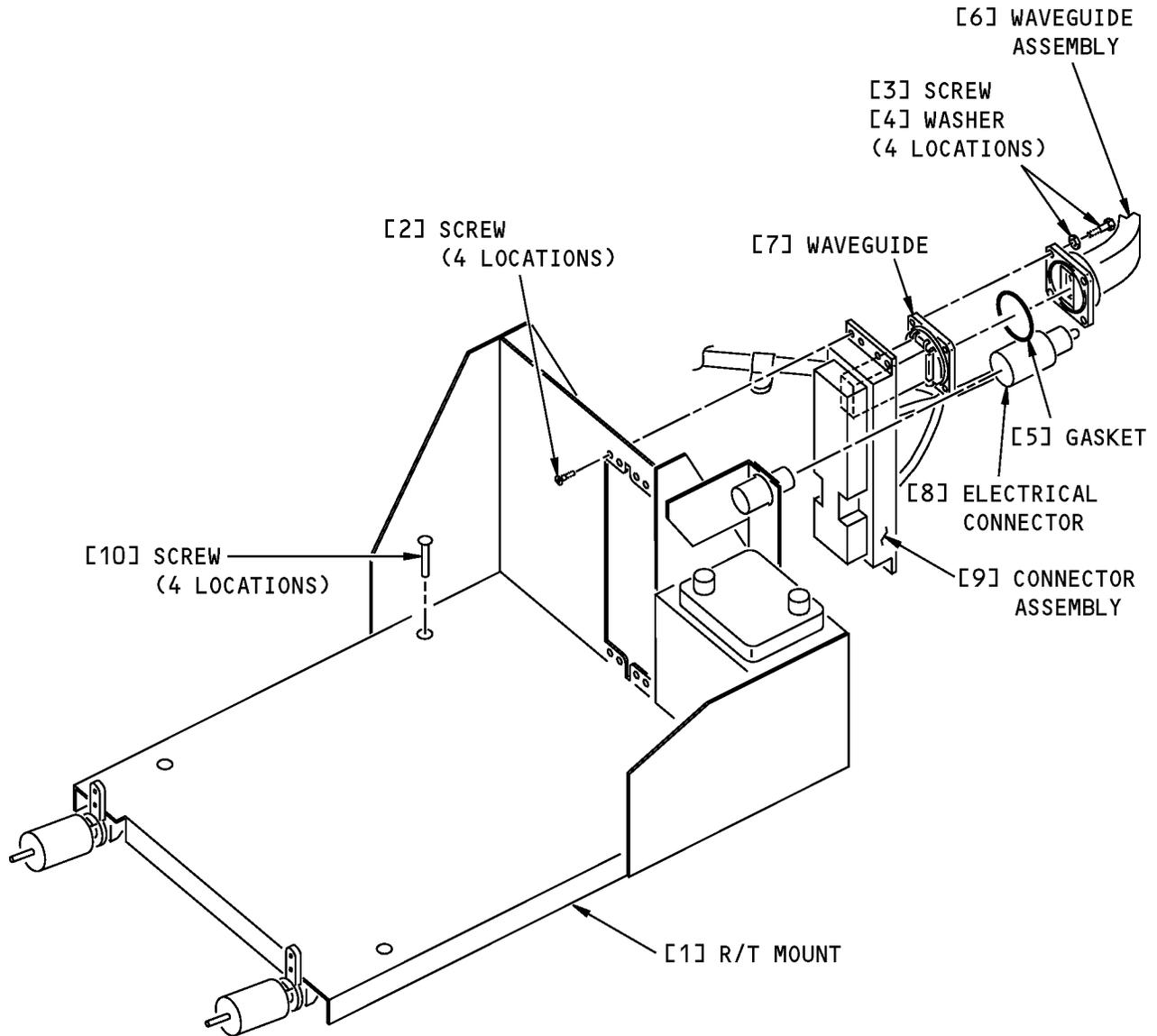
**Weather Radar Receiver/Transmitter Mount Installation  
Figure 401 (Sheet 1 of 2)/34-43-31-990-801**

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**Weather Radar Receiver/Transmitter Mount Installation  
Figure 401 (Sheet 2 of 2)/34-43-31-990-801**

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#### TASK 34-43-31-400-801

#### 3. Weather Radar Receiver/Transmitter Mount Installation

(Figure 401)

##### A. References

Reference	Title
34-43-41-400-801	Weather Radar Receiver/Transmitter Installation (P/B 401)

##### B. Tools/Equipment

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

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Mount	34-43-31-01-025	HAP 001-013, 015-026, 028-030

##### D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

##### E. Access Panels

Number	Name/Location
112A	Forward Access Door

##### F. Installation Procedure

SUBTASK 34-43-31-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-31-420-001

(2) Install the weather radar R/T Mount [1]:

- (a) Remove the protective covers from the electrical connector [8], connector assembly [9], and waveguides.
- (b) Examine the electrical connector [8] and connector assembly [9] for bent or broken pins, dirt and damage.

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- (c) Examine the waveguides for damage, dirt and moisture.

NOTE: The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

- (d) Carefully move the weather radar R/T Mount [1] into position with the connector assembly [9] aligned correctly.
(e) Install a new gasket [5] between the waveguide assembly [6] and the waveguide [7].
(f) Install the screws [10] that attach the weather radar R/T Mount [1] to the support structure.
(g) Install the screws [2] that attach the connector assembly [9] to the weather radar R/T Mount [1].
(h) Install the screws [3] and washers [4] to attach the waveguide assembly [6] to the waveguide [7].
(i) Install the electrical connector [8].

SUBTASK 34-43-31-760-001

- (3) Use an bonding meter, COM-1550 to measure the resistance between the R/T Mount [1] and the support structure.
(a) Make sure the maximum resistance is 0.001 ohms or less.

SUBTASK 34-43-31-860-003

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

F/O Electrical System Panel, P6-1

Table with 4 columns: Row, Col, Number, Name. Row 1: D, 13, C00120, WEATHER RADAR RT

SUBTASK 34-43-31-865-002

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

F/O Electrical System Panel, P6-1

Table with 4 columns: Row, Col, Number, Name. Row 1: D, 13, C00120, WEATHER RADAR RT

SUBTASK 34-43-31-410-001

- (6) Do this task: Weather Radar Receiver/Transmitter Installation, TASK 34-43-41-400-801.

SUBTASK 34-43-31-410-002

- (7) Close this access panel:

Table with 2 columns: Number, Name/Location. Row 1: 112A, Forward Access Door

END OF TASK

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## WEATHER RADAR RECEIVER/TRANSMITTER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the weather radar receiver/transmitter
- (2) An installation of the weather radar receiver/transmitter.

B. The weather radar receiver/transmitter is in the lower nose compartment.

#### **TASK 34-43-41-000-801**

### 2. Weather Radar Receiver/Transmitter Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-41-860-001

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-41-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-41-030-001

(3) Disconnect the pneumatic connector on the left Pitot ADM.

SUBTASK 34-43-41-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RECEIVER/TRANSMITTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RECEIVER/TRANSMITTER.

(4) To remove the RECEIVER/TRANSMITTER [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

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SUBTASK 34-43-41-860-007

(5) Put protective covers on the electrical connectors.

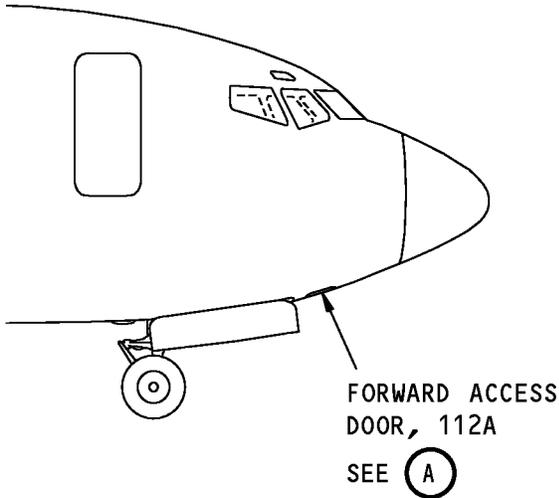
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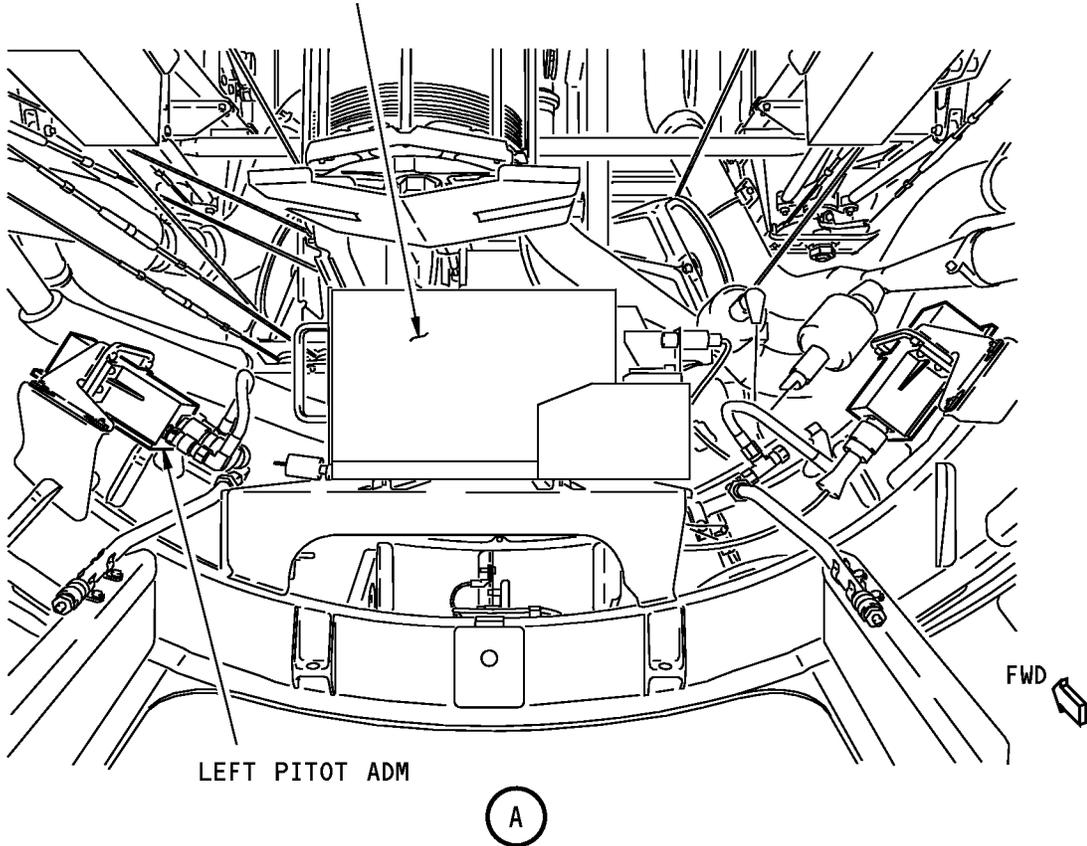
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[1] RECEIVER/TRANSMITTER



**Weather Radar Receiver/Transmitter Installation  
Figure 401/34-43-41-990-801**

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#### TASK 34-43-41-400-801

### 3. Weather Radar Receiver/Transmitter Installation

(Figure 401)

#### A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	RECEIVER/TRANSMITTER	34-43-41-01-025	HAP 001-011
		34-43-41-01-026	HAP 001-011
		34-43-41-05-510	HAP 012, 013, 015-026, 028-054, 101-999

#### C. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

#### D. Access Panels

Number	Name/Location
112A	Forward Access Door

#### E. Installation Procedure

SUBTASK 34-43-41-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-41-860-008

(2) Remove the protective covers from the electrical connectors.

SUBTASK 34-43-41-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RECEIVER/TRANSMITTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RECEIVER/TRANSMITTER.

(3) To install the RECEIVER/TRANSMITTER [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-43-41-410-002

**WARNING:** THE PITOT CONNECTOR MUST BE RECONNECTED AFTER INSTALLATION OF THE RECEIVER/TRANSMITTER AND PRIOR TO THE FIRST FLIGHT. POSSIBLE LOSS OF CAPTAINS AIR DATA MAY RESULT.

(4) Connect the pneumatic connector to the left Pitot ADM.

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- (5) Do a visual inspection of the quick-disconnect fitting for the left Pitot ADM.
  - (a) Make sure the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and that you can see the colored lock ring indicator that shows correct connection of the quick-disconnect fitting.

**F. Installation Test**

SUBTASK 34-43-41-860-009

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-41-860-004

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-43-41-410-003

- (3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 34-43-41-710-001

- (4) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## WEATHER RADAR CONTROL PANEL - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the weather radar control panel.
- (2) An installation of the weather radar control panel.

B. The weather radar control panel is located in the flight compartment on the aft electronics panel, P8.

#### **TASK 34-43-91-000-801**

### 2. Weather Radar Control Panel Removal

(Figure 401)

A. Location Zones

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

B. Removal Procedure

SUBTASK 34-43-91-860-001

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-91-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE WEATHER RADAR CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE WEATHER RADAR CONTROL PANEL.

(2) Do these steps to remove the weather radar control PANEL [1]:

- (a) Loosen the four quarter-turn fasteners [2].
- (b) Carefully lift the weather radar control PANEL [1] from the aft electronics panel, P8, to get access to the electrical connector [3].
- (c) Disconnect the electrical connector [3].
- (d) Put a protective cover on the electrical connector [3].

————— **END OF TASK** —————

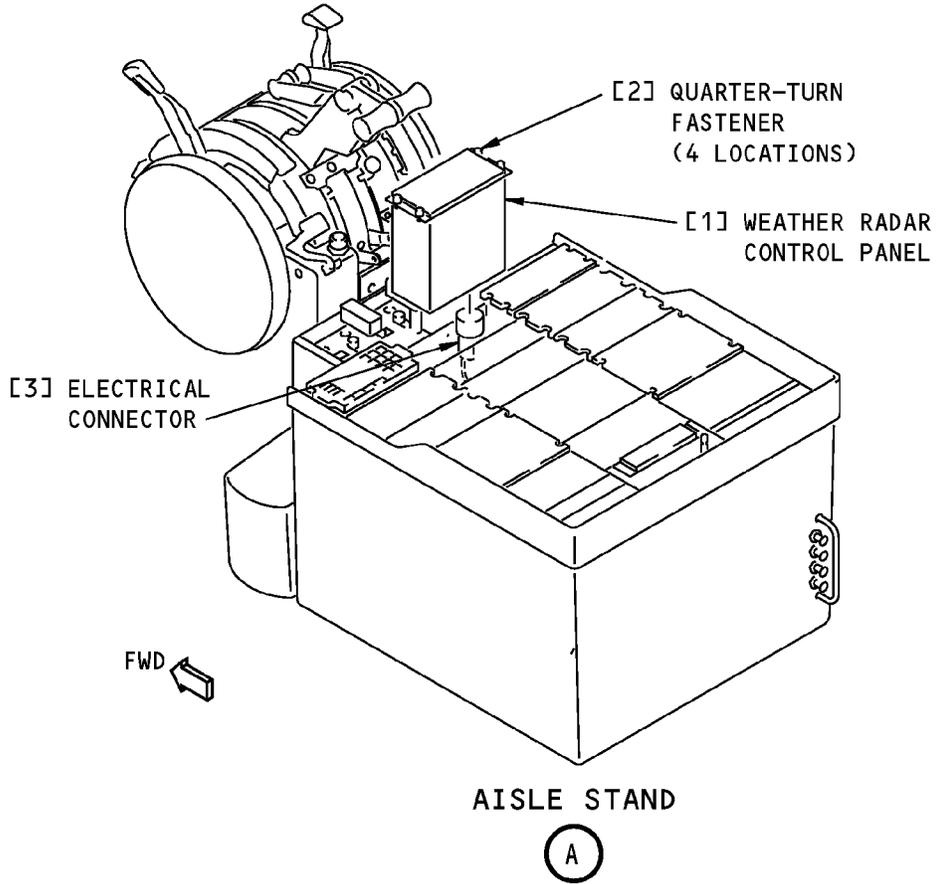
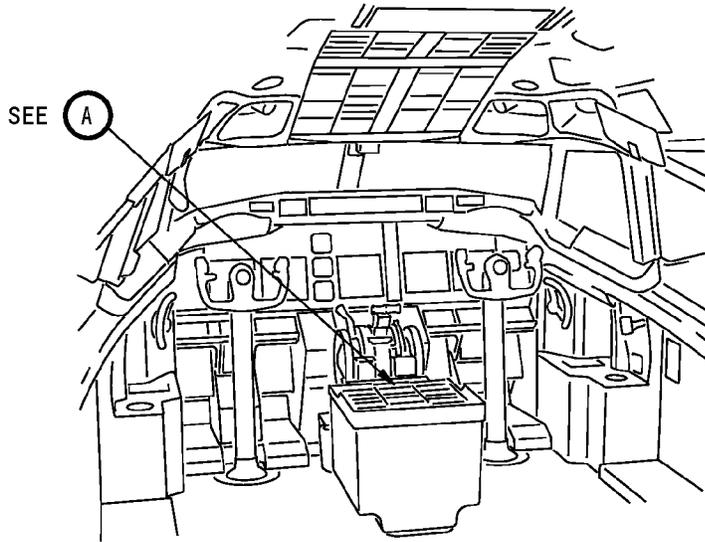
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**Weather Radar Control Panel Installation  
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TASK 34-43-91-400-801

## 3. Weather Radar Control Panel Installation

(Figure 401)

### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)

### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	PANEL	31-11-91-04-030	HAP 001-013, 015-026, 028-030
		34-43-91-03-050	HAP 001-013, 015-026, 028-030
		34-43-91-06-050	HAP 041, 047, 049, 050, 054, 107-999
		34-43-91-06A-010	HAP 031-040, 042-046, 048, 051-053, 101-106

### C. Location Zones

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

### D. Installation Procedure

SUBTASK 34-43-91-860-003

(1) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-91-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE WEATHER RADAR CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE WEATHER RADAR CONTROL PANEL.

- (2) Do these steps to install the weather radar control PANEL [1]:
  - (a) Remove the protective cover from the electrical connector [3].
  - (b) Examine the electrical connector for bent or broken pins, dirt, and damage.
  - (c) Connect the electrical connector [3].
  - (d) Put the weather radar control PANEL [1] in its position on the aft electronics control panel, P8.
  - (e) Tighten the four quarter-turn fasteners [2].

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SUBTASK 34-43-91-860-004

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

## E. Installation Test

SUBTASK 34-43-91-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

### HAP 001-013, 015-026, 028-030

SUBTASK 34-43-91-860-006

(2) Set the TILT control knob on the weather radar control panel to 0 degrees.

### HAP 031-054, 101-999

SUBTASK 34-43-91-860-025

(3) Select "TILT" switch to MAN (manual).

(4) Set the tilt control knob on the weather control panel to 0 degree.

### HAP 001-013, 015-026, 028-030

SUBTASK 34-43-91-860-020

(5) Set the GAIN control knob on the weather radar control panel to the AUTO position.

### HAP 031-054, 101-999

SUBTASK 34-43-91-860-026

(6) Set the GAIN control knob on the weather radar control panel to the AUTO position.

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SUBTASK 34-43-91-860-011

(7) Set the RANGE on the captain's and first officer's EFIS control panel to 40.

SUBTASK 34-43-91-860-012

(8) Make sure that the captain's and first officer's EFIS displays are on.

SUBTASK 34-43-91-860-007

(9) Make sure the air data inertial reference system is aligned. To align it, 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.

SUBTASK 34-43-91-860-008

**WARNING:** DO NOT OPERATE THE WEATHER RADAR UNLESS ALL PERSONNEL ARE MORE THAN 50 FT (15 M) FROM THE RADAR. DO NOT OPERATE THE WEATHER RADAR IN A HANGAR. IF YOU DO NOT OBEY THESE PRECAUTIONS, INJURIES TO PERSONNEL CAN OCCUR.

**WARNING:** IF THERE IS FUEL LEAKAGE OR AN OPEN FUEL CELL LESS THAN 50 FT (15 M) FROM THE RADAR, DO NOT OPERATE THE WEATHER RADAR. IF THERE IS FUEL IN THE 50-FOOT RADIUS AROUND THE RADAR, IT CAN CAUSE A FIRE AND EXPLOSION. THESE CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT. THESE CAN KILL PERSONNEL.

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(WARNING PRECEDES)

- (10) Push the WXR switch on the captain's EFIS control panel to turn on the weather radar system.

### HAP 001-013, 015-026, 028-030

SUBTASK 34-43-91-860-009

- (11) Turn the TILT control knob on the weather radar control panel, P8, to +15 and then to -15 degrees.
  - (a) Make sure the tilt position that shows in the weather radar tilt field on the display unit agree with the tilt position on the weather radar control panel.

### HAP 031-054, 101-999

SUBTASK 34-43-91-860-027

- (12) Select "TILT" switch on WXR control panel to MAN (manual).
  - (a) Verify "0" (number 0) is displayed on Weather Radar tilt field followed by a "M".
- (13) Select "TILT" switch on WXR control panel to AUTO.
  - (a) Verify "O" (letter O) is displayed on Weather Radar tilt field followed by an "A".
- (14) Select "TILT" switch on WXR control panel back to MAN (manual).
- (15) Turn the TILT control knob on the weather radar control panel, P8, to +15 and then to -15 degrees.
- (16) Make sure the tilt position that shows in the weather radar tilt field on the display unit agree with the tilt position on the weather radar control panel.

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SUBTASK 34-43-91-860-017

- (17) Select TEST on the WXR radar control panel.

SUBTASK 34-43-91-210-002

- (18) Make sure that a green, yellow, red, magenta test pattern shows on the captains (first officers) display unit.

#### F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-91-860-018

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

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# AIRCRAFT MAINTENANCE MANUAL

## TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - MAINTENANCE PRACTICES

### 1. General

A. This procedure has this task:

- (1) Flight history data download from the T

**TASK 34-45-00-970-801**

### 2. Flight History Data Download

A. General

- (1) This procedure allows a complete listing of stored fault history information, and TA/RA events to be downloaded from the TPA-100 TCAS processor onto a portable PCMCIA flash card.
- (2) A blank PC ATA card with memory capability up to 512 megabytes, or a compact flash (CF) using an adapter may be used for the download procedures.

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

C. Procedure

SUBTASK 34-45-00-869-001

- (1) Make sure power to the TCAS Processor is turned off.
  - (a) Open this circuit breaker:

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-45-00-869-002

- (2) On the TCAS Processor, open the front panel access cover.

SUBTASK 34-45-00-869-003

- (3) Insert a blank PC ATA card into the PCMCIA slot.

SUBTASK 34-45-00-869-004

- (4) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-45-00-869-005

- (5) Verify that there is a blinking red light in the PCMCIA slot.

SUBTASK 34-45-00-869-006

- (6) Verify that the following message displays on the LCD display on the front of the TCAS Processor.
  - (a) CARD INSERTED
  - (b) DUMP REQUEST
  - (c) > GO BACK

NOTE: This message will stay on the screen for approximately five minutes.

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SUBTASK 34-45-00-869-007

- (7) Verify that the following message displays on the LCD display on the front of the TCAS Processor when the data dump is complete.
- (a) CARD INSERTED
  - (b) DUMP COMPLETE
  - (c) > GO BACK

SUBTASK 34-45-00-869-008

- (8) Remove the PC ATA card from the TCAS Processor.

SUBTASK 34-45-00-869-009

- (9) Close the access cover.

SUBTASK 34-45-00-869-010

- (10) Restore the airplane to the usual condition

————— END OF TASK —————

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### TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - ADJUSTMENT/TEST

#### 1. General

A. This procedure has these tasks:

- (1) TCAS operational test
- (2) TCAS system test (With the IFR TCAS-201 Test Set)
- (3) TCAS System Test (With the TIC T-49 Test Set).

#### **TASK 34-45-00-710-801**

#### 2. TCAS - Operational Test

A. General

- (1) This test makes sure the TCAS operates correctly. It uses only the system's Built In Test Equipment (BITE) functions. Special test or ground equipment is not necessary.

B. References

Reference	Title
23-51-00-710-801	Flight Interphone System - Operational Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
31-62-00-710-801	Common Display System - Operational Test (P/B 501)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
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)
34-33-00-710-801	Low Range Radio Altimeter (LRRRA) System - Operational Test (P/B 501)
34-53-00-710-801	Air Traffic Control System - Operational Test (P/B 501)

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. Prepare for the Operational Test

SUBTASK 34-45-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-45-00-860-002

- (2) Make sure these systems are serviceable:
  - (a) Air Data System (TASK 34-21-00-710-801)
  - (b) Air Traffic Control System (TASK 34-53-00-710-801)
  - (c) Common Display System (TASK 31-62-00-710-801)
  - (d) Flight Interphone System (TASK 23-51-00-710-801)
  - (e) Low Range Radio Altimeter System (TASK 34-33-00-710-801).

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SUBTASK 34-45-00-860-003

- (3) 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.

SUBTASK 34-45-00-860-034

- (4) Wait until the align light on the MSU goes off.

SUBTASK 34-45-00-860-004

- (5) Put the display mode switch on the EFIS control panel to the MAP position.

SUBTASK 34-45-00-860-035

- (6) Set the range knob on the EFIS control panel to 10.

SUBTASK 34-45-00-860-005

- (7) Put the mode select switch on the TCAS/ATC control panel to the TA/RA position.

SUBTASK 34-45-00-860-006

- (8) Push the TFC switch on the EFIS control panel.

- (a) Make sure the inboard display shows TFC.

SUBTASK 34-45-00-860-007

- (9) Put the transponder select switch on the TCAS/ATC control panel (referred to as the control panel for the rest of this section) to the 1 position.

- (a) Make sure the FAIL lamp on the control panel is off.

SUBTASK 34-45-00-860-008

- (10) Put the STBY/AUTO switch on the control panel to STBY.

- (a) Make sure the inboard displays show the TCAS OFF indication.
- (b) Put the STBY/AUTO switch on the control panel to the ON position.

SUBTASK 34-45-00-860-009

- (11) Put the mode select switch on the control panel to the TA position.

- (a) Make sure the inboard displays show the TA ONLY indication.

SUBTASK 34-45-00-860-010

- (12) Put the mode select switch on the control panel to the TA/RA position.

- (a) Make sure TA ONLY continues to show on the inboard displays.

### E. Procedure

SUBTASK 34-45-00-740-001

- (1) Do the operational test as follows:

- (a) Press and release the TEST switch on the mode select switch located on the control panel.
- (b) Make sure these results occur:

- 1) The inboard displays show a test pattern as described below (Figure 501):
  - a) TCAS TEST shows on the left side of the inboard displays
  - b) The word TRAFFIC shows on the right side of the inboard displays
  - c) An R/A (red square) shows at 3 o'clock, range of 2 miles, 1000 feet below and flying level (no arrow)
  - d) A Traffic Advisory (yellow circle) shows at 9 o'clock, range of 2 miles, 200 feet below and climbing (up arrow)

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- e) Proximity Traffic (solid white diamond) shows at 1 o'clock, range 3.6 miles, 200 feet above and descending (down arrow)
  - f) Non-Threat Traffic (open white diamond) shows at 11 o'clock, range of 3.6 miles, 1000 feet above and flying level (no arrow).
- 2) Make sure the outboard displays show the DO NOT CLIMB and DO NOT DESCEND resolution advisory.
  - 3) A TCAS SYSTEM TEST OK synthesized voice announcement comes on at the end of the test if the test passes.

SUBTASK 34-45-00-740-002

- (2) Do the operational test again with the transponder select switch on the control panel set to the 2 position.

SUBTASK 34-45-00-860-011

- (3) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

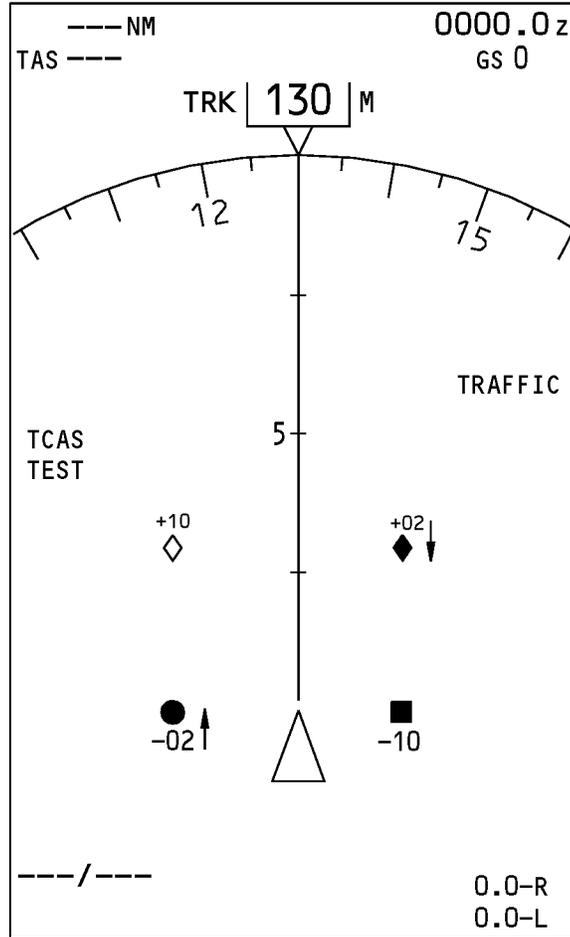
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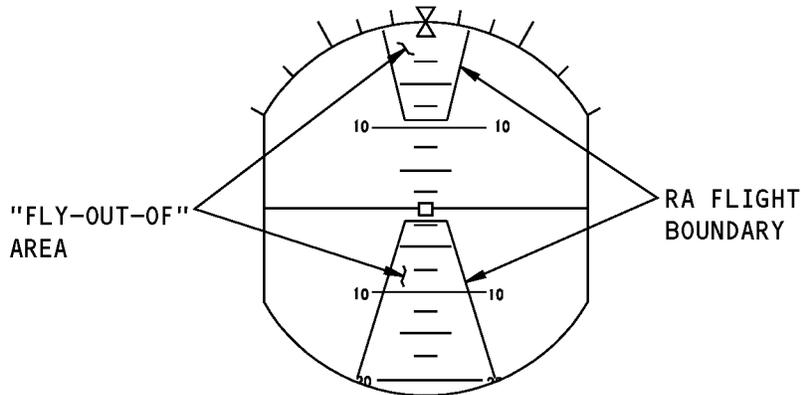
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**EFIS INBOARD DISPLAYS**



**EFIS OUTBOARD DISPLAYS  
(EXAMPLE)**

**TCAS Test Pattern  
Figure 501/34-45-00-990-801**

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**TASK 34-45-00-730-801**

**3. TCAS - System Test (With the IFR TCAS-201 Test Set)**

A. General

- (1) This test is a complete system test of the TCAS system. The system test first runs the Operational Test, and then does a test of TCAS with ground test equipment.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (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)
34-11-00-790-802	Static and Total Air Pressure System - Pressurization (P/B 201)

C. Tools/Equipment

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

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Reference	Description
COM-1914	<p>Test Set - Air Data Model FLMTS (Flight Line Maintenance)</p> <p>(Part #: 1891092000, Supplier: 89944, A/P Effectivity: 737-ALL)</p> <p>(Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL)</p> <p>(Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL)</p> <p>(Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL)</p> <p>(Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL)</p> <p>(Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL)</p> <p>(Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL)</p> <p>(Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ)</p> <p>(Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL)</p> <p>(Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL)</p> <p>(Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL)</p> <p>(Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL)</p> <p>(Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ)</p> <p>(Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ)</p> <p>(Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL)</p> <p>(Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL)</p> <p>(Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)</p>
COM-1922	<p>Test Set - Radio Altimeter</p> <p>(Part #: 01-0886-00, Supplier: 41364, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)</p> <p>(Part #: 110-0430-100-02, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)</p> <p>(Part #: 110-0460-102-05, Supplier: 38202, A/P Effectivity: 737-300, -400, -500)</p> <p>(Part #: 110-0460-105, Supplier: 38202, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)</p> <p>(Part #: 9599-607-15902, Supplier: F0052, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)</p> <p>(Part #: DRA707B1, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)</p> <p>(Opt Part #: 110-0430-100, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)</p> <p>(Opt Part #: 110-0460-102-01, Supplier: 38202, A/P Effectivity: 737-300, -400, -500)</p> <p>(Opt Part #: 2041595-5202, Supplier: 41364, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)</p> <p>(Opt Part #: DRA707, Supplier: 38202, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)</p>
COM-4112	<p>Test Set - Model TCAS-201 TCAS, Ramp</p> <p>(Part #: 600A-110, Supplier: 51190, A/P Effectivity: 737-ALL)</p> <p>(Part #: IFR-6000, Supplier: 51190, A/P Effectivity: 737-ALL)</p> <p>(Opt Part #: 601-110, Supplier: 51190, A/P Effectivity: 737-ALL)</p> <p>(Opt Part #: ATC-601, Supplier: 51190, A/P Effectivity: 737-ALL)</p> <p>(Opt Part #: TCAS-201, Supplier: 51190, A/P Effectivity: 737-ALL)</p> <p>(Opt Part #: TCAS-201-2, Supplier: 51190, A/P Effectivity: 737-ALL)</p>

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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### E. Prepare for the System Test

SUBTASK 34-45-00-840-001

**CAUTION:** DO NOT OPERATE THE TEST SET WHEN THE TEST SET ANTENNA IS WITHIN 15 INCHES (38 CM) OF AIRPLANE ANTENNA. DAMAGE TO THE TEST SET CAN OCCUR.

(1) Do the steps that follow to set up the :

- (a) Put the TCAS test set, COM-4112, antenna approximately 50 feet (15 meters) from the top TCAS antenna at an angle of 45 degrees off of the airplane center line.

**NOTE:** Use the antenna stand to prevent unnecessary movements to the test set antenna. Unnecessary movements can cause TCAS to loose tracking.

- 1) Make sure there is no obstruction between the TCAS antennas.

**NOTE:** If ground equipment, walkways or other objects that could cause a signal obstruction or a multipath problem are in the area, choose a more suitable location for the test set and change the setup in the test set accordingly.

- (b) Point the TCAS test set, COM-4112, antenna in the direction of the applicable TCAS antenna.

**NOTE:** This allows the correct TCAS antenna to receive the strongest signal.

- (c) Push the POWER switch to supply power to the TCAS test set, COM-4112.  
(d) Push the SET/CONT key on the TCAS test set, COM-4112.  
(e) Enter the distance ( $\pm 5$  feet) between the TCAS test set, COM-4112, antenna and the airplanes top TCAS antenna in the HORIZ field.  
(f) Enter 17 feet in the VERT field.  
(g) Enter the gain of the TCAS test set, COM-4112, antenna in the GAIN field.

**NOTE:** The antenna gain should be listed on the test set antenna.

- (h) Enter the loss of the cable in the LOSS field.

**NOTE:** The cable loss values should be listed on the cable.

### F. Test the TCAS system

SUBTASK 34-45-00-710-001

(1) Do this task: TCAS - Operational Test, TASK 34-45-00-710-801.

- (a) Make sure the Operational Test passes.

SUBTASK 34-45-00-730-001

(2) Do the TCAS Bearing Accuracy Test as follows:

- (a) Put the transponder select switch on the TCAS/ATC control panel (referred to as the control panel for the rest of this section) to the 1 position.  
(b) Put the mode select switch on the control panel to the TA position.  
(c) Shield the bottom TCAS antenna.

**NOTE:** This is to test the top TCAS antenna. You may have to get up high to be able to interrogate the top TCAS antenna from the rear of the airplane.

- (d) Push the SCEN key on the TCAS test set, COM-4112, to show the scenario menu.  
(e) Set up this SCENARIO:  
1) INTRUDER TYPE: ATCRBS  
2) ALT = OFF

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- 3) RANGE: 8.0 nMi
- 4) RATE: 0 kts
- (f) Push the RUN/STOP key to start the test.
- (g) Use the TCAS test set, COM-4112, to interrogate the four quadrants of the TCAS antenna at bearings of 0, 45, 90, 180, 225, 270 degrees.

NOTE: Make sure your inboard displays show the correct bearing of the intruder.

- 1) Make sure the inboard displays show the intruder's correct bearing  $\pm 15$  degrees.
- (h) Shield the top TCAS antenna or move the TCAS test set, COM-4112, antenna close to the bottom TCAS antenna (out of the line of sight from the top TCAS antenna).

NOTE: This is to test the bottom antenna. If you move the TCAS test set, COM-4112, you have to change the values in the setup screen accordingly.

**WARNING:** MAKE SURE THE GROUND LOCKS ARE INSTALLED ON ALL THE LANDING GEAR BEFORE YOU MOVE THE CONTROL LEVER. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (i) Make sure the ground locks are installed on the nose and main landing gear. To do this, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.
- (j) Put the landing gear lever in the OFF position.
- (k) Do the steps in the Bearing Accuracy Test again for the bottom antenna.

SUBTASK 34-45-00-860-012

(3) Do the Self-Test inhibit test:

- (a) Put the airplane in the air mode with the BITE in the Proximity Switch Electronics Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
- (b) Push and release the TEST switch on the control panel.
  - 1) Make sure a TCAS self-test does not occur.

SUBTASK 34-45-00-860-013

(4) Prepare to do the TCAS intruder Climb Resolution Advisory Test:

- (a) Put the STBY/AUTO switch on the control panel to STBY.
- (b) Use the pitot/static air data model test set, COM-1914, to apply an altitude of 40,000 feet (Static and Total Air Pressure System - Pressurization, TASK 34-11-00-790-802).

NOTE: The 40,000 feet barometric altitude is chosen to minimize false TCAS alert to TCAS equipped airplanes nearby.

- (c) Connect the radio altimeter radio altimeter test set, COM-1922, to the airplane.
- (d) Use the radio altimeter radio altimeter test set, COM-1922, and set the radio altitude to 2400 feet.

NOTE: Increase the radio altitude by 600 feet per minute (fpm) or less. TCAS RAs are inhibited below 1100 feet during climb. So TA ONLY shows below 1100 feet.

- 1) Make sure the inboard displays do not show the TA ONLY indication when radio altitude is greater than 1100 feet.
- (e) Put the EFIS control panel to the MAP mode and a range of 20 on the inboard displays.
- (f) Push the SCEN key to show the scenario menu.
- (g) Set up this scenario:

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- 1) INTRUDER TYPE: ATCRBS
- 2) ALT = ON
- 3) RANGE: 8.0 nm
- 4) RATE: +500 kts
- 5) ALTITUDE: 39,900 ft

NOTE: Make sure the intruder's altitude is 100 feet below your airplane's barometric altitude. You can change the airplane's altitude or intruder setup on the test set to do this.

- 6) RATE: 0 fpm.

SUBTASK 34-45-00-860-014

### (5) Do the TCAS intruder Climb Resolution Advisory Test:

- (a) Push the RUN/STOP key to start the scenario, and look for this sequence on the EFIS display and flight compartment speaker:
  - 1) The intruder moves down the 45 degree bearing mark toward the airplane symbol
  - 2) The intruder has the correct relative altitude
  - 3) The intruder begins as Non-threat Traffic (open white diamond)
  - 4) The intruder changes to Proximate Traffic (solid white diamond)
  - 5) The intruder changes to a Traffic Advisory (solid yellow circle)
  - 6) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker
  - 7) The intruder changes to a Resolution Advisory (solid red square), and gives a "climb climb" or "climb climb climb" voice announcement on the flight compartment speaker
  - 8) The outboard displays show an RA resolution to pull up
  - 9) Shortly before the intruder reaches the closest point of approach, the TCAS gives an "increase climb" voice announcement on the flight compartment speaker
  - 10) Shortly after the intruder reaches the airplane symbol on the inboard displays, TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: The "Clear of Conflict" voice announcement sometimes may not be given.

- (b) Push the RUN/STOP key on the TCAS test set, COM-4112.

SUBTASK 34-45-00-860-015

### (6) Prepare to do the TCAS intruder Descend Resolutionary Advisory Test:

- (a) Put the transponder select switch on the control panel to the 2 position.
- (b) On the TCAS test set, COM-4112, push the SCEN key to display the scenario menu.
- (c) Set up this scenario:
  - 1) INTRUDER TYPE: Mode S
  - 2) RANGE: 8.0 nm
  - 3) RATE: +500 kts
  - 4) ALTITUDE: 40,100 ft

NOTE: Make sure the intruder's altitude is 100 feet above your airplane's barometric altitude. You can change the airplane's altitude or intruder setup on the test set to do this.

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5) RATE: 0 fpm.

SUBTASK 34-45-00-730-002

(7) Do the TCAS intruder Descend Resolutionary Advisory Test:

- (a) Push the RUN/STOP key to start the scenario, and look for this sequence on the EFIS display and flight compartment speaker:
  - 1) The intruder moves down the 45 degree bearing mark toward the airplane symbol.
  - 2) The intruder has the correct relative altitude.
  - 3) The intruder begins as Non-threat Traffic (open white diamond).
  - 4) The intruder changes to Proximate Traffic (solid white diamond)
  - 5) The intruder changes to a Traffic Advisory (solid yellow circle).
  - 6) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.
  - 7) The intruder changes to a Resolution Advisory (solid red square), and gives a "descend, descend" or "descend, descend, descend" voice announcement on the flight compartment speaker.
  - 8) The outboard displays show an RA resolution to push down.
  - 9) Shortly before the intruder reaches the closest point of approach, the TCAS gives an "increase descent" voice announcement on the flight compartment speaker.
  - 10) Shortly after the intruder reaches the airplane symbol on the inboard displays, TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: The "Clear of Conflict" voice announcement sometimes may not be given.

(b) Push the RUN/STOP key to stop the Scenario.

SUBTASK 34-45-00-860-016

(8) Prepare to do the High Altitude Climb Inhibit Test:

- (a) Use the pitot/static air data model test set, COM-1914, to make a simulated altitude of 48,500 feet.

NOTE: Let the VSI return to zero after the simulated altitude is reached.

(b) Push the SCEN key on the TCAS test set, COM-4112, to show the scenario menu.

(c) Set up this scenario:

- 1) RANGE: 4.2 nMi
- 2) RATE: + 500 kts
- 3) ALTITUDE: 48,300 ft
- 4) RATE: 0 fpm

SUBTASK 34-45-00-860-017

(9) Do the High Altitude Climb Inhibit Test:

- (a) Push the RUN/STOP key to start the scenario.
- (b) Make sure that the relative altitude of the intruder is -02.

NOTE: If the relative altitude of the intruder is not -02, increase or decrease your airplane's accordingly.

(c) Make sure TCAS gives the "TRAFFIC, TRAFFIC" annunciation.

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(d) Make sure TCAS gives the "Monitor Vertical Speed" annunciation.

NOTE: A crossing descend resolution advisory may be given instead of the Monitor Vertical Speed resolution advisory. Decrease the intruder's altitude or increase the airplane's altitude to correct this.

SUBTASK 34-45-00-860-018

(10) Return the airplane back to field level altitude.

SUBTASK 34-45-00-860-019

(11) Use the radio altimeter radio altimeter test set, COM-1922, and set the radio altitude to 0 feet.

NOTE: Decrease the radio altitude by 600 feet per minute (fpm) or less.

(a) Make sure the inboard displays show the TA ONLY indication when radio altitude is less than 900 feet.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-860-020

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

F/O Electrical System Panel, P6-3

Table with 4 columns: Row, Col, Number, Name. Lists circuit breakers C01355, C01356, C01399, C01400, and C00451.

SUBTASK 34-45-00-860-021

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

TASK 34-45-00-730-802

4. TCAS - System Test (with the TIC T-49 Test Set)

A. General

(1) This test is a complete system test of the TCAS. The system test first runs the TCAS Operational Test, and then does a test of the TCAS using ground test equipment.

B. References

Table with 2 columns: Reference, Title. Lists task numbers and titles like 'Remove Electrical Power (P/B 201)'.

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series.

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Reference	Description
COM-920	Tester - ATC Transponder, All Mode (Part #: T-49C, Supplier: 92606, A/P Effectivity: 737-ALL) (Part #: TR-220, Supplier: 92606, A/P Effectivity: 737-ALL)
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1922	Test Set - Radio Altimeter (Part #: 01-0886-00, Supplier: 41364, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER) (Part #: 110-0430-100-02, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 110-0460-102-05, Supplier: 38202, A/P Effectivity: 737-300, -400, -500) (Part #: 110-0460-105, Supplier: 38202, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER) (Part #: 9599-607-15902, Supplier: F0052, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER) (Part #: DRA707B1, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: 110-0430-100, Supplier: 38202, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: 110-0460-102-01, Supplier: 38202, A/P Effectivity: 737-300, -400, -500) (Opt Part #: 2041595-5202, Supplier: 41364, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER) (Opt Part #: DRA707, Supplier: 38202, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

#### 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

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### E. Prepare for the System Test

SUBTASK 34-45-00-860-022

- (1) Do the steps that follow to set up the ATC transponder tester, COM-920:
  - (a) Put the ATC transponder tester, COM-920, antenna about 50 feet (15 meters) in front of the airplane on the center line.
    - 1) Make sure there is no obstruction between the TCAS antennas.

**NOTE:** If ground equipment, people, walkways or other objects that could cause a signal obstruction or a multipath problem are in the area, move the test set within 15 to 30 feet (4.6-9.1 meters) of the airplane.
  - (b) Point the ATC transponder tester, COM-920, antenna in the direction of the applicable TCAS antenna.

SUBTASK 34-45-00-860-023

- (2) Connect the cable of the ATC transponder tester, COM-920, antenna to the ATC transponder tester, COM-920, antenna connector.

SUBTASK 34-45-00-860-024

- (3) Put the transponder select switch on the TCAS/ATC control panel (referred to as the control panel for the rest of this section) to the 1 position.

### F. Test the TCAS system

SUBTASK 34-45-00-710-002

- (1) Do this task: TCAS - Operational Test, TASK 34-45-00-710-801.
  - (a) Make sure the Operational Test passes.

SUBTASK 34-45-00-860-025

- (2) Do the Self-Test Inhibit Test:
  - (a) Put the airplane in the air mode with the BITE in the Proximity Switch Electronics Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
  - (b) Press and release the TEST switch on the mode select switch on the control panel.
    - 1) Make sure a TCAS self-test does not occur.

SUBTASK 34-45-00-860-026

- (3) Prepare to do the TCAS Bearing Accuracy Test:
  - (a) Connect the radio altimeter radio altimeter test set, COM-1922, to the airplane.
  - (b) Use the radio altimeter radio altimeter test set, COM-1922, to make a radio altitude of 2400 feet.

**NOTE:** Increase the radio altitude by 600 feet per minute (fpm) or less. RAs are inhibited below 1100 feet during climb. So TA ONLY will show below 1100 feet.

    - 1) Make sure the inboard displays do not show the TA ONLY indication when the radio altitude is greater than 1100 feet.
  - (c) Connect a pitot/static air data model test set, COM-1914, to the airplane so you can pressurize the two air data computers (TASK 34-11-00-790-802).
  - (d) Use the pitot/static air data model test set, COM-1914, to make a barometric altitude of 40,000 feet.

**NOTE:** The 40,000 feet barometric altitude is chosen to minimize false TCAS alert to TCAS equipped airplanes nearby. Make sure to have altitude reporting function of the ATC off or put the ATC system on standby during this procedure.

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- (e) Put the EFIS control panel to MAP mode and a range of 20 on the inboard displays.
- (f) Put the mode select switch on the control panel to the TA position.
- (g) Supply power to the ATC transponder tester, COM-920.

SUBTASK 34-45-00-860-027

### (4) Do the TCAS Bearing Accuracy Test:

- (a) Put the intruder type switch on the ATC transponder tester, COM-920, to the ATCRBS position.
- (b) Put the scenario switch on the ATC transponder tester, COM-920, to the fixed intruder scenario position (+1000).
- (c) Shield the bottom TCAS antenna.

**NOTE:** This is to test the top TCAS antenna. You may have to get up high to be able to interrogate the top TCAS antenna from the rear of the airplane.

- (d) Push the interrogate switch on the ATC transponder tester, COM-920.
  - 1) Make sure the ATC transponder tester, COM-920, display shows the type of intruder selected.
- (e) Use the ATC transponder tester, COM-920 to interrogate the four quadrants of the TCAS antenna at bearings of 0, 45, 90, 180, 225, and 270 degrees.
  - 1) Make sure the inboard displays show the intruders bearing within  $\pm 15$  degrees.
- (f) Put the scenario switch on the ATC transponder tester, COM-920 to the fixed intruder scenario position (-1000).
- (g) Put the power setting to low (LO) on the ATC transponder tester, COM-920.

**NOTE:** A HI power setting can increase the likelihood of multipath problem.

- (h) Shield the top TCAS antenna or move the test set antenna to the bottom TCAS antenna (out of the line of sight from the top TCAS antenna).

**NOTE:** This is to test the bottom TCAS antenna. You may have to get up high to be able to interrogate the top TCAS antenna from the rear of the airplane.

**WARNING:** MAKE SURE THE GROUND LOCKS ARE INSTALLED ON ALL THE LANDING GEAR BEFORE YOU MOVE THE CONTROL LEVER. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (i) Make sure the ground locks are installed on the nose and main landing gear. To do this, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.
- (j) Put the landing gear lever in the OFF position.
- (k) Use the test set to interrogate the four quadrants of the TCAS antenna at bearings of 0, 45, 90, 180, 225, and 270 degrees.
  - 1) Make sure the inboard displays show the intruders bearing within  $\pm 15$  degrees.

SUBTASK 34-45-00-860-028

### (5) Do the TCAS Intruder Test:

- (a) Put the mode select switch on the control panel to the TA/RA position.
- (b) Put the ATC transponder tester, COM-920, directional antenna 45 degrees to the right of the center line of the airplane with a 50 feet separation from the airplane.

**NOTE:** The directional antenna will send signals to the TCAS antenna.

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- (c) Put the scenario switch on the ATC transponder tester, COM-920, to the straight approach 14 nMi position.
- (d) Put the intruder type switch on the ATC transponder tester, COM-920 to the MODE S position.
- (e) Push the interrogate switch.
  - 1) Make sure the ATC transponder tester, COM-920, display shows the correct intruder type.
- (f) Push the interrogate switch to start the scenario.
  - 1) Make sure the ATC transponder tester, COM-920, display shows the airplane's altitude  $\pm 100$  feet and the correct scenario (Range 14nMi, Co-Altitude, Closure rate 720 kts).
- (g) Increase the airplane's altitude by 200 feet.
- (h) Make sure this sequence shows on the EFIS secondary display and the voice announcements are heard on the flight compartment speakers:
  - 1) The intruder ascends to the airplane symbol from the 45 degree bearing mark.
  - 2) The intruder begins as Non-threat Traffic (open white diamond).
  - 3) The intruder changes to Proximate Traffic (solid white diamond).
  - 4) The intruder changes to a Traffic Advisory (solid yellow circle).
  - 5) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.
  - 6) The intruder changes to a Resolution Advisory (solid red square), and gives a "climb climb" or "climb, climb, climb" voice announcement on the flight compartment speaker.
  - 7) The outboard displays show a vertical resolution to pull up.
  - 8) Before the intruder gets to the closest point of approach, the TCAS possibly will give an "increase climb" voice announcement on the flight compartment speaker.
  - 9) Shortly after the intruder reaches the airplane symbol on the inboard displays, TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: Some ATC transponder tester, COM-920, software will not allow the "Clear of Conflict" voice announcement to occur.
- (i) Put the intruder type switch on the ATC transponder tester, COM-920, to the TCAS position.
- (j) Push the interrogate switch.
  - 1) Make sure the ATC transponder tester, COM-920, display shows the correct intruder type.
- (k) Push the interrogate switch to start the scenario.
  - 1) Make sure the ATC transponder tester, COM-920, display shows the airplane's altitude  $\pm 100$  feet and the correct scenario (Range 14 nMi, Co-Altitude, Closure rate 720 kts).
- (l) Decrease the airplane's altitude by 200 feet.
- (m) Make sure this sequence shows on the inboard displays display:
  - 1) The intruder descends to the airplane symbol from the 45 degree bearing mark.
  - 2) The intruder begins as Non-threat Traffic (open white diamond).
  - 3) The intruder changes to Proximate Traffic (solid white diamond).
  - 4) The intruder changes to a Traffic Advisory (solid yellow circle).

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- 5) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.
- 6) The intruder changes to a Resolution Advisory (solid red square), and gives a "descend, descend" or "descend, descend, descend" voice announcement on the flight compartment speaker.
- 7) The outboard displays show a vertical resolution to push down.
- 8) Before the intruder gets to the closest point of approach, the TCAS possibly will give an "increase descent" voice announcement on the flight compartment speaker.
- 9) Shortly after the intruder reaches the airplane symbol on the inboard displays, TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: Some ATC transponder tester, COM-920, software will not allow the "Clear of Conflict" voice announcement to occur.

SUBTASK 34-45-00-860-029

- (6) Do the High Altitude Climb Inhibit Test:
  - (a) Put the transponder select switch on the control panel to the 2 position.
  - (b) Use the pitot/static air data model test set, COM-1914, to make a simulated altitude of 49,000 feet.
  - (c) Do the previous TCAS intruder scenario test again.
    - 1) Make sure TCAS does not give a CLIMB corrective action.

#### G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-860-030

- (1) Return the airplane back to field level altitude.

SUBTASK 34-45-00-860-031

- (2) Put the radio altitude to 0 feet.

NOTE: Decrease the radio altitude by 600 feet per minute (fpm) or less.

- (a) Make sure the inboard displays show the TA ONLY indication when radio altitude is less than 900 feet.

SUBTASK 34-45-00-860-032

- (3) Remove the safety locks and close these circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-45-00-860-033

- (4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) COMPUTER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the TCAS computer
- (2) An installation of the TCAS computer.

B. The TCAS computer, M1485, is installed on the E1 rack in the electronic compartment.

#### **TASK 34-45-01-000-801**

### 2. TCAS Computer Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Procedure

SUBTASK 34-45-01-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-01-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE TCAS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE TCAS COMPUTER.

- (2) To remove the TCAS computer [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

SUBTASK 34-45-01-020-002

- (3) Install dust caps on the electrical connectors.

————— **END OF TASK** —————

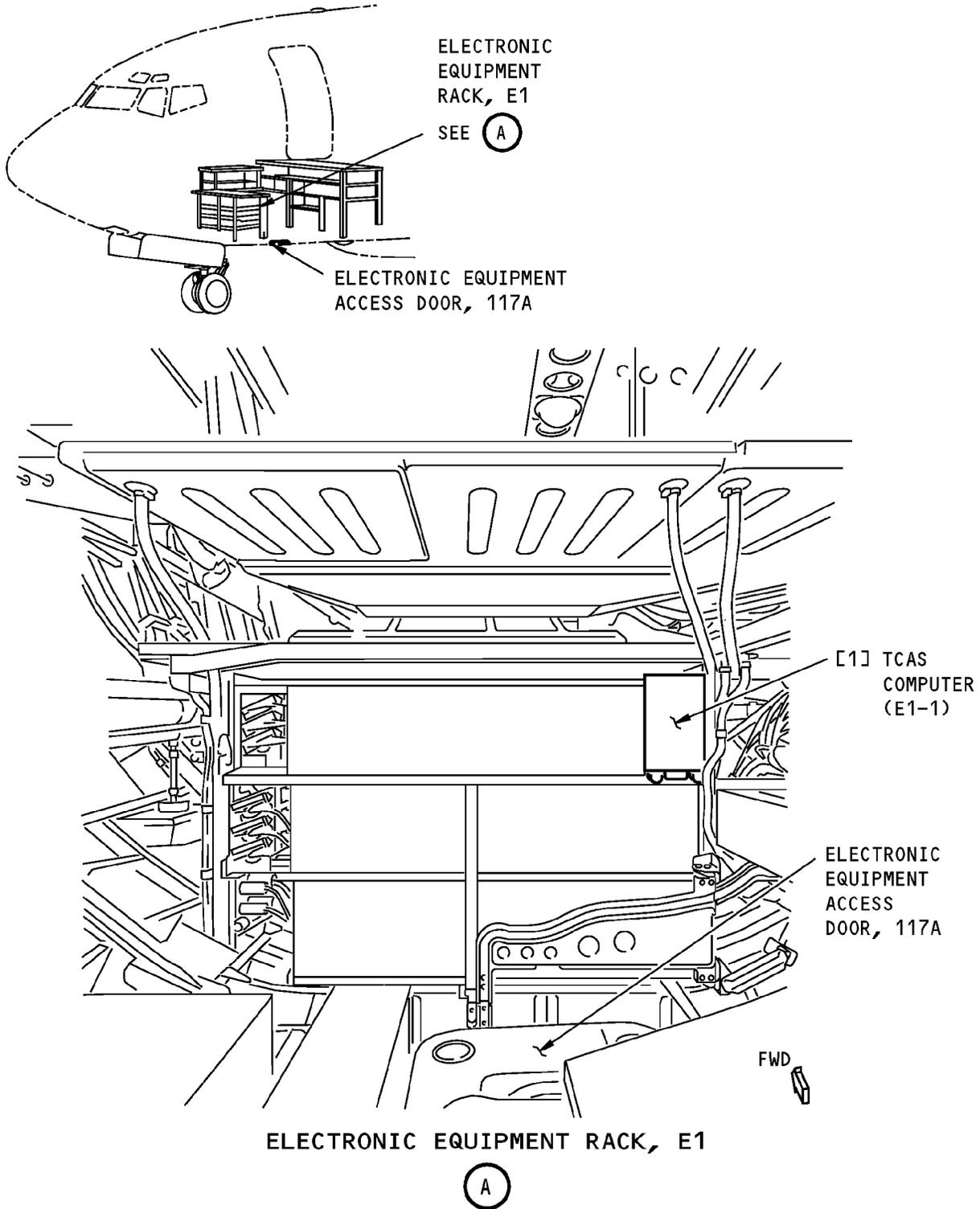
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**TCAS Computer Installation  
Figure 401/34-45-01-990-801**

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## TASK 34-45-01-400-801

### 3. TCAS Computer Installation

(Figure 401)

#### A. References

Reference	Title
20-10-07-400-801	E/E Box 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)

#### B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

#### C. Procedure

SUBTASK 34-45-01-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-01-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE TCAS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE TCAS COMPUTER.

- (2) Remove the dust caps from the electrical connectors.

SUBTASK 34-45-01-420-002

- (3) To install the TCAS computer [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

#### D. Installation Test

SUBTASK 34-45-01-860-004

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-01-860-005

- (2) 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.

SUBTASK 34-45-01-860-006

- (3) Wait until the align light on the MSU goes off.

SUBTASK 34-45-01-740-007

- (4) On the ATC control panel, push and release the test switch.

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SUBTASK 34-45-01-740-002

(5) Make sure you hear "TCAS system test okay" on the flight compartment speakers.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) ANTENNA - REMOVAL/INSTALLATION

### 1. General

- A. This procedure has these tasks.
  - (1) A removal of the TCAS directional antenna.
  - (2) An installation of the TCAS directional antenna.
- B. There are two TCAS antennas installed on the airplane. One is installed on the top of the airplane, at station 385. The other is installed on the bottom of the airplane, at station 305.

### **TASK 34-45-02-000-801**

### 2. TCAS Antenna Removal

(Figure 401)

#### A. References

Reference	Title
20-30-31-910-801	Cleaners and Polishes (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

#### C. Consumable Materials

Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7

#### D. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

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E. Procedure

SUBTASK 34-45-02-860-001

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-45-02-020-001

(2) Do these steps to remove the TCAS antenna:

- (a) Remove the sealant from around the edge of the antenna [3] and the top of the screw heads [4] (TASK 20-30-31-910-801).
- (b) Remove the screws [4] from the antenna base.

**CAUTION:** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

- (c) Use force around the antenna with the sealant removal tool, COM-2481 until the seal is fully broken.

**CAUTION:** MOVE THE ANTENNA THE SMALLEST DISTANCE NECESSARY TO DISCONNECT THE ANTENNA CONNECTORS. DAMAGE TO THE ANTENNA CABLES CAN OCCUR IF YOU PULL THE CABLES.

- (d) Move the antenna [3] until you can get access to the antenna cable connectors.
- (e) Disconnect the antenna cables [1].

**NOTE:** Do not let the antenna cables retract into the airplane.

- (f) Install dust caps on the connector at the end of the antenna cables.
- (g) Remove the TCAS antenna [3].

SUBTASK 34-45-02-140-001

(3) Remove the sealant from the airplane skin around the antenna area (TASK 20-30-31-910-801).

SUBTASK 34-45-02-110-001

(4) Use a clean rag and some solvent, B00184, to clean the airplane surface around the antenna area (TASK 20-30-31-910-801).

————— END OF TASK —————

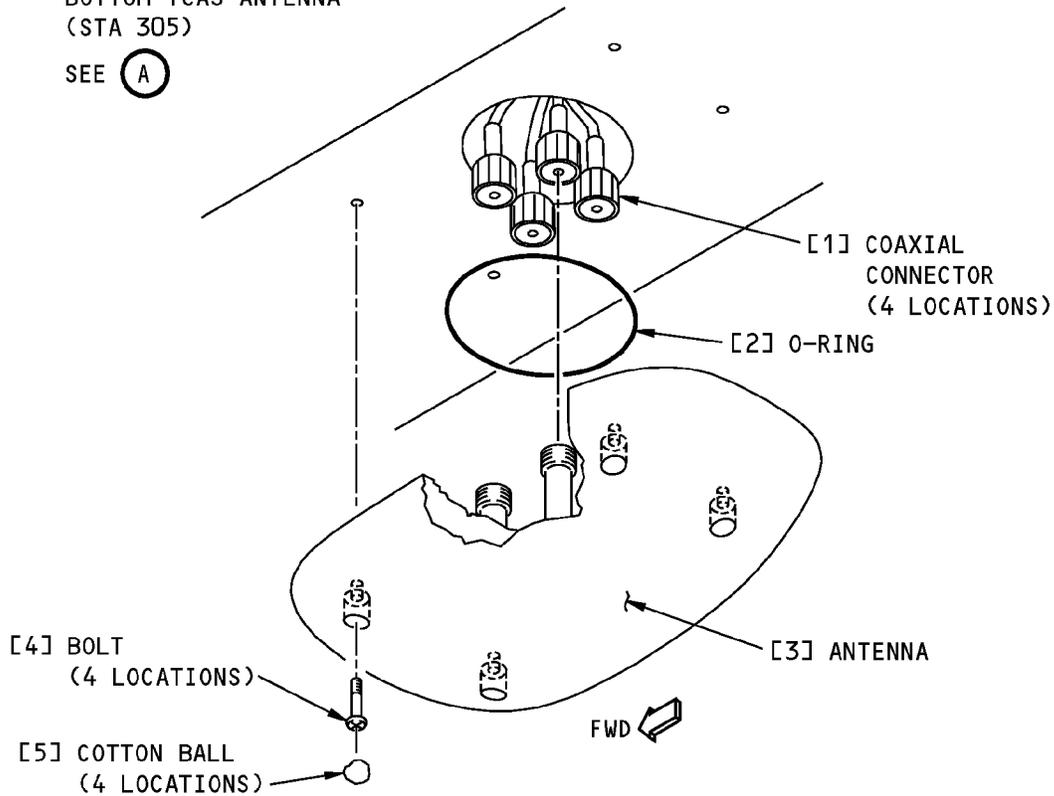
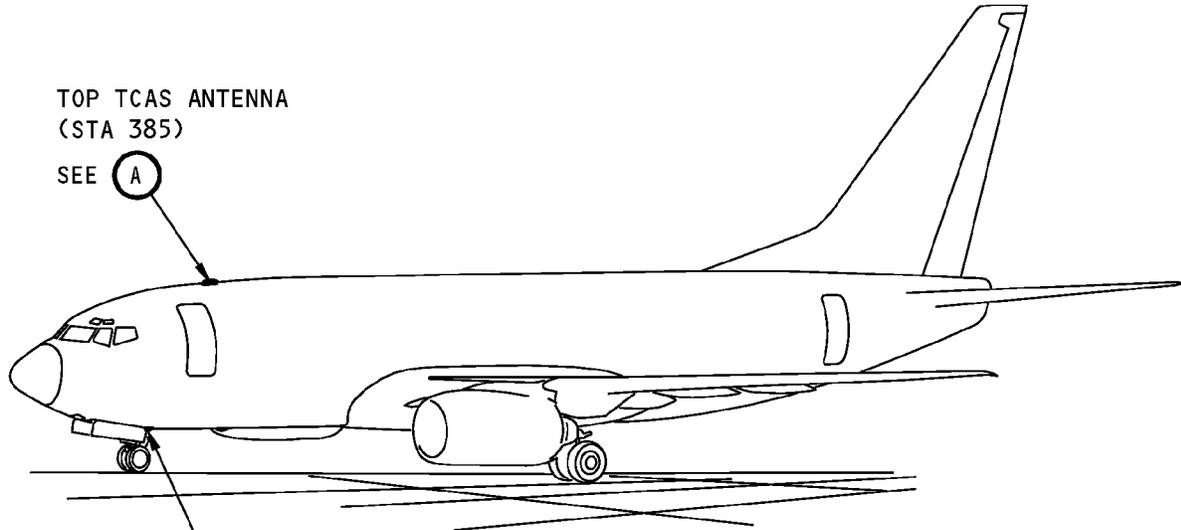
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**BOTTOM TCAS ANTENNA  
(TOP TCAS ANTENNA IS EQUIVALENT)**

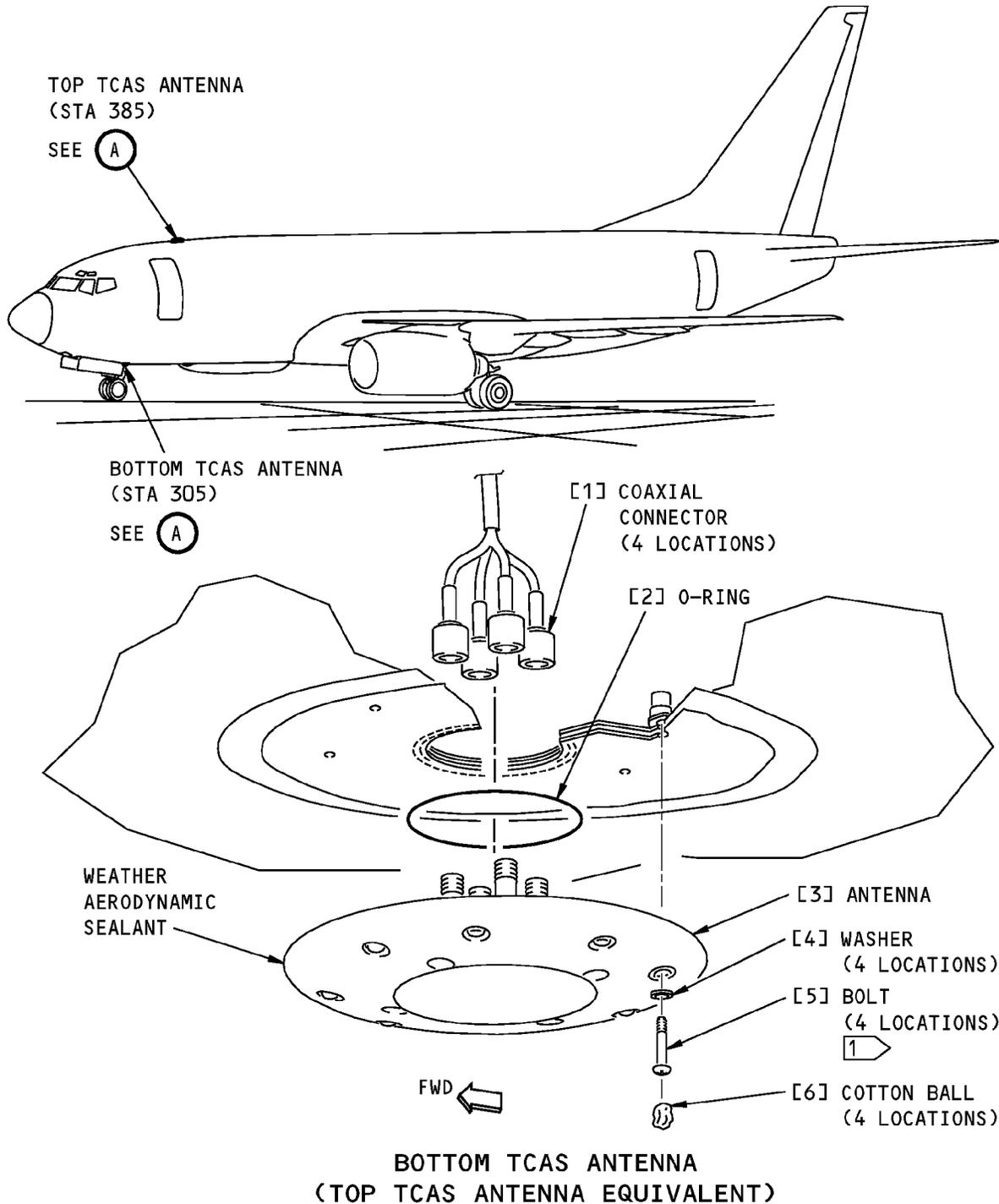
(A)

**TCAS Directional Antenna Installation  
Figure 401 (Sheet 1 of 2)/34-45-02-990-801**

EFFECTIVITY
HAP 001-013, 015-026, 028-030

**34-45-02**

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1 ▸ INSTALLED IN THE FOUR  
INNER COUNTERSUNK HOLES

(A)

**TCAS Directional Antenna Installation  
Figure 401 (Sheet 2 of 2)/34-45-02-990-801**

EFFECTIVITY  
HAP 031-054, 101-999

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TASK 34-45-02-400-801

#### 3. TCAS Antenna Installation

##### A. References

Reference	Title
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
20-30-31-910-801	Cleaners and Polishes (P/B 201)
20-40-11-760-801	Electrical Bonding (P/B 201)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

##### 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	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

##### C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B00083	Solvent - Aliphatic Naphtha (For Acrylic Plastics)	TT-N-95 Type II, ASTM D-3735 Type III
C00064	Coating - Aluminum Chemical Conversion	BAC5719, Type II, Class A (MIL-C-5541, Class A)
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)

##### D. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

##### E. Procedure

SUBTASK 34-45-02-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

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SUBTASK 34-45-02-210-001

- (2) Visually examine the contact surfaces of the antenna [3] and the airplane for corrosion and unwanted substances.

NOTE: If the surfaces are not clean, the electrical ground between the antenna and the surface will not be sufficient, and incorrect system operation will occur.

SUBTASK 34-45-02-110-002

- (3) Clean the contact surfaces with some solvent, B00083 (TASK 20-30-31-910-801).

SUBTASK 34-45-02-620-001

- (4) Apply coating, C00064 to the contact surfaces of the antenna and the airplane TASK 51-21-41-370-802.

SUBTASK 34-45-02-620-002

- (5) Apply a layer of grease, D00015, on the O-ring and O-ring groove.

SUBTASK 34-45-02-420-001

- (6) Install the TCAS antenna:
  - (a) Make sure that an O-ring is installed on the new antenna [3].
  - (b) Remove the dust caps on the antenna cables.
  - (c) Examine the connectors [1] for bent or broken pins, dirt, and damage.
  - (d) Connect the antenna cable connectors [1] to the antenna [3] as follows:

Table 401/34-45-02-993-801

CABLE SLEEVE COLOR	TCAS ANTENNA CONNECTOR
Yellow	J1
Black	J2
Blue	J3
Red	J4

- (e) Tighten the TCAS Antenna connectors 4 to 6 in-lbs (0.45-0.68 newton-meters) (hand tight plus 1/8 turn).
- (f) Put the antenna [3] into position.
- (g) Install all of the screws except one.

NOTE: Leave one screw out to do the electrical bond check.

- (h) Tighten the screws to 20-25 pound-inches (2.3-2.8 newton-meters) of torque.

SUBTASK 34-45-02-760-001

- (7) Use a bonding meter, COM-1550, to make sure the resistance from the antenna base to the airplane skin is not greater than 0.001 ohm (TASK 20-40-11-760-801).

SUBTASK 34-45-02-420-002

- (8) Install the last screw in the antenna.
  - (a) Tighten the screw to 20-25 pound-inches (2.3-2.8 newton-meters) of torque.

SUBTASK 34-45-02-390-001

- (9) Apply the sealant, A00247, to the antenna [3], (TASK 20-30-11-910-801).
  - (a) Apply the sealant, A00247, to the outer edge of the antenna [3] (TASK 20-30-11-910-801).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

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(b) Fill the screw-holes with cotton until a gap of less than 1/8 inch is left.

NOTE: If foam plugs are supplied with the antenna, install the foam plugs instead of cotton in the screw-hole.

(c) Apply sealant, A00247, to fill in the screw-holes (TASK 20-30-11-910-801).

NOTE: Do not apply more than 1/8 inch of sealant into the screw-holes.

SUBTASK 34-45-02-140-002

(10) Remove the unwanted sealant from around the antenna base (TASK 20-30-11-910-801).

SUBTASK 34-45-02-860-003

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

CAPT Electrical System Panel, P18-1

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

F. TCAS Antenna Test

SUBTASK 34-45-02-740-001

(1) Do a TCAS operational test:

(a) On the ATC control panel, put the mode switch to the test position:

1) Make sure you hear "TCAS system test okay" on the flight compartment speakers.

————— **END OF TASK** —————

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HAP SUBTASK 34-46-00-480-002

HAP (5) Make sure the IN PROG, CARD CHNG, XFER COMP, and XFER FAIL lights on the GPWC are off.

HAP SUBTASK 34-46-00-470-002

HAP (6) Do these steps to load the terrain database:

HAP NOTE: If you install a version of the terrain database that is not compatible with the hardware
HAP memory, then the GPWC will not operate. Replacement of the GPWC will be necessary.
HAP More information about version compatibility can be found in the applicable Honeywell
HAP Service Bulletin.

HAP NOTE: A power interruption during data transfer may cause the PCMCIA card to become
HAP corrupted.

HAP (a) Insert the PCMCIA, Flash Card, STD-1391 for the terrain database into the card slot on the
HAP GPWC.

HAP NOTE: After the card is installed, the terrain database will automatically load into the
HAP GPWC. Depending on the terrain database version, it takes between 5 and 45
HAP minutes to load the terrain database.

HAP (b) Make sure the IN PROG light on the GPWC comes on.

HAP (c) If the CARD CHNG light on the GPWC comes on, do these steps to change the card:

HAP NOTE: When the CARD CHNG light comes on, it indicates that more than one card is
HAP necessary to load the terrain database.

HAP 1) Push the eject button on the GPWC and remove the card.

HAP 2) Insert the next card for the terrain database into the card slot on the GPWC.

HAP 3) Make sure the IN PROG light on the GPWC comes on.

HAP (d) If the XFER FAIL light on the GPWC comes on, it indicates that the terrain database load
HAP has failed. Do these steps to correct the fault:

HAP 1) Remove and apply power to the GPWC prior to the second attempt to reload the terrain
HAP database.

HAP NOTE: Reapplying power may be beneficial in recovering the computer.

HAP Open and close these circuit breakers:

HAP CAPT Electrical System Panel, P18-1

Table with 4 columns: Row, Col, Number, Name. Row A, Col 7, Number C01519, Name TERRAIN DISPLAY

HAP HAP ALL

Table with 4 columns: Row, Col, Number, Name. Row B, Col 7, Number C00629, Name GND PROX WARN

HAP 2) Attempt to load the GPWC with a second PCMCIA terrain database card, if available, to
HAP eliminate a corrupt PCMCIA card as a cause of the transfer failure.

HAP 3) If the terrain database load fails, replace the Ground Proximity Warning Computer
HAP (GPWC), M652. Do these tasks: Ground Proximity Warning Computer Removal,
HAP TASK 34-46-01-000-801 Ground Proximity Warning Computer Installation,
HAP TASK 34-46-01-400-801.

HAP 4) Load the terrain database into the new GPWC.

HAP (e) After the load of the terrain database is complete, make sure the IN PROG light on the
HAP GPWC goes off and the XFER COMP light comes on.

EFFECTIVITY table with HAP ALL entry

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- HAP (f) Push the eject button on the GPWC and remove the card.
- HAP (g) Make sure the COMPUTER OK light on the GPWC is on and all the other lights are off.
- HAP SUBTASK 34-46-00-700-004
- HAP (7) Do this task: Verify the Terrain Database Part Number, TASK 34-46-00-700-801.

————— **END OF TASK** —————

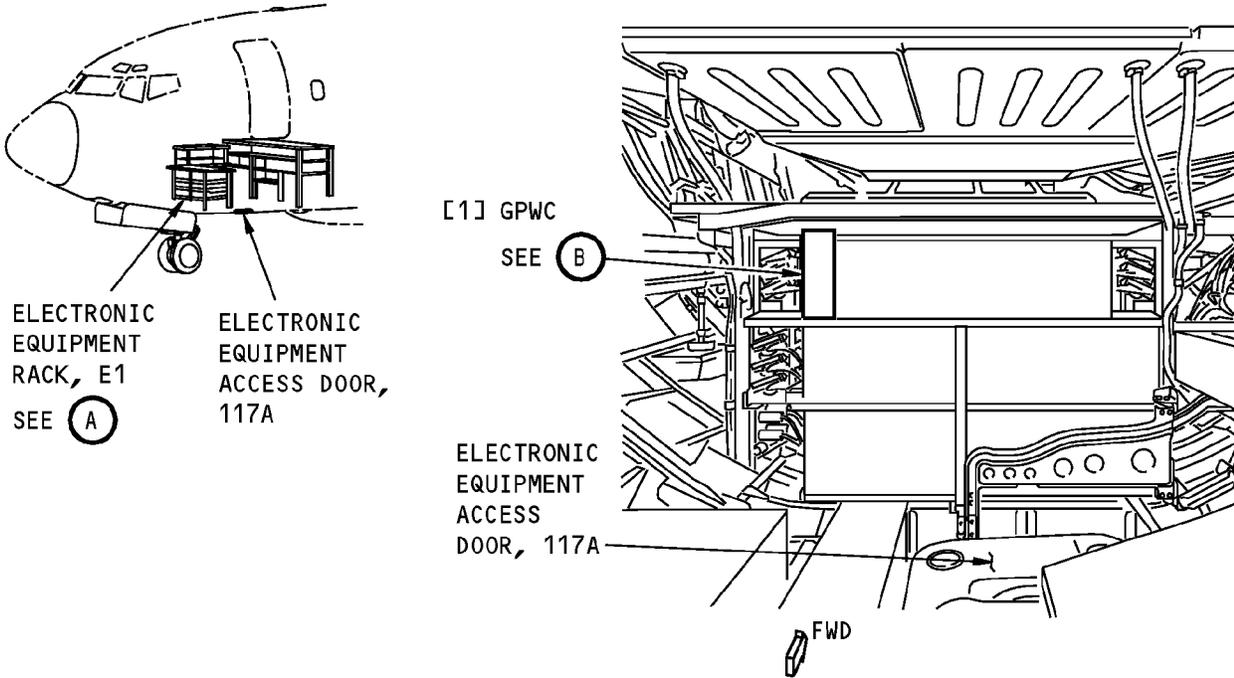
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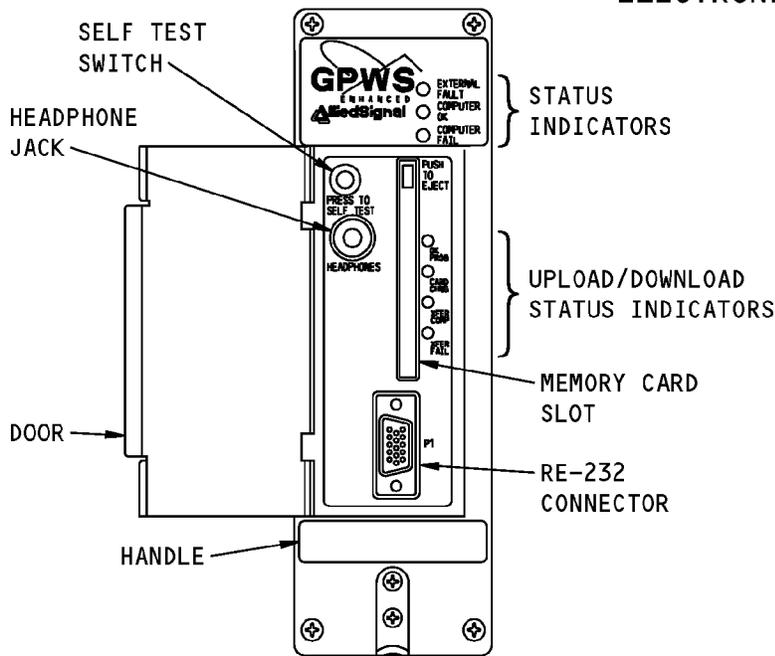
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**ELECTRONIC EQUIPMENT RACK, E1**

(A)



**GROUND PROXIMITY WARNING COMPUTER (GPWC)**

(B)

**Ground Proximity Warning Computer  
Figure 201/34-46-00-990-802**

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HAP **TASK 34-46-00-700-801**

HAP **3. Verify the Terrain Database Part Number**

HAP (Figure 201)

HAP **A. General**

HAP (1) This task provides instructions to verify the terrain database part number. The GPWC level 3 self-test provides aural announcements of the current configuration that include the terrain database part number.

HAP (2) The GPWC level 3 self-test can only be activated when the airplane is on the ground.

HAP **B. Tools/Equipment**

Reference	Description
STD-1390	Headphone - 600 Ohm, with 1/4 Inch Mono RCA Audio Plug

HAP **C. Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

HAP **D. Procedure**

HAP SUBTASK 34-46-00-860-265

HAP (1) Make sure the ground proximity warning system (GPWS) is operational.

HAP SUBTASK 34-46-00-860-266

HAP (2) Make sure the COMPUTER OK light on the front panel of the GPWC is on and the other lights are off.

HAP SUBTASK 34-46-00-860-267

HAP (3) Make sure the TERR switches on the EFIS control panels, P7, are on.

HAP SUBTASK 34-46-00-860-268

HAP (4) Open the door on the front panel of the GPWC.

HAP SUBTASK 34-46-00-480-001

HAP (5) Plug the 600 ohm, with 1/4 inch mono RCA audio plug headphones, STD-1390 into the headphone jack of the GPWC.

HAP SUBTASK 34-46-00-860-269

HAP (6) Make sure there is no card in the card slot of the GPWC.

HAP SUBTASK 34-46-00-700-001

HAP (7) Do these steps to do the level 3 self-test of the GPWC:

HAP **NOTE:** The GPWC self-test has six levels that operate in sequence. The level 3 self-test will occur after the level 2 self-test.

HAP (a) Push the self-test switch on the GPWC for one second.

HAP (b) After the level 1 self-test starts, push the self-test switch for one second to go to the level 2 self-test.

HAP (c) After the level 2 self-test starts, wait until the PRESS TO CONTINUE annunciation occurs, then push the self-test switch for one second to go to the level 3 self-test.

HAP (d) You will hear a sequence of the configuration announcements for the GPWS over the headphone.

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HAP 1) Make sure you hear the terrain database part number after the TERRAIN DATABASE  
HAP VERSION annunciation.

HAP NOTE: There are several configuration annunciations in the level 3 self-test. To  
HAP advance to the terrain database part number annunciation, you need to push  
HAP the self-test switch after each annunciation.

HAP (e) Record the terrain database part number.

HAP (f) After you hear the terrain database part number, continue to push the self-test switch until  
HAP you hear the PRESS TO CONTINUE annunciation.

HAP NOTE: After the PRESS TO CONTINUE annunciates, the level 3 self-test is complete. If  
HAP you do not push the self-test switch again, the self-test sequence will stop.

HAP (g) If your airline maintains a terrain database version requirement, make sure the terrain  
HAP database version is correct.

HAP 1) If the terrain database version is not correct, then, do this task: Load the Terrain  
HAP Database, TASK 34-46-00-470-802

SUBTASK 34-46-00-860-270

HAP (8) Remove the 600 ohm, with 1/4 inch mono RCA audio plug headphones, STD-1390 from the  
HAP headphone jack on the GPWC.

SUBTASK 34-46-00-860-271

HAP (9) Close the door on the front panel of the GPWC.

————— **END OF TASK** —————

HAP **TASK 34-46-00-970-801**  
HAP

#### 4. Flight History Data Download

##### A. General

HAP (1) This procedure tells you how to download flight history data from the ground proximity warning  
HAP computer (GPWC) through the PCMCIA interface.

HAP (2) A Honeywell programmed and formatted PCMCIA Card is required to start the download  
HAP sequence and record the data. The part number for the PCMCIA Card is P/N 718-1592-001. Flight  
HAP history download cards can only be used once.

HAP (3) You cannot use a database update card to download flight history data.

##### B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

##### C. Procedure

SUBTASK 34-46-00-865-001

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

SUBTASK 34-46-00-869-001

(2) Make sure the COMPUTER OK light on the front panel of the GPWC is on.

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- HAP SUBTASK 34-46-00-869-002
- HAP (3) Make sure the EXTERNAL FAULT and COMPUTER FAIL lights on the front panel of the GPWC
- HAP are off.
- HAP NOTE: If the COMPUTER FAILED light is on, you cannot be sure of the integrity of the
- HAP downloaded data.
- HAP If the EXTERNAL FAULT light is on, there is no effect on the download process.
- HAP SUBTASK 34-46-00-010-001
- HAP (4) Open the front panel door on the GPWC.
- HAP SUBTASK 34-46-00-869-003
- HAP (5) Make sure these status indicator lights are off.
- HAP (a) IN PROG
- HAP (b) CARD CHNG
- HAP (c) XFER COMP
- HAP (d) XFER FAIL
- HAP SUBTASK 34-46-00-800-001
- HAP (6) Make sure the PCMCIA Card has its write protect function selector in the off (in-board) position.
- HAP SUBTASK 34-46-00-800-002
- HAP (7) Insert the PCMCIA Card into the memory card slot.
- HAP NOTE: The notch on the bottom of the PCMCIA Card should be in the down position. Carefully
- HAP push the card in until the PUSH TO EJECT button on the front panel is fully extended.
- HAP SUBTASK 34-46-00-800-003
- HAP (8) Make sure the flight history download automatically starts.
- HAP (a) IN PROG light comes on.
- HAP (b) COMPUTER OK light goes off.
- HAP SUBTASK 34-46-00-800-004
- HAP (9) When the flight history download is completed:
- HAP NOTE: The maximum time required to complete the download is 10 minutes.
- HAP (a) IN PROG light goes off.
- HAP (b) XFER COMP light comes on.
- HAP NOTE: If the XFER FAIL light comes on, a new PCMCIA Card is required.
- HAP SUBTASK 34-46-00-800-005
- HAP (10) Push the EJECT button to remove the PCMCIA Card.
- HAP SUBTASK 34-46-00-410-002
- HAP (11) Close the front panel door on the GPWC.
- HAP SUBTASK 34-46-00-710-005
- HAP (12) The GPWC should automatically return to normal operation.
- HAP (a) Make sure the COMPUTER OK light comes on. It may take three minutes for the light to
- HAP come on.
- HAP SUBTASK 34-46-00-510-001
- HAP (13) Send the PCMCIA Card with the flight history data to the vendor.

————— END OF TASK —————

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GROUND PROXIMITY WARNING SYSTEM - ADJUSTMENT/TEST

HAP

1. General

HAP

HAP

A. This procedure contains scheduled maintenance task data.

HAP

B. This procedure has these tasks:

HAP

(1) An operational test of the ground proximity warning system (GPWS)

HAP

(2) A system test of the GPWS.

HAP

TASK 34-46-00-710-804-002

HAP

2. Ground Proximity Warning System - Operational Test

HAP

A. References

HAP

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-32-00-710-801	Stall Warning System - Operational Test (P/B 501)
31-62-00-710-801	Common Display System - Operational Test (P/B 501)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
34-31-00-710-801	Instrument Landing System - Operational Test (P/B 501)
34-33-00-710-801	Low Range Radio Altimeter (LRRA) System - Operational Test (P/B 501)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)
34-58-00-710-802	Global Positioning System - Operational Test (P/B 501)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

HAP

B. Location Zones

HAP

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

HAP

HAP

HAP

HAP

C. Prepare for the Operational Test

HAP

SUBTASK 34-46-00-860-185-002

HAP

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

HAP

SUBTASK 34-46-00-860-186-002

HAP

(2) Make sure that this circuit breaker is closed:

HAP

CAPT Electrical System Panel, P18-1

HAP

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

HAP

HAP

SUBTASK 34-46-00-860-187-002

HAP

(3) Make sure these systems are on:

HAP

(a) Common Display System (TASK 31-62-00-710-801).

HAP

(b) Low Range Radio Altimeter System (TASK 34-33-00-710-801).

HAP

(c) Air Data Inertial Reference System (TASK 34-21-00-710-801).

HAP

(d) Weather Radar System (TASK 34-43-00-710-803-002).

HAP

(e) Stall Warning System (TASK 27-32-00-710-801).

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- HAP (f) Instrument Landing System (TASK 34-31-00-710-801).
- HAP (g) Global Positioning System (TASK 34-58-00-710-802).
- HAP (h) Flight Management Computer System (TASK 34-61-00-710-801).

D. Procedure

HAP SUBTASK 34-46-00-860-188-002

- (1) Set the DISPLAYS - SOURCE switch on the instrument switching module, P5-28, to the ALL ON 1 position.

HAP SUBTASK 34-46-00-860-293-002

- (2) Set the mode switch on the WXR control panel to the TEST position.

HAP SUBTASK 34-46-00-860-294-002

- (3) Do these steps on the two EFIS control panels:

- (a) Set the mode switch to the MAP position
- (b) Set the range switch to 40 nautical miles
- (c) Set the WXR switch to the on position

HAP SUBTASK 34-46-00-750-135-002

- (4) Make sure the weather radar data shows on the displays.

HAP SUBTASK 34-46-00-750-136-002

- (5) Set the TERR switch on the two EFIS control panels to the on position.

HAP SUBTASK 34-46-00-750-131-002

- (6) Make sure the terrain data and the blue TERR messages show on the displays.

**NOTE:** Horizontal position data must be available to obtain the blue TERR message. The amber TERR POS message shows when there is not enough accuracy in the horizontal position data, or if the horizontal position data is not available.

**NOTE:** GPS data can be confirmed by selecting the FMC-CDU to the POS REF page.

HAP SUBTASK 34-46-00-750-097-002

- (7) Push and momentarily hold the INOP light on the ground proximity warning module to do a test of the light.

- (a) Make sure the INOP light comes on while you push the INOP light.

HAP SUBTASK 34-46-00-740-055-002

- (8) Push and hold the GPWS SYS TEST switch on the ground proximity warning module for approximately six seconds.

- (a) Make sure the INOP light comes on within six seconds.

HAP SUBTASK 34-46-00-750-099-002

- (9) Make sure the aural and visual indications occur as follows:

Table 501/34-46-00-993-802-002

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	LIGHT/MESSAGE (OFF)	AURAL SOUND FROM SPEAKERS
Amber GPWS INOP light; cyan TERR TEST on the displays		
	Amber GPWS INOP	
The two amber BELOW G/S lights		GLIDESLOPE

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GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	LIGHT/MESSAGE (OFF)	AURAL SOUND FROM SPEAKERS
	The two amber BELOW G/S lights	
Red PULL UP message on Capt's and F/O's displays; TERR FAIL on the displays	Cyan TERR TEST on the displays	PULL UP
	Red PULL UP message on Capt's and F/O's displays	
Red WINDSHEAR message on Capt's and F/O's displays		Two tone siren WINDSHEAR WINDSHEAR WINDSHEAR
	Red WINDSHEAR message on Capt's and F/O's displays; TERR FAIL on the displays	
Red PULL UP message on Capt's and F/O's displays; red TERRAIN message and test pattern on the displays		TERRAIN, TERRAIN- PULL UP
	Red PULL UP message on Capt's and F/O's displays; red TERRAIN message and test pattern on the displays	
<b>HAP 001-013, 015-026, 028, 029, 031-054, 101-999</b>		
Amber TERRAIN message on Capt's and F/O's displays; red PULL UP message on Capt's and F/O's displays; amber TERRAIN changes to red OBSTACLE; red OBSTACLE changes to amber		OBSTACLE, OBSTACLE- PULL UP
	Amber OBSTACLE	
<b>HAP ALL</b>		
GPWS INOP light		
		SINK RATE
		PULL UP
		TERRAIN
		PULL UP
		DON'T SINK, DON'T SINK
		TOO LOW TERRAIN
		TOO LOW GEAR
		TOO LOW FLAPS
		TOO LOW TERRAIN

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GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	LIGHT/MESSAGE (OFF)	AURAL SOUND FROM SPEAKERS
		GLIDESLOPE
		BANK ANGLE BANK ANGLE
<b>HAP 001-007</b>		
		APPROACHING MINIMUMS
		MINIMUMS
		FIFTY
<b>HAP 041, 047, 049, 050, 053, 054, 107-999</b>		
		APPROACHING MINIMUMS
		MINIMUMS
		TWENTY-FIVE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
<b>HAP 038, 042-046, 051, 052; HAP 037, 039, 040 POST SB 737-34-2082</b>		
		APPROACHING DECISION HEIGHT
		MINIMUMS
		TWENTY-FIVE HUNDRED
		ONE THOUSAND
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
<b>HAP 030, 038, 041-047, 049-054, 107-999; HAP 037, 039, 040 POST SB 737-34-2082</b>		
		FIVE HUNDRED

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HAP 030, 038, 041-047, 049-054, 107-999; HAP 037, 039, 040 POST SB 737-34-2082 (Continued)

(Continued)

GPWS INDICATIONS			
	LIGHT/MESSAGE (ON)	LIGHT/MESSAGE (OFF)	AURAL SOUND FROM SPEAKERS
HAP	<b>HAP 001-013, 015-026, 028-037, 039, 040, 048, 101-106</b>		
HAP			APPROACHING MINIMUMS
HAP			MINIMUMS
HAP			ONE THOUSAND
HAP			FIVE HUNDRED
HAP			FOUR HUNDRED
HAP			THREE HUNDRED
HAP			TWO HUNDRED
HAP			ONE HUNDRED
HAP			FIFTY
HAP			FORTY
HAP			THIRTY
HAP			TWENTY
HAP			TEN
HAP	<b>HAP ALL</b>		
HAP			Two tone siren
HAP			WINDSHEAR
HAP			WINDSHEAR
HAP			WINDSHEAR
HAP			TOO LOW TERRAIN
HAP			CAUTION TERRAIN
HAP			CAUTION TERRAIN
HAP			TERRAIN,
HAP			TERRAIN-PULL UP
HAP	<b>HAP 001-013, 015-026, 028, 029, 031-054, 101-999</b>		
HAP			CAUTION
HAP			OBSTACLE
HAP			CAUTION
HAP			OBSTACLE
HAP			OBSTACLE,
HAP			OBSTACLE- PULL
HAP			UP

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GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	LIGHT/MESSAGE (OFF)	AURAL SOUND FROM SPEAKERS
<b>HAP ALL</b>		
	GPWS INOP light and test pattern on the displays	

- HAP SUBTASK 34-46-00-860-191-002
- HAP (10) Set the DISPLAYS - SOURCE switch on the instrument switching module to the ALL ON 2
- HAP position.
- HAP SUBTASK 34-46-00-750-137-002
- HAP (11) Make sure the terrain data and the TERR messages show on the displays.
- HAP SUBTASK 34-46-00-740-056-002
- HAP (12) Push and hold the GPWS SYS TEST switch on the ground proximity warning module.
- HAP NOTE: Do not hold the GPWS SYS TEST switch longer than 2 seconds.
- HAP (a) Make sure the red PULL UP message shows on the captain's and first officer's displays.
- HAP NOTE: All other aural and visual annunciations may be ignored.
- HAP SUBTASK 34-46-00-860-192-002
- HAP (13) Set the DISPLAYS SOURCE SELECT switch on the instrument switching module to the AUTO
- HAP position.
- HAP E. Put the Airplane Back to Its Usual Condition
- HAP SUBTASK 34-46-00-860-193-002
- HAP (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**END OF TASK**

**TASK 34-46-00-730-804-002**

**3. Ground Proximity Warning System - System Test**

A. General

- (1) The system test does an internal GPWC check and a check of system interfaces.
- (2) This test uses GPS data. The airplane must be moved to a position where the GPS antennas have a clear view of the GPS satellites.
- (3) Various systems interface with the GPWC. Some systems send data. Some systems send a single discrete signal.
- (4) The systems that send data have verbal error messages. In this procedure, you do a check of these signals when you turn a system off and hear an aural message annunciated.
- (a) Some systems supply two sources and are redundant. You turn one system off and hear an aural message. The GPWC will still function with data from the redundant system. Then, you turn the second system off and look for the INOP light on the ground proximity warning module to come on.

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## HAP B. References

HAP	Reference	Title
HAP	24-22-00-860-811	Supply Electrical Power (P/B 201)
HAP	24-22-00-860-812	Remove Electrical Power (P/B 201)
HAP	27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
HAP	32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
HAP	32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
HAP	32-31-00-730-802	System Test - Landing Gear Control System (P/B 501)

## HAP C. Location Zones

HAP	Zone	Area
HAP	117	Electrical and Electronics Compartment - Left
HAP	118	Electrical and Electronics Compartment - Right
HAP	211	Flight Compartment - Left
HAP	212	Flight Compartment - Right

## HAP D. Access Panels

HAP	Number	Name/Location
HAP	112A	Forward Access Door

## HAP E. Prepare for the System Test

HAP SUBTASK 34-46-00-860-194-002

HAP (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

HAP SUBTASK 34-46-00-860-315-002

HAP (2) Make sure that the airplane is in a location where it can receive GPS signals.

HAP SUBTASK 34-46-00-860-196-002

HAP (3) Set the left and right ADIRS mode select switches to the NAV position.

HAP SUBTASK 34-46-00-750-134-002

HAP (4) Make sure the green COMPUTER OK light on the GPWC front panel is on.

HAP (a) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

HAP (b) Make sure the red COMPUTER FAIL light on the GPWC front panel is not on.

### HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

HAP SUBTASK 34-46-00-860-197-002

HAP (5) Set the FMC transfer switch to the NORMAL position.

HAP (a) Make sure the green COMPUTER OK light on the GPWC front panel is on.

HAP (b) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

HAP (c) Make sure the red COMPUTER FAIL light on the GPWC front panel is not on.

HAP SUBTASK 34-46-00-860-295-002

HAP (6) Set the FMC transfer switch to the BOTH ON R position.

HAP (a) Make sure the green COMPUTER OK light on the GPWC front panel is on.

HAP (b) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

HAP (c) Make sure the red COMPUTER FAIL light on the GPWC front panel is not on.

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HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC (Continued)

HAP SUBTASK 34-46-00-860-296-002

HAP (7) Set the FMC transfer switch to the NORMAL position.

HAP I HAP ALL

HAP SUBTASK 34-46-00-750-100-002

HAP (8) Make sure the captain's and first officer's BELOW G/S switch-lights on the P1-1 and P3-1 panels are not on.

HAP SUBTASK 34-46-00-750-101-002

HAP (9) Make sure these messages do not show on the captain's and first officer's displays:

HAP (a) PULL UP

HAP (b) WINDSHEAR

HAP SUBTASK 34-46-00-750-102-002

HAP (10) Make sure the INOP light on the ground proximity warning module is not on.

SUBTASK 34-46-00-860-200-002

HAP (11) Make sure the FLAP INHIBIT, GEAR INHIBIT, and TERR INHIBIT switches on the ground proximity warning module are in the NORMAL position.

HAP SUBTASK 34-46-00-860-202-002

HAP (12) Make sure the landing gear lever is in the DOWN position.

HAP SUBTASK 34-46-00-860-203-002

HAP (13) Make sure the LIGHTS switch on the P1-3 panel is in the BRIGHT position.

F. Program Pin Test

HAP SUBTASK 34-46-00-740-057-002

HAP (1) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP SUBTASK 34-46-00-740-058-002

HAP (2) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

HAP SUBTASK 34-46-00-740-059-002

HAP (3) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

HAP NOTE: The level 3 self-test starts with the voice annunciation "SYSTEM CONFIGURATION".

HAP (a) Make sure you hear these aural messages in the sequence that follows:

HAP 1) PART NUMBER XXX-XXXX-XXX-XXX-XXX

HAP 2) MOD STATUS X

HAP 3) SERIAL NUMBER XXX

HAP 4) SOFTWARE VERSION XXX-XXX-XX

HAP 5) TERRAIN DATABASE VERSION XXX

HAP 6) ENVELOPE MOD DATABASE VERSION XXX

HAP 7) BOOT CODE VERSION XXXX

HAP 101-999; 737-700

HAP 8) AIRCRAFT TYPE ONE NINE SIX

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HAP 101-999; 737-700 (Continued)

- HAP | **HAP 001-013, 015-026, 028-036**
- HAP | 9) AIRCRAFT TYPE ONE NINE SEVEN
- HAP | **HAP 037-054**
- HAP | 10) AIRCRAFT TYPE TWO ONE TWO
- HAP | **HAP ALL**
- HAP | 11) AUDIO MENU ZERO
- HAP | **HAP 001-007**
- HAP | 12) ALTITUDE CALLOUT MENU FOUR
- HAP | **HAP 038, 042-046, 051, 052; HAP 037, 039, 040 POST SB 737-34-2082**
- HAP | 13) ALTITUDE CALLOUT MENU FOUR FIVE
- HAP | **HAP 001-013, 015-026, 028-037, 039, 040, 048, 101-106**
- HAP | 14) ALTITUDE CALLOUT MENU FIVE SEVEN
- HAP | **HAP 030, 038, 041-047, 049-054, 107-999; HAP 037, 039, 040 POST SB 737-34-2082**
- HAP | 15) SMART CALLOUT SELECTED
- HAP | **HAP 037 POST SB 737-34-2082**
- HAP | 16) CONFIGURATION OPTION 3 SELECTED
- HAP | **HAP ALL**
- HAP | 17) OPTIONAL INPUTS SELECTED
- HAP | 18) DUAL GPS SELECTED
- HAP | **HAP 023-026, 028-054, 101-999**
- HAP | 19) DUAL ILS SELECTED
- HAP | **HAP ALL**
- HAP | 20) DUAL RADIO ALTIMETER SELECTED
- HAP | 21) WINDSHEAR CAUTION DISABLED
- HAP | **HAP 008-013, 015-026, 028-054, 101-999**
- HAP | 22) PWS OPTION 1 SELECTED
- HAP | **HAP 001-007**
- HAP | 23) BANK ANGLE OPTION 1 SELECTED
- HAP | **HAP 008-013, 015-026, 028-054, 101-999**
- HAP | 24) BANK ANGLE OPTION 2 SELECTED
- HAP | **HAP 001-013, 015-026, 028, 029, 031-054, 101-999**
- HAP | 25) PEAKS ENABLED

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HAP 001-013, 015-026, 028, 029, 031-054, 101-999 (Continued)

HAP HAP 006-013, 015-026, 028-054, 101-999

HAP 26) STANDARD VOLUME SELECTED

HAP HAP 001-013, 015-026, 028, 029, 031-054, 101-999

HAP 27) OBSTACLE AWARENESS ENABLED

HAP HAP ALL

SUBTASK 34-46-00-740-086-002

(4) When you hear the "PRESS TO CONTINUE", wait approximately 30 seconds for the GPWC to stop the self-test mode.

G. System Interface Test

SUBTASK 34-46-00-860-204-002

(1) Make sure the VHF NAV switch is in the NORMAL position.

SUBTASK 34-46-00-860-205-002

(2) Set a frequency of 109.00 MHz on the captain's and first officer's VHF NAV control panels.

SUBTASK 34-46-00-860-206-002

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-46-00-750-103-002

(4) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-740-060-002

(5) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-207-002

(6) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural message "RADIO ALTIMETER BUS 1 INACTIVE" is annunciated.

SUBTASK 34-46-00-860-208-002

(7) 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>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-46-00-750-104-002

(8) Make sure the INOP light on the ground proximity warning module shows in 20 seconds or less.

SUBTASK 34-46-00-860-209-002

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

CAPT Electrical System Panel, P18-1

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

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HAP SUBTASK 34-46-00-750-105-002

HAP (10) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-860-210-002

HAP (11) 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>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

HAP SUBTASK 34-46-00-750-106-002

HAP (12) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-860-211-002

HAP (13) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

HAP SUBTASK 34-46-00-750-107-002

HAP (14) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-740-061-002

HAP (15) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP SUBTASK 34-46-00-860-212-002

HAP (16) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

HAP (a) Make sure the aural messages "IRS BUS 1 INACTIVE" and "AIR DATA BUS 1 INACTIVE" are annunciated.

HAP SUBTASK 34-46-00-860-213-002

HAP (17) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

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

HAP SUBTASK 34-46-00-750-108-002

HAP (18) Make sure the INOP light on the ground proximity warning module shows in 20 seconds or less.

HAP SUBTASK 34-46-00-860-214-002

HAP (19) 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>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

HAP SUBTASK 34-46-00-750-109-002

HAP (20) Make sure the INOP light on the ground proximity warning module does not show.

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HAP SUBTASK 34-46-00-740-062-002
HAP (21) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.
HAP SUBTASK 34-46-00-860-215-002

HAP (22) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 2 self-test.
HAP (a) Make sure the aural messages "IRS BUS 2 INACTIVE" and "AIR DATA BUS 2 INACTIVE"
HAP are annunciated.

HAP SUBTASK 34-46-00-860-216-002
HAP (23) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Table with 4 columns: Row, Col, Number, Name. Rows include C 14 C01008 ADIRU RIGHT AC and C 17 C01010 ADIRU RIGHT DC.

HAP SUBTASK 34-46-00-750-110-002
HAP (24) Make sure the INOP light on the ground proximity warning module does not show.
HAP SUBTASK 34-46-00-710-004-002

HAP (25) Enter the IRS present position in the Inertial System Display Unit (ISDU).
HAP (a) Set the SYS DSPL switch on the ISDU to the PPOS position.
HAP (b) Enter the latitude on the ISDU.
HAP (c) Push the ENT key on the ISDU to send the latitude data.
HAP (d) Enter the longitude on the ISDU.
HAP (e) Push the ENT key on the ISDU to send the longitude data.

HAP SUBTASK 34-46-00-860-217-002
HAP (26) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Table with 4 columns: Row, Col, Number, Name. Includes HAP 001, 004-013, 015-026, 028-054, 101-999 and A 2 C01479 RADIO NAVIGATION MMR 1.

HAP SUBTASK 34-46-00-740-063-002
HAP (27) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.
HAP SUBTASK 34-46-00-860-218-002

HAP (28) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 2 self-test.
HAP (a) Make sure the aural messages "ILS BUS 1 INACTIVE" and "GPS BUS 1 INACTIVE" are
HAP annunciated.

HAP NOTE: Ignore the INOP light on the ground proximity warning module if it shows, and
HAP ignore all other aural messages that you hear.

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HAP SUBTASK 34-46-00-860-219-002

HAP (29) Open this circuit breaker and install safety tag:

HAP F/O Electrical System Panel, P6-1

HAP Row Col Number Name

HAP | HAP 001, 004-013, 015-026, 028-054, 101-999

HAP A 13 C01480 RADIO NAVIGATION MMR 2

HAP | HAP ALL

HAP SUBTASK 34-46-00-860-220-002

HAP (30) Remove the safety tag and close this circuit breaker:

HAP CAPT Electrical System Panel, P18-1

HAP Row Col Number Name

HAP | HAP 001, 004-013, 015-026, 028-054, 101-999

HAP A 2 C01479 RADIO NAVIGATION MMR 1

HAP | HAP ALL

HAP SUBTASK 34-46-00-740-064-002

HAP (31) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP SUBTASK 34-46-00-860-221-002

HAP (32) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

HAP | HAP 001-013, 015-022

HAP (a) Make sure the aural message "GPS BUS 2 INACTIVE" is annunciated.

HAP HAP 023-026, 028-054, 101-999

HAP (b) Make sure the aural message "ILS BUS 2 INACTIVE" and "GPS BUS 2 INACTIVE" is annunciated.

HAP | HAP ALL

HAP SUBTASK 34-46-00-860-222-002

HAP (33) Remove the safety tag and close this circuit breaker:

HAP F/O Electrical System Panel, P6-1

HAP Row Col Number Name

HAP | HAP 001, 004-013, 015-026, 028-054, 101-999

HAP A 13 C01480 RADIO NAVIGATION MMR 2

HAP | HAP ALL

HAP SUBTASK 34-46-00-750-111-002

HAP (34) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-860-223-002

HAP (35) Open this circuit breaker and install safety tag:

HAP CAPT Electrical System Panel, P18-1

HAP Row Col Number Name

HAP B 7 C00629 GND PROX WARN

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HAP SUBTASK 34-46-00-750-112-002

HAP (36) Make sure the INOP light on the ground proximity warning module shows in 6 seconds or less.

HAP SUBTASK 34-46-00-860-224-002

HAP (37) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

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

HAP SUBTASK 34-46-00-750-113-002

HAP (38) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-860-225-002

HAP (39) 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>
E	5	C01204	SMYD-1 CMPTR DC

HAP SUBTASK 34-46-00-750-132-002

HAP (40) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-740-065-002

HAP (41) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP SUBTASK 34-46-00-860-226-002

HAP (42) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

HAP (a) Make sure the aural message "SMYD BUS 1 INACTIVE" is annunciated.

HAP SUBTASK 34-46-00-860-227-002

HAP (43) 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>
B	5	C01206	SMYD-2 CMPTR DC

HAP SUBTASK 34-46-00-750-114-002

HAP (44) Make sure the INOP light on the ground proximity warning module shows in 20 seconds or less.

HAP SUBTASK 34-46-00-860-228-002

HAP (45) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

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

HAP SUBTASK 34-46-00-750-115-002

HAP (46) Make sure the INOP light on the ground proximity warning module does not show.

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HAP SUBTASK 34-46-00-860-229-002

HAP (47) 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>
B	5	C01206	SMYD-2 CMPTR DC

HAP SUBTASK 34-46-00-750-116-002

HAP (48) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-860-230-002

HAP (49) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

HAP SUBTASK 34-46-00-740-066-002

HAP (50) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP SUBTASK 34-46-00-860-231-002

HAP (51) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural message "EFIS BUS 1 INACTIVE" is annunciated.

HAP SUBTASK 34-46-00-860-232-002

HAP (52) 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	C01360	DISPLAY DEU 2 PRI

HAP SUBTASK 34-46-00-740-067-002

HAP (53) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP SUBTASK 34-46-00-860-233-002

HAP (54) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural messages "EFIS BUS 1 INACTIVE" and "EFIS BUS 2 INACTIVE" are annunciated.

HAP SUBTASK 34-46-00-860-234-002

HAP (55) 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	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C01360	DISPLAY DEU 2 PRI

NOTE: The DEU may take several minutes to become operational.

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HAP ALL	



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HAP SUBTASK 34-46-00-750-118-002

HAP (56) Make sure the INOP light on the ground proximity warning module does not show.

HAP | HAP 008-013, 015-026, 028-054, 101-999

HAP SUBTASK 34-46-00-860-235-002

HAP (57) Open this circuit breaker and install safety tag:

HAP 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

HAP SUBTASK 34-46-00-750-119-002

HAP (58) Make sure the INOP light on the ground proximity warning module does not show.

HAP SUBTASK 34-46-00-740-068-002

HAP (59) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP SUBTASK 34-46-00-860-236-002

HAP (60) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

HAP (a) Make sure the aural message "WEATHER RADAR HAZARD BUS 1 INACTIVE" is annunciated.

HAP SUBTASK 34-46-00-860-237-002

HAP (61) Remove the safety tag and close this circuit breaker:

HAP 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

HAP SUBTASK 34-46-00-750-120-002

HAP (62) Make sure the INOP light on the ground proximity warning module does not show.

HAP | HAP ALL

HAP SUBTASK 34-46-00-860-238-002

HAP (63) If terrain data does not show on the displays, push the TERR switch on the EFIS control panel to the on position.

HAP SUBTASK 34-46-00-750-141-002

HAP (64) Make sure the terrain data and the blue TERR messages show on the displays.

HAP NOTE: Horizontal position data must be available to obtain the blue TERR message. The amber TERR POS message shows when there is not enough accuracy in the horizontal position data, or if the horizontal position data is not available.

HAP NOTE: GPS data can be confirmed by selecting the FMC-CDU to the POS REF page.

HAP SUBTASK 34-46-00-860-239-002

HAP (65) Open this circuit breaker and install safety tag:

HAP CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C01519	TERRAIN DISPLAY

HAP | HAP ALL

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HAP SUBTASK 34-46-00-730-003-002

HAP (66) Make sure the TERR FAIL message shows on the displays.

HAP SUBTASK 34-46-00-860-241-002

HAP (67) Remove the safety tag and close this circuit breaker:

HAP CAPT Electrical System Panel, P18-1

HAP Row Col Number Name

HAP HAP 008-013, 015-026, 028-054, 101-999

HAP A 7 C01519 TERRAIN DISPLAY

HAP HAP ALL

HAP SUBTASK 34-46-00-730-004-002

HAP (68) Make sure the terrain data shows on the displays.

HAP H. Air/Ground Discrete Test

HAP SUBTASK 34-46-00-740-069-002

HAP (1) Do these steps to do a level 6 self-test:

HAP (a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP (b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

HAP (c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

HAP (d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.

HAP (e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.

HAP (f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

HAP SUBTASK 34-46-00-860-243-002

HAP WARNING: DO THE DEACTIVATION PROCEDURE FOR THE SPOILERS OR MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SPOILERS. THE SPOILERS CAN RETRACT QUICKLY AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

HAP (2) Deactivate the spoilers or move all persons and equipment away from the control surfaces. To deactivate the spoilers, do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

HAP SUBTASK 34-46-00-740-087-002

HAP (3) Use the PSEU BITE to put the airplane in the air mode. To do this, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

HAP SUBTASK 34-46-00-740-088-002

HAP (4) Make sure the display shows SYS 1 IS IN AIR for approximately 2 seconds and then shows SET SYS 1 ON GND?.

HAP SUBTASK 34-46-00-740-089-002

HAP (5) Make sure the aural message "NOT ON GROUND" is annunciated.

HAP SUBTASK 34-46-00-860-244-002

HAP (6) Do these steps to put the PSEU in ground mode:

HAP (a) Push and release the YES switch on the PSEU BITE panel.

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- HAP 1) Make sure the display shows ARE YOU SURE?.
HAP (b) Push and release the YES switch on the PSEU BITE panel.
HAP 1) Make sure the display shows SYS 1 IS ON GND for approximately 2 seconds and then shows SET SYS 1 IN AIR?.
HAP 2) Make sure the aural message "ON GROUND" is annunciated.
HAP (c) Push and release the ON/OFF switch on the PSEU BITE panel.
HAP 1) Make sure the display shows TURN OFF DISPLAY?.
HAP (d) Push and release the YES switch on the PSEU BITE panel.

NOTE: The display should be blank after this step.

SUBTASK 34-46-00-860-316-002

- (7) Close this access panel:

Table with 2 columns: Number, Name/Location. Row 1: 112A, Forward Access Door

SUBTASK 34-46-00-860-300-002

- (8) Put the airplane systems back to their usual on-ground condition. To do this, do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802.

SUBTASK 34-46-00-860-245-002

- (9) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

NOTE: This step will end the level 6 self-test.

I. Flap Discrete Test

SUBTASK 34-46-00-740-071-002

- (1) Do these steps to do a level 6 self-test:
(a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.
(b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.
(c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.
(d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.
(e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.
(f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-750-121-002

- (2) Set the FLAP INHIBIT switch on the ground proximity warning module to the INHIBIT position.
(a) Make sure the aural message "LANDING FLAPS" is annunciated.

SUBTASK 34-46-00-860-246-002

- (3) Set the FLAP INHIBIT switch on the ground proximity warning module to the NORMAL position.
(a) Make sure the aural message "NOT LANDING FLAPS" is annunciated.

SUBTASK 34-46-00-860-247-002

- (4) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

NOTE: This step will end the level 6 self-test.

EFFECTIVITY table with HAP ALL and D633A101-HAP



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#### J. Landing Gear Handle Discrete Test

HAP HAP SUBTASK 34-46-00-740-072-002

- HAP (1) Do these steps to do a level 6 self-test:
  - HAP (a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.
  - HAP (b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.
  - HAP (c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.
  - HAP (d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.
  - HAP (e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.
  - HAP (f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

HAP HAP SUBTASK 34-46-00-750-122-002

**WARNING:** MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR [BEFORE YOU MOVE THE CONTROL LEVER]. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- HAP (2) Set the landing gear lever to the OFF position (TASK 32-31-00-730-802).
  - HAP (a) Make sure the aural message "LANDING GEAR UP" is annunciated.

HAP HAP SUBTASK 34-46-00-860-248-002

- HAP (3) Set the GEAR INHIBIT switch on the ground proximity warning module to the INHIBIT position.
  - HAP (a) Make sure the aural message "LANDING GEAR DOWN" is annunciated.

HAP HAP SUBTASK 34-46-00-860-249-002

- HAP (4) Set the GEAR INHIBIT switch on the ground proximity warning module to the NORMAL position.
  - HAP (a) Make sure the aural message "LANDING GEAR UP" is annunciated.

HAP HAP SUBTASK 34-46-00-860-250-002

- HAP (5) Set the landing gear lever to the DOWN position.
  - HAP (a) Make sure the aural message "LANDING GEAR DOWN" is annunciated.

HAP HAP SUBTASK 34-46-00-860-251-002

- HAP (6) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

HAP **NOTE:** This step will end the level 6 self-test.

#### K. Terrain Inhibit Discrete Test

HAP HAP SUBTASK 34-46-00-740-073-002

- HAP (1) Do these steps to do a level 6 self-test:
  - HAP (a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.
  - HAP (b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.
  - HAP (c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.
  - HAP (d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.

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HAP (e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 5 self-test.

HAP (f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-860-252-002

HAP (2) Set the TERR INHIBIT switch on the ground proximity warning module to the INHIBIT position.

HAP (a) Make sure the aural message "TERRAIN OFF" is annunciated.

SUBTASK 34-46-00-860-253-002

HAP (3) Set the TERR INHIBIT switch on the ground proximity warning module to the NORMAL position.

HAP (a) Make sure the aural message "TERRAIN ON" is annunciated.

SUBTASK 34-46-00-860-254-002

HAP (4) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

HAP NOTE: This step will end the level 6 self-test.

L. Glideslope Cancel Test

SUBTASK 34-46-00-740-074-002

HAP (1) Do these steps to do a level 6 self-test:

HAP (a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

HAP (b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 2 self-test.

HAP (c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 3 self-test.

HAP (d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 4 self-test.

HAP (e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 5 self-test.

HAP (f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity
HAP warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-750-123-002

HAP (2) Push and hold the captain's BELOW G/S switch-light on the P1-1 panel.

HAP (a) Make sure the aural message "GLIDESLOPE CANCELED" is annunciated.

SUBTASK 34-46-00-750-124-002

HAP (3) Release the captain's BELOW G/S switch-light on the P1-1 panel.

HAP (a) Make sure the aural message "GLIDESLOPE ENABLED" is annunciated.

SUBTASK 34-46-00-750-125-002

HAP (4) Push and hold the first officer's BELOW G/S switch-light on the P3-1 panel.

HAP (a) Make sure the aural message "GLIDESLOPE CANCELED" is annunciated.

SUBTASK 34-46-00-750-126-002

HAP (5) Release the first officer's BELOW G/S switch-light on the P3-1 panel.

HAP (a) Make sure the aural message "GLIDESLOPE ENABLED" is annunciated.

SUBTASK 34-46-00-860-255-002

HAP (6) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

HAP NOTE: This step will end the level 6 self-test.

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HAP M. Master Dim and Test

HAP SUBTASK 34-46-00-740-075-002

HAP (1) Push and release the GPWS SYS TEST switch the ground proximity warning module.

HAP (a) Make sure the captain's and first officer's BELOW G/S switch-lights come on bright.

HAP NOTE: Ignore the other self-test aural warnings and indications. Wait 30 seconds for the  
HAP GPWC to stop the self-test.

HAP SUBTASK 34-46-00-860-256-002

HAP (2) Set the LIGHTS switch on the P1-3 panel to the DIM position.

HAP SUBTASK 34-46-00-740-076-002

HAP (3) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

HAP (a) Make sure the captain's and first officer's BELOW G/S switch-lights come on dim.

HAP NOTE: Ignore the other self-test aural warnings and indications.

HAP SUBTASK 34-46-00-860-257-002

HAP (4) Set the LIGHTS switch on the P1-3 panel to the BRIGHT position.

HAP N. Put the Airplane Back to Its Usual Condition

HAP SUBTASK 34-46-00-860-258-002

HAP (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## GROUND PROXIMITY WARNING COMPUTER - REMOVAL/INSTALLATION

### 1. General

A. This subject has these tasks:

- (1) A removal of the ground proximity warning computer (GPWC)
- (2) An installation of the GPWC.

B. The GPWC is on the E1 electronic equipment rack, shelf No. 1, in the main equipment center.

#### **TASK 34-46-01-000-801**

### 2. Ground Proximity Warning Computer Removal

(Figure 401)

A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-46-01-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 008-013, 015-026, 028-054, 101-999</b>			
A	7	C01519	TERRAIN DISPLAY
<b>HAP ALL</b>			
B	7	C00629	GND PROX WARN

SUBTASK 34-46-01-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(TASK 06-41-00-800-801).

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SUBTASK 34-46-01-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE GPWC. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE GPWC.

(3) Remove the GPWC [1] (TASK 20-10-07-000-801).

————— **END OF TASK** —————

EFFECTIVITY  
HAP ALL

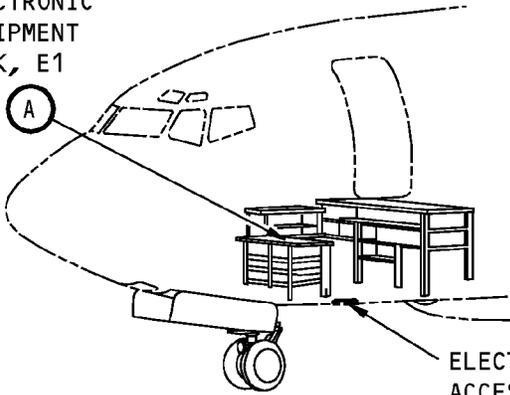
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ELECTRONIC  
EQUIPMENT  
RACK, E1

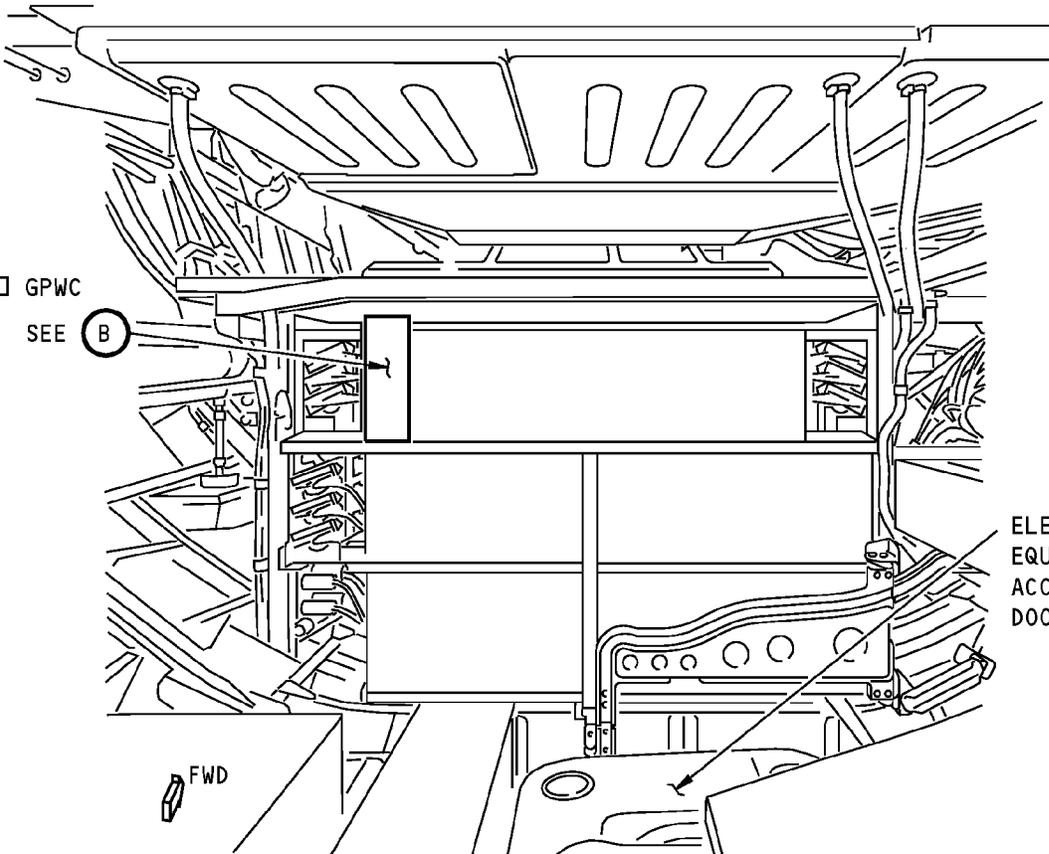
SEE (A)



ELECTRONIC EQUIPMENT  
ACCESS DOOR, 117A

[1] GPWC

SEE (B)



ELECTRONIC  
EQUIPMENT  
ACCESS  
DOOR, 117A

ELECTRONIC EQUIPMENT RACK, E1

(A)

**Ground Proximity Warning Computer Installation**  
**Figure 401 (Sheet 1 of 2)/34-46-01-990-802**

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HAP ALL

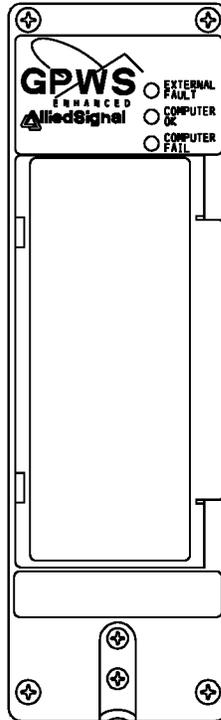
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GROUND PROXIMITY  
WARNING COMPUTER

(B)

Ground Proximity Warning Computer Installation  
Figure 401 (Sheet 2 of 2)/34-46-01-990-802



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#### TASK 34-46-01-400-801

### 3. Ground Proximity Warning Computer Installation

(Figure 401)

#### A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-46-00-700-801	Verify the Terrain Database Part Number (P/B 201)
34-46-00-710-804-002	Ground Proximity Warning System - Operational Test (P/B 501)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	GPWC	34-46-01-01-005	HAP 001-011
		34-46-01-02-025	HAP 031-054, 101-999
		34-46-01-02A-020	HAP 012, 013, 015-026, 028-030
		34-46-01-02A-025	HAP 012, 013, 015-026, 028-030

#### C. Location Zones

Zone	Area
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. Installation Procedure

SUBTASK 34-46-01-860-005

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 008-013, 015-026, 028-054, 101-999</b>			
A	7	C01519	TERRAIN DISPLAY
<b>HAP ALL</b>			
B	7	C00629	GND PROX WARN

SUBTASK 34-46-01-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE GPWC. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE GPWC.

(2) Install the GPWC [1] (TASK 20-10-07-400-801).

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SUBTASK 34-46-01-860-002

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

CAPT Electrical System Panel, P18-1

Table with 4 columns: Row, Col, Number, Name. Contains entries for TERRAIN DISPLAY and GND PROX WARN.

F. Installation Test

SUBTASK 34-46-01-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-46-01-740-003

(2) Make sure the green COMPUTER OK light on the front panel of the GPWC is on.

SUBTASK 34-46-01-750-001

(3) If your airline maintains a terrain database version requirement, then, do this task: Verify the Terrain Database Part Number, TASK 34-46-00-700-801.

SUBTASK 34-46-01-860-006

(4) Do this task: Ground Proximity Warning System - Operational Test, TASK 34-46-00-710-804-002.

SUBTASK 34-46-01-410-001

(5) Close this access panel:

Table with 2 columns: Number, Name/Location. Entry: 117A Electronic Equipment Access Door

(TASK 06-41-00-800-801).

SUBTASK 34-46-01-860-004

(6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

HAP HAP

HAP HAP

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# AIRCRAFT MAINTENANCE MANUAL

## GROUND PROXIMITY WARNING MODULE - REMOVAL/INSTALLATION

### 1. General

A. This subject has these tasks:

- (1) A removal of the ground proximity warning module
- (2) An installation of the ground proximity warning module.

B. The ground proximity warning module is on the first officer's instrument panel, P3.

#### **TASK 34-46-02-000-801**

### 2. Ground Proximity Warning Module Removal

(Figure 401)

A. Location Zones

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

B. Removal Procedure

SUBTASK 34-46-02-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 34-46-02-020-001

(2) Remove the ground proximity warning module [1]:

- (a) Loosen the quarter turn fasteners [2] on the module [1].
- (b) Pull the module [1] from the instrument panel until you can get to the electrical connector [3].
- (c) Disconnect the electrical connector [3] from the module [1].
- (d) Remove the ground proximity warning module [1].

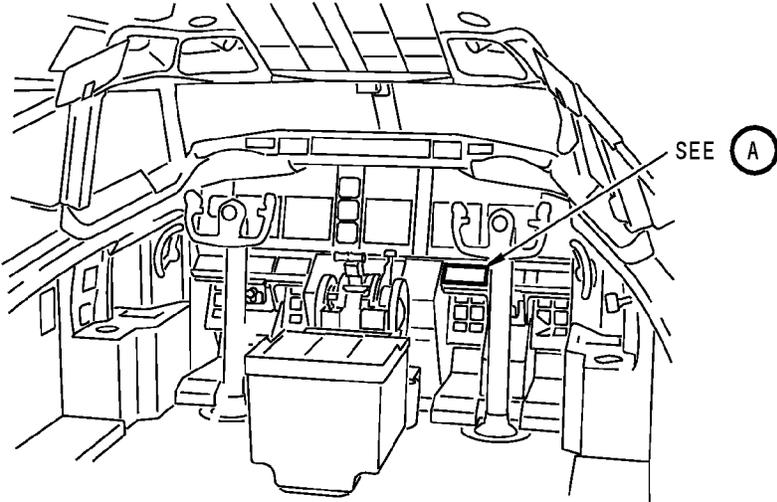
**END OF TASK**

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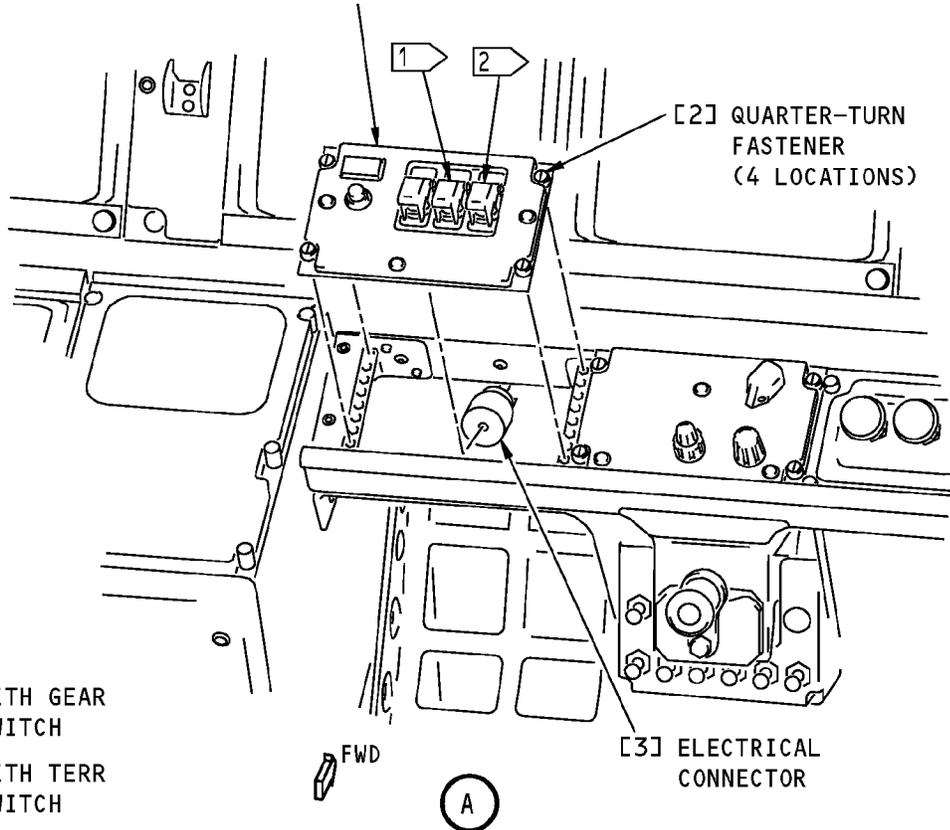
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**FLIGHT COMPARTMENT**

[1] GROUND PROXIMITY  
WARNING MODULE



1 MODULES WITH GEAR  
INHIBIT SWITCH

2 MODULES WITH TERR  
INHIBIT SWITCH

[2] QUARTER-TURN  
FASTENER  
(4 LOCATIONS)

[3] ELECTRICAL  
CONNECTOR

**Ground Proximity Warning Module Installation**  
Figure 401/34-46-02-990-802

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#### TASK 34-46-02-400-801

### 3. Ground Proximity Warning Module Installation

(Figure 401)

#### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	31-11-51-07-355	HAP 031-054, 101-999
		33-11-00-10B-460	HAP 001-013, 015-026, 028-030
		34-46-02-01B-050	HAP 001-007
		34-46-02-01B-155	HAP 001-013, 015-026, 028-030
		34-46-02-01B-160	HAP 001-013, 015-026, 028-030
		34-46-02-02-005	HAP 031-054, 101-999

#### C. Location Zones

Zone	Area
212	Flight Compartment - Right

#### D. Installation Procedure

SUBTASK 34-46-02-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 34-46-02-420-001

- (2) Install the ground proximity warning module [1]:
  - (a) Connect the electrical connector [3] to the module [1].
  - (b) Lightly push the module [1] into the instrument panel.
  - (c) Tighten the quarter turn fasteners [2] that attach the module [1] to the instrument panel.

SUBTASK 34-46-02-860-003

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

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F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 34-46-02-860-004

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-46-02-750-001

(5) Make sure the lights on the module [1] are on.

SUBTASK 34-46-02-860-005

(6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## VOR SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

- (1) An operational test of the VOR system.
- (2) A system test of the VOR system.

#### **TASK 34-51-00-710-801**

### 2. VOR System - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

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

C. Prepare for the Operational Test

SUBTASK 34-51-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-51-00-710-001

- (2) Do these steps to prepare for the operational test:
  - (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
  - (b) Set the IRS transfer switch on the instrument switching module to the NORMAL position.
  - (c) Set the mode selector on the captain's and the first officer's (F/O's) EFIS control panel to the VOR position.
  - (d) Set the captain's and F/O's EFIS control panel ADF/VOR 1 and ADF/VOR 2 switches to VOR 1 and VOR 2 position.
  - (e) Push the CTR button on the captain's and F/O's EFIS control panels until full VOR display is present on the captain's and F/O's navigation display (ND).
  - (f) Set the narrow and wide pointer source select switch "rabbit-ear" on the standby RMI to the VOR position.
  - (g) Set the SOURCE switch on the instrument switching module to the AUTO position.
  - (h) Set the mode select switches on the IRS to the ATT position.
  - (i) Push H and put 000 (heading 0°) on the IRS inertial system display unit (ISDU).
  - (j) Push the ENT key on the IRS ISDU.

NOTE: A wait of 30 seconds can be necessary for a valid heading.

- (k) Turn the course select controls on the DFCS mode control panel until the course windows show 000 degrees.
  - 1) Make sure the heading flag on the captain's and first officer's ND does not show.
  - 2) Make sure the heading flag on the standby RMI is not view.

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### D. VOR Receiver Self Test

#### I HAP 001-013, 015-026, 028-036

SUBTASK 34-51-00-860-002

- (1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

#### I HAP 038-054, 101-999

SUBTASK 34-51-00-860-073

- (2) Set a VOR frequency of 108.00 MHz on the captain's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

SUBTASK 34-51-00-860-071

- (3) Set a VOR frequency of 108.00 MHz on the captain's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

#### HAP 037

SUBTASK 34-51-00-860-055

- (4) Set a VOR frequency of 108.00 MHz on the captain's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

#### HAP ALL

SUBTASK 34-51-00-710-002

- (5) Push and release the TEST button on the captain's navigation control panel.
  - (a) Make sure that these indications agree with the data in (Table 501):
    - 1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's NDs
    - 2) The No. 1 VOR narrow bearing pointers on the captain's and the first officer's NDs
    - 3) The No. 1 bearing pointer and VOR flag on the standby RMI.

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Table 501/34-51-00-993-806

<b>TIME (Approx.)</b>	<b>RMI VOR BEARING POINTER</b>	<b>RMI VOR FLAG IN VIEW</b>	<b>DISPLAY VOR FLAG IN VIEW</b>	<b>DISPLAY FROM INDICATOR IN VIEW</b>	<b>DISPLAY DEVIATION BAR IN VIEW</b>
3 ± 1 second	N/A	YES	YES	NO	NO
After 3 seconds	180° ± 3°	NO	NO	YES	Centered
After 23 seconds	N/A	YES	NO	NO	NO

SUBTASK 34-51-00-860-003

(6) Set the VHF NAV switch on the instrument switching module to the BOTH ON 1 position.

SUBTASK 34-51-00-710-003

(7) Push and release the TEST button on the captain's navigation control panel.

(a) Make sure that these indications agree with the data in (Table 501):

- 1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and first officer's NDs
- 2) The No. 1 VOR narrow bearing pointers on the captain's and first officer's NDs
- 3) The No. 1 bearing pointer and VOR flag on the standby RMI.

SUBTASK 34-51-00-860-004

(8) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

**HAP 001-013, 015-026, 028-036, 038-054, 101-999**

SUBTASK 34-51-00-860-005

(9) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

**HAP 037**

SUBTASK 34-51-00-860-056

(10) Set a VOR frequency of 108.00 MHz on the first officer's navigation control panels by:

- (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
- (b) Pushing the number "108.00" using the NCP keypad.
- (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

**HAP ALL**

SUBTASK 34-51-00-860-064

(11) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-710-004

(12) Push and release the TEST button on the first officer's navigation control panel.

(a) Make sure that these indications agree with the data in (Table 501):

- 1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the first officer's ND
- 2) The No. 2 VOR wide bearing pointers on the captain's and the first officer's NDs
- 3) The No. 2 bearing pointer and VOR flag on the standby RMI.

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SUBTASK 34-51-00-860-006

(13) Set the VHF NAV switch on the instrument switching module to the BOTH ON 2 position.

SUBTASK 34-51-00-710-005

(14) Push and release the TEST button on the first officer's navigation control panel.

(a) Make sure that these indications agree with the data in (Table 501):

- 1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and first officer's ND
- 2) The No. 2 VOR wide bearing pointers on the captain's and the first officer's NDs
- 3) The No. 2 bearing pointer and VOR flag on the standby RMI.

SUBTASK 34-51-00-860-007

(15) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

### E. Display Source Annunciator Test

SUBTASK 34-51-00-710-006

(1) Set the VHF NAV switch and the navigation control panel (NCP) to each position that shows in (Table 502).

**NOTE:** APP must be selected on both the Captain's and F/O's EFIS control panels for the 108.10 MHz ILS annunciations.

Table 502/34-51-00-993-808

CAPT & F/O NCP FREQUENCY	VHF NAV SWITCH	CAPT DISPLAY ANNUNCIATOR	F/O DISPLAY ANNUNCIATOR	EFIS CTRL PANEL MODE SELECTOR
108.00 MHz	NORMAL	VOR 1	VOR 2	VOR
108.00 MHz	BOTH ON 1	VOR 1	VOR 1	VOR
108.00 MHz	BOTH ON 2	VOR 2	VOR 2	VOR
108.10 MHz	NORMAL	ILS 1	ILS 2	APP
108.10 MHz	BOTH ON 1	ILS 1	ILS 1	APP
108.10 MHz	BOTH ON 2	ILS 2	ILS 2	APP

(a) Make sure the ND source annunciators agree with the data in (Table 502).

SUBTASK 34-51-00-860-008

(2) Set a frequency of 108.00 MHz on the captain's navigation control panel.

SUBTASK 34-51-00-860-009

(3) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-054

(4) Set the mode selector on the captain's and first officer's EFIS control panels to the VOR position.

SUBTASK 34-51-00-860-010

(5) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

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SUBTASK 34-51-00-860-011

(6) 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>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

SUBTASK 34-51-00-710-007

(7) Make sure the indications that follow occur:

- (a) The No. 1 bearing flag is in view on the captain's ND
- (b) The No. 1 bearing flag is in view on the standby RMI

SUBTASK 34-51-00-860-012

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	12	C01375	RADIO NAVIGATION VOR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-51-00-710-008

(9) Make sure the indications that follow occur:

- (a) The No. 2 bearing flag is in view on the first officer's ND
- (b) The No. 2 bearing flag is in view on the standby RMI.

SUBTASK 34-51-00-860-013

(10) 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>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	12	C01375	RADIO NAVIGATION VOR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-51-00-860-014

(11) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**END OF TASK**

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**TASK 34-51-00-730-801**

**3. VOR System - System Test**

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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-1913	Test Set - VOR/ILS, RAMP (Part #: 972Q-4, Supplier: 4V792, A/P Effectivity: 737-ALL) (Part #: IFR-4000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-30D, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: 402AP-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: NAV-402AP-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-30C, Supplier: 92606, A/P Effectivity: 737-ALL)

C. Location Zones

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

D. Prepare for the System Test

SUBTASK 34-51-00-860-015

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-51-00-710-009

(2) Do these steps to prepare for the system test:

- (a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.
- (b) Set the IRS switch on the instrument switching module to the NORMAL position.
- (c) Set the mode selector on the captain's and the first officer's EFIS control panel to the VOR position.
- (d) Set the VOR/ADF selectors on the standby RMI to the VOR position.
- (e) Set the SOURCE switch on the instrument switching module to the AUTO position.
- (f) Set the mode select switches on the mode select unit (MSU) to the ATT position.
- (g) Push H on the inertial system display unit (ISDU).
- (h) Push 000 on the ISDU for a heading of 0°.
- (i) Push the ENT key on the ISDU.

**NOTE:** A wait of 30 seconds can be necessary for a valid heading.

- (j) Turn the course select controls on the DFCS mode control panel until the course windows show 000 degrees.
  - 1) Make sure the heading flag on the two NDs does not show.
  - 2) Make sure the heading flag is not in view on the standby RMI.

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### E. VOR System Test

SUBTASK 34-51-00-710-010

- (1) Do this task: VOR System - Operational Test, TASK 34-51-00-710-801.

#### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-51-00-860-016

- (2) Set a frequency of 108.00 MHz on the captain's navigation control panel.

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

#### HAP 037

SUBTASK 34-51-00-860-057

- (3) Set a VOR frequency of 108.00 MHz on the captain's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

#### HAP ALL

SUBTASK 34-51-00-730-001

- (4) Set up the VOR/ILS ramp test set, COM-1913, to supply a 0° omni radial at a frequency of 108.00 MHz.

**NOTE:** Omni radial is a signal that is along a line in the magnetic direction (from the station) shown by the number of the radial. For example, 0° omni radial is north of the station.

- (a) Make sure the deviation bar shows on the captain's ND.
- (b) Make sure the VOR flag does not show on the captain's ND.
- (c) Make sure the No. 1 bearing pointers on the captain's and the first officer's ND show  $180 \pm 4^\circ$ .
- (d) Make sure the No. 1 bearing pointers on the standby RMI show  $180 \pm 4^\circ$ .

SUBTASK 34-51-00-730-002

- (5) Turn the captain's course select control on the DFCS mode control panel until the deviation bar is in the center.

- (a) Make sure the course window on the DFCS mode control panel shows  $000 \pm 002^\circ$ .

**NOTE:** The deviation bar can also be in the center when the course counter shows  $180^\circ$ . Do not use this radial.

- (b) Make sure a FROM indication shows on the captain's ND.

SUBTASK 34-51-00-730-019

- (6) Turn the captain's course select control on the DFCS mode control panel until the deviation bar on the captain's ND is on the second left dot.

- (a) Make sure the course window on the DFCS mode control panel shows  $350 \pm 004^\circ$ .

SUBTASK 34-51-00-730-020

- (7) Turn the captain's course select control on the DFCS mode control panel until the deviation bar on the captain's ND is on the second right dot.

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(a) Make sure the course window on the DFCS mode control panel shows 010 ± 004°.

SUBTASK 34-51-00-860-017

(8) Turn the captain's course select control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-005

(9) Set the VOR bearing selector on the VOR/ILS ramp test set, COM-1913, to the omni radials shown in (Table 503).

(a) Make sure that these indications agree with the data in (Table 503):

Table 503/34-51-00-993-809

BEARING SELECTOR SETTING (OMNI RADIAL)	BEARING POINTER INDICATION	TO - FROM FLAG INDICATION	DEVIATION BAR INDICATION
000°	180 ± 4°	FROM	Centered
315°	135 ± 4°	FROM	Moved full scale to the right
270°	90 ± 4°	---	Moved full scale to the right
225°	45 ± 4°	TO	Moved full scale to the right
180°	000 ± 4°	TO	Centered
135°	315 ± 4°	TO	Moved full scale to the left
90°	270 ± 4°	---	Moved full scale to the left
45°	225 ± 4°	FROM	Moved full scale to the left
000°	180 ± 4°	FROM	Centered
45°	225 ± 4°	FROM	Moved full scale to the left
90°	270 ± 4°	---	Moved full scale to the left
135°	315 ± 4°	TO	Moved full scale to the left
180°	000 ± 4°	TO	Centered
225°	45 ± 4°	TO	Moved full scale to the right
270°	90 ± 4°	---	Moved full scale to the right
315°	135 ± 4°	FROM	Moved full scale to the right

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(Continued)

BEARING SELECTOR SETTING (OMNI RADIAL)	BEARING POINTER INDICATION	TO - FROM FLAG INDICATION	DEVIATION BAR INDICATION
000°	180 ± 4°	FROM	Centered

- 1) The No. 1 bearing pointers on the captain's and the first officer's ND
- 2) The TO-FROM indication and the deviation bar in the captain's ND.
- 3) The No. 1 bearing pointer on the standby RMI

### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-51-00-730-006

- (10) Set a frequency of 108.00 MHz on the first officer's navigation control panel.
  - (a) Make sure the No. 2 bearing pointers on the captain's and the first officer's ND show 180 ± 4°.
  - (b) Make sure the No. 2 bearing pointer on the standby RMI shows 180 ± 4°.

### HAP 037

SUBTASK 34-51-00-860-058

- (11) Set a VOR frequency of 108.00 MHz on the first officer's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.
    - 1) Make sure the No. 2 bearing pointers on the captain's and the first officer's ND show 180 ± 4°.

### HAP ALL

SUBTASK 34-51-00-730-021

- (12) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's ND is in the center.
  - (a) Make sure the course window on the DFCS mode control panel shows 000 ± 002°.
 

NOTE: The deviation bar can also be in the center when the course counter shows 180°. Do not use this radial.
  - (b) Make sure a FROM indication shows on the first officer's ND.

SUBTASK 34-51-00-730-022

- (13) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's ND is on the second left dot.
  - (a) Make sure the course window on the DFCS mode control panel shows 350 ± 004°.

SUBTASK 34-51-00-730-023

- (14) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's ND is on the second right dot.
  - (a) Make sure the course window on the DFCS mode control panel shows 010 ± 004°.

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SUBTASK 34-51-00-860-018

- (15) Turn the first officer's course select control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-010

- (16) Set the VOR bearing selector on the VOR/ILS ramp test set, COM-1913, to the omni radials shown in (Table 503).
- (a) Make sure that these indications agree with the data in (Table 503):
- 1) The No. 2 bearing pointers on the captain's and the first officer's ND
  - 2) The TO-FROM indication and the deviation bar in the first officer's ND.
  - 3) The No. 2 bearing pointer on the standby RMI

SUBTASK 34-51-00-860-019

- (17) Set the VHF NAV switch on the instrument switching module to the BOTH ON 1 position.

### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-51-00-860-020

- (18) Set a frequency of 108.10 MHz on the first officer's navigation control panel.

### HAP 037

SUBTASK 34-51-00-860-059

- (19) Set a ILS frequency of 108.10 MHz on the first officer's navigation control panels by:
- (a) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
- (b) Pushing the number "108.10" using the NCP keypad.
- (c) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

### HAP ALL

SUBTASK 34-51-00-860-021

- (20) Turn the captain's course selector control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-011

- (21) Set the VOR bearing selector on the VOR/ILS ramp test set, COM-1913, to a 135° omni radial.
- (a) Make sure the No. 1 bearing pointers on the captain's and the first officer's ND show 315 ± 4°.
- (b) Make sure the deviation bars on the two NDs are full scale in the left direction.
- (c) Make sure a TO indication shows on the two NDs.
- (d) Make sure the No. 1 bearing pointers on the standby RMI show 315 ± 4°.

SUBTASK 34-51-00-860-022

- (22) Set the VHF NAV switch on the instrument switching module to the BOTH ON 2 position.

SUBTASK 34-51-00-860-023

- (23) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-024

- (24) Set a frequency of 108.10 MHz on the captain's navigation control panel.

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SUBTASK 34-51-00-860-025

- (25) Turn the first officer's course selector control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-012

- (26) Set the VOR bearing selector on the VOR/ILS ramp test set, COM-1913, to a 315° omni radial.
- (a) Make sure the No. 2 bearing pointers on the captain's and the first officer's ND show  $135 \pm 4^\circ$ .
  - (b) Make sure the deviation bars on the two NDs are full scale in the right direction.
  - (c) Make sure a FROM indication shows on the two NDs.
  - (d) Make sure the No. 2 bearing pointers on the standby RMI shows  $135 \pm 4^\circ$ .

SUBTASK 34-51-00-860-026

- (27) Set a frequency of 108.00 MHz on the captain's navigation control panel.

### F. System Frequency Control and Aural Outputs Test

**NOTE:** No adjustment of the receiver gain squelch is necessary. The tone should be detected regardless of the noise level.

#### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-51-00-860-027

- (1) Set a frequency of 108.10 MHz on the first officer's navigation control panel.

#### HAP 037

SUBTASK 34-51-00-860-060

- (2) Set a ILS frequency of 108.10 MHz on the first officer's navigation control panels by:
- (a) Pushing the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.10" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

#### HAP ALL

SUBTASK 34-51-00-860-028

- (3) Use the switches on the VOR/ILS ramp test set, COM-1913, to supply a signal of 1020 Hz.

SUBTASK 34-51-00-860-029

- (4) Push the receiver volume controls for NAV-2 on each audio selector panel to set the volume to off.

SUBTASK 34-51-00-860-030

- (5) Push the receiver volume controls for NAV-1 on each audio selector panel to set the volume to on.

SUBTASK 34-51-00-730-013

- (6) Turn the receiver volume controls clockwise for NAV-1 on each audio selector panel.
- (a) Make sure you can hear a tone through the interphone system.
  - (b) Make sure you can hear a tone at each audio selector panel with a headset.
  - (c) Make sure you cannot hear the tone when you change the frequency on the VOR/ILS ramp test set, COM-1913, to a different frequency.

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SUBTASK 34-51-00-860-031

- (7) Push the receiver volume controls for NAV-1 on each audio selector panel to set the volume to off.

SUBTASK 34-51-00-860-032

- (8) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-033

- (9) Set a frequency of 108.10 MHz on the captain's navigation control panel.

SUBTASK 34-51-00-860-034

- (10) Push the receiver volume controls for NAV-2 on each audio selector panel to set the volume to on.

SUBTASK 34-51-00-730-014

- (11) Turn the receiver volume controls clockwise for NAV-2 on each audio selector panel.
  - (a) Make sure you can hear a tone through the interphone system.
  - (b) Make sure you can hear a tone at each audio selector panels with a headset.
  - (c) Make sure you cannot hear the tone when you change the frequency on the VOR/ILS ramp test set, COM-1913, to a different frequency.

SUBTASK 34-51-00-860-035

- (12) Push the receiver volume controls for NAV-2 on each audio selector panel to set the volume to off.

SUBTASK 34-51-00-860-036

- (13) Set a frequency of 108.00 MHz on the captain's navigation control panel.

### G. Heading Input Test

#### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-51-00-860-037

- (1) Make sure the captain's navigation control panel is set to a frequency of 108.00 MHz.

#### HAP 037

SUBTASK 34-51-00-860-061

- (2) Set a VOR frequency of 108.00 MHz on the captain's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

### I HAP 001-013, 015-026, 028-036

SUBTASK 34-51-00-860-038

- (3) Make sure the first officer's navigation control panel is set to a frequency of 108.00 MHz.

### I HAP 038-054, 101-999

SUBTASK 34-51-00-860-072

- (4) Set a VOR frequency of 108.00 MHz on the first officer's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.

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## HAP 038-054, 101-999 (Continued)

- (b) Pushing the number "108.00" using the NCP keypad.
- (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

### HAP 037

SUBTASK 34-51-00-860-062

- (5) Set a VOR frequency of 108.00 MHz on the first officer's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "108.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 108.00" is displayed in the ACT (upper) window on the NCP.

### HAP ALL

SUBTASK 34-51-00-860-039

- (6) Use the VOR/ILS ramp test set, COM-1913, to supply a 315° omni radial at a frequency of 108.00 MHz.
  - (a) Make sure the deviation bar shows on the captain's ND.
  - (b) Make sure the VOR flag does not show on the captain's ND.

SUBTASK 34-51-00-860-040

- (7) Make sure the VHF NAV switch on the instrument switching module is in the NORMAL position.

SUBTASK 34-51-00-860-041

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	12	C01375	RADIO NAVIGATION VOR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-51-00-750-001

- (9) Set the Right IRS Mode Control Switch to OFF and wait at least 30 seconds.

SUBTASK 34-51-00-730-015

- (10) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).
  - (a) Make sure the compass card and the No. 1 bearing pointer in the captain's ND move counterclockwise at the same time.
  - (b) Make sure the No. 1 bearing pointer follows the compass card's movement at a slower speed.
  - (c) Make sure the compass card and the No. 1 bearing pointer in the first officer's ND do not move.

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SUBTASK 34-51-00-860-042

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	12	C01375	RADIO NAVIGATION VOR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-51-00-860-043

(12) 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>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

SUBTASK 34-51-00-750-002

(13) Set the Right IRS Mode Control Switch to ATT.

SUBTASK 34-51-00-750-003

(14) Set the Left IRS Mode Control Switch to OFF and wait at least 30 seconds.

SUBTASK 34-51-00-730-016

(15) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).

- (a) Make sure the compass card and the No. 2 bearing pointer in the first officer's ND move counterclockwise at the same time.
- (b) Make sure the No. 2 bearing pointer follows the compass card's movement at a slower speed.
- (c) Make sure the compass card and the No. 2 bearing pointer on the captain's ND do not move.

SUBTASK 34-51-00-860-044

(16) 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>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

SUBTASK 34-51-00-860-045

(17) Set the IRS switch on the instrument switching module to the BOTH ON Left position.

SUBTASK 34-51-00-860-046

(18) 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>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

SUBTASK 34-51-00-750-004

(19) Set the Right IRS Mode Control Switch to OFF.

SUBTASK 34-51-00-750-005

(20) Set the Left IRS Mode Control Switch to ATT and wait at least 30 seconds.

SUBTASK 34-51-00-730-017

(21) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).

- (a) Make sure the compass card and the No. 2 bearing pointer in the NDs move counterclockwise at the same time.
- (b) Make sure the No. 2 bearing pointer follows the compass card's movement at slower speed.

SUBTASK 34-51-00-860-047

(22) 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>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

SUBTASK 34-51-00-860-048

(23) Set the IRS switch on the instrument switching module to the BOTH ON RIGHT position.

SUBTASK 34-51-00-860-049

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	12	C01375	RADIO NAVIGATION VOR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-51-00-750-006

(25) Select the Left IRS Mode Control Switch to OFF.

SUBTASK 34-51-00-750-007

(26) Set the Right IRS Mode Control Switch to ATT and wait at least 30 seconds.

SUBTASK 34-51-00-730-018

(27) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).

- (a) Make sure the compass card and the No. 1 bearing pointer in the NDs move counterclockwise at the same time.
- (b) Make sure the No. 1 bearing pointer follows the compass card's movement at a slower speed.

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SUBTASK 34-51-00-860-050

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	12	C01375	RADIO NAVIGATION VOR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-51-00-860-051

(29) Set the IRS switch on the instrument switching module to the NORMAL position.

SUBTASK 34-51-00-860-052

(30) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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### VOR/MKR RECEIVER - REMOVAL/INSTALLATION

#### 1. General

A. This procedure has these tasks:

- (1) A removal of the VOR/MKR receiver.
- (2) An installation of the VOR/MKR receiver.

B. The two VOR/MKR receivers are in the main equipment center. The No. 1 VOR/MKR receiver is on the E1 electronics equipment rack, shelf No. 2. The No. 2 VOR/MKR receiver is on E1 electronics equipment rack, shelf No. 4.

#### **TASK 34-51-01-000-801**

#### 2. VOR/MKR Receiver Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-51-01-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-01-010-001

(2) To get access to the VOR/MKR receiver, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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SUBTASK 34-51-01-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE VOR/MKR RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE VOR/MKR RECEIVER.

- (3) To remove the No. 1 or No. 2 VOR/MKR receiver [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

————— **END OF TASK** —————

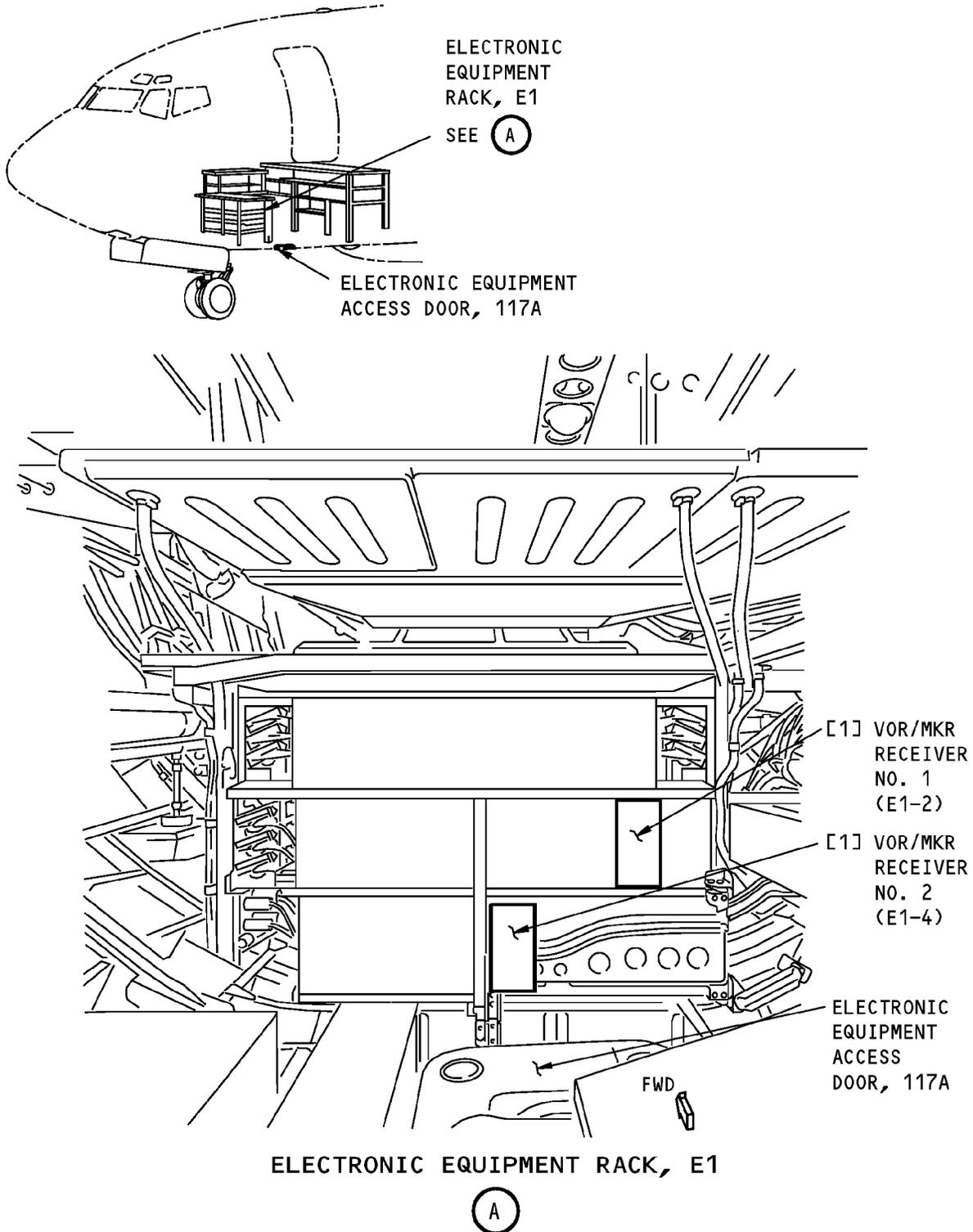
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**VOR/MKR Receiver Installation  
Figure 401/34-51-01-990-801**

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#### TASK 34-51-01-400-801

### 3. VOR/MKR Receiver Installation

(Figure 401)

#### A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-32-00-710-801	Marker Beacon System - Operational Test (P/B 501)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receiver	34-51-01-01-005	HAP 001-011
		34-51-01-02-005	HAP 012, 013, 015-026, 028-054, 101-999

#### 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. Installation Procedure

SUBTASK 34-51-01-860-002

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-01-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE VOR/MKR RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE VOR/MKR RECEIVER.

(2) To install the VOR/MKR receiver [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

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SUBTASK 34-51-01-860-003

(3) 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>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

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

SUBTASK 34-51-01-410-001

(4) Close this access panel:

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

**F. Installation Test**

SUBTASK 34-51-01-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-51-01-710-001

(2) Tune the captain's and first officer's navigation control panels to a local VOR station.

(a) Make sure you can hear the station identification code over the flight interphone system.

SUBTASK 34-51-01-710-002

(3) Do this task: Marker Beacon System - Operational Test, TASK 34-32-00-710-801.

SUBTASK 34-51-01-860-005

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**————— END OF TASK —————**

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# AIRCRAFT MAINTENANCE MANUAL

## VOR/LOC ANTENNA - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the VOR/LOC antenna
- (2) An installation of the VOR/LOC antenna.

B. The VOR/LOC antenna (M41) is installed at the top of the vertical stabilizer (fin).

#### **TASK 34-51-02-000-801**

### 2. VOR/LOC Antenna Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right
326	Vertical Fin - Fin Tip

B. Removal Procedure

SUBTASK 34-51-02-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

SUBTASK 34-51-02-020-001

(2) Remove the VOR/LOC antenna [1]:

- (a) Remove the screws [6] that attach the leading edge [1] to the VOR/LOC antenna [1] and the vertical stabilizer.
- (b) Remove the leading edge [1] of the fin tip from the VOR/LOC antenna [1].
- (c) Disconnect the electrical connectors [7].
- (d) Put protective covers on the electrical connectors [7].
- (e) Remove the screws [5] that attach the VOR/LOC antenna [1] to the vertical stabilizer.

**NOTE:** Do not remove the screws that attach the trailing edge to the VOR/LOC antenna [1]. The trailing edge can be removed with the VOR/LOC antenna [1].

(f) Remove the VOR/LOC antenna [1] and the attached trailing edge from the vertical stabilizer.

SUBTASK 34-51-02-020-002

(3) Remove the static discharger [3].

- (a) Remove the screws [4] from the static discharger [3].

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- (b) Remove the static discharger [3] from the the trailing edge.

NOTE: Keep the static discharger [3] for installation on new VOR/LOC antenna [1] assembly.

————— **END OF TASK** —————

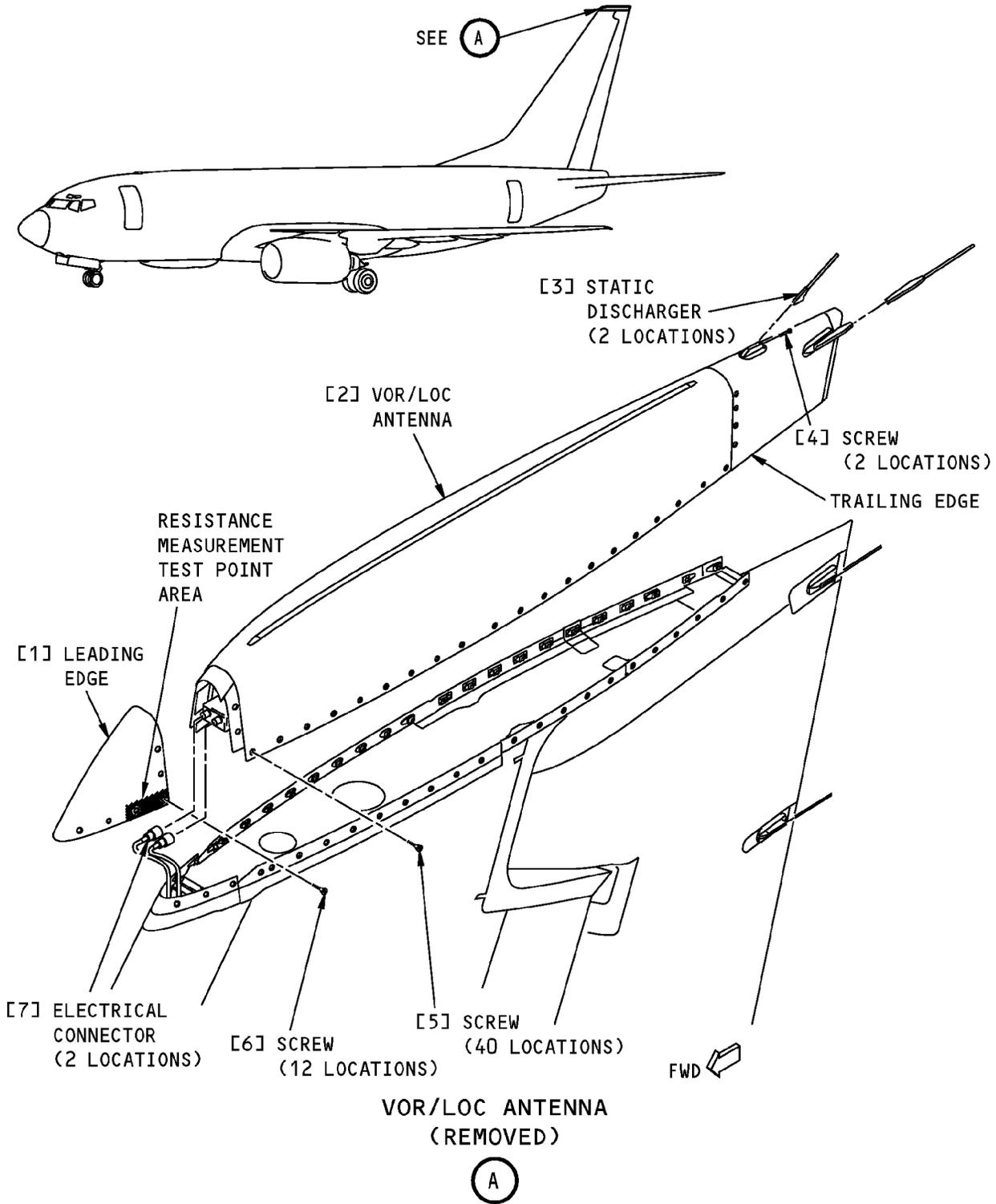
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**VOR/LOC Antenna Installation  
Figure 401/34-51-02-990-801**

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**TASK 34-51-02-400-801**

## 3. VOR/LOC Antenna Installation

(Figure 401)

### A. General

- (1) The installation task has an installation test.
- (2) The installation test makes sure that the VOR/LOC antenna [1] operates correctly.

### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-21-91-620-802	Application of Corrosion Inhibiting Compound (P/B 701)

### C. Consumable Materials

Reference	Description	Specification
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796

### D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
326	Vertical Fin - Fin Tip

### E. Installation Procedure

SUBTASK 34-51-02-860-002

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-02-100-001

- (2) Clean the mating surfaces of the VOR/LOC antenna [1] and the airplane structure. To clean the surfaces, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.

SUBTASK 34-51-02-420-001

- (3) If the trailing edge is not installed, attach the trailing edge to the VOR/LOC antenna [1].

SUBTASK 34-51-02-420-002

- (4) Install the static discharger [3]:

**NOTE:** Use static discharger [3] removed during removal of VOR/LOC antenna [1] unless they are missing or damaged. If missing or damaged, new static discharger [3] are required.

- (a) Insert the static discharger [3] into the slots on the trailing edge.

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- (b) Install the screws [4] that attach the static discharger [3] to the trailing edge.

SUBTASK 34-51-02-420-003

- (5) Install the VOR/LOC antenna [1]:

- (a) Align the VOR/LOC antenna [1] to the screw holes that hold the to the vertical stabilizer.
- (b) Remove the protective covers from the electrical connectors [7].
- (c) Examine the electrical connectors [7] for bent or broken pins, dirt, and damage.
- (d) Connect the electrical connectors [7].
- (e) Align the leading edge [1] with the screw holes on the top of the vertical stabilizer.
- (f) Apply corrosion preventive compound, C00308 to the screw [6] threads. To apply it, do this task: Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802.
- (g) Apply corrosion preventive compound, C00308 to the screw [5] threads. To apply it, do this task: Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802.
- (h) Install the screws [6] that attach the leading edge [1] to the VOR/LOC antenna [1] and the vertical stabilizer.
- (i) Install the screws [5] that attach the VOR/LOC antenna [1] to the vertical stabilizer.

SUBTASK 34-51-02-760-001

- (6) Do a check of the resistance between the VOR/LOC antenna and the airplane skin .

NOTE: Refer to (Figure 401) for resistance test point locations.

- (a) Make sure the resistance is not more than 0.001 ohm.

### F. Installation Test

SUBTASK 34-51-02-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

#### **HAP 001-013, 015-026, 028-036, 038-054, 101-999**

SUBTASK 34-51-02-860-005

- (2) Set a local VOR frequency on the captain's navigation control panel.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

#### **HAP 037**

SUBTASK 34-51-02-860-014

- (3) Set a VOR frequency on the captain's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR" is displayed in the ACT (upper) window on the NCP.

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SUBTASK 34-51-02-860-006

- (4) Push the receiver volume controls for NAV-1 and NAV-2 on each audio selector panel to set the volume to off.

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SUBTASK 34-51-02-860-007

- (5) Push the receiver volume controls for NAV-1 on the captain's audio selector panel to set the volume to on.

SUBTASK 34-51-02-730-001

- (6) Turn the receiver volume controls clockwise for NAV-1 on the captain's audio selector panel.
  - (a) Make sure you can hear the station identification tone through the interphone system.

SUBTASK 34-51-02-860-008

- (7) Push the receiver volume controls for NAV-1 on the captain's audio selector panel to set the volume to off.

SUBTASK 34-51-02-860-009

- (8) Set a local VOR frequency on the first officer's navigation control panel.

SUBTASK 34-51-02-860-010

- (9) Push the receiver volume controls for NAV-2 on the first officer's audio selector panel to set the volume to on.

SUBTASK 34-51-02-730-002

- (10) Turn the receiver volume controls clockwise for NAV-2 on the first officer's audio selector panel.
  - (a) Make sure you can hear the station identification tone through the interphone system.

SUBTASK 34-51-02-860-011

- (11) Push the receiver volume controls for NAV-2 on the first officer's audio selector panel to set the volume to off.

————— END OF TASK —————

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## AIR TRAFFIC CONTROL (ATC) SYSTEM - ADJUSTMENT/TEST

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks for the ATC system:
  - (1) Air Traffic Control System - Operational Test
  - (2) Air Traffic Control System - System Test (With the IFR ATC-601 Series Test Set)
  - (3) Air Traffic Control System - System Test (With the TIC 48 or T-49 Series Test Set)
  - (4) Air Traffic Control System - System Test (With the TR-220 Test Set)
  - (5) Air Traffic Control System - System Test (With the IFR 6000 Test Set)
- C. The operational test is a fast check of the ATC system that uses the ATC system BITE function. No test equipment is needed.
- D. The system test is a complete test of the ATC system. It does an operational test first then it uses test equipment to examine the ATC code reception, altitude reporting, transponder sensitivity, side lobe suppression, transmitter frequency and diversity.
- E. Because the ATC transponder responds to signals from the antenna with the strongest signal strength, it is necessary to put the test set antenna close to the airplanes antenna.

#### **TASK 34-53-00-710-801**

### 2. Air Traffic Control System - Operational Test

- A. General
  - (1) The operational test is a fast check of the ATC system. It uses only the system's BITE function. No special test or ground equipment is necessary.
  - (2) The ATC transponder BITE circuitry does a self-test on all internal circuitry. This includes the injection of Mode S signals into the receiver unit to examine if the signals are processed properly. If the Mode S function fails, the red fail LED indicator comes on.

#### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

#### C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

#### E. Procedure

SUBTASK 34-53-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-00-860-002

- (2) On the ATC control panel do these steps:

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- (a) Put the ATC transponder select switch to the No. 1 position.
- (b) Put the ATC mode select switch to the ALT OFF position.

SUBTASK 34-53-00-010-001

- (3) To get access to the main equipment center, open this access panel:

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

SUBTASK 34-53-00-860-003

- (4) Do the left ATC transponder (No. 1) BITE test:
  - (a) Push and hold the TEST switch on the front panel of the left ATC transponder (No. 1) at the E1-2 shelf.
    - 1) Make sure the sequence that follows occurs:
      - a) All the LEDs come on for approximately three seconds
      - b) All the LEDs go off
      - c) After approximately two seconds, the green TPR LED comes on again.

NOTE: The red LEDs will stay off.

- (b) Release the TEST switch.
  - 1) Make sure the green TPR LED goes off.

SUBTASK 34-53-00-860-004

- (5) Put the ATC transponder select switch to the No. 2 position.

SUBTASK 34-53-00-860-005

- (6) Do the right ATC transponder (No. 2) BITE test:
  - (a) Push and hold the TEST switch on the front panel of the right ATC transponder (No. 2) at the E1-5 shelf.
    - 1) Make sure the sequence that follows occurs:
      - a) All the LEDs come on for about three seconds
      - b) All the LEDs go off
      - c) After approximately two seconds, the green TPR LED comes on again.

NOTE: The red LEDs will stay off.

- (b) Release the TEST switch.
  - 1) Make sure the green TPR LED goes off.

SUBTASK 34-53-00-410-001

- (7) Close this access panel:

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

————— **END OF TASK** —————

### TASK 34-53-00-730-803

#### 3. ATC System Test (With IFR ATC-601 Test Set)

##### A. General

- (1) This procedure is a scheduled maintenance task.

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- (2) This system test is a more complete check of the ATC system. The system test first does the ATC - Operational Test, then it uses ground test equipment to examine the left and right ATC systems.
(3) The IFR ATC-601 can test ATCRBS Mode A, Mode C and Mode S transponders. IFR ATC-601 test sets with software version 3.0 or higher can also test Mode S Transponders with Enhanced Surveillance (ELS, EHS, ES and ADS-B) capabilities.
(4) The ATC-601 Series ramp test set, COM-10729 uses thirty-nine (39) different tests to check the functionality of the ATC transponder. All thirty-nine (39) tests can be run automatically in the AUTO mode, or individually in the single test mode.
(5) In the AUTO mode, the test set will determine the correct set of tests, either Mode A/C or Mode S upon receiving the transponder RF signal, and will automatically run the tests.
(6) Results from the last test are shown on each test page. The PASSED/FAILED indication is shown on top of the page. To do a single test, use the select keys to get to the desired test and push the RUN/STOP key.
(7) The details of individual tests conducted during the AUTO TEST are stored in memory and may be reviewed by using the SELECT keys.
(8) When a individual test is selected, the test is started with the RUN/STOP key, and will continue to run until the RUN/STOP key is pressed again.

B. References

Table with 2 columns: Reference, Title. Rows include: 22 AUTOFLIGHT; 24-22-00-860-811 Supply Electrical Power (P/B 201); 24-22-00-860-812 Remove Electrical Power (P/B 201); 32-09-00-860-801 Put the Airplane in the Air Mode (P/B 201); 32-09-00-860-802 Return the Airplane to the Ground Mode (P/B 201); 34 NAVIGATION; WDM 34-53-11, 34-53-21 Wiring Diagram Manual; WDM 34-53-21, sheet 2 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.

Table with 2 columns: Reference, Description. Row: COM-10729 Test Set - Ramp, ATC-601 Series (Opt Part #: ATC-600A-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: ATC-601, Supplier: 51190, A/P Effectivity: 737-ALL)

D. Location Zones

Table with 2 columns: Zone, Area. Rows include: 100 Lower Half of Fuselage; 117 Electrical and Electronics Compartment - Left; 118 Electrical and Electronics Compartment - Right; 200 Upper Half of Fuselage; 211 Flight Compartment - Left; 212 Flight Compartment - Right

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### E. Prepare for the System Test

SUBTASK 34-53-00-860-055

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-00-860-056

(2) Make sure that these systems are operational:

- (a) Digital Flight Control System (AUTOFLIGHT, CHAPTER 22)
- (b) Air Data Inertial Reference System (NAVIGATION, CHAPTER 34)
- (c) Instrument Landing System (NAVIGATION, CHAPTER 34)
- (d) Air Traffic Control System (NAVIGATION, CHAPTER 34)
- (e) Flight Management Computer System (NAVIGATION, CHAPTER 34 )

SUBTASK 34-53-00-710-004

(3) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

SUBTASK 34-53-00-840-007

(4) Prepare the ATC-601 Series ramp test set, COM-10729, for the ATC System Test:

**NOTE:** There are several manufacturer's of transponder ramp test sets. The operating instructions for those ramp test sets can vary by the manufacturer model and date, level of hardware/software installed, internal ramp test set modifications and custom programming/sequence of ramp test set "soft" keys. Most ramp test sets have an "auto test" function which checks more parameters of the transponder under test, than are required by FAR 43, Appendix F. Ramp test set operating instructions may provide charts, distance limitations or required airplane antenna configurations for acceptable ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set that is being used and be familiar with its operation when determining the acceptability of transponder results and compliance with FAR 43, Appendix F.

**NOTE:** Refer to the IFR ATC-601 Operating Manual for detailed information on setup, test screens, and interpreting results of the tests.

**CAUTION:** KEEP THE REMOTE TEST SET ANTENNA MORE THAN 15 INCHES (0.40 METERS) FROM THE AIRCRAFT ANTENNA WITH THE TEST SET ON. IF THE REMOTE TEST SET ANTENNA IS TOO NEAR THE AIRCRAFT ANTENNA, YOU CAN CAUSE DAMAGE TO THE TEST SET.

- (a) Put the test set antenna approximately 30 feet from and in the line of sight of the ATC antenna under test.

**NOTE:** The antenna must be in the line of sight of the ATC antenna and positioned towards the antenna.

- (b) Insert the Antenna Shield over the ATC antenna not under test.

**NOTE:** Refer to the IFR ATC-601 Operation Manual for the Antenna Shield mounting procedure.

**NOTE:** When testing the bottom antenna and shielding the top antenna is not possible or practical, move the Test Set so that it is not in the line of sight of the top ATC antenna.

- (c) Connect the test set antenna coax cable to the ATC-601 Series ramp test set, COM-10729 ANTENNA connector.

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- (d) Push the POWER button on the ATC-601 Series ramp test set, COM-10729.

NOTE: This is a source of interference for radio and L-band radar equipment operating on the airplane and located near the test set. Turn the test set off as soon as the test is completed or when you must perform other radio checks on the airplane.

- 1) The Start-Up screen will show.
  - a) The software version is shown on this screen.
- 2) Make sure that the software version is 3.0 or higher if you are to do Enhanced Surveillance Tests.

- (e) Push the SELF TEST key on the ATC-601 Series ramp test set, COM-10729.

- (f) Push the RUN/STOP key to start the self test.

- 1) Make sure the ATC-601 Series ramp test set, COM-10729, display shows PASSED.

- (g) Push the SETUP key to enter the SETUP menu.

NOTE: The ATC-601 has three Setup Menus. Refer to the IFR ATC-601 Operation Manual for detailed information on the Setup Menus.

- (h) Enter 30 feet in the RANGE field for the TOP and BOTTOM antenna.

- (i) Enter 17 feet for the HEIGHT field for the TOP antenna and 3 feet for the BOTTOM antenna.

- 1) Use the SLEW keys to change the values.
- 2) Use the SELECT keys to change the items.
- 3) Use the SLEW keys to select the necessary antenna.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

- (j) Choose the bottom antenna on the SELECTED field.

- (k) Enter the gain listed on the ATC-601 Series ramp test set, COM-10729, antenna into the GAIN\_1030 and GAIN\_1090 field.

- (l) Enter the cable loss listed on the cable in the LOSS field.

- (m) Enter any other required data into the Setup Menu.

NOTE: Refer to the ATC-601 Operation Manual for detailed Setup information.

SUBTASK 34-53-00-860-027

- (5) Set the captain's and first officer's altimeter to 29.92 inches of mercury.

SUBTASK 34-53-00-860-053

- (6) Set a selected altitude.

- (a) Set a desired altitude in the DFCS MCP Selected Altitude window.

SUBTASK 34-53-00-860-054

- (7) Select a Flight ID.

- (a) Select the RTE function key on the FMC MCDU.

- (b) Make sure page 1 is shown.

NOTE: If needed push the next page function key on the MCDU until page 1 is shown.

- (c) Enter a Flight ID on the MCDU scratchpad (i.e. BOE1234).

- (d) Select LSK 2R on the MCDU.

SUBTASK 34-53-00-860-028

- (8) On the ATC control panel do these steps:

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CAUTION: DO NOT USE CODES 7500, 7600-7677, 7700-7777. THESE ARE EMERGENCY CODES.

- (a) Set the code switches to a desired ATC ID code.
(b) Set the transponder select switch to the No. 1 position.
(c) Set the Mode Select switch to the ON position.

SUBTASK 34-53-00-862-001

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

F/O Electrical System Panel, P6-1

Table with 4 columns: Row, Col, Number, Name. Row D, Col 14, Number C00188, Name ATC 2

F/O Electrical System Panel, P6-3

Table with 4 columns: Row, Col, Number, Name. Row D, Col 18, Number C00451, Name LANDING GEAR AURAL WARN

SUBTASK 34-53-00-860-029

WARNING: OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(10) Put the airplane in the air mode with the BITE in the Proximity Switch Electronics Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

F. ATC System Test - Mode A/C and Mode S Transponders

SUBTASK 34-53-00-730-007

(1) You can select to do these tests in either the Automatic or Single Test sequence.

NOTE: Make sure you consult FAR 91.413 and PART 43 Appendix F for test requirements and acceptable results.

(2) Do these steps to run the Automatic Test sequence:

- (a) Push the AUTO TEST key on the ATC-601 Series ramp test set, COM-10729.
(b) Use the RUN/STOP key to start or stop testing.

1) The AUTO test will run until it is finished. The results are stored in the tester memory for review.

NOTE: The ATC-601 Series ramp test set, COM-10729 will automatically determine the capabilities of the transponder and select the tests to run. The details of individual tests conducted during the AUTO TEST are stored in memory and may be reviewed by using the SELECT keys.

NOTE: Refer to the ATC-601 Series ramp test set, COM-10729 Operation Manual for detailed information.

SUBTASK 34-53-00-730-026

(3) Do these steps to run the Single Test sequence:

- (a) Use the SELECT key to select each test on the ATC-601 Series ramp test set, COM-10729.
(b) Use the RUN/STOP key to start or stop the individual tests.

NOTE: Refer to the ATC-601 Series ramp test set, COM-10729 Operation Manual for detailed information.

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- (c) Review the test results screens.
- (d) Do the REPLY DELAY test.
  - 1) Make sure the reply delay is 128.00  $\mu\text{s}$  ( $\pm 0.25 \mu\text{s}$ ) for mode S and ITM.
  - 2) Make sure the reply delay is 3.00  $\mu\text{s}$  ( $\pm 0.50 \mu\text{s}$ ) for ATC A and C.
- (e) Do the REPLY JITTER test.
  - 1) Make sure the reply jitter is  $\leq 0.05 \mu\text{s}$  for mode S.
  - 2) Make sure the reply jitter is  $\leq 0.06 \mu\text{s}$  for ITM A and C.
  - 3) Make sure the reply jitter is  $\leq 0.1 \mu\text{s}$  for ATC A and C.
- (f) Do the ATCRBS REPLY test.
  - 1) Make sure the spacing of the F1 to F2 pulse is 20.3  $\mu\text{s}$  ( $\pm 0.10 \mu\text{s}$ ).
  - 2) Make sure the duration of the F1, F2 pulse is 0.45  $\mu\text{s}$  ( $\pm 0.10 \mu\text{s}$ ).
- (g) Do the SLS LEVEL test.
  - 1) Make sure the reply is received when the SLS pulse is -9dB and no reply is received when the SLS pulse is 0dB.  
  
NOTE: You must do the SLS level test in less than 95 feet (28.96 meters) from the UUT antenna.
- (h) Do the ATC ONLY ALL-CALL test.
  - 1) Make sure the mode S transponder did not reply to the interrogation (PASSED TEST).
- (i) Do the MODE S ALL CALL test.
  - 1) Make sure the test set shows PASSED and the airplane's mode S address.
- (j) Do the INVALID MODE S ADDRESS test.
  - 1) Make sure the mode S transponder did not reply (PASSED TEST).
- (k) Do the SPR ON/OFF test.
  - 1) Make sure a reply is received when SPR is ON and no reply is received when SPR is OFF.
- (l) Do the MODE S UF0 test.
  - 1) Make sure (Down-link format) DF = 0, AC = (airplane's altitude) and ADDRESS = (airplane's mode S address) (WDM 34-53-11, 34-53-21).  
  
NOTE: Make sure the reported altitude is within  $\pm 125$  feet of the local field elevation altitude shown on the captain's and first officer's altimeter (applicable for all altitude reporting checks).
- (m) Do the MODE S UF4 test.
  - 1) Make sure DF = 4, AC = (airplane's altitude) and ADDRESS = (airplane's mode address).
- (n) Do the MODE S UF5 test.
  - 1) Make sure DF = 5, ID = (selected ATC ID code on the ATC control panel) and ADDRESS = (airplane's mode S address).
- (o) Do the MODE S UF11 test.
  - 1) Make sure DF = 11 and AA = (airplane's address).
- (p) Do the MODE S UF16 test.

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- 1) Make sure DF = 16, AC = (airplane's altitude) and ADDRESS = (airplane's mode S address).  
NOTE: No reply to the UF16 test is not a failure of the ATC system.
- (q) Do the MODE S UF20 test.
  - 1) Make sure DF = 20, AC = (airplane's altitude) and ADDRESS = (airplane's mode S address).  
NOTE: No reply to the UF20 test is not a failure of the ATC system.
- (r) Do the MODE S UF21 test.
  - 1) Make sure DF = 21, ID = (selected ATC ID code on the ATC control panel) and ADDRESS = (airplane's mode S address).  
NOTE: No reply to the UF21 test is not a failure of the ATC system.
- (s) Do the SQUITTER test.
  - 1) Make sure the squitter's period is between 0.8 to 1.2 seconds.  
NOTE: It will be necessary to move the test set in line of sight of the two ATC antennas to get satisfactory results.  
NOTE: If the test set antenna is in line of sight with only one of the ATC antennas, the squitter period will be between 1.6 to 2.4 seconds.
  - 2) Make sure the squitter address agrees with mode S encoding specified in the chart on (WDM 34-53-21, sheet 2).
- (t) Do the FREQUENCY test.
  - 1) Make sure the reply frequency of the transponder is 1090 MHz  $\pm$  1MHz.
- (u) Do the MODE S Flight ID BDS 2,0 test.
  - 1) Make sure the Flight ID entered into the FMC is shown on the FLIGHT ID TEST page.
- (v) Do the DIVERSITY test.
  - 1) Make sure the power level difference is  $\geq$  20dB between 'on' antenna squitters and 'off' antenna squitters.  
NOTE: To make sure the dynamic range is  $\geq$  20dB, a diversity test must be run at a distance of less than 50 feet (15.2 meters) from the airplane antenna.
- (w) Do the MTL DIFFERENCE test.
  - 1) Make sure the Minimum Threshold Level (MTL) difference between mode A and mode C is  $\leq$  1.0dBm.
- (x) Do the POWER TEST for the top antenna.
  - 1) Insert the antenna shield over the bottom ATC antenna.
  - 2) Move the test set antenna so that it is in the line of sight of the top ATC antenna.
  - 3) Push the PWR TEST key on the ATC-601 Series ramp test set, COM-10729.
  - 4) Push the SETUP key on the test set.
    - a) Enter the appropriate range for the top antenna.
  - 5) Use the SELECT key on the ATC-601 Series ramp test set, COM-10729, and select the top antenna.
  - 6) Push and release the button on the test set antenna.

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- 7) Slowly move the test set antenna 3 feet vertically from the ground, at less than 1 FT/ SEC (30 CM/SEC).
  - 8) Push and release the button on the test set antenna a second time to stop the test when the test set, antenna is approximately 6 feet high.
- (y) Do a check of the POWER TEST results.
- 1) Make sure the peak power output of the transponder is between 125W (ERP = 51.0 dBm) and 500W (ERP = 57.0 dBm).  
NOTE: Effective Radiated Power (ERP) is the product of the antenna output power and antenna gain.
  - 2) Make sure the Minimum Threshold Level (MTL) sensitivity is -74dBm ( $\pm 3$ dBm).  
NOTE: An additional 3dBm loss is allowed to compensate for antenna coupling errors. Also, make sure to correct for other factors that would change the sensitivity measurement.
  - 3) Make sure the ATC-601 Series ramp test set, COM-10729, shows PASSED for the TOP AVG (dBm).
  - 4) Remove the antenna shield from the bottom ATC antenna.
- (z) Do the POWER TEST for the bottom antenna.
- 1) Move the test set antenna so that it is not in the line of sight of the top ATC antenna.
  - 2) Push the PWR TEST key on the ATC-601 Series ramp test set, COM-10729.
  - 3) Push the SETUP key on the ATC-601 Series ramp test set, COM-10729.
    - a) Enter the appropriate range for the bottom antenna.
  - 4) Use the SELECT key on the ATC-601 Series ramp test set, COM-10729, and select the bottom antenna.
  - 5) Push the antenna push button switch.
  - 6) Slowly move the test set antenna 3 feet vertically from the ground, at less than 1 FT/ SEC (30 CM/SEC).
  - 7) Push the antenna push button switch a second time to stop the test when the test set antenna is approximately 6 feet high.
- (aa) Do a check of the POWER TEST results.
- 1) Make sure the peak power output of the transponder is between 125W (ERP = 51.0 dBm) and 500W (ERP = 57.0 dBm).  
NOTE: Effective Radiated Power (ERP) is the product of the antenna output power and antenna gain.
  - 2) Make sure the Minimum Threshold Level (MTL) sensitivity is -74dBm ( $\pm 3$ dBm).  
NOTE: An additional 3dBm loss is allowed to compensate for antenna coupling errors. Also, make sure to correct for other factors that would change the sensitivity measurement.
  - 3) Make sure the ATC-601 Series ramp test set, COM-10729 shows PASSED for the BOT AVG (dBm).
- (ab) Do the identification (IDENT) test.
- 1) For the ATC-601-2, use the ATCRBS REPLY individual test.
  - 2) Use the SELECT key, to select the ATCRBS REPLY Test.
  - 3) Use the RUN/STOP key to start the test.

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- 4) Press the IDENT button on the ATC Control Panel.
  - a) Make sure the display shows ID before the four digit ATC code.

### G. ATC System Test - Additional Tests for Enhanced Surveillance

SUBTASK 34-53-00-730-024

- (1) You can use the manual test sequence to do any additional tests required for enhanced surveillance.

NOTE: The enhanced surveillance tests are included in the Auto Test but can also be run using the Single Test mode.

NOTE: ATC-601 test sets with software version 3.0 or higher must be used to do the Enhanced Surveillance tests.

NOTE: The ATC-601 Operating Manual contains information about these tests.

- (2) Do these tests for Elementary Surveillance:
  - (a) Do the Data Link Capability Report BDS 1,0 Part 1 test.
    - 1) Make sure the display shows PASSED.
  - (b) Do the Data Link Capability Report BDS 1,0 Part 2 test.
    - 1) Make sure the display shows PASSED.
  - (c) Do the Common Usage GICB Cap Report BDS 1,7 test.
    - 1) Make sure the display shows PASSED.
  - (d) Do the Aircraft Identification BDS 2,0 test.

NOTE: The Aircraft Identification BDS 2,0 is shown on the Flight ID Test screen.

- 1) Make sure the display shows PASSED.

- (e) Do the ACAS Resolution Advisory BDS 3,0 test.

- 1) Make sure the display shows PASSED.

- (3) Do these tests for Enhanced Surveillance:

- (a) Do the Selected Vertical Intent Report BDS 4,0 test.

- 1) Make sure the display shows:
  - a) BARO PRES SET = (the Baro Set on the Captains Altimeter)

- (b) Do the Track and Turn Report BDS 5,0 test.

- 1) Make sure the display shows PASSED.

- (c) Do the Heading and Speed Report BDS 6,0 test.

- 1) Make sure the display shows PASSED.

### H. Repeat ATC System Tests

SUBTASK 34-53-00-730-025

- (1) Repeat the System Test for the other antenna.
- (2) Do the ATC System Tests again for the right or No. 2 system.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

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- (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	14	C00188	ATC 2

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

CAPT Electrical System Panel, P18-1

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

- (c) To test the right system, put the ATC select switch to the No. 2 position and use the No. 2 (or No. 1) air data source.

#### I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-53-00-080-006

- (1) Remove the antenna shield, if installed.

SUBTASK 34-53-00-080-007

- (2) Disconnect and remove the ATC test set.

SUBTASK 34-53-00-840-008

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-902-001

- (4) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-53-00-862-003

- (5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

#### TASK 34-53-00-730-802

#### 4. System Test - ATC System (With the TIC T-48 or T-49 Series Test Set)

##### A. General

- (1) This procedure is a scheduled maintenance task.
- (2) This system test is a full check of the ATC system. The system test first does the ATC - Operational Test and then uses the DME/Transponder test set, COM-4077, or T-48/-49 ramp test set, COM-10730, to examine the left and right ATC systems.
- (3) The test set can do all of the tests automatically except the DIVERSITY CHECK, the MAX TRUE AIRSPEED TEST and the IDENT BUTTON CHECK. You must do these tests manually with the TEST button on the test set. If a test has failed, the automatic test sequence will stop and a failed message will show. At the end of the automatic test all data will show.

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- (4) You can manually do each test individually. Push the TEST button to do each test individually. The test results will show after each test is done.
- (5) The test set accessory, the antenna coupler, TAP-115, TAP 118, TAP 119, TAP 125 or TAP 135 used with the applicable test set, is necessary to do a check of the output power, receiver, sensitivity and radio frequency. For the diversity check, the TAP 125 or TAP 135 is necessary.

#### B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (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)
WDM 34-53-11	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-1920	Element - RF Power, 500 Watt, 950-1260 Mhz (Part #: 500J, Supplier: 70998, A/P Effectivity: 737-600, -700, -700C, -700ER, -800, -900, -900ER, -BBJ)
COM-4077	Test Set - Model T-48D DME/Transponder (Part #: TR-211, Supplier: 92606, A/P Effectivity: 737-ALL) (Part #: TR-220, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: T-24B, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: T-33D, Supplier: 92606, A/P Effectivity: 737-ALL)
COM-10730	Test Set - Ramp, T-48/-49 (Part #: T-48D, Supplier: 92606, A/P Effectivity: 737-ALL) (Part #: T-49C, Supplier: 92606, A/P Effectivity: 737-ALL)

#### D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
143	Area Below Aft Cargo Compartment - Left
144	Area Below Aft Cargo Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

#### E. Prepare for the System Test

SUBTASK 34-53-00-710-003

- (1) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

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SUBTASK 34-53-00-940-001

- (2) Prepare the DME/Transponder test set, COM-4077, or T-48/-49 ramp test set, COM-10730 and the antenna coupler for the ATC system test:

NOTE: Refer to the applicable test set operational manual for detailed setup information when using the antenna couplers.

NOTE: The test set accessory, the antenna coupler, TAP-115, TAP 118, TAP 119, TAP 125 or TAP 135 used with the applicable test set, is necessary to do a check of the output power, receiver, sensitivity and radio frequency. For the diversity check, the TAP 125 or TAP 135 is necessary.

- (a) Pull the pull-ring on the antenna coupler to separate the spring loaded clamp.
- (b) Insert the antenna coupler over the necessary ATC antenna.

NOTE: Make sure the antenna coupler is centered.

- (c) Push and hold antenna coupler so the EMI gasket compresses to the airplane skin.
- (d) Release the pull-ring to keep the coupler in its correct position.
- (e) Connect the antenna coupler coax connector to the test set ANTENNA connector.

NOTE: If you use the DME/Transponder test set, COM-4077, or T-48/-49 ramp test set, COM-10730 accessory, the TAP 125 or TAP 135, the unused coupler cable does not need to be connected to the test set. You test only one antenna at a time.

- (f) Push the INTERROGATE button.

NOTE: To read the display push and hold the INTERROGATE switch.

- 1) The test set will momentarily display:

Table 501/34-53-00-993-801

TEL Instrument

T-4X Rev.XX

- 2) After the test set has determined the type of transponder under test (Mode S, Mode A, Mode C, etc) the display will change to: No Reply from XPNDR.

SUBTASK 34-53-00-860-026

- (3) Put the airplane in the air mode with the BITE in the Proximity Switch Electronics Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-53-00-860-015

- (4) 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>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-860-016

- (5) Set the captain's and first officer's altimeter to 29.92 inches of mercury.

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F. ATC System Test

SUBTASK 34-53-00-860-017

CAUTION: DO NOT USE CODES 7500, 7600-7677, AND 7700-7777. YOU USE THESE CODES ONLY IN EMERGENCIES.

- (1) On the ATC control panel do these steps:
(a) Set the code switches to a desired ATC ID code.
(b) Set the transponder select switch to the No. 1 system.
(c) Set the Mode Select switch to the ON position.

SUBTASK 34-53-00-730-001

- (2) Push the INTERROGATE switch.
(a) Make sure the test set shows the correct transponder type.

NOTE: If the test set shows "no reply from xpdr", do a check on the test antenna connections. Also, make sure the ATC system is operational.

SUBTASK 34-53-00-730-002

- (3) Push the INTERROGATE switch on the test set.
(a) The test set will determine the transponder type.

SUBTASK 34-53-00-860-018

- (4) Push the INTERROGATE button again and the test set will initiate a sequence of tests on the transponder.
(a) These tests must be done to complete the ATC system test:
1) ATCRBS/A & SLS
2) ATCRBS/C
3) ATCRBS/A Mode S All
4) ATCRBS/C Mode S All
5) ATCRBS/A only
6) ATCRBS/C only
7) Mode S Surv Identity
8) Mode S Surv Altitude
9) Mode S Surv Short
10) Undesired Replies
11) Squitter
12) Diversity

NOTE: This test is only available for test sets with the TAP 125 or TAP 135 accessory and must be done manually.

- 13) MAX TRUE AIRSPEED

NOTE: This test must be done manually.

SUBTASK 34-53-00-210-001

- (5) Make sure the display is as follows when the test is complete:

Table 502/34-53-00-993-802

CCCC

XXXXXX

YYYYY'

Table with 2 columns: EFFECTIVITY, HAP ALL

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Table 503/34-53-00-993-803

MAX TRUE AIRSPEED

GT 300 & LE 600 kts

SUBTASK 34-53-00-730-005

(9) Do the steps that follow for the IDENT BUTTON CHECK:

(a) On the ATC control panel do the steps that follow:

**CAUTION:** DO NOT USE CODES 7500, 7600-7677, AND 7700-7777. THESE ARE EMERGENCY CODES.

- 1) Set the code switches to a desired ATC ID code
- 2) Put the ATC select switch to the No. 1 position
- 3) Set the Mode Select switch to the ON position.

(b) Make sure the test set displays the desired ATC ID code.

(c) Turn the test set off.

(d) Wait a moment, then push the INTERROGATE button.

- 1) Allow the test set to determine the type of transponder under test.

(e) At the same time push the control panel IDENT button and the test set TEST button.

(f) Make sure the message IDENT is displayed on the test set.

SUBTASK 34-53-00-730-006

(10) Do the test again as necessary, for the right system.

(a) To test the right system, put the ATC select switch to the No. 2 position.

G. Put the airplane back to its Usual Condition.

SUBTASK 34-53-00-860-019

(1) Put the mode select switch to the STBY position.

SUBTASK 34-53-00-840-006

(2) Disconnect and remove the antenna coupler.

SUBTASK 34-53-00-840-002

(3) Disconnect and remove the ATC test set.

SUBTASK 34-53-00-840-005

(4) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-53-00-860-020

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-840-003

(6) If the electrical power is no longer necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812

————— **END OF TASK** —————

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## TASK 34-53-00-730-805

### 5. ATC System - System Test (With the IFR 6000 Test Set)

#### A. General

- (1) This system test is a full check of the ATC system. The system test first does the ATC - Operational Test and then uses the IFR-6000 ramp test set, COM-10727 to examine the left and right ATC systems.
- (2) The XPDR Mode of the IFR 6000 provides flight line test capability for ATCRBS and Mode S transponders using an Auto Test. The XPDR Auto Test contains one main screen (the Auto Test Screen) and up to 17 additional test screens. The Auto Test can complete a full FAR Part 43, Appendix F Test, providing decode and display of Elementary and Enhanced surveillance GICB extracted DAPs (Downlinked Aircraft Parameters) .
- (3) All data normally required to verify transponder operation in accordance with FAR 91.413, Part 43, Appendix F, is shown on the Auto Test Screen. Details of individual tests conducted during the AUTO TEST are stored in memory in the Test Sets TEST LIST. Tests in the TEST LIST can be reviewed or run individually by use of DATA and SELECT keys.
- (4) Different classes of transponders are tested to built-in test limits by selection of configuration files. If the class of transponder is unknown, generic configuration files are provided for ATCRBS and Mode S transponders that apply the widest system limits.
- (5) Mode S Transponder level is automatically determined when running a test.
- (6) The test is applicable to the left and the right ATC system. Set the transponder select switch on the ATC control panel to the applicable position to do a test of that system.

#### B. References

Reference	Title
22-11-00 P/B 501	DIGITAL FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST
24-22-00-860-812	Remove Electrical Power (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-21-00 P/B 501	AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST
34-31-00 P/B 501	INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST
34-61-00 P/B 501	FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST

#### 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-10727	Test Set - Ramp, IFR-6000 (Part #: IFR-6000, Supplier: 51190, A/P Effectivity: 737-ALL)

#### D. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left

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Zone	Area
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-53-00-860-042

- (1) Make sure that these systems are operational:
  - (a) DFCS - DIGITAL FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 22-11-00/501
  - (b) ADIRS - AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-21-00/501
  - (c) MMR - INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-31-00/501
  - (d) ATC - AIR TRAFFIC CONTROL (ATC) SYSTEM - ADJUSTMENT/TEST, 34-53-00/501
  - (e) FMCS - FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-61-00/501

SUBTASK 34-53-00-710-006

- (2) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801

SUBTASK 34-53-00-860-034

- (3) Set the captain's and first officer's altimeter to 29.92 inches of mercury.

SUBTASK 34-53-00-860-057

- (4) Set a selected altitude.
  - (a) Set a desired altitude in the DFCS MCP Selected Altitude window.

SUBTASK 34-53-00-860-058

- (5) Select a Flight ID.
  - (a) Select the RTE function key on the FMC MCDU.
  - (b) Make sure page 1 is shown.
 

NOTE: If needed push the next page function key on the MCDU until page 1 is shown.
  - (c) Enter a Flight ID on the MCDU scratchpad (i.e. BOE1234).
  - (d) Select LSK 2R on the MCDU.

SUBTASK 34-53-00-860-035

- (6) On the ATC control panel do these steps:

**CAUTION:** DO NOT USE CODES 7500, 7600-7677, 7700-7777. THESE ARE EMERGENCY CODES.

- (a) Set the code switches to a desired ATC ID code.
- (b) Set the transponder select switch to the No. 1 position.
- (c) Set the Mode Select switch to the ON position.

SUBTASK 34-53-00-865-003

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

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SUBTASK 34-53-00-860-037

- (8) Put the airplane in the air mode with the BITE in the Proximity Switch Electronics Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801

SUBTASK 34-53-00-840-011

- (9) Prepare the IFR-6000 ramp test set, COM-10727, for the ATC system test.

**NOTE:** There are several manufacturer's of transponder ramp test sets. The operating instructions for those ramp test sets can vary by the manufacturer model and date, level of hardware/software installed, internal ramp test set modifications and custom programming/sequence of ramp test set "soft" keys. Most ramp test sets have an "auto test" function which checks more parameters of the transponder under test, than are required by FAR 43, Appendix F. Ramp test set operating instructions may provide charts, distance limitations or required airplane antenna configurations for acceptable ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set that is being used and be familiar with its operation when determining the acceptability of transponder results and compliance with FAR 43, Appendix F.

- (a) Mount the Directional Antenna on the Test Sets friction hinge and connect the Directional Antenna ANT Connector to the Test Set ANT Connector via the 12 in. coaxial cable.

**NOTE:** You can use the direct cable connection procedure to perform this test. If you do the direct cable connection, follow the instructions in the ramp test set operations manual.

- (b) Push the POWER Key to energize the Test Set On.

**NOTE:** The IFR 6000 is equipped with a Self Test for quick performance evaluation. An abbreviated Self Test is run at Power-Up. The full Self Test is initiated manually. Refer to the IFR 6000 Operation Manual for the full Self Test procedure.

- (c) Push the SETUP Control Key to show the setup screens. Continue pushing the SETUP Control Key to cycle to the SETUP-GENERAL Screen. Use the NEXT PARAM and PREV PARAM Soft Keys to set each parameter.

**NOTE:** Refer to the IFR 6000 Operation Manual for detailed information on setup.

- (d) Push the SETUP Control Key to show the setup screens. Continue pushing the SETUP Control Key to cycle to the SETUP-XPDR Screen. Use the NEXT PARAM and PREV PARAM Soft Keys to set each parameter.

**NOTE:** Setup XPDR Screen contains parameters which determine operational characteristics of the XPDR Functional Mode. Unless otherwise stated, last used values are retained on Power-up.

- 1) Select ANTENNA: Set to TOP or BOTTOM depending on which aircraft antenna is under test.
- 2) Select RF PORT: Set to ANTENNA.
- 3) Select ANT RANGE: Set to setup range from IFR 6000 antenna to the Unit Under Test (UUT) Antenna.
- 4) Select ANT HEIGHT: Set to setup height from IFR 6000 antenna to the UUT Antenna.
- 5) Select ANT CABLE LOSS: Set to cable loss found on cable.
- 6) Select ANT GAIN (dBi): set 1.03 GHz and 1.09 GHz antenna gain to figures marked on supplied Directional Antenna.

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- 7) Select UUT ADDRESS: Set to AUTO (defaults to AUTO on power-up). AUTO selection Mode S address is obtained via ATCRBS/Mode S All Call (FAR Part 43, Appendix F approved method).

NOTE: Refer to the IFR 6000 Operation Manual for more detailed information on UUT Address selection.

- 8) Select DIVERSITY: Set to ON.

NOTE: If Diversity Isolation Test is enabled, make sure the Antenna Shield is installed to the top or bottom UUT antenna prior to running the test. Refer to IFR 6000 Operation Manual for the Antenna Shield mounting procedure.

NOTE: For the DIVERSITY test, the test set must be at a distance of less than 50 feet (15.2 meters) from the airplane antenna.

- 9) Select CHECK CAP: Set to YES.

- 10) Select PWR LIM: Set to FAR 43.

**CAUTION:** DO NOT OPERATE THE TEST SET WHEN ITS ANTENNA IS LESS THAN 15 IN. (381 MM) FROM THE AIRPLANE ANTENNA. DAMAGE TO THE TEST SET CAN OCCUR.

- (e) Position the Test Set  $\leq 50$  feet from and in line of sight with the UUT antenna.

- (f) Insert the Antenna Shield over the ATC antenna not under test.

NOTE: Refer to the IFR 6000 Operation Manual for the Antenna Shield mounting procedure.

NOTE: When testing the bottom antenna and shielding the top antenna is not possible or practical, move the Test Set so that it is not in the line of sight of the top ATC antenna.

### F. ATC System Test

SUBTASK 34-53-00-730-012

- (1) Do the ATC System Test:

NOTE: When first powered-up, the Test Set displays blank data fields. The last test results are displayed while Test Set remains powered on.

- (a) Push the XPDR Mode Key on the IFR-6000 ramp test set, COM-10727 to return to XPDR Auto Test Screen.
- (b) Push the CONFIG Soft Key to show the XPDR CONFIG Screen. Use the Data Keys to select the desired configuration file. Push the RETURN Soft Key to confirm the selection.

NOTE: Eight predefined Configurations are provided to determine the PASS/FAIL limits applied to ERP, Frequency and MTL measurements. Configurations are named by class and option. Refer to the IFR 6000 Operation Manual for predefined Configuration details

NOTE: If the transponder class is not known, select the GENERIC ATCRBS or GENERIC MODE S configuration file.

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- (c) To do the Auto Test, push the RUN TEST Soft Key. When the Auto Test completes, a PASS or FAIL indication is shown at the top of the Auto Test screen.

NOTE: The Auto Test Screen is the primary test screen and displays most UUT parameters requiring user verification.

NOTE: Refer to the IFR 6000 Operation Manual for detailed information on test screens and interpreting results of the tests.

- (d) Push the TEST LIST Soft Key to show the complete Auto Test List. Tests may be reviewed or run individually by use of the DATA and SELECT keys.

NOTE: When a Mode S configuration is selected the test list is displayed over two screens. When an ATCRBS configuration is selected the test list is displayed on one screen.

- (e) To do the tests individually in the Test List, do these steps:

- 1) Use the DATA Keys to select desired test. Push the SELECT TEST Soft Key to show the selected test.
- 2) Push the RETURN Soft Key to show the XPDR Auto Test Screen.
- 3) Push the RUN TEST Soft Key to the start test.

NOTE: The test runs until stopped. Each pass through the test sequence updates the PASS/FAIL indication.

- 4) Push the STOP TEST Soft Key to the stop test.
- 5) Push the NEXT TEST Soft Key to show the next test.
- 6) Push the PREV TEST Soft Key to show the previous test.
- 7) Push the RETURN Soft Key to show the test list and select desired test.

#### G. Repeat System Tests

SUBTASK 34-53-00-730-013

- (1) Repeat the System Test for the other antenna.

SUBTASK 34-53-00-730-014

- (2) Repeat the System Test for the No. 2 or right system on the upper and lower antennas.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

#### H. Put the Airplane Back to its Usual Condition

SUBTASK 34-53-00-080-003

- (1) Remove the test set, IFR-6000 ramp test set, COM-10727.
- (2) Remove the antenna shield, if installed.

SUBTASK 34-53-00-860-038

- (3) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-53-00-865-002

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

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SUBTASK 34-53-00-862-006

- (5) If the electrical power is no longer necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

## TASK 34-53-00-730-806

### 6. ATC System Test (With the TR-220 Test Set)

#### A. General

- (1) This system test is a full check of the ATC system. The system test first does the ATC - Operational Test and then uses the test set to examine the left and right ATC systems.
- (2) The TR-220 Test Set is capable of testing ATCRBS Mode A, Mode C and Mode S transponders. The operator can select between an Automatic series of tests and a Manual series of tests. The Test Set will determine the correct set of tests, either Mode A/C or Mode S upon receiving the transponder RF signal. The TR-220 can also test Mode S Transponders with Enhanced Surveillance (EHS) capabilities.
- (3) The test set can do all of the tests automatically except the IDENT BUTTON CHECK. You must do this test manually with the test set. If a test has failed, the automatic test sequence will stop and a failed message will show. At the end of the automatic test all data will show.
- (4) You can manually do each test individually. Push the AUTO/TEST/MANUAL switch to the MANUAL position to do each test individually. The test results will show after each test is done. After each test is completed, you must toggle the MANUAL switch to advance to the next test in the series.
- (5) Operation with the antenna coupler TAP-200 used with the test set, reduces Radio Frequency emissions from the transponder being tested. It is not necessary to use the coupler to perform these tests.
- (6) If it is necessary to simulate the aircraft at altitude, notify the local ATC that the transponder testing is in progress.

#### B. References

Reference	Title
22	AUTOFLIGHT
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)
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#### C. Tools/Equipment

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

Reference	Description
COM-10728	Test Set - Ramp, TR-220 (Part #: TR-220, Supplier: 92606, A/P Effectivity: 737-ALL)

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### D. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

### E. Prepare for the System Test

SUBTASK 34-53-00-861-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-00-860-043

(2) Make sure that these systems are operational:

- (a) Digital Flight Control System (AUTOFLIGHT, CHAPTER 22)
- (b) Air Data Inertial Reference System (NAVIGATION, CHAPTER 34)
- (c) Instrument Landing System ( NAVIGATION, CHAPTER 34)
- (d) Air Traffic Control System (NAVIGATION, CHAPTER 34)
- (e) Flight Management Computer System ( NAVIGATION, CHAPTER 34)

SUBTASK 34-53-00-710-007

(3) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

SUBTASK 34-53-00-860-044

**CAUTION:** DO NOT USE CODES 7500, 7600-7677, 7700-7777. THESE ARE EMERGENCY CODES.

(4) On the ATC control panel do these steps:

- (a) Set the code switches to a desired ATC ID code.
- (b) Set the transponder select switch to the No. 1 system.
- (c) Set the Mode Select switch to the ON position.

SUBTASK 34-53-00-860-045

(5) Set the captain's and first officer's altimeter to 29.92 inches of mercury.

SUBTASK 34-53-00-860-046

(6) Set a selected altitude.

- (a) Set a desired altitude in the DFCS MCP Selected Altitude window.

SUBTASK 34-53-00-860-047

(7) Select a Flight ID.

- (a) Select the RTE function key on the FMC MCDU.
- (b) Make sure page 1 is shown.

**NOTE:** If needed push the next page function key on the MCDU until page 1 is shown.

- (c) Enter a Flight ID on the MCDU scratchpad (i.e. BOE1234).
- (d) Select LSK 2R on the MCDU.

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SUBTASK 34-53-00-860-048

**WARNING:** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (8) Put the airplane in the air mode with the BITE in the Proximity Switch Electronics Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-53-00-860-049

- (9) 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>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-860-050

- (10) Prepare the TR-220 ramp test set, COM-10728 and the antenna coupler, if desired, for the ATC system test:

**NOTE:** There are several manufacturer's of transponder ramp test sets. The operating instructions for those ramp test sets can vary by the manufacturer model and date, level of hardware/software installed, internal ramp test set modifications and custom programming/sequence of ramp test set "soft" keys. Most ramp test sets have an "auto test" function which checks more parameters of the transponder under test, than are required by FAR 43, Appendix F. Ramp test set operating instructions may provide charts, distance limitations or required airplane antenna configurations for acceptable ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set that is being used and be familiar with its operation when determining the acceptability of transponder results and compliance with FAR 43, Appendix F.

**NOTE:** Refer to the TR-220 Operating Manual for detailed information on setup, test screens, and interpreting results of the tests.

- (a) Connect the test set antenna, or antenna coupler, coax connector to the test set ANTENNA connector.

**NOTE:** You can use the direct cable connection procedure to perform this test. If you do the direct cable connection, follow the instructions in the ramp test set Operating Manual.

- (b) Put the TEST SET switch in the ON position.
  - 1) The test set will display a startup screen, then do a self test.
    - a) Make sure the display indicates SELF TEST PASS.
- (c) Turn the UUT FUNCTION switch on the test set to the XPDR position.
  - 1) The test set will determine the transponder type and display the correct Start Page.
    - a) Make sure the test set shows the correct transponder type.

**NOTE:** If the test set shows "no reply from xpdr", do a check on the test antenna connections. Also, make sure the ATC system is serviceable.

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### F. ATC System Test - Mode A/C and Mode S Transponders

SUBTASK 34-53-00-730-016

- (1) You can select to do these Mode A/C or Mode S tests in either an Automatic or Manual Test sequence.

NOTE: Make sure you consult FAR 91.413 and PART 43 Appendix F for test requirements and acceptable results.

NOTE: The TR-220 Operating Manual also contains information about the tests.

- (a) Mode A/C test sequence.
- Mode A Test
  - Mode C Test
  - Mode A SLS Test
  - Sensitivity Test
  - Power and Frequency Test
- (b) Mode S test sequence.
- Mode A Test
  - Mode C Test
  - Mode A SLS Test
  - Mode A All Call Test
  - Mode C All Call Test
  - Mode A Only Test
  - Mode C Only Test
  - Mode S Surveillance Identity Test
  - Mode S Surveillance Altitude Test
  - Mode S Short Air to Air Surveillance Test
  - Mode S Communication Identity Test
  - Mode S Communication Altitude Test
  - Undesired Replies Test
  - Squitter Test
  - Max True Airspeed Test
  - Diversity Test
  - Sensitivity Test
  - Power and Frequency Test

SUBTASK 34-53-00-730-017

- (2) Do these steps to run the Automatic Test sequence.
- (a) Toggle the AUTO/TEST/MANUAL switch to the AUTO position. The test set starts an automatic sequence of tests on the transponder.
- (b) When the Automatic Test sequence completes with no failures, the display window shows two alternating sets of data.
- (c) If a test fails during the Automatic Test sequence, the test set stops at that test. The display window shows FAIL along with the framing pulses, pulse width and separation in microseconds.

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- 1) You can override and skip to the next test in the sequence by toggling the AUTO/TEST/MANUAL switch to the AUTO position.

NOTE: It is recommended that the cause of the failure be determined before you do the next test.

- 2) To repeat a failed test, toggle the AUTO/TEST/MANUAL switch to the MANUAL position.

SUBTASK 34-53-00-730-018

- (3) Do these steps to run the Manual Test sequence.

- (a) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the first test of the transponder. The display window shows the name of the test and the word Testing.
- (b) When the test is complete the display window shows the test name and the test results.
- (c) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the next test in the sequence.

SUBTASK 34-53-00-730-019

- (4) Do these steps to do the IDENT TEST.

NOTE: The IDENT function can only be tested in the Manual Test sequence for either the Mode A/C or Mode S transponder.

- (a) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the first test of the transponder. The display window shows the name of the test and the word Testing.
- (b) Wait until the display window shows the test results.
- (c) Push the IDENT switch on the ATC control panel.
  - 1) IDENT should show on the TR-220 ramp test set, COM-10728 display window for 20 seconds to make sure the SPI pulse is received from the transponder.

SUBTASK 34-53-00-730-023

- (5) Do these steps to do the Mode S Surveillance Altitude Test.

- (a) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position until M S SURV ALT is shown.
- (b) Make sure that the altitude value shown on the TR-220 ramp test set, COM-10728 display agrees with the altitude on the captain's and first officer's altimeter within  $\pm 125$  feet.

NOTE: Make sure you consult FAR 91.411 and PART 43 Appendix E for the most current test requirements.

SUBTASK 34-53-00-700-001

- (6) If required, do the ATC System Test - Additional Tests for Enhanced Surveillance

### G. ATC System Test - Additional Tests for Enhanced Surveillance

SUBTASK 34-53-00-730-020

- (1) You can use the manual test sequence to do any additional tests required for enhanced surveillance.

NOTE: The TR-220 Operating Manual contains information about the tests.

- (a) Mode S Enhanced Surveillance Test Sequence
  - BDS5 Roll Angle
  - BDS5 True Track Angle and Track Angle Rate
  - BDS5 True Airspeed and Ground Speed
  - BDS6 Indicated Airspeed, Heading and Mach Number

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- BDS6 Barometric Altitude Rate and Inertial Vertical Velocity
- BDS 10 Datalink
- BDS1 Subnet Network Number
- BDS1 Mode S Specific Services Capability
- BDS1 Aircraft Identification Capability
- BDS1 Uplink UELM/Downlink DELM Capability
- BDS 1,7
- BDS 1,8
- BDS 1,9
- BDS3 Resolution Advisory
- BDS4 Selected Altitude
- BDS4 Barometric Pressure and Target Altitude
- BDS4 VNAV, ALT Hold, and Approach Modes

SUBTASK 34-53-00-730-021

(2) Do these steps at the test set TR-220 ramp test set, COM-10728:

- (a) The test set determines if the transponder is Mode S capable and shows the correct start page in the display window.
- (b) Make sure the test set shows the correct transponder type.

**NOTE:** If the test set shows "no reply from xpdr", do a check on the test antenna connections. Also, make sure the ATC system is serviceable.

- (c) Push the TO/START - FROM/STOP switch to the TO position to show the EHS menu.
  - 1) Make sure the display window shows the Mode S Enhanced Surveillance menu.
- (d) Push the UP/FWD - DOWN/REV switch to the UP position to select the applicable uplink/downlink format, UF5/DF21, UF21/DF21 or UF0/DF16

**NOTE:** Test results will be the same for each selection.

- (e) Toggle the AUTO/TEST/MANUAL switch to MANUAL to start the first test.

**NOTE:** Test sequence starts at test previously run.

- 1) When the test is complete, the results are shown on the display window.
- (f) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the next test in the sequence.
- (g) Continue until the required tests are completed.

### H. Repeat ATC System Tests

SUBTASK 34-53-00-730-022

(1) Do the ATC System Tests again for the right or No. 2 system.

- (a) To test the right system, put the ATC select switch to the No. 2 position.

### I. Put the airplane back to its Usual Condition.

SUBTASK 34-53-00-840-012

(1) Put the mode select switch to the STBY position.

SUBTASK 34-53-00-080-004

(2) Disconnect and remove the antenna coupler, if installed.

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SUBTASK 34-53-00-080-005

(3) Disconnect and remove the ATC test set.

SUBTASK 34-53-00-860-051

(4) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-53-00-860-052

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-862-007

(6) If the electrical power is no longer necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812

————— **END OF TASK** —————

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## AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the ATC antenna.
- (2) An installation of the ATC antenna.

B. The bottom ATC antenna is installed at STA 355, and the top antenna at STA 430.

#### **TASK 34-53-01-000-801**

### 2. ATC Antenna Removal

(Figure 401)

A. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-53-01-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-01-020-001

(2) Remove the ATC antenna [3]:

(a) Remove the bolts [4] that attach the ATC antenna [3] to the airplane structure.

**CAUTION:** MOVE THE ANTENNA [3] ONLY AS FAR AS NECESSARY TO DISCONNECT THE COAXIAL CABLE [1]. DAMAGE TO THE CABLE [1] CAN OCCUR IF YOU PULL THE CABLE [1].

(b) Move the ATC antenna [3] away from the airplane structure to get access to the coaxial cable [1].

(c) Disconnect the coaxial cable [1] from the ATC antenna [3].

**NOTE:** Do not let the coaxial cable [1] retract into the fuselage.

(d) Remove the ATC antenna [3].

(e) Put a protective cover over the electrical connector on the ATC antenna [3].

————— **END OF TASK** —————

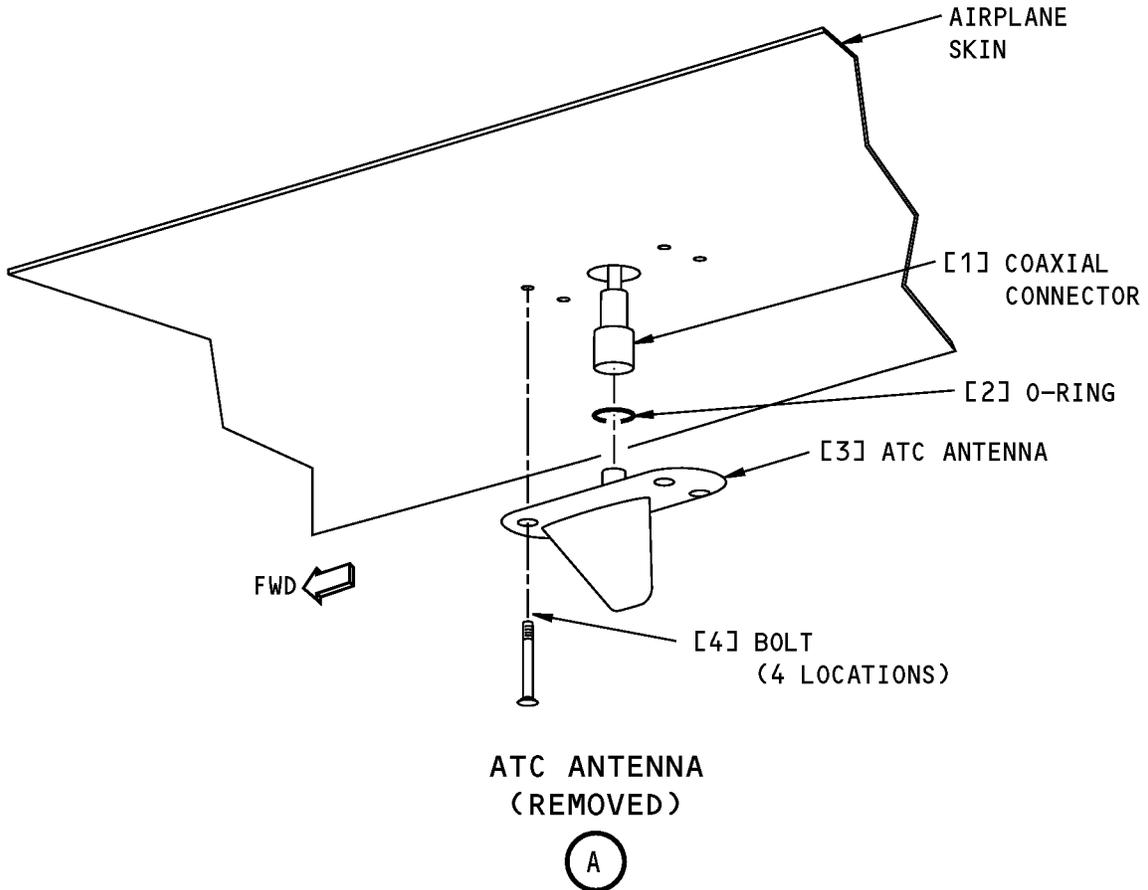
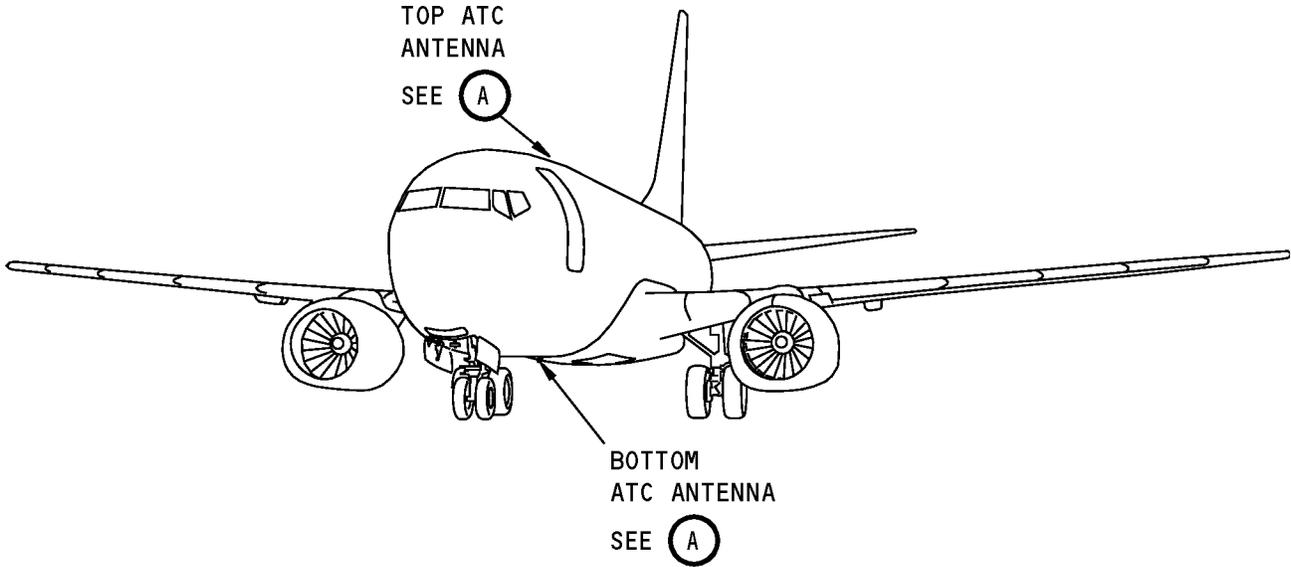
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**ATC Antenna Installation**  
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#### TASK 34-53-01-400-801

### 3. ATC Antenna Installation

(Figure 401)

#### A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
FIM 34-53 TASK 801	Air Traffic Control (ATC) Transponder BITE Procedure

#### 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	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

#### C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84/201) - Series 84	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

#### D. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### E. Installation Procedure

SUBTASK 34-53-01-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-01-110-001

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (2) Clean the airplane mating surface with Series 84 solvent, B01004 (TASK 20-30-84-910-801).
- (a) Make a cotton wiper, G00034, moist (not soaked) with solvent.
  - (b) Rub the airplane mating surface with the cotton wiper, G00034, until the surface is clean.

SUBTASK 34-53-01-300-001

- (3) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:
- (a) Remove the corrosion or unwanted material from the airplane mating surface. To remove the corrosion or unwanted material, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801
  - (b) Apply a layer of alodine coating to the airplane mating surface. To apply the coating, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802

SUBTASK 34-53-01-420-001

- (4) Install the ATC antenna:
- (a) Remove the protective cover from the antennas electrical connector.
  - (b) Install the o-ring [2] on the ATC antenna [3].
  - (c) Apply sealant, A00247, to the threads of the bolts [4].
  - (d) Examine the coaxial connector [1] for bent or broken pins, dirt, and damage.
  - (e) Connect the coaxial cable connector [1] to the ATC antenna [3].
  - (f) Put the ATC antenna [3] in the correct position on the airplane surface.
  - (g) Install three of the four bolts [4].

SUBTASK 34-53-01-760-001

- (5) Measure the resistance between the ATC antenna baseplate and the airplane skin with an bonding meter, COM-1550 .

**NOTE:** Use the empty bolt hole to get access to the antenna baseplate.

- (a) Make sure the resistance is less than 0.001 ohm.

SUBTASK 34-53-01-420-002

- (6) Install the last bolt [4].

SUBTASK 34-53-01-390-002

- (7) Apply aerodynamic sealant:

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- (a) Apply an aerodynamic fillet seal around the base of the antenna [3] with sealant, A00247 (TASK 51-31-00-390-806).

**NOTE:** Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (FIM 34-53 TASK 801).

SUBTASK 34-53-01-860-003

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

#### F. ATC Antenna Test

SUBTASK 34-53-01-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-01-420-003

- (2) Do these steps to do a test of the ATC antennas:
  - (a) Set the transponder select switch on the ATC control panel to the left (No. 1) position.

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- (b) Push and hold the TEST button on the front panel of the left (No. 1) ATC transponder.
  - 1) If the green TPR light comes on, then the BITE test passed.

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- (c) Release the TEST button.
- (d) Set the transponder select switch on the ATC control panel to the right (No. 2) position.

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- (e) Push and hold the TEST button on the front panel of the right (No. 2) ATC transponder.
  - 1) If the green TPR light comes on, then the BITE Test passed.

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- (f) Release the TEST button.

SUBTASK 34-53-01-860-006

- (3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

EFFECTIVITY HAP ALL	
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# 34-53-01



737-600/700/800/900

AIRCRAFT MAINTENANCE MANUAL

AIR TRAFFIC CONTROL (ATC) ANTENNA - INSPECTION/CHECK

1. General

A. This procedure makes an inspection and check of the Air Traffic Control (ATC) antenna for corrosion.

TASK 34-53-01-200-801

2. Air Traffic Control (ATC) Antenna - Inspection/Check

A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
34-53-01 P/B 401	AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION
34-53-01-400-801	ATC Antenna Installation (P/B 401)

B. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-53-01-211-001

(1) Examine the center of the outer surface of the antenna for area which is not constant or smooth. If an area is found, replace the antenna AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-53-01/401.

SUBTASK 34-53-01-020-003

(2) Remove the air traffic antenna (ATC) AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-53-01/401.

SUBTASK 34-53-01-200-001

(3) Remove all wanted material from around the connector and the backplate.

SUBTASK 34-53-01-211-003

(4) Examine the four nuts on the electrical connector for corrosion. If a nut is not there, or loose or has corrosion, replace the antenna AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-53-01/401. If nuts are satisfactory, go to the next step.

SUBTASK 34-53-01-211-004

(5) Examine the antenna connector and the backplate for corrosion.

NOTE: If there is corrosion on the surface in the inner diameter of the O-ring seal, but the connector nuts have no corrosion, do not replace the antenna. It will operate correctly.

SUBTASK 34-53-01-100-001

(6) Clean the backplate and connector where there is corrosion on the surface. Use a lint-free cheesecloth and the solvent Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801

SUBTASK 34-53-01-400-001

(7) Install the air traffic control (ATC) antenna ATC Antenna Installation, TASK 34-53-01-400-801.

END OF TASK

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**AIRCRAFT MAINTENANCE MANUAL**

**AIR TRAFFIC CONTROL (ATC) TRANSPONDER - REMOVAL/INSTALLATION**

**1. General**

A. This procedure has these tasks:

- (1) A removal of the ATC transponder
- (2) An installation of the ATC transponder.

B. The two ATC transponders are installed in the main equipment center on the E1 rack. The left ATC transponder (No. 1), M163, is installed on shelf No. 2 and the right ATC transponder (No. 2), M381, is installed on shelf No. 5.

**TASK 34-53-02-020-801**

**2. ATC Transponder Removal**

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

C. Access Panels

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

D. Removal Procedure

SUBTASK 34-53-02-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

SUBTASK 34-53-02-010-001

(2) To get access to the main equipment center, open this access panel:

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

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SUBTASK 34-53-02-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC TRANSPONDERS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC TRANSPONDERS.

(3) To remove the ATC transponder [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

————— **END OF TASK** —————

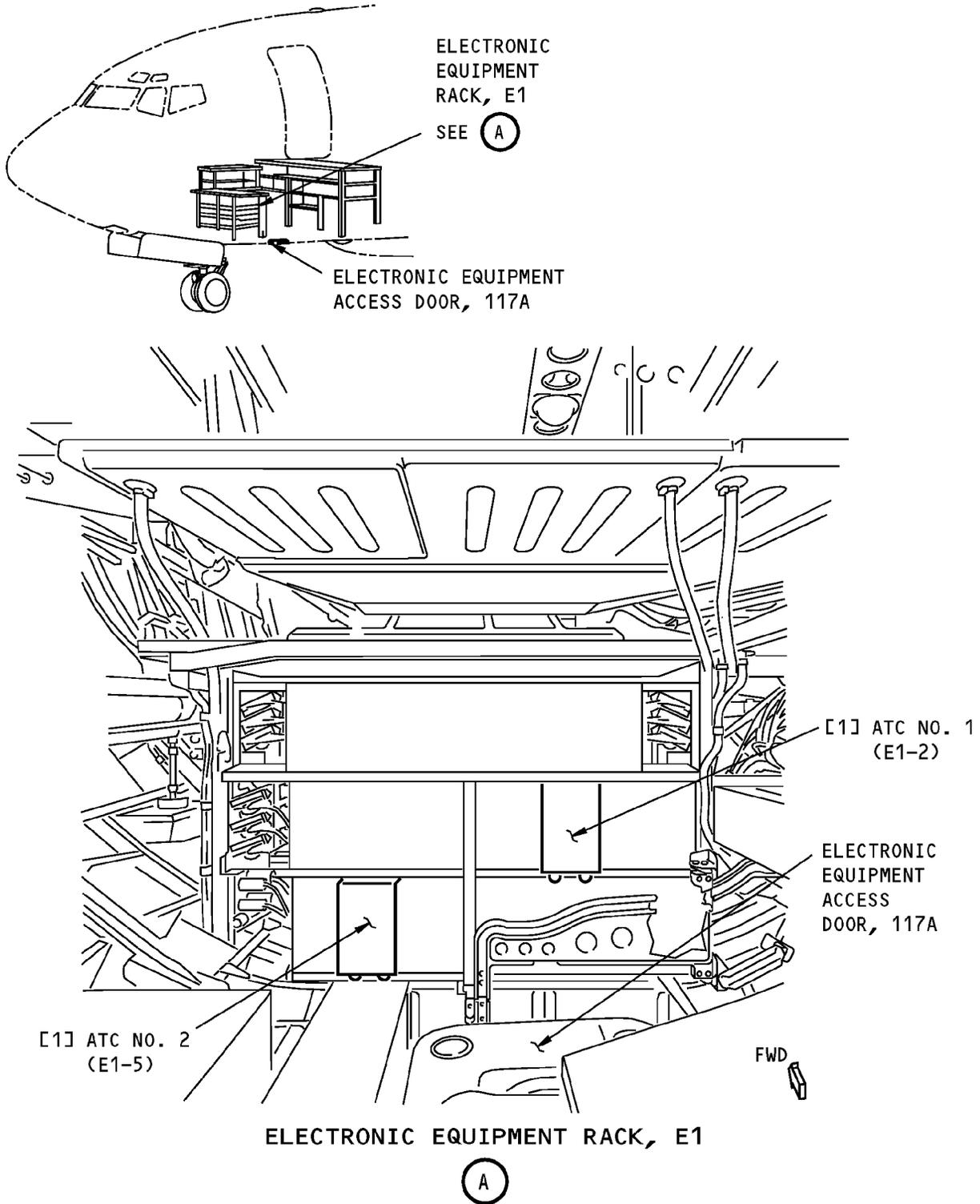
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**ATC Transponder Installation  
Figure 401/34-53-02-990-801**

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TASK 34-53-02-400-801

#### 3. ATC Transponder Installation

(Figure 401)

##### A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

##### C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

##### D. Installation procedure

SUBTASK 34-53-02-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

SUBTASK 34-53-02-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC TRANSPONDERS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC TRANSPONDERS.

- (2) To install the ATC transponder, do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-53-02-860-003

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

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**E. Installation Test**

SUBTASK 34-53-02-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-02-740-001

(2) Do the installation test:

- (a) Set the transponder select switch on the ATC control panel to the 1 position.
- (b) Push and hold the TEST switch on the left ATC transponder.
  - 1) Make sure the self-test passes and no faults are detected.
- (c) Release the TEST switch on the left ATC transponder.
- (d) Set the transponder select switch on the ATC control panel to the 2 position.
- (e) Push and hold the TEST switch on the right ATC transponder.
  - 1) Make sure the self-test passes and no faults are detected.
- (f) Release the TEST switch on the right ATC transponder.

SUBTASK 34-53-02-410-001

(3) Close this access panel:

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

SUBTASK 34-53-02-860-005

(4) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812

————— **END OF TASK** —————

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ATC CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the air traffic control (ATC) control panel
(2) An installation of the ATC control panel.

B. The ATC control panel is on the aft aisle stand panel, P8, in the flight compartment.

TASK 34-53-03-000-801

2. ATC Control Panel Removal

(Figure 401)

A. Location Zones

Table with 2 columns: Zone, Area. Rows: 211 Flight Compartment - Left, 212 Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-53-03-860-001

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

CAPT Electrical System Panel, P18-1

Table with 4 columns: Row, Col, Number, Name. Row: B, 5, C00186, ATC 1

F/O Electrical System Panel, P6-1

Table with 4 columns: Row, Col, Number, Name. Row: D, 14, C00188, ATC 2

SUBTASK 34-53-03-020-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC CONTROL PANEL.

(2) Remove the ATC CONTROL PANEL [1]:

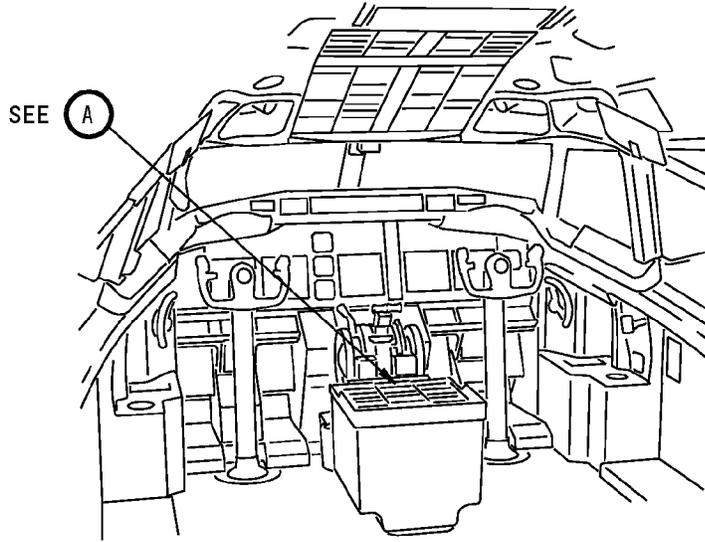
- (a) Turn the four quarter-turn fasteners [2] to release the ATC CONTROL PANEL [1] from the aisle stand.
(b) Lift the ATC CONTROL PANEL [1] to get access to the electrical connectors [3].
(c) Disconnect the electrical connectors [3].
(d) Put protective covers on the electrical connectors [3].

END OF TASK

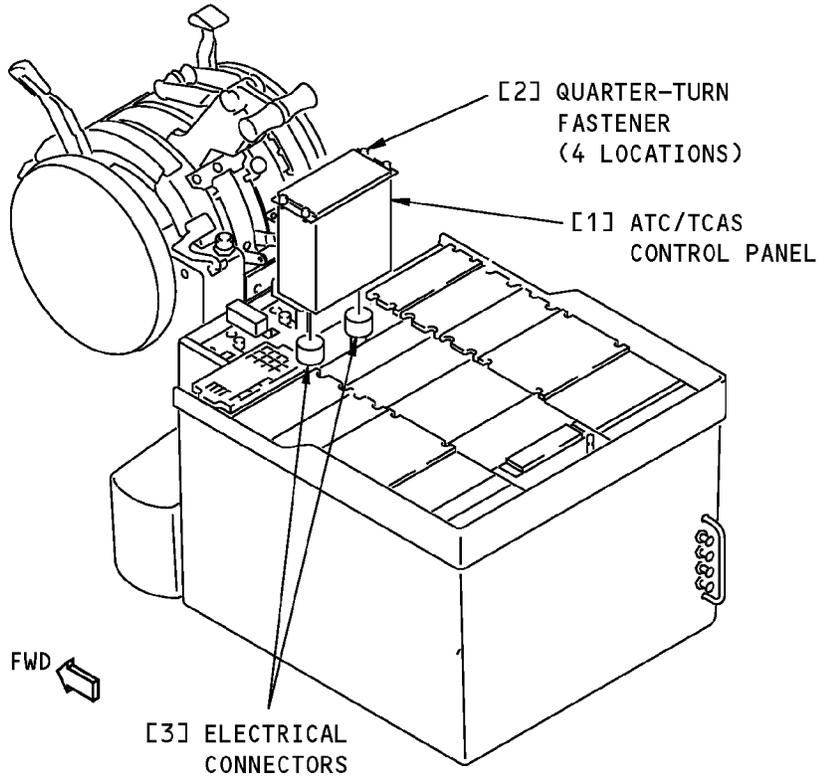
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**FLIGHT COMPARTMENT**



**AISLE STAND**



**ATC/TCAS Control Panel Installation  
Figure 401/34-53-03-990-801**

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#### TASK 34-53-03-400-801

#### 3. ATC Control Panel Installation

##### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ATC CONTROL PANEL	31-11-91-04-025	HAP 001-013, 015-026, 028-030
		34-53-03-01B-050	HAP 001-013, 015-026, 028-030
		34-53-03-03D-025	HAP 031-040, 042-046, 048, 051-053, 101-106
		34-53-03-03G-025	HAP 041, 047, 049, 050, 054, 107-999

##### C. Location Zones

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

##### D. Installation Procedure

SUBTASK 34-53-03-760-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

SUBTASK 34-53-03-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC CONTROL PANEL.

- (2) Install the ATC CONTROL PANEL [1]:
  - (a) Remove the protective covers from the electrical connectors [3].
  - (b) Examine the electrical connectors [3] for bent or broken pins, dirt, and damage.
  - (c) Connect the electrical connectors [3].
  - (d) Put the ATC CONTROL PANEL [1] into its position in the aisle stand.
  - (e) Turn the quarter-turn fasteners [2] that attach the ATC CONTROL PANEL [1].

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SUBTASK 34-53-03-760-002

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

**E. Installation Test**

SUBTASK 34-53-03-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-03-860-003

(2) Do the installation test:

- (a) Set the transponder select switch on the ATC control panel to the 1 position.
- (b) Push and hold the TEST switch on the left ATC transponder.
  - 1) Make sure the self-test passes and no faults are detected.
- (c) Release the TEST switch on the left ATC transponder.
- (d) Set the transponder select switch on the ATC control panel to the 2 position.
- (e) Push and hold the TEST switch on the right ATC transponder.
  - 1) Make sure the self-test passes and no faults are detected.
- (f) Release the TEST switch on the right ATC transponder.

SUBTASK 34-53-03-860-004

(3) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## AIR TRAFFIC CONTROL (ATC) ANTENNA SWITCH - REMOVAL/INSTALLATION

### 1. General

- A. This procedure has two tasks. One is the removal of the ATC antenna switch, the other is the installation of the ATC antenna switch.
- B. The top and bottom ATC antenna switch, S00942 and S00943, installations are the same. The ATC antenna switches are installed left of the E1-5 shelf on the E1 rack.

### **TASK 34-53-04-000-801**

### 2. ATC Antenna Switch Removal

(Figure 401)

#### A. Location Zones

<u>Zone</u>	<u>Area</u>
118	Electrical and Electronics Compartment - Right

#### B. Access Panels

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

#### C. Prepare for the Removal

SUBTASK 34-53-04-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-04-010-001

- (2) To get to the main equipment center, open this access panel:

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

#### D. Procedure

SUBTASK 34-53-04-020-001

- (1) Remove the ATC antenna switch [1]:
  - (a) Disconnect the electrical connectors [4] from the ATC antenna switch [1].
  - (b) Put protective covers on the electrical connectors [4].
  - (c) Remove the screws [2] and washers [3] that hold the ATC antenna switch [1] to the bracket.
  - (d) Remove the ATC antenna switch [1] from the bracket.

**END OF TASK**

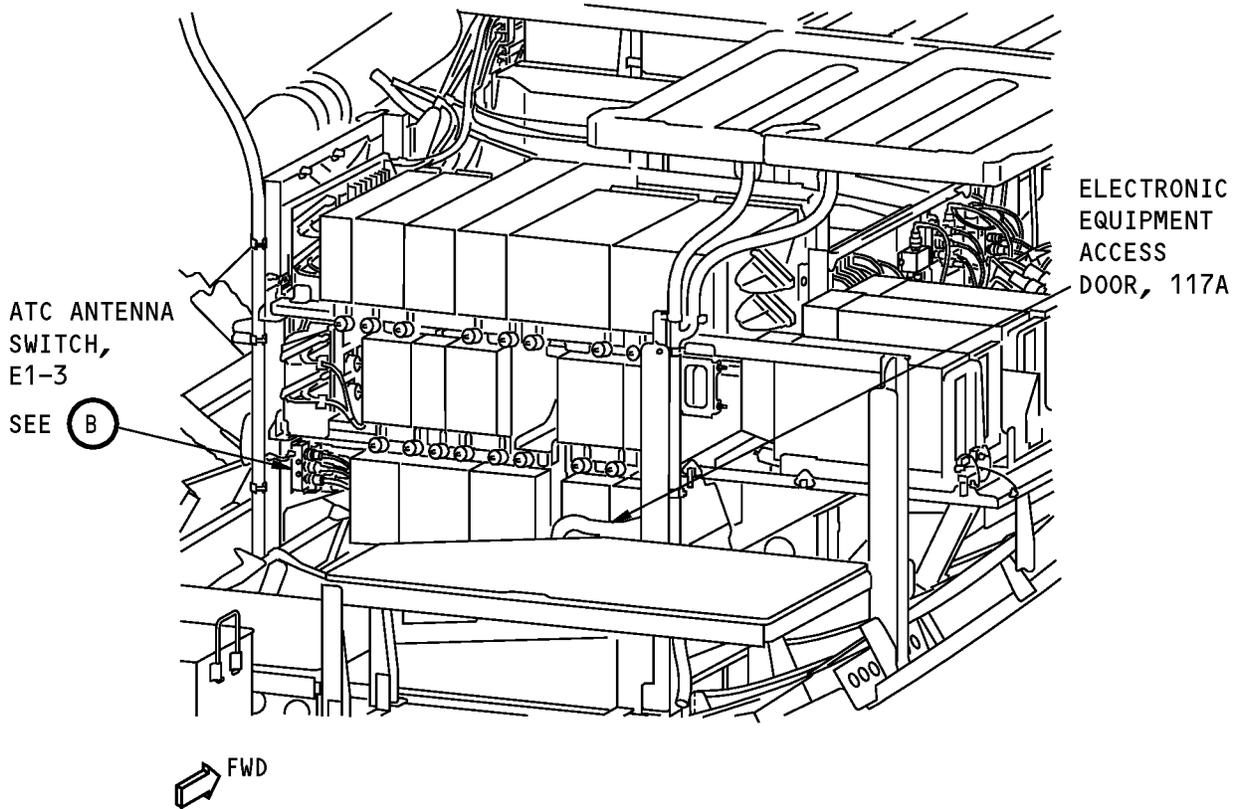
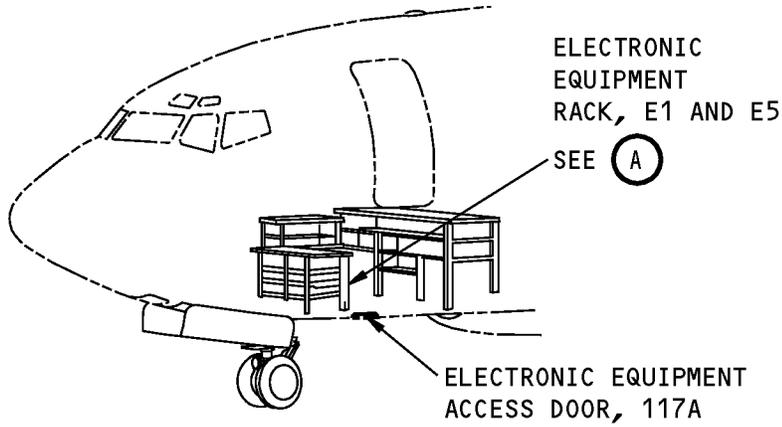
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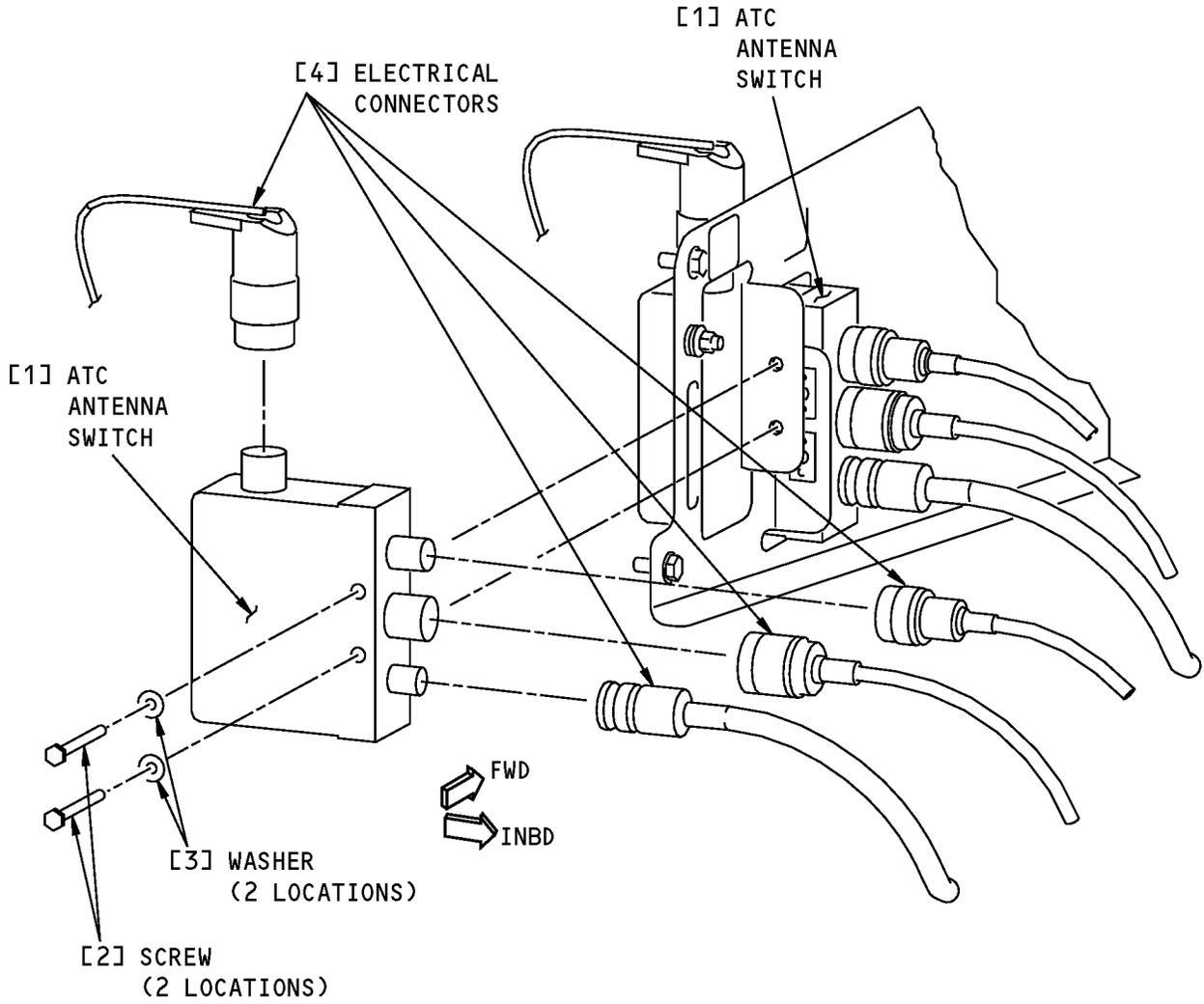
**ELECTRONIC EQUIPMENT RACKS, E1 AND E5**

(A)

**ATC Antenna Switch Installation  
Figure 401 (Sheet 1 of 2)/34-53-04-990-801**

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**ATC ANTENNA SWITCH**

**B**

**ATC Antenna Switch Installation  
Figure 401 (Sheet 2 of 2)/34-53-04-990-801**

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TASK 34-53-04-400-801

#### 3. ATC Antenna Switch Installation

(Figure 401)

##### A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
20-40-11-760-801	Electrical Bonding (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### B. Tools/Equipment

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

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

##### C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Switch	34-53-04-10-005	HAP 001-013, 015-026, 028-030
		34-53-04-10A-005	HAP 031-054, 101-999

##### D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

##### E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

##### F. Prepare for the Installation

SUBTASK 34-53-04-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

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## G. Procedure

SUBTASK 34-53-04-420-001

- (1) Install the ATC antenna switch [1]:
  - (a) Remove the protective covers from the electrical connectors [4].
  - (b) Examine the electrical connectors [4] for bent or broken pins, dirt and damage.
  - (c) Make sure the bracket for the ATC antenna switch [1] has no corrosion.
    - 1) If there is corrosion, clean the mating surfaces. To do this, do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.
  - (d) Use the electrical bond fastener to install the ATC antenna switch [1] on the bracket. To do it, do this task: Electrical Bonding, TASK 20-40-11-760-801.
  - (e) Put the switch [1] into position on the bracket.
  - (f) Install the screws [2] and washers [3] that hold the ATC antenna switch [1] to the bracket.

SUBTASK 34-53-04-760-001

- (2) Use the bonding meter, COM-1550, and make sure the resistance from the ATC antenna switch [1] to the E2 rack is less than 0.001 ohm.

SUBTASK 34-53-04-410-001

- (3) Close this access panel:

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

SUBTASK 34-53-04-860-003

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

## H. Installation Test

SUBTASK 34-53-04-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-04-860-005

- (2) Do the installation test:
  - (a) Set the transponder select switch on the ATC control panel to the 1 position.
  - (b) Push and hold the TEST switch on the left ATC transponder.
    - 1) Make sure the self-test passes and no faults are detected.
  - (c) Release the TEST switch on the left ATC transponder.
  - (d) Set the transponder select switch on the ATC control panel to the 2 position.
  - (e) Push and hold the TEST switch on the right ATC transponder.
    - 1) Make sure the self-test passes and no faults are detected.

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(f) Release the TEST switch on the right ATC transponder.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-53-04-860-006

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## DME SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

- (1) An operational test of the distance measuring equipment (DME) system.
- (2) A system test of the DME system.

#### **TASK 34-55-00-710-801**

### 2. DME System - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Prepare for the Operational Test

SUBTASK 34-55-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-55-00-860-002

- (2) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-55-00-860-074

- (3) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-55-00-860-003

- (4) Set the display select switch on the captain's and first officer's EFIS control panels to the VOR position.

E. DME Self Test

SUBTASK 34-55-00-860-075

- (1) Make sure DME 1 and DME 2 are not tuned to a local station's frequency.

SUBTASK 34-55-00-740-002

- (2) Push and hold the TEST button on the captain's navigation control panel to start the DME 1 self test.

- (a) Make sure the DME 2 shows dashes on the displays during the DME 1 self test.
- (b) Make sure the DME 1 has a flag on the displays for approximately two seconds.
- (c) Make sure the DME 1 shows dashes on the displays until the end of the test.

SUBTASK 34-55-00-860-005

- (3) Release the TEST button on the captain's navigation control panel.

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SUBTASK 34-55-00-860-046

- (4) To get access to the proximity switch electronics unit, open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 34-55-00-860-006

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

- (5) Put SYS No. 1 in the Air Mode. Do this task:Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-55-00-730-002

- (6) Push and hold the TEST button on the captain's navigation control panel to start the DME 1 self test.
- (a) Make sure the self test sequence for DME 1 did not start.

SUBTASK 34-55-00-860-007

- (7) Release the TEST button on the captain's navigation control panel.

SUBTASK 34-55-00-860-008

- (8) Release the SYS #1 IN AIR button.

SUBTASK 34-55-00-730-003

- (9) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

SUBTASK 34-55-00-730-004

- (10) Push and hold the TEST button on the first officer's navigation control panel to start the DME 2 self test.
- (a) Make sure the DME 1 shows dashes on the displays during the DME 2 self test.
- (b) Make sure the DME 2 has a flag on the displays for approximately two seconds.
- (c) Makes sure the DME 2 shows dashes on the displays until the end of the test.

SUBTASK 34-55-00-860-009

- (11) Release the TEST button on the first officer's navigation control panel.

SUBTASK 34-55-00-860-010

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

- (12) Put SYS No. 2 in the Air Mode. Do this task:Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-55-00-730-005

- (13) Push and hold the TEST button on the first officer's navigation control panel to start the DME 2 self test.
- (a) Make sure the self test sequence for DME 2 did not start.

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SUBTASK 34-55-00-860-011

(14) Release the TEST button on the first officer's navigation control panel.

SUBTASK 34-55-00-860-012

(15) Release the SYS #2 IN AIR button.

SUBTASK 34-55-00-860-047

(16) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-55-00-860-013

(17) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

TASK 34-55-00-730-801

3. DME System - System Test

A. General

(1) This task gives procedures for more than one DME test set. It is necessary to use only one of the DME test sets to do a test of the DME system.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-4076	Test Set - DME Transponder (Part #: 600A-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: IFR-6000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-48D, Supplier: 92606, A/P Effectivity: 737-ALL) (Part #: TR-211, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: ATC-600A-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-24B, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: T-33D, Supplier: 92606, A/P Effectivity: 737-ALL)
COM-4114	Test Set - ATC-600A-2 ATC Transponder (Part #: 600A-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: IFR-6000, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: 601-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: ATC-600A, Supplier: 51190) (Opt Part #: ATC-600A-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: ATC-601, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: ATC-601-2, Supplier: 51190, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: TCAS-201, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: TCAS-201-2, Supplier: 51190, A/P Effectivity: 737-ALL)

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## D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

## E. Prepare for the System Test

SUBTASK 34-55-00-860-014

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-55-00-860-015

(2) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-55-00-860-016

(3) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

## F. Operational Test

SUBTASK 34-55-00-710-001

(1) Do this task: DME System - Operational Test, TASK 34-55-00-710-801.

## G. No. 1 DME System Test (with the use of the test set, ATC-600A-2)

SUBTASK 34-55-00-860-023

(1) Do these steps to prepare for the No. 1 DME system test:

**CAUTION:** DO NOT PUT THE TEST SET ANTENNA LESS THAN 15 INCHES (38 CM) FROM THE DME ANTENNA WITH THE TEST SET ON. YOU CAN CAUSE DAMAGE TO THE TEST SET.

(a) Put the ATC transponder test set, COM-4114, approximately 21 inches (53 cm) from the DME antenna.

**NOTE:** The test antenna should be approximately the same height as the airplane antenna.

(b) Set the controls on the ATC transponder test set, COM-4114, as follows:

Table 501/34-55-00-993-801

SWITCH NAME	SWITCH POSITION
PWR Switch	AC or BAT as appropriate
Mode Switch	DME
Velocity Select Switch	Range
Velocity HI/LO Switch	HI
Squitter Switch	SQTR
X/Y Switch	X

SUBTASK 34-55-00-860-024

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

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**HAP 001-013, 015-026, 028-036, 038-054, 101-999**

SUBTASK 34-55-00-860-076

- (3) Set a frequency of 109.00 MHz on the captain's and the first officer's navigation control panels.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

- (a) Make sure the DME 1 shows dashes on the displays.
- (b) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-860-085

- (4) Set a VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "109.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 109.00" is displayed in the ACT (upper) window on the NCP.
    - 1) Make sure the DME 1 shows dashes on the displays.
    - 2) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-730-016

- (5) 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>
A	14	C00192	RADIO NAVIGATION DME 2

- (a) Make sure the DME 2 has a flag on the displays.

SUBTASK 34-55-00-860-025

- (6) Set a frequency of 108.00 MHz on the captain's navigation control panel.

SUBTASK 34-55-00-860-026

- (7) Set the X/Y switch on the ATC transponder test set, COM-4114, to Y.

SUBTASK 34-55-00-730-017

- (8) Use the SLEW switch to set a distance of 6 miles on the ATC transponder test set, COM-4114.
  - (a) Make sure the DME 1 shows dashes on the displays.

SUBTASK 34-55-00-730-018

- (9) Set the X/Y switch on the ATC transponder test set, COM-4114, to X.
  - (a) Make sure the DME 1 shows 6 ±0.5 nmi on the displays.

SUBTASK 34-55-00-860-027

- (10) Set the voice/range filter switch on one of the audio control panels to the B position.

SUBTASK 34-55-00-860-028

- (11) At the same audio control panel, push the receiver volume control for NAV-1 to set the volume to on.

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SUBTASK 34-55-00-860-029

- (12) At the same audio control panel, turn the receiver volume control clockwise for NAV-1 to adjust the volume level.

SUBTASK 34-55-00-860-030

- (13) At all other audio control panels, push the receiver volume control for NAV-1 to set the volume to off.

SUBTASK 34-55-00-860-031

- (14) Push the receiver volume control for NAV-2 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-019

- (15) Use the switches on the ATC transponder test set, COM-4114, to supply an identification tone.
  - (a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-032

- (16) Push the receiver volume control for NAV-1 on the audio control panels to set the volume to off.

SUBTASK 34-55-00-860-033

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

F/O Electrical System Panel, P6-1

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

## H. No. 2 DME System Test (with the use of the test set, ATC-600A-2)

SUBTASK 34-55-00-860-034

- (1) Set the SOURCE switch on the instrument switching module to the AUTO position.

### HAP 001-013, 015-026, 028-036, 038-054, 101-999

SUBTASK 34-55-00-860-077

- (2) Set a frequency of 109.00 MHz on the captain's and the first officer's navigation control panels.

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

- (a) Make sure the DME 1 shows dashes on the displays.
- (b) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-860-086

- (3) Set a VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panels by:
  - (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
  - (b) Pushing the number "109.00" using the NCP keypad.
  - (c) Pushing the ACT/STBY transfer key until "VOR 109.00" is displayed in the ACT (upper) window on the NCP.
    - 1) Make sure the DME 1 shows dashes on the displays.

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## HAP 037 (Continued)

2) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-860-078

(4) Set a frequency of 109.00 MHz on the captain's navigation control panel.

SUBTASK 34-55-00-730-020

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

CAPT Electrical System Panel, P18-1

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

(a) Make sure the DME 1 has a flag on the displays.

SUBTASK 34-55-00-860-036

(6) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-55-00-860-037

(7) Set the X/Y switch on the ATC transponder test set, COM-4114, to Y.

SUBTASK 34-55-00-730-021

(8) Use the SLEW switch to set a distance of 6 miles on the ATC transponder test set, COM-4114.

(a) Make sure the DME 2 shows dashes on the displays.

SUBTASK 34-55-00-730-022

(9) Set the X/Y switch on the ATC transponder test set, COM-4114, to X.

(a) Make sure the DME 2 shows 6 ± 0.5 nmi on the displays.

SUBTASK 34-55-00-860-038

(10) Set the voice/range filter switch on one of the audio control panels to the B position.

SUBTASK 34-55-00-860-039

(11) At the same audio control panel, push the receiver volume control for NAV-2 to set the volume to on.

SUBTASK 34-55-00-860-040

(12) At the same audio control panel, turn the receiver volume control clockwise for NAV-2 to adjust the volume level.

SUBTASK 34-55-00-860-041

(13) At all other audio control panels, push the receiver volume control for NAV-2 to set the volume to off.

SUBTASK 34-55-00-860-042

(14) Push the receiver volume control for NAV-1 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-023

(15) Use the switches on the ATC transponder test set, COM-4114, to supply an identification tone.

(a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-043

(16) Push the receiver volume control for NAV-2 on the audio control panels to set the volume to off.

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SUBTASK 34-55-00-860-044

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-55-00-860-045

(18) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

I. No. 1 DME System Test (with the use of the test set, T-24B)

SUBTASK 34-55-00-860-053

(1) Do these steps to prepare for the No. 1 DME system test:

**CAUTION:** DO NOT PUT THE TEST SET ANTENNA LESS THAN 15 INCHES (38 CM) FROM THE DME ANTENNA WITH THE TEST SET ON. YOU CAN CAUSE DAMAGE TO THE TEST SET.

(a) Put the DME transponder test set, COM-4076, approximately 21 inches (53 cm) from the DME antenna.

**NOTE:** The test antenna should be approximately the same height as the airplane antenna.

(b) Set the controls on the DME transponder test set, COM-4076, as follows:

Table 502/34-55-00-993-802

SWITCH NAME	SWITCH POSITION
POWER	ON
IDENT	OFF
DIST/VEL	DIST
Squitter Switch	ON

SUBTASK 34-55-00-860-054

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

**HAP 001-013, 015-026, 028-036, 038-054, 101-999**

SUBTASK 34-55-00-860-079

(3) Set a frequency of 109.00 MHz on the captain's and the first officer's navigation control panels.

**NOTE:** To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

(a) Make sure the DME 1 shows dashes on the displays.

(b) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-860-087

(4) Set a VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panels by:

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## HAP 037 (Continued)

- (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
- (b) Pushing the number "109.00" using the NCP keypad.
- (c) Pushing the ACT/STBY transfer key until "VOR 109.00" is displayed in the ACT (upper) window on the NCP.
  - 1) Make sure the DME 1 shows dashes on the displays.
  - 2) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-730-024

- (5) Open this circuit breaker:

F/O Electrical System Panel, P6-1

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

- (a) Make sure the DME 2 has a flag on the displays.

SUBTASK 34-55-00-860-055

- (6) Set a frequency of 108.00 MHz on the captain's navigation control panel.

SUBTASK 34-55-00-730-025

- (7) Use the DISTANCE switch to set distance of 6 miles on the DME transponder test set, COM-4076.
  - (a) Make sure the DME 1 shows 6 ± 0.5 nmi on the displays.

SUBTASK 34-55-00-860-056

- (8) Set the voice/range filter switch on one of the audio control panels to the B position.

SUBTASK 34-55-00-860-057

- (9) At the same audio control panel, push the receiver volume control for NAV-1 to set the volume to on.

SUBTASK 34-55-00-860-058

- (10) At the same audio control panel, turn the receiver volume control clockwise for NAV-1 to adjust the volume level.

SUBTASK 34-55-00-860-059

- (11) At all other audio control panels, push the receiver volume control for NAV-1 to set the volume to off.

SUBTASK 34-55-00-860-060

- (12) Push the receiver volume control for NAV-2 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-026

- (13) Push the IDENT switch on the DME transponder test set, COM-4076, to supply an identification tone.
  - (a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-061

- (14) Push the receiver volume control for NAV-1 on the audio control panels to set the volume to off.

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SUBTASK 34-55-00-860-062

(15) 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>
A	14	C00192	RADIO NAVIGATION DME 2

J. No. 2 DME System Test (with the use of the test set, T-24B)

SUBTASK 34-55-00-860-063

(1) Set the SOURCE switch on the instrument switching module to the AUTO position.

**HAP 001-013, 015-026, 028-036, 038-054, 101-999**

SUBTASK 34-55-00-860-080

(2) Set a frequency of 109.00 MHz on the captain's and the first officer's navigation control panels.

- (a) Make sure the DME 1 shows dashes on the displays.
- (b) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-860-088

(3) Set a VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panels by:

- (a) Pushing the MODE key (V or reverse V) until "VOR" is displayed in the STBY (lower) window of the NCP.
- (b) Pushing the number "109.00" using the NCP keypad.
- (c) Pushing the ACT/STBY transfer key until "VOR 109.00" is displayed in the ACT (upper) window on the NCP.
  - 1) Make sure the DME 1 shows dashes on the displays.
  - 2) Make sure the DME 2 shows dashes on the displays.

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SUBTASK 34-55-00-730-027

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

CAPT Electrical System Panel, P18-1

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

(a) Make sure the DME 1 has a flag on the displays.

SUBTASK 34-55-00-860-065

(5) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-55-00-730-028

(6) Use the DISTANCE switch to set a distance of 6 miles on the DME transponder test set, COM-4076.

(a) Make sure the DME 2 shows 6 ±0.5 nmi on the displays.

SUBTASK 34-55-00-860-066

(7) Set the voice/range filter switch on one of the audio control panels to the B position.

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SUBTASK 34-55-00-860-067

- (8) At the same audio control panel, push the receiver volume control for NAV-2 to set the volume to on.

SUBTASK 34-55-00-860-068

- (9) At the same audio control panel, turn the receiver volume control clockwise for NAV-2 to adjust the volume level.

SUBTASK 34-55-00-860-069

- (10) At all other audio control panels, push the receiver volume control for NAV-2 to set the volume to off.

SUBTASK 34-55-00-860-070

- (11) Push the receiver volume control for NAV-1 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-029

- (12) Push the IDENT switch on the DME transponder test set, COM-4076, to supply an identification tone.

- (a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-071

- (13) Push the receiver volume control for NAV-2 on the audio control panels to set the volume to off.

SUBTASK 34-55-00-860-072

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

CAPT Electrical System Panel, P18-1

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

SUBTASK 34-55-00-860-073

- (15) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**END OF TASK**

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## DME ANTENNA - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the DME antenna
- (2) An installation of the DME antenna.

B. The two DME antennas are installed on the bottom centerline of the airplane fuselage.

#### **TASK 34-55-11-000-801**

### 2. DME Antenna Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-55-11-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

SUBTASK 34-55-11-020-001

(2) Remove the DME antenna [3]:

(a) Remove the bolts [4] from the antenna base.

**CAUTION:** LOWER THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

(b) Lower the DME antenna [3] until you can get access to the coaxial connector [1].

(c) Disconnect the coaxial connector [1] from the DME antenna [3].

(d) Remove the DME antenna [3].

(e) Put a protective cover on the electrical connector.

————— **END OF TASK** —————

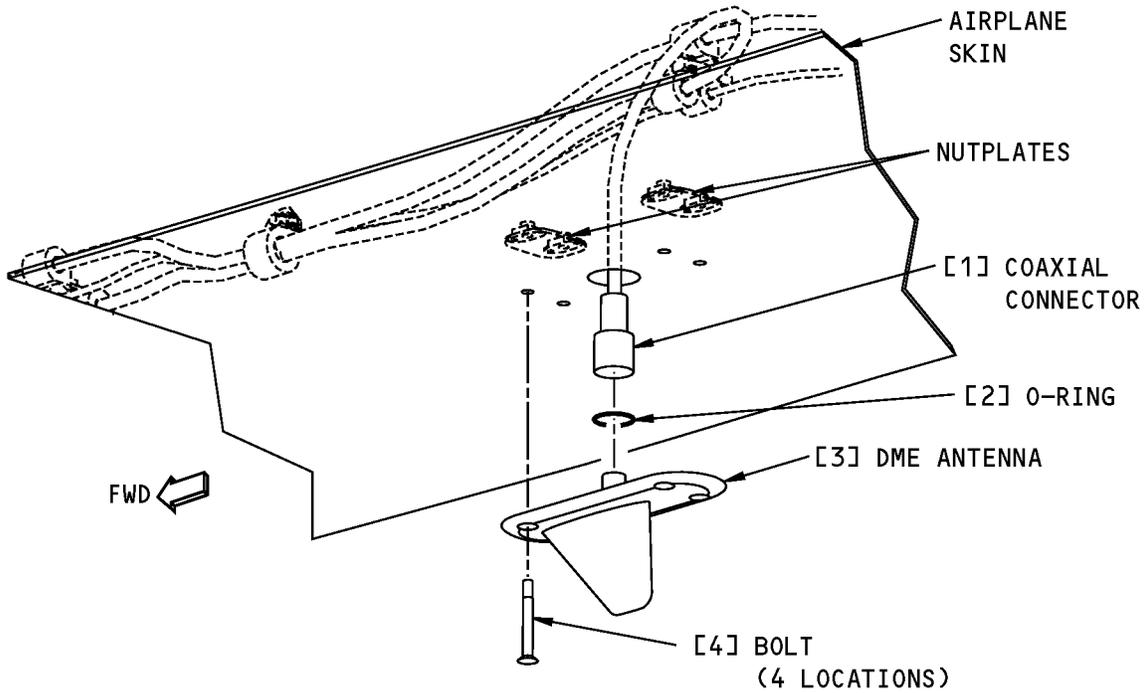
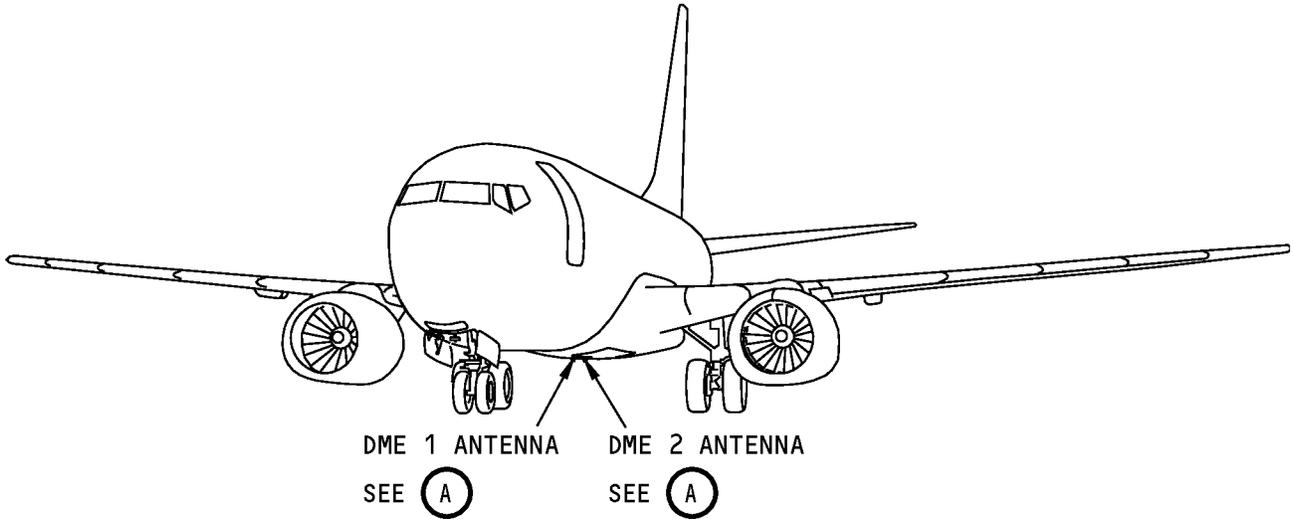
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**DME ANTENNA  
(REMOVED)**

(A)

**DME Antenna Installation  
Figure 401/34-55-11-990-801**

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TASK 34-55-11-400-801

#### 3. DME Antenna Installation

(Figure 401)

##### A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

##### 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	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
COM-4076	Test Set - DME Transponder (Part #: 600A-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: IFR-6000, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: T-48D, Supplier: 92606, A/P Effectivity: 737-ALL) (Part #: TR-211, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: ATC-600A-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: T-24B, Supplier: 92606, A/P Effectivity: 737-ALL) (Opt Part #: T-33D, Supplier: 92606, A/P Effectivity: 737-ALL)
COM-4114	Test Set - ATC-600A-2 ATC Transponder (Part #: 600A-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Part #: IFR-6000, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: 601-110, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: ATC-600A, Supplier: 51190) (Opt Part #: ATC-600A-2, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: ATC-601, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: ATC-601-2, Supplier: 51190, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: TCAS-201, Supplier: 51190, A/P Effectivity: 737-ALL) (Opt Part #: TCAS-201-2, Supplier: 51190, A/P Effectivity: 737-ALL)

##### C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84/201) - Series 84	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

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#### D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Antenna	34-55-11-01-005	HAP 001-013
		34-55-11-01-105	HAP 001-013
		34-55-11-02-005	HAP 015-026, 028-030, 044-053, 101-999
		34-55-11-02-105	HAP 015-026, 028-030, 044-053, 101-999
		34-55-11-03-005	HAP 031-043, 054
		34-55-11-03-105	HAP 031-043, 054

#### E. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

#### F. Installation Procedure

SUBTASK 34-55-11-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

SUBTASK 34-55-11-110-001

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (2) Clean the airplane mating surface with Series 84 solvent, B01004 (TASK 20-30-84-910-801).
  - (a) Make a cotton wiper, G00034, moist (not soaked) with solvent.
  - (b) Rub the airplane mating surface with the cotton wiper, G00034, until the surface is clean.

SUBTASK 34-55-11-300-001

- (3) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:
  - (a) Remove the corrosion or unwanted material from the airplane mating surface. To remove the corrosion or unwanted material, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801
  - (b) Apply a layer of alodine coating to the airplane mating surface. To apply the coating, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802

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SUBTASK 34-55-11-420-001

- (4) Install the DME antenna [3]:
  - (a) Remove the protective cover from the electrical connector.
  - (b) Install the o-ring [2] on the antenna [3].
  - (c) Apply sealant, A00247 to the threads of the bolts [4].
  - (d) Examine the coaxial connector [1] for bent or broken pins, dirt, and damage.
  - (e) Connect the coaxial connector [1] to the antenna [3].
  - (f) Put the antenna [3] in the correct position on the airplane surface.
  - (g) Install three of the four bolts [4].

SUBTASK 34-55-11-760-001

- (5) Measure the resistance between the DME antenna baseplate and the airplane skin with a bonding meter, COM-1550 .

**NOTE:** Use the empty hole to get access to the antenna baseplate.

- (a) Make sure the resistance is less than 0.001 ohm.

SUBTASK 34-55-11-420-002

- (6) Install the last bolt [4].

SUBTASK 34-55-11-390-001

- (7) Apply aerodynamic sealant:
  - (a) Apply an aerodynamic fillet seal around the base of the antenna [3] with sealant, A00247 (TASK 51-31-00-390-806).

**NOTE:** Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

SUBTASK 34-55-11-860-006

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

## G. Installation Test

SUBTASK 34-55-11-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-55-11-860-005

- (2) Do these steps to prepare for the installation test:

**CAUTION:** DO NOT PUT THE TEST SET LESS THAN 15 INCHES (38 CM) FROM THE DME ANTENNA WITH THE TEST SET ON. YOU CAN CAUSE DAMAGE TO THE TEST SET.

- (a) Put the DME test set approximately 21 inches (53 cm) from the DME antenna.

**NOTE:** The test antenna should be approximately the same height as the airplane antenna.

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(b) For the DME test DME transponder test set, COM-4076, put the switches in these positions:

Table 401/34-55-11-993-801

SWITCH NAME	SWITCH POSITION
POWER	ON
IDENT	OFF
DIST/VEL	DIST
Squitter Switch	ON

(c) For the DME test ATC transponder test set, COM-4114, put the switches in these positions:

Table 402/34-55-11-993-802

SWITCH NAME	SWITCH POSITION
PWR Switch	AC or BAT as appropriate
Mode Switch	DME
Velocity Select Switch	Range
Velocity HI/LO Switch	HI
Squitter Switch	SQTR
X/Y Switch	X

- (d) Set the NAV switch on the instrument switching module to the NORMAL position.
- (e) Set the SOURCE switch on the instrument switching module to the AUTO position.
- (f) Set the display select switch on the captain's and the first officer's EFIS control panels to the VOR position.

SUBTASK 34-55-11-710-001

- (3) Do these steps to do a test of the No. 1 (captain's) DME antenna with the use of ATC transponder test set, COM-4114:
  - (a) Set a frequency of 108.00 MHz on the captain's navigation control panel.
  - (b) Set a frequency of 109.00 MHz on the first officer's navigation control panel.
  - (c) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to Y.
  - (d) Use the SLEW switch to set a distance of 6 miles on the DME test ATC transponder test set, COM-4114.
    - 1) Make sure the DME 1 shows dashes on the displays.
  - (e) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to X.
    - 1) Make sure the DME 1 shows 6 ± 0.5 nmi on the displays.

SUBTASK 34-55-11-710-003

- (4) Do these steps to do a test of the No. 1 (captain's) DME antenna with the use of DME transponder test set, COM-4076:
  - (a) Set a frequency of 108.00 MHz on the captain's navigation control panel.
  - (b) Set a frequency of 109.00 MHz on the first officer's navigation control panel.
  - (c) Use the DISTANCE switch to set a distance of 6 miles on the DME test DME transponder test set, COM-4076.

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- 1) Make sure the DME 1 shows  $6 \pm 0.5$  nmi on the displays.

SUBTASK 34-55-11-710-002

- (5) Do these steps to do a test of the No. 2 (first officer's) DME antenna with the use of DME test ATC transponder test set, COM-4114:

- (a) Set a frequency of 109.00 MHz on the captain's navigation control panel.
- (b) Set a frequency of 108.00 MHz on the first officer's navigation control panel.
- (c) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to Y.
- (d) Use the SLEW to set a distance of 6 miles on the DME test ATC transponder test set, COM-4114.

- 1) Make sure the DME 2 shows dashes on the displays.

- (e) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to X.

- 1) Make sure the DME 2 shows  $6 \pm 0.5$  nmi on the displays.

SUBTASK 34-55-11-710-004

- (6) Do these steps to do a test of the No. 2 (first officer's) DME antenna with the use of DME test DME transponder test set, COM-4076:

- (a) Set a frequency of 109.00 MHz on the captain's navigation control panel.
- (b) Set a frequency of 108.00 MHz on the first officer's navigation control panel.
- (c) Use the DISTANCE switch to set a distance of 6 miles on the DME test DME transponder test set, COM-4076.

- 1) Make sure the DME 2 shows  $6 \pm 0.5$  nmi on the displays.

————— **END OF TASK** —————

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## DME INTERROGATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the distance measuring equipment (DME) interrogator.
- (2) An installation of the DME interrogator.

B. The two DME interrogators are in the main equipment center. The No. 1 DME interrogator is on the E1 electronic equipment rack, shelf No. 2. The No. 2 DME interrogator is on the E1 electronic equipment rack, shelf No. 5.

### **TASK 34-55-21-000-801**

### 2. DME Interrogator Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
20-10-07-000-801	E/E Box Removal (P/B 201)

B. 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

C. Access Panels

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

D. Removal Procedure

SUBTASK 34-55-21-860-001

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

SUBTASK 34-55-21-010-001

(2) To get access to the main equipment center, open this access panel:

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

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SUBTASK 34-55-21-020-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DME INTERROGATOR. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DME INTERROGATOR.

- (3) To remove the DME INTERROGATOR [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

————— **END OF TASK** —————

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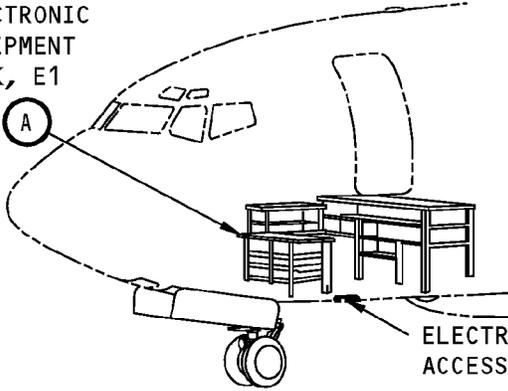
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ELECTRONIC  
EQUIPMENT  
RACK, E1

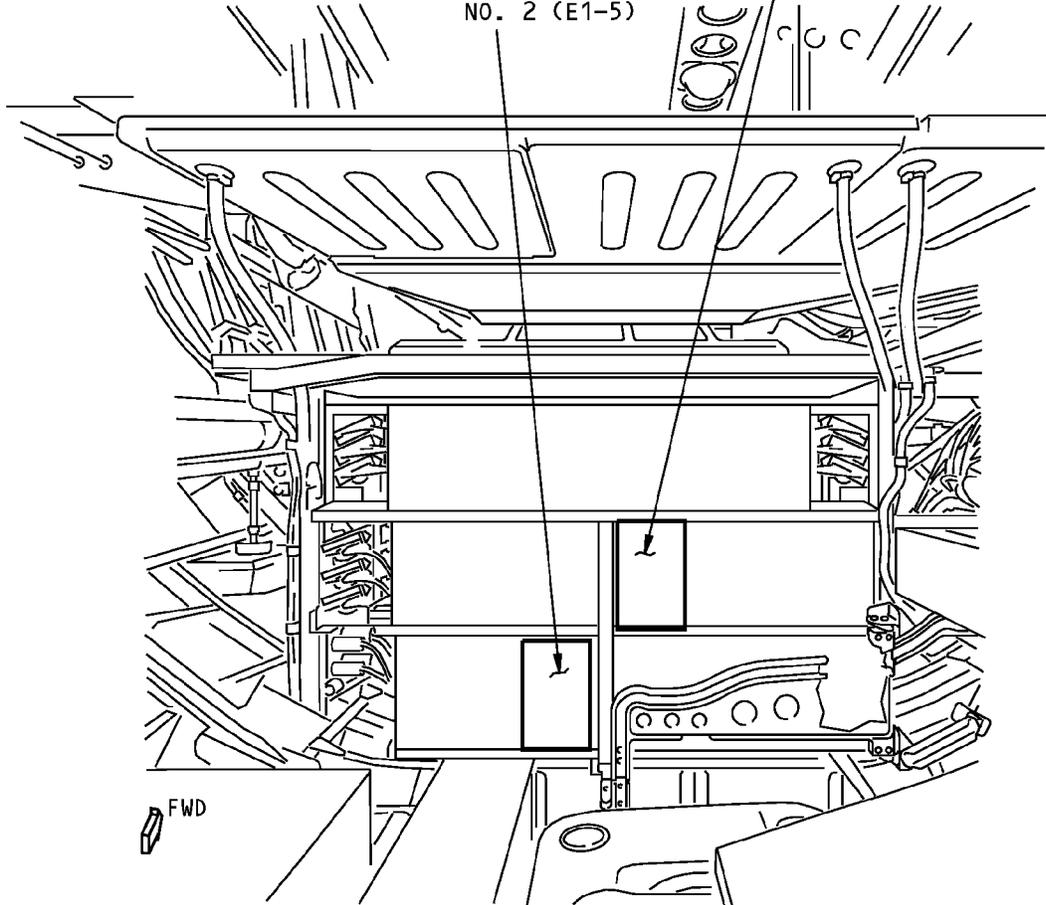
SEE (A)



ELECTRONIC EQUIPMENT  
ACCESS DOOR, 117A

[1] DME INTERROGATOR  
NO. 2 (E1-5)

[1] DME INTERROGATOR  
NO. 1 (E1-2)



FWD

ELECTRONIC EQUIPMENT RACK, E1

(A)

**DME Interrogator Installation**  
**Figure 401/34-55-21-990-801**

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TASK 34-55-21-400-801

#### 3. DME Interrogator Installation

(Figure 401)

##### A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

##### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	INTERROGATOR	34-55-21-01-005	HAP 001-011
		34-55-21-02-005	HAP 012, 013, 015-026, 028-054, 101-999

##### 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. Installation Procedure

SUBTASK 34-55-21-860-002

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

SUBTASK 34-55-21-420-001

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DME INTERROGATOR. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DME INTERROGATOR.

(2) To install the DME INTERROGATOR [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-55-21-410-001

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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SUBTASK 34-55-21-860-003

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

CAPT Electrical System Panel, P18-1

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

F/O Electrical System Panel, P6-1

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

**F. Installation Test**

SUBTASK 34-55-21-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-55-21-860-005

(2) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-55-21-860-007

(3) Set a frequency of 109.00 MHz on the captain's and the first officer's navigation control panels.

SUBTASK 34-55-21-710-001

(4) Do these steps to do a test of the No. 1 DME interrogator:

- (a) Set the SOURCE switch on the instrument switching module to the AUTO position.
- (b) Push the TEST button on the captain's navigation control panel to start the DME 1 self test.
- (c) Make sure this sequence occurs on the captain's and the first officer's displays:

NOTE: The DME 2 shows dashes on the displays during the DME 1 self test.

- 1) The DME 1 has a flag on the displays for approximately two seconds.
- 2) The DME 1 is dashes on the displays until the end of the test.

SUBTASK 34-55-21-710-002

(5) Do these steps to do a test of the No. 2 DME interrogator:

- (a) Set the SOURCE switch on the instrument switching module to the AUTO position.
- (b) Push the TEST button on the first officer's navigation control panel to start the DME 2 self test.
- (c) Make sure this sequence occurs on the captain's and the first officer's displays:

NOTE: The DME 1 shows dashes on the displays during the DME 2 self test.

- 1) The DME 2 has a flag on the displays for approximately two seconds.
- 2) The DME 2 is dashes on the displays until the end of the test.

SUBTASK 34-55-21-860-008

(6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

**————— END OF TASK —————**

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### AUTOMATIC DIRECTION FINDER SYSTEM - ADJUSTMENT/TEST

#### 1. General

A. The system test is a full functional check of the ADF system and its interfaces.

**TASK 34-57-00-730-802**

#### 2. Automatic Direction Finder System - System Test

##### A. General

- (1) Some of the tests need radio reception from local AM commercial broadcast stations or ADF beacon transmitting stations.

**NOTE:** ADF bearing checks on the ground, in hangars, or near other airplanes, metal buildings and equipment, etc. may show inaccurate bearings or weak signals.

##### B. References

Reference	Title
23-51-00-710-801	Flight Interphone System - Operational Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (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)

##### C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

##### D. Prepare for the Test

#### **HAP ALL; AIRPLANES WITH SINGLE ADF RECEIVER**

SUBTASK 34-57-00-840-004

- (1) Do these steps to prepare for the test:
- Do this task: Supply Electrical Power, TASK 24-22-00-860-811.
  - Make sure the Flight Interphone System is on (TASK 23-51-00-710-801).
  - Make sure the Air Data Inertial Reference System is on (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).
  - Set the left VOR/ADF switches on the RMI to the ADF position.
  - Set the CDS switch on the P5 panel to the AUTO position.
  - On the captain's and first officer's EFIS control panels, set the VOR1/OFF/ADF1 switches to the ADF 1 position.

#### **HAP ALL**

SUBTASK 34-57-00-860-055

- (2) For the audio select panels, do these steps:
- Set the ADF 1 audio selector to the ON position.

**NOTE:** Make sure that the volume for the ADF 1 system is set to a comfortable level.

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- (b) Set the volume controls for all other audio selects to the OFF position.

### HAP ALL; AIRPLANES WITH THE V/B/R SWITCH

- (c) Set the VOICE/RANGE switch to the BOTH position.

### HAP 002-005, 008-013, 015-026, 028-054, 101-999; AIRPLANES WITH G7402-04 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER, AND WITH TONE SWITCH)

SUBTASK 34-57-00-860-056

- (3) On the ADF control panel, set the switches as follows:
- (a) The mode switch to the ADF position.
  - (b) The TONE switch to the OFF position.

### HAP 001, 006, 007; AIRPLANES WITH G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER)

SUBTASK 34-57-00-860-057

- (4) On the ADF control panels, set the switches as follows:
- (a) The mode switches to the ADF position.
  - (b) The TONE switches to the OFF position.
  - (c) The TFR switches to the left position.

### HAP ALL; AIRPLANES WITH SINGLE ADF SYSTEM

#### E. ADF BITE Test

### HAP ALL; AIRPLANES WITH G7402-02 OR G7402-04 OR G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER)

SUBTASK 34-57-00-740-016

- (1) Do these steps to do a test of the ADF BITE:
- (a) Push and release the TEST switch on the ADF receiver.
  - (b) Make sure the wide pointer on the RMI slews to 135° relative to the Heading Lubber Line.

### HAP ALL; AIRPLANES WITH SINGLE ADF SYSTEM

#### F. ADF System Test

### HAP 001, 006, 007; AIRPLANES WITH G7402-02 OR G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER)

SUBTASK 34-57-00-860-059

- (1) Set the left frequency control on the ADF control panel to a local AM broadcast or NDB station, and push the transfer switch to move this frequency to the ACTIVE display.

### HAP 002-005, 008-013, 015-026, 028-054, 101-999; AIRPLANES WITH G7402-04 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER, AND WITH TONE SWITCH)

SUBTASK 34-57-00-860-060

- (2) Set the frequency control on the ADF control panel to a local AM broadcast or NDB station.

### HAP ALL; AIRPLANES WITH SINGLE ADF SYSTEM

SUBTASK 34-57-00-750-032

- (3) Do these steps to do a check of the ADF system:

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**HAP ALL; AIRPLANES WITH SINGLE ADF SYSTEM (Continued)**

- (a) Make sure you hear a loud and clear ADF audio signal at all audio select locations.
- (b) Make sure the narrow needle on the RMI points to the selected bearing.

**HAP ALL**

- (c) Make sure the ADF pointers on the captain's and first officer's ND's point to the selected bearing.
- (d) Make sure the ADF frequencies which show on the bottom left corner of the captain's and first officer's ND's are the same as the frequency from the ADF control panel.

**HAP ALL; AIRPLANES WITH SINGLE ADF SYSTEM**

SUBTASK 34-57-00-860-062

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

- (a) Make sure the narrow needle flag shows on the RMI.

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- (b) Make sure the yellow ADF flags show on the captain's and first officer's ND's.

**HAP ALL; AIRPLANES WITH SINGLE ADF SYSTEM**

SUBTASK 34-57-00-860-063

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

**HAP ALL**

- G. Put the Airplane Back to Its Usual Position

SUBTASK 34-57-00-860-076

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

<p>EFFECTIVITY</p> <p><b>HAP ALL</b></p>	
--	--

**34-57-00**



737-600/700/800/900

# AIRCRAFT MAINTENANCE MANUAL

## ADF ANTENNA - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the automatic direction finder (ADF) antenna
- (2) An installation of the ADF antenna.

### HAP ALL; AIRPLANES WITH SINGLE ADF ANTENNA

B. The ADF antenna is installed on the top of the fuselage at station 694.00.

### HAP ALL; AIRPLANES WITH ADF ANTENNA

#### TASK 34-57-01-000-801

### 2. ADF Antenna Removal

(Figure 401)

A. References

Reference	Title
51-31-00-390-806	Aerodynamic Smoother Application (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

C. Location Zones

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

D. Removal Procedure

SUBTASK 34-57-01-860-001

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

EFFECTIVITY
HAP ALL; AIRPLANES WITH ADF ANTENNA

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## AIRCRAFT MAINTENANCE MANUAL

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**HAP 031-054**

A	17	C01383	RADIO NAVIGATION ADF 2
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**HAP ALL; AIRPLANES WITH ADF ANTENNA**

SUBTASK 34-57-01-140-007

- (2) Remove the aerodynamic smoother from around the edge of the ADF ANTENNA [1] (TASK 51-31-00-390-806).

SUBTASK 34-57-01-020-001

- (3) Remove the ADF ANTENNA [1]:

(a) Loosen the mounting bolts [4] and until they disengage from the airplane nutplates.

**CAUTION:** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, THE ANTENNA CABLE, OR THE ADF ANTENNA.

(b) Use force around the ADF ANTENNA [1] with the sealant removal tool, COM-2481 until the seal is fully broken.

**CAUTION:** LIFT THE ADF ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CABLE. DAMAGE TO THE ANTENNA CABLE CAN OCCUR IF YOU PULL THE CABLE.

(c) Lift the ADF ANTENNA [1] until you can get access to the connector [3].

(d) Disconnect the connector [3] from the ADF antenna [1].

**NOTE:** Do not let the connector [3] fall into the fuselage.

(e) Remove the ADF ANTENNA [1] and the o-ring [2].

(f) Put a protective cover on the connector [3].

————— **END OF TASK** —————

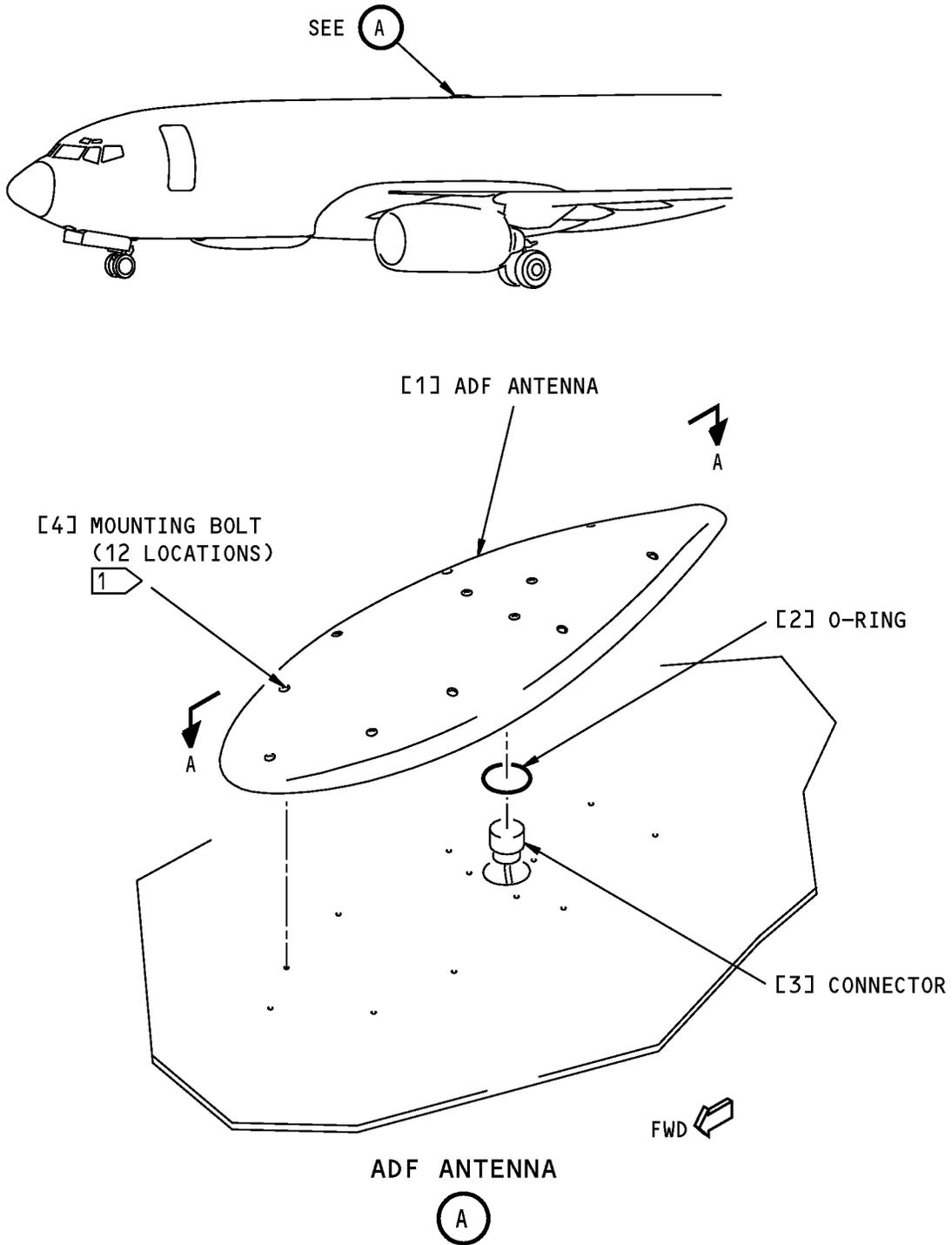
EFFECTIVITY  
**HAP ALL; AIRPLANES WITH ADF ANTENNA**

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**737-600/700/800/900  
AIRCRAFT MAINTENANCE MANUAL**



**1** CAPTIVE MOUNTING BOLTS ARE USED ON THE ANTENNA BASEPLATE

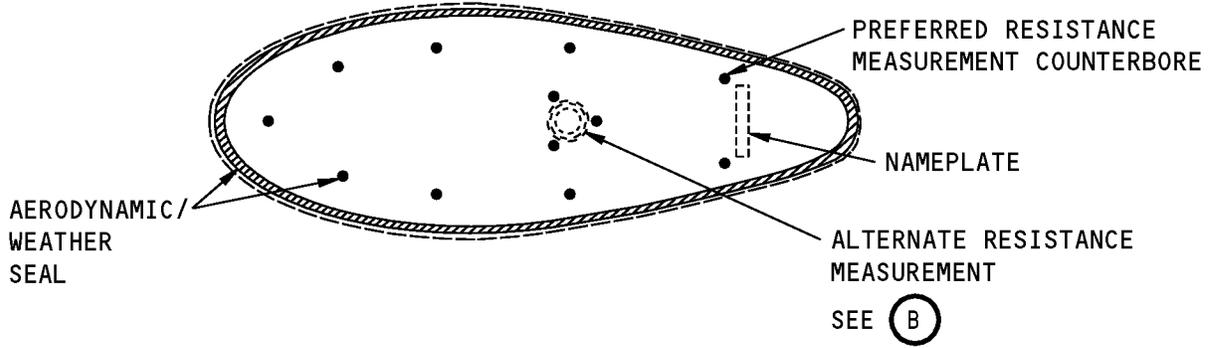
**ADF Antenna Installation  
Figure 401 (Sheet 1 of 2)/34-57-01-990-801**

EFFECTIVITY  
HAP ALL

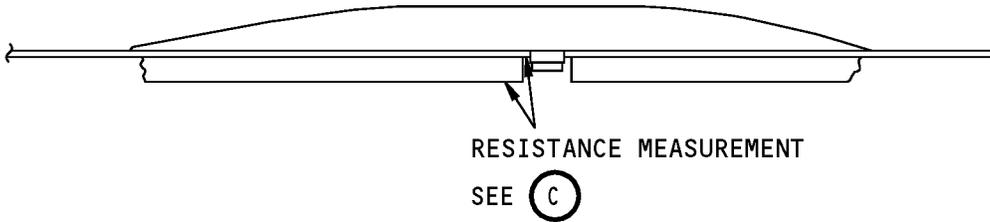
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**34-57-01**

**AIRCRAFT MAINTENANCE MANUAL**



**AERODYNAMIC/WEATHERPROOFING SEALANT  
(TOP VIEW)  
A-A**



**ALTERNATE RESISTANCE MEASUREMENT  
(SIDE VIEW)**

(B)



**RESISTANCE MEASUREMENT  
(BOTTOM VIEW)**

(C)

**ADF Antenna Installation  
Figure 401 (Sheet 2 of 2)/34-57-01-990-801**

EFFECTIVITY  
HAP ALL

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### AIRCRAFT MAINTENANCE MANUAL

TASK 34-57-01-400-801

#### 3. ADF Antenna Installation

(Figure 401)

##### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
51-21-00-100-801	Airplane Surface Preparation for Application of Finish (P/B 701)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-805	Fastener Seal Application (P/B 201)

##### B. Tools/Equipment

Reference	Description
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic
STD-1045	Ohmmeter - Resistance

##### C. Consumable Materials

Reference	Description	Specification
A00230	Compound - Electrical Insulating Coating	BMS 5-37
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
B00083	Solvent - Aliphatic Naphtha (For Acrylic Plastics)	TT-N-95 Type II, ASTM D-3735 Type III
C00064	Coating - Aluminum Chemical Conversion	BAC5719, Type II, Class A (MIL-C-5541, Class A)
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79, Type III
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
G02497	Agent - Non-Peelable Parting (Henkel Loctite - Frekote 700-NC Mold Release)	BAC 5000
G50313	Agent - Non-Peelable Parting (Henkel Loctite - Frekote 710-NC Mold Release)	BAC 5000

##### D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ANTENNA	34-57-01-01-315	HAP 001-013, 015-026, 028-046, 054, 101-103

##### E. Location Zones

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

EFFECTIVITY HAP ALL; AIRPLANES WITH ADF ANTENNA
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(Continued)

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

F. Installation Procedure

SUBTASK 34-57-01-860-020

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
<b>HAP 031-054</b>			
A	17	C01383	RADIO NAVIGATION ADF 2

**HAP ALL; AIRPLANES WITH ADF ANTENNA**

SUBTASK 34-57-01-110-001

- (2) Clean the airplane skin (TASK 51-21-00-100-801):

- (a) Remove the old sealant from the airplane skin in the ADF ANTENNA [1] area.
- (b) Clean the mating surface with solvent, B00083.

SUBTASK 34-57-01-620-001

- (3) If the airplane skin has corrosion or other damage, do these steps:

- (a) To remove the corrosion, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.
- (b) Apply a layer of coating, C00064, on the airplane skin in the area where the ADF ANTENNA [1] touches the skin.
- (c) Apply two layers of primer, C00175, on top of the alodine.

SUBTASK 34-57-01-420-001

- (4) Install the ADF ANTENNA [1]:

- (a) Apply a thin layer of compound, A00230, to the antenna base.
- (b) Apply the Frekote 700-NC non-peelable parting agent, G02497 or Frekote 710-NC non-peelable parting agent, G50313 to the antenna base.
- (c) Apply a layer of grease, D00015, on the o-ring [2] and o-ring groove.
- (d) Install the o-ring [2] on the ADF ANTENNA [1].
- (e) Remove the protective cover from the electrical connector [3].
- (f) Connect the electrical connector [3] to the ADF ANTENNA [1].
- (g) Put the ADF ANTENNA [1] into position on the airplane surface.
- (h) Lightly tighten the mounting bolts [4] in a diagonal pattern to hold the ADF ANTENNA [1] in the correct position.

NOTE: Refer to the IPC for the bolt part number.

<p>EFFECTIVITY</p> <p><b>HAP ALL; AIRPLANES WITH ADF ANTENNA</b></p>
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## AIRCRAFT MAINTENANCE MANUAL

**CAUTION:** TIGHTEN THE BOLTS MANUALLY TO THE CORRECT TORQUE VALUE. USE OF POWER OR AIR TOOLS TO TIGHTEN THE SCREWS CAN CAUSE DAMAGE TO THE ADF SURFACE.

- (i) Manually tighten the mounting bolts [4] to 20-25 pound-inches (2.3-2.8 newton-meters) of torque.
- (j) Remove the unwanted compound, A00230, from around the edge of the ADF ANTENNA [1].

### G. Resistance Measurement (Preferred)

SUBTASK 34-57-01-760-001

- (1) Do a check of the electrical continuity between the ADF ANTENNA [1] baseplate and the airplane skin:
  - (a) Loosen one mounting bolt [4] from the ADF ANTENNA [1].
  - (b) Connect the ohmmeter, STD-1045 between the bolt counterbore and the airplane skin.
    - 1) Make sure the measurement of continuity is 1 milliohm or less.
  - (c) If the resistance measurement caused damage, apply the sealant, A02315 or sealant, A00247, to the damaged area of the airplane skin.
  - (d) Manually, tighten the mounting bolt [4] to 20-25 pound-inches (2.3-2.8 newton-meters) of torque.

### H. Resistance Measurement (Alternate)

SUBTASK 34-57-01-760-002

- (1) Do a check of the electrical continuity from the inside of the airplane between the ADF ANTENNA [1] baseplate and the airplane skin:
  - (a) Connect the ohmmeter, STD-1045 between the ADF ANTENNA [1] baseplate and the airplane skin.
    - 1) Make sure the measurement of continuity is 1 milliohm or less.
  - (b) If the resistance measurement caused damage, apply the sealant, A02315 or sealant, A00247, to the damaged area of the airplane skin.

### I. ADF Antenna Sealing

SUBTASK 34-57-01-390-001

- (1) Fill the mounting bolt [4] counterbores with approximately 0.3 inches (7.6 mm) of cotton plug.

SUBTASK 34-57-01-390-002

- (2) Seal all the mounting bolts [4] with sealant, A02315 or sealant, A00247, until flush with the ADF ANTENNA [1] surface (TASK 51-31-00-390-805).

SUBTASK 34-57-01-390-003

- (3) Apply the sealant, A02315 or sealant, A00247, to seal around the ADF ANTENNA [1] (TASK 51-31-00-390-804).

SUBTASK 34-57-01-390-004

- (4) Use the hardwood or plastic fillet smoothing spatula, STD-810 to make a smooth 45-degree bead.

SUBTASK 34-57-01-140-002

- (5) Remove unwanted sealant from the area around the ADF ANTENNA [1] base.

### J. ADF Antenna Installation Test

SUBTASK 34-57-01-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

EFFECTIVITY  
HAP ALL; AIRPLANES WITH ADF ANTENNA

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SUBTASK 34-57-01-860-021

(2) 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>
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

**HAP 031-054**

**HAP ALL; AIRPLANES WITH ADF ANTENNA**

SUBTASK 34-57-01-860-005

(3) On the ADF control panel, set the controls to these positions:

- (a) The mode switch to the ADF position
- (b) The frequency controls to a broadcast station between 190 and 1750 kHz.

SUBTASK 34-57-01-750-001

(4) Set the bearing source switches on the RMIs to the ADF position.

- (a) Make sure that the RMIs show the correct bearing.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-57-01-860-006

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

<p>EFFECTIVITY</p> <p><b>HAP ALL; AIRPLANES WITH ADF ANTENNA</b></p>
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# AIRCRAFT MAINTENANCE MANUAL

## ADF CONTROL PANEL - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the automatic direction finder (ADF) control panel
- (2) An installation of the ADF control panel.

B. The ADF control panel is installed on the aisle control stand, P8.

#### **TASK 34-57-02-000-801**

### 2. ADF Control Panel Removal

(Figure 401)

A. Location Zones

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

B. Removal Procedure

SUBTASK 34-57-02-860-004

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

#### **HAP 031-054**

#### **HAP ALL; AIRPLANES WITH ADF CONTROL PANEL**

SUBTASK 34-57-02-020-001

- (2) Loosen the quarter-turn fasteners [2] on the ADF control panel [1].

SUBTASK 34-57-02-020-002

- (3) Move the control panel out to get access to the electrical connector [3].

SUBTASK 34-57-02-020-003

- (4) Disconnect the electrical connector [3].

SUBTASK 34-57-02-020-004

- (5) Remove the ADF control panel [1].

————— **END OF TASK** —————

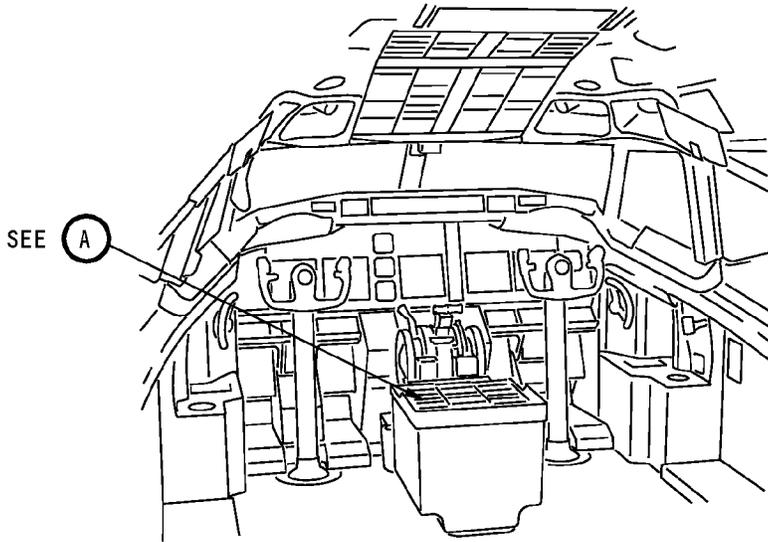
EFFECTIVITY
<b>HAP ALL; AIRPLANES WITH ADF CONTROL PANEL</b>

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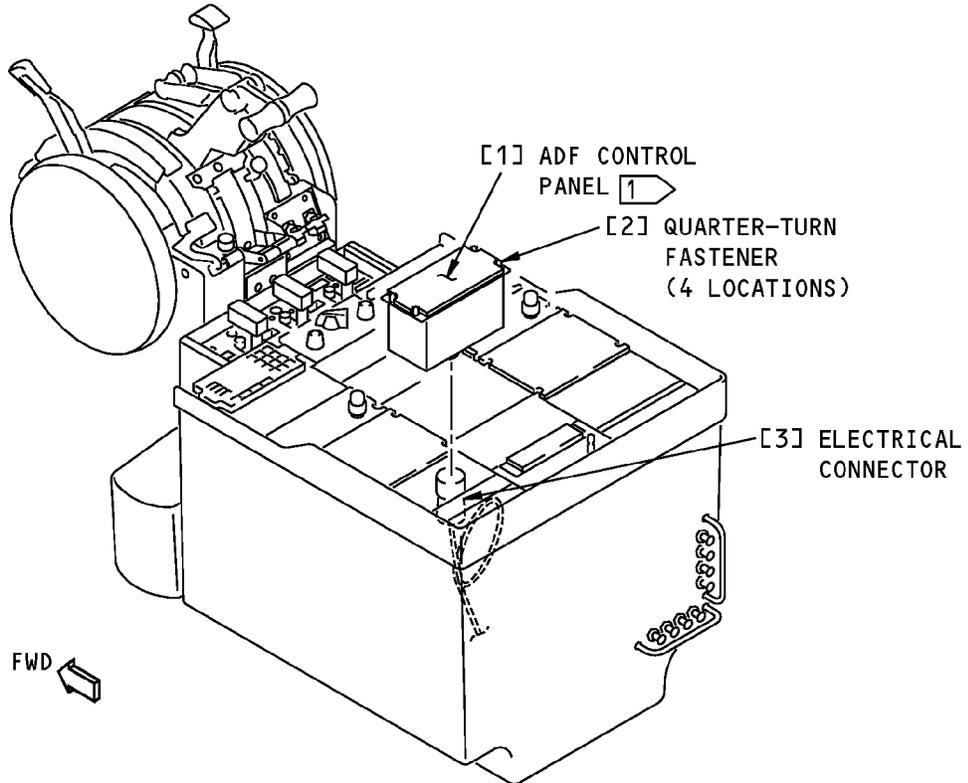
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AIRCRAFT MAINTENANCE MANUAL**



**FLIGHT COMPARTMENT**



**AISLE STAND**

**1** THE LOCATION ON THE AISLE STAND CAN BE DIFFERENT FOR SOME AIRPLANES

**ADF Control Panel Installation  
Figure 401/34-57-02-990-801**

EFFECTIVITY  
HAP ALL

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# AIRCRAFT MAINTENANCE MANUAL

## TASK 34-57-02-400-801

### 3. ADF Control Panel Installation

(Figure 401)

#### A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-57-00-730-802	Automatic Direction Finder System - System Test (P/B 501)

#### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Panel	31-11-91-04-075	HAP 001-013, 015-026, 028-030
		34-57-02-01B-070	HAP 001-011, 017-026, 028-030
		34-57-02-03R-025	HAP 031-040, 042-046, 048, 051-053, 101-106

#### C. Location Zones

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

#### D. Installation Procedure

SUBTASK 34-57-02-860-005

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

**HAP 031-054**

**HAP ALL; AIRPLANES WITH ADF CONTROL PANEL**

SUBTASK 34-57-02-420-001

- (2) Connect the electrical connector [3] to the ADF control panel [1].

SUBTASK 34-57-02-420-002

- (3) Install the ADF control panel [1].

SUBTASK 34-57-02-420-003

- (4) Tighten the quarter-turn fasteners [2] on the ADF control panel [1].

SUBTASK 34-57-02-860-006

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

EFFECTIVITY
<b>HAP ALL; AIRPLANES WITH ADF CONTROL PANEL</b>

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**HAP 031-054**

A	17	C01383	RADIO NAVIGATION ADF 2
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**HAP ALL; AIRPLANES WITH ADF CONTROL PANEL**

E. Installation Test

SUBTASK 34-57-02-750-001

(1) Make sure the panel lights are on.

SUBTASK 34-57-02-730-001

(2) Do this task: Automatic Direction Finder System - System Test, TASK 34-57-00-730-802.

SUBTASK 34-57-02-860-016

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

EFFECTIVITY  
**HAP ALL; AIRPLANES WITH ADF CONTROL PANEL**

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# AIRCRAFT MAINTENANCE MANUAL

## ADF RECEIVER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

- (1) A removal of the automatic direction finder (ADF) receiver
- (2) An installation of the ADF receiver.

### HAP ALL

B. The ADF receiver is installed on the E3-1 rack in the main equipment center.

### HAP ALL; AIRPLANES WITH ADF RECEIVER

**TASK 34-57-03-000-801**

### 2. ADF Receiver Removal

(Figure 401)

A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-57-03-860-005

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

**HAP 031-054**

A	17	C01383	RADIO NAVIGATION ADF 2
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### HAP ALL; AIRPLANES WITH ADF RECEIVER

SUBTASK 34-57-03-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(TASK 06-41-00-800-801).

EFFECTIVITY
HAP ALL; AIRPLANES WITH ADF RECEIVER

# 34-57-03

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**AIRCRAFT MAINTENANCE MANUAL**

SUBTASK 34-57-03-020-002

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADF RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADF RECEIVER.

- (3) Remove the applicable ADF RECEIVER [1]. To remove it, do this task: E/E Box Removal, TASK 20-10-07-000-801.

————— **END OF TASK** —————

EFFECTIVITY  
HAP ALL; AIRPLANES WITH ADF RECEIVER

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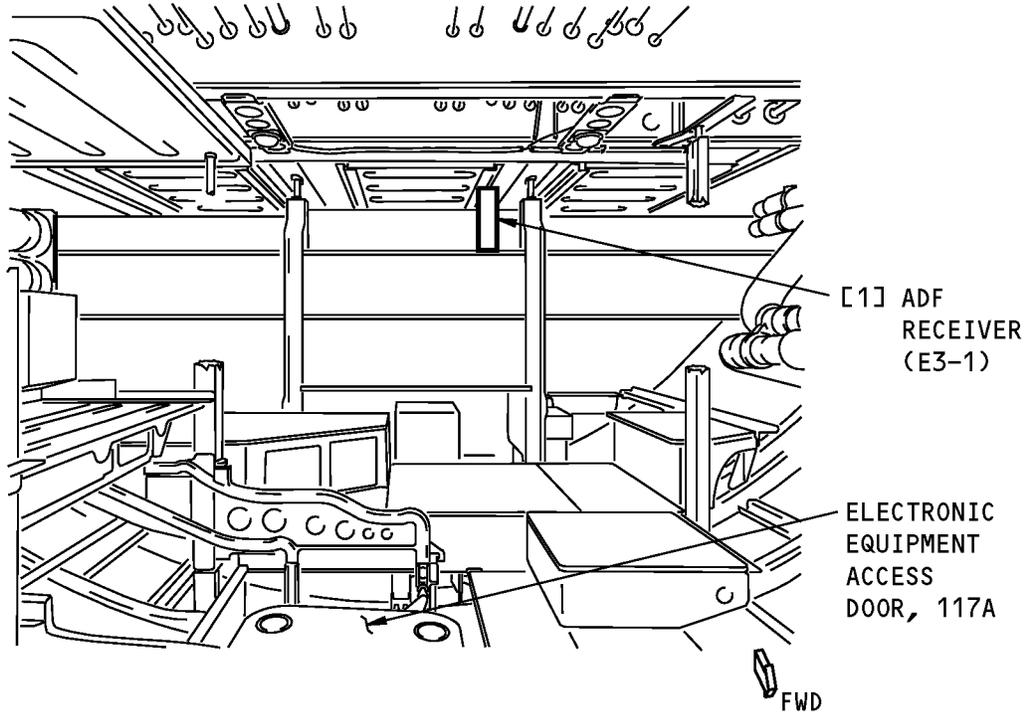
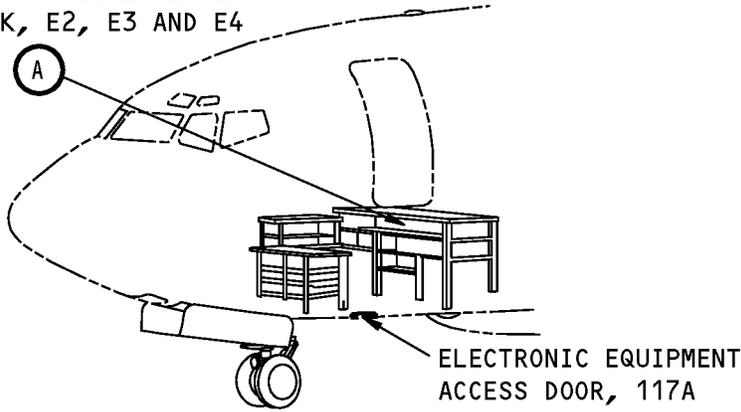
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**AIRCRAFT MAINTENANCE MANUAL**

ELECTRONIC EQUIPMENT  
RACK, E2, E3 AND E4

SEE (A)



**ELECTRONIC EQUIPMENT RACK, E2, E3 AND E4**

(A)

**ADF Receiver Installation**  
**Figure 401/34-57-03-990-801**

**EFFECTIVITY**  
**HAP ALL; AIRPLANES WITH SINGLE ADF RECEIVER**

**34-57-03**



737-600/700/800/900

# AIRCRAFT MAINTENANCE MANUAL

TASK 34-57-03-400-801

## 3. ADF Receiver Installation

(Figure 401)

### A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

### B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	RECEIVER	34-57-03-02-005	HAP 012, 013, 015-026, 028-054, 101-999

### C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

### D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

### E. Installation Procedure

SUBTASK 34-57-03-860-006

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

**HAP 031-054**

**HAP ALL; AIRPLANES WITH ADF RECEIVER**

SUBTASK 34-57-03-420-004

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADF RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADF RECEIVER.

- (2) Install the ADF RECEIVER [1]. To install it, do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-57-03-410-001

- (3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY <b>HAP ALL; AIRPLANES WITH ADF RECEIVER</b>
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(TASK 06-41-00-800-801).

SUBTASK 34-57-03-860-007

(4) 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>
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 031-054</b>			
A	17	C01383	RADIO NAVIGATION ADF 2

**HAP ALL; AIRPLANES WITH ADF RECEIVER**

F. ADF Receiver Installation Test

SUBTASK 34-57-03-860-022

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

**HAP ALL**

(a) Set the ADF/VOR switch on the RMI to the ADF position.

**HAP ALL; AIRPLANES WITH ONE ALLIEDSIGNAL SERIES ADF RECEIVER**

SUBTASK 34-57-03-740-001

(2) Push and hold the TEST switch on the ADF receiver.

**HAP ALL; AIRPLANES WITH ALLIED SIGNAL ADF RECEIVER**

SUBTASK 34-57-03-750-001

(3) Make sure this sequence occurs on the ADF receiver:

- (a) For seconds 0-1, TEST IN PROGRESS shows on the front panel LCD.
- (b) For seconds 1-5, TEST IN PROGRESS shows with a moving thermometer along the bottom of the LCD.
- (c) After 5 seconds, TEST COMPLETE, NO FAILURES shows on the LCD.

**HAP ALL**

SUBTASK 34-57-03-750-002

(4) Make sure these indications occur on the RMI:

**HAP ALL; AIRPLANES WITH SINGLE ADF SYSTEM**

- (a) The left ADF/VOR warning flag comes into view.
- (b) The left bearing pointer goes to 135 degrees.

**HAP ALL**

SUBTASK 34-57-03-740-002

(5) Release the TEST switch on the ADF receiver.

**HAP ALL; AIRPLANES WITH ADF RECEIVER**

<p>EFFECTIVITY</p> <p><b>HAP ALL; AIRPLANES WITH ADF RECEIVER</b></p>
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SUBTASK 34-57-03-860-026

(6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

**EFFECTIVITY**  
**HAP ALL; AIRPLANES WITH ADF RECEIVER**

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## GLOBAL POSITIONING SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

- (1) An operational test of the global positioning system (GPS).
- (2) A system test of the global positioning system.

NOTE: The airplane must be moved to a position where the GPS antennas have a clear view of the GPS satellites.

### **TASK 34-58-00-710-802**

### 2. Global Positioning System - Operational Test

A. General

- (1) This task does a GPS position check.

B. References

Reference	Title
09-11-00-580-801	Towing (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

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

D. Procedure

SUBTASK 34-58-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-58-00-860-008

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

### **HAP ALL**

SUBTASK 34-58-00-580-001

- (3) Move the airplane to a position where the GPS antennas have a clear view of the GPS satellites. To move the airplane, do this task: Towing, TASK 09-11-00-580-801.

SUBTASK 34-58-00-710-001

- (4) Do these steps to see the GPS position on the CDU:
  - (a) Push the INIT REF key on the CDU.
  - (b) Push the line select key (LSK) that is adjacent to < INDEX.
  - (c) Push the LSK that is adjacent to < POS.

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- (d) Push the NEXT PAGE key on the CDU.
- (e) Make sure the steps that follow occur:
  - 1) The GPS L position on the CDU agrees with the known airplane position.  
NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.
  - 2) The GPS R position on the CDU agrees with the known airplane position.  
NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.

————— END OF TASK —————

#### TASK 34-58-00-730-802

### 3. Global Positioning System - System Test

#### A. General

- (1) This procedure does a GPS interface check.
- (2) The airplane must be moved to a position where the GPS antennas have a clear view of the GPS satellites.

#### B. References

Reference	Title
09-11-00-580-801	Towing (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

#### C. Location Zones

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

#### D. Procedure

SUBTASK 34-58-00-580-002

- (1) Move the airplane to a position where the GPS antennas have a clear view of the GPS satellites.  
To move the airplane, do this task: Towing, TASK 09-11-00-580-801.

SUBTASK 34-58-00-860-003

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-58-00-860-004

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

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

**HAP ALL**

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SUBTASK 34-58-00-710-004

- (4) Do these steps to see the GPS position on the CDU:
- (a) Push the INIT REF key on the CDU.
  - (b) Push the line select key (LSK) that is adjacent to < INDEX.
  - (c) Push the LSK that is adjacent to < POS.
  - (d) Push the NEXT PAGE key on the CDU.
  - (e) Make sure the steps that follow occur:
    - 1) The GPS L position on the CDU agrees with the known airplane position.  
NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.
    - 2) The GPS R position on the CDU agrees with the known airplane position.  
NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.

SUBTASK 34-58-00-710-003

- (5) Do these steps to do a check of the GPS annunciator on the IRS MSU (P5 panel):
- (a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

**HAP ALL**

- 1) Make sure the GPS L position goes out of view on the CDU.
- 2) Make sure the GPS R position stays in view on the CDU.
- 3) Make sure the GPS annunciator on the IRS MSU (P5) stays off.

- (b) 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>
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	13	C01480	RADIO NAVIGATION MMR 2

**HAP ALL**

- 1) Make sure the GPS R position goes out of view on the CDU.
- 2) Make sure the GPS L position stays out of view on the CDU.
- 3) Make sure the GPS annunciator on the IRS MSU (P5) comes on after approximately 10 seconds.

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>HAP 001, 004-013, 015-026, 028-054, 101-999</b>			
A	2	C01479	RADIO NAVIGATION MMR 1

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HAP 001, 004-013, 015-026, 028-054, 101-999 (Continued)

F/O Electrical System Panel, P6-1

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

HAP ALL

- (d) Make sure the GPS annunciator on the IRS MSU goes off.
  - (e) Stop for approximately 5 minutes until the GPS L and GPS R positions are shown again.
- E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-58-00-860-007

- (1) Remove electrical power, if it is not necessary (TASK 24-22-00-860-812) .

————— END OF TASK —————

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# AIRCRAFT MAINTENANCE MANUAL

## GPS ANTENNA - REMOVAL/INSTALLATION

### 1. General

- A. This procedure has these tasks:
  - (1) A removal of the GPS antenna.
  - (2) An installation of the GPS antenna.
- B. There are two GPS antennas on the airplane: GPS Antenna 1, M2103, and GPS Antenna 2, M2102. The two antennas are installed near station 500A. GPS Antenna 2 is forward and to the right of GPS Antenna 1.
- C. The tasks are the same for the two antennas.

### **TASK 34-58-02-000-802**

### 2. GPS Antenna Removal

(Figure 401)

#### A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: \$0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: \$0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: \$0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

#### C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

#### D. Removal Procedure

SUBTASK 34-58-02-020-003

- (1) To remove the sealant from around the edge of the GPS antenna [1], do this task: Prepare For Sealing, TASK 51-31-00-160-801.

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SUBTASK 34-58-02-020-004

(2) Do these steps to remove the GPS antenna [1]:

- (a) Remove the seals that are above the screw holes on the antenna.
- (b) Remove the screws [2] from the GPS antenna [1].

**CAUTION:** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(c) Use the sealant removal tool, COM-2481 to break the seal all around the GPS antenna [1].

**CAUTION:** MOVE THE ANTENNA THE LEAST DISTANCE NECESSARY TO PERMIT YOU TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE COAXIAL CABLE CAN OCCUR IF YOU PULL THE CABLE WITH TOO MUCH FORCE.

- (d) Carefully pull the GPS antenna [1] until you can get access to the coaxial connector [3].
- (e) Disconnect the coaxial connector [3].

**NOTE:** Make sure the coaxial cable and connector [3] do not fall into the airplane fuselage.

- (f) Remove the GPS antenna [1] and the O-ring [4].
- (g) Put protective covers on the coaxial connector [3].

————— **END OF TASK** —————

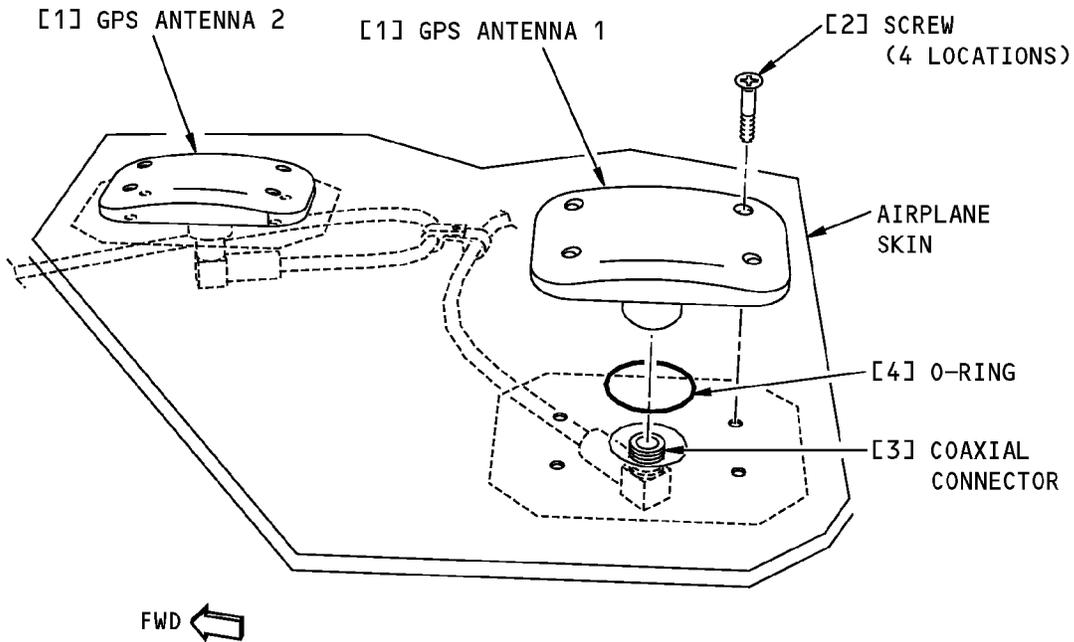
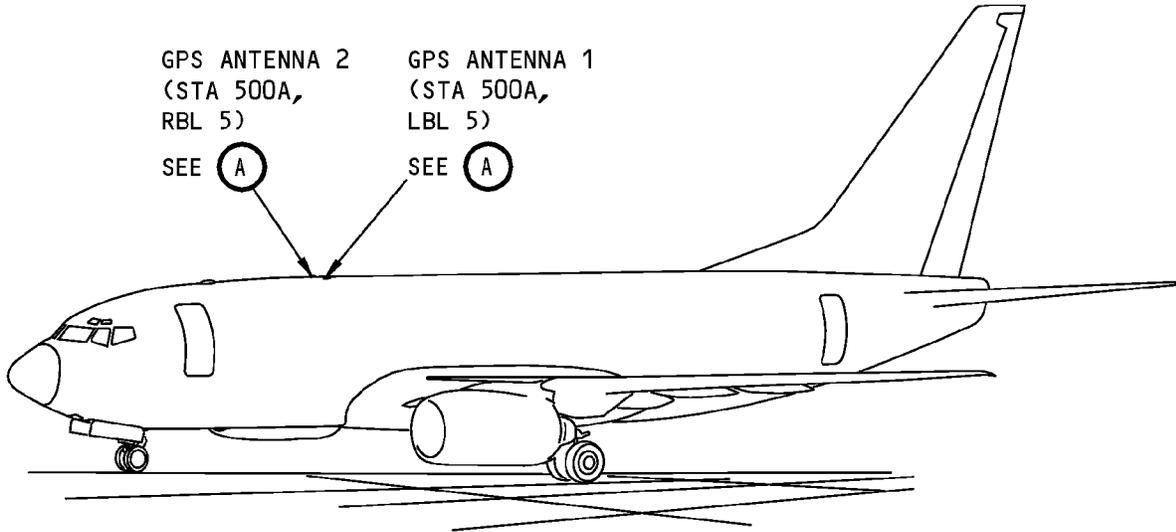
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**GPS ANTENNA**



**GPS Antenna Installation  
Figure 401/34-58-02-990-801**

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TASK 34-58-02-400-802

#### 3. GPS Antenna Installation

(Figure 401)

##### A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)

##### B. Tools/Equipment

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

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic
STD-1045	Ohmmeter - Resistance

##### C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84/201) - Series 84	
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
D00254	Compound - Silicone	SAE AS8660 (NATO S-736) (Supercedes MIL-S-8660)

##### D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	GPS antenna	34-58-02-01-005	HAP 001-013, 015-026, 028-030
		34-58-02-03-015	HAP 101-999
		34-58-02-04-015	HAP 031-054

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### E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

### F. Installation Procedure

SUBTASK 34-58-02-110-002

(1) Clean the airplane skin as follows:

- (a) To remove the remaining sealant from the airplane skin in the antenna area, do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (b) Clean the airplane skin in the antenna area with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

SUBTASK 34-58-02-840-002

(2) If there is corrosion on the airplane skin below the antenna, prepare the airplane skin as follows:

- (a) To remove the corrosion, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (b) Clean the airplane skin in the area of the corrosion with Series 84 solvent, B01004 (TASK 20-30-84-910-801).
- (c) To apply a layer of coating A1200 to the airplane skin in the area where the GPS antenna [1] touches the skin, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.

SUBTASK 34-58-02-390-006

(3) Prepare the GPS antenna [1] as follows:

- (a) Apply a layer of grease, D00015, on the O-ring [4] and the O-ring groove.
- (b) Install the O-ring [4] on the GPS antenna [1].
- 1) Make sure the O-ring [4] is not damaged and is installed correctly in the O-ring groove.
- (c) Apply a layer of sealant, A00247, in the holes in the airplane skin for the screws and the coaxial cable.
- (d) Apply a layer of sealant, A00247, on the threads and shank of the screws [2].

SUBTASK 34-58-02-420-004

(4) Install the GPS antenna [1]:

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- (a) Remove the protective covers from the coaxial connector [3].
- (b) Examine the coaxial connector [3] for dirt and damage.
- (c) Connect the coaxial connector [3].
- (d) Tighten the connector 8 to 12 inch-pounds.
- (e) Apply a large quantity of silicone compound, D00254, to the outside coaxial connector, and at the exterior connector/antenna interface.
- (f) Put the GPS antenna [1] into its position on the airplane.
- (g) Install three of the screws [2] that hold the GPS antenna [1].

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (h) Remove the unwanted sealant, A00247, from around the antenna with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

SUBTASK 34-58-02-760-002

- (5) Do a check of the resistance between the GPS antenna [1] and the airplane skin as follows:

- (a) Connect an ohmmeter, STD-1045 or a bonding meter, COM-1550 between the base of the antenna and the airplane skin.

**NOTE:** You can get access to the base of the antenna through the hole for the last screw.

- 1) Make sure the measured resistance is 0.001 ohm or less.

SUBTASK 34-58-02-420-005

- (6) Install the last screw [2] that holds the GPS antenna [1].

SUBTASK 34-58-02-420-006

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (7) Remove the unwanted sealant, A00247, from around the head of each screw [2] with Series 84 solvent, B01004 Final Cleaning of Metal Prior to Painting (Series 84), TASK 20-30-84-910-801.

### G. Aerodynamic Fillet Seal Installation

SUBTASK 34-58-02-390-007

- (1) To apply a bead of sealant, A02315, around the antenna where it touches the airplane skin, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

**NOTE:** Apply the sealant all around the edge of the antenna. Make sure that no air bubbles are in the sealant. Use a sufficient quantity of the sealant to permit you to make the surface smooth.

SUBTASK 34-58-02-390-008

- (2) To make the bead into an aerodynamic fillet seal approximately 0.70 inches wide with the hardwood or plastic fillet smoothing spatula, STD-810, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

SUBTASK 34-58-02-140-002

- (3) Remove all the unwanted sealant from the area around the antenna.

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SUBTASK 34-58-02-390-009

- (4) Fill the screw holes with sealant, A02315.

NOTE: Make the sealant smooth in relation to the antenna surface.

### H. GPS Antenna Installation Test

SUBTASK 34-58-02-860-009

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-58-02-710-002

- (2) Do these steps to see the GPS position on the CDU:

- (a) Push the INIT REF key on the CDU.
- (b) Push the line select key (LSK) that is adjacent to < INDEX.
- (c) Push the LSK that is adjacent to < POS.
- (d) Push the NEXT PAGE key on the CDU.
- (e) Make sure the steps that follow occur:

- 1) The GPS L position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the GPS positions to show on the CDU.

- 2) The GPS R position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the GPS positions to show on the CDU.

### I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-58-02-860-010

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## AIRCRAFT MAINTENANCE MANUAL

### FLIGHT MANAGEMENT COMPUTER SYSTEM - MAINTENANCE PRACTICES

#### 1. General

A. This procedure contains these tasks:

##### **HAP 031-054, 101-999**

(1) An installation of the FMC software with an airborne data loader (ADL).

##### **HAP 001-013, 015-026, 028-030**

(2) An installation of the FMC software with a portable data loader (PDL).

##### **HAP 037-054, 101-999**

(3) A crossload of the FMC software.

##### **HAP ALL**

(4) An FMC software configuration check.

##### **HAP 031-054, 101-999**

(5) An installation of the CDU software with an airborne data loader (ADL).

##### **HAP 006-013, 015-026, 028-030**

(6) An installation of the CDU software with a portable data loader (PDL).

##### **HAP 006-013, 015-026, 028-054, 101-999**

(7) A CDU software configuration check.

##### **HAP 031-054, 101-999**

(8) An installation of software when the airborne data loader is inoperative.

##### **HAP ALL**

(9) An FMC diagnostic data transfer.

(10) The Procedure to enter Zero Fuel Weight.

B. For general information for software installation times, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

C. The airplane must be on the ground before you can do these tasks.

##### **HAP 031-054, 101-999**

D. Some airlines keep the circuit breaker for the airborne data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.

##### **TASK 34-61-00-470-804**

#### 2. FMC Software Installation with an Airborne Data Loader

A. General

(1) This procedure tells you how to install software in the FMC with the airborne data loader.

(a) The FMC usually contains these pieces of software:

- 1) operational program (OPS)
- 2) navigation database (NDB)
- 3) software options database (OPC)
- 4) model/engine database (MEDB).

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HAP 031-054, 101-999 (Continued)

- (b) The FMC can contain these pieces of optional software:
  - 1) performance defaults database (Perf Defaults)
  - 2) ACARS datalink configuration database (Datalink)
  - 3) flight plan database
  - 4) Loadable Default Data Base (LDDDB)
- (2) If you install a new operational program, the databases are deleted. Also, performance factors that are changed by manual entry from the CDU go back to their default values.
  - (a) You must install the NDB and MEDB databases again after the OPS program is installed. If you do not install a customised OPC database the OPS uses default values.
  - (b) If your airline uses any of the optional databases, Perf Defaults, Datalink, flight plan, or LDDDB they must also be installed again. If you do not install a customized Perf Defaults or Datalink database the OPS uses default values.

HAP 031-054, 101-999; AIRPLANES WITH FMC P/N 10-62225-004

- (3) The operational software (OPS) U10.3 and before should not be loaded into this FMC.

HAP 031-054, 101-999

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 34-61-00-760-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

**NOTE:** If a power interrupt occurs while the FMC OPS software is uploaded, the FMC can crash and not be recoverable. For this condition, the FMC must be replaced.

SUBTASK 34-61-00-760-005

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-00-470-005

- (3) Use the ADL to install the FMC software.

SUBTASK 34-61-00-840-001

- (4) Do these steps to prepare for software installation:

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HAP 031-054, 101-999 (Continued)

### HAP 031-054, 101-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (a) Do these steps at the data loader control panel:
  - 1) Set the upper switch to L.
  - 2) Set the system select switch to FMC.

### HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

- (b) Set the FMC source select switch to the NORMAL position.

NOTE: If the switch is in the BOTH ON L or NORMAL position, the software will be installed into the left FMC. If the switch is in the BOTH ON R position, the software will be installed into the right FMC.

### HAP 031-054, 101-999

SUBTASK 34-61-00-470-006

- (5) Do these steps to install the FMC software:

NOTE: If you install the operational program (OPS), do this procedure again for each customized database.

Performance factors that were changed by manual entry from the CDU go back to their default values. After the OPS is loaded, you can enter the values again.

### HAP 031-054, 101-999; AIRPLANES WITH FMC P/N 10-62225-004

NOTE: The operational software (OPS) U10.3 and before should not be loaded into this FMC.

### HAP 031-054, 101-999

- (a) Put the correct software disk into the disk drive of the data loader.

NOTE: The FMC automatically starts the data load sequence and the CDU shows the FMCS DATA LOADER page.

- (b) Follow the prompts on the FMCS DATA LOADER page.
- (c) If the message INSERT NEXT DISK shows, do these steps:
  - 1) Push the eject button on the data loader and remove the disk.
  - 2) Put the next disk into the data loader.
  - 3) Repeat the previous two steps as necessary.
- (d) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

NOTE: After you eject the diskette from the data loader, the FMC will restart. After the FMC restarts, you can continue to install software into the FMC regardless of the page shown on the CDU.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface wiring failure

DB EXCEEDS FMC MEMORY - data on disk is too large for

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## AIRCRAFT MAINTENANCE MANUAL

HAP 031-054, 101-999 (Continued)

FMC memory

RESET COUNT EXCEEDED - five load attempts have failed

DB-OFP INCOMPATIBLE - data is not compatible with  
the FMC OFF

CHECK MEDIA - a portion of data on the disk  
is not able to load

INCORRECT DISK INSERTED - the wrong disk is put in after  
INSERT NEXT DISK is shown

### HAP 031-054, 101-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (e) Set the system select switch on the data loader control panel to NORMAL.

### HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

SUBTASK 34-61-00-470-007

- (6) Do this task: FMC Software Crossload, TASK 34-61-00-470-806.

### HAP 031-036

SUBTASK 34-61-00-750-001

- (7) Do this task: FMC Software Configuration Check, TASK 34-61-00-750-801.

### HAP 031-054, 101-999

————— END OF TASK —————

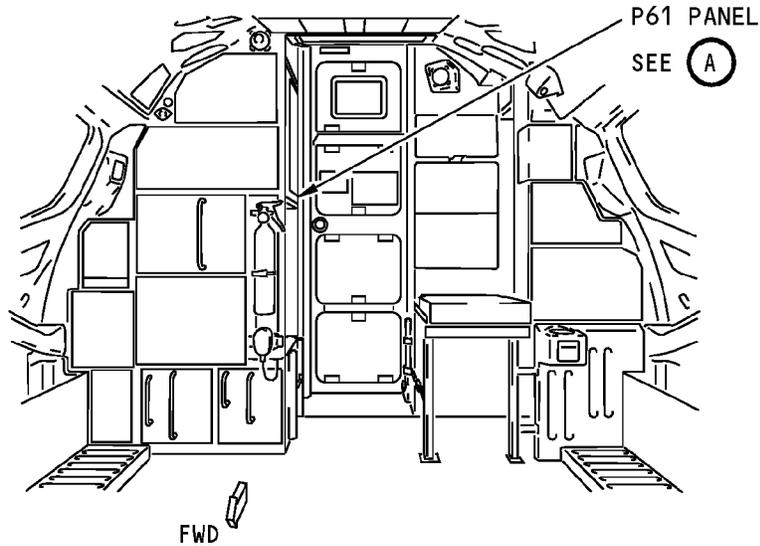
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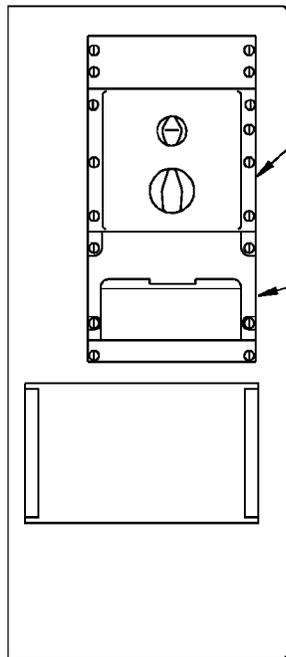
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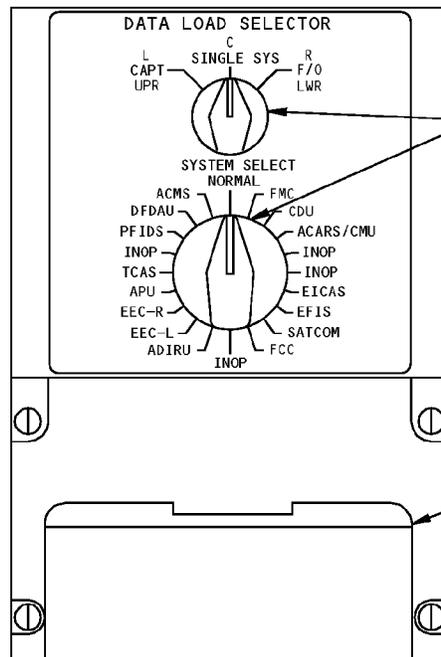


**FLIGHT COMPARTMENT**



**P61 PANEL**

(A)



DATA LOAD SELECTOR SWITCHES (EXAMPLE)

DATA LOADER

(B)

**FMC Software installation  
Figure 201/34-61-00-990-813**

**EFFECTIVITY**  
HAP 031-054, 101-999; AIRPLANES WITH AIRBORNE DATA LOADER AND TWO SELECTOR SWITCHES

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HAP 031-054, 101-999 (Continued)

HAP 001-013, 015-026, 028-030

TASK 34-61-00-470-805

3. FMC Software Installation with a Portable Data Loader

A. General

- (1) This procedure tells you how to install software into the FMC with a portable data loader.
  - (a) The FMC usually contains these pieces of software:
    - 1) operational software (OPS)
    - 2) navigation database (NDB)
    - 3) software options database (OPC)
    - 4) model/engine database (MEDB).
  - (b) The FMC can contain these pieces of optional software:
    - 1) performance defaults database (Perf Defaults)
    - 2) ACARS datalink configuration database (Datalink)
    - 3) flight plan database
    - 4) Loadable Default Data Base (LDDDB)
- (2) If you install a new operational program, the databases are deleted. Also, performance factors that are changed by manual entry from the CDU go back to their default values.
  - (a) You must install the NDB and MEDB databases again after the OPS program is installed. If you do not install a customized OPC database the OPS uses default values.
  - (b) If your airline uses any of the optional databases, Perf Defaults or Datalink, they must also be installed again. If you do not install a customized Perf Defaults or Datalink database the OPS uses default values.

HAP 030 POST SB 737-34-1918; HAP 001-013, 015-026, 028, 029 PRE SB 737-34-1666 OR POST SB 737-34-1918; AIRPLANES WITH FMC P/N 10-62225-004

- (3) The operational software (OPS) U10.3 and before should not be loaded into this FMC.

HAP 001-013, 015-026, 028-030

- (4) If the PDL is connected to the DATA TRANSFER UNIT RECEPTACLE, you cannot use the ADL to load data.
- (5) A portable data loader (PDL) is not a Boeing supplied part. Refer to the PDL supplier for instructions for operation. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Tools/Equipment

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

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HAP 001-013, 015-026, 028-030 (Continued)

Reference	Description
COM-261	Data Loader - ARINC 615 (Part #: 11615-20, Supplier: 0D4J3, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: 30100, Supplier: 0BAW0, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 964-0400-024, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 964-0400-055, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CEI-715-DL-2, Supplier: 0BPH5, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: 964-0400-020, Supplier: 97896, A/P Effectivity: 737-600, -700, -800) (Opt Part #: 964-0400-025, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Procedure

SUBTASK 34-61-00-760-006

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

**NOTE:** If a power interrupt occurs while the FMC OPS software is uploaded, the FMC can crash and not be recoverable. For this condition, the FMC must be replaced.

SUBTASK 34-61-00-840-002

- (2) Use a portable data loader (PDL) to install software in the FMC.

SUBTASK 34-61-00-840-003

- (3) Do these steps to prepare for software installation:

**HAP 001-011 PRE SB 737-31-1136; AIRPLANES WITH ONE SWITCH ON THE DATA LOADER CONTROL PANEL (P61)**

- (a) Make sure the data load select switch is set to NORM.

**HAP 012, 013, 015-026, 028-030; HAP 001-011 POST SB 737-31-1136; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)**

- (b) Make sure the system select switch on the data loader control panel (P61) is set to NORMAL.

**HAP 001-013, 015-026, 028-030**

**CAUTION:** MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

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HAP 001-013, 015-026, 028-030 (Continued)

CAUTION: MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

- (d) Set the power switch on the PDL to the off position.
(e) Connect the interface cable from the PDL to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.
(f) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row A, Col 9, Number C00923, Name DATA LOADER

HAP 001-011 PRE SB 737-31-1136; AIRPLANES WITH ONE SWITCH ON THE DATA LOADER CONTROL PANEL (P61)

- (g) Set the data load select switch on the data loader control panel to FMC.

HAP 012, 013, 015-026, 028-030; HAP 001-011 POST SB 737-31-1136; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (h) Do these steps at the data loader control panel:
1) Set the upper switch to L.
2) Set the system select switch to FMC.

HAP 001-013, 015-026, 028-030

- (i) Set the power switch on the portable data loader to the on position.

NOTE: For more information on how to use the data loader, refer to the suppliers instructions for the portable data loader.

HAP 001-013, 015-026, 028-030; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE

SUBTASK 34-61-00-470-008

- (4) Do these steps to install the software:

NOTE: If you install the operational program (OPS), do this procedure again for the customized NDB, OPC, and MEDB databases after the OPS program is installed.

If your airline uses any of the optional customized databases, Perf Defaults or Datalink, they must also be installed again.

Performance factors that were changed by manual entry from the CDU go back to their default values. After the OPS is loaded, you can enter the values again.

HAP 030 POST SB 737-34-1918; HAP 001-013, 015-026, 028, 029 PRE SB 737-34-1666 OR POST SB 737-34-1918; AIRPLANES WITH FMC P/N 10-62225-004

NOTE: The operational software (OPS) U10.3 and before should not be loaded into this FMC.

HAP 001-013, 015-026, 028-030; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE

Table with 2 columns: EFFECTIVITY, HAP ALL

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### HAP 001-013, 015-026, 028-030; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE (Continued)

- (a) Put the correct software disk into the disk drive of the data loader.

NOTE: When the data load sequence starts, the CDU shows the FMCS DATA LOADER page.

- (b) Follow the prompts on the FMCS DATA LOADER page.

- (c) If the message INSERT NEXT DISK shows, do these steps:

- 1) Push the eject button on the data loader and remove the disk.
- 2) Put the next disk into the data loader.
- 3) Repeat the previous two steps as necessary.

- (d) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

NOTE: Because of data loader incompatibility, LOAD COMPLETE may not be shown on the CDU after the completion of a successful data load. If the CURRENT RECORD on line 3 of the FMCS DATA LOADER page increments to the number shown for TOTAL RECORDS on line 5, then a successful data load occurred.

NOTE: After you eject the diskette from the data loader, the FMC will restart. After the FMC restarts, you can continue to install software into the FMC regardless of the page shown on the CDU.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface wiring failure

DB EXCEEDS FMC MEMORY - data on disk is too large for FMC memory

RESET COUNT EXCEEDED - five load attempts have failed

DB-OPF INCOMPATIBLE - data is not compatible with the FMC OPF

CHECK MEDIA - a portion of data on the disk is not able to load

INCORRECT DISK INSERTED - the wrong disk is put in after INSERT NEXT DISK is shown

### HAP 001-013, 015-026, 028-030; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE

SUBTASK 34-61-00-470-018

- (5) Follow the PDL supplier instructions to install the software.

NOTE: If you install the operational program (OPS), do this procedure again for the customized NDB, OPC, and MEDB databases after the OPS program is installed.

If your airline uses any of the optional customized databases, Perf Defaults or Datalink, they must also be installed again.

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HAP 001-013, 015-026, 028-030; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE (Continued)

Performance factors that were changed by manual entry from the CDU go back to their default values. After the OPS is loaded, you can enter the values again.

HAP 030 POST SB 737-34-1918; HAP 001-013, 015-026, 028, 029 PRE SB 737-34-1666 OR POST SB 737-34-1918; AIRPLANES WITH FMC P/N 10-62225-004

NOTE: The operational software (OPS) U10.3 and before should not be loaded into this FMC.

NOTE: When the data load sequence starts, the CDU shows the FMCS DATA LOADER page.

HAP 001-013, 015-026, 028-030

SUBTASK 34-61-00-760-011

(6) Set the power switch on the PDL to the off position after all the software is loaded into the FMC.

HAP 001-011 PRE SB 737-31-1136; AIRPLANES WITH ONE SWITCH ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-470-009

(7) Set the data load select switch on the data loader control panel to the NORM position.

HAP 012, 013, 015-026, 028-030; HAP 001-011 POST SB 737-31-1136; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-470-010

(8) Set the system select switch on the data loader control panel to NORMAL.

HAP 001-013, 015-026, 028-030

SUBTASK 34-61-00-840-004

(9) Do these steps to put the airplane back to its usual condition:

CAUTION: MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(b) Remove the ARINC 615 data loader, COM-261, interface cable from the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-00-750-002

(10) Do this task: FMC Software Configuration Check, TASK 34-61-00-750-801.

END OF TASK

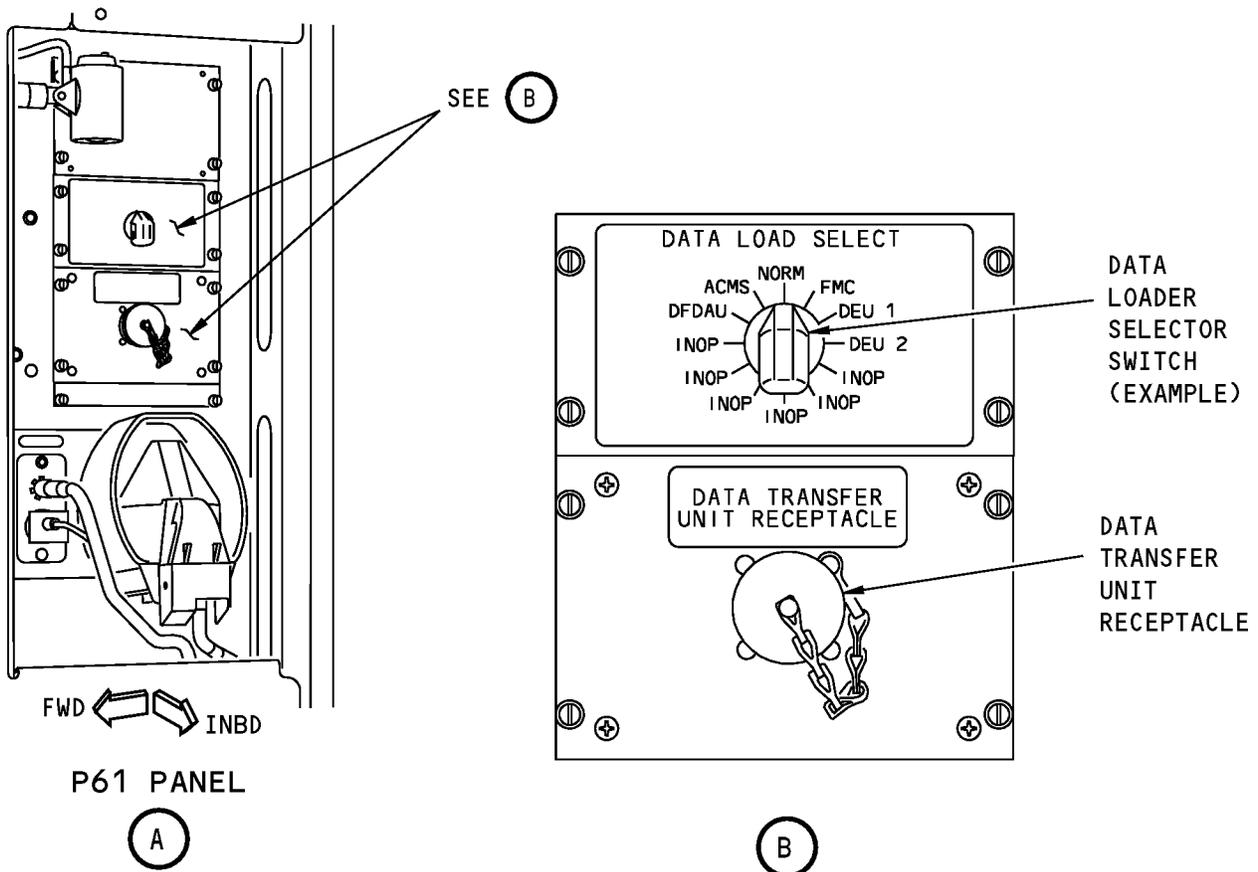
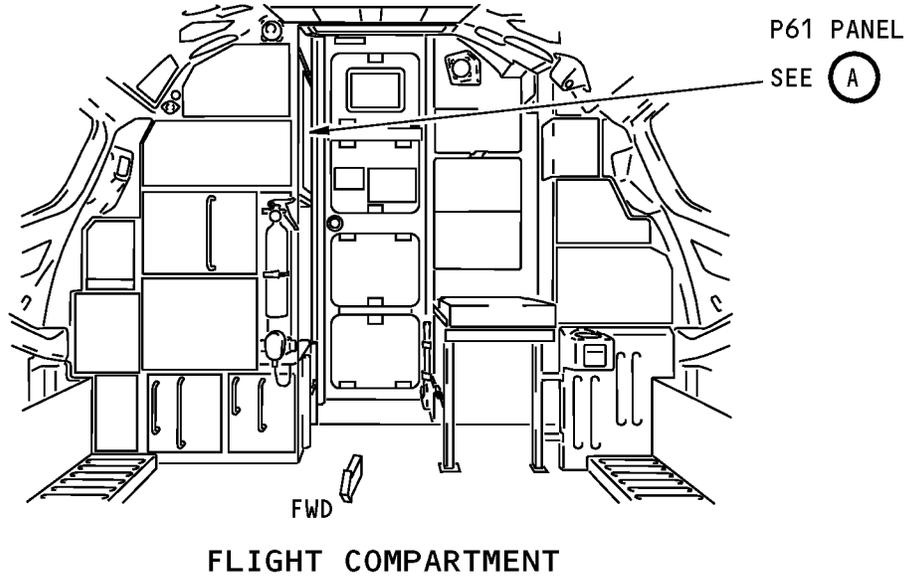
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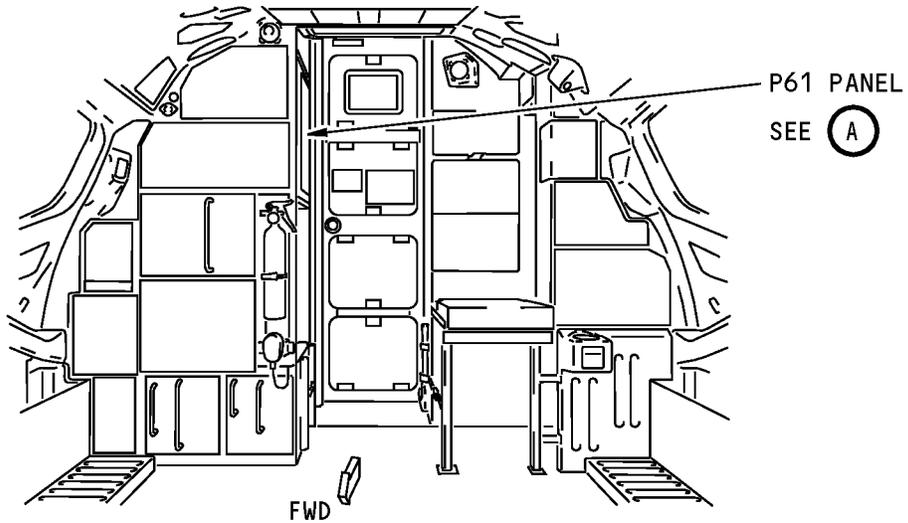


**FMC Software installation  
Figure 202 (Sheet 1 of 2)/34-61-00-990-812**

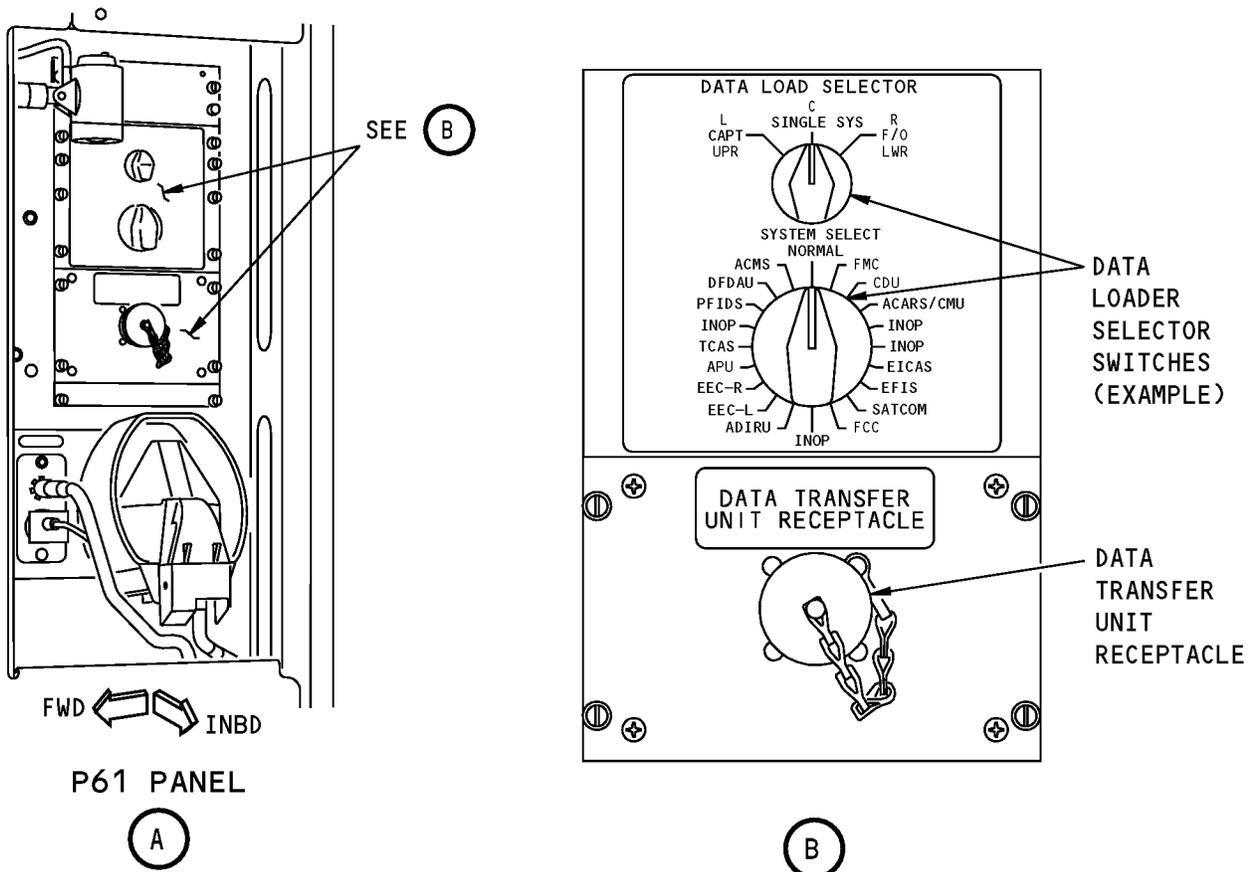
**EFFECTIVITY**  
HAP 001-011 PRE SB 737-31-1136; AIRPLANES WITH DATA TRANSFER UNIT RECEPTACLE AND ONE SELECTOR SWITCH

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**FLIGHT COMPARTMENT**



**FMC Software installation**  
**Figure 202 (Sheet 2 of 2)/34-61-00-990-812**

**EFFECTIVITY**  
**HAP 012, 013, 015-026, 028-030; HAP 001-011 POST SB 737-31-1136; AIRPLANES WITH DATA TRANSFER UNIT RECEPTACLE AND TWO SELECTOR SWITCHES**

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HAP 001-013, 015-026, 028-030 (Continued)

HAP 037-054, 101-999

TASK 34-61-00-470-806

## 4. FMC Software Crossload

### A. General

- (1) This procedure tells you how to crossload software from one FMC to the other FMC. A crossload will install the software into the second FMC significantly faster than the data loader.
- (2) After a dual FMC power-up, the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page is shown automatically on the CDU if the two FMCs have different software installed.
- (3) When the CROSSLOAD > prompt is shown on the FMCS BITE page, you can push the LSK to manually select the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page.

### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

### C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

### D. Procedure

SUBTASK 34-61-00-760-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-00-470-013

- (2) Do these steps to crossload the software:

- (a) Make sure the CDU shows one of these two pages, the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page.

**NOTE:** The CROSSLOAD > prompt is not shown if an FMC is failed, or only one FMC is powered, or only one FMC is installed in a dual FMC configuration.

**NOTE:** The OP PROGRAM CROSSLOAD page lets you install the operational program and databases into the other FMC. The DATABASE CROSSLOAD page lets you install only the databases into the other FMC.

**NOTE:** If the OP PROGRAM INVALID page shows, you must set the FMC source select switch to the position shown on the CDU.

- (b) Push the CDU LSK next to COPY FROM LEFT(RIGHT) to select the FMC you want to copy from.

**NOTE:** If you see the message SET FMC SOURCE SELECT TO BOTH-ON-L(R), make sure the switch is in the correct position.

- (c) Push the EXEC key on the CDU.

- (d) The CROSSLOAD IN PROGRESS message shows during the FMC crossload.

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HAP ALL	

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HAP 037-054, 101-999 (Continued)

(e) The CROSSLOAD COMPLETE message shows for a successful crossload.

NOTE: The CROSSLOAD FAIL message is shown if the FMC crossload fails. Possible causes for a failure are loss of communication between the FMC's, loss of power to one FMC, or failure of the FMC receiving the data. A second attempt may be made to do the crossload. Select the INDEX prompt to return to the FMC BITE page. Then select the CROSSLOAD > prompt to repeat the crossload operation.

NOTE: A database crossload failure causes the NEXT MISMATCH prompt to show with the CROSSLOAD COMPLETE message. The prompt can also show for mismatches in the analog input discretes or the performance factors. Select the NEXT MISMATCH prompt to continue.

SUBTASK 34-61-00-750-003

(3) Do this task: FMC Software Configuration Check, TASK 34-61-00-750-801.

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————— END OF TASK —————

TASK 34-61-00-750-801

5. FMC Software Configuration Check

A. General

- (1) This procedure tells you how to check the FMC software installation.
(2) You must know the correct part number for the FMC software. For the FMC to be an approved installation, software with the correct part number must be installed.

B. Location Zones

Table with 2 columns: Zone, Area. Row 1: 210, Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 34-61-00-750-004

(1) Do these steps to do a software configuration check of the FMC:

HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

(a) Set the FMCS transfer switch to the NORMAL position.

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- (b) Make sure the CDU display shows the IDENT 1/2 page.
(c) Do these steps if the IDENT 1/2 page is not shown:
1) Push the INIT/REF key on both CDUs.
2) Push the LSK next to IDENT on both CDUs.
(d) Do a check of the FMC operational program and navigational database software:
1) Make sure the correct part number for the operational program shows below OP PROGRAM on the CDU.
2) Make sure the correct part number for the navigation database shows below NAV DATA on the CDU.

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- 3) Make sure the correct date range shows below ACTIVE on the CDU.
(e) Push the NEXT PAGE button on the CDU.
(f) Make sure the CDU display shows the IDENT 2/2 page.
(g) Do a check of this FMC software:
1) Make sure the correct part number for the software options database shows below SW OPTIONS on the CDU.

NOTE: You must install the software options database for the FMC to operate. If you did not install a software options database the CDU will show DEFAULT050 below SW OPTIONS.

- 2) Make sure the correct part number for the model/engine database shows below MODEL/ENGINE DATA on the CDU.

NOTE: You must install the model/engine database for the FMC to operate. If INVALID shows on the CDU, the medel/engine database was not installed. If PROGRAM PIN NOT IN MODEL/ENGINE DATABSE shows, the model/engine database installed does not match the airframe/engine program pin configuration.

SUBTASK 34-61-00-470-025

- (2) If a part number is not correct, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805

END OF TASK

HAP 031-054, 101-999

TASK 34-61-00-470-807

6. CDU Software Installation with an Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

A. General

- (1) This procedure tells you how to install software into the CDU with an airborne data loader.

B. References

Table with 2 columns: Reference, Title. Row 1: 24-22-00-860-811, Supply Electrical Power (P/B 201)

C. Location Zones

Table with 2 columns: Zone, Area. Row 1: 210, Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 34-61-00-760-008

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-00-760-009

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

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row 1: A, 9, C00923, DATA LOADER

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### HAP 031-054, 101-999 (Continued)

SUBTASK 34-61-00-470-014

- (3) Use the ADL to install the CDU software.

### HAP 031-054, 101-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-840-005

- (4) Do these steps to prepare for software installation:
- (a) Do these steps at the data loader control panel:
    - 1) Set the upper switch to CAPT or F/O.
    - 2) Set the system select switch to CDU.

### HAP 031-054, 101-999

SUBTASK 34-61-00-470-015

- (5) Do these steps to install the CDU software:

**NOTE:** When you install the operational program (OPS), any software options database (OPC) that was previously installed is deleted. If an OPC is required, you must repeat these steps to install the OPC.

- (a) Put the correct software disk into the disk drive of the data loader.

**NOTE:** The data load sequence starts automatically.

- (b) Follow the prompts on the DATA LOADER page.
- (c) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

**NOTE:** After you eject the diskette from the data loader, the CDU DATA LOADER page will be removed from the display.

**NOTE:** If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface wiring failure

EXCEEDS CDU MEMORY - data on disk is too large for CDU memory

RESET COUNT EXCEEDED - five load attempts have failed

OPS INCOMPATIBLE - data is not compatible with the CDU OPS

CHECK MEDIA - a portion of data on the disk is not able to load

### HAP 031-054, 101-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (d) Set the system select switch on the data loader control panel to NORMAL.

### HAP 031-054, 101-999

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HAP 031-054, 101-999 (Continued)

SUBTASK 34-61-00-750-005

- (6) Do this task: CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-750-802.

END OF TASK

HAP 006-013, 015-026, 028-030

TASK 34-61-00-470-808

7. CDU Software Installation with a Portable Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

A. General

- (1) This procedure tells you how to install software into the CDU with a portable data loader.
(2) A portable data loader (PDL) is not a Boeing supplied part. Refer to the PDL supplier for instructions for operation. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.

B. References

Table with 2 columns: Reference, Title. Row: 24-22-00-860-811, Supply Electrical Power (P/B 201)

C. Tools/Equipment

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

Table with 2 columns: Reference, Description. Row: COM-261, Data Loader - ARINC 615 (Part #: 11615-20, Supplier: 0D4J3, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: 30100, Supplier: 0BAW0, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 964-0400-024, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 964-0400-055, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CEI-715-DL-2, Supplier: 0BPH5, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: 964-0400-020, Supplier: 97896, A/P Effectivity: 737-600, -700, -800) (Opt Part #: 964-0400-025, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Table with 2 columns: Zone, Area. Row: 210, Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Procedure

SUBTASK 34-61-00-760-010

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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HAP 006-013, 015-026, 028-030 (Continued)

SUBTASK 34-61-00-470-016

(2) Use a portable data loader (PDL) to install the CDU software.

SUBTASK 34-61-00-840-006

(3) Do these steps to prepare for software installation:

HAP 012, 013, 015-026, 028-030; HAP 006-011 POST SB 737-31-1136; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(a) Make sure the system select switch on the data loader control panel (P61) is set to NORMAL.

HAP 006-013, 015-026, 028-030

CAUTION: MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

CAUTION: MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Set the power switch on the PDL to the off position.

(d) Connect the ARINC 615 data loader, COM-261, interface cable from the PDL to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

HAP 012, 013, 015-026, 028-030; HAP 006-011 POST SB 737-31-1136; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(f) Do these steps at the data loader control panel:

- 1) Set the upper switch to CAPT or F/O.
- 2) Set the system select switch to CDU.

HAP 006-013, 015-026, 028-030

(g) Set the power switch on the portable data loader to the on position.

NOTE: For more information on how to use the data loader, refer to the suppliers instructions for the portable data loader.

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HAP 006-013, 015-026, 028-030 (Continued)

### HAP 006-013, 015-026, 028-030; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE

SUBTASK 34-61-00-470-017

(4) Do these steps to install the software:

NOTE: When you install the operational program (OPS), any software options database (OPC) that was previously installed is deleted. If an OPC is required, you must repeat these steps to install the OPC.

NOTE: When the data load sequence starts, the CDU shows the DATA LOADER page.

(a) Put the correct software disk into the disk drive of the data loader.

NOTE: The data load sequence starts automatically.

(b) Follow the prompts on the DATA LOADER page.

(c) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

NOTE: Because of data loader incompatibility, LOAD COMPLETE may not be shown on the CDU after the completion of a successful data load. If the CURRENT RECORD on line 3 of the FMCS DATA LOADER page increments to the number shown for TOTAL RECORDS on line 5, then a successful data load occurred.

NOTE: After you eject the diskette from the data loader, the CDU DATA LOADER page will be removed from the display.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface wiring failure

EXCEEDS CDU MEMORY - data on disk is too large for CDU memory

RESET COUNT EXCEEDED - five load attempts have failed

OPS INCOMPATIBLE - data is not compatible with the CDU OPS

CHECK MEDIA - a portion of data on the disk is not able to load

### HAP 006-013, 015-026, 028-030; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE

SUBTASK 34-61-00-470-019

(5) Follow the PDL supplier instructions to install the software.

NOTE: When you install the operational program (OPS), any software options database (OPC) that was previously installed is deleted. If an OPC is required, you must repeat these steps to install the OPC.

NOTE: When the data load sequence starts, the CDU shows the DATA LOADER page.

### HAP 006-013, 015-026, 028-030

SUBTASK 34-61-00-760-012

(6) Set the power switch on the PDL to the off position after all the software is loaded into the FMC.

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HAP 006-013, 015-026, 028-030 (Continued)

HAP 012, 013, 015-026, 028-030; HAP 006-011 POST SB 737-31-1136; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-470-020

(7) Set the system select switch on the data loader control panel (P61) to NORMAL.

HAP 006-013, 015-026, 028-030

SUBTASK 34-61-00-840-007

(8) Do these steps to put the airplane back to its usual condition:

CAUTION: MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

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

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row A, Col 9, Number C00923, Name DATA LOADER

(b) Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

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

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row A, Col 9, Number C00923, Name DATA LOADER

SUBTASK 34-61-00-750-006

(9) Do this task: CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-750-802.

END OF TASK

HAP 006-013, 015-026, 028-054, 101-999

TASK 34-61-00-750-802

8. CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

A. General

(1) This procedure tells you how to check the CDU software installation.

B. Location Zones

Table with 2 columns: Zone, Area. Row 210, Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 34-61-00-750-007

(1) Do these steps to do a software configuration check of the CDU:

HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

(a) Set the FMC source select switch to the NORMAL position.

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HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC (Continued)

(b) On the MENU page, push the LSK next to FMC.

HAP 006-013, 015-026, 028-054, 101-999

(c) Make sure the CDU shows the IDENT 1/2 page.

(d) Do this step if the IDENT 1/2 page is not shown:

1) Push the INIT/REF key on the applicable CDU.

(e) Push these LSKs in sequence on the applicable CDU:

1) MAINT

2) FMCS

HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

3) FMC LEFT(RIGHT)

HAP 006-013, 015-026, 028-054, 101-999

4) LCD CDU

5) CONFIG.

(f) Make sure the CDU shows the CDU CONFIGURATION page.

(g) Make sure the correct part number is shown below SOFTWARE P/N.

SUBTASK 34-61-00-470-026

(2) If a part number is not correct, do this task: CDU Software Installation with an Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-470-807 or CDU Software Installation with a Portable Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-470-808

END OF TASK

HAP 031-054, 101-999

TASK 34-61-00-470-809

9. Software Installation when the Airborne Data Loader is Inoperative

A. General

(1) This procedure tells you how to use a portable data loader (PDL) to load software when the airborne data loader (ADL) is inoperative.

(2) A portable data loader (PDL) is not a Boeing supplied part. Refer to the PDL supplier for instructions for operation. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-61-03-000-801	Airborne Data Loader Removal (P/B 401)
34-61-03-400-801	Airborne Data Loader Installation (P/B 401)

C. Tools/Equipment

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

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Reference	Description
COM-261	Data Loader - ARINC 615 (Part #: 11615-20, Supplier: 0D4J3, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: 30100, Supplier: 0BAW0, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 964-0400-024, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 964-0400-055, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: CEI-715-DL-2, Supplier: 0BPH5, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: 964-0400-020, Supplier: 97896, A/P Effectivity: 737-600, -700, -800) (Opt Part #: 964-0400-025, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Procedure

SUBTASK 34-61-00-000-001

(1) Do this task: Airborne Data Loader Removal, TASK 34-61-03-000-801.

SUBTASK 34-61-00-760-013

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-00-840-008

(3) Do these steps to prepare for software installation:

HAP 031-054, 101-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(a) Make sure the system select switch is set to NORMAL.

HAP 031-054, 101-999

**CAUTION:** MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

**CAUTION:** MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Set the power switch on the PDL to the off position.

(d) Connect the interface cable from the PDL to the aircraft wiring receptacle.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

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#### HAP 031-054, 101-999 (Continued)

- (f) Set the position of the data loader control panel switch(es) to the unit that is to receive software from the PDL.
- (g) Set the power switch on the portable data loader to the on position.

SUBTASK 34-61-00-470-021

- (4) Do these steps to install the software:
  - (a) Follow the PDL supplier instructions to operate the data loader.
  - (b) Do the applicable airborne data loader procedure to complete the software installation.

SUBTASK 34-61-00-760-014

- (5) Set the power switch on the PDL to the off position after all the software is loaded into the FMC.

#### HAP 031-054, 101-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-470-024

- (6) Set the system select switch to NORMAL.

#### HAP 031-054, 101-999

SUBTASK 34-61-00-840-009

- (7) Do these steps to put the airplane back to its usual condition:

**CAUTION:** MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) 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>
A	9	C00923	DATA LOADER

- (b) Remove the ARINC 615 data loader, COM-261, interface cable from the airplane wiring receptacle on the P61 panel.

SUBTASK 34-61-00-000-002

- (8) Do this task: Airborne Data Loader Installation, TASK 34-61-03-400-801.

#### HAP ALL

————— END OF TASK —————

#### TASK 34-61-00-810-801

#### 10. FMC Diagnostic Data Transfer

##### A. General

- (1) This procedure tells you how to transfer diagnostic data to a 3.5 inch diskette after an FMC failure occurs.

#### HAP 037-054, 101-999

NOTE: A single diskette has sufficient capacity to hold data from both FMCs.

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- (2) An airborne data loader (ADL) or portable data loader (PDL) is necessary for this procedure.

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### B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

### C. Procedure

SUBTASK 34-61-00-700-014

- (1) Do a check of FMC INFLIGHT FAULTS (FIM 34-61 Task 801) to make sure an FMC failure occurred.

**NOTE:** You only get data for FMC failures from this procedure.

SUBTASK 34-61-00-750-008

- (2) Use the FMCPREP PC software to format the disk.
  - (a) You must make a copy of the FMCPREP software on the root directory of a PC hard drive.
  - (b) To format a disk, enter the text that follows on your PC:

```
> FMCPREP <DRIVE> : <Airline ID
```

where:

<drive> is the letter "A" or "B" of the PCs 3.5 inch disk drive.

Airline ID > is the name of the airline maintenance site (11 characters maximum).

example: FMCPREP B: Cincinatti

SUBTASK 34-61-00-750-009

- (3) Make sure the MAINT BITE INDEX 1/1 page shows on the CDU.
  - (a) If the MAINT BITE INDEX 1/1 page is not shown, do these steps:
    - 1) Push the INIT REF key.
    - 2) Push the LSK adjacent to MAINT > to show the MAINT BITE INDEX 1/1 page.

SUBTASK 34-61-00-750-010

- (4) Push the LSK adjacent to FMC DOWNLOAD > .

SUBTASK 34-61-00-750-011

- (5) Follow the directions on the FMC DATA LOADER page.

SUBTASK 34-61-00-750-012

- (6) Push the LSK adjacent to CONTINUE.

**NOTE:** If you push the LSK adjacent to PRESS HERE TO EXIT > , the FMC will do a cold start power-up.

SUBTASK 34-61-00-750-013

- (7) Put the formatted disk into the data loader disk drive.

**NOTE:** If the disk is write protected, the FMC download will not continue from this page. Remove the disk and set the write-protected tab to the write position. Put the disk back into the data loader disk drive.

**NOTE:** The disk may only contain FMC download data.

SUBTASK 34-61-00-750-014

- (8) The FMC automatically starts the data transfer sequence.

**NOTE:** When the data transfer is complete, the FMC DATA LOADER page shows DOWNLOAD COMPLETE.

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SUBTASK 34-61-00-750-015

- (9) Remove the disk and push the LSK adjacent to PRESS HERE TO EXIT > .

NOTE: If you push the LSK adjacent to PRESS HERE TO EXIT > , the FMC will do a cold start power-up.

### HAP 037-054, 101-999

SUBTASK 34-61-00-750-021

- (10) To download data from the second FMC, set the FMC Source Select Switch position to the other FMC and do the Diagnostic Data Transfer task again.

NOTE: A single diskette has sufficient capacity to hold data from both FMCs.

### HAP ALL

SUBTASK 34-61-00-750-016

- (11) After you make a copy of the data on the disk, send the disk to the vendor.

#### D. Data Transfer Failure Indications

SUBTASK 34-61-00-750-017

- (1) If the disk that you put into the data loader disk drive contains an FMC operational program or database, the FMC DATA LOADER page shows this message:

WARNING: DISK UNUSABLE

OFFP OR DB DISK INSERTED

- (a) Replace the disk with a correctly formatted disk.

SUBTASK 34-61-00-750-018

- (2) If the disk that you put into the data loader disk drive is not write-protected and contains data (may be FMC diagnostic transfer data from the currently selected FMC) that is not an FMC operational program or database, the FMC DATA LOADER page shows this message:

WARNING: DISK UNUSABLE

DISK CONTAINS DATA

- (a) Remove the disk from the data loader disk drive.  
(b) Push the LSK adjacent to PRESS HERE TO RETRY > .

SUBTASK 34-61-00-750-019

- (3) If the disk that you put into the data loader disk drive is not write-protected and is not formatted by the FMCPREP software, the FMC DATA LOADER page shows this message:

WARNING: DISK UNUSABLE

FORMAT DISK USING THE

FMCPREP PC UTILITY

- (a) Remove the disk from the data loader disk drive.  
(b) Push the LSK adjacent to PRESS HERE TO RETRY > .

SUBTASK 34-61-00-750-020

- (4) If the diagnostic data transfer is not successful for any other reason, the FMC DATALOADER page shows this message:

DEVICE NOT PRESENT

DISK WAS REMOVED OR

INTERFACE HAS FAILED

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(a) Push the LSK adjacent to PRESS HERE TO RETRY > .

————— END OF TASK —————

## TASK 34-61-00-400-801

### 11. Setting Zero Fuel Weight

#### A. General

(1) This procedure tells you how to enter a zero fuel weight (ZFW) using the Control Display Unit (CDU).

#### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

#### C. Location Zones

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

#### D. Procedure

SUBTASK 34-61-00-760-016

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 34-61-00-869-001

(2) Do these steps to set a zero fuel weight:

- (a) Make sure the IDENT page shows on the CDU.
- (b) Push the INDEX page next to LSK 6L.
- (c) Push the PERF from the INIT/REF page.
- (d) Enter a zero fuel weight on the scratch pad.
- (e) Push the LSK 3L.

SUBTASK 34-61-00-869-002

(3) Make sure the CDU display the zero fuel weight.

#### E. Put the Airplane back to it usual condition

SUBTASK 34-61-00-760-015

(1) Remove electrical power if it not necessary Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK —————

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## FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST

### 1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
  - (1) An operational test of the flight management computer system (FMCS).
  - (2) A system test of the FMCS.
  - (3) An adjustment of the FMCS performance factors.

#### **TASK 34-61-00-710-801**

### 2. Flight Management Computer System - Operational Test

#### A. General

- (1) The operational test does a quick check of the flight management computer system. The test makes sure that the system is serviceable.
- (2) You can do the tests in sequence or one at a time. The Prepare For Test steps must be done before each test or sequence of tests.

#### **HAP 001-013, 015-026, 028-036; AIRPLANES WITH SINGLE FMC AND MCDU**

- (3) The Multi-function Control Display Unit (MCDU) is necessary for this procedure. You can use MCDU No. 1 (Left or Captain's MCDU) or MCDU No. 2 (Right or First Officer's MCDU) to do this procedure. This procedure makes reference to the two MCDUs to verify their operational integrity.

#### **HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC AND MCDU**

- (4) The two Multi-function Control Display Units (Left or Captain's MCDU and Right or First Officer's MCDU) are necessary for this procedure. This procedure uses two MCDUs to make sure the operational test is conducted from the two corresponding Flight Management Computers (Left and Right FMC).

#### **HAP 012, 013, 015-026, 028-054, 101-999; HAP 001-011 POST SB 737-34-1951 GRP 1**

- (5) An FMC software option causes the CDU to normally show information in color. Default operation is white text on a black background.

#### **HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC**

- (6) The FMCS transfer switch allows the operation of the Left FMC to be displayed on the two CDUs (or MCDUs if installed) when the transfer switch is in the NORMAL position. If the transfer switch is in the BOTH ON L or BOTH ON R position, the two CDUs (or MCDUs if installed) will display simultaneously the Left or Right Flight Management Computer output and software database configuration, respectively.

#### **HAP ALL**

#### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (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)
34-61-00-470-804	FMC Software Installation with an Airborne Data Loader (P/B 201)
34-61-00-470-805	FMC Software Installation with a Portable Data Loader (P/B 201)

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### C. Location Zones

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

### D. Prepare For Test

SUBTASK 34-61-00-860-035

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-00-860-040

- (2) 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.

### E. Procedure

SUBTASK 34-61-00-710-025

- (1) Do this test of the operational program and databases:

#### HAP 037-054, 101-999

- (a) Set the FMC transfer switch to the BOTH ON L position.

#### HAP ALL

- (b) Push the INIT REF key on the two CDUs.
- (c) Push the line select key (LSK) adjacent to INDEX on the two CDUs.
- (d) Push the LSK adjacent to IDENT on the two CDUs.
- (e) Make sure the two CDUs show the IDENT 1/2 page.
- (f) Make sure the part number of the OP PROGRAM is correct on the two CDUs.

**NOTE:** The applicable airline department has the correct part number for the OP PROGRAM.

- 1) If the OP PROGRAM is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805.

- (g) Make sure the part number of the NAV DATA is correct on the CDU.

**NOTE:** The applicable airline department has the correct part number for the NAV DATA.

- 1) If the NAV DATA is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805.

- (h) Make sure the date of the NAV DATA is correct on the two CDUs.

**NOTE:** You can find the dates for the active navigation database below ACTIVE.

- (i) Push the NEXT PAGE button on the two CDUs.
- (j) Make sure the part number of the PERF DEFAULTS is correct on the two CDUs.

**NOTE:** AIRPLANES WITH OP PROGRAM U10.3 AND SUBSEQUENT;

DEFAULT04P will be shown if a customized PERF DEFAULTS diskette is not installed.

AIRPLANES WITH OP PROGRAM U10.2 AND PREVIOUS;

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DEFAULT02P or DEFAULT03P will be shown if customised PERF DEFAULTS diskette is not installed.

- 1) If the PERF DEFAULTS is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805.

- (k) Make sure the part number of the SW OPTIONS is correct on the two CDUs.

NOTE: AIRPLANES WITH OP PROGRAM U10.4 AND SUBSEQUENT;

DEFAULT05O will be shown if a customized software options database diskette is not installed.

AIRPLANES WITH OP PROGRAM U10.3 AND PREVIOUS;

DEFAULT04O will be shown if a customized software options database diskette is not installed.

- 1) If the SW OPTIONS part number is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805.

- (l) Make sure the part number of the DATALINK CONFIG is correct on the two CDUs.

NOTE: DEFAULT03D will be shown if a customized ACARS Datalink Config database diskette is not installed.

- 1) If the DATALINK CONFIG part number is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805.

- (m) Make sure the part number of the MODEL/ENGINE DATA is correct on the two CDUs.

NOTE: The applicable airline department has the correct part number for the MODEL/ENGINE DATA.

- 1) If the MODEL/ENGINE DATA part number is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805.

SUBTASK 34-61-00-710-026

- (2) Do this test of the FMCS sensor status:

### HAP 037-054, 101-999

- (a) Set the FMC transfer switch to the NORMAL position.

### HAP ALL

- (b) Push the INIT REF key on the two CDUs.
- (c) Push the line select key (LSK) adjacent to INDEX on the two CDUs.
- (d) Push the LSK adjacent to MAINT on the two CDUs.
- (e) Push the LSK adjacent to FMCS on the two CDUs.

### HAP 037-054, 101-999

- (f) Push the LSK adjacent to L FMC on the Captain's CDU.
- (g) Push the LSK adjacent to R FMC on the First Officer's CDU.

### HAP ALL

- (h) Push the LSK adjacent to SENSORS on the two CDUs.
- (i) Make sure the two CDUs agree with the data shown below (Table 501):

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Table 501/34-61-00-993-801

LRU	LEFT	RIGHT
VOR	OK	OK
DME	OK	OK
ADIRS	OK	OK
MMR	OK	OK
DFCS	OK	----
FQIS	OK	----
<b>HAP 001-013, 015-026, 028-036</b>		
CLOCK SINGLE FMC	OK	----
<b>HAP 037-054, 101-999</b>		
CLOCK [L CDU] DUAL FMC	OK	----
CLOCK [R CDU] DUAL FMC	----	OK
<b>HAP ALL</b>		

- (j) Push the NEXT PAGE button on the two CDUs.
- (k) Make sure the status of CDS DEU LEFT and CDS DEU RIGHT is OK.
- (l) Push the INIT REF button on the two CDUs.

SUBTASK 34-61-00-710-027

- (3) Do this test of the FMCS fixed outputs:

**HAP 037-054, 101-999**

- (a) Set the FMC transfer switch to the NORMAL position.
- (b) Set the master dim and test switch to the BRT position.

**HAP ALL**

- (c) Push the INIT REF key on the two CDUs.
- (d) Push the line select key (LSK) adjacent to INDEX on the two CDUs.
- (e) Push the LSK adjacent to MAINT on the two CDUs.
- (f) Push the LSK adjacent to FMCS on the two CDUs.

**HAP 037-054, 101-999**

- (g) Push the LSK adjacent to L FMC on the Captain's CDU.
- (h) Push the LSK adjacent to R FMC on the First Officer's CDU.

**HAP ALL**

- (i) Push the LSK adjacent to FIXED OUTPUTS on the two CDUs.
- (j) Turn the mode selector switch on the captain's and first officer's EFIS control panels to the MAP position.
- (k) Make sure that the captain's and first officer's EFIS display shows "FMC INTERFACE OK".
- (l) Make sure that the OFST, FAIL and MSG annunciators on the two CDUs come on.

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- (m) Make sure that the Thrust Mode Annunciator on Engine Format above the N1 Display cycles through these thrust modes: CRZ, CLB, ---, CON, TO, GA.
- (n) Push the INIT REF button on the two CDUs.

————— END OF TASK —————

#### TASK 34-61-00-730-801

### 3. Flight Management Computer System - System Test

#### A. General

- (1) The system test does a complete check of the flight management computer system. The test makes sure that the system operates correctly.
- (2) You can do the tests in sequence or one at a time. All tests must be done to make sure system operates correctly. The Prepare For Test steps must be done before each test or sequence of tests.

#### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

#### C. Location Zones

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

#### D. Access Panels

Number	Name/Location
192CL	Air Conditioning Access Door
192CR	Air Conditioning Access Door

#### E. Prepare For Test

SUBTASK 34-61-00-760-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-00-800-001

- (2) Do this task: Flight Management Computer System - Operational Test, TASK 34-61-00-710-801.

#### F. Procedure

SUBTASK 34-61-00-710-028

- (1) Do this test of the annunciators:

#### HAP 037-054, 101-999

- (a) Set the FMC transfer switch to the the NORMAL position.

#### HAP ALL

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

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row A, Col 6, Number C01017, Name FMCS CMPTR 1

- (c) Make sure that the FMC P/RST annunciator on the captain's and first officer's autoflight status annunciator (ASA) comes on.
(d) Set the master dim and test switch to the TEST position.

HAP ALL; AIRPLANES WITH MULTI-PURPOSE CDUs

- 1) Make sure that the MSG, CALL, FAIL, OFST, and EXEC annunciators on the two CDUs come on.

HAP ALL

- (e) Set the master dim and test switch to the BRT position.
1) Make sure that the FMC P/RST annunciator on the two ASAs is bright.
(f) Push the FMC P/RST annunciator on the captain's or first officer's ASA.
1) Make sure that the FMC P/RST annunciator on the two ASAs goes off.
(g) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Table with 4 columns: Row, Col, Number, Name. Row A, Col 6, Number C01017, Name FMCS CMPTR 1

NOTE: This circuit breaker must be closed for at least 15 seconds before you continue.

- (h) If the MENU page is shown on either CDU, push LSK 1L (FMC) on that CDU.
(i) Push the CLR button on the CDU to remove all messages from the CDU scratchpad.

HAP 037-054, 101-999

- (j) Do these steps to do a test of the annunciators for the right FMC:
1) Set the FMC transfer switch to the NORMAL position.
2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Table with 4 columns: Row, Col, Number, Name. Row D, Col 16, Number C01262, Name FMCS CMPTR 2

- 3) Make sure that the FMC P/RST annunciator on the captain's and first officer's autoflight status annunciator (ASA) comes on.
4) Set the master dim and test switch to the TEST position.
a) Make sure that the MSG, CALL, FAIL, OFST, and EXEC annunciators on the two CDUs come on.
5) Set the master dim and test switch to the BRT position.
a) Make sure that the FMC P/RST annunciator on the two ASAs is bright.
6) Push the FMC P/RST annunciator on the captain's or first officer's ASA.
a) Make sure that the FMC P/RST annunciator on the two ASAs goes off.

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**HAP 037-054, 101-999 (Continued)**

7) 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	16	C01262	FMCS CMPTR 2

NOTE: This circuit breaker must be closed for at least 15 seconds before you continue.

- 8) If the MENU page is shown on either CDU, push LSK 1L (FMC) on that CDU.
- 9) Push the CLR button on the CDU to remove all messages from the CDU scratchpad.

**HAP ALL**

SUBTASK 34-61-00-730-001

(2) Do this test of the pack valves:

**HAP 037-054, 101-999**

(a) Set the FMC transfer switch to the NORMAL position.

**HAP ALL**

- (b) Push this sequence of keys on the two CDUs to show the FMCS ANALOG DISCRETE 1/4 page:
  - 1) Push the INIT REF mode key on the two CDUs.
  - 2) Push line select key (LSK) adjacent to INDEX on the two CDUs.
  - 3) Push LSK 6R, adjacent to MAINT on the two CDUs.
  - 4) Push the LSK adjacent to FMCS on the two CDUs.

**HAP 037-054, 101-999**

- 5) Push the LSK adjacent to L FMC on the Captain's CDU.
- 6) Push the LSK adjacent to R FMC on the First Officer's CDU.

**HAP ALL**

- 7) Push LSK 4L, adjacent to DISCRETES on the two CDUs.
- (c) Make sure the L PACK and R PACK switches, located on the P5 overhead panel, are in the OFF position.
- (d) Make sure the BLEED 1 and BLEED 2 switches are in the ON position.
- (e) To get access to the left pack valve, open this access panel:

<u>Number</u>	<u>Name/Location</u>
192CL	Air Conditioning Access Door

- (f) Remove connector D41500 from the left pack valve, V18.
- (g) Make sure the two CDUs agree with the data shown below (Table 502):

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Table 502/34-61-00-993-802

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	L PACK	AUTO	ECS PACK	ON	OFF
2	L PACK	HIGH	ECS PACK	ON	OFF

(h) To get access to the right pack valve, open this access panel:

Number	Name/Location
192CR	Air Conditioning Access Door

(i) Remove connector D41600 from the right pack valve, V19.

(j) Make sure the two CDUs agree with the data shown below (Table 503):

Table 503/34-61-00-993-803

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	R PACK	AUTO	ECS PACK	ON	ON
2	R PACK	HIGH	ECS PACK	ON	ON
3	R PACK	OFF	ECS PACK	ON	ON
4	L PACK	OFF	ECS PACK	ON	ON

(k) Connect connector D41500 to the left pack valve, V18.

(l) Close this access panel:

Number	Name/Location
192CL	Air Conditioning Access Door

(m) Connect connector D41600 to the right pack valve, V19.

(n) Close this access panel:

Number	Name/Location
192CR	Air Conditioning Access Door

(o) Make sure the two CDUs agree with the data shown below (Table 504):

Table 504/34-61-00-993-804

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	L PACK	OFF	ECS PACK H/L	HI	HI
2	L PACK	AUTO	ECS PACK H/L	LO	HI
3	L PACK	HIGH	ECS PACK H/L	HI	HI
4	R PACK	OFF	ECS PACK H/L	HI	HI
5	R PACK	AUTO	ECS PACK H/L	HI	LO
6	R PACK	HIGH	ECS PACK H/L	HI	HI

(p) Put the L PACK and R PACK switches to the OFF position.

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SUBTASK 34-61-00-730-002

(3) Do this test of the isolation valve:

**HAP 037-054, 101-999**

(a) Set the FMC transfer switch to the NORMAL position.

**HAP ALL**

(b) Make sure that the FMCS ANALOG DISCRETES 1/4 page is shown on the two CDUs.

1) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:

- a) Push the INIT REF mode key on the two CDUs.
- b) Push line select key (LSK) 6L, adjacent to INDEX on the two CDUs.
- c) Push LSK 6R, adjacent to MAINT on the two CDUs.
- d) Push the LSK adjacent to FMCS on the two CDUs.

**HAP 037-054, 101-999**

e) Push the LSK adjacent to L FMC on the Captain's CDU.

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

**HAP ALL**

g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.

(c) Put the L PACK and R PACK switches on the Pilot's Forward Overhead Panel (P5) to the HIGH position.

(d) Put the ISOLATION VALVE switch on the Pilot's Forward Overhead Panel (P5) to the CLOSE position.

1) Make sure the ISOL VALVE discrete on the two CDUs shows CL.

(e) Put the ISOLATION VALVE switch to the OPEN position.

1) Make sure the ISOL VALVE discrete on the two CDUs shows OP.

(f) Put the L PACK and R PACK switches on the Pilot's Forward Overhead Panel (P5) to the OFF position.

SUBTASK 34-61-00-730-003

(4) Do this test of the anti-ice discrettes:

**HAP 037-054, 101-999**

(a) Set the FMC transfer switch to the NORMAL position.

**HAP ALL**

(b) Make sure that the FMCS ANALOG DISCRETES 1/4 page is shown on the two CDUs.

1) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:

- a) Push the INIT REF mode key on the two CDUs.
- b) Push line select key (LSK) 6L, adjacent to INDEX on the two CDUs.
- c) Push LSK 6R, adjacent to MAINT on the two CDUs.
- d) Push the LSK adjacent to FMCS on the two CDUs.

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### HAP 037-054, 101-999

- e) Push the LSK adjacent to L FMC on the Captain's CDU.
- f) Push the LSK adjacent to R FMC on the First Officer's CDU.

### HAP ALL

- g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.
- (c) Put the L PACK and R PACK switches on the forward overhead panel (P5) to the HIGH position.
- (d) Make sure the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 switches are set to the OFF position.
- (e) Make sure the WING ANTI-ICE switch is set to the OFF position.

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

- (f) Make sure the ground locks are installed in the nose and main landing gear (TASK 32-00-01-480-801).
- (g) Make sure EXISTING FAULTS shows on the PSEU control panel, M02601.
  - 1) If the PSEU control panel is off, push the ON/OFF button.
  - 2) If EXISTING FAULTS? does not show, push the MENU button.
    - a) Push the MENU button until EXISTING FAULTS? shows.
- (h) Push the DOWN ARROW button on the PSEU control panel three times.
  - 1) Make sure AIR/GND OVRD? shows on the PSEU control panel.
- (i) Push the YES button on the PSEU control display panel.
  - 1) Make sure SET SYS1 IN AIR? shows on the PSEU control panel.
- (j) Push the YES button on the PSEU control panel.
  - 1) Make sure ARE YOU SURE? shows on the PSEU control panel.
- (k) Push the YES button on the PSEU control panel.
  - 1) Make sure SYS1 IS IN AIR changes to SET SYS1 ON GND? on the PSEU control panel.
    - NOTE:** The flight deck PSEU fault light will stay ON while the AIR/GND system is overridden.
  - 2) Make sure the OLEO SWITCH discrete on the two CDUs changes from GND to AIR.
- (l) Put the WING ANTI-ICE switch to the ON position.
  - 1) Make sure the WING A/ICE discrete on the two CDUs changes to ON.
- (m) Put the WING ANTI-ICE switch to the OFF position.
  - 1) Make sure the WING A/ICE discrete on the two CDUs changes to OFF.
- (n) Push the MENU button on the PSEU control panel.
  - 1) Make sure RESET OVRD? shows on the PSEU control panel.
- (o) Push the YES button on the PSEU control display panel.
  - 1) Make sure ARE YOU SURE? shows on the PSEU control panel.
- (p) Push the YES button on the PSEU control panel.
  - 1) Make sure OVRD RESET changes to AIR/GND OVRD? on the PSEU control panel.
  - 2) Make sure the OLEO SWITCH discrete on the two CDUs changes from AIR to GND.

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- (q) Put the ENG ANTI-ICE 1 switch to the ON position.
  - 1) Make sure the COWL A/ICE LEFT discrete on the two CDUs changes to ON.
  - 2) Make sure the COWL A/ICE RIGHT discrete on the two CDUs shows OFF.
- (r) Put the ENG ANTI-ICE 1 switch to the OFF position.
  - 1) Make sure the COWL A/ICE LEFT discrete on the two CDUs changes to OFF.
- (s) Put the ENG ANTI-ICE 2 switch to the ON position.
  - 1) Make sure the COWL A/ICE LEFT discrete on the two CDUs shows OFF.
  - 2) Make sure the COWL A/ICE RIGHT discrete on the two CDUs changes to ON.
- (t) Put the ENG ANTI-ICE 2 switch to the OFF position.
  - 1) Make sure the COWL A/ICE RIGHT discrete on the two CDUs changes to OFF.
- (u) Put the L PACK and R PACK switches to the OFF position.

SUBTASK 34-61-00-730-004

- (5) Do this test of the air/ground discrete:

### HAP 037-054, 101-999

- (a) Set the FMC transfer switch to the NORMAL position.

### HAP ALL

- (b) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:
  - 1) Push the INIT REF mode key on the two CDUs.
  - 2) Push line select key (LSK) 6L, adjacent to INDEX on the two CDUs.
  - 3) Push LSK 6R, adjacent to MAINT on the two CDUs.
  - 4) Push the LSK adjacent to FMCS on the two CDUs.

### HAP 037-054, 101-999

- 5) Push the LSK adjacent to L FMC on the Captain's CDU.
- 6) Push the LSK adjacent to R FMC on the First Officer's CDU.

### HAP ALL

- 7) Push LSK 4L, adjacent to DISCRETES.

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

- (c) Make sure the ground locks are installed in the nose and main landing gear (TASK 32-00-01-480-801).
- (d) Make sure EXISTING FAULTS shows on the PSEU control panel, M02601.
  - 1) If the PSEU control panel is off, push the ON/OFF button.
  - 2) If EXISTING FAULTS? does not show, push the MENU button.
    - a) Push the MENU button until EXISTING FAULTS? shows.
- (e) Push the DOWN ARROW button on the PSEU control panel three times.
  - 1) Make sure AIR/GND OVRD? shows on the PSEU control panel.
- (f) Push the YES button on the PSEU control display panel.
  - 1) Make sure SET SYS1 IN AIR? shows on the PSEU control panel.

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- (g) Push the YES button on the PSEU control panel.
  - 1) Make sure ARE YOU SURE? shows on the PSEU control panel.
- (h) Push the YES button on the PSEU control panel.
  - 1) Make sure SYS1 IS IN AIR changes to SET SYS1 ON GND? on the PSEU control panel.
    - NOTE: The flight deck PSEU fault light will stay ON while the AIR/GND system is overridden.
  - 2) Make sure the OLEO SWITCH discrete on the two CDUs changes from GND to AIR.
- (i) Push the MENU button on the PSEU control panel.
  - 1) Make sure RESET OVRD? shows on the PSEU control panel.
- (j) Push the YES button on the PSEU control display panel.
  - 1) Make sure ARE YOU SURE? shows on the PSEU control panel.
- (k) Push the YES button on the PSEU control panel.
  - 1) Make sure OVRD RESET changes to AIR/GND OVRD? on the PSEU control panel.
  - 2) Make sure the OLEO SWITCH discrete on the two CDUs changes from AIR to GND.

SUBTASK 34-61-00-730-005

- (6) Do this test of the engine bleed discrettes:
  - (a) Push the NEXT PAGE button on the two CDUs.

### HAP 037-054, 101-999

- (b) Set the FMC transfer switch to the NORMAL position.

### HAP ALL

- (c) Make sure that the FMCS ANALOG DISCRETES 3/4 page is shown on the two CDUs.
  - 1) If the FMCS ANALOG DISCRETES 3/4 page is not shown, push this sequence of keys on the CDU:
    - a) Push the INIT REF mode key on the two CDUs.
    - b) Push line select key (LSK) 6L, adjacent to INDEX on the two CDUs.
    - c) Push LSK 6R, adjacent to MAINT on the two CDUs.
    - d) Push the LSK adjacent to FMCS on the two CDUs.

### HAP 037-054, 101-999

- e) Push the LSK adjacent to L FMC on the Captain's CDU.
- f) Push the LSK adjacent to R FMC on the First Officer's CDU.

### HAP ALL

- g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.
- 2) Push the NEXT PAGE button two times on the two CDUs.
- (d) Make sure the BLEED 1 and BLEED 2 switches, located on the P5 forward overhead panel, are in the OFF position.
- (e) Make sure the two CDUs agree with the data below (Table 505):

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Table 505/34-61-00-993-805

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status NO. 1	Discrete Status NO. 2
1	BLEED 1	ON	ENGINE BLEED	ON	OFF
2	BLEED 1	OFF	ENGINE BLEED	OFF	OFF
3	BLEED 2	ON	ENGINE BLEED	OFF	ON
4	BLEED 2	OFF	ENGINE BLEED	OFF	OFF

SUBTASK 34-61-00-730-006

(7) Do this test of the program pins:

(a) Push the PREV PAGE button two times on the two CDUs.

**HAP 037-054, 101-999**

(b) Set the FMC transfer switch to the NORMAL position.

**HAP ALL**

(c) Make sure that the FMCS ANALOG DISCRETES 2/4 page is shown on the two CDUs.

1) If the FMCS ANALOG DISCRETES 2/4 page is not shown, push this sequence of keys on the CDU:

- a) Push the INIT REF mode key on the two CDUs.
- b) Push line select key (LSK) 6L, adjacent to INDEX on the two CDUs.
- c) Push LSK 6R, adjacent to MAINT on the two CDUs.
- d) Push the LSK adjacent to FMCS on the two CDUs.

**HAP 037-054, 101-999**

e) Push the LSK adjacent to L FMC on the Captain's CDU.

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

**HAP ALL**

g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.

h) Push the NEXT PAGE button on the two CDUs.

(d) Make sure the two CDUs agree with the data below (Table 506):

Table 506/34-61-00-993-A18

Discrete	State
<b>HAP 001-005; HAP 006, 007, 010-013, 015, 016, 031-037, 039, 040 POST SB 737-34-2083; HAP 008, 009, 017-026, 028-030, 038, 042-046, 054 POST SB 737-34-2107</b>	
JAA FLT RULES	DISABLE
<b>HAP 041, 047-053, 101-999; HAP 006, 007, 010-013, 015, 016, 031-037, 039, 040 PRE SB 737-34-2083; HAP 008, 009, 017-026, 028-030, 038, 042-046, 054 PRE SB 737-34-2107</b>	
JAA FLT RULES	ENABLE
<b>HAP 001-005</b>	
KILOGRAM OPTION	DISABLE

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**HAP 001-005 (Continued)**

(Continued)

Discrete	State
<b>HAP 006-013, 015-026, 028-054, 101-999</b>	
KILOGRAM OPTION	ENABLE
<b>HAP ALL</b>	
MAG/TRUE	MAG
<b>HAP 001-013, 015-026, 028-036</b>	
SRCE/DEST IDENT	LEFT
<b>HAP 037-054, 101-999</b>	
SRCE/DEST IDENT	*[1] *[2]
<b>HAP ALL</b>	
ASPIRATED TAT	DISABLE
°C/°F DEFAULT	°C
PERF CODE	1

\*[1] The SOURCE/DEST IDENT shows LEFT on the left CDU.

\*[2] The SOURCE/DEST IDENT shows RIGHT on the right CDU.

(e) Push the NEXT PAGE button on the two CDUs.

**HAP 037-054, 101-999**

(f) Set the FMC transfer switch to the NORMAL position.

**HAP ALL**

(g) Make sure the MODEL/ENG discrete on the two CDUs shows VALID.

(h) Push the NEXT PAGE button on the two CDUs.

1) Make sure the FMCS ANALOG DISCRETES 4/4 page is shown on the two CDUs.

(i) Make sure the two CDUs agree with the data below (Table 507):

Table 507/34-61-00-993-A19

Discrete	State
VOR INHIBIT	DISABLE
FLIGHT NUMBER	ENABLE
<b>HAP 031-049, 051, 052, 101-999</b>	
TOGA RW POS UPD	DISABLE
<b>HAP 001-013, 015-026, 028-030, 050, 053, 054</b>	
TOGA RW POS UPD	ENABLE

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HAP 001-013, 015-026, 028-030, 050, 053, 054 (Continued)

(Continued)

Discrete	State
<b>HAP ALL</b>	
TAKEOFF PROFILE	ENABLE
TAKEOFF SPEEDS	DISABLE
<b>HAP 031-054, 101-999</b>	
NAVAID SUPPRESS	ENABLE
<b>HAP ALL</b>	
SEL CRS INHIBIT	DISABLE
<b>HAP 031-035, 037, 039-041, 047, 049, 101-999</b>	
ACARS INSTALLED	OFF
<b>HAP 001-013, 015-026, 028-030, 036, 038, 042-046, 048, 050-054</b>	
ACARS INSTALLED	ON
<b>HAP ALL</b>	

(j) Press LSK 6L, adjacent to INDEX.

SUBTASK 34-61-00-730-007

(8) Do this test of the model/engine configuration:

#### HAP 037-054, 101-999

(a) Set the FMC transfer switch to the NORMAL position.

#### HAP ALL

(b) Make sure that the FMCS BITE page is shown on the two CDUs.

1) If the FMCS BITE page is not shown, push this sequence of keys on the CDU:

- a) Push the INIT REF mode key.
- b) Push line select key (LSK) 6L, adjacent to INDEX.
- c) Push LSK 6R, adjacent to MAINT.
- d) Push the LSK adjacent to FMCS.

#### HAP 037-054, 101-999

e) Push the LSK adjacent to L FMC on the Captain's CDU.

#### HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

#### HAP ALL

(c) Push LSK 1R, adjacent to MODEL/ENG.

1) Make sure the FMCS MODEL/ENG CFG 1/1 page is shown on the two CDUs.

(d) Make sure the two CDUs agree with the data below (Table 508):

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Table 508/34-61-00-993-A20

Parameter	Value
<b>HAP 001-013, 015-026, 028-054</b>	
MODEL	737-800W
<b>HAP 101-999</b>	
MODEL	737-700W
<b>HAP 041-043; HAP 039, 040 PRE SB 737-71-1605</b>	
BRAKE OPT	CAT_A
<b>HAP ALL</b>	
BRAKE OPT	CAT_C
<b>HAP 101-999</b>	
BRAKE OPT	CAT_F
<b>HAP ALL</b>	
ENGINE	CFM56-7B
<b>I HAP 001-013, 015-026, 028-040, 042</b>	
ENGINE OPT	SAC
<b>I HAP 041, 043-054, 101-999</b>	
ENGINE OPT	SAC/3
<b>HAP 001-009 POST SB 737-71-1395 AND PRE SB 737-71-1455; HAP 010-013, 015-026 PRE SB 737-71-1455</b>	
ENG RATINGS FULL TO-1 TO-2 BUMP	27B1 26K 24K NONE
<b>I HAP 051, 052; HAP 038 PRE SB 737-34-1918; HAP 037 POST SB 737-71-1605 AND PRE SB 737-34-1918</b>	
ENG RATINGS FULL TO-1 TO-2 BUMP	27K 26K 24K NONE
<b>I HAP 051-053, 107-999</b>	
ENG RATINGS FULL TO-1 TO-2 BUMP	26B2 NONE NONE NONE

EFFECTIVITY <b>HAP ALL</b>
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HAP 051-053, 107-999 (Continued)

(Continued)

Parameter	Value
<b>HAP 001-009 PRE SB 737-71-1395 AND PRE SB 737-71-1455 AND PRE SB 737-34-1918; HAP 010-013, 015-017 PRE SB 737-71-1455 AND PRE SB 737-34-1918</b>	
ENG RATINGS FULL TO-1 TO-2 BUMP	26K 24K 22K 27K
<b>HAP 048-050, 053; HAP 001-013, 015-026 POST SB 737-71-1455 AND PRE SB 737-34-1918; HAP 028-036 PRE SB 737-34-1918; HAP 037 PRE SB 737-71-1605 AND PRE SB 737-34-1918</b>	
ENG RATINGS FULL TO-1 TO-2 BUMP	26K 24K 22K NONE
<b>HAP 107-999</b>	
ENG RATINGS FULL TO-1 TO-2 BUMP	22K 20K 18K NONE
<b>HAP 101, 104-106 PRE SB 737-71-1612</b>	
ENG RATINGS FULL TO-1 TO-2 BUMP	20K 18K NONE NONE
<b>HAP 042-046; HAP 038 POST SB 737-34-1918; HAP 037 POST SB 737-71-1605 AND POST SB 737-34-1918; HAP 039, 040 POST SB 737-71-1605</b>	
ENG RATINGS FULL BUMP	27K NONE
<b>HAP 001-009 PRE SB 737-71-1395 AND PRE SB 737-71-1455 AND POST SB 737-34-1918; HAP 010-013, 015-017 PRE SB 737-71-1455 AND POST SB 737-34-1918</b>	
ENG RATINGS FULL BUMP	26K 27K
<b>HAP 041, 047, 054; HAP 001-013, 015-026 POST SB 737-71-1455 AND POST SB 737-34-1918; HAP 028-036 POST SB 737-34-1918; HAP 037 PRE SB 737-71-1605 AND POST SB 737-34-1918; HAP 039, 040 PRE SB 737-71-1605</b>	
ENG RATINGS FULL BUMP	26K NONE

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HAP 041, 047, 054; HAP 001-013, 015-026 POST SB 737-71-1455 AND POST SB 737-34-1918; HAP 028-036 POST SB 737-34-1918; HAP 037 PRE SB 737-71-1605 AND POST SB 737-34-1918; HAP 039, 040 PRE SB 737-71-1605 (Continued)

(Continued)

Parameter	Value
<b>HAP 102, 103; HAP 101, 104-106 POST SB 737-71-1612</b>	
ENG RATINGS FULL BUMP	22K NONE
<b>HAP 101, 104-106 PRE SB 737-71-1612</b>	
ENG RATINGS FULL BUMP	20K NONE
<b>HAP ALL</b>	

(e) Push LSK 6L, adjacent to INDEX.

SUBTASK 34-61-00-730-008

(9) Do this test of the software options:

#### HAP 037-054, 101-999

(a) Set the FMC transfer switch to the NORMAL position.

#### HAP ALL

(b) Make sure that the FMCS BITE page is shown on the two CDUs.

1) If the FMCS BITE page is not shown, push this sequence of keys on the CDU:

- a) Push the INIT REF mode key.
- b) Push line select key (LSK) 6L, adjacent to INDEX.
- c) Push LSK 6R, adjacent to MAINT.
- d) Push the LSK adjacent to FMCS.

#### HAP 037-054, 101-999

e) Push the LSK adjacent to L FMC on the Captain's CDU.

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

#### HAP ALL

(c) Push LSK 2R, adjacent to SW OPTIONS.

1) Make sure the FMCS SW OPTIONS page is shown on the two CDUs.

(d) Make sure the two CDUs agree with the data below (Table 509):

Table 509/34-61-00-993-A22

Parameter	Value
NDB SIZE	2560K WORDS
<b>HAP 001-011 PRE SB 737-34-1680</b>	
OPTION CODE	0000000BE3C0

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**HAP 001-011 PRE SB 737-34-1680 (Continued)**

(Continued)

Parameter	Value
<b>HAP 001-011 PRE SB 737-34-1916 GRP 1 AND POST SB 737-34-1680</b>	
OPTION CODE	0000040BE3C0
<b>HAP 012, 013, 015-026, 028-030 PRE SB 737-34-1680</b>	
OPTION CODE	0000002BE3C0
<b>HAP 012, 013, 015-026, 028-030 PRE SB 737-34-1916 GRP 2 AND POST SB 737-34-1680</b>	
OPTION CODE	0000042BE3C0
<b>HAP 012, 013, 015-026, 028-030 PRE SB 737-34-1680</b>	
OPTION CODE	0000002BE3C0
<b>HAP 031-036</b>	
OPTION CODE	00000C69C3C0
<b>HAP 031-049, 051-054; HAP 001-011 POST SB 737-34-1916 GRP 1 AND PRE SB 737-34-1951 GRP 1</b>	
OPTION CODE	00010449C3C0
<b>HAP 012, 013, 015-026, 028-030 PRE SB 737-34-1951 GRP 2</b>	
OPTION CODE	00010459C3C0
<b>HAP 001-013, 015-026, 028-030</b>	
OPTION CODE	00010459E3C0
<b>HAP 012, 013, 015-026, 028-030 POST SB 737-34-1916 GRP 2</b>	
OPTION CODE	00010469C3C0
<b>HAP 001-013, 015-026, 028-030</b>	
OPTION CODE	0001086AC3C2
OPTION CODE	0008246943F4
OPTION CODE	00083465C3D0
OPTION CODE	000D246943F4
<b>HAP 048-050, 107-999</b>	
OPTION CODE	00200469C3C0
<b>HAP ALL</b>	
DEFAULT RNP	
OCEANIC	12.0
ENROUTE	2.00
TERMINAL	1.00
APPROACH	0.50

(e) Push LSK 6L, adjacent to INDEX.

EFFECTIVITY
<b>HAP ALL</b>

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SUBTASK 34-61-00-730-009

(10) Do this test of the performance factors:

**HAP 037-054, 101-999**

(a) Set the FMC transfer switch to the NORMAL position.

**HAP ALL**

(b) Make sure that the FMCS BITE page is shown on the two CDUs.

1) If the FMCS BITE page is not shown, push this sequence of keys on the CDU:

- a) Push the INIT REF mode key.
- b) Push line select key (LSK) 6L, adjacent to INDEX.
- c) Push LSK 6R, adjacent to MAINT.
- d) Push the LSK adjacent to FMCS.

**HAP 037-054, 101-999**

e) Push the LSK adjacent to L FMC on the Captain's CDU.

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

**HAP ALL**

(c) Push LSK 3R, adjacent to PERF FACTR.

1) Make sure the FMCS PERF FACTORS 1/1 page is shown on the two CDUs.

(d) Make sure the two CDUs agree with the data below (Table 510):

NOTE: The values shown in the table below are factory defaults. If a different value is desired, do this task: FMCS Performance Factors - Adjustment (TASK 34-61-00-800-801).

Table 510/34-61-00-993-A23

Parameter	Value
DRAG FACTOR	+ 0.0
F-F FACTOR	+ 0.0
MNVR MARGIN	1.30
MIN CRZ TIME	1
MIN R/C	
CLB	300
CRZ	100
ENG OUT	100

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-00-760-002

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## TASK 34-61-00-800-801

### 4. FMCS Performance Factors - Adjustment

#### A. General

- (1) This task gives steps to adjust these performance factors:
  - (a) Drag factor
  - (b) F-F factor
  - (c) Maneuver margin
  - (d) Minimum cruise time
  - (e) Minimum rate of climb (climb) margin
  - (f) Minimum rate of climb (cruise) margin
  - (g) Minimum rate of climb (engine out) margin.
- (2) You can do these adjustments in sequence or one at a time. The Prepare For Test steps must be done before each adjustment or sequence of adjustments.

**NOTE:** If a factor has had its entry capability disabled by a loadable performance defaults database, you cannot change its value using this procedure. You must load a new performance defaults database with the new factor value.

- (3) The Control Display Unit (CDU) is necessary for this procedure. You can use CDU No. 1 or CDU No. 2 to do this procedure.

**NOTE:** The term 'CDU' is generic, and is used interchangeably with 'MCDU' except for specific references.

#### B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

#### C. Location Zones

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

#### D. Prepare For Test

SUBTASK 34-61-00-760-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

#### HAP 037-054, 101-999

SUBTASK 34-61-00-860-044

- (2) Set the FMC transfer switch to the NORMAL position.

#### HAP ALL

SUBTASK 34-61-00-940-001

- (3) Push this sequence of keys on the CDU:
  - (a) Push the INIT REF key.
  - (b) Push line select key (LSK) 6L, adjacent to INDEX.

EFFECTIVITY <b>HAP ALL</b>
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- (c) Push LSK 6R, adjacent to MAINT.
- (d) Push the LSK adjacent to FMCS.

### HAP 037-054, 101-999

- (e) Push the LSK adjacent to L FMC on the Captain's CDU.
- (f) Push the LSK adjacent to R FMC on the First Officer's CDU.

### HAP ALL

- (g) Push LSK 3R, adjacent to PERF FACTR.
- (h) Push this sequence of keys on the CDU: "A", "R", "M".
- (i) Push LSK 6R, adjacent to ---.

## E. Procedure

SUBTASK 34-61-00-820-001

### (1) Do this adjustment of the drag factor:

- (a) Push the sequence of keys for the new DRAG FACTOR value.

NOTE: Values between -9.9 and +9.9 (%) are permitted. The default value is +0.0 (%).

- (b) Push LSK 2L.

- 1) Make sure the new value of DRAG FACTOR is shown adjacent to LSK 2L.

SUBTASK 34-61-00-820-002

### (2) Do this adjustment of the f-f factor:

- (a) Push the sequence of keys for the new F-F FACTOR value.

NOTE: Values between -9.9 and +9.9 (%) are permitted. The default value is +0.0 (%).

- (b) Push LSK 3L.

- 1) Make sure the new value of F-F FACTOR is shown adjacent to LSK 3L.

SUBTASK 34-61-00-820-003

### (3) Do this adjustment of the maneuver margin:

**HAP 001-005; HAP 006, 007, 010-013, 015, 016, 031-037, 039, 040 POST SB 737-34-2083; HAP 008, 009, 017-026, 028-030, 038, 042-046, 054 POST SB 737-34-2107**

- (a) Push the sequence of keys for the new MNVR MARGIN value.

NOTE: Values between 1.20 and 1.60 are permitted. The default value is 1.30.

**HAP 041, 047-053, 101-999; HAP 006, 007, 010-013, 015, 016, 031-037, 039, 040 PRE SB 737-34-2083; HAP 008, 009, 017-026, 028-030, 038, 042-046, 054 PRE SB 737-34-2107**

- (b) Push the sequence of keys for the new MNVR MARGIN value.

NOTE: Values between 1.30 and 1.60 are permitted. The default value is 1.30.

### HAP ALL

- (c) Push LSK 4L.

- 1) Make sure the new value of MNVR MARGIN is shown adjacent to LSK 4L.

SUBTASK 34-61-00-820-004

### (4) Do this adjustment of the minimum cruise time:

- (a) Push the sequence of keys for the new MIN CRZ TIME value.

NOTE: Values between 1 and 20 (minutes) are permitted. The default value is 1.

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## AIRCRAFT MAINTENANCE MANUAL

(b) Push LSK 5L.

1) Make sure the new value of MIN CRZ TIME is shown adjacent to LSK 5L.

SUBTASK 34-61-00-820-005

(5) Do this adjustment of the minimum rate of climb (climb) margin:

(a) Push the sequence of keys for the new MIN R/C CLB value.

NOTE: Values between 0 and 999 are permitted. The default value is 300.

(b) Push LSK 3R.

1) Make sure the new value of MIN R/C CLB is shown adjacent to LSK 3R.

SUBTASK 34-61-00-820-006

(6) Do this adjustment of the minimum rate of climb (cruise) margin:

(a) Push the sequence of keys for the new MIN R/C CRZ value.

NOTE: Values between 0 and 999 are permitted. The default value is 100.

(b) Push LSK 4R.

1) Make sure the new value of MIN R/C CRZ is shown adjacent to LSK 4R.

SUBTASK 34-61-00-820-007

(7) Do this adjustment of the minimum rate of climb (engine out) margin:

(a) Push the sequence of keys for the new MIN R/C ENG OUT value.

NOTE: Values between 0 and 500 are permitted. The default value is 100.

(b) Push LSK 5R.

1) Make sure the new value of MIN R/C ENG OUT is shown adjacent to LSK 5R.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-00-860-039

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## FMCS CONTROL DISPLAY UNIT - MAINTENANCE PRACTICES

### 1. General

- A. This procedure contains four tasks. The first task is the cleaning of the FMCS Control Display Units (CDU) cooling vent and surfaces. The second task is the cleaning of the CDU display. The third task is the removal of the CDU keyboard. The fourth task is the installation of the CDU keyboard.
- B. You can find the CDU(s) in the flight compartment on the forward electronic panel, P9. You can replace the keyboard when one of the keys does not operate.

### HAP 012, 013, 015-026, 028-054, 101-999; HAP 001-011 POST SB 737-34-1951 GRP 1

- C. An FMC software option causes the CDU to normally show information in color. Default operation is white text on a black background.

### HAP ALL

#### TASK 34-61-01-100-801

### 2. FMCS CDU Cooling Vent and Surfaces Cleaning

Figure 201

#### A. References

Reference	Title
20-30-31-910-801	Cleaners and Polishes (P/B 201)
34-61-01-000-802	FMCS Control Display Unit (CDU) Removal (P/B 401)
34-61-01-400-802	FMCS Control Display Unit (CDU) Installation (P/B 401)

#### B. Tools/Equipment

Reference	Description
STD-1134	Vacuum - Source, 24 Inch Hg Minimum

#### C. Consumable Materials

Reference	Description	Specification
B00673	Detergent - Liquid - Liqui-Nox	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5

#### D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

#### E. Control Display Unit (CDU) Cooling Vent and Surfaces Cleaning

SUBTASK 34-61-01-020-001

- (1) Do this task: FMCS Control Display Unit (CDU) Removal, TASK 34-61-01-000-802.

SUBTASK 34-61-01-140-001

- (2) Clean the cooling vent:
  - (a) Use a vacuum ( 24 Inch Hg Minimum), STD-1134 to remove blockage from the air inlet and outlet holes on the CDU.
  - (b) Clean the grills with a paper towel or soft cloth moist with Liqui-Nox detergent, B00673, and water (TASK 20-30-31-910-801).
  - (c) Dry the grills with a cotton wiper, G00034.

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- (d) Use a vacuum ( 24 Inch Hg Minimum), STD-1134 to remove blockage from the air outlet hole below the Pilot's Forward Electronic Panel (P9).

### HAP 006-013, 015-026, 028-054, 101-999; HAP 001-005 POST SB 737-34-1951 GRP 1

SUBTASK 34-61-01-100-003

- (3) Clean the cooling vents:

- (a) Use a vacuum ( 24 Inch Hg Minimum), STD-1134 to remove blockage from the LCD backlight cooling vents, top and bottom central chamber cooling vent, and the rear chamber vent.
- (b) Inspect for any loose debris and dust buildup that remains in the vent openings.
- (c) Do these steps if any debris and dust remain in the display unit vent openings. The display unit cover panels do not need to be removed for these steps.
- 1) Use protective eyewear and dust mask as required.
  - 2) Blow pressurized air controlled at 40 to 90 psi through and around these display unit locations:
    - a) Rear chamber vent opening.
    - b) Top and bottom central chamber cooling vent. For the top vent the air should be blown toward the display unit keyboard.
    - c) LCD backlight cooling vents.
  - 3) Use the vacuum to remove dirt and dust debris.
  - 4) Repeat these cleaning steps as necessary since debris may dislodge and move into other areas of the display unit.
- (d) Inspect the LCD backlight cooling vents to make sure they are clear of debris. If significant amounts of debris still remain, this could result in a cooling airflow blockage and reduced display unit reliability.

NOTE: It is recommended that the unit be returned to the supplier for cleaning if significant debris remains after this procedure is completed.

### HAP ALL

SUBTASK 34-61-01-160-001

- (4) Do these steps to clean the CDU surfaces:
- (a) Remove dust and dirt with a vacuum ( 24 Inch Hg Minimum), STD-1134.
- (b) Clean the surfaces with a paper towel or soft cloth moist with Liqui-Nox detergent, B00673, and water (TASK 20-30-31-910-801).
- (c) Remove the remaining detergent with a cotton wiper, G00034, moist with water.

SUBTASK 34-61-01-420-001

- (5) Do this task: FMCS Control Display Unit (CDU) Installation, TASK 34-61-01-400-802.

————— END OF TASK —————

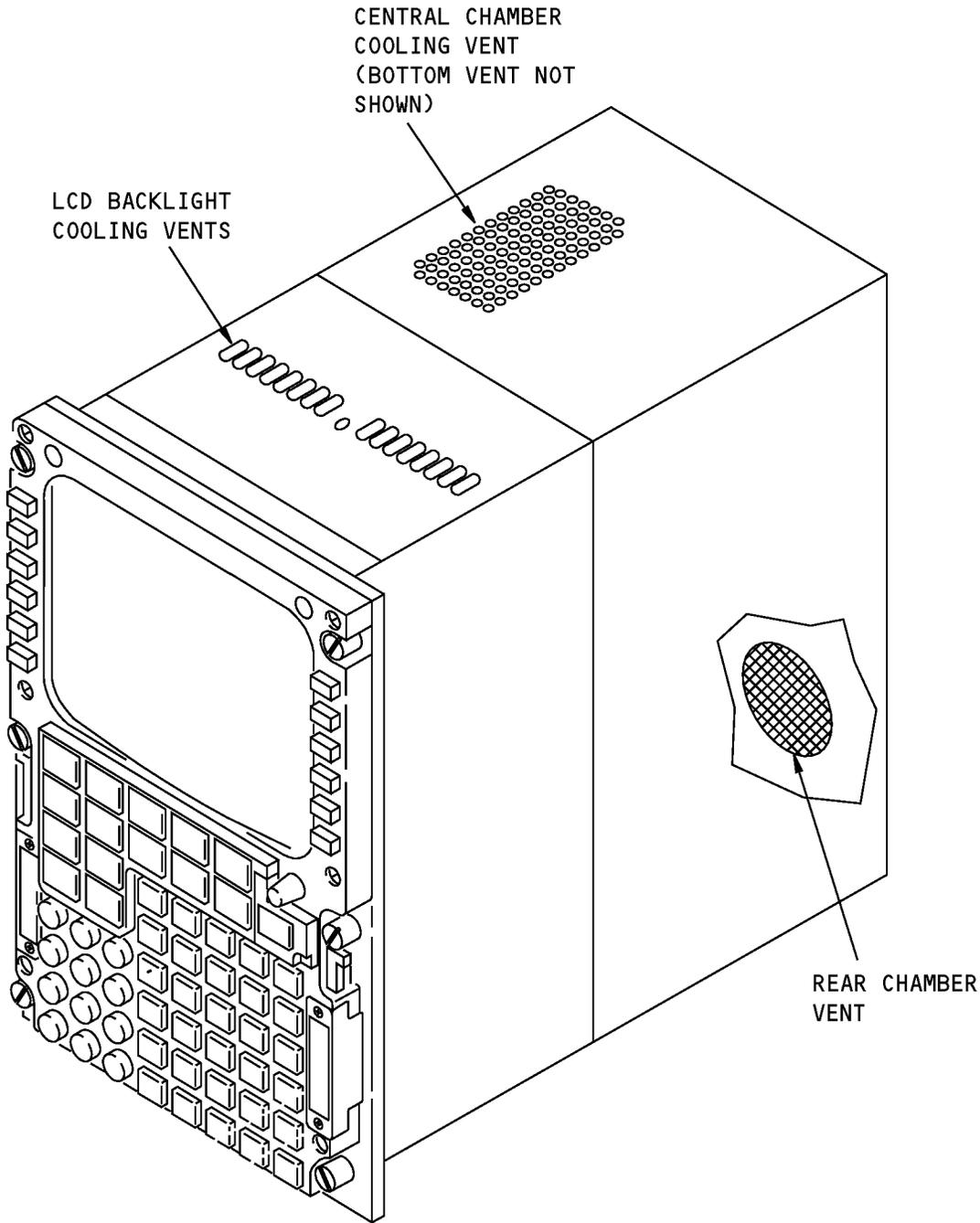
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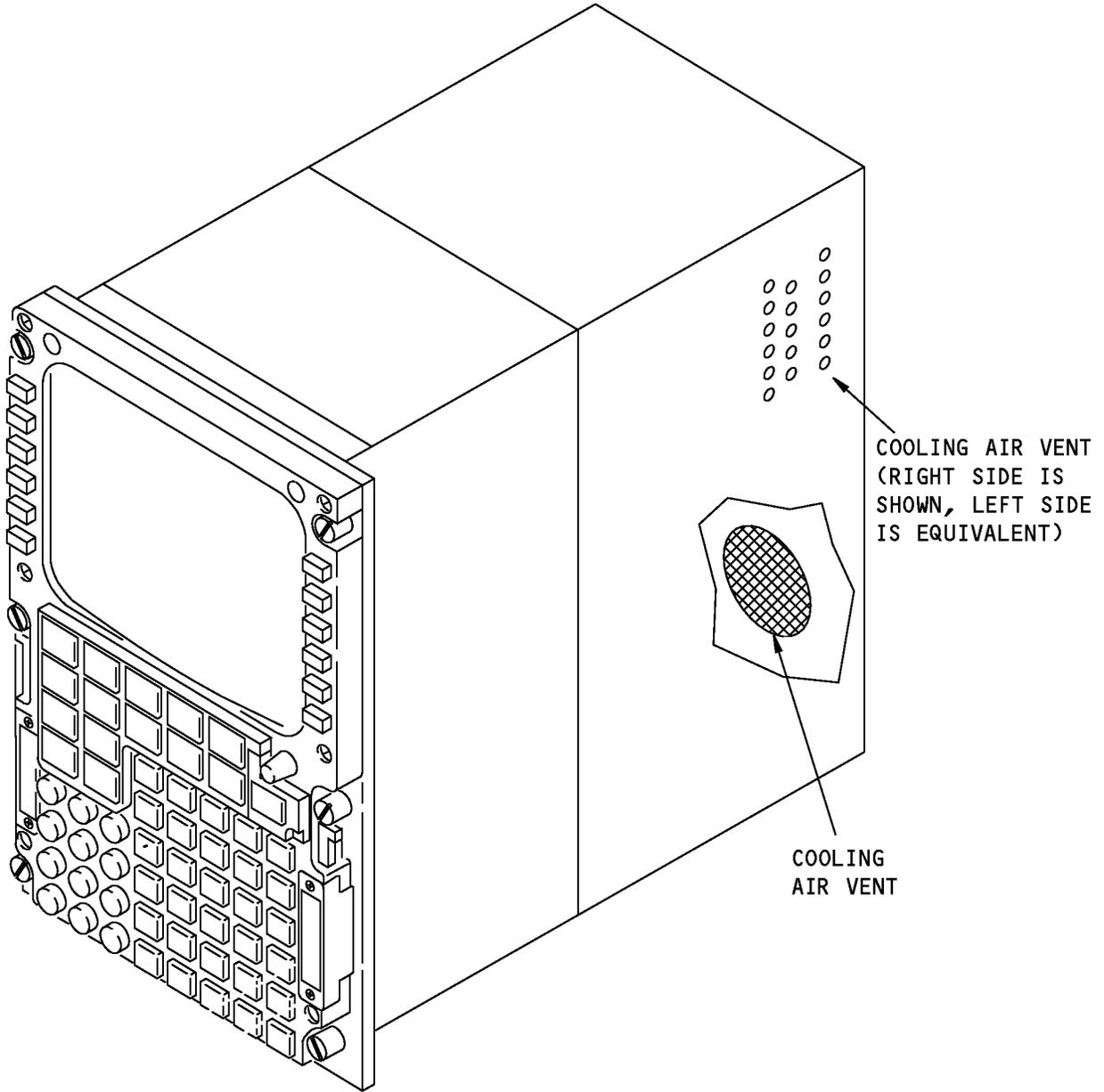


**CONTROL DISPLAY UNIT**

**Control Display Unit - Cooling Vent Locations  
Figure 201 (Sheet 1 of 2)/34-61-01-990-804**

**EFFECTIVITY**  
HAP 006-013, 015-026, 028-054, 101-999; HAP 001-005 POST  
SB 737-34-1951 GRP 1

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**CONTROL DISPLAY UNIT**

**Control Display Unit - Cooling Vent Locations  
Figure 201 (Sheet 2 of 2)/34-61-01-990-804**

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### AIRCRAFT MAINTENANCE MANUAL

#### TASK 34-61-01-100-802

#### 3. FMCS CDU Display Cleaning

##### A. Consumable Materials

Reference	Description	Specification
B50012	Cleaner - Optical Cleaning, Calotherm Solution - Supaspray	
B50013	Cloth - Calocoat Hi-Tech Lenscloth - Supacloth	
G02457	Cleaner - Wet/Dry Anti-Static Sachet - ALGLAS Visial ALG/CR 215	

##### B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

##### C. Procedure

SUBTASK 34-61-01-100-002

- (1) Clean the display surface of the FMCS control display unit (CDU) with the Supaspray cleaner, B50012, and the Supacloth cloth, B50013, or the ALGLAS Visial ALG/CR 215 cleaner, G02457:
  - (a) Apply 2 or 3 sprays of the Supaspray to the Supacloth, or open the wet sachet.
  - (b) Use the moist cloth or the wet sachet to clean the display surface in a straight line from top to bottom.
  - (c) Gradually move from one side of the display surface to the other side while you clean from top to bottom.
  - (d) When the display surface is clean, use a clean, dry area of the cloth or the dry sachet in a straight line from top to bottom to dry the display surface.

————— **END OF TASK** —————

#### TASK 34-61-01-000-801

#### 4. FMCS CDU Keyboard Removal

(Figure 202)

##### A. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

##### B. Procedure

#### HAP 001-013, 015-026, 028-036

SUBTASK 34-61-01-860-023

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

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### AIRCRAFT MAINTENANCE MANUAL

HAP 001-013, 015-026, 028-036 (Continued)

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2

#### HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC AND MCDU

SUBTASK 34-61-01-860-024

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

#### HAP 001-005; AIRPLANES WITH CRT CDU (P/N 10-XXXXX-XXX)

SUBTASK 34-61-01-020-002

(3) Do these steps to remove the Control Display Unit (CDU) keyboard:

- (a) Loosen the six captive screws that hold the keyboard to the mounting plate.
- (b) Carefully move the keyboard from the mounting plate to get access to connector J3 and P3 behind the keyboard.
- (c) Remove the two captive screws that hold connector J3 to P3.
- (d) Disconnect connector J3 from the keyboard connector P3.
- (e) Put a cover on connector J3 and cable to prevent damage.

#### HAP 006-013, 015-026, 028-054, 101-999; HAP 001-005 POST SB 737-34-1951 GRP 1; AIRPLANES WITH LCD CDUs (P/N S242A600-XXXX)

SUBTASK 34-61-01-000-001

(4) Do these steps to remove the Control Display Unit (CDU) keyboard:

- (a) Loosen the six captive screws that hold the keyboard to the front chassis.
- (b) Carefully move the keyboard away from the front chassis to get access to the cable assembly.
- (c) Remove the display gasket.
- (d) Unlock and disconnect cable assembly connector W1P1 from connector DS1J1.

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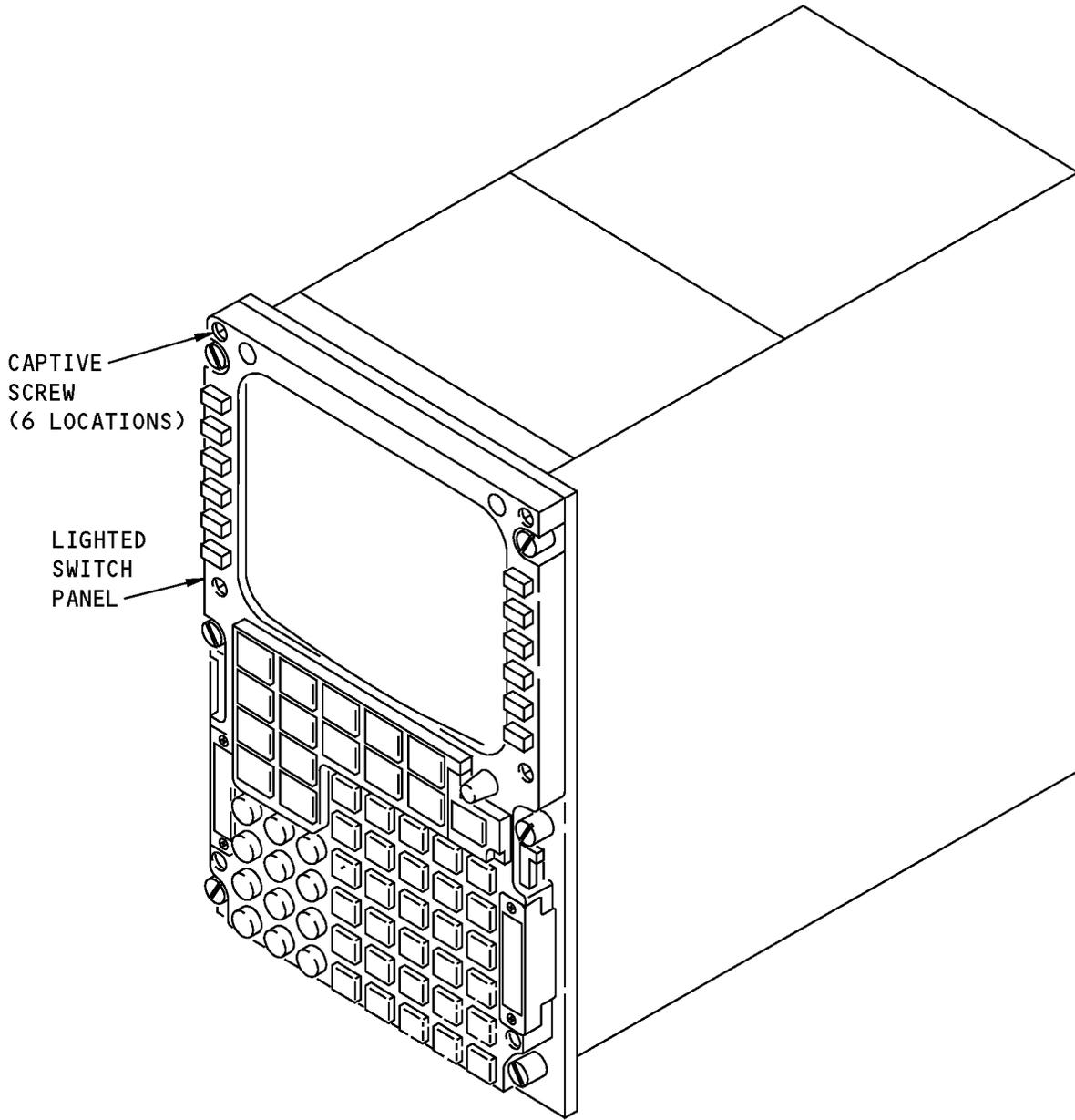
————— END OF TASK —————

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**CONTROL DISPLAY UNIT**

**Control Display Unit - Lighted Switch Panel Replacement  
Figure 202/34-61-01-990-801**

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TASK 34-61-01-400-801

5. FMCS CDU Keyboard Installation

(Figure 202)

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-61-01-710-801	CDU Lamp Test (P/B 301)

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

HAP 001-005

SUBTASK 34-61-01-420-002

(1) Do these steps to install the Control Display Unit (CDU) keyboard:

NOTE: Make sure you install a keyboard with the same part number as the one you removed.

- (a) Make sure the gasket is correctly aligned.
- (b) Connect the connector J3 to the keyboard connector P3.
- (c) Tighten the two captive screws which attach connector J3 to P3.
- (d) Tighten the six captive screws that hold the keyboard to the mounting plate.

HAP 006-013, 015-026, 028-054, 101-999; HAP 001-005 POST SB 737-34-1951 GRP 1

SUBTASK 34-61-01-400-001

(2) Do these steps to install the Control Display Unit (CDU) keyboard:

NOTE: Make sure you install a keyboard with the same part number as the one you removed.

- (a) Make sure the display gasket is correctly aligned.
- (b) Connect and lock cable assembly connector W1P1 to connector DS1J1.
- (c) Position keyboard on the front chassis.
- (d) Tighten the six captive screws that hold the keyboard to the front chassis.

HAP 001-013, 015-026, 028-036

SUBTASK 34-61-01-860-025

(3) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

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HAP 001-013, 015-026, 028-036 (Continued)

## HAP 037-054, 101-999

SUBTASK 34-61-01-860-026

(4) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

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D. CDU Keyboard Test

SUBTASK 34-61-01-860-005

(1) Prepare for the CDU keyboard test:

- (a) Make sure that the BAT switch on the Pilot's Forward Overhead Panel is in the ON position.
- (b) Set the STANDBY POWER switch on the Pilot's Forward Overhead Panel to the AUTO position.

SUBTASK 34-61-01-740-001

(2) Do these steps to do the CDU keyboard test:

- (a) Push the INIT REF key on the CDU.
- (b) Push the line select key (LSK) adjacent to INDEX.
- (c) Push the LSK adjacent to MAINT.
- (d) Push the LSK adjacent to FMCS.

## HAP 037-054, 101-999; AIRPLANES WITH DUAL FMC

- (e) Push the LSK adjacent to FMC LEFT (RIGHT).

## HAP ALL

- (f) Push the LSK adjacent to CDU TEST or LCD CDU.
- (g) Push the LSK adjacent to KEY TEST.
- (h) Make sure that the CDU display shows the legends of all the keys the same as on the CDU keyboard.
  - 1) Push each key on the CDU.
  - 2) Make sure that the same key legend on the CDU display comes on.

## HAP 001-005

- (i) Push the LSK adjacent to CDU TEST to go back to the FMCS CDU TEST 1/1 page.
- (j) Push the LSK adjacent to INDEX.

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**HAP 001-005 (Continued)**

**HAP 006-013, 015-026, 028-054, 101-999; HAP 001-005 POST SB 737-34-1951 GRP 1**

- (k) Push the LSK adjacent to INDEX to go back to the CDU MAINT BITE INDEX page.
- (l) Push the LSK adjacent to EXIT to go back to the FMCS BITE page.

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- (m) Do this task: CDU Lamp Test, TASK 34-61-01-710-801.
- E. Put the Airplane Back to Its Usual Condition
- SUBTASK 34-61-01-860-027
- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## FMCS CONTROL DISPLAY UNIT - SERVICING

### 1. General

#### HAP 001-005

- A. This procedure contains three tasks. The first task is the replacement of the lamp for the DSPY/FAIL (or CALL/FAIL) and MSG/OFST annunciators. The second task is the replacement of the lamp for the EXEC key. The third task is the CDU lamp test.
- B. You can find the FMCS control display units (CDUs) in the flight compartment on the forward electronic panel, P9. The CDU has four annunciators (DSPY or CALL, FAIL, MSG, and OFST) and a lighted EXEC key. Two of the annunciators are on the left of the CDU (DSPY or CALL/FAIL), and two are on the right of the CDU (MSG/OFST). On each side, the two annunciators lamps are attached to a circuit board assembly. The EXEC key is on the right side of the CDU. It has a lamp assembly with two lamps and a lamp holder.

#### HAP 006-013, 015-026, 028-054, 101-999; HAP 001-005 POST SB 737-34-1951 GRP 1

- C. This procedure contains the task for the CDU lamp test.
- D. You can find the FMCS control display units (CDUs) in the flight compartment on the forward electronic panel, P9. The CDU has four annunciators (DSPY or CALL, FAIL, MSG, and OFST) and a lighted EXEC key. Two of the annunciators are on the left of the CDU (DSPY or CALL/FAIL), and two are on the right of the CDU (MSG/OFST).
- E. The CDU has lamps for the annunciators and the EXEC key that are not line replaceable. This requires replacement of the keyboard or the CDU.

#### HAP 001-005

##### TASK 34-61-01-960-801

### 2. Annunciator Replacement (CRT CDU P/N 10-XXXXX-XXX)

(Figure 301)

#### A. Location Zones

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

#### B. Procedure

SUBTASK 34-61-01-860-011

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

SUBTASK 34-61-01-020-003

- (2) Remove the annunciator lamp assembly:
  - (a) Remove the two screws and lockwashers that hold the legend plate to the CDU.

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HAP 001-005 (Continued)

(b) Remove the legend plate to get access to the annunciator lamp assembly.

NOTE: Each annunciator lamp assembly has two lamps.

(c) Remove the defective annunciator lamp assembly from the circuit board assembly.

SUBTASK 34-61-01-420-004

(3) Install the annunciator lamp assembly:

(a) Install the new annunciator lamp assembly on the circuit board assembly.

(b) Put the legend plate in its position over the screw holes on the circuit board assembly.

(c) Install the lockwashers and screws that attach the legend plate to the circuit board assembly.

SUBTASK 34-61-01-860-013

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2

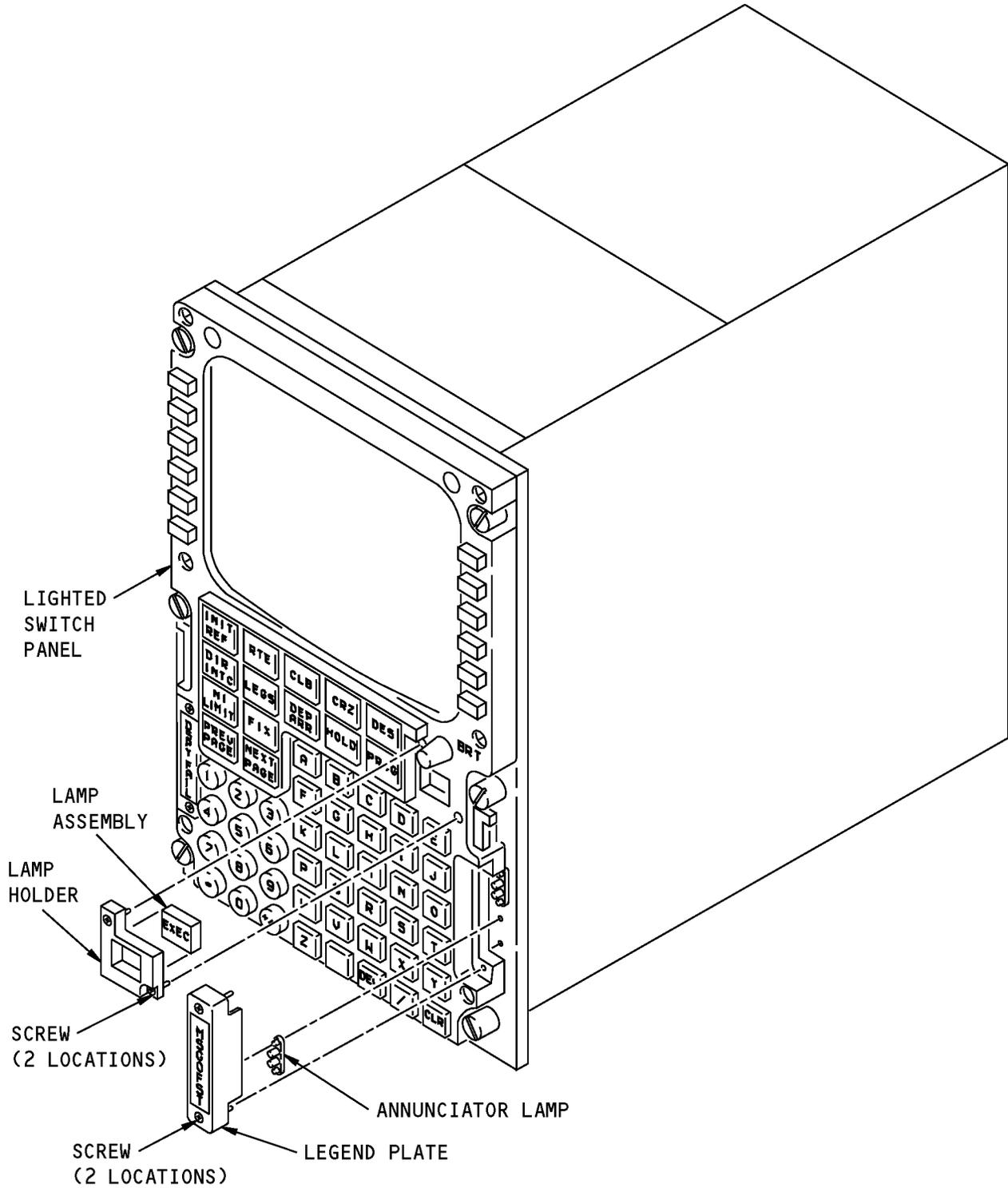
————— END OF TASK —————

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**Control Display Unit - Annunciator Lamp Replacement**  
**Figure 301/34-61-01-990-803**

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**HAP 001-005 (Continued)**

**TASK 34-61-01-960-802**

**3. EXEC Key Replacement (CRT CDU P/N 10-XXXXX-XXX)**

(Figure 301)

**A. Tools/Equipment**

Reference	Description
STD-123	Brush - Soft Bristle
STD-1134	Vacuum - Source, 24 Inch Hg Minimum

**B. Consumable Materials**

Reference	Description	Specification
B00090	Solvent - Inhibited Trichloroethane 1,1,1	MIL-T-81533

**C. Location Zones**

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

**D. Procedure**

SUBTASK 34-61-01-860-015

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

SUBTASK 34-61-01-020-004

- (2) Remove the EXEC key assembly:

- (a) Remove the two screws that hold the lamp holder to the lighted switch panel.
- (b) Remove the lamp holder from the lighted switch panel.
- (c) Remove the EXEC lamp assembly from the lamp holder.

SUBTASK 34-61-01-100-001

- (3) If the EXEC key lamp operation is intermittent, do these steps:

- (a) Remove all dust or loose dirt from the EXEC push-button housing and the EXEC lamp assembly with a soft bristle brush, STD-123.

**WARNING:** YOU MUST WEAR A FACE MASK OR GOGGLES, PLASTIC (PVA) GLOVES, AND BE IN A WELL VENTILATED AREA WHEN YOU USE TRICHLOROETHANE. TRICHLOROETHANE IS CAUSTIC AND TOXIC. IF YOU DO NOT FOLLOW THESE PRECAUTIONS, INJURY TO PERSONNEL CAN RESULT.

- (b) Clean the electrical contacts on the EXEC lamp assembly with a soft bristle brush, STD-123 and solvent, B00090.

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HAP 001-005 (Continued)

(c) Dry the EXEC lamp assembly with a vacuum ( 24 Inch Hg Minimum), STD-1134.

SUBTASK 34-61-01-420-005

(4) Install the EXEC lamp assembly:

(a) Install the new EXEC lamp assembly in the lamp holder.

(b) Put the lamp holder in its position over the screw holes on the lighted switch panel.

(c) Install the lamp holder with the two screws that attach the lamp holder to the lighted switch panel.

SUBTASK 34-61-01-860-017

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

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END OF TASK

TASK 34-61-01-710-801

4. CDU Lamp Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

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

C. Procedure

SUBTASK 34-61-01-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-01-710-002

(2) Do the CDU Lamp Test:

(a) Hold the LIGHTS switch in the TEST position. You can find the LIGHTS switch on the pilots' center instrument panel (P2).

(b) Make sure that the DSPY (or CALL), FAIL, MSG, OFST, and EXEC lights on the two CDUs come on.

(c) Set the LIGHTS switch to the BRT or DIM position if it is necessary.

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D. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-01-860-018

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## FMCS CONTROL DISPLAY UNIT - REMOVAL/INSTALLATION

### 1. General

- A. This procedure contains two tasks:
  - (1) The first task is for the removal of the flight management computer system (FMCS) control display unit (CDU)
  - (2) The second task is for the installation of the FMCS CDU.
- B. You can find the FMCS CDU No. 1 on the left corner of the Pilots' Forward Electronics Panel, P9. You can find the CDU No. 2 on the right corner of the Pilots' Forward Electronics Panel, P9.
- C. Six quick-release fasteners hold the CDU in position. An electrical connector attaches the electrical cable to a connector (J1) on the rear panel of the CDU.

### HAP 012, 013, 015-026, 028-054, 101-999; HAP 001-011 POST SB 737-34-1951 GRP 1

- D. An FMC software option causes the CDU to normally show information in color. Default operation is white text on a black background.

### HAP ALL

#### TASK 34-61-01-000-802

### 2. FMCS Control Display Unit (CDU) Removal

(Figure 401)

#### A. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

#### B. Location Zones

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

#### C. Prepare for the Removal

SUBTASK 34-61-01-860-006

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

SUBTASK 34-61-01-480-001

**WARNING:** MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. IF THE GROUND LOCKS ARE NOT INSTALLED, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure the ground locks are installed in the nose and main landing gear (TASK 32-00-01-480-801).

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### D. Procedure

SUBTASK 34-61-01-860-007

**CAUTION:** DO NOT TOUCH THE CONDUCTOR PINS OR OTHER CONDUCTORS ON THE CDU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CDU.

**CAUTION:** DO NOT LET THE CDU PUSH AGAINST OR FALL ON OTHER COMPONENTS ON THE AISLE STAND. THIS CAN OCCUR WHEN YOU DISCONNECT THE CONNECTOR FROM THE REAR OF THE CDU. DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do these steps to remove the CDU [1]:
  - (a) Loosen the six quick-release fasteners [2] on the front of the CDU [1].
  - (b) Pull the CDU [1] out of the panel until you can get access to the electrical connector [3].
  - (c) Disconnect the electrical connector [3].
  - (d) Remove the CDU [1] from the panel.
  - (e) Put a protective cover on the electrical connector [3].

————— **END OF TASK** —————

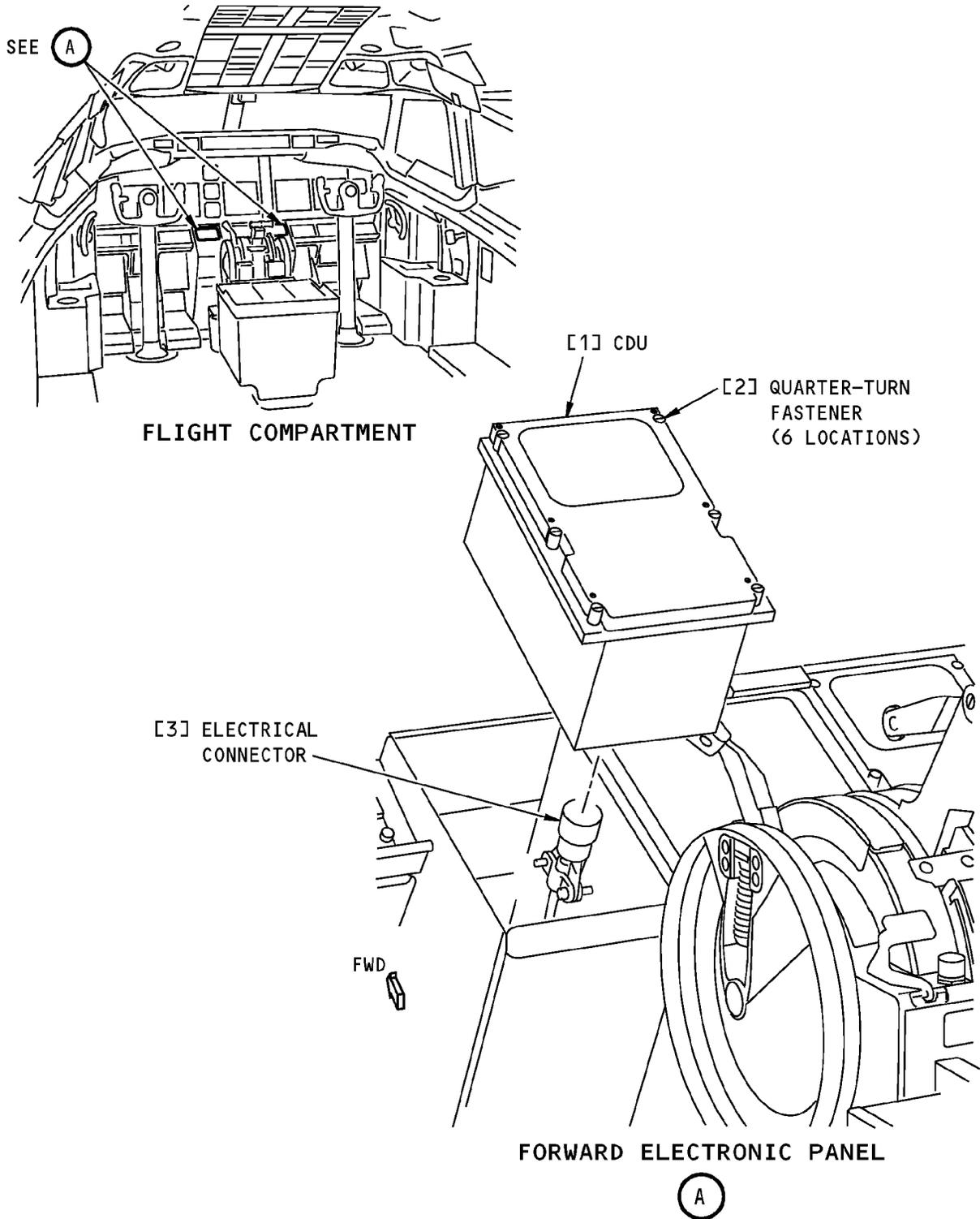
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**CDU Installation  
Figure 401/34-61-01-990-802**

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# AIRCRAFT MAINTENANCE MANUAL

**TASK 34-61-01-400-802**

## 3. FMCS Control Display Unit (CDU) Installation

(Figure 401)

### A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-61-00-750-802	CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) (P/B 201)

### B. Location Zones

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

### C. Procedure

SUBTASK 34-61-01-420-003

**CAUTION:** DO NOT TOUCH THE CONDUCTOR PINS OR OTHER CONDUCTORS ON THE CDU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CDU.

- (1) Do these steps to install the CDU [1]:
  - (a) Remove the protective cover from the electrical connector [3].
  - (b) Examine the electrical connector [3] for bent or broken pins, dirt, and damage.
  - (c) Connect the electrical connector [3] to the CDU [1].
  - (d) Carefully lower the CDU [1] into the panel.
  - (e) Tighten the six quick-release fasteners [2].

SUBTASK 34-61-01-860-020

- (2) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

**HAP 006-013, 015-026, 028-054, 101-999; HAP 001-005 POST SB 737-34-1951 GRP 1; AIRPLANES WITH LCD CDUs (P/N S242A600-XXXX)**

SUBTASK 34-61-01-470-001

- (3) To install software, do this task: CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-750-802.

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## AIRCRAFT MAINTENANCE MANUAL

### D. Installation Test

#### **HAP ALL; AIRPLANES WITH MULTI-PURPOSE CDUs**

SUBTASK 34-61-01-710-003

- (1) Do an installation test of the multi-purpose control display unit:
  - (a) Make sure that the MCDU shows < FMC on the MENU page.
  - (b) Set the MASTER DIM and TEST switch to the TEST position.
  - (c) Make sure that the CALL, FAIL, MSG, OFST, and EXEC lights on the MCDU are on.

#### **HAP ALL**

### E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-01-860-022

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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# AIRCRAFT MAINTENANCE MANUAL

## FMCS COMPUTER - REMOVAL/INSTALLATION

### 1. General

A. This procedure contains these tasks:

- (1) A removal of the FMCS computer
- (2) An installation of the FMCS computer.

B. You can find the FMCS computer in the main equipment center on the E5-2 shelf.

#### **TASK 34-61-02-000-801**

### 2. FMCS Computer Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. FMCS Computer Removal

#### **HAP 001-013, 015-026, 028-036**

SUBTASK 34-61-02-860-018

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

#### **HAP 037-054, 101-999**

SUBTASK 34-61-02-860-019

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

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HAP 037-054, 101-999 (Continued)

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

HAP ALL

SUBTASK 34-61-02-010-001

(3) To get access to the main equipment center, open this access panel:

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

SUBTASK 34-61-02-860-004

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FMCS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FMCS COMPUTER.

(4) To remove the FMCS computer [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

————— **END OF TASK** —————

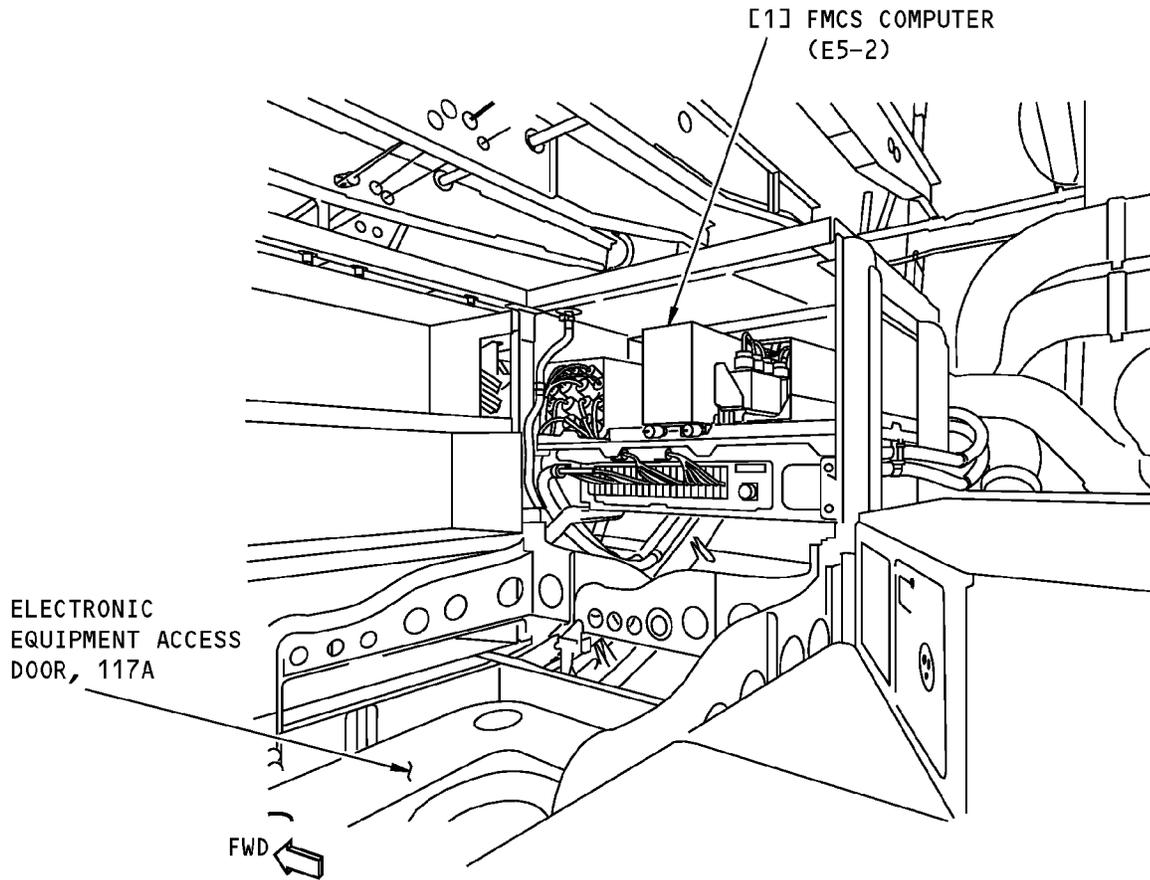
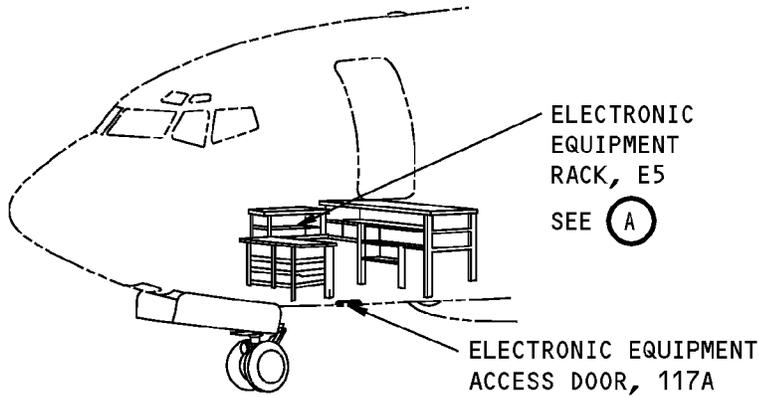
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**ELECTRONIC EQUIPMENT RACK, E5**

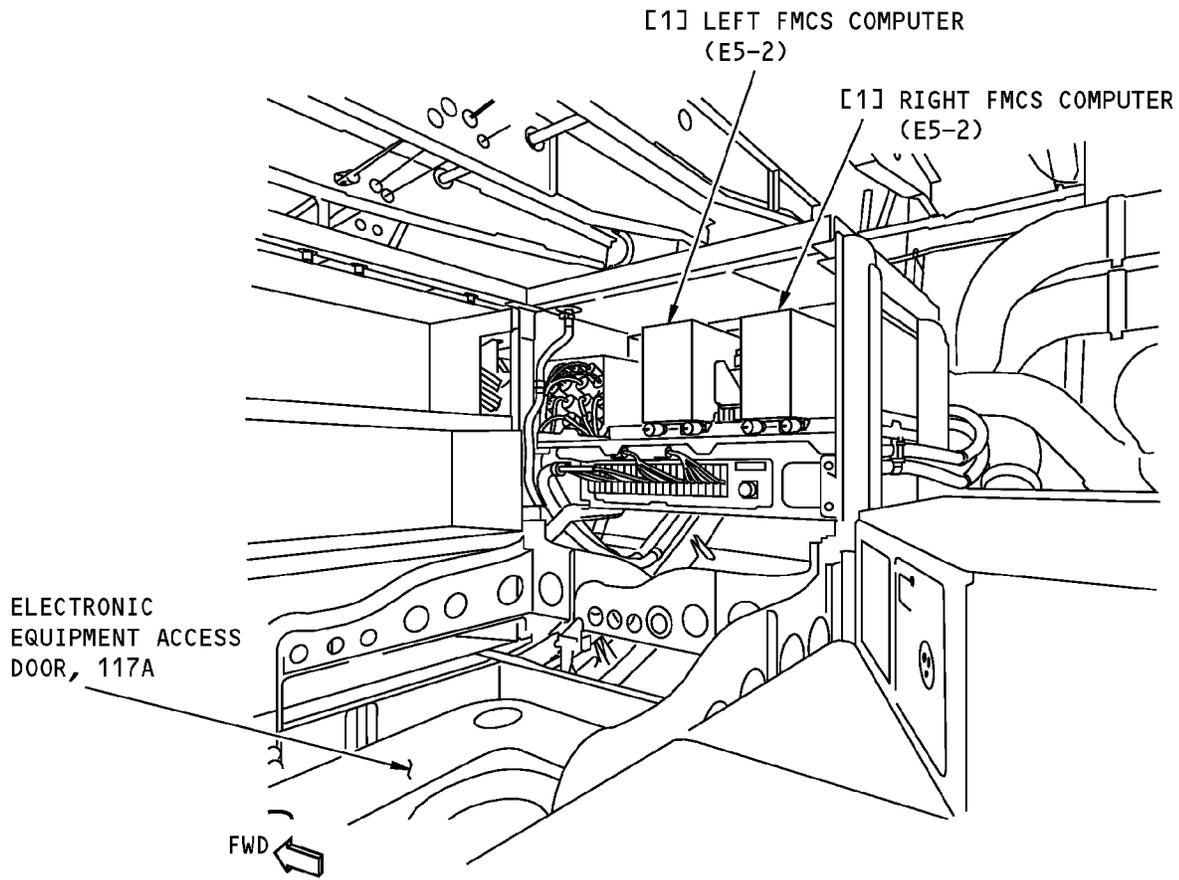
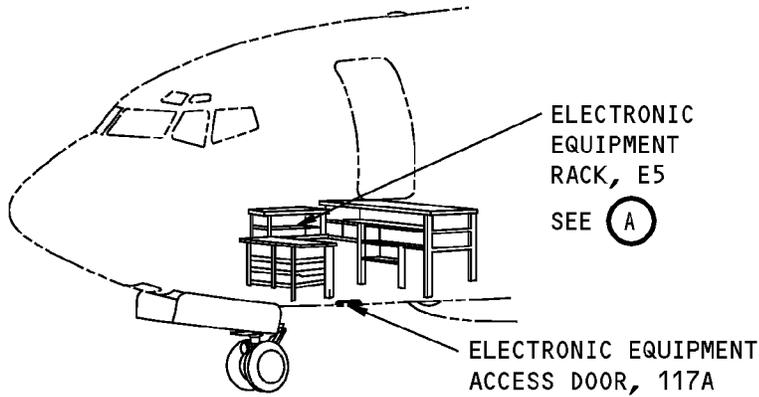
(A)

**FMCS - Computer Installation  
Figure 401 (Sheet 1 of 2)/34-61-02-990-801**

EFFECTIVITY  
HAP 001-013, 015-026, 028-036

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**ELECTRONIC EQUIPMENT RACK, E5**

(A)

**FMCS - Computer Installation  
Figure 401 (Sheet 2 of 2)/34-61-02-990-801**

EFFECTIVITY  
HAP 037-054, 101-999

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# AIRCRAFT MAINTENANCE MANUAL

**TASK 34-61-02-400-801**

## 3. FMCS Computer Installation

(Figure 401)

### A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

### B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

### C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

### D. Installation Procedure

#### **HAP 001-013, 015-026, 028-036**

SUBTASK 34-61-02-860-020

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

#### **HAP 037-054, 101-999**

SUBTASK 34-61-02-860-021

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

#### **HAP ALL**

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SUBTASK 34-61-02-860-008

**CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FMCS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FMCS COMPUTER.

(3) To install the FMCS computer [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-61-02-010-002

(4) Close this access panel:

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

**HAP 001-013, 015-026, 028-036**

SUBTASK 34-61-02-860-022

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2

**HAP 037-054, 101-999**

SUBTASK 34-61-02-860-023

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

**HAP ALL**

E. Installation Test

SUBTASK 34-61-02-710-003

(1) Do this task: Flight Management Computer System - Operational Test, TASK 34-61-00-710-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-02-860-024

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

EFFECTIVITY
HAP ALL

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# AIRCRAFT MAINTENANCE MANUAL

## AIRBORNE DATA LOADER - MAINTENANCE PRACTICES

### 1. General

- A. This procedure has the task to clean the Airborne Data Loader (ADL) head without removing the equipment from the airplane.
- B. A commercial disk drive cleaning kit may be use to clean the heads. All 3.5 inch disk drives have 2 heads (1 on each side of the diskette), so any kit will work.

### **TASK 34-61-03-100-801**

### 2. Airborne Data Loader Head Cleaning

#### A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

#### B. Location Zones

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

#### C. Procedure

SUBTASK 34-61-03-860-010

- (1) Do this task Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-03-160-001

- (2) Follow the directions supplied with the cleaning kit.

SUBTASK 34-61-03-160-002

- (3) Insert the cleaning disk in the ADL.

SUBTASK 34-61-03-860-011

- (4) Make sure the disk drive access LED goes on for approximately 1 second.

NOTE: The disk drive access LED goes on for approximately 1 second, then nothing appears to happen for several seconds (no more than 10 seconds).

SUBTASK 34-61-03-860-012

- (5) Make sure that either the CHNG or the R/W LED on the ADL goes on.

SUBTASK 34-61-03-860-013

- (6) Ignore the LED.

SUBTASK 34-61-03-020-004

- (7) Eject the cleaning disk.

SUBTASK 34-61-03-160-003

- (8) Do steps (3) thru (7) again, approximately 10 to 30 times to meet the kit cleaning directions.

NOTE: Cleaning kits normally require that the cleaning disk be in contact with the heads for 10 or 30 seconds. Each insertion of the cleaning disk causes approximately 1 second of head/disk contact. Therefore, many insertions are required.

EFFECTIVITY HAP 031-054, 101-999
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SUBTASK 34-61-03-020-005

(9) Discard the cleaning disk.

NOTE: If the cleaning kit uses a liquid on the cleaning disk, the cleaning disk may be reused on subsequent cleaning sessions. If the kit does not use a liquid (i.e., dry method), the cleaning disk should be discarded after cleaning the ADL. The dry method expects the heads to be positioned over a different track during each session. The liquid method always put the heads on the same track.

D. Put the airplane back to its usual condition.

SUBTASK 34-61-03-860-014

(1) Do this task Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

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## AIRCRAFT MAINTENANCE MANUAL

### AIRBORNE DATA LOADER - REMOVAL/INSTALLATION

#### 1. General

- A. This procedure contains two tasks. The first task is for the removal of the airborne data loader (ADL). The second task is for the installation of the ADL.
- B. You can find the ADL in the control cabin on the P61 Panel.
- C. Quick-release fasteners hold the ADL in position. One electrical connector attaches an electrical cable to the rear of the ADL.

#### **TASK 34-61-03-000-801**

#### 2. Airborne Data Loader Removal

##### A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

##### B. Location Zones

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

##### C. Procedure

SUBTASK 34-61-03-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-03-020-001

**CAUTION:** USE SPECIAL PROCEDURE TASK 20-40-12-000-802 WHEN YOU REMOVE/INSTALL THE ADL. STATIC ELECTRICAL DISCHARGE CAN CAUSE DAMAGE TO THE ELECTRONIC CIRCUITS IN THE ADL.

- (2) Release the quick-release fasteners on the front of the ADL.

SUBTASK 34-61-03-010-004

- (3) Pull the ADL out of P61 Control Panel. Disconnect the electrical connector on the rear of the ADL.

SUBTASK 34-61-03-020-003

- (4) Remove the ADL.

————— END OF TASK —————

#### **TASK 34-61-03-400-801**

#### 3. Airborne Data Loader Installation

##### A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

EFFECTIVITY HAP 031-054, 101-999; AIRPLANES WITH AN AIRBORNE DATA LOADER
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**B. Location Zones**

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

**C. Procedure**

SUBTASK 34-61-03-860-002

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

SUBTASK 34-61-03-210-001

**CAUTION:** USE SPECIAL PROCEDURE TASK 20-40-12-000-802 WHEN YOU REMOVE/INSTALL THE ADL. STATIC ELECTRICAL DISCHARGE CAN CAUSE DAMAGE TO THE ELECTRONIC CIRCUITS IN THE ADL.

- (2) Examine the ADL connect for dust, loose or bent pins.

SUBTASK 34-61-03-410-001

- (3) Connect the electrical connector to the rear of the ADL.

SUBTASK 34-61-03-420-006

- (4) Put the ADL in its position on the P61 Panel.

**NOTE:** Install the unit with the lever at the top of the ADL.

SUBTASK 34-61-03-410-002

- (5) Tighten the quick-release fasteners on the front of the ADL.

**D. Prepare for the Airborne Data Loader Installation Test**

SUBTASK 34-61-03-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

**E. Airborne Data Loader Installation Test**

SUBTASK 34-61-03-860-004

- (1) Put the ADL selector switch to the NORMAL position.

SUBTASK 34-61-03-860-005

- (2) Open the door on the ADL to gain access to the diskette drive. Remove the plastic diskette (if installed) from the diskette drive.

SUBTASK 34-61-03-860-006

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

SUBTASK 34-61-03-710-001

- (4) Make sure all the indicators on the ADL come on and then go off.

**EFFECTIVITY**  
**HAP 031-054, 101-999; AIRPLANES WITH AN AIRBORNE DATA LOADER**

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-03-860-009

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— **END OF TASK** —————

EFFECTIVITY  
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